FCC Part 15B
Measurement and Test Report

For

ThinPAD Technology (ShenZhen) Co., Ltd.

Room 2305, Xingji Tower, Xinsha Road, Shajing Town, Baoan, Shenzhen,

Guangdong, China

FCC ID: 2ADZ7MGS10102

Test Rule(s):	FCC Part 15 Subpart B
Product Description:	Carbon ARM
Tested Model:	MGS101-02
Report No.:	STRD1411094I-4
Tested Date:	2014-11-26 to 2015-02-11
Issued Date:	2015-02-11
Tested By:	Mark Chen / Engineer
Reviewed By:	Lahm Peng / EMC Manager
Approved & Authorized By:	Jandy so / PSQ Manager

Prepared By:

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1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant:	ThinPAD Technology (Shenzhen) Co., Ltd.
Address of applicant:	Room 2305, Xingji Tower, Xinsha Road, Shajing Town, Baoan, Shenzhen, Guangdong, China
Manufacturer:	ThinPAD Technology (Shenzhen) Co., Ltd.
Address of manufacturer:	Room 2305, Xingji Tower, Xinsha Road, Shajing Town, Baoan, Shenzhen, Guangdong, China

General Description of EUT	
Product Name:	Carbon ARM
Trade Name:	/
Model No.:	MGS101-02
Adding Model(s):	/
Note: The test data is gathered from a production sample, provided by the manufacturer.	

Technical Characteristics of EUT	
Rated Voltage:	DC 7.4V battery; Adapter:DC12V charging
Rated Current:	4A
Rated Power:	/
Power Adapter Model:	ADA12400ZA00
Lowest Internal Frequency:	32.768KHz
Highest Internal Frequency:	1.6GHz
Classification of ITE:	Class B

1.2 Test Standards

The following report is prepared on behalf of the ThinPAD Technology (Shenzhen) Co., Ltd in accordance with Part 2, Subpart J, and Part 15, Subparts A and B of the Federal Communication Commissions rules.

The objective is to determine compliance with FCC Part 15, Subpart B, and section 15.205, 15.107, and 15.109 rules.

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product, which result in lowering the emission, should be checked to ensure compliance has been maintained.

1.3 Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2003, 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.

1.4 Test Facility

FCC – Registration No.: 934118

Shenzhen SEM.Test Technology Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files and the Registration is 934118.

Industry Canada (IC) Registration No.: 11464A

The 3m Semi-anechoic chamber of Shenzhen SEM.Test Technology Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 11464A.

CNAS Registration No.: L4062

Shenzhen SEM.Test Technology Co., Ltd. is a testing organization accredited by China National Accreditation Service for Conformity Assessment (CNAS) according to ISO/IEC 17025. The accreditation certificate number is L4062. All measurement facilities used to collect the measurement data are located at 1/F, Building A, Hongwei Industrial Park, Liuxian 2nd Road, Bao'an District, Shenzhen, P.R.C (518101).

1.5 EUT Setup and Operation Mode

The equipment under test (EUT) was configured to measure its highest possible emission level. The test modes were adapted according to the operation manual for use, more detailed description as follows:

Test Mode List:

Test Mode	Description	Remark
TM1	Charging And Playing Networking	Connect to Adapter, Earphone HDMI to Ethernet port
TM2	Downloading	Connect to PC

EUT Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
HDMI Cable	0.6	Shielded	Without Ferrite
AC Cable	2.1	Unshielded	Without Ferrite
DC Cable	1.8	Unshielded	Without Ferrite

Auxiliary Equipment List and Details

Description	Manufacturer	Model	Serial Number
Notebook	Lenovo	E10	LR-63C8R
Headset	/	/	/

Special Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
RJ45	1.2	Unshielded	Without Core

2. SUMMARY OF TEST RESULTS

FCC Rules	Description of Test Item	Result
§ 15.107 (a)	Conducted Emissions	Compliant
§ 15.109 (a)	Radiated Emissions	Compliant

N/A: not applicable

3. Conducted Emissions

3.1 Measurement Uncertainty

Base on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement is ± 2.88 dB.

