

TEST REPORT

Applicant: Janam Technologies LLC
Address: 999 South Oyster Bay Rd Suite 409 Bethpage, NY 11714
Equipment Type: Mobile Computer
Model Name: XR2
Brand Name: Janam
FCC ID: UTWXR2WA
ISED Number: 6914A-XR2WA
Test Standard: 47 CFR Part 15 Subpart C
RSS-Gen Issue 5
RSS-247 Issue 3
(refer to section 3.1)
Sample Arrival Date: Jan. 25, 2024
Test Date: Jan. 28, 2024 - Mar. 08, 2024
Date of Issue: Apr. 11, 2024

ISSUED BY:

Shenzhen BALUN Technology Co., Ltd.

**Tested by:** Julie Zhu**Checked by:** Ye Hongji**Approved by:** Liao Jianming
(Technical Director)

Revision History

Version	Issue Date	Revisions
<u>Rev. 01</u>	<u>Apr. 11, 2024</u>	<u>Initial Issue</u>

TABLE OF CONTENTS

1	GENERAL INFORMATION	4
1.1	Test Laboratory	4
1.2	Test Location	4
2	PRODUCT INFORMATION	5
2.1	Applicant Information	5
2.2	Manufacturer Information	5
2.3	General Description for Equipment under Test (EUT)	5
2.4	Technical Information	6
3	SUMMARY OF TEST RESULTS	7
3.1	Test Standards	7
3.2	Test Verdict	7
4	GENERAL TEST CONFIGURATIONS	8
4.1	Test Environments	8
4.2	Test Equipment List	8
4.3	Test Software List	8
4.4	Measurement Uncertainty	9
4.5	Description of Test Setup	9
4.6	Measurement Results Explanation Example	12
5	TEST ITEMS	13
5.1	Antenna Requirements	13
5.2	Number of Hopping Frequencies	14
5.3	Peak Output Power and E.I.R.P	15
5.4	Occupied Bandwidth	16
5.5	Carrier Frequency Separation	17

5.6	Time of Occupancy (Dwell time)	18
5.7	Conducted Spurious Emission & Authorized-band band-edge	19
5.8	Conducted Emission	20
5.9	Radiated Spurious Emission	21
5.10	Band Edge (Restricted-band band-edge).....	23
ANNEX A	TEST RESULT	24
A.1	Number of Hopping Frequency	24
A.2	Peak Output Power	25
A.3	20 dB and 99% bandwidth	27
A.4	Hopping Frequency Separation.....	29
A.5	Average Time of Occupancy	30
A.6	Conducted Spurious Emissions & Authorized-band band-edge	31
A.7	Conducted Emissions.....	35
A.8	Radiated Spurious Emission	37
A.9	Band Edge (Restricted-band band-edge).....	49
ANNEX B	TEST SETUP PHOTOS	52
ANNEX C	EUT EXTERNAL PHOTOS	52
ANNEX D	EUT INTERNAL PHOTOS	52

1 GENERAL INFORMATION

1.1 Test Laboratory

Name	Shenzhen BALUN Technology Co., Ltd.
Address	Block B, 1/F, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
Phone Number	+86 755 6685 0100

1.2 Test Location

Name	Shenzhen BALUN Technology Co., Ltd.
Location	☒ Block B, 1/F, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
	☐ 1/F, Building B, Ganghongji High-tech Intelligent Industrial Park, No. 1008, Songbai Road, Yangguang Community, Xili Sub-district, Nanshan District, Shenzhen, Guangdong Province, P. R. China
Accreditation Certificate	The laboratory is a testing organization accredited by FCC as a accredited testing laboratory. The designation number is CN1196. The laboratory has been listed by Industry Canada to perform electromagnetic emission measurements. The recognition numbers of test site are 11524A.

2 PRODUCT INFORMATION

2.1 Applicant Information

Applicant	Janam Technologies LLC
Address	999 South Oyster Bay Rd Suite 409 Bethpage, NY 11714

2.2 Manufacturer Information

Manufacturer	Janam Technologies LLC
Address	999 South Oyster Bay Rd Suite 409 Bethpage, NY 11714

2.3 General Description for Equipment under Test (EUT)

EUT Name	Mobile Computer
Model Name Under Test	XR2
Series Model Name	N/A
Description of Model name differentiation	N/A
Serial Number	01662412000001
Hardware Version	QDC510
Software Version	20.01A1-240119
Dimensions (Approx.)	N/A
Weight (Approx.)	N/A

2.4 Technical Information

Network and Wireless connectivity	2G Network GSM/GPRS/EDGE 850/1900 MHz 3G Network CDMA 1x Band Class 0 EVDO Rel. 0/Rev. A Band Class 0 WCDMA/HSDPA/HSUPA Band 2/4/5 4G Network FDD LTE Band 2/4/5/7/12/13/17 TDD LTE Band 38/41 Bluetooth (BR+EDR+BLE) 2.4G WIFI 802.11b, 802.11g, 802.11n(HT20/40) 5G WIFI 802.11a, 802.11n(HT20/40), 802.11ac(VHT20/40/80) U-NII-1/2A/2C/3, GPS, GLONASS, BDS, Galileo, RFID
-----------------------------------	--

The requirement for the following technical information of the EUT was tested in this report:

Modulation Technology	Frequency hopping system
Modulation Type	RFID
Product Type	☐ Mobile ☒ Portable ☐ Fix Location
Frequency Range	The frequency range used is 902 MHz to 928 MHz.
Number of channel	50
Tested Channel	Low (902.75 MHz), Middle (914.75 MHz), High (927.25 MHz)
Antenna Type	PCB Antenna
Antenna Gain	3.75 dBi
Antenna System(MIMO Smart Antenna)	N/A

All channel was listed on the following table:

Channel number	Freq. (MHz)	Channel number	Freq. (MHz)	Channel number	Freq. (MHz)	Channel number	Freq. (MHz)
1	902.75	14	909.25	27	915.75	40	922.25
2	903.25	15	909.75	28	916.25	41	922.75
3	903.75	16	910.25	29	916.75	42	923.25
4	904.25	17	910.75	30	917.25	43	923.75
5	904.75	18	911.25	31	917.75	44	924.25
6	905.25	19	911.75	32	918.25	45	924.75
7	905.75	20	912.25	33	918.75	46	925.25
8	906.25	21	912.75	34	919.25	47	925.75
9	906.75	22	913.25	35	919.75	48	926.25
10	907.25	23	913.75	36	920.25	49	926.75
11	907.75	24	914.25	37	920.75	50	927.25
12	908.25	25	914.75	38	921.25	--	--
13	908.75	26	915.25	39	921.75	--	--

3 SUMMARY OF TEST RESULTS

3.1 Test Standards

No.	Identity	Document Title
1	47 CFR Part 15, Subpart C	Intentional radiators of radio frequency equipment
2	KDB Publication 558074 D01v05r02	GUIDANCE FOR COMPLIANCE MEASUREMENTS ON DIGITAL TRANSMISSION SYSTEM, FREQUENCY HOPPING SPREAD SPECTRUM SYSTEM, AND HYBRID SYSTEM DEVICES OPERATING UNDER SECTION 15.247 OF THE FCC RULES
3	RSS-Gen Issue 5	General Requirements for Compliance of Radio Apparatus
4	RSS-247 Issue 3	Digital Transmission Systems (DTSs), Frequency Hopping Systems(FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices
5	ANSI C63.10-2013	American National Standard for Testing Unlicensed Wireless Devices

3.2 Test Verdict

No.	Description	FCC Part No.	ISED Part No.	Modulation Technology	Channel	Test Result	Verdict
1	Antenna Requirement	15.203	RSS-247, 5.4 (d)	N/A	N/A	--	Pass ^{Note}
2	Number of Hopping Frequencies	15.247(a)	RSS-247, 5.1 (c)	Frequency hopping system	Hopping Mode	ANNEX A.1	Pass
3	Peak Output Power	15.247(b)	RSS-247, 5.4 (a)	Frequency hopping system	Low/Middle/High	ANNEX A.2	Pass
4	Occupied Bandwidth	15.247(a)	RSS-247, 5.1 (a)	Frequency hopping system	Low/Middle/High	ANNEX A.3	Pass
5	Carrier Frequency Separation	15.247(a)	RSS-247, 5.1 (b)	Frequency hopping system	Hopping Mode	ANNEX A.4	Pass
6	Time of Occupancy (Dwell time)	15.247(a)	RSS-247, 5.1 (c)	Frequency hopping system	Hopping Mode	ANNEX A.5	Pass
7	Conducted Spurious Emission & Authorized-band band-edge	15.247(d)	RSS-247, 5.5	Frequency hopping system	Low/Middle/High, Hopping Mode	ANNEX A.6	Pass
8	Conducted Emission	15.207	RSS-GEN, 8.8	Frequency hopping system	Low/Middle/High	ANNEX A.7	Pass
9	Radiated Spurious Emission	15.209 15.247(d)	RSS-247, 5.5	Frequency hopping system	Low/Middle/High	ANNEX A.8	Pass
10	Band Edge(Restricted-band band-edge)	15.209 15.247(d)	RSS-247, 5.5	Frequency hopping system	Low/Middle/High	ANNEX A.9	Pass

Note: The EUT has a permanently and irreplaceable attached antenna, which complies with the requirement FCC 15.203

4 GENERAL TEST CONFIGURATIONS

4.1 Test Environments

During the measurement, the normal environmental conditions were within the listed ranges:

Relative Humidity	37% to 61%	
Atmospheric Pressure	100 kPa to 102 kPa	
Temperature	NT (Normal Temperature)	+17.5℃ to +24.7℃
Working Voltage of the EUT	NV (Normal Voltage)	3.85 V

4.2 Test Equipment List

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
Spectrum Analyzer	KEYSIGHT	N9020A	MY50330200	2023.05.16	2024.05.15
Spectrum Analyzer	KEYSIGHT	N9020A	MY52510065	2023.09.05	2024.09.04
Test Antenna-Horn	SCHWARZBECK	BBHA 9120D	01631	2022.02.23	2025.02.22
Test Antenna-Horn	A-INFO	LB-180400KF	J211060273	2021.07.02	2024.07.01
Test Antenna-Bi-Log	SCHWARZBECK	VULB 9163	00884	2022.02.20	2025.02.19
Anechoic Chamber	RAINFORD	9m*6m*6m	144	2022.02.19	2024.09.03
Amplifier	COM-MV	LSCX_LNA1-12G-01	180602	2023.09.05	2024.09.04
Amplifier	COM-MV	XKu_LNA7-18G-01	180601	2023.09.05	2024.09.04
EMI Receiver	ROHDE&SCHWARZ	ESRP	101036	2023.09.05	2024.09.04
Test Antenna-Loop	SCHWARZBECK	FMZB 1519	1519-037	2021.04.16	2024.04.15
Amplifier	COM-MV	ZT30-1000M	B2018054558	2023.12.05	2024.12.04
Anechoic Chamber	EMC Electronic Co., Ltd	20.10*11.60*7.35m	130	2021.08.15	2024.08.14
EMI Receiver	KEYSIGHT	N9038A	MY53220118	2023.09.05	2024.09.04
Test Antenna-Bi-Log	SCHWARZBECK	VULB 9163	9163-624	2021.08.20	2024.08.19
Amplifier	COM-MV	ZT30-1000M	B2017119082	2023.12.05	2024.12.04
Anechoic Chamber	RAINFORD	9m*6m*6m	101	2023.03.04	2026.03.03
EMI Receiver	KEYSIGHT	N9010B	MY57110309	2023.09.05	2024.09.04
LISN	SCHWARZBECK	NSLK 8127	8127-687	2023.05.16	2024.05.15
Shielded Enclosure	YiHeng Electronic Co., Ltd	3.5m*3.1m*2.8m	112	2022.02.19	2025.02.18

4.3 Test Software List

Description	Manufacturer	Software Version	Serial No.	Applicable test Setup
BL410R	BALUN	V2.1.1.488	N/A	The section 4.5.1
BL410E	BALUN	V22.930	N/A	The section 4.5.2&4.5.3&4.5.4&4.5.5

4.4 Measurement Uncertainty

The following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2.

