FCC PART 15.247
TEST REPORT

For

Gajah International (HK) Co., Ltd

18/F, Bel Trade Commercial Building, 1-3, Burrows Street, Wan chai, Hong Kong

FCC ID: UFKMD800500

Report Type:	**Product Type:**
Class II Permissive Change	7”MID

Test Engineer:	Kyle Xu Charlie Chen
Report Number:	RSZ130520002-00B
Report Date:	2013-07-18
Reviewed By:	Sula Huang RF Engineer
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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *Gajah International (HK) Co., Ltd*'s product, model number: *MD7011 (FCC ID: UFKMD800500)* or the "EUT" in this report was a *7"MID,* which was measured approximately: 192.3 mm (L) x 123 mm (W) x 11.1mm (H), rated with input voltage: DC 3.7V rechargeable Li-ion battery or DC 5.0V charging from adapter.

Adapter Information:
Model: PSEA050150U USB2
Input: 100-240V~50/60Hz, 0.25A
Output: DC 5.0V, 1.5A

**All measurement and test data in this report was gathered from production sample serial number: 1305099 (Assigned by BACL, Shenzhen). The EUT supplied by the applicant was received on 2013-05-20.*

Objective

This test report is prepared on behalf of *Gajah International (HK) Co., Ltd* in accordance with Part 2-Subpart J, Part 15-Subparts A, B and C of the Federal Communication Commissions rules.

The tests were performed in order to determine compliance with FCC Part 15, Subpart C, section 15.203, 15.205, 15.207, 15.209 and 15.247 rules.

This is a class II permissive change basing on the original report RSZ130520001-00B with FCC ID: UFKMD800500, the changes between the original device and the current one as below:

1) Changing the product name: the original one is 8"MID, the current one is 7"MID

2) Changing the model name: the original one is MD8005, the current one is MD7011

3) Changing the screen size: the original size is 8 inches, the current size is 7 inches

4) Changing the material and color of the casing

For the changes above, we just performed the items "AC Line Conducted Emissions" and "Radiated Emissions", and the other test items can be referred to original report RSZ130520001-00B with FCC ID: UFKMD800500 granted on 2013-07-16.

Related Submittal(s)/Grant(s)

FCC Part 15.247 DTS and Part 15B JBP submissions with FCC ID: UFKMD800500

Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2009, 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.

All emissions measurement was performed at Bay Area Compliance Laboratories Corp. (Shenzhen). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Shenzhen) to collect test data is located on the 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone Shenzhen, Guangdong, China.

Test site at Bay Area Compliance Laboratories Corp. (Shenzhen) has been fully described in reports submitted to the Federal Communication Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on December 06, 2010. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2009.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 382179. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing in an engineering mode.

Equipment Modifications

No modification was made to the EUT tested.