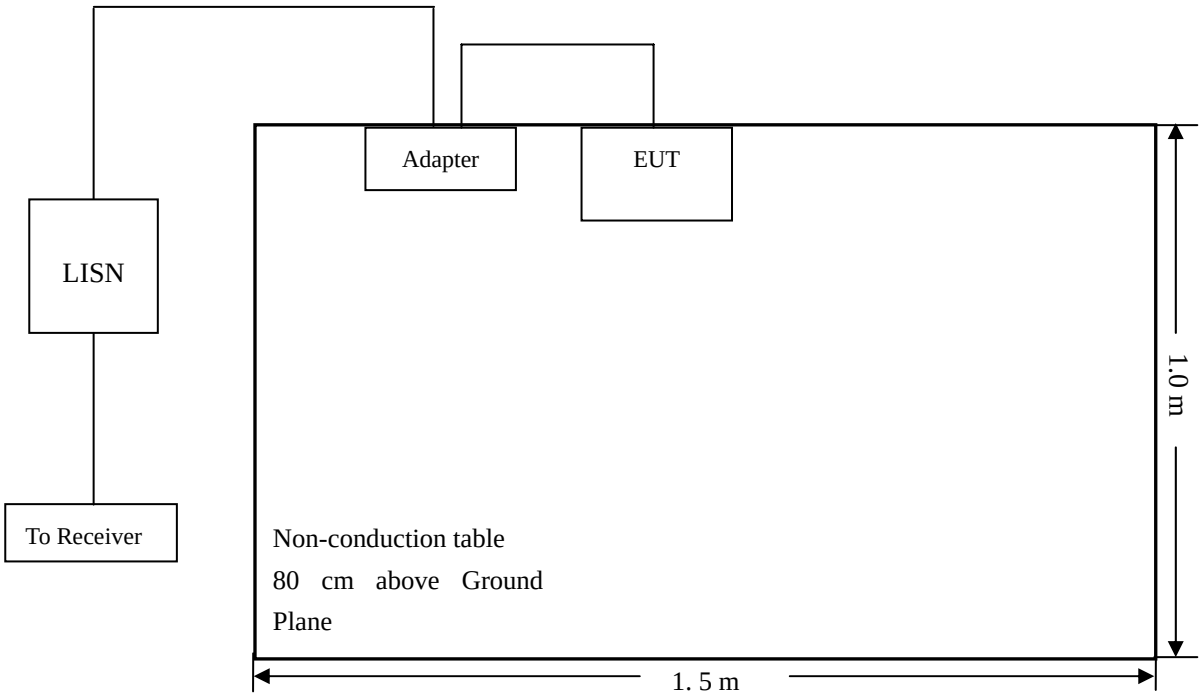
3.2 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2014-05-28	2015-05-27
L.I.S.N	Schwarz beck	NSLK8126	8126-224	2014-05-28	2015-05-27
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2014-05-28	2015-05-27

3.3 Test Procedure

Test is conducting under the description of ANSI C63.4-2003, 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.

3.4 Basic Test Setup Block Diagram



3.5 Environmental Conditions

Temperature:	23 °C
Relative Humidity:	52%
ATM Pressure:	1011 mbar

3.6 Summary of Test Results/Plots

According to the data in section 3.7, the EUT complied with the FCC Part 15.107(a) Conducted margin for a Class B device, with the *worst* margin reading of:

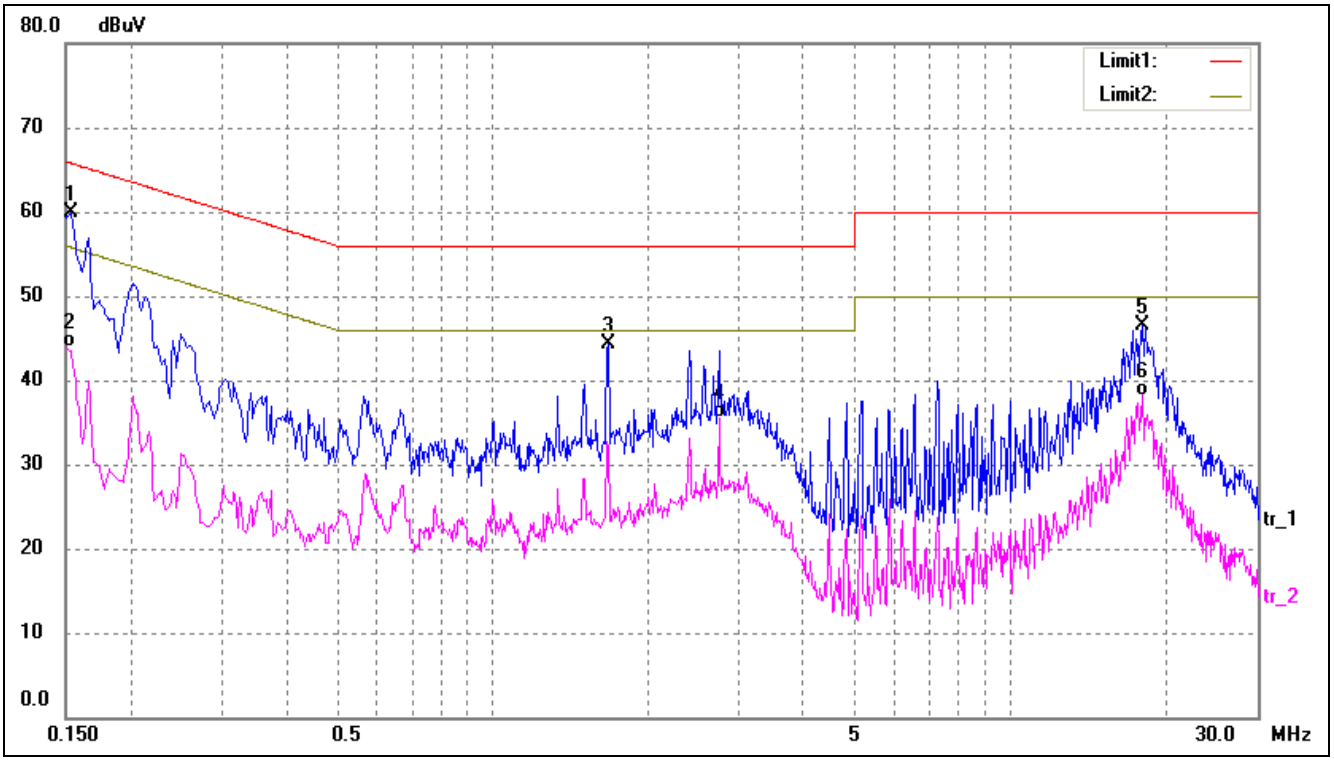
-5.85 at **0.1540 MHz** in the ***Neutral*, Peak** detector, 0.15-30MHz

3.7 Conducted Emissions Test Data

Plot of Conducted Emissions Test Data

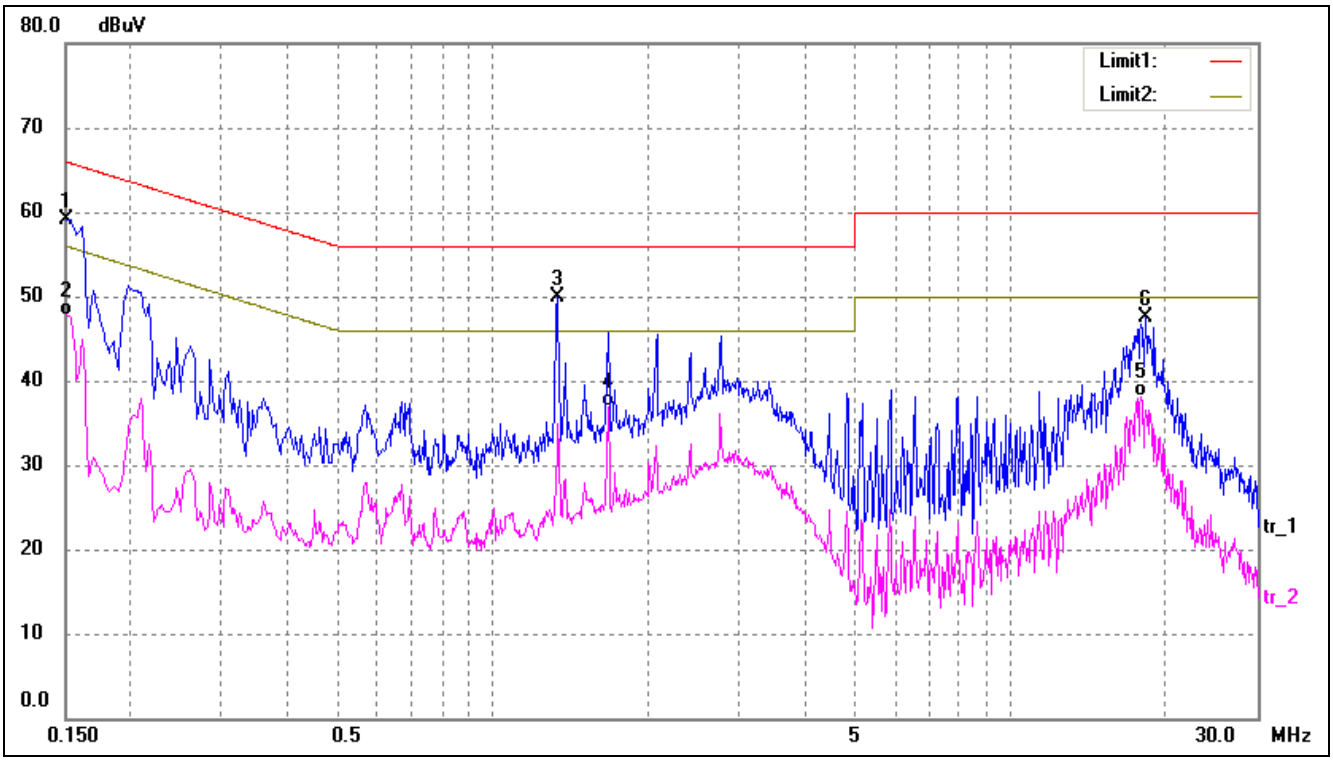
EUT: *Carbon ARM*
Tested Model: *MSS101-02*
Operating Condition: *AC 120V/60Hz; Adapter DC 12V/4A*
Comment: *TM1*

