CE/EMC COMPLIANCE REPORT

for

GlobTek, Inc.

Switching Adapter

Prepared for	:	GlobTek, Inc.
Address	:	186 Veterans Drive Northvale, NJ 07647 USA

Prepared By	:	GlobTek, Inc.
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Report Number	:	**GT1605200518**
Date of Report	:	Mar. 02, 2017

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CERTIFICATION

Applicant: **Address:**	GlobTek Inc. 186 Veterans Drive Northvale, NJ 07647 USA		
Factory 1: **Address:**	GlobTek Inc. 186 Veterans Drive Northvale, NJ 07647 USA		
Factory 2: **Address:**	GlobTek (Suzhou) Co., Ltd Building 4, No. 76, Jin Ling East Rd., Suzhou Industrial Park, Jiangsu CN-215021, China		
E.U.T:	Switching Adapter		
Model Number:	GT-86180-WWVV-W2Z, see appended		
Trade Name:	**GlobTek**	**Serial No:**	------
Date of Receipt:	Feb. 26, 2017	**Date of Test:**	Feb. 26, - Mar. 01, 2017
Test Specification:	EN 55032:2015 CISPR 32:2012 EN 61000-3-2:2014 EN 61000-3-3:2013 EN 55020:2007+A11:2011 CISPR 20:2006 EN 55024:2010+A1:2015 CISPR 24:2010		
Test Result:	The equipment under test was found to be compliance with the requirements of the standards applied. **Issue Date: Mar. 02, 2017**		

Prepared by	Tested by:	
Hans Moritz	Jessica Cheng	GlobTek, Inc.
Hans Moritz / QA Manager	Jessica Cheng / Senior Specialist	

Abbreviations: OK/P=passed fail/F=failed n.a/N=not applicable E.U.T=equipment under tested

This test report is based on a single evaluation of one sample of above mentioned products ,It is not permitted to be duplicated in extracts without written approval.

1. GENERAL PRODUCT INFORMATION

1.1. Product Function

Refer to Technical Construction Form and User Manual.

1.2. Description of Device (EUT)

Description : Switching Adapter
Model No. : GT-86180-1812-W2Z, GT-86180-1809-W2Z

System Input Voltage : AC 100V-240V, 50/60Hz, 0.6A
Power : 18.0W
DC Line : Unshielded, Undetachable 1.5m

1.3. Difference between Model Numbers

MODEL	INPUT	OUTPUT		
	V, A	V dc	Max. A	Max. W
GT-86180-1812-W2Z	100-240Vac, 50/60Hz, 0.6A	12.0	0.01-1.50	18.0
GT-86180-1812-W2Z	200-240Vac, 50/60Hz, 0.6A	12.0	0.01-1.50	18.0
GT-86180-1812-W2Z	100-120Vac, 50/60Hz, 0.6A	12.0	0.01-1.50	18.0
GT-86180-1812-W2Z	100-240Vac, 50/60Hz, 0.6A	12.0	0.01-1.50	18.0
GT-86180-1812-W2Z	100-240Vac, 50/60Hz, 0.6A	12.0	0.01-1.50	18.0
GT-86180-1809-W2Z	100-240Vac, 50/60Hz, 0.6A	9.0	0.01-2.0	18.0
GT-86180-1809-W2Z	200-240Vac, 50/60Hz, 0.6A	9..0	0.01-2.0	18.0
GT-86180-1809-W2Z	100-120Vac, 50/60Hz, 0.6A	9.0	0.01-2.0	18.0

Note:

Variable:	Range of variable:	Content:
W2Z	W2Z	Can be optional, when it is blank, denote to be with replaceable plug
Z	'Z' can be E,U, C, I, A, K, AR, BR, SA, or Blank	Designates type of plug and can be E for European plug, U for British plug, blank for North American / Japan plug/Taiwan plug, C for Chinese plug, I for India plug, A for Australia plug, K for Korea plug, AR for Argentina plug, BR for Brazilian plug, SA for South African plug.
WWVV	'WW' is Wattage, and 'VV' is Voltage	WW is the standard output wattage, with a maximum value of "18". VV is the standard rated output voltage designation, can be "09" or "12"

1.4. Independent Operation Modes

The basic operation modes are:

1.4.1. Full Load

1.4.2. Half Load

1.4.3. No Load

1.5. Test Supporting System

2. TEST SITES

2.1.Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below.

EMISSION(EN 55032:2015)			
Description of Test Item	**Standard**	**Limits**	**Results**
Conducted disturbance at mains terminals	EN 55032:2015	Class B	PASS
		Minimum passing margin is 7.96dB at 0.19MHz	
Radiated disturbance	EN 55032:2015	Class B	PASS
		Minimum passing margin is 6.15dB at 57.16MHz	
Harmonic current emissions	EN 61000-3-2:2014	Class A	N/A
Voltage fluctuations & flicker	EN 61000-3-3:2013	Section 4.4	PASS

IMMUNITY (EN 55024:2010+A1:2015)				
Description of Test Item	**Basic Standard**	**Performance Criteria**	**Observation Criteria**	**Results**
Electrostatic discharge (ESD)	EN 61000-4-2:2009	B	A	PASS
Radio-frequency, Continuous radiated disturbance	EN 61000-4-3:2006+ A1:2008+A2:2010	A	A	PASS
Electrical fast transient (EFT)	EN 61000-4-4:2012	B	A	PASS
Surge (Input a.c. power port)	EN 61000-4-5:2006	B	A	PASS
Radio-frequency,Continuous conducted disturbance	EN 61000-4-6:2009	A	A	PASS
Power frequency magnetic field	EN 61000-4-8:2010	A	A	PASS
Voltage dips, >95% reduction	EN 61000-4-11:2004	B	A	PASS
Voltage dips, 30% reduction		C	A	PASS
Voltage interruptions		C	B	PASS
N/A is an abbreviation for Not Applicable.				

IMMUNITY (EN 55020:2007+A11:2011)				
Description of Test Item	**Basic Standard**	**Performance Criteria**	**Observation Criteria**	**Results**
Electrostatic discharge (ESD)	EN 61000-4-2:2009	B	A	PASS
Electrical fast transient (EFT)	EN 61000-4-4:2012	B	A	PASS
N/A is an abbreviation for Not Applicable.				

Name of Firm : GlobTek, Inc.

Site Location : 186 Veterans Drive Northvale, NJ 07647 USA

2.3. List of Test and Measurement Instruments

2.3.1. For conducted emission at the mains terminals test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde & Schwarz	ESHS30	832354	June 25,16	1 Year
Artificial Mains Networ	Rohde & Schwarz	ENV216	101260	June 25,16	1 Year
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	101100	June 25,16	1 Year

2.3.2. For radiated emission test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde & Schwarz	ESVS10	100004	June 25,16	1 Year
Spectrum Analyzer	Agilent	E4411B	MY50140697	June 25,16	1 Year
Bilog Antenna	Teseq	CBL 6111D	27090	Oct. 24,16	1 Year
Signal Amplifier	Agilent	310N	187037	June 25,16	1 Year

2.3.3. For harmonic current emissions and voltage fluctuations/flicker test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Power Analyzer	California Instruments	3001IX-208-CTS	1642A03400	Oct. 24,16	1 Year
Voltage Source	California Instruments	3001IX-208	1641A00463	N/A	N/A

2.3.4. For electrostatic discharge immunity test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
ESD Generator	HAEFELY	ONYX16	174153	June 28,16	1 Year

2.3.5. Radio Frequency Electromagnetic Field Immunity (R/S) Test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Signal Generator	HP	8648A	3426A01263	Jan.15,17	1 Year
Amplifier	A&R	500A100	17034	Jan.15,17	1 Year
Amplifier	A&R	100W	17028	Jan.15,17	1 Year
Isotropic Field Monitor	A&R	FM2000	16829	Jan.15,17	1 Year
Isotropic Field Probe	A&R	FP2000	16755	Jan.15,17	1 Year
Biconic Antenna	EMCO	3108	9507-2534	Jan.15,17	1 Year
Log-periodic Antenna	A&R	AT1080	16812	Jan.15,17	1 Year

2.3.6. For electrical fast transient/burst immunity test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EFT Generator	HAEFELY	ECOMPACT 4	173659	June 25,16	1 Year
Capacitive Coupling Clamp	HAEFELY	IP4A	181035	June 25,16	1 Year

2.3.7. For surge immunity test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Surge Controller	HAEFELY	PSURGE8000	174034	June 25,16	1 Year
Surge Impulse Module	HAEFELY	PIM100	174125	June 25,16	1 Year
Surge Coupling Module	HAEFELY	PCD100	174134	June 25,16	1 Year

2.3.8. For injected currents susceptibility test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
CS Test System	FRANKONIA	CIT-10	126A1163	June 25,16	1 Year
CDN	FRANKONIA	CDN-M2+M3	A2210150	June 25,16	1 Year
EM-Clamp	FRANKONIA	EMCL-20	132A1207	June 25,16	1 Year

2.3.9.For power frequency magnetic field immunity test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Magnetic Field Tester	HEAFELY	MFS 100		June 25,16	1 Year

2.3.10.For voltage dips and short interruptions immunity test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
DIPS Tester	HAEFELY	ECOMPACT 4	173659	June 25,16	1 Year

3. TEST SET-UP AND OPERATION MODES

3.1. Principle of Configuration Selection

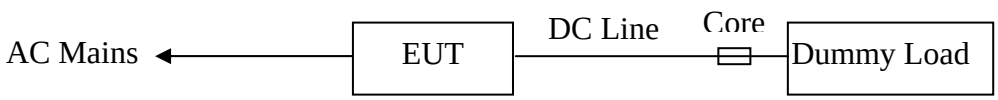
Emission: The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the Operating Instructions.

Immunity: The equipment under test (EUT) was configured to the representative operating mode and conditions.

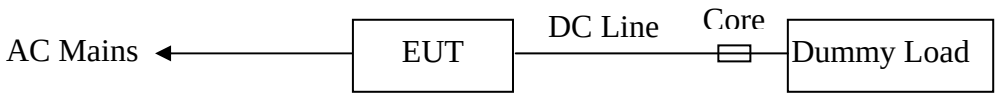
3.2. Block Diagram of Test Set-up

System Diagram of Connections Between EUT and Simulators

3.2.1. For emission test



3.2.2. For immunity test



(EUT: Switching Adapter)

3.3. Test Operation Mode and Test Software

Refer to Test Setup in clause 4 & 5.

3.4. Special Accessories and Auxiliary Equipment

None.

3.5. Countermeasures to Achieve EMC Compliance

None.

4. EMISSION TEST RESULTS

4.1. Conducted Emission at The Mains Terminals Test

RESULT	**:**	**Pass**
Test procedure	:	EN 55032:2015
Frequency range	:	0.15～30MHz
Test Site	:	Shielded Room
Limits	:	EN 55032:2015 Class B

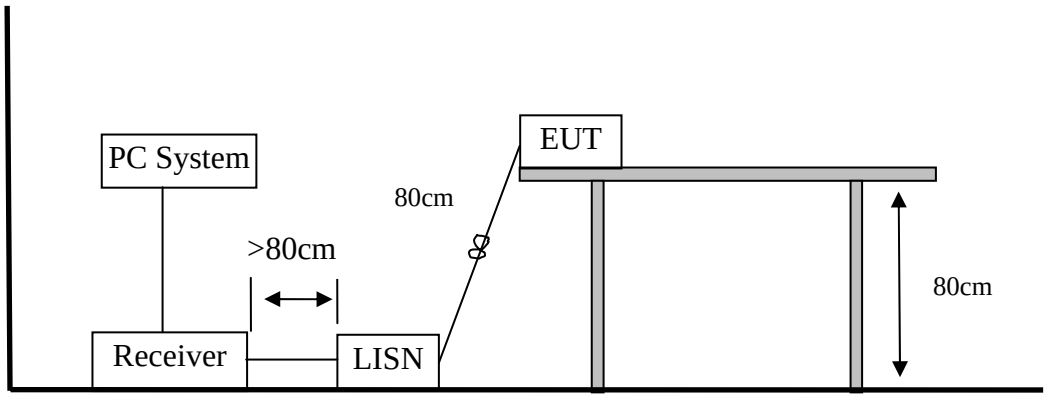
Test Setup

Date of test	:	Feb. 28, 2017
Model No.	:	GT-86180-1812-W2Z, GT-86180-1809-W2Z
Input Voltage	:	AC 230V/50Hz, AC 110V/60Hz
Operation Mode	:	Full Load, Half Load, No Load

The frequency range from 150 kHz to 30 MHz was investigated.

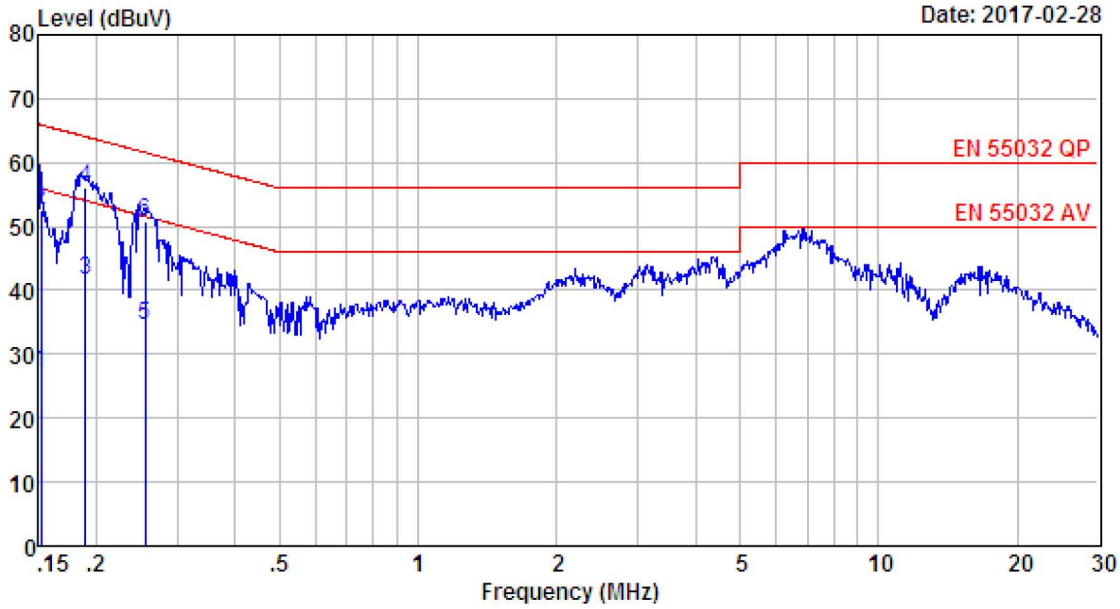
The bandwidth of the test receiver was set at 9 kHz.

The test data of the worst case condition(s) was reported on the following page.



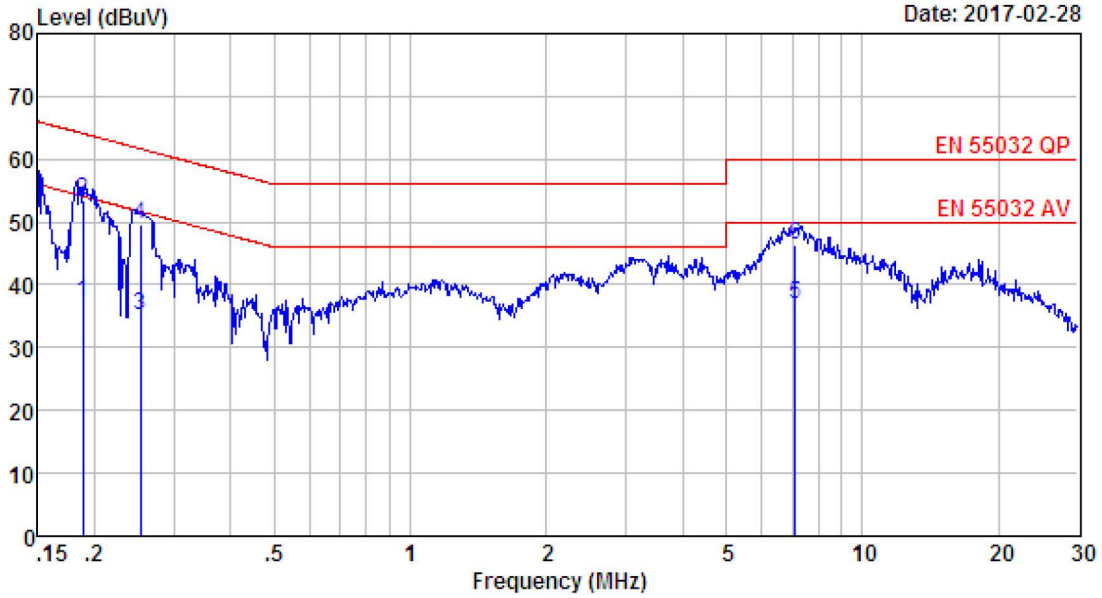
Note: Test uncertainty: ±2.54dB at a level of confidence of 95%.

Test Data



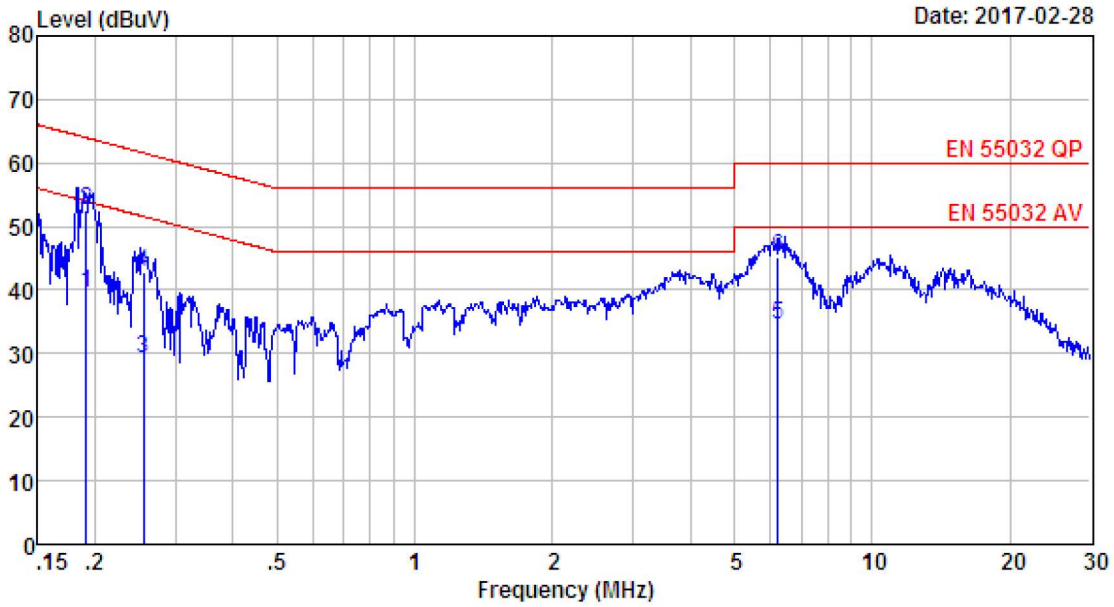
Site no : 844 Shield Room Data no. : 832
Env. / Ins. : Temp:25.3'C Humi:58% Press:101.50kPa LINE Phase : NEUTRAL
Limit : EN 55032 QP
Engineer : Hale
EUT : Switching Adapter
Power : AC 110V/60Hz
M/N : GT-86180-1812-W2Z
Test Mode : Full Load(Output:12V/1.5A)

	Freq. (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuv)	Limits (dBuv)	Margin (dB)	Remark
1	0.15	9.46	9.81	8.03	27.30	55.91	28.61	Average
2	0.15	9.46	9.81	33.42	52.69	65.91	13.22	QP
3	0.19	9.58	9.80	22.32	41.70	54.06	12.36	Average
4	0.19	9.58	9.80	36.59	55.97	64.06	8.09	QP
5	0.25	9.60	9.82	15.18	34.60	51.60	17.00	Average
6	0.25	9.60	9.82	31.29	50.71	61.60	10.89	QP



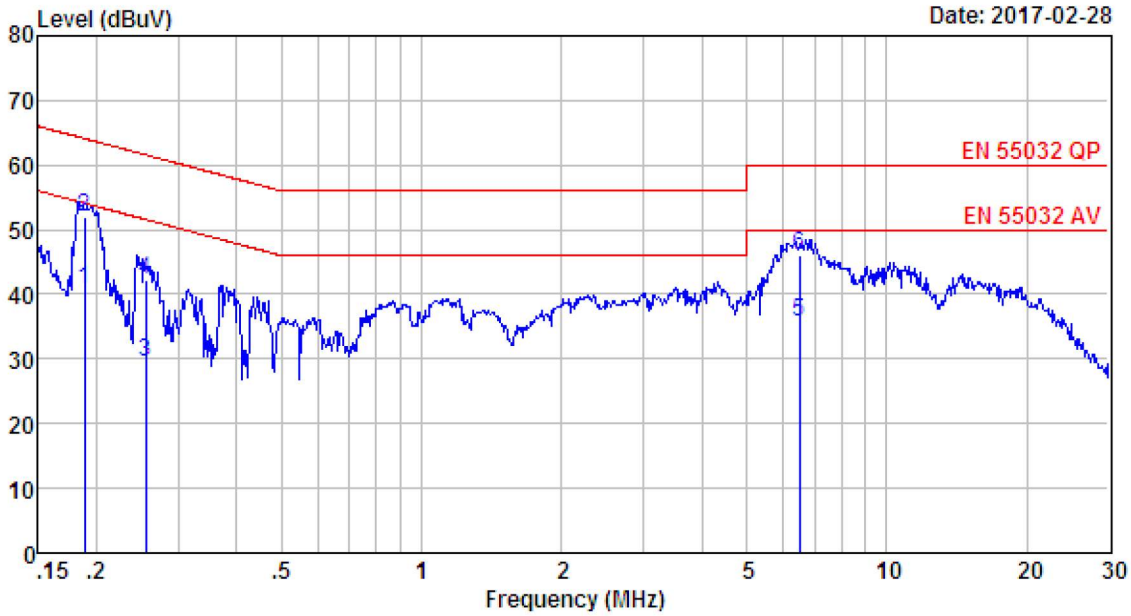
Site no : 844 Shield Room Data no. : 834
Env. / Ins. : Temp:25.3'C Humi:58% Press:101.50kPa LINE Phase : LINE
Limit : EN 55032 QP
Engineer : Hale
EUT : Switching Adapter
Power : AC 110V/60Hz
M/N : GT-86180-1812-W2Z
Test Mode : Full Load(Output:12V/1.5A)

	Freq. (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuv)	Limits (dBuv)	Margin (dB)	Remark
1	0.19	9.61	9.80	17.79	37.20	54.11	16.91	Average
2	0.19	9.61	9.80	33.88	53.29	64.11	10.82	QP
3	0.25	9.61	9.82	15.67	35.10	51.64	16.54	Average
4	0.25	9.61	9.82	30.18	49.61	61.64	12.03	QP
5	7.10	9.66	9.86	17.28	36.80	50.00	13.20	Average
6	7.10	9.66	9.86	26.96	46.48	60.00	13.52	QP