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

Parameters	Uncertainty
Occupied Channel Bandwidth	2.8%
RF output power, conducted	1.28 dB
Power Spectral Density, conducted	1.30 dB
Unwanted Emissions, conducted	1.84 dB
All emissions, radiated	5.36 dB
Temperature	0.8°C
Humidity	4%

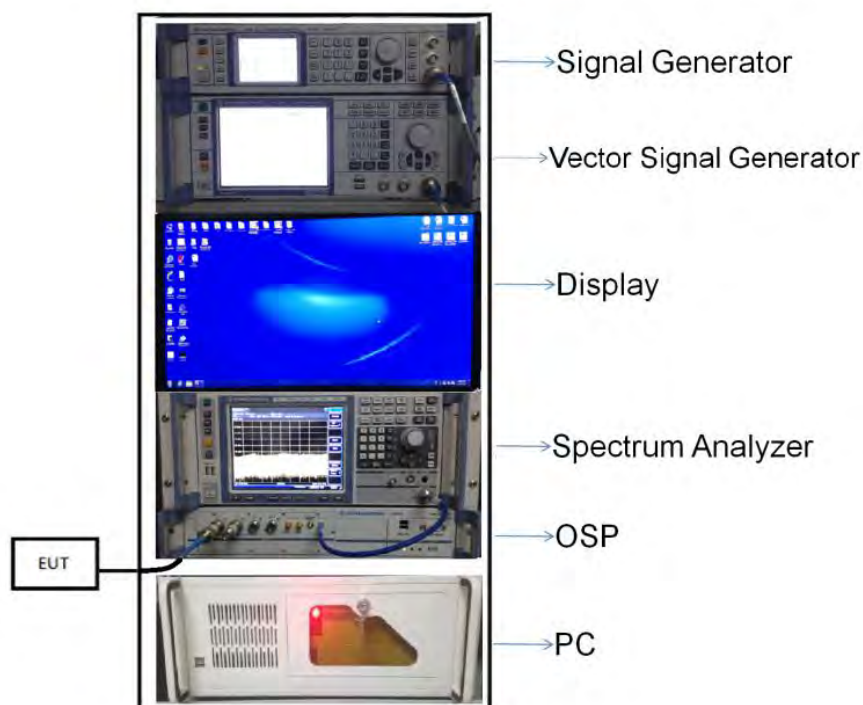
4.5 Description of Test Setup

4.5.1 For Antenna Port Test

Conducted value (dBm) = Measurement value (dBm) + cable loss (dB)

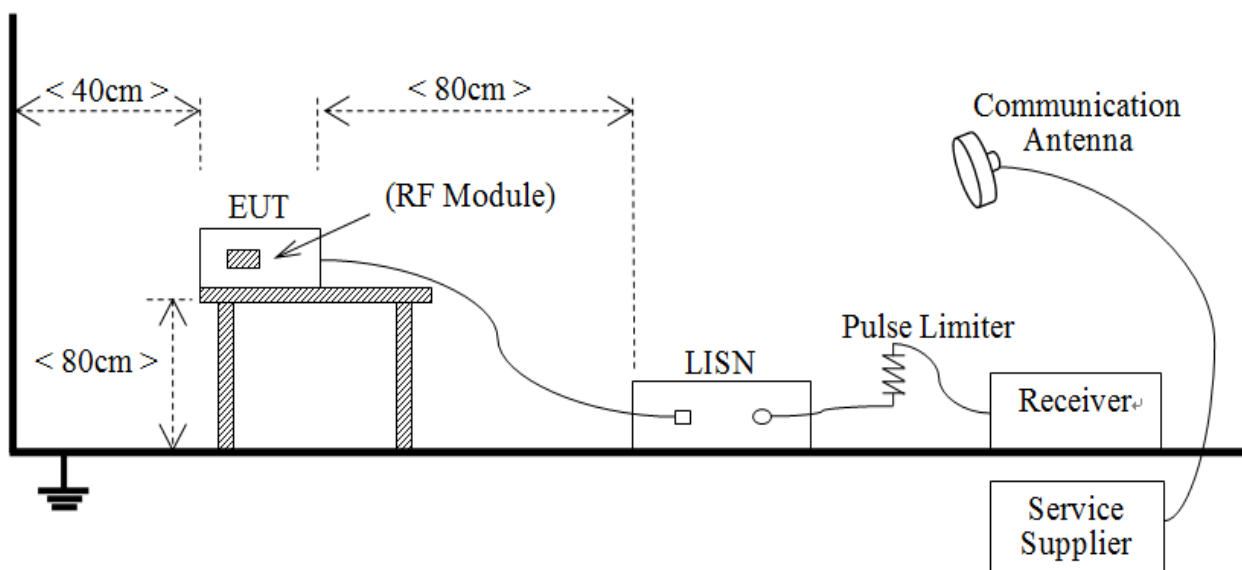
For example: the measurement value is 10 dBm and the cable 0.5dBm used, then the final result of EUT:

Conducted value (dBm) = 10 dBm + 0.5 dB = 10.5 dBm



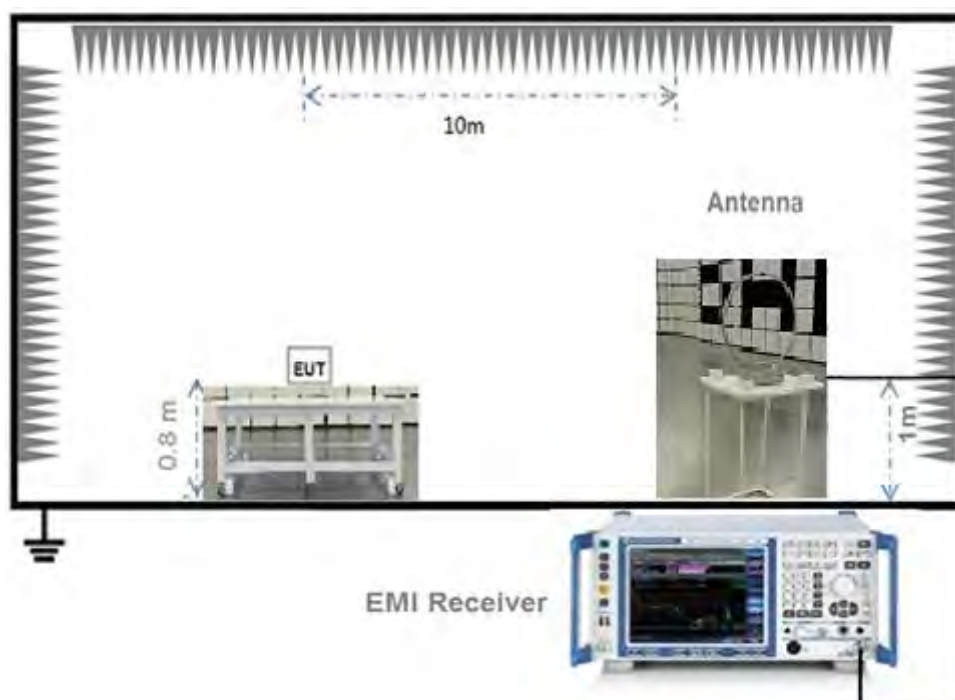
(Diagram 1)

4.5.2 For AC Power Supply Port Test



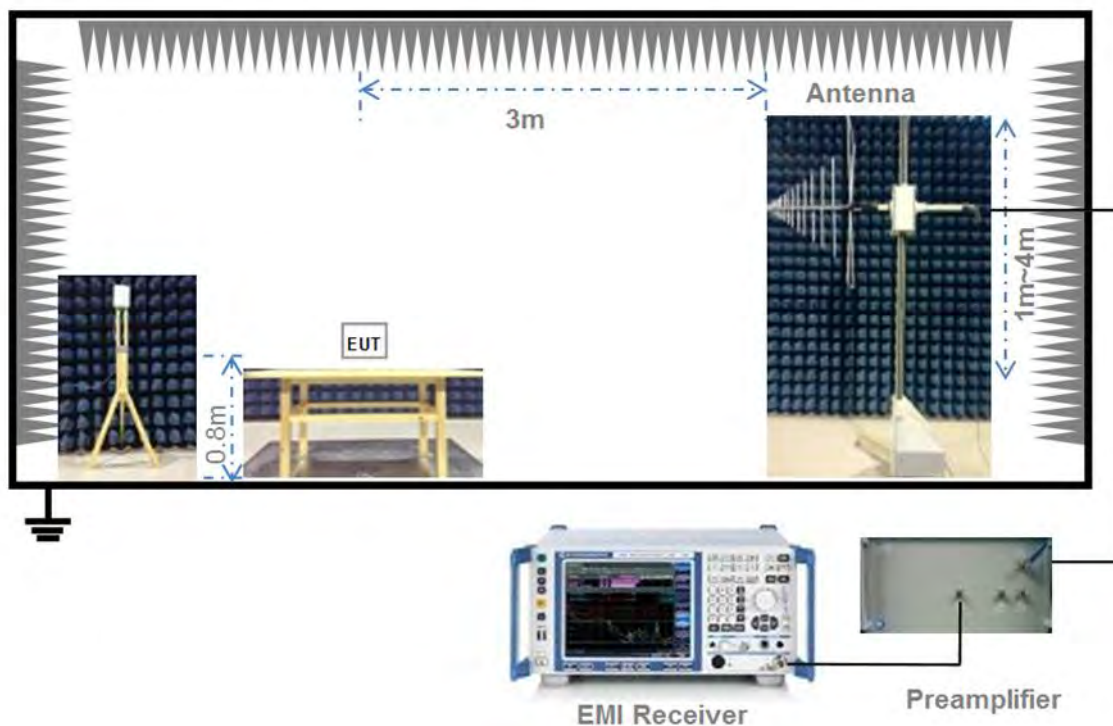
(Diagram 2)

4.5.3 For Radiated Test (Below 30 MHz)



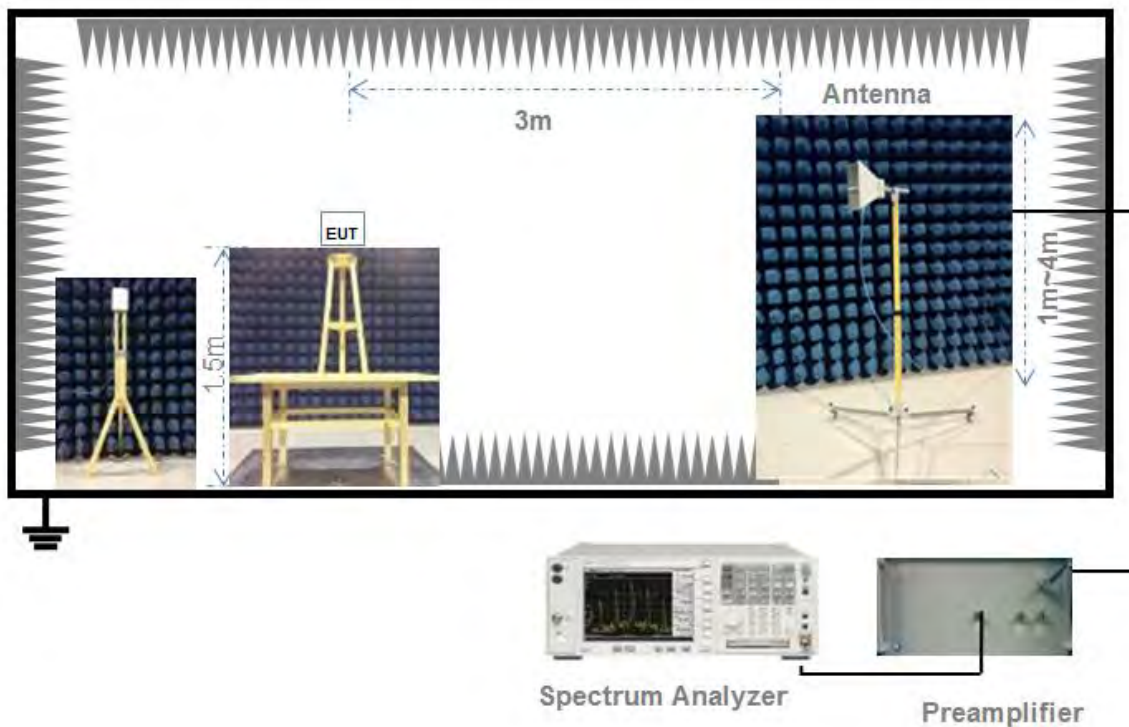
(Diagram 3)

4.5.4 For Radiated Test (30 MHz-1 GHz)



(Diagram 4)

4.5.5 For Radiated Test (Above 1 GHz)



(Diagram 5)

4.6 Measurement Results Explanation Example

4.6.1 For conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Offset = RF cable loss + attenuator factor.

5 TEST ITEMS

5.1 Antenna Requirements

5.1.1 Relevant Standards

FCC §15.203; RSS-247, 5.4 (d)

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of § 15.211, § 15.213, § 15.217, § 15.219, or § 15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with § 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

If directional gain of transmitting antennas is greater than 6 dBi, the power shall be reduced by the same level in dB comparing to gain minus 6 dBi. For the fixed point-to-point operation, the power shall be reduced by one dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the FCC rule.

