

Proposta Comercial

Eldorado do Sul/RS, 19 de março de 2021

À Secretaria de Estadp de Desenvolvimento e Inovação do Estado de Goiás

Ref. Pregão Eletrônico nº. 001/2021 – SEDI

Item	Tipo	Especificação	UND	QTD	Valor unitário	Valor total
3.1	Microcomputador (Desktop) TIPO I	Microcomputadores com 8 GB de memória RAM, uma (1) unidade de disco rígido SSD (Solid State Drive) com capacidade de armazenamento total de 256 GB, monitor com tamanho mínimo de 21,5 polegadas, sistema operacional Windows 10. Garantia de 60 meses.	Und	12.057	R\$ 5.300,00	R\$ 63.902.100,00

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Dell Computadores do Brasil Ltda.
Juliane Rodrigues – Gerente de Vendas

Proposta Comercial

Eldorado do Sul/RS, 19 de março de 2021

À Secretaria de Estadp de Desenvolvimento e Inovação do Estado de Goiás

Ref. Pregão Eletrônico nº. 001/2021 – SEDI

Item	Tipo	Especificação	UND	QTD	Valor unitário	Valor total
3.2	Micro computador (Desktop) TIPO II	Microcomputadores com 32 GB de memória RAM, uma (1) unidade de disco rígido SSD (Solid State Drive) com capacidade de armazenamento total de 512 GB, monitor com tamanho mínimo de 23,8 polegadas, sistema operacional Windows 10. Garantia de 60 meses.	Und	2.009	R\$ 7.650,00	R\$ 15.368.850,00

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Dell Computadores do Brasil Ltda.

Juliane Rodrigues – Gerente de Vendas

Proposta Comercial

Eldorado do Sul/RS, 19 de março de 2021

À Secretaria de Estadp de Desenvolvimento e Inovação do Estado de Goiás

Ref. Pregão Eletrônico nº. 001/2021 – SEDI

Item	Tipo	Especificação	UND	QTD	Valor unitário	Valor total
3.3	Notebook	Notebooks com 8 GB de memória RAM, uma (1) unidade de disco rígido SSD (<i>Solid State Drive</i>) com capacidade de armazenamento total de 256 GB, monitor com tamanho mínimo de 14 polegadas, sistema operacional Windows 10. Garantia de 60 meses.	Und	1.457	R\$ 6.040,00	R\$ 8.800.280,00

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Dell Computadores do Brasil Ltda.

Juliane Rodrigues – Gerente de Vendas

Validade da Proposta

Conforme solicitado no edital e suas circulares, no prazo de 90 (noventa) dias.

Prazo de Entrega

Conforme solicitado no edital e suas circulares, no prazo 45 (quarenta e cinco) dias corridos, conforme termo de referência.

Prazo de Pagamento

Será realizado em conta bancária indicada pela contratada, será efetuado até 30 (trinta) dia corrido subsequente ao da entrega da NF.

Declaração

Declaramos que, nos valores apresentados acima, estão inclusos todos os tributos, custos, mão-de-obra e demais encargos necessários ao cumprimento integral do objeto deste edital e seus anexos.

Declaração

Declaramos atender a todas as condições do Edital e seus anexos.

Informações Adicionais

Contatos Comerciais

Nome	João Henrique Lopes	André Rossetto
Cargo	Executivo de Contas	Representante Interno de Vendas
Telefone	+55 31 99989 4748	+ 55 51 3274 5716
E-mail	JH_Lopes@Dell.com	Andre.Rossetto@Dell.com

Informações Bancárias

Banco	Caixa Econômica Federal
Agência	4265
Operação	003
Conta	2406-3

Representante Legal para Assinatura de Contrato/Ata de Registro de Preços

Nome	Maurício Luis Cassalta de Paula Couto
Cargo	Diretor de Contabilidade
CPF	021.055.837-76
RG	088552955 IFP RJ

Faturamento Produtos Nacionais / Importados

Produtos (nacionais e importado)	Software, Serviços de Suporte ou Serviços Profissionais
Av. Da Emancipação, 5000, Parte B Bairro Parque dos Pinheiros	Av. Industrial Belgraf, 400

Hortolândia, SP CEP 13184-654 CNPJ: 72.381.189/0010-01 Inscrição Estadual: 748.241.245.113 Inscrição Municipal: 30.340	Bairro Industrial Eldorado do Sul, RS CEP: 92990-000 CNPJ: 72.381.189/0001-10 Inscrição Estadual: 267/0013494 Inscrição Municipal: 3033-3
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Especificações Técnicas Item 01

Item: 01

Fabricante: Dell

Marca: Optiplex

Modelo: 5080SFF + P2219H

- Intel i5-10500;
- 08 GB (1 x 8 GB), DDR4, 2.666 MHz;
- Dispositivo de armazenamento em estado sólido com capacidade de 256GB tipo NVME PCI-e;
- Teclado Dell KB216 ABNT2;
- Mouse Dell MS116;
- Drive óptico DVD-RW integrado;
- Sistema Operacional Windows 10 Professional 64 bits OEM PT-BR pré-instalado com partição de restore oculta;
- Interfaces de rede conforme solicitado no Edital, suas circulares e folder do produto;
- Softwares de gerenciamento e segurança: Dell Encryption Enterprise, Dell Command, Dell OME, Dell Optimizer e SupportAssist;
- Fonte 200W EPA Platinum;
- 1 interface de video VGA adicional;
- Acessórios: Cabo de força NBR14136, adaptador de energia NBR/NEMA, cabo Y e todos os cabos e acessórios necessários para seu funcionamento;
- Monitor P2219H;
- Serviço de replicação de imagem em fábrica (será enviado equipamento de amostra para criação da imagem) com carregamento de todos os drivers de instalação e configuração para toas as placas e componentes instalados no computador;
- Será fornecida mídia única ao contratante para instalação/restauração da imagem padrão do sistema operacional mencionado em todos os equipamentos;
- Garantia de 5 Anos On-site conforme solicitado no Edital e suas circulares;
- Manuais conforme solicitado no Edital e suas circulares;
- Demais itens conforme solicitado no edital, folder do produto, atendendo 100% o mesmo e suas circulares;

Comprovação Técnica Item 01

4.1 - MICROCOMPUTADOR TIPO I				
Descrição da Característica/ Funcionalidade Exigida	Documento do Fabricante (Nome)	Página (s)	Atende ao Requisito (Sim/Não)	Texto do manual
4.1.1 - Processador.				
4.1.1.1 - Processador 64 bits, frequência mínima de 3 Ghz (sem a utilização de Boost Frequency ou TurboFrequency), 6 (seis) núcleos físicos e 12 threads	https://ark.intel.com/content/www/b r/pt/ark/products/199277/intel-core-i5-10500-processor-12m-cache-up-to-4-50-ghz.html			Frequência baseada em processador 3.10 GHz Número de núcleos 6 Nº de threads 12
4.1.1.2 - O processador deve ter capacidade de interpretar instruções de 32 bits e extensões de 64 bits;	https://ark.intel.com/content/www/b r/pt/ark/products/199277/intel-core-i5-10500-processor-12m-cache-up-to-4-50-ghz.html			Conjunto de instruções 64-bit
4.1.1.3 - Tecnologia litográfica de, no máximo, 14 nm;	https://ark.intel.com/content/www/b r/pt/ark/products/199277/intel-core-i5-10500-processor-12m-cache-up-to-4-50-ghz.html			Litografia 14 nm
4.1.1.4 - Suporte a instruções AES (Advanced Encryption Standart);	https://ark.intel.com/content/www/b r/pt/ark/products/199277/intel-core-i5-10500-processor-12m-cache-up-to-4-50-ghz.html			Novas instruções Intel® AES Sim

<p>4.1.1.5 - Memória cache total mínima de 11 (onze) MB;</p>	<p>https://ark.intel.com/content/www/b r/pt/ark/products/199277/intel-core-i5-10500-processor-12m-cache-up-to-4-50-ghz.html</p>			<p>Cache 12 MB Intel® Smart Cache</p>
<p>4.1.1.6 - Deverá possuir sistema de dissipação de calor dimensionado para a perfeita refrigeração doprocessador, considerando que este esteja operando em sua capacidade máxima, pelo período de 8 horasdiárias consecutivas, em ambiente não refrigerado;</p>	<p>DECLARAÇÃO FABRICANTE</p>			
<p>4.1.1.7 - O modelo do processador ofertado deverá ser explicitado na proposta de fornecimento. Oprocessador deverá estar em linha de produção pelo fabricante e não serão aceitos processadoresdescontinua dos.</p>	<p>DE ACORDO</p>			
<p>4.1.1.8 - Explicitar obrigatoriamente o modelo e a marca do processador ofertado na proposta.</p>	<p>DE ACORDO</p>			
<p>4.1.2 - Placa Mãe.</p>				
<p>4.1.2.1 - Deverá ser do mesmo fabricante do equipamento ofertado, não sendo de livre comercialização nomercado, sendo que o modelo e fabricante devem estar serigrafados na PCB (Printed Circuit Board) em processo industrial, cientes de que não são permitidas etiquetas ou adesivos ou quaisquer alterações namesma. A comprovação de</p>	<p>DECLARAÇÃO FABRICANTE</p>			

desenvolvimento exclusivo para o projeto deverá ser feita por meio de declaração fornecida pelo fabricante da placa principal;				
4.1.2.2 - Arquitetura PC, barramento de memória com padrão DDR4 2.666 MHz. Deve possuir pelo menos 2(dois) slots para módulo de memória que permita alcançar até 32 GB;	https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf	16		Slots Quatro slots DIMM Memória máxima 128 GB
4.1.2.3 - Deve possuir, no mínimo 2 (dois) slots M.2, sendo pelo menos um compatível com disco SSD, sem uso de placa de expansão;	https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf	17		<ul style="list-style-type: none"> • Um slot M.2 2230 para placa combinada WiFi e Bluetooth • Um slot M.2 para unidade de estado sólido 2280 PCIe/Optane ou unidade de estado sólido 2230 PCIe
4.1.2.4 - Possuir chip TPM (Trusted Platform Module) versão 2.0 integrado à placa-mãe em conformidade com as especificações do Trusted Computing Group , com fornecimento do software para implementação e gerenciamento centralizado e remoto do mesmo;	https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf	22		<p>Trusted Platform Module (TPM) 2.0,1,2 Integrado na placa de sistema</p> <p>Dell Encryption Enterprise</p>
4.1.2.5 - Deverá possuir pelo menos 8 (oito) portas USB. Uma destas deverá ser USB Tipo-C. Pelo menos 3(três) das portas USB devem ser 3.0. Pelo menos 2 (duas) das portas USB 3.0 devem estar na parte frontal do gabinete.	https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf	17		<ul style="list-style-type: none"> • Uma porta USB 2.0 com PowerShare (frontal) • Uma porta USB 3.2 Type-A de 1ª geração (frontal)

				<ul style="list-style-type: none"> • Uma porta USB 2.0 (parte frontal) • Uma porta USB 3.2 Type-C de 2ª geração (parte frontal) • Duas portas USB 2.0 com Smart Power On (parte traseira) • Quatro portas USB 3.2 Type-A de 1ª geração (parte traseira)
4.1.2.6 - A Placa mãe deve permitir o gerenciamento remoto, como acesso a BIOS, permitir iniciar o microcomputador a partir de uma imagem (.ISO) em um compartilhamento de rede ou mídia localizados em outro computador, mesmo com o equipamento desligado;	https://dl.dell.com/topicspdf/command-configure-users-guide-en-us.pdf https://dl.dell.com/topicspdf/optiplex-5080-desktop-owners-manual10-pt-br.pdf	9 32 e 27		<p>Dell Command para acesso e customizações da BIOS</p> <p>WoL + PXE para iniciar o PC remotamente a partir de uma ISO mesmo com o computador desligado</p>
4.1.2.7 - Suportar boot por pendrive ou disco conectado a uma porta USB;	https://dl.dell.com/topicspdf/optiplex-5080-desktop-owners-manual10-pt-br.pdf	27		Enable USB Boot Support (Habilitar suporte a inicialização via USB)
4.1.2.8 - Deverá possuir regulagem da velocidade de rotação de cooler da CPU de forma automática, de acordo com a variação de temperatura da CPU;	DECLARAÇÃO FABRICANTE			

4.1.2.9 - Deverá possuir uso eficiente da energia;	https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf	31		Gerenciamento de energia
4.1.2.10 - Sistema de detecção de intrusão de chassis, com acionador instalado no gabinete que permita a detecção de abertura;	https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf	22		Chave de violação do chassi Suportado
4.1.2.11 - Possuir recursos WFM 2.0 (Wired for Management) compatível com os padrões do DMTF(Distributed Management Task Force) ou tecnologia compatível que implemente recursos semelhantes;	DECLARAÇÃO FABRICANTE			
4.1.2.12 - O Chipset deverá ser do mesmo fabricante do processador ofertado;	https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf	14		Chipset Intel Q470
4.1.2.13 - Deverá ser compatível com o sistema operacional Windows 10.	https://partner.microsoft.com/en-us/dashboard/hardware/driver/downloadCertificationReport/29997800/14032157477681836/1152921505689703486			HCL Microsoft
4.1.3 - BIOS.				
4.1.3.1 - BIOS deverá ser implementada em memória "flash", atualizável diretamente pelo Windows, projetada e desenvolvida pelo mesmo fabricante do equipamento ofertado ou ter direitos (Copyright) sobre a BIOS, não sendo aceitas soluções em regime de OEM ou customizações;	DECLARAÇÃO FABRICANTE			

<p>4.1.3.2 - Deverá suportar tecnologias de integração à rede com PXE, configuração e controle remotos;</p>	<p>https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf</p>	<p>27</p>		
<p>4.1.3.3 - Suportar Boot por dispositivos USB, CD-ROM e por rede;</p>	<p>DECLARAÇÃO FABRICANTE</p>			
<p>4.1.3.4 - Compatibilidade com o padrão UEFI;</p>	<p>DECLARAÇÃO FABRICANTE</p>			
<p>4.1.3.5 - Tipo Flash Memory, utilizando memória não volátil e reprogramável, e compatível com os padrões ACPI (Advanced Configuration and Power Interface) 3.0 e Plug-and-Play;</p>	<p>DECLARAÇÃO FABRICANTE</p>			
<p>4.1.3.6 - Deverá possuir campo com número de série do equipamento, podendo ser lido remotamente via comandos SMBIOS;</p>	<p>https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf</p>	<p>34</p>		<p>Service TAG</p>
<p>4.1.3.7 - Deverá possuir campo editável, com recurso para registro de informações como, por exemplo, onúmero do patrimônio do equipamento podendo o mesmo ser lido remotamente via comandos SMBIOS;</p>	<p>https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf</p>	<p>34</p>		<p>Asset TAG</p>
<p>4.1.3.8 - Possibilidade de habilitar/desabilitar portas USB;</p>	<p>https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf</p>	<p>27</p>		<p>Configuração USB frontal Permite habilitar ou desabilitar as portas USB frontais. Todas as portas estão ativadas por padrão. Configuração USB da parte traseira Permite ativar ou desativar as portas USB traseiras. Todas as</p>

				portas estão ativadas por padrão
4.1.3.9 - O BIOS deve possuir ferramenta de diagnóstico com capacidade de executar teste de processador, memória RAM, saúde do disco rígido ou SSD, interface de rede, interface gráfica e portas USB. A mensagem de erro deverá ser o suficiente para abertura de chamado em Garantia;	DECLARAÇÃO FABRICANTE			
4.1.3.10 - Relógio de calendário em bateria não volátil;	DECLARAÇÃO FABRICANTE			
4.1.3.11 - Deverá possuir a interface de configuração em idioma em Português ou inglês;	DECLARAÇÃO FABRICANTE			
4.1.3.12 - Possuir senhas de Setup para Power On, Administrador e Disco rígido;	https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf	28		Admin Password (Senha do administrador) Permite definir, alterar ou excluir a senha do administrador (admin). System Password (Senha do sistema) Permite definir, alterar ou excluir a senha do sistema. Internal HDD-0 Password Permite definir, alterar ou excluir a

				senha do disco rígido interno do computador
4.1.3.13 - As atualizações, quando necessárias, devem ser disponibilizadas no site do fabricante;	https://www.dell.com/support/home/pt-br/product-support/product/optiplex-5080-desktop/drivers			
4.1.3.14 - Lançada a partir de 2018 e entregue na versão mais atual disponibilizada pelo fabricante;	https://www.dell.com/support/home/pt-br/drivers/driversdetails?driverid=f8dht&oscode=wt64a&productcode=optiplex-5080-desktop			Na sessão "Versão" são listadas dos as builds da BIOS. A original data de 28 de Maio de 2020.
4.1.3.15 - Deverá possuir interface gráfica acessível através de teclado e mouse;	DECLARAÇÃO FABRICANTE			
4.1.3.16 - Deverá possuir no próprio hardware cópia de segurança capaz de restauração automática em caso de falha ou arquivos corrompidos;	https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf	34		BIOS Recovery BIOS Recovery from Hard Drive (Recuperação do BIOS a partir do disco rígido): esta opção está definida por padrão. Permite recuperar o BIOS corrompido de um arquivo de recuperação no HDD ou em uma unidade USB externa

<p>4.1.3.17 - Deverá possuir ferramenta que possibilite realizar a formatação definitiva dos dispositivos dearmazenamento conectados ao equipamento. Caso esta ferramenta não seja nativa, deverá ser oficialmente homologada pelo fabricante do dispositivo.</p>	<p>https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf</p>	<p>34</p>		<p>Data Wipe (Limpeza de dados) Permite que você apague com segurança dados de todos os dispositivos internos de armazenameto.</p> <ul style="list-style-type: none"> • Wipe on Next Boot (Apagar na próxima inicialização) Essa opção não está definida por padrão
-				
4.1.4 - Memória RAM.				
<p>4.1.4.1 - Padrão DDR4 de, no mínimo, 2666 MHz, com capacidade instalada mínima de 8 GB, instalados em um único módulo (pente) de 8 GB;</p>	<p>DE ACORDO COM A PROPOSTA, ESTÁ SENDO FORNECIDO 1 MÓDULO DE 8GB DDR4 2666MHZ</p>			
<p>4.1.4.2 - O módulo de memória deve ser homologados pelo fabricante do equipamento e deve ser idêntico sem marca/modelo para cada computador fornecido;</p>	<p>DECLARAÇÃO FABRICANTE</p>			
<p>4.1.4.3 - Deverá suportar configurações de memória de canal duplo (Dual Channel Memory).</p>	<p>DECLARAÇÃO FABRICANTE</p>			
<p>4.1.4.4 - Deve adequar-se plenamente à velocidade de barramento da placa-mãe e do processador, possibilitando seu máximo aproveitamento.</p>	<p>https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf</p>	<p>16</p>		

4.1.4.5 - Deverá possuir slots livres, após a configuração final do equipamento;	https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf	16		3 slots livres
4.1.5 - Armazenamento.				
4.1.5.1 – Uma (1) unidade de disco rígido SSD (Solid State Drive), M.2 PCIe NVMe com capacidade de armazenamento total de 256 GB;	DE ACORDO COM A PROPOSTA, ESTÁ SENDO FORNECIDO SSD de 256GB PCIe NVMe M.2			
4.1.5.2 - Taxas de transferências sequenciais de leitura e gravação iguais ou superiores a 1.900MB/s e 1.000MB/s respectivamente;	DECLARAÇÃO FABRICANTE			
4.1.5.3 - O equipamento deve ser fornecido de forma a permitir que futuramente um segundo disco (HDDSATA de 2,5”) possa ser instalado sem a remoção do disco atual e sem a necessidade de instalar ou adquirir cabos e/ou adaptadores, ou seja, basta abrir o equipamento e instalar um novo disco (não é necessário fornecer disco rígido SATA);	CONFORME PROPOSTA COMERCIAL, SEGUINDO AS REGRAS DO EDITAL, SEUS QUESTIONAMENTOS COM AS RESPECTIVAS RESPOSTAS E CIRCULARES			
4.1.5.4 - Deverá possuir 01 (uma) unidade leitora e gravadora de DVD±RW interna ao gabinete.	CONFORME PROPOSTA COMERCIAL ESTÁ SENDO FORNECIDO: Unidade óptica DVD+/- RW 8x 9.5mm			
4.1.6 - Interface de Vídeo (Placa de Vídeo).				
4.1.6.1 - Controladora de vídeo HD integrada (on board);	https://ark.intel.com/content/www/b/pt/ark/products/199277/intel-core-i5-10500-processor-12m-cache-up-to-4-50-ghz.html			Integrada ao processador

<p>4.1.6.2 - Compartilhando no mínimo 512MB de memória;</p>	<p>https://ark.intel.com/content/www/br/pt/ark/products/199277/intel-core-i5-10500-processor-12m-cache-up-to-4-50-ghz.html</p>			<p>Quantidade máxima de memória gráfica de vídeo 64 GB</p>
<p>4.1.6.3 - Driver disponível para o sistema operacional Windows;</p>	<p>https://www.dell.com/support/home/pt-br/drivers/driversdetails?driverid=4tpgf&oscode=wt64a&productcode=optiplex-5080-desktop</p>			<p>Sistemas compatíveis OptiPlex 5080 Sistemas operacionais compatíveis Windows 10, 64-bit Aplica-se a Intel HD Graphics Intel HD Graphics 510/530/630</p>
<p>4.1.6.4 - Suporte à DirectX 12 ou superior;</p>	<p>https://ark.intel.com/content/www/br/pt/ark/products/199277/intel-core-i5-10500-processor-12m-cache-up-to-4-50-ghz.html</p>			<p>Suporte para DirectX* 12</p>
<p>4.1.6.5 - Suporte à OpenGL 4.4 ou superior;</p>	<p>https://ark.intel.com/content/www/br/pt/ark/products/199277/intel-core-i5-10500-processor-12m-cache-up-to-4-50-ghz.html</p>			<p>Suporte para OpenGL* 4.5</p>
<p>4.1.6.6 - Suporte à OpenCL 2.0 ou superior;</p>	<p>https://www.intel.com.br/content/www/br/pt/support/articles/00000524/graphics.html</p>			<p>Processadores Intel® Core™ Gráficos HD Intel® 610 / 615 / 620 / 630 OpenCL* 2.1</p>
<p>4.1.6.7 - Duas (2) conexões digitais padrão DisplayPort e/ou HDMI e 1 (uma) conexão VGA (DB15), sendo aceito o uso</p>	<p>https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf</p>	<p>17</p>		<ul style="list-style-type: none"> • Duas portas DisplayPort 1.4 (parte traseira)

de adaptadores para suprir a conexão VGA;				<ul style="list-style-type: none"> • Uma terceira porta de vídeo opcional (VGA/DP/HD MI/ 2.0b/USB Type-C)
4.1.6.8 - Deverá ser compatível com uso de 3 monitores de vídeo simultaneamente;	https://ark.intel.com/content/www/b r/pt/ark/products/199277/intel-core-i5-10500-processor-12m-cache-up-to-4-50-ghz.html			Nº de monitores aceitos ≠ 3
4.1.7 - Unidade de Som (Placa de Som)				
4.1.7.1 - Placa de som on board;	https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf	19		Audio
4.1.7.2 - Compatível com o padrão “High Definition audio”;	https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf	19		Interface de áudio interna Áudio Intel HDA (áudio de alta definição)
4.1.7.3 - Deve possuir alto-falante interno com potência mínima de 1 W, conectado à saída de som interna da placa-mãe. O alto-falante em questão não é o buzzer da placa-mãe, mas um substituto às caixas de som externas;	https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf	19		Saída do alto-falante: Saída média do alto-falante 2 W Saída de pico do alto-falante 2,5 W
4.1.7.4 - Quando for conectado o fone de ouvido no conector frontal, o alto-falante interno deve ser automaticamente desabilitado, evitando o indesejável efeito de som de duas fontes simultâneas e diferentes. Este conjunto de som interno deve ser a principal fonte de som do equipamento, sendo possível a reprodução de áudio sem a conexão de	DECLARAÇÃO FABRICANTE			

nenhum dispositivo externo. Não serão aceitas quaisquer adaptações sobre o gabinete original para se atingir essa exigência.				
4.1.8 - Interface de rede (Placa de Rede).				
4.1.8.1 - Placa de rede integrada padrão Gigabit Ethernet (10/100/1000 Base-T) com conector RJ-45 fêmea integrada à placa-mãe, com suporte mínimo às velocidades de transferência de 10/100/1000Mbps;	https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf	18		Número do modelo Intel i219-LM Taxa de transferência 10/100/1000 Mbps
4.1.8.2 - Suporte a PXE (Pre-Boot eXecution), para realizar instalação remota através da rede;	https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf	27		Permite gerenciar o controlador de LAN integrado. A opção "Enable UEFI Network Stack" (Habilitar a pilha de rede UEFI) não está selecionada por padrão. As opções são: <ul style="list-style-type: none"> • Desativado • Ativada • Enabled w/PXE (Habilitado com PXE) (padrão)
4.1.8.3 - Suporte a ativação remota do microcomputador pela rede Wake-On-Lan;	https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf	32		Wake on LAN/WWAN

4.1.8.4 - LEDs indicadores de atividade de rede;	https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf	11		10. Porta RJ-45 de 10/100/1000 Mbps
4.1.8.5 - Suporte em gerenciamento no padrão ACPI;	DECLARAÇÃO FABRICANTE			
4.1.8.6 - Compatível com o padrão DMI 2.0 ou superior.	DECLARAÇÃO FABRICANTE			
4.1.9 -Teclado.				
4.1.9.1 - Teclado padrão Brasileiro ABNT2 com 107 teclas, com todos os caracteres da língua portuguesa;	DECLARAÇÃO FABRICANTE			
4.1.9.2 - Teclas não apagáveis, possuindo gravação das teclas que permita o uso prolongado sem que a impressão dos caracteres nas mesmas se apague;	DECLARAÇÃO FABRICANTE			
4.1.9.3 - Mínimo de duas posições para regulagem de altura;	DECLARAÇÃO FABRICANTE			
4.1.9.4 - Recurso de drenagem ou resistência a respingos acidentais;	DECLARAÇÃO FABRICANTE			
4.1.9.5 - Conexão USB com o computador sem uso de adaptadores;	DECLARAÇÃO FABRICANTE			
4.1.9.6 - Possuir 12 (doze) teclas de função (F1-F12) na porção superior do teclado. As teclas de função deverão ser acionadas diretamente, ou seja, sem a combinação com teclas secundárias;	DECLARAÇÃO FABRICANTE			
4.1.9.7 - LEDs indicadores de teclado numérico habilitado e de tecla Caps Lock pressionada;	DECLARAÇÃO FABRICANTE			
4.1.9.8 - Possuir bloco numérico separado das demais teclas;	DECLARAÇÃO FABRICANTE			
4.1.9.9 - Teclas Windows logo (acesso ao menu iniciar) e aplicação (acesso ao menu de atalhos: equivalente ao botão direito do mouse);	DECLARAÇÃO FABRICANTE			

4.1.9.10 - No caso de fornecimento de teclas de desligamento, hibernação e espera, as mesmas devem vir naparte superior do teclado;	N/A			
4.1.9.11 - Durante o período de garantia, caso existam teclados com a impressão desgastada por uso, elesdeverão ser substituídos sem custos para a contratante;	DECLARAÇÃO FABRICANTE			
4.1.9.12 - Deverá ser do mesmo fabricante do microcomputador ofertado;	DECLARAÇÃO FABRICANTE			
4.1.9.13 - Deverá ser fornecido na cor preta;	DECLARAÇÃO FABRICANTE			
4.1.9.14 - A garantia do teclado deverá ser prestada pelo fabricante nas mesmas condições do equipamento;	DECLARAÇÃO FABRICANTE			
4.1.10 - Mouse				
4.1.10.1 - Mouse óptico ambidestro, com dois botões e tecla de rolagem (botão para scroll);	DECLARAÇÃO FABRICANTE			
4.1.10.2 - Conexão USB com o computador sem uso de adaptadores. A conexão deverá ser com fio;	DECLARAÇÃO FABRICANTE			
4.1.10.3 - Resolução mínima de 1.000 dpi;	DECLARAÇÃO FABRICANTE			
4.1.10.4 - A garantia do mouse deverá ser prestada pelo fabricante nas mesmas condições do equipamento;	DECLARAÇÃO FABRICANTE			
4.1.10.5 - Deverá ser do mesmo fabricante do microcomputador ofertado;	DECLARAÇÃO FABRICANTE			
4.1.10.6 - Deverá ser fornecido na cor preta;	DECLARAÇÃO FABRICANTE			
4.1.10.7 - Não serão aceitos minimouses;	N/A			
4.1.11 – Fonte de Alimentação.				

<p>4.1.11.1 - Fonte de alimentação para corrente alternada com tensões de entrada de 100 a 240 VAC (+/-10%),50-60Hz com seleção automática de tensão;</p>	<p>https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf</p>	<p>20</p>		<p>90 V CA a 264 V CA 47 Hz a 63 Hz</p>
<p>4.1.11.2 - Deve possuir potência suficiente para suportar todos os dispositivos internos na configuração máxima admitida pelo equipamento (placa principal, interfaces, discos rígidos, memória RAM e demais periféricos);</p>	<p>DECLARAÇÃO FABRICANTE</p>			
<p>4.1.11.3 - Implemente eficiência igual ou superior a 92% de eficiência quando em 50% da carga de trabalho(utilizando tensão de alimentação 200 volts corrente alternada);</p>	<p>https://cleareresult5.sharepoint.com/sites/PLS/Shared%20Documents/Forms/AllItems.aspx?id=%2Fsites%2FPLS%2FShared%20Documents%2FDELL%20Inc%2E%5FAC200EPS%2D00%5F200W%5FSOCE%205743%5FReport%2Epdf&parent=%2Fsites%2FPLS%2FShared%20Documents&p=true&originalPath=aHR0cHM6Ly9jbGVhcmVzdWx0NS5zaGFyZXBvaW50LmNvbS86Yjovcy9QTFMvRWRaUHozTlhTck5EbU8tLXFITEQ2TVICRIk5M01GYkotdmJhWEZBcm5oLVBPdz9ydGltZT1RUI9SZlplbzJFZW</p>			
<p>4.1.11.4 - Deve ser comprovadamente aderente à Portaria 170/2012 do INMETRO. Possuir baixo nível de ruído conforme ISO 9296 ou equivalente.</p>	<p>http://www.inmetro.gov.br/prodcert/certificados/lista.asp</p> <p>https://downloads.dell.com/rdoc/dell%20optiplex%205080%20sf%20d15s%20d15s001%20dell%20regulatory%20and%20environmental%20datasheet%20en-us.pdf</p>	<p>5</p>		<p>Buscar pelo modelo regulatório D15S, correspondente ao 5080SFF</p> <p>Declared noise emission values in accordance with ISO 9296. Testing performed in compliance with ISO 7779 with operating modes defined by ECMA-74</p>
<p>4.1.12 - Gabinete</p>				

<p>4.1.12.1 - Design do tipo compacto (mini desktop - Small Form Factor);</p>	<p>https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf</p>	<p>1</p>		<p>Small Form Factor (Formato pequeno na tradução)</p>
<p>4.1.12.2 - Gabinete projetado com design específico para trabalhar tanto na posição horizontal quanto navertical, caso seja necessário a base pé(s) adaptador(es) para a torre, o mesmo deverá ser fornecido;</p>	<p>DECLARAÇÃO FABRICANTE</p>			
<p>4.1.12.3- O gabinete não poderá ultrapassar o volume de 11 litros. A capacidade em litro é medida através damultiplicação da Altura x Largura x Profundidade do gabinete;</p>	<p>https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf</p>	<p>13</p>		<p>Altura: Frente 290 mm (11,42 pol.) Parte traseira 290 mm (11,42 pol.) Largura 92,60 mm (3,65 pol.) Profundidade 292,80 mm (11,53 pol.)</p>
<p>4.1.12.4 - Deverá possuir 01 (uma) baia de 2,5 polegadas interna;</p>	<p>https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf</p>	<p>19</p>		<p>Armazenamento</p>
<p>4.1.12.5 - Deverá possuir pelo menos 8 (oito) portas USB. Uma destas deverá ser USB Tipo-C. Pelo menos 3(três) das portas USB devem ser 3.0 ou superior. Pelo menos 2 (duas) das portas USB 3.0 devem estar naparte frontal do gabinete;</p>	<p>https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf</p>	<p>17</p>		<ul style="list-style-type: none"> • Uma porta USB 2.0 com PowerShare (frontal) • Uma porta USB 3.2 Type-A de 1ª geração (frontal) • Uma porta USB 2.0 (parte frontal) • Uma porta USB 3.2 Type-C de 2ª geração (parte frontal)

				<ul style="list-style-type: none"> • Duas portas USB 2.0 com Smart Power On (parte traseira) • Quatro portas USB 3.2 Type-A de 1ª geração (parte traseira)
4.1.12.6 - As interfaces deverão ser disponibilizadas sem a utilização de hubs ou portas USB instaladas em qualquer tipo de adaptador PCI;	DE ACORDO, DISPONIBILIZADAS DE ACORDO COM INFORMAÇÕES DO MANUAL DO EQUIPAMENTO			
4.1.12.7 - Possuir conectores para microfone e fones de ouvido no painel frontal ou interface frontal COMBO e uma interface de saída na parte traseira do gabinete;	https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf	17		Um conector de áudio universal (parte frontal) <ul style="list-style-type: none"> • Uma porta de áudio de entrada de linha que redistribui a saída de linha (parte traseira)
4.1.12.8 - O botão de liga/desliga e luzes de indicação de atividade da unidade de disco rígido e de computador ligado (power-on) devem ser posicionados no painel frontal do gabinete;	https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf	10		1. Botão liga/desliga com LED de diagnóstico 3. Indicador de atividade do disco rígido
4.1.12.9 - Deve possuir alto-falante integrado, com capacidade de reproduzir os sons gerados pelo sistema operacional e alarmes gerados por problemas de inicialização. Não serão aceitas adaptações;	https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf	19		Número de alto-falantes Um (opcional)
4.1.12.10 - O alto-falante deverá se desligar automaticamente, sem a	DECLARAÇÃO FABRICANTE			

necessidade de qualquer intervenção do usuário, quando forem conectados fones de ouvido ou caixas de som externas;				
4.1.12.11 - O sistema de refrigeração deve ser adequado ao processador e demais componentes internos aogabinete, para garantir a temperatura de funcionamento e vida útil dos componentes. Solução de refrigeração,monitorada pela BIOS ou por ACPI, dimensionado para a perfeita refrigeração dos componentes internos,operando em sua capacidade máxima, pelo período mínimo de dez horas diárias consecutivas em ambiente não refrigerado;	DECLARAÇÃO FABRICANTE			
4.1.12.12 - Acabamento interno com superfícies não cortantes, inclusive nas entradas de ar;	DECLARAÇÃO FABRICANTE			
4.1.12.13 - Deverá ser fornecido na cor preta ou prata ou combinação dessas. A cor preta deve ser apredominante;	https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf	10		Chassi Este capítulo ilustra as várias vistas de chassis
4.1.12.14 - Possuir orifício para colocação de cadeado que impeça o acesso aos componentes internos e orifício para fixação de trava do tipo Kensington ou Noble, sem que haja adaptações ao mesmo;	https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf	11		11. Slot do cabo de segurança Kensington
4.4.12.15 - As unidades do equipamento deverão ser entregues devidamente acondicionadas em embalagens individuais adequadas, que utilizem preferencialmente materiais recicláveis, de forma a garantir a máximaproteção durante o transporte e a armazenagem.	DECLARAÇÃO FABRICANTE			

4.1.13 - Sistema Operacional				
4.1.13.1 - O equipamento deverá ser entregue com uma licença do Sistema Operacional Microsoft Windows10 Professional 64 bits, em português do Brasil;	CONFORME PROPOSTA COMERCIAL			
4.1.13.2 - O equipamento deverá ser entregue com HD contendo a imagem padrão customizada pela Contratante;	CONFORME PROPOSTA COMERCIAL			
4.1.13.3 - A proponente vencedora deverá, antes do fornecimento dos equipamentos, enviar uma amostra do mesmo ao contratante para configuração e geração do HD padrão, contendo o sistema operacional Microsoft Windows 10 Professional, 64 bits, bem como todos os drivers e softwares solicitados devidamente instalados;	CONFORME PROPOSTA COMERCIAL			
4.1.13.4 - Todos os equipamentos ofertados deverão possuir disco rígido com a imagem do HD padrão;	CONFORME PROPOSTA COMERCIAL			
4.1.13.5 - Deve ser fornecida mídia única ao contratante para instalação/restauração da imagem padrão do sistema operacional mencionado em todos os equipamentos. Não será permitido fornecimento de uma mídia por equipamento ofertado;	CONFORME QUESTIONAMENTO			
4.1.13.6 - Deverá possuir integrado ou deverá estar disponível para download software desenvolvido pelo fabricante do equipamento com suporte a efetuar download de atualizações de drivers, consultar vigência de garantia entre outros;	https://www.dell.com/support/content/pt-br/article/product-support/self-support-knowledgebase/software-and-downloads/supportassist			

<p>4.1.13.7 - Deverá possuir integrado ou deverá estar disponível para download software que possibilite apagar de forma definitiva e irrecuperável todos os dados armazenados no disco rígido, permitindo o descarte seguro de seus equipamentos;</p>	<p>https://www.dell.com/support/kbdoc/pt-br/000146892/dell-data-wipe</p>			
<p>4.1.13.8 - Deverá possuir integrado ou deverá estar disponível para download software que permite averificação e instalação das últimas atualizações de todas as ferramentas disponíveis pelo fabricante;</p>	<p>https://www.dell.com/support/contents/pt-br/article/product-support/self-support-knowledgebase/software-and-downloads/supportassist</p>			
<p>4.1.14 - Acessórios</p>				
<p>4.1.14.1 - Todos os cabos de energia elétrica e conectores necessários para o funcionamento dos equipamentos deverão ser fornecidos com comprimento mínimo de 1,5m (um metro e cinquenta centímetros) e deverão seguir o padrão NBR-14136. Deverá ser fornecido cabo único de energia (formato em Y) para ligação do Gabinete e Monitor à tomada e deve também ser fornecido o adaptador de fonte elétrica no padrão novo (fêmea – NBR 14136) para o padrão antigo (macho – 2P+T (NEMA 5-15P)). Após a configuração completa, o equipamento deverá utilizar apenas uma tomada da rede elétrica;</p>	<p>CONFORME PROPOSTA COMERCIAL</p>			
<p>4.1.14.2 - Drivers de instalação e configuração para todas as placas e componentes instalados no computador;</p>	<p>CONFORME PROPOSTA COMERCIAL</p>			

<p>4.1.14.3 - A documentação de instalação e configuração deverá ser fornecida impressa ou em mídia DVD/CD, em idioma Português (do Brasil), contendo orientações para a configuração e operação do produto fornecido.</p>	<p>CONFORME QUESTIONAMENTO</p>			
<p>4.1.15 - Monitor</p>				
<p>4.1.15.1 - Um (01) Monitor LED ou IPS e no mínimo 21 polegadas na diagonal;</p>	<p>CONFORME PROPOSTA COMERCIAL</p>			<p>-</p>
<p>4.1.15.2 - Deverá possuir ajuste de altura, inclinação e rotação (pivot 90°);</p>	<p>https://downloads.dell.com/manuals/all-products/esuprt_electronics_accessories/esuprt_electronics_accessories_monitors/dell-p2219h-monitor_user%27s-guide_pt-br.pdf</p>	<p>14</p>		<p>Suporte de altura ajustável 130 mm Inclinação -5° a 21° Giro -45° a 45° Pivô -90° a 90°</p>
<p>4.1.15.3 - Tempo de resposta de no máximo 8 ms;</p>	<p>https://downloads.dell.com/manuals/all-products/esuprt_electronics_accessories/esuprt_electronics_accessories_monitors/dell-p2219h-monitor_user%27s-guide_pt-br.pdf</p>			<p>Tempo de resposta 8 ms (Normal) 5 ms (Rápido)</p>
<p>4.1.15.4 - Resolução FULL HD de 1920 x 1080 @ 60 Hz;</p>	<p>https://downloads.dell.com/manuals/all-products/esuprt_electronics_accessories/esuprt_electronics_accessories_monitors/dell-p2219h-monitor_user%27s-guide_pt-br.pdf</p>	<p>16</p>		<p>Modelo P2219H/P2319H/P2419H/P2719H Taxa de escaneamento horizontal 30 kHz a 83 kHz (automático) Taxa de escaneamento vertical 56 Hz</p>

				a 76 Hz (automático) Mais alta resolução de préajuste 1920 x 1080 a 60 Hz
4.1.15.5 - Brilho de no mínimo 250 cd/m ² ;	https://downloads.dell.com/manuals/all-products/esuprt_electronics_accessories/esuprt_electronics_accessories_monitors/dell-p2219h-monitor_user%27s-guide_pt-br.pdf	13		Saída de iluminação 250 cd/m ² (típico)
4.1.15.6 - Conectores DisplayPort, HDMI e VGA (DB15) análogo;	https://downloads.dell.com/manuals/all-products/esuprt_electronics_accessories/esuprt_electronics_accessories_monitors/dell-p2219h-monitor_user%27s-guide_pt-br.pdf	14		Portas e conectores • 1 x DisplayPort versão 1.2 • 1 x porta HDMI versão 1.4 • 1 x porta VGA • 1 x porta USB 3.0 a montante (parte inferior) • 2 x portas USB 3.0 a jusante (lateral) • 2 x portas USB 2.0 a jusante (parte inferior)

<p>4.1.15.7 - Pixel Pitch de no máximo 0,27 mm;</p>	<p>https://downloads.dell.com/manuals/all-products/esuprt_electronics_accessories/esuprt_electronics_accessories_monitors/dell-p2219h-monitor_user%27s-guide_pt-br.pdf</p>	<p>13</p>		<p>Pontos Pixel 0,248 mm x 0,248 mm</p>
<p>4.1.15.8 - Contraste estático de, no mínimo, 1000:1</p>	<p>https://downloads.dell.com/manuals/all-products/esuprt_electronics_accessories/esuprt_electronics_accessories_monitors/dell-p2219h-monitor_user%27s-guide_pt-br.pdf</p>	<p>13</p>		<p>Taxa de contraste 1000 a 1 (típico)</p>
<p>4.1.15.9 - Ângulo de visão horizontal 170° e vertical de no mínimo 160°;</p>	<p>https://downloads.dell.com/manuals/all-products/esuprt_electronics_accessories/esuprt_electronics_accessories_monitors/dell-p2219h-monitor_user%27s-guide_pt-br.pdf</p>	<p>13</p>		<p>Ângulo de visualização 178° (vertical) típico 178° (horizontal) típico</p>
<p>4.1.15.10 - Número de cores mínimo de 16,2 milhões;</p>	<p>https://downloads.dell.com/manuals/all-products/esuprt_electronics_accessories/esuprt_electronics_accessories_monitors/dell-p2219h-monitor_user%27s-guide_pt-br.pdf</p>	<p>13</p>		<p>Profundidade da cor 16,7 milhões de cores</p>

<p>4.1.15.11 - Ajustes de Imagem desejáveis: Contraste, Brilho, Posição (Vertical e Horizontal), Auto ajuste;</p>	<p>https://downloads.dell.com/manuals/all-products/esuprt_electronics_accessories/esuprt_electronics_accessories_monitors/dell-p2219h-monitor_user%27s-guide_pt-br.pdf</p>	<p>42,43 E 49</p>	<p>Uso do Menu de Visualização na Tela (OSD) Brilho/contraste</p> <p>Use este menu para ativar os ajustes de Brilho/contraste.</p> <p>Ajuste automático Use esse menu para ativar o menu de ajuste e configuração automática</p> <p>Posição horizontal Use ou para ajustar a imagem à esquerda ou direita. O mínimo é '0' (-). O máximo é '100' (+).</p> <p>Posição vertical Use ou para ajustar a imagem para cima ou para baixo. O mínimo é '0' (-). O máximo é '100' (+).</p>
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<p>4.1.15.12 - Menu Digital no idioma português ou inglês;</p>	<p>https://downloads.dell.com/manuals/all-products/esuprt_electronics_accessories/esuprt_electronics_accessories_monitors/dell-p2219h-monitor_user%27s-guide_pt-br.pdf</p>	<p>50</p>		<p>Idioma Ajusta a exibição OSD para um dos oito idiomas (Inglês, Espanhol, Francês, Alemão, Português do Brasil, Russo, Chinês Simplificado ou Japonês).</p>
<p>4.1.15.13 - Certificações: Energy Star ou INMETRO (Portaria 170/2012), EPEAT, RoHS e TCO;</p>	<p>https://downloads.dell.com/rdoc/dell%20monitor%20p2219h%20p2219hb%20n_a%20dell%20regulatory%20and%20environmental%20datasheet%20en-us.pdf</p> <p>https://www.epeat.net/product-details/808336f1958343adaea3b8dc4afcd276?backUrl=%252Fcomputers-and-displays-search-result%252Fpage-1%252Fsize-25%253FproductName%253DP2219H</p> <p>https://downloads.dell.com/rdoc/dell%20monitor%20p2219h%20p2219hb%20n_a%20european%20union%20-%20declaration%20of%20conformity%20en-us.pdf</p>	<p>3</p> <p>1</p>		<p>Global ENERGY STAR Certified Global TCO Certified Display Certified</p> <p>EPEAT Tier: Gold</p> <p>The object of the declaration described above is in conformity with the following Directives:</p> <ul style="list-style-type: none"> • DIRECTIVE 2014/30/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 26 February 2014 on the harmonisation of the laws of the Member

			<p>States relating to electromagnetic compatibility (recast)</p> <ul style="list-style-type: none">• DIRECTIVE 2014/35/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 26 February 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits <p>• Directive 2011/65/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment</p> <ul style="list-style-type: none">• Directive
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				2009/125/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 21 October 2009 establishing a framework for the setting of ecodesign requirements for energy- related products
4.1.15.14 - Um (1) cabo DisplayPort ou HDMI que permita a instalação do monitor à CPU sem o uso de adaptadores;	https://downloads.dell.com/manuals/all-products/esuprt_electronics_accessories_monitors/dell-p2219h-monitor_user%27s-guide_pt-br.pdf	6 E 7		Conteúdo da Embalagem
4.1.15.15 - O cabo de conexão à rede elétrica deverá seguir o padrão NBR-14136;	CONFORME PROPOSTA COMERCIAL			

<p>4.1.15.16 - Deverá ter fonte de energia, instalada internamente ao gabinete do monitor com seleção automática de voltagem 100-240 VAC e 50/60 Hz;</p>	<p>https://downloads.dell.com/manuals/all-products/esuprt_electronics_accessories/esuprt_electronics_accessories_monitors/dell-p2219h-monitor_user%27s-guide_pt-br.pdf</p>	<p>18</p>		<p>Voltagem/freqüência/corrente de entrada CA 100 VCA a 240 VCA / 50 Hz ou 60 Hz ± 3 Hz / 1,5 A (típico)</p>
<p>4.1.15.17 - Led indicativo de equipamento ligado;</p>	<p>https://downloads.dell.com/manuals/all-products/esuprt_electronics_accessories/esuprt_electronics_accessories_monitors/dell-p2219h-monitor_user%27s-guide_pt-br.pdf</p>	<p>9</p>		<p>2 Botão liga/desliga (com LED indicador)</p>
<p>4.1.15.18 - Deverá possuir certificação de segurança UL ou IEC 60950 emitido por órgão acreditado pelo INMETRO ou similar internacional;</p>	<p>https://downloads.dell.com/rdoc/dell%20monitor%20p2219h%20p2219hb%20na%20european%20union%20-%20declaration%20of%20conformity%20en-us.pdf</p> <p>Anexo 01</p> <p>https://www.nwemc.com/news/2020/08/27/en-iec-62368-1-product-safety-standard-overview</p>	<p>1</p>		<p>SAFETY: EN 62368-1:2014 EN 62311:2008 IEC 62368</p>

<p>4.1.15.19 - Deverá ser comprovada adequação a norma ISO/IEC 61000 ou equivalente;</p>	<p>https://downloads.dell.com/rdoc/dell%20monitor%20p2219h%20p2219hb%20na%20european%20union%20-%20declaration%20of%20conformity%20en-us.pdf</p>	<p>1</p>		<p>EN 61000-3-2:2014 (Class D) EN 61000-3-3:2013</p>
<p>4.1.15.20 - As unidades do equipamento deverão ser entregues devidamente acondicionadas em embalagens individuais adequadas, que utilizem preferencialmente materiais recicláveis, de forma a garantir a máxima proteção durante o transporte e a armazenagem;</p>	<p>DECLARAÇÃO FABRICANTE</p>			
<p>4.1.15.21 - Deverá ser fornecido na cor preta ou prata ou combinação dessas. A cor preta deve ser apredominante;</p>	<p>https://downloads.dell.com/manuals/all-products/esuprt_electronics_accessories/esuprt_electronics_accessories_monitors/dell-p2219h-monitor_user%27s-guide_pt-br.pdf</p>	<p>9 e 10</p>		<p>Vista Frontal Vista Posterior</p>
<p>4.1.15.22 - Possuir orifício para fixação de cadeado do tipo Kesington ou Noble;</p>	<p>https://downloads.dell.com/manuals/all-products/esuprt_electronics_accessories/esuprt_electronics_accessories_monitors/dell-p2219h-monitor_user%27s-guide_pt-br.pdf</p>	<p>10</p>		<p>4 Ranhura de trava de segurança Segura o monitor com trava de segurança (trava de segurança não inclusa).</p>
<p>4.1.15.23 - O equipamento deverá, comprovadamente, pertencer à linha corporativa, não sendo aceitosequipamentos destinados ao uso doméstico;</p>	<p>DECLARAÇÃO DO FABRICANTE</p>			

<p>4.1.15.24 - Deverá ser do mesmo fabricante do equipamento cotado ou em regime de OEM (OriginalEquipment Manufacturer). Caso seja em regime de OEM, deverá possuir garantia fornecida de forma legal pelo fabricante do equipamento, sendo que a logo marca serigrafada no monitor deverá ser do mesmofabricante do Computador.</p>	<p>https://downloads.dell.com/manuals/all-products/esuprt_electronics_accessories/monitors/dell-p2219h-monitor_user%27s-guide_pt-br.pdf</p>	<p>1</p>		<p>Dell</p>

Especificações Técnicas Item 02

Item: 02

Fabricante: Dell

Marca: Optiplex

Modelo: 5080SFF + P2419H

- Intel i7-10700;
- 32 GB (2 x 16 GB), DDR4, 2.666 MHz;
- Dispositivo de armazenamento em estado sólido com capacidade de 512GB tipo NVME PCI-e;
- Teclado Dell KB216 ABNT2;
- Mouse Dell MS116;
- Drive óptico DVD-RW integrado;
- Sistema Operacional Windows 10 Professional 64 bits OEM PT-BR pré-instalado com partição de restore oculta;
- Interfaces de rede conforme solicitado no Edital, suas circulares e folder do produto;
- Softwares de gerenciamento e segurança: Dell Encryption Enterprise, Dell Command, Dell OME, Dell Optimizer e SupportAssist;
- Fonte 200W EPA Platinum;
- 1 interface de vídeo VGA adicional;
- Acessórios: Cabo de força NBR14136, adaptador de energia NBR/NEMA, cabo Y e todos os cabos e acessórios necessários para seu funcionamento;
- Monitor P2219H;
- Serviço de replicação de imagem em fábrica (será enviado equipamento de amostra para criação da imagem) com carregamento de todos os drivers de instalação e configuração para todas as placas e componentes instalados no computador;
- Será fornecida mídia única ao contratante para instalação/restauração da imagem padrão do sistema operacional mencionado em todos os equipamentos;
- Garantia de 5 Anos On-site conforme solicitado no Edital e suas circulares;
- Manuais conforme solicitado no Edital e suas circulares;
- Demais itens conforme solicitado no edital, folder do produto, atendendo 100% o mesmo e suas circulares;