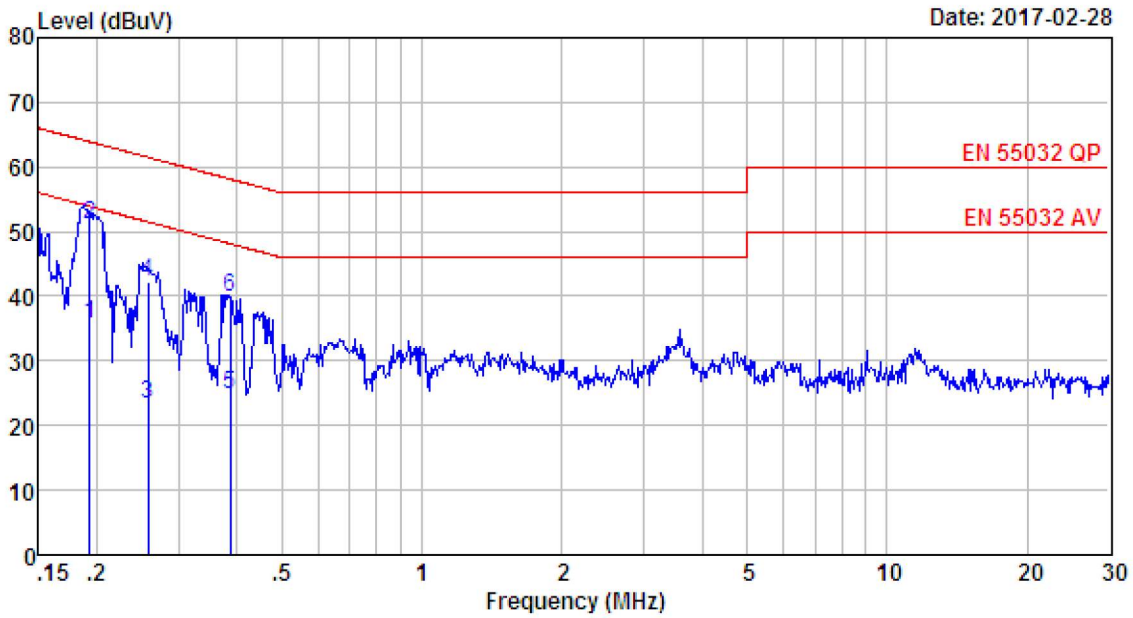
Site no : 844 Shield Room Data no. : 836
Env. / Ins. : Temp:25.3'C Humi:58% Press:101.50kPa LINE Phase : NEUTRAL
Limit : EN 55032 QP
Engineer : Hale
EUT : Switching Adapter
Power : AC 230V/50Hz
M/N : GT-86180-1812-W2Z
Test Mode : Full Load(Output:12V/1.5A)

	Freq. (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuv)	Limits (dBuv)	Margin (dB)	Remark
1	0.19	9.58	9.80	20.22	39.60	53.98	14.38	Average
2	0.19	9.58	9.80	33.31	52.69	63.98	11.29	QP
3	0.25	9.60	9.82	9.68	29.10	51.60	22.50	Average
4	0.25	9.60	9.82	23.27	42.69	61.60	18.91	QP
5	6.22	9.66	9.86	15.08	34.60	50.00	15.40	Average
6	6.22	9.66	9.86	25.60	45.12	60.00	14.88	QP



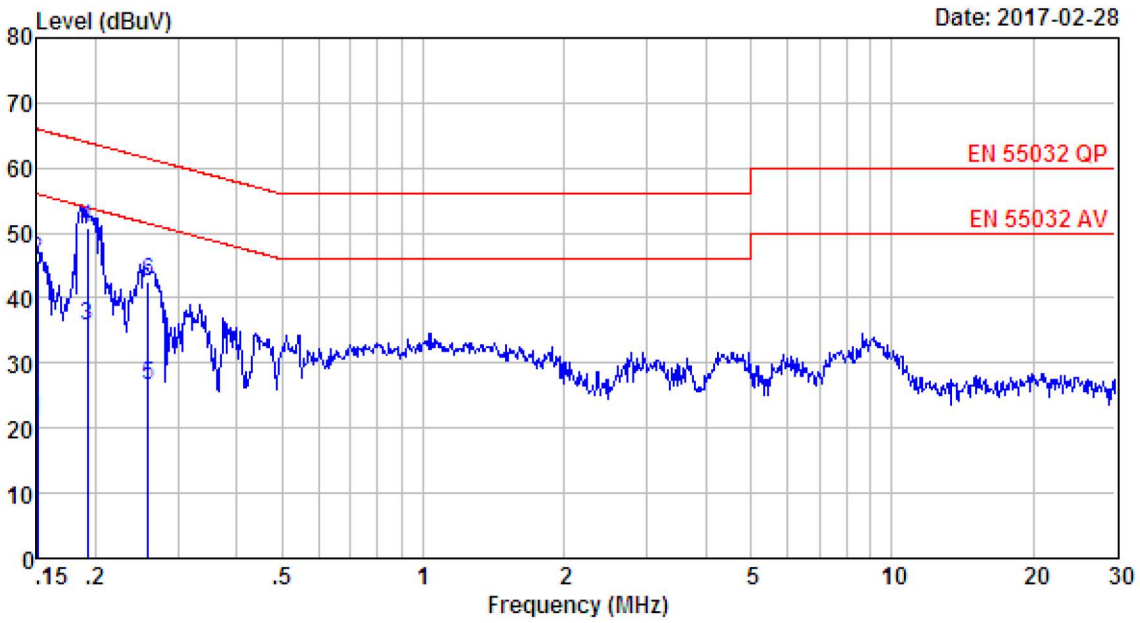
Site no : 844 Shield Room Data no. : 838
Env. / Ins. : Temp:25.3'C Humi:58% Press:101.50kPa LINE Phase : LINE
Limit : EN 55032 QP
Engineer : Hale
EUT : Switching Adapter
Power : AC 230V/50Hz
M/N : GT-86180-1812-W2Z
Test Mode : Full Load(Output:12V/1.5A)

	Freq. (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuv)	Limits (dBuv)	Margin (dB)	Remark
1	0.19	9.61	9.80	21.19	40.60	54.11	13.51	Average
2	0.19	9.61	9.80	32.50	51.91	64.11	12.20	QP
3	0.25	9.61	9.82	9.97	29.40	51.60	22.20	Average
4	0.25	9.61	9.82	22.82	42.25	61.60	19.35	QP
5	6.49	9.66	9.86	16.28	35.80	50.00	14.20	Average
6	6.49	9.66	9.86	26.40	45.92	60.00	14.08	QP



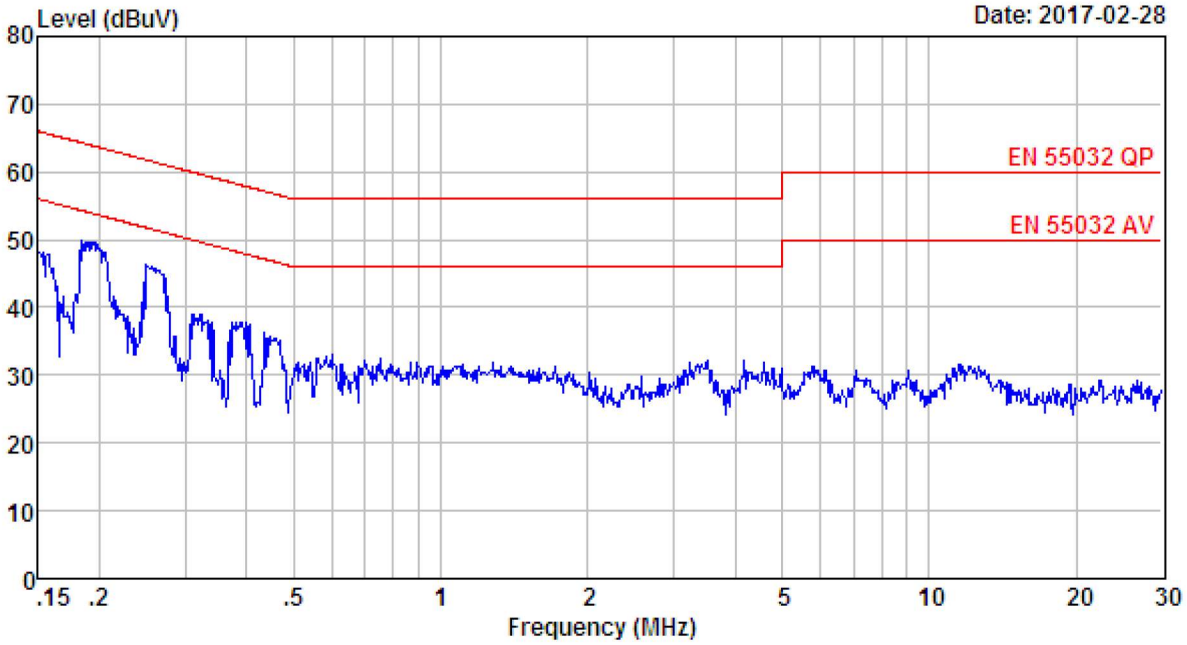
Site no : 844 Shield Room Data no. : 840
Env. / Ins. : Temp:25.3'C Humi:58% Press:101.50kPa LINE Phase : LINE
Limit : EN 55032 QP
Engineer : Hale
EUT : Switching Adapter
Power : AC 230V/50Hz
M/N : GT-86180-1809-W2Z
Test Mode : Full Load(Output:9V/2A)

	Freq. (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuv)	Limits (dBuv)	Margin (dB)	Remark
1	0.19	9.61	9.80	16.29	35.70	53.89	18.19	Average
2	0.19	9.61	9.80	31.72	51.13	63.89	12.76	QP
3	0.26	9.61	9.82	3.97	23.40	51.51	28.11	Average
4	0.26	9.61	9.82	22.86	42.29	61.51	19.22	QP
5	0.39	9.61	9.82	5.27	24.70	48.12	23.42	Average
6	0.39	9.61	9.82	20.49	39.92	58.12	18.20	QP

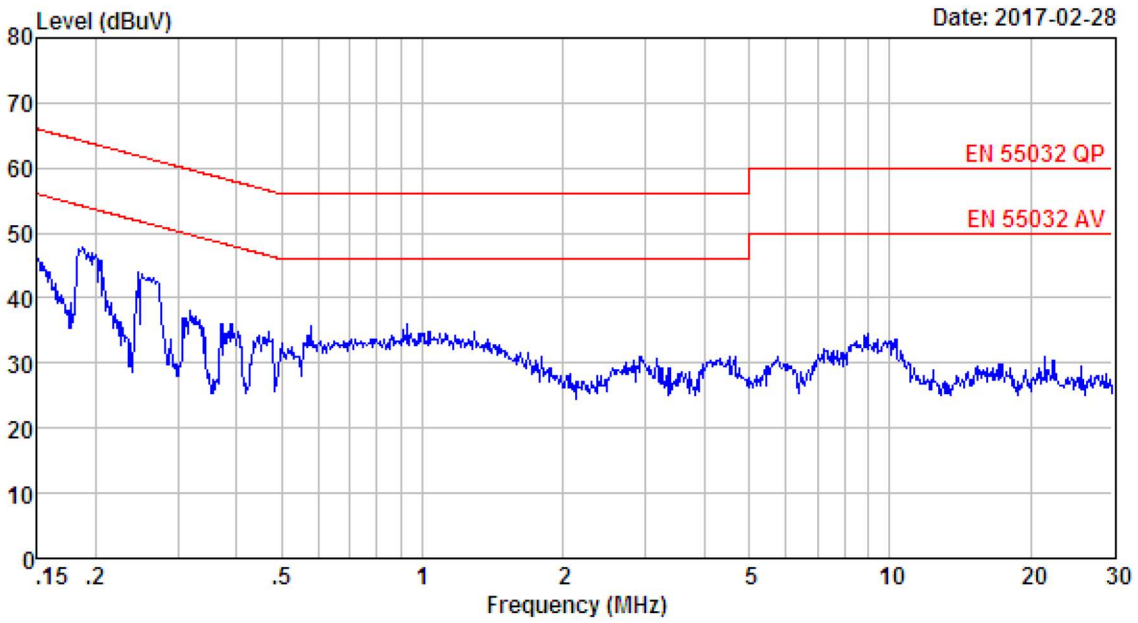


Site no : 844 Shield Room Data no. : 842
Env. / Ins. : Temp:25.3'C Humi:58% Press:101.50kPa LINE Phase : NEUTRAL
Limit : EN 55032 QP
Engineer : Hale
EUT : Switching Adapter
Power : AC 230V/50Hz
M/N : GT-86180-1809-W2Z
Test Mode : Full Load(Output:9V/2A)

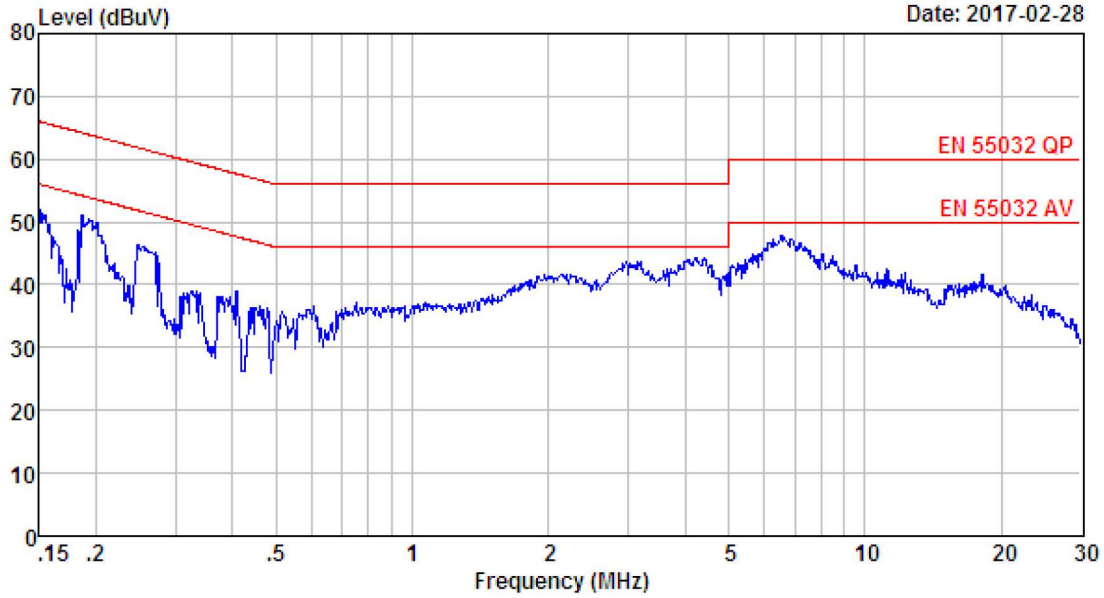
	Freq. (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuv)	Limits (dBuv)	Margin (dB)	Remark
1	0.15	9.46	9.81	2.13	21.40	56.00	34.60	Average
2	0.15	9.46	9.81	26.54	45.81	66.00	20.19	QP
3	0.19	9.58	9.80	16.32	35.70	53.93	18.23	Average
4	0.19	9.58	9.80	31.51	50.89	63.93	13.04	QP
5	0.26	9.60	9.82	7.18	26.60	51.47	24.87	Average
6	0.26	9.60	9.82	23.11	42.53	61.47	18.94	QP



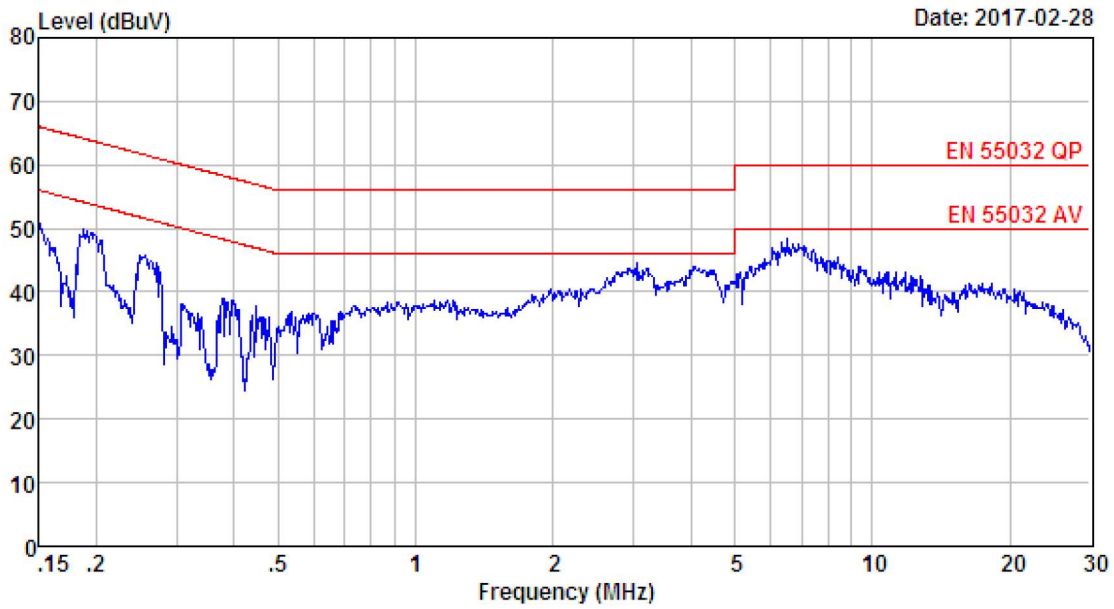

```
Site no       : 844 Shield Room                      Data no.    : 844
Env. / Ins.   : Temp:25.3'C Humi:58% Press:101.50kPa LINE Phase : LINE
Limit         : EN 55032 QP
Engineer      : Hale
EUT           : Switching Adapter
Power         : AC 110V/60Hz
M/N           : GT-86180-1809-W2Z
Test Mode     : Full Load(Output:9V/2A)
```



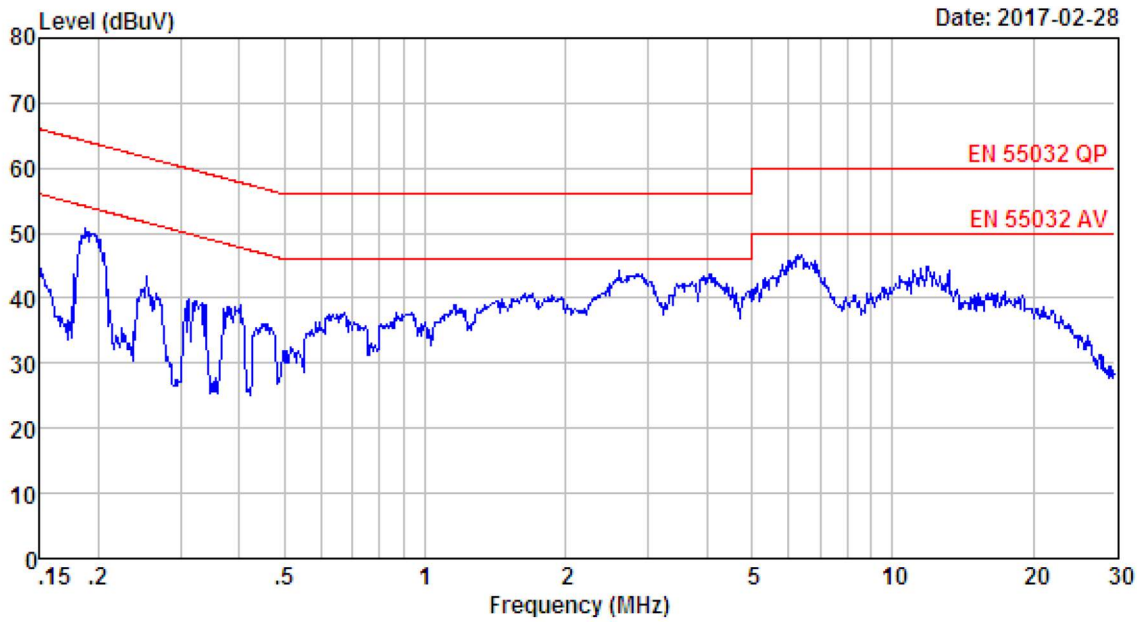

```
Site no      : 844 Shield Room                      Data no.   : 846
Env. / Ins.  : Temp:25.3'C Humi:58% Press:101.50kPa LINE Phase : NEUTRAL
Limit        : EN 55032 QP
Engineer     : Hale
EUT          : Switching Adapter
Power        : AC 110V/60Hz
M/N          : GT-86180-1809-W2Z
Test Mode    : Full Load(Output:9V/2A)
```



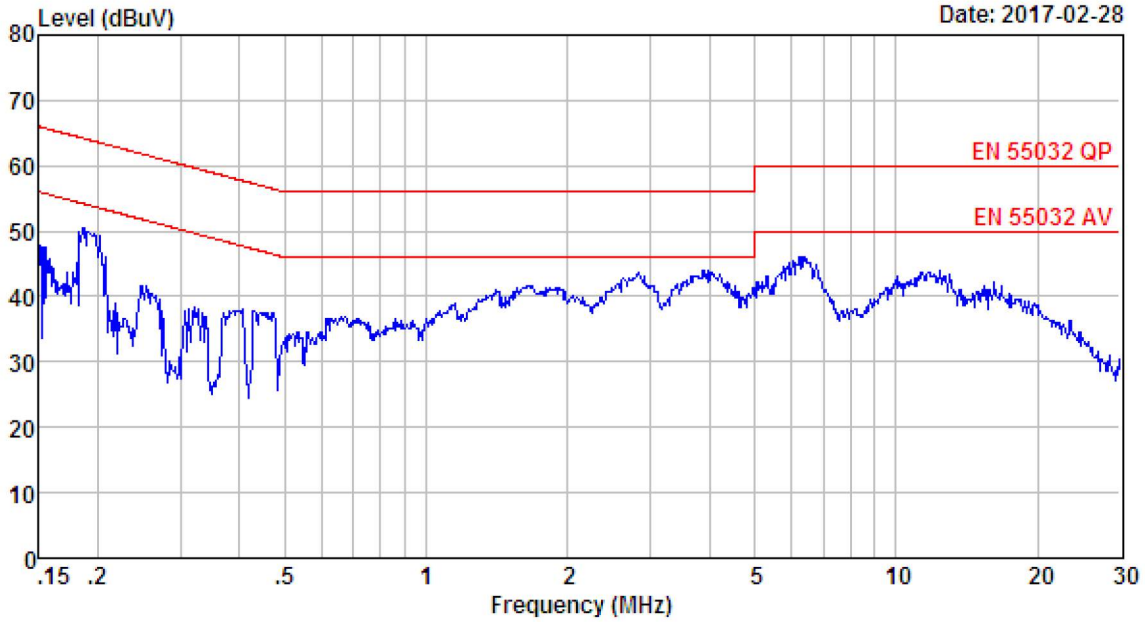
Site no : 844 Shield Room Data no. : 848
Env. / Ins. : Temp:25.3'C Humi:58% Press:101.50kPa LINE Phase : NEUTRAL
Limit : EN 55032 QP
Engineer : Hale
EUT : Switching Adapter
Power : AC 110V/60Hz
M/N : GT-86180-1812-W2Z
Test Mode : Full Load(Output:12V/1.5A)



