

Delivering leading edge, innovative power solutions for more than 30 years....

Model:GTM96605-GEN2-T3

March 28, 2020

## Adaptive USB Power delivery (PD) Power Supply/ Quick Charge Charger for Medical Grade and ITE/ICT applications for USB PD 2.0 and USB PD 3.0 Applications R2 T3

### Information

Model Number	GTM96605-GEN2-T3
Description	Communication formats supported: USB Power Delivery (PD) 2.0/3.0, Quick Charge™ 2.0/3.0, Quick Charge™ 4.0/4.0+ with up to 7 voltages and VDM options available. Fully globally certified for Medical 60601-1, ICT 62368

### Model Picture



Agency Documents	<a href="http://www.globtek.info/certs/GTM96605-GEN2/">http://www.globtek.info/certs/GTM96605-GEN2/</a>
CE EC-Declaration	<a href="https://www.globtek.com/pdf/ec_declaration/a000c00000PILwIEAH">https://www.globtek.com/pdf/ec_declaration/a000c00000PILwIEAH</a>
RoHS/RoHS2 Declaration	<a href="https://www.globtek.com/pdf/rohs_cert/a000c00000PILwIEAH">https://www.globtek.com/pdf/rohs_cert/a000c00000PILwIEAH</a>
REACH Declaration	<a href="https://www.globtek.com/pdf/iso_certificates/REACH.pdf">https://www.globtek.com/pdf/iso_certificates/REACH.pdf</a>
Conflict Minerals Declaration	<a href="https://www.globtek.com/pdf/conflict-minerals.pdf">https://www.globtek.com/pdf/conflict-minerals.pdf</a>

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**MODEL PARAMETERS**

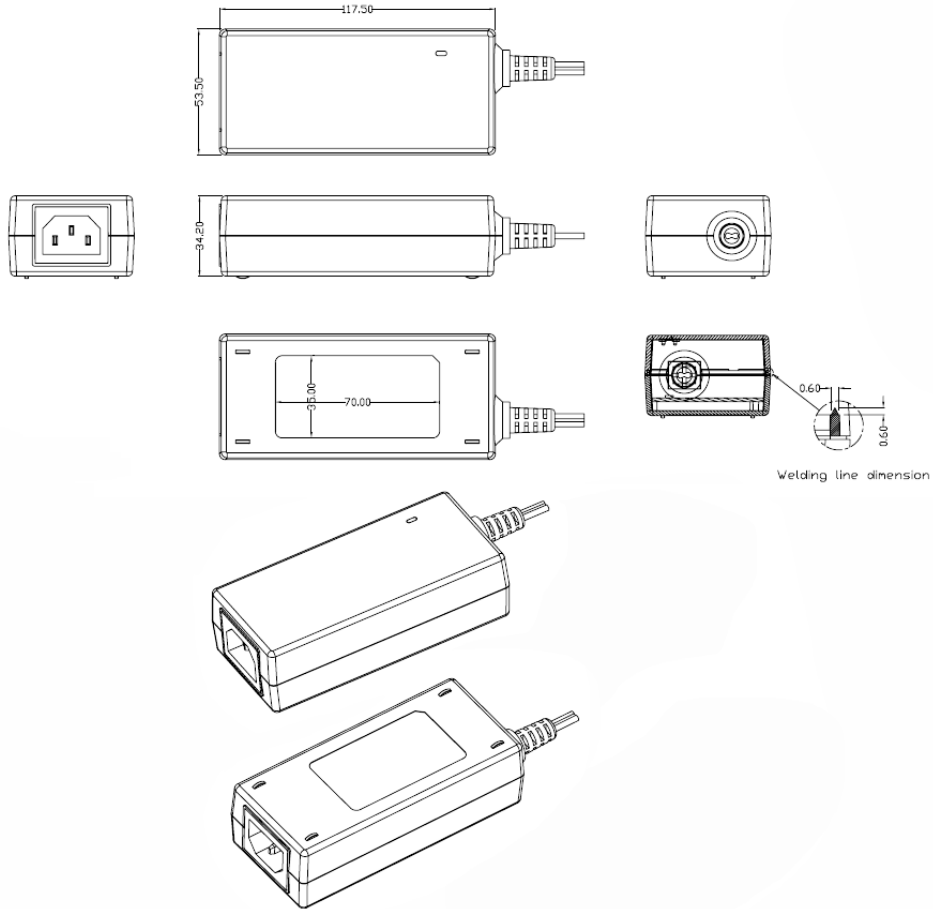
Type	Desktop/External
Technology	USB Adaptive Power Supply AC Adaptor
Category	Adaptive Power USB Source, ITE/Medical
Input Voltage	100-240V~, 50-60Hz
I/P Amps (A)	1.5A
Wattage (W)	60.0
Vout Range (V)	3.6-20
Efficiency Level	USA DOE Level VI / Eco-design Directive 2009/125/EC, (EU) 2019/1782
Ingress Protection	
Size (mm)	

