FCC PART 15 B

TEST REPORT

For

Telecell Mobile (H.K) Ltd.

RM 801 Metro Ctr II, 21 Lam Hing Street, Kln Bay, Hong Kong

FCC ID: 2ADX3-M50L

Report Type: Original Report	**Product Type:** Mobile Phone
Report Number:	RDG180929003-00A
Report Date:	2018-10-18
Reviewed By:	Jerry Zhang EMC Manager Jerry Zhang
Test Laboratory:	Bay Area Compliance Laboratories Corp. (Dongguan) No.69 Pulongcun, Puxinhu Industry Area, Tangxia, Dongguan, Guangdong, China Tel: +86-769-86858888 Fax: +86-769-86858891 www.baclcorp.com.cn

Note: This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. (Dongguan).

TABLE OF CONTENTS

GENERAL INFORMATION

Product Description for Equipment Under Test (EUT)

EUT Name:		Mobile Phone
EUT Model:		M50L
Multiple Model:		ICON
FCC ID:		2ADX3-M50L
Rated Input Voltage:		DC3.8V from Battery or DC5V from adapter
Adapter Information	**Model Name:**	M50L
	Input:	AC100-240V 50/60Hz 200mA
	Output:	DC5.0V, 1500mA
Highest Operation Frequency:		2690 MHz
External Dimension:		Length (146.3 mm)*Width (70 mm)*High (10.4 mm)
Serial Number:		180929003
EUT Received Date:		2018.09.29

Note: The series product, models M50L, ICON are electrically identical, The difference between them please refer to the declaration letter for details. For marketing purpose, we selected M50L for fully test.

Objective

This test report is prepared on behalf of ***Telecell Mobile (H.K) Ltd.*** in accordance with Part 2, Subpart J, and Part 15-Subparts A and B of the Federal Communications Commission's rules.

The objective of the manufacturer is to determine the compliance of EUT with FCC Part 15 B Class B.

Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2014, 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 radiated and conducted emissions measurement was performed at Bay Area Compliance Laboratories Corp. (Dongguan).

Measurement Uncertainty

Parameter	Measurement Uncertainty
Unwanted Emissions, radiated	30M~200MHz: 4.55 dB,200M~1GHz: 5.92 dB,1G~6GHz: 4.98 dB, 6G~18GHz: 5.89 dB,18G~26.5G:5.47 dB,26.5G~40G:5.63 dB
Temperature	±1℃
Humidity	±5%
AC Power Lines Conducted Emission	3.12 dB (150 kHz to 30 MHz)

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Dongguan) to collect test data is located on the No.69 Pulongcun, Puxinhu Industry Area, Tangxia, Dongguan, Guangdong, China

The test site has been approved by the FCC under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 897218,the FCC Designation No. : CN1220.

The test site has been registered with ISED Canada under ISED Canada Registration Number 3062D.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing in operating and downloading mode.

EUT Exercise Software

The software “Winthrax.exe” was used during test.

Equipment Modifications

No modification was made to the EUT tested.

