FCC PART 15 B

TEST REPORT

For

SWAGTEK

10205 NW 19th Street STE101,Miami,Florida,United States

FCC ID: O55181917

Report Type:	**Product Name:**
Original Report	LOGIC

Test Engineer:	Tom Tang
Report Number:	RDG170601011B
Report Date:	2017-06-20
Reviewed By:	Henry Ding EMC Leader
Test Laboratory:	Bay Area Compliance Laboratories Corp. (Chengdu) No.5040, Huilongwan Plaza, No.1, Shawan Road, Jinniu District, Chengdu, Sichuan, China Tel: 028-65525123, Fax: 028-65525125 www.baclcorp.com

TABLE OF CONTENTS

GENERAL INFORMATION

Product Description for Equipment Under Test (EUT)

The ***SWAGTEK***'s product, model number: ***LOGIC F2 (FCC ID: O55181917)*** (the "EUT") in this report was a ***LOGIC***, which was measured approximately: 13.5 cm (L) × 6.4 cm (W) × 1.3 cm (H), rated input voltage: DC3.7V battery or DC5.0V charging from adapter. The Highest operation frequency is 2480 MHz.

Adapter information:
Input: AC 100-240V, 50/60Hz, 0.2A
Output: DC5.0V 300mA

Note: The series product, model LOGIC F2, iSWAG Flip and UNONU U8 are electrically identical, the difference them is the model name, we selected LOGIC F2 for fully testing, the details was explained in the attached declaration letter.

**All measurement and test data in this report was gathered from final production sample, serial number: 170601011 (assigned by the BACL, Chengdu). It may have deviation from any other sample. The EUT supplied by the applicant was received on 2017-06-01, and EUT conformed to test requirement.*

Objective

This test report is prepared on behalf of ***SWAGTEK*** 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 Rules Part 15 B Class B.

Related Submittal(s)/Grant(s)

FCC Part 15C DSS submissions with FCC ID: O55181917.
FCC Part 22H, 24E, 27 PCE submissions with FCC ID: O55181917.

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 of the measurements detailed in this Test Report were performed by Bay Area Compliance Laboratories Corp. (Chengdu).

The Bay Area Compliance Laboratories Corp. Chengdu's measurement Uncertainties (calculated for a k=2 Coverage Factor corresponding to approximately 95% Coverage) were as follows:

-For all of the AC Line Conducted Emissions Tests reported herein: ±3.17 dB.

-For of all of the direct Radiated Emissions Tests reported herein are:
30 MHz to 200 MHz: ±4.7 dB;
200 MHz to 1 GHz: ±6.0 dB;

1 GHz to 6 GHz: ±5.13dB; and,
6 GHz to 40 GHz: ±5.47dB.

And the uncertainty will not be taken into consideration for all test data recorded in the report.

Test Facility

The test site used by BACL to collect test data is located in the No.5040, Huilongwan Plaza, No.1, Shawan Road, Jinniu District, Chengdu, Sichuan, China.

Test site at BACL 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 April 24, 2015. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2014.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 560332. 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 a typical fashion (as normally used by a typical user).

EUT Exercise Software

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

Equipment Modifications

No modification was made to the EUT tested.

