RF TEST REPORT

No. 170301757SHA-001

Applicant	:	7Hugs Labs 21B Allee des Citeaux, Issy les Moulineaux, 92130 France
Manufacturer	:	Technochina Industries(ShangHai) Co., Ltd 152/1421 Zhuan Xing Dong Lu, Min hang District, ShangHai , China
Product Name	:	Sleep Tracker
Type/Model	:	SH01
TEST RESULT	**:**	**PASS**

SUMMARY

The equipment complies with the requirements according to the following standard(s):

47CFR Part 15 (2016): Radio Frequency Devices

ANSI C63.10 (2013): American National Standard for Testing Unlicensed Wireless Devices

RSS-210 Issue 9 (August 2016): Licence-exempt Radio Apparatus (All Frequency Bands): Category I Equipment

RSS-Gen Issue 4 (November 2014): General Requirements for Compliance of Radio Apparatus

Date of issue: April 28, 2017

Prepared by:

Wade Zhang (*Project Engineer*)

Reviewed by:

Daniel Zhao (*Reviewer*)

Description of Test Facility

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Content

1. General Information

1.1 Applicant Information

Applicant	:	7Hugs Labs 21B Allee des Citeaux, Issy les Moulineaux, 92130 France
Name of contact	:	Pierre Emerich
Tel	:	+33 1 58 07 75 75
Fax	:	/
Manufacturer	:	Technochina Industries(ShangHai) Co., Ltd 152/1421 Zhuan Xing Dong Lu, Min hang District, ShangHai , China

1.2 Identification of the EUT

Product description	:	Sleep Tracker
Type/model	:	SH01
Description of EUT	:	The EUT is a sleep tracker which contains a 915MHz radio and a WIFI module (FCC ID: COFWMNBM11, IC: 10293A-WMNBM11), and there have only one model, we tested it and listed the 915MHz results in this report.
Operation Frequency Band	:	902 - 928 MHz
Type of Modulation	:	2FSK
Channel Description	:	1Channel at 915MHz
Antenna Type	:	Internal
Port identification	:	USB*1
Rating	:	5V DC 1000mA (Adaptor: Input 100-240V AC 50-60Hz, 0.3A)
Declared Temperature range	:	0°C ~ 45°C
Category of EUT	:	Class B
EUT type	:	☒ Table top☐ Floor standing
Sample received date	:	2017.03.10
Sample Identification No	:	/
Date of test	:	2017.03.10 ~ 2017.04.26

1.3 Mode of operation during the test / Test peripherals used

Within this test report, EUT was tested with modulation and tested under its rating voltage and frequency.

The EUT was set to work normal and as receiving and transmitting mode during test. No standby function.

Test Peripherals: NA

2. Test Specification

2.1 Instrument list

Selected	Equipment	Type	Manu.	Internal no.	Cal. Date	Due date
☒	EMI Receiver	ESCS 30	R&S	EC 2107	2016/10/19	2017/10/18
☒	A.M.N.	ESH2-Z5	R&S	EC 3119	2015/12/16	2017/12/15
☒	I.S.N.	FCC-TLISN-T8-02	FCC	EC3756	2017/2/15	2018/2/14
☒	EMI chamber	3m	Albatross	EC 3048	2016/9/10	2017/9/9
☒	Test Receiver	ESIB 26	R&S	EC 3045	2016/10/19	2017/10/18
☒	Bilog Antenna	CBL 6112D	TESEQ	EC 4206	2016/6/2	2017/6/1
☒	Horn antenna	HF 906	R&S	EC 3049	2016/9/24	2017/9/23
☒	Pre-amplifier	Pre-amp 18	R&S	EC 5262	2016/6/30	2017/6/29
☒	H&F system	PFS 503N	EM TEST	EC 5383	2017/3/17	2018/3/16
☒	H&F system	DPA 503N	EM TEST	EC 5383-1	2017/3/27	2018/3/26
☒	H&F system	NETWAVE30	EM TEST	EC 5383-2	2016/9/18	2017/9/17
☒	Shielded room	-	Zhongyu	EC 2838	2017/1/8	2018/1/7

2.2 Test Standard

47CFR Part 15 (2016)
ANSI C63.10 (2013)
RSS-210 Issue 9 (August 2016)
RSS-Gen Issue 4 (November 2014)

2.3 Test Summary

This report applies to tested sample only. This report shall not be reproduced in part without written approval of Intertek Testing Service Shanghai Limited.