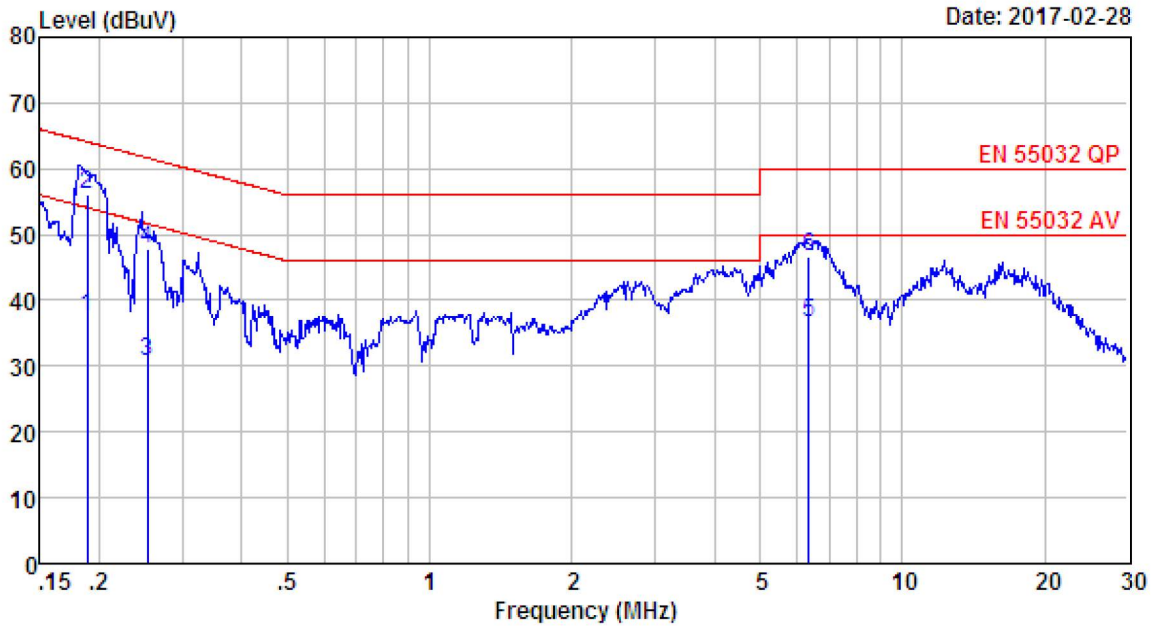

```
Site no       : 844 Shield Room                      Data no.    : 850
Env. / Ins.   : Temp:25.3'C Humi:58% Press:101.50kPa LINE Phase : LINE
Limit         : EN 55032 QP
Engineer      : Hale
EUT           : Switching Adapter
Power         : AC 110V/60Hz
M/N           : GT-86180-1812-W2Z
Test Mode     : Full Load(Output:12V/1.5A)
```




```
Site no      : 844 Shield Room                      Data no.   : 852
Env. / Ins.  : Temp:25.3'C Humi:58% Press:101.50kPa LINE Phase : LINE
Limit        : EN 55032 QP
Engineer     : Hale
EUT          : Switching Adapter
Power        : AC 230V/50Hz
M/N          : GT-86180-1812-W2Z
Test Mode    : Full Load(Output:12V/1.5A)
```

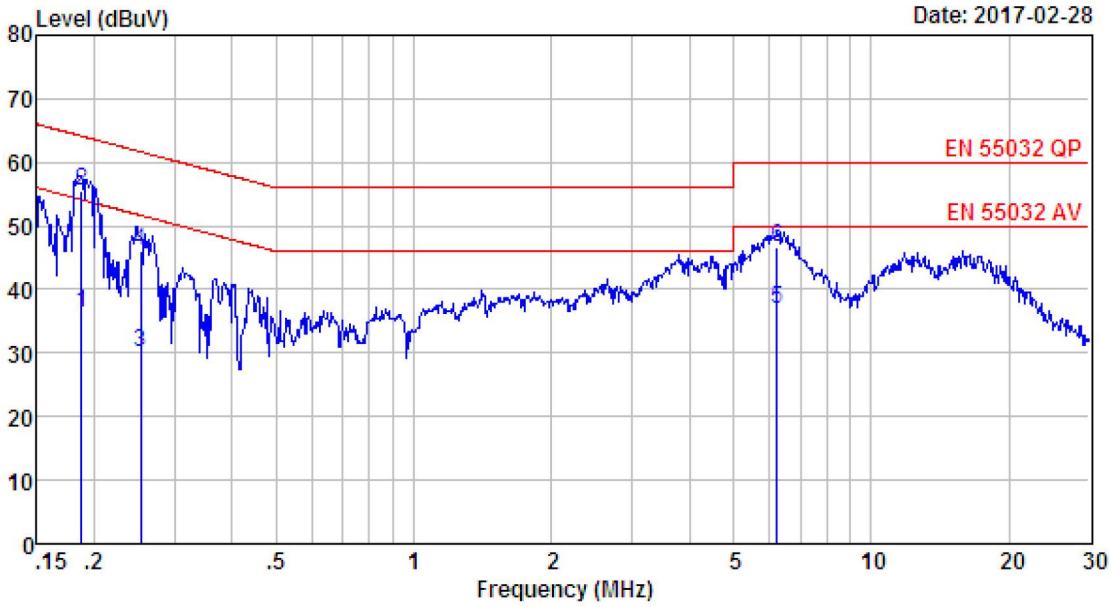



```
Site no       : 844 Shield Room                      Data no.    : 854
Env. / Ins.   : Temp:25.3'C Humi:58% Press:101.50kPa LINE Phase : NEUTRAL
Limit         : EN 55032 QP
Engineer      : Hale
EUT           : Switching Adapter
Power         : AC 230V/50Hz
M/N           : GT-86180-1812-W2Z
Test Mode     : Full Load(Output:12V/1.5A)
```



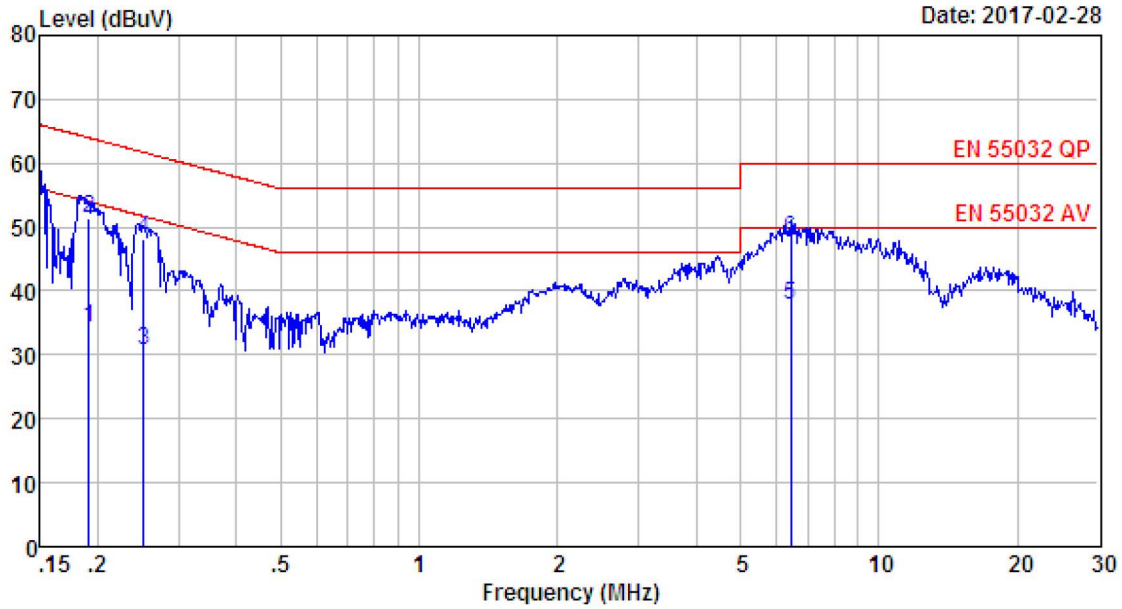
Site no : 844 Shield Room Data no. : 856
Env. / Ins. : Temp:25.3'C Humi:58% Press:101.50kPa LINE Phase : NEUTRAL
Limit : EN 55032 QP
Engineer : Hale
EUT : Switching Adapter
Power : AC 230V/50Hz
M/N : GT-86180-1812-W2Z
Test Mode : Full Load(Output:12V/1.5A)

	Freq. (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuv)	Limits (dBuv)	Margin (dB)	Remark
1	0.19	9.57	9.80	18.03	37.40	54.11	16.71	Average
2	0.19	9.57	9.80	36.78	56.15	64.11	7.96	QP
3	0.25	9.60	9.82	11.18	30.60	51.64	21.04	Average
4	0.25	9.60	9.82	28.43	47.85	61.64	13.79	QP
5	6.35	9.66	9.85	17.19	36.70	50.00	13.30	Average
6	6.35	9.66	9.85	27.19	46.70	60.00	13.30	QP



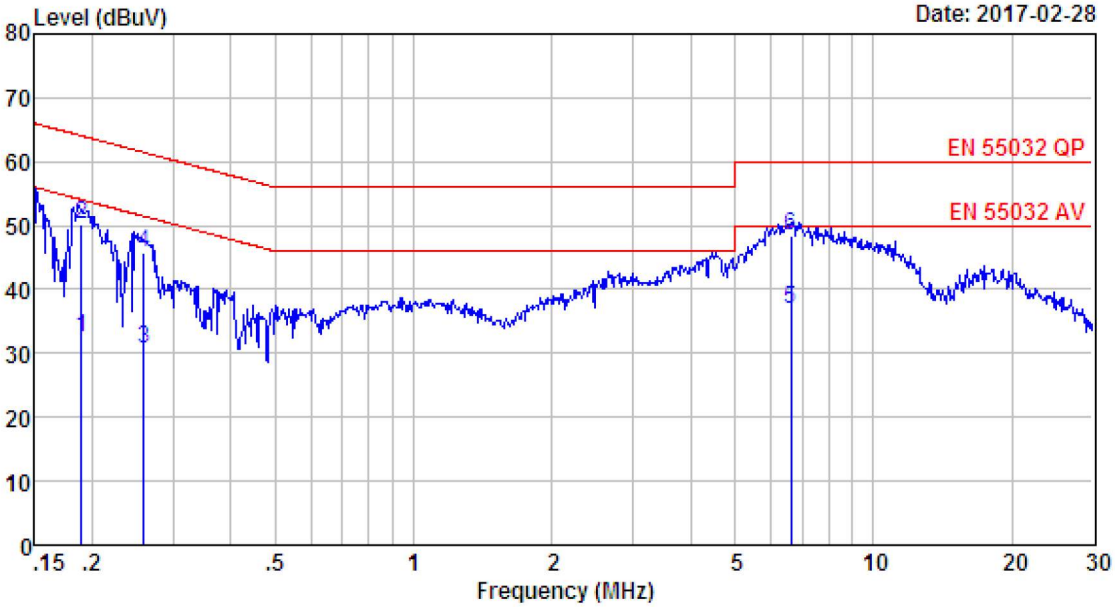
Site no : 844 Shield Room Data no. : 858
Env. / Ins. : Temp:25.3'C Humi:58% Press:101.50kPa LINE Phase : LINE
Limit : EN 55032 QP
Engineer : Hale
EUT : Switching Adapter
Power : AC 230V/50Hz
M/N : GT-86180-1812-W2Z
Test Mode : Full Load(Output:12V/1.5A)

	Freq. (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuv)	Limits (dBuv)	Margin (dB)	Remark
1	0.19	9.61	9.80	16.79	36.20	54.15	17.95	Average
2	0.19	9.61	9.80	36.08	55.49	64.15	8.66	QP
3	0.25	9.61	9.82	10.67	30.10	51.64	21.54	Average
4	0.25	9.61	9.82	26.62	46.05	61.64	15.59	QP
5	6.22	9.66	9.86	17.38	36.90	50.00	13.10	Average
6	6.22	9.66	9.86	27.00	46.52	60.00	13.48	QP



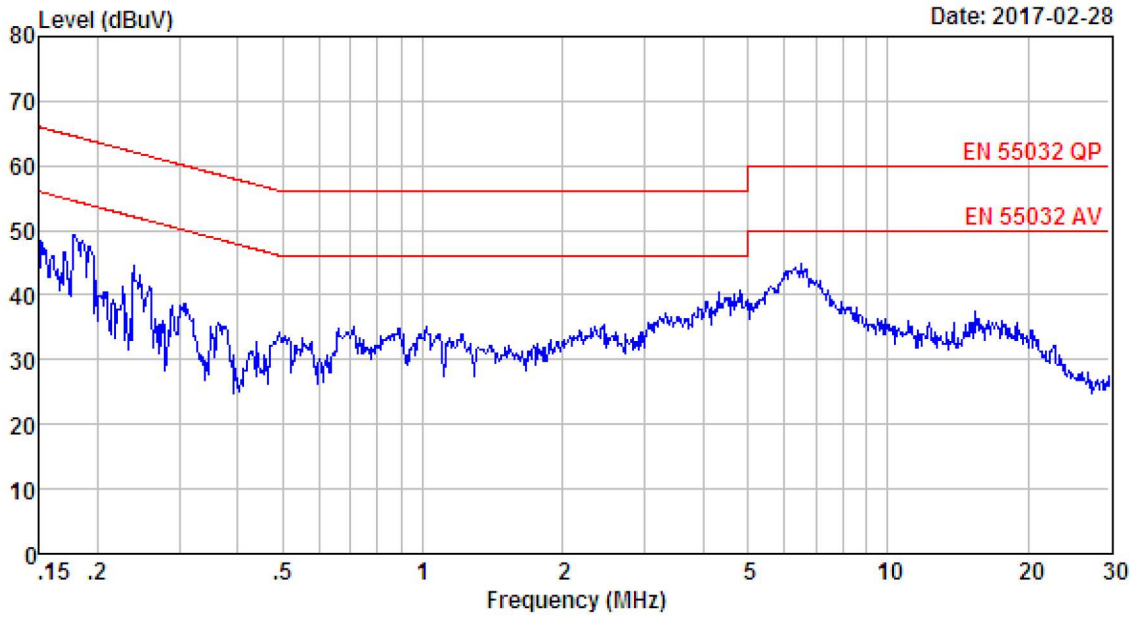
Site no : 844 Shield Room Data no. : 860
Env. / Ins. : Temp:25.3'C Humi:58% Press:101.50kPa LINE Phase : LINE
Limit : EN 55032 QP
Engineer : Hale
EUT : Switching Adapter
Power : AC 110V/60Hz
M/N : GT-86180-1812-W2Z
Test Mode : Full Load(Output:12V/1.5A)

	Freq. (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuv)	Limits (dBuv)	Margin (dB)	Remark
1	0.19	9.61	9.80	14.89	34.30	53.98	19.68	Average
2	0.19	9.61	9.80	32.02	51.43	63.98	12.55	QP
3	0.25	9.61	9.82	11.17	30.60	51.69	21.09	Average
4	0.25	9.61	9.82	28.64	48.07	61.69	13.62	QP
5	6.42	9.66	9.86	18.38	37.90	50.00	12.10	Average
6	6.42	9.66	9.86	28.48	48.00	60.00	12.00	QP

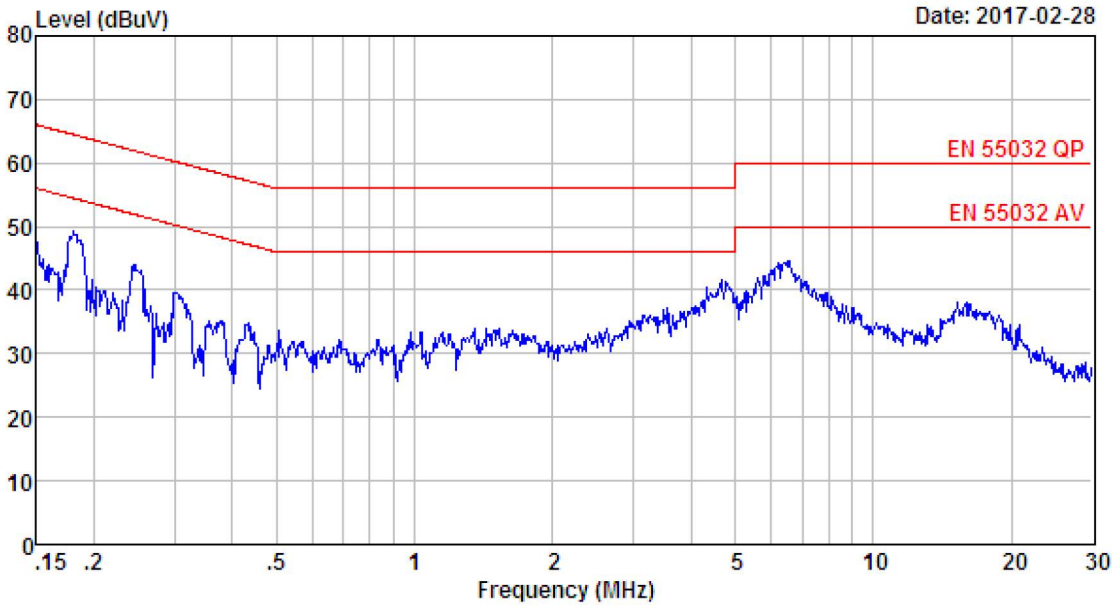


Site no : 844 Shield Room Data no. : 862
Env. / Ins. : Temp:25.3'C Humi:58% Press:101.50kPa LINE Phase : NEUTRAL
Limit : EN 55032 QP
Engineer : Hale
EUT : Switching Adapter
Power : AC 110V/60Hz
M/N : GT-86180-1812-W2Z
Test Mode : Full Load(Output:12V/1.5A)

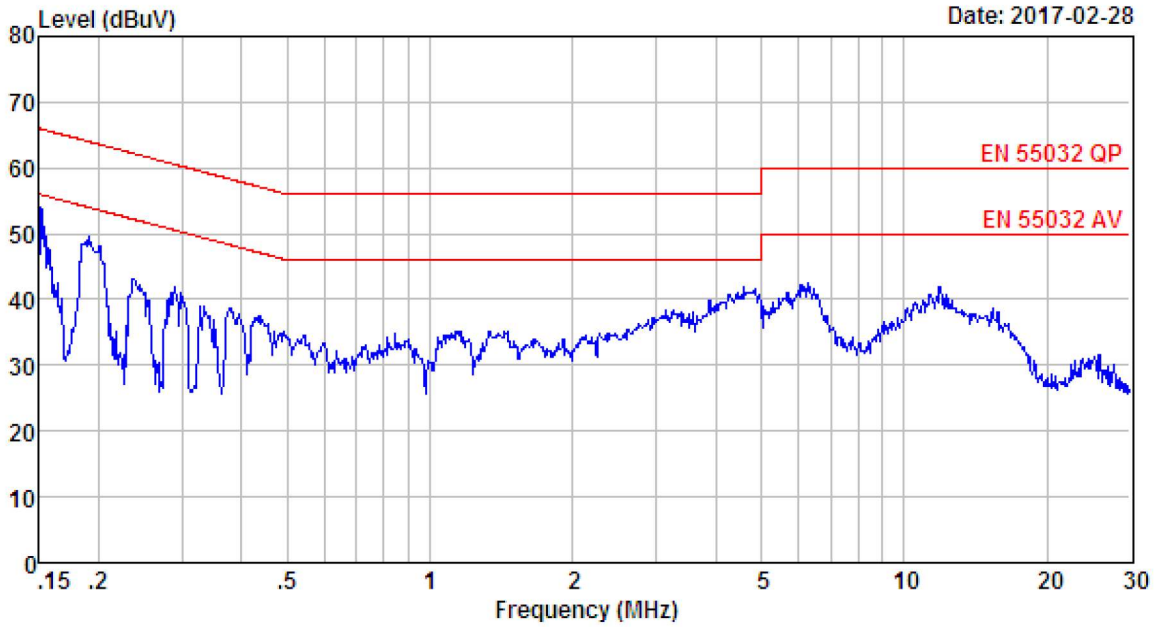
	Freq. (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuv)	Limits (dBuv)	Margin (dB)	Remark
1	0.19	9.58	9.80	13.02	32.40	54.06	21.66	Average
2	0.19	9.58	9.80	30.79	50.17	64.06	13.89	QP
3	0.26	9.60	9.82	11.28	30.70	51.47	20.77	Average
4	0.26	9.60	9.82	26.33	45.75	61.47	15.72	QP
5	6.63	9.66	9.86	17.38	36.90	50.00	13.10	Average
6	6.63	9.66	9.86	28.91	48.43	60.00	11.57	QP



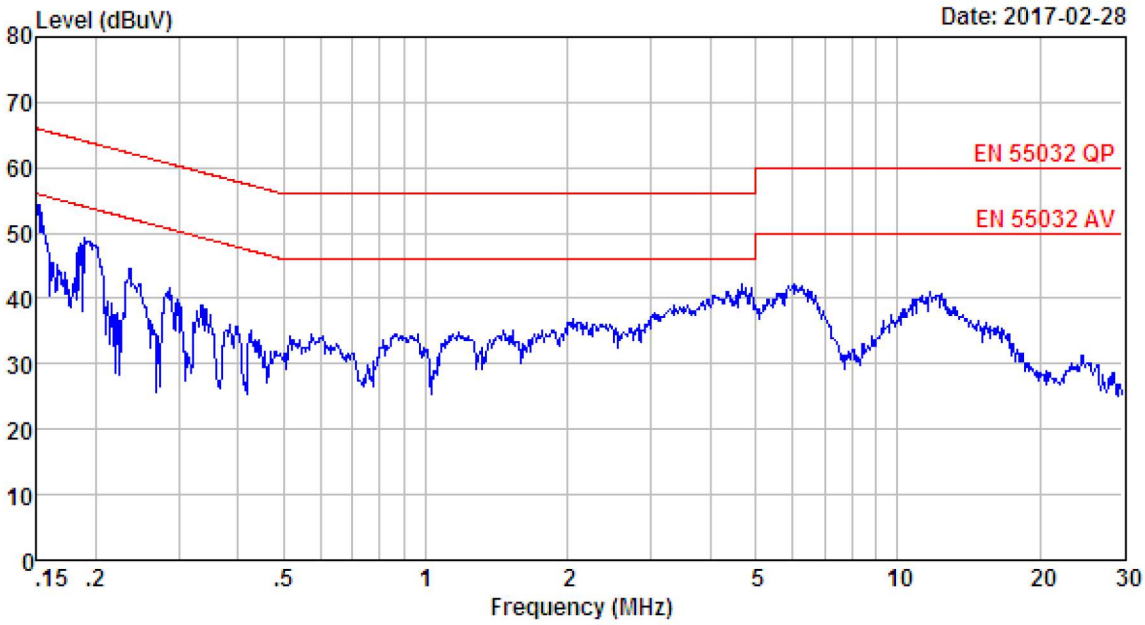

```
Site no       : 844 Shield Room                      Data no.    : 864
Env. / Ins.   : Temp:25.3'C Humi:58% Press:101.50kPa LINE Phase : NEUTRAL
Limit         : EN 55032 QP
Engineer      : Hale
EUT           : Switching Adapter
Power         : AC 110V/60Hz
M/N           : GT-86180-1812-W2Z
Test Mode     : Half Load(Output:12V/0.75A)
```