Test Specification: *Neutral*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1	0.1540	50.43	9.50	59.93	65.78	-5.85	peak
2	0.1540	34.46	9.50	43.96	55.78	-11.82	AVG
3	1.6740	34.29	10.00	44.29	56.00	-11.71	peak
4	2.7500	25.59	10.00	35.59	46.00	-10.41	AVG
5	17.9460	34.99	11.59	46.58	60.00	-13.42	peak
6	17.9460	26.61	11.59	38.20	50.00	-11.80	AVG

Test Specification: *Line*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1	0.1500	49.66	9.50	59.16	66.00	-6.84	peak
2	0.1500	38.11	9.50	47.61	56.00	-8.39	AVG
3	1.3340	39.91	10.00	49.91	56.00	-6.09	peak
4	1.6740	26.91	10.00	36.91	46.00	-9.09	AVG
5	17.9020	26.53	11.58	38.11	50.00	-11.89	AVG
6	18.3100	35.75	11.66	47.41	60.00	-12.59	peak

4. Radiated Emissions

4.1 Measurement Uncertainty

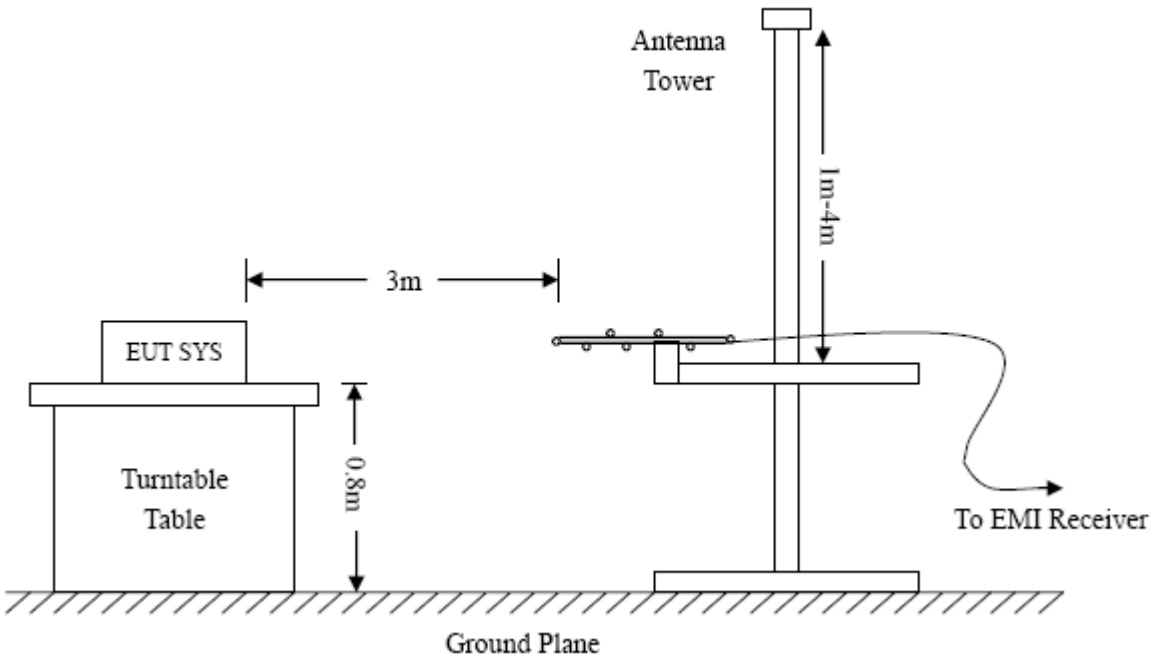
Base on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any radiation emissions measurement is ± 5.10 dB.

