



FCC EMC TEST REPORT

Issued to

Tabler Systems Inc

Product Name : TABLER TOUCH TV
Brand Name : Tabler TV
Model No. : TTV-65MH
Test Standard : 47 CFR Part 15 Subpart B
Report No : SH16060047E01
Test Date : Aug.15, 2016-Oct.18
Issue Date : Oct.31, 2016



Shanghai Skylabs Co., Ltd.

Test by: An Peng Approved by: Guyeyian Review by: Menglan.Gu

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1. Statement

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- 4) This report is invalid without signature of tester, auditor and approver.
- 5) Any dissidence to report, please submit to Shanghai Skylabs Co.,Ltd. within 30 days after receipt of the report.

2. Glossary

Table1: Glossary List

Glossary	Full name	Glossary	Full name
CNAS	China National Accreditation Service for Conformity Assessment	AE	Accessory Equipment
EUT	Equipment Under Test	DC	DC power supply
AC	AC supply	EMI	Electro-Magnetic Interference
LCL	longitudinal conversion loss	CE	Conducted Emission
RE	Radiated Emission		
			-

3. Revision History

Table2: Revision History

Issue	Date	Reason for change
1.0	Oct.31,2016	First edition

4. Laboratory General Information

4.1 Information of Laboratory

Name: Shanghai Skylabs Co.,Ltd
Address: No. 1399,Jiangyue Rd,Minhang district Shanghai China
phone: +86-021-51089899
Fax: +86-021-51089899
Wichat:



4.2 measurement uncertainty

Table3: Measurement Uncertainty

Test Items Measurement	Frequency	Antenna Polarization	Uncertainty
Radiated Emission	30MHz ~ 200MHz	Horizontal	4.8dB
	30MHz ~ 200MHz	Vertical	4.7dB
	200MHz ~1000MHz	Horizontal	5.0dB
	200MHz ~1000MHz	Vertical	5.0dB
	1000MHz~6000MHz	Horizontal	4.4dB
	1000MHz~6000MHz	Vertical	4.4dB
	6000MHz~18000MHz	Horizontal	/
	6000MHz~18000MHz	Vertical	/
Conducted Emission	9kHz~150kHz	/	3.2dB
	150kHz~30MHz	/	3.2dB

4.3 Accreditation

CNAS accreditation Testing laboratory certificate number: L6644

5. Applicant Information

Applicant : Tabler Systems Inc
Address: Room A6646, No. 180, South changjiang Road, baoshan District, Shanghai, China
Manufacturer: Tabler Systems Inc
Address: Room A6646, No. 180, South changjiang Road, baoshan District, Shanghai, China

6. EUT Information

6.1 Product Information

Table4: EUT Information

EUT Name:	TABLER TOUCH TV
Model Name:	TTV-65MH
Sample Number:	/
Power supply:	110V AC/ 60Hz
Hardware Version:	/
software Version:	/
functional description:	/
test and evaluation:	/

6.2 Test Mode

Table5: EUT Test Mode

Test Mode NO.	EUT Configuration	Remark
Mode1	Full load	EUT is working with typical
-	-	-

6.3 Accessory Equipment

Table6: Accessory Equipment

NO.	Product	BRAND	Model	SN.
1	Computer	HP	-	-
2				
Remark:				
CABLE	Description	type	Length	Notes
A	HDMI	-	1m	-
B	USB Cable		1m	

7. Reference Standards

Table7: List of Reference Standard

NO.	Standard Title	Version
1	Radio Frequency Devices	47 CFR Part 15 (e-CFR data is current as of July 20, 2016)
2	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz	ANSI C63.4-2014

8. Type Test

8.1 Test Summary

Table8: Test summary table

Standard	Test Items	Result	Remark
47 CFR Part 15 (e-CFR data is current as of July 20, 2016) ANSI C63.4-2014	Conducted Emission	Pass	Section 15.107
	Radiated Emission	Pass	Section 15.109

8.2 Test Items

8.2.1 Conducted Emission

a) Test Condition

Test standard:	47 CFR Part 15
Test Condition:	25°C, 58%RH, 101.5kPa
EUT Number:	/
Test date:	Aug.12,2016
Test result:	Pass

b) Limit

Frequency (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 - 0.5	79	66	66 - 56	56 - 46
0.50 - 5.0	73	60	56	46
5.0 - 30.0	73	60	60	50

(2)The lower limit shall apply at the band edges.

