

EMC TEST REPORT

The device described below is tested by Dongguan Nore Testing Center Co., Ltd. to determine the maximum emission levels emanating from the device, the severe levels which the device can endure and E.U.T.'s performance criterion. The test results are contained in this test report. Dongguan Nore Testing Center Co., Ltd. is assumed of full responsibility for the accuracy and completeness of these tests.

Applicant/ Manufacturer : SHENZHEN GOSPELL DIGITAL TECHNOLOGY CO., LTD.
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Address 2 : West of the 1F to 4F, Block A, Sou. Baotian 1Rd. (Xinghong Science and Technology Park), XiXiang Street, Bao An District, Shenzhen, Guangdong 518102, P.R.China.
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Address : 3/F, 1 Building, Gospell Industrial Park, SuXian District, ChenZhou City, Hunan Province, China, 423000.
Factory 3 : GOSPOWER ELECTRIC TECHNOLOGY CO., LTD.
Address : Block 1, No.5 XingYe Road, SongShan Lake Park, DongGuan City, 523000 Guangdong, P.R. China.
E.U.T. : I.T.E. POWER SUPPLY (POWER OVER ETHERNET INJECTOR)
Brand Name : GOSPOWER
Model No. : G0720-xxx-yyy, G0720-240-zzz, 740-64214-001, LV-G1P-1G24, LV-G1P-1G24V1A
(For model difference refer to section 2.1)
Measurement Standard : EN 55032: 2015/AC: 2016-07
EN IEC 61000-3-2: 2019, EN 61000-3-3: 2013
EN 55035: 2017
(IEC 61000-4-2: 2008, EN 61000-4-3: 2006+A1: 2007+A2: 2010,
IEC 61000-4-4: 2012, IEC 61000-4-5: 2014, IEC 61000-4-6: 2013,
IEC 61000-4-11: 2004)
Date of Receiver : March 10, 2020
Date of Test : March 11, 2020 to April 22, 2020
Date of Report : April 23, 2020

This Test Report is Issued Under the Authority of:

Prepared by



Steven Wu / Engineer

Approved / Authorized Signer



Li Fan / Authorized Signatory

This report shows that the E.U.T. is technically compliant with the EN 55032, EN IEC 61000-3-2, EN 61000-3-3 and EN 55035. This report applies to above tested sample only and shall not be reproduced in part without written approval of Dongguan Nore Testing Center Co., Ltd.

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Appendix I (Photos of E.U.T.) (8 pages)

Revision History of This Test Report

Report Number	Description	Issued Date
NTC2003089EV00	Initial Issue	2020-04-23

1. SUMMARY OF TEST RESULTS

The E.U.T. has been tested according to the following specifications:

EMISSION			
Standard	Test Type	Result	Remarks
EN 55032: 2015+A1: 2016-07	Mains Terminal Disturbance Voltage Test	PASS	Uncertainty: $\pm 2.52\text{dB}$
	Conducted Disturbance at the Telecommunication Ports	PASS	Uncertainty: $\pm 2.52\text{dB}$
	Radiated Emission Test (30-1000MHz)	PASS	Uncertainty: $\pm 4.60\text{dB}$
EN IEC 61000-3-2: 2019	Harmonic Current Emission	PASS	Meets the requirements.
EN 61000-3-3: 2013	Voltage Fluctuations & Flicker	PASS	Meets the requirements.

IMMUNITY(EN 55035: 2017)			
Standard	Test Type	Result	Remarks
IEC 61000-4-2: 2008	Electrostatic Discharge Immunity Test	PASS	Meets the Requirements of Performance Criterion B
IEC 61000-4-3: 2006+A1: 2007+A2: 2010	Radio-Frequency, Electromagnetic Field Immunity Test	PASS	Meets the Requirements of Performance Criterion A
IEC 61000-4-4: 2012	Electrical Fast Transient/ Burst Immunity Test	PASS	Meets the Requirements of Performance Criterion B
IEC 61000-4-5: 2014	Surge Immunity Test	PASS	Meets the Requirements of Performance Criterion B
IEC 61000-4-6: 2013	Injected Currents Immunity Test	PASS	Meets the Requirements of Performance Criterion A
IEC 61000-4-8: 2009	Magnetic Field Immunity Test	N/A	The EUT does not Contain Magnetic Field Sensitive Components.
IEC 61000-4-11: 2004	Voltage Dips and Interruptions	PASS	Meets the Requirements of Performance Criterion B&C

2. GENERAL INFORMATION

2.1 Details of E.U.T.

E.U.T.	: I.T.E.POWER SUPPLY(POWER OVERETHERNET INJECTOR)
Main Model Name	: G0720-xxx-yyy(See table A and B for details)
Additional Model Name	: G0720-240-zzz, 740-64214-001, LV-G1P-1G24, LV-G1P-1G24V1A(See table A and B for details)
Rating	: AC100-240V~50/60Hz, Max 0.75A
Adapter	: N/A
E.U.T. Type	: Class B
Operation Frequency	: Below 108MHz (Declaration by manufacturer)
Test Voltage	: AC 230V/50Hz, AC 110V/60Hz (Only the worst case was recorded in this report)
Cable	: N/A
Description of Model Difference	: These models have the same circuitry, PCB layout, electrical mechanical and physical construction. The differences are model number, output voltage, output current, appearance of color and output power due to marketing purpose, details refer to pages 7. For more information refer to the circuit diagram and instruction manual.
Note	: According to the model difference, all tests were performed on models G0720-560-053, G0720-360-075 and G0720-240-100.
Remark	: N/A

Table A:

Model No.	Output voltage(Vdc)	Output current(A)	Max output power(W)	Transformer
G0720-xxx-yyy	36-56	0.01-0.75	30	LT00783V01
G0720-240-zzz	24	0.01-10	24	
740-64214-001	48	05	24	
LV-G1P-1G24	48	0.5	24	
LV-G1P-1G24V21A	24	1	14	

Table B:

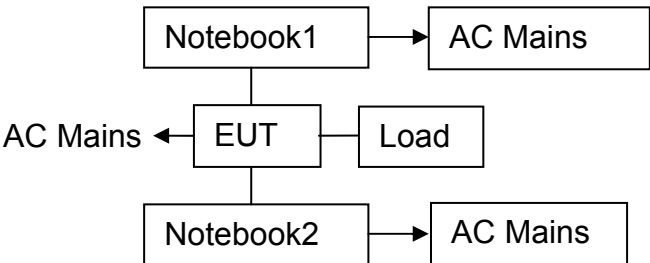
Variable	Output voltage(Vdc)	Content
xxx	360-560	3 digits, dividing by 10 of output voltage in volt. Eg: 360=36Vdc, 560=56Vdc
yyy	001-075	3 digits, multiply 10 times of output current in mA. Eg: 001=10mA, 100=1000mA
zzz	001-100	3 digits, multiply 10 times of output current in mA. Eg: 001=10mA, 100=1000mA

2.2 Description of Support Device

Notebook 1	:	Manufacturer: Lenovo Model: R720-151KBN S/N: PF0Z35FH
Adapter (For Notebook)	:	Manufacturer: Delta Model: ADL135NDC3A I/P: AC 100-240V 50-60Hz, 1.5A O/P: DC 20V 6.75A
Notebook 1	:	Manufacturer: IBM Corporation M/N: R50e S/N: L3-HZNGO P/N: 1834KDC
Adapter (For Notebook)	:	Manufacturer: IBM Corporation M/N: 08K8210 Input: AC100-240V 50/60Hz 0.5-1.0A Output: DC 16V 4.5A
Load	:	Provided by laboratory

2.3 Block Diagram of Test Setup

Block diagram of connection between the E.U.T. and simulators
Test mode: Full Load(POE+LAN)



2.4 Test Facility

Site Description	
EMC Lab	: Listed by CNAS, August 13, 2018 The certificate is valid until August 13, 2024 The Laboratory has been assessed and proved to be in compliance with CNAS/CL01 The Certificate Registration Number is L5795. Listed by A2LA, November 01, 2017 The certificate is valid until December 31, 2021 The Laboratory has been assessed and proved to be in compliance with ISO17025 The Certificate Registration Number is 4429.01 Listed by FCC, November 06, 2017 The Designation Number is CN1214 Test Firm Registration Number: 907417 Listed by Industry Canada, June 08, 2017 The Certificate Registration Number. Is 46405-9743A
Name of Firm	: Dongguan Nore Testing Center Co., Ltd. (Dongguan NTC Co., Ltd.)
Site Location	: Building D, Gaosheng Science and Technology park, Hongtu road, Nancheng district, Dongguan city, Guangdong province, China

2.5 Deviations and Abnormalities from Standard Conditions

The manufacturer's requirement for Surge Immunity test, Line To Line, Level 3: 2.0KV, Line To Earth, Level 4: 4.0KV.

3. MEASURING DEVICES AND TEST EQUIPMENT

3.1 For Mains Terminals Disturbance Voltage Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESCI	101152	Mar. 14, 2020	1 Year
2.	L.I.S.N	Rohde & Schwarz	ENV 216	101317	Mar. 14, 2020	1 Year
3.	RF Switching Unit	Compliance Direction Systems Inc.	RSU-M2	38311	Mar. 14, 2020	1 Year
4.	Test Software	EZ	EZ_EMC	N/A	N/A	N/A

3.2 For Telecommunication Port Disturbance voltage Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESCI	101152	Mar. 14, 2020	1 Year
2.	L.I.S.N	Rohde & Schwarz	ENV 216	101317	Mar. 14, 2020	1 Year
3.	AAN	Schwarzbeck	NTFM 8158	CAT3-8158-0005	Mar. 14, 2020	1 Year
4.	RF Switching Unit	Compliance Direction Systems Inc.	RSU-M2	38311	Mar. 14, 2020	1 Year
5.	Test Software	EZ	EZ_EMC	N/A	N/A	N/A

3.3 For Radiated Emission Measurement

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESCI7	100837	Mar. 14, 2020	1 Year
2.	Antenna	Schwarzbeck	VULB9162	9162-010	Mar. 23, 2020	1 Year
3.	Positioning Controller	UC	UC 3000	N/A	N/A	N/A
4.	Color Monitor	SUNSPO	SP-140A	N/A	N/A	N/A
5.	Single Phase Power Line Filter	SAEMC	PF201A-32	110210	N/A	N/A
6.	3 Phase Power Line Filter	SAEMC	PF401A-200	110318	N/A	N/A
7.	DC Power Filter	SAEMC	PF301A-200	110245	N/A	N/A
8.	Spectrum Analyzer	Rohde & Schwarz	FSU26	200409/026	Mar. 14, 2020	1 Year
9.	Horn Antenna	COM-Power	AH-118	071078	Mar. 23, 2020	1 Year
10.	Loop Antenna	Schwarzbeck	FMZB 1513	1513-272	Apr. 24, 2018	1 Year
11.	Pre-Amplifier	HP	HP 8449B	3008A00964	Mar. 14, 2020	1 Year
12.	Pre-Amplifier	HP	HP 8447D	1145A00203	Mar. 14, 2020	1 Year
13.	Test Software	EZ	EZ EMC	N/A	N/A	N/A

3.4 For Harmonic / Flicker Measurement

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Power Frequency Analyzer	California Instruments	PACS-1	72846	Mar. 14, 2020	1 Year
2.	5KVA AC Power Source	California Instruments	500liX	60137	Mar. 14, 2020	1 Year
3.	Software	California Instruments	CTS30	N/A	N/A	N/A

3.5 For Electrostatic Discharge Immunity Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	ESD Tester	TESEQ	NSG 437	432	Mar. 23, 2020	1 Year

3.6 For RF Electromagnetic Field Immunity Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Signal Generator	Agilent	N5181A	MY47070160	Apr. 24, 2019	1 Year
2.	RF Switch	SKET	N/A	N/A	N/A	N/A
3.	Power Amplifier	SKET	HAP801000 M_250W	201804008	N/A	N/A
4.	Power Amplifier	SKET	HAP0103G_ 75W	201804009	N/A	N/A
5.	Power Amplifier	SKET	HAP0306G_ 50W	201804010	N/A	N/A
6.	Power Meter	Agilent	E4419B	GB40201469	Apr. 24, 2019	1 Year
7.	Power Sensor	Agilent	E9300A	MY41498919	Apr. 24, 2019	1 Year
8.	Power Sensor	Agilent	E9300A	US39211259	Apr. 24, 2019	1 Year
9.	E-Field Probe	Narda	EP-601	N/A	Apr. 24, 2019	1 Year
10.	Antenna	Schwarzbeck	STLP 9129	9129071	N/A	N/A
11.	Audio Analyzer	Rohde & Schwarz	UPV	100894	Mar. 23, 2020	1 Year
12.	Chamber	Chengyu	7*5*3.5m	N/A	Mar. 26, 2020	2 Year
13.	Test Software	SKET	SKET_RS	N/A	N/A	N/A

3.7 For Electrical Fast Transient /Burst Immunity Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Burst Tester	EM TEST	UCS 500N	V1104108683	Mar. 14, 2020	1 Year
2.	Coupling Clamp	EM TEST	HFK	0311-94	Mar. 14, 2020	1 Year
3.	Test Soft	EM TEST	lec. control	N/A	N/A	N/A

3.8 For Surge Immunity Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Surge Tester	EM TEST	UCS 500N	V1104108683	Mar. 14, 2020	1 Year
2.	Test Soft	EM TEST	lec. control	N/A	N/A	N/A

3.9 For Injected Currents Immunity Measurement

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Signal Generator	IFR	2023A	N/A	Mar. 14, 2020	1 Year
2.	Power Amplifier	SCHAFFNER	CBA9425	1022	Mar. 14, 2020	1 Year
3.	6dB 50Watt Attenuator	SCHAFFNER	ATN6025	N/A	Mar. 14, 2020	1 Year
4.	CDN	Lioncel	CDN-M3-16	0170708	Mar. 14, 2020	1 Year
5.	CDN	Lioncel	CDN-M2-16	0170723	Mar. 14, 2020	1 Year
6.	CDN	CDSI	ADN-M5/AF 5	N/A	Mar. 14, 2020	1 Year
7.	EM Clamp	CDSI	EMCL-22	N/A	Mar. 14, 2020	1 Year
8.	Directional Coupler	SCHAFFNER	255	19184	Mar. 14, 2020	1 Year
9.	Dips Modulator	EM TEST	V4780S2	0111-11	Mar. 14, 2020	1 Year
10.	Audio Analyzer	Rohde & Schwarz	UPV	100894	Mar. 23, 2020	1 Year
11.	Test Software	EZ	EZ_CS	N/A	N/A	N/A

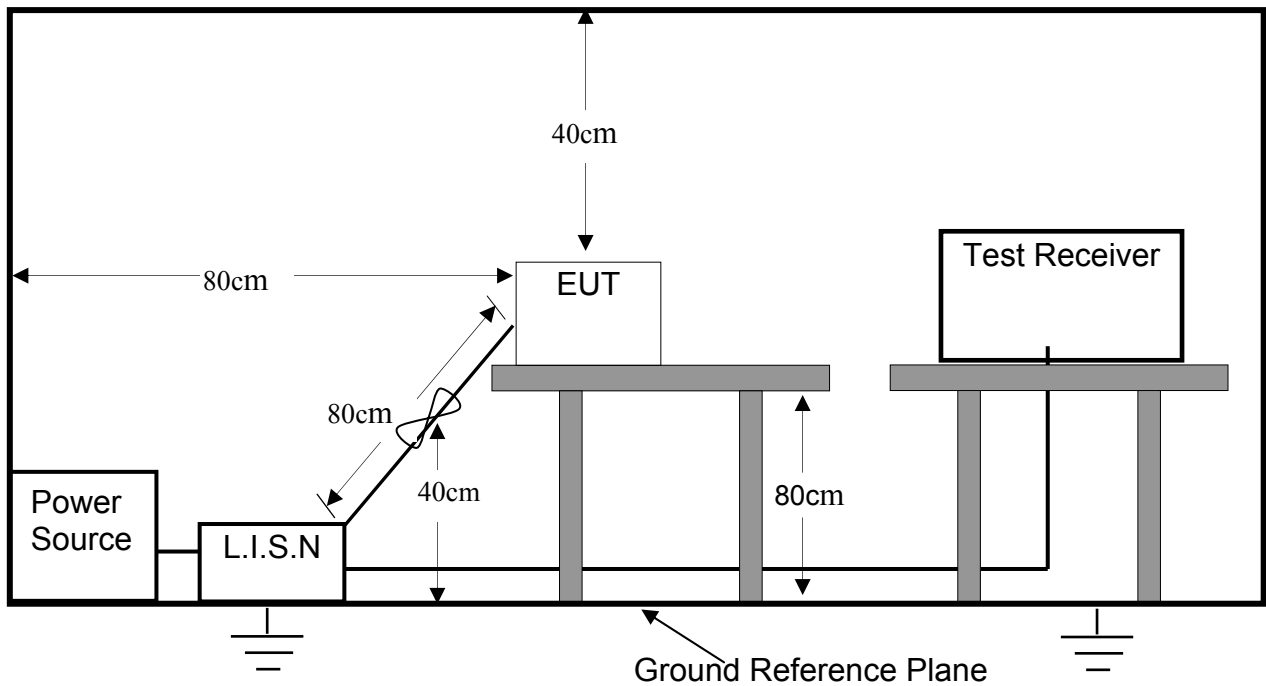
3.10 For Voltage Dips and Interruptions Measurement

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Dips Tester	EM TEST	UCS500N	V1104108683	Mar. 14, 2020	1 Year
2.	Test Soft	EM TEST	lec.control	N/A	N/A	N/A
3.	Dips Modulator	EM TEST	V4780S2	0111-11	Mar. 14, 2020	1 Year

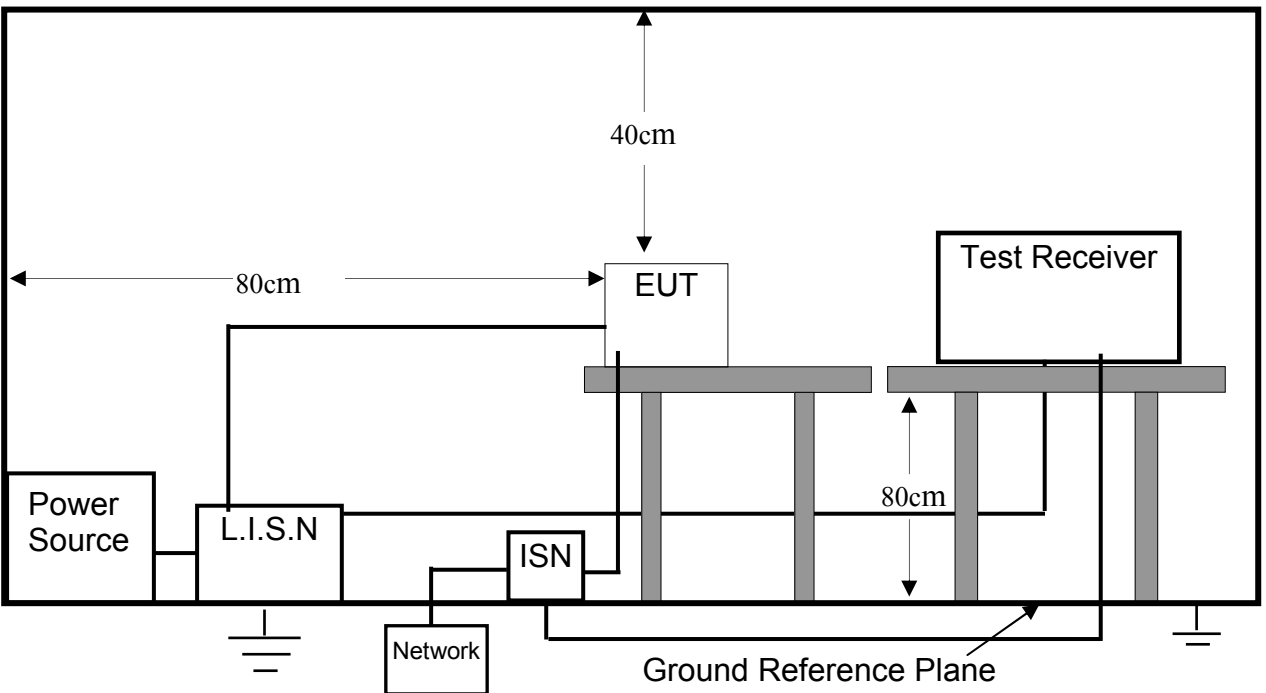
4. MAINS TERMINAL DISTURBANCE VOLTAGE MEASUREMENT

4.1 Block Diagram of Test Setup

4.1.1 Conducted Disturbance at the mains ports



4.1.2 Conducted Disturbance at the telecommunication ports



4.1.2 Limit of Mains Terminal Disturbance Voltage Measurement

Test Standard: EN 55032

Limits for conducted disturbance at the mains ports of class B.