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# ENCLOSURE



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**RATING TABLE**

Model Number	Voltage	Amps(A)	Watts(W)	RFQ
GTM96605-G2A1-T3	V			<a href="#">RFQ</a>
GTM96605-G2A2-T3	V			<a href="#">RFQ</a>

## SPECIFICATIONS

### OUTPUT CAPABILITIES

**Communication formats supported:** USB Power Delivery (PD) 2.0/3.0, Quick Charge™ 2.0/3.0, Quick Charge™ 4.0/4.0+

#### **Output Parameters (for USB PD 2.0/3.0 applications):**

Communications: Using the 'CC' line in a USB Type-C cable

Initial Output State: 5.0V/2.0A

Advertised USB PD Power Data Objects (PDOs):

A1 Configuration: 5.0V@4.6A, 5.8V@4.6A, 9.0V@4.4A, 12V@4.0A, 15V@3.6A, 15.1V@3.6A<sup>†</sup>, 20V@3.0A

A2 Configuration: 5.0V@3.0A, 5.8V@3.0A, 9.0V@3.0A, 12V@3.0A, 15V@3.0A, 15.1V@3.0A<sup>†</sup>, 20V@3.0A

A1 Configuration (Standard): Permanently attached (captive) output cable: 1.5m Length, 20AWG, shielded, 5A rated Type-C connector

A2 Configuration (Non-standard): Detachable output cable. Contact GlobTek for availability.

PPS Option: Apply to either A1 or A2 configuration to allow use of USB PD3.0 PPS functionality. PPS is available from 3.6V to 11V. The PPS option removes the 15.1V PDO.

**Note 1:** Custom PDOs available upon request. PDO1 must be 5.0V. PDO2 through PDO7 may be set to any custom voltage from 3.6V to 20V, with a step size of 100mV.

**Note 2:** For "mission critical" applications requiring power supply authentication, USB PD Vendor Defined Messages (VDMs) may be implemented to prevent system usage with non-certified power sources.<sup>††</sup> Please see our article [Product Security and Risk Mitigation for USB Power Delivery \(PD\) Based Systems](#) for additional information.

#### **Output Parameters (for Quick Charge™ 2.0/3.0 applications):**

Communications: Using the 'D+' and 'D-' lines in a USB Type-C/Micro-B cable

Initial Output State: 5.0V/2.0A

HVDCP Class B Output Voltages/Currents Ratings:

D+	D-	Output
0.6V	GND	5.0V/4.6A
3.3V	0.6V	9.0V/4.4A
0.6V	0.6V	12V/4.0A
3.3V	3.3V	20V/3.0A
0.6V	3.3V	Continuous Mode, adjusts from 3.6V to 20V in 200mV steps

Permanently attached (captive) output cable: 1.5m Length, 20 AWG, shielded

### **A) GENERAL ELECTRICAL SPECIFICATIONS**

01. Input Voltage: Specified 90-264 V<sub>AC</sub>, Nameplate rated: 100-240V<sub>AC</sub>
  - 90-264 V<sub>AC</sub> range @ 100% of rated load current
  - 85-264 V<sub>AC</sub> range @ 85% of rated load current
  - 110-370 V<sub>DC</sub> range @ 100% of rated load current
02. Input Frequency: Specified: 47-63 Hz (Nameplate rated: 50-60Hz)
03. Output Regulation: ± 4%, measured at the output connector
04. Line Voltage Regulation: ± 0.5% (typ.), measured at full load
05. Green Power-On Indicator LED
06. Output Ripple (V<sub>p-p</sub>): 100 mV, measured at 20 MHz bandwidth, with 0.1 µF ceramic capacitor in parallel with a low impedance 47 µF electrolytic capacitor, connected at the end of the output connector
07. Turn-On/Off Overshoot: 5% (max.), 1 ms (typ) recovery time for 40% to 70% step load
08. Turn-On Delay: 1 second (max.) @ full load and nominal line voltage
09. Hold-Up Time: 8 ms (typ.) @ full load and nominal line voltage
10. Inrush Current: 30A/60A maximum cold start @ 115/230V<sub>AC</sub> input
11. Efficiency: Efficiency Level VI and CoC Tier 2 compliant
12. No Load Standby Power: <0.075 W @ 230V<sub>AC</sub>