TEST ITEM	FCC REFERANCE	RESULT
Radiated emission	15.249 & 15.209	Pass
Assigned bandwidth (20dB bandwidth)	15.215(c)	Pass
Occupied bandwidth	-	Pass
Power line conducted emission	15.207	Pass

3. Radiated emission

Test result: PASS

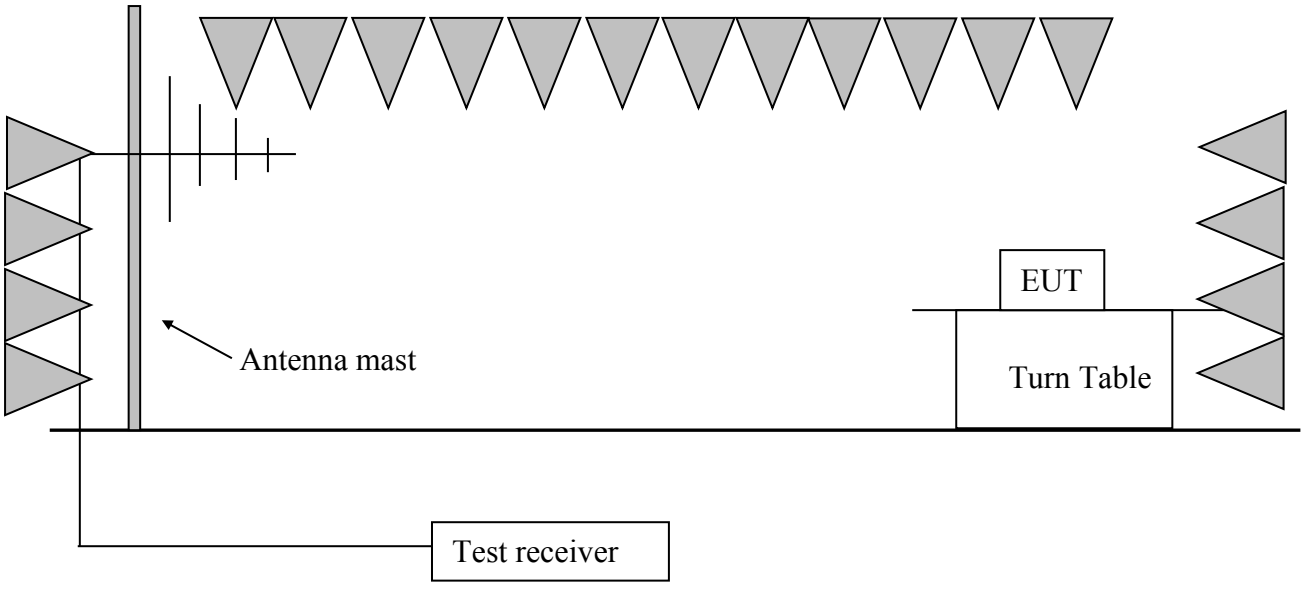
3.1 Test limit

Fundamental Frequency (MHz)	Fundamental limit (dBuV/m)	Harmonic limit (dBuV/m)
☒902 - 928	94	54
☐2400 - 2483.5	94	54
☐5725 - 5875	94	54
☐24000 - 24250	108	68

The radiated emissions which fall outside allocated band (2400-2483.5MHz), must also comply with the radiated emission limits specified in §15.209(a) showed as below:

Frequency (MHz)	Field Strength (dBuV/m)	Measurement Distance (m)
30 - 88	40.0	3
88 - 216	43.5	3
216 - 960	46.0	3
Above 960	54.0	3

3.2 Test Configuration



3.3 Test procedure and test setup

The measurement was applied in a semi-anechoic chamber. While testing for spurious emission higher than 1GHz, if applied, the pre-amplifier would be equipped just at the output terminal of the antenna.
The EUT and simulators were placed on a 0.8m high wooden turntable above the horizontal metal ground plane. The turn table rotated 360 degrees to determine the position of the maximum emission level. The EUT was set 3 meters away from the receiving antenna which was mounted on an antenna mast. The antenna moved up and down between from 1meter to 4 meters to find out the maximum emission level.