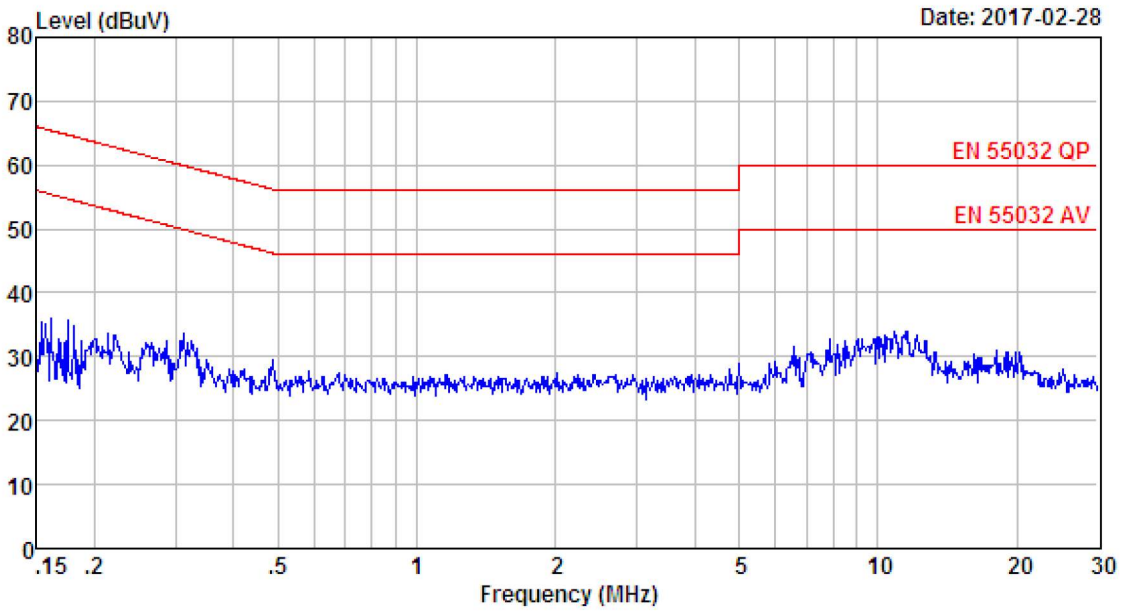

```
Site no       : 844 Shield Room                      Data no.    : 866
Env. / Ins.   : Temp:25.3'C Humi:58% Press:101.50kPa LINE Phase : LINE
Limit         : EN 55032 QP
Engineer      : Hale
EUT           : Switching Adapter
Power         : AC 110V/60Hz
M/N           : GT-86180-1812-W2Z
Test Mode     : Half Load(Output:12V/0.75A)
```



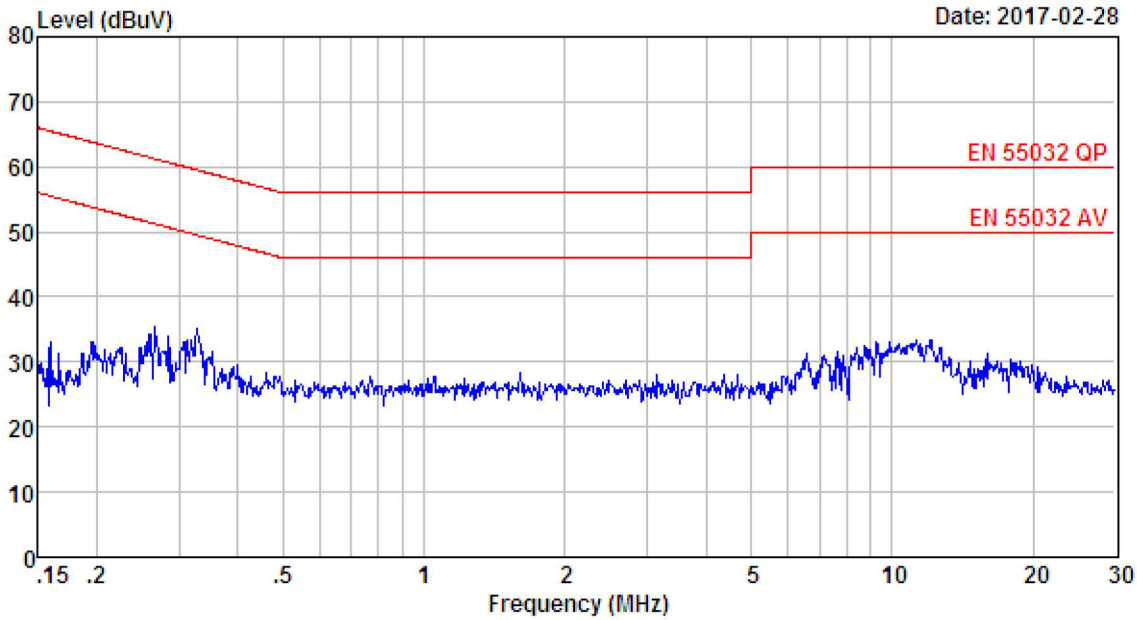

```
Site no       : 844 Shield Room                      Data no.    : 868
Env. / Ins.   : Temp:25.3'C Humi:58% Press:101.50kPa LINE Phase : LINE
Limit         : EN 55032 QP
Engineer      : Hale
EUT           : Switching Adapter
Power         : AC 230V/50Hz
M/N           : GT-86180-1812-W2Z
Test Mode     : Half Load(Output:12V/0.75A)
```



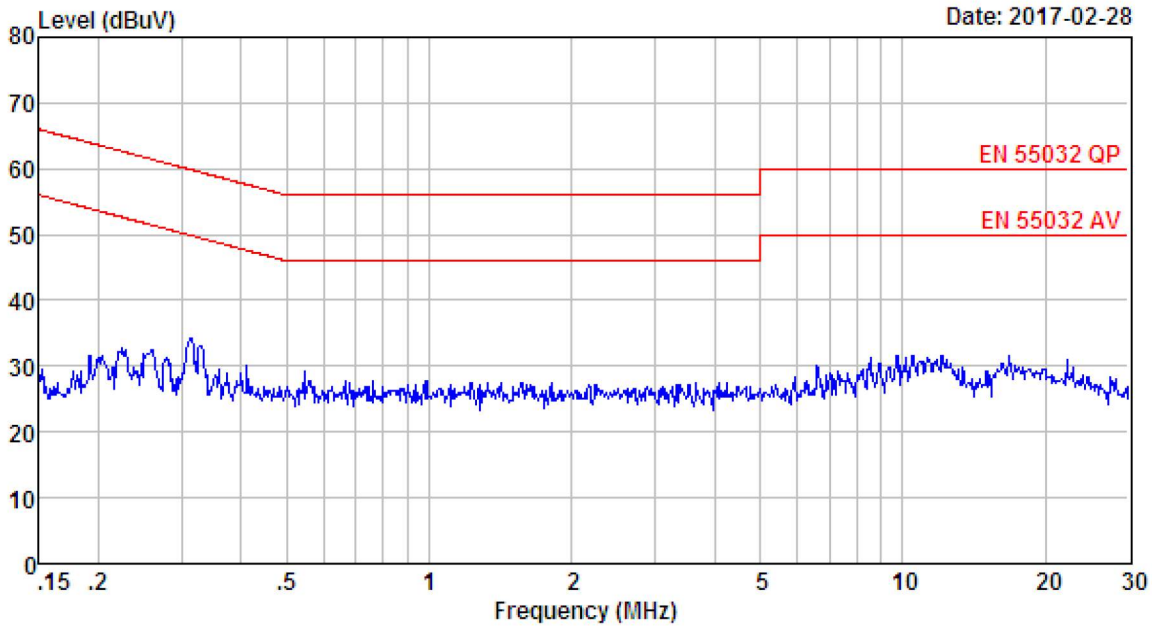

```
Site no      : 844 Shield Room                      Data no.   : 870
Env. / Ins.  : Temp:25.3'C Humi:58% Press:101.50kPa LINE Phase : NEUTRAL
Limit        : EN 55032 QP
Engineer     : Hale
EUT          : Switching Adapter
Power        : AC 230V/50Hz
M/N          : GT-86180-1812-W2Z
Test Mode    : Half Load(Output:12V/0.75A)
```



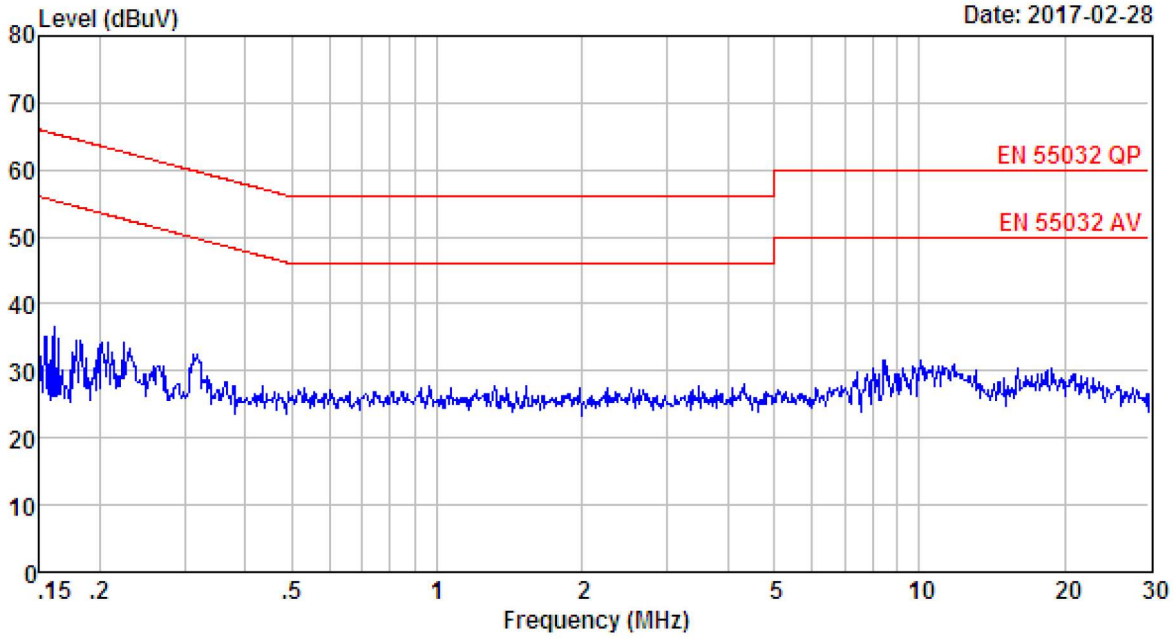

```
Site no       : 844 Shield Room                      Data no.    : 872
Env. / Ins.   : Temp:25.3'C Humi:58% Press:101.50kPa LINE Phase : NEUTRAL
Limit         : EN 55032 QP
Engineer      : Hale
EUT           : Switching Adapter
Power         : AC 230V/50Hz
M/N           : GT-86180-1812-W2Z
Test Mode     : No Load
```




```
Site no       : 844 Shield Room                      Data no.   : 874
Env. / Ins.   : Temp:25.3'C Humi:58% Press:101.50kPa LINE Phase : LINE
Limit         : EN 55032 QP
Engineer      : Hale
EUT           : Switching Adapter
Power         : AC 230V/50Hz
M/N           : GT-86180-1812-W2Z
Test Mode     : No Load
```




```
Site no       : 844 Shield Room                      Data no.   : 876
Env. / Ins.   : Temp:25.3'C Humi:58% Press:101.50kPa LINE Phase : LINE
Limit         : EN 55032 QP
Engineer      : Hale
EUT           : Switching Adapter
Power         : AC 110V/60Hz
M/N           : GT-86180-1812-W2Z
Test Mode     : No Load
```




```
Site no       : 844 Shield Room                      Data no.    : 878
Env. / Ins.   : Temp:25.3'C Humi:58% Press:101.50kPa LINE Phase : NEUTRAL
Limit         : EN 55032 QP
Engineer      : Hale
EUT           : Switching Adapter
Power         : AC 110V/60Hz
M/N           : GT-86180-1812-W2Z
Test Mode     : No Load
```

4.2. Radiated Emission Test

RESULT	**:**	**Pass**
Test procedure	:	EN 55032:2015
Frequency range	:	30～1000MHz
Test Site	:	966 Chamber
Limits	:	EN 55032:2015 Class B

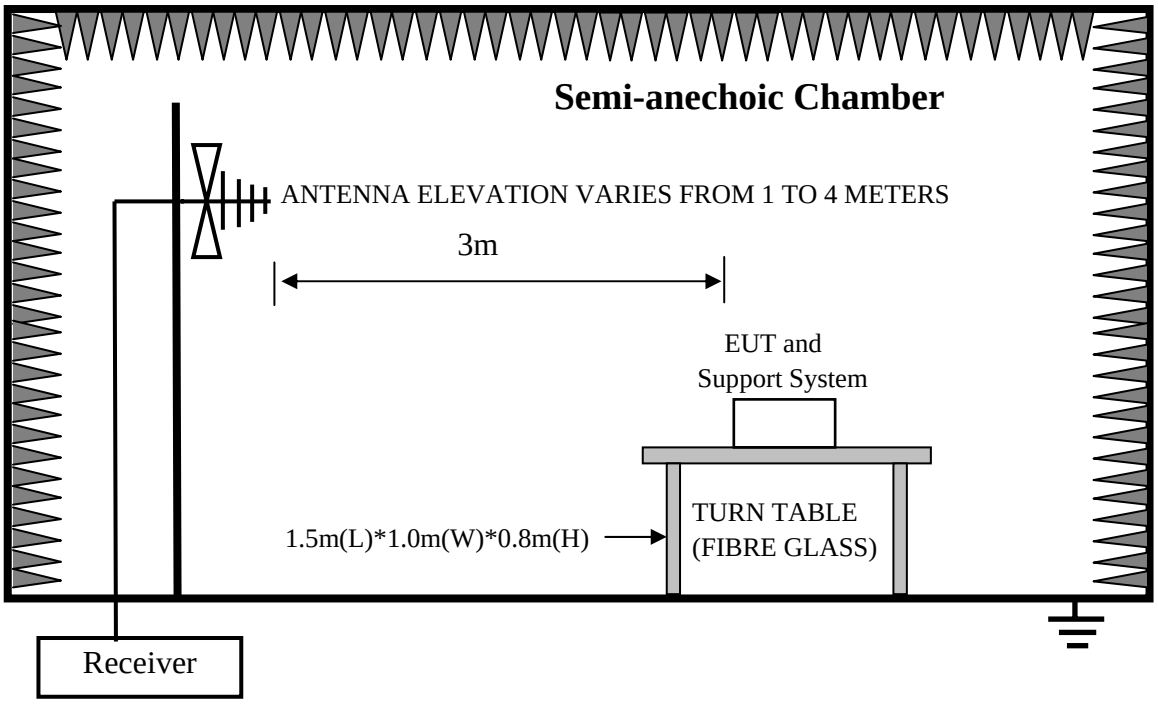
Test Setup

Date of test	:	Feb. 27, 2017
Model No.	:	GT-86180-12 FEU 120150, GT-86180-12 FCA 120150, GT-86180-12 FCA 120150, GT-86180-09 FEU 090200
Input Voltage	:	AC 230V/50Hz, AC 110V/60Hz
Operation Mode	:	Full Load, Half Load, No Load

The EUT was placed on a turn table which was 0.8 m above the ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was set 3 m distance from the receiving antenna which was mounted on an antenna tower. The measuring antenna moved up and down to find out the maximum emission level. It moved from 1 m to 4 m for both horizontal and vertical polarizations.

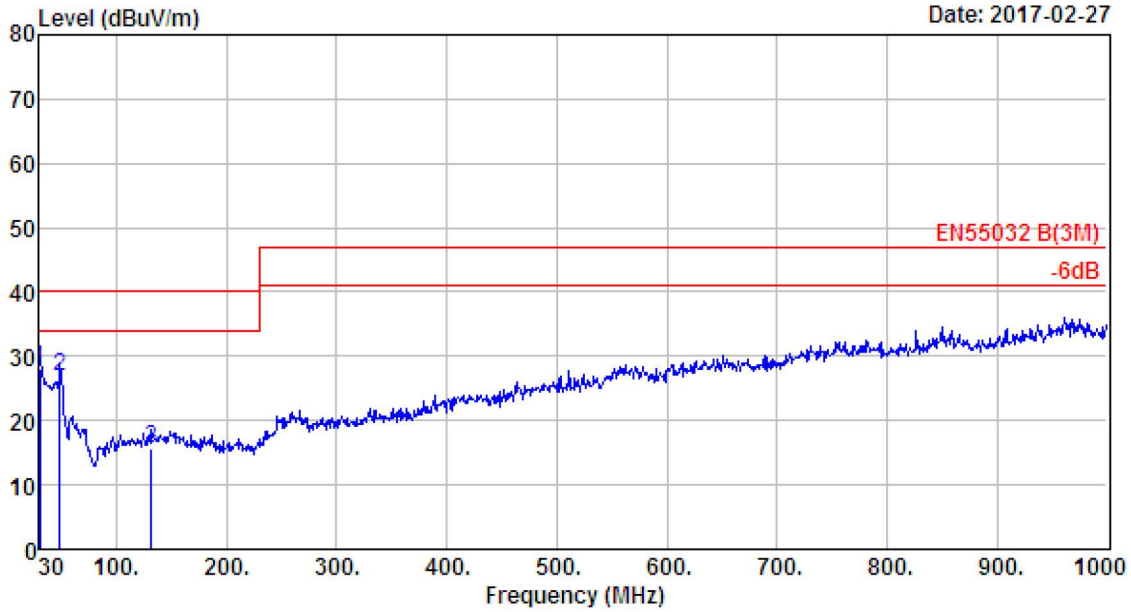
The EUT was tested in the Chamber Site. It was pre-scanned with a Peak detector from the spectrum, and all the final readings from the test receiver were measured with the Quasi-Peak detector.

The bandwidth setting on the test receiver was 120 kHz.



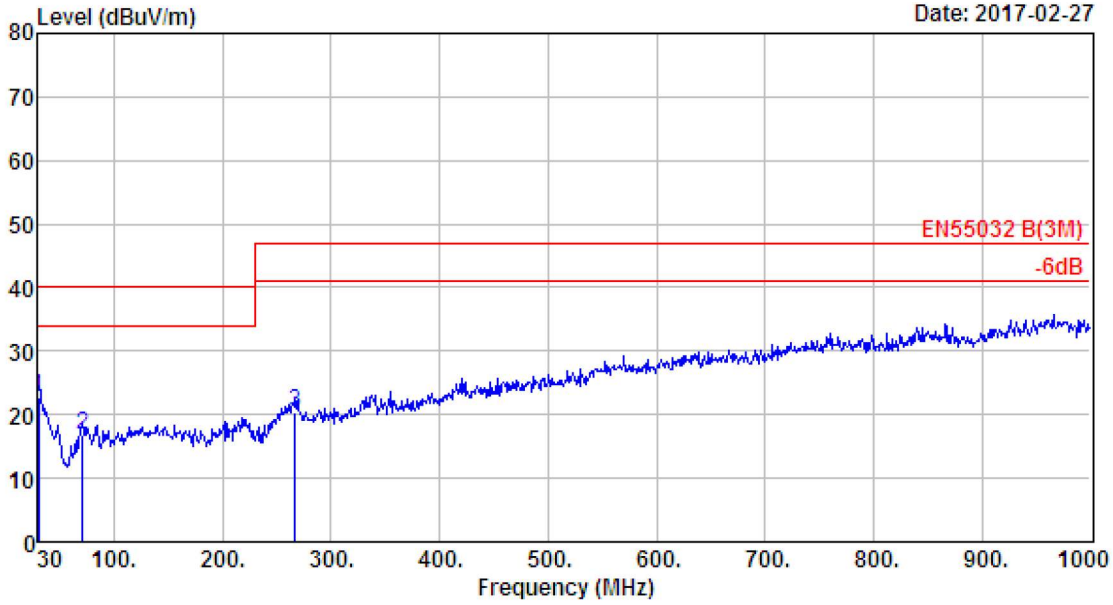
Note:Test uncertainty: ±3.62dB at a level of confidence of 95%

Test Data



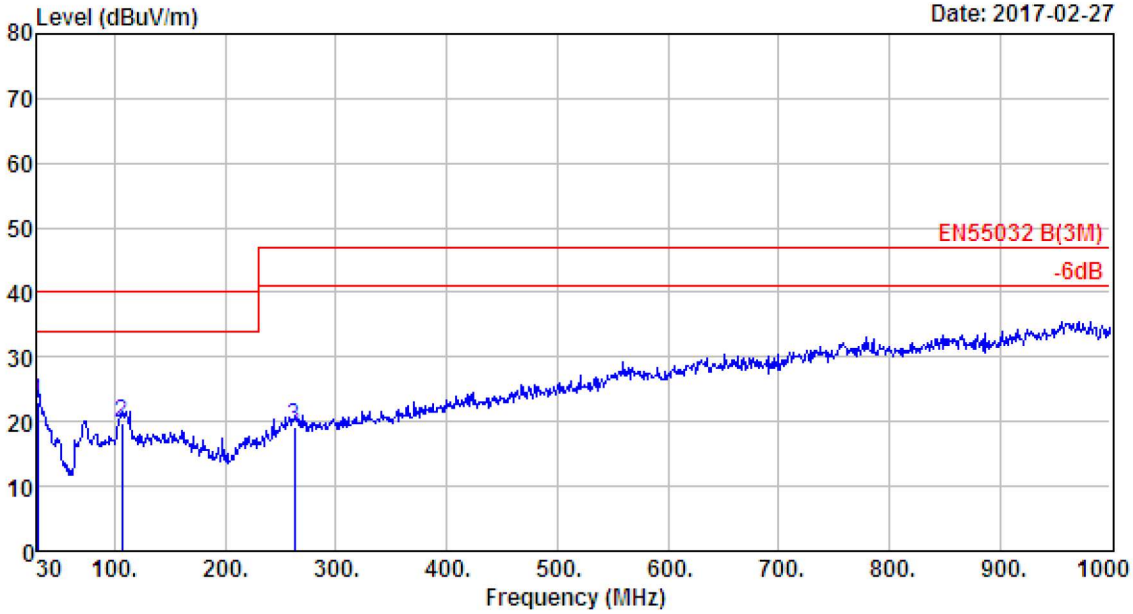
Site no. : 2# 966 chamber Data no. : 323
Dis. / Ant. : 3m 37062 Ant. pol. : VERTICAL
Limit : EN55032 B(3M)
Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
Engineer : Hale
EUT : Switching Adapter
Power : AC 230V/50Hz
M/N : GT-86180-1812-W2Z
Test Mode : Full Load(Output:12V/1.5A)

	Freq. (MHz)	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	30.00	18.09	1.04	8.81	27.94	40.00	12.06	QP
2	48.43	8.65	1.30	16.95	26.90	40.00	13.10	QP
3	131.85	11.24	1.56	2.88	15.68	40.00	24.32	QP