### **B) PROTECTIONS**

01. Input Protection: Input line fusing and 300V<sub>AC</sub> MOV
02. Short Circuit/ Overload: Electronically protected, auto-recover upon fault removal
  - Output Current Limit: 110% to 135% of rated output current
03. Output Over-Voltage: 25V<sub>DC</sub> max

### **C) SAFETY**

01. Dielectric Withstand Voltage: 4000V<sub>AC</sub> or 5656V<sub>DC</sub> from input to output
02. Earth Leakage Current: 3-conductor input models: <300µA, 2-conductor input models: N/A
03. Touch Current: 3-conductor input models: < 20µA, 2-conductor input models: < 65µA
04. Output Isolation Options:
  - a) C8 Inlet, Class II (Standard)
  - b) C6 or C14 Inlet, Class II FE, Output Isolated from earth contact (Standard)
  - c) C6 or C14 Inlet, Class I, Output directly attached to earth contact
05. Means of Protection: 2 x MOPP
06. Compliant Standards: See listings at end the end of this specification for details

**D) EMC**

EN 60601-1-2, 4<sup>th</sup> edition

Emissions, per EN 55032, EN 61000-6-3, EN 61000-6-4

Conducted Emissions: Class B, FCC Part 15, Class B

Radiated Emissions: Class B, FCC Part 15, Class B

Line Frequency Harmonics EN61000-3-2, Class A

Voltage Fluctuations/Flicker EN61000-3-3

Immunity, per EN 55024, EN 61000-6-1, EN 61000-6-2

Static Discharge Immunity EN61000-4-2, 10kV Contact Discharge, 20kV air discharge

Radiated RF Immunity EN61000-4-3, 10V/m 80-1000MHz, 3V/m 1-2.7GHz, 80% 1KHz AM.

EFT/Burst Immunity EN61000-4-4, 4kV/100kHz.

Line Surge Immunity EN61000-4-5, 2kV differential, 4kV common-mode

Conducted RF Immunity EN61000-4-6, 3V<sub>RMS</sub>, 80% 1KHz AM

Power Frequency Magnetic Field Immunity EN61000-4-8, 3A/m

Voltage Dip Immunity EN61000-4-11, Criteria

**E) OTHER**

01. MTBF: 300,000 Hours @ 25°C ambient temperature

02. Operating Temperature:

-10°C to 40°C ambient temperature at full load

-10°C to 50°C ambient temperature with derating to 80% load

03. Operating Humidity: 0% to 95% relative humidity, non-condensing

04. Storage Temperature: -30°C to 80°C

05. Operating Altitude: 5000m

06. ROHS 2: Complies with EU 2011/65/EU and China SJ/T 11363-2006

**F) ENCLOSURE**

01. Housing: High impact plastic, 94V0 polycarbonate, non-vented

02. Markings: Label or Laser Printed

03. AC Input mechanical options:

Desktop C6, C8, C14 or C18 IEC Inlet.

Hybrid option (Desktop or Wall Plug-in) Class I or Class II input

**G) SECURITY**

*For USB Power Delivery only*

Two non-standard voltage profiles are included: 5.8V and 15.1V. System designers may use these non-standard profiles to prevent system operation with non-GlobTek power supplies. (Note: 12.0V is technically

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not standard, but is often included in other power supplies.)

The power supply will respond to a USB PD "Discover Identity" VDM with 0x4754 in the "ProductID" field. USB PD host systems may check this value before initiating/allowing power negotiation.

Please see our article [Product Security and Risk Mitigation for USB Power Delivery \(PD\) Based Systems](#) for additional information.