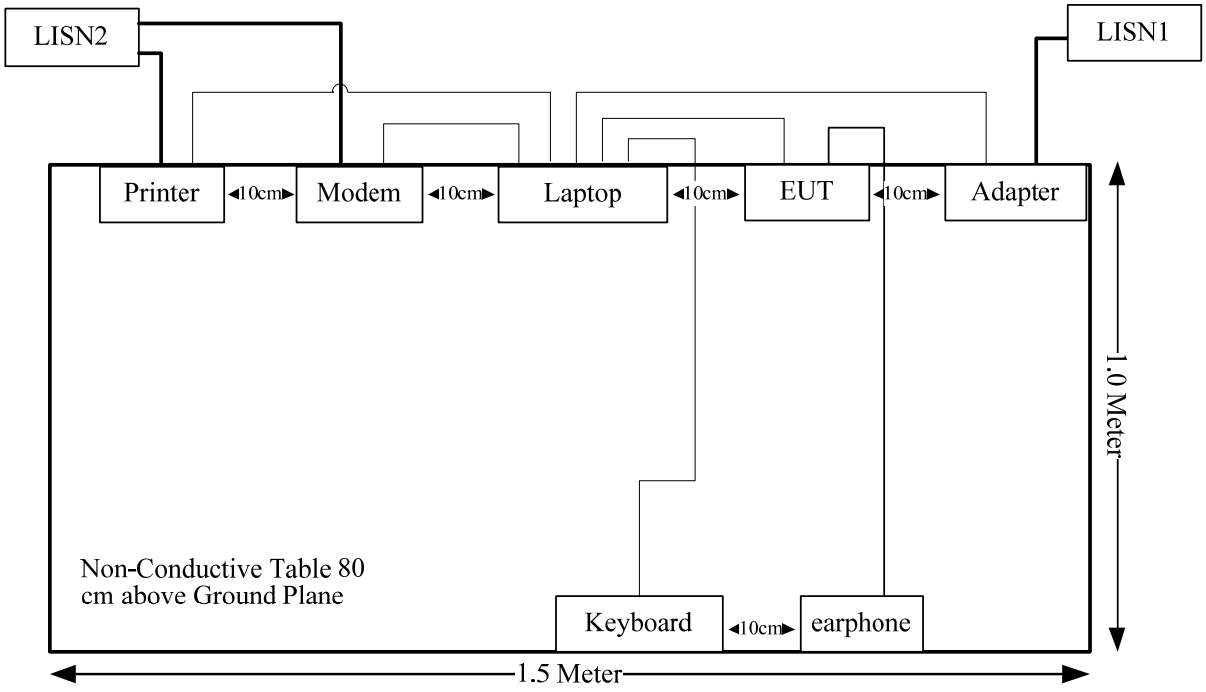
Local Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
DELL	Laptop	PP11L	QDS-BRCM1017
HP	Printer	C3941A	JPTVOB2337
DELL	Keyboard	L100	CNORH656658907BL05DC
SAST	Modem	AEM-2100	293

Support Cable List and Details

Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	To
Serial Cable	yes	No	1.2	Serial Port of Laptop	Modem
Parallel Cable	yes	No	1.2	Parallel Port of Laptop	Printer
Keyboard Cable	yes	No	1.8	USB Port of Laptop	Keyboard
USB Cable	yes	No	1.0	USB Port of Laptop	EUT

Configuration of Test Setup

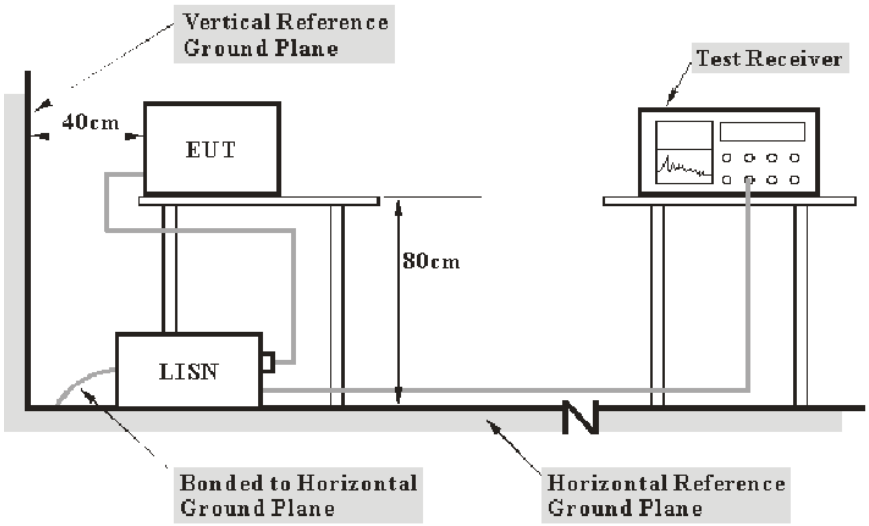


SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Results
§15.107	Conducted Emissions	Compliance
§15.109	Radiated Emissions	Compliance

FCC§15.107 - CONDUCTED EMISSIONS

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 setup of EUT is according with per ANSI C63.4-2014 measurement procedure. The specification used was with the FCC Part 15 B Class B limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The adapter was connected to the Main LISN with 120V/60Hz AC power source.