Frequency range	Limits (dB(uV))	
(MHz)	Quasi-peak	Average
0.15 to 0.5	66 to 56	56 to 46
0.5 to 5	56	46
5 to 30	60	50

Limits of conducted common mode(asymmetric mode) disturbance at telecommunication ports.

Frequency range	Limits (dB(uV))	
(MHz)	Quasi-peak	Average
0.15 to 0.5	84 to 74	74 to 64
0.5 to 30	74	64

- Note:
1. The lower limit shall apply at the transition frequencies.
 2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

4.2 Test Procedure

The E.U.T. is put on the 0.8m high table and connected to the AC mains through a Artificial Mains Network (AMN). This provided a 50ohm coupling impedance for the tested equipments. Both sides of AC line are checked to find out the maximum conducted emission levels according to the EN55032 regulations during conducted emission test.

The bandwidth of the test receiver (R&S Test Receiver ESCI) is set at 9 KHz.

4.3 Operating Condition of E.U.T.

4.3.1 Setup the E.U.T. and simulators as shown in Section 2.3.

4.3.2 Turn on the power of all equipments.

4.3.3 Let the E.U.T. work in test mode (Full Load(POE+LAN)) and test it.

4.4 Mains Terminal Disturbance Voltage Test Results

PASS.

Please refer to the following pages.



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Conducted Emission Measurement

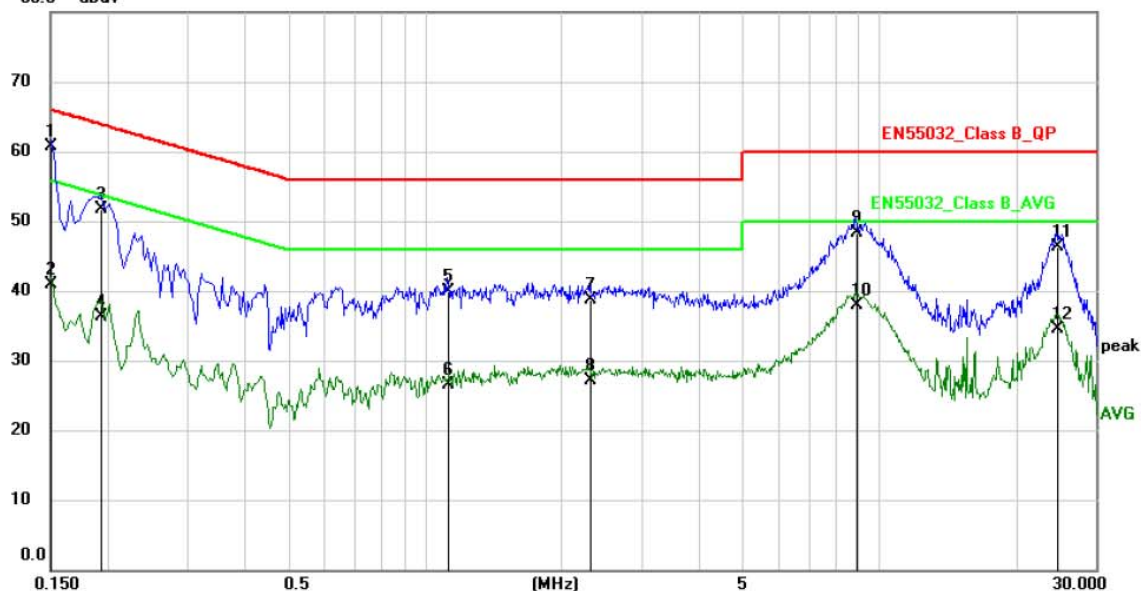
File :G0720-240-100

Data :#4

Date: 2020/3/13

Time: 10:35:02

80.0 dBuV



Site

Phase: **L1**

Temperature: 26

Limit: EN55032_Class B_QP

Power: AC110V/60Hz

Humidity: 60 %

EUT:

M/N: G0720-240-100

Mode: Full Load(POE+LAN)

Note: I.T.E.P POWER SUPPLY(POWER OVER ETHERNET INJECTOR)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1	*	0.1500	50.20	10.60	60.80	66.00	-5.20	QP	
2		0.1500	30.30	10.60	40.90	56.00	-15.10	AVG	
3		0.1940	41.10	10.60	51.70	63.86	-12.16	QP	
4		0.1940	25.80	10.60	36.40	53.86	-17.46	AVG	
5		1.1220	29.20	10.70	39.90	56.00	-16.10	QP	
6		1.1220	15.90	10.70	26.60	46.00	-19.40	AVG	
7		2.3140	28.10	10.70	38.80	56.00	-17.20	QP	
8		2.3140	16.50	10.70	27.20	46.00	-18.80	AVG	
9		8.8739	37.67	10.73	48.40	60.00	-11.60	QP	
10		8.8739	27.17	10.73	37.90	50.00	-12.10	AVG	
11		24.5940	35.52	10.78	46.30	60.00	-13.70	QP	
12		24.5940	23.82	10.78	34.60	50.00	-15.40	AVG	



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Conducted Emission Measurement

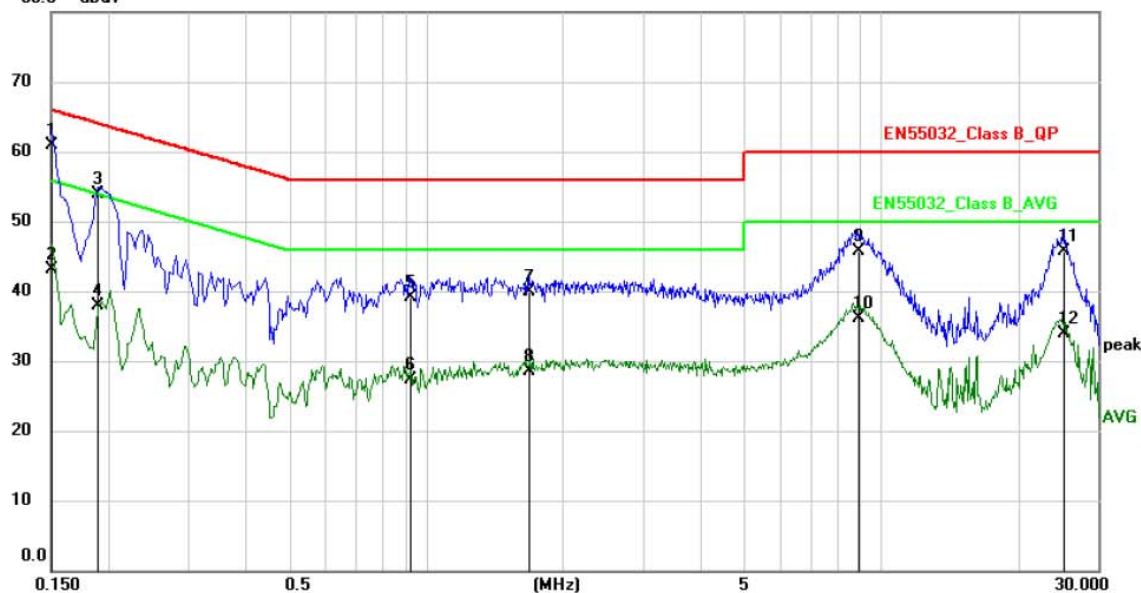
File :G0720-240-100

Data :#3

Date: 2020/3/13

Time: 10:28:08

80.0 dBuV



Site

Phase: **N**

Temperature: 26

Limit: EN55032_Class B_QP

Power: AC110V/60Hz

Humidity: 60 %

EUT:

M/N: G0720-240-100

Mode: Full Load(POE+LAN)

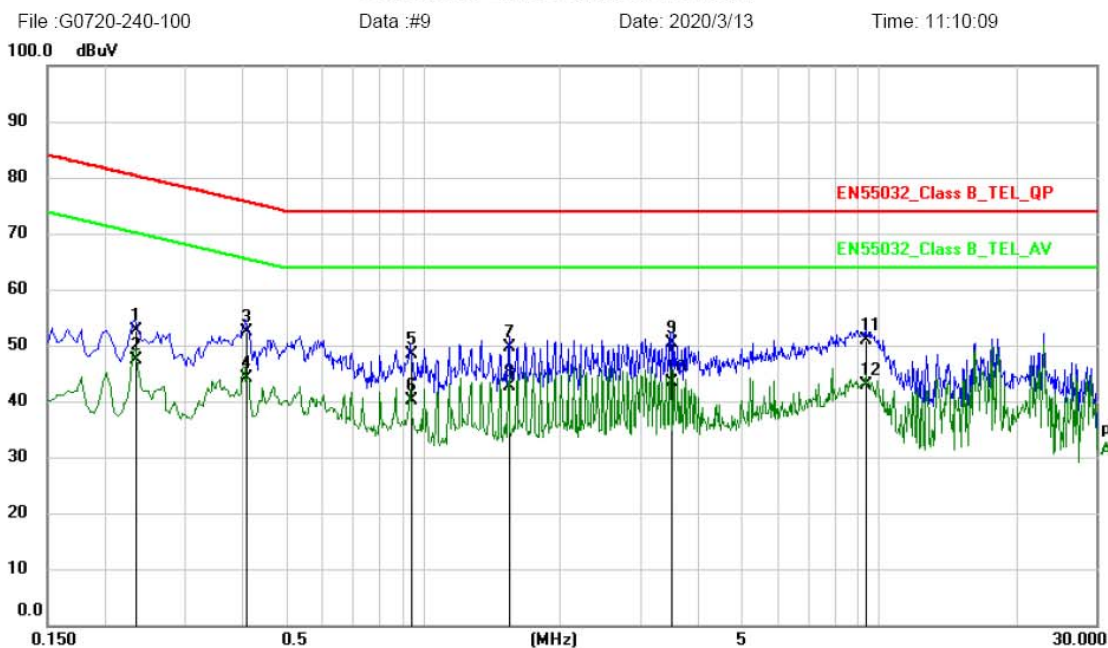
Note: I.T.E.P POWER SUPPLY(POWER OVER ETHERNET INJECTOR)

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1	*	0.1500	50.40	10.60	61.00	66.00	-5.00	QP	
2		0.1500	32.60	10.60	43.20	56.00	-12.80	AVG	
3		0.1900	43.30	10.60	53.90	64.04	-10.14	QP	
4		0.1900	27.40	10.60	38.00	54.04	-16.04	AVG	
5		0.9220	28.41	10.69	39.10	56.00	-16.90	QP	
6		0.9220	16.61	10.69	27.30	46.00	-18.70	AVG	
7		1.6860	29.30	10.70	40.00	56.00	-16.00	QP	
8		1.6860	17.80	10.70	28.50	46.00	-17.50	AVG	
9		8.8779	34.97	10.73	45.70	60.00	-14.30	QP	
10		8.8779	25.47	10.73	36.20	50.00	-13.80	AVG	
11		25.1820	34.92	10.78	45.70	60.00	-14.30	QP	
12		25.1820	23.12	10.78	33.90	50.00	-16.10	AVG	



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Conducted Emission Measurement



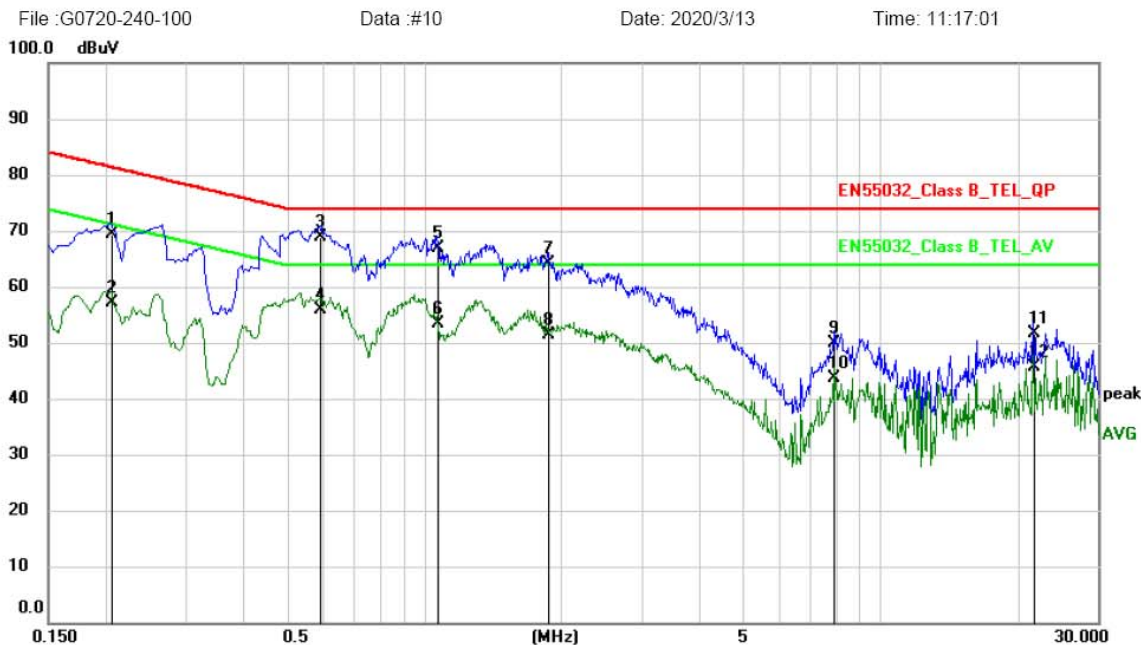
Site: Phase: **TEL** Temperature: 26
Limit: EN55032_Class B_TEL_QP Power: AC230V/50Hz Humidity: 50 %
EUT:
M/N: G0720-240-100
Mode: Full Load(POE+LAN)
Note: I.T.E.P POWER SUPPLY(POWER OVER ETHERNET INJECTOR)
LAN

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.2340	42.10	10.60	52.70	80.31	-27.61	QP	
2		0.2340	36.70	10.60	47.30	70.31	-23.01	AVG	
3		0.4100	41.88	10.62	52.50	75.65	-23.15	QP	
4		0.4100	33.48	10.62	44.10	65.65	-21.55	AVG	
5		0.9419	37.71	10.69	48.40	74.00	-25.60	QP	
6		0.9419	29.41	10.69	40.10	64.00	-23.90	AVG	
7		1.5460	38.90	10.70	49.60	74.00	-24.40	QP	
8		1.5460	32.00	10.70	42.70	64.00	-21.30	AVG	
9		3.4940	39.59	10.71	50.30	74.00	-23.70	QP	
10	*	3.4940	32.79	10.71	43.50	64.00	-20.50	AVG	
11		9.3900	40.27	10.73	51.00	74.00	-23.00	QP	
12		9.3900	32.07	10.73	42.80	64.00	-21.20	AVG	



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Conducted Emission Measurement



Site: Phase: **TEL** Temperature: 26
Limit: EN55032_Class B_TEL_QP Power: AC230V/50Hz Humidity: 50 %
EUT:
M/N: G0720-240-100
Mode: Full Load(POE+LAN)
Note: I.T.E.P POWER SUPPLY(POWER OVER ETHERNET INJECTOR)
POE

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.2060	58.80	10.60	69.40	81.37	-11.97	QP	
2		0.2060	46.60	10.60	57.20	71.37	-14.17	AVG	
3	*	0.5899	58.16	10.64	68.80	74.00	-5.20	QP	
4		0.5899	45.26	10.64	55.90	64.00	-8.10	AVG	
5		1.0660	56.30	10.70	67.00	74.00	-7.00	QP	
6		1.0660	42.60	10.70	53.30	64.00	-10.70	AVG	
7		1.8740	53.40	10.70	64.10	74.00	-9.90	QP	
8		1.8740	40.60	10.70	51.30	64.00	-12.70	AVG	
9		7.9219	39.28	10.72	50.00	74.00	-24.00	QP	
10		7.9219	32.88	10.72	43.60	64.00	-20.40	AVG	
11		21.6620	40.83	10.77	51.60	74.00	-22.40	QP	
12		21.6620	34.93	10.77	45.70	64.00	-18.30	AVG	



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Conducted Emission Measurement

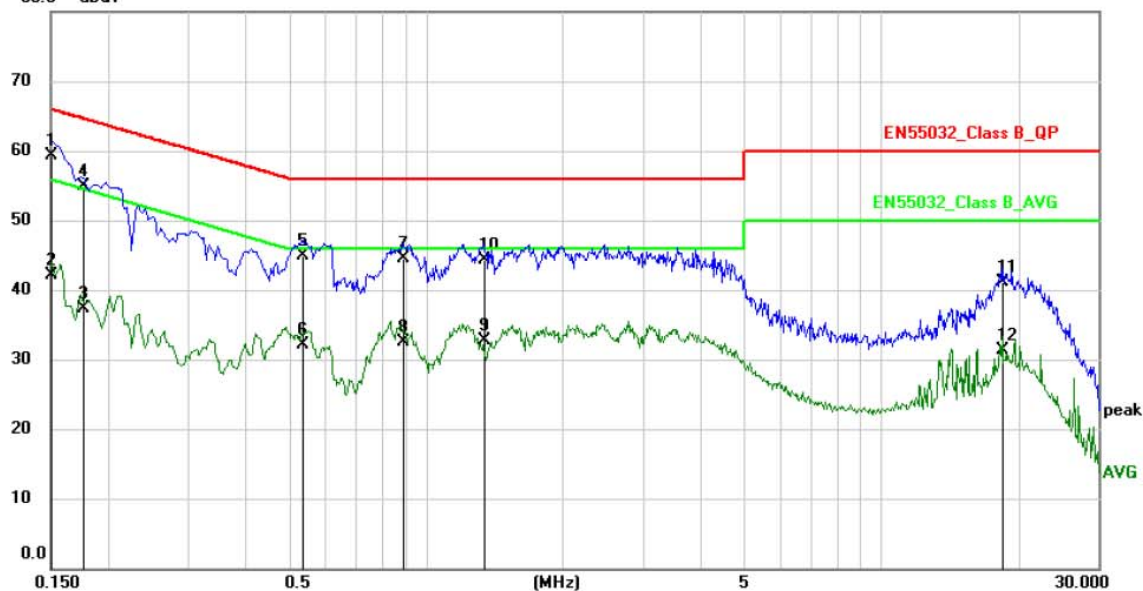
File :G0720-360-075

Data :#1

Date: 2020/4/3

Time: 14:49:24

80.0 dBuV



Site

Phase: **L1**

Temperature: 26

Limit: EN55032_Class B_QP

Power: AC230V/50Hz

Humidity: 50 %

EUT:

M/N: G0720-360-075

Mode: Full Load(POE+LAN)

Note: I.T.E.P POWER SUPPLY(POWER OVER ETHERNET INJECTOR)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1	*	0.1500	48.80	10.60	59.40	66.00	-6.60	QP	
2		0.1500	31.50	10.60	42.10	56.00	-13.90	AVG	
3		0.1767	26.70	10.60	37.30	54.64	-17.34	AVG	
4		0.1767	44.40	10.60	55.00	64.64	-9.64	QP	
5		0.5340	34.37	10.63	45.00	56.00	-11.00	QP	
6		0.5340	21.47	10.63	32.10	46.00	-13.90	AVG	
7		0.8940	33.92	10.68	44.60	56.00	-11.40	QP	
8		0.8940	21.92	10.68	32.60	46.00	-13.40	AVG	
9		1.3380	22.10	10.70	32.80	46.00	-13.20	AVG	
10		1.3380	33.60	10.70	44.30	56.00	-11.70	QP	
11		18.4338	30.44	10.76	41.20	60.00	-18.80	QP	
12		18.4338	20.54	10.76	31.30	50.00	-18.70	AVG	



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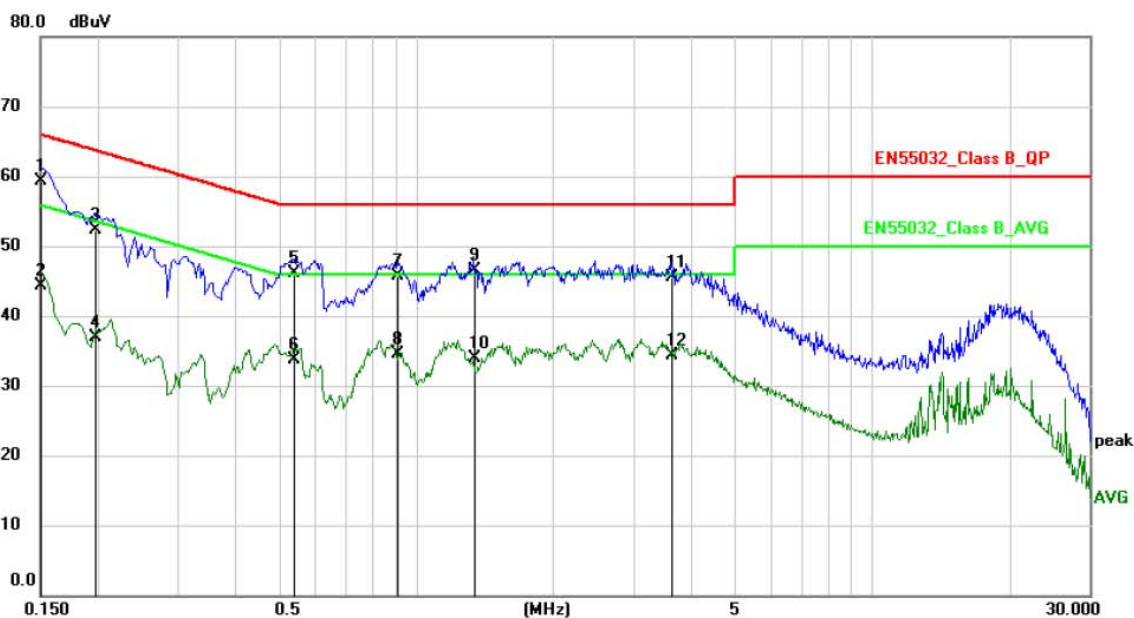
Conducted Emission Measurement

File : G0720-360-075

Data : #2

Date: 2020/4/3

Time: 14:56:38



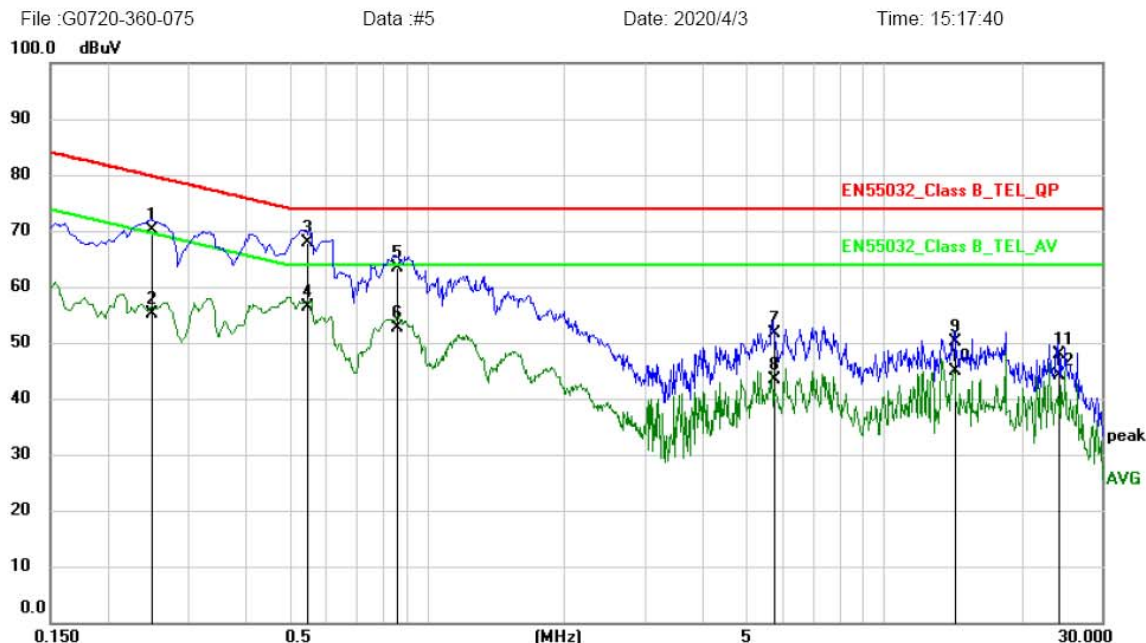
Site: _____ Phase: **N** Temperature: 26
Limit: EN55032_Class B_QP Power: AC230V/50Hz Humidity: 60 %
EUT: _____
M/N: G0720-360-075
Mode: Full Load(POE+LAN)
Note: I.T.E.P POWER SUPPLY(POWER OVER ETHERNET INJECTOR)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1500	48.80	10.60	59.40	66.00	-6.60	QP	
2		0.1500	33.80	10.60	44.40	56.00	-11.60	AVG	
3		0.1986	41.80	10.60	52.40	63.67	-11.27	QP	
4		0.1986	26.30	10.60	36.90	53.67	-16.77	AVG	
5		0.5380	35.47	10.63	46.10	56.00	-9.90	QP	
6		0.5380	23.17	10.63	33.80	46.00	-12.20	AVG	
7		0.9100	35.01	10.69	45.70	56.00	-10.30	QP	
8		0.9100	23.81	10.69	34.50	46.00	-11.50	AVG	
9		1.3380	35.80	10.70	46.50	56.00	-9.50	QP	
10		1.3380	23.30	10.70	34.00	46.00	-12.00	AVG	
11		3.6260	34.89	10.71	45.60	56.00	-10.40	QP	
12		3.6260	23.59	10.71	34.30	46.00	-11.70	AVG	



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Conducted Emission Measurement



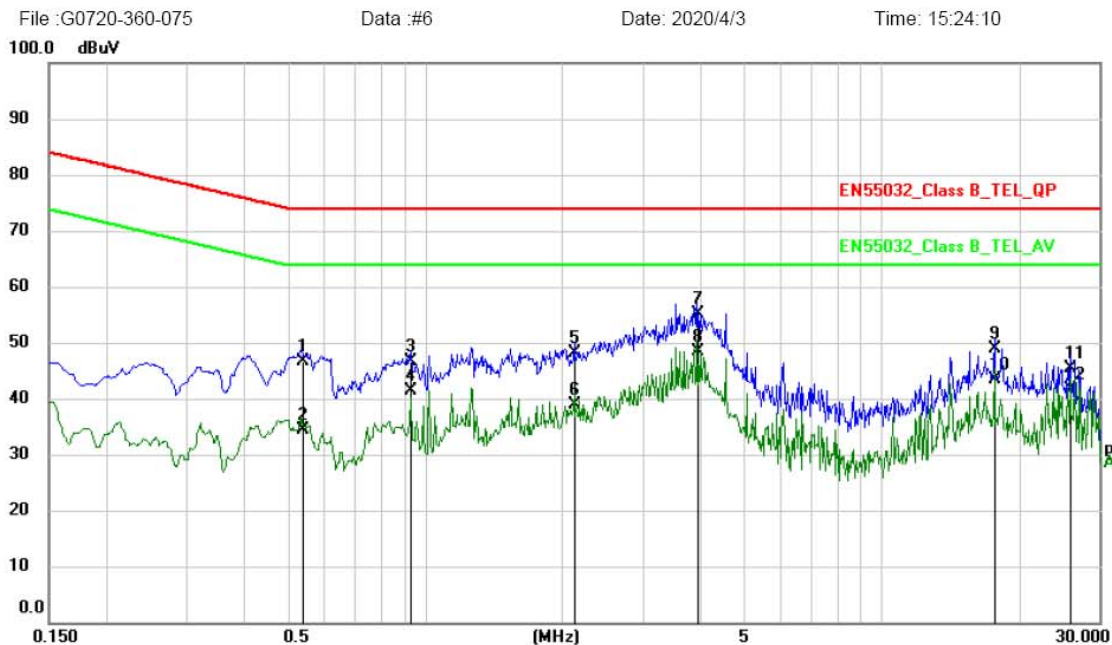
Site: _____ Phase: **TEL** Temperature: 26
Limit: EN55032_Class B_TEL_QP Power: AC230V/50Hz Humidity: 50 %
EUT: _____
M/N: G0720-360-075
Mode: Full Load(POE+LAN)
Note: I.T.E.P POWER SUPPLY(POWER OVER ETHERNET INJECTOR)
POE

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.2500	59.50	10.60	70.10	79.76	-9.66	QP	
2		0.2500	44.60	10.60	55.20	69.76	-14.56	AVG	
3	*	0.5460	57.37	10.63	68.00	74.00	-6.00	QP	
4		0.5460	45.67	10.63	56.30	64.00	-7.70	AVG	
5		0.8578	52.82	10.68	63.50	74.00	-10.50	QP	
6		0.8578	42.02	10.68	52.70	64.00	-11.30	AVG	
7		5.7300	40.98	10.72	51.70	74.00	-22.30	QP	
8		5.7300	32.58	10.72	43.30	64.00	-20.70	AVG	
9		14.3338	39.35	10.75	50.10	74.00	-23.90	QP	
10		14.3338	34.25	10.75	45.00	64.00	-19.00	AVG	
11		24.0458	37.22	10.78	48.00	74.00	-26.00	QP	
12		24.0458	33.42	10.78	44.20	64.00	-19.80	AVG	



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Conducted Emission Measurement



Site: Phase: **TEL** Temperature: 26
Limit: EN55032_Class B_TEL_QP Power: AC230V/50Hz Humidity: 50 %
EUT:
M/N: G0720-360-075
Mode: Full Load(POE+LAN)
Note: I.T.E.P POWER SUPPLY(POWER OVER ETHERNET INJECTOR)
LAN

No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1	0.5380	35.97	10.63	46.60	74.00	-27.40	QP	
2	0.5380	23.67	10.63	34.30	64.00	-29.70	AVG	
3	0.9300	35.91	10.69	46.60	74.00	-27.40	QP	
4	0.9300	30.57	10.69	41.26	64.00	-22.74	AVG	
5	2.1220	37.40	10.70	48.10	74.00	-25.90	QP	
6	2.1220	28.30	10.70	39.00	64.00	-25.00	AVG	
7	3.9580	44.39	10.71	55.10	74.00	-18.90	QP	
8 *	3.9580	37.69	10.71	48.40	64.00	-15.60	AVG	
9	17.6939	38.14	10.76	48.90	74.00	-25.10	QP	
10	17.6939	32.54	10.76	43.30	64.00	-20.70	AVG	
11	25.8740	34.51	10.79	45.30	74.00	-28.70	QP	
12	25.8740	30.91	10.79	41.70	64.00	-22.30	AVG	



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Conducted Emission Measurement

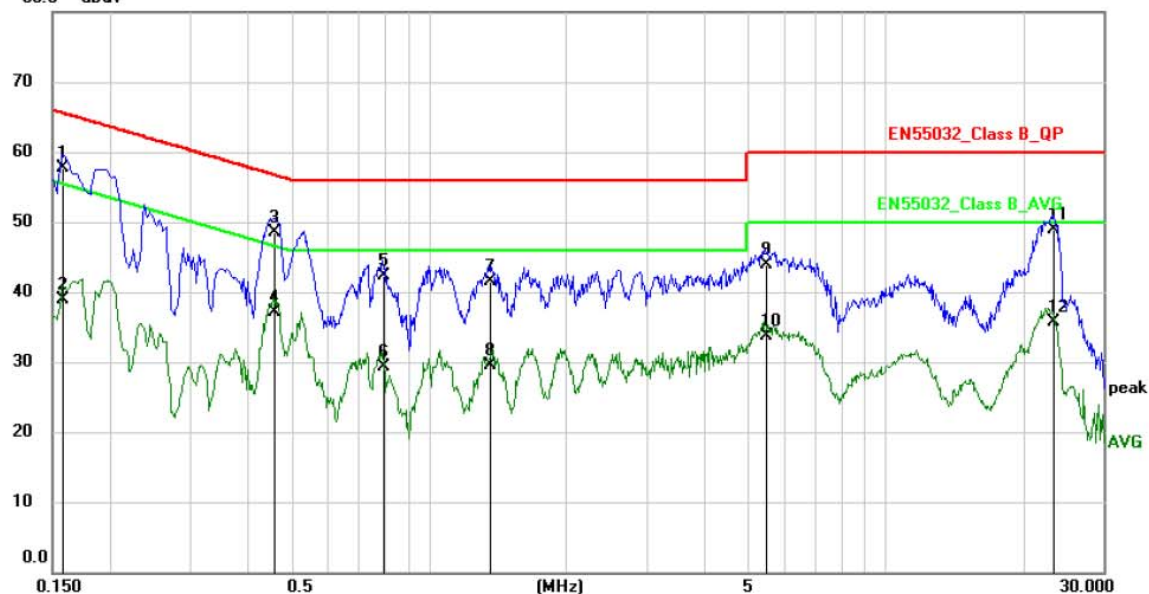
File :G0720-560-053

Data :#1

Date: 2020/3/11

Time: 16:46:06

80.0 dBuV



Site

Phase: **L1**

Temperature: 26

Limit: EN55032_Class B_QP

Power: AC230V/50Hz

Humidity: 60 %

EUT:

M/N: G0720-560-053

Mode: Full Load(POE+LAN)

Note: I.T.E.P POWER SUPPLY(POWER OVER ETHERNET INJECTOR)

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1	*	0.1580	47.10	10.60	57.70	65.57	-7.87	QP	
2		0.1580	28.30	10.60	38.90	55.57	-16.67	AVG	
3		0.4580	37.88	10.62	48.50	56.73	-8.23	QP	
4		0.4580	26.58	10.62	37.20	46.73	-9.53	AVG	
5		0.7940	31.73	10.67	42.40	56.00	-13.60	QP	
6		0.7940	18.63	10.67	29.30	46.00	-16.70	AVG	
7		1.3619	30.90	10.70	41.60	56.00	-14.40	QP	
8		1.3619	18.90	10.70	29.60	46.00	-16.40	AVG	
9		5.4699	33.28	10.72	44.00	60.00	-16.00	QP	
10		5.4699	22.98	10.72	33.70	50.00	-16.30	AVG	
11		23.2380	38.12	10.78	48.90	60.00	-11.10	QP	
12		23.2380	24.92	10.78	35.70	50.00	-14.30	AVG	



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Conducted Emission Measurement

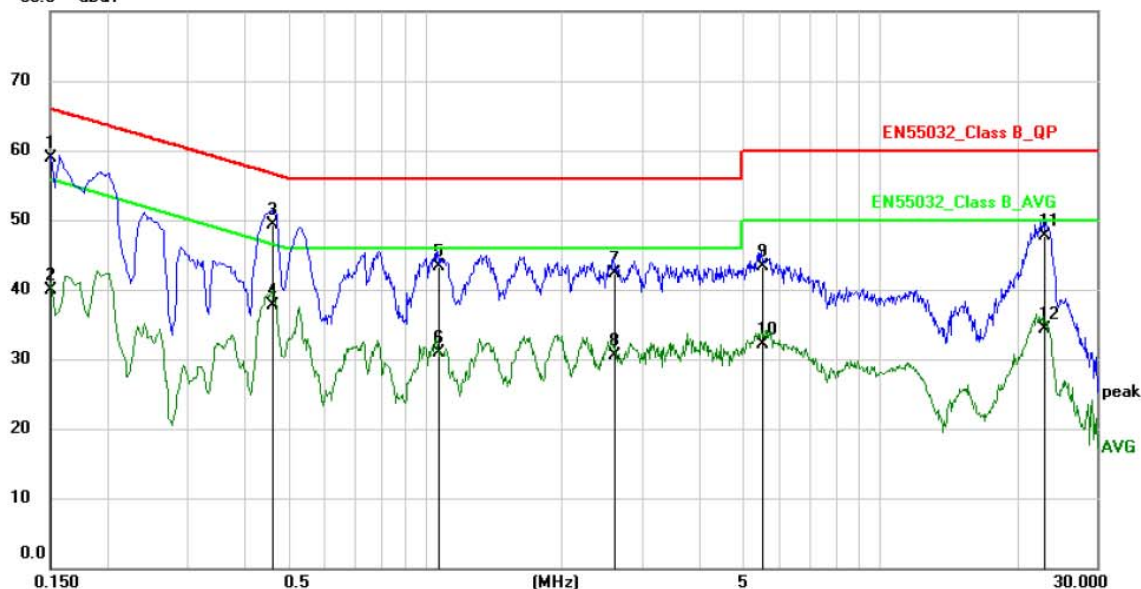
File :G0720-560-053

Data :#2

Date: 2020/3/11

Time: 16:53:40

80.0 dBuV



Site

Phase: **N**

Temperature: 26

Limit: EN55032_Class B_QP

Power: AC230V/50Hz

Humidity: 60 %

EUT:

M/N: G0720-560-053

Mode: Full Load(POE+LAN)

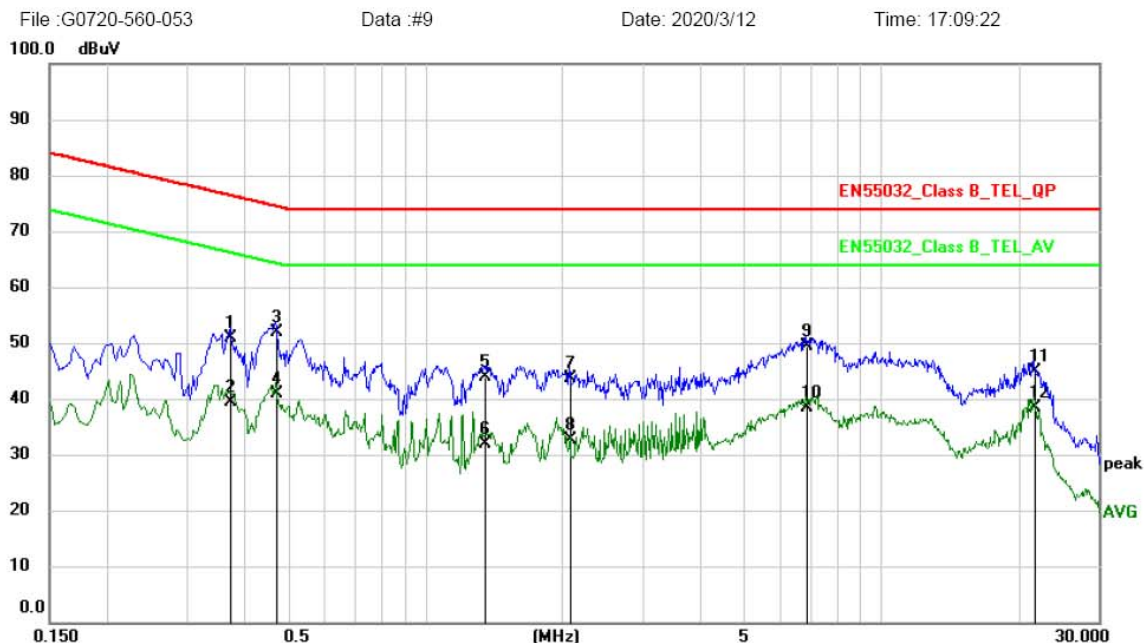
Note: I.T.E.P POWER SUPPLY(POWER OVER ETHERNET INJECTOR)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1	*	0.1500	48.30	10.60	58.90	66.00	-7.10	QP	
2		0.1500	29.40	10.60	40.00	56.00	-16.00	AVG	
3		0.4620	38.78	10.62	49.40	56.66	-7.26	QP	
4		0.4620	27.18	10.62	37.80	46.66	-8.86	AVG	
5		1.0660	32.70	10.70	43.40	56.00	-12.60	QP	
6		1.0660	20.30	10.70	31.00	46.00	-15.00	AVG	
7		2.6060	31.69	10.71	42.40	56.00	-13.60	QP	
8		2.6060	19.79	10.71	30.50	46.00	-15.50	AVG	
9		5.4779	32.68	10.72	43.40	60.00	-16.60	QP	
10		5.4779	21.38	10.72	32.10	50.00	-17.90	AVG	
11		22.9380	36.92	10.78	47.70	60.00	-12.30	QP	
12		22.9380	23.62	10.78	34.40	50.00	-15.60	AVG	



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Conducted Emission Measurement



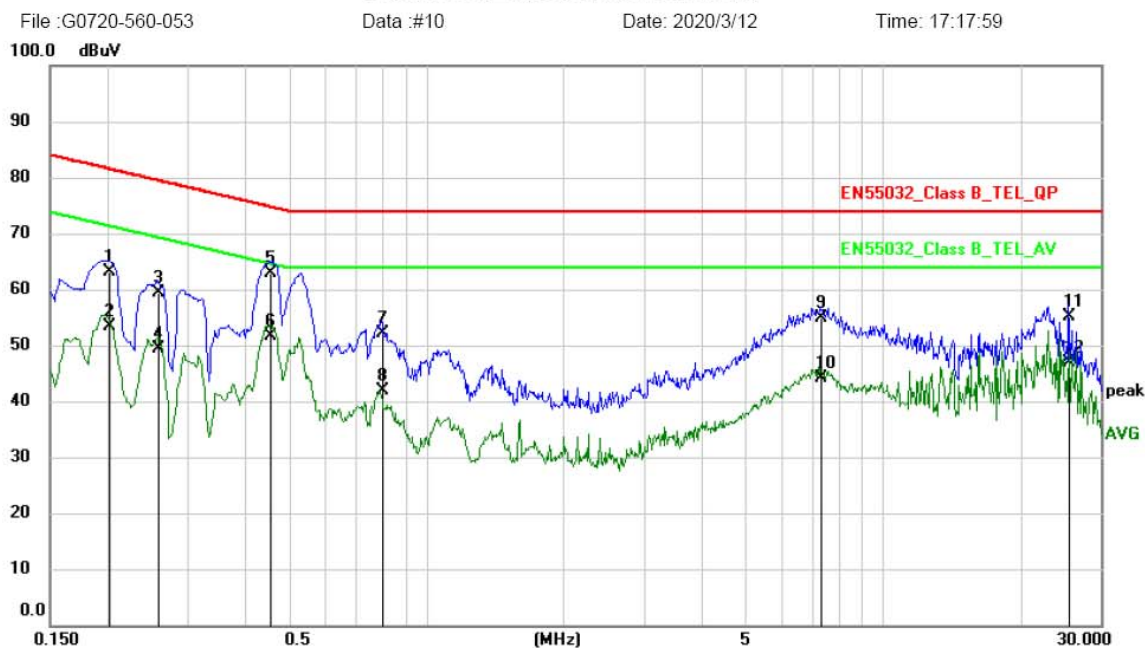
Site: Phase: **TEL** Temperature: 26
Limit: EN55032_Class B_TEL_QP Power: AC230V/50Hz Humidity: 50 %
EUT:
M/N: G0720-560-053
Mode: Full Load(POE+LAN)
Note: I.T.E.P POWER SUPPLY(POWER OVER ETHERNET INJECTOR)
LAN

No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1	0.3738	40.19	10.61	50.80	76.42	-25.62	QP	
2	0.3738	28.89	10.61	39.50	66.42	-26.92	AVG	
3 *	0.4700	41.18	10.62	51.80	74.51	-22.71	QP	
4	0.4700	30.18	10.62	40.80	64.51	-23.71	AVG	
5	1.3460	33.20	10.70	43.90	74.00	-30.10	QP	
6	1.3460	21.10	10.70	31.80	64.00	-32.20	AVG	
7	2.0739	32.90	10.70	43.60	74.00	-30.40	QP	
8	2.0739	22.00	10.70	32.70	64.00	-31.30	AVG	
9	6.8700	38.58	10.72	49.30	74.00	-24.70	QP	
10	6.8700	27.78	10.72	38.50	64.00	-25.50	AVG	
11	21.6660	34.13	10.77	44.90	74.00	-29.10	QP	
12	21.6660	27.63	10.77	38.40	64.00	-25.60	AVG	



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Conducted Emission Measurement

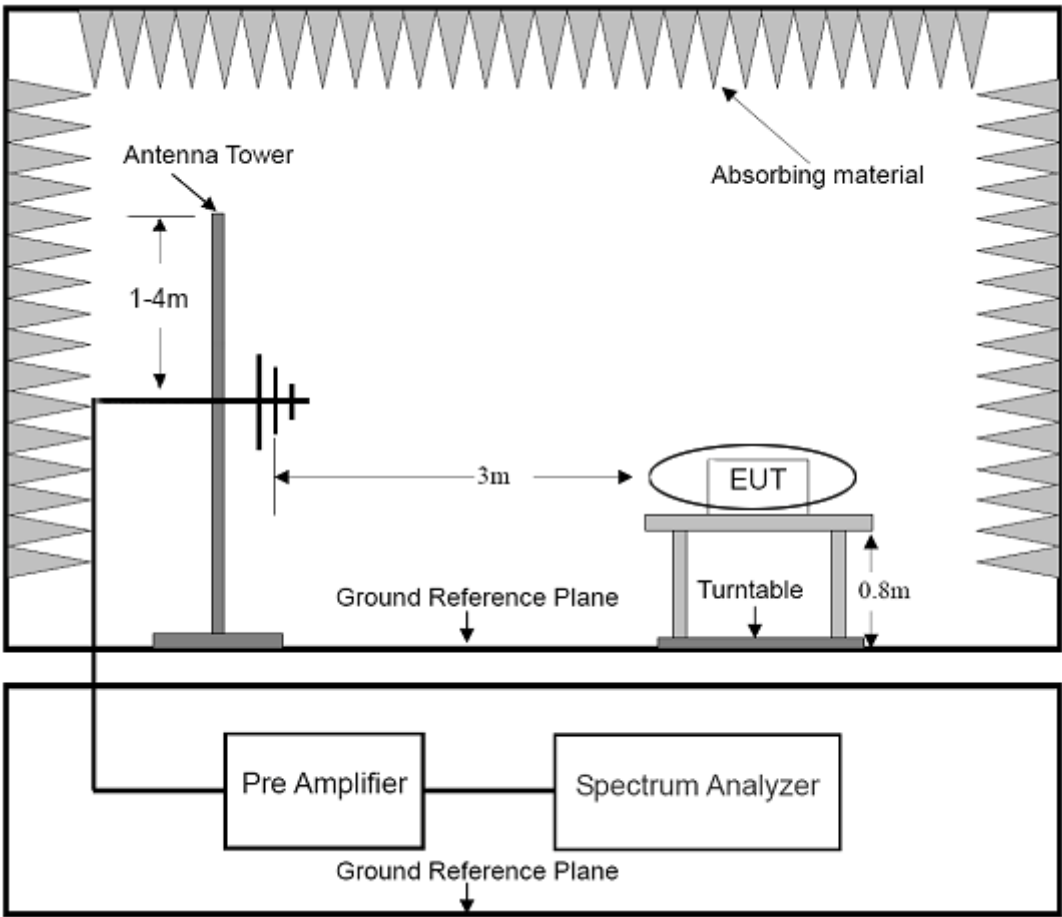


Site: Phase: **TEL** Temperature: 26
Limit: EN55032_Class B_TEL_QP Power: AC230V/50Hz Humidity: 50 %
EUT:
M/N: G0720-560-053
Mode: Full Load(POE+LAN)
Note: I.T.E.P POWER SUPPLY(POWER OVER ETHERNET INJECTOR)
POE

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.2020	52.50	10.60	63.10	81.53	-18.43	QP	
2		0.2020	42.80	10.60	53.40	71.53	-18.13	AVG	
3		0.2580	48.90	10.60	59.50	79.50	-20.00	QP	
4		0.2580	38.80	10.60	49.40	69.50	-20.10	AVG	
5	*	0.4540	52.38	10.62	63.00	74.80	-11.80	QP	
6		0.4540	40.98	10.62	51.60	64.80	-13.20	AVG	
7		0.7980	41.53	10.67	52.20	74.00	-21.80	QP	
8		0.7980	31.15	10.67	41.82	64.00	-22.18	AVG	
9		7.3219	44.18	10.72	54.90	74.00	-19.10	QP	
10		7.3219	33.38	10.72	44.10	64.00	-19.90	AVG	
11		25.5700	44.42	10.78	55.20	74.00	-18.80	QP	
12		25.5700	36.12	10.78	46.90	64.00	-17.10	AVG	

5. RADIATED EMISSION MEASUREMENT

5.1 Block Diagram of Test



5.2 Limit of Radiated Emission Measurement

Test Standard: EN 55032

Limits for radiated disturbance of class B at a measuring distance of 3m

Frequency range MHz	Quasi-peak limits dB(uV/m)
30 to 230	40
230 to 1000	47
Note 1 The lower limit shall apply at the transition frequency. Note 2 If the internal emission source is operating at a frequency below 9KHz, then measurements need only to be performed up to 230MHz	

5.3 Test Procedure

E.U.T. and its simulators are placed on a turntable, which is 0.8 meter high above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. E.U.T. is set 3.0 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bilog antenna) is used as receiving antenna. Both horizontal and vertical polarization of the antenna is set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to EN 55032 on radiated emission measurement.

The bandwidth of the EMI test receiver (R&S ESCI7) is set at 120 KHz.

The frequency range from 30 MHz to 1000 MHz is checked.

5.4 Operating Condition of E.U.T.

5.4.1 Setup the E.U.T. and simulators as shown in Section 2.3.

5.4.2 Turn on the power of all equipments.

5.4.3 Let the E.U.T. work in test mode (Full Load(POE+LAN)) and test it.

5.5 Radiated Emission Measurement Result

PASS.

Please refer to the following pages.



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Radiated Emission Measurement

File: G0720-240-100

Data: #1

Date: 2020/3/14

Time: 10:05:46

80.0 dBuV/m



Site

Polarization: **Horizontal**

Temperature: 26

Limit: EN 55032_Class B_3m

Power: AC230V/50Hz

Humidity: 47 %

EUT:

Distance: 3m

M/N: G0720-240-100

Mode: Full Load(POE+LAN)

Note: I.T.E.P POWER SUPPLY(POWER OVER ETHERNET INJECTOR)

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	125.0600	46.72	-14.62	32.10	40.00	-7.90	QP		
2		138.6400	47.63	-15.53	32.10	40.00	-7.90	QP		
3		180.3500	45.62	-14.12	31.50	40.00	-8.50	QP		
4		250.1900	50.79	-11.69	39.10	47.00	-7.90	QP		
5		331.6700	45.56	-9.56	36.00	47.00	-11.00	QP		
6		398.6000	46.71	-9.11	37.60	47.00	-9.40	QP		



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Radiated Emission Measurement

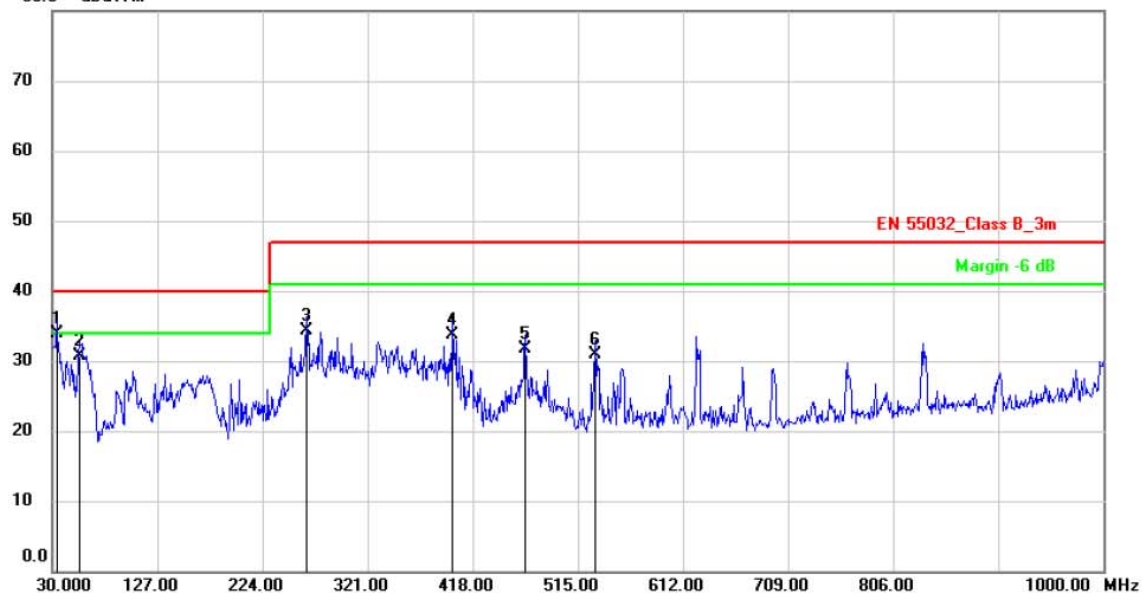
File :G0720-240-100

Data :#2

Date: 2020/3/14

Time: 10:13:11

80.0 dBuV/m



Site

Polarization: **Vertical**

Temperature: 26

Limit: EN 55032_Class B_3m

Power: AC230V/50Hz

Humidity: 47 %

EUT:

Distance: 3m

M/N: G0720-240-100

Mode: Full Load(POE+LAN)

Note: I.T.E.P POWER SUPPLY(POWER OVER ETHERNET INJECTOR)

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Antenna Height cm	Table Degree degree	Comment
1	*	33.8800	49.47	-15.57	33.90	40.00	-6.10	QP			
2		55.2200	44.42	-13.72	30.70	40.00	-9.30	QP			
3		264.7400	47.61	-13.31	34.30	47.00	-12.70	QP			
4		399.5700	44.91	-11.11	33.80	47.00	-13.20	QP			
5		466.5000	41.36	-9.56	31.80	47.00	-15.20	QP			
6		531.4900	39.58	-8.68	30.90	47.00	-16.10	QP			



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Radiated Emission Measurement

File : G0720-360-075

Data : #13

Date: 2020/4/21

Time: 11:22:37

80.0 dBuV/m



Site

Polarization: **Horizontal**

Temperature: 26

Limit: EN 55032_Class B_3m

Power: AC230V/50Hz

Humidity: 47 %

EUT:

Distance: 3m

M/N: G0720-360-075

Mode: Full Load(POE+LAN)

Note: I.T.E.P POWER SUPPLY(POWER OVER ETHERNET INJECTOR)

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1		52.3100	34.87	-7.17	27.70	40.00	-12.30	QP		
2		105.6600	36.64	-7.54	29.10	40.00	-10.90	QP		
3		177.4400	40.75	-9.45	31.30	40.00	-8.70	QP		
4	*	193.9299	40.38	-7.98	32.40	40.00	-7.60	QP		
5		259.8900	33.26	-6.16	27.10	47.00	-19.90	QP		
6		312.2700	30.68	-5.18	25.50	47.00	-21.50	QP		



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Radiated Emission Measurement