5.1.2 Antenna Anti-Replacement Construction

The Antenna Anti-Replacement as following method:

Protected Method	Description
The antenna is embedded in the product.	An embedded-in antenna design is used.

Reference Documents	Item
Photo	Please refer to the EUT Photo documents.

5.1.3 Antenna Gain

The antenna peak gain of EUT is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit.

5.2 Number of Hopping Frequencies

5.2.1 Limit

FCC §15.247(a); RSS-247, 5.1 (c)

For FHSs in the band 902-928 MHz: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping channels and the average time of occupancy on any channel shall not be greater than 0.4 seconds within a 20-second period. If the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping channels and the average time of occupancy on any channel shall not be greater than 0.4 seconds within a 10-second period. The maximum 20 dB bandwidth of the hopping channel shall be 500 kHz.

5.2.2 Test Setup

See section 4.4.1 for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.2.3 Test Procedure

The EUT must have its hopping function enabled. Use the following spectrum analyzer settings:

Span = the frequency band of operation

RBW $\geq$ 1% of the span

VBW $\geq$ RBW

Sweep = auto

Detector function = peak

Trace = max hold

Allow the trace to stabilize

5.2.4 Test Result

Please refer to ANNEX A.1.

5.3 Peak Output Power and E.I.R.P

5.3.1 Test Limit

FCC § 15.247(b); RSS-247, 5.4 (a)

For frequency hopping systems operating in the 902-928 MHz band: 1 watt for systems employing at least 50 hopping channels; and, 0.25 watts for systems employing less than 50 hopping channels, but at least 25 hopping channels, as permitted under paragraph (a)(1)(i) of this section.

RSS-247, 5.4 (2)

For FHSs operating in the band 902-928 MHz, the maximum peak conducted output power shall not exceed 1.0 W and the e.i.r.p. shall not exceed 4 W if the hopset uses 75 or more hopping channels; the maximum peak conducted output power shall not exceed 0.125 W and the e.i.r.p. shall not exceed 0.5 W if the hopset uses less than 75 hopping channels (see Section 5.4(5) for exceptions).

5.3.2 Test Setup

See section 4.4.1 for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.3.3 Test Procedure

The Module operates at hopping-off test mode. The lowest, middle and highest channels are selected to perform testing to verify the conducted RF output peak power of the Module.

Use the following spectrum analyzer settings:

Span = approximately 5 times the 20 dB bandwidth, centered on a hopping channel

RBW > the 20 dB bandwidth of the emission being measured

VBW $\geq$ RBW

Sweep = auto

Detector function = peak

Trace = max hold

Allow the trace to stabilize.

EIRP= conducted RF output peak power +Antenna Gain.

5.3.4 Test Result

Please refer to ANNEX A.2.

5.4 Occupied Bandwidth

5.4.1 Limit

FCC §15.247(a); RSS-247, 5.1 (a)

5.4.2 Test Setup

See section 4.4.1 for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.4.3 Test Procedure

Use the following spectrum analyzer settings:

Span = approximately 2 to 3 times the 20 dB bandwidth, centered on a hopping channel

RBW = in the range of 1% to 5% of the OBW

VBW $\geq$ RBW

Sweep = auto

Detector function = peak

Trace = max hold

The EUT should be transmitting at its maximum data rate, Allow the trace to stabilize.

5.4.4 Test Result

Please refer to ANNEX A.3.

5.5 Carrier Frequency Separation

5.5.1 Limit

FCC §15.247(a); RSS-247, 5.1 (b)

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

5.5.2 Test Setup

See section 4.4.1 for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.5.3 Test Procedure

The EUT must have its hopping function enabled. Use the following spectrum analyzer settings:

Span = wide enough to capture the peaks of two adjacent channels

Resolution (or IF) Bandwidth (RBW) $\geq 1\%$ of the span

Video (or Average) Bandwidth (VBW) $\geq$ RBW

Sweep = auto

Detector function = peak

Trace = max hold

Allow the trace to stabilize. Use the marker-delta function to determine the separation between the peaks of the adjacent channels.

5.5.4 Test Result

Please refer to ANNEX A.4.

5.6 Time of Occupancy (Dwell time)

5.6.1 Limit

FCC §15.247(a); RSS-247, 5.1 (c)

For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period.

5.6.2 Test Setup

See section 4.4.1 for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.6.3 Test Procedure

The lowest, middle and highest channels are selected to perform testing to record the dwell time of each occupation measured in this channel, which is called Pulse Time here.

5.6.4 Test Result

Please refer to ANNEX A.5

5.7 Conducted Spurious Emission & Authorized-band band-edge

5.7.1 Limit

FCC §15.247(d); RSS-247, 5.5

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.

5.7.2 Test Setup

See section 4.4.1 for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.7.3 Test Procedure

Use the following spectrum analyzer settings:

Span = wide enough to capture the peak level of the in-band emission and all spurious emissions (e.g., harmonics) from the lowest frequency generated in the EUT up through the 10th harmonic. Typically, several plots are required to cover this entire span.

RBW = 100 kHz

VBW $\geq$ RBW

Sweep = auto

Detector function = peak

Trace = max hold

Allow the trace to stabilize

5.7.4 Test Result

Please refer to ANNEX A.6 and A.7

5.8 Conducted Emission

5.8.1 Limit

FCC §15.207; RSS-GEN, 8.8

For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μ H/50 Ω line impedance stabilization network (LISN).

Frequency range (MHz)	Conducted Limit (dB μ V)	
	Quai-peak	Average
0.15 - 0.50	66 to 56	56 to 46
0.50 - 5	56	46
0.50 - 30	60	50

5.8.2 Test Setup

See section 4.4.2 for test setup description for the AC power supply port. The photo of test setup please refer to ANNEX B.

5.8.3 Test Procedure

The maximum conducted interference is searched using Peak (PK), if the emission levels more than the AV and QP limits, and that have narrow margins from the AV and QP limits will be re-measured with AV and QP detectors. Tests for both L phase and N phase lines of the power mains connected to the EUT are performed. Refer to recorded points and plots below.

Devices subject to Part 15 must be tested for all available U.S. voltages and frequencies (such as a nominal 120 VAC, 50/60 Hz and 240 VAC, 50/60 Hz) for which the device is capable of operation. A device rated for 50/60 Hz operation need not be tested at both frequencies provided the radiated and line conducted emissions are the same at both frequencies.

5.8.4 Test Result

Please refer to ANNEX A.7.

5.9 Radiated Spurious Emission

5.9.1 Limit

FCC §15.209&15.247(d); RSS-247, 5.5

Radiated emission outside the frequency band attenuation below the general limits specified in FCC section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in FCC section 15.205(a), must also comply with the radiated emission limits specified in FCC section 15.209(a).

According to FCC section 15.209 (a), except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (μV/m)	Measurement Distance (m)
0.009 - 0.490	902/F(kHz)	300
0.490 - 1.705	9020/F(kHz)	30
1.705 - 30.0	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

Note:

1. Field Strength (dBμV/m) = 20*log[Field Strength (μV/m)].
2. In the emission tables above, the tighter limit applies at the band edges.
3. For Above 1000 MHz, the emission limit in this paragraph is based on measurement instrumentation employing an average detector, measurement using instrumentation with a peak detector function, corresponding to 20dB above the maximum permitted average limit.
4. For above 1000 MHz, limit field strength of harmonics: 54dBuV/m@3m (AV) and 74dBuV/m@3m (PK).

5.9.2 Test Setup

See section 4.4.3 to 4.4.5 for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.9.3 Test Procedure

The measurement frequency range is from 9 kHz to the 10th harmonic of the fundamental frequency. The Turn Table is actuated to turn from 0° to 360°, and both horizontal and vertical polarizations of the Test Antenna are used to find the maximum radiated power. Mid channels on all channel bandwidth verified. Only the worst RB size/offset presented.

The power of the EUT transmitting frequency should be ignored.

All Spurious Emission tests were performed in X, Y, Z axis direction. And only the worst axis test condition was recorded in this test report.

Use the following spectrum analyzer settings:

Span = wide enough to fully capture the emission being measured

RBW = 1 MHz for $f \geq 1$ GHz, 100 kHz for $f < 1$ GHz

VBW $\geq$ RBW

Sweep = auto

Detector function = peak

Trace = max hold

For measurement below 1GHz, If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported, Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.

5.9.4 Test Result

Please refer to ANNEX A.8.

5.10 Band Edge (Restricted-band band-edge)

5.10.1 Limit

FCC §15.209&15.247(d); RSS-247, 5.5

Radiated emission outside the frequency band attenuation below the general limits specified in FCC section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in FCC section 15.205(a), must also comply with the radiated emission limits specified in FCC section 15.209(a).

5.10.2 Test Setup

See section 4.4.3 to 4.4.5 for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.10.3 Test Procedure

The measurement frequency range is from 9 kHz to the 10th harmonic of the fundamental frequency. The Turn Table is actuated to turn from 0° to 360°, and both horizontal and vertical polarizations of the Test Antenna are used to find the maximum radiated power. Mid channels on all channel bandwidth verified. Only the worst RB size/offset presented.

The power of the EUT transmitting frequency should be ignored.

All Spurious Emission tests were performed in X, Y, Z axis direction. And only the worst axis test condition was recorded in this test report.

Use the following spectrum analyzer settings:

Span = wide enough to fully capture the emission being measured

RBW = 1 MHz for $f \geq 1$ GHz, 100 kHz for $f < 1$ GHz

VBW $\geq$ RBW

Sweep = auto

Detector function = peak

Trace = max hold

For measurement below 1GHz, If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported, Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.

5.10.4 Test Result

Please refer to ANNEX A.9.