(3)The limit decreases linearly with the logarithm of the frequency in the range 0.15 - 0.50MHz.

c) Test Equipment

Table9: Test of List Equipment

Equipment	Manufacturer	Model	SN	Cal. Date	Valid to
Shielding Room*	CHENGYU	5m×4m×3m	CR	2016.04.11	2017.04.10
EMI Test Receiver	R&S	ESCI7	100787	2016.01.28	2017.01.27
Dual-line V-network	TESTQ	NNB 51	33285	2016.01.28	2017.01.27

d) Procedure

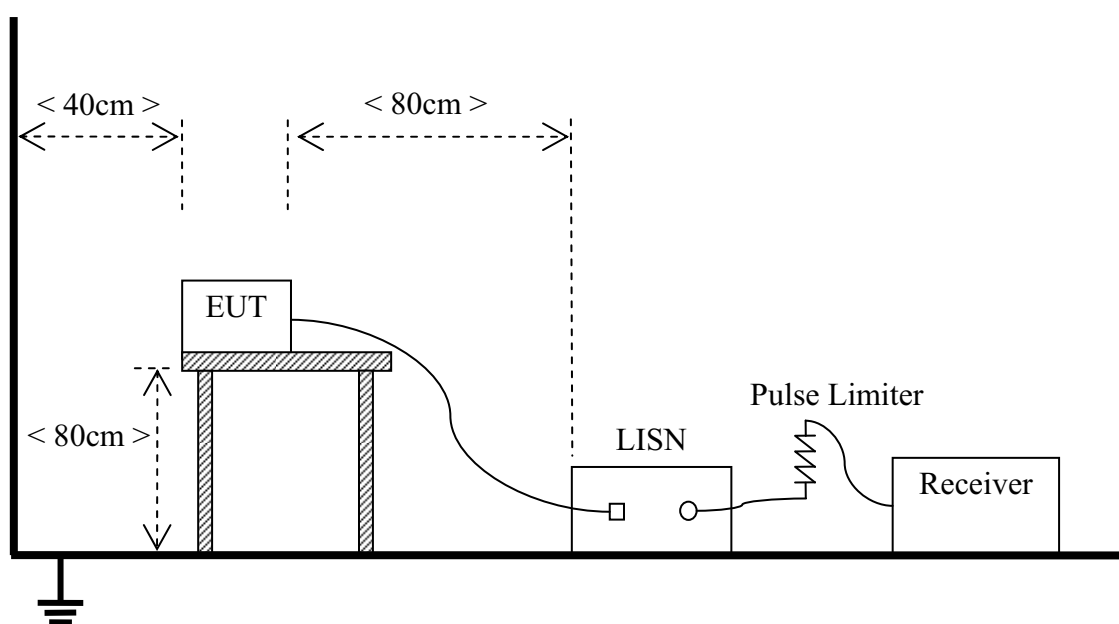
The EUT is placed on the grounded conducting floor, and keeps 0.4m away from the grounded conducting wall. The EUT is connected to the power mains through a LISN which provides $50\Omega/50\mu\text{H}$ of coupling impedance for the measuring instrument.

The test frequency range is from 150kHz to 30MHz. The maximum conducted interference is searched using Peak (PK), Quasi-peak (QP) and Average (AV) detectors; the emission levels that are more than the AV and QP limits, and that have narrow margins from the AV and QP limits will be re-measured with AV and QP detectors.

Tests for both L phase and N phase lines of the power mains connected to the EUT are performed.