## **H) SPECIAL OPTIONS**

*Non-standard - Contact GlobTek for details*

01. Detachable USB-C output cord
02. Special fixed output cord length: 1m, 2m or 3m lengths
03. Custom PD3.0 PDOs: Output voltages selectable between 3.6V and 20V
04. Custom markings, and marking methods
05. Special housing colors and output cord colors
06. USB Micro-B connector at end of cord for Quick Charge™ 2.0/3.0 applications.
07. Tighter output voltage tolerance
08. Constant current/ constant voltage (CC/CV) battery charging, with max charge duration timer

† 15.1V PDO is standard on units with date codes after Sept-10-2019.

†† VDM functionality is standard on units with date codes after Sept-10-2019.

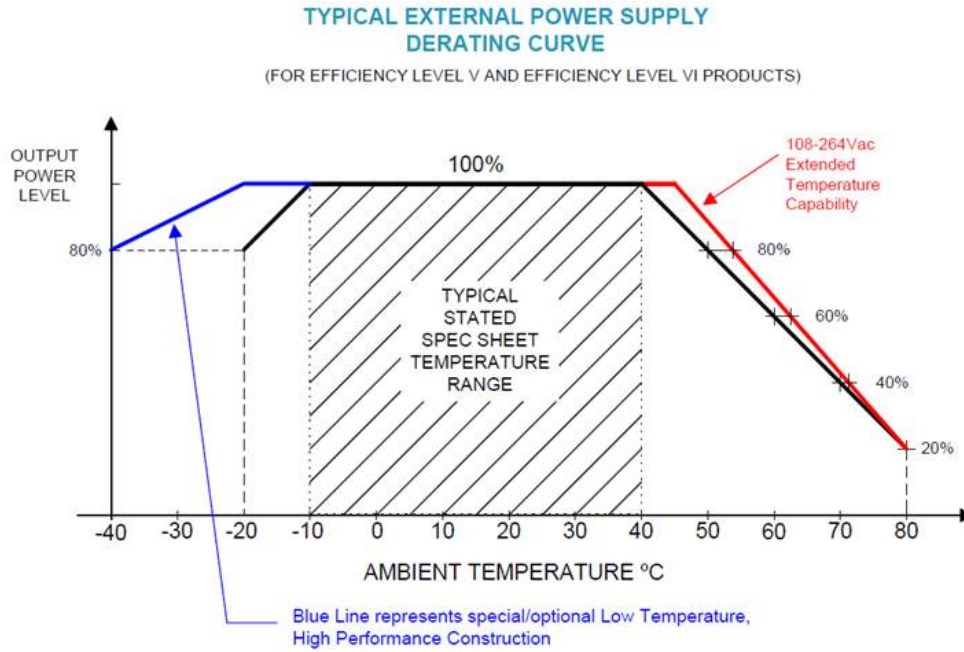


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# DERATING CURVE



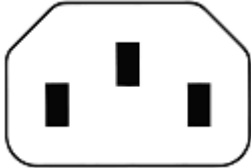
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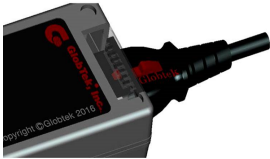
**INPUT CONFIGURATION**

Description IEC 60320/C14 AC Inlet Connector, Class I, Earth Ground



Mates with IEC 60320/C13 Plug

Optional Locking IEC60320 Receptacle and cord option available on some models by request.:


[Standard International IEC 320/C13 Cordsets](#)

Below are standard cordsets which are "not included" (unless stated above); these can be purchased separately or packaged with the power supply. Contact your Sales Engineer if the style required is not shown below. Many more available in different lengths, colors or cable material.