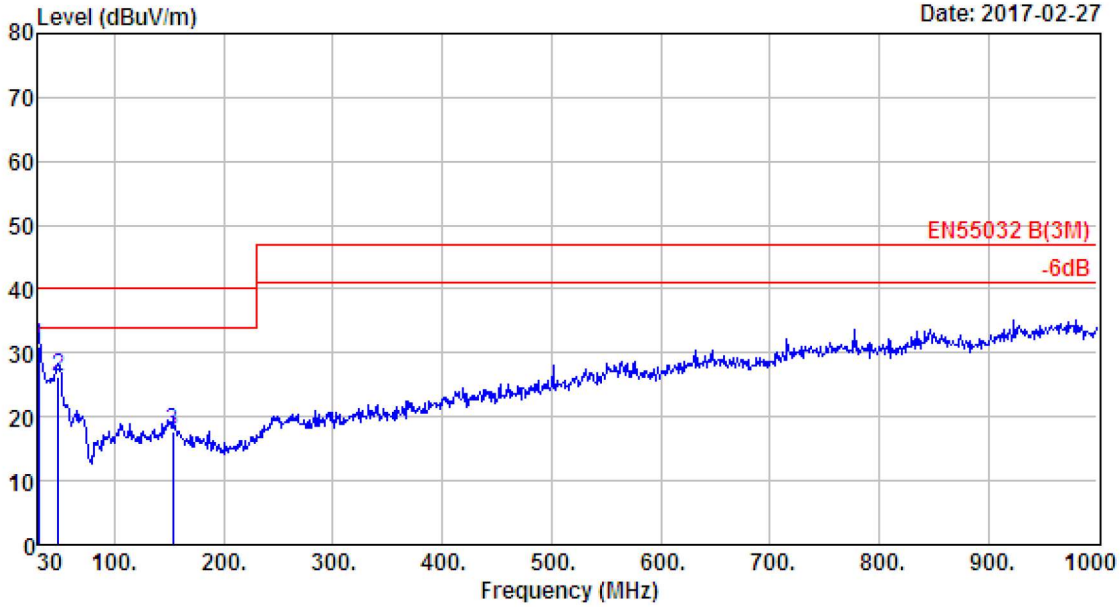
Site no. : 2# 966 chamber Data no. : 324
Dis. / Ant. : 3m 37062 Ant. pol. : HORIZONTAL
Limit : EN55032 B(3M)
Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
Engineer : Hale
EUT : Switching Adapter
Power : AC 230V/50Hz
M/N : GT-86180-1812-W2Z
Test Mode : Full Load(Output:12V/1.5A)

	Freq. (MHz)	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	30.00	18.09	1.04	3.50	22.63	40.00	17.37	QP
2	70.74	5.69	0.76	10.29	16.74	40.00	23.26	QP
3	266.68	13.10	2.35	4.98	20.43	47.00	26.57	QP



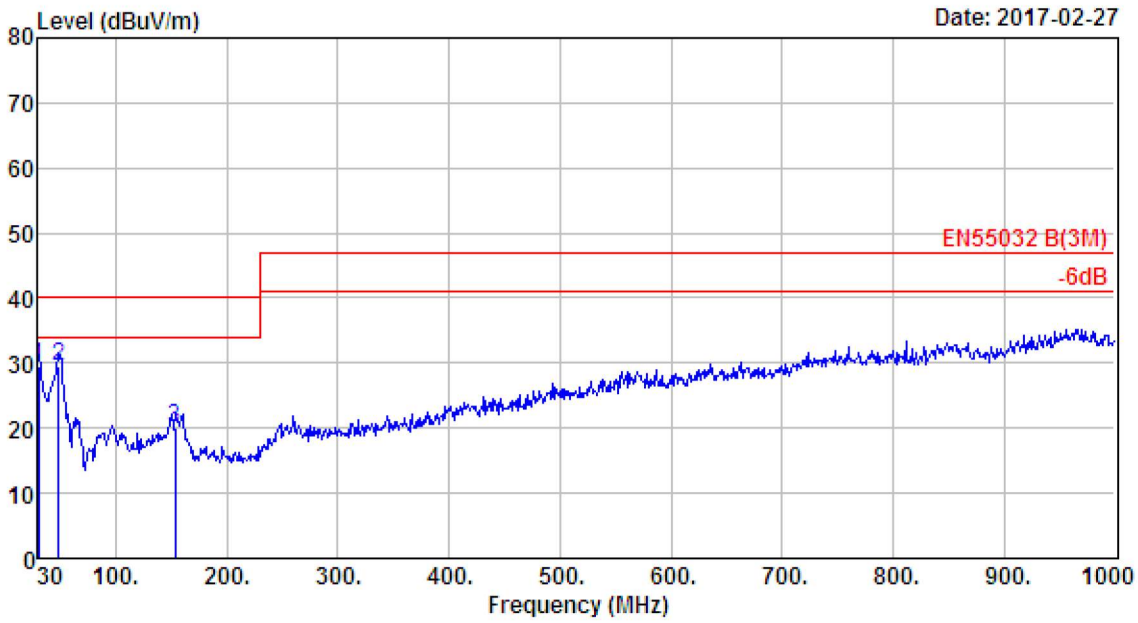
Site no. : 2# 966 chamber Data no. : 325
Dis. / Ant. : 3m 37062 Ant. pol. : HORIZONTAL
Limit : EN55032 B(3M)
Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
Engineer : Hale
EUT : Switching Adapter
Power : AC 110V/60Hz
M/N : GT-86180-1812-W2Z
Test Mode : Full Load(Output:12V/1.5A)

	Freq. (MHz)	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	30.00	18.09	1.04	3.77	22.90	40.00	17.10	QP
2	106.63	10.18	1.45	8.02	19.65	40.00	20.35	QP
3	262.80	13.39	2.25	3.42	19.06	47.00	27.94	QP



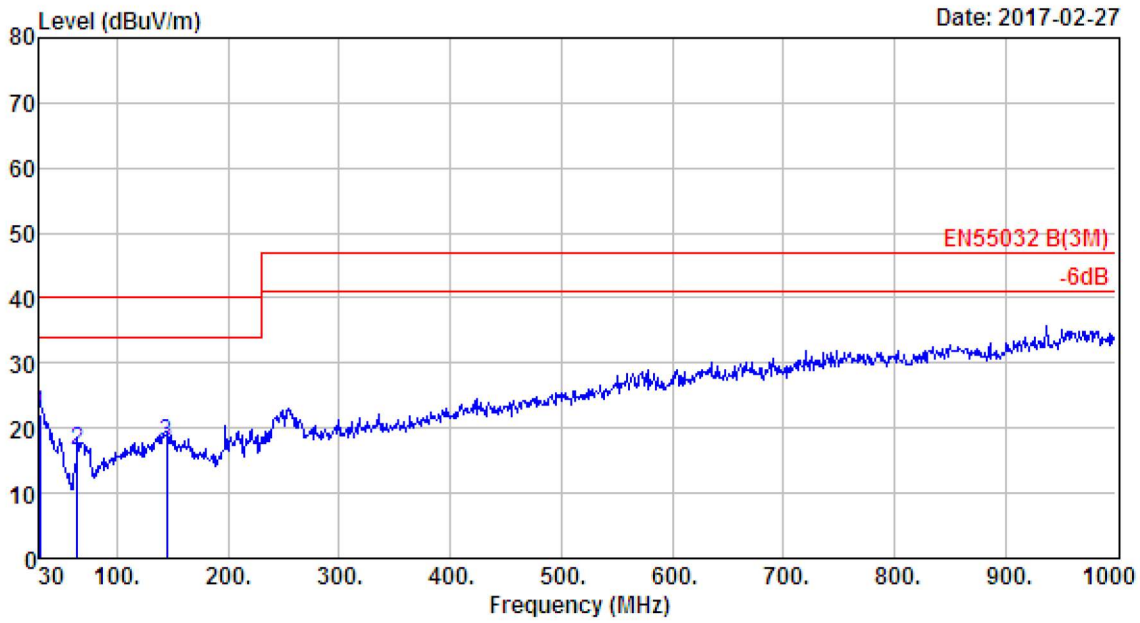
Site no. : 2# 966 chamber Data no. : 326
Dis. / Ant. : 3m 37062 Ant. pol. : VERTICAL
Limit : EN55032 B(3M)
Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
Engineer : Hale
EUT : Switching Adapter
Power : AC 110V/60Hz
M/N : GT-86180-1812-W2Z
Test Mode : Full Load(Output:12V/1.5A)

	Freq. (MHz)	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	30.00	18.09	1.04	11.91	31.04	40.00	8.96	QP
2	48.43	8.65	1.30	16.24	26.19	40.00	13.81	QP
3	153.19	10.55	1.80	5.46	17.81	40.00	22.19	QP



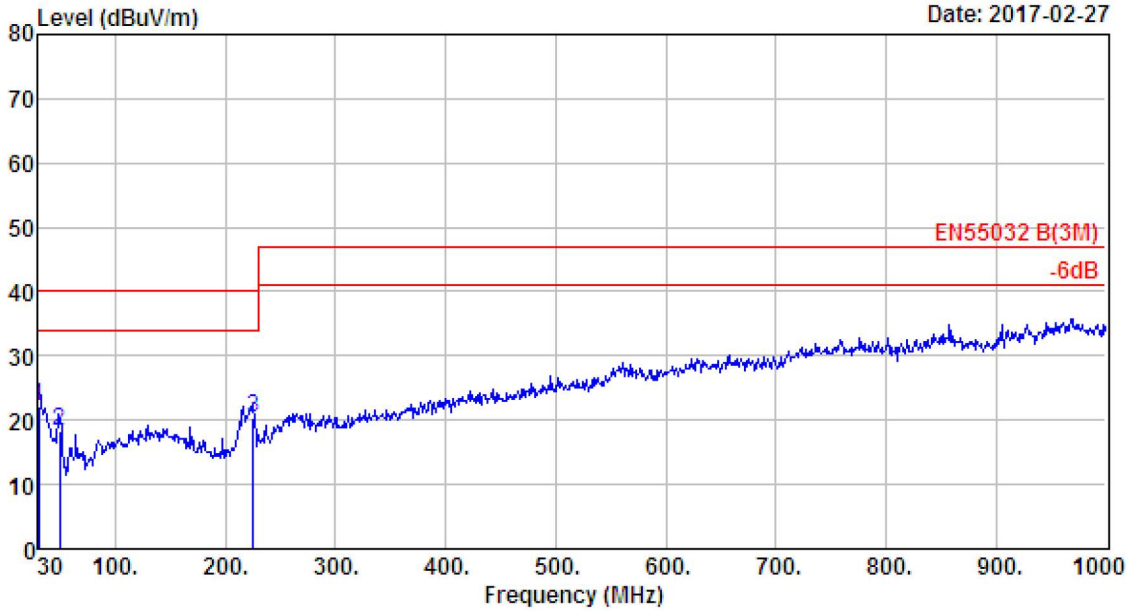
Site no. : 2# 966 chamber Data no. : 327
Dis. / Ant. : 3m 37062 Ant. pol. : VERTICAL
Limit : EN55032 B(3M)
Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
Engineer : Hale
EUT : Switching Adapter
Power : AC 110V/60Hz
M/N : GT-86180-1812-W2Z
Test Mode : Full Load(Output:12V/1.5A)

	Freq. (MHz)	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	30.00	18.09	1.04	10.29	29.42	40.00	10.58	QP
2	48.43	8.65	1.30	19.57	29.52	40.00	10.48	QP
3	153.19	10.55	1.80	7.78	20.13	40.00	19.87	QP



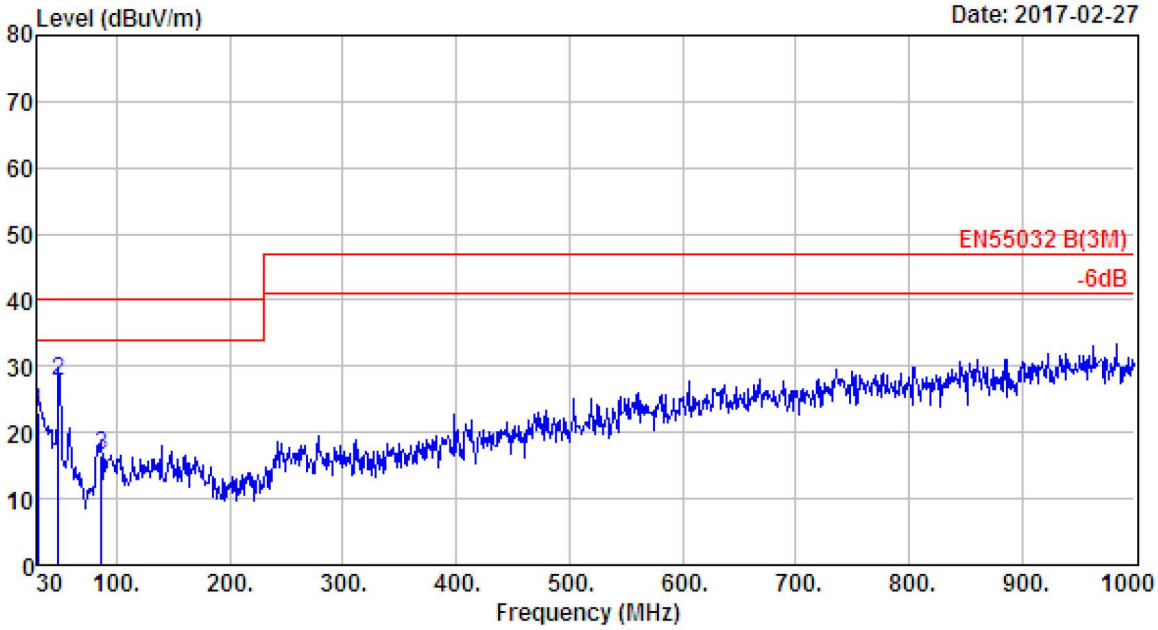
Site no. : 2# 966 chamber Data no. : 328
Dis. / Ant. : 3m 37062 Ant. pol. : HORIZONTAL
Limit : EN55032 B(3M)
Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
Engineer : Hale
EUT : Switching Adapter
Power : AC 110V/60Hz
M/N : GT-86180-1812-W2Z
Test Mode : Full Load(Output:12V/1.5A)

	Freq. (MHz)	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	30.00	18.09	1.04	2.99	22.12	40.00	17.88	QP
2	63.95	4.76	0.95	10.74	16.45	40.00	23.55	QP
3	144.46	11.14	1.72	4.74	17.60	40.00	22.40	QP



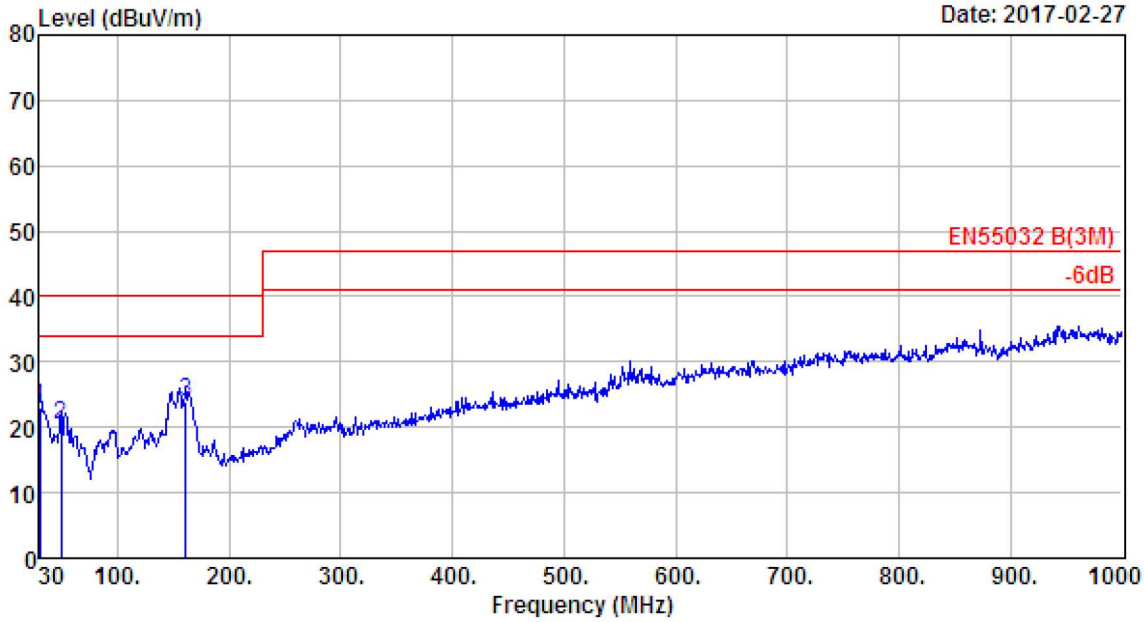
Site no. : 2# 966 chamber Data no. : 329
Dis. / Ant. : 3m 37062 Ant. pol. : HORIZONTAL
Limit : EN55032 B(3M)
Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
Engineer : Hale
EUT : Switching Adapter
Power : AC 230V/50Hz
M/N : GT-86180-1812-W2Z
Test Mode : Full Load(Output:12V/1.5A)

	Freq. (MHz)	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	30.00	18.09	1.04	3.13	22.26	40.00	17.74	QP
2	49.40	8.11	1.17	9.06	18.34	40.00	21.66	QP
3	224.97	9.29	2.27	8.79	20.35	40.00	19.65	QP



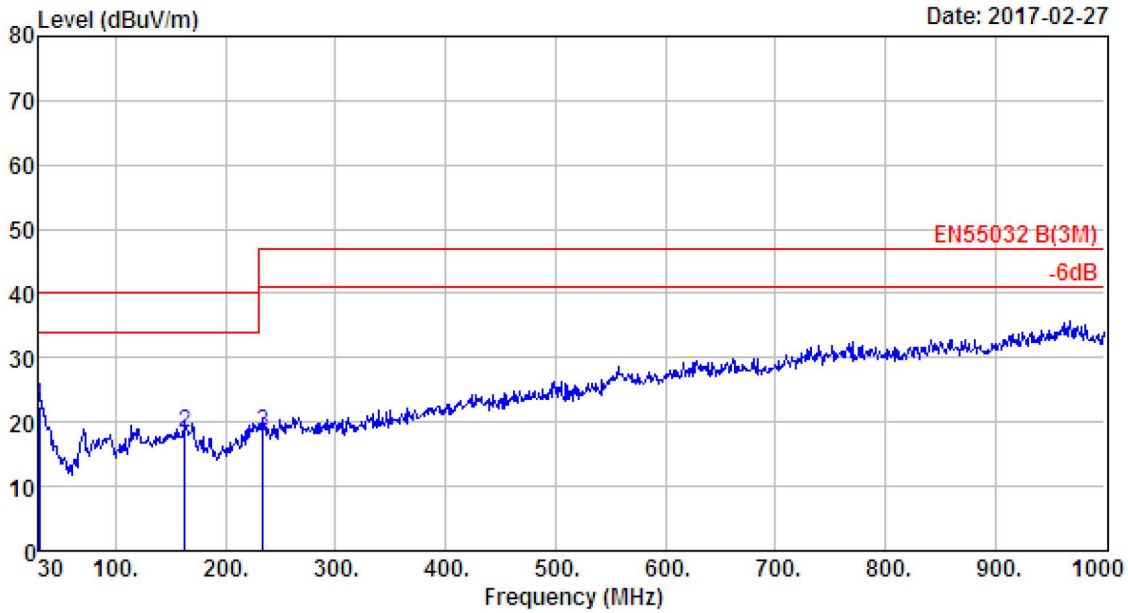
Site no. : 2# 966 chamber Data no. : 330
Dis. / Ant. : 3m 37062 Ant. pol. : VERTICAL
Limit : EN55032 B(3M)
Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
Engineer : Hale
EUT : Switching Adapter
Power : AC 230V/50Hz
M/N : GT-86180-1812-W2Z
Test Mode : Full Load(Output:12V/1.5A)

	Freq. (MHz)	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	30.00	18.09	1.04	4.01	23.14	40.00	16.86	QP
2	48.43	8.65	1.30	17.87	27.82	40.00	12.18	QP
3	86.26	8.04	1.42	7.21	16.67	40.00	23.33	QP



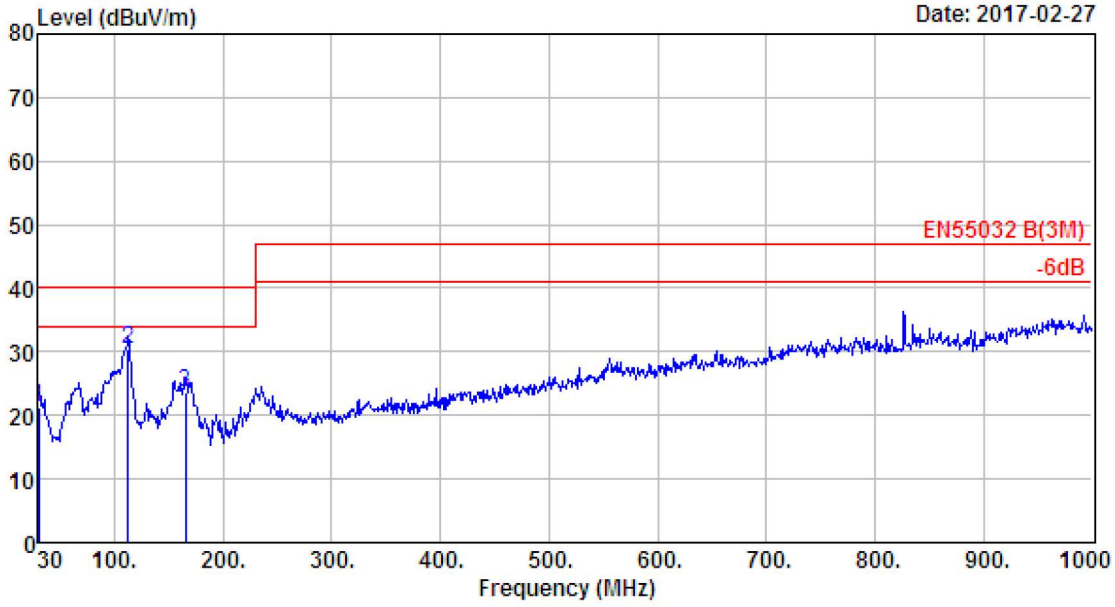
Site no. : 2# 966 chamber Data no. : 331
Dis. / Ant. : 3m 37062 Ant. pol. : VERTICAL
Limit : EN55032 B(3M)
Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
Engineer : Hale
EUT : Switching Adapter
Power : AC 230V/50Hz
M/N : GT-86180-1809-W2Z
Test Mode : Full Load(Output:9V/2A)

	Freq. (MHz)	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	30.00	18.09	1.04	3.96	23.09	40.00	16.91	QP
2	49.40	8.11	1.17	11.03	20.31	40.00	19.69	QP
3	160.95	10.18	1.86	11.85	23.89	40.00	16.11	QP



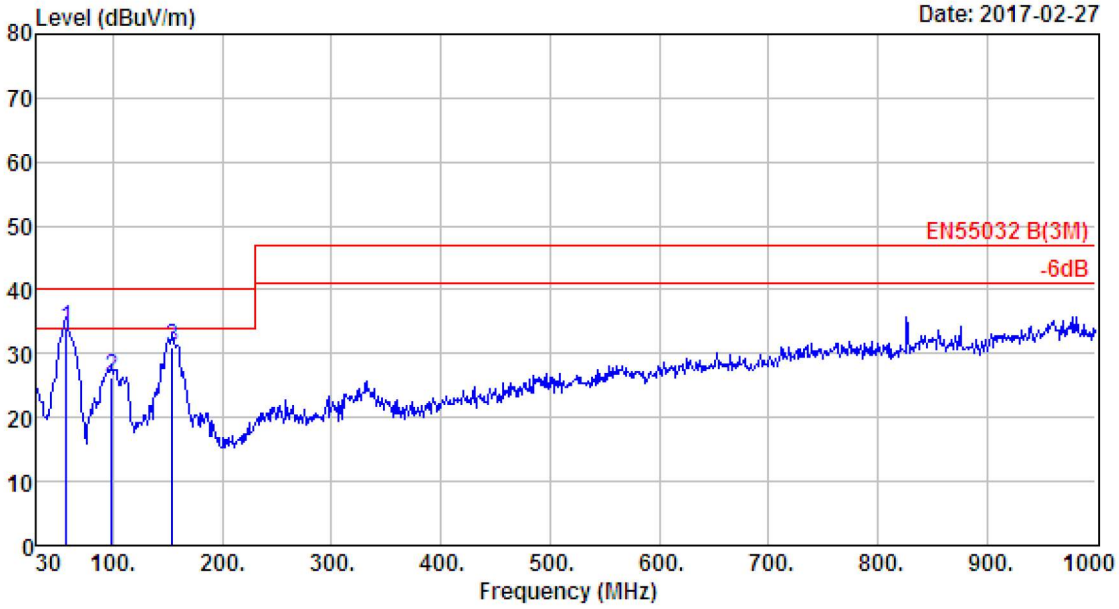
Site no. : 2# 966 chamber Data no. : 332
Dis. / Ant. : 3m 37062 Ant. pol. : HORIZONTAL
Limit : EN55032 B(3M)
Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
Engineer : Hale
EUT : Switching Adapter
Power : AC 230V/50Hz
M/N : GT-86180-1809-W2Z
Test Mode : Full Load(Output:9V/2A)