The radiated emission was measured using the Spectrum Analyzer with the resolutions bandwidth set as:

RBW=300 Hz, VBW=1 kHz (9 kHz~150 kHz);
RBW=10 kHz, VBW=30 kHz (150 kHz~30MHz);
RBW = 100 kHz, VBW = 300 kHz (30MHz~1GHz for PK);
RBW = 1MHz, VBW = 3MHz (>1GHz for PK).

3.4 Test protocol

Temperature : 25 °C
Relative Humidity : 55 %

CH	Antenna	Frequency (MHz)	Correct Factor (dB/m)	Corrected Reading (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
915 MHz	H	30.0	20.7	22.6	40.0	17.4	PK
	H	168.0	12.0	30.3	43.5	13.2	PK
	H	191.3	12.1	35.1	43.5	8.4	PK
	H	263.3	16.0	32.4	46.0	13.6	PK
	H	455.7	20.2	33.3	46.0	12.7	PK
	H	527.6	21.3	29.7	46.0	16.3	PK
	H	**915.0**	**25.6**	**92.1**	**94.0**	**1.9**	**PK**
	H	1826.8	-8.7	39.9	74.0	34.1	PK
	H	2737.5	-6.8	46.1	74.0	27.9	PK
	H	4577.2	-2.5	52.4	74.0	21.6	PK
	H	6382.8	0.9	48.3	74.0	25.7	PK
	H	8222.4	3.2	47.4	74.0	26.6	PK
	V	30.0	20.7	21.8	40.0	18.2	PK
	V	49.4	10.4	15.3	40.0	24.7	PK
	V	119.4	14.2	20.4	43.5	23.1	PK
	V	168.0	12.0	36.6	43.5	6.9	PK
	V	191.3	12.1	38.2	43.5	5.3	PK
	V	263.3	16.0	30.4	46.0	15.6	PK
	V	455.7	20.2	32.8	46.0	13.2	PK
	V	675.4	22.9	28.4	46.0	17.6	PK
	V	**915.0**	**25.6**	**86.4**	**94.0**	**7.6**	**PK**
	V	1826.8	-8.7	36.8	74.0	37.2	PK
	V	2737.5	-6.8	43.2	74.0	30.8	PK
	V	5497.0	-1.5	46.1	74.0	27.9	PK
	V	6382.8	0.9	46.3	74.0	27.7	PK
	V	8222.4	3.2	48.2	74.0	25.8	PK

Remark:

1. For fundamental emission test, no pre-amplifier is employed;
2. Correct Factor = Antenna Factor + Cable Loss (-Amplifier, is employed);
3. Corrected Reading = Original Receiver Reading + Correct Factor;
4. Margin = limit – Corrected Reading;
5. If the PK reading is lower than AV limit, the AV test can be elided;
6. The shaded data is the fundamental emission;
7. Both emissions on “horizontal” and “vertical” axes were assessed and the worse test data was listed in this report;

Example:

Assuming Antenna Factor = 30.20dB/m, Cable Loss = 2.00dB,
Gain of Preamplifier = 32.00dB, Original Receiver Reading = 10dBuV,
Then Correct Factor = 30.20 + 2.00 – 32.00 = 0.20dB/m,
Corrected Reading = 10dBuV + 0.20dB/m = 10.20dBuV/m,
Assuming limit = 54dBuV/m, Corrected Reading = 10.20dBuV/m,
Then Margin = 54 -10.20 = 43.80dBuV/m.