e) Test Arrangement

Photo1: RE Test Arrangement

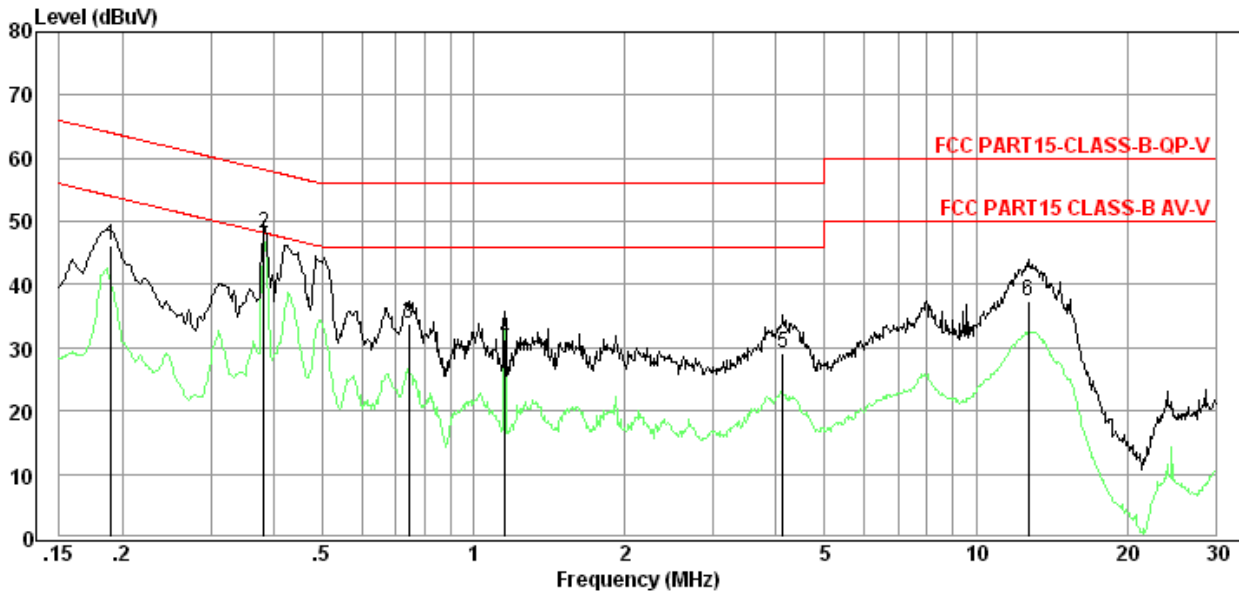


f) Test Result

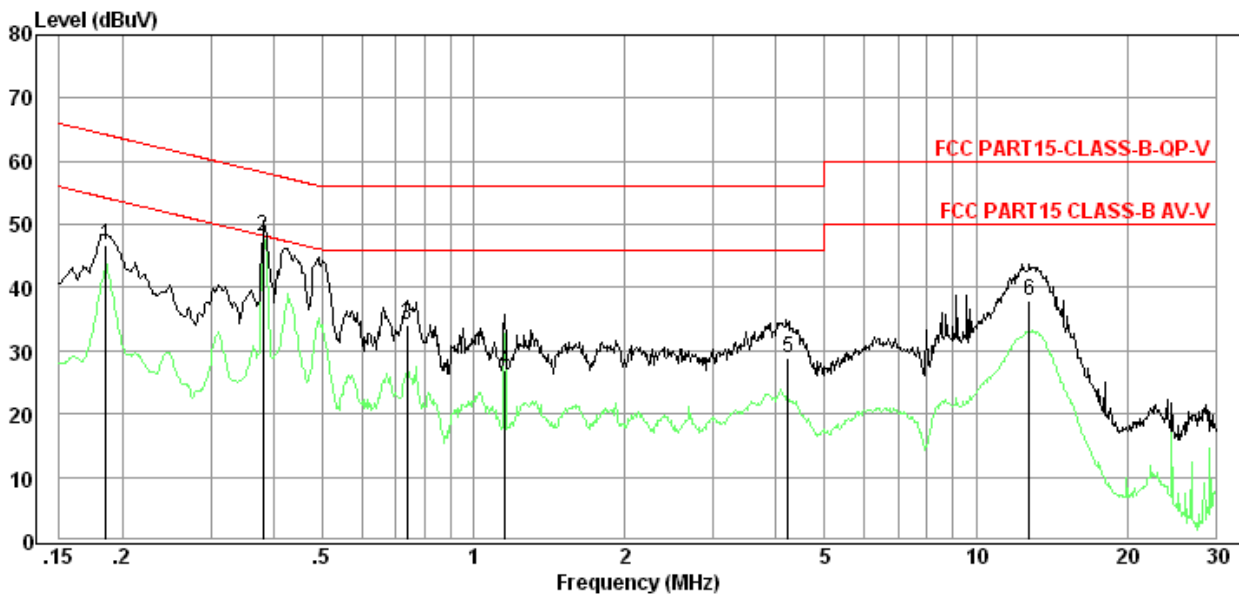
Line	Freq MHz	Reading dBuV	C.F dB	Result dBuV	Limit dBuV	Margin dB	Detector
L	0.19	36.65	9.58	46.23	64.04	17.81	QP
L	0.38	38.65	9.59	48.24	58.20	9.96	QP
L	0.74	24.05	9.69	33.74	56.00	22.26	QP
L	1.16	21.82	9.64	31.46	56.00	24.54	QP
L	4.13	19.34	9.83	29.17	56.00	26.83	QP
L	12.70	27.25	10.06	37.31	60.00	22.69	QP

Line	Freq MHz	Reading dBuV	C.F dB	Result dBuV	Limit dBuV	Margin dB	Detector
N	0.19	37.07	9.59	46.66	64.21	17.55	QP
N	0.38	38.61	9.60	48.21	58.23	10.02	QP
N	0.74	24.40	9.68	34.08	56.00	21.92	QP
N	1.16	17.19	9.64	26.83	56.00	29.17	QP
N	4.22	18.91	9.85	28.76	56.00	27.24	QP
N	12.79	27.88	10.07	37.95	60.00	22.05	QP