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 Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	EMI Test Receiver	ESCS 30	830245/006	2017-12-11	2018-12-11
Unknown	Coaxial Cable	C-NJNJ-50	C-0200-01	2018-09-05	2019-09-05
R&S	Test Software	EMC32	Version8.53.0	N/A	N/A
R&S	Two-line V-network	ENV 216	101614	2017-12-08	2018-12-08

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

Test Procedure

During the conducted emission test, the adapter of laptop was connected to the outlet of the first LISN and the other support equipments were connected to the outlet of the second 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.

Corrected Amplitude & Margin Calculation

The basic equation is as follows:

$V_C = V_R + A_C + VDF$

Herein,
V_C: corrected voltage amplitude

V_R: reading voltage amplitude

A_c: attenuation caused by cable loss

VDF: voltage division factor of AMN or ISN

The "**Margin**" column of the following data tables indicates the degree of compliance within the applicable limit. For example, a margin of 7dB means the emission is 7dB 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, the EUT complied with the FCC Part 15 B Class B.

Test Data

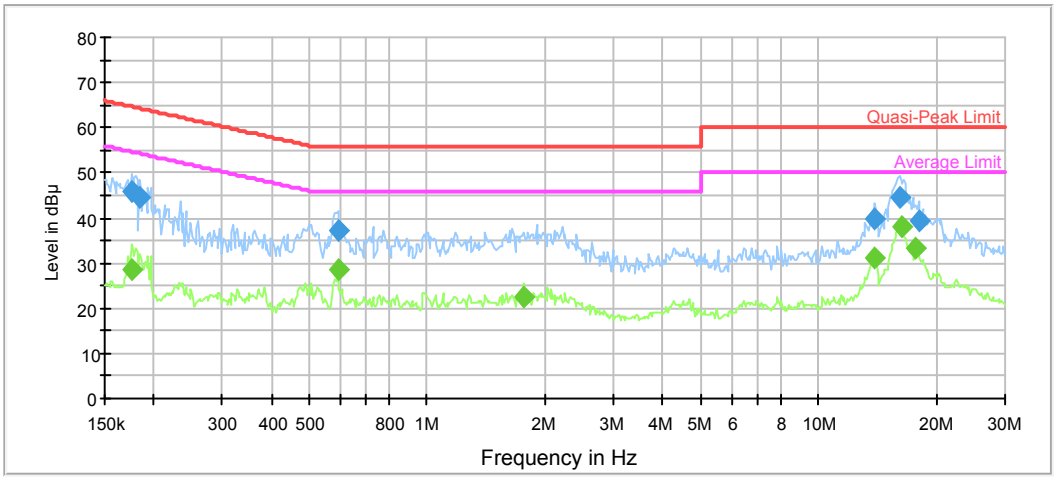
Environmental Conditions

Temperature:	27.4°C
Relative Humidity:	51 %
ATM Pressure:	101.2 kPa

The testing was performed by Lily Xie on 2018-10-10.