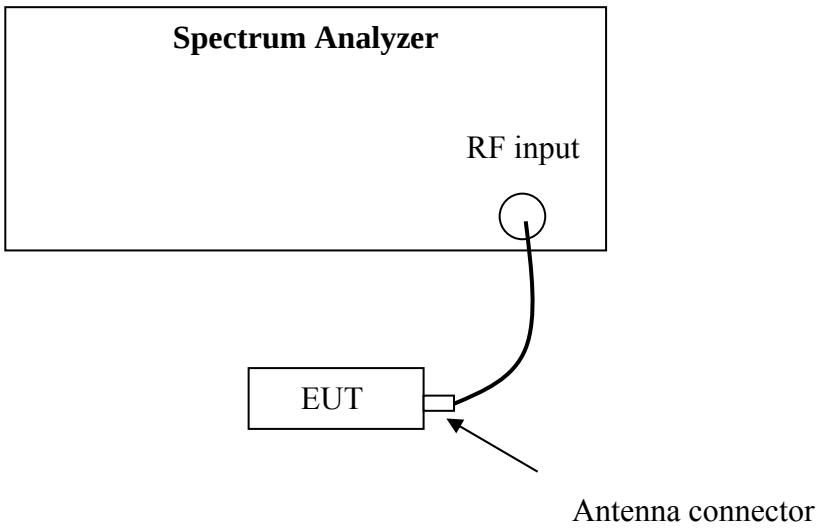
4. Assigned bandwidth (20dB bandwidth)

Test result: PASS

4.1 Limit

Intentional radiators must be designed to ensure that the 20 dB bandwidth of the emission is contained within the allocated frequency band as clause 3.1 shows.