Test Result of "L" line:



Test Result of "N" line:



8.2.2 Radiated Emission

a) Test Condition

Test standard:	FCC Part 15B
Test Condition:	25°C, 58%RH, 103.5kPa
EUT Number:	/
Test date:	Oct.15,2016
Test result:	Pass

b) Limit

Table10: RE Limit Below 1GHz

Frequency (MHz)	Field Strength CLASS B (at 3m)	
	$\mu\text{V/m}$	$\text{dB}\mu\text{V/m}$
30 - 88	100	40.0
88 - 216	150	43.5
216 - 960	200	46.0

Frequency range of radiated measurements (For unintentional radiators)

Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 1.705	30.
1.705-108	1000.
108-500	2000.
500-1000	5000.
Above 1000	5th harmonic of the highest frequency or 40 GHz, whichever is lower.

Note:

The highest frequency is 2483.5MHz, So 5th harmonic is 12.41GHz, the frequency range is from 30MHz to 13GHz

c) Test Equipment List

Table11: List of Test Equipment

Equipment	Manufacturer	Model	SN	Cal. Date	Valid to
Shielding Room*	CHENGYU	5m×4m×3m	CR	2016.04.11	2017.04.10
3m Semi-anechoic Chamber	CHENGYU	9.2×6.25×6.15m	/	2016.04.11	2017.04.10
EMI Test Receiver	R&S	ESCI7	100787	2016.01.28	2017.01.27
Broadband log-log antenna	Schwarzbeck	VULB 9163	9163-561	2015.07.25	2017.07.24
Broadband horn antenna	Schwarzbeck	BBHA 9120 D	9120D-1033	2015.07.25	2017.07.24

d) Procedure

The equipment was set up as per the test configuration to simulate typical usage per the user's manual. When the EUT is a tabletop system, a wooden turntable with a height of 0.8 meters is used which is placed on the ground plane. When the EUT is a floor standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.

Support equipment, if needed, was placed as per ANSI C63.4.

All I/O cables were positioned to simulate typical usage as per ANSI C63.4.

The EUT received AC power source from the outlet socket under the turntable. All support equipment power received from another socket under the turntable.

The antenna was placed at 3 or 10 meter away from the EUT as stated in ANSI C63.4. The antenna connected to the Spectrum Analyzer via a cable and at times a pre-amplifier would be used.

The Analyzer / Receiver quickly scanned from 30MHz to 40GHz. The EUT test program was started. Emissions were scanned and measured rotating the EUT to 360 degrees and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.

The test mode(s) described in Item 6.2 were scanned during the preliminary test:

After the preliminary scan, we found the test mode described in Item 6.2 producing the highest emission level.

The worst configuration of EUT and cable of the above highest emission level were recorded for reference of the final test.

Receiver Setting:

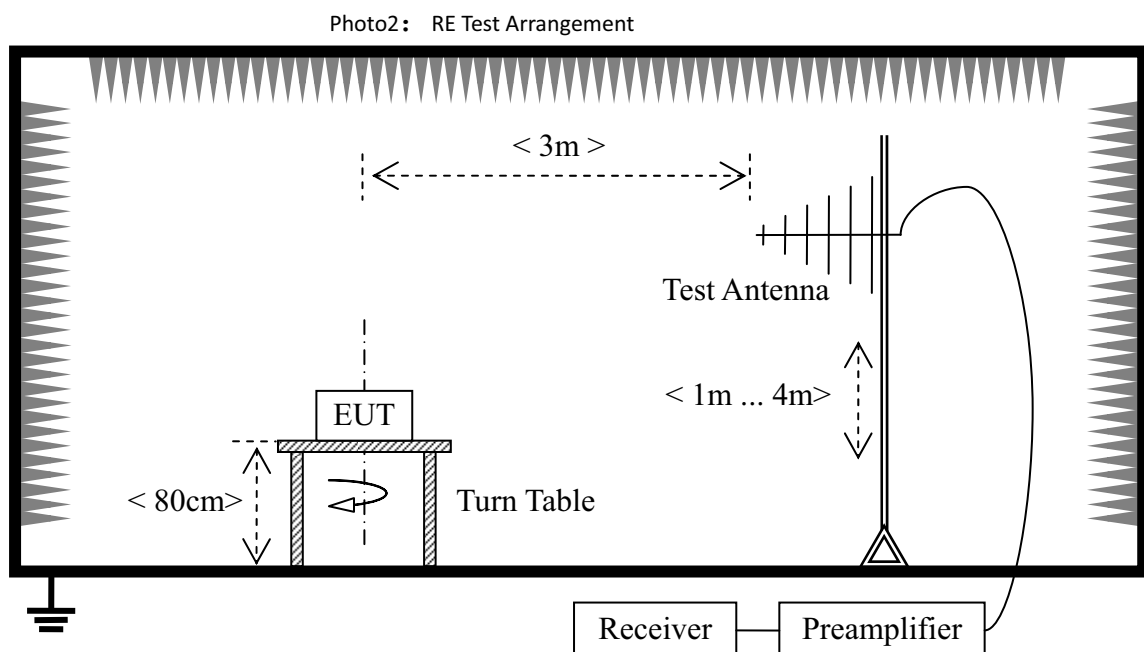
(9-150kHz): RBW=200Hz, VBW=1kHz, Detector: PK, Max Hold.