ANNEX A TEST RESULT

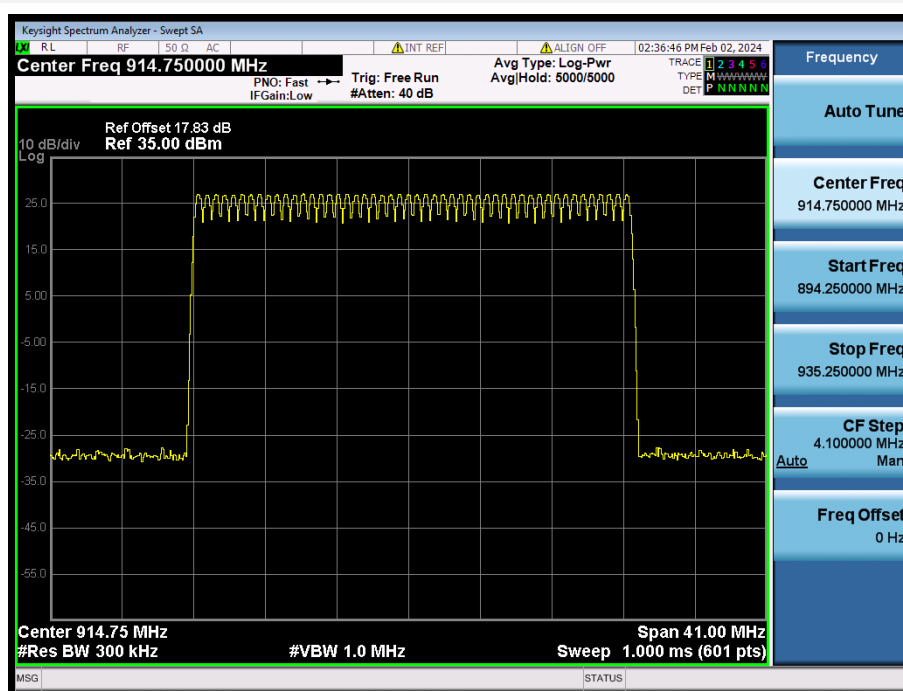
A.1 Number of Hopping Frequency

Test Data

Test Mode	Frequency Block (MHz)	Measured Channel Numbers	Min. Limit	Verdict
RFID	902-928	50	50	Pass

Test Plots

RFID



A.2 Peak Output Power

Test Data

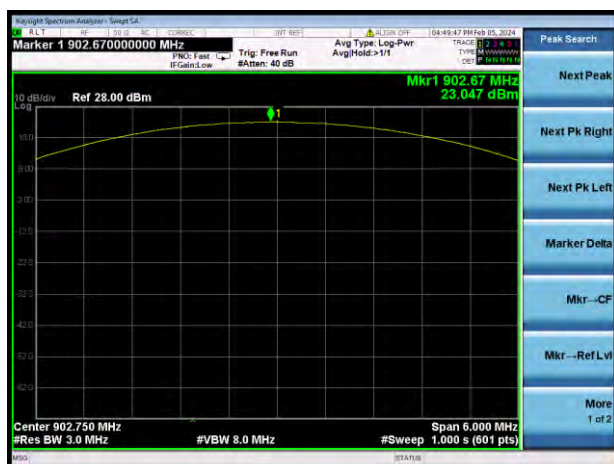
Channel	Measured Output Peak Power		Limit		Verdict
	RFID		dBm	mW	
	dBm	mW			
Low Channel	23.05	201.70	30	1000	Pass
Middle Channel	22.06	160.51			Pass
High Channel	22.03	159.40			Pass

E.I.R.P Test Data (For ISCED)

E.I.R.P. Test Data (Pilot)					
Channel	E.I.R.P		Limit		Verdict
	RFID		dBm	mW	
	dBm	mW			
Low Channel	26.80	478.30	36	4000	Pass
Middle Channel	25.81	380.63			Pass
High Channel	25.78	378.01			Pass

Test Plots

LOW CHANNEL



MIDDLE CHANNEL



HIGH CHANNEL



A.3 20 dB and 99% bandwidth

Test Data

RFID				
Channel	20 dB Bandwidth (MHz)	99% Bandwidth (MHz)	Limit (MHz)	Verdict
Low	0.130900	0.116120	0.25	Pass
Middle	0.130900	0.116050	0.25	Pass
High	0.131700	0.116280	0.25	Pass

Test Plots

20 dB Bandwidth

LOW CHANNEL



MIDDLE CHANNEL



HIGH CHANNEL



99% Bandwidth

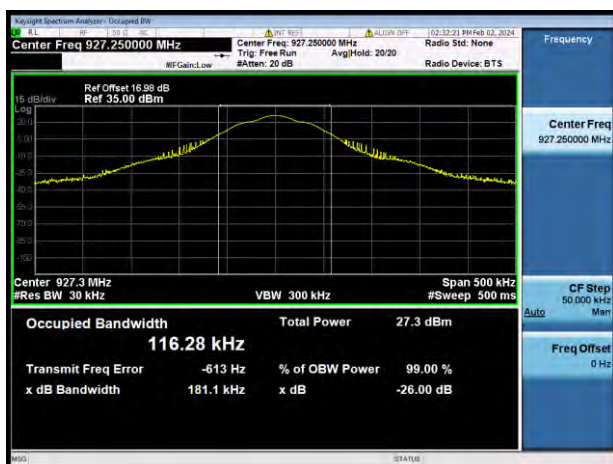
LOW CHANNEL



MIDDLE CHANNEL



HIGH CHANNEL



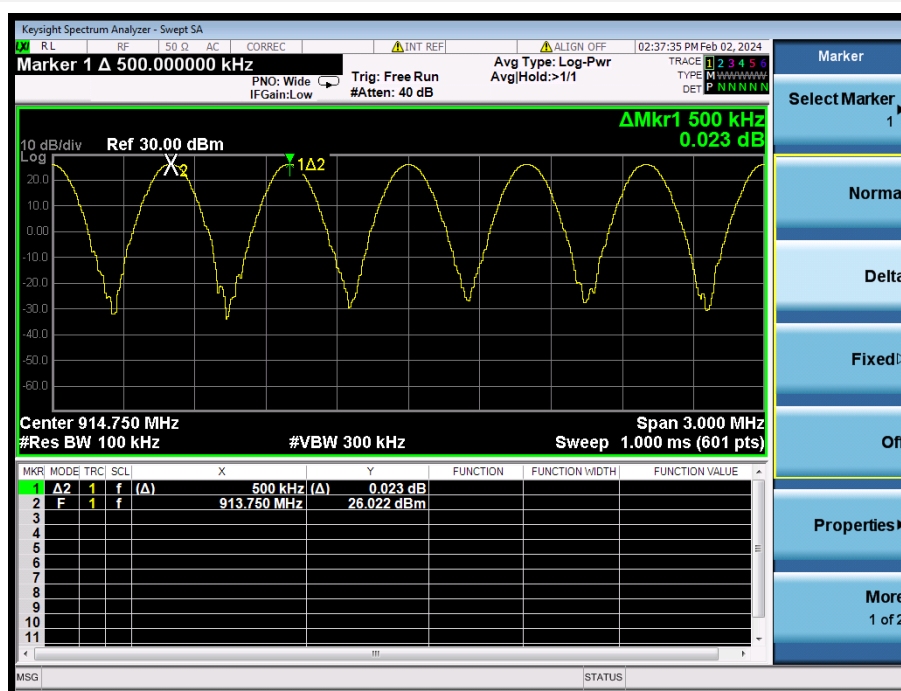
A.4 Hopping Frequency Separation

Test Data

Mode	Frequency separation (MHz)	Max 20 dB Bandwidth (MHz)	Verdict
RFID	0.500	0.132	Pass

Test Plots

RFID

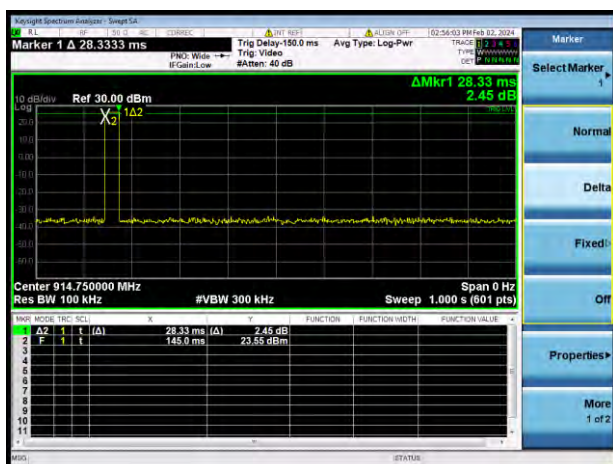


A.5 Average Time of Occupancy

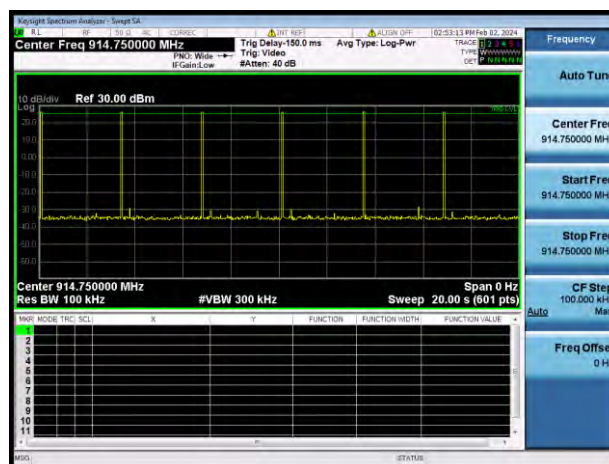
Test Data

Pulse Width (ms)	Total of Dwell (ms)	Limit (sec)	Verdict
28.330	169.980	0.4	Pass

Pulse Width



Total of Dwell



A.6 Conducted Spurious Emissions & Authorized-band band-edge

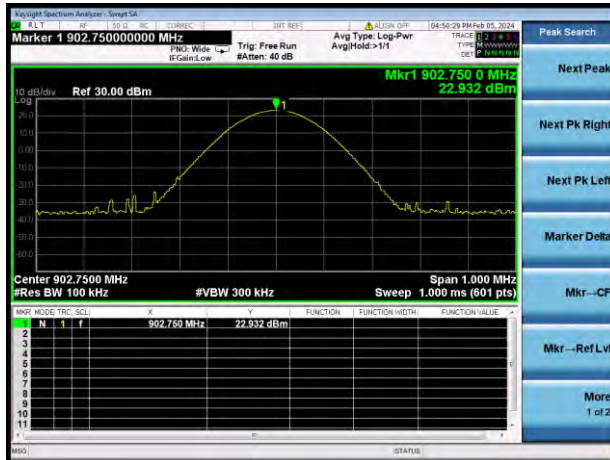
Test Data

RFID				
Channel	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low	-15.41	22.93	2.93	Pass
Middle	-13.54	21.91	1.91	Pass
High	-14.72	22.01	2.01	Pass

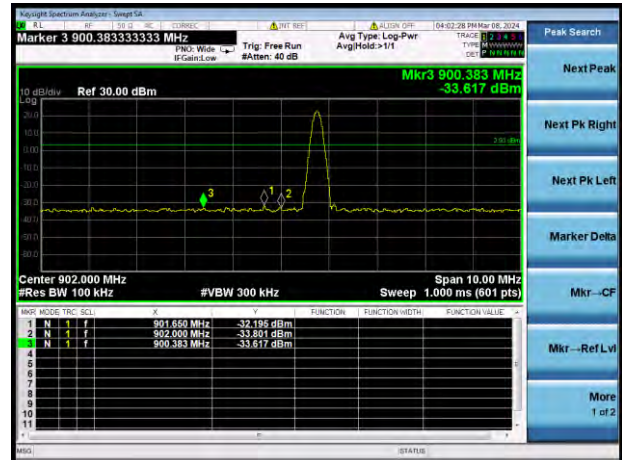
RFID				
Mode	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Hopping	-14.41	22.01	2.01	Pass