4.2 Test Configuration



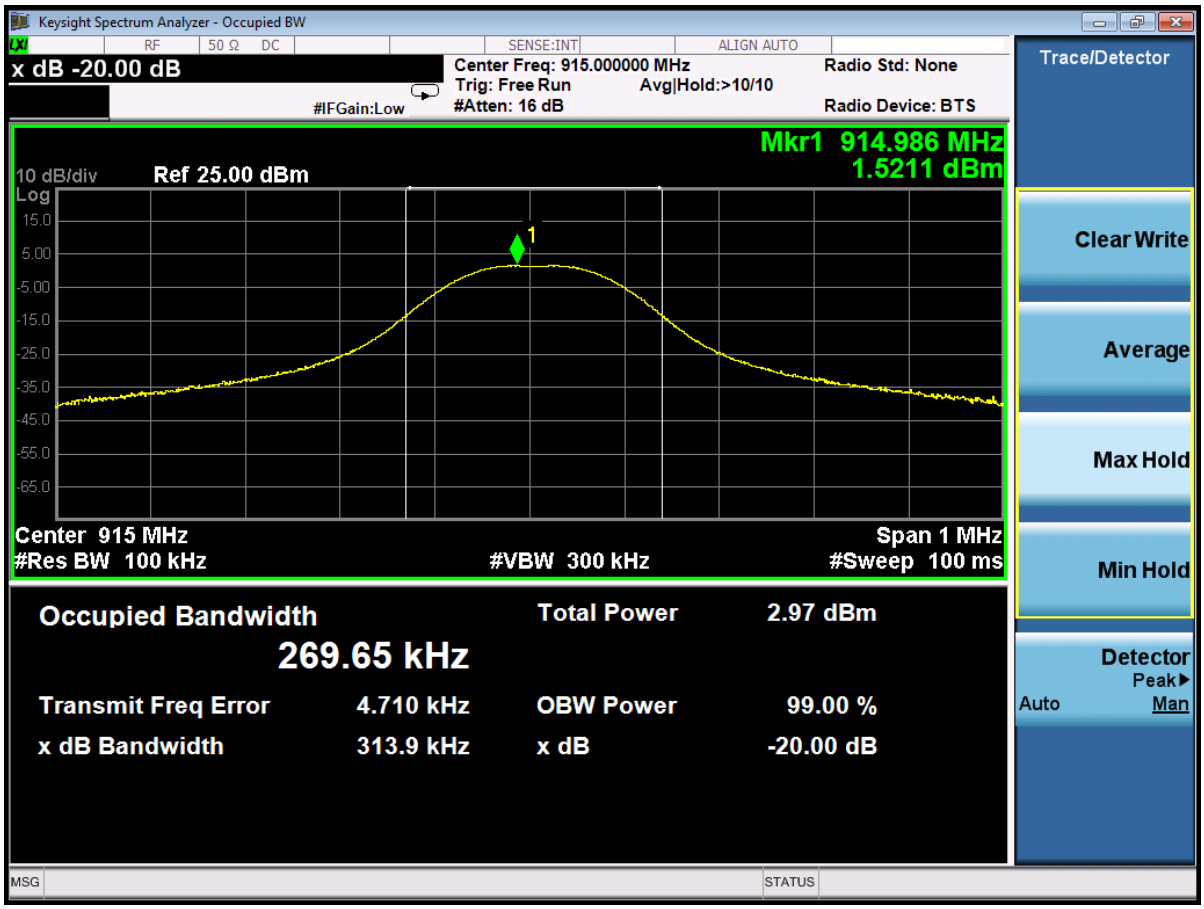
4.3 Test procedure and test setup

The 20dB Bandwidth per FCC § 15.215(c) is measured using the Spectrum Analyzer.
Set Span = 2 to 3 times the 20 dB bandwidth, RBW≥1% of the 20 dB bandwidth, VBW≥RBW, Sweep = auto, Detector = peak, Trace = max hold.
The test was performed at 3 channels (lowest, middle and highest channel).

4.4 Test protocol

Temperature : 25°C
Relative Humidity : 55 %

Frequency	20dB Bandwidth (kHz)	99% Bandwidth (kHz)	F_L (MHz)	F_H (MHz)
915MHz	313.9	269.65	914.846	915.162



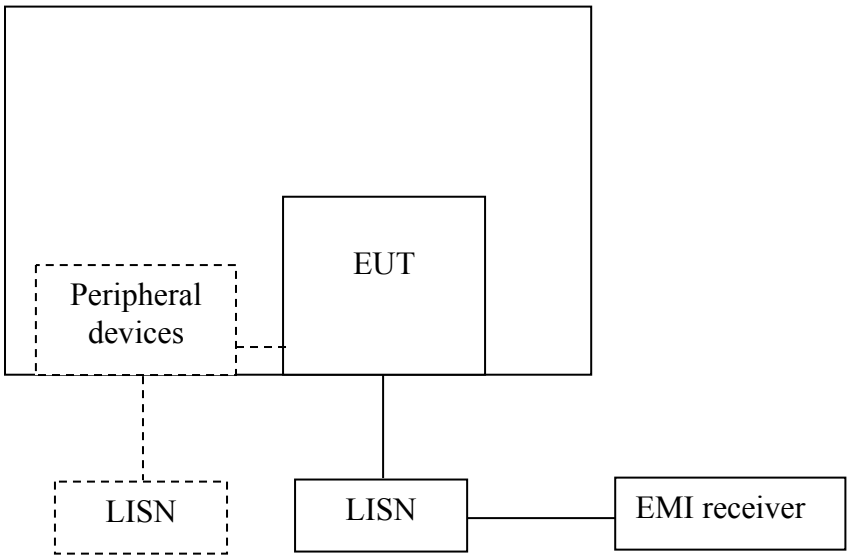
5. Power line conducted emission

Test result: **PASS**

5.1 Limit

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	QP	AV
0.15-0.5	66 to 56*	56 to 46 *
0.5-5	56	46
5-30	60	50
* Decreases with the logarithm of the frequency.		

5.2 Test configuration



☒ For table top equipment, wooden support is 0.8m height table

☐ For floor standing equipment, wooden support is 0.1m height rack.