**Stock Power Supply Cords**

Part Number/ Link	Country	Plug	Termination	Length (mm)	(Ft)
<a href="#">3021457F701(R)</a>	N. American (Type B)	NEMA 5-15P	IEC 320/C13	2150	7
<a href="#">1191068F0701(R)</a>	N. American (Type B)	NEMA 5-15P Hospital	IEC 320/C13	2459	8
<a href="#">2194272M5701-T(R)</a>	Argentina (Type I)	IRAM 2073	IEC 320/C13	2500	8
<a href="#">5502022M5701A(R)</a>	Australian (Type I)	AS3112 / 3 PRONG	IEC 320/C13	2500	8
<a href="#">204B4272M5701(R)</a>	Brazil (Type N)	BRAZIL	IEC 320/C13	2500	8
<a href="#">6023602M5701(R)</a>	China (Type I)	CCC GR2099	IEC 320/C13	2500	8
<a href="#">G8014272M5701(R)</a>	Danish (Type K)	AFSNIT SECTION 107-2-D1	IEC 320/C13	2500	8
<a href="#">23144272M5701-T(R)</a>	Europe (Type E)	CEE 7/7	IEC 320/C13	2500	8
<a href="#">205IN4272M5701(R)</a>	India (Type D)	India IS 1293 (also known as IA16A3 or BS546)	IEC 320/C13	2500	8
<a href="#">208IN4272M5701(R)</a>	India (Type M)	India IS 1293 (also known as IA16A3 or BS546)	IEC320/C13	2500	8
<a href="#">377C4272M5701(R)</a>	Israel (Type H)	ISL 377C	IEC 320/C13	2500	8
<a href="#">23024272M5701(R)</a>	Italy (Type L)	CEI 23-16/VII	IEC 320/C13	2500	8
<a href="#">3003339F701(R)</a> [3x1.25mm2]	Japan (Type B)	JIS 8303 / 3 PINS	IEC 320/C13	2500	8

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<a href="#">3003068F2701-HK(R)</a> [3 x 2.0mm2]					
<a href="#">302J115J6F0701J(R)</a>	Japan / North America (Type B – 12A)	JIS 8303 / 3 PINS and NEMA 5-15P (PSE and UL/CUL appr)	IEC 320/C13	1830	6
<a href="#">302J104J6F0701J(R)</a>	Japan / North America (Type B – 15A)	JIS 8303 / 3 PINS and NEMA 5-15P (PSE and UL/CUL appr)	IEC 320/C13	1830	6
<a href="#">2313K3432M5701(R)</a>	Korea (Type F)	KS C 8305	IEC 320/C13	2500	8
<a href="#">5804272M5701(R)</a>	Russia (Type F)	GOST 7396	IEC 320/C13	2500	8
<a href="#">2084272M5701(R)</a>	South Africa (Type M)	South Africa SABS164-1 (16A type)	IEC 320/C13	2500	8
<a href="#">23214272M5701(R)</a>	Switzerland (Type J)	SEV 1011	IEC 320/C13	2500	8
<a href="#">3003322M5701(R)</a>	Taiwan (Type B)	BSMI	IEC 320/C13	2500	8
<a href="#">PZ0800100-2M5BK13H(R)</a>	UK, Hong Kong, Singapore, Gulf States (Type G)	BS 1363A	IEC 320/C13	2500	8
<a href="#">7055002M5701A(R)</a>	International	IEC 320 C14-C13	IEC 320/C13	2500	8

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**OUTPUT CONFIGURATION**

Common output connector options:


 L Type (Coaxial  
5.5x2.5mm plug)

 C Type (Coaxial  
5.5x2.1mm plug)

 K Type (Coaxial  
3.5x1.3mm plug)

 LL Type (5.5x2.5mm  
Locking 760k type)

 CL Type (5.5x2.1mm  
Locking S761k type)

 ML2 Type (Molex  
housing 43025-0200)

 YL3 Type  
(KPPX-3P)


YL4 Type (KPPX-4P)


 EJ1/2/3/4/5 (EIAJ  
RC-5320A type  
connectors)

 MSB Type (Micro  
USB)

 USBC Type (USB  
Type C)

 Inquire for custom  
design

 For a comprehensive list of options, [click here](#)







Contact GlobTek for your specific requirements or custom solutions.