EUT Exercise Software

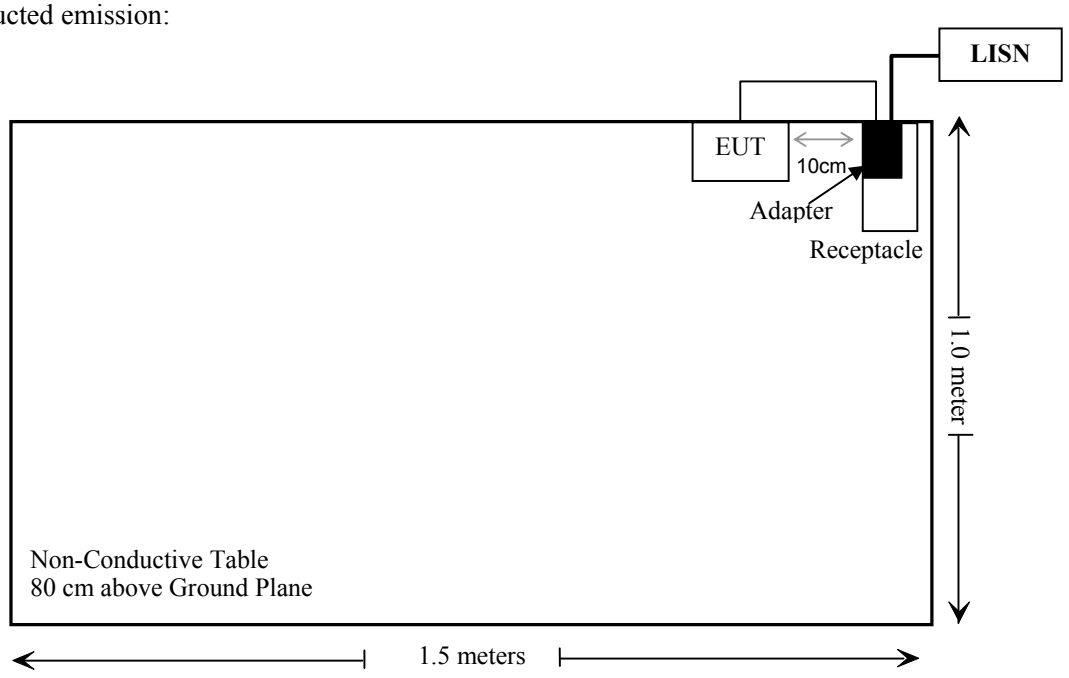
RF test tool built-in the EUT.

External I/O Cable

Cable Description	Length (m)	From Port	To
Unshielded detachable AC Cable	1.2	Adapter	LISN
Unshielded detachable DC Cable	0.6	Adapter	EUT

Block Diagram of Test Setup

For conducted emission:



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§15.247 (i), §2.1093	RF Exposure	Compliance*
§15.203	Antenna Requirement	Compliance*
§15.207(a)	AC Line Conducted Emissions	Compliance
§15.205, §15.209 & §15.247(d)	Radiated Emissions	Compliance
§15.247(a)(1)	20 dB Emission Bandwidth	Compliance*
§15.247(a)(1)	Channel Separation Test	Compliance*
§15.247(a)(1)(iii)	Time of Occupancy (Dwell Time)	Compliance*
§15.247(a)(1)(iii)	Quantity of hopping channel Test	Compliance*
§15.247(b)(1)	Peak Output Power Measurement	Compliance*
§15.247(d)	Band edges	Compliance*

Note:*Please refer to the original FCC ID report.

FCC §15.207 (a) – AC LINE CONDUCTED EMISSIONS

Applicable Standard

FCC §15.207(a)