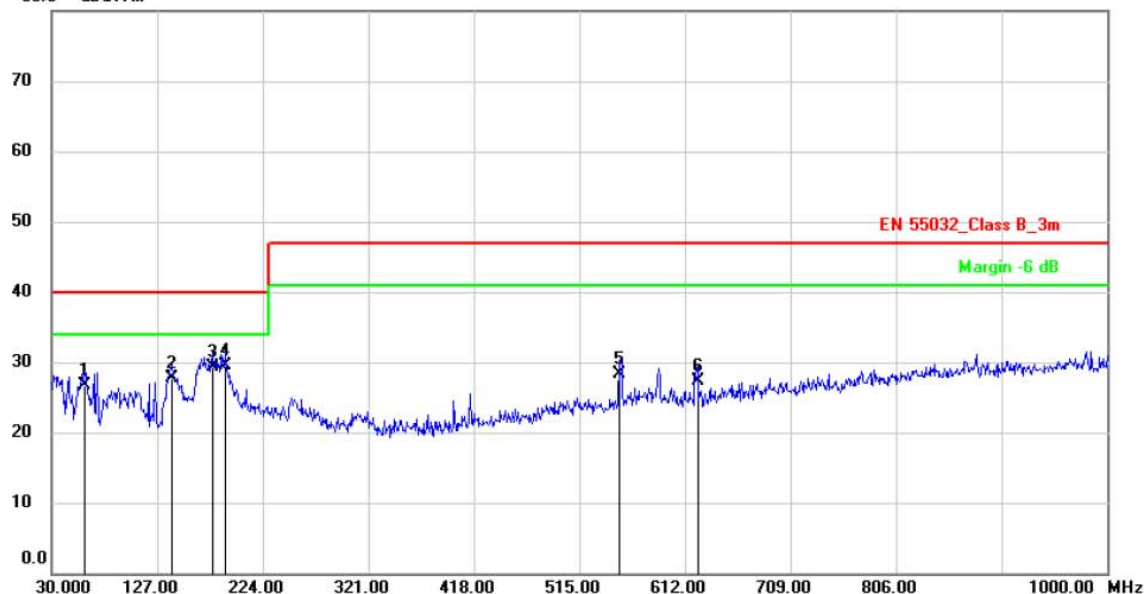
File :G0720-360-075

Data :#14

Date: 2020/4/21

Time: 11:29:03

80.0 dBuV/m



Site

Polarization: **Vertical**

Temperature: 26

Limit: EN 55032_Class B_3m

Power: AC230V/50Hz

Humidity: 47 %

EUT:

Distance: 3m

M/N: G0720-360-075

Mode: Full Load(POE+LAN)

Note: I.T.E.P POWER SUPPLY(POWER OVER ETHERNET INJECTOR)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1		60.0700	34.29	-7.59	26.70	40.00	-13.30	QP		
2		140.5800	39.20	-11.50	27.70	40.00	-12.30	QP		
3		177.4400	39.02	-9.62	29.40	40.00	-10.60	QP		
4	*	189.0800	38.62	-9.12	29.50	40.00	-10.50	QP		
5		551.8600	30.05	-1.75	28.30	47.00	-18.70	QP		
6		623.6400	27.27	0.13	27.40	47.00	-19.60	QP		



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Radiated Emission Measurement

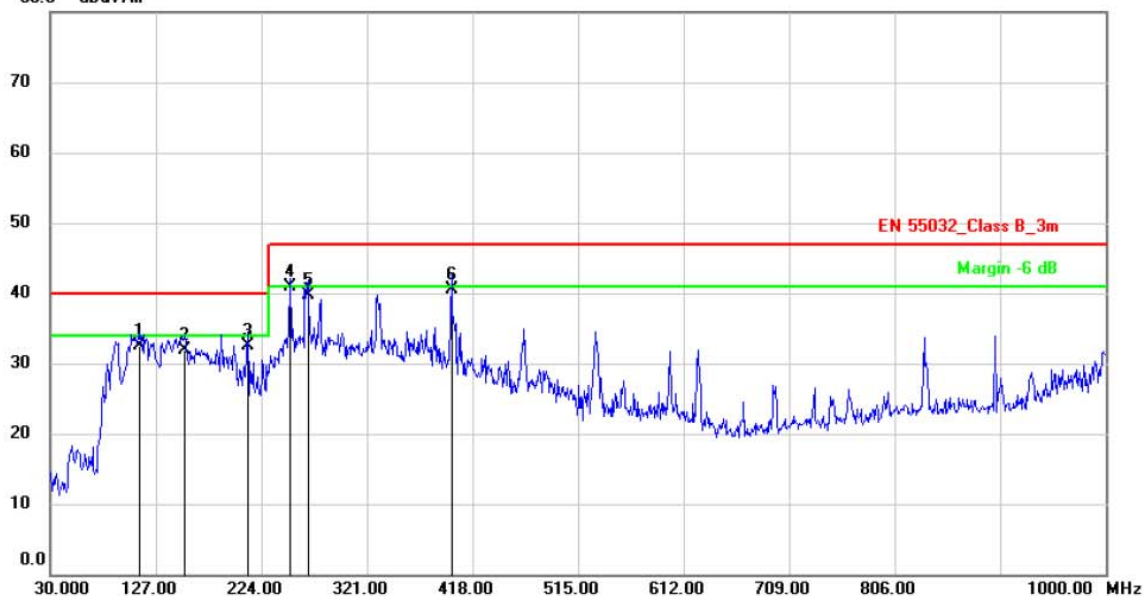
File : G0720-560-053

Data : #4

Date: 2020/3/14

Time: 10:55:40

80.0 dBuV/m



Site

Polarization: **Horizontal**

Temperature: 26

Limit: EN 55032_Class B_3m

Power: AC230V/50Hz

Humidity: 47 %

EUT:

Distance: 3m

M/N: G0720-560-053

Mode: Full Load(POE+LAN)

Note: I.T.E.P POWER SUPPLY(POWER OVER ETHERNET INJECTOR)

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Antenna Height cm	Table Degree degree	Comment
1		112.4500	45.17	-12.57	32.60	40.00	-7.40	QP			
2		153.1900	47.40	-15.40	32.00	40.00	-8.00	QP			
3		211.3900	45.71	-13.21	32.50	40.00	-7.50	QP			
4	*	250.1900	52.69	-11.69	41.00	47.00	-6.00	QP			
5		266.6800	51.07	-11.27	39.80	47.00	-7.20	QP			
6		398.6000	49.71	-9.11	40.60	47.00	-6.40	QP			



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Radiated Emission Measurement

File :G0720-560-053

Data :#3

Date: 2020/3/14

Time: 10:48:12

80.0 dBuV/m



Site

Polarization: **Vertical**

Temperature: 26

Limit: EN 55032_Class B_3m

Power: AC230V/50Hz

Humidity: 47 %

EUT:

Distance: 3m

M/N: G0720-560-053

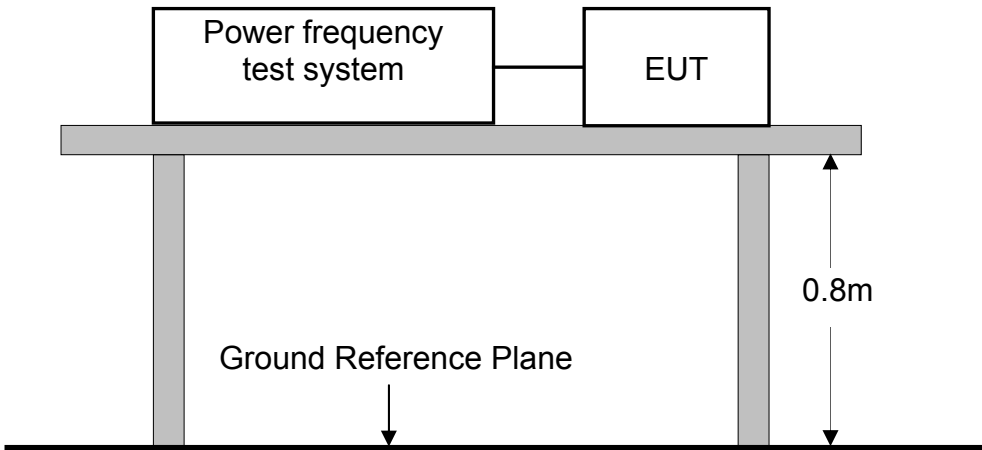
Mode: Full Load(POE+LAN)

Note: I.T.E.P POWER SUPPLY(POWER OVER ETHERNET INJECTOR)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1	*	62.0100	46.14	-14.84	31.30	40.00	-8.70	QP		
2		91.1100	47.26	-16.66	30.60	40.00	-9.40	QP		
3		151.2500	48.57	-18.47	30.10	40.00	-9.90	QP		
4		278.3200	45.82	-13.02	32.80	47.00	-14.20	QP		
5		332.6400	44.62	-11.52	33.10	47.00	-13.90	QP		
6		400.5400	45.62	-11.12	34.50	47.00	-12.50	QP		

6. HARMONIC CURRENT EMISSION TEST

6.1 Block Diagram of Test Setup



6.2 Limits of Harmonics Current Measurement

Test Standard: EN IEC 61000-3-2

Limits for Class A equipment	
Harmonics Order n	Max. permissible harmonics current A
Odd harmonics	
3	2.30
5	1.14
7	0.77
9	0.40
11	0.33
13	0.21
$15 \leq n \leq 39$	$0.15 \times 15/n$
Even harmonics	
2	1.08
4	0.43
6	0.30
$8 \leq n \leq 40$	$0.23 \times 8/n$

For the following categories of equipment limits are not specified in this edition of the standard.

Note: Equipment with a rated power of 75W or less, other than lighting equipment.

6.3 Test Procedure

The E.U.T. was put on the top of a wooden table 0.8m above the ground and operated to produce the maximum harmonic components under normal operating conditions for each successive harmonic component in turn.

The E.U.T. is classified as follows:

Class A:

Balanced three-phase equipment, Household appliances excluding equipment as Class D, Tools excluding portable tools, Dimmers for incandescent lamps, audio equipment, equipment not specified in one of the three other classes.

Class B:

Portable tools; Arc welding equipment which is not professional equipment.

Class C:

Lighting equipment.

Class D:

Equipment having a specified power less than or equal to 600W of the following types: Personal computers and personal computer monitors and television receivers.

6.4 Operating Condition of E.U.T.

6.4.1 Setup the E.U.T. and simulators as shown in Section 2.3.

6.4.2 Turn on the power of all equipments.

6.4.3 Let the E.U.T. work in test mode (Full Load(POE+LAN)) and test it.

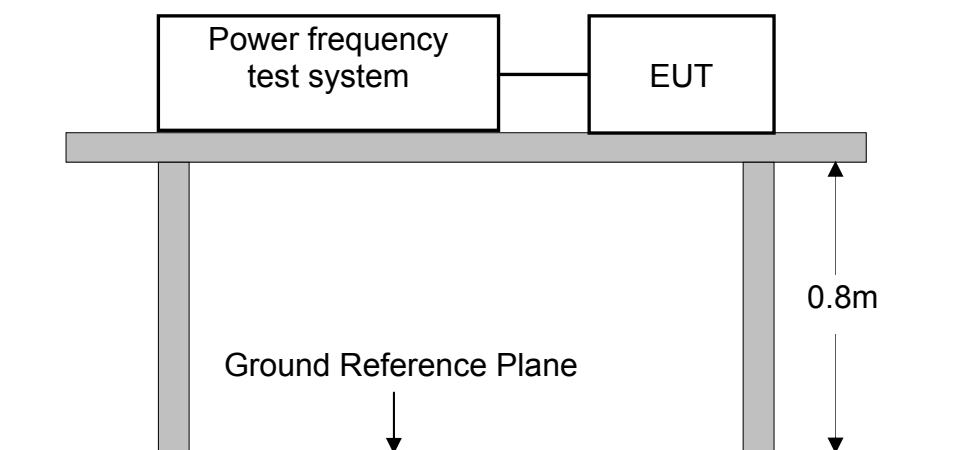
6.5 Harmonics Current Measurement Result

PASS.

According to clause 7 of EN IEC 61000-3-2, equipment with a rated power of 75W or less, no limits apply. It is considered to meet the requirements of the standard.

7. VOLTAGE FLUCTUATIONS & FLICKER TEST

7.1 Block Diagram of Test Setup



7.2 Limits of Voltage Fluctuations & Flicker Measurement

Test Standard: EN 61000-3-3

Test Item	Limit
P_{st} (Short-term flicker indicator.)	1.0
P_{lt} (Long-term flicker indicator.)	0.65
$T_{d(t)}$ (ms) (Maximum time that $d(t)$ exceeds 3.3%)	500
$d_{max}(\%)$ (Maximum relative voltage change.)	4
$d_c(\%)$ (Relative steady-state voltage change)	3.3

7.3 Test Procedure

The E.U.T. was put on the top of a wooden table 0.8m above the ground and operated to produce the most unfavorable sequence of voltage changes under normal operating conditions.

7.4 Operating Condition of E.U.T.

7.4.1 Setup the E.U.T. and simulators as shown in Section 2.3.

7.4.2 Turn on the power of all equipments.

7.4.3 Let the E.U.T. work in test mode (Full Load(POE+LAN)) and test it.

7.5 Test Results

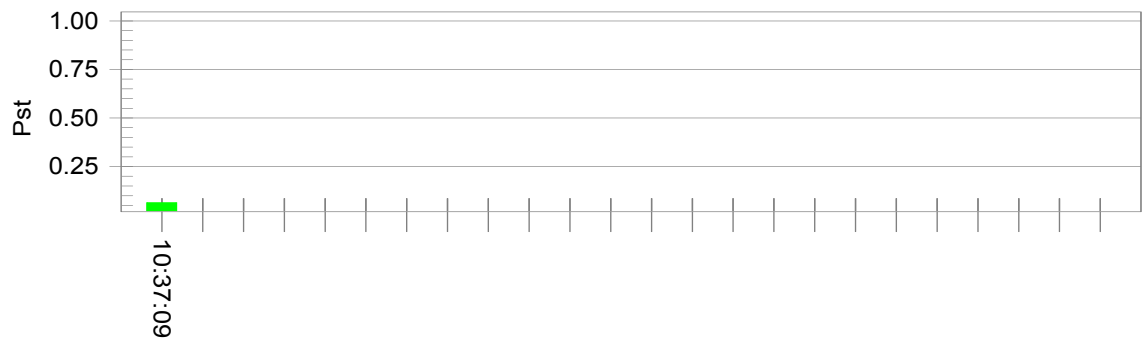
PASS.

Please refer to the following pages.

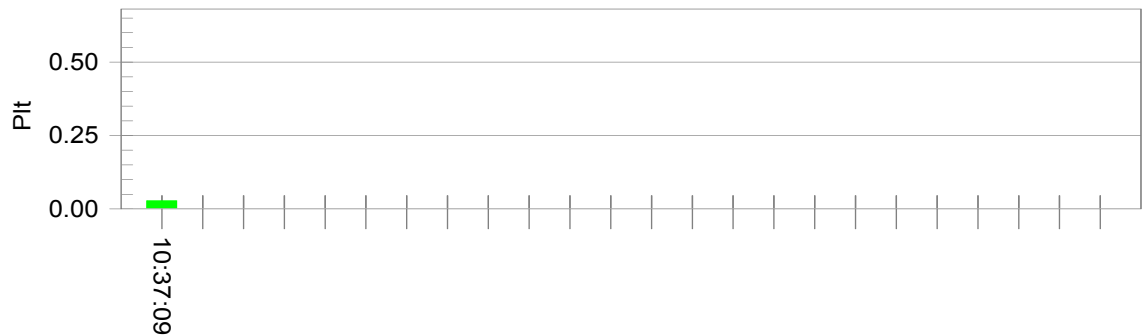
Flicker Test Summary per EN/IEC61000-3-3 Ed. 3.0 (2013) (Run time)

EUT: I.T.E.P POWER SUPPLY(POWER OVER ETHERNET INJECTOR) Tested by: Elias
Test category: All parameters (European limits) Test Margin: 100
Test date: 2020/3/16 Start time: 10:26:48 End time: 10:37:15
Test duration (min): 10 Data file name: F-000208.cts_data
Comment: Full Load(POE+LAN)
Customer: GOSPELL DIGITAL
M/N:G0720-240-100
Test Result: Pass Status: Test Completed

Pst_i and limit line European Limits



Plt and limit line



Parameter values recorded during the test:

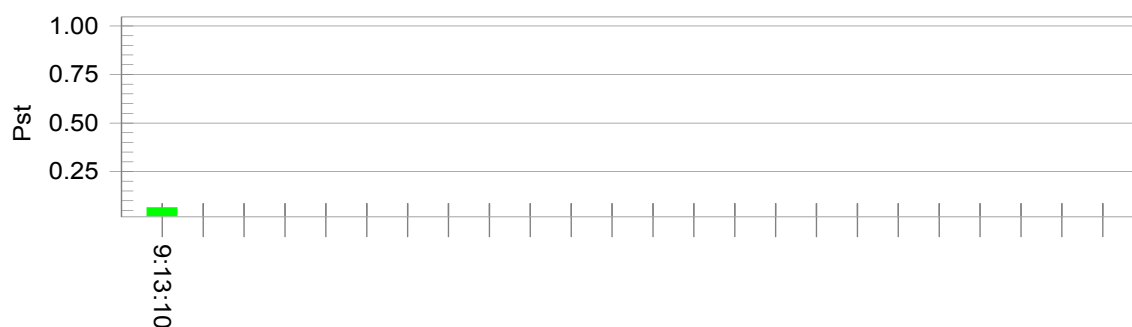
Vrms at the end of test (Volt):	230.34		
T-max (mS):	0	Test limit (mS):	500.0 Pass
Highest dc (%):	0.00	Test limit (%):	3.30 Pass
Highest dmax (%):	0.00	Test limit (%):	4.00 Pass
Highest Pst (10 min. period):	0.064	Test limit:	1.000 Pass
Highest Plt (2 hr. period):	0.028	Test limit:	0.650 Pass

Flicker Test Summary per EN/IEC61000-3-3 Ed. 3.0 (2013) (Run time)

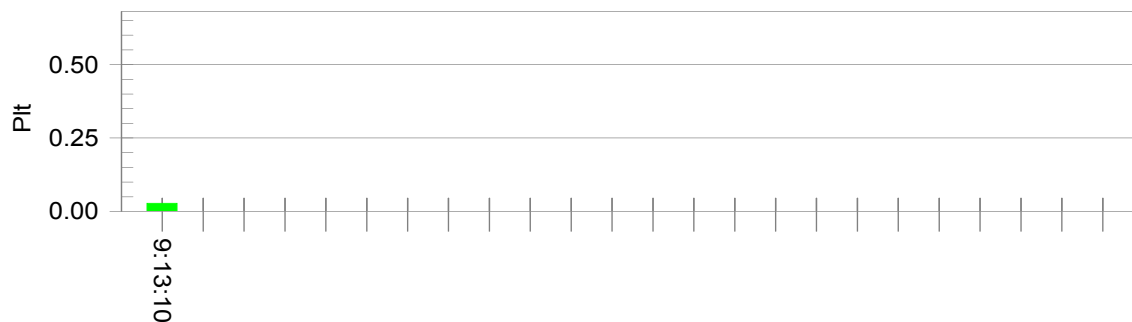
EUT: I.T.E.P POWER SUPPLY(POWER OVER ETHERNET INJECTOR) Tested by: Elias
Test category: All parameters (European limits) Test Margin: 100
Test date: 2020/3/16 Start time: 9:02:49 End time: 9:13:16
Test duration (min): 10 Data file name: F-000203.cts_data
Comment: Full Load(POE+LAN)
Customer: GOSPELL DIGITAL
M/N: G0720-360-075
Test Result: Pass Status: Test Completed