4.2 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	R&S	FSP	836079/035	2014-05-28	2015-05-27
EMI Test Receiver	R&S	ESVB	825471/005	2014-05-28	2015-05-27
Pre-amplifier	Agilent	8447F	3113A06717	2014-05-28	2015-05-27
Pre-amplifier	Compliance Direction	PAP-0118	24002	2014-05-28	2015-05-27
Trilog Broadband Antenna	SCHWARZBECK	VULB9163	9163-333	2014-05-24	2015-05-23
Horn Antenna	ETS	3117	00086197	2014-05-24	2015-05-23
Loop Antenna	SCHWARZECK	HFRA 5165	9365	2014-05-24	2015-05-23

4.3 Test Procedure

The setup of EUT is according with per ANSI C63.4-2003 measurement procedure. The specification used was with the FCC Part 15.109 Limit.
The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.
The spacing between the peripherals was 10 cm.



4.4 Test Receiver Setup

Frequency :9kHz-30MHz	Frequency :30MHz-1GHz	Frequency :Above 1GHz
RBW=10KHz,	RBW=120KHz,	RBW=1MHz,
VBW =30KHz	VBW=300KHz	VBW=3MHz(Peak), 10Hz(AV)
Sweep time= Auto	Sweep time= Auto	Sweep time= Auto
Trace = max hold	Trace = max hold	Trace = max hold
Detector function = peak	Detector function = peak, QP	Detector function = peak, AV

4.5 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and the Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

Corr. Ampl. = Indicated Reading – Corr. Factor

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -6dBμV means the emission is 6dBμV below the maximum limit for a Class B device. The equation for margin calculation is as follows:

Margin = Corr. Ampl. – FCC Part 15.109(a) Limit

4.6 Environmental Conditions

Temperature:	23 °C
Relative Humidity:	55 %
ATM Pressure:	1011 mbar

4.7 Summary of Test Results/Plots

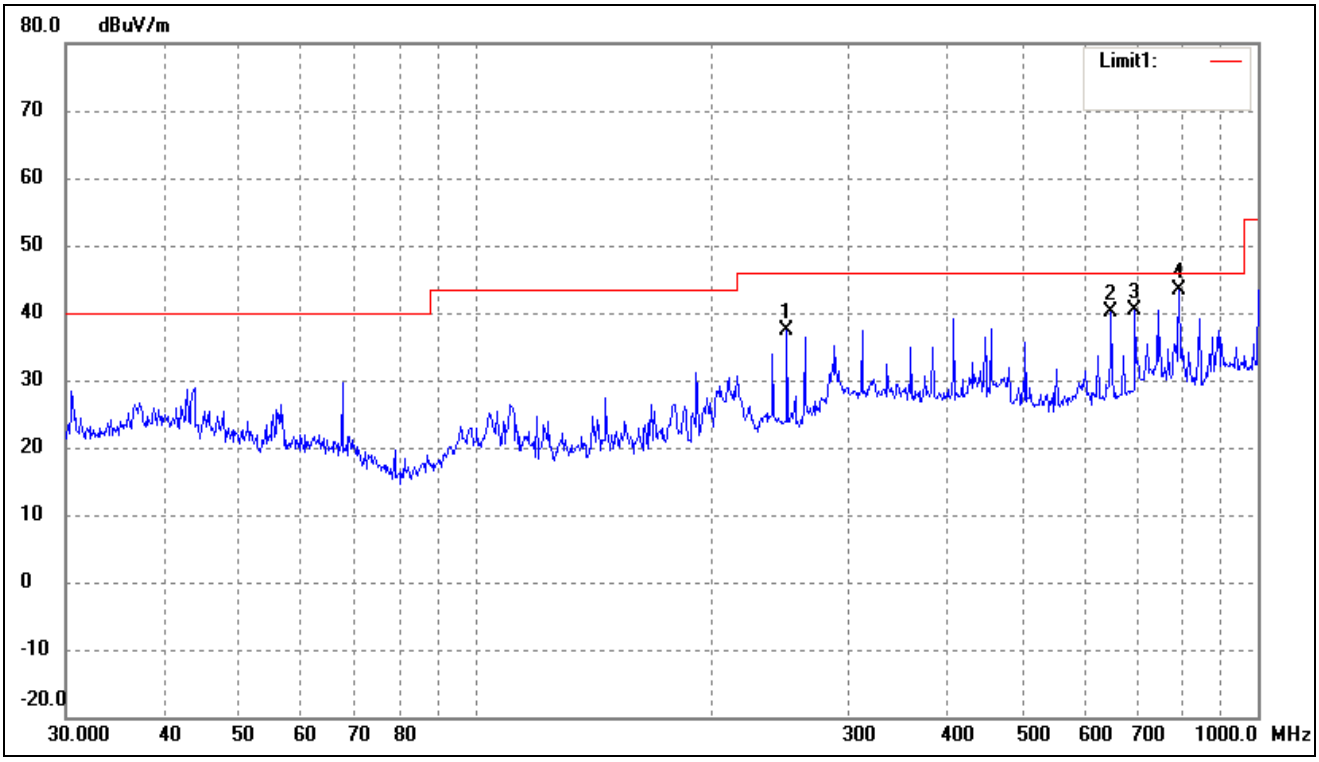
According to the data, the EUT complied with the FCC Part 15.109(a) rule, and had the worst margin of:

-1.70 dB at **67.6751 MHz** in the **Vertical** polarization, **9 kHz** to **8 GHz**, **3Meters**

Plot of Radiated Emissions Test Data

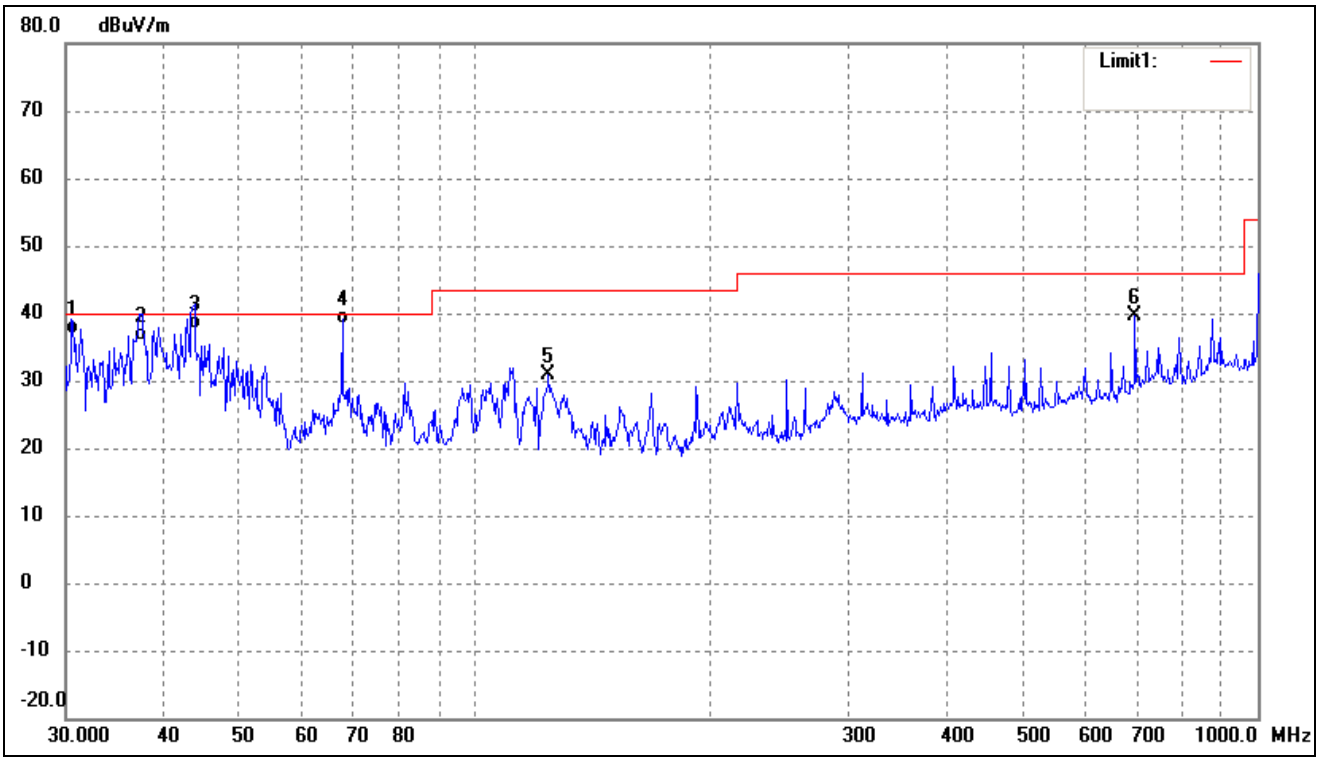
EUT: *Tablet PC*
Tested Model: *SL-7UHD*
Operating Condition: *AC 120V/60Hz; Adapter DC 12V/4A*
Comment: *TM1*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	250.3012	30.69	6.71	37.40	46.00	-8.60	96	100	peak
2	649.6597	27.68	12.39	40.07	46.00	-5.93	127	100	peak
3	696.8567	28.54	11.86	40.40	46.00	-5.60	98	100	peak
4	793.3960	29.37	14.04	43.41	46.00	-2.59	26	100	peak