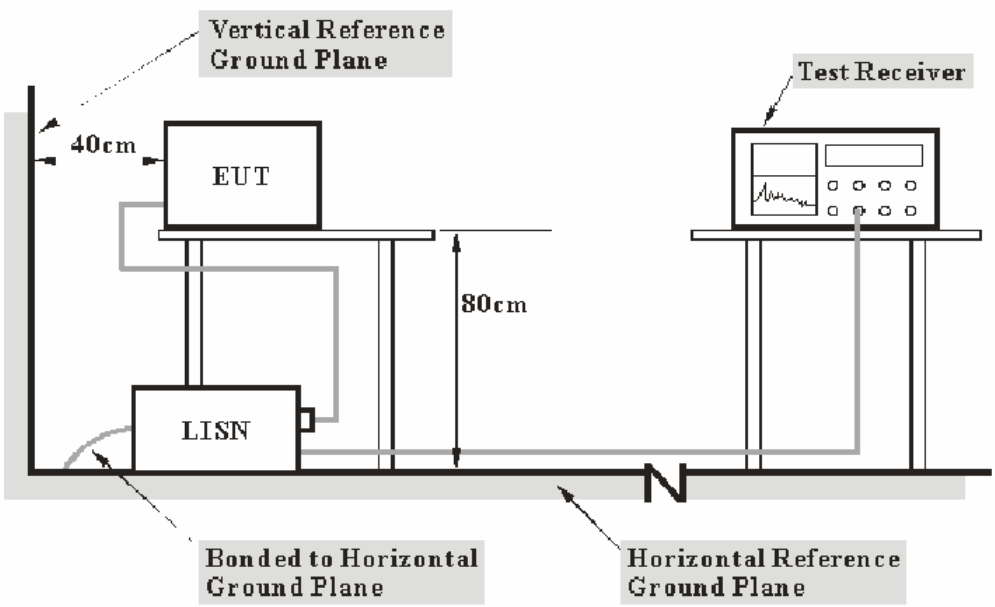
Measurement Uncertainty

Input quantities to be considered for conducted disturbance measurements maybe receiver reading, attenuation of the connection between AMN/ISN and receiver, AMN/ISN voltage division factor, AMN/ISN VDF frequency interpolation and receiver related input quantities, etc.

Based on CISPR 16-4-2:2011, the expended combined standard uncertainty of conducted disturbance test at Bay Area Compliance Laboratories Corp. (Shenzhen) is shown as below. And the uncertainty will not be taken into consideration for the test data recorded in the report

Port	Measurement uncertainty
AC Mains	3.26 dB (k=2, 95% level of confidence)
CAT 3	3.70 dB (k=2, 95% level of confidence)
CAT 5	3.86 dB (k=2, 95% level of confidence)
CAT 6	4.64 dB (k=2, 95% level of confidence)

EUT Setup



Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The measurement procedure of EUT setup is according with ANSI C63.4-2009. The related limit was specified in FCC Part 15.207.

The spacing between the peripherals was 10 cm.

EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	IF B/W
150 kHz – 30 MHz	9 kHz

Test Procedure

During the conducted emission test, the adapter was connected to the outlet of the LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All data was recorded in the Quasi-peak and average detection mode.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	101122	2013-05-09	2014-05-09
Rohde & Schwarz	LISN	ESH2-Z5	892107/021	2012-08-22	2013-08-21
Rohde & Schwarz	Transient Limiter	ESH3Z2	DE25985	2012-08-09	2013-08-09
BACL	CE Test software	BACL-CE	V1.0	-	-

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

Corrected Factor & Margin Calculation

The Corrected factor is calculated by adding LISN/ISN VDF (Voltage Division Factor) Cable Loss and Transient Limiter Attenuation. The basic equation is as follows:

Correction Factor = LISN VDF + Cable Loss + Transient Limiter Attenuation

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7 dB below the limit. The equation for margin calculation is as follows:

Margin = Limit – Corrected Amplitude

Test Results Summary

According to the recorded data in following table, with the worst margin reading of:

9.6 dB at **0.746121 MHz** in the **Neutral** conducted mode

Refer to CISPR16-4-2:2011 and CISPR 16-4-1:2009, the measured level is in compliance with the limit if

$$L_m + U_{(Lm)} \leq L_{lim} + U_{cispr}$$

In BACL, $U_{(Lm)}$ is less than U_{cispr}, if L_m is less than L_{lim}, it implies that the EUT complies with the limit.