(0.15-30MHz): RBW=9kHz, VBW=30kHz, Detector: PK, Max Hold.

(30MHz-1GHz): RBW=120kHz, VBW=300kHz, Detector: QP, Max Hold.

(Above 1GHz): RBW=1MHz, VBW=3MHz, Detector: AV/PEAK, Max Hold.

e) Test Arrangement

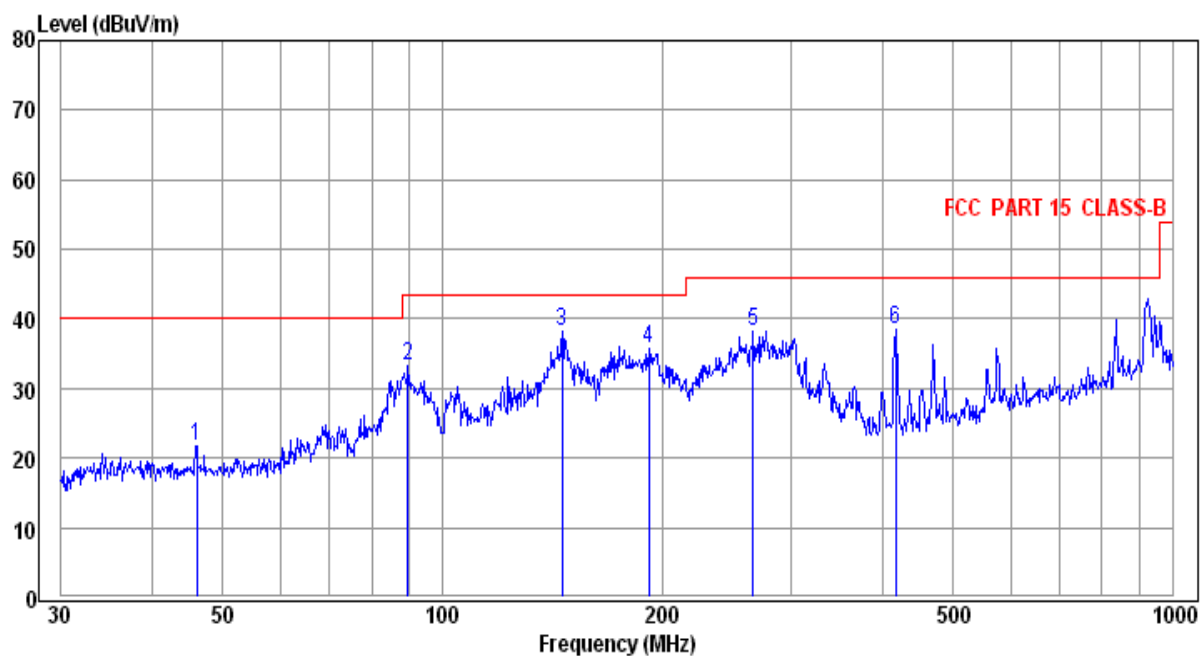


f) Test Result

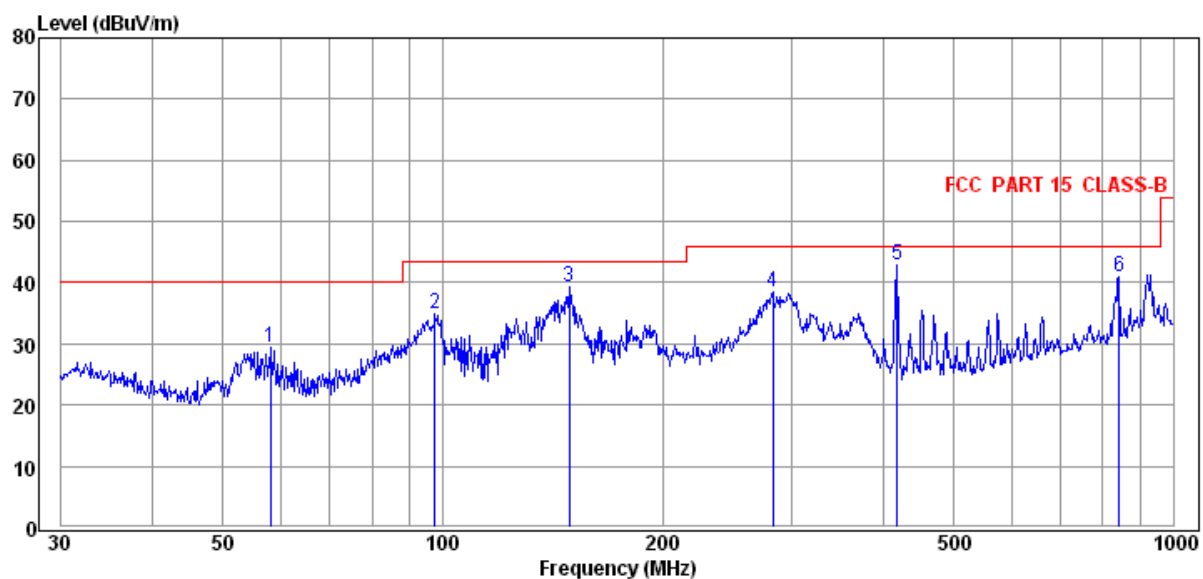
Below 1GHz:

No.	Frequency (MHz)	Result (dBμV/m)	Antenna Polarization	Quasi-Peak Limit (dBμV/m)	Margin (dB)	Detector
1	46.02	21.80	H	40.00	18.20	QP
2	89.59	33.39	H	43.50	10.11	QP
3	145.86	38.22	H	43.50	5.28	QP
4	191.75	35.87	H	43.50	7.63	QP
5	266.61	38.22	H	46.00	7.78	QP
6	417.64	38.40	H	46.00	7.60	QP
1	58.00	29.40	V	40.00	10.60	QP
2	97.46	35.00	V	43.50	8.50	QP
3	148.96	39.41	V	43.50	4.09	QP
4	282.99	38.42	V	46.00	7.58	QP
5	419.11	42.75	V	46.00	3.25	QP