Pst_i and limit line

European Limits



Plt and limit line



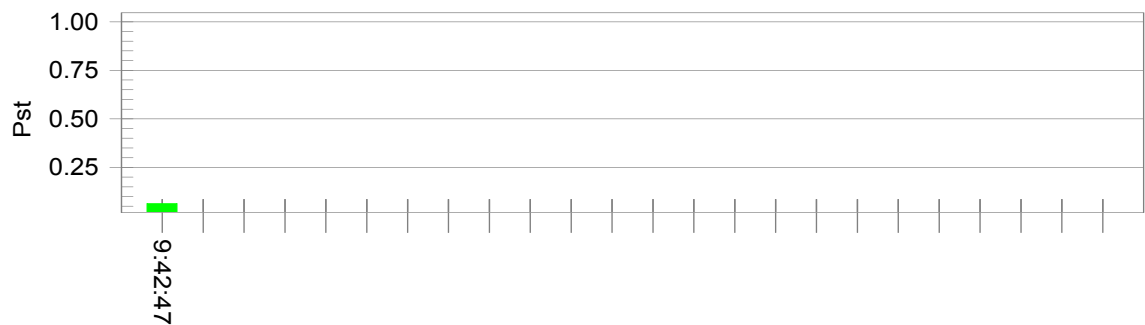
Parameter values recorded during the test:

Vrms at the end of test (Volt):	230.33		
T-max (mS):	0	Test limit (mS):	500.0 Pass
Highest dc (%):	0.00	Test limit (%):	3.30 Pass
Highest dmax (%):	0.00	Test limit (%):	4.00 Pass
Highest Pst (10 min. period):	0.064	Test limit:	1.000 Pass
Highest Plt (2 hr. period):	0.028	Test limit:	0.650 Pass

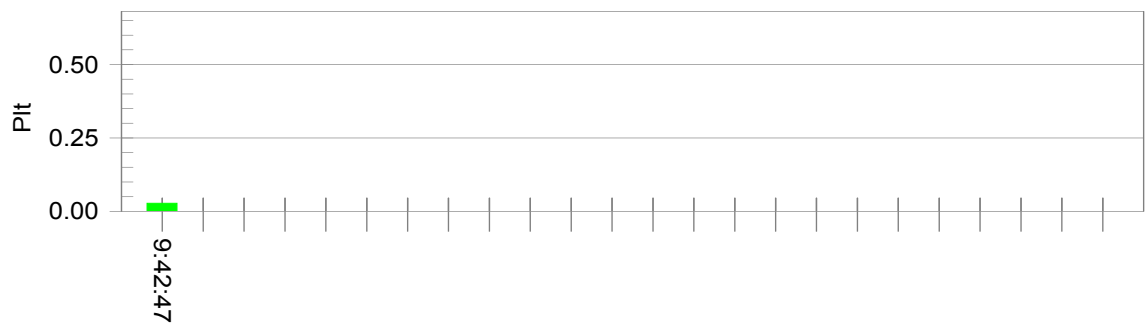
Flicker Test Summary per EN/IEC61000-3-3 Ed. 3.0 (2013) (Run time)

EUT: I.T.E.P POWER SUPPLY(POWER OVER ETHERNET INJECTOR) Tested by: Elias
Test category: All parameters (European limits) Test Margin: 100
Test date: 2020/3/16 Start time: 9:32:26 End time: 9:42:53
Test duration (min): 10 Data file name: F-000204.cts_data
Comment: Full Load(POE+LAN)
Customer: GOSPELL DIGITAL
M/N: G0720-560-053
Test Result: Pass Status: Test Completed

Pst_i and limit line European Limits



Plt and limit line



Parameter values recorded during the test:			
Vrms at the end of test (Volt):	230.42		
T-max (mS):	0	Test limit (mS):	500.0 Pass
Highest dc (%):	0.00	Test limit (%):	3.30 Pass
Highest dmax (%):	0.00	Test limit (%):	4.00 Pass
Highest Pst (10 min. period):	0.064	Test limit:	1.000 Pass
Highest Plt (2 hr. period):	0.028	Test limit:	0.650 Pass

8. PERFORMANCE CRITERIA FOR IMMUNITY

The performance criteria are referred to the test standard: EN 55035

Performance Criteria A

The equipment shall continue to operate as intended without operator intervention. No degradation of performance, loss of function or change of operating state is allowed below a performance level specified by the manufacturer when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.

Performance Criteria B

During the application of the disturbance, degradation of performance is allowed. However, no unintended change of actual operating state or stored data is allowed to persist after the test.

After the test, the equipment shall continue to operate as intended without operator intervention; no degradation of performance or loss of function is allowed, below a performance level specified by the manufacturer, when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance.

If the minimum performance level (or the permissible performance loss), or recovery time, is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.

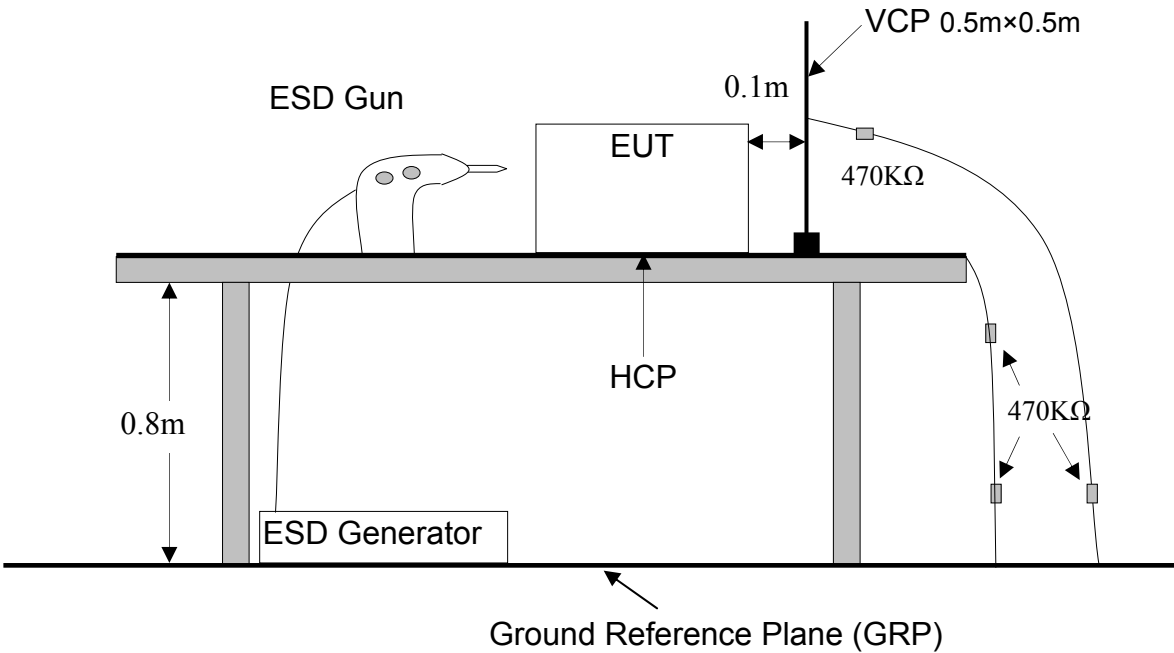
Performance Criteria C

Loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacturer's instructions. A reboot or re-start operation is allowed.

Information stored in non-volatile memory, or protected by a battery backup, shall not be lost.

9. ELECTROSTATIC DISCHARGE TEST

9.1 Block Diagram of Test Setup



9.2 Test Standard and Severity Levels

9.2.1 Test Standard:
EN 55035
(IEC 61000-4-2 Air Discharge: Severity Level: 1, 2, 3;
Contact Discharge: Level: 1, 2)

9.2.2 Severity Levels:

Level	Test Voltage Contact Discharge (KV)	Test Voltage Air Discharge (KV)
1.	±2	±2
2.	±4	±4
3.	±6	±8
4.	±8	±15
X	Special	Special

9.3 Test Procedure

9.3.1 Air Discharge:

This test is done on a non-conductive surface. The round discharge tip of the discharge electrode shall be approached as fast as possible to touch the E.U.T. After each discharge, the discharge electrode shall be removed from the E.U.T.. The generator is then re-triggered for a new single discharge and repeated 10 times for each pre-selected test point. This procedure shall be repeated until all the air discharge completed

9.3.2 Contact Discharge:

All the procedure shall be same as Section 9.3.1. except that the tip of the discharge electrode shall touch the E.U.T. before the discharge switch is operated.

9.3.3 Indirect discharge for horizontal coupling plane

At least 10 single discharges(in the most sensitive polarity) shall be applied at the front edge of each HCP opposite the center point of each unit(if applicable) of the E.U.T. and 0.1m from the front of the E.U.T.. The long axis of the discharge electrode shall be in the plane of the HCP and perpendicular to its front edge during the discharge.

9.3.4 Indirect discharge for vertical coupling plane

At least 10 single discharge (in the most sensitive polarity) shall be applied to the center of one vertical edge of the coupling plane. The coupling plane, of dimensions 0.5m X 0.5m, is placed parallel to, and positioned at a distance of 0.1m from the E.U.T.. Discharges shall be applied to the coupling plane, with this plane in sufficient different positions that the four faces of the E.U.T. are completely illuminated.

9.4 Test Results

PASS.

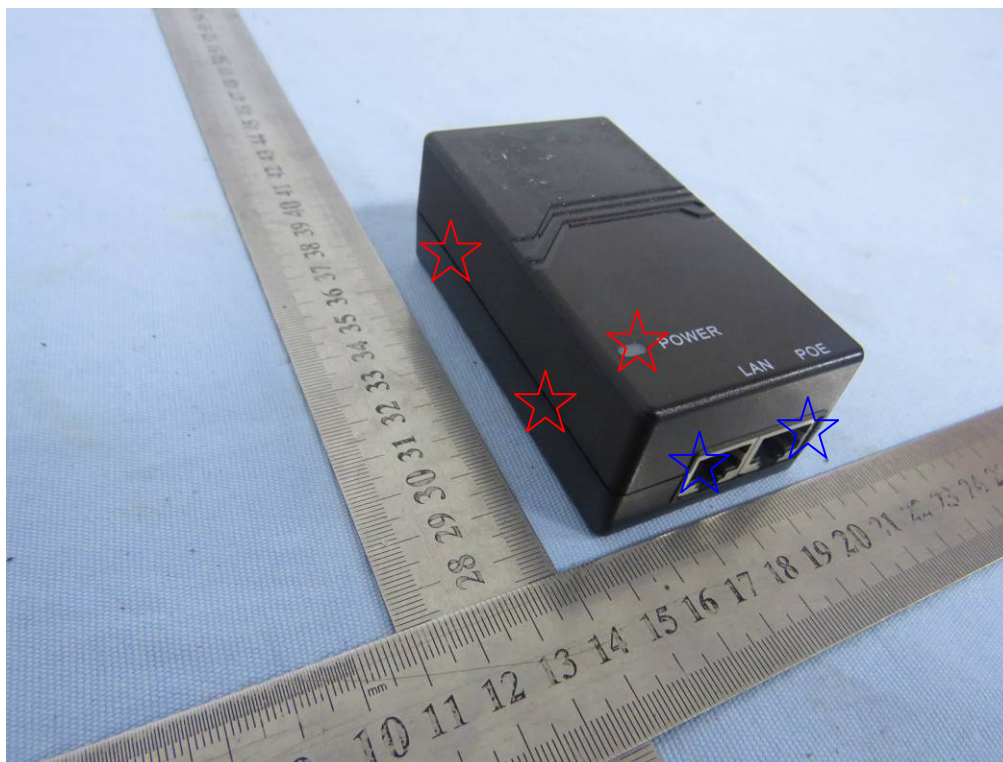
Please refer to the following pages.

Electrostatic Discharge Test Results

Ambient Condition:	Temp.: 25℃	R.H.: 50%	Air Pressure : 101 kPa
Power Supply:	AC 230V 50Hz AC 110V 60Hz	Required Performance Criterion : B	
Test level:	±2, 4 KV Contact Discharge; For each point positive 25 times and negative 25 times ±2, 4, 8 KV Air Discharge For each point positive 10 times and negative 10 times		
Tested mode:	Full Load(POE+LAN)		
Test Point		Kind A-Air Discharge C-Contact Discharge	Result (Performance Criterion)
Surface of EUT		A	A
(POE, LAN) Ports		C	A
Light		A	A
Indirect Discharge (VCP)		C	A
Indirect Discharge (HCP)		C	A
Note: During the test, the EUT did not show any abnormalities.			
Test Engineer: Elias			

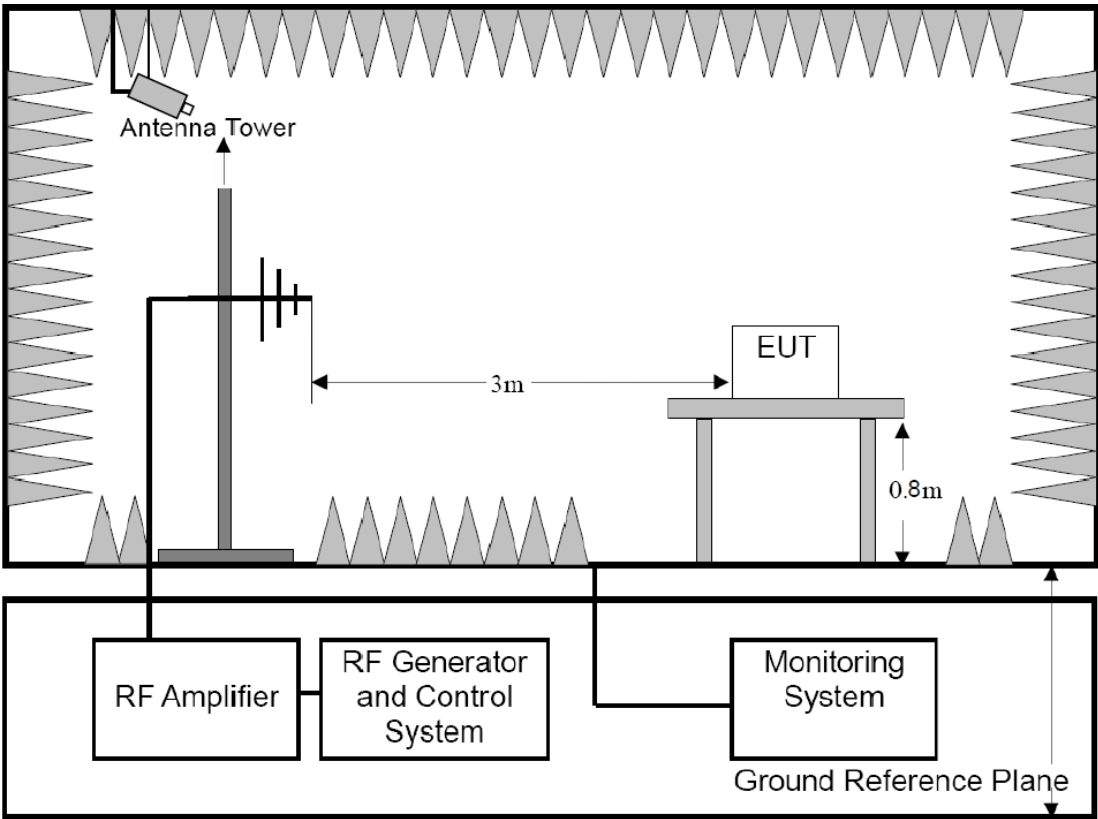
ESD TEST POINT

(★ Air Discharge) ; ★ Direct Contact Discharge)



10. RF FIELD STRENGTH SUSCEPTIBILITY TEST

10.1 Block Diagram of Test Setup



10.2 Test Standard and Severity Levels

10.2.1 Test Standard
EN 55035
(IEC 61000-4-3, Severity Level: 2, 3V / m)

10.2.2 Severity Levels

Level	Field Strength V/m
1.	1
2.	3
3.	10
X	Special

10.3 Test Procedure

The E.U.T. and its simulators are placed on a turn table which is 0.8 meter above ground. E.U.T. is set 3 meter away from the transmitting antenna which is mounted on an antenna tower. Both horizontal and vertical polarization of the antenna are set on test. Each of the four sides of E.U.T. must be faced this transmitting antenna and measured individually.

All the scanning conditions are as follows :

Condition of Test	Remarks
1. Fielded Strength	3 V/m (Severity Level 2)
2. Radiated Signal	Modulated
3. Scanning Frequency	80 - 1000 MHz 1800MHz, 2600 MHz, 3500MHz, 5000MHz.
4. Dwell time of radiated	0.0015 decade/s
5. Waiting Time	1 Sec.

10.4 Test Results

PASS.

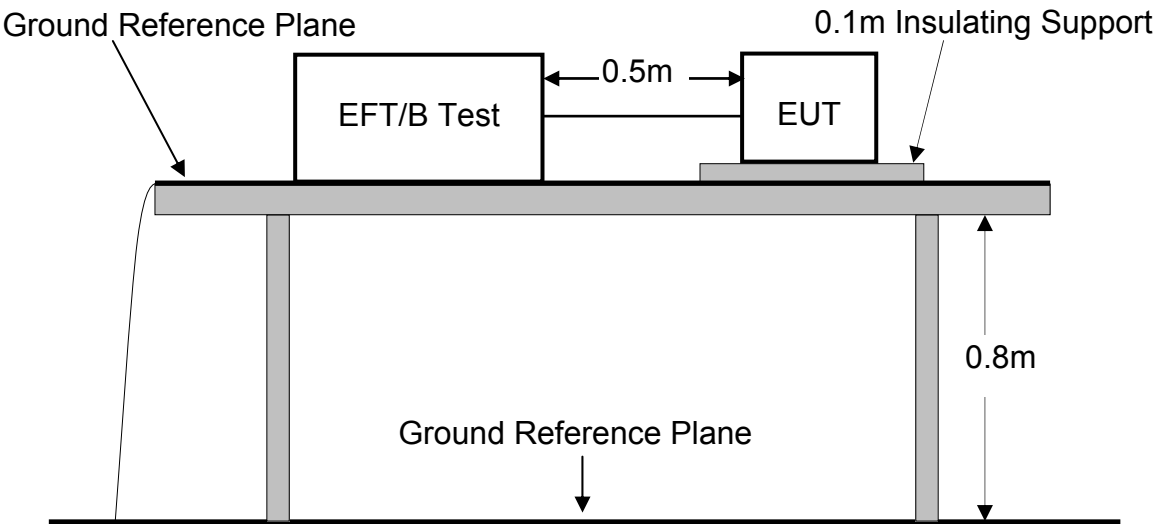
Please refer to the following page.