Test Mode: Downloading

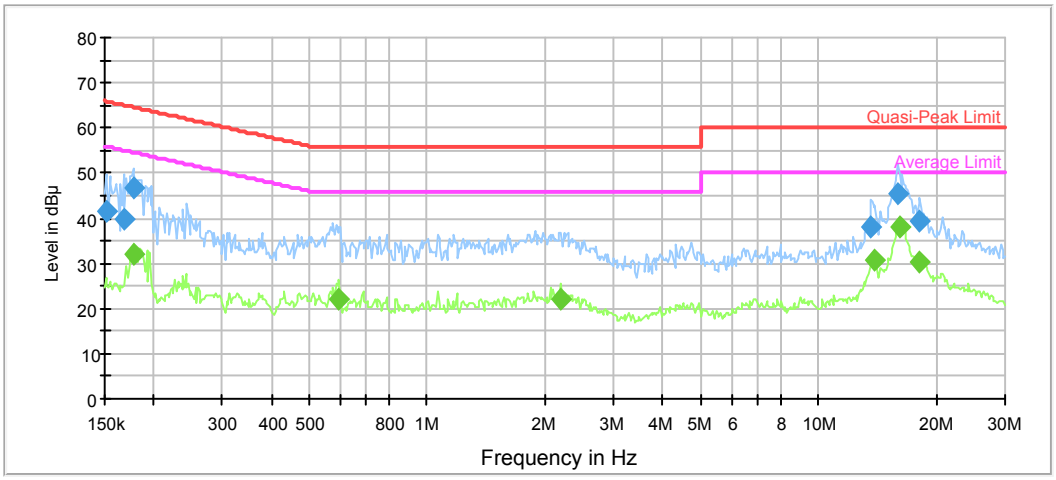
AC120V, 60Hz, Line:



Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.175915	45.9	9.000	L1	10.8	18.8	64.7	Compliance
0.184529	44.6	9.000	L1	10.8	19.7	64.3	Compliance
0.590613	37.1	9.000	L1	9.8	18.9	56.0	Compliance
13.968003	39.9	9.000	L1	9.9	20.1	60.0	Compliance
16.122185	44.7	9.000	L1	10.0	15.3	60.0	Compliance
18.024837	39.1	9.000	L1	10.0	20.9	60.0	Compliance

Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.175915	28.4	9.000	L1	10.8	26.3	54.7	Compliance
0.590613	28.3	9.000	L1	9.8	17.7	46.0	Compliance
1.759527	22.6	9.000	L1	9.7	23.4	46.0	Compliance
13.968003	31.1	9.000	L1	9.9	18.9	50.0	Compliance
16.381172	37.9	9.000	L1	10.0	12.1	50.0	Compliance
17.739864	33.2	9.000	L1	10.0	16.8	50.0	Compliance

AC120V, 60Hz, Neutral:



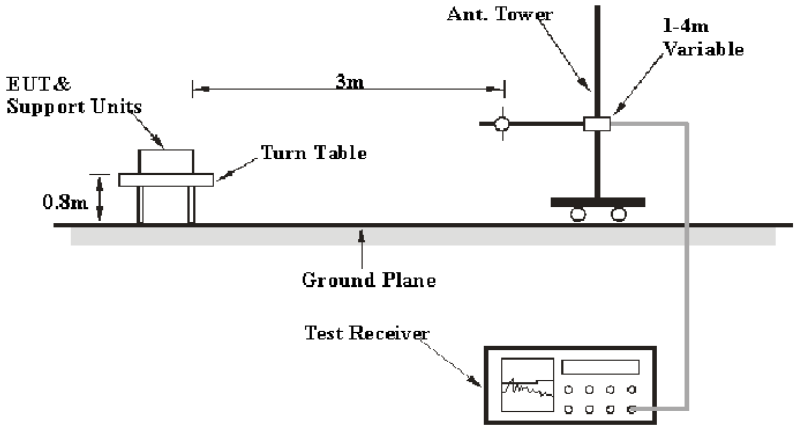
Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.151200	41.3	9.000	N	11.1	24.6	65.9	Compliance
0.167702	39.7	9.000	N	10.9	25.4	65.1	Compliance
0.177322	46.9	9.000	N	10.8	17.7	64.6	Compliance
13.638064	38.1	9.000	N	9.9	21.9	60.0	Compliance
15.994231	45.2	9.000	N	9.9	14.8	60.0	Compliance
18.169036	39.3	9.000	N	10.0	20.7	60.0	Compliance

Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.177322	31.8	9.000	N	10.8	22.8	54.6	Compliance
0.595338	22.2	9.000	N	9.8	23.8	46.0	Compliance
2.199332	22.1	9.000	N	9.8	23.9	46.0	Compliance
13.968003	30.5	9.000	N	9.9	19.5	50.0	Compliance
16.122185	38.0	9.000	N	9.9	12.0	50.0	Compliance
18.169036	30.4	9.000	N	10.0	19.6	50.0	Compliance