Test Specification: *Vertical*

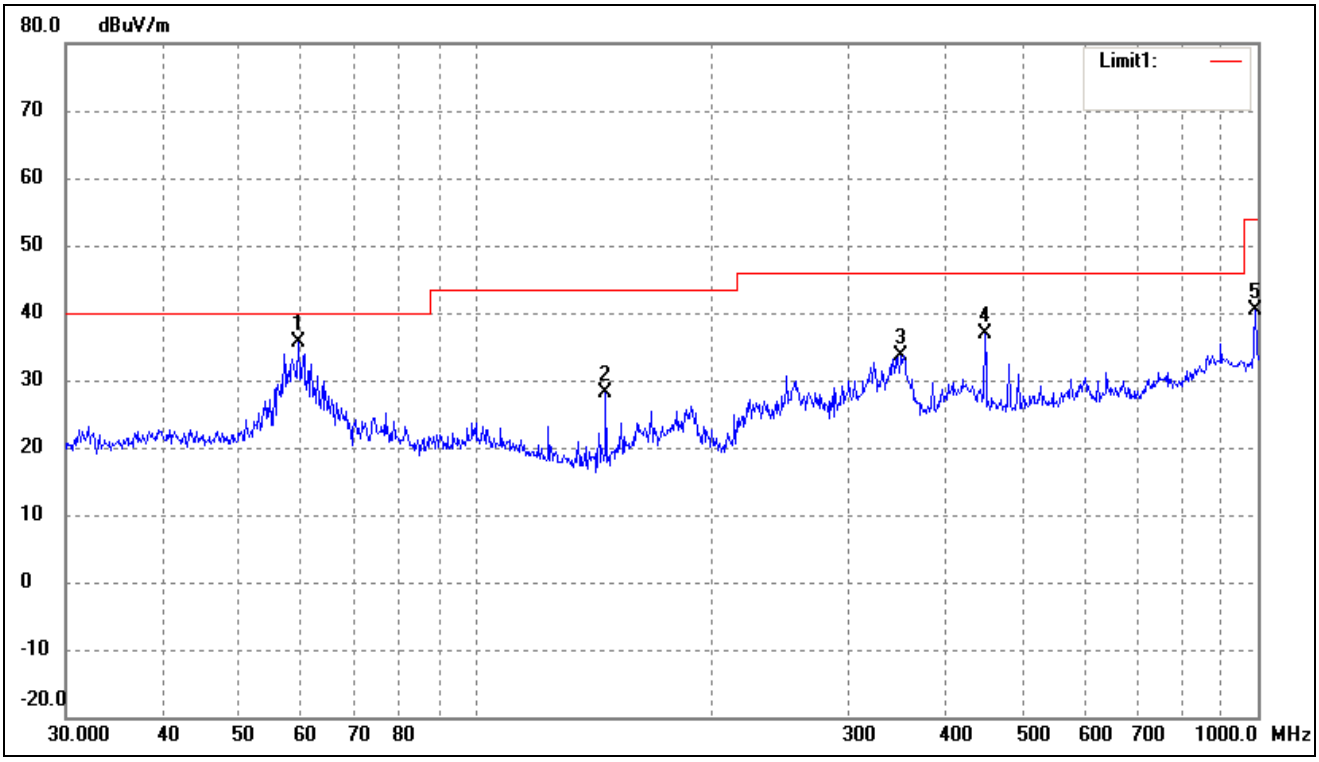


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	30.6379	29.16	7.74	36.90	40.00	-3.10	165	100	QP
2	37.4165	26.99	8.81	35.80	40.00	-4.20	121	100	QP
3	43.8119	29.48	8.12	37.60	40.00	-2.40	32	100	QP
4	67.6751	35.37	2.93	38.30	40.00	-1.70	265	100	QP
5	124.1330	27.20	3.69	30.89	43.50	-12.61	121	100	peak
6	696.8567	25.81	13.70	39.51	46.00	-6.49	32	100	peak