RF Field Strength Susceptibility Test Results

Ambient Condition:	Temp.: 25 °C	R.H.: 50 %	Air Pressure: 101 kPa	
Power Supply:	AC 230V 50Hz AC 110V 60Hz	Required Performance Criterion: A		
Test Specifications:	Modulation: 1kHz, 80%AM; Step Size: 1%; Dwell Time: 1s			
Tested mode:	Full Load(POE+LAN)			
Frequency (MHz)	Level (V/m)	Antenna polarity	Side	Result (Performance Criterion)
80-1000 1800 2600 3500 5000	3	Horizontal	Front	A
			Left	A
			Right	A
			Back	A
		Vertical	Front	A
			Left	A
			Right	A
			Back	A
Note: During the test, the EUT did not show any abnormalities.				
Test Engineer: Rick				

11. ELECTRICAL FAST TRANSIENT/BURST TEST

11.1 Block Diagram of Test Setup



11.2 Test Standard and Severity Levels

11.2.1 Test Standard
EN 55035
(IEC 61000-4-4, Severity Level, Level 2: 1KV)

11.2.2 Severity level

Open circuit output test voltage and repetition rate of the impulses				
Level	On power port, PE		On I/O (Input/Output) Signal data and control ports	
	Voltage peak KV	Repetition rate KHz	Voltage peak KV	Repetition rate KHz
1.	0.5	5 or 100	0.25	5 or 100
2.	1.0	5 or 100	0.5	5 or 100
3.	2.0	5 or 100	1.0	5 or 100
4.	4.0	5 or 100	2.0	5 or 100
X	Special	Special	Special	Special
Note 1 Use of 5 KHz repetition rates is traditional; however, 100 KHz is closer to reality. Product committees should determine which frequencies are relevant for specific products or product types. Note 2 With some products, there may be no clear distinction, between power ports and I/O ports, in which case it is up to product committees to make this determination for test purposes. Note 3 "X" is an open level. The level has to be specified in the dedicated equipment specification.				

11.3 Test Procedure

The E.U.T. is put on the table which is 0.8 meter high above the ground. This reference ground plane shall project beyond the E.U.T. by at least 0.1m on all sides and the minimum distance between E.U.T. and all other conductive structure, except the ground plane beneath the E.U.T., shall be more than 0.5m.

11.3.1 For input and output AC power ports:

The E.U.T. is connected to the power mains by using a coupling device which couples the EFT interference signal to AC power lines. Both polarities of the test voltage should be applied during compliance test and the duration of the test is 2 minus.

11.3.2 For signal lines ports:

It's unnecessary to test.

11.3.3 For DC ports:

It's unnecessary to test.

11.4 Test Result

PASS.

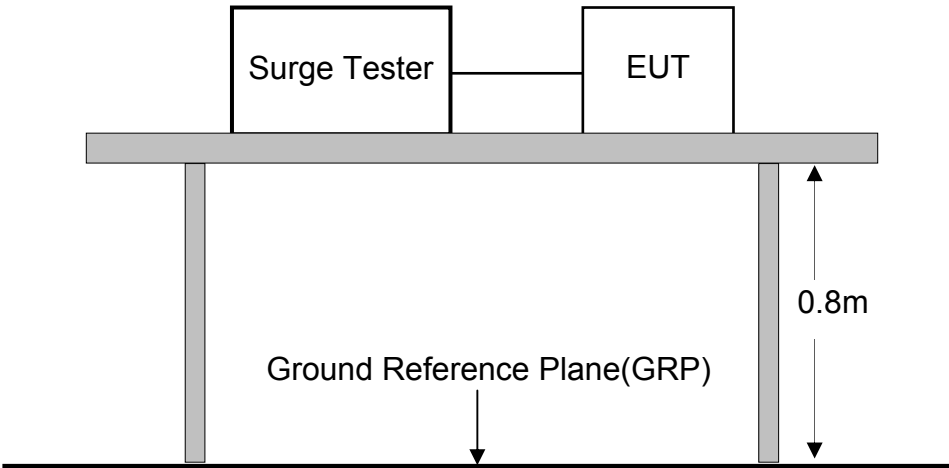
Please refer to the following page.

Electrical Fast Transient/Burst Test Results

Ambient Condition:	Temp.: 25 °C	R.H.:50 %	Air Pressure: 101 kPa
Power Supply:	AC 230V 50Hz AC 110V 60Hz	Required Performance Criterion: B	
Test Specifications:	Repetition Frequency: 5kHz; Duration: 15ms; Period: 300ms		
Test mode:	Full Load(POE+LAN)		
Line :	☒ AC Mains	☒ Signal line	☐ DC line
Coupling :	☒ Direct	☒ Capacitive	
Line	Test Voltage	Result (Performance Criterion)	
L	±1KV	A	
N	±1KV	A	
PE	±1KV	A	
L 、 N	±1KV	A	
L 、 PE	±1KV	A	
N 、 PE	±1KV	A	
L 、 N 、 PE	±1KV	A	
Telecommunication Port	-	-	
Signal line	±0.5KV	A	
Note : During the test, the EUT did not show any abnormalities.			
Test Engineer: Elias			

12. SURGE IMMUNITY TEST

12.1 Block Diagram of Test Setup



12.2 Test Standard and Severity Levels

12.2.1 Test Standard

EN 55035

(IEC 61000-4-5, Severity Level: Line To Line, Level 3: 2.0KV,
Line To Earth, Level 4: 4.0KV)

12.2.2 Severity level

Severity Level	Open-Circuit Test Voltage KV
1	0.5
2	1.0
3	2.0
4	4.0
*	Special

12.3 Test Procedure

1. Set up the E.U.T. and test generator as shown on Section 12.1.
2. For line to line coupling mode, provide a 2.0KV 1.2/50us voltage surge (at open-circuit condition) and 8/20us current surge to E.U.T. selected points.
3. At least 5 positive and 5 negative (polarity) tests with a maximum 1/min repetition rate are conducted during test.
4. Different phase angles are done individually.
5. Record the E.U.T. operating situation during compliance test and decide the E.U.T. immunity criterion for above each test.

12.4 Test Result

PASS.

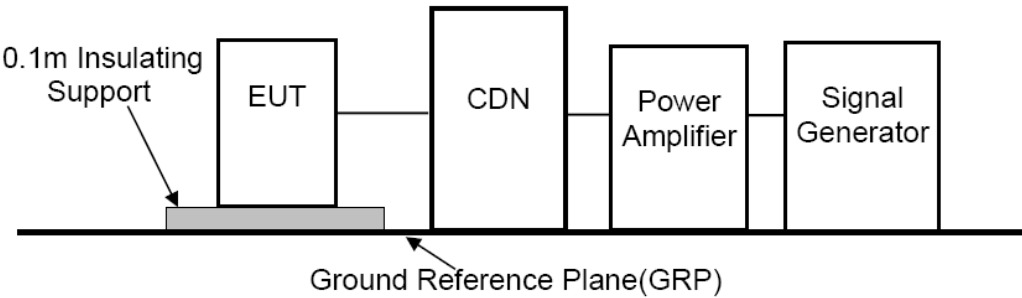
Please refer to the following page.

Surge Immunity Test Results

Ambient Condition:	Temp.: 25 °C	R.H.:50 %	Air Pressure: 101 kPa
Power Supply:	AC 230V 50Hz AC 110V 60Hz	Required Performance Criterion: B	
Test Specifications:	Voltage surge 1.2/50 us ; Current surge 8/20 us ; Five positive and five negative pulses each at 0°, 90°, 180° and 270°.		
Test mode:	Full Load(POE+LAN)		
Line	Phase Angle	Test Voltage	Result (Performance Criterion)
L-N	90°	+2KV	A
	270°	-2KV	A
L-PE	90°	+4KV	A
	270°	-4KV	A
N-PE	90°	-4KV	A
	270°	+4KV	A
Telecommunication port	-	-	-
DC line	-	-	-
Note : During the test, the EUT did not show any abnormalities.			
Test Engineer: Elias			

13. INJECTED CURRENTS SUSCEPTIBILITY TEST

13.1 Block Diagram of Test Setup



13.2 Test Standard and Severity Levels

13.2.1 Test Standard

EN 55035

(IEC 61000-4-6, Severity Level: 3V (rms), 0.15MHz ~ 80MHz)

13.2.2 Severity level

Level	Field Strength V/m
0.15-10MHz	3
10-30MHz	3 to 1 *
30-80MHz	1

Note*: Where the amplitude of a test level varies over a given frequency range, it changes linearly with respect to the logarithm of the frequency.

13.3 Test Procedure

1. Set up the E.U.T., CDN and test generators as shown on Section 13.1.
2. Let the E.U.T. work in test mode and measure it.
3. The E.U.T. are placed on an insulating support 0.1m high above a ground reference plane. CDN (coupling and decoupling device) is placed on the ground plane about 0.3m from E.U.T.. Cables between CDN and E.U.T. are as short as possible, and their height above the ground reference plane shall be between 30 and 50 mm (where possible).
4. The disturbance signal described below is injected to E.U.T. through CDN.
5. The E.U.T. operates within its operational mode(s) under intended climatic conditions after power on.
6. The frequency range is swept from 150 KHz to 10 MHz using 3V signal level, from 10 MHz to 30 MHz using 3V to 1V changes linearly, from 30 MHz to 80 MHz using 1V signal level, and with the disturbance signal 80% amplitude modulated with a 1KHz sine wave.
7. The rate of sweep shall not exceed 1.5×10^{-3} decades/s. Where the frequency is swept incrementally, the step size shall not exceed 1% of the start and thereafter 1% of the preceding frequency value.
8. Recording the E.U.T. operating situation during compliance testing and decide the E.U.T. immunity criterion.

13.4 Test Result

PASS.

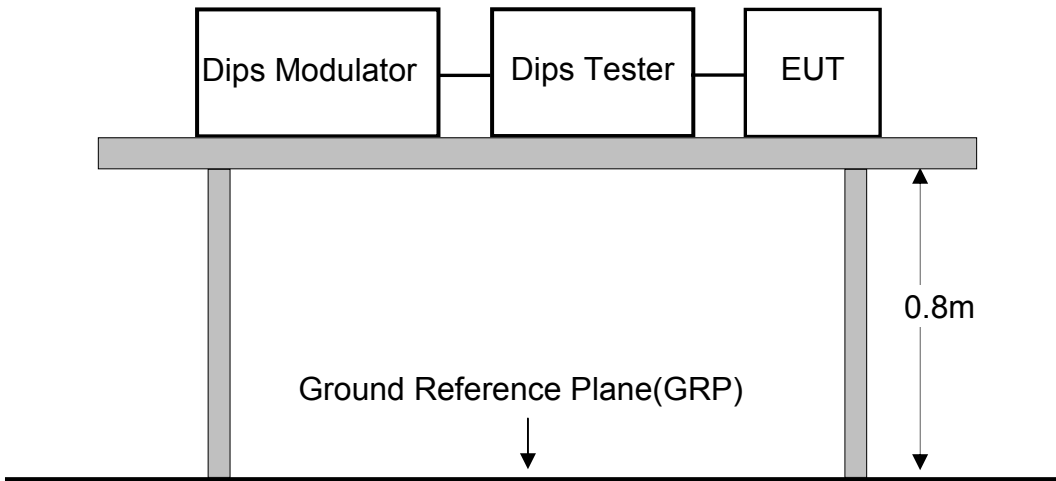
Please refer to the following page.

Injected Currents Susceptibility Test Results

Ambient Condition:	Temp.: 25 °C	R.H.: 50 %	Air Pressure:101 kPa
Power Supply:	AC 230V 50Hz AC 110V 60Hz	Required Performance Criterion: A	
Test Specifications:	Modulation : 1KHz, 80%AM, Step Size : 1%, Dwell Time : 1s		
Test mode:	Full Load(POE+LAN)		
Test Port	Frequency (MHz)	Level(V)	Result (Performance Criterion)
AC Mains POE/LAN Ports	0.15~10	3	A
AC Mains POE/LAN Ports	10~30	3 to 1	A
AC Mains POE/LAN Ports	30~80	1	A
Note : During the test, the EUT did not show any abnormalities.			
Test Engineer: Rick			

14. VOLTAGE DIPS AND INTERRUPTIONS TEST

14.1 Block Diagram of Test Setup



14.2 Test Standard and Severity Levels

14.2.1 Test Standard
EN 55035
(IEC 61000-4-11)

14.2.2 Severity level

Test Level $\%U_T$	Voltage dip and short interruptions $\%U_T$	Duration (in period)
0	100	0.5
40	60	1
70	30	5
		10
		25
		50
		*

14.3 Test Procedure

1. Set up the E.U.T. and test generator as shown on Section 14.1.
2. The interruptions is introduced at selected phase angles with specified duration.
3. Record any degradation of performance.

14.4 Test Result

PASS.

Please refer to the following page.

Voltage Dips And Interruptions Test Results

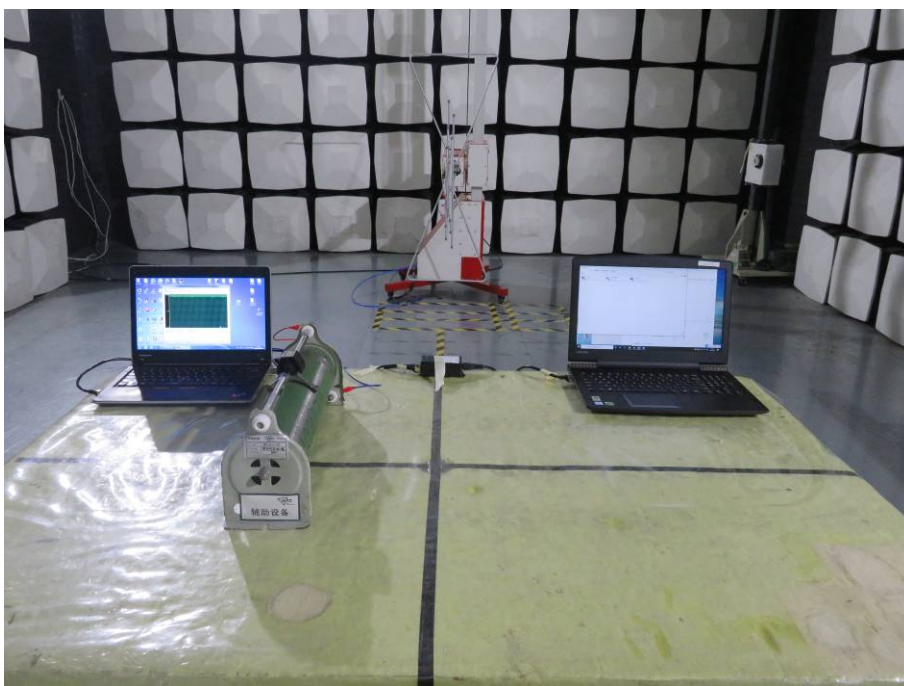
Ambient Condition:	Temp.: 25 °C	R.H.: 50 %	Air Pressure: 101 kPa
Power Supply:	AC 240V 50Hz AC 100V 60Hz	Required Performance Criterion: B & C	
Test Specifications:	0%U _T , 0.5Cycle; 70%U _T , 25Cycle; 0%U _T ,250Cycle		
Test mode:	Full Load(POE+LAN)		
Test Level % UT	Duration (in period)		Result (Performance Criterion)
	50Hz	60Hz	
0	0.5P	0.5P	A
70	25P	30P	A
0	250P	300P	B
Note : During the test, the EUT no output, but it can be recovered by itself after test.			
Test Engineer: Elias			

15. PHOTOGRAPH

15.1 Photo of Conducted Emission Measurement



15.2 Photo of Radiated Emission Measurement



15.3 Photo of Harmonic/Flicker Measurement



15.4 Photo of Electrostatic Discharge Test



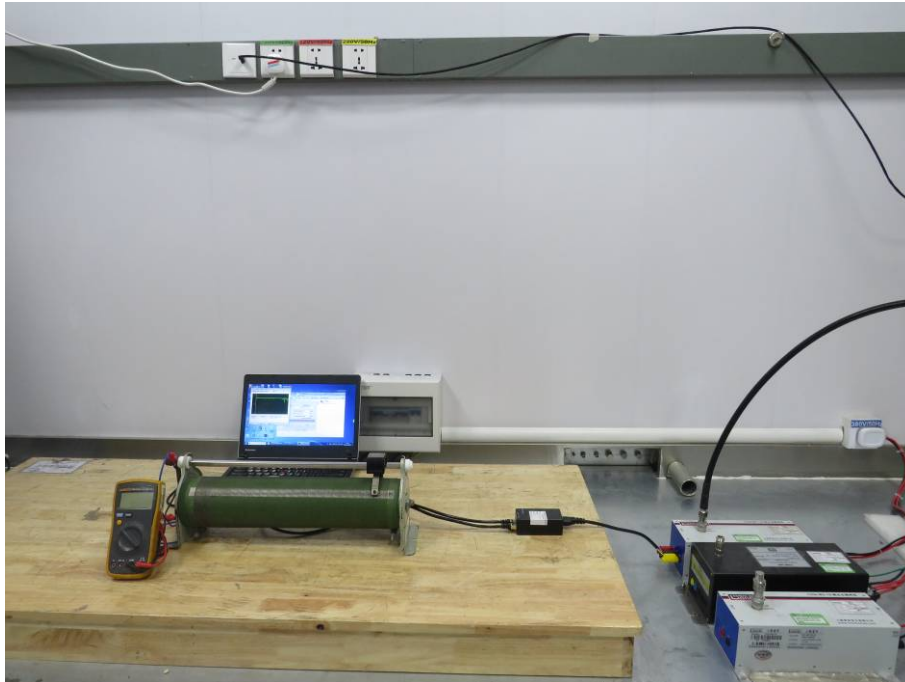
15.5 Photo of RF Field Strength Susceptibility Test