Test Data

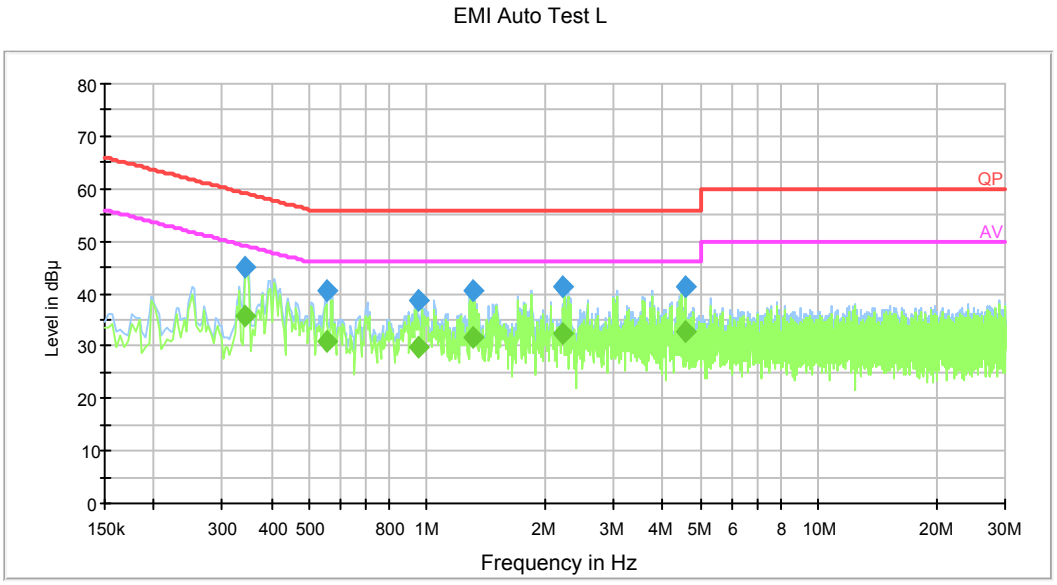
Environmental Conditions

Temperature:	25 ℃
Relative Humidity:	56 %
ATM Pressure:	100.0 kPa

The testing was performed by Charlie Chen on 2013-05-30.

EUT operation mode: charging &transmitting

AC 120V/60 Hz, Line



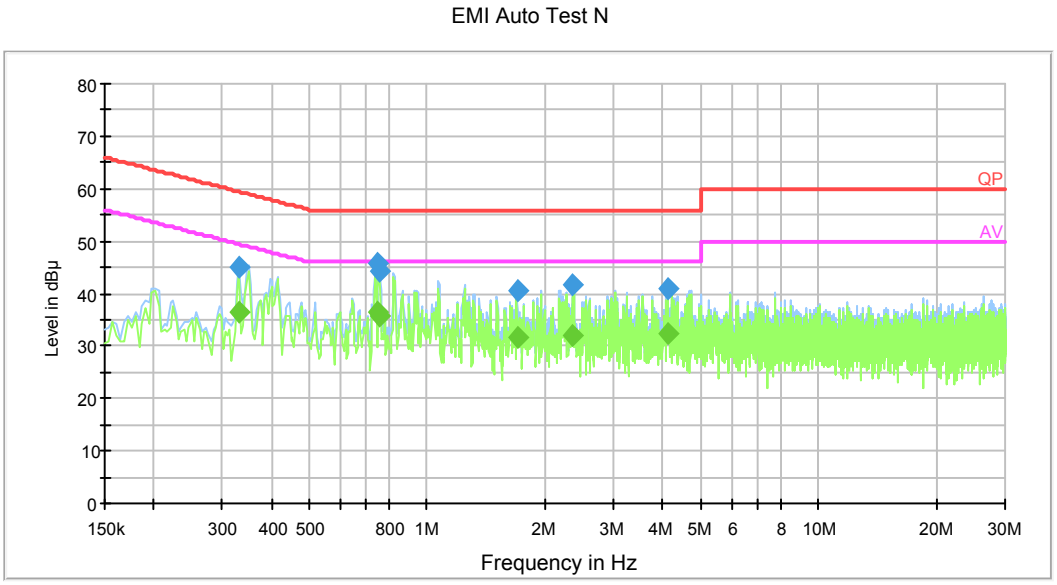
Quasi-peak detection mode

Frequency (MHz)	Corrected Amplitude (dBµV)	Corrected Factor (dB)	Limit (dBµV)	Margin (dB)	Remark (PK/QP/Ave.)
0.341372	45.2	19.3	59.2	14.0	QP
4.582937	41.4	19.4	56.0	14.6	QP
2.229499	41.2	19.3	56.0	14.8	QP
1.311704	40.7	19.3	56.0	15.3	QP
0.555408	40.6	19.3	56.0	15.4	QP
0.945330	38.7	19.3	56.0	17.3	QP

Average detection mode

Frequency (MHz)	Corrected Amplitude (dBµV)	Corrected Factor (dB)	Limit (dBµV)	Margin (dB)	Remark (PK/QP/Ave.)
4.582937	32.9	19.4	46.0	13.1	Ave.
0.341372	35.7	19.3	49.2	13.5	Ave.
2.229499	32.5	19.3	46.0	13.5	Ave.
1.311704	31.8	19.3	46.0	14.2	Ave.
0.555408	30.9	19.3	46.0	15.1	Ave.
0.945330	29.6	19.3	46.0	16.4	Ave.