Test Plots

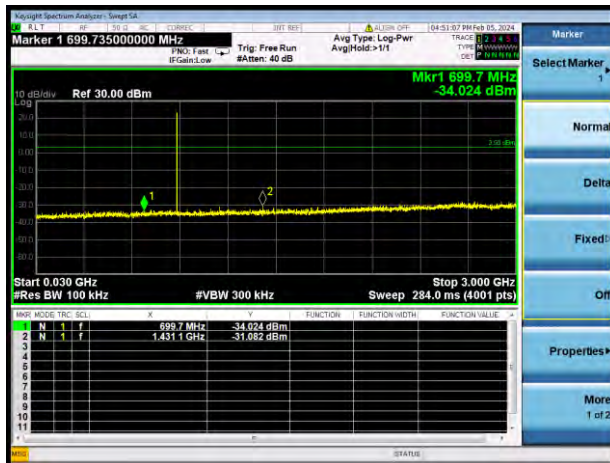
LOW CHANNEL, CARRIER LEVEL



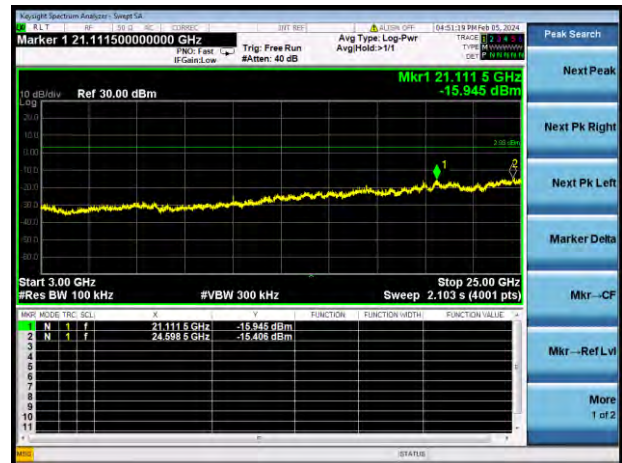
LOW CHANNEL, Band Edge



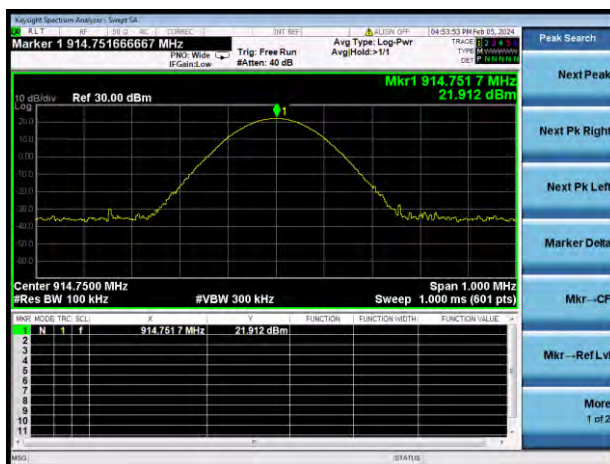
LOW CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



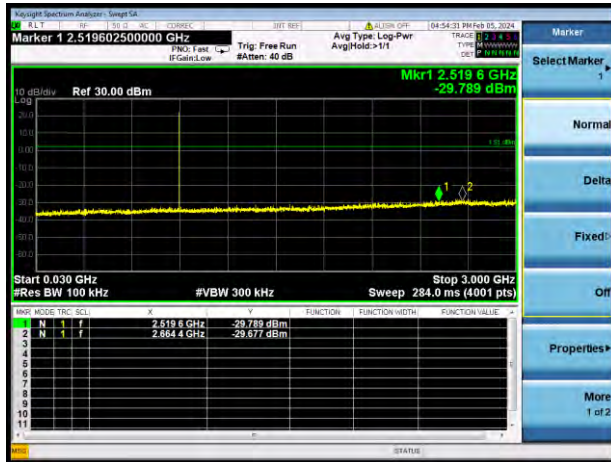
LOW CHANNEL, SPURIOUS 3 GHz ~ 25 GHz



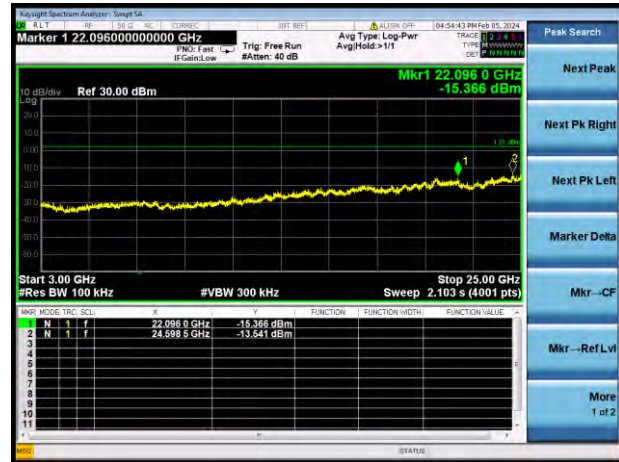
MIDDLE CHANNEL, CARRIER LEVEL



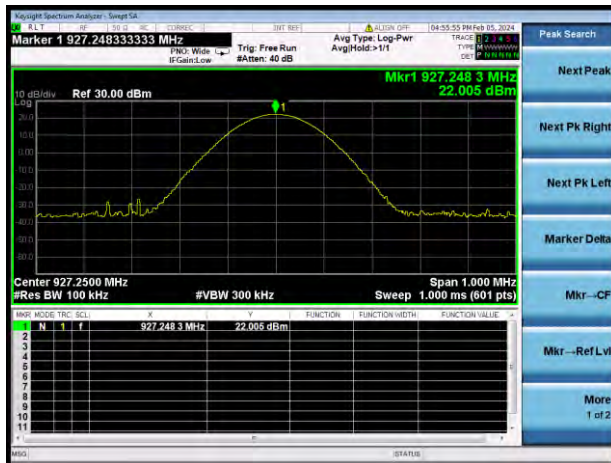
MIDDLE CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



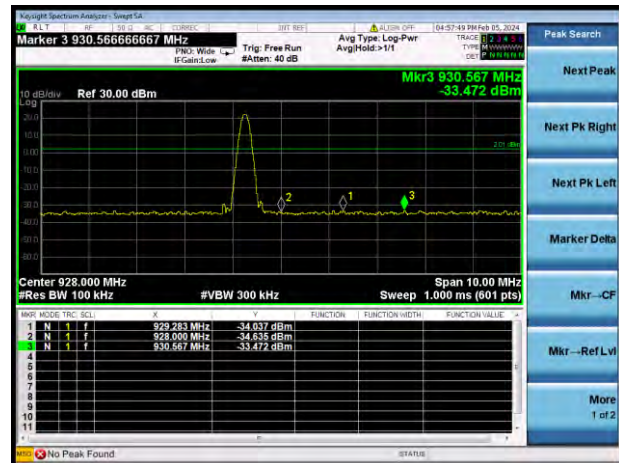
MIDDLE CHANNEL, SPURIOUS 3 GHz ~ 25 GHz



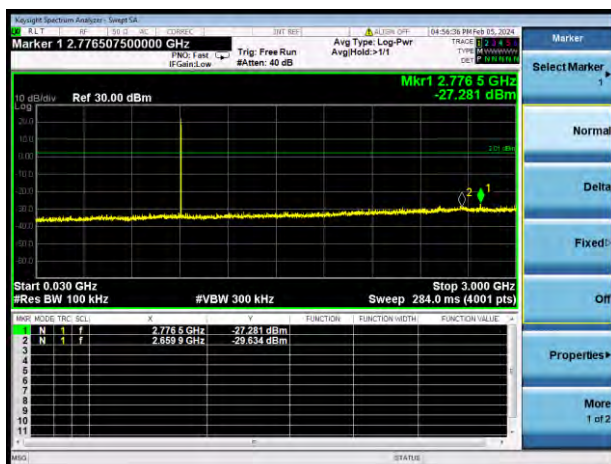
HIGH CHANNEL, CARRIER LEVEL



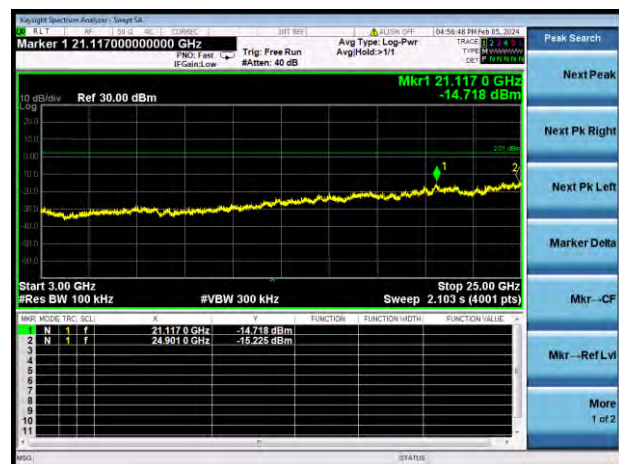
HIGH CHANNEL, BAND EDGE



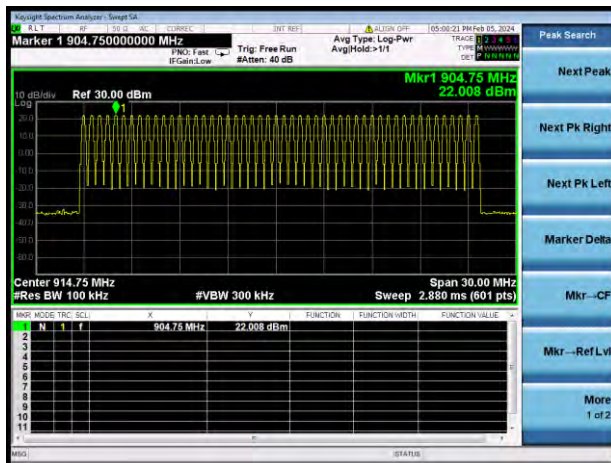
HIGH CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



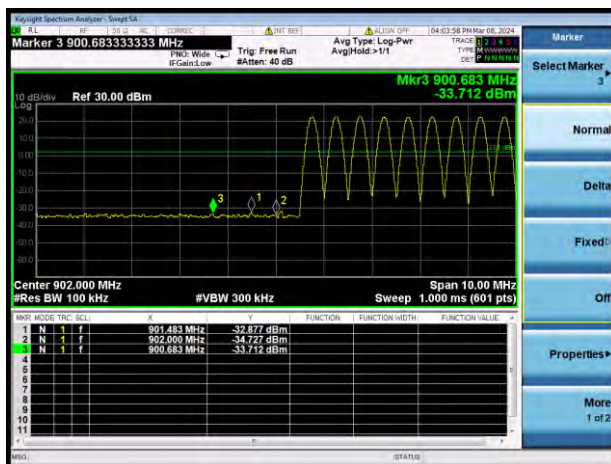
HIGH CHANNEL, SPURIOUS 3 GHz ~ 25 GHz



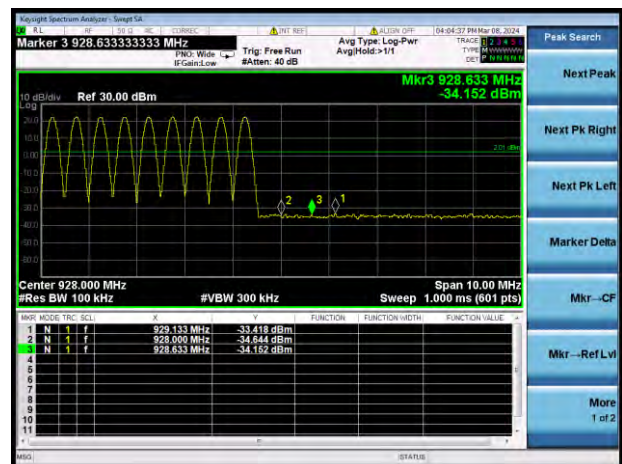
HOPPING, CARRIER LEVEL



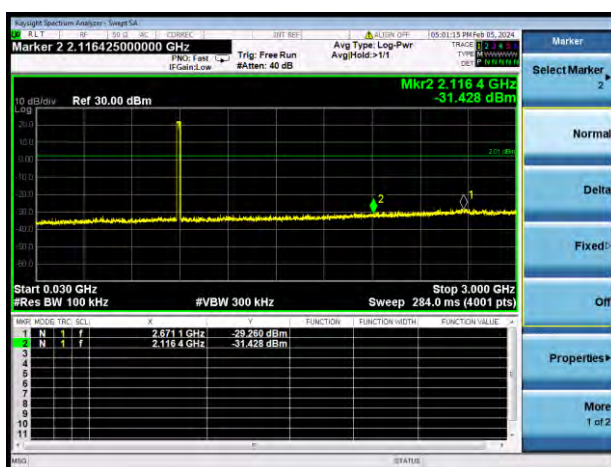
HOPPING BAND EDGE (LOW)



HOPPING BAND EDGE (HIGH)