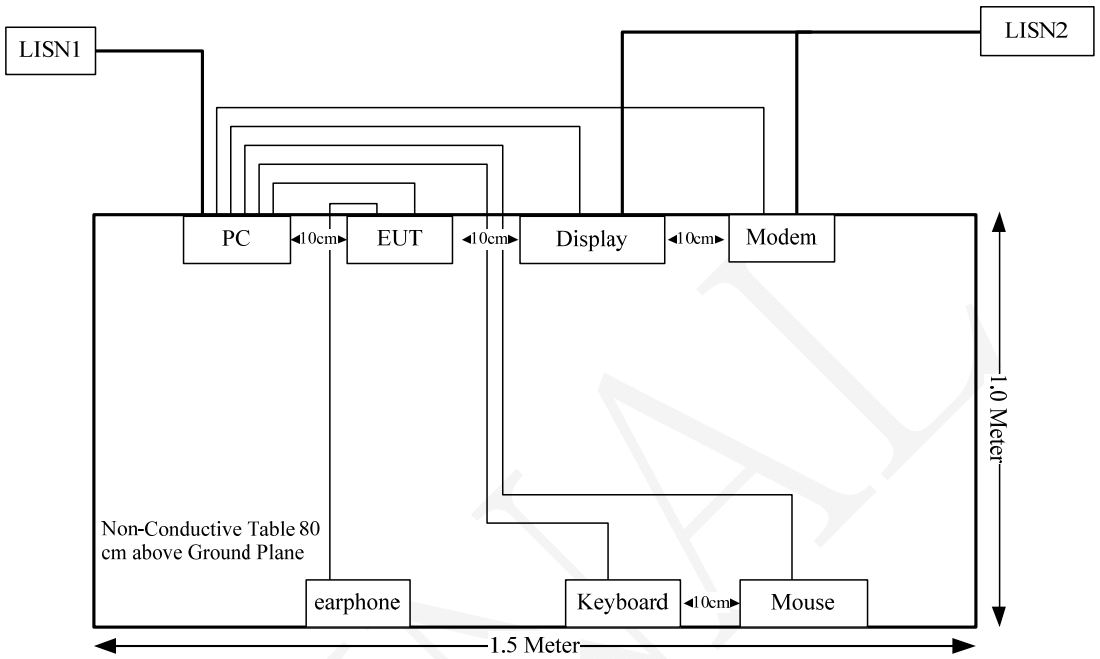
Local Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
IBM	PC	8176	99Y7315
DELL	Display	E157FPC	060229-11
ANTER	Modem	EGW802	0508350054-1B
Lenovo	Keyboard	KB-US19EB	IMHYX011071016460
Lenovo	Mouse	MO-5013U	IMJS011041409259

Support Cable List and Details

Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	To
Serial Cable	yes	No	1.6	Serial Port of PC	Modem
Mouse Cable	yes	No	1.4	USB Port of PC	Mouse
Keyboard Cable	yes	No	1.3	USB Port of PC	Keyboard
VGA Cable	yes	Yes	1.5	VGA Port of PC	Display
Earphone Cable	No	No	1.2	EUT	Earphone

Configuration of Test Setup

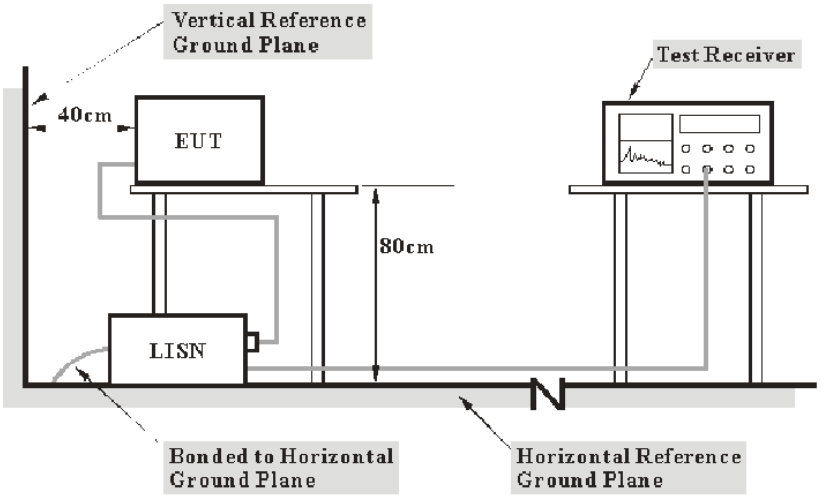


SUMMARY OF TEST RESULTS

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 PC was connected to the Main LISN with a 120V/60Hz AC power.