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## Approvals

Logo	Description
No Logo Applicable	CB report IEC60601-1 2005 A1+C1+C2 2016-2-4 and or EN 60601-1:2006 3.1rd Edition 2xMOPP
No Logo	CB Report IEC 60950-1:2005 (Second Edition) + Am 1:2009 + Am 2:2013 (GTM96605-G2-XX)
No Logo Applicable	CB for IEC 62368-1:2014 (Second Edition)
 5000	CCC Altitude up to 5000 m GB17625.1-2012, GB4943.1-2011, GB/T9254-2008
	CE Certification
	Audio/Video, Information And Communication Technology Equipment - Part 1: Safety Requirements [UL 62368-1:2014 Ed.2]Audio/Video, Information And Communication Technology Equipment - Part 1: Safety Requirements [CSA C22.2#62368-1:2014 Ed.2]
	Information Technology Equipment Safety Part 1: General Requirements (UL 60950-1 Issued: 2007/03/27, Ed: 2 Rev: 2014/10/14) Information Technology Equipment Safety Part 1: General Requirements (CSA C22.2 No. 60950-1 Issued: 2007/03/27 Ed: 2 (R2012) Amd.
	AAMI ES60601-1 Issued: 2012/08/20 Medical Electrical Equipment - Part 1: CAN/CSA-C22.2 No.60601-1:14, Third Edition Issued: 2014/03/01 - Medical Electrical Equipment - Part 1: IEC 60601-1-11 Issued: 2015/01/20 Ed. 2 Medical Elec. Equip.- Part 1-11:
	CHINA SJ/T 11364-2014, China RoHS Chart: <a href="http://en.globtek.com/globtek-rohs.php">http://en.globtek.com/globtek-rohs.php</a>
	Conforms to AAMI STD.

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Conforms to AAMI STD. ES60601-1 Certified to CAN/CSA STD.C22.2 NO.60601-1	ES60601-1,IEC 60601-1-11 Certified to CAN/CSA STD.C22.2 NO.60601-1
Conforms to UL STD. 60950-1 Certified to CSA STD C22.2 NO.60950-1	Conforms to UL STD. 60950-1 Certified to CSA STD C22.2 NO.60950-1
	Declaration ДС № EAЭC N RU Д-US.KA01.B.10453_19 Custom Union of Russia, Belarus and Kazakhstan <a href="http://www.globtek.com/redirect/?loc=gost-certificate-eac-declaration">http://www.globtek.com/redirect/?loc=gost-certificate-eac-declaration</a>
 GlobTek, Inc.	JAPAN TUV R-PSE, Cert. No. JD 50313285, to J60950-1(H26) , J55022(H22),J3000(H25)[DC15? 30V]. Please reference the following website for guidelines on PSE regulations: <a href="http://en.globtek.com/importing-ite-and-medical-power-supplies-ac-adaptors-to-japan/">http://en.globtek.com/importing-ite-and-medical-power-supplies-ac-adaptors-to-japan/</a>
EFFICIENCY LEVEL VI	Efficiency: complies to section 301 of Energy Independence and Security Act (EISA) complies with Energy Star tier 2 (North America), ECP tier 2 (China), MEPS tier 2 (Australia), Code of Conduct (Europe)
LPS	Limited Power Source 60950
	Morocco SDoC declaration <a href="http://www.globtek.info/certs/Morocco%20SDoC%20Declaration/">http://www.globtek.info/certs/Morocco%20SDoC%20Declaration/</a>
	Australian EMC
	Australia and New Zealand Regulatory Compliance, Mark ( <a href="http://rcm.standards.org.au/rcmfaq/rcmfaq.htm">http://rcm.standards.org.au/rcmfaq/rcmfaq.htm</a>
RoHS	Specifications of directive 2011/65/EU Annex VI (ROHS-2) with amendment 2015/863-EU (ROHS-3) <a href="http://www.ce-mark.com/Rohs%20final.pdf">http://www.ce-mark.com/Rohs%20final.pdf</a>
	S-Mark Certificate EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011+A2:2013 ( <a href="http://www.intertek.com/marks/s/">http://www.intertek.com/marks/s/</a> )
	Semko S-Mark-Cert-EN60601-1 3.1rd Edition ( <a href="http://www.intertek.com/marks/s/">http://www.intertek.com/marks/s/</a> )

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 10276	Ukraine UKRSeprO (Document: <a href="http://www.globtek.com/html/iso_certificates/GT_Ukraine.pdf">www.globtek.com/html/iso_certificates/GT_Ukraine.pdf</a>
	Japan: Voluntary Control Council for Interference (VCCI)
	WEEE: Complies with EU 2012/19/EU ( <a href="http://ec.europa.eu/environment/waste/wEEE/index_en.htm">http://ec.europa.eu/environment/waste/wEEE/index_en.htm</a> ) Mark is on the label or Molded in the case