Comprovação Técnica Item 2

4.2 - MICROCOMPUTADOR TIPO II				
Descrição da Característica/ Funcionalidade Exigida	Documento do Fabricante (Nome)	Página (s)	Atende ao Requisito (Sim/Não)	Texto do manual
4.2.1 – Processador.				
4.2.1.1 - Processador 64 bits, frequência mínima de 2,9 Ghz (sem a utilização de Boost Frequency ou Turbo Frequency), pelo menos 8 núcleos físicos e 16 threads.	https://ark.intel.com/content/www/br/pt/ark/products/199316/intel-core-i7-10700-processor-16m-cache-up-to-4-80-ghz.html			Número de núcleos 8 Nº de threads 16 Frequência baseada em processador 2.90 GHz
4.2.1.2 - O processador deve ter capacidade de interpretar instruções de 32 bits e extensões de 64 bits;	https://ark.intel.com/content/www/br/pt/ark/products/199316/intel-core-i7-10700-processor-16m-cache-up-to-4-80-ghz.html			Conjunto de instruções 64-bit
4.2.1.3 - Tecnologia litográfica de, no máximo, 14 nm;	https://ark.intel.com/content/www/br/pt/ark/products/199316/intel-core-i7-10700-processor-16m-cache-up-to-4-80-ghz.html			Litografia 14 nm
4.2.1.4 - Suporte a instruções AES (Advanced Encryption Standart);	https://ark.intel.com/content/www/br/pt/ark/products/199316/intel-core-i7-10700-processor-16m-cache-up-to-4-80-ghz.html			Novas instruções Intel® AES Sim

<p>4.2.1.5 - Memória cache total mínima de 12 (doze) MB;</p>	<p>https://ark.intel.com/content/www/br/pt/ark/products/199316/intel-core-i7-10700-processor-16m-cache-up-to-4-80-ghz.html</p>			<p>Cache 16 MB Intel® Smart Cache</p>
<p>4.2.1.6 - Deverá possuir sistema de dissipação de calor dimensionado para a perfeita refrigeração do processador, considerando que este esteja operando em sua capacidade máxima, pelo período de 8 horas diárias consecutivas, em ambiente não refrigerado;</p>	<p>DECLARAÇÃO FABRICANTE</p>			
<p>4.2.1.7 - O modelo do processador ofertado deverá ser explicitado na proposta de fornecimento. O processador deverá estar em linha de produção pelo fabricante e não serão aceitos processadores descontinuados;</p>	<p>CONFORME PROPOSTA COMERCIAL</p>			
<p>4.2.1.9 - Explicitar obrigatoriamente o modelo e a marca do processador oferta;</p>	<p>CONFORME PROPOSTA COMERCIAL</p>			
<p>4.2.1.10 - Suportar tecnologia de virtualização.</p>	<p>https://ark.intel.com/content/www/br/pt/ark/products/199316/intel-core-i7-10700-processor-16m-cache-up-to-4-80-ghz.html</p>			<p>Tecnologia de virtualização Intel® (VT-x) ‡ Sim</p> <p>Tecnologia de virtualização Intel® para E/S dirigida (VT-d) ‡ Sim</p>
<p>4.2.1.11 - Com processamento gráfico integrado.</p>	<p>https://ark.intel.com/content/www/br/pt/ark/products/199316/intel-core-i7-10700-processor-16m-cache-up-to-4-80-ghz.html</p>			<p>Gráficos do processador ‡ Gráficos UHD Intel® 630</p>

4.2.2 - Placa Mãe.				
4.2.2.1 - Deverá ser do mesmo fabricante do equipamento ofertado, não sendo de livre comercialização no mercado, sendo que o modelo e fabricante devem estar serigrafados na PCB (Printed Circuit Board) em processo industrial, cientes de que não são permitidas etiquetas ou adesivos ou quaisquer alterações na mesma. A comprovação de desenvolvimento exclusivo para o projeto deverá ser feita por meio de declaração fornecida pelo fabricante da placa principal;	DECLARAÇÃO FABRICANTE			
4.2.2.2 - Arquitetura PC, barramento de memória com padrão DDR4 2.666 MHz. Deve possuir pelo menos 4 (quatro) slots para módulo de memória que permita alcançar até 64 GB;	https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf	16		Slots Quatro slots DIMM Memória máxima 128 GB
4.2.2.3 - Deve possuir, no mínimo 2 (dois) slots M.2, sendo pelo menos um compatível com disco SSD, sem uso de placa de expansão;	https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf	17		<ul style="list-style-type: none"> Um slot M.2 2230 para placa combinada WiFi e Bluetooth Um slot M.2 para unidade de estado sólido 2280 PCIe/Optane ou unidade de estado sólido 2230 PCIe
4.2.2.4 - Possuir chip TPM (Trusted Platform Module) versão 2.0 integrado à placa-mãe em conformidade com as especificações do Trusted Computing Group, com fornecimento do software para implementação e gerenciamento centralizado e remoto do mesmo;	https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf	22		Trusted Platform Module (TPM) 2.01,2 Integrado na placa de sistema Dell Encryption Enterprise

<p>4.2.2.5 - Deverá possuir pelo menos 8 (oito) portas USB. Uma destas deverá ser USB Tipo-C. Pelo menos 3(três) das portas USB devem ser 3.0 ou superior. Pelo menos 2 (duas) das portas USB 3.0 devem estar naparte frontal do gabinete;</p>	<p>https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf</p>	<p>17</p>		<ul style="list-style-type: none"> • Uma porta USB 2.0 com PowerShare (frontal) • Uma porta USB 3.2 Type-A de 1ª geração (frontal) • Uma porta USB 2.0 (parte frontal) • Uma porta USB 3.2 Type-C de 2ª geração (parte frontal) • Duas portas USB 2.0 com Smart Power On (parte traseira) • Quatro portas USB 3.2 Type-A de 1ª geração (parte traseira)
<p>4.2.2.6 - A Placa mãe deve permitir o gerenciamento remoto, como acesso a BIOS, permitir iniciar omicrocomputador a partir de uma imagem (.ISO) em um compartilhamento de rede ou mídia localizados emoutro computador, mesmo com o equipamento desligado;</p>	<p>https://dl.dell.com/topicspdf/command-configure_users-guide_en-us.pdf</p> <p>https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf</p>	<p>9 32 e 27</p>		<p>Dell Command para acesso e customizações da BIOS</p> <p>WoL + PXE para iniciar o PC remotamente a partir de uma ISO mesmo com o computador desligado</p>
<p>4.2.2.7 - Suportar boot por pendrive ou disco conectado a uma porta USB;</p>	<p>https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf</p>	<p>27</p>		<p>Enable USB Boot Support (Habilitar suporte a inicialização via USB</p>
<p>4.2.2.8 - Deverá possuir regulagem da velocidade de rotação de cooler da CPU de forma automática, deacordo com</p>	<p>DECLARAÇÃO FABRICANTE</p>			

a variação de temperatura da CPU;				
4.2.2.9 - Deverá possuir uso eficiente da energia;	https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf	31		Gerenciamento de energia
4.2.2.10 - Sistema de detecção de intrusão de chassis, com acionador instalado no gabinete que permita adeteccção de abertura;	https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf	22		Chave de violação do chassi Suportado
4.2.2.11 - Possuir recursos WFM 2.0 (Wired for Management) compatível com os padrões do DMTF(Distributed Management Task Force) ou tecnologia compatível que implemente recursos semelhantes;	DECLARAÇÃO FABRICANTE			
4.2.2.12 - O Chipset deverá ser do mesmo fabricante do processador ofertado;	https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf	14		Chipset Intel Q470
4.2.2.13 - Deverá ser compatível com o sistema operacional Windows 10.	https://partner.microsoft.com/en-us/dashboard/hardware/driver/downloadCertificationReport/29997800/14032157477681836/1152921505689703486			HCL Microsoft
4.2.3 – BIOS.				
4.2.3.1 - BIOS deverá ser implementada em memória "flash", atualizável diretamente pelo Windows, projetada e desenvolvida pelo mesmo fabricante do equipamento ofertado ou ter direitos (Copyright) sobreessa BIOS, não sendo aceitas soluções em regime de OEM ou customizações;	DECLARAÇÃO FABRICANTE			

4.2.3.2 - Deverá suportar tecnologias de integração à rede com PXE, configuração e controle remotos;	https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf	27		
4.2.3.3 - Suportar Boot por dispositivos USB, CD-ROM e por rede;	DECLARAÇÃO FABRICANTE			
4.2.3.4 - Compatibilidade com o padrão UEFI;	DECLARAÇÃO FABRICANTE			
4.2.3.5 - Tipo Flash Memory, utilizando memória não volátil e reprogramável, e compatível com os padrões ACPI (Advanced Configuration and Power Interface) 3.0 e Plug-and-Play;	DECLARAÇÃO FABRICANTE			
4.2.3.6 - Deverá possuir campo com número de série do equipamento, podendo ser lido remotamente via comandos SMBIOS;	https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf	34		Service TAG
4.2.3.7 - Deverá possuir campo editável, com recurso para registro de informações como, por exemplo, o número do patrimônio do equipamento podendo o mesmo ser lido remotamente via comandos SMBIOS;	https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf	34		Asset TAG
4.2.3.8 - Possibilidade de habilitar/desabilitar portas USB;	https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf	27		Configuração USB frontal Permite habilitar ou desabilitar as portas USB frontais. Todas as portas estão ativadas por padrão. Configuração USB da parte traseira Permite ativar ou desativar as portas USB traseiras. Todas as portas estão

				ativadas por padrão
4.2.3.9 - O BIOS deve possuir ferramenta de diagnóstico com capacidade de executar teste de processador, memória RAM, saúde do disco rígido ou SSD, interface de rede, interface gráfica e portas USB. A mensagem de erro deverá ser o suficiente para abertura de chamado em Garantia;	DECLARAÇÃO FABRICANTE			
4.2.3.10 - Relógio de calendário em bateria não volátil;	DECLARAÇÃO FABRICANTE			
4.2.3.11 - Deverá possuir a interface de configuração em idioma em Português ou inglês;	DECLARAÇÃO FABRICANTE			
4.2.3.12 - Possuir senhas de Setup para Power On , Administrador e Disco rígido;	https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf	28		Admin Password (Senha do administrador) Permite definir, alterar ou excluir a senha do administrador (admin). System Password (Senha do sistema) Permite definir, alterar ou excluir a senha do sistema. Internal HDD-0 Password Permite definir, alterar ou excluir a senha do disco rígido

				interno do computador
4.2.3.13 - As atualizações, quando necessárias, devem ser disponibilizadas no site do fabricante;	https://www.dell.com/support/home/pt-br/product-support/product/optiplex-5080-desktop/drivers			
4.2.3.14 - Lançada a partir de 2018 e entregue na versão mais atual disponibilizada pelo fabricante.	https://www.dell.com/support/home/pt-br/drivers/driversdetails?driverid=f8dht&oscode=wt64a&productcode=optiplex-5080-desktop			Na sessão "Versão" são listadas dos as builds da BIOS. A original data de 28 de Maio de 2020.
4.2.3.15 - Deverá possuir interface gráfica acessível através de teclado e mouse;	DECLARAÇÃO FABRICANTE			
4.2.3.16 - Deverá possuir no próprio hardware cópia de segurança capaz de restauração automática em caso de falha ou arquivos corrompidos;	https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf	34		BIOS Recovery BIOS Recovery from Hard Drive (Recuperação do BIOS a partir do disco rígido): esta opção está definida por padrão. Permite recuperar o BIOS corrompido de um arquivo de recuperação no HDD ou em uma unidade USB externa

<p>4.2.3.17 - Deverá possuir ferramenta que possibilite realizar a formatação definitiva dos dispositivos de armazenamento conectados ao equipamento. Caso esta ferramenta não seja nativa, deverá ser oficialmente homologada pelo fabricante do dispositivo.</p>	<p>https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf</p>	<p>34</p>		<p>Data Wipe (Limpeza de dados) Permite que você apague com segurança dados de todos os dispositivos internos de armazenamento</p> <ul style="list-style-type: none"> • Wipe on Next Boot (Apagar na próxima inicialização) Essa opção não está definida por padrão
-				
4.2.4 - Memória RAM.				
<p>4.2.4.1 - Padrão DDR4 de, no mínimo, 2666 MHz, com capacidade instalada mínima de 32 GB, instalados em 2 ou 4 pentes de memória;</p>	<p style="color: red;">DE ACORDO COM A PROPOSTA, ESTÁ SENDO FORNECIDO 2 MÓDULOS DE 16GB DDR4 2666MHZ</p>			
<p>4.2.4.2 - Os módulos de memória devem ser homologados pelo fabricante do equipamento e serem idênticos em marca/modelo para cada computador fornecido.</p>	<p>DECLARAÇÃO FABRICANTE</p>			
<p>4.2.4.3 - Deverá suportar configurações de memória de canal duplo (Dual Channel Memory);</p>	<p>DECLARAÇÃO FABRICANTE</p>			
<p>4.2.4.4 - Deve adequar-se plenamente à velocidade de barramento da placa-mãe e do processador, possibilitando seu máximo aproveitamento;</p>	<p>https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf</p>	<p>16</p>		
<p>4.2.4.5 - Deveram sobrar slots livres após a configuração final do equipamento, permitindo a expansão para pelo menos 64 GB de memória total com a adição de novo(s) pente(s) de memória;</p>	<p>https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf</p>	<p>16</p>		<p style="color: red;">2 slots livres</p>

4.2.5 - Armazenamento.				
4.2.5.1 – Uma (1) unidade de disco rígido SSD (Solid State Drive), M.2 PCIe NVMe com capacidade de armazenamento total de 512 GB;	DE ACORDO COM A PROPOSTA, ESTÁ SENDO FORNECIDO SSD de 512GB PCIe NVMe M.2, classe 35			
4.2.5.2 - Taxas de transferências sequenciais de leitura e gravação iguais ou superiores a 2.700MB/s e 1.000MB/s respectivamente;	DECLARAÇÃO FABRICANTE			
4.2.5.3 - O equipamento deve ser fornecido de forma a permitir que futuramente um segundo disco (HDD SATA de 2,5”) possa ser instalado sem a remoção do disco atual e sem a necessidade de instalar ou adquirir cabos e/ou adaptadores, ou seja, basta abrir o equipamento e instalar um novo disco (não é necessário fornecer disco rígido SATA);	CONFORME PROPOSTA COMERCIAL, SEGUINDO AS REGRAS DO EDITAL, SEUS QUESTIONAMENTOS COM AS RESPECTIVAS RESPOSTAS E CIRCULARES			
4.2.5.4 - Deverá possuir 01 (uma) unidade leitora e gravadora de DVD±RW interna ao gabinete.	CONFORME PROPOSTA COMERCIAL ESTÁ SENDO FORNECIDO: Unidade óptica DVD+/- RW 8x 9.5mm			
4.2.6 - Interface de Vídeo (Placa de Vídeo):				
4.2.6.1 - Controladora de vídeo HD integrada;	https://ark.intel.com/content/www/br/pt/ark/products/199277/intel-core-i5-10500-processor-12m-cache-up-to-4-50-ghz.html			Integrada ao processador
4.2.6.2 - Compartilhando no mínimo 512 MB de memória;	https://ark.intel.com/content/www/br/pt/ark/products/199277/intel-core-i5-10500-processor-12m-cache-up-to-4-50-ghz.html			Quantidade máxima de memória gráfica de vídeo 64 GB

<p>4.2.6.3 - Driver disponível para o sistema operacional Windows;</p>	<p>https://www.dell.com/support/home/pt-br/drivers/driversdetails?driverid=4tpgf&oscode=wt64a&productcode=optiplex-5080-desktop</p>			<p>Sistemas compatíveis OptiPlex 5080 Sistemas operacionais compatíveis Windows 10, 64-bit Aplica-se a Intel HD Graphics Intel HD Graphics 510/530/630</p>
<p>4.2.6.4 - Suporte à DirectX 12 ou superior;</p>	<p>https://ark.intel.com/content/www/br/pt/ark/products/199277/intel-core-i5-10500-processor-12m-cache-up-to-4-50-ghz.html</p>			<p>Suporte para DirectX* 12</p>
<p>4.2.6.5 - Suporte à OpenGL 4.4 ou superior;</p>	<p>https://ark.intel.com/content/www/br/pt/ark/products/199277/intel-core-i5-10500-processor-12m-cache-up-to-4-50-ghz.html</p>			<p>Suporte para OpenGL* 4.5</p>
<p>4.2.6.6 - Suporte à OpenCL 2.0 ou superior;</p>	<p>https://www.intel.com.br/content/www/br/pt/support/articles/000005524/graphics.html</p>			<p>Processadores Intel® Core™ Gráficos HD Intel® 610 / 615 / 620 / 630 OpenCL* 2.1</p>
<p>4.2.6.7 - Duas (2) conexões digitais padrão DisplayPort e/ou HDMI e 1 (uma) conexão VGA (DB15), sendo aceito o uso de adaptadores para suprir a conexão VGA;</p>	<p>https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf</p>	<p>17</p>		<ul style="list-style-type: none"> • Duas portas DisplayPort 1.4 (parte traseira) • Uma terceira porta de vídeo opcional (VGA/DP/HDMI/2.0b/USB Type-C)

4.2.6.8 - Deverá ser compatível com uso de 3 monitores de vídeo simultaneamente.	https://ark.intel.com/content/www/br/pt/ark/products/199277/intel-core-i5-10500-processor-12m-cache-up-to-4-50-ghz.html			Nº de monitores aceitos ≠ 3
4.2.7 - Unidade de Som (Placa de Som)				
4.2.7.1 - Placa de som on board;	https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf	19		Audio
4.2.7.2 - Compatível com o padrão “High Definition audio”;	https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf	19		Interface de áudio interna Áudio Intel HDA (áudio de alta definição)
4.2.7.3 - Deve possuir alto-falante interno com potência mínima de 1 W, conectado à saída de som interna da placa-mãe. O alto-falante em questão não é o buzzer da placa-mãe, mas um substituto às caixas de som externas;	https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf	19		Saída do alto-falante: Saída média do alto-falante 2 W Saída de pico do alto-falante 2,5 W
4.2.7.4 - Quando for conectado o fone de ouvido no conector frontal, o alto-falante interno deve ser automaticamente desabilitado, evitando o indesejável efeito de som de duas fontes simultâneas e diferentes. Este conjunto de som interno deve ser a principal fonte de som do equipamento, sendo possível a reprodução de áudio sem a conexão de nenhum dispositivo externo. Não serão aceitas quaisquer adaptações sobre o gabinete original para se atingir essa exigência.	DECLARAÇÃO FABRICANTE			
4.2.8 - Interface de rede (Placa de Rede).				

4.2.8.1 - Placa de rede integrada padrão Gigabit Ethernet (10/100/1000 Base -T) com conector RJ-45 fêmeaintegrada à placa-mãe, com suporte mínimo às velocidades de transferência de 10/100/1000 Mbps;	https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf	18		Número do modelo Intel i219-LM Taxa de transferência 10/100/1000 Mbps
4.2.8.2 - Suporte a PXE (Pre-Boot eXecution), para realizar instalação remota através da rede;	https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf	27		Permite gerenciar o controlador de LAN integrado. A opção "Enable UEFI Network Stack" (Habilitar a pilha de rede UEFI) não está selecionada por padrão. As opções são: <ul style="list-style-type: none"> • Desativado • Ativada • Enabled w/PXE (Habilitado com PXE) (padrão)
4.2.8.3 - Suporte a ativação remota do microcomputador pela rede Wake-On-Lan;	https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf	32		Wake on LAN/WWAN
4.2.8.4 - Leds indicadores de atividade de rede;	https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf	11		10. Porta RJ-45 de 10/100/1000 Mbps
4.2.8.5 - Suporte em gerenciamento no padrão ACPI;	DECLARAÇÃO FABRICANTE			
4.2.8.5 - Compatível com o padrão DMI 2.0 ou superior.	DECLARAÇÃO FABRICANTE			
4.2.9 -Teclado.				
4.2.9.1 - Teclado padrão Brasileiro ABNT2 com 107 teclas, com todos os caracteres da língua portuguesa;	DECLARAÇÃO FABRICANTE			

4.2.9.2 - Teclas não apagáveis, possuindo gravação das teclas que permita o uso prolongado sem que a impressão dos caracteres nas mesmas se apague;	DECLARAÇÃO FABRICANTE			
4.2.9.3 - Mínimo de duas posições para regulagem de altura;	DECLARAÇÃO FABRICANTE			
4.2.9.4 - Recurso de drenagem ou resistência a respingos acidentais;	DECLARAÇÃO FABRICANTE			
4.2.9.5 - Conexão USB com o computador sem uso de adaptadores;	DECLARAÇÃO FABRICANTE			
4.2.9.6 - Possuir 12 (doze) teclas de função (F1-F12) na porção superior do teclado. As teclas de função deverão ser acionadas diretamente, ou seja, sem a combinação com teclas secundárias;	DECLARAÇÃO FABRICANTE			
4.2.9.7 - LEDs indicadores de teclado numérico habilitado e de tecla Caps Lock pressionada;	DECLARAÇÃO FABRICANTE			
4.2.9.8 - Possuir bloco numérico separado das demais teclas;	DECLARAÇÃO FABRICANTE			
4.2.9.9 - Teclas Windows logo (acesso ao menu iniciar) e aplicação (acesso ao menu de atalhos: equivalente ao botão direito do mouse);	DECLARAÇÃO FABRICANTE			
4.2.9.10 - No caso de fornecimento de teclas de desligamento, hibernação e espera, as mesmas devem vir na parte superior do teclado;	N/A			
4.2.9.11 - Durante o período de garantia, caso existam teclados com a impressão desgastada por uso, eles deverão ser substituídos sem custos para a contratante;	DECLARAÇÃO FABRICANTE			
4.2.9.12 - Deverá ser do mesmo fabricante do microcomputador ofertado;	DECLARAÇÃO FABRICANTE			
4.2.9.13 - Deverá ser fornecido na cor preta;	DECLARAÇÃO FABRICANTE			

4.2.9.14 - A garantia do teclado deverá ser prestada pelo fabricante nas mesmas condições do equipamento;	DECLARAÇÃO FABRICANTE			
4.2.10 - Mouse				
4.2.10.1 - Mouse óptico ambidestro, com dois botões e tecla de rolagem (botão para scroll);	DECLARAÇÃO FABRICANTE			
4.2.10.2 - Conexão USB com o computador sem uso de adaptadores. A conexão deverá ser com fio;	DECLARAÇÃO FABRICANTE			
4.2.10.3 - Resolução mínima de 1.000 dpi;	DECLARAÇÃO FABRICANTE			
4.2.10.4 - A garantia do mouse deverá ser prestada pelo fabricante nas mesmas condições do equipamento;	DECLARAÇÃO FABRICANTE			
4.2.10.5 - Deverá ser do mesmo fabricante do microcomputador ofertado;	DECLARAÇÃO FABRICANTE			
4.2.10.6 - Deverá ser fornecido na cor preta;	DECLARAÇÃO FABRICANTE			
4.2.10.7 - Não serão aceitos minimouses;	N/A			
4.2.11 – Fonte de Alimentação.				
4.2.11.1 - Fonte de alimentação para corrente alternada com tensões de entrada de 100 a 240 VAC (+/-10%),50-60Hz com seleção automática de tensão;	https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf	20		90 V CA a 264 V CA 47 Hz a 63 Hz
4.2.11.2 - Deve possuir potência suficiente para suportar todos os dispositivos internos na configuração máxima admitida pelo equipamento (placa principal, interfaces, discos rígidos, memória RAM e demais periféricos);	DECLARAÇÃO FABRICANTE			
4.2.11.3 - Implemente eficiência igual ou superior a 92% de eficiência quando em 50% da carga de trabalho (utilizando tensão de alimentação 200 volts corrente alternada);	https://cleareresult5.sharepoint.com/sites/PLS/Shared%20Documents/Forms/AllItems.aspx?id=%2Fsites%2FPLS%2FShared%20Documents%2FDELL%20Inc%2E%5FAC200EPS%2D00%5F200W%5FSOCE%205743%5FReport%2Epdf&parent=%2Fsites%2FPLS%2FShared%20Documents&p=true&originalPath=aHR0cHM6Ly9jbGVhcmVzdWx0NS5zaGFyZXBvaW50LmNvbS86Yjovcy9QTFMvRW			

	RaUHozTlhTck5EbU8tLXFITEQ2TVICRIk5M01GYkotdmJhWEZBcm5oLVBPdz9y dGltZT1RUI9SZlplbzJFZw			
4.2.11.4 - Deve ser comprovadamente aderente à Portaria 170/2012 do INMETRO. Possuir baixo nível de ruído conforme ISO 9296 ou equivalente.	http://www.inmetro.gov.br/prodcert/certificados/lista.asp https://downloads.dell.com/rdoc/dell%20optiplex%205080%20sff%20d15s%20d15s001%20dell%20regulatory%20and%20environmental%20datasheet%20en-us.pdf	5		<p>Buscar pelo modelo regulatório D15S, correspondente ao 5080SFF</p> <p>Declared noise emission values in accordance with ISO 9296. Testing performed in compliance with ISO 7779 with operating modes defined by ECMA-74</p>
4.2.12 - Gabinete				
4.2.12.1 - Design do tipo compacto (mini desktop - Small Form Factor);	https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners_manual10_pt-br.pdf	1		Small Form Factor (Formato pequeno na tradução)
4.2.12.2 - Gabinete projetado com design específico para trabalhar tanto na posição horizontal quanto na vertical, caso seja necessário a base pé(s) adaptador(es) para a torre, o mesmo deverá ser fornecido;	DECLARAÇÃO FABRICANTE			
4.2.12.3- O gabinete não poderá ultrapassar o volume de 11 litros. A capacidade em litro é medida através da multiplicação da Altura x Largura x Profundidade do gabinete;	https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners_manual10_pt-br.pdf	13		<p>Altura: Frente 290 mm (11,42 pol.) Parte traseira 290 mm (11,42 pol.) Largura 92,60 mm (3,65 pol.)</p>

				Profundidade 292,80 mm (11,53 pol.)
4.2.12.4 - Deverá possuir 01 (uma) baía de 2,5 polegadas interna;	https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf	19		Armazenamento
4.2.12.5 - Deverá possuir pelo menos 8 (oito) portas USB. Uma destas deverá ser USB Tipo-C. Pelo menos 3(três) das portas USB devem ser 3.0 ou superior. Pelo menos 2 (duas) das portas USB 3.0 devem estar na parte frontal do gabinete;	https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf	17		<ul style="list-style-type: none"> • Uma porta USB 2.0 com PowerShare (frontal) • Uma porta USB 3.2 Type-A de 1ª geração (frontal) • Uma porta USB 2.0 (parte frontal) • Uma porta USB 3.2 Type-C de 2ª geração (parte frontal) • Duas portas USB 2.0 com Smart Power On (parte traseira) • Quatro portas USB 3.2 Type-A de 1ª geração (parte traseira)
4.2.12.6 - As interfaces deverão ser disponibilizadas sem a utilização de hubs ou portas USB instaladas em qualquer tipo de adaptador PCI;	DE ACORDO, DISPONIBILIZADAS DE ACORDO COM INFORMAÇÕES DO MANUAL DO EQUIPAMENTO			
4.2.12.7 - Possuir conectores para microfone e fones de ouvido no painel frontal ou interface frontal COMBO e uma interface de saída na parte traseira do gabinete;	https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf	17		Um conector de áudio universal (parte frontal) <ul style="list-style-type: none"> • Uma porta de áudio de entrada de linha

				que redistribui a saída de linha (parte traseira)
4.2.12.8 - O botão de liga/desliga e luzes de indicação de atividade da unidade de disco rígido e de computador ligado (power-on) devem ser posicionados no painel frontal do gabinete;	https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf	10		1. Botão liga/desliga com LED de diagnóstico 3. Indicador de atividade do disco rígido
4.2.12.9 - Deve possuir alto-falante integrado, com capacidade de reproduzir os sons gerados pelo sistema operacional e alarmes gerados por problemas de inicialização. Não serão aceitas adaptações;	https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf	19		Número de alto-falantes Um (opcional)
4.2.12.10 - O alto-falante deverá se desligar automaticamente, sem a necessidade de qualquer intervenção do usuário, quando forem conectados fones de ouvido ou caixas de som externas;	DECLARAÇÃO FABRICANTE			
4.2.12.11 - O sistema de refrigeração deve ser adequado ao processador e demais componentes internos do gabinete, para garantir a temperatura de funcionamento e vida útil dos componentes. Solução de refrigeração, monitorada pela BIOS ou por ACPI, dimensionado para a perfeita refrigeração dos componentes internos, operando em sua capacidade máxima, pelo período mínimo de dez horas diárias consecutivas em ambiente não refrigerado;	DECLARAÇÃO FABRICANTE			
4.2.12.12 - Acabamento interno com superfícies não cortantes, inclusive nas entradas de ar;	DECLARAÇÃO FABRICANTE			
4.2.12.13 - Deverá ser fornecido na cor preta ou prata ou combinação dessas. A cor preta deve ser predominante;	https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf	10		Chassi Este capítulo ilustra as várias vistas de chassis

4.2.12.14 - Possuir orifício para colocação de cadeado que impeça o acesso aos componentes internos e orifício para fixação de trava do tipo Kensington ou Noble, sem que haja adaptações ao mesmo;	https://dl.dell.com/topicspdf/optiplex-5080-desktop_owners-manual10_pt-br.pdf	11		11. Slot do cabo de segurança Kensington
4.2.12.15 - As unidades do equipamento deverão ser entregues devidamente acondicionadas em embalagens individuais adequadas, que utilizem preferencialmente materiais recicláveis, de forma a garantir a máxima proteção durante o transporte e a armazenagem.	DECLARAÇÃO FABRICANTE			
4.2.13 - Sistema Operacional				
4.2.13.1 - O equipamento deverá ser entregue com uma licença do Sistema Operacional Microsoft Windows 10 Professional 64 bits, em português do Brasil;	CONFORME PROPOSTA COMERCIAL			
4.2.13.2 - O equipamento deverá ser entregue com HD contendo a imagem padrão customizada pela Contratante;	CONFORME PROPOSTA COMERCIAL			
4.2.13.3 - A proponente vencedora deverá, antes do fornecimento dos equipamentos, enviar uma amostra do mesmo ao contratante para configuração e geração do HD padrão, contendo o sistema operacional Microsoft Windows 10 Professional, 64 bits, bem como todos os drivers e softwares solicitados devidamente instalados;	CONFORME PROPOSTA COMERCIAL			
4.2.13.4 - Todos os equipamentos ofertados deverão possuir disco rígido com a imagem do HD padrão;	CONFORME PROPOSTA COMERCIAL			
4.2.13.5 - Deve ser fornecida mídia única ao contratante para instalação/restauração da imagem padrão do sistema operacional mencionado em	CONFORME QUESTIONAMENTO			

<p>todos os equipamentos. Não será permitido fornecimento de uma mídiapor equipamento ofertado;</p>				
<p>4.2.13.6 - Deverá possuir integrado ou deverá estar disponível para download software desenvolvido pelo fabricante do equipamento com suporte a efetuar download de atualizações de drivers, consultar vigência de garantia entre outros;</p>	<p>https://www.dell.com/support/contents/pt-br/article/product-support/self-support-knowledgebase/software-and-downloads/supportassist</p>			
<p>4.2.13.7 - Deverá possuir integrado ou deverá estar disponível para download software que possibilite apagar de forma definitiva e irrecuperável todos os dados armazenados no disco rígido, permitindo o descarte seguro de seus equipamentos;</p>	<p>https://www.dell.com/support/kbdoc/pt-br/000146892/dell-data-wipe</p>			
<p>4.2.13.8 - Deverá possuir integrado ou deverá estar disponível para download software que permite averificação e instalação das últimas atualizações de todas as ferramentas disponíveis pelo fabricante;</p>	<p>https://www.dell.com/support/contents/pt-br/article/product-support/self-support-knowledgebase/software-and-downloads/supportassist</p>			
<p>4.2.14 - Acessórios</p>				
<p>4.2.14.1 - Todos os cabos de energia elétrica e conectores necessários para o funcionamento dos equipamentos deverão ser fornecidos com comprimento mínimo de 1,5m (um metro e cinquenta centímetros) e deverão seguir o padrão NBR-14136. Deverá ser fornecido cabo único de energia (formato em Y) para ligação do Gabinete e Monitor à tomada e deve também ser fornecido o adaptador de fonte elétrica no padrão novo (fêmea – NBR 14136) para o padrão antigo</p>	<p>CONFORME PROPOSTA COMERCIAL</p>			

(macho – 2P+T (NEMA 5-15P)). Após a configuração completa,o equipamento deverá utilizar apenas uma tomada da rede elétrica;				
4.2.14.2 - Drivers de instalação e configuração para todas as placas e componentes instalados no computador;	CONFORME PROPOSTA COMERCIAL			
4.2.14.3 - A documentação de instalação e configuração deverá ser fornecida impressa ou em mídia DVD/CD,em idioma Português (do Brasil), contendo orientações para a configuração e operação do produto fornecido.	CONFORME QUESTIONAMENTO			
4.2.15 - Monitor				
4.2.15.1 - Um (01) Monitor LED ou IPS e no mínimo 23,8 polegadas na diagonal;	CONFORME PROPOSTA COMERCIAL			-
4.2.15.2 - Deverá possuir ajuste de altura, inclinação e rotação (pivot 90°);	https://downloads.dell.com/manuals/all-products/esuprt_electronics_accessories/esuprt_electronics_accessories_monitors/dell-p2419h-monitor_user%27s-guide_pt-br.pdf	16		Suporte de altura ajustável 130 mm Inclinação -5° a 21° Giro -45° a 45° Pivô -90° a 90°
4.2.15.3 - Tempo de resposta de no máximo 8 ms;	https://downloads.dell.com/manuals/all-products/esuprt_electronics_accessories/esuprt_electronics_accessories_monitors/dell-p2419h-monitor_user%27s-guide_pt-br.pdf	15		Tempo de resposta 8 ms (Normal) 5 ms (Rápido)

<p>4.2.15.4 - Resolução FULL HD de 1920 x 1080 @ 60 Hz;</p>	<p>https://downloads.dell.com/manuals/all-products/esuprt_electronic_accessories/esuprt_electronics_accessories_monitors/dell-p2419h-monitor_user%27s-guide_pt-br.pdf</p>	<p>16</p>		<p>Modelo P2219H/P2319H/P2419H/P2719H Taxa de escaneamento horizontal 30 kHz a 83 kHz (automático) Taxa de escaneamento vertical 56 Hz a 76 Hz (automático) Mais alta resolução de préajuste 1920 x 1080 a 60 Hz</p>
<p>4.2.15.5 - Brilho de no mínimo 250 cd/m²;</p>	<p>https://downloads.dell.com/manuals/all-products/esuprt_electronic_accessories/esuprt_electronics_accessories_monitors/dell-p2419h-monitor_user%27s-guide_pt-br.pdf</p>	<p>15</p>		<p>Saída de iluminação 250 cd/m² (típico)</p>
<p>4.2.15.6 - Conectores DisplayPort, HDMI e VGA (DB15) análogo;</p>	<p>https://downloads.dell.com/manuals/all-products/esuprt_electronic_accessories/esuprt_electronics_accessories_monitors/dell-p2419h-monitor_user%27s-guide_pt-br.pdf</p>	<p>15 E 16</p>		<p>Portas e conectores • 1 x DisplayPort versão 1.2 • 1 x porta HDMI versão 1.4 • 1 x porta VGA • 1 x porta USB 3.0 a montante (parte inferior) • 2 x portas USB 3.0 a jusante (lateral) • 2 x portas USB 2.0 a jusante (parte inferior)</p>

<p>4.2.15.7 - Pixel Pitch de no máximo 0,32 mm;</p>	<p>https://downloads.dell.com/manuals/all-products/esuprt_electronic_accessories/esuprt_electronics_accessories_monitors/dell-p2419h-monitor_user%27s-guide_pt-br.pdf</p>	<p>15</p>		<p>0,275 mm x 0,275 mm</p>
<p>4.2.15.8 - Contraste estático de, no mínimo, 1000:1</p>	<p>https://downloads.dell.com/manuals/all-products/esuprt_electronic_accessories/esuprt_electronics_accessories_monitors/dell-p2419h-monitor_user%27s-guide_pt-br.pdf</p>	<p>15</p>		<p>Taxa de contraste 1000 a 1 (típico)</p>
<p>4.2.15.9 - Ângulo de visão horizontal 170° e vertical de no mínimo 160°;</p>	<p>https://downloads.dell.com/manuals/all-products/esuprt_electronic_accessories/esuprt_electronics_accessories_monitors/dell-p2419h-monitor_user%27s-guide_pt-br.pdf</p>	<p>15</p>		<p>Ângulo de visualização 178° (vertical) típico 178° (horizontal) típico</p>
<p>4.2.15.10 - Número de cores mínimo de 16,2 milhões;</p>	<p>https://downloads.dell.com/manuals/all-products/esuprt_electronic_accessories/esuprt_electronics_accessories_monitors/dell-p2419h-monitor_user%27s-guide_pt-br.pdf</p>	<p>15</p>		<p>Profundidade da cor 16,7 milhões de cores</p>

<p>4.2.15.11 - Ajustes de Imagem desejáveis: Contraste, Brilho, Posição (Vertical e Horizontal), Auto ajuste;</p>	<p>https://downloads.dell.com/manuals/all-products/esuprt_electronics_accessories/esuprt_electronics_accessories_monitors/dell-p2419h-monitor_user%27s-guide_pt-br.pdf</p>	<p>43,44 E 49</p>	<p>Uso do Menu de Visualização na Tela (OSD) Brilho/contraste Use este menu para ativar os ajustes de Brilho/contraste.</p> <p>Ajuste automático Use esse menu para ativar o menu de ajuste e configuração automática</p> <p>Posição horizontal Use ou para ajustar a imagem à esquerda ou direita. O mínimo é '0' (-). O máximo é '100' (+). Posição vertical Use ou para ajustar a imagem para cima ou para baixo. O mínimo é '0' (-). O máximo é '100' (+).</p>
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<p>4.2.15.12 - Menu Digital no Idioma Português e/ou Inglês;</p>	<p>https://downloads.dell.com/manuals/all-products/esuprt_electronics_accessories/esuprt_electronics_accessories_monitors/dell-p2419h-monitor_user%27s-guide_pt-br.pdf</p>	<p>50</p>		<p>Idioma Ajusta a exibição OSD para um dos oito idiomas (Inglês, Espanhol, Francês, Alemão, Português do Brasil, Russo, Chinês Simplificado ou Japonês).</p>
<p>4.2.15.13 - Certificações: Energy Star ou INMETRO (Portaria 170/2012), EPEAT, RoHS e TCO;</p>	<p>https://downloads.dell.com/rdoc/dell%20monitor%20p2419h,p2419hb,n_a,dell%20regulatory%20and%20environmental%20datasheet.pdf</p> <p>https://epeat.net/product-details/24cfa5090d244595b6abf49773ef7e5f?backUrl=%2Fcomputers-and-displays-search-result%2Fpage-1%2Fsize-25%3FproductName%3DP2419H</p> <p>https://downloads.dell.com/rdoc/dell%20monitor%20p2419h%20p2419hb%20na%20european%20union%20-%20declaration%20of%20conformity%20en-us.pdf</p>	<p>2</p> <p>1</p>		<p>Global ENERGY STAR Certified Global TCO Certified Certified Display Certified</p> <p>EPEAT Tier: Gold</p> <p>The object of the declaration described above is in conformity with the following Directives:</p> <ul style="list-style-type: none"> • DIRECTIVE 2014/30/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 26 February 2014 on the harmonisation of the laws of the Member States relating to electromagnetic compatibility (recast) • DIRECTIVE 2014/35/EU OF

				<p>THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 26 February 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits</p> <ul style="list-style-type: none">• Directive 2011/65/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment• Directive 2009/125/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 21 October 2009 establishing a framework for the setting of ecodesign
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				requirements for energy-related products
<p>4.2.15.14 - Um (1) cabo DisplayPort ou HDMI que permita a instalação do monitor à CPU sem o uso de adaptadores;</p>	<p>https://downloads.dell.com/manuals/all-products/esuprt_electronic_accessories/esuprt_electronics_accessories_monitors/dell-p2419h-monitor_user%27s-guide_pt-br.pdf</p>	<p>6 E 7</p>		<p>Conteúdo da Embalagem</p>
<p>4.2.15.15 - O cabo de conexão à rede elétrica deverá seguir o padrão NBR-14136;</p>	<p>CONFORME PROPOSTA COMERCIAL</p>			

<p>4.2.15.16 - Deverá ter fonte de energia, instalada internamente ao gabinete do monitor com seleção automática de voltagem 100-240 VAC e 50/60 Hz;</p>	<p>https://downloads.dell.com/manuals/all-products/esuprt_electronic_accessories/esuprt_electronic_accessories_monitors/dell-p2419h-monitor_user%27s-guide_pt-br.pdf</p>	<p>18</p>		<p>Voltagem/freqüência/ corrente de entrada CA 100 VCA a 240 VCA / 50 Hz ou 60 Hz ± 3 Hz / 1,5 A (típico)</p>
<p>4.2.15.17 - Led indicativo de equipamento ligado;</p>	<p>https://downloads.dell.com/manuals/all-products/esuprt_electronic_accessories/esuprt_electronic_accessories_monitors/dell-p2419h-monitor_user%27s-guide_pt-br.pdf</p>	<p>9</p>		<p>2 Botão liga/desliga (com LED indicador)</p>
<p>4.2.15.18 - Deverá possuir certificação de segurança UL ou IEC 60950 emitido por órgão acreditado pelo INMETRO ou similar internacional;</p>	<p>https://downloads.dell.com/rdoc/dell%20monitor%20p2419h%20p2419hb%20na%20european%20union%20-%20declaration%20of%20conformity%20en-us.pdf</p> <p>https://www.nwemc.com/news/2020/08/27/en-iec-62368-1-product-safety-standard-overview</p> <p>Anexo 02</p>	<p>1</p>		<p>SAFETY: EN 62368-1:2014 EN 62311:2008 IEC 62368</p>
<p>4.2.15.19 - Deverá ser comprovada adequação a norma ISO/IEC 61000 ou equivalente;</p>	<p>https://downloads.dell.com/rdoc/dell%20monitor%20p2419h%20p2419hb%20na%20european%20union%20-%20declaration%20of%20conformity%20en-us.pdf</p>	<p>1</p>		<p>EN 61000-3-2:2014 (Class D) EN 61000-3-3:2013</p>

<p>4.2.15.20 - As unidades do equipamento deverão ser entregues devidamente acondicionadas em embalagens individuais adequadas, que utilizem preferencialmente materiais recicláveis, de forma a garantir a máxima proteção durante o transporte e a armazenagem;</p>	<p>DE ACORDO, CONFORME PROPOSTA COMERCIAL</p>			
<p>4.2.15.21 - Deverá ser fornecido na cor preta ou prata ou combinação dessas. A cor preta deve ser apredominante;</p>	<p>https://downloads.dell.com/manuals/all-products/esuprt_electronics_accessories/esuprt_electronics_accessories_monitors/dell-p2419h-monitor_user%27s-guide_pt-br.pdf</p>	<p>9 e 10</p>		<p>Vista Frontal Vista Posterior</p>
<p>4.2.15.22 - Possuir orifício para fixação de cadeado do tipo Kesington ou Noble;</p>	<p>https://downloads.dell.com/manuals/all-products/esuprt_electronics_accessories/esuprt_electronics_accessories_monitors/dell-p2419h-monitor_user%27s-guide_pt-br.pdf</p>	<p>10</p>		<p>4 Ranhura de trava de segurança Segura o monitor com trava de segurança (trava de segurança não inclusa).</p>
<p>4.2.15.23 - O equipamento deverá, comprovadamente, pertencer à linha corporativa, não sendo aceito equipamentos destinados ao uso doméstico;</p>	<p>DECLARAÇÃO DO FABRICANTE</p>			
<p>4.2.15.24 - Deverá ser do mesmo fabricante do equipamento cotado ou em regime de OEM (Original Equipment Manufacturer). Caso seja em regime de OEM, deverá possuir garantia fornecida de forma legal pelo fabricante do equipamento, sendo que a logo marca serigrafada no monitor deverá ser do mesmo fabricante do Computador.</p>	<p>https://downloads.dell.com/manuals/all-products/esuprt_electronics_accessories/esuprt_electronics_accessories_monitors/dell-p2419h-monitor_user%27s-guide_pt-br.pdf</p>	<p>1</p>		<p>Dell</p>

Especificações Técnicas Item 03

Item: 03

Fabricante: Dell

Marca: Latitude

Modelo: 3410

- Intel i5-10210u;
- 08 GB (1 x 08 GB), DDR4, 2.666 MHz;
- Dispositivo de armazenamento em estado sólido com capacidade de 256GB tipo NVME;
- Interface Wireless Intel AX201;
- Tela 14" 1920x1080 @ 60Hz;
- Leitor Biometrico integrado;
- Sistema Operacional Windows 10 Professional 64 bits OEM PT-BR pré-instalado com partição de restore oculta;
- Interfaces de rede conforme solicitado no Edital, suas circulares e folder do produto;
- Softwares de gerenciamento e segurança: Dell Command, Dell OME, Dell Optimizer e SupportAssist;
- Bateria 40WHr com 12 meses de garantia;
- Acessórios: Maleta/Capa Dell Professional, carregador bivolt com cabo de força NBR14136, Adaptador HDMI para VGA, mouse MS116, cabo de segurança e todos os cabos e acessórios necessários para seu funcionamento;
- Serviço de replicação de imagem em fábrica (será enviado equipamento de amostra para criação da imagem) com carregamento de todos os drivers de instalação e configuração para todas as placas e componentes instalados no computador;
- Será fornecida mídia única ao contratante para instalação/restauração da imagem padrão do sistema operacional mencionado em todos os equipamentos;
- Garantia de 5 Anos On-site conforme solicitado no Edital e suas circulares;
- Manuais conforme solicitado no Edital e suas circulares;
- Demais itens conforme solicitado no edital, folder do produto, atendendo 100% o mesmo e suas circulares;

Comprovação Técnica Item 03

4.3 – NOTEBOOK.				
Descrição da Característica/ Funcionalidade Exigida	Documento do Fabricante (Nome)	Página (s)	Atende ao Requisito (Sim/Não)	Texto do manual
4.3.1- Processador				
4.3.1.1 - Processador 64 bits, frequência mínima de 1,6 Ghz (sem a utilização de Boost Frequency ou Turbo Frequency), pelo menos 4 núcleos físicos e 8 threads;	https://ark.intel.com/content/www/br/pt/ark/products/195436/intel-core-i5-10210u-processor-6m-cache-up-to-4-20-ghz.html			Número de núcleos 4 Nº de threads 8 Frequência baseada em processador 1.60 GHz
4.3.1.2 - O processador deve ter capacidade de interpretar instruções de 32 bits e extensões de 64 bits;	https://ark.intel.com/content/www/br/pt/ark/products/195436/intel-core-i5-10210u-processor-6m-cache-up-to-4-20-ghz.html			Conjunto de instruções 64-bit
4.3.1.3 - Tecnologia litográfica de, no máximo, 14 nm;	https://ark.intel.com/content/www/br/pt/ark/products/195436/intel-core-i5-10210u-processor-6m-cache-up-to-4-20-ghz.html			Litografia 14 nm
4.3.1.4 - Suporte a instruções AES (Advanced Encryption Standart);	https://ark.intel.com/content/www/br/pt/ark/products/195436/intel-core-i5-10210u-processor-6m-cache-up-to-4-20-ghz.html			Novas instruções Intel® AES Sim

<p>4.3.1.5 - Memória cache total mínima de 6 (seis) MB;</p>	<p>https://ark.intel.com/content/www/br/pt/ark/products/195436/intel-core-i5-10210u-processor-6m-cache-up-to-4-20-ghz.html</p>			<p>Cache 6 MB Intel® Smart Cache</p>
<p>4.3.1.6 - Deverá possuir sistema de dissipação de calor dimensionado para a perfeita refrigeração do processador, considerando que este esteja operando em sua capacidade máxima, pelo período de 8 horas diárias consecutivas, em ambiente não refrigerado;</p>	<p>DECLARAÇÃO FABRICANTE</p>			
<p>4.3.1.7 - Deve ser obrigatoriamente de última ou penúltima geração disponível para comercialização no Brasil (considerando a data do pregão);</p>	<p>https://ark.intel.com/content/www/br/pt/ark/products/195436/intel-core-i5-10210u-processor-6m-cache-up-to-4-20-ghz.html</p>			<p>Coleção de produtos 10ª geração de processadores Intel® Core™ i5</p>
<p>4.3.1.8 - Suportar tecnologia de virtualização;</p>	<p>https://ark.intel.com/content/www/br/pt/ark/products/195436/intel-core-i5-10210u-processor-6m-cache-up-to-4-20-ghz.html</p>			<p>Tecnologia de virtualização Intel® (VT-x) ‡ Sim</p> <p>Tecnologia de virtualização Intel® para E/S dirigida (VT-d) ‡ Sim</p>
<p>4.3.1.9 - Com processamento gráfico integrado;</p>	<p>https://ark.intel.com/content/www/br/pt/ark/products/195436/intel-core-i5-10210u-processor-6m-cache-up-to-4-20-ghz.html</p>			<p>Gráficos do processador ‡ Gráficos UHD Intel® para processadores Intel® Core™ da 10ª Geração</p>

4.3.1.10 - Explicitar obrigatoriamente o modelo e a marca do processador oferta;	CONFORME PROPOSTA COMERCIAL			
4.3.1.11 - Não serão aceitos processadores próprios para desktops.	https://ark.intel.com/content/www/br/pt/ark/products/195436/intel-core-i5-10210u-processor-6m-cache-up-to-4-20-ghz.html			Segmento vertical Mobile
4.3.2 - Placa Mãe e BIOS				
4.3.2.1 - Placa mãe do mesmo FABRICANTE do notebook. Não será aceito o emprego de placas de livrecomercialização no mercado compatível com o projeto do gabinete;	DECLARAÇÃO FABRICANTE			
4.3.2.2 - Total compatibilidade com a norma ACPI (Advanced Configuration and Power Interface);	DECLARAÇÃO FABRICANTE			
4.3.2.3 - BIOS desenvolvida pelo mesmo FABRICANTE de notebook, não sendo aceitas soluções customizadas em regime de OEM, implementada em "flash memory", atualizável sem troca do chip, atualizável remotamente, no idioma inglês ou português do Brasil, com possibilidade de habilitar/desabilitar portas USB e com senhas e setup para usuário e supervisor. O notebook deverá possuir chip TPM integrada à placa mãe. Não serão aceitas	DECLARAÇÃO FABRICANTE			

adaptações através de USB ou cartões;				
4.3.2.4 - Possuir gravado o número de série do equipamento (Service Tag);	https://dl.dell.com/topics/pdf/latitude-14-3410-laptop_owners-manual2_pt-br.pdf	34		Service Tag Este campo fornece a etiqueta de serviço exclusiva do computador
4.3.2.5 - Possuir o campo para gravação de número de inventário/patrimônio (Assert Tag);	https://dl.dell.com/topics/pdf/latitude-14-3410-laptop_owners-manual2_pt-br.pdf	35		Asset Tag (Etiqueta de ativo) Este campo fornece a identificação exclusiva de até 64 caracteres que pode ser definida pelo administrador de TI.
4.3.2.6 - Sempre que o equipamento for inicializado deve ser mostrado no monitor de vídeo o nome do fabricante do microcomputador;	DECLARAÇÃO FABRICANTE			