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
Rohde & Schwarz	EMI Test Receiver	ESCS 30	836858/0016	2016-12-02	2017-12-01
Rohde & Schwarz	L.I.S.N.	ENV216	100018	2016-12-02	2017-12-01
Rohde & Schwarz	PULSE LIMITER	ESH3Z2	DE14781	2016-10-31	2017-10-30
SOLAR ELECTRONICS	L.I.S.N.	9252-50-24 -BNC	984413	2016-12-02	2017-12-01
Unknown	Conducted Cable	Unknown	NO.5	2016-11-10	2017-11-09
R&S	Test Software	EMC32	Version8.53.0	N/A	N/A

*** Statement of Traceability:** BACL(Chengdu) attests that all of the calibrations on the equipment items listed above were traceable to NIM or to another internationally recognized National Metrology Institute (NMI), and were compliant with the NIST HB 150-2016 Normative Annex B "Implementation of traceability policy in accredited laboratories".

Test Procedure

During the conducted emission test, the monitor 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 maximum limit. The equation for margin calculation is as follows:

Margin = Limit – Corrected Amplitude

Test Data

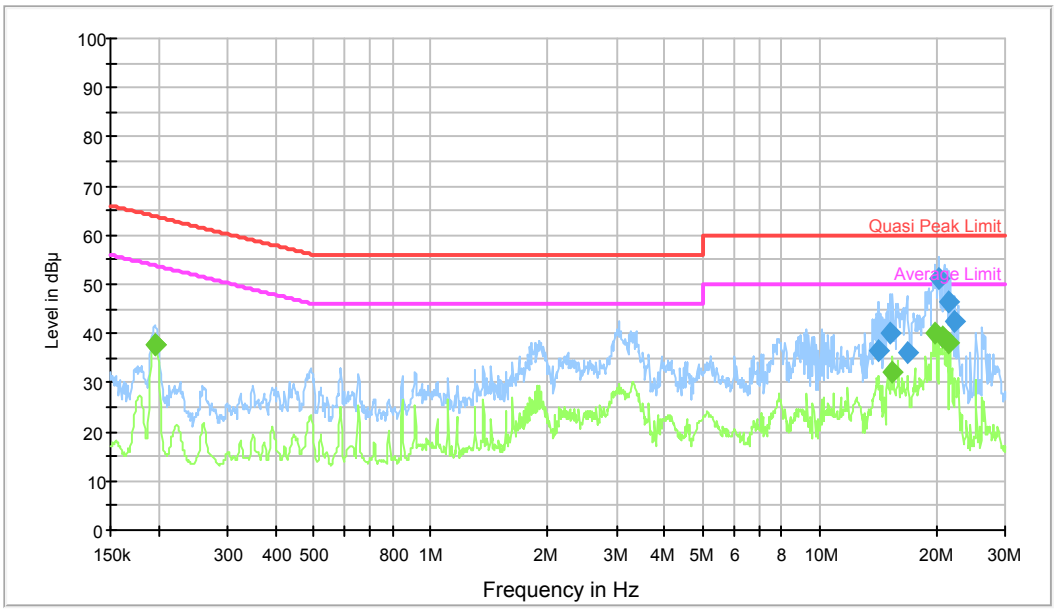
Environmental Conditions

Temperature:	26.3 °C
Relative Humidity:	64.8 %
ATM Pressure:	100.1 kPa

The testing was performed by Tom Tang on 2017-06-15.