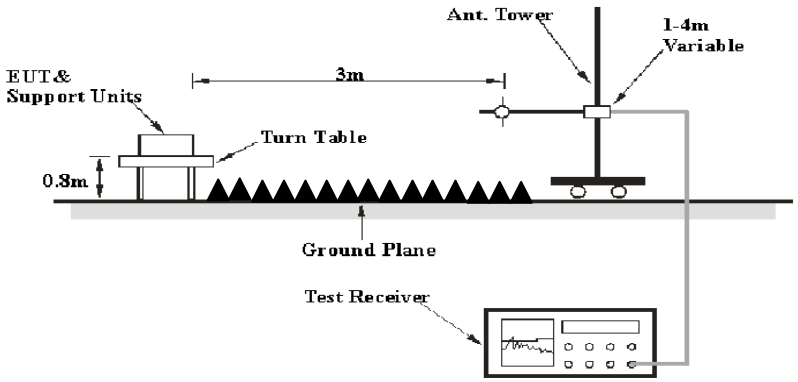
FCC §15.109 - RADIATED SPURIOUS EMISSIONS

EUT Setup

Below 1 GHz:



Above 1 GHz:



The radiated emission tests were performed in the 3 meters chamber test site A for the range 30MHz to 1GHz and the 3 meters chamber test site B for above 1GHz, using the setup accordance with the ANSI C63.4-2014. The specification used was the FCC Part 15.109 Class B limits.

EMI Test Receiver Setup

The system was investigated from 30 MHz to 13.5 GHz.

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

Frequency Range	RBW	Video B/W	IF B/W	Measurement
30 MHz – 1000 MHz	120 kHz	300 kHz	120 kHz	QP
Above 1 GHz	1 MHz	3 MHz	/	Peak
	1 MHz	10 Hz	/	AVG

Test Procedure

During the radiated emissions, the adapter of laptop was connected to the first AC floor outlet and the other support equipments were connected to the second AC floor outlet.

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

The data was recorded in the Quasi-peak detection mode for below 1 GHz, peak and average detection mode above 1 GHz.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	EMI Test Receiver	ESCI	100224	2017-12-11	2018-12-11
Farad	Test Software	EZ-EMC	V1.1.4.2	N/A	N/A
Sunol Sciences	Antenna	JB3	A060611-1	2017-11-10	2020-11-10
Unknown	Coaxial Cable	C-NJNJ-50	C-0400-01	2018-09-05	2019-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0075-01	2018-09-05	2019-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-1000-01	2018-09-05	2019-09-05
HP	Amplifier	8447D	2727A05902	2018-09-05	2019-09-05
Agilent	Spectrum Analyzer	E4440A	SG43360054	2018-01-04	2019-01-04
ETS-Lindgren	Horn Antenna	3115	000 527 35	2016-01-05	2019-01-04
Unknown	Coaxial Cable	C-SJSJ-50	C-0800-01	2018-09-05	2019-09-05
Unknown	Coaxial Cable	C-2.4J2.4J-50	C-0700-02	2018-06-27	2019-06-27
MITEQ	Amplifier	AFS42-00101800-25-S-42	2001271	2018-09-05	2019-09-05

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

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

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 limit. The equation for margin calculation is as follows:

Margin = Limit – Corrected Amplitude

Test Data

Environmental Conditions

Temperature:	26.6~27.5 °C
Relative Humidity:	37~38 %
ATM Pressure:	100.1kPa

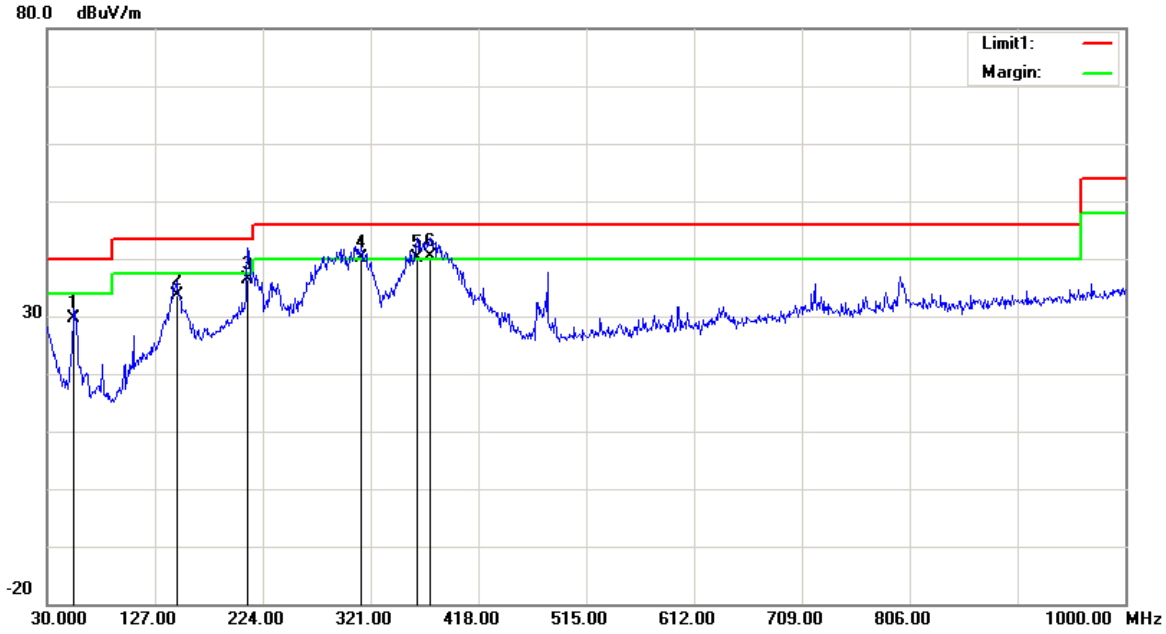
** The testing was performed by Sunny Cen & Blake Yang on 2018-10-10 .*

Test Result: Compliance

Test Mode: Downloading

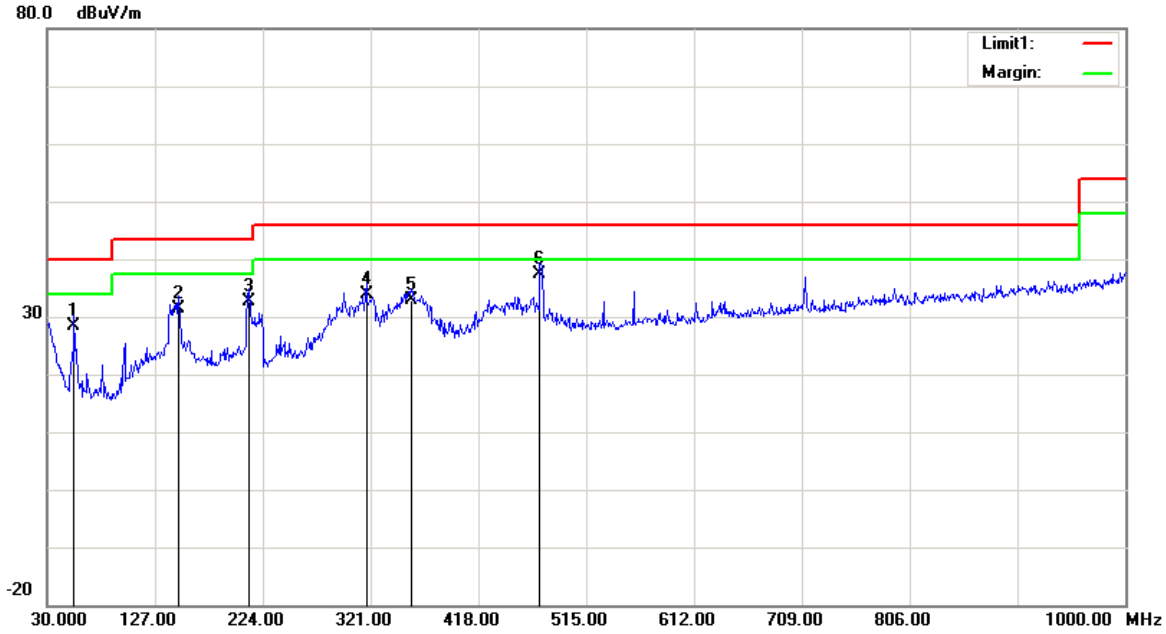
1) Below 1GHz:

Horizontal



Frequency (MHz)	Receiver Reading (dBµV)	Detector	Correction Factor (dB/m)	Cord. Amp. (dBµV/m)	Limit (dBµV/m)	Margin (dB)
54.2500	41.86	QP	-12.16	29.70	40.00	10.30
146.4000	39.60	QP	-6.00	33.60	43.50	9.90
210.4200	43.87	QP	-7.37	36.50	43.50	7.00
312.2700	43.50	QP	-3.40	40.10	46.00	5.90
362.7100	42.73	QP	-2.63	40.10	46.00	5.90
374.3500	43.01	QP	-2.51	40.50	46.00	5.50

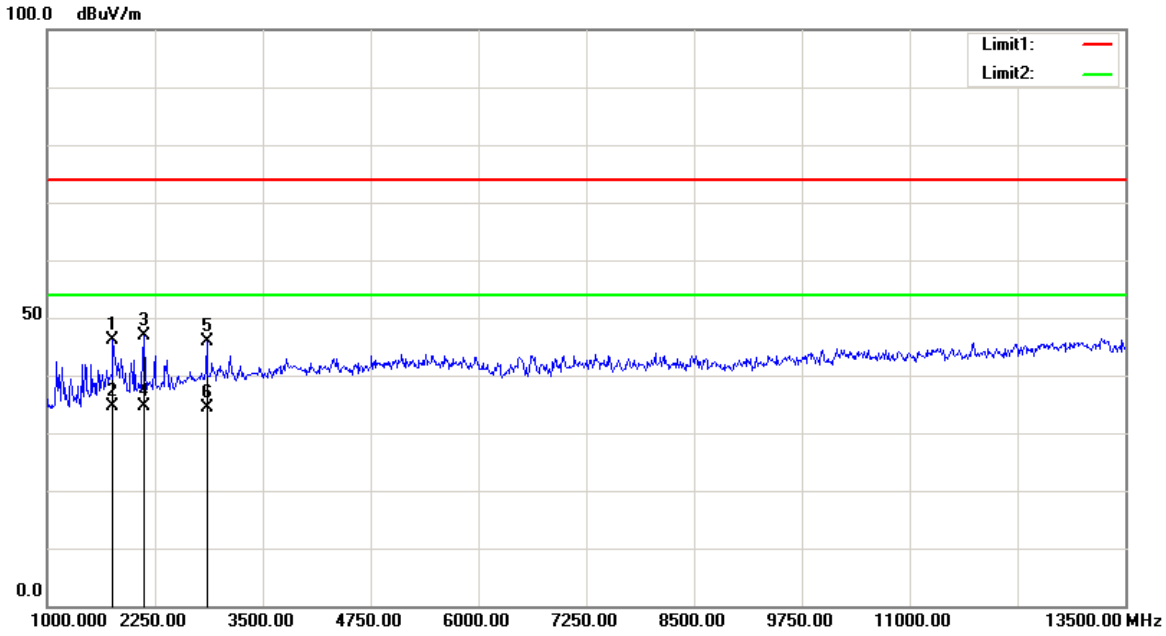
Vertical



Frequency (MHz)	Receiver Reading (dBµV)	Detector	Correction Factor (dB/m)	Cord. Amp. (dBµV/m)	Limit (dBµV/m)	Margin (dB)
54.2500	40.46	QP	-12.16	28.30	40.00	11.70
148.3400	37.40	QP	-6.00	31.40	43.50	12.10
211.3900	39.98	QP	-7.38	32.60	43.50	10.90
317.1200	37.17	QP	-3.37	33.80	46.00	12.20
357.8600	35.50	QP	-2.70	32.80	46.00	13.20
473.2900	37.56	QP	-0.16	37.40	46.00	8.60