AC 120V/60 Hz, Neutral



Quasi-peak detection mode

Frequency (MHz)	Corrected Amplitude (dBµV)	Corrected Factor (dB)	Limit (dBµV)	Margin (dB)	Remark (PK/QP/Ave.)
0.746121	45.8	19.4	56.0	10.2	QP
0.751881	44.3	19.4	56.0	11.7	QP
0.329100	45.2	19.4	59.5	14.3	QP
2.349201	41.6	19.4	56.0	14.4	QP
4.143081	41.1	19.4	56.0	14.9	QP
1.704655	40.7	19.4	56.0	15.3	QP

Average detection mode

Frequency (MHz)	Corrected Amplitude (dBµV)	Corrected Factor (dB)	Limit (dBµV)	Margin (dB)	Remark (PK/QP/Ave.)
0.746121	36.4	19.4	46.0	9.6	Ave.
0.751881	35.8	19.4	46.0	10.2	Ave.
0.329100	36.6	19.4	49.5	12.9	Ave.
4.143081	32.3	19.4	46.0	13.7	Ave.
2.349201	32.1	19.4	46.0	13.9	Ave.
1.704655	31.5	19.4	46.0	14.5	Ave.

FCC §15.205, §15.209 & §15.247(d) – RADIATED EMISSIONS

Applicable Standard

FCC §15.205; §15.209; §15.247(d)

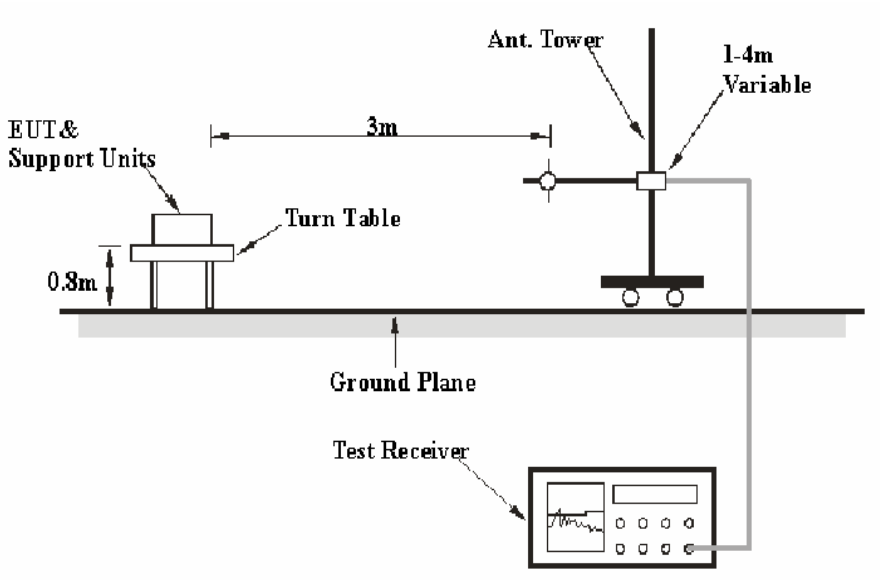
Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on CISPR 16-4-2:2011, the expended combined standard uncertainty of radiation emissions at Bay Area Compliance Laboratories Corp. (Shenzhen) is shown in below table. And the uncertainty will not be taken into consideration for the test data recorded in the report