4.3.2.7 - Deverá possuir regulagem da velocidade de rotação de cooler da CPU de forma automática, de acordo com a variação de temperatura da CPU;

https://dl.dell.com/topics/pdf/latitude-14-3410-laptop_owners-manual2_pt-br.pdf

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Gerenciamento térmico
Esta configuração permite que o gerenciamento de calor do ventilador e do processador ajuste o desempenho, o ruído e a temperatura do sistema. As opções disponíveis são as seguintes:

- Otimizado - configuração padrão para gerenciamento de calor do ventilador e do processador de resfriamento.
- Frio - a velocidade do processador e do ventilador de refrigeração é ajustada para uma temperatura da superfície do sistema mais fria.
- Silencioso - a velocidade do processador e do ventilador de refrigeração é ajustada para reduzir o ruído do ventilador.
- Ultra desempenho - a

				velocidade do processador e do ventilador de refrigeração aumenta para obter mais desempenho.
4.3.2.8 - Deverá possuir uso eficiente da energia;	https://dl.dell.com/topics/pdf/latitude-14-3410-laptop_owners-manual2_pt-br.pdf	30 E 31		Alimentação
4.3.2.9 - Deverá ser compatível com o sistema operacional Windows 10.	https://partner.microsoft.com/en-us/dashboard/hardware/driver/downloadCertificationReport/29997800/14120827338184612/1152921505689523594			HCL WINDOWS
4.3.2.10 - Deverá ser entregue solução que seja capaz de apagar os dados contidos nas unidades de armazenamento como HDD, SSD e SSHD de maneira que as informações não possam ser recuperadas, mesmo quando utilizados recursos profissionais	https://www.dell.com/support/kbdoc/pt-br/000146892/dell-data-wipe			Dell Data Wipe integrado à BIOS

para essa finalidade, a solução deverá estar em conformidade com a NIST SP800-88r1 ou superior, ser do próprio fabricante do microcomputador ou de terceiros, porém homologada pelo fabricante do microcomputador.				
4.3.2.11 - A BIOS deverá possuir no próprio hardware cópia de segurança capaz de restauração automática em caso de falha ou arquivos corrompidos;	https://dl.dell.com/topics/pdf/latitude-14-3410-laptop_owners-manual2_pt-br.pdf	34		BIOS Recovery from Hard Drive
4.3.2.12 - A BIOS deverá possuir ferramenta que possibilite realizar a formatação definitiva dos dispositivos de armazenamento conectados ao equipamento. Caso esta ferramenta não seja nativa, deverá ser oficialmente homologada pelo fabricante do dispositivo.	https://dl.dell.com/topics/pdf/latitude-14-3410-laptop_owners-manual2_pt-br.pdf	32		Iniciar eliminação de dados Esta seção contém uma chave seletora que, quando ativada, garante que o BIOS enfileire um ciclo de limpeza de dados para dispositivos de armazenamento conectados à placa-mãe na próxima reinicialização
4.3.4 - Memória RAM				
4.3.4.1 - Slots de memória, permitindo expansão para no mínimo 16 GB RAM;	https://dl.dell.com/topics/pdf/latitude-14-3410-laptop_owners-manual2_pt-br.pdf	14		Memória máxima 32 GB
4.3.4.2 - Mínimo de 8 (oito) GB de memória DDR4 2666 MHz instalada;	CONFORME PROPOSTA COMERCIAL ESTÁ SENDO COTADO: Memória de 8GB (1X8GB) DDR4			

4.3.4.3 - Os módulos de memória devem ser homologados pelo fabricante do equipamento e devem ser idênticos em marca/modelo para cada notebook fornecido;	DECLARAÇÃO FABRICANTE			
4.3.4.4 - Deve adequar-se plenamente à velocidade de barramento da placa-mãe e do processador, possibilitando o seu máximo aproveitamento.	DECLARAÇÃO FABRICANTE			
4.3.5 - Armazenamento				
4.3.5.1 – Uma (1) unidade de disco rígido SSD (Solid State Drive), M.2 PCIe NVMe com capacidade de armazenamento total de 256 GB;	CONFORME PROPOSTA COMERCIAL ESTÁ SENDO COTADO: SSD de 256GB PCIe NVMe M.2 Classe 35			
4.3.5.2 - Taxas de transferências sequenciais de leitura e gravação iguais ou superiores a 1.700MB/s e 1.000MB/s respectivamente;	DECLARAÇÃO FABRICANTE			
4.3.6 - Vídeo				
4.3.6.1 - Tela de LED 100% plana com tamanho de 14 polegadas no formato widescreen FHD, admitindo-se variação de até 3% para mais ou para menos, no tamanho da tela;	CONFORME PROPOSTA COMERCIAL ESTÁ SENDO FORNECIDO: Tela Full HD de 14" (1920 x 1080)			
4.3.6.2 - A Tela deverá ser reforçada com dobradiças metálicas. A parte externa da tela deverá possuir estrutura e cobertura metálica integrada permitindo a segurança da tela;	DECLARAÇÃO FABRICANTE			

<p>4.3.6.3 - Controle de brilho regulável através de teclas funcionais do teclado.</p>	<p>https://dl.dell.com/topics/pdf/latitude-14-3410-laptop_owners-manual2_pt-br.pdf</p>	<p>12</p>		<p>Fn + F6 Diminuir o brilho Fn + F7 Aumentar o brilho</p>
<p>4.3.6.4 - Deverá ser compatível com uso de 1 monitor de vídeo/projetor simultaneamente com a tela integrada do notebook.</p>	<p>DECLARAÇÃO FABRICANTE</p>			
<p>4.3.6.5 - Uma (1) conexão digital no padrão HDMI;</p>	<p>https://dl.dell.com/topics/pdf/latitude-14-3410-laptop_owners-manual2_pt-br.pdf</p>	<p>9</p>		<p>3. Porta HDMI 1.4</p>
<p>4.3.6.6 - Controladora de vídeo Full HD integrada com memória de vídeo compartilhada de no mínimo 512MB.</p>	<p>https://ark.intel.com/content/www/br/pt/ark/products/195436/intel-core-i5-10210u-processor-6m-cache-up-to-4-20-ghz.html</p>			<p>Quantidade máxima de memória gráfica de vídeo 32 GB Resolução máxima (HDMI 1.4)‡ 4096 x 2304@24Hz Resolução máxima (DP)‡ 4096 x 2304@60Hz Resolução máxima (eDP - tela plana integrada)‡ 4096 x 2304@60Hz</p>

<p>4.3.6.7 - Resolução nativa de 1920 x 1080 pixels ou superior.</p>	<p>https://ark.intel.com/content/www/br/pt/ark/products/195436/intel-core-i5-10210u-processor-6m-cache-up-to-4-20-ghz.html</p>			<p>Resolução máxima (HDMI 1.4)‡ 4096 x 2304@24Hz</p> <p>Resolução máxima (DP)‡ 4096 x 2304@60Hz</p> <p>Resolução máxima (eDP - tela plana integrada)‡ 4096 x 2304@60Hz</p>
<p>4.3.6.8 - Suporte à DirectX 12 ou superior;</p>	<p>https://ark.intel.com/content/www/br/pt/ark/products/195436/intel-core-i5-10210u-processor-6m-cache-up-to-4-20-ghz.html</p>			<p>Suporte para DirectX* 12</p>
<p>4.3.6.9 - Suporte à OpenGL 4.4 ou superior;</p>	<p>https://ark.intel.com/content/www/br/pt/ark/products/195436/intel-core-i5-10210u-processor-6m-cache-up-to-4-20-ghz.html</p>			<p>Suporte para OpenGL*4.5</p>
<p>4.3.6.10 - Suporte à OpenCL 2.0 ou superior;</p>	<p>https://www.intel.com.br/content/www/br/pt/support/articles/000005524/graphics.html</p>			<p>Processadores Intel® Core™ Gráficos HD Intel® 610 / 615 / 620 / 630 OpenCL* 2.1</p>
<p>4.3.7 - Interfaces</p>				
<p>4.3.7.1 - Uma (1) saída para fone de ouvido ou para caixa acústica e uma (1) entrada para microfone. Podem ser fornecidos no formato combo;</p>	<p>https://dl.dell.com/topic/spdf/latitude-14-3410-laptop_owners-manual2_pt-br.pdf</p>	<p>16</p>		<p>Audio Uma tomada universal de áudio</p>

<p>4.3.7.2 - Possuir alto falante estéreo e microfone integrados ao gabinete com controle de mudo e de volume regulável através de teclas funcionais do teclado;</p>	<p>https://dl.dell.com/topics/pdf/latitude-14-3410-laptop_owners-manual2_pt-br.pdf</p>	<p>8 11 16</p>		<p>3. Microfone</p> <p>Fn + F1 Desativação do áudio Fn + F2 Diminuir o volume Fn + F3 Aumentar o volume</p> <p>Alto-falantes Dois Média de saída do alto-falante 2 W</p>
<p>4.3.7.3 - Deverá possuir pelo menos 4 (quatro) portas USB on-board sem o uso de adaptadores. Pelo menos 2 (duas) das portas USB devem ser 3.0 ou superior. Pelo menos 1 (uma) porta USB Tipo-C;</p>	<p>https://dl.dell.com/topics/pdf/latitude-14-3410-laptop_owners-manual2_pt-br.pdf</p>	<p>15 E 16</p>		<p>USB ● Uma porta USB 3.2 de 1ª geração Tipo C com DisplayPort Alt Mode/Power Delivery ● Uma porta USB 3.2 A de 1ª geração Tipo A com PowerShare ● Uma porta USB 3.2 de 1ª geração do tipo A Uma porta USB 2.0 Tipo A</p>
<p>4.3.7.4 - Uma (1) interface HDMI, que poderá ser substituído por 01 (uma) DisplayPort desde que seja acompanhada de adaptador DisplayPort para HDMI;</p>	<p>https://dl.dell.com/topics/pdf/latitude-14-3410-laptop_owners-manual2_pt-br.pdf</p>	<p>16</p>		<p>Vídeo Uma porta HDMI 1.4</p>
<p>4.3.7.5 - Bluetooth 4.0 integrado ao gabinete, não sendo aceito opção externa;</p>	<p>https://dl.dell.com/topics/pdf/latitude-14-3410-laptop_owners-manual2_pt-br.pdf</p>	<p>18</p>		<p>Bluetooth 5.1</p>

4.3.7.6 - Webcam HD integrada com gravação em 720 p;	https://dl.dell.com/topics/pdf/latitude-14-3410-laptop_owners-manual2_pt-br.pdf	17		Tipo de sensor Tecnologia do sensor CMOS Resolução: Imagem estática 0,92 megapixels Vídeo 1280 x 720 (HD) a 30 fps
4.3.7.7 - Deve possuir leitor SD ou Micro SD integrado;	https://dl.dell.com/topics/pdf/latitude-14-3410-laptop_owners-manual2_pt-br.pdf	18		Leitor de cartão de mídia
4.3.7.8 - Touchpad com 02 (dois) botões e scrool integrado;	DECLARAÇÃO FABRICANTE			
4.3.7.9 - Teclado embutido ao gabinete no padrão Português Brasileiro (ABNT2). (A impressão sobre as teclas deverá ser do tipo permanente, não podendo apresentar desgaste por abrasão ou uso prolongado). Possuir sistema de proteção contra líquidos do tipo respingo (“spill resistant”).	DECLARAÇÃO FABRICANTE			
4.3.8 - Conexão em Rede				
4.3.8.1 - Placa de rede integrada padrão Gigabit Ethernet (10/100/1000 Base -T) com conector RJ-45 fêmea embutido, com suporte mínimo às velocidades de transferência de 10/100/1000 Mbps. Suporte a PXE (Pre-Boot eXecution), para realizar instalação remota através da rede. Suporte a ativação remota do microcomputador pela	https://dl.dell.com/topics/pdf/latitude-14-3410-laptop_owners-manual2_pt-br.pdf DECLARAÇÃO FABRICANTE	15 35		Rede Uma porta RJ-45 flip-down 10/100/1000 Mbps Wake on LAN Este campo permite ao usuário selecionar se e como o sistema deve inicializar

<p>rede Wake-On-Lan . Suporte em gerenciamento no padrão ACPI. Compatível com opadrão DMI 2.0 ou superior. Leds indicadores de atividade de rede;</p>			<p>quando conectado à LAN. As opções são as seguintes:</p> <ul style="list-style-type: none"> ● Desativado - o sistema não inicializa com nenhum sinal LAN especial. ● Apenas LAN - permite que o sistema seja ligado por um sinal LAN especial de um computador em rede. ● LAN com inicialização PXE - permite que o sistema ative do estado S4 ou S5 e inicialize no PXE.
<p>4.3.8.2 - Deverá possuir interface de rede wireless integrada ao gabinete e compatível com os padrões IEEE802.11 AC no b/g/n. Deverá possuir certificação Wi-Fi g/n fornecido pela Anatel que garanta a interoperabilidade do adaptador PCI com outros produtos compatíveis com equipamentos Wi-Fi de outros fornecedores. Suporte a tecnologia de criptografia: WEP 64 e 128 bits, WPA e WPA2.</p>	<p>https://www.intel.com.br/content/dam/www/public/us/en/documents/product-briefs/wi-fi-6-ax201-module-brief.pdf</p> <p>https://sistemas.anatel.gov.br/mosaico/sch/publicView/listarProdutosHomologados.xhtml</p>	<p>3</p>	<p>IEEE WLAN Standard IEEE 802.11-2016 and select amendments (selected feature coverage) IEEE 802.11a, b, d, e, g, h, i, k, n, r, u, v, w, ac, ax; Fine Timing Measurement based on 802.11-2016</p> <p>Security Methods WPA2* Personal and Enterprise; WPA3*</p>

				<p>Authentication Protocols 802.1X EAP-TLS, EAP-TTLS/MSCHAPv2, PEAPv0 - MSCHAPv2 (EAP-SIM, EAP-AKA, EAP-AKA') Encryption 64-bit and 128-bit WEP, TKIP, 128-bit AES-CCMP, 256-bit AES-GCMP</p> <p>CERTIFICAÇÃO ANATEL OBTENÍVEL ATRAVÉS DO Nº DE HOMOLOGAÇÃO: 069701804423</p>
4.3.9 - Alimentação				
<p>4.3.9.1 - Fonte de alimentação externa para corrente alternada com tensões de entrada de 100 a 240 VAC(+/-10%), 50-60 Hz, com seleção automática de tensão. A fonte ofertada deverá suportar a configuração máxima do equipamento, sem troca de qualquer componente.</p>	<p>https://dl.dell.com/topics/pdf/latitude-14-3410-laptop_owners-manual2_pt-br.pdf</p>			<p>100 VCA x 240 VCA 50 Hz x 60 Hz</p>
<p>4.3.9.2 - Deverá ser capaz de manter o equipamento em funcionamento por no mínimo 4 (quatro) horas. Abateria deve ser do mesmo fabricante do notebook e compatível</p>	<p>DECLARAÇÃO FABRICANTE</p>			

com o equipamento especificado.				
4.3.9.3 - Deverá possuir todos os cabos lógicos e de alimentação para operação do sistema.	CONFORME PROPOSTA COMERCIAL			
4.3.9.4 - Vir acompanhado de todos os cabos necessários ao funcionamento do equipamento. O cabo de alimentação deverá estar em conformidade com a norma de ABNT NBR 14136:2002, obedecendo ao novo padrão brasileiro de plugues e tomadas.	CONFORME PROPOSTA COMERCIAL			
4.3.10 - Gabinete				
4.3.10.1 - O gabinete deverá ter aparência discreta e ser construído em material resistente nas cores: preto ou combinação preto/cinza/prata.	https://dl.dell.com/topics/pdf/latitude-14-3410-laptop_owners-manual2_pt-br.pdf	8,9,10 E 11		Visão geral do chassi
4.3.10.2 - O peso do conjunto (notebook com bateria instalada) de no máximo 1.7 kg;	https://dl.dell.com/topics/pdf/latitude-14-3410-laptop_owners-manual2_pt-br.pdf	20		Peso 1,53 kg (3,37 lb)
4.3.10.3 - Deve possuir solução de leitura biométrica integrada ao gabinete, não sendo aceitas soluções via USB. Deve ser fornecido o software para uso;	https://dl.dell.com/topics/pdf/latitude-14-3410-laptop_owners-manual2_pt-br.pdf	21		Leitor de impressão digital
4.3.10.4 - Possuir slot integrado para cabos Kensington ou Noble. Não existir quaisquer adaptações no gabinete destinadas a implementar o sistema de segurança	https://dl.dell.com/topics/pdf/latitude-14-3410-laptop_owners-manual2_pt-br.pdf	9		6. Slot de segurança em forma de cunha

4.3.10.5 - Acompanhado por um cabo de aço de segurança com trava, de no mínimo 1 m (um metro) de comprimento;	CONFORME PROPOSTA COMERCIAL ESTÁ SENDO FORNECIDO: Cabo de Segurança Kensington N17 (Wedge) - Chave			
4.3.10.6 - Não possuir cantos vivos, arestas ou bordas cortantes (interna ou externa)	DECLARAÇÃO FABRICANTE			
4.3.11 - Mouse				
4.3.11.1 - Mouse óptico ambidestro, com dois botões e tecla de rolagem (botão para scroll);	DECLARAÇÃO FABRICANTE			
4.3.11.2 - Conexão USB com o computador sem uso de adaptadores. A conexão deverá ser com fio;	DECLARAÇÃO FABRICANTE			
4.3.11.3 - Resolução mínima de 1.000 dpi;	DECLARAÇÃO FABRICANTE			
4.3.11.4 - A garantia do mouse deverá ser prestada pelo fabricante nas mesmas condições do equipamento;	DECLARAÇÃO FABRICANTE			
4.3.11.5 - Deverá ser do mesmo fabricante do microcomputador ofertado;	DECLARAÇÃO FABRICANTE			
4.3.11.6 - Deverá ser fornecido na cor preta;	DECLARAÇÃO FABRICANTE			
4.3.11.7 - Não serão aceitos minimouses;	N/A			
4.3.12 - Sistema Operacional				
4.3.12.1 - O equipamento deverá ser entregue com uma licença do Sistema Operacional Microsoft Windows10 Professional 64 bits, em português do Brasil;	CONFORME PROPOSTA COMERCIAL, ESTÁ SENDO FORNECIDO: Windows 10 Pro, de 64 bits - em Português (Brasil)			
4.3.12.2 - O equipamento deverá ser entregue com HD contendo a imagem	CONFORME PROPOSTA			

padrão customizada pela Contratante;				
4.3.12.3 - A proponente vencedora deverá, antes do fornecimento dos equipamentos, enviar uma amostra do mesmo ao contratante para configuração e geração do HD padrão, contendo o sistema operacional Microsoft Windows 10 Professional, 64 bits, bem como todos os drivers e softwares solicitados devidamente instalados;	CONFORME PROPOSTA			
4.3.12.4 - Todos os equipamentos ofertados deverão possuir disco rígido com a imagem do HD padrão;	CONFORME PROPOSTA			
4.3.12.5 - Deve ser fornecida mídia única ao contratante para instalação/restauração da imagem padrão do sistema operacional mencionado em todos os equipamentos. Não será permitido fornecimento de uma mídia por equipamento ofertado;	CONFORME PROPOSTA COMERCIAL, SEGUINDO AS REGRAS DO EDITAL, SEUS QUESTIONAMENTOS COM AS RESPECTIVAS RESPOSTAS E CIRCULARES			
4.3.12.6 - Deverá possuir integrado ou deverá estar disponível para download software desenvolvido pelo fabricante do equipamento com suporte a efetuar download de atualizações de drivers, consultar vigência de garantia entre outros;	https://www.dell.com/support/contents/pt-br/article/product-support/self-support-knowledgebase/software-and-downloads/supportassist			
4.3.12.7 - Deverá possuir integrado ou deverá estar disponível para download software que possibilite apagar de forma definitiva e irreversível todos os dados armazenados no	https://www.dell.com/support/kbdoc/pt-br/000146892/dell-data-wipe			

disco rígido, permitindo o descarte seguro de seus equipamentos;				
4.3.12.8 - Deverá possuir integrado ou deverá estar disponível para download software que permite averificação e instalação das últimas atualizações de todas as ferramentas disponíveis pelo fabricante;	https://www.dell.com/support/contents/pt-br/article/product-support/self-support-knowledgebase/software-and-downloads/supportassist			
4.3.13 - Características Gerais				
4.3.13.1 - Os notebooks deverão ser novos e entregues em suas embalagens originais do FABRICANTE	DE ACORDO, CONFORME PROPOSTA COMERCIAL			
4.3.13.2 - O equipamento deverá ser acompanhado por uma mochila ou maleta para transporte em couro, poliéster ou nylon, na cor preta, com alça removível, compartimento acolchoado para acomodar e proteger o notebook e divisões para carregar os acessórios. Deve possuir qualidade construtiva que garanta resistência e proteção efetiva para o equipamento;	https://www.dell.com/pt-br/shop/capa-para-notebook-dell-professional-14/apd/460-bchy/mochilas-pastas-e-capas			Maleta/Capa Dell Professional
4.3.13.3 - Drivers de instalação e configuração para todas as placas e componentes instalados no computador;	DE ACORDO			

4.3.13.4 - A documentação de instalação e configuração deverá ser fornecida impressa ou em mídia DVD/CD, em idioma Português (do Brasil), contendo orientações para a configuração e operação do produto fornecido.	CONFORME PROPOSTA COMERCIAL, SEGUINDO AS REGRAS DO EDITAL, SEUS QUESTIONAMENTOS COM AS RESPECTIVAS RESPOSTAS E CIRCULARES			
4.4.13.5 - Deve acompanhar 1 (um) adaptador de porta HDMI para VGA (para conexão de Projetor multimídia e monitores (legado));	CONFORME PROPOSTA COMERCIAL ESTÁ SENDO FORNECIDO: Dell Adaptador HDMI para VGA			

Eldorado do Sul, 17 de março de 2021

À
SECRETARIA DE ESTADO DE DESENVOLVIMENTO E INOVACAO DE GOIÁS
A/C Sr. Pregoeiro(a)

Ref: Pregão Eletrônico nº 01/2021.

DECLARAÇÃO TÉCNICA

DELL COMPUTADORES DO BRASIL LTDA. ("Dell"), inscrita no CNPJ/MF sob o nº 72.381.189/0001-10, com sede na Av. Industrial Belgraf, 400 – Medianeira – CEP 92990-000, Eldorado do Sul/RS, com o objetivo de complementar as informações que não constam no Catálogo Técnico Oficial do(s) produto(s) abaixo ofertado(s), vem, através da presente, declarar o que segue:

Objeto: Item 01, 02, 04

Optiplex 5080SFF

i. Processador.

- Possui sistema de dissipação de calor dimensionado para a perfeita refrigeração do processador, considerando que este esteja operando em sua capacidade máxima, pelo período de 8 horas diárias consecutivas, em ambiente não refrigerado;

ii. Placa Mãe.

- É do mesmo fabricante do equipamento ofertado, não sendo de livre comercialização no mercado, sendo que o modelo e fabricante está serigrafados na PCB (Printed Circuit Board) em processo industrial;
- Possui regulagem da velocidade de rotação de cooler da CPU de forma automática, de acordo com a variação de temperatura da CPU;
- Possui recursos WFM 2.0 (Wired for Management) compatível com os padrões do DMTF(Distributed Management Task Force);

iii. BIOS.

- BIOS é implementada em memória "flash", atualizável diretamente pelo Windows, projetada e desenvolvida pelo mesmo fabricante do equipamento ofertado;
- Suporta Boot por dispositivos USB, CD-ROM e por rede;
- Possui compatibilidade com o padrão UEFI;
- É do tipo Flash Memory, utilizando memória não volátil e reprogramável, e compatível com os padrões ACPI (Advanced Configuration and Power Interface) 3.0 e Plug-and-Play;
- O BIOS possui ferramenta de diagnóstico com capacidade de executar teste de processador, memória RAM, saúde do disco rígido ou SSD, interface de rede, interface gráfica e portas USB. A mensagem de erro é suficiente para abertura de chamado em Garantia;
- Possui relógio de calendário em bateria não volátil;
- Possui a interface de configuração em idioma em inglês;
- Possui interface gráfica acessível através de teclado e mouse;

iv. Memória RAM.

- O módulo de memória é homologado pelo fabricante do equipamento e é idêntico em marca/modelo para cada computador fornecido;
- Suporta configurações de memória de canal duplo (Dual Channel Memory).

v. Armazenamento.

- SSD 256GD: Possui taxas de transferências sequenciais de leitura e gravação iguais ou superiores a 1.900MB/s e 1.000MB/s respectivamente;
- SSD 512GB: Possui taxas de transferências sequenciais de leitura e gravação iguais ou superiores a 2.700MB/s e 1.000MB/s respectivamente;

vi. Unidade de Som (Placa de Som)

- Quando for conectado o fone de ouvido no conector frontal, o alto-falante interno é automaticamente desabilitado, evitando o indesejável efeito de som de duas fontes simultâneas e diferentes. Este conjunto de som interno é a principal fonte de som do equipamento, sendo possível a reprodução de áudio sem a conexão de nenhum dispositivo externo.

vii. Interface de rede (Placa de Rede).

- Possui suporte em gerenciamento no padrão ACPI;
- É compatível com o padrão DMI 2.0 ou superior.

viii. Teclado Dell KB216

- Teclado padrão Brasileiro ABNT2 com 107 teclas, com todos os caracteres da língua portuguesa;
- Teclas não apagáveis, possuindo gravação das teclas que permite o uso prolongado sem que a impressão dos caracteres nas mesmas se apague;
- Possui mínimo de duas posições para regulagem de altura;
- Possui resistência a respingos acidentais;
- Possui conexão USB com o computador sem uso de adaptadores;
- Possui 12 (doze) teclas de função (F1-F12) na porção superior do teclado. As teclas de função deverão ser acionadas diretamente, ou seja, sem a combinação com teclas secundárias;
- Possui LEDs indicadores de teclado numérico habilitado e de tecla Caps Lock pressionada;
- Possui bloco numérico separado das demais teclas;
- Teclas Windows logo (acesso ao menu iniciar) e aplicação (acesso ao menu de atalhos: equivalente ao botão direito do mouse);
- Durante o período de garantia, caso existam teclados com a impressão desgastada por uso, eles serão substituídos sem custos para a contratante;
- É do mesmo fabricante do microcomputador ofertado;
- Será fornecido na cor preta;
- A garantia do teclado será prestada pelo fabricante nas mesmas condições do equipamento;

ix. Mouse Dell MS116

- Mouse óptico ambidestro, com dois botões e tecla de rolagem (botão para scroll);
- Conexão USB com o computador sem uso de adaptadores. A conexão é com fio;
- Resolução de 1.000 dpi;
- A garantia do mouse é prestada pelo fabricante nas mesmas condições do equipamento;
- É do mesmo fabricante do microcomputador ofertado;
- Será fornecido na cor preta;

x. Fonte de Alimentação

- Possui potência suficiente para suportar todos os dispositivos internos na configuração máxima admitida pelo equipamento (placa principal, interfaces, discos rígidos, memória RAM e demais periféricos);

xi. Gabinete

- Gabinete projetado com design específico para trabalhar tanto na posição horizontal quanto na vertical;
- O alto-falante será desligado automaticamente, sem a necessidade de qualquer intervenção do usuário, quando forem conectados fones de ouvido ou caixas de som externas;
- O sistema de refrigeração é adequado ao processador e demais componentes internos ao gabinete, para garantir a temperatura de funcionamento e vida útil dos componentes. Solução de refrigeração, monitorada pela BIOS dimensionado para a perfeita refrigeração dos componentes internos, operando em sua capacidade máxima, pelo período mínimo de dez horas diárias consecutivas em ambiente não refrigerado;
- Possui acabamento interno com superfícies não cortantes, inclusive nas entradas de ar;
- As unidades do equipamento serão entregues devidamente acondicionadas em embalagens individuais adequadas, que utilizam preferencialmente materiais recicláveis de forma a garantir a máxima proteção durante o transporte e a armazenagem.

xii. Monitores P2219H e P2419H

- Possuem fonte de energia, instalada internamente ao gabinete do monitor com seleção automática de voltagem 100-240 VAC e 50/60 Hz;
- As unidades do equipamento serão entregues devidamente acondicionadas em embalagens individuais adequadas, que utilizam preferencialmente materiais recicláveis, de forma a garantir a máxima proteção durante o transporte e a armazenagem;
- O equipamento pertence à linha corporativa;

Latitude 3410:

i. Processador

- Possui sistema de dissipação de calor dimensionado para a perfeita refrigeração do processador, considerando que este esteja operando em sua capacidade máxima, pelo período de 8 horas diárias consecutivas, em ambiente não refrigerado;

ii. Placa Mãe e BIOS

- Possui placa mãe do mesmo FABRICANTE do notebook.
- Possui total compatibilidade com a norma ACPI (Advanced Configuration and Power Interface);
- BIOS desenvolvida pelo mesmo FABRICANTE de notebook, implementada em "flash memory", atualizável sem troca do chip, atualizável remotamente, no idioma inglês com possibilidade de habilitar/desabilitar portas USB e com senhas e setup para usuário e supervisor. O notebook possui chip TPM integrada à placa mãe.
- Sempre que o equipamento for inicializado será mostrado no monitor de vídeo o nome do fabricante do microcomputador;

iii. Memória RAM

- Os módulos de memória são homologados pelo fabricante do equipamento e serão idênticos em marca/modelo para cada notebook fornecido;
- Adequa-se plenamente à velocidade de barramento da placa-mãe e do processador, possibilitando seu máximo aproveitamento.

iv. Armazenamento

- Possui taxas de transferências sequenciais de leitura e gravação iguais ou superiores a 1.700MB/s e 1.000MB/s respectivamente;

v. Vídeo

- A Tela é reforçada com dobradiças metálicas. A parte externa da tela possui estrutura e cobertura metálica integrada permitindo a segurança da tela;
- É compatível com uso de 1 monitor de vídeo/projetor simultaneamente com a tela integrada ao notebook.

vi. Interfaces

- Possui touchpad com 02 (dois) botões e scrool integrado;
- Possui teclado embutido ao gabinete no padrão Português Brasileiro (ABNT2). (A impressão sobre as teclas é do tipo permanente, não apresentando desgaste por abrasão ou uso prolongado). Possui sistema de proteção contra líquidos do tipo respingo ("spill resistant").

vii. Conexão em Rede

- Possui placa de rede integrada padrão Gigabit Ethernet (10/100/1000 Base -T) com conector RJ-45 fêmea embutido, com suporte às velocidades de transferência de 10/100/1000 Mbps. Suporte a PXE (Pre-Boot eXecution), para realizar instalação remota através da rede. Suporte a ativação remota do microcomputador pela rede Wake-On-Lan. Suporte em gerenciamento no padrão ACPI. Compatível com o padrão DMI 2.0. Leds indicadores de atividade de rede;

viii. Alimentação

- A bateria ofertada é capaz de manter o equipamento na configuração ofertada em funcionamento por no mínimo 4 (quatro) horas de acordo com benchmark MobileMark 2018. A bateria é do mesmo fabricante do notebook e compatível com o equipamento especificado.

ix. Gabinete

- Não possui cantos vivos, arestas ou bordas cortantes (interna e externa)

x. Mouse

- Mouse óptico ambidestro, com dois botões e tecla de rolagem (botão para scroll);
- Conexão USB com o computador sem uso de adaptadores. A conexão é com fio;
- Resolução de 1.000 dpi;
- A garantia do mouse será prestada pelo fabricante nas mesmas condições do equipamento;
- É do mesmo fabricante do microcomputador ofertado;
- Será fornecido na cor preta;

Atenciosamente,

JULIANE
CASAGRANDE
RODRIGUES:0035051
4003

Digitally signed by JULIANE
CASAGRANDE
RODRIGUES:00350514003
Date: 2021.03.18 10:14:10
-03'00'

Dell Computadores do Brasil Ltda

Juliane Casagrande Rodrigues – Gerente de Vendas

Eldorado do Sul/RS, 19 de março de 2021.

À Secretaria de Estado de Desenvolvimento e Inovação do Estado de Goiás
Ref.: Pregão Eletrônico nº. 001/2021 - SEDI

Prezados Senhores,

A Dell Computadores do Brasil Ltda, através de sua filial inscrita no CNPJ 72.381.189/0010-01, com sede na Avenida Emancipação, 5000, Parte B, Bairro Parque dos Pinheiros, CEP 13184-654, Hortolândia/São Paulo, e sua matriz inscrita no CNPJ 72.381.189/0001-10, com sede na Av. Industrial Belgraf, 400, Eldorado do Sul / Rio Grande do Sul, agradece a oportunidade de participar deste certame.

Declaramos que atendemos a todos os itens mencionados no Edital supracitado.

Estamos à disposição para quaisquer esclarecimentos que se fizerem necessários, através de nossos telefones ou e-mails.

Atenciosamente,

JULIANE
CASAGRANDE
RODRIGUES:0035051
4003

Digitally signed by
JULIANE CASAGRANDE
RODRIGUES:00350514003
Date: 2021.03.18 16:30:32
-03'00'

Dell Computadores do Brasil Ltda.
Juliane Rodrigues - Gerente de Vendas

IEC**IECEE**

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TM

Ref. Certif. No.

JPTUV-112719

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT
(IECEE) CB SCHEME**CB TEST CERTIFICATE**

Product	Flat Panel Monitor
Name and address of the applicant	Qisda Corporation 157, Shan-Ying Road Gueishan, Taoyuan 333 Taiwan
Name and address of the manufacturer	Qisda Corporation 157, Shan-Ying Road Gueishan, Taoyuan 333 Taiwan
Name and address of the factory	See additional page(s)
Ratings and principal characteristics	AC 100-240V; 50-60Hz; 1.5A; Class I
Trademark (if any)	DELL
Customer's Testing Facility (CTF) Stage used	N/A
Model / Type Ref.	P2219H, P2219Hb
Additional information (if necessary may also be reported on page 2)	For model differences, refer to the test report.
A sample of the product was tested and found to be in conformity with	IEC 62368-1:2018 See Test Report for National Differences
As shown in the Test Report Ref. No. which forms part of this Certificate	NN20A7T1 001

This CB Test Certificate is issued by the National Certification Body

**TÜVRheinland**®

TÜV Rheinland Japan Ltd.
Global Technology Assessment Center
4-25-2 Kita-Yamata, Tsuzuki-ku
Yokohama 224-0021, Japan
Phone + 81 45 914-3888
Fax + 81 45 914-3354
Mail: info@jpn.tuv.com
Web : www.tuv.com

Date: 2020-08-18

Signature:


Dipl.-Ing. (FH) A. Klinker


1. Qisda Corporation
157, Shan-Ying Road
Gueishan
Taoyuan 333
Taiwan
2. Qisda (Suzhou) Co., Ltd.
No. 169 Zhujiang Road, New District
Suzhou
215129 Jiangsu
P.R. China
3. Qisda Corporation, Taoyuan factory
No. 157, Shanying Road,
Guishan District, Taoyuan City 333
Taiwan
4. QISDA VIETNAM CO., LTD
Lot CN-03, Dong Van IV Industrial Zone,
Dai Cuong Commune, Kim Bang District,
Ha Nam Province
Vietnam
5. QISDA VIETNAM CO., LTD
Lot CN-12,
Dong Van IV Industrial Zone,
Dai Cuong Commune, Kim Bang District,
Ha Nam Province, Vietnam

Additional information (if necessary)

Report Ref. No. : NN20A7T1 001

Date: 2020-08-18

Signature:


Dipl.-Ing. (FH) A. Klinker

IEC**IECEE**

®

TM

Ref. Certif. No.

JPTUV-111876

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT
(IECEE) CB SCHEME**CB TEST CERTIFICATE**

Product

Flat Panel Monitor

Name and address of the applicant

TPV Electronics (Fujian) Co., Ltd.
Rongqiao Economic and
Technological Development Zone, Fuqing City, Fujian, P.R.
China

Name and address of the manufacturer

TPV Electronics (Fujian) Co., Ltd.
Rongqiao Economic and
Technological Development Zone, Fuqing City, Fujian, P.R.
China

Name and address of the factory

See additional page(s)

Ratings and principal characteristics

I/P: 100-240VAC; 50/60Hz; 1.5A; Class I

Trademark (if any)

DELL

Customer's Testing Facility (CTF) Stage used

N/A

Model / Type Ref.

P2319Hc, P2319H; P2419Hc, P2419H

Additional information (if necessary may
also be reported on page 2)

For model differences, refer to the test report.

A sample of the product was tested and
found to be in conformity withIEC 62368-1:2014
See Test Report for National DifferencesAs shown in the Test Report Ref. No. which
forms part of this Certificate

60403331 001

This CB Test Certificate is issued by the National Certification Body

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Web : www.tuv.com

Date: 2020-07-28

Signature:

Aegean Li

1. TPV Display Technology (Wuhan) Co., Ltd.
Unique No. 11, Zhuankou Development District of Economic Technological Development Zone, 430056 Wuhan City, P.R. China
2. TPV Electronics (Fujian) Co., Ltd.
Shangzheng, Yuan Hong Road
Fuqing City
Fujian
P.R. China
3. L&T Display Technology (Fujian) Ltd.
Optoelectronic Park, Rongqiao Economic and Technological Development Zone
Fuqing, 350301 Fujian, P.R. China
4. TPV Electronics (Fujian) Co., Ltd.
Rongqiao Economic and Technological Development Zone
Fuqing City
Fujian, P.R. China
5. TPV Display Technology (Beihai) Co., Ltd.
China Electronic Beihai Industry Park, Northeast of the Crossing Between Taiwan Road and Jilin Road, Beihai City, Guangxi, P.R. China
6. TPV Display Technology (China) Co., Ltd.
No. 106 Jinghai 3 Rd.,
BDA
100176 Beijing
P.R. China
7. Trend Smart CE Mexico S de RL de CV
Avenida Sor Juana Ines de la Cruz de 19602 Nueva Tijuana,
22435 Tijuana Baja California
MEXICO

Additional information (if necessary)

Report Ref. No. : 60403331 001

Date: 2020-07-28

Signature:



Aegean Li

8. TPV Technology (Qingdao)
Co., Ltd.
No.99 Huoju Road, High-tech
Industrial Development Zone
Qingdao City, Shandong, P.R. China
9. Envision Indústria de Produtos
Eletrônicos Ltda.
Av. Torquato Tapajós, 2236,
Flores - CEP 69058-830 - Manaus/AM
Brazil
10. Pro Concept Manufacturer Co., Ltd
88/1 Moo 12, Soi
Phetkasem 120, Phetkasem
Road, Omnoi, Krathumbaen,
Samutsakhon 74130, Thailand
11. TPV Technology (Thailand) Co., Ltd.
No.267 Mu7,
Tha Tum Sub- District, Si Maha Pho District,
Prachin Buri Province
Thailand
12. TPV Electronics (Fujian) Co., Ltd.
Optoelectronic Park,
Rongqiao Economic and
Technological Development Zone,
Fuqing City, 350301 Fujian, P.R. China
13. GeneTouch Corp.
No. 9 Neixi Rd.,
Luzhu Dist., Taoyuan City 33852
Taiwan

Additional information (if necessary)

Report Ref. No. : 60403331 001

Date: 2020-07-28

Signature:



Aegean Li



Test Report issued under the responsibility of:



**TEST REPORT
IEC 62368-1**

**Audio/video, information and communication technology equipment
Part 1: Safety requirements**

Report Number.....: 60403331 001
Date of issue.....: 2020-Jul-26
Total number of pages: 74

Applicant's name: **TPV Electronics (Fujian) Co., Ltd.**
Address: Rongqiao Economic and Technological Development Zone, Fuqing City, Fujian, P.R.China

Test specification:
Standard.....: IEC 62368-1:2014 (Second Edition)
Test procedure.....: CB Scheme
Non-standard test method.....: N/A

Test Report Form No.: IEC62368_1B
Test Report Form(s) Originator.....: UL(US)
Master TRF.....: 2014-03

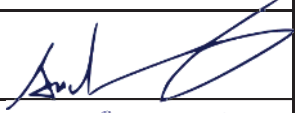

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This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

General disclaimer:
The test results presented in this report relate only to the object tested.
This report shall not be reproduced, except in full, without the written approval of the Issuing CB Testing Laboratory. The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report.

Test Item description	Flat Panel Monitor	
Trade Mark	DELL	
Manufacturer.....	Same as applicant	
Model/Type reference	P2319Hc, P2319H; P2419Hc, P2419H	
Ratings	I/P: 100-240V~, 50/60Hz, 1.5A	
Testing procedure and testing location:		
<input checked="" type="checkbox"/>	CB Testing Laboratory:	TÜV Rheinland (Shenzhen) Co., Ltd.
Testing location/ address.....	1F East & 2-4F, Cybio Technology Building No. 1, No. 16 Kejibei 2nd Road, High-Tech Industrial Park North, Nanshan District 518057, Shenzhen, China	
<input type="checkbox"/>	Associated CB Testing Laboratory:	
Testing location/ address.....		
Tested by (name + signature).....	Anderson Wang Senior Project Manager	
Approved by (name + signature).....	Steven Lin Technical Reviewer	
<hr/>		
<input type="checkbox"/>	Testing procedure: TMP/CTF Stage 1:	
Testing location/ address.....		
Tested by (name + signature).....		
Approved by (name + signature).....		
<hr/>		
<input type="checkbox"/>	Testing procedure: WMT/CTF Stage 2:	
Testing location/ address.....		
Tested by (name + signature).....		
Witnessed by (name + signature).....		
Approved by (name + signature).....		
<hr/>		
<input type="checkbox"/>	Testing procedure: SMT/CTF Stage 3 or 4:	
Testing location/ address.....		
Tested by (name + signature).....		
Witnessed by (name + signature).....		
Approved by (name + signature).....		
Supervised by (name + signature).....		

List of Attachments (including a total number of pages in each attachment):

- Photo documentation (10 pages)
- National Differences (52 pages)
- Measurement Section (3 pages)

Summary of testing:**Tests performed (name of test and test clause):**

name of test	test clause number
Classification of electrical energysources	5.2
Accessibilityto electrical energy sources and safeguards (Accessibilitytest)	5.3.2
Maximum operating temperature test (Heating test)	5.4.1.4, 6.3.2, 9.0, B.2.6
Determination of working voltage	5.4.1.8
Ball pressure test	5.4.1.10.3
Minimum Clearances/Creepage distance	5.4.2.2, 5.4.2.4 and 5.4.3
Humiditytest	5.4.8
Electric strength test	5.4.9
Safeguards against capacitance discharge test	5.5.2.2
Resistance of the protective bonding system (Ground continuity test)	5.6.6.2
Earthed accessible conductive part test	5.7.2.2, 5.7.4
Electrical Power Source (PS) measurements for classification	6.2.2
Top Openings in Fire Enclosure	6.4.8.3.3
Bottom Openings in Fire Enclosure	6.4.8.3.4
Stability	8.6
Wall or ceiling mount loading test	8.7
Input test	Annex B.2.5
Simulated abnormal operating and single fault conditions	Annex B.3, B.4
Test for permanence of markings	Annex F.3.10
Safeguards against entry of foreign object	Annex P.2.2
Adhesive test	Annex P.4
Limited power source test (LPS)	Annex Q.1
Batteries	Annex M
Steady force test, 10N, 250N	Annex T.2, T.5
Enclosure impact test	Annex T.6
Stress relief test	Annex T.8

Testing location:

All tests as described in Test Case and Measurement Sections were performed at the laboratory described on page 2.

The EUT passed the test.

P2419H

Monitor Plano Panel / Moniteur écran plat / 液晶顯示器
 Modelo / N° de modelo / 型號: P2419Hc
 Entrada / Daya Tegangan: 100-240V ~ 50/60Hz, 1.5A
 輸入電源: 交流電壓100-240伏特, 1.5安培, 50/60赫茲
 Consumo de energía en operación: XX.X Wh
 Удельная мощность рабочего режима - X.XXX Вт/см²
 Потребляемая мощность изделием в режиме ожидания - 0.30 Вт
 Потребляемая мощность изделием в выключенном режиме - 0.30 Вт
 Apparaten må tilkoples jordet stikkontakt.
 Apparaten skall anslutas till jordat uttag.
 Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan.
 Apparaten stikprop skal tilsluttes en stikkontakt med jord,
 som giver forbindelse til stikproppens jord.
 The equipment must be connected to an earthed mains socket-outlet.
 L'appareil doit être branché sur une prise de courant munie d'une mise à la terre.
 CAN ICES-3 (B)/NMB-3(B)
 сделанный в Китае / Fabriqué en Chine / 中國製造 警語: 使用過度恐傷害視力。

XXXXXXXXXXXXXXXXXXXX
 R-REM-TPF-P2419Hc
 제조자/신정인: TPV Electronics (Fujian) Co., Ltd.
 A/S 연락처: 080-200-3800

Q40G024N-700-17A

DELL P2419H

Flat Panel Monitor / 液晶顯示器
 型号: P2419H
 Input Rating / 輸入電源:
 100-240V ~ 50/60Hz, 1.5A
 Made in China / 中國製造
 www.dell.com Raheen Business Park Limerick Ireland (for EU Only)
Date of Mfg / 生产日期 / 生產日期: January, 2018

SVC Tag:
 XXXXXXXX
Express Service Code:
 XXX XXX XXX X

S/N: XXXXXXXX
 XXXXXXXXXXXXXXX
 XXX

Q40G024N-700-18A

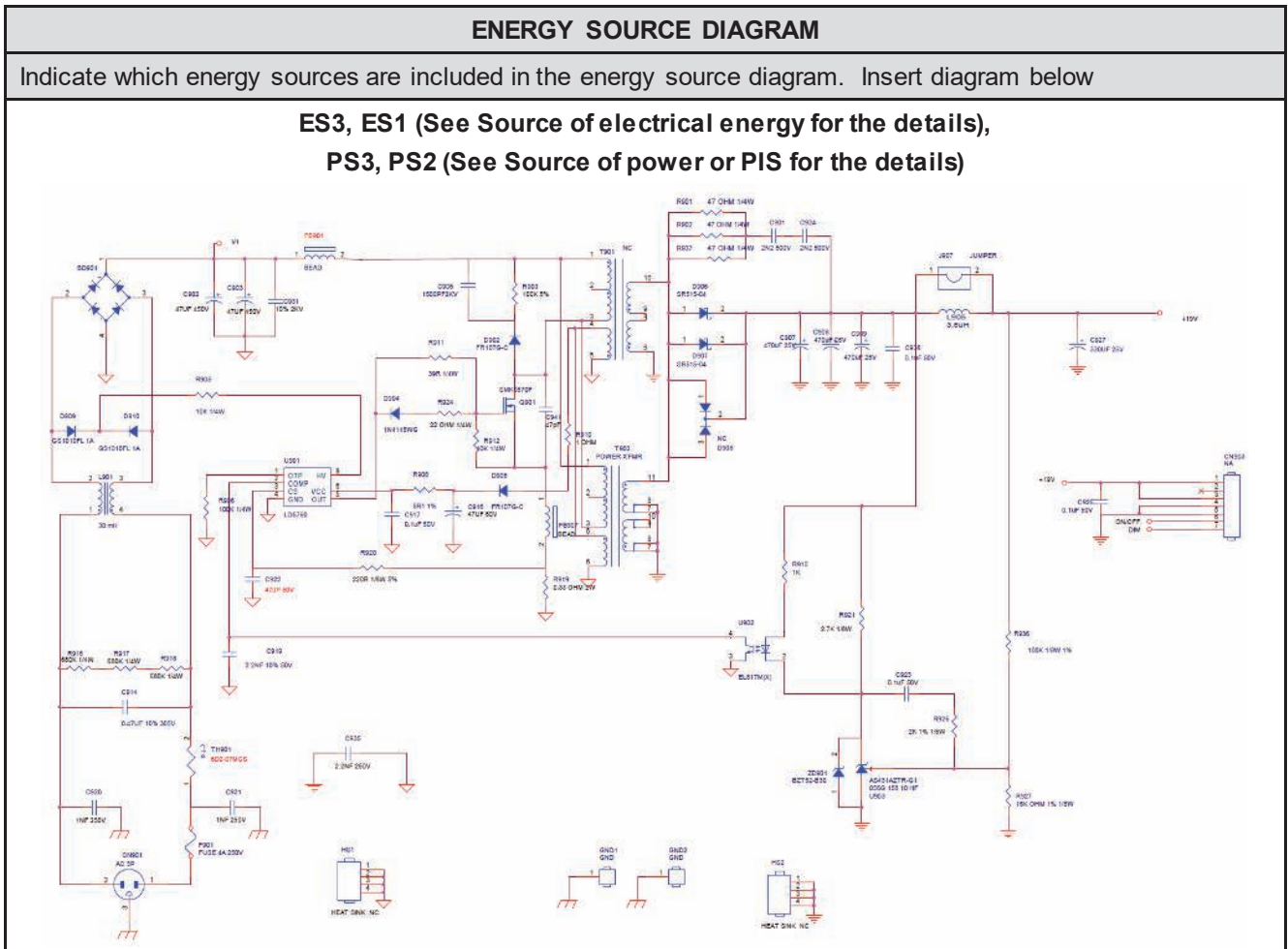
TEST ITEM PARTICULARS:	
Classification of use by	<input checked="" type="checkbox"/> Ordinary person <input type="checkbox"/> Instructed person <input type="checkbox"/> Skilled person <input checked="" type="checkbox"/> Children likely to be present
Supply Connection	<input checked="" type="checkbox"/> AC Mains <input type="checkbox"/> DC Mains <input type="checkbox"/> External Circuit - not Mains connected - <input type="checkbox"/> ES1 <input type="checkbox"/> ES2 <input type="checkbox"/> ES3
Supply % Tolerance	<input checked="" type="checkbox"/> +10%/-10% <input type="checkbox"/> +20%/-15% <input type="checkbox"/> + ___ %/ - ___ % <input type="checkbox"/> None
Supply Connection – Type	<input checked="" type="checkbox"/> pluggable equipment type A - <input type="checkbox"/> non-detachable supply cord <input checked="" type="checkbox"/> appliance coupler <input type="checkbox"/> direct plug-in <input type="checkbox"/> mating connector <input type="checkbox"/> pluggable equipment type B - <input type="checkbox"/> non-detachable supply cord <input type="checkbox"/> appliance coupler <input type="checkbox"/> permanent connection <input type="checkbox"/> mating connector <input type="checkbox"/> other: _____
Considered current rating of protective device as part of building or equipment installation	<u>16</u> A (13A for UK and Ireland; 20A for Canada and the USA) ; Installation location: <input checked="" type="checkbox"/> building; <input type="checkbox"/> equipment
Equipment mobility	<input checked="" type="checkbox"/> movable <input type="checkbox"/> hand-held <input type="checkbox"/> transportable <input type="checkbox"/> stationary <input type="checkbox"/> for building-in <input type="checkbox"/> direct plug-in <input type="checkbox"/> rack-mounting <input checked="" type="checkbox"/> wall-mounted
Over voltage category (OVC)	<input type="checkbox"/> OVC I <input checked="" type="checkbox"/> OVC II <input type="checkbox"/> OVC III <input type="checkbox"/> OVC IV <input type="checkbox"/> other: _____
Class of equipment	<input checked="" type="checkbox"/> Class I <input type="checkbox"/> Class II <input type="checkbox"/> Class III
Access location	<input type="checkbox"/> restricted access location <input checked="" type="checkbox"/> N/A
Pollution degree (PD)	<input type="checkbox"/> PD 1 <input checked="" type="checkbox"/> PD 2 <input type="checkbox"/> PD 3
Manufacturer's specified maximum operating ambient :	<u>40</u> °C
IP protection class	<input checked="" type="checkbox"/> IPX0 <input type="checkbox"/> IP___
Power Systems	<input checked="" type="checkbox"/> TN <input type="checkbox"/> TT <input type="checkbox"/> IT - ___ V _{L-L}
Altitude during operation (m)	<input type="checkbox"/> 2000 m or less <input checked="" type="checkbox"/> <u>5000</u> m
Altitude of test laboratory (m)	<input checked="" type="checkbox"/> 2000 m or less <input type="checkbox"/> ___ m
Mass of equipment (kg)	<input checked="" type="checkbox"/> For 23 inch model: Approx. 4.74kg (whole unit); For 23.8 inch model: Approx. 4.85kg (whole unit); For base stand: approx. 1.66kg
POSSIBLE TEST CASE VERDICTS:	
- test case does not apply to the test object	N/A
- test object does meet the requirement	P (Pass)