Test Mode: Downloading

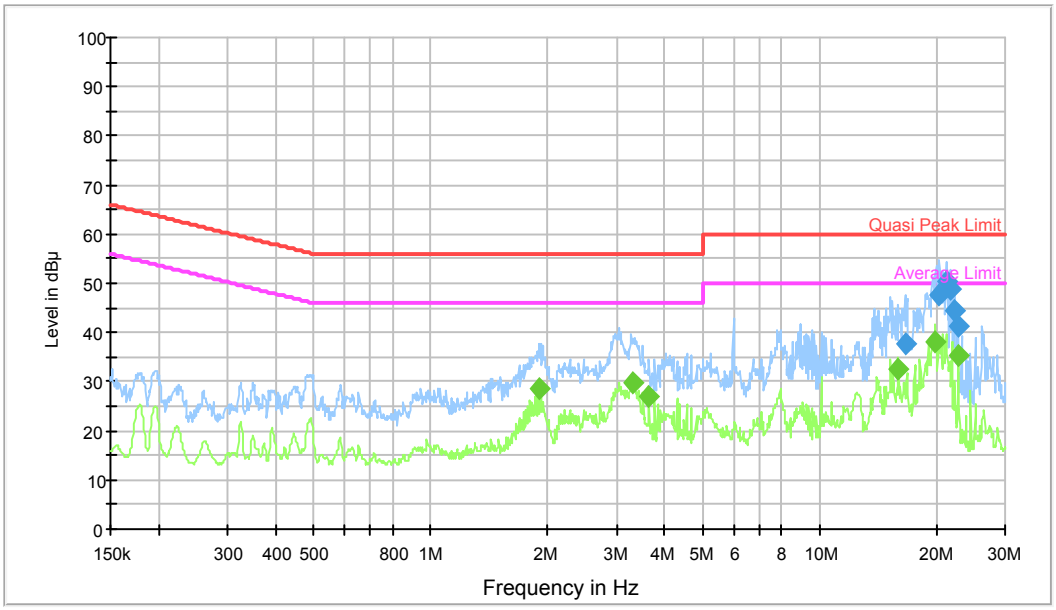
AC120V, 60Hz, Line:



Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
14.151108	36.4	9.000	L1	20.1	23.6	60.0	Compliance
15.266201	40.0	9.000	L1	20.1	20.0	60.0	Compliance
16.801192	36.2	9.000	L1	20.1	23.8	60.0	Compliance
20.268639	51.2	9.000	L1	20.1	8.8	60.0	Compliance
21.519406	46.5	9.000	L1	20.2	13.5	60.0	Compliance
22.306616	42.6	9.000	L1	20.2	17.4	60.0	Compliance

Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.195217	37.9	9.000	L1	19.7	15.9	53.8	Compliance
0.195997	37.6	9.000	L1	19.7	16.2	53.8	Compliance
15.388575	32.1	9.000	L1	20.1	17.9	50.0	Compliance
19.788930	39.9	9.000	L1	20.1	10.1	50.0	Compliance
20.843017	39.1	9.000	L1	20.1	10.9	50.0	Compliance
21.519406	38.1	9.000	L1	20.2	11.9	50.0	Compliance

AC120V, 60Hz, Neutral:



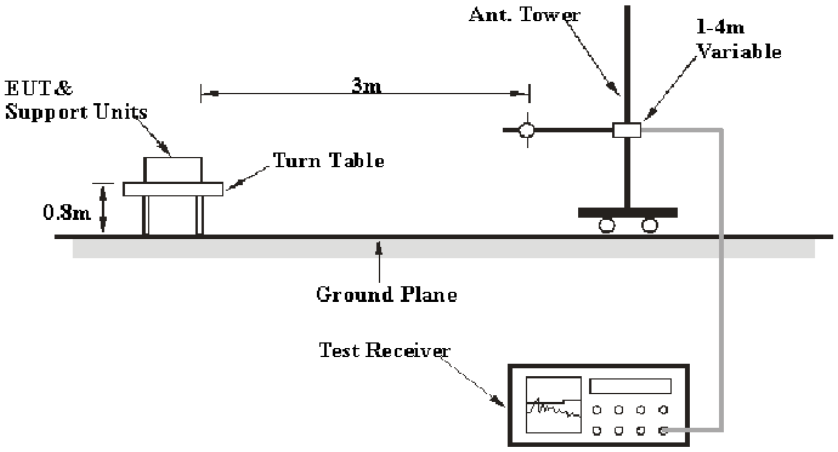
Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
16.601180	37.8	9.000	N	19.9	22.2	60.0	Compliance
20.349714	47.8	9.000	N	19.9	12.2	60.0	Compliance
21.178511	50.3	9.000	N	19.9	9.7	60.0	Compliance
21.605484	48.7	9.000	N	20.0	11.3	60.0	Compliance
22.306616	44.6	9.000	N	20.0	15.4	60.0	Compliance
22.756332	41.2	9.000	N	20.0	18.8	60.0	Compliance

Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
1.899909	28.7	9.000	N	19.6	17.3	46.0	Compliance
3.322406	29.8	9.000	N	19.6	16.2	46.0	Compliance
3.641901	27.0	9.000	N	19.6	19.0	46.0	Compliance
15.951511	32.4	9.000	N	19.9	17.6	50.0	Compliance
19.868086	38.1	9.000	N	19.9	11.9	50.0	Compliance
22.756332	35.1	9.000	N	20.0	14.9	50.0	Compliance

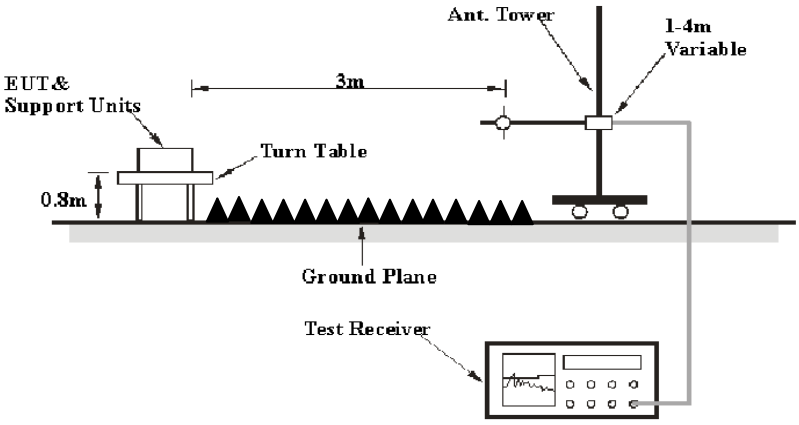
FCC §15.109 - RADIATED SPURIOUS EMISSIONS

EUT Setup

Below 1GHz:



Above 1GHz:



The radiated emission tests were performed at the 3 meters distance in chamber, 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 13.0 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	Detector
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 monitor 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
Agilent	Amplifier	8447D	2944A10442	2016-12-02	2017-12-01
Rohde & Schwarz	EMI Test Receiver	ESCI	100028	2016-12-02	2017-12-01
Sunol Sciences	Broadband Antenna	JB3	A121808	2016-04-10	2019-04-09
Rohde & Schwarz	Spectrum Analyzer	FSEM30	100018	2016-12-02	2017-12-01
ETS	Horn Antenna	3115	003-6076	2016-12-02	2017-12-01
Ducommun Technologies	Horn Antenna	ARH-4223-02	1007726-0113024	2017-06-16	2020-06-15
Mini-circuits	Amplifier	ZVA-183-S+	771001215	2017-05-20	2018-05-19
EMCT	Semi-Anechoic Chamber	966	966-1	2015-04-24	2018-04-23
Unknown	RF Cable (below 1GHz)	Unknown	NO.1	2016-11-10	2017-11-09
Unknown	RF Cable (below 1GHz)	Unknown	NO.4	2016-11-10	2017-11-09
Unknown	RF Cable (above 1GHz)	Unknown	NO.2	2016-11-10	2017-11-09
Ducommun Technolagies	Horn Antenna	ARH-2823-02	1007726-01 1312	2016-08-18	2017-08-18
Quinstar	Amplifier	QLW-18405536-JO	15964001032	2016-08-18	2017-08-18
Agilent	Spectrum Analyzer	8564E	5943A01752	2016-08-18	2017-08-18

*** Statement of Traceability:** BACL(Chengdu) attests that all of the calibrations on the equipment items listed above were traceable to NIM or to another internationally recognized National Metrology Institute (NMI), and were compliant with the NIST HB 150-2016 Normative Annex B “Implementation of traceability policy in accredited laboratories”.

Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Loss 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

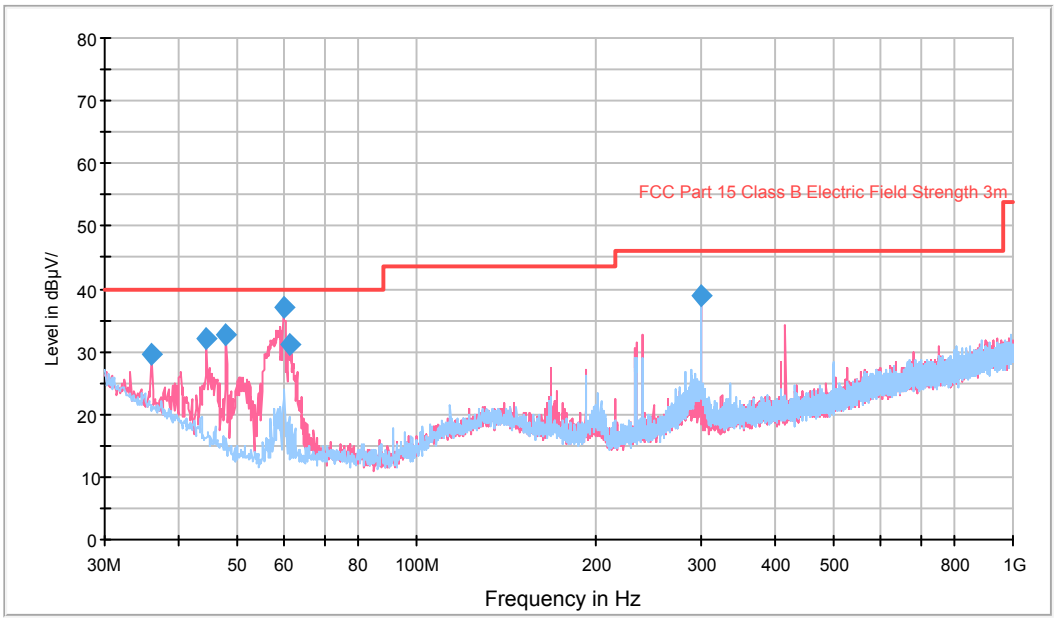
Temperature:	27.4 °C
Relative Humidity:	62 %
ATM Pressure:	100.1 kPa

** The testing was performed by Tom Tang on 2017-06-16*

Test Result: Compliance

Test Mode: Downloading

1) Below 1GHz:



Frequency (MHz)	QuasiPeak (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
36.062500	29.7	100.0	V	70.0	-5.0	10.3	40.0
44.428750	31.9	100.0	V	107.0	-9.8	8.1	40.0
47.945000	32.7	100.0	V	70.0	-11.8	7.3	40.0
59.827500	37.0	100.0	V	42.0	-13.6	3.0	40.0
61.161250	31.2	100.0	V	80.0	-13.5	8.8	40.0
299.538750	38.9	100.0	H	169.0	-5.9	7.1	46.0

2) 1-13.0GHz:

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector	Polar (H/V)	Factor (dB)					
1144	45.57	PK	H	24.15	2.18	26.67	45.23	74.00	28.77
1144	31.69	AV	H	24.15	2.18	26.67	31.35	54.00	22.65
1595	47.77	PK	H	25.48	2.74	26.42	49.57	74.00	-49.57
1595	30.99	AV	H	25.48	2.74	26.42	32.79	54.00	21.21
2406	42.78	PK	H	28.72	3.00	26.88	47.62	74.00	26.38
2406	30.52	AV	H	28.72	3.00	26.88	35.36	54.00	18.64
1090	45.29	PK	V	24.02	2.10	26.72	44.69	74.00	29.31
1090	31.61	AV	V	24.02	2.10	26.72	31.01	54.00	22.99
1306	44.38	PK	V	24.53	2.40	26.52	44.79	74.00	29.21
1306	31.26	AV	V	24.53	2.40	26.52	31.67	54.00	22.33
2046	44.77	PK	V	27.64	3.04	26.83	48.62	74.00	25.38
2046	32.34	AV	V	27.64	3.04	26.83	36.19	54.00	17.81

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