HOPPING Mode, SPURIOUS 30 MHz ~ 3 GHz



Hopping Mode, SPURIOUS 3 GHz ~ 25 GHz



A.7 Conducted Emissions

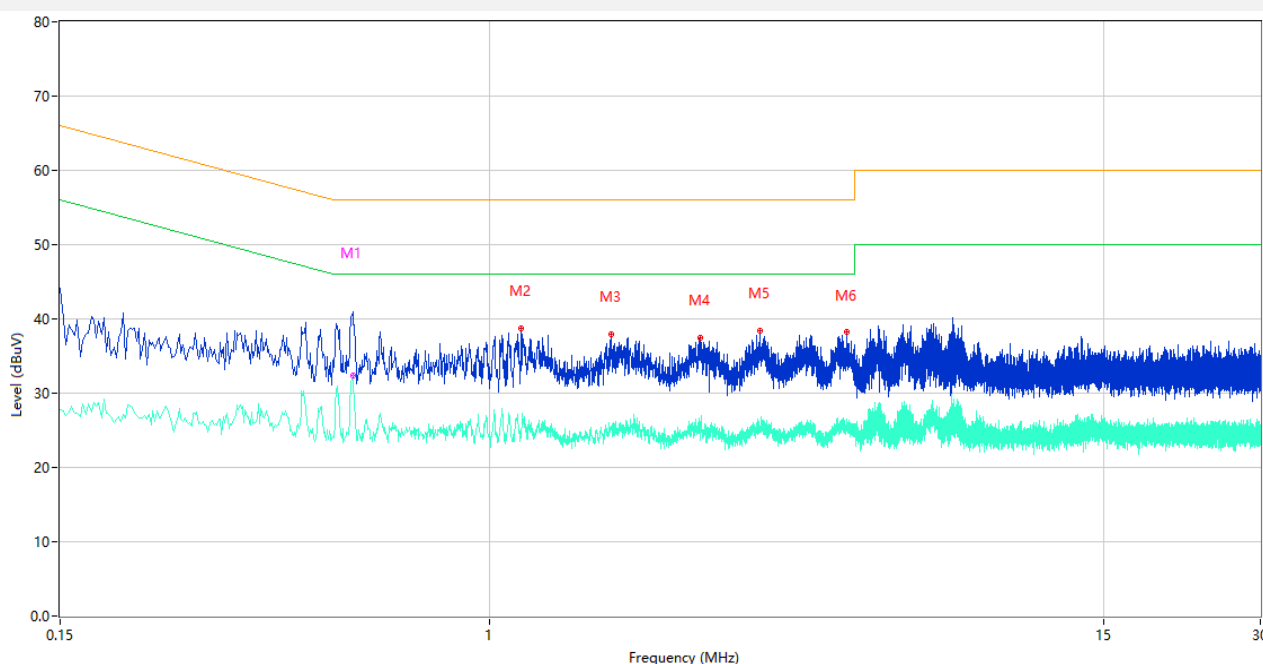
Note ¹: The EUT is working in the Normal link mode. All modes have been tested and normal link mode is worst.

Note ²: Devices subject to Part 15 must be tested for all available U.S. voltages and frequencies (such as a nominal 120 VAC, 60 Hz and 240 VAC, 50 Hz) for which the device is capable of operation. So, The configuration 120 VAC, 60 Hz and 240 VAC, 50 Hz were tested respectively, but only the worst configuration (120 VAC, 60 Hz) shown here.

Note ³: Results (dBuV) = Original reading level of Spectrum Analyzer (dBuV) + Factor (dB)

Test Data and Plots

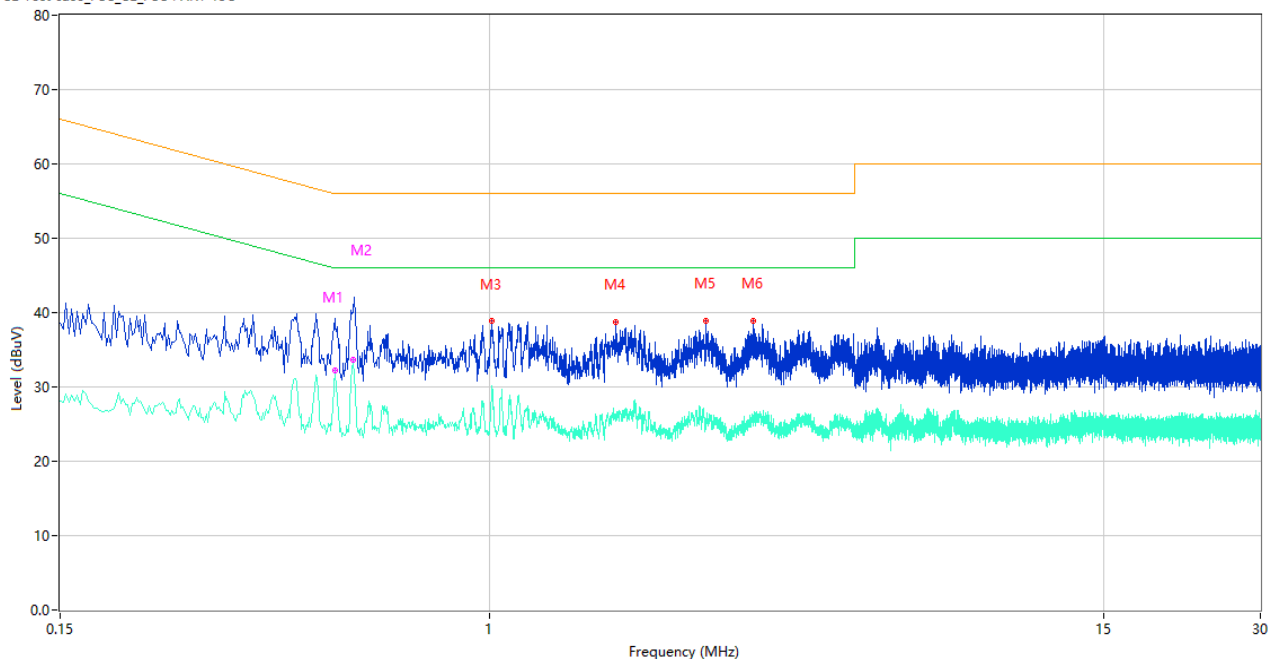
PHASE L



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.546	40.94	10.02	56.00	15.06	Peak	L	Pass
1**	0.546	32.30	10.02	46.00	13.70	AV	L	Pass
2	1.150	38.78	10.39	56.00	17.22	Peak	L	Pass
2**	1.150	25.23	10.39	46.00	20.77	AV	L	Pass
3	1.712	37.94	10.18	56.00	18.06	Peak	L	Pass
3**	1.712	25.60	10.18	46.00	20.40	AV	L	Pass
4	2.526	37.49	10.13	56.00	18.51	Peak	L	Pass
4**	2.526	26.16	10.13	46.00	19.84	AV	L	Pass
5	3.288	38.46	10.29	56.00	17.54	Peak	L	Pass
5**	3.288	25.52	10.29	46.00	20.48	AV	L	Pass
6	4.840	38.19	10.23	56.00	17.81	Peak	L	Pass
6**	4.840	25.92	10.23	46.00	20.08	AV	L	Pass

PHASE N

CE Test case_FCC_CE_FCC PART 15C



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.504	39.19	9.98	56.00	16.81	Peak	N	Pass
1**	0.504	32.16	9.98	46.00	13.84	AV	N	Pass
2	0.546	39.92	10.02	56.00	16.08	Peak	N	Pass
2**	0.546	33.67	10.02	46.00	12.33	AV	N	Pass
3	1.008	38.88	10.01	56.00	17.12	Peak	N	Pass
3**	1.008	29.33	10.01	46.00	16.67	AV	N	Pass
4	1.746	38.74	10.15	56.00	17.26	Peak	N	Pass
4**	1.746	26.08	10.15	46.00	19.92	AV	N	Pass
5	2.600	38.93	9.71	56.00	17.07	Peak	N	Pass
5**	2.600	25.20	9.71	46.00	20.80	AV	N	Pass
6	3.202	38.93	10.25	56.00	17.07	Peak	N	Pass
6**	3.202	26.05	10.25	46.00	19.95	AV	N	Pass

A.8 Radiated Spurious Emission

Note ¹: The symbol of “--” in the table which means not application.

Note ²: For the test data above 1 GHz, according the ANSI C63.10-2013, where limits are specified for both average and peak (or quasi-peak) detector functions, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement.

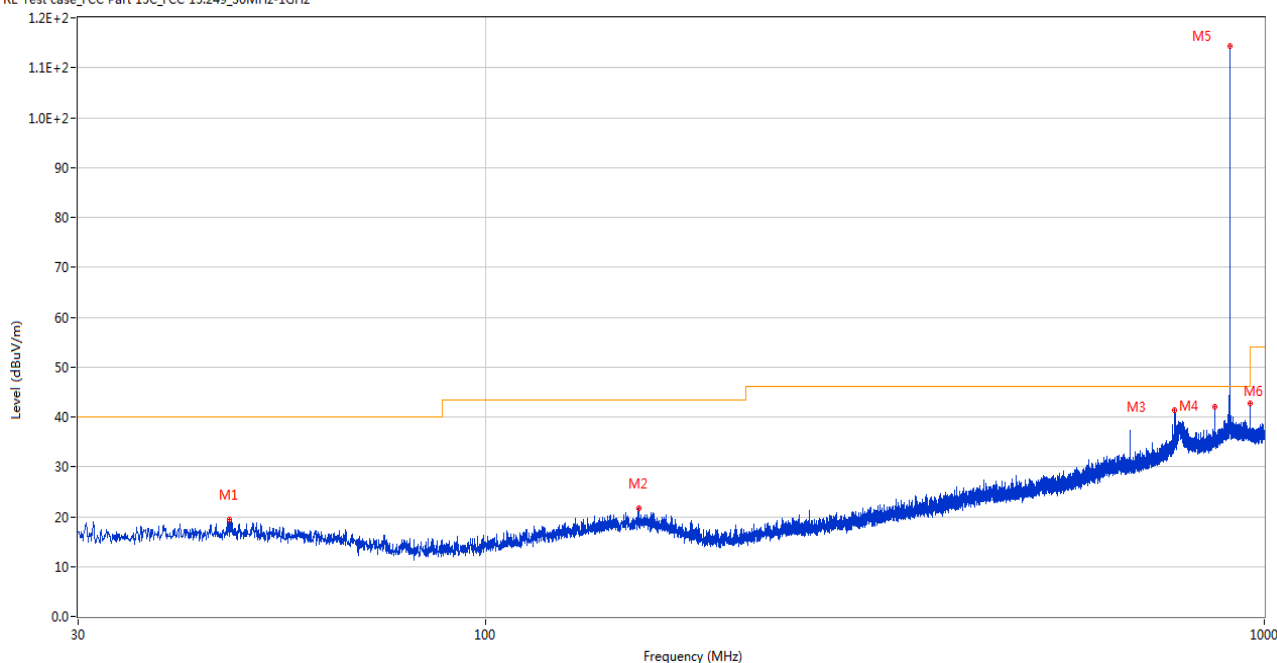
Note ³: The low frequency, which started from 9 kHz to 30 MHz, was pre-scanned and the result which was 20 dB lower than the limit line per 15.31(o) was not reported.

Note ⁴: The marked spikes near 900 MHz with circle should be ignored because they are Fundamental signal.