6	842.13	40.96	V	46.00	5.04	QP

Test Verdict Recorded for Suspicious Points (30MHz-1GHz): Antenna Horizontal



Test Verdict Recorded for Suspicious Points (30MHz-1GHz): Antenna Vertical



Above 1GHz

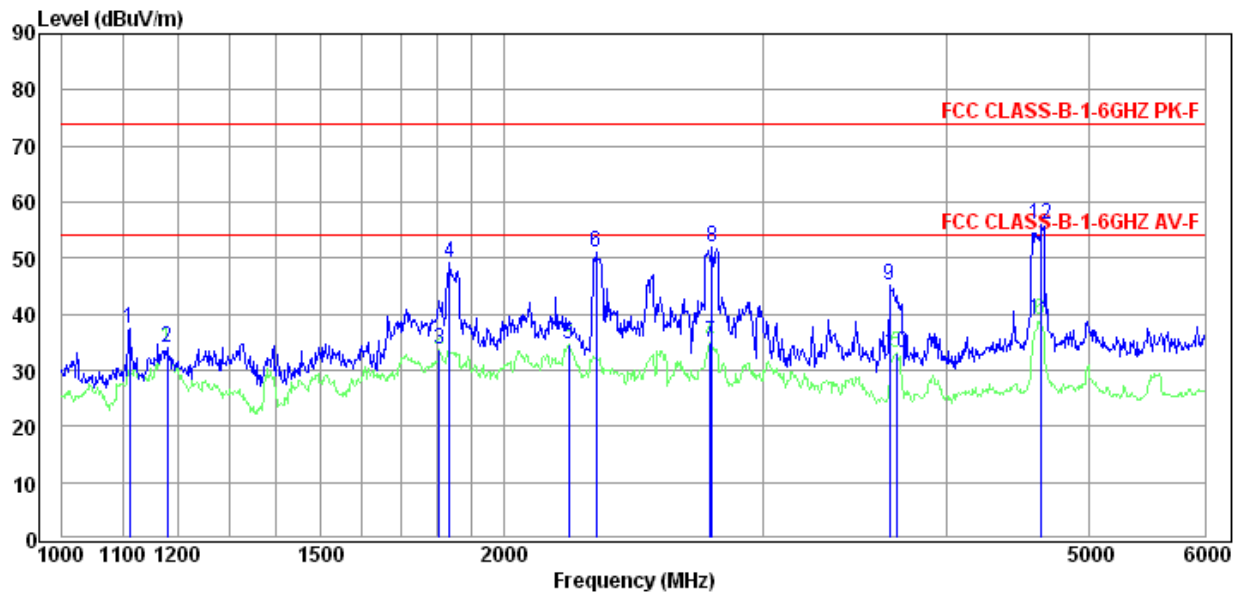
No.	Frequency (MHz)	Result (dBμV/m)	Antenna Polarization	Quasi-Peak Limit (dBμV/m)	Margin (dB)	Detector
1	1111.50	37.37	H	74.00	36.63	Peak
2	1179.21	33.89	H	54.00	20.11	Average
3	1806.30	33.72	H	54.00	20.28	Average
4	1835.66	49.24	H	74.00	24.76	Peak
5	2211.67	34.52	H	54.00	19.48	Average
6	2308.86	51.03	H	74.00	22.97	Peak
1	2761.92	34.99	H	54.00	19.01	Average
2	2771.84	51.88	H	74.00	22.12	Peak
3	3659.16	45.04	H	74.00	28.96	Peak
4	3698.71	33.03	H	54.00	20.97	Average
5	4635.51	38.87	H	54.00	15.13	Average
6	4643.82	55.86	H	74.00	18.14	Peak