Plot of Radiated Emissions Test Data

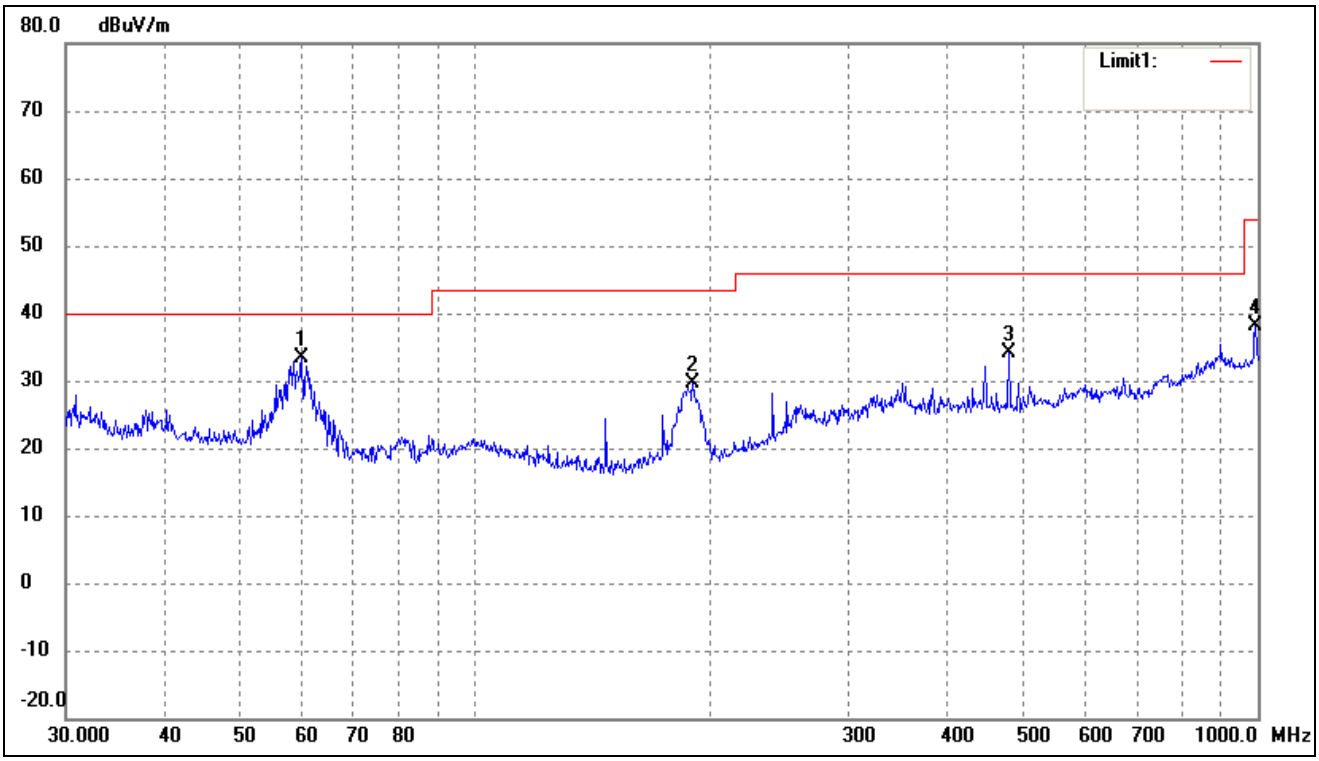
EUT: *Tablet PC*
Tested Model: *SL-7UHD*
Operating Condition: *AC 120V/60Hz; USB 5V*
Comment: *TM2*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	59.4405	30.23	5.43	35.66	40.00	-4.34	215	100	peak
2	146.8877	25.77	2.46	28.23	43.50	-15.27	166	100	peak
3	350.4768	24.71	8.99	33.70	46.00	-12.30	98	100	peak
4	447.9822	26.68	10.24	36.92	46.00	-9.08	197	100	peak
5	993.0114	23.27	17.16	40.43	54.00	-13.57	201	100	peak

Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	60.0691	28.12	5.36	33.48	40.00	-6.52	21	100	peak
2	189.7385	26.33	3.20	29.53	43.50	-13.97	59	100	peak
3	480.5276	24.07	10.12	34.19	46.00	-11.81	157	100	peak
4	993.0114	21.02	17.16	38.18	54.00	-15.82	201	100	peak

Note: Testing is carried out with frequency rang 9kHz to the 8GHz, which above 1GHz is close to the noise base even antenna close up to 1meter distance according the measurement of ANSI C63.4.
The measurements greater than 20dB below the limit from 9kHz to 30MHz and test data are not provided.

******* END OF REPORT *******