- test object does not meet the requirement	F (Fail)
- test object not yet conducted.....	N/T
TESTING:	
Date of receipt of test item	15.Jun.2020
Date (s) of performance of tests	15.Jun.2020 - 26.Jul.2020
GENERAL REMARKS:	
<p>"(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report.</p> <p>Throughout this report a <input type="checkbox"/> comma / <input checked="" type="checkbox"/> point is used as the decimal separator.</p>	
Manufacturer's Declaration per sub-clause 4.2.5 of IEC 60335-1:	
The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> Not applicable
When differences exist; they shall be identified in the General product information section.	
Name and address of factory (ies).....:	
<ol style="list-style-type: none"> 1 TPV Display Technology (Wuhan) Co., Ltd Unique No.11 Zhuankou Development District of Economic Technological Development Zone , 430056 Wuhan City, P. R. China 2 TPV Electronics (Fujian) Co., Ltd. Shangzheng, Yuan Hong Road Fuqing City, Fujian, P.R.China 3 L&T Display Technology (Fujian) Ltd Optoelectronic Park, Rongqiao Economic and Technological Development Zone Fuqing, 350301 Fujian, P.R. China 4 TPV Electronics (Fujian) Co., Ltd. Rongqiao Economic and Technological Development Zone Fuqing City, Fujian, P.R.China 5 TPV Display Technology (Beihai) Co.,Ltd. China Electronic Beihai Industry Park, Northeast of the Crossing between Taiwan Road and Jilin Road, Beihai City, Guangxi, P.R.China 6 TPV Display Technology (China) Co., Ltd No.106 Jinghai 3 Rd., BDA, 100176 Beijing, P. R. China 7 Trend Smart CE Mexico S de RL de CV Avenida Sor Juana Ines de la Cruz de 19602 Nueva Tijuana, 22435 Tijuana Baja California, MEXICO 8 TPV Technology(Qingdao) Co.,Ltd. NO.99 Huoju Road, High-tech Industrial Development Zone, Qingdao City, Shandong, P. R. China 9 Envision Indústria de Produtos Eletrônicos Ltda. Av. Torquato Tapajós, 2236, Flores - CEP 69058-830 - Manaus/AM Brasil 10 Pro Concept Manufacturer Co., Ltd. 88/1 Moo 12, Soi Phetkasem 120, Phetkasem Road, Omnoi, Krathumbaen, Samutsakhon 74130, Thailand 11 TPV Technology (Thailand) Co., Ltd. No.267 Mu7, Tha Tum Sub- District, Si Maha Pho District,Prachin Buri Province, Thailand 	

<p>12 TPV Electronics (Fujian) Co., Ltd. Optoelectronic Park, Rongqiao Economic and Technological Development Zone, Fuqing City, 350301, Fujian, P. R. China</p> <p>13 GeneTouch Corp. No. 9 Neixi Rd., Luzhu Dist., Taoyuan City, 33852 Taiwan</p>
<p>GENERAL PRODUCT INFORMATION:</p>
<p>Product Description –</p> <p>The models are Flat Panel Monitor intended for general office use and information technology equipment with following features. The different among models see table shown as below.</p> <p>The unit has the following features:</p> <ol style="list-style-type: none"> 1. LCD panel type: 23 inch (for models P2319Hc, P2319H) or 23.8 inch (for model P2419Hc, P2419H), LED backlight, resolution: 1920x1080; 2. Building-in power supply board 715G9657; 3. Main board 715G9656 with VGA, HDMI, DisplayPort, USB 3.0 type B and USB 2.0 type A ports used, which is supplied by +19V output of power board; 4. Extend USB 3.0 board: 715G9655; 5. The external plastic enclosure is regarded as electrical enclosure and mechanical enclosure, made of min. HB material; 6. The internal metal chassis is considered as electrical enclosure, mechanical enclosure and fire enclosure; 7. Base stand: material: HB or better, and metal. And base stand is rotatable type with 90° clockwise and 90° anticlockwise; 8. Maximum declared ambient: 40°C.
<p>Model Differences –</p> <p>Model P2319Hc is identical to model P2319H except for type designation; Model P2419Hc is identical to model P2419H except for type designation; Model P2319Hc is identical to P2419Hc except for type designation, dimension of plastic enclosure due to different panel size.</p>
<p>Additional application considerations –</p> <p>N/A</p>

ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE:	
(Note 1: Identify the following six (6) energy source forms based on the origin of the energy.) (Note 2: The identified classification e.g., ES2, TS1, should be with respect to its ability to cause pain or injury on the body or its ability to ignite a combustible material. Any energy source can be declared Class 3 as a worse case classification e.g. PS3, ES3.)	
Electrically-caused injury (Clause 5): (Note: Identify type of source, list sub-assembly or circuit designation and corresponding energy source classification) Example: +5 V dc input	
	ES1
Source of electrical energy	Corresponding classification (ES)
L/N pin of appliance inlet	ES3
Primary circuit	ES3
+19V output of SPS	ES1
DC output for LED backlight	ES1
Electrically-caused fire (Clause 6): (Note: List sub-assembly or circuit designation and corresponding energy source classification) Example: Battery pack (maximum 85 watts):	
	PS2
Source of power or PIS	Corresponding classification (PS)
All circuits of power board	PS3
+19V output of SPS	PS2
All data ports of main board	PS2
Injury caused by hazardous substances (Clause 7) (Note: Specify hazardous chemicals, whether produces ozone or other chemical construction not addressed as part of the component evaluation.) Example: Liquid in filled component	
	Glycol
Source of hazardous substances	Corresponding chemical
N/A	N/A
Mechanically-caused injury (Clause 8) (Note: List moving part(s), fan, special installations, etc. & corresponding MS classification based on Table 35.) Example: Wall mount unit	
	MS2
Source of kinetic/mechanical energy	Corresponding classification (MS)
Sharp edges and corners	MS1
Equipment mass	MS1
Wall mount	MS3
Thermal burn injury (Clause 9) (Note: Identify the surface or support, and corresponding energy source classification based on type of part, location, operating temperature and contact time in Table 38.) Example: Hand-held scanner – thermoplastic enclosure	
	TS1
Source of thermal energy	Corresponding classification (TS)
Accessible parts	TS1

ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE:	
Radiation (Clause 10) (Note: List the types of radiation present in the product and the corresponding energy source classification.) Example: DVD – Class 1 Laser Product RS1	
Type of radiation	Corresponding classification (RS)
Indicating lights	RS1
Backlight of LCD panel	RS1



OVERVIEW OF EMPLOYED SAFEGUARDS				
Clause	Possible Hazard			
5.1	Electrically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (ES3: Primary Filter circuit)	Safeguards		
		Basic	Supplementary	Reinforced (Enclosure)
Ordinary	ES3: L/N pin of appliance inlet	--	--	Bleeder Resistor
Ordinary	ES3: Primary circuit	Air gap	Enclosure	Transformers, Photo Couplers, Y1 capacitor
Ordinary	ES1: +19V output of SPS	N/A	N/A	N/A

Ordinary	ES1: VLED output for LED backlight	N/A	N/A	N/A
6.1	Electrically-caused fire			
Material part (e.g. mouse enclosure)	Energy Source (PS2: 100 Watt circuit)	Safeguards		
		Basic	Supplementary	Reinforced
Combustible materials inside power board	PS3: >100 Watt circuit	Ignition not occur	Fire enclosure	--
Combustible materials supplied by all DC outputs of SPS	PS2: <100 Watt circuit	Ignition not occur	Mounted on V-1 min. PCB	--
7.1	Injury caused by hazardous substances			
Body Part (e.g., skilled)	Energy Source (hazardous material)	Safeguards		
		Basic	Supplementary	Reinforced
N/A	N/A	N/A	N/A	N/A
8.1	Mechanically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (MS3:High Pressure Lamp)	Safeguards		
		Basic	Supplementary	Reinforced (Enclosure)
Ordinary	MS3: Wall mount	--	--	Compliance with test 8.7.2
9.1	Thermal Burn			
Body Part (e.g., Ordinary)	Energy Source (TS2)	Safeguards		
		Basic	Supplementary	Reinforced
Ordinary	TS1: Accessible parts	N/A	N/A	N/A
10.1	Radiation			
Body Part (e.g., Ordinary)	Energy Source (Output from audio port)	Safeguards		
		Basic	Supplementary	Reinforced
Ordinary	RS1: Indicating lights	N/A	N/A	N/A
Ordinary	RS1: LED backlight of LCD panel	N/A	N/A	N/A
Supplementary information:				
(1) See attached energy source diagram for additional details.				
(2) "N" – Normal Condition; "A" – Abnormal Condition; "S" Single Fault				

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
4	GENERAL REQUIREMENTS		P
4.1.1	Acceptance of materials, components and subassemblies	See appended table 4.1.2.	P
4.1.2	Use of components	Components which are certified to IEC and/or national standards are used correctly within their ratings. Components not covered by IEC standards are tested under the conditions present in the equipment.	P
4.1.3	Equipment design and construction	No accessible part which could cause injury.	P
4.1.15	Markings and instructions	(See Annex F)	P
4.4.4	Safeguard robustness	For adhesives securing parts serving as safeguards, see Annex P.4. Others see below.	P
4.4.4.2	Steady force tests	See Annex T.	P
4.4.4.3	Drop tests.....		N/A
4.4.4.4	Impact tests	See Annex T.	P
4.4.4.5	Internal accessible safeguard enclosure and barrier tests		N/A
4.4.4.6	Glass Impact tests	Laminated glass used.	N/A
4.4.4.7	Thermoplastic material tests	Phenolic material used and described in sub-clauses 5.4.1.10 to 5.4.1.10.3.	P
4.4.4.8	Air comprising a safeguard		P
4.4.4.9	Accessibility and safeguard effectiveness	Compliance checked.	P
4.5	Explosion	No explosion occurs during normal/abnormal operation and single fault conditions.	P
4.6	Fixing of conductors	See below.	P
4.6.1	Fix conductors not to defeat a safeguard		P
4.6.2	10 N force test applied to	See appended table 5.4.2.2, 5.4.2.4 and 5.4.3.	P
4.7	Equipment for direct insertion into mains socket - outlets		N/A
4.7.2	Mains plug part complies with the relevant standard.....		N/A
4.7.3	Torque (Nm).....		N/A
4.8	Products containing coin/button cell batteries	No lithium coin/button batteries used.	N/A
4.8.2	Instructional safeguard		N/A
4.8.3	Battery Compartment Construction		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Means to reduce the possibility of children removing the battery		—
4.8.4	Battery Compartment Mechanical Tests.....		N/A
4.8.5	Battery Accessibility		N/A
4.9	Likelihood of fire or shock due to entry of conductive object.....	Complied.	P

5	ELECTRICALLY-CAUSED INJURY		P
5.2.1	Electrical energy source classifications	See ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE.	P
5.2.2	ES1, ES2 and ES3 limits	See below.	P
5.2.2.2	Steady-state voltage and current	(See appended table 5.2)	P
5.2.2.3	Capacitance limits	(See appended table 5.2)	P
5.2.2.4	Single pulse limits.....		N/A
5.2.2.5	Limits for repetitive pulses		N/A
5.2.2.6	Ringling signals		N/A
5.2.2.7	Audio signals	(See Clause E.1)	N/A
5.3	Protection against electrical energy sources	See below.	P
5.3.1	General Requirements for accessible parts to ordinary, instructed and skilled persons	See "OVERVIEW OF EMPLOYED SAFEGUARDS" table.	P
5.3.2.1	Accessibility to electrical energy sources and safeguards	ES2 or ES3 source cannot access by ordinary persons and ES3 source cannot be accessed by instructed persons. Double or reinforced safeguard is provided between ES2 or ES3 and ordinary persons or instructed persons.	P
5.3.2.2	Contact requirements	See above.	P
	a) Test with test probe from Annex V	Test probe V.1, V.2 applied.	P
	b) Electric strength test potential (V).....		N/A
	c) Air gap (mm)	Complied with the minimum distance requirement. (See appended table 5.4.2.2, 5.4.2.4 and 5.4.3.)	P
5.3.2.4	Terminals for connecting stripped wire	No such terminals.	N/A
5.4	Insulation materials and requirements		P
5.4.1.2	Properties of insulating material	Hygroscopic materials are not used for insulating material.	P
5.4.1.3	Humidity conditioning.....	(See sub-clause 5.4.8)	P
5.4.1.4	Maximum operating temperature for insulating materials	(See appended table 5.4.1.4)	P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.1.5	Pollution degree.....:	Pollution degree 2.	—
5.4.1.5.2	Test for pollution degree 1 environment and for an insulating compound		N/A
5.4.1.5.3	Thermal cycling		N/A
5.4.1.6	Insulation in transformers with varying dimensions		N/A
5.4.1.7	Insulation in circuits generating starting pulses		N/A
5.4.1.8	Determination of working voltage	Max. V _{peak} of T902 = 506V Max. V _{rms} of T902 = 242V	P
5.4.1.9	Insulating surfaces	Considered.	P
5.4.1.10	Thermoplastic parts on which conductive metallic parts are directly mounted	Bobbin materials of all transformers T902 are Phenolic that is accepted without further tests. Others see appended table 5.4.1.10.	P
5.4.1.10.2	Vicat softening temperature.....:		N/A
5.4.1.10.3	Ball pressure	(See appended table 5.4.1.10.3)	P
5.4.2	Clearances	See below.	P
5.4.2.2	Determining clearance using peak working voltage	(See appended table 5.4.2.2, 5.4.2.4 and 5.4.3)	P
5.4.2.3	Determining clearance using required withstand voltage	(See appended table 5.4.2.3)	P
	a) a.c. mains transient voltage.....:	2500V	—
	b) d.c. mains transient voltage		—
	c) external circuit transient voltage		—
	d) transient voltage determined by measurement :		—
5.4.2.4	Determining the adequacy of a clearance using an electric strength test		N/A
5.4.2.5	Multiplication factors for clearances and test voltages	Multiplication factor is 1.48 for altitude up to 5000m.	P
5.4.3	Creepage distances	(See appended table 5.4.2.2, 5.4.2.4 and 5.4.3)	P
5.4.3.1	General	See below.	P
5.4.3.3	Material Group	Material group IIIb assumed.	—
5.4.4	Solid insulation	See below.	P
5.4.4.2	Minimum distance through insulation	(See appended table 5.4.4.2, 5.4.4.5 c) 5.4.4.9)	P
5.4.4.3	Insulation compound forming solid insulation		P
5.4.4.4	Solid insulation in semiconductor devices	See above	P
5.4.4.5	Cemented joints		N/A
5.4.4.6	Thin sheet material	See below.	P
5.4.4.6.1	General requirements	See below.	P
5.4.4.6.2	Separable thin sheet material	(See appended Table 5.4.9)	P

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Clause	Requirement + Test	Result - Remark	Verdict
	Number of layers (pcs)	2	P
5.4.4.6.3	Non-separable thin sheet material		N/A
5.4.4.6.4	Standard test procedure for non-separable thin sheet material.....		N/A
5.4.4.6.5	Mandrel test		N/A
5.4.4.7	Solid insulation in wound components		P
5.4.4.9	Solid insulation at frequencies >30 kHz.....	(See appended Table 5.4.4.9) or (See appended Table 5.4.9)	P
5.4.5	Antenna terminal insulation		N/A
5.4.5.1	General		N/A
5.4.5.2	Voltage surge test		N/A
	Insulation resistance (M Ω)		—
5.4.6	Insulation of internal wire as part of supplementary safeguard		N/A
5.4.7	Tests for semiconductor components and for cemented joints		N/A
5.4.8	Humidity conditioning	Complied.	P
	Relative humidity (%).....	95	—
	Temperature ($^{\circ}$ C)	40	—
	Duration (h)	120	—
5.4.9	Electric strength test.....	(See appended table 5.4.9)	P
5.4.9.1	Test procedure for a solid insulation type test	Method 1 is chose.	P
5.4.9.2	Test procedure for routine tests		N/A
5.4.10	Protection against transient voltages between external circuit		N/A
5.4.10.1	Parts and circuits separated from external circuits		N/A
5.4.10.2	Test methods		N/A
5.4.10.2.1	General		N/A
5.4.10.2.2	Impulse test.....		N/A
5.4.10.2.3	Steady-state test.....		N/A
5.4.11	Insulation between external circuits and earthed circuitry.....		N/A
5.4.11.1	Exceptions to separation between external circuits and earth		N/A
5.4.11.2	Requirements		N/A
	Rated operating voltage U_{op} (V).....		—
	Nominal voltage U_{peak} (V)		—
	Max increase due to variation U_{sp}		—
	Max increase due to ageing ΔU_{sa}		—

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Clause	Requirement + Test	Result - Remark	Verdict
	$U_{op} = U_{peak} + \Delta U_{sp} + \Delta U_{sa}$:		—
5.5	Components as safeguards		P
5.5.1	General		P
5.5.2	Capacitors and RC units		P
5.5.2.1	General requirement	X-Cap. and Y-Cap. are IEC 60384-14 approval components and complied with Annex G.11.	P
5.5.2.2	Safeguards against capacitor discharge after disconnection of a connector.....:	See below.	P
5.5.3	Transformers	(See Annex G.5.3)	P
5.5.4	Optocouplers	(See Clause G.12)	P
5.5.5	Relays		N/A
5.5.6	Resistors	Bleeder resistors R916, R917, R918 and ICX U901 used in parallel.	P
5.5.7	SPD's		N/A
5.5.7.1	Use of an SPD connected to reliable earthing		N/A
5.5.7.2	Use of an SPD between mains and protective earth		N/A
5.5.8	Insulation between the mains and external circuit consisting of a coaxial cable.....:	(See Annex G.10.3)	N/A
5.6	Protective conductor		P
5.6.2	Requirement for protective conductors	Protective conductor served as a supplementary safeguard to prevent accessible conductive parts from exceeding ES2 limits.	P
5.6.2.1	General requirements	No switch or overcurrent protective device in protective conductor.	P
5.6.2.2	Colour of insulation	No green-and-yellow wire used.	N/A
5.6.3	Requirement for protective earthing conductors		N/A
	Protective earthing conductor size (mm ²).....:		—
5.6.4	Requirement for protective bonding conductors		P
5.6.4.1	Protective bonding conductors	Protective bonding wire complied with 5.6.6 and Annex R.	P
	Protective bonding conductor size (mm ²).....:	See above	—
	Protective current rating (A).....:	20A	—
5.6.4.3	Current limiting and overcurrent protective devices		N/A
5.6.5	Terminals for protective conductors		P
5.6.5.1	Requirement	Screws fixing earthed PCB trace to metal chassis for protective bonding. Size of screws is according with Table 32.	P

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Clause	Requirement + Test	Result - Remark	Verdict
	Conductor size (mm ²), nominal thread diameter (mm)	3.7 mm	P
5.6.5.2	Corrosion	Complied.	P
5.6.6	Resistance of the protective system	See below.	P
5.6.6.1	Requirements	See below.	P
5.6.6.2	Test Method Resistance (Ω)	(See appended table 5.6.6.2)	P
5.6.7	Reliable earthing		N/A
5.7	Prospective touch voltage, touch current and protective conductor current		P
5.7.2	Measuring devices and networks	Figure 5 of IEC 60990 was used in determining of the limit of ES2.	P
5.7.2.1	Measurement of touch current	(See appended table 5.7.2.2, 5.7.4)	P
5.7.2.2	Measurement of prospective touch voltage	(See appended table 5.7.2.2, 5.7.4)	P
5.7.3	Equipment set-up, supply connections and earth connections	Clause 4, 5.3 and 5.4 of IEC 60990: 1999 applied.	P
	System of interconnected equipment (separate connections/single connection)	Single equipment.	—
	Multiple connections to mains (one connection at a time/simultaneous connections)	Single connection.	—
5.7.4	Earthed conductive accessible parts	(See appended Table 5.7.4)	P
5.7.5	Protective conductor current	Protective conductor current does not exceed the ES2 limits.	P
	Supply Voltage (V)	264V/60Hz	—
	Measured current (mA)	0.10 (tested with normal, abnormal and single-fault condition, and maximum value was recorded.)	—
	Instructional Safeguard		N/A
5.7.6	Prospective touch voltage and touch current due to external circuits		N/A
5.7.6.1	Touch current from coaxial cables		N/A
5.7.6.2	Prospective touch voltage and touch current from external circuits		N/A
5.7.7	Summation of touch currents from external circuits		N/A
	a) Equipment with earthed external circuits Measured current (mA)		N/A
	b) Equipment whose external circuits are not referenced to earth. Measured current (mA)		N/A
6	ELECTRICALLY- CAUSED FIRE		P
6.2	Classification of power sources (PS) and potential ignition sources (PIS)		P

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Clause	Requirement + Test	Result - Remark	Verdict
6.2.2	Power source circuit classifications	See ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE.	P
6.2.2.1	General		P
6.2.2.2	Power measurement for worst-case load fault.....:	(See appended table 6.2.2)	P
6.2.2.3	Power measurement for worst-case power source fault.....:	(See appended table 6.2.2)	P
6.2.2.4	PS1		N/A
6.2.2.5	PS2	(See appended table 6.2.2)	P
6.2.2.6	PS3	(See appended table 6.2.2)	P
6.2.3	Classification of potential ignition sources		P
6.2.3.1	Arcing PIS	All components located within power board are considered as arcing PIS.	P
6.2.3.2	Resistive PIS	All components located within fire enclosure are considered as resistive PIS.	P
6.3	Safeguards against fire under normal operating and abnormal operating conditions		P
6.3.1 (a)	No ignition and attainable temperature value less than 90 % defined by ISO 871 or less than 300 °C for unknown materials.....:	(See appended table 5.4.1.5, 6.3.2, 9.0, B.2.6)	P
6.3.1 (b)	Combustible materials outside fire enclosure	(See appended table 5.4.1.5, 6.3.2, 9.0, B.2.6)	P
6.4	Safeguards against fire under single fault conditions		P
6.4.1	Safeguard Method	The method "Control fire spread" is selected.	P
6.4.2	Reduction of the likelihood of ignition under single fault conditions in PS1 circuits		N/A
6.4.3	Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits		N/A
6.4.3.1	General		N/A
6.4.3.2	Supplementary Safeguards		N/A
	Special conditions if conductors on printed boards are opened or peeled		N/A
6.4.3.3	Single Fault Conditions..... :		N/A
	Special conditions for temperature limited by fuse		N/A
6.4.4	Control of fire spread in PS1 circuits		N/A
6.4.5	Control of fire spread in PS2 circuits	See below.	P

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Clause	Requirement + Test	Result - Remark	Verdict
6.4.5.2	Supplementary safeguards	Certified wire insulation is used. Components other than PCB and wires are: - mounted on PCB rated V-1 or better, or - made of V-2/VTM-2 or better. (See appended tables 4.1.2 and Annex G)	P
6.4.6	Control of fire spread in PS3 circuit	Providing fire enclosure for PS3 circuit. Also meet the requirement of Clause 6.4.5.	P
6.4.7	Separation of combustible materials from a PIS	Providing fire enclosure for PS3 circuit.	P
6.4.7.1	General.....	See above.	P
6.4.7.2	Separation by distance		N/A
6.4.7.3	Separation by a fire barrier		P
6.4.8	Fire enclosures and fire barriers	See below.	P
6.4.8.1	Fire enclosure and fire barrier material properties		P
6.4.8.2.1	Requirements for a fire barrier		N/A
6.4.8.2.2	Requirements for a fire enclosure	Metal enclosure as fire enclosure.	P
6.4.8.3	Constructional requirements for a fire enclosure and a fire barrier	See below.	P
6.4.8.3.1	Fire enclosure and fire barrier openings		P
6.4.8.3.2	Fire barrier dimensions		N/A
6.4.8.3.3	Top Openings in Fire Enclosure: dimensions (mm)	See attachment: Measurement Section for the details.	P
	Needle Flame test		N/A
6.4.8.3.4	Bottom Openings in Fire Enclosure, condition met a), b) and/or c) dimensions (mm)	See attachment: Measurement Section for the details.	P
	Flammability tests for the bottom of a fire enclosure		N/A
6.4.8.3.5	Integrity of the fire enclosure, condition met: a), b) or c).....	No door or cover in fire enclosure	N/A
6.4.8.4	Separation of PIS from fire enclosure and fire barrier distance (mm) or flammability rating	Metal enclosure used as fire enclosure.	P
6.5	Internal and external wiring		P
6.5.1	Requirements	Internal or external wiring materials are compliant with IEC 60950-1 according to Sub-clause 4.1.1. Furthermore, the test method described in IEC 60695-11-21 is considered equivalent to that test wiring materials for VW-1. All internal wiring are using VW-1 material.	P

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Clause	Requirement + Test	Result - Remark	Verdict
6.5.2	Cross-sectional area (mm ²)	See Table 4.1.2	—
6.5.3	Requirements for interconnection to building wiring.....		N/A
6.6	Safeguards against fire due to connection to additional equipment	All data ports for connections to additional equipment are L.P.S.	P
	External port limited to PS2 or complies with Clause Q.1	(See appended table Annex Q.1)	P

7	INJURY CAUSED BY HAZARDOUS SUBSTANCES		N/A
7.2	Reduction of exposure to hazardous substances		N/A
7.3	Ozone exposure		N/A
7.4	Use of personal safeguards (PPE)		N/A
	Personal safeguards and instructions		—
7.5	Use of instructional safeguards and instructions		N/A
	Instructional safeguard (ISO 7010).....		—
7.6	Batteries		N/A

8	MECHANICALLY-CAUSED INJURY		P
8.1	General		P
8.2	Mechanical energy source classifications	See ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE.	P
8.3	Safeguards against mechanical energy sources	See "OVERVIEW OF EMPLOYED SAFEGUARDS" table.	P
8.4	Safeguards against parts with sharp edges and corners	No sharp edges and corners in accessible area.	P
8.4.1	Safeguards		N/A
8.5	Safeguards against moving parts		N/A
8.5.1	MS2 or MS3 part required to be accessible for the function of the equipment		N/A
8.5.2	Instructional Safeguard		—
8.5.4	Special categories of equipment comprising moving parts		N/A
8.5.4.1	Large data storage equipment		N/A
8.5.4.2	Equipment having electromechanical device for destruction of media		N/A
8.5.4.2.1	Safeguards and Safety Interlocks		N/A
8.5.4.2.2	Instructional safeguards against moving parts		N/A
	Instructional Safeguard		—
8.5.4.2.3	Disconnection from the supply		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
8.5.4.2.4	Probe type and force (N).....:		N/A
8.5.5	High Pressure Lamps		N/A
8.5.5.1	Energy Source Classification		N/A
8.5.5.2	High Pressure Lamp Explosion Test		N/A
8.6	Stability	No stability requirements for MS1 equipment.	N/A
8.6.1	Product classification		N/A
	Instructional Safeguard		—
8.6.2	Static stability		N/A
8.6.2.2	Static stability test		N/A
	Applied Force		—
8.6.2.3	Downward Force Test		N/A
8.6.3	Relocation stability test		N/A
	Unit configuration during 10° tilt.....:		—
8.6.4	Glass slide test		N/A
8.6.5	Horizontal force test (Applied Force)		N/A
	Position of feet or movable parts		—
8.7	Equipment mounted to wall or ceiling		P
8.7.1	Mounting Means (Length of screws (mm) and mounting surface)	See below	P
8.7.2	Direction and applied force.....:	Test 2: 3.19 kg applied for each point (four directions plus inward and outward). Test 3: 1.2 Nm applied.	P
8.8	Handles strength	No handle used.	N/A
8.8.1	Classification		N/A
8.8.2	Applied Force		N/A
8.9	Wheels or casters attachment requirements		N/A
8.9.1	Classification		N/A
8.9.2	Applied force		—
8.10	Carts, stands and similar carriers		N/A
8.10.1	General		N/A
8.10.2	Marking and instructions		N/A
	Instructional Safeguard		—
8.10.3	Cart, stand or carrier loading test and compliance		N/A
	Applied force		—
8.10.4	Cart, stand or carrier impact test		N/A
8.10.5	Mechanical stability		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Applied horizontal force (N).....:	See sub-clause 8.6.3 to 8.6.5	—
8.10.6	Thermoplastic temperature stability (°C).....:		N/A
8.11	Mounting means for rack mounted equipment		N/A
8.11.1	General		N/A
8.11.2	Product Classification		N/A
8.11.3	Mechanical strength test, variable <i>N</i>		N/A
8.11.4	Mechanical strength test 250N, including end stops		N/A
8.12	Telescoping or rod antennas		N/A
	Button/Ball diameter (mm)		—

9 THERMAL BURN INJURY			
9.2	Thermal energy source classifications	See ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE.	P
9.3	Safeguard against thermal energy sources	No safeguards are required for TS1.	N/A
9.4	Requirements for safeguards		N/A
9.4.1	Equipment safeguard		N/A
9.4.2	Instructional safeguard		N/A

10 RADIATION			
10.2	Radiation energy source classification	See below.	P
10.2.1	General classification	The following parts are considered as RS1 without tests: - Indicating lights; - backlight of LCD panel	P
10.3	Protection against laser radiation		N/A
	Laser radiation that exists equipment:		—
	Normal, abnormal, single-fault.....:		N/A
	Instructional safeguard		—
	Tool.....:		—
10.4	Protection against visible, infrared, and UV radiation		N/A
10.4.1	General		N/A
10.4.1.a)	RS3 for Ordinary and instructed persons.....:		N/A
10.4.1.b)	RS3 accessible to a skilled person.....:		N/A
	Personal safeguard (PPE) instructional safeguard.....:		—
10.4.1.c)	Equipment visible, IR, UV does not exceed RS1...:		N/A
10.4.1.d)	Normal, abnormal, single-fault conditions		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
10.4.1.e)	Enclosure material employed as safeguard is opaque.....:		N/A
10.4.1.f)	UV attenuation.....:		N/A
10.4.1.g)	Materials resistant to degradation UV		N/A
10.4.1.h)	Enclosure containment of optical radiation.....:		N/A
10.4.1.i)	Exempt Group under normal operating conditions		N/A
10.4.2	Instructional safeguard		N/A
10.5	Protection against x-radiation		N/A
10.5.1	X- radiation energy source that exists equipment :		N/A
	Normal, abnormal, single fault conditions		N/A
	Equipment safeguards.....:		N/A
	Instructional safeguard for skilled person..... :		N/A
10.5.3	Most unfavourable supply voltage to give maximum radiation		—
	Abnormal and single-fault condition		N/A
	Maximum radiation (pA/kg).....:		N/A
10.6	Protection against acoustic energy sources		N/A
10.6.1	General		N/A
10.6.2	Classification		N/A
	Acoustic output, dB(A)		N/A
	Output voltage, unweighted r.m.s.:		N/A
10.6.4	Protection of persons		N/A
	Instructional safeguards		N/A
	Equipment safeguard prevent ordinary person to RS2.....:		—
	Means to actively inform user of increase sound pressure.....:		—
	Equipment safeguard prevent ordinary person to RS2.....:		—
10.6.5	Requirements for listening devices (headphones, earphones, etc.)		N/A
10.6.5.1	Corded passive listening devices with analog input		N/A
	Input voltage with 94 dB(A) L_{Aeq} acoustic pressure output		—
10.6.5.2	Corded listening devices with digital input		N/A
	Maximum dB(A)		—
10.6.5.3	Cordless listening device		N/A
	Maximum dB(A)		—

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Clause	Requirement + Test	Result - Remark	Verdict
B	NORMAL OPERATING CONDITION TESTS, ABNORMAL OPERATING CONDITION TESTS AND SINGLE FAULT CONDITION TESTS		P
B.2	Normal Operating Conditions	See below	P
B.2.1	General requirements.....:	(See Test Item Particulars and appended test tables)	P
	Audio Amplifiers and equipment with audio amplifiers	No such equipment.	N/A
B.2.3	Supply voltage and tolerances	Considered	P
B.2.5	Input test	(See appended table B.2.5)	P
B.3	Simulated abnormal operating conditions		P
B.3.1	General requirements.....:	(See appended table B.3)	P
B.3.2	Covering of ventilation openings	(See appended table B.3)	P
B.3.3	D.C. mains polarity test		N/A
B.3.4	Setting of voltage selector.....:		N/A
B.3.5	Maximum load at output terminals	(See appended table B.3)	P
B.3.6	Reverse battery polarity		N/A
B.3.7	Abnormal operating conditions as specified in Clause E.2.	(See appended table B.3)	P
B.3.8	Safeguards functional during and after abnormal operating conditions	Abnormal operating condition does not lead to a single fault condition, all safeguards remain effective. After restoration of normal operating conditions, all safeguards comply with applicable requirements.	P
B.4	Simulated single fault conditions		P
B.4.2	Temperature controlling device open or short-circuited.....:	No such devices.	N/A
B.4.3	Motor tests		N/A
B.4.3.1	Motor blocked or rotor locked increasing the internal ambient temperature		N/A
B.4.4	Short circuit of functional insulation	For traces before fuse, comply with the clearance/creepage for basic insulation, others are considered to perform short-circuited during the tests.	P
B.4.4.1	Short circuit of clearances for functional insulation	See above.	P
B.4.4.2	Short circuit of creepage distances for functional insulation	See above.	P
B.4.4.3	Short circuit of functional insulation on coated printed boards		N/A
B.4.5	Short circuit and interruption of electrodes in tubes and semiconductors		P
B.4.6	Short circuit or disconnect of passive components		P

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Clause	Requirement + Test	Result - Remark	Verdict
B.4.7	Continuous operation of components		N/A
B.4.8	Class 1 and Class 2 energy sources within limits during and after single fault conditions		P
B.4.9	Battery charging under single fault conditions		N/A
C	UV RADIATION		N/A
C.1	Protection of materials in equipment from UV radiation		N/A
C.1.2	Requirements		N/A
C.1.3	Test method		N/A
C.2	UV light conditioning test		N/A
C.2.1	Test apparatus		N/A
C.2.2	Mounting of test samples		N/A
C.2.3	Carbon-arc light-exposure apparatus		N/A
C.2.4	Xenon-arc light exposure apparatus		N/A
D	TEST GENERATORS		N/A
D.1	Impulse test generators		N/A
D.2	Antenna interface test generator		N/A
D.3	Electronic pulse generator		N/A
E	TEST CONDITIONS FOR EQUIPMENT CONTAINING AUDIO AMPLIFIERS		N/A
E.1	Audio amplifier normal operating conditions	No audio amplifier in equipment.	N/A
	Audio signal voltage (V)		--
	Rated load impedance (Ω)		--
E.2	Audio amplifier abnormal operating conditions		P
F	EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS		P
F.1	General requirements	See below.	P
	Instructions – Language	English. Versions in other languages will be provided when national certificate approval.	—
F.2	Letter symbols and graphical symbols		P
F.2.1	Letter symbols according to IEC60027-1		P
F.2.2	Graphic symbols IEC, ISO or manufacturer specific		P
F.3	Equipment markings		P
F.3.1	Equipment marking locations	The equipment marking is provided and is readily visible in operator access area.	P
F.3.2	Equipment identification markings	See below.	P
F.3.2.1	Manufacturer identification	See copy of marking plate.	—
F.3.2.2	Model identification	See copy of marking plate.	—

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Clause	Requirement + Test	Result - Remark	Verdict
F.3.3	Equipment rating markings	See below.	P
F.3.3.1	Equipment with direct connection to mains	See below.	P
F.3.3.2	Equipment without direct connection to mains		N/A
F.3.3.3	Nature of supply voltage	See copy of marking plate.	—
F.3.3.4	Rated voltage.....	See copy of marking plate.	—
F.3.3.4	Rated frequency.....	See copy of marking plate.	—
F.3.3.6	Rated current or rated power	See copy of marking plate.	—
F.3.3.7	Equipment with multiple supply connections		N/A
F.3.4	Voltage setting device		N/A
F.3.5	Terminals and operating devices	See below.	P
F.3.5.1	Mains appliance outlet and socket-outlet markings		N/A
F.3.5.2	Switch position identification marking.....		N/A
F.3.5.3	Replacement fuse identification and rating markings.....	Build-in fuse F901 (primary T4AL/250V marked on PCB). CAUTION: FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ONLY WITH SAME TYPE AND RATING OF FUSE. Not located in operator access areas.	P
F.3.5.4	Replacement battery identification marking		N/A
F.3.5.5	Terminal marking location		P
F.3.6	Equipment markings related to equipment classification		P
F.3.6.1	Class I Equipment	See below.	P
F.3.6.1.1	Protective earthing conductor terminal	Appliance inlet is provided. The symbol IEC 60417-5019 was located on appliance inlet.	P
F.3.6.1.2	Neutral conductor terminal		N/A
F.3.6.1.3	Protective bonding conductor terminals		N/A
F.3.6.2	Class II equipment (IEC60417-5172)		N/A
F.3.6.2.1	Class II equipment with or without functional earth		N/A
F.3.6.2.2	Class II equipment with functional earth terminal marking		N/A
F.3.7	Equipment IP rating marking		—
F.3.8	External power supply output marking		N/A
F.3.9	Durability, legibility and permanence of marking	See below.	P

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Clause	Requirement + Test	Result - Remark	Verdict
F.3.10	Test for permanence of markings	Marking is durable and legible. The marking plate has no curling and is not able to be removed easily.	P
F.4	Instructions		P
	a) Equipment for use in locations where children not likely to be present - marking		N/A
	b) Instructions given for installation or initial use	Provided in user's manual.	P
	c) Equipment intended to be fastened in place		N/A
	d) Equipment intended for use only in restricted access area		N/A
	e) Audio equipment terminals classified as ES3 and other equipment with terminals marked in accordance F.3.6.1		N/A
	f) Protective earthing employed as safeguard	The instruction is provided in the user's manual.	P
	g) Protective earthing conductor current exceeding ES 2 limits	Not exceed the ES2 limits.	N/A
	h) Symbols used on equipment	Graphical symbols not used as an instructional safeguard.	N/A
	i) Permanently connected equipment not provided with all-pole mains switch		N/A
j)	j) Replaceable components or modules providing safeguard function		N/A
F.5	Instructional safeguards	No instructional safeguard required.	N/A
	Where "instructional safeguard" is referenced in the test report it specifies the required elements, location of marking and/or instruction		N/A
G	COMPONENTS		P
G.1	Switches		N/A
G.1.1	General requirements		N/A
G.1.2	Ratings, endurance, spacing, maximum load		N/A
G.2	Relays		N/A
G.2.1	General requirements		N/A
G.2.2	Overload test		N/A
G.2.3	Relay controlling connectors supply power		N/A
G.2.4	Mains relay, modified as stated in G.2		N/A
G.3	Protection Devices		P
G.3.1	Thermal cut-offs		N/A
G.3.1.1a) &b)	Thermal cut-outs separately approved according to IEC 60730 with conditions indicated in a) & b)		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.3.1.1c)	Thermal cut-outs tested as part of the equipment as indicated in c)		N/A
G.3.1.2	Thermal cut-off connections maintained and secure		N/A
G.3.2	Thermal links		N/A
G.3.2.1a)	Thermal links separately tested with IEC 60691		N/A
G.3.2.1b)	Thermal links tested as part of the equipment		N/A
	Aging hours (H)		—
	Single Fault Condition		—
	Test Voltage (V) and Insulation Resistance (Ω)..		—
G.3.3	PTC Thermistors		N/A
G.3.4	Overcurrent protection devices	Current fuse complying with IEC 60127 as overcurrent protection device.	P
G.3.5	Safeguards components not mentioned in G.3.1 to G.3.5		N/A
G.3.5.1	Non-resettable devices suitably rated and marking provided		N/A
G.3.5.2	Single faults conditions		N/A
G.4	Connectors		P
G.4.1	Spacings	The appliance inlet complied with IEC 60320-1.	P
G.4.2	Mains connector configuration	The appliance inlet complied with IEC 60320-1.	P
G.4.3	Plug is shaped that insertion into mains socket-outlets or appliance coupler is unlikely	No misconnection likely.	P
G.5	Wound Components		P
G.5.1	Wire insulation in wound components	Triple insulated wire of T902 used on secondary windings as separation for insulation between primary windings and secondary windings.	P
G.5.1.2 a)	Two wires in contact inside wound component, angle between 45° and 90°	Physical separation provided by insulation tube to relieve mechanical stress at the crossover point.	P
G.5.1.2 b)	Construction subject to routine testing		N/A
G.5.2	Endurance test on wound components		N/A
G.5.2.1	General test requirements		N/A
G.5.2.2	Heat run test		N/A
	Time (s).....		—
	Temperature (°C).....		—
G.5.2.3	Wound Components supplied by mains		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.5.3	Transformers		P
G.5.3.1	Requirements applied (IEC61204-7, IEC61558-1/-2, and/or IEC62368-1)	Meet the requirements in G.5.3.2 and G.5.3.3.	P
	Position	T902	—
	Method of protection	Overcurrent protection.	—
G.5.3.2	Insulation	See attachment of Transformer table.	P
	Protection from displacement of windings	Displacement of windings is unlikely.	—
G.5.3.3	Overload test	(See appended table B.3 & B.4)	P
G.5.3.3.1	Test conditions	Tested in the complete equipment.	P
G.5.3.3.2	Winding Temperatures testing in the unit	(See appended table B.3 & B.4)	P
G.5.3.3.3	Winding Temperatures - Alternative test method		N/A
G.5.4	Motors		N/A
G.5.4.1	General requirements		N/A
	Position		—
G.5.4.2	Test conditions		N/A
G.5.4.3	Running overload test		N/A
G.5.4.4	Locked-rotor overload test		N/A
	Test duration (days)		—
G.5.4.5	Running overload test for d.c. motors in secondary circuits		N/A
G.5.4.5.2	Tested in the unit		N/A
	Electric strength test (V).....		—
G.5.4.5.3	Tested on the Bench - Alternative test method; test time (h)		N/A
	Electric strength test (V).....		—
G.5.4.6	Locked-rotor overload test for d.c. motors in secondary circuits		N/A
G.5.4.6.2	Tested in the unit		N/A
	Maximum Temperature		N/A
	Electric strength test (V)		N/A
G.5.4.6.3	Tested on the bench - Alternative test method; test time (h).....		N/A
	Electric strength test (V).....		N/A
G.5.4.7	Motors with capacitors		N/A
G.5.4.8	Three-phase motors		N/A
G.5.4.9	Series motors		N/A
	Operating voltage		—

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Clause	Requirement + Test	Result - Remark	Verdict
G.6	Wire Insulation		P
G.6.1	General		P
G.6.2	Solvent-based enamel wiring insulation		N/A
G.7	Mains supply cords		N/A
G.7.1	General requirements	No mains supply cord provided.	N/A
	Type		—
	Rated current (A).....		—
	Cross-sectional area (mm ²), (AWG).....		—
G.7.2	Compliance and test method		N/A
G.7.3	Cord anchorages and strain relief for non-detachable power supply cords		N/A
G.7.3.2	Cord strain relief		N/A
G.7.3.2.1	Requirements		N/A
	Strain relief test force (N)		—
G.7.3.2.2	Strain relief mechanism failure		N/A
G.7.3.2.3	Cord sheath or jacket position, distance (mm) ... :		—
G.7.3.2.4	Strain relief comprised of polymeric material		N/A
G.7.4	Cord Entry		N/A
G.7.5	Non-detachable cord bend protection		N/A
G.7.5.1	Requirements		N/A
G.7.5.2	Mass (g)		—
	Diameter (m).....		—
	Temperature (°C).....		—
G.7.6	Supply wiring space		N/A
G.7.6.2	Stranded wire		N/A
G.7.6.2.1	Test with 8 mm strand		N/A
G.8	Varistors		N/A
G.8.1	General requirements		N/A
G.8.2	Safeguard against shock		N/A
G.8.3	Safeguard against fire		N/A
G.8.3.2	Varistor overload test.....		N/A
G.8.3.3	Temporary overvoltage		N/A
G.9	Integrated Circuit (IC) Current Limiters		N/A
G.9.1 a)	Manufacturer defines limit at max. 5A.		N/A
G.9.1 b)	Limiters do not have manual operator or reset		N/A
G.9.1 c)	Supply source does not exceed 250 VA		—
G.9.1 d)	IC limiter output current (max. 5A)		—

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Clause	Requirement + Test	Result - Remark	Verdict
G.9.1 e)	Manufacturers' defined drift		—
G.9.2	Test Program 1		N/A
G.9.3	Test Program 2		N/A
G.9.4	Test Program 3		N/A
G.10	Resistors		P
G.10.1	General requirements	Bleeder resistors R916, R917, R918 and ICX U901 used in parallel.	P
G.10.2	Resistor test	See above.	N/A
G.10.3	Test for resistors serving as safeguards between the mains and an external circuit consisting of a coaxial cable		N/A
G.10.3.1	General requirements		N/A
G.10.3.2	Voltage surge test		N/A
G.10.3.3	Impulse test		N/A
G.11	Capacitor and RC units		P
G.11.1	General requirements	X-Capacitors and Y-Capacitors used as safeguard and complied with IEC/EN 60384-14. (See appended table 4.1.2)	P
G.11.2	Conditioning of capacitors and RC units	At least 21 days at $40 \pm 2^\circ\text{C}$ and $93 \pm 3\%$ RH.	P
G.11.3	Rules for selecting capacitors	The selection followed with tables G.9 and G.12.	P
G.12	Optocouplers		P
	Optocouplers comply with IEC 60747-5-5:2007 Spacing or Electric Strength Test (specify option and test results).....	Approved optocoupler used.	P
	Type test voltage V_{ini}		—
	Routine test voltage, $V_{ini,b}$		—
G.13	Printed boards		P
G.13.1	General requirements	See below.	P
G.13.2	Uncoated printed boards	(see appended table 5.4.2.2, 5.4.2.4 and 5.4.3)	P
G.13.3	Coated printed boards		N/A
G.13.4	Insulation between conductors on the same inner surface		N/A
	Compliance with cemented joint requirements (Specify construction)		—
G.13.5	Insulation between conductors on different surfaces		N/A
	Distance through insulation		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Number of insulation layers (pcs)		—
G.13.6	Tests on coated printed boards		N/A
G.13.6.1	Sample preparation and preliminary inspection		N/A
G.13.6.2a)	Thermal conditioning		N/A
G.13.6.2b)	Electric strength test		N/A
G.13.6.2c)	Abrasion resistance test		N/A
G.14	Coating on components terminals		N/A
G.14.1	Requirements		N/A
G.15	Liquid filled components		N/A
G.15.1	General requirements		N/A
G.15.2	Requirements		N/A
G.15.3	Compliance and test methods		N/A
G.15.3.1	Hydrostatic pressure test		N/A
G.15.3.2	Creep resistance test		N/A
G.15.3.3	Tubing and fittings compatibility test		N/A
G.15.3.4	Vibration test		N/A
G.15.3.5	Thermal cycling test		N/A
G.15.3.6	Force test		N/A
G.15.4	Compliance		N/A
G.16	IC including capacitor discharge function (ICX)		P
a)	Humidity treatment in accordance with sc5.4.8 – 120 hours	Used with approved ICX U901. See Table 4.1.2 for the details.	P
b)	Impulse test using circuit 2 with $U_c =$ to transient voltage		N/A
C1)	Application of ac voltage at 110% of rated voltage for 2.5 minutes		N/A
C2)	Test voltage		—
D1)	10,000 cycles on and off using capacitor with smallest capacitance resistor with largest resistance specified by manufacturer	See above.	N/A
D2)	Capacitance		—
D3)	Resistance		—
H	CRITERIA FOR TELEPHONE RINGING SIGNALS		N/A
H.1	General		N/A
H.2	Method A		N/A
H.3	Method B		N/A
H.3.1	Ringling signal		N/A
H.3.1.1	Frequency (Hz)		—
H.3.1.2	Voltage (V)		—