Frequency	Polarity	Measurement uncertainty
30MHz~200MHz	Horizontal	4.62 dB (k=2, 95% level of confidence)
	Vertical	4.54 dB (k=2, 95% level of confidence)
200MHz~1GHz	Horizontal	4.84 dB (k=2, 95% level of confidence)
	Vertical	5.91 dB (k=2, 95% level of confidence)
1 GHz~6 GHz	Horizontal/Vertical	4.68 dB (k=2, 95% level of confidence)
Above 6 GHz	Horizontal/Vertical	4.92 dB (k=2, 95% level of confidence)

EUT Setup



The radiated emission tests were performed in the 3 meters, using the setup accordance with the ANSI C63.4-2009. The specification used was the FCC 15.209 and FCC 15.247 limits.

EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 30 MHz to 25 GHz.

During the radiated emission test, the EMI test receiver & Spectrum Analyzer Setup were set with the following configurations:

Frequency Range	RBW	Video B/W	IF B/W	Detector
30MHz – 1000 MHz	100 kHz	300 kHz	120 kHz	QP
Above 1 GHz	1MHz	3 MHz	/	PK
	1MHz	10 Hz	/	Ave.

Test Procedure

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

Data was recorded in Quasi-peak detection mode for frequency range of 30 MHz -1 GHz and peak and Average detection modes for frequencies above 1 GHz.

Corrected Amplitude & Margin Calculation

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

Corrected Factor = Antenna Factor + Cable Loss- Amplifier Gain
Corrected Amplitude = Meter Reading + Corrected Factor

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7 dB means the emission is 7 dB below the maximum limit. The equation for margin calculation is as follows:

Margin = Limit - Corrected Amplitude

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
HP	Amplifier	8447E	1937A01046	2012-11-24	2013-11-23
Rohde & Schwarz	EMI Test Receiver	ESCI	101122	2013-05-09	2014-05-09
Sunol Sciences	Broadband Antenna	JB1	A040904-2	2011-11-28	2014-11-27
SUPER ULTRA	Amplifier	ZVA-213+	N/A	2012-11-24	2013-11-23
Sunol Sciences	Horn Antenna	DRH-118	A052304	2011-12-01	2014-11-30
Rohde & Schwarz	Signal Analyzer	FSIQ26	8386001028	2012-11-24	2013-11-23
the electro-Mechanics Co.	Horn Antenna	3116	9510-2270	2010-10-14	2013-10-13

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

Test Results Summary

According to the recorded data in following table, with the worst margin reading of:

14.80 dB at **9608.0 MHz** in the **Vertical** polarization

Refer to CISPR16-4-2:2011 and CISPR 16-4-1:2009, the measured level is in compliance with the limit if

$$L_m + U_{(Lm)} \leq L_{lim} + U_{cispr}$$

In BACL, $U_{(Lm)}$ is less than U_{cispr}, if L_m is less than L_{lim}, it implies that the EUT complies with the limit.

Test Data

Environmental Conditions

Temperature:	25 ℃
Relative Humidity:	56 %
ATM Pressure:	100.0 kPa

The testing was performed by Charlie Chen on 2013-05-30.