	Freq. (MHz)	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	30.00	18.09	1.04	3.43	22.56	40.00	17.44	QP
2	162.89	9.97	1.91	6.29	18.17	40.00	21.83	QP
3	233.70	9.61	2.11	6.68	18.40	47.00	28.60	QP



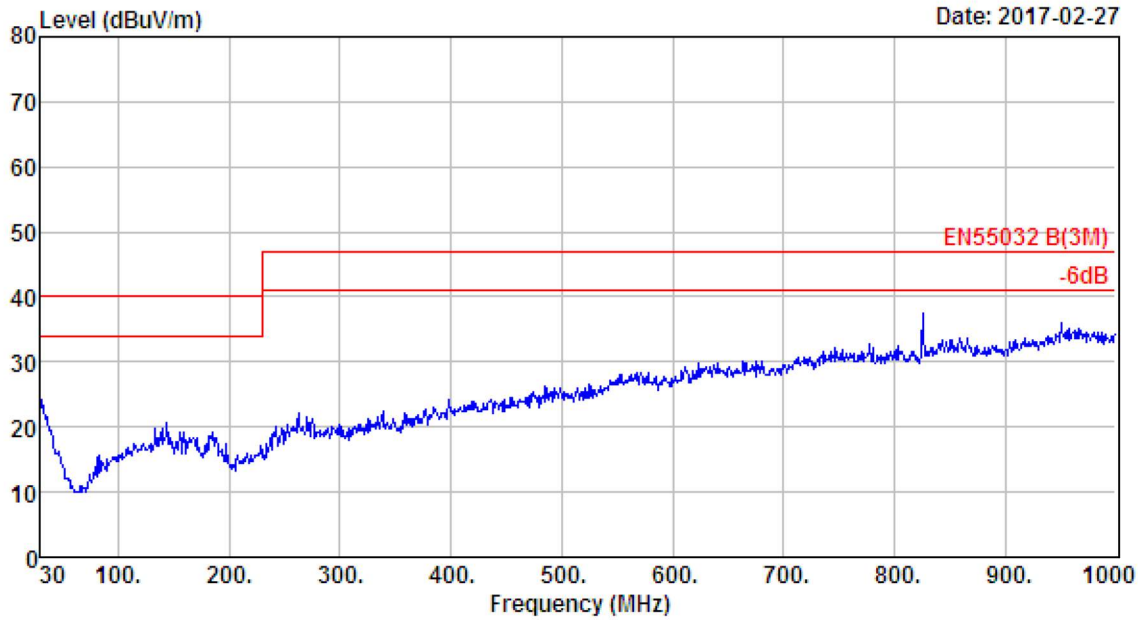
Site no. : 2# 966 chamber Data no. : 333
Dis. / Ant. : 3m 37062 Ant. pol. : HORIZONTAL
Limit : EN55032 B(3M)
Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
Engineer : Hale
EUT : Switching Adapter
Power : AC 110V/60Hz
M/N : GT-86180-1809-W2Z
Test Mode : Full Load(Output:9V/2A)

	Freq. (MHz)	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	30.00	18.09	1.04	2.13	21.26	40.00	18.74	QP
2	112.45	10.69	1.51	18.21	30.41	40.00	9.59	QP
3	165.80	9.67	1.98	11.96	23.61	40.00	16.39	QP

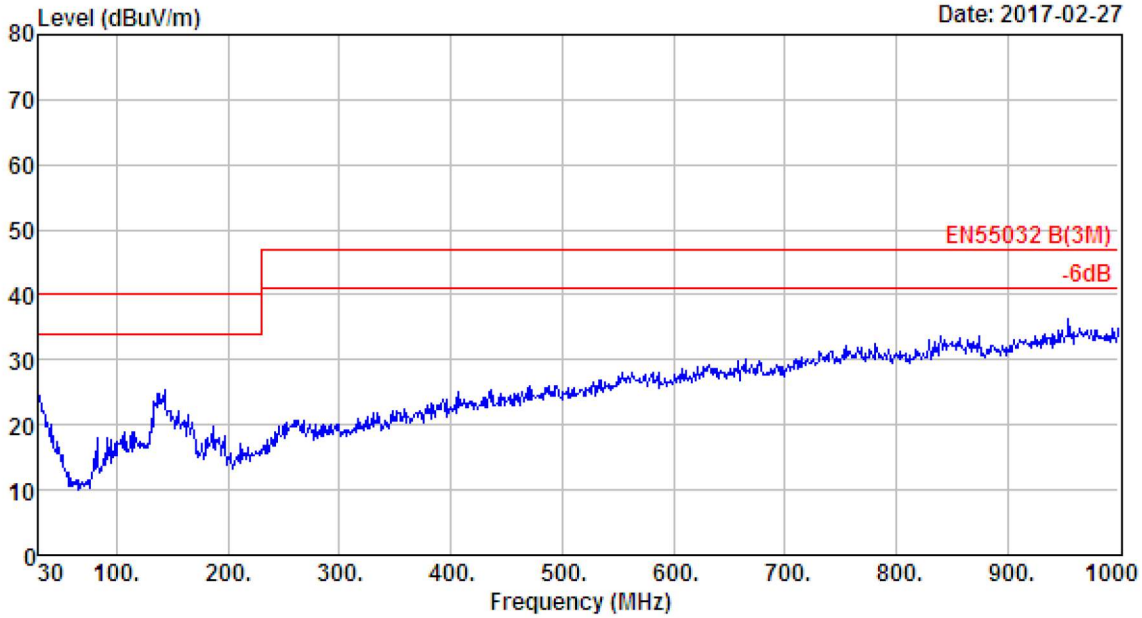


Site no. : 2# 966 chamber Data no. : 334
Dis. / Ant. : 3m 37062 Ant. pol. : VERTICAL
Limit : EN55032 B(3M)
Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
Engineer : Hale
EUT : Switching Adapter
Power : AC 110V/60Hz
M/N : GT-86180-1809-W2Z
Test Mode : Full Load(Output:9V/2A)

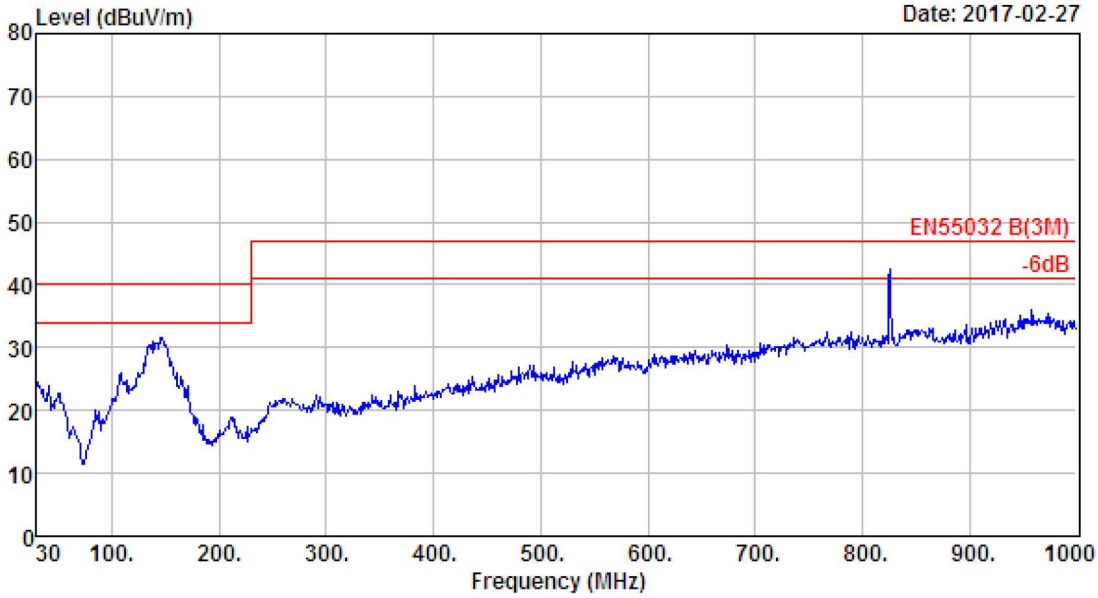
	Freq. (MHz)	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	57.16	5.13	1.06	27.66	33.85	40.00	6.15	QP
2	98.87	9.44	1.63	15.17	26.24	40.00	13.76	QP
3	154.16	10.50	1.82	18.79	31.11	40.00	8.89	QP



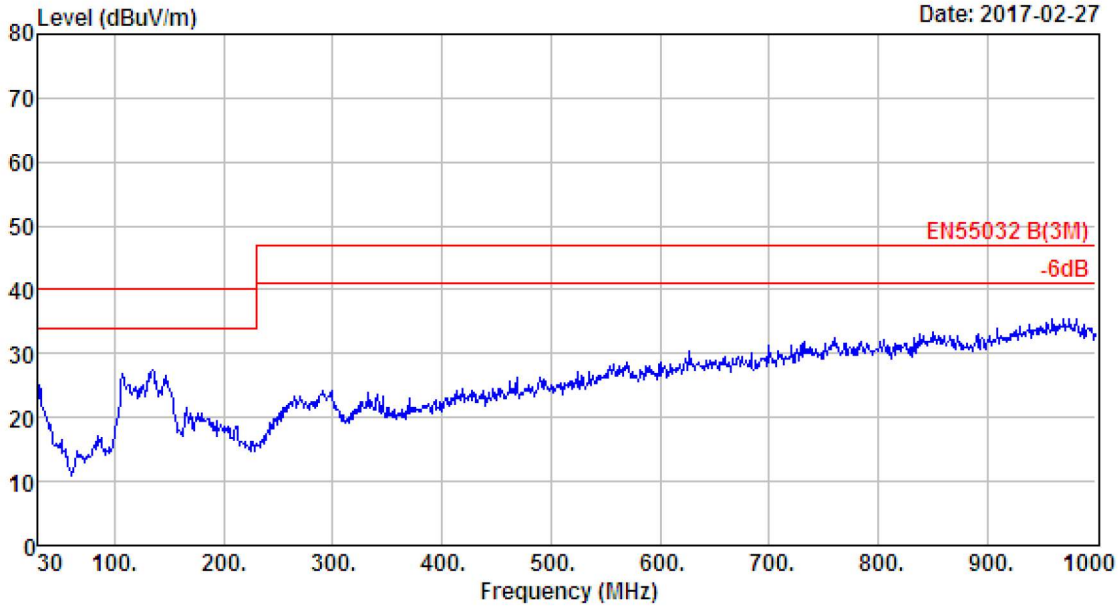
Site no.	: 2# 966 chamber	Data no.	: 335
Dis. / Ant.	: 3m 37062	Ant. pol.	: HORIZONTAL
Limit	: EN55032 B(3M)		
Env. / Ins.	: Temp:23.6';Humi:56%;Press:101.52kPa		
Engineer	: Hale		
EUT	: Switching Adapter		
Power	: AC 110V/60Hz		
M/N	: GT-86180-1812-W2Z		
Test Mode	: Full Load(Output:12V/1.5A)		



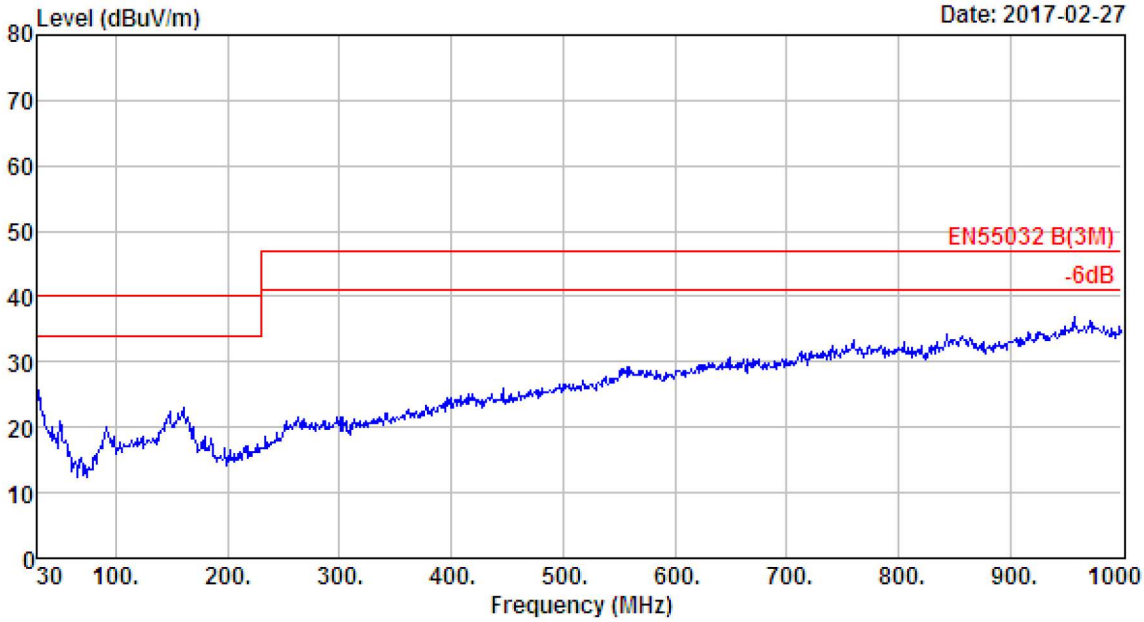
Site no.	: 2# 966 chamber	Data no.	: 336
Dis. / Ant.	: 3m 37062	Ant. pol.	: VERTICAL
Limit	: EN55032 B(3M)		
Env. / Ins.	: Temp:23.6';Humi:56%;Press:101.52kPa		
Engineer	: Hale		
EUT	: Switching Adapter		
Power	: AC 110V/60Hz		
M/N	: GT-86180-1812-W2Z		
Test Mode	: Full Load(Output:12V/1.5A)		



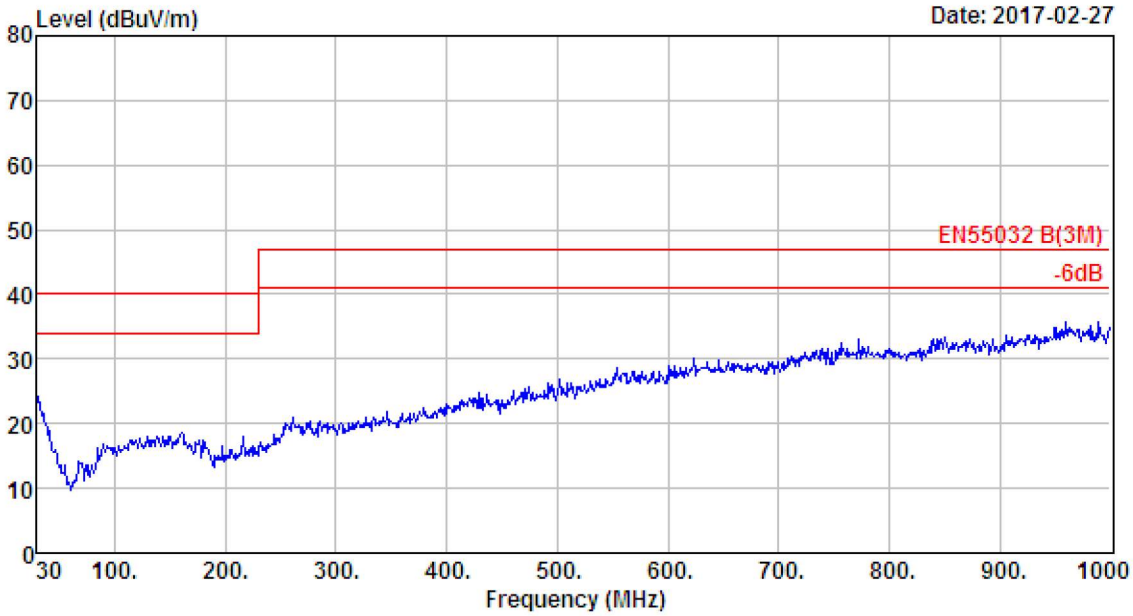

```
Site no.      : 2# 966 chamber              Data no.  : 337
Dis. / Ant.   : 3m   37062                  Ant. pol. : VERTICAL
Limit         : EN55032 B(3M)
Env. / Ins.   : Temp:23.6';Humi:56%;Press:101.52kPa
Engineer      : Hale
EUT           : Switching Adapter
Power         : AC 230V/50Hz
M/N           : GT-86180-1812-W2Z
Test Mode     : Full Load(Output:12V/1.5A)
```



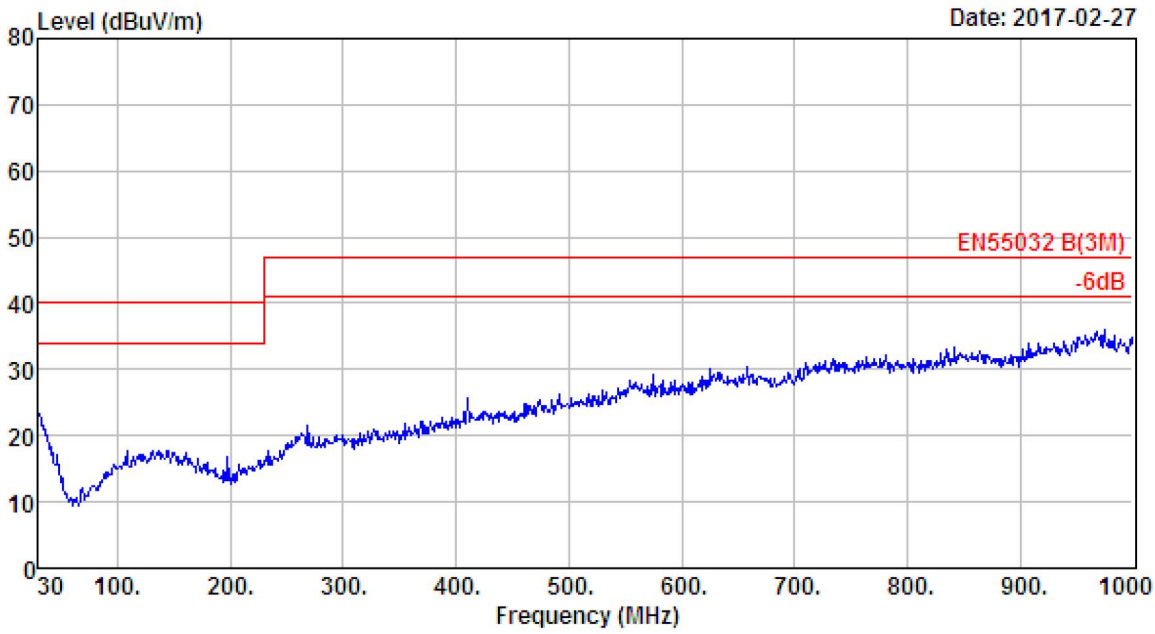

```
Site no.      : 2# 966 chamber              Data no.  : 338
Dis. / Ant.   : 3m   37062                  Ant. pol. : HORIZONTAL
Limit         : EN55032 B(3M)
Env. / Ins.   : Temp:23.6';Humi:56%;Press:101.52kPa
Engineer      : Hale
EUT           : Switching Adapter
Power         : AC 230V/50Hz
M/N           : GT-86180-1812-W2Z
Test Mode     : Full Load(Output:12V/1.5A)
```



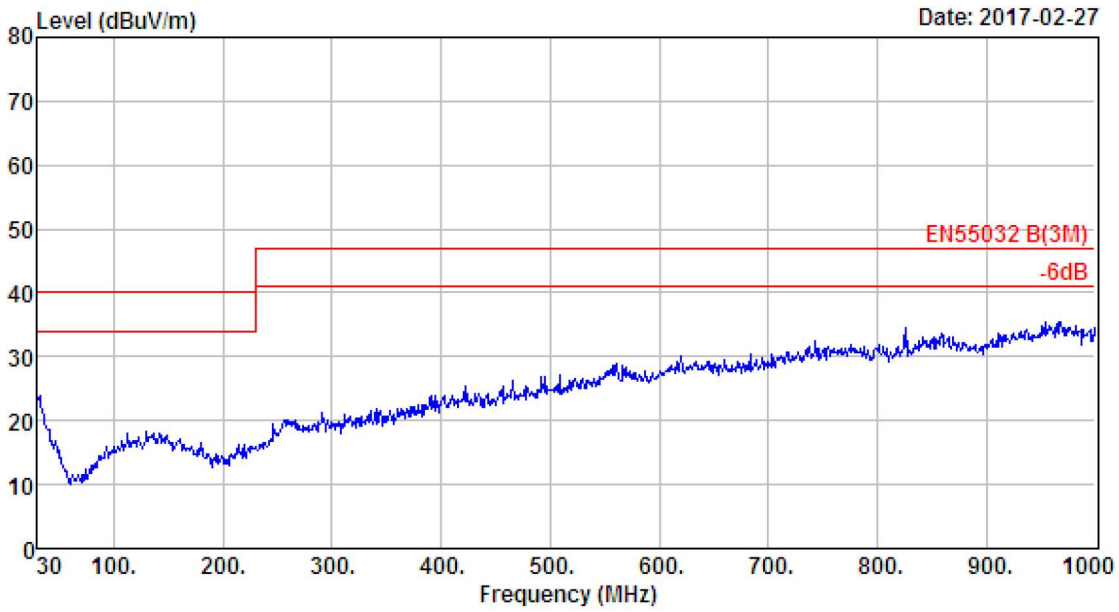

```
Site no.      : 2# 966 chamber              Data no.  : 339
Dis. / Ant.   : 3m   37062                  Ant. pol. : VERTICAL
Limit         : EN55032 B(3M)
Env. / Ins.   : Temp:23.6';Humi:56%;Press:101.52kPa
Engineer      : Hale
EUT           : Switching Adapter
Power         : AC 110V/60Hz
M/N           : GT-86180-1809-W2Z
Test Mode     : Half Load(Output:9V/1A)
```




```
Site no.       : 2# 966 chamber              Data no.  : 340
Dis. / Ant.    : 3m   37062                  Ant. pol. : HORIZONTAL
Limit          : EN55032 B(3M)
Env. / Ins.    : Temp:23.6';Humi:56%;Press:101.52kPa
Engineer       : Hale
EUT            : Switching Adapter
Power          : AC 110V/60Hz
M/N            : GT-86180-1809-W2Z
Test Mode      : Half Load(Output:9V/1A)
```



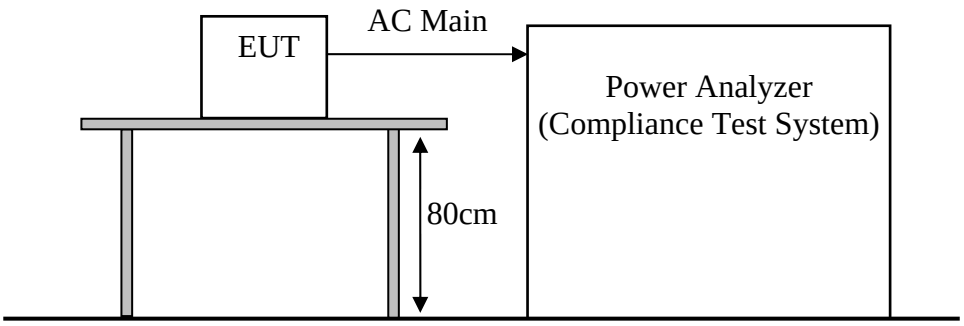

```
Site no.       : 2# 966 chamber              Data no.  : 341
Dis. / Ant.    : 3m   37062                  Ant. pol. : HORIZONTAL
Limit          : EN55032 B(3M)
Env. / Ins.    : Temp:23.6';Humi:56%;Press:101.52kPa
Engineer       : Hale
EUT            : Switching Adapter
Power          : AC 110V/60Hz
M/N            : GT-86180-1809-W2Z
Test Mode      : No Load
```




```
Site no.       : 2# 966 chamber              Data no.  : 342
Dis. / Ant.    : 3m   37062                  Ant. pol. : VERTICAL
Limit          : EN55032 B(3M)
Env. / Ins.    : Temp:23.6';Humi:56%;Press:101.52kPa
Engineer       : Hale
EUT            : Switching Adapter
Power          : AC 110V/60Hz
M/N            : GT-86180-1809-W2Z
Test Mode      : No Load
```

4.3. Harmonic Current Emissions on AC Mains Test

RESULT	**:**	**Pass**
Test procedure	:	EN 61000-3-2:2014
Measured harmonics	:	1～40th
Limits	:	EN 61000-3-2:2014



There is no need for Harmonics test to be performed on this product (rated power is less than 75W) in accordance with EN 61000-3-2:2014.