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
H.3.1.3	Cadence; time (s) and voltage (V)		—
H.3.1.4	Single fault current (mA):		—
H.3.2	Tripping device and monitoring voltage		N/A
H.3.2.1	Conditions for use of a tripping device or a monitoring voltage complied with		N/A
H.3.2.2	Tripping device		N/A
H.3.2.3	Monitoring voltage (V).....		—
J	INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION		P
	General requirements	Approved triple insulated wire used. See appended table 4.1.2.	P
K	SAFETY INTERLOCKS		N/A
K.1	General requirements		N/A
K.2	Components of safety interlock safeguard mechanism		N/A
K.3	Inadvertent change of operating mode		N/A
K.4	Interlock safeguard override		N/A
K.5	Fail-safe		N/A
	Compliance.....		N/A
K.6	Mechanically operated safety interlocks		N/A
K.6.1	Endurance requirement		N/A
K.6.2	Compliance and Test method.....		N/A
K.7	Interlock circuit isolation		N/A
K.7.1	Separation distance for contact gaps & interlock circuit elements (type and circuit location)		N/A
K.7.2	Overload test, Current (A).....		N/A
K.7.3	Endurance test		N/A
K.7.4	Electric strength test		N/A
L	DISCONNECT DEVICES		P
L.1	General requirements	Appliance Inlet as disconnect device.	P
L.2	Permanently connected equipment		N/A
L.3	Parts that remain energized	When the power cord is removed from the inlet no remaining parts with hazardous voltage in the equipment.	P
L.4	Single phase equipment	The disconnect device disconnects both poles simultaneously.	P
L.5	Three-phase equipment		N/A
L.6	Switches as disconnect devices		N/A
L.7	Plugs as disconnect devices		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
L.8	Multiple power sources		N/A
M	EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS		N/A
M.1	General requirements		N/A
M.2	Safety of batteries and their cells		N/A
M.2.1	Requirements		N/A
M.2.2	Compliance and test method (identify method)....:		N/A
M.3	Protection circuits		N/A
M.3.1	Requirements		N/A
M.3.2	Tests		N/A
	- Overcharging of a rechargeable battery		N/A
	- Unintentional charging of a non-rechargeable battery		N/A
	- Reverse charging of a rechargeable battery		N/A
	- Excessive discharging rate for any battery		N/A
M.3.3	Compliance :		N/A
M.4	Additional safeguards for equipment containing secondary lithium battery		N/A
M.4.1	General		N/A
M.4.2	Charging safeguards		N/A
M.4.2.1	Charging operating limits		N/A
M.4.2.2a)	Charging voltage, current and temperature..... :		—
M.4.2.2 b)	Single faults in charging circuitry :		—
M.4.3	Fire Enclosure		N/A
M.4.4	Endurance of equipment containing a secondary lithium battery		N/A
M.4.4.2	Preparation		N/A
M.4.4.3	Drop and charge/discharge function tests		N/A
	Drop		N/A
	Charge		N/A
	Discharge		N/A
M.4.4.4	Charge-discharge cycle test		N/A
M.4.4.5	Result of charge-discharge cycle test		N/A
M.5	Risk of burn due to short circuit during carrying		N/A
M.5.1	Requirement		N/A
M.5.2	Compliance and Test Method (Test of P.2.3)		N/A
M.6	Prevention of short circuits and protection from other effects of electric current		N/A
M.6.1	Short circuits		N/A
M.6.1.1	General requirements		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
M.6.1.2	Test method to simulate an internal fault		N/A
M.6.1.3	Compliance (Specify M.6.1.2 or alternative method)		N/A
M.6.2	Leakage current (mA)		N/A
M.7	Risk of explosion from lead acid and NiCd batteries		N/A
M.7.1	Ventilation preventing explosive gas concentration		N/A
M.7.2	Compliance and test method		N/A
M.8	Protection against internal ignition from external spark sources of lead acid batteries		N/A
M.8.1	General requirements		N/A
M.8.2	Test method		N/A
M.8.2.1	General requirements		N/A
M.8.2.2	Estimation of hypothetical volume V_z (m ³ /s).....		—
M.8.2.3	Correction factors		—
M.8.2.4	Calculation of distance d (mm)		—
M.9	Preventing electrolyte spillage		N/A
M.9.1	Protection from electrolyte spillage		N/A
M.9.2	Tray for preventing electrolyte spillage		N/A
M.10	Instructions to prevent reasonably foreseeable misuse (Determination of compliance: inspection, data review; or abnormal testing)		N/A
N	ELECTROCHEMICAL POTENTIALS		P
	Metal(s) used.....	Complied.	—
O	MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES		P
	Figures O.1 to O.20 of this Annex applied	Considered	—
P	SAFEGUARDS AGAINST ENTRY OF FOREIGN OBJECTS AND SPILLAGE OF INTERNAL LIQUIDS		P
P.1	General requirements	See below.	P
P.2.2	Safeguards against entry of foreign object	External plastic enclosure are provided as internal barrier.	P
	Location and Dimensions (mm)	See attachment: Measurement Section for the details.	—
P.2.3	Safeguard against the consequences of entry of foreign object	See above.	P
P.2.3.1	Safeguards against the entry of a foreign object		P
	Openings in transportable equipment		N/A
	Transportable equipment with metalized plastic parts.....		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
P.2.3.2	Openings in transportable equipment in relation to metallized parts of a barrier or enclosure (identification of supplementary safeguard)		N/A
P.3	Safeguards against spillage of internal liquids		N/A
P.3.1	General requirements		N/A
P.3.2	Determination of spillage consequences		N/A
P.3.3	Spillage safeguards		N/A
P.3.4	Safeguards effectiveness		N/A
P.4	Metallized coatings and adhesive securing parts	Adhesive for Mylar sheet and Ripple Capacitors (C902, C903) are considered as safeguard.	P
P.4.2 a)	Conditioning testing		P
	Tc (°C).....	100	—
	Tr (°C).....	100	—
	Ta (°C).....	70.0 for C902, C903; 70.0 for Mylar	—
P.4.2 b)	Abrasion testing		N/A
P.4.2 c)	Mechanical strength testing	After test mentioned above, all safeguards remain effective.	P
Q	CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING		P
Q.1	Limited power sources		P
Q.1.1 a)	Inherently limited output	(See appended table Annex Q.1)	P
Q.1.1 b)	Impedance limited output		N/A
	- Regulating network limited output under normal operating and simulated single fault condition	All data ports of main board applied. (See appended table Annex Q.1)	P
Q.1.1 c)	Overcurrent protective device limited output	Output of power board applied. (See appended table Annex Q.1)	P
Q.1.1 d)	IC current limiter complying with G.9		N/A
Q.1.2	Compliance and test method	(See appended table Annex Q.1)	P
Q.2	Test for external circuits – paired conductor cable		N/A
	Maximum output current (A)		—
	Current limiting method.....		—
R	LIMITED SHORT CIRCUIT TEST		N/A
R.1	General requirements		N/A
R.2	Determination of the overcurrent protective device and circuit		N/A
R.3	Test method Supply voltage (V) and short-circuit current (A)).		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
S	TESTS FOR RESISTANCE TO HEAT AND FIRE		P
S.1	Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W		N/A
	Samples, material		—
	Wall thickness (mm).....		—
	Conditioning (°C)		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	- Material not consumed completely		N/A
	- Material extinguishes within 30s		N/A
	- No burning of layer or wrapping tissue		N/A
S.2	Flammability test for fire enclosure and fire barrier integrity		N/A
	Samples, material		—
	Wall thickness (mm).....		—
	Conditioning (°C)		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	Test specimen does not show any additional hole		N/A
S.3	Flammability test for the bottom of a fire enclosure		N/A
	Samples, material		—
	Wall thickness (mm).....		—
	Cheesecloth did not ignite		N/A
S.4	Flammability classification of materials	See table 4.1.2 for detail	P
S.5	Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W		N/A
	Samples, material		—
	Wall thickness (mm).....		—
	Conditioning (test condition), (°C).....		—
	Test flame according to IEC 60695-11-20 with conditions as set out		N/A
	After every test specimen was not consumed completely		N/A
	After fifth flame application, flame extinguished within 1 min		N/A
T	MECHANICAL STRENGTH TESTS		P
T.1	General requirements		P

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Clause	Requirement + Test	Result - Remark	Verdict
T.2	Steady force test, 10 N	(See appended table T.2, T.3, T.4, T.5)	P
T.3	Steady force test, 30 N		N/A
T.4	Steady force test, 100 N		N/A
T.5	Steady force test, 250 N	(See appended table T.2, T.3, T.4, T.5)	P
T.6	Enclosure impact test	(See appended table T.6, T.9)	P
	Fall test		P
	Swing test		P
T.7	Drop test		N/A
T.8	Stress relief test.....	(See appended table T.8)	P
T.9	Impact Test (glass)		N/A
T.9.1	General requirements		N/A
T.9.2	Impact test and compliance		N/A
	Impact energy (J).....		—
	Height (m).....		—
T.10	Glass fragmentation test		N/A
T.11	Test for telescoping or rod antennas		N/A
	Torque value (Nm)		—
U	MECHANICAL STRENGTH OF CATHODE RAY TUBES (CRT) AND PROTECTION AGAINST THE EFFECTS OF IMPLOSION		N/A
U.1	General requirements		N/A
U.2	Compliance and test method for non-intrinsically protected CRTs		N/A
U.3	Protective Screen		N/A
V	DETERMINATION OF ACCESSIBLE PARTS (FINGERS, PROBES AND WEDGES)		P
V.1	Accessible parts of equipment		P
V.2	Accessible part criterion		P

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Clause	Requirement + Test	Result - Remark	Verdict
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4.1.2	TABLE: List of critical components					P
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹	
LCD Panel with LED backlight (for 23.8 inch model)	L&T	LM238*** (*can be 0-9, A-Z or blank for marketing purpose).	23.8 inch TFT LCD (power consumption: 11.8W; LED array voltage: 57V)	--	Tested in equipment	
Alt.)	BOE	M*238*** (*can be 0-9, A-Z or blank for marketing purpose).	23.8 inch TFT LCD (power consumption: 15.51W; LED array voltage: 64V)	--	Tested in equipment	
Alt.)	LG Display	LM238*** (*can be 0-9, A-Z or blank for marketing purpose).	23.8 inch TFT LCD (power consumption: 11.8W; LED array voltage: 46.1V)	--	Tested in equipment	
Alt.)	INNOLUX	M238***-**** (*can be 0-9, A-Z or blank for marketing purpose).	23.8 inch TFT LCD (power consumption: 16.765W; LED array voltage: 32V)	--	Tested in equipment	
Alt.)	AUO	M238**** (*can be 0-9, A-Z or blank for marketing purpose).	23.8 inch TFT LCD (power consumption: 18.4W; LED array voltage: 52.7V)	--	Tested in equipment	
Alt.)	SAMSUNG	LTM238**** (*can be 0-9, A-Z or blank for marketing purpose).	23.8 inch TFT LCD (power consumption: 13.8W; LED array voltage: 39.6V)	--	Tested in equipment	
LCD Panel with LED backlight (for 23.0 inch model)	L&T	LM230WF*-**** (*can be 0-9, A-Z or blank for marketing purpose).	23 inch with LED backlight (power consumption: 11W; LED array voltage: 48.8V)	--	Tested in equipment	

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Clause	Requirement + Test		Result - Remark	Verdict	
Alt.)	BOE	MV230FH* ^{***} (*can be 0-9, A-Z or blank for marketing purpose).	23 inch with LED backlight (power consumption: 15.75W; LED array voltage: 67.2V)	--	Tested in equipment
Alt.)	INNOLUX	M230HC* ^{***} (*can be 0-9, A-Z or blank for marketing purpose).	23 inch with LED backlight (power consumption: 16.03W; LED array voltage: 29.2V)	--	Tested in equipment
Alt.)	LG Dispaly	LM230WF* ^{****} (*can be 0-9, A-Z or blank for marketing purpose).	23 inch with LED backlight (power consumption: 10.9W; LED array voltage: 38.4V)	--	Tested in equipment
Plastic Enclosure	LOTTE ADVANCED MATERIALS CO LTD (SAMSUNG SDI)	SD-0150(+), VH-0810(+), VE-0812(+), NH-1000T(+)(&), GC- 0700(++)(RR28), GC-0700A(RR), GC- 0750(+)(RR70), GC- 1017(+)(RR30), VE-1890(+), BF-0675(+), BF-0670(+), NH-1017(p), NH-1017T, NH-1017SG(+), BF-0677(+), HS-7000(+), HG-0760(+), NE-1030(+), HR-1360(+), LX-0951(+), LX-0957(+), TH-1100(+), TN-1100(+)	HB or better, min. 2.0mm thickness	UL 94	UL (E115797)

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Alt.)	GRAND PACIFIC PETROCHEMI CAL CORP	D-150, D-1000, D-1000A	HB or better, min. 2.0mm thickness	UL 94	UL (E88637)
Alt.)	CHI MEI CORPORATIO N	PA-757(+), PH-88, PA-756S	HB or better, min. 2.0mm thickness	UL 94	UL (E56070)
Alt.)	ALBIS PLASTIC GMBH	GP-35, GP-22, 495F	HB or better, min. 2.0mm thickness	UL 94	UL (E80168)
Alt.)	COVESTRO DEUTSCHLAN D AG [PC RESINS]	FR3000 series, FR3005 series	HB or better, min. 2.0mm thickness	UL 94	UL (E41613)
Alt.)	LG CHEM LTD	HF350(#), HF380(m), HF380NS, HF380(#), HF-380(#), HF-380(m), HF-380, HF-380NS, HF380X, AF312T1, AF342T1, LUPOY GN- 5001TF(#), GN-5001RFD, LUPOY GN- 5008HF(#), LUPOY GP- 5008BF(#), SE750(#), XG568(#), XG569(#), GP-1000L, GP-1000F(#), GP-1000(m)(#), LUMILOY GP- 1000(#), SE750(#), LUPOY GN- 5001RF(T), SE885(#), HF388(#)	HB or better, min. 2.0mm thickness	UL 94	UL (E171666)
Alt.)	CHI LIN	GA-1535	HB or better, min. 2.0mm thickness	UL 94	UL (E177071)
Alt.)	PONTEX	AFE5000N, AFE5100N, 9004BK	HB or better, min. 2.0mm thickness	UL 94	UL (E205938)

IEC 62368-1					
Clause	Requirement + Test		Result - Remark	Verdict	
Alt.)	KINGFA SCI & TECH CO LTD	4418, 5197, FRABS-518, HIPS-5197, HF-606, HF-626, FRABS-518, GAR-011C, JH960 6(M), FRHIPS-960, RS-900, RS-300, RS-400, GAR-011, GAR-011(L65), GAR-011(L85), GAR-011(HG6), CK-100, CK-900, CK-55111, JH960 6(M), FRHIPS-960, HIPS-4418, HIPS- 3399, HIPS- CM(ee), HIPS-HG(ee), HIPS-510 (o), HIPS-550, CK-61(M) (##), RS-(hh)0, HP-126, ABS-660, ABS-122, GAR-322, GAR- 332, GAR-220, H12, G360, CK-55(M) (##), CK-58(M) (##), GAR-011C, GAR-011(ww)	HB or better, min. 2.0mm thickness	UL 94	UL (E230779)
Alt.)	QINGDAO HAIER NEW MATERIAL R & D CO LTD	HRABS-RS, HRABS-HG, CR-3002	HB or better, min. 2.0mm thickness	UL 94	UL (E328304)
Alt.)	DONGGUAN HINGLONG PLASTIC TECHNOLOGY CO LTD	HL-ABS-PCR85, HL-ABS-PCR65, HL-ABS-PCR35	HB or better, min. 2.0mm thickness	UL 94	UL (E471190)
Alt.)	ORINKO (HEFEI) ADVANCED PLASTIC CO LTD	ABS-3070H, HIPS-2000	HB or better, min. 2.0mm thickness	UL 94	UL (E471190)

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Alt.)	WISTRON ADVANCED MATERIALS (KUNSHAN) CO LTD	GA(M)(b)(c)	HB or better, min. 2.0mm thickness	UL 94	UL (E310240)
Alt.)	UNIC TECHNOLOGY CORP	UR-3006+(RXX), UR-200+	HB or better, min. 2.0mm thickness	UL 94	UL (E135175)
Alt.)	GUO HENG (DONGGUAN)	YOUHO(#####)(Y)	HB or better, min. 2.0mm thickness	UL 94	UL (E471190)
Alt.)	HUIZHOU WOTE	2100	HB or better, min. 2.0mm thickness	UL 94	UL (E135175)
Alt.)	TEIJIN LIMITED RESIN AND PLASTIC	TN-7500(c), TN-7500F(#), MN-3600V(#), MN-3600H(#)	HB or better, min. 2.0mm thickness	UL 94	UL (E98529)
Alt.)	INEOS STYROLUTION GROUP GMBH	495F GR2, 495F KG2, 495F GR21, 495F KG21, PC2065	HB or better, min. 2.0mm thickness	UL 94	UL (E108538)
Alt.)	STYRON	STYRON A-TECH 1200	HB or better, min. 2.0mm thickness	UL 94	UL (E162447)
Alt.)	TOTAL PETROCHEMI CAL S SOUTH EAST ASIA PTE LTD	3441; 260-XX	HB or better, min. 2.0mm thickness	UL 94	UL (E314268)
Alt.)	DOOSAN CORPORATIO N ELECTRO- MATERIALS BG	DS-1107A; DS-1202G; DS-7106	HB or better, min. 2.0mm thickness	UL 94	UL (E103670)
Alt.)	SABIC JAPAN L L C	C6600(GG)(X)(VS) C6600E (VS)(X)	HB or better, min. 1.5mm thickness	UL 94	UL (E207780)
Mylar sheet around power board	SUZHOU OMAY OPTICAL MATERIALS CO LTD	SE42B, SE42B-F	min. 0.4mm thickness, min. V-1, 105°C	UL 94	UL E249605
Alt.)	SICHUAN LONGHUA FILM CO LTD	PC-770F, PC-770F-A, PC-770	min. 0.4mm thickness, min. V-1, 105°C	UL 94	UL E254551

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Alt.)	SICHUAN DONGFANG INSULATING MATERIAL CO LTD	DFR700, DFR700F	min. 0.4mm thickness, min. V-1, 105°C	UL 94	UL E199019
Alt.)	CHENGDU KANGLONGXI N PLASTICS CO LTD	KLX FRPC-1860B, KLX FRPC-1870B	min. 0.4mm thickness, min. V-1, 105°C	UL 94	UL E315185
Alt.)	CHENGDU KANGLONGXI N PLASTICS CO LTD	KLX FRPC-870B	min. 0.4mm thickness, min. V-1, 105°C	UL 94	UL E315185
Alt.)	SICHUAN DONGFANG INSULATING MATERIAL CO LTD	DFR117ECOC, DFR117ECOB	min. 0.4mm thickness, min. V-1, 105°C	UL 94	UL E199019
Alt.)	SICHUAN DONGFANG INSULATING MATERIAL CO LTD	DFR117ECO	min. 0.4mm thickness, min. V-1, 105°C	UL 94	UL E199019
Alt.)	JINGMEN GORUN TECHNOLOGY CO LTD	HF70	min. 0.4mm thickness, min. V-1, 105°C	UL 94	UL E305163
Alt.)	SICHUAN DONGFANG INSULATING MATERIAL CO LTD	DFR3A(d)	min. 0.4mm thickness, min. V-1, 105°C	UL 94	UL E199019
Alt.)	CHENGDU KANGLONGXI N PLASTICS CO LTD	KLX PP BK-10	min. 0.4mm thickness, min. V-1, 105°C	UL 94	UL E315185
Adhesive for Mylar sheet mentioned above	SYMBIO	DS50-A, DS50L	100°C, 0.05mm Thickness	--	Tested with appliance
Alt.)	Interchangeable	Interchangeable	100°C, 0.05mm Thickness	UL 746C	UL
Switching mode power supply board: 715G9852 by TPV					
AC-Inlet (CN901)	Solteam	ST-01, SC04	10A, 250Vac	IEC/ EN 60320-1 UL60320-1	VDE, UL

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Alt.)	Zhang Jia Gang-Hua Jie	SA-4S, SA-4S-1, SA-4D	10A, 250Vac	IEC/ EN 60320-1 UL60320-1	VDE, UL
Alt.)	Rong Feng	SS-120, SS-7B	10A, 250Vac	IEC/ EN 60320-1 UL60320-1	VDE, UL
Alt.)	Inalways	0707-1, 0711-2, 0714	10A, 250Vac	IEC/ EN 60320-1 UL60320-1	VDE, UL
Alt.)	DELIKANG	CDJ-3, CDJ-3-1, CDJ-7	10A, 250Vac	IEC/ EN 60320-1 UL60320-1	VDE, UL
Alt.)	TECX	TU-301 series	10A, 250Vac	IEC/ EN 60320-1 UL60320-1	VDE, UL
Alt.)	Hongchang	DB-14-4, DB-14-05	10A, 250Vac	IEC/ EN 60320-1 UL60320-1	VDE, UL
Alt.)	Yueqing Hongchang	DB-14	10A, 250Vac	IEC/ EN 60320-1 UL60320-1	VDE, UL
Fuse (F901 on primary)	Littelfuse, Inc. Wickmann	382-series, 392	T4AL, 250Vac	IEC/ EN 60127-1 IEC/ EN 60127-3 UL 248-1	VDE, UL
Alt.)	Littelfuse Phils. Inc.	TE5 400 series	T4AL, 250Vac	IEC/ EN 60127-1 IEC/ EN 60127-3 UL 248-1	VDE, UL
Alt.)	Conquer	MET series MST series PTU	T4AL, 250Vac	IEC/ EN 60127-1 IEC/ EN 60127-3 UL 248-1	VDE, UL
Alt.)	Cooper Bussmann	SR-5, SS-5	T4AL, 250Vac	IEC/ EN 60127-1 IEC/ EN 60127-3 UL 248-1	VDE, UL
Alt.)	Ever Island Electric Co., Ltd. & Walter Electric	2000, 2010 series	T4AL, 250Vac	IEC/ EN 60127-1 IEC/ EN 60127-3 UL 248-1	VDE, UL
Alt.)	Littelfuse Phils. Inc.	877	T4AL, 250Vac	IEC/ EN 60127-1 IEC/ EN 60127-3 UL 248-1	VDE, UL
Y- Capacitor (C920, C921) Y1 or Y2 type (optional)	Walsin	AC, AH	Max. 1000pF, 250Vac, 85°C	IEC/EN 60384- 14, UL 60384-14	VDE, UL
Alt.)	TDK	CS, CD	Max. 1000pF, 250Vac, 85°C	IEC/EN 60384- 14, UL 60384-14	VDE, UL
Alt.)	Murata	KH, KX	Max. 1000pF, 250Vac, 85°C	IEC/EN 60384- 14, UL 60384-14	VDE, UL

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Alt.)	Hongming	F	Max. 1000pF, 250Vac, 85°C	IEC/EN 60384-14, UL 60384-14	VDE, UL
Alt.)	Wansheng	CT7	Max. 1000pF, 250Vac, 85°C	IEC/EN 60384-14, UL 60384-14	VDE, UL
Alt.)	Haohua	CT7	Max. 1000pF, 250Vac, 85°C	IEC/EN 60384-14, UL 60384-14	VDE, UL
Alt.)	Samwha	SD	Max. 1000pF, 250Vac, 85°C	IEC/EN 60384-14, UL 60384-14	VDE, UL
Alt.)	JYA-NAY	JN, JY	Max. 1000pF, 250Vac, 85°C	IEC/EN 60384-14, UL 60384-14	VDE, UL
Alt.)	Success	SB, SE	Max. 1000pF, 250Vac, 85°C	IEC/EN 60384-14, UL 60384-14	VDE, UL
Alt.)	Yinan	CT81	Max. 1000pF, 250Vac, 85°C	IEC/EN 60384-14, UL 60384-14	VDE, UL
Y- Capacitor (C935) Y1 type (optional)	Walsin	AH series	Max. 2200pF, 250Vac, 85°C	IEC/EN 60384-14, UL 60384-14	VDE, UL
Alt.)	TDK	CD	Max. 2200pF, 250Vac, 85°C	IEC/EN 60384-14, UL 60384-14	VDE, UL
Alt.)	Murata	KX	Max. 2200pF, 250Vac, 85°C	IEC/EN 60384-14, UL 60384-14	VDE, UL
Alt.)	Kunshan Wansheng	CT7	Max. 2200pF, 250Vac, 85°C	IEC/EN 60384-14, UL 60384-14	VDE, UL
Alt.)	YINAN DON'S	CT81	Max. 2200pF, 250Vac, 85°C	IEC/EN 60384-14, UL 60384-14	VDE, UL
Alt.)	SUCCESS	SE	Max. 2200pF, 250Vac, 85°C	IEC/EN 60384-14, UL 60384-14	VDE, UL
Alt.)	SUCCESS	SB	Max. 2200pF, 250Vac, 85°C	IEC/EN 60384-14, UL 60384-14	VDE, UL
Alt.)	SUCCESS	SL	Max. 2200pF, 250Vac, 85°C	IEC/EN 60384-14, UL 60384-14	VDE, UL
X-Capacitor (C914) (X1 or X2 type) (optional)	Ultra Tech Xphi	HQX	Max. 0.47μF, Min. 250Vac, 85°C	IEC/EN 60384-14 UL 60384-14	VDE, UL
Alt.)	Europtronic	MPX	Max. 0.47μF, Min. 250Vac, 85°C	IEC/EN 60384-14 UL 60384-14	VDE, UL
Alt.)	Europtronic	MPX2	Max. 0.47μF, Min. 250Vac, 85°C	IEC/EN 60384-14 UL 60384-14	VDE, UL

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Alt.)	Liow Gu	GS-L	Max. 0.47 μ F, Min. 250Vac, 85°C	IEC/EN 60384-14 UL 60384-14	VDE, UL
Alt.)	Arcotronics (KEMET)	R.46	Max. 0.47 μ F, Min. 250Vac, 85°C	IEC/EN 60384-14 UL 60384-14	VDE, UL
Alt.)	EPCOS	B3292#	Max. 0.47 μ F, Min. 250Vac, 85°C	IEC/EN 60384-14 UL 60384-14	VDE, UL
Alt.)	Nanjing Tengen Rongguangda	MKP	Max. 0.47 μ F, Min. 250Vac, 85°C	IEC/EN 60384-14 UL 60384-14	VDE, UL
Discharge IC (U901)	Leadtrend Technology Corp.	LD5760	85°C	IEC/EN 60950-1:2005+ A1	Nemko CB (Certif. No: NO77082)
Photo Coupler (U902)	Sharp	PC123	Di=0.7mm, ext. cr \geq 8.0mm, 5000Vac, 110°C	DIN EN 60747-5-5, UL1577	VDE, UL
Alt.)	Vishay Semiconductor	TCET1103	Di=0.6mm, ext. cr=8.4mm, 5000Vac, 100°C	DIN EN 60747-5-5, UL1577	VDE, UL
Alt.)	Everlight Electronics Co., Ltd.	EL817, EL817M	Di=0.5mm, ext. cr=7.7mm, 5000Vac, 100°C	DIN EN 60747-5-5, UL1577	VDE, UL
Alt.)	Lite-on	LTV-817	Di=0.4mm, ext. cr \geq 7.0mm, 5000Vac, 100°C	DIN EN 60747-5-5, UL1577	VDE, UL
Alt.)	Renesas	PS2561-1 PS2561L-1 PS2561L1-1 PS2561L2-1 PS2561DL1-1	Di=0.4mm, ext. cr=8.0mm, 5000Vac, 100°C	DIN EN 60747-5-5, UL1577	VDE, UL
Alt.)	TOSHIBA	TLP781F TLP781	Di=0.4mm, ext. cr=8.0mm, 5000Vac, 100°C	DIN EN 60747-5-5, UL1577	VDE, UL
Alt.)	TOSHIBA	TLP421F	Di=0.4mm, ext. cr=8.0mm, 5000Vac, 100°C	DIN EN 60747-5-5, UL1577	VDE, UL
Line Choke (L901) (Optional)	LZ	373G0174563Z	Min.105°C	--	--
Alt.)	LFDJ	373G0174563J	Min.105°C	--	--
Alt.)	ASET	373G0174563X	Min.105°C	--	--

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Alt.)	HA	373G0174563H	Min.105°C	--	--
Transformer (T902) Alt.)	LFDJ	380GL32P587J	Class 120 material (B)	Applicable parts of IEC 60950-1 and according to IEC 60085	Accepted by TÜV Rheinland
Bobbin	CHANG CHUN	T200HF	V-0, Phenolic, 150°C	UL 94	UL
Triple insulation wire	COSMOLINK	TIW-M	Max.130°C	IEC/EN 60950-1, VDE0805 Teil1, UL 2353	UL, VDE
Teflon tube	GREAT HOLDING	TFL	200°C	UL 224	UL
Insulation tape	YAHUA	No.CT	130°C	UL 510	UL
Transformer (T902) Alt.)	PHOENIX	380GL32P587P	Class 120 material (B)	Applicable parts of IEC 60950-1 and according to IEC 60085	Accepted by TÜV Rheinland
Bobbin	Sumitomo	PM-9750	V-0, Phenolic, 150°C	UL 94	UL
Triple insulation wire	YUSHENG	TIW-B	Max.130°C	IEC/EN 60950-1, VDE0805 Teil1, UL 2353	UL, VDE
Teflon tube	GREAT HOLDING	TFL	200°C	UL 224	UL
Insulation tape	YAHUA	No.CT	130°C	UL 510	UL
Transformer (T902) Alt.)	TC	380GL32P587S	Class 120 material (B)	Applicable parts of IEC 60950-1 and according to IEC 60085	Accepted by TÜV Rheinland
Bobbin	SUMITOIMO	PM-9630	V-0, Phenolic, 150°C	UL 94	UL
Triple insulation wire	GREAT LEOFLON	TRW(B)	Max.130°C	IEC/EN 60950-1, VDE0805 Teil1, UL 2353	UL, VDE
Teflon tube	GREAT HOLDING	TFL	200°C	UL 224	UL
Insulation tape	YAHUA	No.CT	130°C	UL 510	UL
The components which is not critical					
Internal Speaker (two provided) (optional)	Interchangeable	Interchangeable	Max. 4Ω, max. 2.5W	--	--

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
P.C.B	Interchangeable	Interchangeable	V-1 or better Min. 105°C.	UL 796	UL
Bleeder Resistor (R916, R917, R918)	Interchangeable	Interchangeable	Max.680KΩ, min. 1/4W (located after fuse, three in series)	--	--
Thermistor (TH901)	Interchangeable	Interchangeable	Min. 3Ω, Min. 2A, 25°C	--	--
Transistor (Q901)	Interchangeable	Interchangeable	Min. 3.8A, 600V min	--	--
Bridging Diode (BD901)	Interchangeable	Interchangeable	Min. 2A, Max 800V.	--	--
Ripple Capacitor (C902,C903)	Interchangeable	Interchangeable	39-68uF, min. 450 V, min .105°C	--	--
Current sensor resistor (R919)	Interchangeable	Interchangeable	0.33ohm, 2W	--	--
The following list per client request.					
Mains cord set (Saudi Arabia) (Optional)					
Plug	Voalex	MP5004A, DLUK10S3, VNUK13A3, UK13A2, UK13A3, VPUK13A3	2.5A/250V	BS 1363 SASO 2203:2018	Intertek (ASTA)
Connector	Voalex	VAC5S, DLC5CS3, VNC5S, DLC5E3, VAC5AR, VAC7S, SZC7S, VCC5S	2.5A/250V	BS 1363 SASO 2203:2018	Intertek (ASTA)
Cable	Voalex	H03VV-F, H03VVH2-F, H03Z1Z1-F	3X0.75mm ²	BS 1363 SASO 2203:2018	Intertek (ASTA)
Plug	SLT	STD01, STD02	2.5A/250V	BS 1363 SASO 2203:2018	Intertek (ASTA)
Connector	SLT	STC5, STC7	2.5A/250V	BS 1363 SASO 2203:2018	Intertek (ASTA)

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Cable	SLT	H03VV-F, H03VVH2-F	3X0.75mm ²	BS 1363 SASO 2203:2018	Intertek (ASTA)
Plug	HONGLIN	HL-044D, HL-044S	2.5A/250V	BS 1363 SASO 2203:2018	Intertek (ASTA)
Connector	HONGLIN	HL-052D, HL-052S	2.5A/250V	BS 1363 SASO 2203:2018	Intertek (ASTA)
Cable	HONGLIN	H03VV-F	3X0.75mm ²	BS 1363 SASO 2203:2018	Intertek (ASTA)
Plug	Longwell	LP-61LD, LP-61L, LP-61LH	2.5A/250V	BS 1363 SASO 2203:2018	Intertek (ASTA)
Connector	Longwell	LS-18F, LS-18N, LS-18(LH)	2.5A/250V	BS 1363 SASO 2203:2018	Intertek (ASTA)
Cable	Longwell	H03VV-F, H03Z1Z1-F	3X0.75mm ²	BS 1363 SASO 2203:2018	Intertek (ASTA)
Plug	FRSH	BS-01J	2.5A/250V	BS 1363 SASO 2203:2018	Intertek (ASTA)
Connector	FRSH	CE-608J	2.5A/250V	BS 1363 SASO 2203:2018	Intertek (ASTA)
Cable	FRSH	H03VV-F	3X0.75mm ²	BS 1363 SASO 2203:2018	Intertek (ASTA)
Plug	Interchangeable	Interchangeable	2.5A/250V	BS 1363 SASO 2203:2018	Intertek (ASTA)
Connector	Interchangeable	Interchangeable	2.5A/250V	BS 1363 SASO 2203:2018	Intertek (ASTA)
Cable	Interchangeable	Interchangeable	3X0.75mm ²	BS 1363 SASO 2203:2018	Intertek (ASTA)
Plug	Voex	MP5004(5A), VPUK13A3	5.0A/250V	BS 1363 SASO 2203:2018	Intertek (ASTA)

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Connector	Voalex	V1625, VCC13	5.0A/250V	BS 1363 SASO 2203:2018	Intertek (ASTA)
Cable	Voalex	H05VV-F, H05Z1Z1-F	3X0.75mm ²	BS 1363 SASO 2203:2018	Intertek (ASTA)
Plug	Interchangeable	Interchangeable	5.0A/250V	BS 1363 SASO 2203:2018	Intertek (ASTA)
Connector	Interchangeable	Interchangeable	5.0A/250V	BS 1363 SASO 2203:2018	Intertek (ASTA)
Cable	Interchangeable	Interchangeable	3X0.75mm ²	BS 1363 SASO 2203:2018	Intertek (ASTA)
Plug	Voalex	VNUK13A3, MP5004(10A), MP5004(13A)	10.0A/250V	BS 1363 SASO 2203:2018	Intertek (ASTA)
Connector	Voalex	VNC13S, V1625, V1625A	10.0A/250V	BS 1363 SASO 2203:2018	Intertek (ASTA)
Cable	Voalex	H05VV-F	3X0.75mm ² 3X1.00mm ²	BS 1363 SASO 2203:2018	Intertek (ASTA)
Plug	SLT	STD01	10.0A/250V	BS 1363 SASO 2203:2018	Intertek (ASTA)
Connector	SLT	STC13	10.0A/250V	BS 1363 SASO 2203:2018	Intertek (ASTA)
Cable	SLT	H05VV-F	3X0.75mm ² 3X1.00mm ²	BS 1363 SASO 2203:2018	Intertek (ASTA)
Plug	HONGLIN	HL-044S	10.0A/250V	BS 1363 SASO 2203:2018	Intertek (ASTA)
Connector	HONGLIN	HL-026S	10.0A/250V	BS 1363 SASO 2203:2018	Intertek (ASTA)
Cable	HONGLIN	H05VV-F	3X0.75mm ² 3X1.00mm ²	BS 1363 SASO 2203:2018	Intertek (ASTA)

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Plug	Longwell	LP-61L, LP-61LD, UK LP-61L	10.0A/250V	BS 1363 SASO 2203:2018	Intertek (ASTA)
Connector	Longwell	LS-13G, LS-18F, LS-60, LS-15, LS-13D	10.0A/250V	BS 1363 SASO 2203:2018	Intertek (ASTA)
Cable	Longwell	H05VV-F	3X0.75mm ² 3X1.00mm ²	BS 1363 SASO 2203:2018	Intertek (ASTA)
Plug	FRSH	BS-01J	10.0A/250V	BS 1363 SASO 2203:2018	Intertek (ASTA)
Connector	FRSH	CE-601J	10.0A/250V	BS 1363 SASO 2203:2018	Intertek (ASTA)
Cable	FRSH	H05VV-F	3X0.75mm ²	BS 1363 SASO 2203:2018	Intertek (ASTA)
Plug	Interchangeable	Interchangeable	10.0A/250V	BS 1363 SASO 2203:2018	Intertek (ASTA)
Connector	Interchangeable	Interchangeable	10.0A/250V	BS 1363 SASO 2203:2018	Intertek (ASTA)
Cable	Interchangeable	Interchangeable	3X0.75mm ² 3X1.00mm ²	BS 1363 SASO 2203:2018	Intertek (ASTA)
Plug	Voex	MP5004	13.0A/250V	BS 1363 SASO 2203:2018	Intertek (ASTA)
Connector	Voex	VSC19	13.0A/250V	BS 1363 SASO 2203:2018	Intertek (ASTA)
Cable	Voex	H05VV-F	3X1.50mm ²	BS 1363 SASO 2203:2018	Intertek (ASTA)
Plug	Interchangeable	Interchangeable	13.0A/250V	BS 1363 SASO 2203:2018	Intertek (ASTA)

IEC 62368-1					
Clause	Requirement + Test			Result - Remark	Verdict
Connector	Interchangeable	Interchangeable	13.0A/250V	BS 1363 SASO 2203:2018	Intertek (ASTA)
Cable	Interchangeable	Interchangeable	3X1.50mm ²	BS 1363 SASO 2203:2018	Intertek (ASTA)
Supplementary information:					
1. ¹⁾ Provided evidence ensures the agreed level of compliance. See OD-CB2039.					
2. 'Di' means distance through insulation, 'int.' Means internal distance of creepage and 'ext.' Means external distance of creepage.					
3. All sources of transformer were checked with same construction.					

4.8.4, 4.8.5	TABLE: Lithium coin/button cell batteries mechanical tests			N/A
(The following mechanical tests are conducted in the sequence noted.)				
4.8.4.2	TABLE: Stress Relief test			—
	Part	Material	Oven Temperature (°C)	Comments
4.8.4.3	TABLE: Battery replacement test			—
	Battery part no. :			—
	Battery Installation/withdrawal	Battery Installation/Removal Cycle		Comments
		1		
		2		
		3		
		4		
		5		
		6		
		7		
		8		
		9		
		10		
4.8.4.4	TABLE: Drop test			—
	Impact Area	Drop Distance	Drop No.	Observations
			2	
4.8.4.5	TABLE: Impact			—
	Impacts per surface	Surface tested	Impact energy (Nm)	Comments
4.8.4.6	TABLE: Crush test			—

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Clause	Requirement + Test	Result - Remark	Verdict
Supplementary information:			

4.8.5	TABLE: Lithium coin/button cell batteries mechanical test result			N/A
Test position	Surface tested	Force (N)	Duration force applied (s)	
Supplementary information:				

5.2	Table: Classification of electrical energy sources						P
5.2.2.2 – Steady State Voltage and Current conditions							
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				U (Vrms or Vpk)	I (A _{pk} or A _{rms})	Hz	
1	264V, 60Hz	+19V output of power board to “-“/GND)	Normal	19.0Vdc	--	--	ES1
			Abnormal – (see table B.3 for details, maximum result recorded)	19.0Vdc	--	--	
			Single fault – (see table B.4 for details, maximum result recorded)	19.8Vdc	--	--	
2	264V, 60Hz	Output of power board for LED backlight (CN8101 Pin 1 to “-“/GND); (CN8102 Pin 1 to “-“/GND)	Normal	57.8Vdc	--	--	ES1
			Abnormal – (see table B.3 for details, maximum result recorded)	57.8Vdc	--	--	
			Single fault – (see table B.4 for details, maximum result recorded)	57.8Vdc	--	--	
3	264V, 60Hz	L/N to All secondary port	Normal	--	0.01mA _{pk}	--	ES1
			Abnormal	--	0.01mA _{pk}	--	
			Single fault	--	0.01mA _{pk}	--	
4	264V, 60Hz	L/N to button of key board	Normal	--	0.01mA _{pk}	--	ES1
			Abnormal	--	0.01mA _{pk}	--	
			Single fault	--	0.01mA _{pk}	--	
5.2.2.3 - Capacitance Limits							
No.	Supply	Location (e.g.	Test conditions	Parameters			ES

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Clause	Requirement + Test		Result - Remark	Verdict

	Voltage	circuit designation)		Capacitance, nF	Upk (V)	Class
1	264V, 60Hz	L&N pin of AC inlet	Normal	0.47 μ F (Tolerance max. \pm 10%) (C914)	373	ES3
			Abnormal	--	--	
			Single fault – SC/OC	--	--	

5.2.2.4 - Single Pulses

No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				Duration (ms)	Upk (V)	lpk (mA)	
--	--	--	Normal	--	--	--	--
			Abnormal	--	--	--	
			Single fault – SC/OC	--	--	--	

5.2.2.5 - Repetitive Pulses

No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				Off time (ms)	Upk (V)	lpk (mA)	
--	--	--	Normal	--	--	--	--
			Abnormal	--	--	--	
			Single fault – SC/OC	--	--	--	

Test Conditions:

Normal – Max. normal load

Supplementary information: SC=Short Circuit, OC=Open Circuit

5.4.1.4, 6.3.2, 9.0, B.2.6	TABLE: Temperature measurements						P
Supply voltage (V)	90V/ 60Hz	264V/ 60Hz	90V/ 60Hz	264V/ 60Hz	--	--	—
Ambient T _{min} (°C)	22.6	23.1	23.4	23.5	--	--	—
Ambient T _{max} (°C)	22.6	23.1	23.4	23.5	--	--	—
T _{ma} (°C)	40	40	40	40	--	--	—
Maximum measured temperature T of part/at:	T (°C)					Allowed T _{max} (°C)	
Tested with power board: 715G9657, main board: 715G9656 and panel M230HC*-* (INNOLUX), HDMI Mode							
	Horizontal		Vertical				
Line pin of AC Inlet CN901 (on power board)	53.6	50.5	53.7	50.8	--	--	70

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Clause	Requirement + Test		Result - Remark		Verdict	
C920 body (on power board)	58.8	53.5	58.5	53.2	--	85
PCB near NR901 (on power board)	72.7	59.4	71.7	59.7	--	105
C935 body (on power board)	58.6	56.9	55.2	53.8	--	85
L901 coil (on power board)	65.0	57.1	61.5	57.1	--	105
PCB near BD901 (on power board)	67.3	59.9	65.1	58.9	--	105
C921 body (on power board)	57.1	52.7	56.0	52.8	--	85
U902 body (on power board)	55.9	56.1	52.5	55.1	--	100
T902 coil (on power board)	70.9	72.0	68.5	69.7	--	110
T902 core (on power board)	65.9	66.6	57.5	59.0	--	110
C914 body (on power board)	57.3	55.3	58.4	56.6	--	85
PCB near D906 (on power board)	71.9	72.2	64.1	64.9	--	105
PCB near U401 body (main board)	62.4	62.0	61.5	63.1	--	105
PCB near L801 (on power board)	56.8	56.5	52.4	50.6	--	105
PCB near U801 (on power board)	59.1	58.1	56.2	55.9	--	105
Ambient (degree °C)	22.6 (40)	23.1 (40)	23.4 (40)	23.5 (40)	--	--
Touch temperature for accessible part under normal condition						
Button	32.3	32.5	30.9	30.2	--	77
Metal enclosure	34.9	34.7	33.5	33.1	--	70
Panel	29.4	29.6	30.1	30.6	--	94
Plastic enclosure outside near T902	30.0	30.2	29.8	29.2	--	94
Ambient	22.6 (25)	23.1 (25)	23.4 (25)	23.5 (25)	--	--
Tested with power board: 715G9657, main board: 715G9656 and panel M230HC*-* (INNOLUX), HDMI Mode						
	Horizontal		Vertical			
Line pin of AC Inlet CN901 (on power board)	54.8	51.6	54.9	51.6	--	70
C920 body (on power board)	60.5	54.8	59.4	53.9	--	85
PCB near NR901 (on power board)	76.2	62.3	76.0	62.3	--	105
C935 body (on power board)	60.2	58.5	55.0	54.3	--	85
L901 coil (on power board)	68.2	59.4	67.3	58.8	--	105
PCB near BD901 (on power board)	70.5	62.3	67.2	60.6	--	105
C921 body (on power board)	58.6	53.9	58.4	53.5	--	85
U902 body (on power board)	57.6	58.3	56.3	56.3	--	100
T902 coil (on power board)	74.3	75.7	71.4	73.6	--	110

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Clause	Requirement + Test			Result - Remark			Verdict
T902 core (on power board)	68.7	69.6	65.8	67.5	--	110	
C914 body (on power board)	59.1	57.2	63.0	58.1	--	85	
PCB near D906 (on power board)	75.3	75.9	66.4	67.1	--	105	
PCB near U401 body (main board)	65.0	64.7	65.3	65.2	--	105	
PCB near L801 (on power board)	57.7	57.4	50.5	50.3	--	105	
PCB near U801 (on power board)	59.1	58.0	56.0	55.3	--	105	
Ambient (degree °C)	22.6 (40)	23.1 (40)	23.4 (40)	23.5 (40)	--	--	
Touch temperature for accessible part under normal condition							
Button	33.5	33.6	30.8	30.6	--	77	
Metal enclosure	36.1	35.9	34.0	33.5	--	70	
Panel	29.5	29.7	29.9	29.7	--	94	
Plastic enclosure outside near T902	31.1	31.3	29.7	29.4	--	94	
Ambient	22.6 (25)	23.1 (25)	23.4 (25)	23.5 (25)	--	--	
Supplementary information:							
Temperature T of winding:	t ₁ (°C)	R ₁ (Ω)	t ₂ (°C)	R ₂ (Ω)	T (°C)	Allowed T _{max} (°C)	Insulation class
Supplementary information:							
<p>1. T_{ma} should be considered as directed by applicable requirement</p> <p>2. T_{ma} is not included in assessment of Touch Temperatures (Clause 9)</p> <p>3. All source of each transformer considered with maximum value recorded.</p> <p>4. With a specified ambient temperature of 40°C. All recorded temperature have been calculated to ambient temperature 40°C. Temperature limits are calculated as follows:</p> <p>Winding components providing safety isolation:</p> <ul style="list-style-type: none"> - Class B: T_{max} = 120 - 10 <p>Components with maximum absolute temperature of others:</p> <ul style="list-style-type: none"> - T_{max} = T_{max} of component 							

5.4.1.10.2	TABLE: Vicat softening temperature of thermoplastics	N/A
Penetration (mm)..... :		—
Object/ Part No./Material	Manufacturer/t rademark	T softening (°C)
Supplementary information:		

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Clause	Requirement + Test			Result - Remark			Verdict
5.4.1.10.3	TABLE: Ball pressure test of thermoplastics						P
Allowed impression diameter (mm)				≤ 2 mm			—
Object/Part No./Material		Manufacturer/ trademark	Test temperature (°C)		Impression diameter (mm)		
Plastic enclosure: HIPS-5197, 2.5mm		Kingfa	90		1.59		
Plastic enclosure: GAR-011(L85), 2.5mm		Kingfa	85		1.31		
Plastic enclosure: GAR-011(L65), 2.5mm		Kingfa	85		1.29		
Plastic enclosure: HIPS-510(H), 2.5mm		Kingfa	80		1.29		
Plastic enclosure: FRHIPS-960, 2.5mm		Kingfa	85		1.88		
Plastic enclosure: GC-0750(+), 2.5mm		Cheil	80		1.61		
Plastic enclosure: GC-0700(+), 2.5mm		Cheil	80		1.94		
Plastic enclosure: HG-0760(+), 2.5mm		Cheil	85		1.73		
Plastic enclosure: LX-0951(+), 2.5mm		Cheil	85		1.83		
Plastic enclosure: SD-0150, 2.5mm		Cheil	85		1.48		
Plastic enclosure: HR-1360, 2.5mm		Cheil	85		1.71		
Plastic enclosure: BF-0670F, 2.5mm		Cheil	80		1.59		
Plastic enclosure: HF380, 2.5mm		LG	85		1.48		
Plastic enclosure: SE885, 2.5mm		LG	80		1.42		
Plastic enclosure: LUPOY GP-1000(#), 2.5mm		LG	95		1.21		
Plastic enclosure: XG568, 2.5mm		LG	80		1.81		
Plastic enclosure: XG569C, 2.5mm		LG	80		1.85		
Plastic enclosure: HF388H, 2.5mm		LG	85		1.39		
Plastic enclosure: SE750, 2.5mm		LG	80		1.50		
Plastic enclosure: TN-7500, 2.5mm		Teijin	85		1.57		
Plastic enclosure: HIPS-2000, 2.5mm		ORINKO	85		1.48		
Plastic enclosure: GAR-011C, 2.5mm		Kingfa	90		1.91		
Supplementary information: Above mentioned plastic enclosure material was tested by client's request.							

5.4.2.2, 5.4.2.4 and 5.4.3	TABLE: Minimum Clearances/Creepage distance						P
Clearance (cl) and creepage distance (cr) at/of/between:	Up (V)	U r.m.s. (V)	Frequency (kHz)	Required cl (mm)	cl (mm)	Required cr (mm)	cr (mm)
Basic/supplementary:							
Under fuse (F901)	420	250	--	2.3	2.7	2.5	2.7
Before fuse (between L-N) ^{1.}	420	250	--	2.3	6.0	2.5	8.0
Line-GND ^{1.}	420	250	--	2.3	3.0	2.5	4.0

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Clause	Requirement + Test			Result - Remark			Verdict
Neutral-GND ^{1.}	420	250	--	2.3	3.0	2.5	4.0
Under C920 ^{1.}	420	250	--	2.3	7.5	2.5	9.1
Under C921 ^{1.}	420	250	--	2.3	7.6	2.5	8.4
Primary component (main transformer) to metal enclosure ^{7.}	506	250	<30	2.3	5.	2.5	5.
Primary component trace to panel ^{6.}	506	250	<30	2.3	5.	2.5	5.
Reinforced:							
Under T902	506	250	<30	4.5	7.9	5.0	7.9
Under C935 ^{1.}	420	250	--	4.5	7.6	5.0	9.4
Under U902 ^{1.}	420	250	--	4.5	7.8	5.0	9.2
Secondary component (D907) to core of transformer (T902)	506	250	<30	4.5	11.1	5.0	11.1
Supplementary information:							
<ol style="list-style-type: none"> There is one slot measured 1mm width. Core of main transformer T902 consider as primary, and Core of transformer T902 wrapped with two layers of tape. Glued components: C902 and C903. Considered altitude correction factor 1.48 for clearances for an altitude of 5000m. For clearance and creepage that did not describe above are far larger than limit above. One mylar sheet is fixed between power board and panel plate to fulfill the requirement for basic insulation. See table 5.2 for the electric strength test for mylar. One mylar sheet is fixed between primary trace side of power board and metal enclosure to fulfill the requirement for basic insulation. See table 5.2 for the electric strength test for mylar sheet. 							

5.4.2.3	TABLE: Minimum Clearances distances using required withstand voltage			P
	Overvoltage Category (OV):			II
	Pollution Degree:			2
Clearance distanced between:	Required withstand voltage	Required cl (mm)	Measured cl (mm)	
Basic/Supplementary	2500	See table 5.4.2.2, 5.4.2.4 and 5.4.3	See table 5.4.2.2, 5.4.2.4 and 5.4.3	
Reinforce	2500	See table 5.4.2.2, 5.4.2.4 and 5.4.3	See table 5.4.2.2, 5.4.2.4 and 5.4.3	
Supplementary information:				
Consider the altitude up to 5000m, multiplication factor (according to Table 17) is 1.48.				
* For clearance and creepage that did not describe above are far larger than limit above.				

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.2.4	TABLE: Clearances based on electric strength test		N/A
Test voltage applied between:	Required cl (mm)	Test voltage (kV) peak/ r.m.s. / d.c.	Breakdown Yes / No
--	--	--	--
Supplementary information:			

5.4.4.2, 5.4.4.5 c) 5.4.4.9	TABLE: Distance through insulation measurements					P
Distance through insulation di at/of:	Peak voltage (V)	Frequency (kHz)	Material	Required DTI (mm)	DTI (mm)	
Photo coupler (reinforced insulation)	420	--	1)	0.4	1)	
Mylar sheet (reinforced insulation)	506	<30	1)	0.4	min. 0.4	
Plastic Enclosure (reinforced insulation)	420	--	1)	0.4	1)	
Bobbin of transformer	506	<30	1)	0.4	min. 0.45	
Supplementary information:						
1) For details refer to appended table 4.1.2.						

5.4.9	TABLE: Electric strength tests			P
Test voltage applied between:	Voltage shape (AC, DC)	Test voltage (V)	Breakdown Yes / No	
Basic/supplementary:				
Unit primary to earthed metal part	AC	2500	No	
Mylar sheet fixed between power board trace side and panel plate	AC	2500	No	
Mylar sheet fixed between power board and metal enclosure	AC	2500	No	
Unit primary to earthed metal part	AC	2500	No	
Basic/supplementary:				
L/N to accessible plastic enclosure with metal foil	AC	4000	No	
Unit primary to secondary (output)	DC	4000	No	
T902 1): core to secondary	AC	4000	No	
T902 1): each layer of two insulation tapes (for insulation layer wrap core)	AC	4000	No	

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Clause	Requirement + Test	Result - Remark	Verdict
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Supplementary information:

1. Each source of transformer has been tested and passed;
2. For all source of mylar sheet;
3. The tests mentioned above were performed after humidity test and heating test.