EUT operation mode: Transmitting

30 MHz -25 GHz: (Scan with GFSK, π/4-DQPSK, 8-DPSK, the worst case is BDR Mode (GFSK))

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.247/205/209	
	Reading (dBμV)	Detector (PK/QP/Ave.)		Height (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
Low Channel (2402 MHz)									
337.78	43.61	QP	127	1.5	H	-13.5	30.11	46	15.89
2402.0	88.21	PK	16	1.3	H	6.13	94.34	/	/
2402.0	80.30	Ave.	16	1.3	H	6.13	86.43	/	/
2402.0	90.18	PK	56	1.5	V	6.13	96.31	/	/
2402.0	82.61	Ave.	56	1.5	V	6.13	88.74	/	/
9608.0	19.92	Ave.	61	1.3	V	19.28	39.20	54	14.80
7206.0	20.51	Ave.	152	1.1	V	17.06	37.57	54	16.43
4804.0	23.50	Ave.	132	1.2	H	12.40	35.90	54	18.10
9608.0	33.91	PK	61	1.3	V	19.28	53.19	74	20.81
7206.0	35.72	PK	152	1.1	V	17.06	52.78	74	21.22
4804.0	37.62	PK	132	1.2	H	12.40	50.02	74	23.98
2493.5	22.26	Ave.	122	1.1	V	7.21	29.47	54	24.53
2388.9	21.84	Ave.	89	1.3	H	6.13	27.97	54	26.03
2336.9	22.32	Ave.	151	1.2	H	5.48	27.80	54	26.20
2493.5	36.75	PK	122	1.1	V	7.21	43.96	74	30.04
2388.9	34.96	PK	89	1.3	H	6.13	41.09	74	32.91
2336.9	35.58	PK	151	1.2	H	5.48	41.06	74	32.94
Middle Channel (2441 MHz)									
337.78	43.75	QP	51	1.6	H	-13.5	30.25	46	15.75
2441.0	88.51	PK	113	1.3	H	7.21	95.72	/	/
2441.0	81.01	Ave.	113	1.3	H	7.21	88.22	/	/
2441.0	90.89	PK	315	1.4	V	7.21	98.10	/	/
2441.0	83.25	Ave.	315	1.4	V	7.21	90.46	/	/
9764.0	18.60	Ave.	50	1.3	V	19.40	38.00	54	16.00
7323.0	20.56	Ave.	121	1.2	V	16.49	37.05	54	16.95
4882.0	22.89	Ave.	169	1.5	H	12.46	35.35	54	18.65
9764.0	32.91	PK	50	1.3	V	19.40	52.31	74	21.69
7323.0	34.35	PK	121	1.2	V	16.49	50.84	74	23.16
4882.0	37.74	PK	169	1.5	H	12.46	50.20	74	23.80
2485.0	22.12	Ave.	312	1.3	V	7.21	29.33	54	24.67
2349.1	23.21	Ave.	120	1.5	V	5.48	28.69	54	25.31
2377.9	22.01	Ave.	75	1.2	V	6.13	28.14	54	25.86
2485.0	35.71	PK	312	1.3	V	7.21	42.92	74	31.08
2377.9	36.66	PK	75	1.2	V	6.13	42.79	74	31.21
2349.1	36.36	PK	120	1.5	V	5.48	41.84	74	32.16

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.247/205/209	
	Reading (dBμV)	Detector (PK/QP/Ave.)		Height (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
High Channel (2480 MHz)									
337.78	43.63	QP	32	1.3	H	-13.5	30.13	46	15.87
2480.0	88.28	PK	35	1.2	H	7.21	95.49	/	/
2480.0	80.90	Ave.	35	1.2	H	7.21	88.11	/	/
2480.0	90.32	PK	112	1.1	V	7.21	97.53	/	/
2480.0	81.98	Ave.	112	1.1	V	7.21	89.19	/	/
9920.0	18.63	Ave.	103	1.0	V	19.38	38.01	54	15.99
7440.0	20.75	Ave.	64	1.5	V	15.90	36.65	54	17.35
4960.0	20.51	Ave.	22	1.3	V	12.50	33.01	54	20.99
7440.0	35.26	PK	64	1.5	V	15.90	51.16	74	22.84
9920.0	31.18	PK	103	1.0	V	19.38	50.56	74	23.44
2487.0	21.53	Ave.	87	1.5	H	7.21	28.74	54	25.26
2495.6	20.82	Ave.	93	1.1	V	7.21	28.03	54	25.97
4960.0	35.43	PK	22	1.3	V	12.50	47.93	74	26.07
2354.2	22.25	Ave.	63	1.3	V	5.48	27.73	54	26.27
2487.0	36.51	PK	87	1.5	H	7.21	43.72	74	30.28
2495.6	35.75	PK	93	1.1	V	7.21	42.96	74	31.04
2354.2	34.65	PK	63	1.3	V	5.48	40.13	74	33.87