No.	Frequency (MHz)	Result (dBμV/m)	Antenna Polarization	Quasi-Peak Limit (dBμV/m)	Margin (dB)	Detector
1	1113.50	28.81	V	54.00	25.19	Average
2	1113.50	43.02	V	74.00	30.98	Peak
3	1475.23	28.41	V	54.00	25.59	Average
4	1852.18	38.12	V	54.00	15.88	Average
5	1855.51	54.26	V	74.00	19.74	Peak
6	2786.78	35.25	V	54.00	18.75	Average
1	2796.78	57.08	V	74.00	16.92	Peak
2	3718.65	33.83	V	54.00	20.17	Average

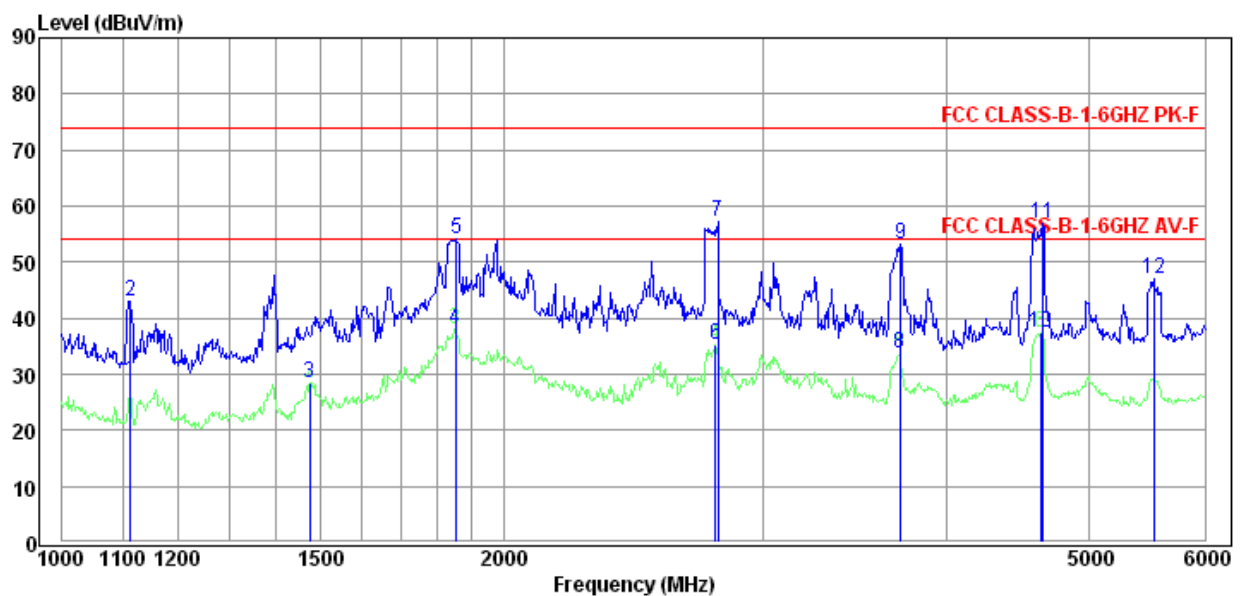


3	3725.32	53.31	V	74.00	20.69	Peak
4	4635.51	37.48	V	54.00	16.52	Average
5	4652.15	56.94	V	74.00	17.06	Peak
6	5535.21	47.00	V	74.00	27.00	Peak