5.5.2.2	TABLE: Stored discharge on capacitors					P
Supply Voltage (V), Hz	Test Location	Operating Condition (N, S)	Switch position On or off	Measured Voltage (after 2 seconds)	ES Classification	
264V, 60Hz	L-N	N	--	0V	ES1	
264V, 60Hz	L-N	S (C914 opened)	--	1.2V	ES1	
264V, 60Hz	L-N	S (R916 shorted)	--	1.6V	ES1	
264V, 60Hz	L-N	S (R9991 opened)	--	9.4V	ES1	

Supplementary information:

X-capacitors installed for testing are: See Table 4.1.2;

- Bleeding resistor rating: See Table 4.1.2
- ICX: Approved IC U901, See Table 4.1.2

Notes:

A. Test Location:

Phase to Neutral; Phase to Phase; Phase to Earth; and/or Neutral to Earth

B. Operating condition abbreviations:

N – Normal operating condition (e.g., normal operation, or open fuse); S –Single fault condition

5.6.6.2	TABLE: Resistance of protective conductors and terminations				P
Accessible part	Test current (A)	Duration (min)	Voltage drop (V)	Resistance (mΩ)	
Earth pin of AC inlet to internal metal enclosure	40	2	0.16	4.0	
Earth pin of AC inlet to C920/C921 earth trace	40	2	0.16	4.0	

Supplementary information:

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Clause	Requirement + Test	Result - Remark	Verdict
5.7.2.2, 5.7.4	TABLE: Earthed accessible conductive part		P
Supply voltage.....:			—
Location		Test conditions specified in 6.1 of IEC 60990 or Fault Condition No in IEC 60990 clause 6.2.2.1 through 6.2.2.8, except for 6.2.2.7	Touch current (mA)
Line to earth, Neutral to earth		1	Max. 0.31
		2*	--
		3	--
		4	--
		5	--
		6	--
		8	--
Supplementary information: [1] Supply voltage is the anticipated maximum Touch Voltage [2] Specify method used for measurement as described in IEC 60990 sub-clause 4.3 [4] IEC60990, sub-clause 6.2.2.7, Fault 7 not applicable. [5] (*) IEC60990, sub-clause 6.2.2.2 is not applicable if switch or disconnect device (e.g., appliance coupler) provided. [6] Tested with normal, abnormal and single-fault condition, and maximum value was recorded.			

6.2.2		Table: Electrical power sources (PS) measurements for classification				P
Source	Description	Measurement	Max Power after 3 s	Max Power after 5 s ^(*)	PS Classification	
All data ports of main board	(See Table Annex Q.1)	Power (W) :	--	--	PS2 (See Table Annex Q.1)	
		V _A (V) :	--	--		
		I _A (A) :	--	--		
All output of power board	(See Table Annex Q.1)	Power (W) :	--	--	PS2 (See Table Annex Q.1)	
		V _A (V) :	--	--		
		I _A (A) :	--	--		
Supplementary information: (*) Measurement taken only when limits at 3 seconds exceed PS1 limits						

6.2.3.1		Table: Determination of Potential Ignition Sources (Arcing PIS)			P
Location	Open circuit voltage After 3 s (V _p)	Measured r.m.s current (I _{rms})	Calculated value (V _p x I _{rms})	Arcing PIS? Yes / No	
2)	2)	2)	2)	Yes	

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Clause	Requirement + Test	Result - Remark	Verdict

Supplementary information:

- 1) An Arcing PIS requires a minimum of 50 V (peak) a.c. or d.c. An Arcing PIS is established when the product of the open circuit voltage (V_p) and normal operating condition rms current (I_{rms}) is greater than 15.
- 2) All components located on power board are considered as arcing PIS.

6.2.3.2	Table: Determination of Potential Ignition Sources (Resistive PIS)				P
Circuit Location (x-y)	Operating Condition (Normal / Describe Single Fault)	Measured wattage or VA During first 30 s (W / VA)	Measured wattage or VA After 30 s (W / VA)	Protective Circuit, Regulator, or PTC Operated? Yes / No (Comment)	Resistive PIS? Yes/No
3)	3)	3)	3)	--	Yes

Supplementary information:

- 1) A combination of voltmeter, VA and ammeter IA may be used instead of a wattmeter. If a separate voltmeter and ammeter are used, the product of ($VA \times IA$) is used to determine Resistive PIS classification.
- 2) A Resistive PIS: (a) dissipates more than 15 W, measured after 30 s of normal operation, or (b) under single fault conditions has either a power exceeding 100 W measured immediately after the introduction of the fault if electronic circuits, regulators or PTC devices are used, or has an available power exceeding 15 W measured 30 s after introduction of the fault.
- 3) All components located within the EUT are considered as resistive PIS.

8.5.5	TABLE: High Pressure Lamp		N/A
Description	Values	Energy Source Classification	
Lamp type..... :		—	
Manufacturer..... :		—	
Cat no..... :		—	
Pressure (cold) (MPa)..... :		MS_	
Pressure (operating) (MPa)..... :		MS_	
Operating time (minutes)..... :		—	
Explosion method..... :		—	
Max particle length escaping enclosure (mm) :		MS_	
Max particle length beyond 1 m (mm)..... :		MS_	
Overall result..... :			

Supplementary information:

B.2.5	TABLE: Input test						P
U (V)	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (A)	Condition/status
Tested with power board: 715G9657, main board: 715G9656 and panel M230HC*-* (INNOLUX)							
VGA mode							
90V/50Hz	0.62	--	32.5	--	F901	0.62	Normal load condition
90V/60Hz	0.63	--	32.5	--	F901	0.63	Normal load condition

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Clause	Requirement + Test				Result - Remark		Verdict
100V/50Hz	0.57	1.5	32.4	--	F901	0.57	Normal load condition
100V/60Hz	0.58	1.5	32.4	--	F901	0.58	Normal load condition
240V/50Hz	0.33	1.5	32.2	--	F901	0.33	Normal load condition
240V/60Hz	0.32	1.5	31.8	--	F901	0.32	Normal load condition
264V/50Hz	0.31	--	32.4	--	F901	0.31	Normal load condition
264V/60Hz	0.30	--	32.4	--	F901	0.30	Normal load condition
DP Mode							
90V/50Hz	0.62	--	32.4	--	F901	0.62	Normal load condition
90V/60Hz	0.63	--	32.4	--	F901	0.63	Normal load condition
100V/50Hz	0.57	1.5	32.4	--	F901	0.57	Normal load condition
100V/60Hz	0.58	1.5	32.4	--	F901	0.58	Normal load condition
240V/50Hz	0.33	1.5	31.7	--	F901	0.33	Normal load condition
240V/60Hz	0.32	1.5	31.7	--	F901	0.32	Normal load condition
264V/50Hz	0.31	--	31.8	--	F901	0.31	Normal load condition
264V/60Hz	0.30	--	32.3	--	F901	0.30	Normal load condition
HDMI Mode							
90V/50Hz	0.67	--	35.8	--	F901	0.67	Normal load condition
90V/60Hz	0.68	--	35.9	--	F901	0.68	Normal load condition
100V/50Hz	0.62	1.5	35.6	--	F901	0.62	Normal load condition
100V/60Hz	0.62	1.5	35.6	--	F901	0.62	Normal load condition
240V/50Hz	0.35	1.5	35.1	--	F901	0.35	Normal load condition
240V/60Hz	0.35	1.5	35.0	--	F901	0.35	Normal load condition
264V/50Hz	0.33	--	35.6	--	F901	0.33	Normal load condition
264V/60Hz	0.32	--	35.6	--	F901	0.32	Normal load condition
Tested with power board: 715G9657, main board: 715G9656 and panel M238***** (AUO)							
VGA mode							
90V/50Hz	0.79	--	41.4	--	F901	0.79	Normal load condition
90V/60Hz	0.79	--	41.4	--	F901	0.79	Normal load condition
100V/50Hz	0.71	1.5	41.4	--	F901	0.71	Normal load condition
100V/60Hz	0.71	1.5	41.8	--	F901	0.71	Normal load condition
240V/50Hz	0.37	1.5	40.7	--	F901	0.37	Normal load condition
240V/60Hz	0.37	1.5	40.7	--	F901	0.37	Normal load condition
264V/50Hz	0.39	--	40.8	--	F901	0.39	Normal load condition
264V/60Hz	0.39	--	40.9	--	F901	0.39	Normal load condition
DP Mode							

IEC 62368-1							
Clause	Requirement + Test				Result - Remark		Verdict
90V/50Hz	0.79	--	42.4	--	F901	0.79	Normal load condition
90V/60Hz	0.79	--	42.4	--	F901	0.79	Normal load condition
100V/50Hz	0.71	1.5	42.1	--	F901	0.71	Normal load condition
100V/60Hz	0.72	1.5	42.1	--	F901	0.72	Normal load condition
240V/50Hz	0.37	1.5	41.5	--	F901	0.37	Normal load condition
240V/60Hz	0.37	1.5	41.5	--	F901	0.37	Normal load condition
264V/50Hz	0.39	--	41.8	--	F901	0.39	Normal load condition
264V/60Hz	0.40	--	41.6	--	F901	0.40	Normal load condition
HDMI Mode							
90V/50Hz	0.79	--	42.4	--	F901	0.79	Normal load condition
90V/60Hz	0.79	--	42.4	--	F901	0.79	Normal load condition
100V/50Hz	0.71	1.5	42.1	--	F901	0.71	Normal load condition
100V/60Hz	0.72	1.5	42.1	--	F901	0.72	Normal load condition
240V/50Hz	0.37	1.5	41.5	--	F901	0.37	Normal load condition
240V/60Hz	0.37	1.5	41.5	--	F901	0.37	Normal load condition
264V/50Hz	0.39	--	41.8	--	F901	0.39	Normal load condition
264V/60Hz	0.40	--	41.6	--	F901	0.40	Normal load condition
Supplementary information: Maximum normal load: maximum brightness, maximum contrast, full white screen; each USB 3.0 port was loaded 5V/0.9A; each USB 2.0 port was loaded 5V/0.5A.							

B.3		TABLE: Abnormal operating condition tests						P
Ambient temperature (°C)					See below		—	
Power source for EUT: Manufacturer, model/type, output rating ...:					See table 4.1.2		—	
Component No.	Abnormal Condition	Supply voltage, (V)	Test time (ms)	Fuse no.	Fuse current (A)	T-couple	Temp. (°C)	Observation
Opening block	Blocked	264	5.3 hrs	F901	0.40	Yes	After temperature reached stable, max. measured temp. in T902 coil = 49.6°C, T902 core = 43.3°C, U902 body = 31.4°C Ambient= 13.9°C. Touch temperature of accessible parts on UUT is not exceed TS1 limit in Table 38 of this standard.	Unit normal operation, no hazards, no damage.

IEC 62368-1								
Clause	Requirement + Test						Result - Remark	Verdict
T902 pin 7,8- pin 11 after D904 (+19V)	o-l	264	3.3 hrs	F901	0.44	Yes	After temperature reached stable, max. measured temp. in T901 coil = 81.9°C, T901 core = 64.5°C, U902 body = 38.3°C, Ambient= 14.6°C. Touch temperature of accessible parts on UUT is not exceed TS1 limit in Table 38 of this standard.	Overload to 3.1A additional before unit shutdown, no hazard.
USB 3.0 output	o-l	240	2.9 hrs	F901	0.30	Yes	After temperature reached stable, max. measured temp. in T901 coil = 53.8°C, T901 core = 46.2°C, U902 body = 32.8°C Ambient= 13.6°C. Touch temperature of accessible parts on UUT is not exceed TS1 limit in Table 38 of this standard.	Overload to 1.8A before unit shutdown, no hazard.

Supplementary information:

1. Test table is provided to record abnormal and fault conditions for all applicable energy sources including Thermal burn injury. Column "Abnormal/Fault." Specify if test condition by indicating "Abnormal" then the condition for a Clause B.3 test or "Single Fault" then the condition for Clause B.4.
2. Temp. limit of transformer according to table G.3 is 175°C - 10 - (40°C - Tamb) (worst case) for Class B.
3. All models have been performed with this test, and worse test result was recorded in this table.

B.4								TABLE: Fault condition tests	P
Ambient temperature (°C)						See below		—	
Power source for EUT: Manufacturer, model/type, output rating .:						See table 4.1.2		—	
Component No.	Fault Condition	Supply voltage, (V)	Test time (ms)	Fuse no.	Fuse current, (A)	T-couple	Temp. (°C)	Observation	
BD901 pin1-3	s-c	264	<1 sec	F901	--	--	--	Fuse F901 opened instantly, no hazard.	
C921	s-c	264	<1 sec	F901	--	--	--	Fuse F901 opened instantly, no hazard.	
U901 pin 3-8	s-c	264	< 1 sec	F901	--	--	--	U901 damaged. No hazards. This test was repeated twice (three tests total) with same result.	

IEC 62368-1								
Clause	Requirement + Test				Result - Remark			Verdict
U901 pin 2-8	s-c	264	< 1 sec	F901	--	--	--	U901 damaged. No hazards. This test was repeated twice (three tests total) with same result.
U901 pin 6-8	s-c	264	< 1 sec	F901	--	--	--	U901 damaged. No hazards. This test was repeated twice (three tests total) with same result.
T902 pin 1 to pin 3	s-c	264	5 min	F901	0.05	--	--	Unit shut down, no hazard.
T902 pin 5 to pin 6	s-c	264	5 min	F901	0.03	--	--	Unit shut down, no hazard.
T902 pin 7,8 to pin 11	s-c	264	5 min	F901	0.03	--	--	Unit shut down, no hazard.
+19V output to earth	s-c	264	5 min	F901	0.01	--	--	Unit shut down, no hazard.
U902 pin 1 - 2	s-c	264	5 min	F901	0.04	--	--	Unit shut down, no hazard.
U902 pin 3 - 4	s-c	264	5 min	F901	0.03	--	--	Unit shut down, no hazard.
U902 pin 1	o-c	264	5 min	F901	0.03	--	--	Unit shut down, no hazard.
Q901 pin G-S	s-c	264	5 min	F901	0.01	--	--	Q901 damaged. No hazards. This test was repeated twice (three tests total) with same result.
Q901 pin D-G	s-c	264	5 min	F901	0.01	--	--	Q901 damaged. No hazards. This test was repeated twice (three tests total) with same result.
Q901 pin D-S	s-c	264	5 min	F901	0.01	--	--	Q901 damaged. No hazards. This test was repeated twice (three tests total) with same result.
D906	s-c	264	5 min	F901	0.03	--	--	Unit shut down, no hazard.

IEC 62368-1								
Clause	Requirement + Test					Result - Remark		Verdict
R911	s-c	264	5 min	F901	0.03	--	--	Unit shut down, no hazard.
R905	s-c	264	5 min	F901	0.04	--	--	Unit shut down, no hazard.
D904	s-c	264	5 min	F901	0.03	--	--	Unit shut down, no hazard.
L801	s-c	264	5 min	F901	0.05	--	--	Only LCD panel shut down, others modules are still normal operation. No hazard.
D902	s-c	264	5 min	F901	0.01	--	--	Unit shut down, no hazard.
One speaker	s-c	264	5 min	F901	0.31	--	--	Unit normal operation. No hazard. No excessive temperature being observed.

Supplementary information:

- 1) The unit passed 3000V hi-pot test between primary and accessible output connector after single fault test above.
- 2) In fault column, where s-c=short-circuited, o-c=open-circuited, o-l = overload.
- 3) For fuse opened conditions were tested with each source of fuse.
- 4) For component damaged conditions have been repeated twice (three tests total) with same result.
- 5) For heating test mentioned above was tested under HDMI mode.
- 6) All source of each transformer considered with maximum value recorded.
- 7) Temp. limit of transformer according to table G.3 is 175°C-10-(40°C-Tamb) (worst case) for Class B.

Annex M	TABLE: Batteries								N/A
The tests of Annex M are applicable only when appropriate battery data is not available									N/A
Is it possible to install the battery in a reverse polarity position?							Built in super capacitor.		N/A
	Non-rechargeable batteries			Rechargeable batteries					
	Discharging		Un-intentional charging	Charging		Discharging		Reversed charging	
	Meas. current	Manuf. Specs.		Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.
Max. current during normal condition									
Max. current during fault condition									
Test results:									Verdict

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	- Chemical leaks		
	- Explosion of the battery		
	- Emission of flame or expulsion of molten metal		
	- Electric strength tests of equipment after completion of tests		
Supplementary information: Tested with Super Capacitor:			

Annex M.4	Table: Additional safeguards for equipment containing secondary lithium batteries				N/A
Battery/Cell No.	Test conditions	Measurements			Observation
		U	I (A)	Temp (C)	
	Normal				
	Abnormal				
	Single fault –SC/OC				
	Normal				
	Abnormal				
	Single fault – SC/OC				
Supplementary information:					
Battery identification	Charging at T _{lowest} (°C)	Observation	Charging at T _{highest} (°C)	Observation	
Supplementary information:					

Annex Q.1	TABLE: Circuits intended for interconnection with building wiring (LPS)					P
Note: Measured UOC (V) with all load circuits disconnected:						
Output Circuit	Components	U _{oc} (V)	I _{sc} (A)		S (VA)	
			Meas.	Limit	Meas.	Limit
Tested on +19V output of power board						
See above	Normal condition	19.0	3.2	8	59.0	100
See above	Single fault condition (C914 s-c)	19.0	2.9	8	54.3	100
See above	Single fault condition (R901 s-c)	19.0	2.8	8	52.6	100
See above	Single fault condition (R936 s-c)	0 ²⁾	0 ²⁾	8	0 ²⁾	100
See above	Single fault condition (R927 s-c)	0 ²⁾	0 ²⁾	8	0 ²⁾	100

IEC 62368-1						
Clause	Requirement + Test	Result - Remark			Verdict	
See above	Single fault condition (R919 s-c)	19.0	3.6	8	67.2	100
See above	Single fault condition (C923 s-c)	0 ²⁾	0 ²⁾	8	0 ²⁾	100
See above	Single fault condition (C922 s-c)	0 ²⁾	0 ²⁾	8	0 ²⁾	100
See above	Single fault condition (D906 s-c)	0 ²⁾	0 ²⁾	8	0 ²⁾	100
Tested with data ports of main board 715G9656						
HDMI (CN101) pin 18 to GND	Normal condition	5.0	0 (can't loaded)	8	0 (can't loaded)	100
HDMI (CN101) others pins to GND	Normal condition	0 (can't loaded)	0 (can't loaded)	8	0 (can't loaded)	100
VGA (CN151) pin 12,15 to GND	Normal condition	4.6	0 (can't loaded)	8	0 (can't loaded)	100
HDMI (CN151) others pins to GND	Normal condition	0 (can't loaded)	0 (can't loaded)	8	0 (can't loaded)	100
DP (CN121) pin 20 to GND	Normal condition	3.3	1.2	8	3.5	100
DP (CN121) pin 20 to GND	Single fault condition (U181 PIN 1-5 s-c)	3.3	1.6	8	4.5	100
DP (CN121) pin 20 to GND	Single fault condition (C183 s-c)	0 ²⁾	0 ²⁾	8	0 ²⁾	100
DP (CN121) others pins to GND	Normal condition	0 (can't loaded)	0 (can't loaded)	8	0 (can't loaded)	100

IEC 62368-1						
Clause	Requirement + Test	Result - Remark			Verdict	
USB (CN755) pin 1 to GND	Normal condition	5.2	2.5	8	9.1	100
USB (CN755) pin 1 to GND	Single fault condition (TH752 s-c)	5.2	5.5	8	16.4	100
USB (CN755) pin 1 to GND	Single fault condition (C777 s-c)	0 ²⁾	0 ²⁾	8	0 ²⁾	100
USB (CN755) others pins to GND	Normal condition	0 (can't loaded)	0 (can't loaded)	8	0 (can't loaded)	100
USB (CN756) pin 1 to GND	Normal condition	5.2	2.3	8	8.6	100
USB (CN756) pin 1 to GND	Single fault condition (TH751 s-c)	5.2	5.4	8	16.2	100
USB (CN756) pin 1 to GND	Single fault condition (C772 s-c)	0 ²⁾	0 ²⁾	8	0 ²⁾	100
USB (CN756) others pins to GND	Normal condition	0 (can't loaded)	0 (can't loaded)	8	0 (can't loaded)	100
Tested with data ports of USB board 715G9655						
USB (CN183) pin 1 to GND	Normal condition	5.2	1.9	8	7.3	100
USB (CN183) others pins to GND	Single fault condition (C192 s-c)	0 ²⁾	0 ²⁾	8	0 ²⁾	100

IEC 62368-1						
Clause	Requirement + Test			Result - Remark		Verdict
USB (CN183) others pins to GND	USB (CN184) pin 1 to GND	0 (can't loaded)	0 (can't loaded)	8	0 (can't loaded)	100
USB (CN184) pin 1 to GND	Normal condition	5.2	1.7	8	6.9	100
USB (CN184) others pins to GND	Single fault condition (C189 s-c)	0 ²⁾	0 ²⁾	8	0 ²⁾	100
USB (CN184) others pins to GND	USB (CN184) pin 1 to GND	0 (can't loaded)	0 (can't loaded)	8	0 (can't loaded)	100
Supplementary information: Supply voltage: 264V, 60Hz						

T.2, T.3, T.4, T.5	TABLE: Steady force test					P
Part/Location	Material	Thickness (mm)	Force (N)	Test Duration (sec)	Observation	
Internal components	--	--	10	5	The clearance and creepage distances do not be reduced below the required values.	
External plastic enclosure	See table 4.1.2	See table 4.1.2	250	5	All safeguards remained effective.	
Supplementary information:						

T.6, T.9	TABLE: Impact tests				P
Part/Location	Material	Thickness (mm)	Vertical distance (mm)	Observation	
External Plastic enclosure	See table 4.1.2	See table 4.1.2	1300	All safeguards remained effective.	
Supplementary information:					

T.7	TABLE: Drop tests				N/A
Part/Location	Material	Thickness (mm)	Drop Height (mm)	Observation	
Supplementary information:					

IEC 62368-1					
Clause	Requirement + Test			Result - Remark	Verdict
T.8	TABLE: Stress relief test				P
Part/Location	Material	Thickness (mm)	Oven Temperature (°C)	Duration (h)	Observation
Whole unit	See table 4.1.2	See table 4.1.2	70	7	All safeguards remained effective.
Supplementary information:					

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT																																								
IEC 62368-1																																								
EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES																																								
(Audio/video, information and communication technology equipment - Part 1: Safety requirements)																																								
Differences according to : EN 62368-1:2014+A11:2017																																								
Attachment Form No. : EU_GD_IEC62368_1B_II																																								
Attachment Originator : Nemko AS																																								
Master Attachment : Date 2017-09-22																																								
Copyright © 2017 IEC System for Conformity Testing and Certification of Electrical Equipment (IECEE), Geneva, Switzerland. All rights reserved.																																								
	GENELEC COMMON MODIFICATIONS (EN)																																							
	Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 62368-1:2014 are prefixed "Z".			P																																				
CONTENTS	Add the following annexes: Annex ZA (normative) Normative references to international publications with their corresponding European publications Annex ZB (normative) Special national conditions Annex ZC (informative) A-deviations Annex ZD (informative) IEC and GENELEC code designations for flexible cords			P																																				
	Delete all the "country" notes in the reference document (IEC 62368-1:2014) according to the following list: <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">0.2.1</td> <td style="width: 15%;">Note</td> <td style="width: 15%;">1</td> <td style="width: 15%;">Note 3</td> <td style="width: 15%;">4.1.15</td> <td style="width: 15%;">Note</td> </tr> <tr> <td>4.7.3</td> <td>Note 1 and 2</td> <td>5.2.2.2</td> <td>Note</td> <td>5.4.2.3.2.2 Table 13</td> <td>Note c</td> </tr> <tr> <td>5.4.2.3.2.4</td> <td>Note 1 and 3</td> <td>5.4.2.5</td> <td>Note 2</td> <td>5.4.5.1</td> <td>Note</td> </tr> <tr> <td>5.5.2.1</td> <td>Note</td> <td>5.5.6</td> <td>Note</td> <td>5.6.4.2.1</td> <td>Note 2 and 3</td> </tr> <tr> <td>5.7.5</td> <td>Note</td> <td>5.7.6.1</td> <td>Note 1 and 2</td> <td>10.2.1 Table 39</td> <td>Note 2, 3 and 4</td> </tr> <tr> <td>10.5.3</td> <td>Note 2</td> <td>10.6.2.1</td> <td>Note 3</td> <td>F.3.3.6</td> <td>Note 3</td> </tr> </table>			0.2.1	Note	1	Note 3	4.1.15	Note	4.7.3	Note 1 and 2	5.2.2.2	Note	5.4.2.3.2.2 Table 13	Note c	5.4.2.3.2.4	Note 1 and 3	5.4.2.5	Note 2	5.4.5.1	Note	5.5.2.1	Note	5.5.6	Note	5.6.4.2.1	Note 2 and 3	5.7.5	Note	5.7.6.1	Note 1 and 2	10.2.1 Table 39	Note 2, 3 and 4	10.5.3	Note 2	10.6.2.1	Note 3	F.3.3.6	Note 3	P
0.2.1	Note	1	Note 3	4.1.15	Note																																			
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5.7.5	Note	5.7.6.1	Note 1 and 2	10.2.1 Table 39	Note 2, 3 and 4																																			
10.5.3	Note 2	10.6.2.1	Note 3	F.3.3.6	Note 3																																			
	For special national conditions, see Annex ZB.																																							
1	Add the following note: NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2011/65/EU.		Added.	P																																				

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
4.Z1	<p>Add the following new subclause after 4.9:</p> <p>To protect against excessive current, short-circuits and earth faults in circuits connected to an a.c. mains, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c):</p> <p>a) except as detailed in b) and c), protective devices necessary to comply with the requirements of B.3.1 and B.4 shall be included as parts of the equipment;</p> <p>b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation;</p> <p>c) it is permitted for pluggable equipment type B or permanently connected equipment, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions.</p> <p>If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for pluggable equipment type A the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.</p>	Replaced.	P
5.4.2.3.2.4	<p>Add the following to the end of this subclause:</p> <p>The requirement for interconnection with external circuit is in addition given in EN 50491-3:2009.</p>	Added.	N/A
10.2.1	<p>Add the following to ^{c)} and ^{d)} in table 39:</p> <p>For additional requirements, see 10.5.1.</p>	No such radiation from the equipment.	N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
10.5.1	<p>Add the following after the first paragraph: <i>For RS 1 compliance is checked by measurement under the following conditions:</i> <i>In addition to the normal operating conditions, all controls adjustable from the outside by hand, by any object such as a tool or a coin, and those internal adjustments or presets which are not locked in a reliable manner, are adjusted so as to give maximum radiation whilst maintaining an intelligible picture for 1 h, at the end of which the measurement is made.</i> NOTE Z1 Soldered joints and paint lockings are examples of adequate locking. <i>The dose-rate is determined by means of a radiation monitor with an effective area of 10 cm², at any point 10 cm from the outer surface of the apparatus.</i> <i>Moreover, the measurement shall be made under fault conditions causing an increase of the high-voltage, provided an intelligible picture is maintained for 1 h, at the end of which the measurement is made.</i> <i>For RS1, the dose-rate shall not exceed 1 µSv/h taking account of the background level.</i> NOTE Z2 These values appear in Directive 96/29/Euratom of 13 May 1996.</p>	LED indicator used.	N/A
10.6.1	<p>Add the following paragraph to the end of the subclause: EN 71-1:2011, 4.20 and the related tests methods and measurement distances apply.</p>	No such consideration for the purpose of personal music players.	N/A
10.Z1	<p>Add the following new subclause after 10.6.5. 10.Z1 Non-ionizing radiation from radio frequencies in the range 0 to 300 GHz The amount of non-ionizing radiation is regulated by European Council Recommendation 1999/519/EC of 12 July 1999 on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz). For intentional radiators, ICNIRP guidelines should be taken into account for Limiting Exposure to Time-Varying Electric, Magnetic, and Electromagnetic Fields (up to 300 GHz). For hand-held and body-mounted devices, attention is drawn to EN 50360 and EN 50566</p>		N/A
G.7.1	<p>Add the following note: NOTE Z1 The harmonized code designations corresponding to the IEC cord types are given in Annex ZD.</p>		P

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Bibliography	<p>Add the following standards:</p> <p>Add the following notes for the standards indicated:</p> <p>IEC 60130-9 NOTE Harmonized as EN 60130-9. IEC 60269-2 NOTE Harmonized as HD 60269-2. IEC 60309-1 NOTE Harmonized as EN 60309-1. IEC 60364 NOTE some parts harmonized in HD 384/HD 60364 series. IEC 60601-2-4 NOTE Harmonized as EN 60601-2-4. IEC 60664-5 NOTE Harmonized as EN 60664-5. IEC 61032:1997 NOTE Harmonized as EN 61032:1998 (not modified). IEC 61508-1 NOTE Harmonized as EN 61508-1. IEC 61558-2-1 NOTE Harmonized as EN 61558-2-1. IEC 61558-2-4 NOTE Harmonized as EN 61558-2-4. IEC 61558-2-6 NOTE Harmonized as EN 61558-2-6. IEC 61643-1 NOTE Harmonized as EN 61643-1. IEC 61643-21 NOTE Harmonized as EN 61643-21. IEC 61643-311 NOTE Harmonized as EN 61643-311. IEC 61643-321 NOTE Harmonized as EN 61643-321. IEC 61643-331 NOTE Harmonized as EN 61643-331.</p>		P
ZB	ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)		
4.1.15	<p>Denmark, Finland, Norway and Sweden</p> <p>To the end of the subclause the following is added:</p> <p>Class I pluggable equipment type A intended for connection to other equipment or a network shall, if safety relies on connection to reliable earthing or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment shall be connected to an earthed mains socket-outlet.</p> <p>The marking text in the applicable countries shall be as follows:</p> <p>In Denmark: "Apparatets stikprop skal tilsluttes en stikkontakt med jord som giver forbindelse til stikproppens jord." In Finland: "Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan" In Norway: "Apparatet må tilkoples jordet stikkontakt" In Sweden: "Apparaten skall anslutas till jordat uttag"</p>	The equipment is Class I equipment. The marking text must be provided when marketed in applicable countries.	N/A
4.7.3	<p>United Kingdom</p> <p>To the end of the subclause the following is added:</p> <p>The torque test is performed using a socket-outlet complying with BS 1363, and the plug part shall be assessed to the relevant clauses of BS 1363. Also see Annex G.4.2 of this annex</p>	The equipment is not direct plug-in equipment.	N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.2.2.2	<p>Denmark</p> <p>After the 2nd paragraph add the following: A warning (marking safeguard) for high touch current is required if the touch current exceeds the limits of 3,5 mA a.c. or 10 mA d.c.</p>	No high touch current.	N/A
5.4.11.1 and Annex G	<p>Finland and Sweden</p> <p>To the end of the subclause the following is added: For separation of the telecommunication network from earth the following is applicable: If this insulation is solid, including insulation forming part of a component, it shall at least consist of either</p> <ul style="list-style-type: none"> • two layers of thin sheet material, each of which shall pass the electric strength test below, or • one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below. <p>If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that clearances and creepage distances do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition</p> <ul style="list-style-type: none"> • passes the tests and inspection criteria of 5.4.8 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 5.4.9 shall be performed using 1,5 kV), and • is subject to routine testing for electric strength during manufacturing, using a test voltage of 1,5kV. <p>It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2.</p> <p>A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under the following conditions:</p> <ul style="list-style-type: none"> • the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 60384-14, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in 5.4.11; • the additional testing shall be performed on all the test specimens as described in EN 60384-14; <p>the impulse test of 2,5 kV is to be performed before the endurance test in EN 60384-14, in the sequence of tests as described in EN 60384-14.</p>	No TNV circuits.	N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.5.2.1	<p>Norway</p> <p>After the 3rd paragraph the following is added: Due to the IT power system used, capacitors are required to be rated for the applicable line-to-line voltage (230 V).</p>	Considered.	P
5.5.6	<p>Finland, Norway and Sweden</p> <p>To the end of the subclause the following is added: Resistors used as basic safeguard or bridging basic insulation in class I pluggable equipment type A shall comply with G.10.1 and the test of G.10.2.</p>	No such resistors.	N/A
5.6.1	<p>Denmark</p> <p>Add to the end of the subclause Due to many existing installations where the socket-outlets can be protected with fuses with higher rating than the rating of the socket-outlets the protection for pluggable equipment type A shall be an integral part of the equipment. <i>Justification:</i> In Denmark an existing 13 A socket outlet can be protected by a 20 A fuse.</p>	Considered.	P
5.6.4.2.1	<p>Ireland and United Kingdom</p> <p>After the indent for pluggable equipment type A, the following is added: – the protective current rating is taken to be 13 A, this being the largest rating of fuse used in the mains plug.</p>	Considered.	P
5.6.5.1	<p>To the second paragraph the following is added: The range of conductor sizes of flexible cords to be accepted by terminals for equipment with a rated current over 10 A and up to and including 13 A is: 1,25 mm² to 1,5 mm² in cross-sectional area.</p>	See above.	N/A
5.7.5	<p>Denmark</p> <p>To the end of the subclause the following is added: The installation instruction shall be affixed to the equipment if the protective conductor current exceeds the limits of 3,5 mA a.c. or 10 mA d.c.</p>	No high protective conductor current.	N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.7.6.1	<p>Norway and Sweden</p> <p>To the end of the subclause the following is added: The screen of the television distribution system is normally not earthed at the entrance of the building and there is normally no equipotential bonding system within the building. Therefore the protective earthing of the building installation needs to be isolated from the screen of a cable distribution system.</p> <p>It is however accepted to provide the insulation external to the equipment by an adapter or an interconnection cable with galvanic isolator, which may be provided by a retailer, for example.</p> <p>The user manual shall then have the following or similar information in Norwegian and Swedish language respectively, depending on in what country the equipment is intended to be used in: "Apparatus connected to the protective earthing of the building installation through the mains connection or through other apparatus with a connection to protective earthing – and to a television distribution system using coaxial cable, may in some circumstances create a fire hazard. Connection to a television distribution system therefore has to be provided through a device providing electrical isolation below a certain frequency range (galvanic isolator, see EN 60728-11)"</p> <p>NOTE In Norway, due to regulation for CATV-installations, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min.</p> <p>Translation to Norwegian (the Swedish text will also be accepted in Norway): "Apparater som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkøp utstyr – og er tilkøp et koaksialbasert kabel-TV nett, kan forårsake brannfare. For å unngå dette skal det ved tilkøp av apparater til kabel-TV nett installeres en galvanisk isolator mellom apparatet og kabel-TV nettet."</p> <p>Translation to Swedish: "Apparater som är kopplad till skyddsjord via jordat vägguttag och/eller via annan utrustning och samtidigt är kopplad till kabel-TV nät kan i vissa fall medföra risk för brand. För att undvika detta skall vid anslutning av apparaten till kabel-TV nät galvanisk isolator finnas mellan apparaten och kabel-TV nätet."</p>	Not such system.	N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.7.6.2	<p>Denmark</p> <p>To the end of the subclause the following is added: The warning (marking safeguard) for high touch current is required if the touch current or the protective current exceed the limits of 3,5 mA .</p>	No external circuits.	N/A
B.3.1 and B.4	<p>Ireland and United Kingdom</p> <p>The following is applicable: To protect against excessive currents and short-circuits in the primary circuit of direct plug-in equipment, tests according to Annexes B.3.1 and B.4 shall be conducted using an external miniature circuit breaker complying with EN 60898-1, Type B, rated 32A. If the equipment does not pass these tests, suitable protective devices shall be included as an integral part of the direct plug-in equipment, until the requirements of Annexes B.3.1 and B.4 are met</p>	The equipment is not direct plug-in equipment.	N/A
G.4.2	<p>Denmark</p> <p>To the end of the subclause the following is added: Supply cords of single phase appliances having a rated current not exceeding 13 A shall be provided with a plug according to DS 60884-2-D1:2011. CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a. If a single-phase equipment having a RATED CURRENT exceeding 13 A or if a poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with the standard sheets DK 6-1a in DS 60884-2-D1 or EN 60309-2. Mains socket outlets intended for providing power to Class II apparatus with a rated current of 2,5 A shall be in accordance DS 60884-2-D1:2011 standard sheet DKA 1-4a. Other current rating socket outlets shall be in compliance with Standard Sheet DKA 1-3a or DKA 1-1c. Mains socket-outlets with earth shall be in compliance with DS 60884-2-D1:2011 Standard Sheet DK 1-3a, DK 1-1c, DK1-1d, DK 1-5a or DK 1-7a <i>Justification:</i> Heavy Current Regulations, Section 6c</p>	No power supply cord is provided.	N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
G.4.2	<p>United Kingdom</p> <p>To the end of the subclause the following is added: The plug part of direct plug-in equipment shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.13, 12.16, and 12.17, except that the test of 12.17 is performed at not less than 125 °C. Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply.</p>	The equipment is not direct plug-in equipment.	N/A
G.7.1	<p>United Kingdom</p> <p>To the first paragraph the following is added: Equipment which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord shall be fitted with a 'standard plug' in accordance with the Plugs and Sockets etc (Safety) Regulations 1994, Statutory Instrument 1994 No. 1768, unless exempted by those regulations. NOTE "Standard plug" is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.</p>	No power supply cord is provided.	N/A
G.7.1	<p>Ireland</p> <p>To the first paragraph the following is added: Apparatus which is fitted with a flexible cable or cord shall be provided with a plug in accordance with Statutory Instrument 525: 1997, "13 A Plugs and Conversion Adapters for Domestic Use Regulations: 1997. S.I. 525 provides for the recognition of a standard of another Member State which is equivalent to the relevant Irish Standard</p>	The power supply cord has not been checked, see GENERAL PRODUCT INFORMATION.	N/A
G.7.2	<p>Ireland and United Kingdom</p> <p>To the first paragraph the following is added: A power supply cord with a conductor of 1,25 mm² is allowed for equipment which is rated over 10 A and up to and including 13 A.</p>	The power supply cord has not been checked, see GENERAL PRODUCT INFORMATION.	N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
ZC	ANNEX ZC, NATIONAL DEVIATIONS (EN)		P
10.5.2	<p>Germany</p> <p>The following requirement applies: For the operation of any cathode ray tube intended for the display of visual images operating at an acceleration voltage exceeding 40 kV, authorization is required, or application of type approval (Bauartzulassung) and marking.</p> <p><i>Justification:</i> German ministerial decree against ionizing radiation (Röntgenverordnung), in force since 2002-07-01, implementing the European Directive 96/29/EURATOM.</p> <p>NOTE Contact address: Physikalisch-Technische Bundesanstalt, Bundesallee 100, D-38116 Braunschweig, Tel.: Int +49-531-592-6320, Internet: http://www.ptb.de</p>	No CRT within the equipment.	N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
ATTACHMENT TO TEST REPORT IEC 62368-1 DENMARK NATIONAL DIFFERENCES			
Audio/video, information and communication technology equipment – Part 1: Safety requirements			
Differences according to: DS/EN 62368-1:2014			
Attachment Form No.: DK_ND_IEC62368_1B			
Attachment Originator: UL (Demko)			
Master Attachment: 2014-10			
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	National Differences		P
4.1.15	To the end of the subclause the following is added: Class I pluggable equipment type A intended for connection to other equipment or a network shall, if safety relies on connection to reliable earthing or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment shall be connected to an earthed mains socket-outlet. The marking text in the applicable countries shall be as follows: "Apparatets stikprop skal tilsluttes en stikkontakt med jord som giver forbindelse til stikproppens jord."	Added. The equipment is Class I equipment. The marking text must be provided when marketed in Denmark.	N/A
5.2.2.2	After the 2nd paragraph add the following: A warning (marking safeguard) for high touch current is required if the touch current exceeds the limits of 3,5 mA a.c. or 10 mA d.c.	Added.	N/A
5.6.1	Add to the end of the subclause: Due to many existing installations where the socket-outlets can be protected with fuses with higher rating than the rating of the socket-outlets the protection for pluggable equipment type A shall be an integral part of the equipment. Justification: In Denmark an existing 13 A socket outlet can be protected by a 20 A fuse.	Added. No socket outlet is provided.	N/A
5.7.5	To the end of the subclause the following is added: The installation instruction shall be affixed to the equipment if the protective conductor current exceeds the limits of 3,5 mA a.c. or 10 mA d.c.	Added.	N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.7.6.2	<p>To the end of the subclause the following is added:</p> <p>The warning (marking safeguard) for high touch current is required if the touch current or the protective current exceed the limits of 3,5 mA.</p>	Added.	N/A
G.4.2	<p>To the end of the subclause the following is added:</p> <p>Supply cords of single phase appliances having a rated current not exceeding 13 A shall be provided with a plug according to DS 60884-2-D1:2011.</p> <p>CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a.</p> <p>If a single-phase equipment having a RATED CURRENT exceeding 13 A or if a poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with the standard sheets DK 6-1a in DS 60884-2-D1 or EN 60309-2.</p> <p>Mains socket outlets intended for providing power to Class II apparatus with a rated current of 2,5 A shall be in accordance DS 60884-2-D1:2011 standard sheet DKA 1-4a.</p> <p>Other current rating socket outlets shall be in compliance with Standard Sheet DKA 1-3a or DKA 1-1c.</p> <p>Mains socket-outlets with earth shall be in compliance with DS 60884-2-D1:2011 Standard Sheet DK 1-3a, DK 1-1c, DK1-1d, DK 1-5a or DK 1-7a</p> <p>Justification:</p> <p>Heavy Current Regulations, Section 6c</p>	Added.	N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT IEC 62368-1 2th Ed. U.S.A. NATIONAL DIFFERENCES Audio/video, information and communication technology equipment – Part 1: Safety requirements	
Differences according to	CSA/UL 62368-1:2014
Attachment Form No.	US&CA_ND_IEC623681B
Attachment Originator	UL(US)
Master Attachment	Date 2015-06
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IEC 62368-1 - US and Canadian National Differences Special National Conditions based on Regulations and Other National Differences			
1.1	All equipment is to be designed to allow installation according to the National Electrical Code (NEC), ANSI/NFPA 70, the Canadian Electrical Code (CEC), Part I, CAN/CSA C22.1, and when applicable, the National Electrical Safety Code, IEEE C2. Also, for such equipment marked or otherwise identified, installation is allowed per the Standard for the Protection of Information Technology Equipment, ANSI/NFPA 75.	In accordance with the National Electrical Code (NEC) and the Canadian Electrical Code (CEC) part 1 CAN/CSA C22.1, ANSI/NFPA 70, and unless marked or otherwise identified, the Standard for Electronic Computer/Data-Processing Equipment, ANSI/NFPA 75.	P
1.4	Additional requirements apply to some forms of power distribution equipment, including sub-assemblies.	Considered.	P
4.1.17	For lengths exceeding 3.05 m, external interconnecting flexible cord and cable assemblies are required to be a suitable cable type (e.g., DP, CL2) specified in the NEC.	Not exceeding 3.05 m.	N/A
	For lengths 3.05 m or less, external interconnecting flexible cord and cable assemblies that are not types specified in the NEC generally are required to have special construction features and identification markings.	Overall acceptance has to be evaluated during the national approval process.	N/A
4.8	Lithium coin / button cell batteries have modified special construction and performance requirements.	No such parts.	N/A
5.6.3	Protective earthing conductors comply with the minimum conductor sizes in Table G.5, except as required by Table G.7ADV.1 for cord connected equipment, or Annex DVH for permanently connected equipment	An appliance inlet provided that is connected by an approved appliance coupler serves as main protective earthing terminal. No power supply cord is provided.	N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.7.7	Equipment intended to receive telecommunication ringing signals complies with a special touch current measurement tests.	No TNV circuits within the equipment.	N/A
6.5.1	PS3 wiring outside a fire enclosure complies with single fault testing in B.4, or be current limited per one of the permitted methods.	No such parts.	N/A
Annex F (F.3.3.8)	Output terminals provided for supply of other equipment, except mains, supply are marked with a maximum rating or references to which equipment it is permitted to be connected.	No DC output connector is provided.	N/A
Annex G (G.7.1)	Permanent connection of equipment to the mains supply by a power supply cord is not permitted, except for certain equipment, such as ATMs.	The equipment is not permanent connection equipment.	N/A
Annex G (G.7.3)	Power supply cords are required to have attachment plugs rated not less than 125 percent of the rated current of the equipment.	No power supply cord is provided.	N/A
	Flexible power supply cords are required to be compatible with Article 400 of the NEC, and Tables 11 and 12 of the CEC.	See above.	N/A
Annex G (G.7.5)	Minimum cord length is required to be 1.5 m, with certain constructions such as external power supplies allowed to consider both input and output cord lengths into the requirement. Power supply cords are required to be no longer than 4.5 m in length if used in ITE Rooms.	See above.	N/A
Annex H.2	Continuous ringing signals under normal operating conditions up to 16 mA only are permitted if the equipment is subjected to special installation and performance restrictions.	No TNV circuits within the equipment.	N/A
Annex H.4	For circuits with other than ringing signals and with voltages exceeding 42.4 V _{peak} or 60 V d.c., the maximum acceptable current through a 2000 ohm resistor (or greater) connected across the voltage source with other loads disconnected is 7.1 mA peak or 30 mA d.c. under normal operating conditions.	No TNV circuits within the equipment.	N/A
Annex M	Battery packs for stationary applications comply with special component requirements.	No such parts.	N/A
Annex DVA (1)	Equipment intended for use in spaces used for environmental air are subjected to special flammability requirements for heat and visible smoke release.	The equipment not intended to be used within such environments.	N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	For ITE room applications, automated information storage systems with combustible media greater than 0.76 m ³ (27 cu ft) have a provision for connection of either automatic sprinklers or a gaseous agent extinguishing system with an extended discharge.	Not such equipment.	N/A
	Consumer products designed or intended primarily for children 12 years of age or younger are subject to additional requirements in accordance with U.S. & Canadian Regulations.	The equipment is not for children used.	N/A
	Baby monitors additionally comply with ASTM F2951, Consumer Safety Specification for Baby Monitors.	Not a baby monitors.	N/A
Annex DVA (5.6.3)	For Pluggable Equipment Type A, the protection in the installation is assumed to be 20A.	Considered.	P
Annex DVA (6.3)	The maximum quantity of flammable liquid stored in equipment complies with NFPA 30.	No flammable liquids within the equipment.	N/A
Annex DVA (6.4.8)	For ITE room applications, enclosures with combustible material measuring greater than 0.9 m ² (10 sq ft) or a single dimension greater than 1.8 m (6 ft) have a flame spread rating of 50 or less. For equipment with the same dimensions for other applications, an external surface that is not a fire enclosure requires a min. flammability classification of V-1.	No such application.	N/A
Annex DVA (10.3.1)	Equipment with lasers meets the U.S. Code of Federal Regulations 21 CFR 1040 (and the Canadian Radiation Emitting Devices Act, REDR C1370).	No such parts.	N/A
Annex DVA (10.5.1)	Equipment that produces ionizing radiation complies with the U.S. Code of Federal Regulations, 21 CFR 1020 (and the Canadian Radiation Emitting Devices Act, REDR C1370).	No such parts.	N/A
Annex DVA (F.3.3.3)	Equipment for use on a.c. mains supply systems with a neutral and more than one phase conductor (e.g. 120/240 V, 3-wire) require a special marking format for electrical ratings. Additional considerations apply for voltage ratings that exceed the attachment cap rating or are lower than the "Normal Operating Condition" in Table 2 of CAN/CSA C22.2 No. 235."	Single phase only.	N/A
Annex DVA (F.3.3.5)	Equipment identified for ITE (computer) room installation is marked with the rated current	Not such application.	N/A
Annex DVA (G.1)	Vertically-mounted disconnect switches and circuit breakers have the "on" position indicated by the handle in the up position	No such parts.	N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Annex DVA (G.3.4)	Suitable NEC/CEC branch circuit protection rated at the maximum circuit rating is required for all standard supply outlets and receptacles (such as supplied in power distribution units) if the supply branch circuit protection is not suitable.	No standard supply outlets, receptacles, medium-base or smaller lampholders are provided.	N/A
Annex DVA (G.4.2)	Equipment with isolated ground (earthing) receptacles complies with NEC 250.146(D) and CEC 10-112 and 10-906(8).	No such parts.	N/A
Annex DVA (G.4.3)	Where a fuse is used to provide Class 2 or Class 3 current limiting, it is not operator-accessible unless it is non- interchangeable.	No such parts.	N/A
Annex DVA (G.5.3)	Power distribution transformers distributing power at 100 volts or more, and rated 10 kVA or more, require special transformer overcurrent protection.	No such parts.	N/A
Annex DVA (G.5.4)	Motor control devices are required for cord-connected equipment with a mains-connected motor if the equipment is rated more than 12 A, or if the equipment has a nominal voltage rating greater than 120 V, or if the motor is rated more than 1/3 hp (locked rotor current over 43 A).	No such parts.	N/A
Annex DVA (Annex M)	For ITE room applications, equipment with battery systems capable of supplying 750 VA for five minutes have a battery disconnect means that may be connected to the ITE room remote power-off circuit.	Not such application.	N/A
Annex DVA (Q)	Wiring terminals intended to supply Class 2 outputs according to the NEC or CEC Part 1 are marked with the voltage rating and "Class 2" or equivalent; marking is located adjacent to the terminals and visible during wiring.	Not applicable for the equipment.	N/A
Annex DVB (1)	Additional requirements apply for equipment used for entertainment purposes intended for installation in general patient care areas of health care facilities.	Not such application.	N/A
Annex DVC (1)	Additional requirements apply for equipment intended for mounting under kitchen cabinets.	Not such application.	N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Annex DVE (4.1.1)	Some equipment, components, sub-assemblies and materials associated with the risk of fire, electric shock, or personal injury have component or material ratings in accordance with the applicable national (U.S. and Canadian) component or material requirements. Components required to comply include: appliance couplers, attachment plugs, battery back-up systems, battery packs, circuit breakers, communication circuit accessories, connectors (used for current interruption of non-LPS circuits), power supply cords, direct plug-in equipment, electrochemical capacitor modules (energy storage modules with ultra-capacitors), enclosures (outdoor), flexible cords and cables, fuses (branch circuit), ground-fault current interrupters, interconnecting cables, data storage equipment, printed wiring, protectors for communications circuits, receptacles, surge protective devices, vehicle battery adapters, wire connectors, and wire and cables.	UL approved components are used. Refer to table 4.1.2 of IEC 62368-1 test report for details.	P
Annex DVH	Equipment for permanent connection to the mains supply is subjected to additional requirements.	The equipment is not permanently connected equipment.	N/A
Annex DVH (DVH.1)	Wiring methods (terminals, leads, etc.) used for the connection of the equipment to the mains are in accordance with the NEC/CEC.	The equipment is pluggable equipment type A.	N/A
Annex DVH (DVH.3.2)	Terminals for permanent wiring, including protective earthing terminals, are suitable for U.S./Canadian wire gauge sizes, rated 125 percent of the equipment rating, and are specially marked when specified.	No terminals for permanent wiring.	N/A
Annex DVH (DVH.3.2)	Wire binding screws are not permitted to attach conductors larger than 10 AWG (5.3 mm ²).	No wire binding screws.	N/A
Annex DVH (DVH.4)	Permanently connected equipment is required to have a suitable wiring compartment and wire bending space.	The equipment is not permanently connected equipment.	N/A
Annex DVH (DVH 5.5)	Equipment connected to a centralized d.c. power system, and having one pole of the DC mains input terminal connected to the main protective earthing terminal in the equipment, complies with special earthing, wiring, marking and installation instruction requirements.	The equipment not connected to a centralized d.c. power system.	N/A
Annex DVI (6.7)	Equipment intended for connection to telecommunication network outside plant cable is required to be protected against overvoltage from power line crosses.	No TNV circuits within the equipment.	N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Annex DVJ (10.6.1)	Equipment connected to a telecommunication and cable distribution networks and supplied with an earphone intended to be held against, or in the ear is required to comply with special acoustic pressure requirements.	No TNV circuits within the equipment.	N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT IEC 62368-1 (AUSTRALIA / NEW ZEALAND) NATIONAL DIFFERENCES (Audio/video, information and communication technology equipment)			
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Differences according to: AS/NZS 62368.1:2018