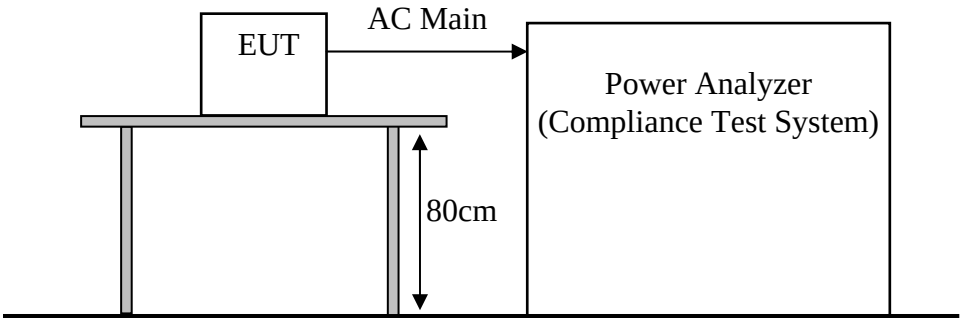
For further details, please refer to Clause 7 of EN 61000-3-2:2014 which states:

“For the following categories of equipment, limits are not specified in this edition of the standard:

- equipment with a rated power of 75W or less, other than lighting equipment.”

4.4. Voltage Fluctuations and Flicker on AC Mains Test

RESULT	**:**	**Pass(**Please refer to the following page**)**
Test procedure	:	EN 61000-3-3:2013
Limits	:	EN 61000-3-3:2013

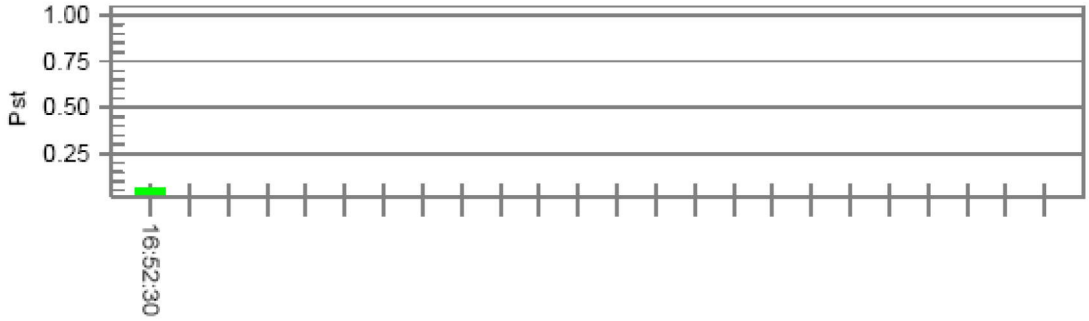


Test Data

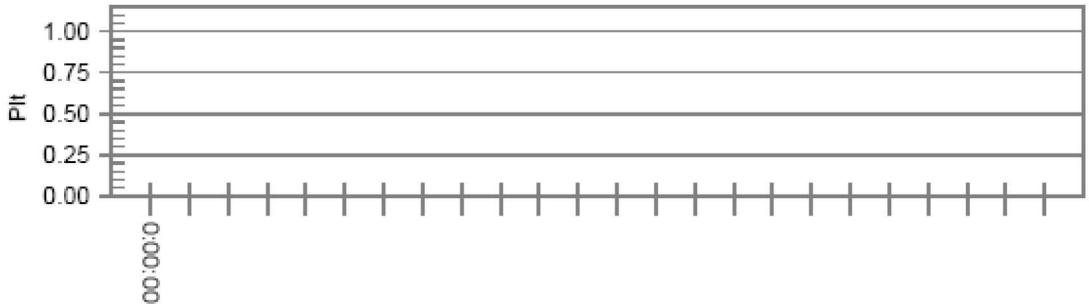
EUT: Switching Adapter M/N: GT-86180-WWVV-W2Z Tested by: Hale
Test category: All parameters (European limits) Test Margin: 100
Test date: 2017/2/27 Start time: 16:42:09 End time: 16:52:36
Test duration (min): 10 Data file name: F-000040.cts_data
Comment: Full Load
Customer: GlobTek

Test Result: Pass Status: Test Completed

Pst and limit line European Limits



Plt and limit line



Parameter values recorded during the test:

Vrms at the end of test (Volt):	230.01			
Highest dt (%):	0.00	Test limit (%):	N/A	N/A
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

5. IMMUNITY TEST RESULT

5.1. Description of Performance Criteria:

Performance criteria A

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 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

After the test, the equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed, after the application of the phenomena 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.

During the test, degradation of performance is allowed. However, no change of operating state or stored data is allowed to persist after the test. 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 except 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. Functions, and/or information stored in non-volatile memory, or protected by a backup, shall not be lost.

5.2. Electrostatic Discharge Immunity Test For EN55020

RESULT	**:**	**Pass**
Test procedure	:	EN 55020:2007+A11:2011
Basic standard	:	EN 61000-4-2:2009
Test specification	:	+/-4.0kV(Contact discharge) +/-8.0kV(Air discharge)
Number of discharges	:	⩾10(Air discharge for single polarity discharge) ⩾25 (Contact discharge for single polarity discharge)
Polarity	:	Positive/Negative
Performance criterion	:	B

Test Setup

Date of test	:	Mar. 01, 2017
Model No.	:	GT-86180-1812-W2Z, GT-86180-1812-W2Z
Input Voltage	:	AC 230V/50Hz
Operation Mode	:	Full Load, Half Load, No Load
Temperature	:	24.8℃
Humidity	:	56%
Pressure	:	101.50kPa

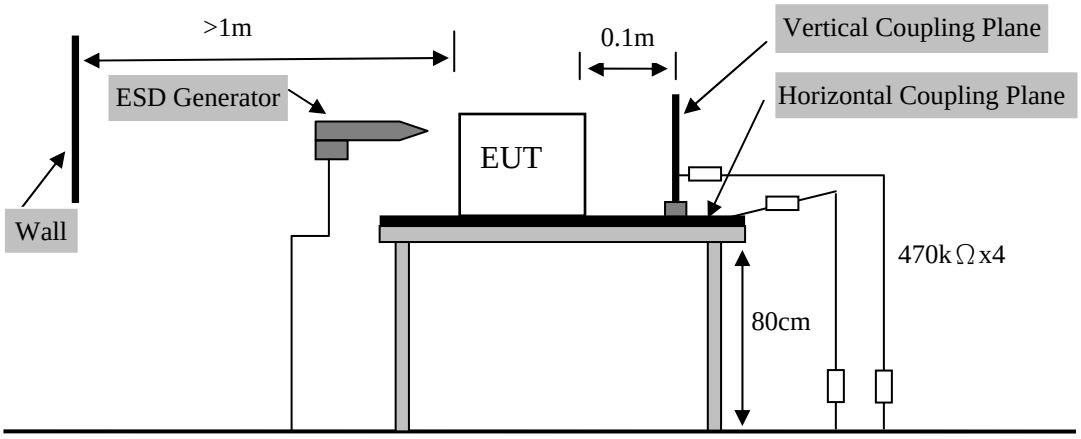


Table 1: Electrostatic Discharge Immunity Test Result

Discharge Location		**Type of discharge**	**Result**
HCP	4 points	Contact	Pass
VCP	4 points	Contact	Pass
DC Port	1 point	Contact	Pass
Slot	4 points	Air	Pass

Remark: 1. There was no change compared with initial operation during the test.
2. Discharge should be considered on Contact and Air and Horizontal Coupling Plane (HCP) and Vertical Coupling Plane (VCP).

5.3. Electrostatic Discharge Immunity Test For EN55024

RESULT	**:**	**Pass**
Test procedure	:	EN 55024:2010+A1:2015
Basic standard	:	EN 61000-4-2:2009
Test specification	:	+/-2.0kV ;+/-4.0kV(Contact discharge)
		+/-2.0kV ; +/-4.0kV ; +/-8.0kV(Air discharge)
Number of discharges	:	⩾10(Air discharge for single polarity discharge)
		⩾25 (Contact discharge for single polarity discharge)
Polarity	:	Positive/Negative
Performance criterion	:	B

Test Setup

Date of test	:	Mar. 01, 2017
Model No.	:	GT-86180-1812-W2Z, GT-86180-1812-W2Z
Input Voltage	:	AC 230V/50Hz
Operation Mode	:	Full Load, Half Load, No Load
Temperature	:	24.8℃
Humidity	:	56%
Pressure	:	101.50kPa

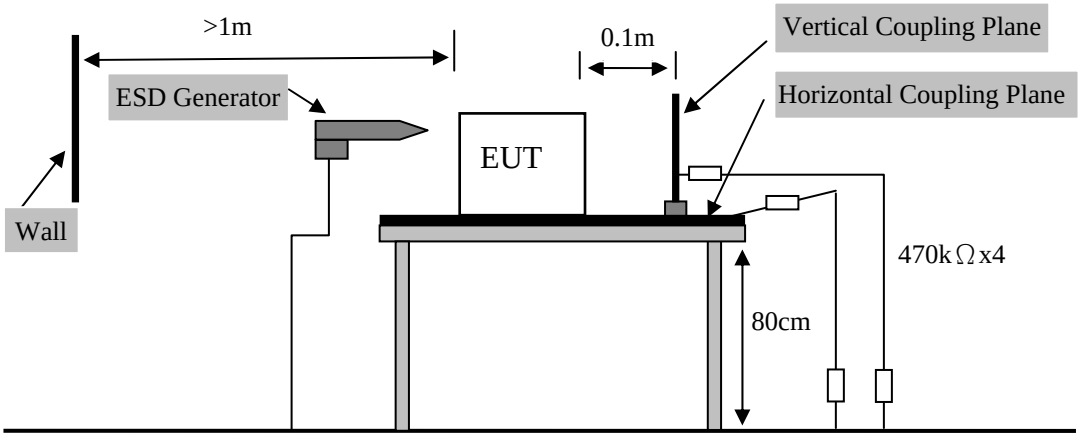


Table 2: Electrostatic Discharge Immunity Test Result

Discharge Location		**Type of discharge**	**Result**
HCP	4 points	Contact	Pass
VCP	4 points	Contact	Pass
DC Port	1 point	Contact	Pass
Slot	4 points	Air	Pass

Remark: 1. There was no change compared with initial operation during the test.
2. Discharge should be considered on Contact and Air and Horizontal Coupling Plane (HCP) and Vertical Coupling Plane (VCP).

5.4. Radio Frequency Electromagnetic Field Immunity Test For EN55024

RESULT	**:**	**Pass**
Test procedure	:	EN 55024:2010+A1:2015
Basic standard	:	EN 61000-4-3:2006+A1:2008+A2:2010
Performance criterion	:	A
Test site	:	ITS

Test Setup

Date of test	:	Mar. 01, 2017
Model No.	:	GT-86180-1812-W2Z, GT-86180-1812-W2Z
Input Voltage	:	AC 230V/50Hz
Operation Mode	:	Full Load, Half Load, No Load
Temperature	:	24.8℃
Humidity	:	56%
Pressure	:	101.50kPa

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

In order to judge the EUT performance, a CCD camera was used to monitor EUT screen.

All the scanning conditions were as follows**:**

	Condition of Test	Remarks
1.	Field Strength	3 V/m (Severity Level 2)
2.	Radiated Signal	Modulated
3.	Scanning Frequency	80 - 1000 MHz
4.	Sweeping time of radiated	0.0015 decade/s
5.	Dwell Time	3 Sec.

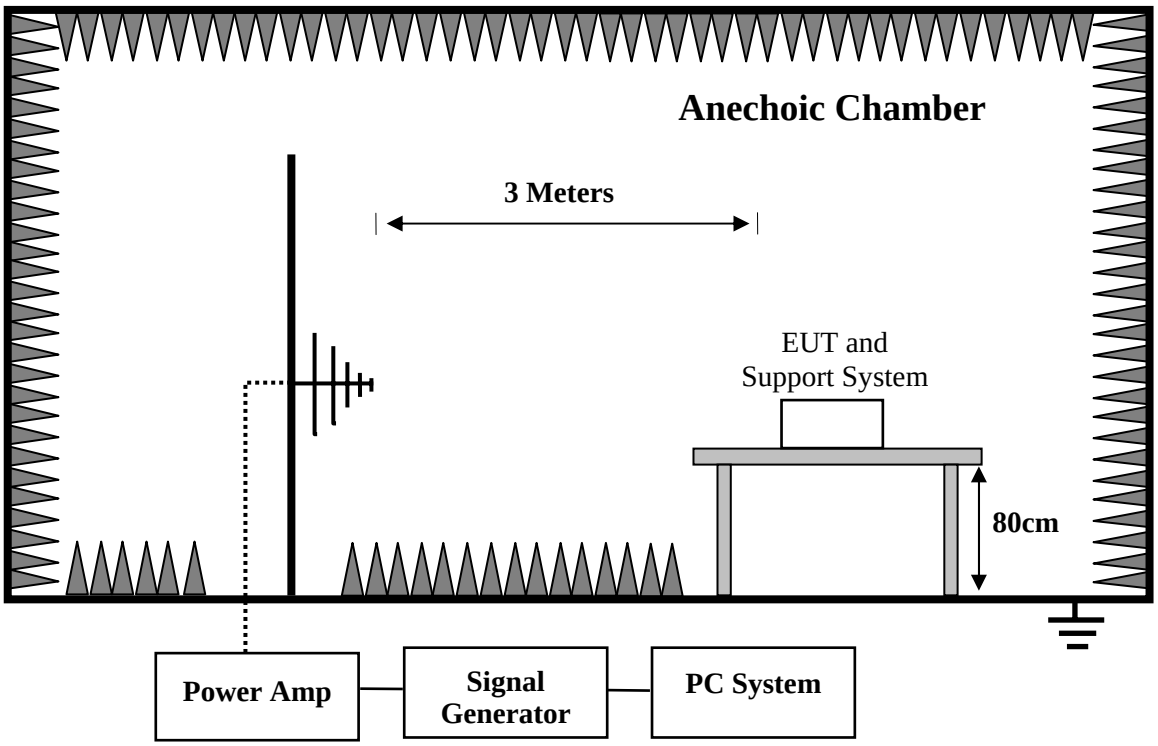


Table 3: Radio Frequency Electromagnetic Field Immunity Test Result

Position	Modulated signal	Test level	Step	Result
Front	AM 80% 1kHz	3 V/m	1%	Pass
Right				Pass
Rear				Pass
Left				Pass

Remark: There was no change compared with initial operation during the test.

5.5. Electrical Fast Transient/Burst Immunity Test For EN55020

RESULT	**:**	**Pass**
Test procedure	:	EN 55020:2007+A11:2011
Basic standard	:	EN 61000-4-4:2012
Pulseform	:	Tr/Th＝5/50ns
Repetition Frequency	:	5kHz
Test Duration	:	120s
Performance criterion	:	B

Test Setup

Date of test	:	Mar. 01, 2017
Model No.	:	GT-86180-1812-W2Z, GT-86180-1812-W2Z
Input Voltage	:	AC 230V/50Hz
Operation Mode	:	Full Load, Half Load, No Load
Temperature	:	24.8℃
Humidity	:	56%
Pressure	:	101.50kPa

The EUT and its simulators were placed 0.1m high above the ground reference plane which was a min. 2m*2m metallic sheet with 0.65mm minimum thickness. This reference ground plane shall project beyond the EUT by at least 0.1m on all sides and the minimum distance between EUT and all other conductive structure, except the ground plane beneath the EUT, shall be more than 0.5m.

1. For input and AC power ports:
   The EUT was connected to the power mains by using a coupling device which coupled 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 can't less than 2 mains.

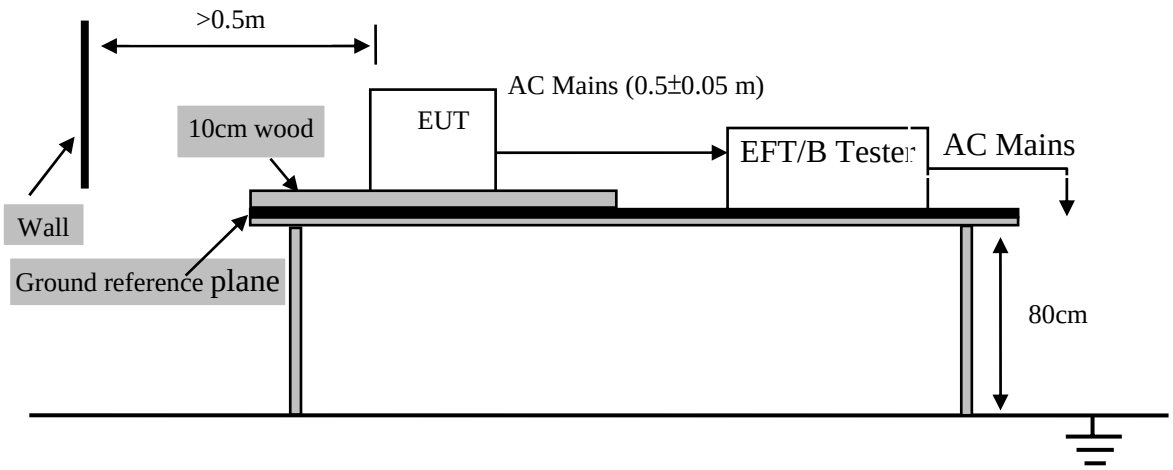


Table 4: Electrical Fast Transient/Burst Immunity Test Result

Coupling Ports		**Coupling Voltage**	**Inject Method**	**Result**
AC Power Ports	L-N	+/-1kV	Direct	Pass

Remark: There was no change compared with initial operation during the test.

5.6. Electrical Fast Transient/Burst Immunity Test For EN55024

RESULT	**:**	**Pass**
Test procedure	:	EN 55024:2010+A1:2015
Basic standard	:	EN 61000-4-4:2012
Pulseform	:	Tr/Th＝5/50ns
Repetition Frequency	:	5kHz
Test Duration	:	120s
Performance criterion	:	B

Test Setup

Date of test	:	Mar. 01, 2017
Model No.	:	GT-86180-1812-W2Z, GT-86180-1812-W2Z
Input Voltage	:	AC 230V/50Hz
Operation Mode	:	Full Load, Half Load, No Load
Temperature	:	24.8℃
Humidity	:	56%
Pressure	:	101.50kPa

The EUT and its simulators were placed 0.1m high above the ground reference plane which was a min. 2m*2m metallic sheet with 0.65mm minimum thickness. This reference ground plane shall project beyond the EUT by at least 0.1m on all sides and the minimum distance between EUT and all other conductive structure, except the ground plane beneath the EUT, shall be more than 0.5m.

1. For input and AC power ports:
   The EUT was connected to the power mains by using a coupling device which coupled 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 can't less than 2 mains.

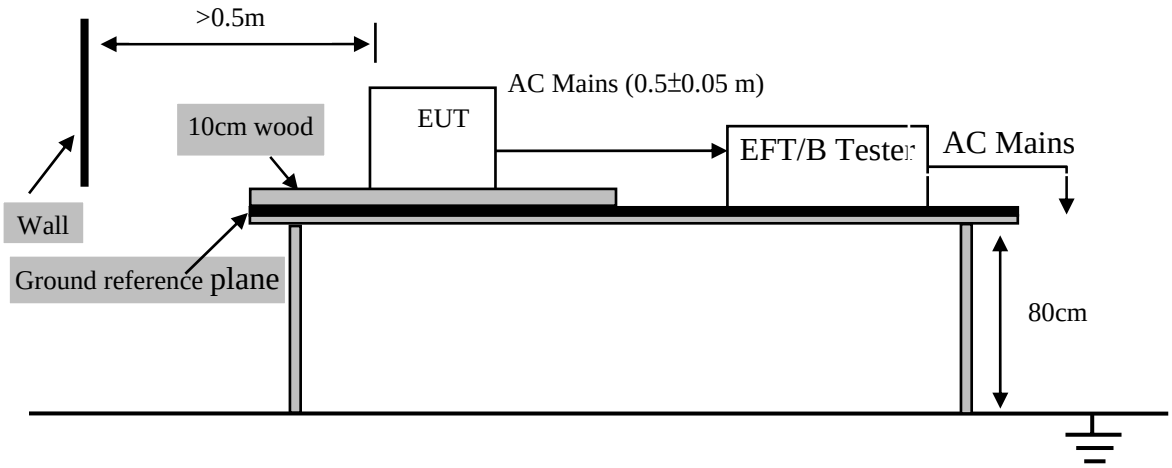


Table 5: Electrical Fast Transient/Burst Immunity Test Result

Coupling Ports		**Coupling Voltage**	**Inject Method**	**Result**
AC Power Ports	L-N	+/-1kV	Direct	Pass

Remark: There was no change compared with initial operation during the test.

5.7. Surge Immunity Test For EN55024

RESULT	**:**	**Pass**
Test procedure	:	EN 55024:2010+A1:2015
Basic standard	:	EN 61000-4-5:2006
Pulseform	:	Tr/Td＝1.2/50us
Test Duration	:	60s
Performance criterion	:	B

Test Setup

Date of test	:	Mar. 01, 2017
Model No.	:	GT-86180-1812-W2Z, GT-86180-1812-W2Z
Input Voltage	:	AC 230V/50Hz
Operation Mode	:	Full Load, Half Load, No Load
Temperature	:	24.8℃
Humidity	:	56%
Pressure	:	101.50kPa

2Ω effective output impedance of the generator was used for L-N test.12Ω effective output impedance of the generator was used for L-PE,N-PE test.

5 positive and 5 negative (polarity) tests were applied successively synchronized to the voltage phase 0°, 90°, 180°, 270° to L-N respectively. The repetition rate was 1 per minute during test.