5.3 Test procedure and test set up

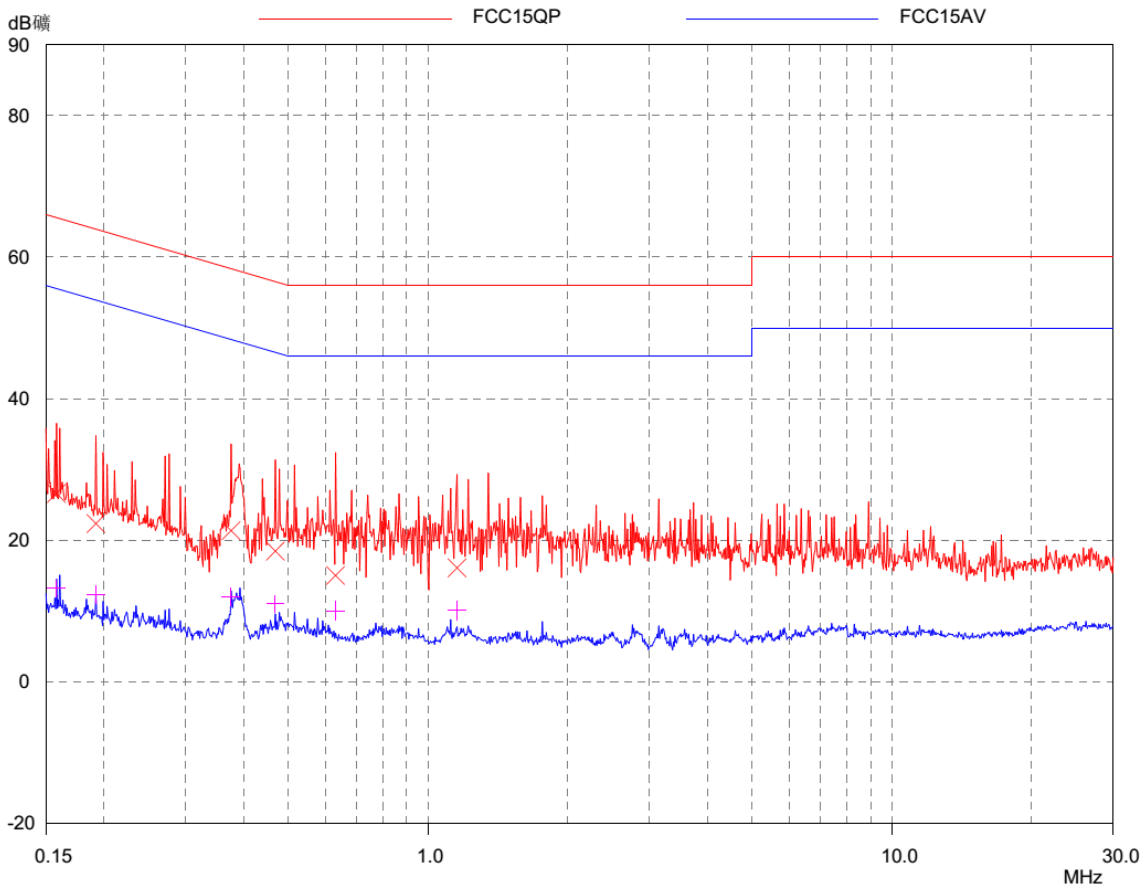
The EUT are connected to the main power through a line impedance stabilization network (LISN). This provides a 50Ω/50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50Ω/50uH coupling impedance with 50Ω termination.

Both sides (Line and Neutral) of AC line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4 on conducted measurement. The bandwidth of the test receiver is set at 9 kHz.