Attachment Form No.: AU_NZ_ND_IEC62368_1B

Attachment Originator: JAS-ANZ

Master Attachment: 2018-02

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National Differences			
Appendix ZZ	Variations to IEC 62368-1:2014 (ED. 2.0) for Australia and New Zealand		P
ZZ1 Scope	This Appendix lists the normative variations to IEC 62368-1:2014 (ED. 2.0)		P
ZZ2 Variations	The following modifications are required for Australian/New Zealand conditions:		P
2	<p>Add the following to the list of normative references:</p> <p>The following normative documents are referenced in Appendix ZZ:</p> <p>-AS/NZS 3112, <i>Approval and test specification—Plugs and socket-outlets</i></p> <p>-AS/NZS 3123, <i>Approval and test specification—Plugs, socket-outlets and couplers for general industrial application</i></p> <p>-AS/NZS 3191, <i>Electric flexible cords</i></p> <p>-AS/NZS 60065, <i>Audio, video and similar electronic apparatus—Safety requirements (IEC 60065:2015 (ED.8.0) MOD)</i></p> <p>-AS/NZS 60320.1, <i>Appliance couplers for household and similar general purposes, Part 1: General requirements (IEC 60320-1, Ed.2.1 (2007) MOD)</i></p> <p>-AS/NZS 60320.2.2, <i>Appliance couplers for household and similar general purposes Part 2.2: Interconnection couplers for household and similar equipment (IEC 60320-2-2, Ed.2.0 (1998) MOD)</i></p> <p>-AS/NZS 60695.2.11, <i>Fire hazard testing, Part 2.11: Glowing/hot wire based test methods—Glow-wire flammability test method for end-products</i></p> <p>-AS/NZS 60695.11.5, <i>Fire hazard testing, Part 11.5: Test flames—Needle-flame test method—</i></p>	Added.	P

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	<p><i>Apparatus, confirmatory test arrangement and guidance</i></p> <p>-AS/NZS 60695.11.10, <i>Fire hazard testing, Part 11.10: Test flames—50 W horizontal and vertical flame test methods</i></p> <p>-AS/NZS 60884.1, <i>Plugs and socket-outlets for household and similar purposes, Part 1: General requirements</i></p> <p>-AS/NZS 60950.1:2015, <i>Information technology equipment—Safety, Part 1: General requirements (IEC 60950-1, Ed.2.2 (2013), MOD)</i></p> <p>IEC 61032:1997, <i>Protection of persons and equipment by enclosures—Probes for verification</i></p> <p>-AS/NZS 61558.1:2008 (including Amendment 2:2015), <i>Safety of Power Transformers, Power Supplies, Reactors and Similar Products, Part 1: General requirements and tests (IEC 61558-1 Ed 2.1, MOD)</i></p> <p>-AS/NZS 61558.2.16, <i>Safety of transformers, reactors, power supply units and similar products for voltages up to 1 100 V, Part 2.16: Particular requirements and tests for switch mode power supply units and transformers for switch mode power supply units.</i></p>		
4.1.1	<p>Application of requirements and acceptance of materials, components and subassemblies</p> <p>1 <i>Replace</i> the text 'IEC 60950-1' with 'AS/NZS 60950.1:2015'.</p> <p>2 <i>Replace</i> the text 'IEC 60065' with 'AS/NZS 60065'.</p>	Replaced.	P
4.7	Equipment for direct insertion into mains socket-outlets		
4.7.2	<p>Requirements</p> <p><i>Delete</i> the text of the second paragraph and <i>replace</i> with the following:</p> <p>Equipment with a plug portion, suitable for insertion into a 10 A 3-pin flat-pin socket-outlet complying with AS/NZS 3112 shall comply with the requirements in AS/NZS 3112 for equipment with integral pins for insertion into socket-outlets.</p>	Deleted.	N/A
4.7.3	<p>Compliance Criteria</p> <p><i>Delete</i> the first paragraph and Note 1 and Note 2 and <i>replace</i> with the following:</p> <p><i>Compliance is checked by inspection and, if necessary, by the tests in AS/NZS 3112.</i></p>	Deleted.	N/A
4.8	<p><i>Delete</i> existing clause title and <i>replace</i> with the following:</p> <p>4.8 Products containing coin/button cell batteries</p>		

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
4.8.1	<p>General</p> <p>1 Second dashed point, <i>delete</i> the text and <i>replace</i> with the following: – include coin/button cell batteries with a diameter of 32 mm or less.</p> <p>2 After the second dashed point, <i>insert</i> the following Note: NOTE 1: Batteries are specified in IEC 60086-2.</p> <p>3 After the third dashed point, <i>renumber</i> the existing Note as 'NOTE 2'.</p> <p>4 Fifth dashed point, <i>delete</i> the word 'lithium'.</p>		N/A
4.8.2	<p>Instructional Safeguard</p> <p>First line, <i>delete</i> the word 'lithium'.</p>		N/A
4.8.3	<p>Construction</p> <p>First line, after the word 'Equipment' <i>insert</i> the words 'containing one or more coin/button batteries and'</p>		N/A
4.8.5	<p>Compliance criteria</p> <p><i>Delete</i> the first paragraph and <i>replace</i> with the following: <i>Compliance is checked by applying a force of 30 N +/-1 N for 10 s to the battery compartment door/cover by a rigid test finger according to test probe 11 of IEC 61032:1997 at the most unfavourable place and in the most unfavourable direction. The force shall be applied in one direction at a time.</i></p>	Deleted.	N/A
5.4.10.2	<p>Test methods</p>		N/A
5.4.10.2.1	<p>General</p> <p><i>Delete</i> the first paragraph and <i>replace</i> with the following: In Australia only, the separation is checked by the test of both Clause 5.4.10.2.2 and Clause 5.4.10.2.3. In New Zealand, the separation is checked by the test of either Clause 5.4.10.2.2 or Clause 5.4.10.2.3.</p>	Deleted.	N/A
Table 29	<p><i>Replace</i> the table with the following:</p>		

IEC62368_1B - ATTACHMENT				
Clause	Requirement + Test		Result - Remark	Verdict
Parts	Impulse test		Steady state test	
	New Zealand	Australia	New Zealand	Australia
Parts indicated in Clause 5.4.10.1 a) ^a	2.5 kV 10/700 μ s	7.0 kV for hand-held telephones and headsets, 2.5 kV for other equipment. 10/700 μ s	1.5 kV	3 kV
Parts indicated in Clause 5.4.10.1 b) and c) ^b	1.5 kV 10/700 μ s ^c		1.0 kV	1.5 kV
^a Surge suppressors shall not be removed. ^b Surge suppressors may be removed, provided that such devices pass the impulse test of Clause 5.4.10.2.2 when tested as components outside the equipment. ^c During this test, it is allowed for a surge suppressor to operate and for a sparkover to occur in a GDT.				
5.4.10.2.2	After the first paragraph, <i>insert</i> new Notes 201 and 202 as follows: NOTE 201 For Australia, the 7 kV impulse simulates lightning surges on typical rural and semi-rural network lines. NOTE 202 For Australia, the value of 2.5 kV for Clause 5.4.10.1 a) was chosen to ensure the adequacy of the insulation concerned and does not necessarily simulate likely overvoltages.			N/A
5.4.10.2.3	After the first paragraph, <i>insert</i> new Notes 201 and 202 as follows: NOTE 201 For Australia, where there are capacitors across the insulation under test, it is recommended that d.c. test voltages are used. NOTE 202 The 3 kV and 1.5 kV values for Australia have been determined considering the low frequency induced voltages from the power supply distribution system.			N/A
6	Electrically-caused fire			P
6.1	General After the first paragraph, <i>insert</i> the following new paragraph: Alternatively, the requirements of Clauses 6.2 to 6.5.2 are considered to be fulfilled if the equipment complies with the requirements of Clause 6.202		Added	P
6.6	After Clause 6.6, <i>add</i> the new Clauses 6.201 and 6.202 as follows: 6.201 External power supplies, docking stations and other similar devices and 6.202 Resistance to fire—Alternative tests (see special national conditions)			N/A
8.5.4	Special categories of equipment comprising moving parts			N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
8.5.4.1	Large data storage equipment In the first dashed row and the second dashed rows <i>replace</i> 'IEC 60950-1:2005' with 'AS/NZS 60950.1:2015'.		N/A
8.6	Stability of equipment		P
8.6.1 and Table 36	Requirements 1. Table 36, <i>insert</i> Footnote c at the end of the 'Glass slide' heading, and <i>add</i> a new Footnote c after the text of Footnote b in the last row of Table 36 as follows: ° The glass slide test is not applicable to floor standing equipment, even though the equipment may have controls or a display. 2. Table 36, fifth row, <i>insert</i> '201' at the end of 'No stability requirements' 3. Table 36, ninth row, <i>insert</i> '201' at the end of 'No stability requirements' 4. Table 36, <i>add</i> the following new footnote: 201 MS2 and MS3 television sets and display devices, designed only for fixing to a wall, ceiling or equipment rack, are not subjected to stability requirements only if the instructional safeguard of Clause 8.6.1.201 is provided. Otherwise, the glass slide requirements of Clause 8.6.4 and horizontal force requirements of Clause 8.6.5 apply. 5. Second paragraph beneath Table 36, <i>delete</i> the words 'MS2 and MS3 television sets' and <i>replace</i> with 'MS2 and MS3 television sets and display devices'	Considered.	P
8.6.1	After Clause 8.6.1 <i>add</i> the following new clauses: 8.6.1.201 Instructional safeguard for fixed-mount television sets (see special national conditions)	Added. No such equipment.	N/A
Annex F Paragraph F.3.5.1	Mains appliance outlet and socket-outlet markings <i>Replace</i> 'IEC 60320-2-2' with 'AS/NZS 60320.2.2'.	Replaced.	N/A
Annex G Paragraph G.4.2	Mains connectors 1 In the second line <i>insert</i> 'or AS/NZS 3123' after 'IEC 60906-1'. 2 In the second line <i>insert</i> 'or AS/NZS 60320 series' after 'IEC 60320 series' 3 <i>Add</i> the following new paragraph: 10 A or 15 A 250 V flat pin plugs for the connection of equipment to mains-powered socket-outlets for household or similar general use shall comply with AS/NZS 3112 or AS/NZS 60884.1.	Added.	P

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Paragraph G.5.3.1	<p>Transformers, General</p> <p>1 In the third dashed point <i>replace</i> 'IEC 61558-1 and the relevant parts of IEC 61558-2' with 'AS/NZS 61558-1 and the relevant parts of AS/NZS 61558.2'</p> <p>2 In the fourth dashed point <i>replace</i> 'IEC 61558-2-16' with 'AS/NZS 61558.2.16'.</p>	Considered.	P
Paragraph G.7.1	<p>Mains supply cords, General</p> <p>In the fourth dashed paragraph, <i>replace</i> 'IEC 60320-1' with 'AS/NZS 60320.1'</p>	Considered.	P
Table G.5	<p>Sizes of conductors</p> <p>1 In the second row, first column, <i>delete</i> '6' and <i>replace</i> with '7.5'</p> <p>2 In the second row, second column, <i>delete</i> '0,75' and <i>replace</i> with '0.75^b'</p> <p>3 <i>Delete</i> Note 1.</p> <p>4 <i>Replace</i> 'NOTE 2' with 'NOTE:'.</p> <p>5 <i>Delete</i> the text of 'Footnote b' and <i>replace</i> with the following:</p> <p>^b This nominal cross-sectional area is only allowed for Class II appliances if the length of the power supply cord, measured between the point where the cord, or cord guard, enters the appliance, and the entry to the plug does not exceed 2 m (0.5 mm² three-core supply flexible cords are not permitted; see AS/NZS 3191).</p> <p>6 In Footnote c <i>replace</i> 'IEC 60320-1' with 'AS/NZS 60320.1'</p> <p>7 In Footnote d <i>replace</i> 'IEC 60320-1' with 'AS/NZS 60320.1'</p>	Considered.	P
Annex M Paragraph M.3.2	<p>Protection circuits for batteries provided within the equipment, Test method</p> <p>After the first dashed point <i>add</i> the following Note:</p> <p>NOTE 201: In cases where the voltage source is provided by power from an unassociated power source, consideration should be given to the effects of possible single fault conditions in the unassociated equipment. If the power source is unknown then it should be assumed that the maximum limit of SELV may be applied to the source input under assumed single fault conditions in the source when assessing the charging circuit in the equipment under test.</p>	No such construction.	N/A
	Special national conditions (if any)		

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
6.201	<p>External power supplies, docking stations and other similar devices</p> <p>For external power supplies, docking stations and other similar devices, during and after abnormal operating conditions and during single fault conditions the output voltage—</p> <ul style="list-style-type: none"> – at all ES1 outlets or connectors shall not increase by more than 10% of its rated output voltage under normal operating condition; and – of a USB outlet or connector shall not increase by more than 3 V or 10% of its rated output voltage under normal operating conditions, whichever is higher. <p>For equipment with multiple rated output voltages, the requirements apply with the equipment configured for each rated output voltage in turn.</p> <p>NOTE: This is intended to reduce the possibility of battery fire or explosion in attached equipment or accessories when charging secondary lithium batteries.</p> <p><i>Compliance shall be checked by measurement, taking into account the abnormal operating conditions of Annex B.3 and the simulated single-fault conditions of Annex B.4</i></p>	Replaced.	N/A
6.202	Resistance to fire—Alternative tests		P
6.202.1	<p>General</p> <p>Parts of non-metallic material shall be resistant to ignition and spread of fire.</p> <p>This requirement does not apply to decorative trims, knobs and other parts unlikely to be ignited or to propagate flames from inside the equipment, or the following:</p> <ul style="list-style-type: none"> a) Components that are contained in an enclosure having a flammability category of V-0 according to AS/NZS 60695.11.10 and having openings only for the connecting wires filling the openings completely, and for ventilation not exceeding 1 mm in width regardless of length. b) The following parts which would contribute negligible fuel to a fire: <ul style="list-style-type: none"> – small mechanical parts, the mass of which does not exceed 4 g, such as mounting parts, gears, cams, belts and bearings; – small electrical components, such as capacitors with a volume not exceeding 1 750 mm³, integrated circuits, transistors and optocoupler packages, if these components are mounted on material of flammability category V-1, or better, 		N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>according to AS/NZS 60695.11.10.</p> <p>NOTE: In considering how to minimize propagation of fire and what 'small parts' are, account should be taken of the cumulative effect of small parts adjacent to each other for the possible effect of propagating the fire from one part to another.</p>		
	<p><i>Compliance shall be checked by the tests of Clauses 6.202.2, 6.202.3 and 6.202.4.</i></p> <p>For the base material of printed boards, compliance shall be checked by the test of Clause 6.202.5.</p> <p>The tests shall be carried out on parts of non-metallic material which have been removed from the equipment. When the glow-wire test is carried out, the parts shall be placed in the same orientation as they would be in normal use.</p> <p>These tests are not carried out on internal wiring.</p>		N/A
6.202.2	<p>Testing of non-metallic materials</p> <p>Parts of non-metallic material shall be subject to the glow-wire test of AS/NZS 60695.2.11 which shall be carried out at 550°C.</p> <p>Parts for which the glow-wire test cannot be carried out, such as those made of soft or foamy material, shall meet the requirements specified in ISO 9772 for category FH-3 material. The glow-wire test shall be not carried out on parts of material classified at least FH-3 according to ISO 9772 provided that the relevant part is not thinner than the sample tested.</p>		N/A
6.202.3	<p>Testing of insulating materials</p> <p>Parts of insulating material supporting Potential Ignition Sources shall be subject to the glow-wire test of AS/NZS 60695.2.11 which shall be carried out at 750°C.</p> <p>The test shall be also carried out on other parts of insulating material which are within a distance of 3 mm of the connection.</p> <p>NOTE: Contacts in components such as switch contacts are considered to be connections</p>		N/A
	<p>For parts which withstand the glow-wire test but produce a flame, other parts above the connection within the envelope of a vertical cylinder having a diameter of 20 mm and a height of 50 mm shall be subjected to the needle-flame test.</p> <p>However, parts shielded by a barrier which meets the needle-flame test need not be tested</p>		N/A
	<p>The needle-flame test shall be made in accordance with AS/NZS 60695.11.5 with the following modifications:</p>		N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>Clause of AS/NZS 60695.11.5</p> <p>9 Test procedure</p> <p>9.2 Application of needle-flame</p> <p>9.3 Number of test specimens</p> <p>11 Evaluation of test results</p> <p>The needle-flame test shall not be carried out on parts of material classified as V-0 or V-1 according to AS/NZS 60695.11.10, provided that the relevant part is not thinner than the sample tested.</p>	<p>Change</p> <p><i>Delete</i> the first and second paragraphs and <i>replace</i> with the following:</p> <p>The specimen shall be arranged so that the flame can be applied to a vertical or horizontal edge as shown in the examples of Figure 1. If possible the flame shall be applied at least 10 mm from a corner.</p> <p>The duration of application of the test flame shall be 30 s \pm 1 s.</p> <p><i>Replace</i> with the following:</p> <p>The test shall be made on one specimen. If the specimen does not withstand the test, the test may be repeated on two further specimens, both of which shall withstand the test.</p> <p><i>Replace</i> with the following:</p> <p>The duration of burning (tb) shall not exceed 30 s. However, for printed circuit boards, it shall not exceed 15 s.</p>	
6.202.4	<p>Testing in the event of non-extinguishing material</p> <p>If parts, other than enclosures, do not withstand</p>		N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>the glow wire tests of Clause 6.202.3, by failure to extinguish within 30 s after the removal of the glow wire tip, the needle-flame test detailed in Clause 6.202.3 shall be made on all parts of non-metallic material which are within a distance of 50 mm or which are likely to be impinged upon by flame during the tests of Clause 6.202.3. Parts shielded by a separate barrier which meets the needle-flame test need not be tested.</p> <p>NOTE 1: If the enclosure does not withstand the glow -wire test the equipment is considered to have failed to meet the requirements of Clause 6.202 without the need for consequential testing.</p> <p>NOTE 2: If other parts do not withstand the glow -wire test due to ignition of the tissue paper and if this indicates that burning or glowing particles can fall onto an external surface underneath the equipment, the equipment is considered to have failed to meet the requirements of Clause 6.202 without the need for consequential testing.</p> <p>NOTE 3: Parts likely to be impinged upon by the flame are considered to be those within the envelope of a vertical cylinder having a radius of 10 mm and a height equal to the height of the flame, positioned above the point of the material supporting, in contact with, or in close proximity to, connections.</p>		
6.202.5	<p>Testing of printed boards</p> <p>The base material of printed boards shall be subjected to the needle-flame test of Clause 6.202.3. The flame shall be applied to the edge of the board where the heat sink effect is lowest when the board is positioned as in normal use. The flame shall not be applied to an edge, consisting of broken perforations, unless the edge is less than 3 mm from a potential ignition source.</p> <p>The test is not carried out if—</p> <ul style="list-style-type: none"> – the printed board does not carry any potential ignition source; – the base material of printed boards, on which the available apparent power at a connection exceeds 15 VA operating at a voltage exceeding 50 V and equal or less than 400 V (peak) a.c. or d.c. under normal operating conditions, is of flammability category V-1 or better according to AS/NZS 60695.11.10, or the printed boards are protected by an enclosure meeting the flammability category V-0 according to AS/NZS 60695.11.10, or made of metal, having openings only for connecting wires which fill the openings completely; or – the base material of printed boards, on which the available equipment power at a connection exceeds 15 VA operating at a voltage exceeding 		N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>400 V (peak) a.c. or d.c. under normal operating conditions, and base material of printed boards supporting spark gaps which provides protection against overvoltages, is of flammability category V-0 according to AS/NZS 60695.11.10 or the printed boards are contained in a metal enclosure, having openings only for connecting wires which fill the openings completely.</p> <p><i>Conformance shall be determined using the smallest thickness of the material.</i></p> <p>NOTE: Available apparent power is the maximum apparent power which can be drawn from the supplying circuit through a resistive load whose value is chosen to maximize the apparent power for more than 2 min when the circuit supplied is disconnected.</p>		
6.202.6	<p>For open circuit voltages greater than 4 kV</p> <p>Potential ignition sources with open circuit voltages exceeding 4 kV (peak) a.c. or d.c. under normal operating conditions shall be contained in a FIRE ENCLOSURE which shall comply with flammability category V-1 or better according to AS/NZS 60695.11.10.</p>		N/A
8.6.1.201	<p>8.6.1.201 Instructional safeguard for fixed-mount television sets</p> <p>MS2 and MS3 television sets and display devices designed only for fixed mounting to a wall of ceiling or equipment rack shall, where required in Table 36, footnote 201, have an instructional safeguard in accordance with Clause F.5 which may be on the equipment or included in the installation instructions or equivalent document accompanying the equipment.</p> <p>The elements of the instructional safeguard shall be as follows:</p> <ul style="list-style-type: none"> – element 1a: not available; – element 2: 'Stability Hazard' or equivalent wording; – element 3: 'The television set may fall, causing serious personal injury or death' or equivalent text; – element 4: the following or equivalent text: To prevent injury, this television set must be securely attached to the floor/wall in accordance with the installation instructions 	Mentioned in instruction	P

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
8.6.1.202	<p>Restraining device</p> <p>MS2 and MS3 television sets and display devices that are not solely fixed-mounted should be provided with a restraining device such as a fixing point to facilitate restraining the equipment from toppling forward. The restraining device shall be capable of withstanding a pull of 100 N in all directions without damage.</p> <p>Where a restraining device is provided, instructions shall be provided in the instructions for installation or instructions for use to ensure correct and safe installation.</p>	Shall be evaluated when national approval.	N/A

NDs of J62368-1(H30) (JIS C 62368-1:2018) for IEC 62368-1:2014			
Clause	Requirement + Test	Result - Remark	Verdict
National Differences - Japan			
3.3	Addition: Before Item CLASS I listed in sub-clause 3.3, add "CLASS 0I 3.3.15.4A".	Added. Class I equipment	N/A
3.3.3.5	Replacement: NOTE in sub-clause 3.3.3.5, replace "IEC/TR 60083 and IEC 60320-1." with "JIS C 8282 series, JIS C 8283-1 and JIS C 8303".	Replaced.	P
3.3.3.6	Replacement: NOTE in sub-clause 3.3.3.6, replace "IEC 60309-1" with "JIS C 8285 and IEC 60309-1".	Replaced.	P
3.3.4.2	Replacement: NOTE in sub-clause 3.3.4.2, replace "IEC 60695-11-10, IEC 60695-11-20, ISO 9772 or ISO 9773" with "JIS C 60695-11-10, JIS C 60695-11-20, JIS K 7341 or ISO 9772".	Replaced.	P
3.3.15.1	Addition: After sub-clause 3.3.15.4, add the following Note 3. Note 3: Even if class I equipment, 2-pin conversion plug with protective earthing lead-wire or cord set provided 2 pin plug with protective earthing lead-wire shall be provided as an optional parts or recommend for user to use the them, refer to the 3.3.15.4A	Added. Class I equipment	N/A

NDs of J62368-1(H30) (JIS C 62368-1:2018) for IEC 62368-1:2014			
Clause	Requirement + Test	Result - Remark	Verdict
3.3.15.4A	<p>Addition:</p> <p>After sub-clause 3.3.15.4, add the following new sub-clause.</p> <p>3.3.15.4A CLASS 0I equipment equipment in which protection against electric shock does not rely on basic insulation only, as a supplementary safeguard, which, for the connection of accessible conductive parts to the protective (earthing) conductor in the fixed wiring of the installation in such a way, pluggable equipment with protective earthing conductor or protective earthing lead-wire instead of plug without earthing blade.</p> <p>2-pin conversion plug with protective earthing lead-wire or cord set provided 2 pin plug with protective earthing lead-wire shall be provided as an optional parts or recommend for user to use the them.</p> <p>Note to entry: CLASS01 equipment may be provided with CLASS II construction.</p>	<p>Added. Class I equipment used.</p>	N/A
4.1.2	<p>Replacement:</p> <p>In the sub-clause 4.1.2, replace the first paragraph with the following.</p> <p>Where the component, or a characteristic of a component, is a safeguard or a part of a safeguard, components shall comply with the requirements of this standard or, where specified in a requirements clause, with the safety aspects of the relevant JIS or IEC component standards, otherwise, shall have same or better performances than those components.</p>	<p>Replaced.</p>	P

NDs of J62368-1(H30) (JIS C 62368-1:2018) for IEC 62368-1:2014			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>Addition: After the first paragraph of sub-clause 4.1.2, addition to the existing NOTE with the following.</p> <p>NOTE 0A Components complying with “Interpretation of Ministerial Ordinance establishing Technical Requirements for Electrical Appliances and Materials (20130605, shokyoku No. 3)” (hereinafter, described as “Interpretation of Technical Requirements”) are regarded to be of having equivalent or better performances.</p>	Added.	P
	<p>Replacement: After the first paragraph of sub-clause 4.1.2, replace the existing NOTE with the following. NOTE 2 A JIS or IEC component standard etc. (hereinafter, described as “component standard”) is considered relevant only if the component in question clearly falls within its scope.</p>	Replaced.	P
4.1.3	<p>Addition: After the last paragraph of sub-clause 4.1., addition to the existing NOTE with the following.</p> <p>NOTE: transportable equipment or similar equipment, for equipment used by moving often and used, for equipments installed under the circumstances where the earthing connection is obviously difficult when installing, by considering the power distribution circumstances in Japan, it is recommended to avoid the insulation construction of CLASS I or CLASS 0I, except apparatus intended for installation by the instructed person or skilled person.</p>	Not such equipment.	N/A
5.3.2.3	<p>Replacement: In the sub-clause 5.3.2.3, replace the third paragraph with the following.</p> <p>Comply with clause 4.1.2, components and subassemblies that comply with their respective IEC standards do not have to be tested when such components and subassemblies are used in the final product.</p>	Replaced.	P

NDs of J62368-1(H30) (JIS C 62368-1:2018) for IEC 62368-1:2014			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.1.4.3 Table10	<p>Addition:</p> <p>In the bottom cell of Table 10 in sub-clause 5.4.1.4.3 add the following NOTE between Footnote b and Footnote c.</p> <p>NOTE For the case where no data for the material is available, 1. (1) □(△) of Appendix 4 of “Interpretation of Ministerial Ordinance establishing Technical Requirements for Electrical Appliances and Materials” is regarded that it is for determining the maximum temperature limit of the material concerned.</p>	Added.	P
5.4.2.3.2.4	<p>Addition:</p> <p>After the Note 2 of sub-clause 5.4.2.3.2.4, addition to the existing NOTE with the following.</p> <p>Refer to the Annex JA additional applicable requirement.</p>	Added.	N/A
5.4.3.4 Table 18	<p>Addition:</p> <p>At the end of table 18 sub-clause 5.4.3.4, add the following.</p> <p>NOTE “-” means it is not exist the requirement.</p>	Added.	P
5.4.9.2	<p>Addition:</p> <p>After the Note of sub-clause 5.4.9.2, addition to the existing NOTE with the following.</p> <p>Additionally routine testing for manufacturing may be used sub-clause 5.2 of IEC 62911.</p>	Added. No additionally routine testing for manufacturer.	N/A
5.6.1	<p>Addition:</p> <p>After the last paragraph of sub-clause 5.6.1, addition to the existing NOTE with the following.</p> <p>Mains appliance outlet and interconnection couplers shall comply with the requirements specified in the sub-clause G 4.2A.</p>	Not such equipment.	N/A
5.6.2.1	<p>Addition:</p> <p>After the third paragraph of sub-clause 5.6.2.1, addition to the existing NOTE with the following.</p> <p>Mains connection for Class 01 complying with F3.6.1A are regarded to comply with this requirement.</p>	Added. Class I equipment used.	N/A

NDs of J62368-1(H30) (JIS C 62368-1:2018) for IEC 62368-1:2014			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>Addition: Add the following new sub-clause after sub-clause 5.6.2.1</p> <p>Mains plug with a protective earthing lead-wire of class 01 is followings</p> <p>Plugs with a protective earthing lead-wire shall not be used for equipment of which the rated voltage of the plug is to be of 150V or more.</p> <p>For plug with a protective earthing lead-wire, the protective earthing lead-wire shall not be earthed by a clip.</p> <p>The earthing lead-wire which is provided in the MAINS plug shall be a length of at least 10 cm.</p> <p>For CLASS 01 EQUIPMENT provided with an independent terminal as the main protective earthing terminal, if ordinary person intended for install the equipment, a protective earthing connection wire is not packed together with the equipment.</p>	Added. Class I equipment used.	N/A
5.6.2.2	<p>Addition: At the end of the first paragraph of sub-clause 5.6.2.2, add the following.</p> <p>However, this requirement does not apply to the internal conductor of the supply cord (cord set) which was covered by sheath and integrally molded together with plug and coupler.</p>	Added. Class I equipment used.	N/A
5.6.3	<p>Addition: At the end of the first paragraph of sub-clause 5.6.3, add the following.</p> <p>Additionally, if single-core conductor is used for the protective earthing lead wire or protective earthing connection wire for CLASS 01 EQUIPMENT, it shall be any of:</p> <ul style="list-style-type: none"> - annealed copper wire of a diameter of 1,6 mm, or metal wire having equivalent to or more strength and thickness than that and not easily corroding easily; and - single-core cord or single-core cable with a cross-sectional area of 1,25 mm² or more. 	Added. Class I equipment used.	N/A

NDs of J62368-1(H30) (JIS C 62368-1:2018) for IEC 62368-1:2014			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>Replacement: NOTE 3 in sub-clause 5.6.3, replace to following. NOTE 3 Heavy duty is defined in IEC 62440.</p>	Replaced. Class I equipment used.	N/A
5.6.4.2.1	<p>Addition: After Note3 of sub-clause 5.6.4.2.1, addition to the existing NOTE4 with the following. NOTE 4 In Japan, the protective current rating of the circuit supplied from the mains is widely taken as 20 A in case of connection to outlet rated at 20A or less.</p>	Added.	P
5.7.3	<p>Addition: At the end of sub-clause F.3.5.1, add the following. According to the requirement of G.4.2A, JIS C 8282 series, JIS C 8303 or Class 01 equipment have mains appliance outlet can connect class 1 equipment specified related standard Intended for interconnection, or provided with mains appliance outlet specified JIS C 8232-2-2, shall be measured as a interconnected equipment system have only connection to the mains. NOTE 2 Limit of class 01 equipment is specified 5.7.4. NOTE 3 Complying with Appendix 4 of "Interpretation of Technical Requirements" are regarded to be complied with relevant standard.</p>	Added. Class I equipment used.	N/A
5.7.4	<p>Addition: At the end of the first paragraph of sub-clause 5.7.4, add the following. For Class 01 equipment, measuring the touch current using the circuit specified Figure 4 of IEC 60990, the touch current shall not exceed 1.41mA (peak value) or 1.0mA (r.m.s value) in case if sine wave.</p>	Added. Class I equipment used.	N/A
6.4.3.2	<p>Replacement: In the paragraph of second, third and fourth dash in sub-clause 6.4.3.2 replace "the relevant IEC component standard" with "the relevant JIS or IEC component standard".</p>	Replaced.	N/A

NDs of J62368-1(H30) (JIS C 62368-1:2018) for IEC 62368-1:2014			
Clause	Requirement + Test	Result - Remark	Verdict
6.4.3.3	<p>Replacement: First dash in sub-clause 6.4.3.3, replace the following.</p> <p>a fuse complying with the IEC 60127 series or having equivalent or better properties shall open within 1 s.</p> <p>NOTE Fuses complying with Appendix 3 of "Interpretation of Technical Requirements" are regarded to be of having equivalent or better properties.</p>	Replaced.	N/A
	<p>Replacement: Second dash in sub-clause 6.4.3.3, replace the following.</p> <p>a fuse not complying with the IEC 60127 series and not having equivalent or better properties shall open within 1 s for three consecutive times</p>	Replaced.	P
	<p>Addition: After the last dash in sub-clause 6.4.3.3, add the following new paragraph including NOTE 3.</p> <p>For Type A fuse specified in JIS C 6575 series of standards, replace "2,1 times" with "1,35 times", and for Type B fuse, "2,1 times" with "1,6 times". For fuses having other than operating characteristics specified in JIS C 6575 series of standards, the tests shall be carried out by taking into account the characteristics.</p> <p>NOTE According to pre-arcing time-current characteristics specified in Appendix 3 of "Interpretation of Technical Requirements", for Type A fuse, "2,1 times" is replaceable with "1,35 times", and for Type B fuse, "2,1 times" is replaceable with "1,6 times".</p>	Replaced.	P
8.5.4.1	<p>Replacement: First dash in sub-clause 8.5.4.1, replace the following.</p> <p>Replace the requirement of Safety interlock (Protection of persons in the work cell) of sub-clause 4 by Annex sub-clause K</p>	Replaced.	N/A

NDs of J62368-1(H30) (JIS C 62368-1:2018) for IEC 62368-1:2014			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>Replacement: Second dash in sub-clause 8.5.4.1, replace the following.</p> <p>Replace the requirement of interlock override (General of Interlock override) of sub-clause 5.1 by Annex sub-clause K</p>	Replaced.	N/A
8.5.4.2.1	<p>Replacement: After Note1 of in sub-clause 8.5.4.2.1, replace the following.</p> <p>For equipment that it is limited to a stationary type that is directly connected to a power supply of 3 phase 200 V or more, for use in locations where children are not likely to be present, see sub-clause F.4.</p>	Replaced.	N/A
8.5.4.2.2	<p>Replacement: Replace first paragraph of sub-clause 8.5.4.2.2 with the following.</p> <p>For equipment installed where children may be present, an instructional safeguard shall be provided in accordance with Clause F.5, except that element 3 is optional.</p>	Replaced.	N/A

NDs of J62368-1(H30) (JIS C 62368-1:2018) for IEC 62368-1:2014			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>Addition: After the element 1a of sub-clause 8.5.4.2.2, addition to the following.</p> <p>Instructed safeguard shall be provided and marked with the symbol of JIS S 0101:2000, 6.2.1 (general precaution) using easily understandable word and the following precautions for use, on the readily visible part adjacent to the feed opening for documents, by a method being clearly legible and permanent, and with easily understandable terms:</p> <ul style="list-style-type: none"> - that use by an infant/children may cause a hazard of injury etc.; - that touching by a hand to the feed opening for documents may cause drawing of the hand into the shred mechanism; - that contacting of clothes with the feed opening for documents may cause drawing of the clothes into the shred mechanism; - that contacting of hairs with the feed opening for documents may cause drawing of hairs into the shred mechanism; and - that spraying of flammable gas may cause ignition or explosion (limited to equipment incorporated with a commutator motor). 	Added.	N/A
8.5.4.2.4	<p>Replacement: After the first paragraph of sub-clause 8.5.4.2.4, replace the following.</p> <p>The media destruction device is tested with the wedge probe of Figure V.4 applied to the opening using test probe with provided applicable jointed test probe by applied sub-clause V1.2, further is tested with the wedge probe of Figure V.4 applied in any direction relative to the opening.</p>		N/A
8.5.4.2.5	<p>Replacement: After the first paragraph of sub-clause 8.5.4.2.5, replace the following.</p> <p>Compliance is checked in accordance with sub-clause V.1.2 and sub-clause V.1.5. Applicable jointed test probe of Annex V and the wedge probe of Figure V.4 shall not contact any moving part.</p>		N/A

NDs of J62368-1(H30) (JIS C 62368-1:2018) for IEC 62368-1:2014			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>Addition: At the end of sub-clause 8.5.4.2.5, add the following.</p> <p>Alternative construction that prevent access to the hazard moving parts shall not use the warnings.</p>		N/A
8.9.1	<p>Replacement: In the paragraph of sub-clause 8.9.1, replace "MS3 and some MS2 equipment" with "MS3 equipment".</p>		N/A
9.2.5	<p>Replacement: In the paragraph of sub-clause 9.2.5, replace "room ambient temperature shall be 25 $\begin{smallmatrix} -5 \\ +0 \end{smallmatrix}$" with "room ambient temperature shall be 25 $\begin{smallmatrix} -5 \\ +5 \end{smallmatrix}$".</p>	Replaced.	P
9.2.6 Table38	<p>Addition: In the top cell of TS2 of Table 38 in sub-clause 9.2.6 add the following</p> <p>Handles, knobs, grips, etc., and external surfaces held, touched or worn against the body in normal use(> 1 min) ^c</p>	Added.	P

NDs of J62368-1(H30) (JIS C 62368-1:2018) for IEC 62368-1:2014			
Clause	Requirement + Test	Result - Remark	Verdict
F.3.5.1	<p>Addition:</p> <p>At the end of sub-clause F.3.5.1, add the following.</p> <p>According to the requirement of sub-clause G.4.2A, JIS C 8282 series, JIS C 8303 or Class 01 equipment have mains appliance outlet can connect class 1 equipment specified related standard Intended for interconnection, shall be provided with instructed safeguard specified F.5. However mains socket-outlet exclude only accessible to a skilled person.</p> <p>NOTE Appendix 4 of "Interpretation of Ministerial Ordinance establishing Technical Requirements for Electrical Appliances and Materials" is relevant national standard.</p> <p>The elements of the instructed safeguard shall be as follows:</p> <ul style="list-style-type: none"> - element 1a: not applied - element 2: "(equipment name) Exclusive socket-outlet" or equivalent text - element 4: "This socket-outlet intended for connect only with (manufacturer's name), (model number or series), (equipment name)" or better wording - element 3: "Connect with other equipment may result in electric hazard" or equivalent text <p>This elements shall be in the order 2,4, and 3. element 2 shall be marked near the mains socket-outlet. If this instructed safeguard provided, may not mark rated valtage and assigned current or power.</p>		N/A
F.3.5.3	<p>Addition:</p> <p>As examples in the first dash of sub-clause F.3.5.3, add the following at the end of the first dash.</p> <p>Ⓐ, denoting Type A; Ⓑ, denoting Type B;</p>	Added.	P

NDs of J62368-1(H30) (JIS C 62368-1:2018) for IEC 62368-1:2014			
Clause	Requirement + Test	Result - Remark	Verdict
F.3.6.1A	<p>Addition: After sub-clause F.3.6.1, add the following new sub-clause.</p> <p>F.3.6.1A Marking for CLASS 0I EQUIPMENT Requirement of sub-clause F.3.6.1.1 and sub-clause F.3.6.1.1 also apply for CLASS 0I EQUIPMENT.</p> <p>For CLASS 0I EQUIPMENT, mains plug or on the easily visible location shall be provided with the marking of the following content or the equivalent. Make an earthing connection</p> <p>Additionally for CLASS 0I EQUIPMENT, it shall be marked on the easily visible location of equipment body or indicated in the operating instructions: Make an earthing connection before plugging the mains plug to the mains, and when disconnecting the earthing connection, disconnect after unplugging the mains plug from the mains.</p>	Added. Class I equipment used.	N/A
F.3.6.2.1	<p>Addition: After second paragraph of sub-clause F.3.6.2.1, add the following. The above symbols shall not be used for class I equipment and class 0I equipment.</p>	Not such construction.	N/A
F.4	<p>Replacement: Replace fourth dash of sub-clause F.4 with the following.</p> <p>– For audio equipment with terminals classified as ES3 in accordance with Table E.1, and for other equipment with terminals marked in accordance with F.3.6.1, the instructions shall require that the external wiring connected to these terminals shall be installed by a skilled person, or shall be connected by means of ready-made leads or cords that are constructed in a way that would prevent contact with any ES3 circuit.</p>		N/A

NDs of J62368-1(H30) (JIS C 62368-1:2018) for IEC 62368-1:2014			
Clause	Requirement + Test	Result - Remark	Verdict
G.3.2.1	<p>Replacement: Replace second paragraphs of sub-clause G.3.2.1 with the following.</p> <p>The thermal link when tested as a separate component, shall comply with the requirements of JIS C 60691 or be of having equivalent or better performances.</p> <p>NOTE Fuses complying with Appendix 3 of "Interpretation of Technical Requirements" are regarded to be of having equivalent or better properties.</p>		N/A
G.3.4	<p>Replacement: Replace second paragraphs of sub-clause G.3.4 with the following.</p> <p>Except for devices covered by sub-clause G.3.5, overcurrent protective devices used as a safeguard shall comply with their applicable JIS standards confirming to the IEC standard or be of having equivalent or better properties. If they do not applied, shall be comply with their applicable IEC standard.</p> <p>NOTE Fuses complying with Appendix 3 of "Interpretation of Technical Requirements" circuit breaker or leakage detection devices complying with Appendix 4 of "Interpretation of Technical Requirements" are regarded to be of having equivalent or better properties.</p>	Replaced.	P
G.4.1	<p>Addition: After the last paragraph of sub-clause G.4.1., addition to the following.</p> <p>sub-clause G.4.2 and sub-clause G.4.2A are not applied to above requirements.</p>	Added.	P

NDs of J62368-1(H30) (JIS C 62368-1:2018) for IEC 62368-1:2014			
Clause	Requirement + Test	Result - Remark	Verdict
G.4.2	<p>Replacement:</p> <p>In sub-clause G.4.2, replace including NOTE with the following.</p> <p>Mains connectors shall be complied with one of the following standards JIS C 8282 series, JIS C 8283 series, JIS C 8285, JIS C 8303 or IEC 60309 series. Mains plug and appliance couplers shall be complied with one of the following standards JIS C 8282 series, JIS C 8285, JIS C 8303 or IEC 60309 series or be of having equivalent or better performances</p> <p>NOTE Complying with Appendix 4 of "Interpretation of Technical Requirements" are regarded to be complied with relevant standard.</p> <p>Power cord set have a shape not fittingable into the connection part specified in other relevant JIS standards than JIS C 8285 shall comply with JIS C 8286</p> <p>Where using an appliance coupler, the apparatus shall have a construction that the soldered parts of terminals of the appliance inlet is not subjected to mechanical stress, during insertion and removal of the connector, except the case where the appliance inlet itself is secured so that the fixing does not rely on only soldering.</p> <p>By limiting to the case where the rated voltage of the apparatus is 125 V or less, appliance inlets of type C14 and C18, complying with JIS C 8283 series may be used up to 15 A, if following all requirement shall be complied.</p> <ul style="list-style-type: none"> - the temperature of the appliance inlet does not exceed the limit specified in JIS C 8283-1 even under the normal operation conditions specified in B.2.1. - "It shall be only used specified power cord set packed together with the equipment. ", or having same or better wording was described in the operation manual. If power cord set was not packed together with the equipment, applicable information of power cord set shall be described in the operation manual. 	Replaced. Class I equipment used.	N/A

NDs of J62368-1(H30) (JIS C 62368-1:2018) for IEC 62368-1:2014			
Clause	Requirement + Test	Result - Remark	Verdict
G.4.2A	<p>Addition:</p> <p>In sub-clause G.4.2, add including NOTE with the following.</p> <p>G.4.2A Mains socket-outlet and main interconnection coupler provide with equipment</p> <p>If mains socket-outlet specified with JIS C 8282 series, JIS C 8303 or related standard or main interconnection coupler in accordance with JIS C 8283-2-2 is provided on the equipment, it shall be complied with followings.</p> <ul style="list-style-type: none"> - Mains socket-outlet and main interconnection coupler provided with Class II equipment shall be only connected to other Class II equipment. - Mains socket-outlet and main interconnection coupler provided with Class I equipment shall be only connected to other Class II equipment or be provided with protective earth pole ensurelly connected to protective earth terminal or protective earth point pole of the equipment. - Main interconnection coupler provided with Class 0I equipment shall be only connected to other Class II equipment. However Class I equipment may be connected if following condition complied. <ul style="list-style-type: none"> • Main interconnection coupler shall be provided with protective earth pole ensurelly connected to protective earth terminal or protective earth point pole of the equipment. • According to the sub-clause 5.7.3, touch current value measured as interconnected system provided with one connection to mains supply, is less than the limit of class 0I equipment specified in sub-clause 5.7.4. - Mains socket-outlet provided with Class 0I eaupment shall be only connected to other Class II equipment. However providing with mains socket-outlet as an interconnection coupler, Class I equipment can be connect if following condition complied. • Main socket-outlet shall be provided with protective earth pole ensurelly connected to protective earth terminal or protective earth point pole of the equipment. 	No mains socket-outlet and main interconnection coupler.	N/A

NDs of J62368-1(H30) (JIS C 62368-1:2018) for IEC 62368-1:2014			
Clause	Requirement + Test	Result - Remark	Verdict
	<ul style="list-style-type: none"> • Mains socket-outlet exclude only accessible to a skilled person, shall be provided instructed safeguard specified sub-clause F3.5.1 only to connect to equipment which manufacture intended for. • According to the sub-clause 5.7.3, touch current value measured as interconnected system provided with one connection to mains supply, is less than the limit of class 01 equipment specified in sub-clause 5.7.4. <p>NOTE 1: transportable equipment or similar equipment, for equipment used by moving often and used, by considering the power distribution circumstances in Japan, it is recommended to avoid the insulation construction of CLASS 0I provided with mains socket outlet complied with JIS C 8282 series, JIS C 8303 or related standard, except apparatus intended for installation by the skilled person.</p> <p>NOTE 2: Appendix 4 of "Interpretation of Ministerial Ordinance establishing Technical Requirements for Electrical Appliances and Materials" is relevant national standard</p>		
G.4.3	<p>Addition: After the EXAMPLE in sub-clause G.4.3, add NOTE as follows.</p> <p>NOTE: It was deleted the sentence of "An example of a connector not meeting the requirements of this subclause is the so-called "banana" plug." from national standard example.</p>	Added.	P
G.7.1	<p>Replacement: Third dash in sub-clause G.7.1, replace to following.</p> <ul style="list-style-type: none"> - other types of cords may be used if they have similar electro-mechanical and fire safety properties as above having equivalent or better. 	Replaced. Approved power cord set used.	P

NDs of J62368-1(H30) (JIS C 62368-1:2018) for IEC 62368-1:2014			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>Addition: After the NOTE3 in sub-clause G.7.1, add NOTE 3A as follows.</p> <p>NOTE 3A Sheathed MAINS supply cords complying with Appendix 1 of "Interpretation of Technical Requirements" are regarded to be of having equivalent or better electro-mechanical and fire safety properties.</p>		P
	<p>Addition: After the NOTE3A in sub-clause G.7.1, add NOTE 3A as follows.</p> <p>For pluggable equipment type A or pluggable equipment type B that has protective earthing, a protective earthing conductor shall be included in the mains supply cord. However if Class 0I equipment have another protective earth terminal, mains power cord do not need to provided with protective earth cable. For all other equipment, if a mains supply cord is supplied without a protective earthing conductor, a protective earthing conductor cable shall be supplied as well</p>		P
G.7.2	<p>Addition: In sub-clause G.7.12 add NOTE 0A as follows.</p> <p>NOTE 0A Cross sectional area of power supply cord complying with Appendix 1 of "Interpretation of Technical Requirements" deemed to have equivalent or higher safety performance in sub-clause G 7.1 may be applied with related wiring standard.</p>		P
G.7.6.1	<p>Replacement: In the paragraph of sub-clause G.7.6.1, replace "Table G.4" with "Table G.5".</p>		P

NDs of J62368-1(H30) (JIS C 62368-1:2018) for IEC 62368-1:2014			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>Addition: After the NOTE0A in sub-clause G.7.12 add as follows.</p> <p>NOTE 0A Cross sectional area of power supply cord complying with Appendix 1 of "Interpretation of Technical Requirements" deemed to have equivalent or higher safety performance in sub-clause G 7.1 may be applied with related wiring standard.</p>		P
G.8.1	<p>Replacement: In the second paragraph of sub-clause G.8.1, replace "a varistor" with "a varistor voltage of the varistor".</p>	Replaced.	P
G.8.3.3	<p>Replacement: In the first dash of sub-clause G.8.3.3, replace "1.71" with "1.71 x 1.1".</p>	Replaced.	P
	<p>Replacement: In sub-clause G.8.3.3, replace including NOTE with the following.</p> <p>NOTE 2 For different power distribution systems, the temporary overvoltages are defined in Table B.3 of JIS C 5381-11 (TOV tested parameter for Japan distribution system).</p>	Replaced.	P
G9.3	<p>Replacement: Last dash in sub-clause 6.4.3.3, replace the following.</p> <p>7 days with the output short-circuited and the device wrapped in a double layer of cheesecloth. A quick acting 5 A fuse (complied with JIS C 6575-2) kept in series with the output shall not open and a current meter shall not show a current of more than 5 A.</p>		N/A
G16.3	<p>Addition: Before the NOTE in sub-clause G.16.3 add as follows.</p> <p>Refer to the sub-clause 5.2.2.2.</p>	Replaced.	P

NDs of J62368-1(H30) (JIS C 62368-1:2018) for IEC 62368-1:2014			
Clause	Requirement + Test	Result - Remark	Verdict
Annex H.1	<p>Replacement:</p> <p>In the sub-clause Annex H.1, replace with the following.</p> <p>It can be select one of the two alternative methods described in this annex. Method A is typical of analogue telephone networks in Europe, and Method B of those in North America.</p>		N/A
M.2.1	<p>Replacement:</p> <p>In the sub-clause M.2.1, replace with the following.</p> <p>Batteries and their cells shall comply with the relevant standards for batteries as listed below.</p> <ul style="list-style-type: none"> - JIS C 8513 or IEC 60086-4 - JIS C 8514 or IEC 60086-5 - JIS C 8704-1 or IEC 60896-11 - JIS C 8704-2-1 or IEC 60896-21 - JIS C 8704-2-2 or IEC 60896-22 - JIS C 8702-1 or IEC 61056-1 - JIS C 8702-2 or IEC 61056-2 - IEC 61427 - IEC/TS 61430 - IEC 61434 - JIS C 8713 - JIS C 8712 or IEC 62133 - IEC 62281 - IEC 62485-2 <p>NOTE Other battery safety standards are under development, and are intended to be included in future.</p>		P
M.8.2.1	<p>Replacement:</p> <p>In the sub-clause M.8.2.1, replace the first paragraph with the following.</p> <p>The test shall be carried out according to JIS C 8704-2-1 or IEC 60896-21:2004, 6.4</p>		P

NDs of J62368-1(H30) (JIS C 62368-1:2018) for IEC 62368-1:2014			
Clause	Requirement + Test	Result - Remark	Verdict
M.8.2.2	<p>Addition: After the description of LEL in sub-clause M.8.2.2, add the follows.</p> <p>However it is necessary to convert to mass fraction (kg/m^3). The fraction refer to the Sub clause B.4.2.2 Note 1 of JIS C 60079-10.</p>		N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Appendix	Appendix 12, J3000(H25) Special National conditions, National deviation and other information according to MITI Ordinance No. 85.		—
1	General requirement When equipment provides with appliance inlet complying with JIS C 8283-1(2008), soldered parts of appliance inlet is not applied by force during insert or removal of connector. This is not applied when inlet body is fixed itself and not fixed by solder.	Inlet is fixed by adequate mechanical construction, not rely on soldering.	P
2	Requirement for equipment		—
2.1	Heater Appliances When diode is used in parallel for adjustment of power, the equipment shall remain safe for operation under open condition of one diode.	Not electric stove.	N/A
	The current rating of one diode shall be more than main current. The diodes connected in parallel are same type.		N/A
	The heating test specified by clause 11 of JIS C 9335-2-30(2006) under open condition of one diode shall comply with the requirements.		N/A
2.2	Electric heater with glowing heating elements	Not electric stove.	N/A
	Surface treatment by paint or adhesive on protective frame or protective mesh shall not be used.		N/A
	Caution marking like below shall be on - easily visible place of the equipment or - Instruction manual 「注意 当該機器から、使用初期段階で揮発性有機化合物及びカルボニル化合物が最も放散するおそれがあるため、その際には十分換気を行うこと。」		N/A
3	Components used in equipment	No such equipment /components.	N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
3.1	Motor capacitors used in ventilating fan, electric fan, air conditioner, electric washing machine, refrigerator or electric freezer shall be comply with <ul style="list-style-type: none"> - capacitors with protective elements or protective mechanism complying with JIS C 4908(2007) - P2 capacitor complying with IEC 60252-1(2001) Capacitor complying with below is acceptable		N/A
	Enclosed by metal or ceramic		N/A
	No non-metallic materials within 50 mm from capacitor surface		N/A
	Non-metallic material within 50 mm from capacitor surface comply with needle frame test of JIS C 9335-1(2003), Annex E		N/A
	Non-metallic material within 50 mm from capacitor surface comply with V-1 test of JIS C 60965-11-10(2006).		N/A
3.2	Plug directly inserted to outlet used refrigerator or electric freezer. Shall comply with <ul style="list-style-type: none"> - Face contact with outlet shall have CTI with more than 400 according to JIS C 2134(2007) or - Supporting material of blades shall comply with glow wire test by temperature of 750°C according to JIS C 60695-2-11(2004) or JIS C 60695-2-12(2004). Materials having glow wire frame temperature of 775 °C are acceptable.		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
6.4.8.3.3, 6.4.8.3.4 & P.2.2	Table: enclosure openings		P
Location	Size (mm)	Comments	
External Plastic enclosure			
Top	Numerous rectangle openings: Max.5.4mm x 1.4mm.	No hazardous part within vertical projection of 5° from the opening.	
Rear	No opening.	--	
Left	No opening.	--	
Right	No opening.	--	
Bottom	--	--	
Internal metal enclosure			
a) at horizontal orientation, b) at vertical orientation, power board on bottom side, c) at vertical position, power board on top side.			
a) Top b) Left c) Right	1) Numerous circle openings: above power board: Ø2.9mm. 2) Numerous circle openings above main board: Ø4.7mm. 3) One rectangle opening above main board: 16.8mm x 6.3mm. 4) One rectangle opening above main board: 16.8mm x 6.3mm.	1) Openings do not exceed 3mm in any dimension. No hazards. 2),4) No opening was fall in Volume of PS3 component shown as Figure 41 & 42 of this standard. No hazards. 3) Openings is covered by V-1 Mylar sheet. No Hazards.	
a), b), c) Rear	1) Numerous circle openings near main board: Ø1.8mm. 2) One rectangle opening near main board: 11.9mm x 1.1mm. 3) One rectangle opening near main board: 11.3mm x 9.4mm. 4) One irregular opening near main board: Max.61.3mm x 41.9mm.	1)-4) No opening was fall in Volume of PS3 component shown as Figure 41 & 42 of this standard. No hazards.	
a) Left b) Bottom c) Top	Two rectangle opening above main board: 32.7mm x 12.9mm; 11.3mm x 9.4mm.	Opening is covered by internal V-1 Mylar sheet. No hazards.	