1. For input and AC power ports:
   The EUT was connected to the power mains by using a coupling device which coupled the surge interference signal to AC power lines. Both polarities of the test voltage should be applied during compliance test and the duration was 1 minute.
2. For signal lines and control lines ports:
   None.
3. For DC input and DC output power ports:
   None.

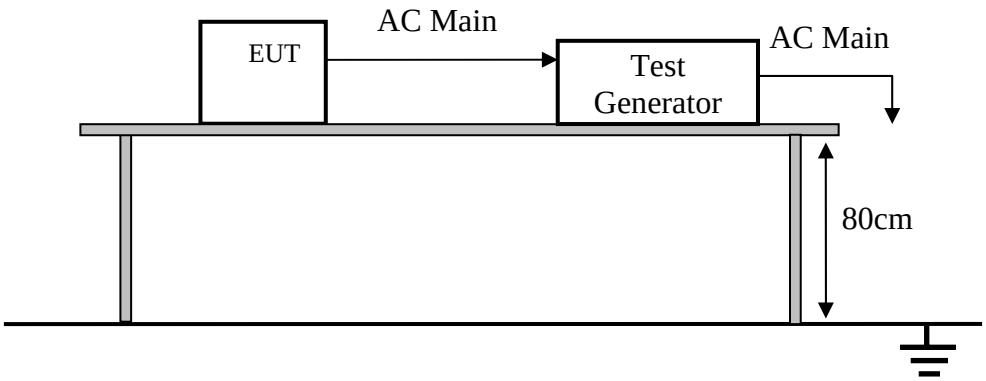


Table 6: Surge Immunity Test Result

Coupling Ports		**Coupling Voltage**	**Coupling Phase / Result**			
			0°	**90°**	**180°**	**270°**
AC power ports	L-N	+/-1kV Direct	Pass	Pass	Pass	Pass

Remark: There was no change compared with initial operation during the test

5.8. Injected Currents Susceptibility Test For EN55024

RESULT	**:**	**Pass**
Test procedure	:	EN 55024:2010+A1:2015
Basic standard	:	EN 61000-4-6:2009
Test specification	:	3V(r.m.s) unmodulated,1kHz sinusoidal signal, AM 80%, 0.15MHz ~ 80MHz
Performance criterion	:	A

Test Setup

Date of test	:	Mar. 01, 2017
Model No.	:	GT-86180-1812-W2Z, GT-86180-1812-W2Z
Input Voltage	:	AC 230V/50Hz
Operation Mode	:	Full Load, Half Load, No Load
Temperature	:	24.8℃
Humidity	:	56%
Pressure	:	101.50kPa

The EUT were placed on an insulating support 0.1m high above a ground reference plane. CDN (coupling and decoupling device) was placed on the ground plane about 0.3m from EUT. Cables between CDN and EUT were as short as possible, and their height above the ground reference plane were between 30 and 50 mm (where possible).

The frequency range was swept from 150KHz to 80MHz using 3V signal level, and with the disturbance signal 80% amplitude modulated with a 1KHz sine wave.

The rate of sweep shall not exceed $1.5*10^{-3}$decades/s.Where the frequency was swept incrementally, the step size shall not exceed 1% of the start and thereafter 1% of the preceding frequency value.

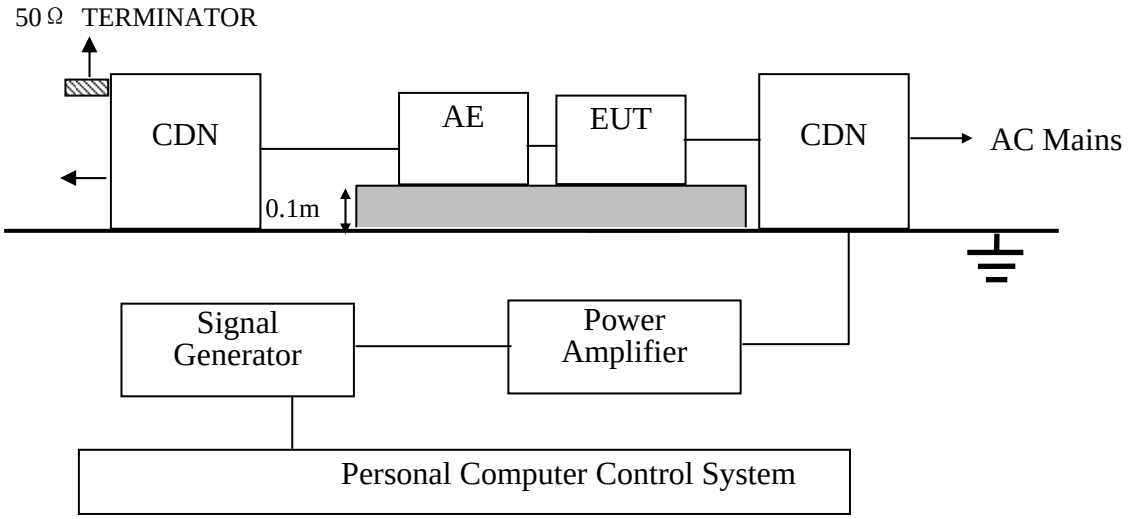


Table 7: Injected Currents Susceptibility Test Result

Coupling ports	**Voltage (r.m.s)**	**Modulation**	**Freq. step**	**Dwell time**	**Coupling method**	**Result**
AC power ports	3V	1kHz AM 80%	1%	1.5s	CDN	Pass
DC power ports	/		/	/	EM Clamp	/
Signal/control	/		/	/	EM Clamp	/

Remark: There was no change compared with initial operation during the test

5.9. Power Frequency Magnetic Field Immunity Test For EN55024

RESULT	**:**	**Pass**
Test procedure	:	EN 55024:2010+A1:2015
Basic standard	:	EN 61000-4-8:2010
Test specification	:	1 A/m
Performance criterion	:	A

Test Setup

Date of test	:	Mar. 01, 2017
Model No.	:	GT-86180-1812-W2Z, GT-86180-1812-W2Z
Input Voltage	:	AC 230V/50Hz
Operation Mode	:	Full Load, Half Load, No Load
Temperature	:	24.8℃
Humidity	:	56%
Pressure	:	101.50kPa

The EUT was subjected to the test magnetic field by using the induction coil of standard dimensions (1m*1m). The induction coil then was rotated by 90° in order to expose the EUT to the test field with different orientations.

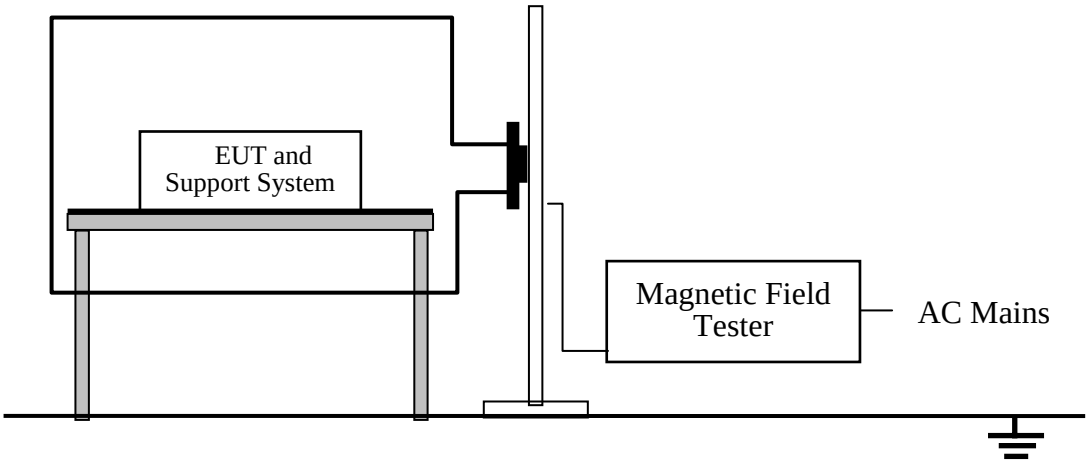


Table 8: Power Frequency Magnetic Field Immunity Test Result

Test Level	Testing Duration	Coil Orientation	Criterion	Result
1A/m	5 mins	X	A	Pass
1A/m	5 mins	Y	A	Pass
1A/m	5 mins	Z	A	Pass

Remark: There was no change compared with initial operation during the test

5.10.Voltage Dips and Short Interruptions Immunity Test For EN55024

RESULT	**:**	**Pass**
Test procedure	:	EN 55024:2010+A1:2015
Basic standard	:	EN 61000-4-11:2004
Test specification	:	0%UT / 0.5P, Criterion: B
		70%UT / 25P, Criterion: C
		0%UT / 250P, Criterion: C

Test Setup

Date of test	:	Mar. 01, 2017
Model No.	:	GT-86180-1812-W2Z, GT-86180-1812-W2Z
Input Voltage	:	AC 230V/50Hz; AC 100V/60Hz
Operation Mode	:	Full Load, Half Load, No Load
Temperature	:	24.8℃
Humidity	:	56%
Pressure	:	101.50kPa

The interruptions was introduced at selected phase angles with specified duration. Recorded any degradation of performance.

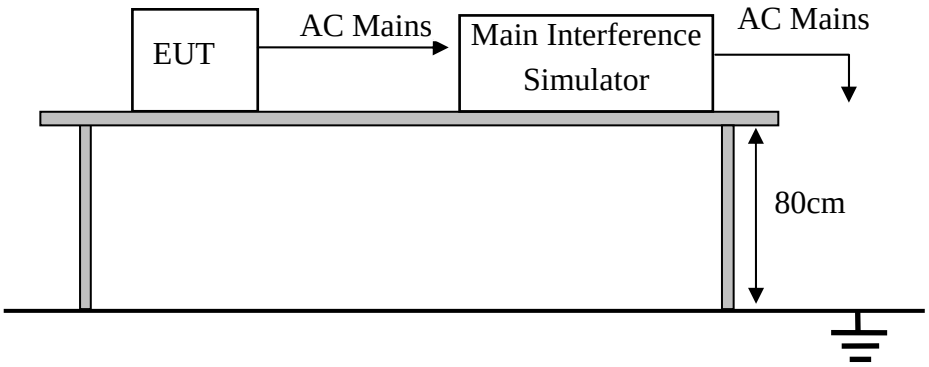


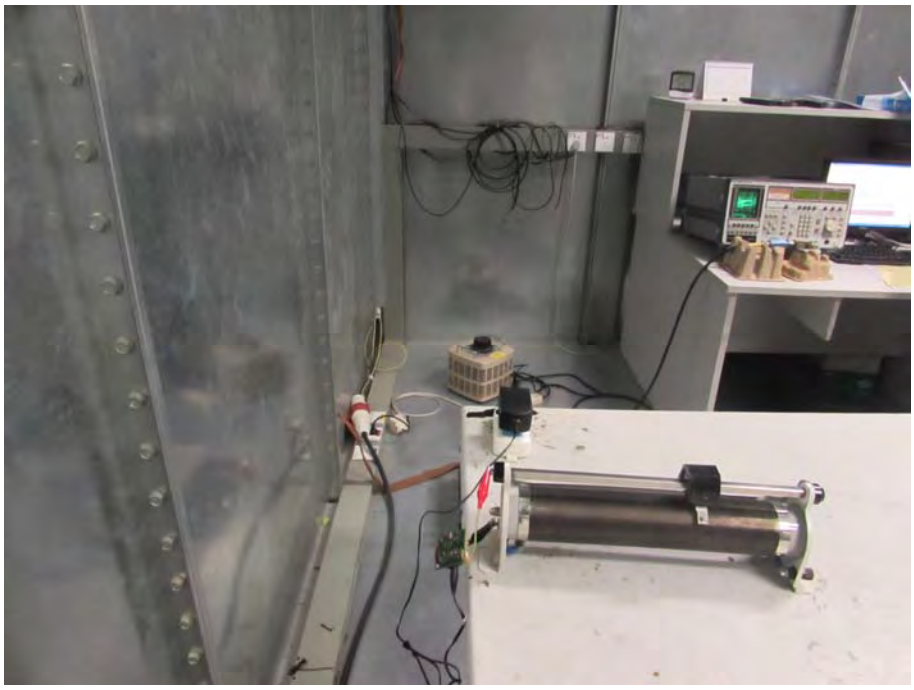
Table 9: Voltage Dips and Short Interruptions Immunity Test Result

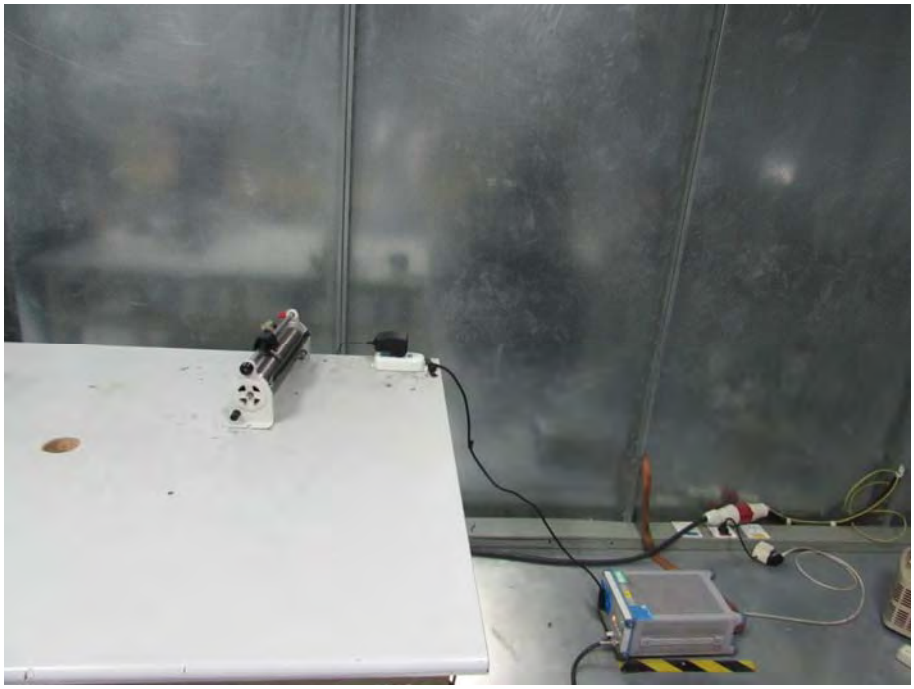
Test Level % UT	**Voltage Dips & Short Interruptions % UT**	**Duration (in period) 50/60 Hz**	**Criterion**	**Result**
0	100	0.5P	B	PASS
70	30	25P/30P	C	PASS
0	100	250P/300P	C	PASS

Remark: The EUT was Stopped during the test, but self-recoverable after the test..

6. PHOTOGRAPHS OF TEST SET-UP

6.1.Set-up for conducted emission at the mains terminals test





6.2.Set-up for radiated emission test

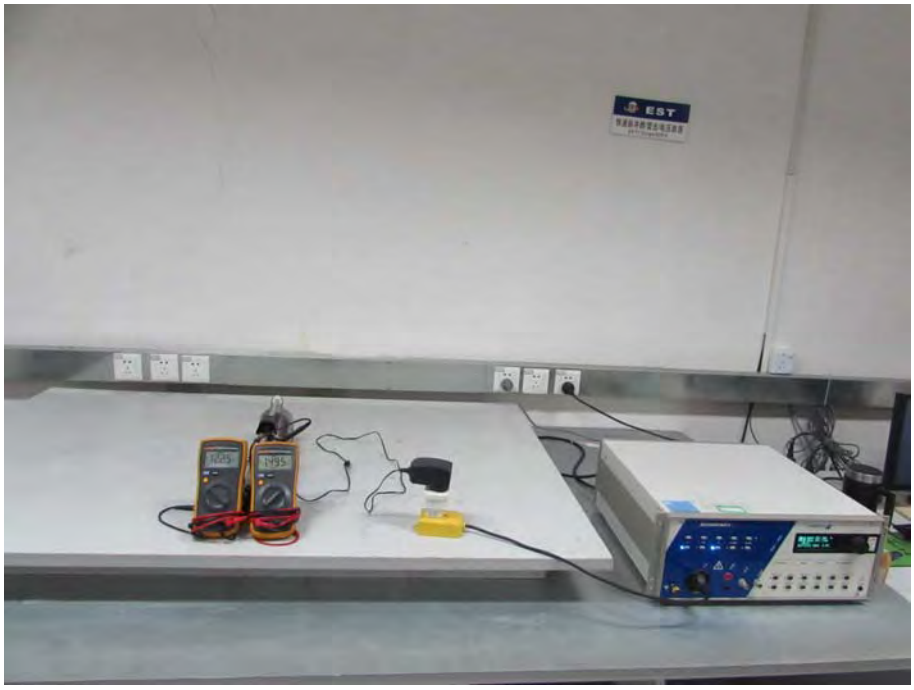
6.3.Set-up for voltage fluctuations and flicker on AC mains test

6.4.Set-up for electrostatic discharge immunity test

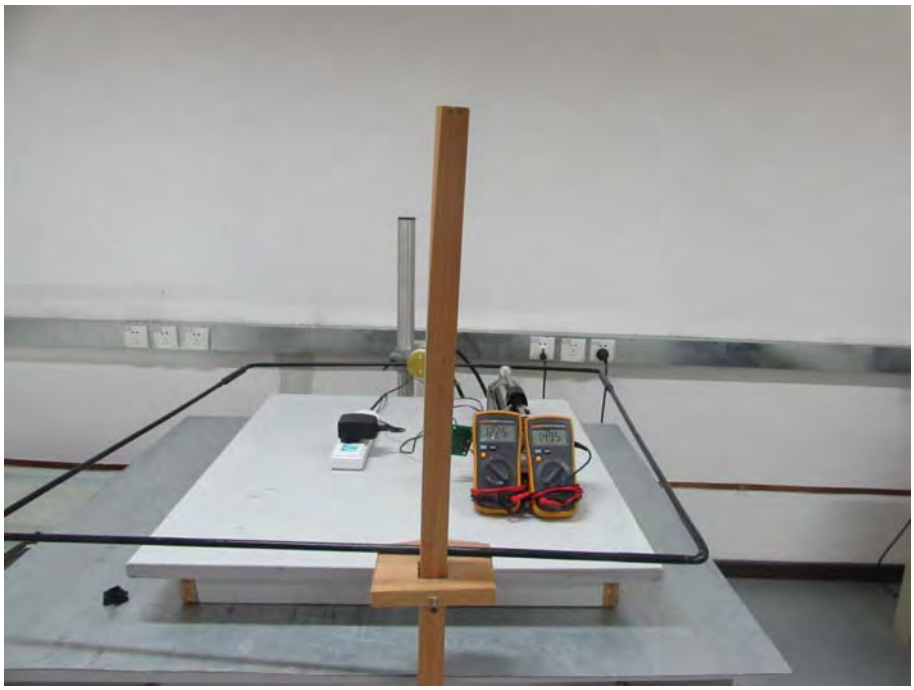
6.5.Set-up for surge immunity test

6.6.Set-up for injected currents susceptibility test

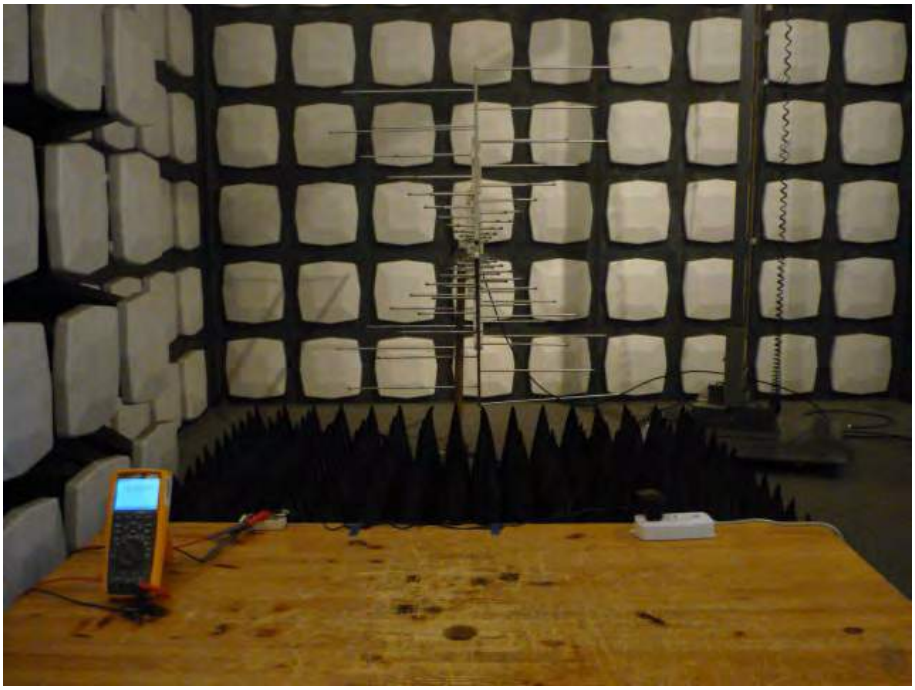
6.7.Set-up for Voltage Dips and Short Interruptions Immunity Test



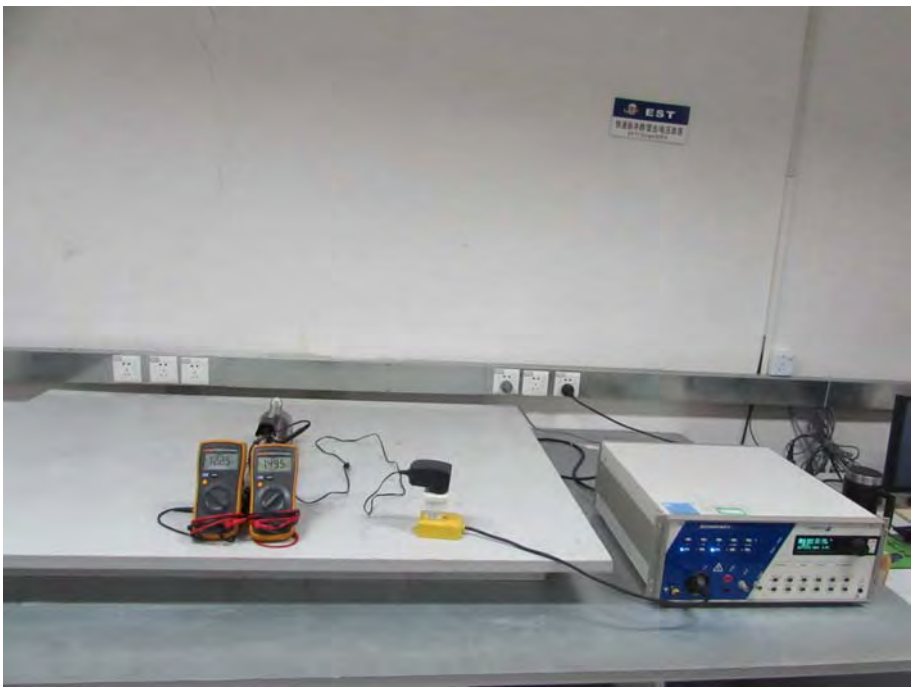
6.8.Set-up for power frequency magnetic field immunity test



6.9.Set-up for radio frequency electromagnetic field immunity(R/S)test



6.10.Set-up for Electrical Fast Transient/Burst Immunity Test



7. PHOTOGRAPHS OF THE EUT

Figure 1
General Appearance of the EUT

Figure 2
General Appearance of the EUT

Figure 3
General Appearance of the EUT

Figure 4
General Appearance of the EUT

Figure 5
General Appearance of the EUT

Figure 6
General Appearance of the EUT