5.4 Test protocol

Temperature : 25°C
Relative Humidity : 55 %

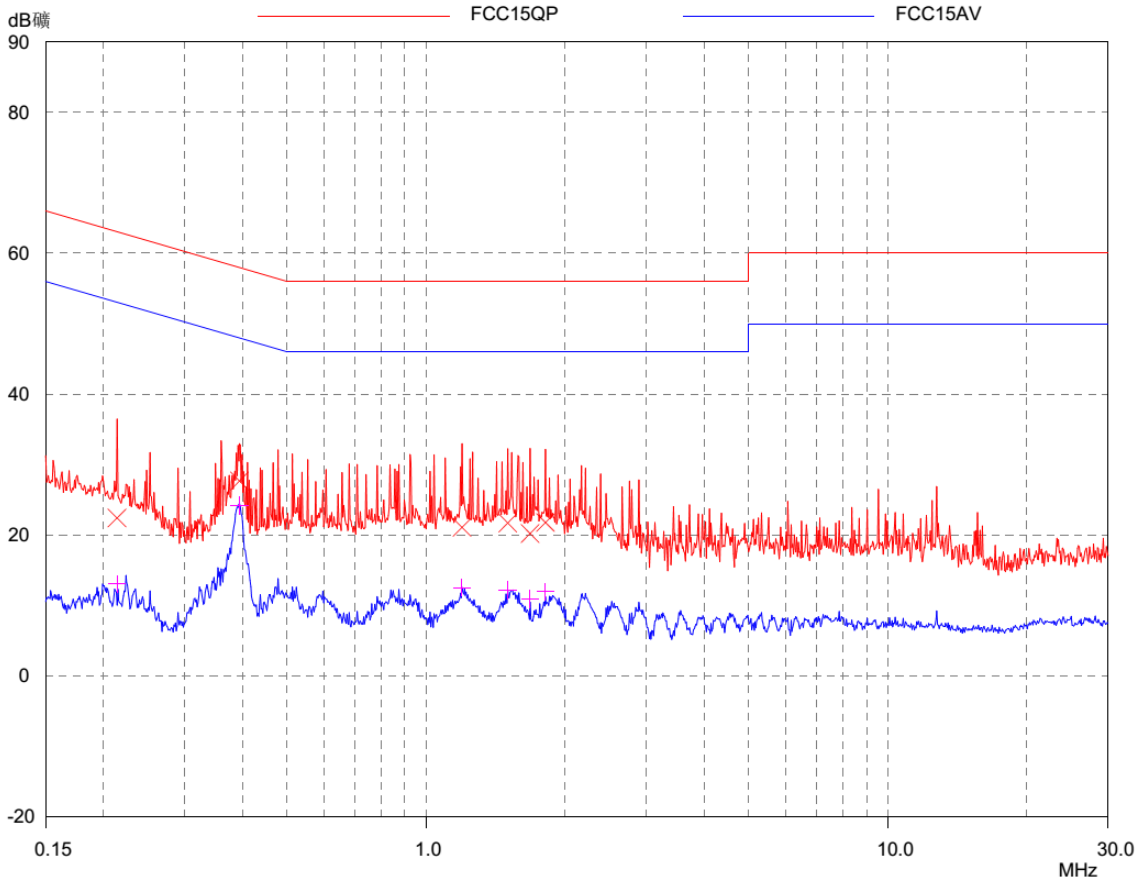
L line



Test Data:

Frequency (MHz)	Quasi-peak			Average		
	level dB(μV)	Limit dB(μV)	Margin (dB)	level dB(μV)	limit dB(μV)	Margin (dB)
0.16	26.65	65.57	38.92	13.17	55.57	42.40
0.19	22.38	63.94	41.56	12.27	53.94	41.67
0.38	21.38	58.37	36.99	12.00	48.37	36.37
0.47	18.47	56.55	38.08	11.04	46.55	35.51
0.63	15.05	56.00	40.95	10.04	46.00	35.96
1.15	16.13	56.00	39.87	10.09	46.00	35.91

N line



Test Data:

Frequency (MHz)	Quasi-peak			Average		
	level dB(μV)	Limit dB(μV)	Margin (dB)	level dB(μV)	limit dB(μV)	Margin (dB)
0.21	22.44	63.05	40.61	13.01	53.05	40.04
0.39	27.70	57.98	30.28	24.18	47.98	23.80
1.20	21.09	56.00	34.91	12.50	46.00	33.50
1.50	21.72	56.00	34.28	12.20	46.00	33.80
1.68	20.22	56.00	35.78	10.89	46.00	35.11
1.81	21.79	56.00	34.21	11.97	46.00	34.03