Test Data and Plots

LOW CHANNEL, 30 MHz to 1 GHz, ANT H

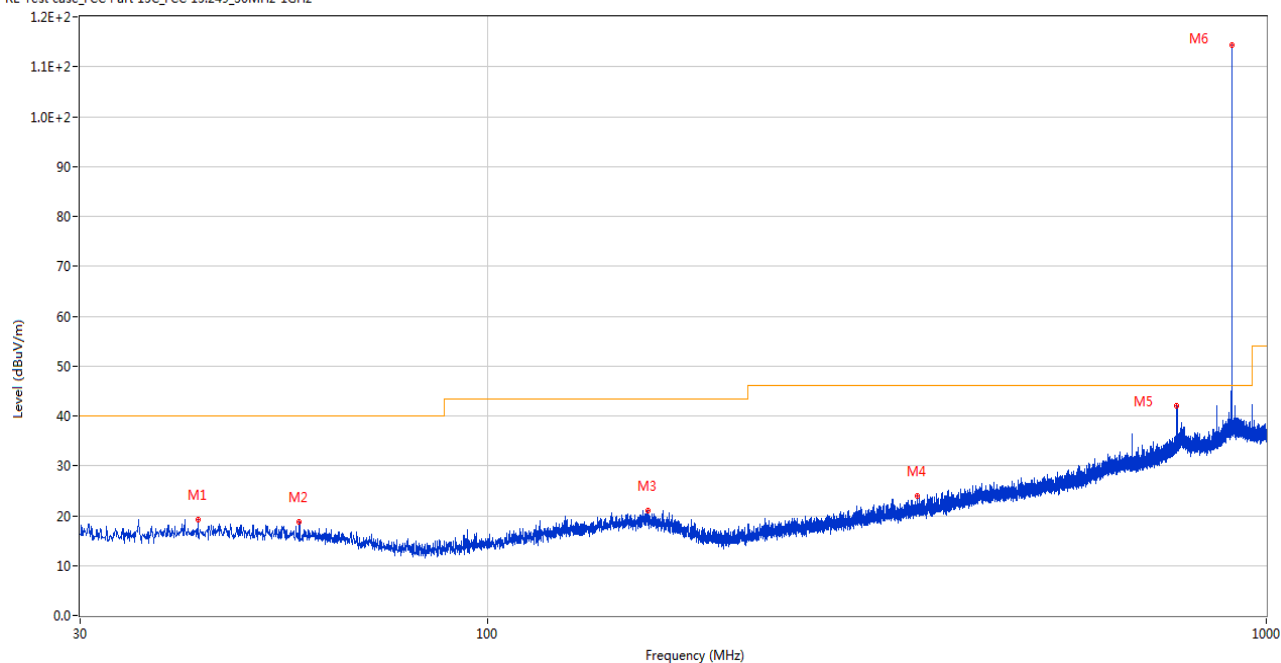
RE Test case_FCC Part 15C_FCC 15.249_30MHz-1GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	46.975	19.46	-26.02	40.0	20.54	Peak	236.00	150	Horizontal	Pass
2	157.216	21.68	-24.00	43.5	21.82	Peak	170.00	150	Horizontal	Pass
3	768.024	42.62	-10.06	46.0	3.38	Peak	224.00	150	Horizontal	Pass
4	864.006	41.98	-8.95	46.0	4.02	Peak	279.00	150	Horizontal	Pass
5	902.758	114.40	-7.18	46.0	-68.40	Peak	255.00	150	Horizontal	N/A
6	959.987	42.74	-7.46	46.0	3.26	Peak	246.00	150	Horizontal	Pass

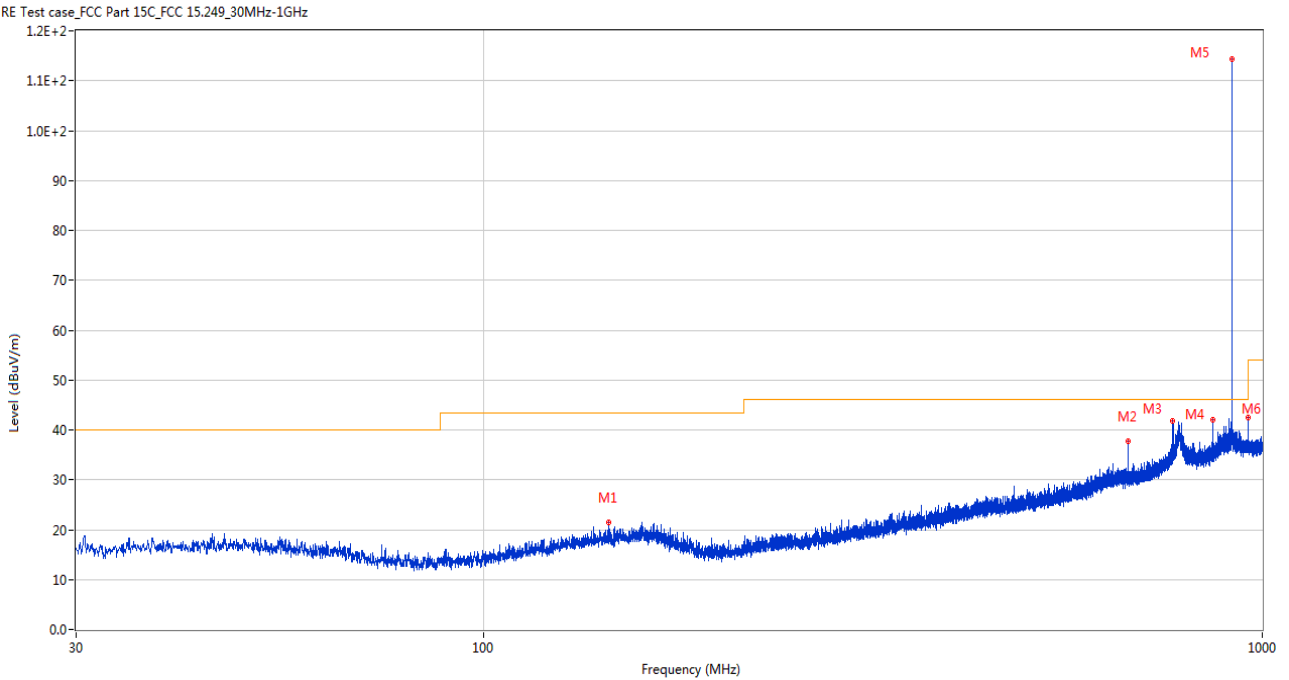
LOW CHANNEL, 30 MHz to 1 GHz, ANT V

RE Test case_FCC Part 15C_FCC 15.249_30MHz-1GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	42.513	19.26	-26.06	40.0	20.74	Peak	5.00	150	Vertical	Pass
2	57.354	18.68	-26.51	40.0	21.32	Peak	111.00	150	Vertical	Pass
3	160.708	21.08	-24.12	43.5	22.42	Peak	290.00	150	Vertical	Pass
4	356.405	24.00	-21.94	46.0	22.00	Peak	249.00	150	Vertical	Pass
5	768.024	42.12	-10.06	46.0	3.88	Peak	119.00	150	Vertical	Pass
6	902.758	114.36	-7.18	46.0	-68.36	Peak	268.00	150	Vertical	N/A

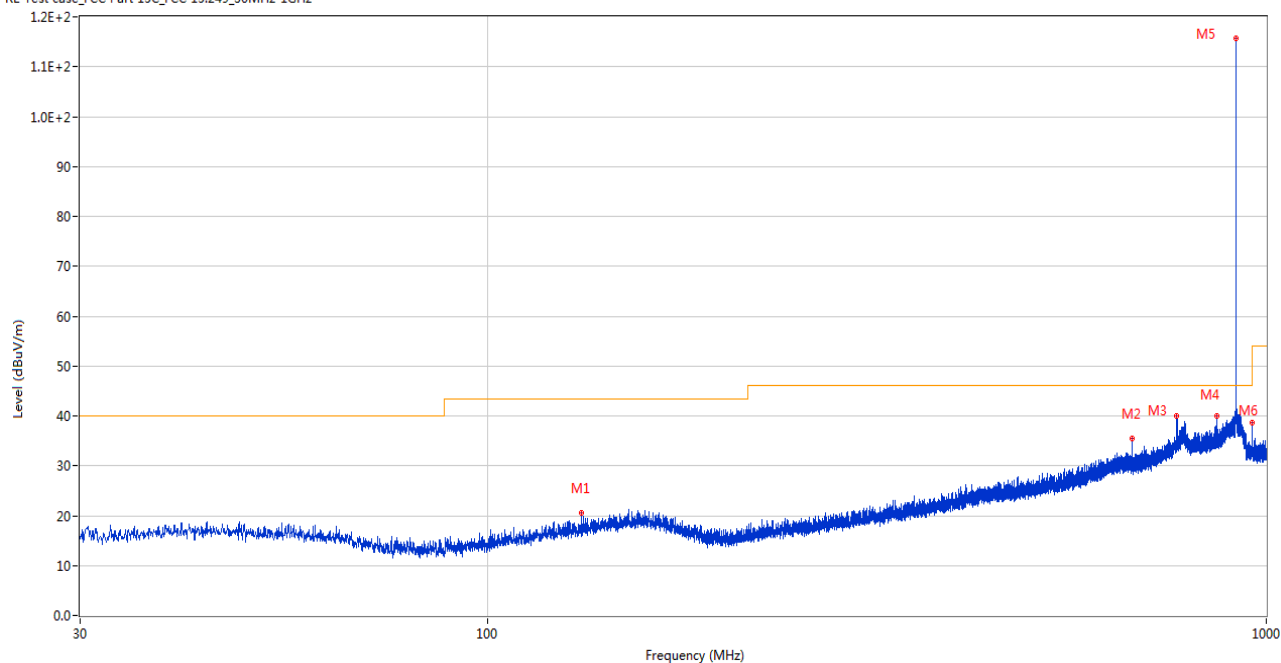
MIDDLE CHANNEL, 30 MHz to 1 GHz, ANT H



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	144.800	21.48	-24.36	43.5	22.02	Peak	340.00	150	Horizontal	Pass
2	672.043	37.81	-13.04	46.0	8.19	Peak	244.00	150	Horizontal	Pass
3	767.976	42.99	-10.07	46.0	3.01	Peak	247.00	150	Horizontal	Pass
4	864.006	42.25	-8.95	46.0	3.75	Peak	19.00	150	Horizontal	Pass
5	914.786	114.40	-7.43	46.0	-68.40	Peak	288.00	150	Horizontal	N/A
6	959.987	42.78	-7.46	46.0	3.22	Peak	263.00	150	Horizontal	Pass

MIDDLE CHANNEL, 30 MHz to 1 GHz, ANT V

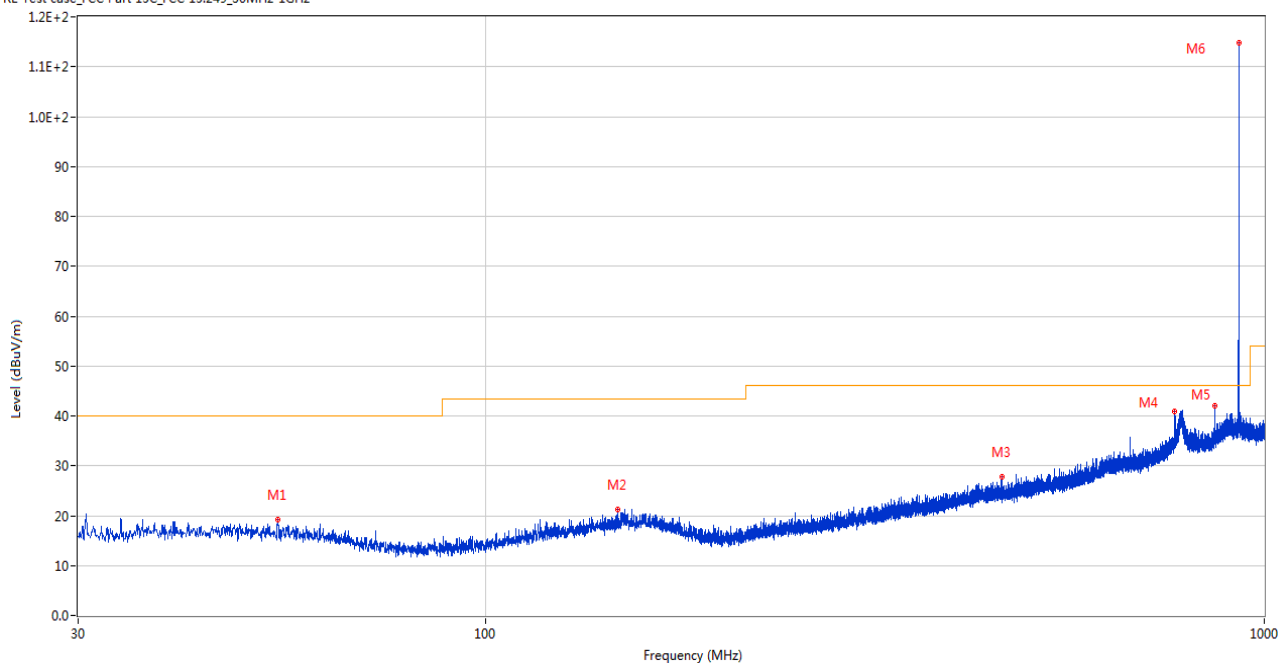
RE Test case_FCC Part 15C_FCC 15.249_30MHz-1GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	132.141	20.49	-25.50	43.5	23.01	Peak	2.00	150	Vertical	Pass
2	671.994	35.46	-13.04	46.0	10.54	Peak	100.00	150	Vertical	Pass
3	768.024	40.00	-10.06	46.0	6.00	Peak	142.00	150	Vertical	Pass
4	864.006	39.97	-8.95	46.0	6.03	Peak	100.00	150	Vertical	Pass
5	914.786	115.80	-7.43	46.0	-69.80	Peak	260.00	150	Vertical	N/A
6	959.987	38.56	-7.46	46.0	7.44	Peak	253.00	150	Vertical	Pass