Test Verdict Recorded for Suspicious Points (30MHz-1GHz): Antenna Vertical



Test Verdict Recorded for Suspicious Points (30MHz-1GHz): Antenna Vertical

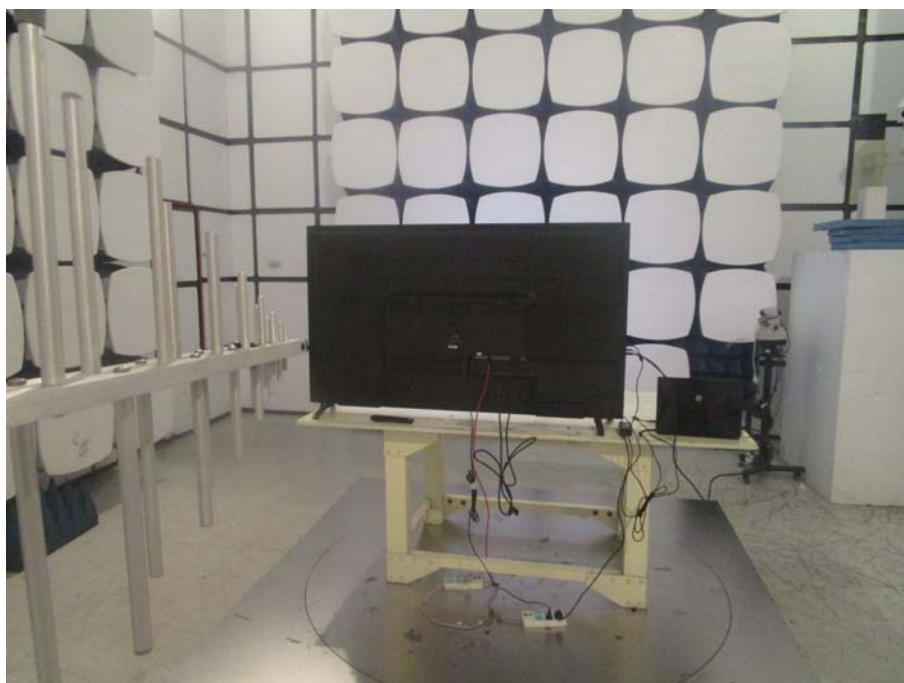


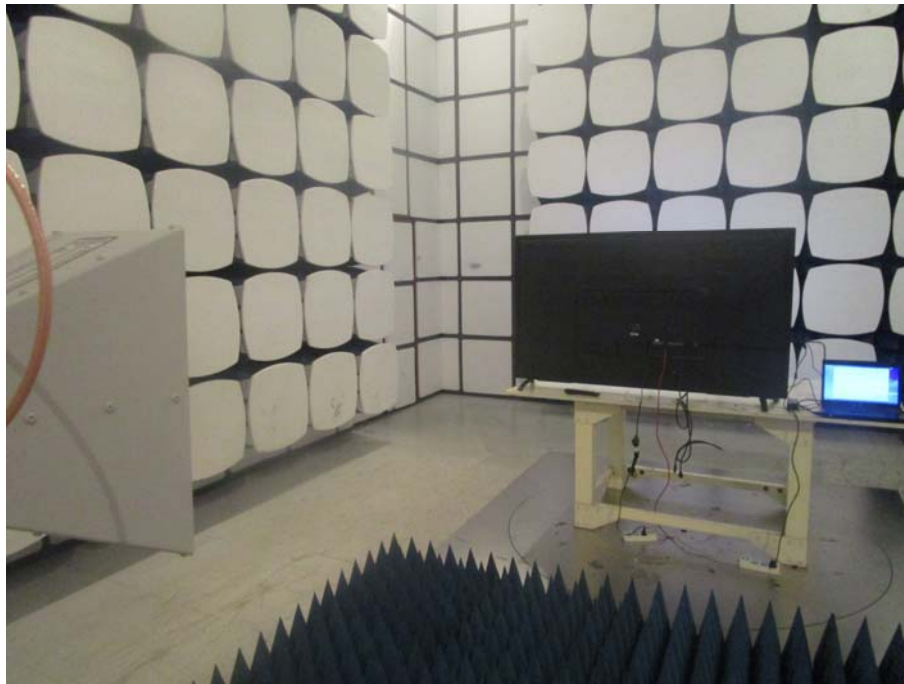
9. Test Setup Photos

1. Conducted Emission



2. Radiated Emission(below 1GHz)





10. EUT photos





----- **End of Report** -----