15.6 Photo of Electrical Fast Transient /Surge /Voltage Dips Test



15.7 Photo of Injected Currents Susceptibility Test



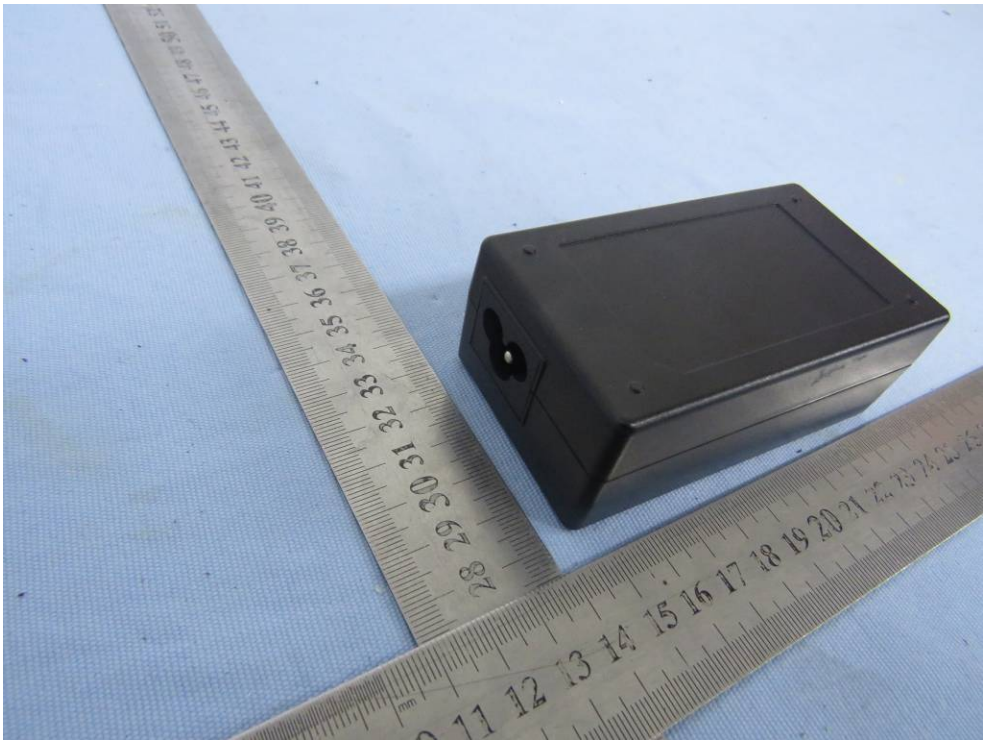
APPENDIX I

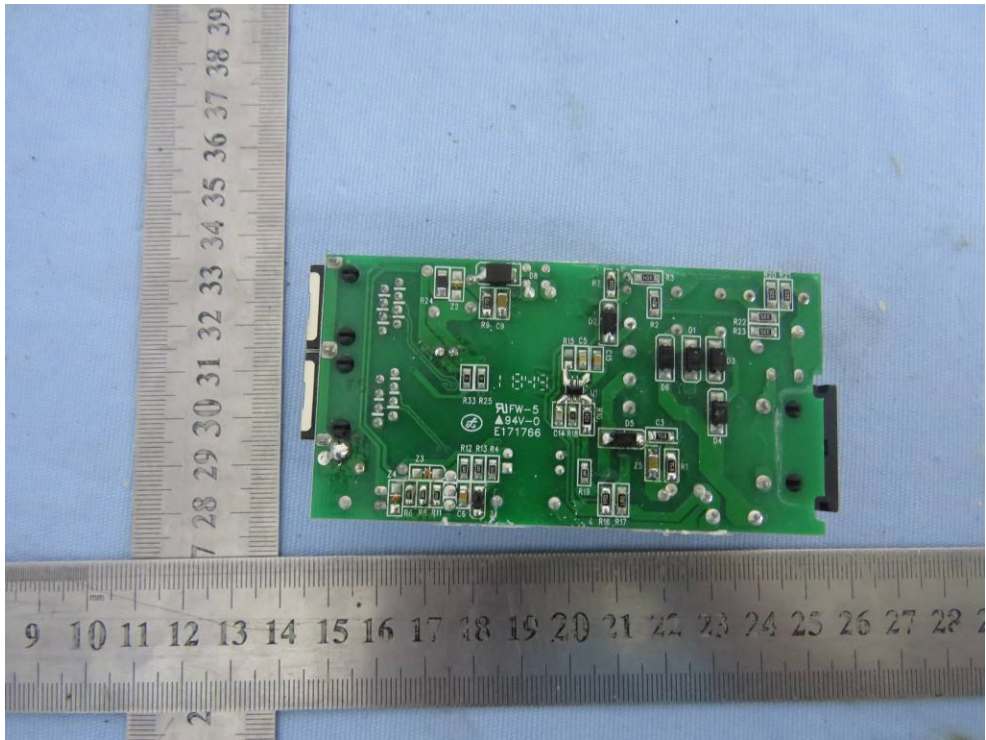
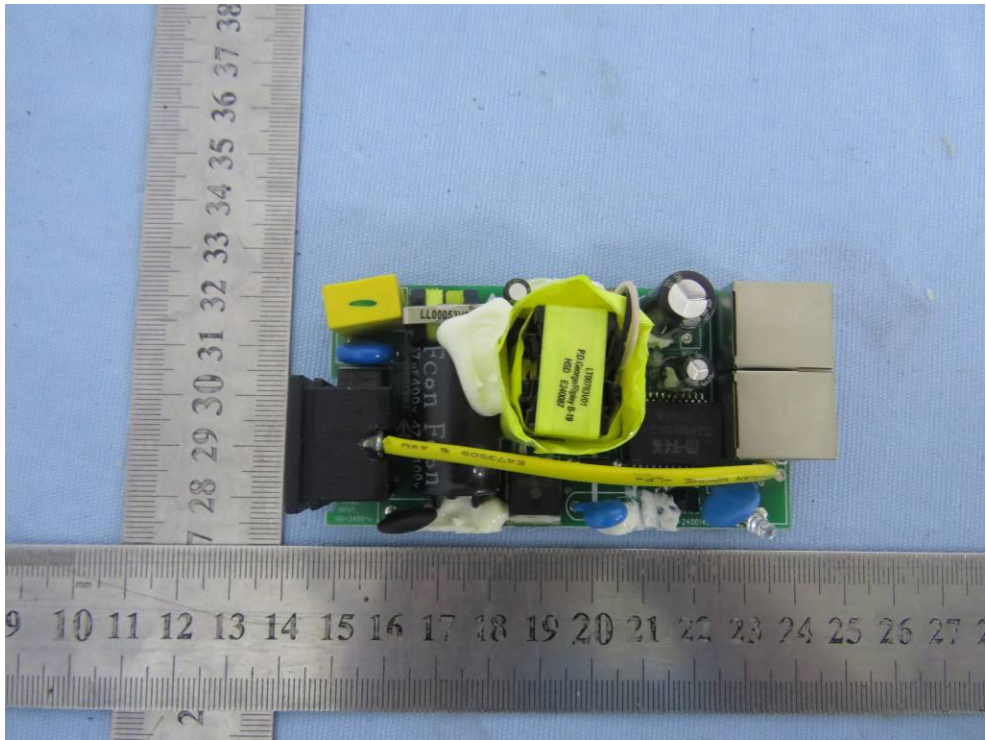
(Photos of E.U.T.)

General Appearance of the E.U.T.

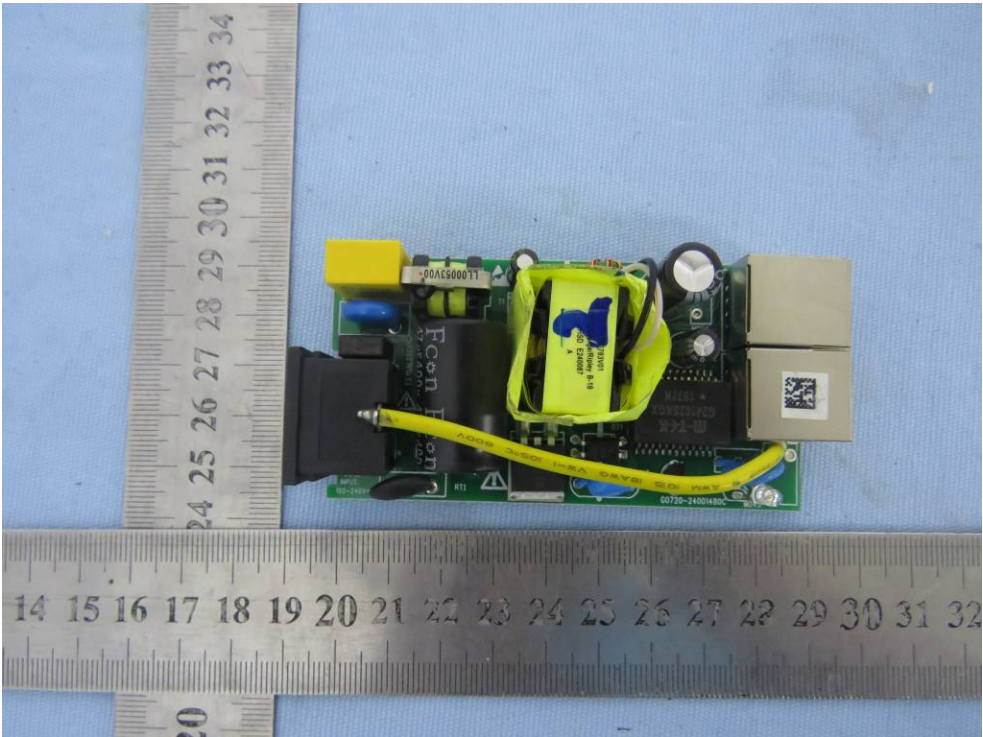
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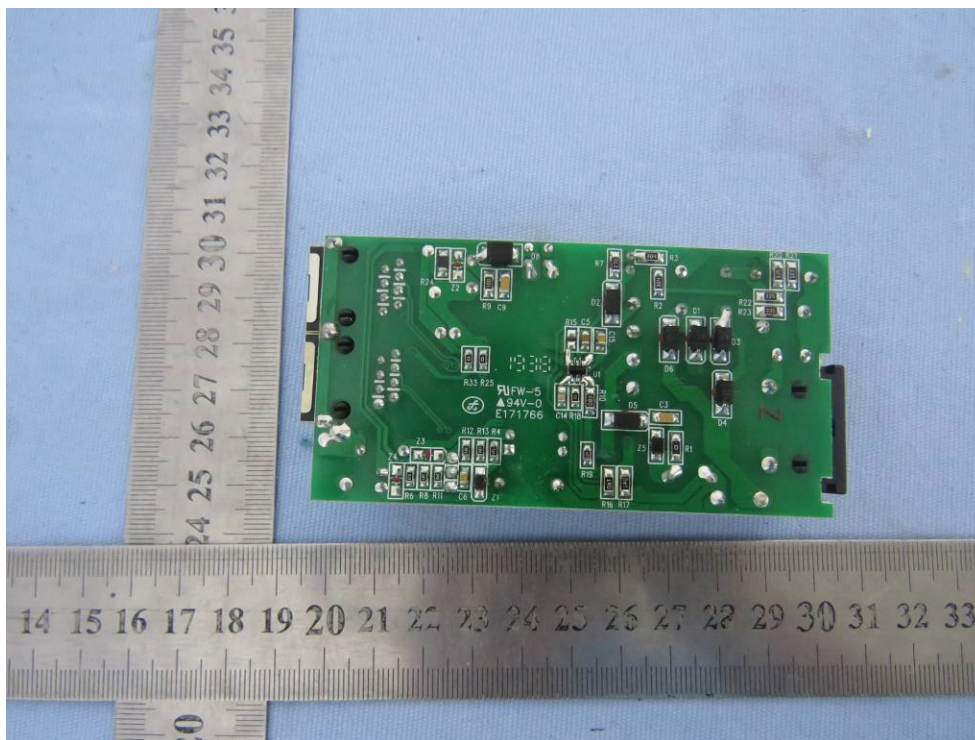


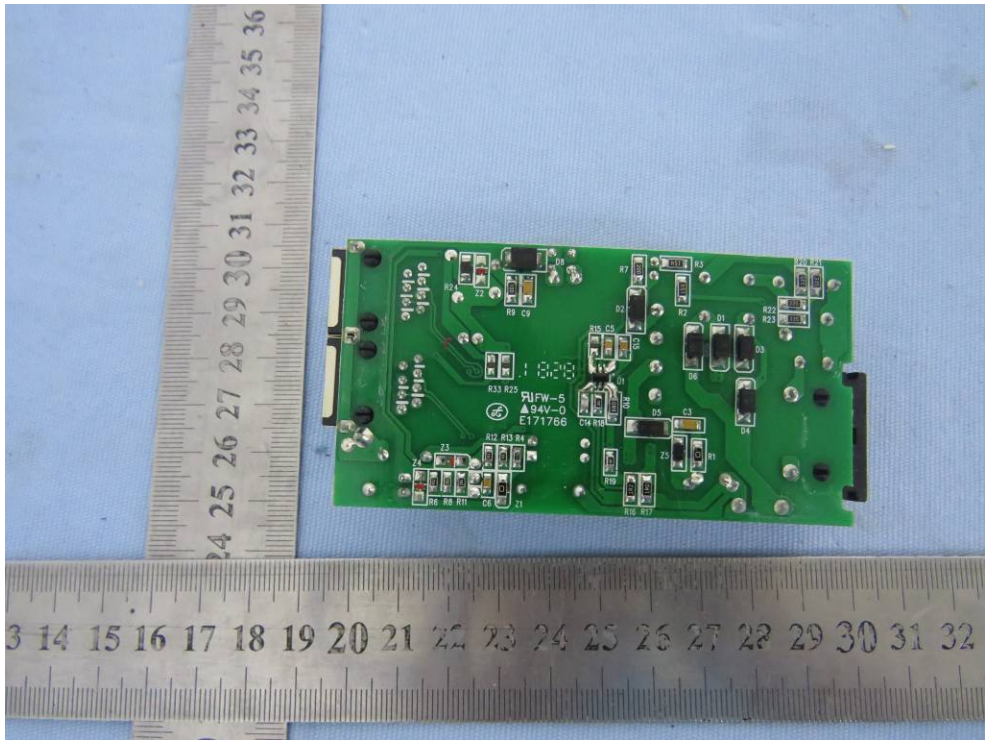
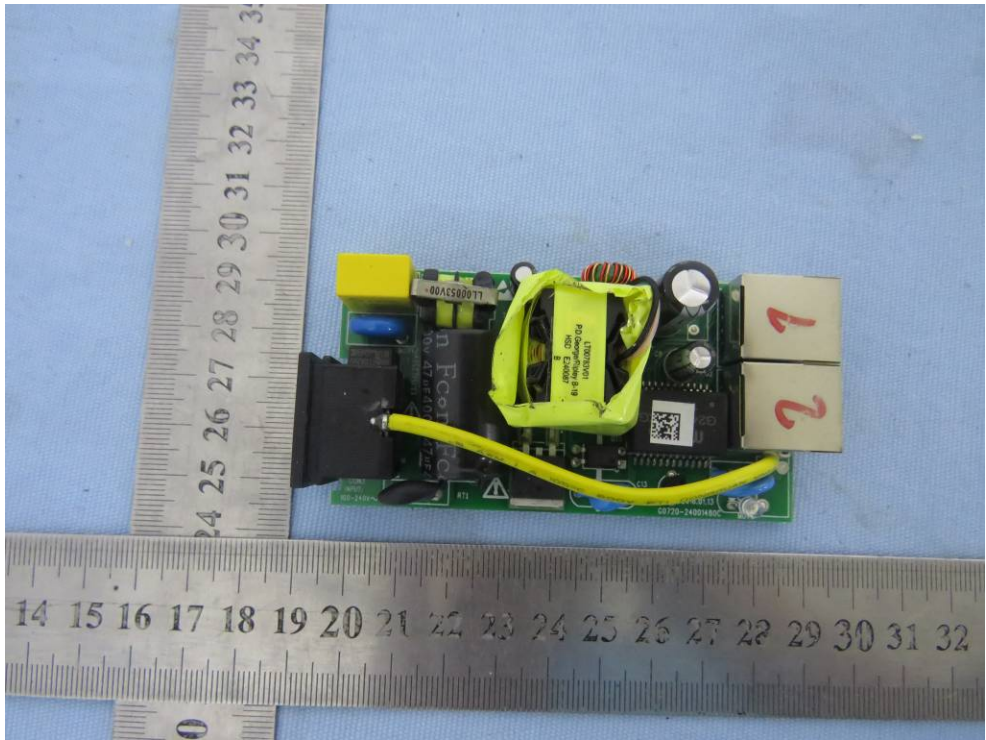


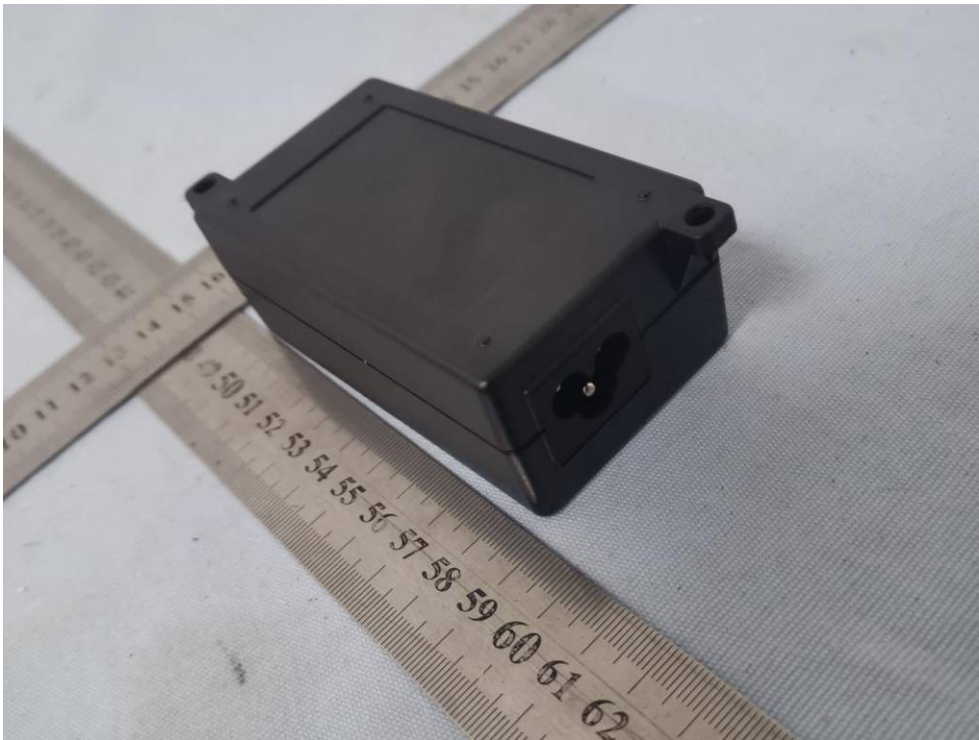


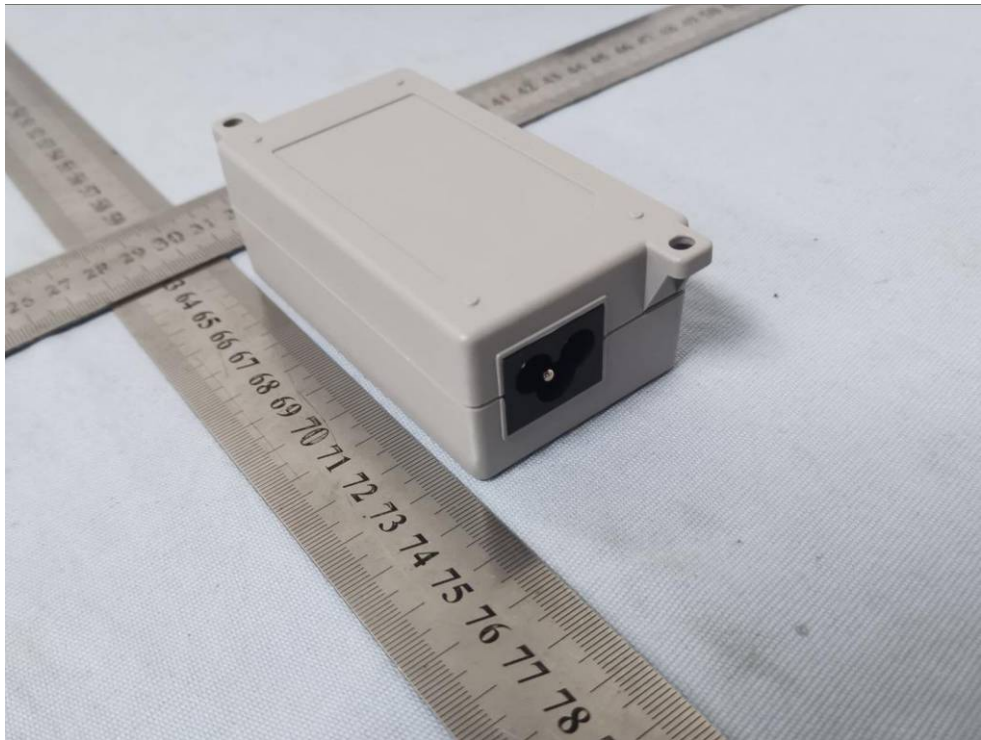
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