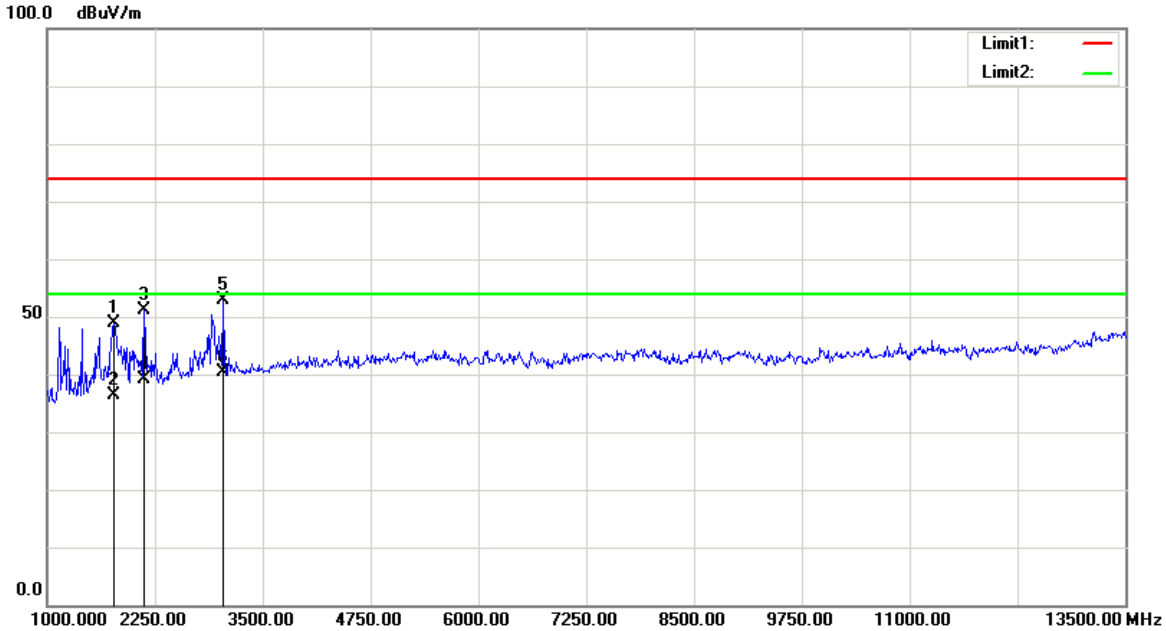
2) Above 1GHz:

Horizontal



Frequency (MHz)	Receiver Reading (dBµV)	Detector	Correction Factor (dB/m)	Cord. Amp. (dBµV/m)	Limit (dBµV/m)	Margin (dB)
1768.750	54.16	peak	-7.99	46.17	74.00	27.83
1768.750	42.54	AVG	-7.99	34.55	54.00	19.45
2131.250	53.82	peak	-6.93	46.89	74.00	27.11
2131.250	41.63	AVG	-6.93	34.70	54.00	19.30
2850.000	51.03	peak	-5.24	45.79	74.00	28.21
2850.000	39.56	AVG	-5.24	34.32	54.00	19.68

Vertical



Frequency (MHz)	Receiver Reading (dBµV)	Detector	Correction Factor (dB/m)	Cord. Amp. (dBµV/m)	Limit (dBµV/m)	Margin (dB)
1775.000	56.78	peak	-7.94	48.84	74.00	25.16
1775.000	44.32	AVG	-7.94	36.38	54.00	17.62
2131.250	58.08	peak	-6.93	51.15	74.00	22.85
2131.250	46.01	AVG	-6.93	39.08	54.00	14.92
3043.750	57.55	peak	-4.63	52.92	74.00	21.08
3043.750	45.12	AVG	-4.63	40.49	54.00	13.51

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