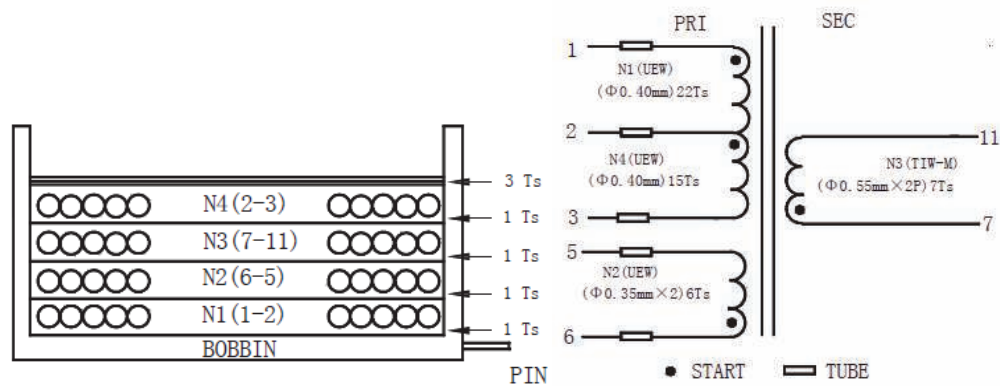
IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
a) Right b) Top c) Bottom	No opening	--	
a) Bottom b) Top c) Right	No opening	--	

G.5.3.2	TABLE: transformers							P
Loc.	Tested insulation	Working voltage peak / V (2.10.2)	Working voltage rms / V (2.10.2)	Required electric strength (5.2)	Required clearance / mm (2.10.3)	Required creepage distance / mm (2.10.4)	Required distance thr. insul. (2.10.5)	
T902	Input terminal to output winding (RI)	506	250	AC 4000V	4.5	5.0	Min. 2 layers tape	
T902	Input terminal to output terminal (RI)	506	250	AC 4000V	4.5	5.0	Min. 2 layers tape	
T902	Input winding to output winding (RI)	506	250	AC 4000V	4.5	5.0	Min. 2 layers tape	
T902	Input winding to output terminal (RI)	506	250	AC 4000V	4.5	5.0	Min. 2 layers tape	
T902	Output winding to Core (RI)	506	250	AC 4000V	4.5	5.0	Min. 2 layers tape	
T902	Output terminal to Core (RI)	506	250	AC 4000V	4.5	5.0	Min. 2 layers tape	
Loc.	Tested insulation			Test voltage / V	Measured clearance / mm	Measured creepage dist. / mm	Measured distance thr. insul. / mm; number of layers	
T902	Input terminal to output winding (RI)			AC 4000V	Triple insulated wire used	Triple insulated wire used	--	
T902	Input terminal to output terminal (RI)			AC 4000V	31.3	31.3	--	
T902	Input winding to output winding (RI)			AC 4000V	Triple insulated wire used	Triple insulated wire used	--	
T902	Input winding to output terminal (RI)			AC 4000V	11.1	11.1	--	

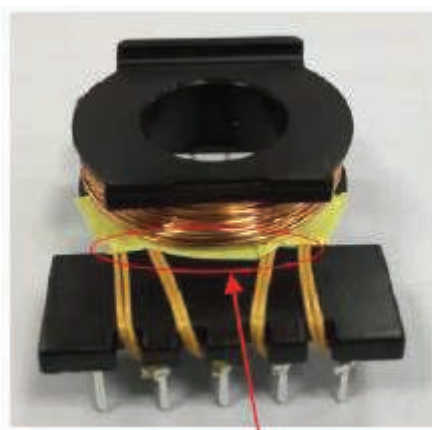
IEC 62368-1					
Clause	Requirement + Test	Result - Remark			Verdict
T902	Output winding to Core (RI)	AC 4000V	Triple insulated wire used	Triple insulated wire used	--
T902	Output terminal to Core (RI)	AC 4000V	9.0	9.0	--
Supplementary information: All sources of transformer were checked with same construction.					

G.5.3.2 TABLE: transformers P

Construction:



No.	COIL	TERMINAL	WIRE GAUGE	WIRE TYPE	TUNS	WINDING METHOD	TAPE/1Ts
1	N1	1-2	φ 0.40 mm	UEW	22	CLOSED	1Ts
2	N2	6-5	φ 0.35mm×2	UEW	6	CLOSED	1Ts
3	N3	7-11	φ 0.55 mm×2	TIW-M	7	CLOSED	1Ts
4	N4	2-3	φ 0.40 mm	UEW	15	CLOSED	3Ts



Concentric windings on phenolic bobbin. Three layers of insulation tape are provided around outer winding and outer winding is primary. Triple insulated wire used for secondary, therefore core is considered as primary. All winding leads are covered by tube.

Product: LCD Monitor

Type Designation: P2319Hc, P2319H; P2419Hc, P2419H



Figure 1. Front view



Figure 2. Rear view

Product: LCD Monitor

Type Designation: P2319Hc, P2319H; P2419Hc, P2419H



Figure 3. Side view

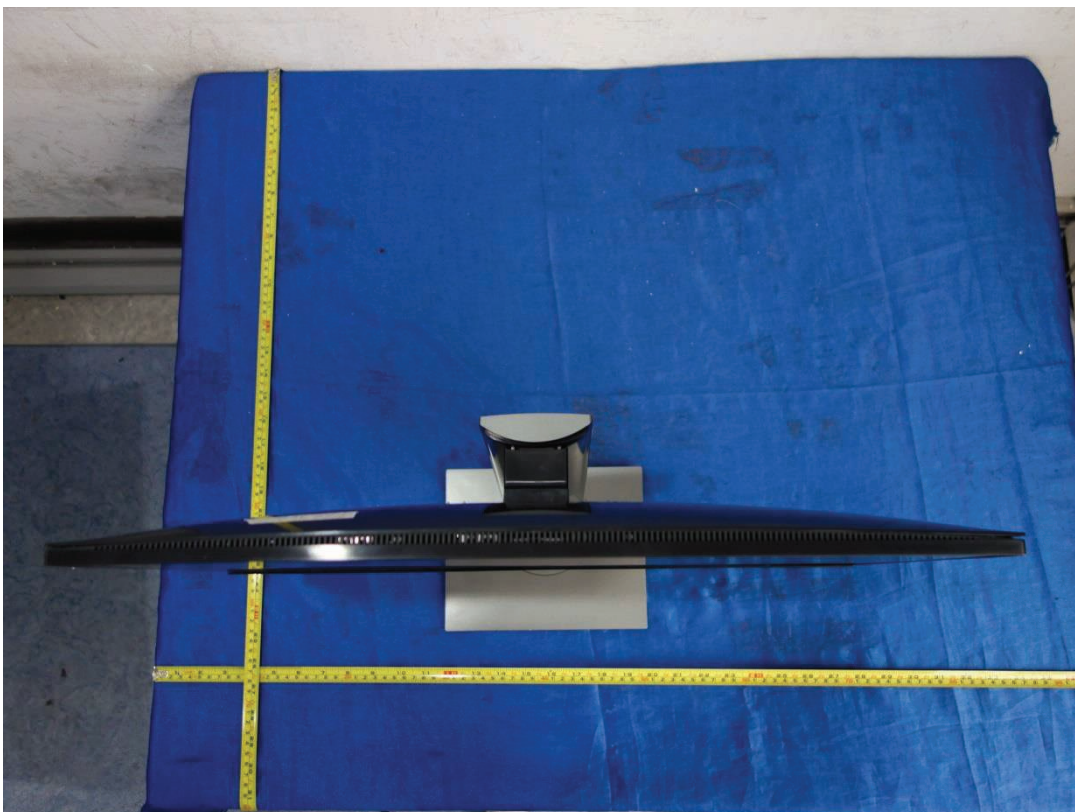


Figure 4. Top view

Product: LCD Monitor

Type Designation: P2319Hc, P2319H; P2419Hc, P2419H

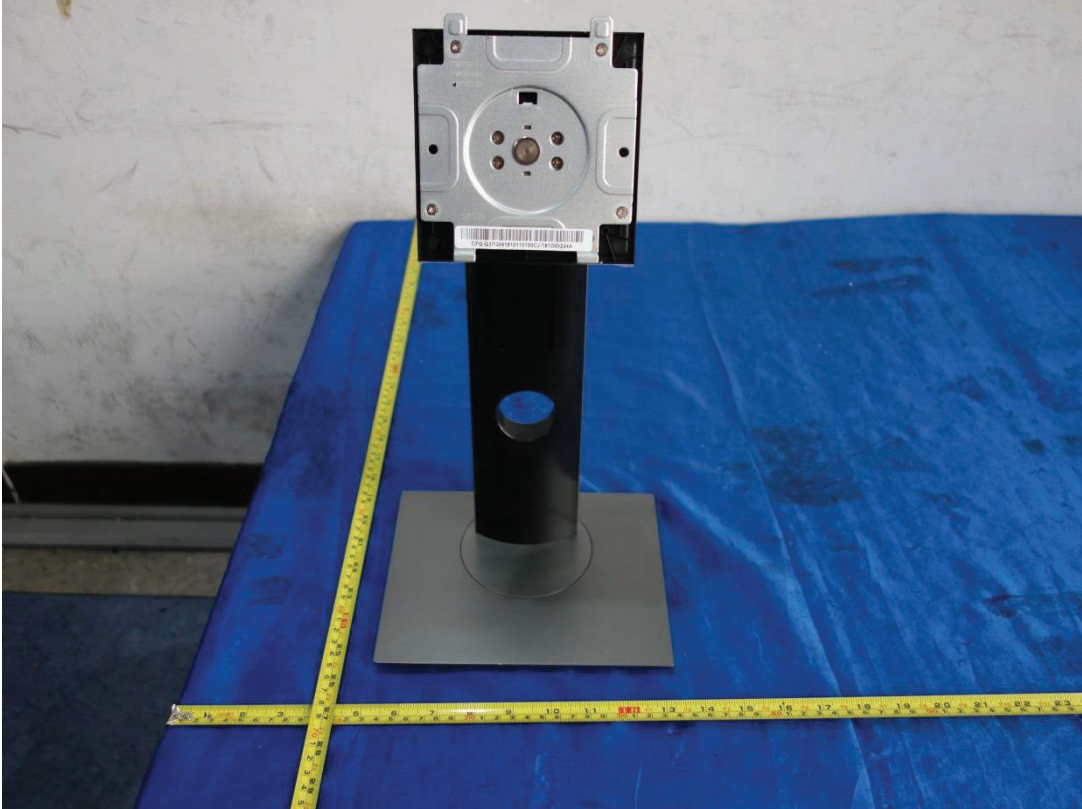


Figure 5. Stand base

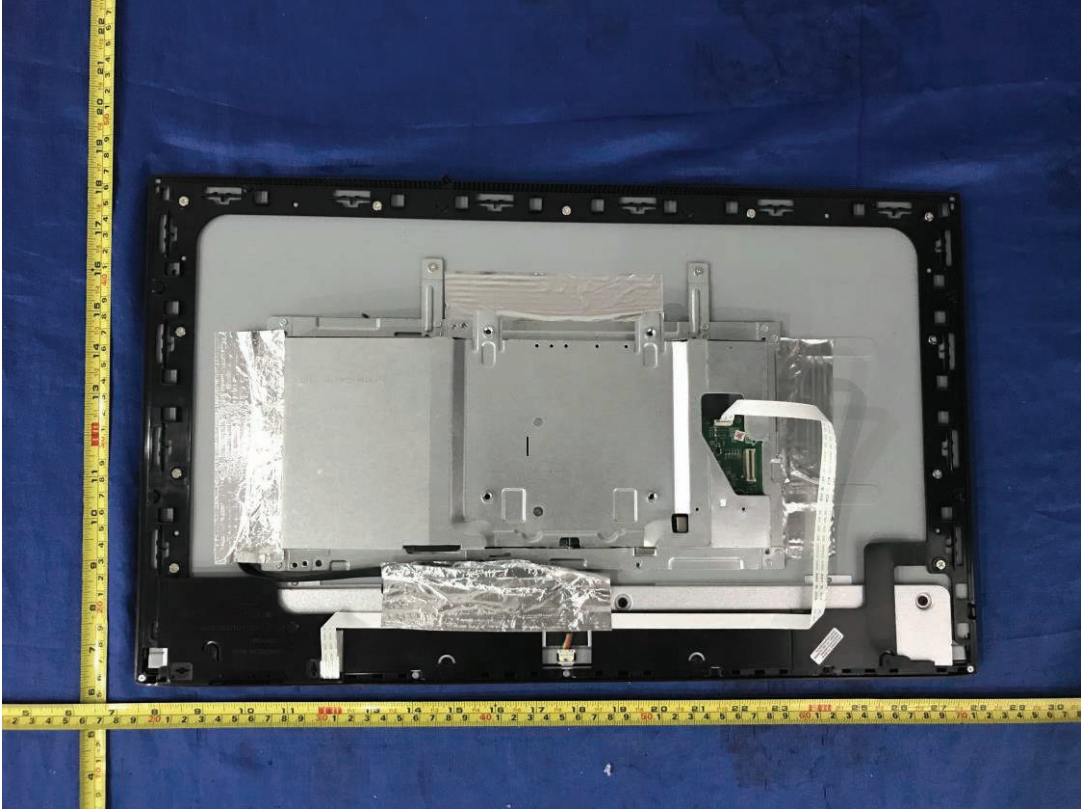


Figure 6. Metal enclosure

Product: LCD Monitor

Type Designation: P2319Hc, P2319H; P2419Hc, P2419H

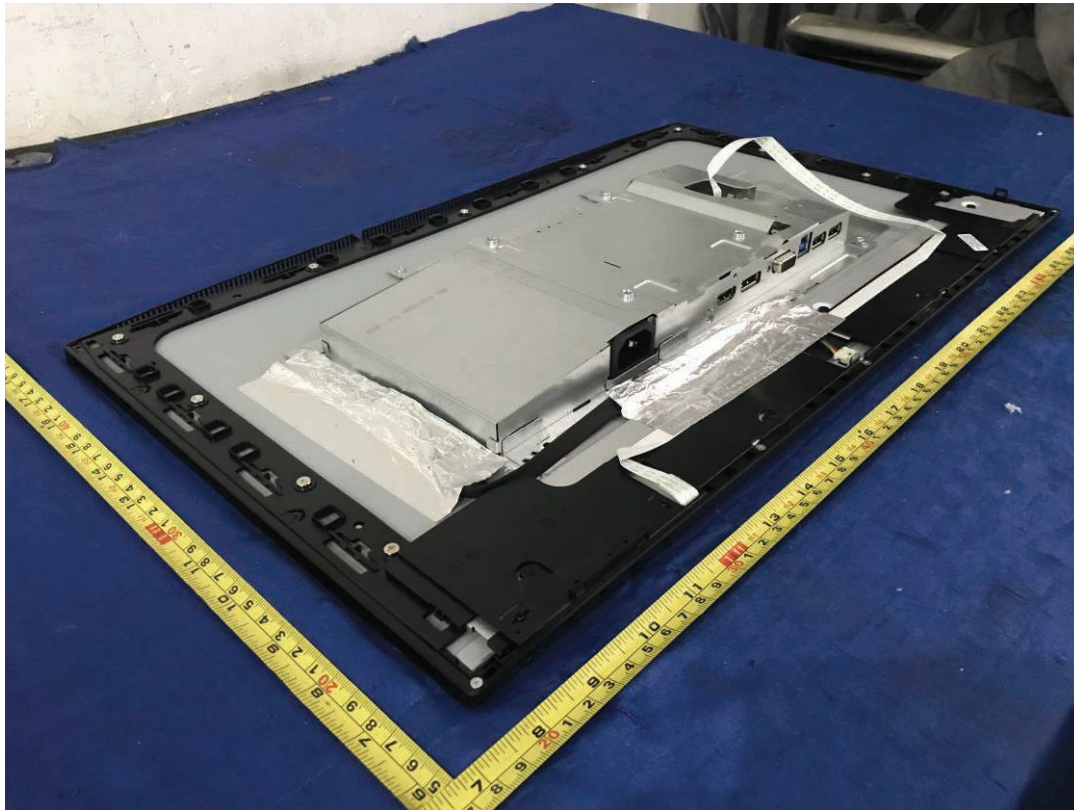


Figure 7. Metal enclosure

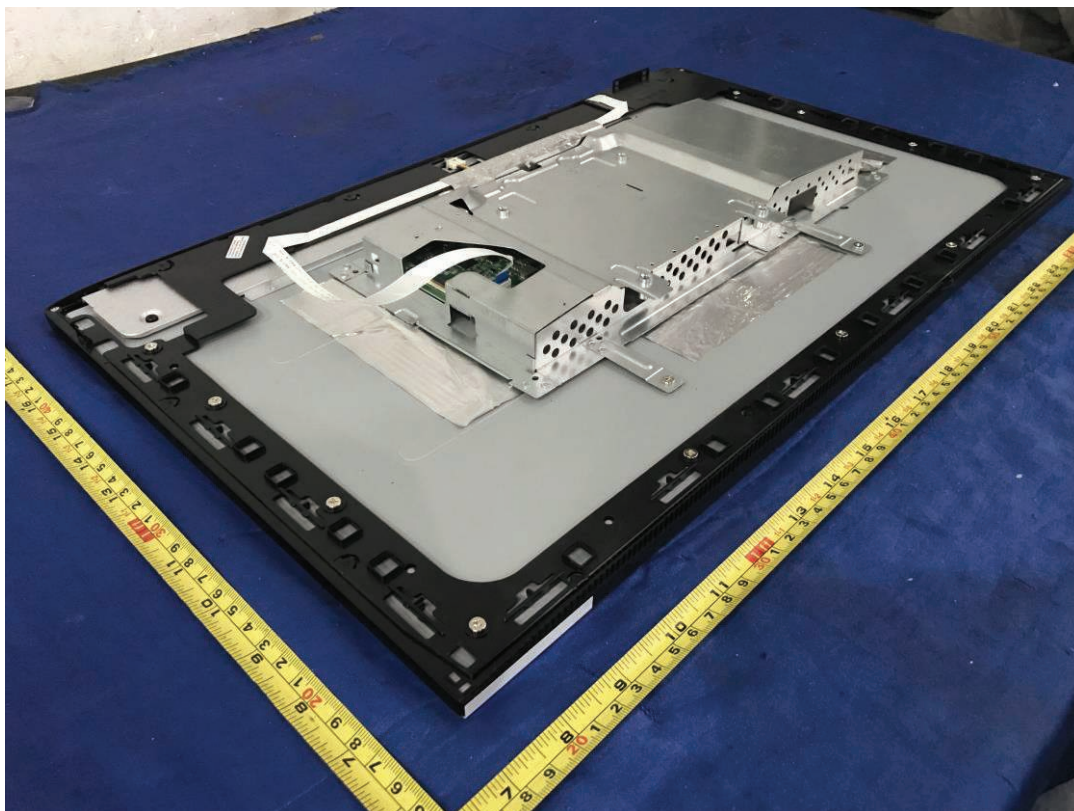


Figure 8. Metal enclosure

Product: LCD Monitor

Type Designation: P2319Hc, P2319H; P2419Hc, P2419H

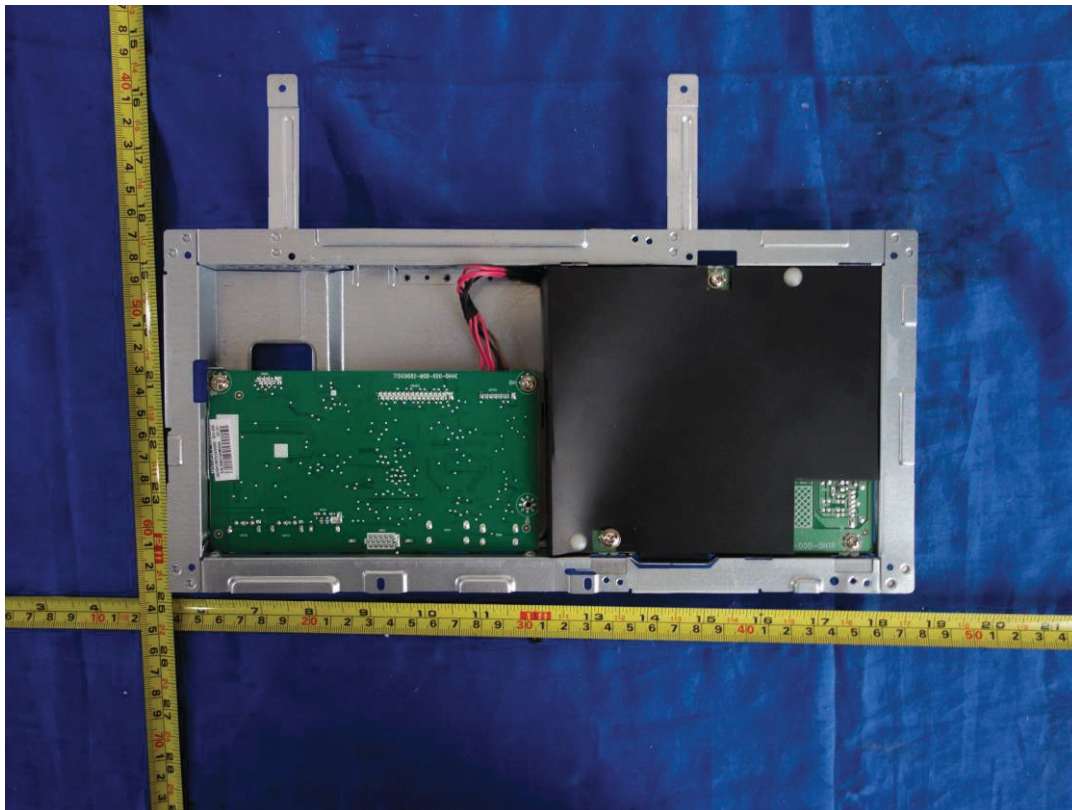


Figure 9. Internal view of Metal enclosure

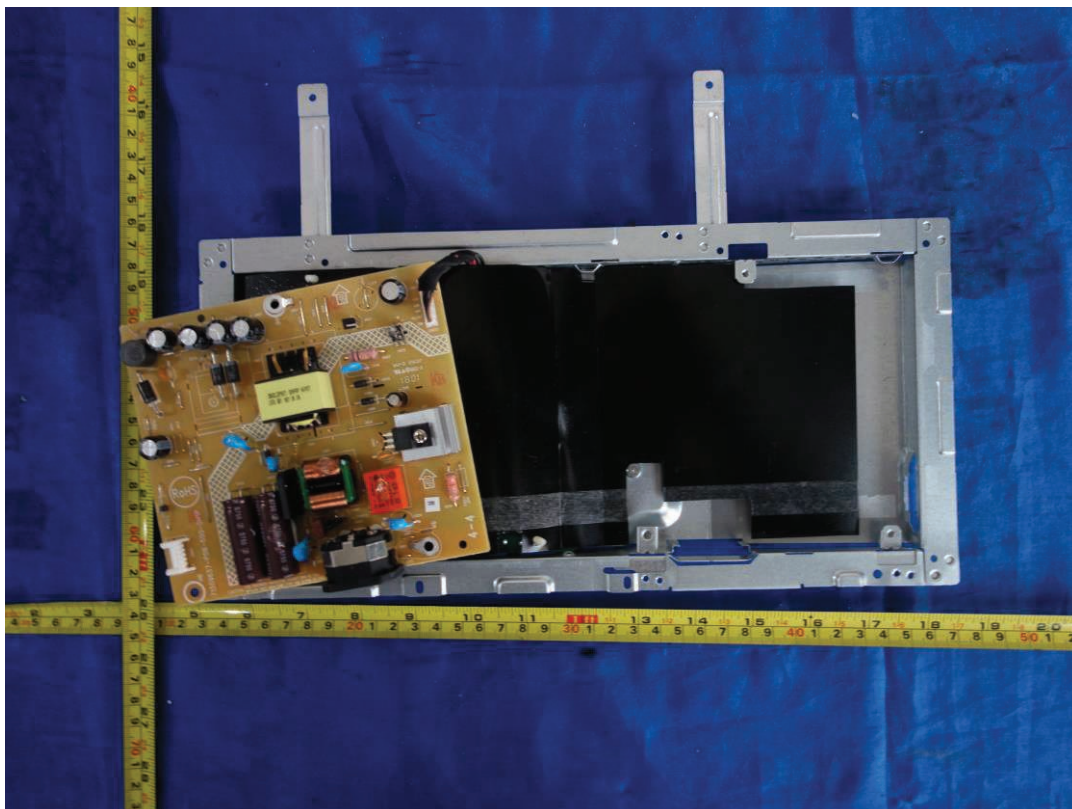


Figure 10. Internal view of Metal enclosure

Product: LCD Monitor

Type Designation: P2319Hc, P2319H; P2419Hc, P2419H

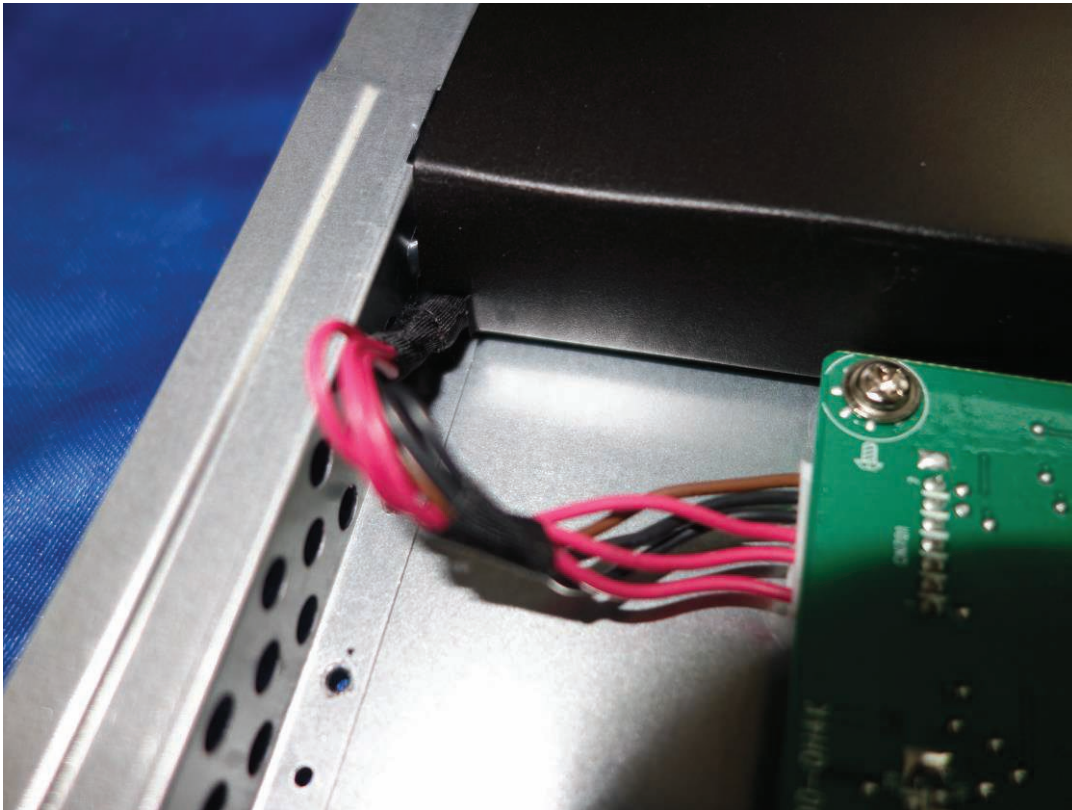


Figure 11. Internal view of Metal enclosure



Figure 12. Mylar sheet around power board

Product: LCD Monitor

Type Designation: P2319Hc, P2319H; P2419Hc, P2419H

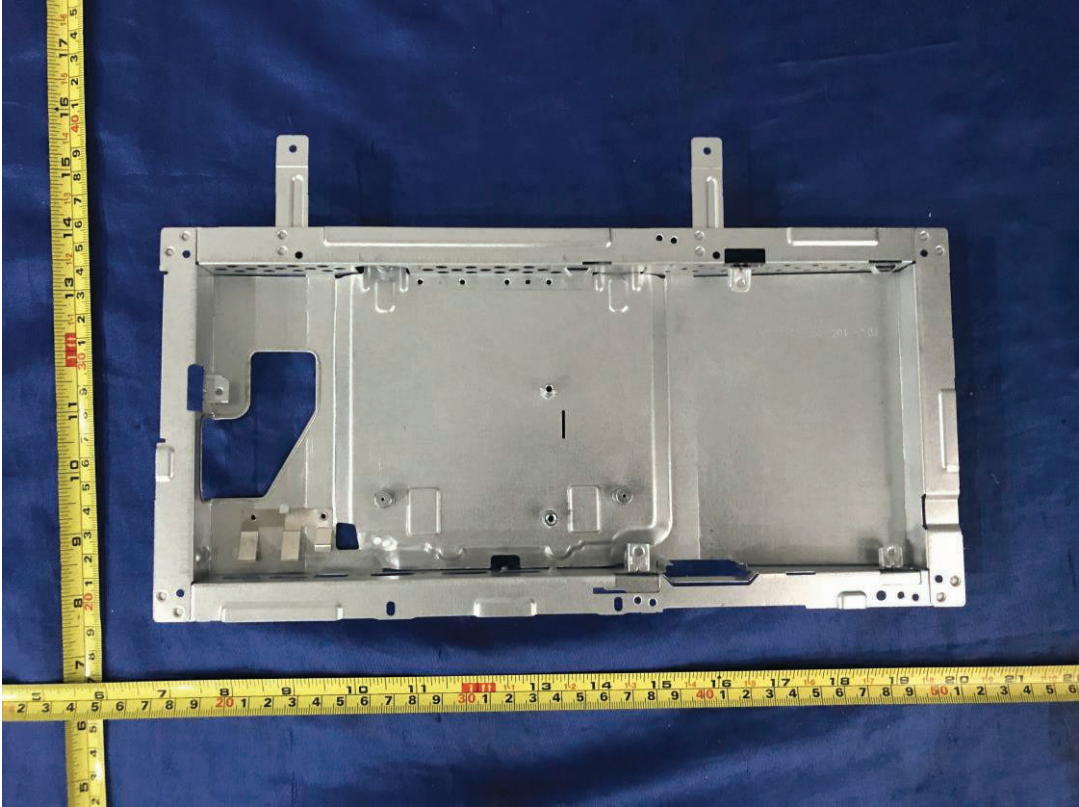


Figure 13. Internal view of Metal enclosure

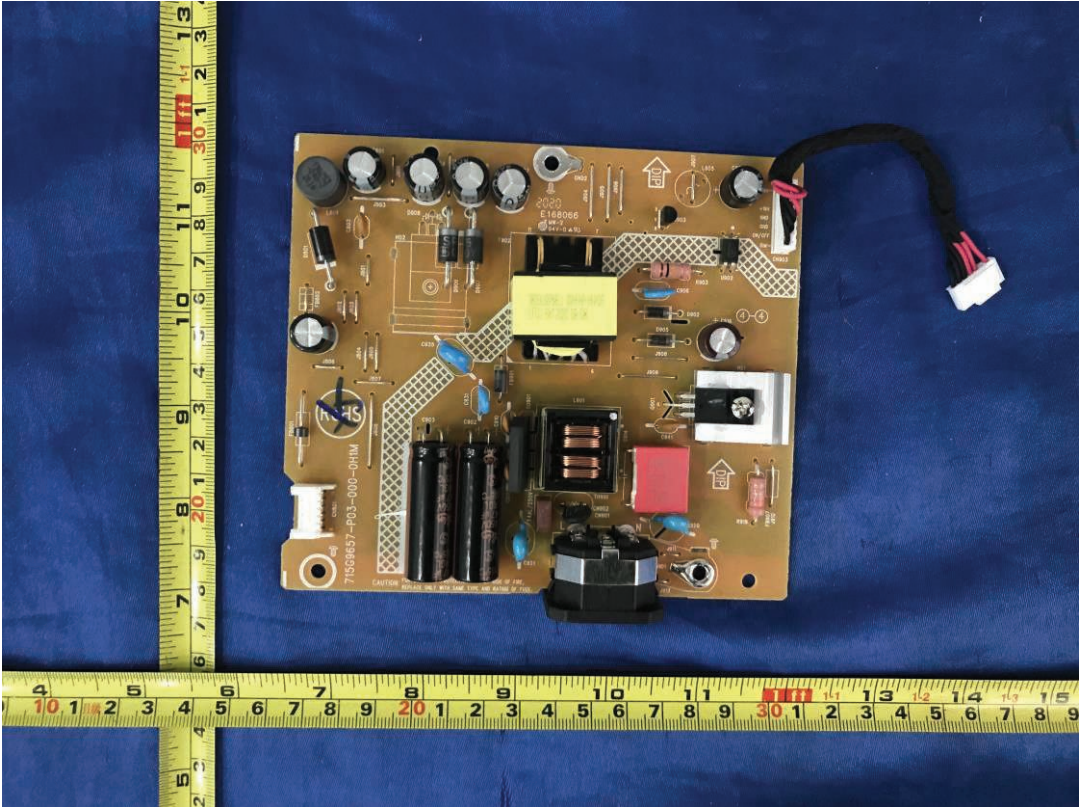


Figure 14. Power board 715G9657

Product: LCD Monitor

Type Designation: P2319Hc, P2319H; P2419Hc, P2419H

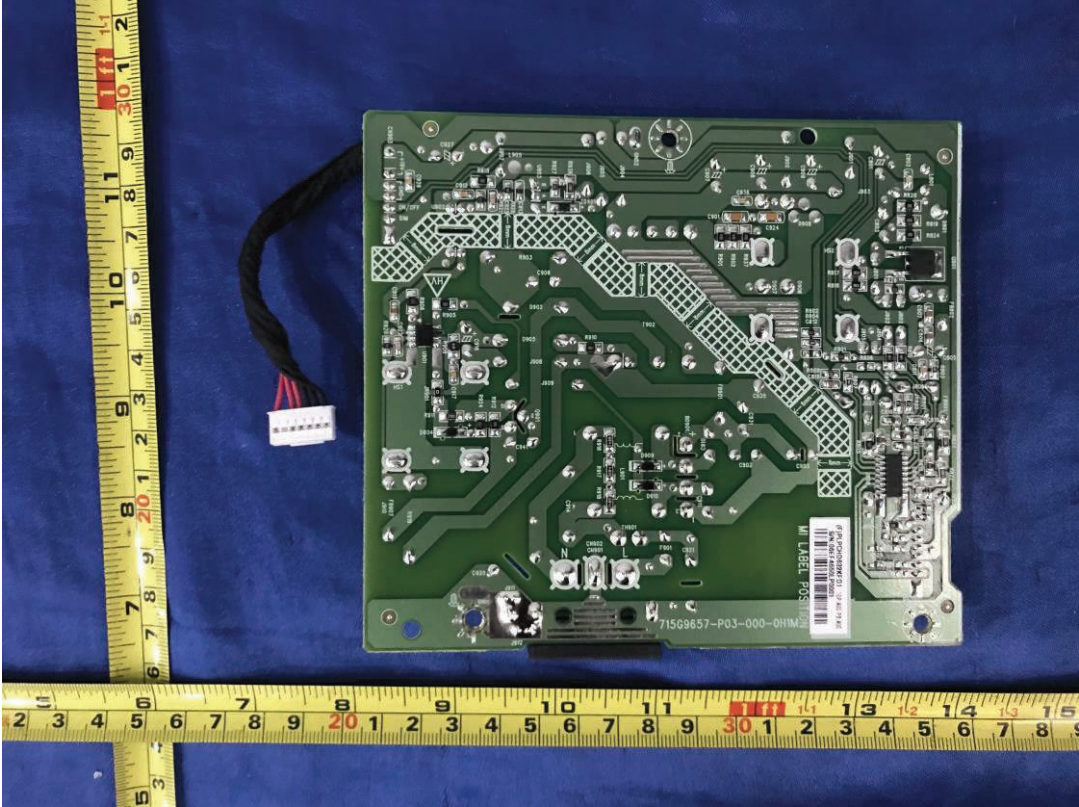


Figure 15. Power board 715G9657

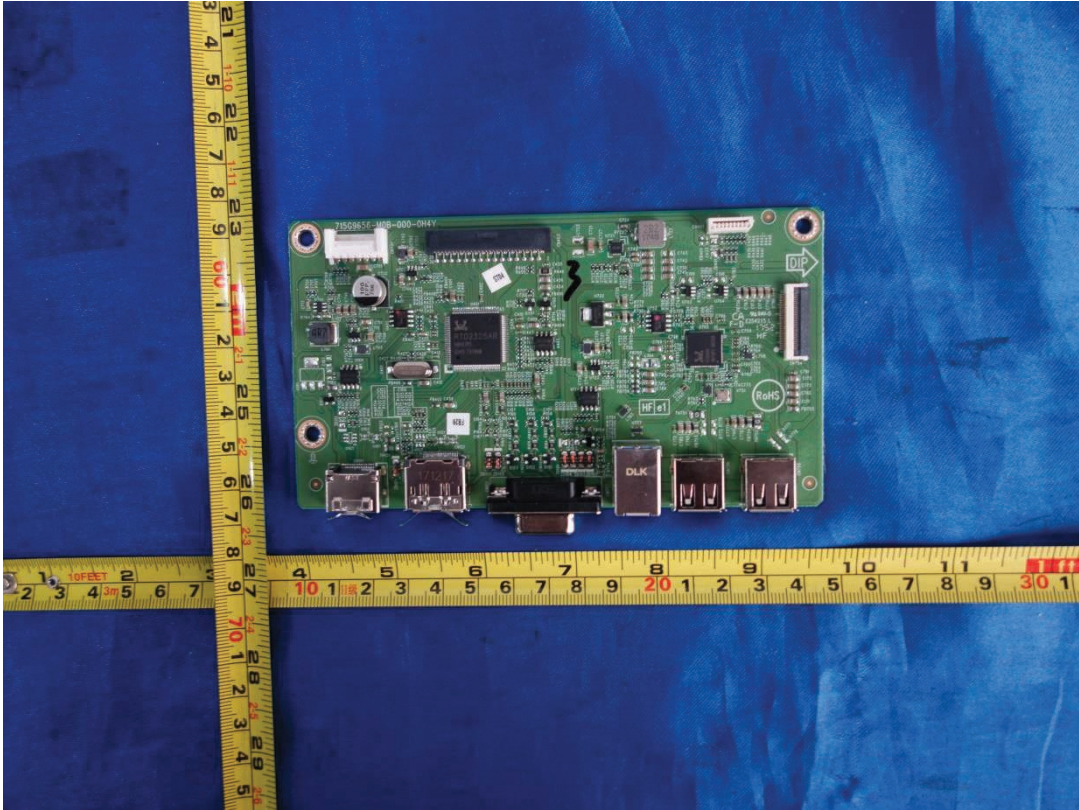


Figure 16. Main board 715G9656

Product: LCD Monitor

Type Designation: P2319Hc, P2319H; P2419Hc, P2419H

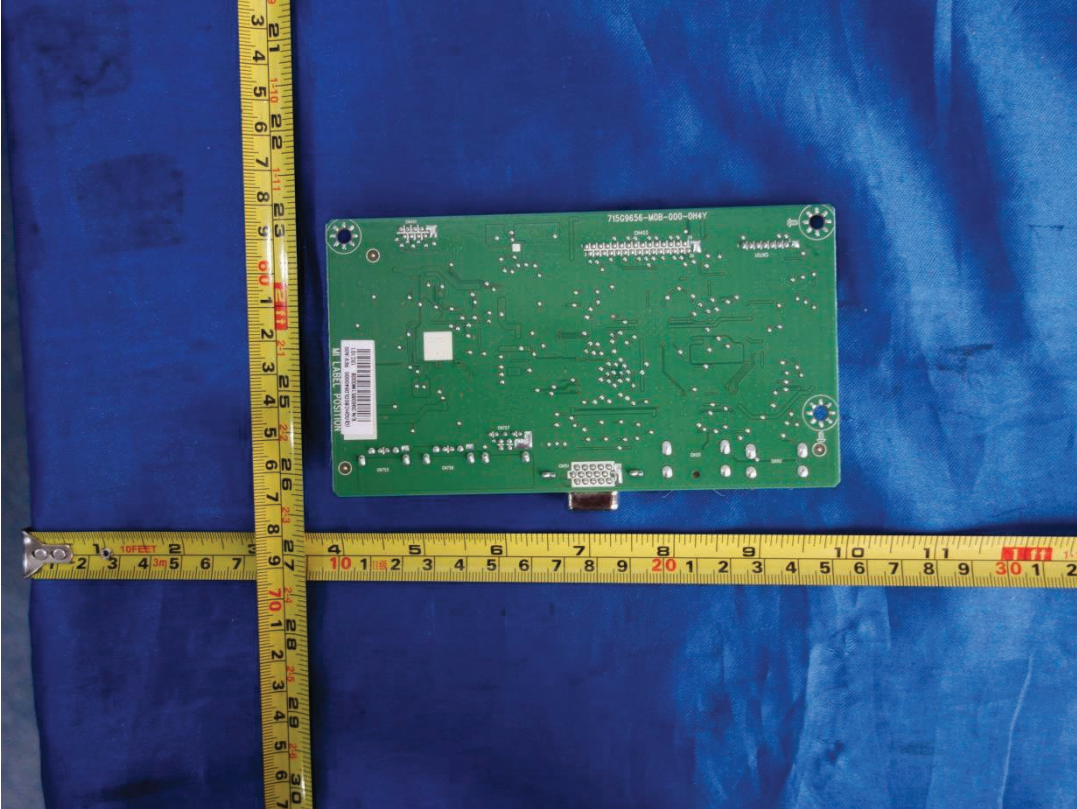


Figure 17. Main board 715G9656

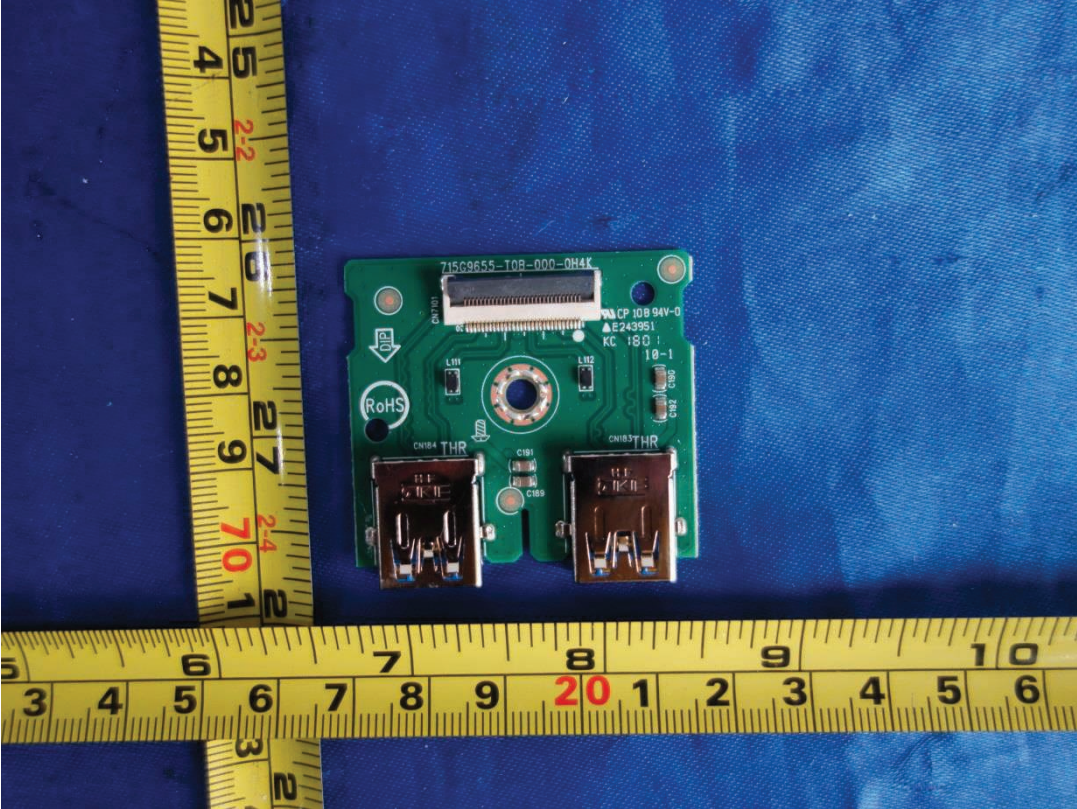


Figure 18. USB board 715G9655

Product: LCD Monitor

Type Designation: P2319Hc, P2319H; P2419Hc, P2419H

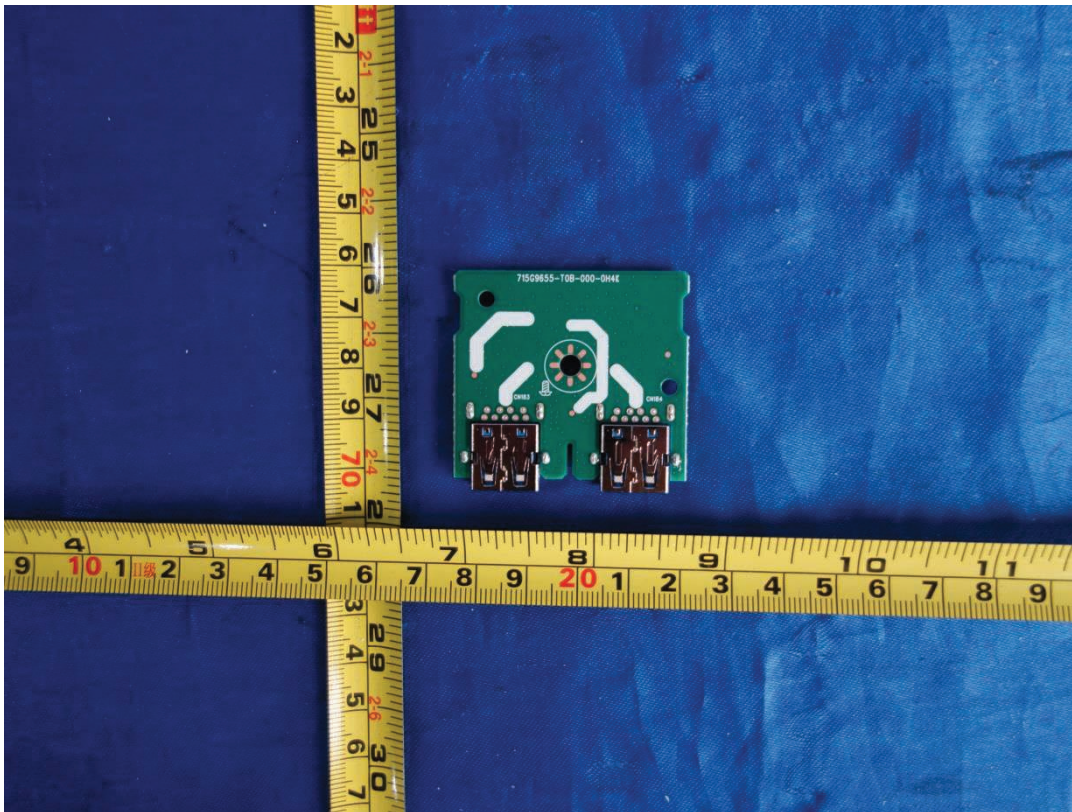


Figure 19. USB board 715G9655

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JPTUV-112719

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT
(IECEE) CB SCHEME**CB TEST CERTIFICATE**

Product	Flat Panel Monitor
Name and address of the applicant	Qisda Corporation 157, Shan-Ying Road Gueishan, Taoyuan 333 Taiwan
Name and address of the manufacturer	Qisda Corporation 157, Shan-Ying Road Gueishan, Taoyuan 333 Taiwan
Name and address of the factory	See additional page(s)
Ratings and principal characteristics	AC 100-240V; 50-60Hz; 1.5A; Class I
Trademark (if any)	DELL
Customer's Testing Facility (CTF) Stage used	N/A
Model / Type Ref.	P2219H, P2219Hb
Additional information (if necessary may also be reported on page 2)	For model differences, refer to the test report.
A sample of the product was tested and found to be in conformity with	IEC 62368-1:2018 See Test Report for National Differences
As shown in the Test Report Ref. No. which forms part of this Certificate	NN20A7T1 001

This CB Test Certificate is issued by the National Certification Body

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Additional information (if necessary)

Report Ref. No. : NN20A7T1 001

Date: 2020-08-18

Signature:


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