HIGH CHANNEL, 30 MHz to 1 GHz, ANT H

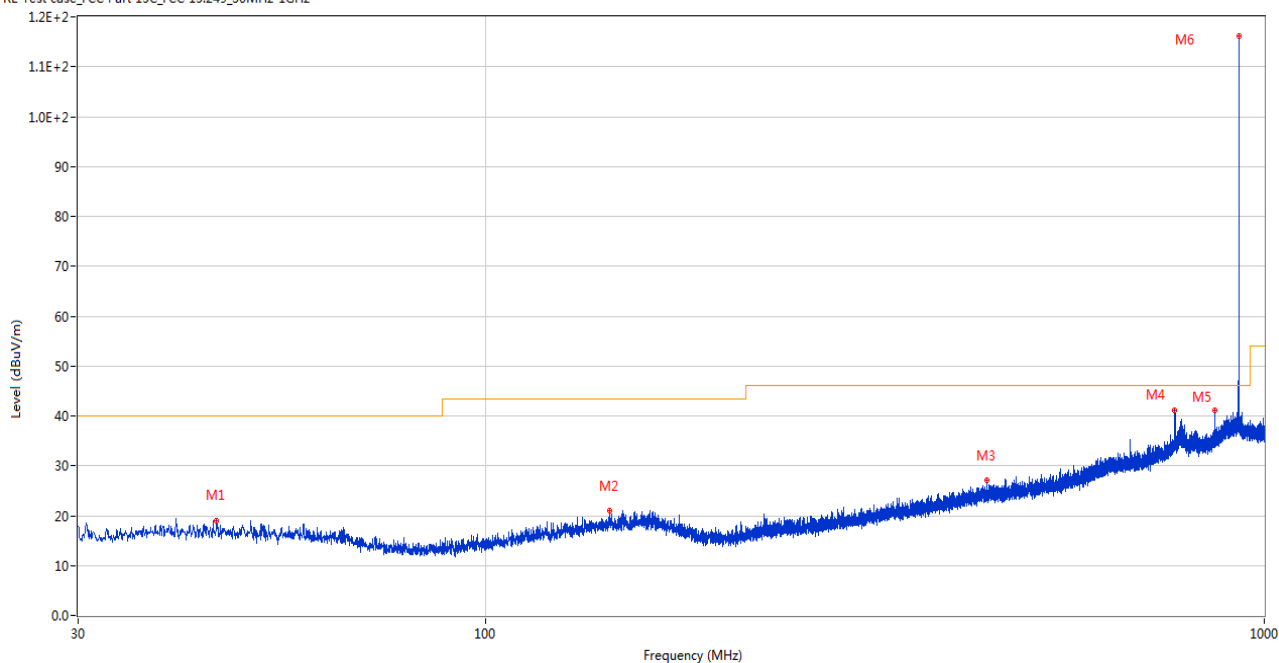
RE Test case_FCC Part 15C_FCC 15.249_30MHz-1GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	54.105	19.15	-26.30	40.0	20.85	Peak	130.00	150	Horizontal	Pass
2	148.049	21.16	-24.54	43.5	22.34	Peak	271.00	150	Horizontal	Pass
3	460.534	27.82	-19.02	46.0	18.18	Peak	169.00	150	Horizontal	Pass
4	768.024	41.14	-10.06	46.0	4.86	Peak	263.00	150	Horizontal	Pass
5	864.006	42.32	-8.95	46.0	3.68	Peak	24.00	150	Horizontal	Pass
6	927.250	114.83	-7.54	46.0	-68.83	Peak	281.00	150	Horizontal	N/A

HIGH CHANNEL, 30 MHz to 1 GHz, ANT V

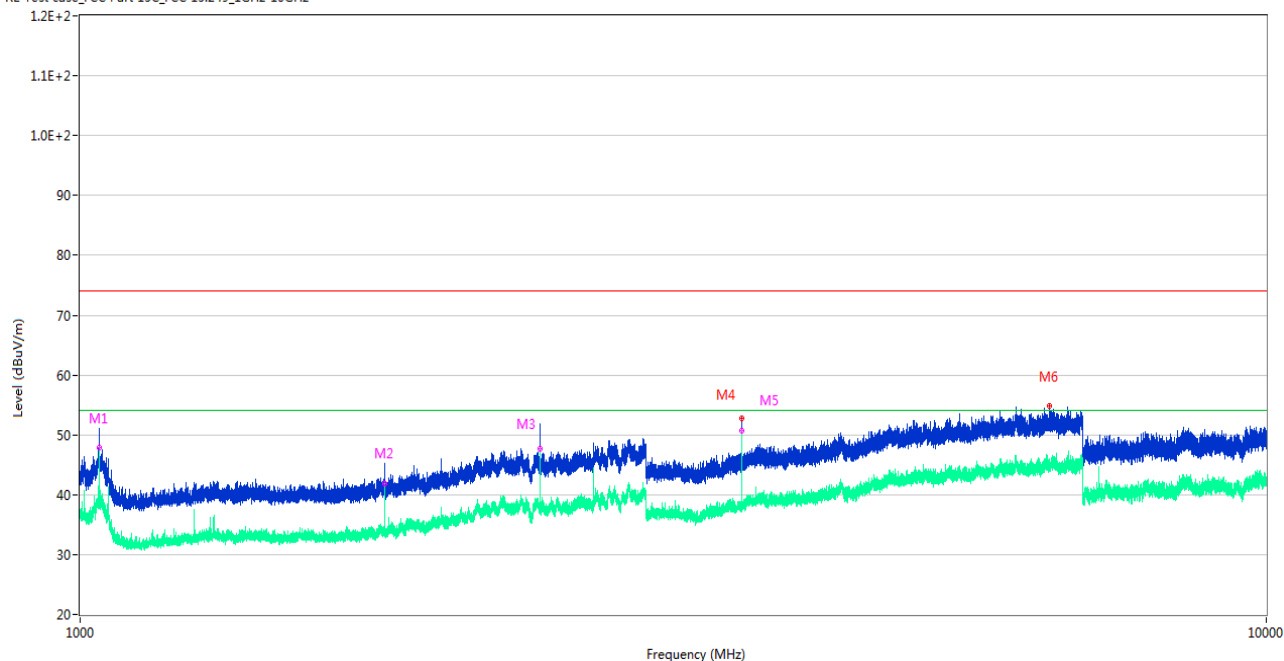
RE Test case_FCC Part 15C_FCC 15.249_30MHz-1GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	45.181	19.07	-25.99	40.0	20.93	Peak	165.00	150	Vertical	Pass
2	144.460	21.07	-24.42	43.5	22.43	Peak	69.00	150	Vertical	Pass
3	440.164	27.06	-19.27	46.0	18.94	Peak	249.00	150	Vertical	Pass
4	768.024	41.03	-10.06	46.0	4.97	Peak	102.00	150	Vertical	Pass
5	864.006	41.15	-8.95	46.0	4.85	Peak	98.00	150	Vertical	Pass
6	927.298	116.27	-7.54	46.0	-70.27	Peak	271.00	150	Vertical	N/A

LOW CHANNEL 1 GHz to 10 GHz, ANT H

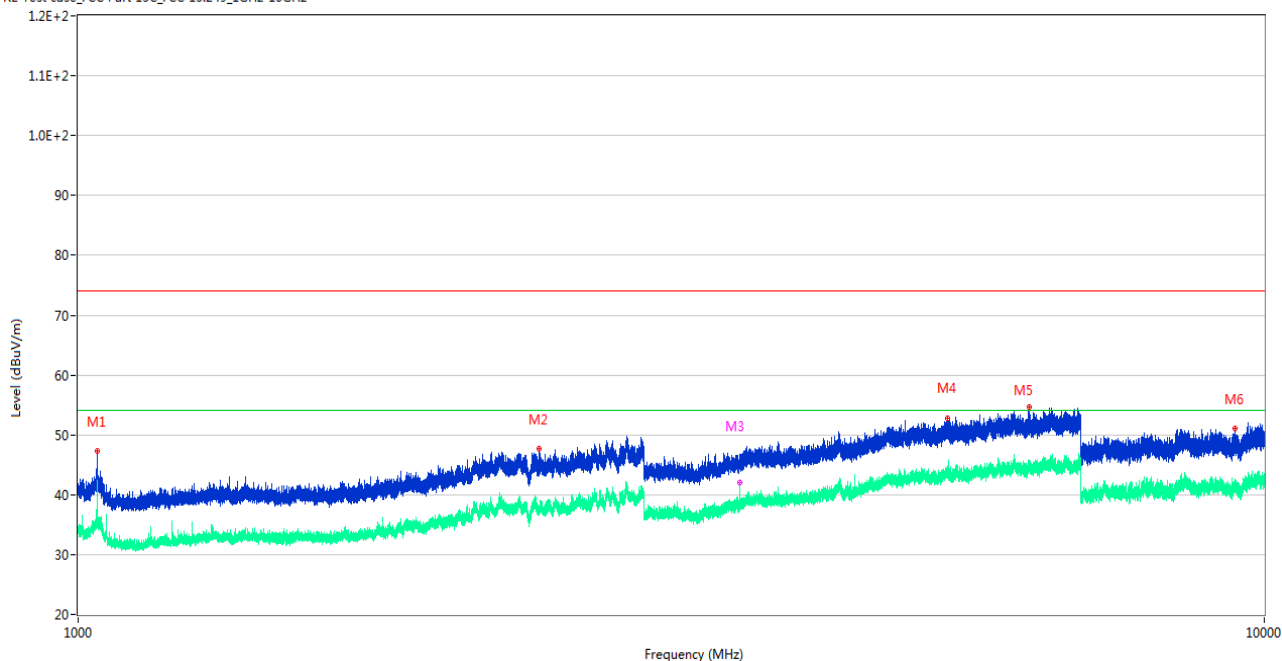
RE Test case_FCC Part 15C_FCC 15.249_1GHz-10GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1037.400	50.98	-13.39	74.0	23.02	Peak	258.00	150	Horizontal	Pass
1**	1037.400	47.83	-13.39	54.0	6.17	AV	258.00	150	Horizontal	Pass
2	1805.700	44.80	-13.04	74.0	29.20	Peak	270.00	150	Horizontal	Pass
2**	1805.700	41.94	-13.04	54.0	12.06	AV	270.00	150	Horizontal	Pass
3	2442.700	49.72	-8.84	74.0	24.28	Peak	246.00	150	Horizontal	Pass
3**	2442.700	47.77	-8.84	54.0	6.23	AV	246.00	150	Horizontal	Pass
4	3611.000	52.79	-6.36	74.0	21.21	Peak	246.00	150	Horizontal	Pass
4**	3611.000	50.48	-6.36	54.0	3.52	AV	246.00	150	Horizontal	Pass
5	3611.200	51.69	-6.35	74.0	22.31	Peak	246.00	150	Horizontal	Pass
5**	3611.200	50.78	-6.35	54.0	3.22	AV	246.00	150	Horizontal	Pass
6	6562.400	54.78	-0.99	74.0	19.22	Peak	225.00	150	Horizontal	Pass
6**	6562.400	44.88	-0.99	54.0	9.12	AV	225.00	150	Horizontal	Pass

LOW CHANNEL 1 GHz to 10 GHz, ANT V

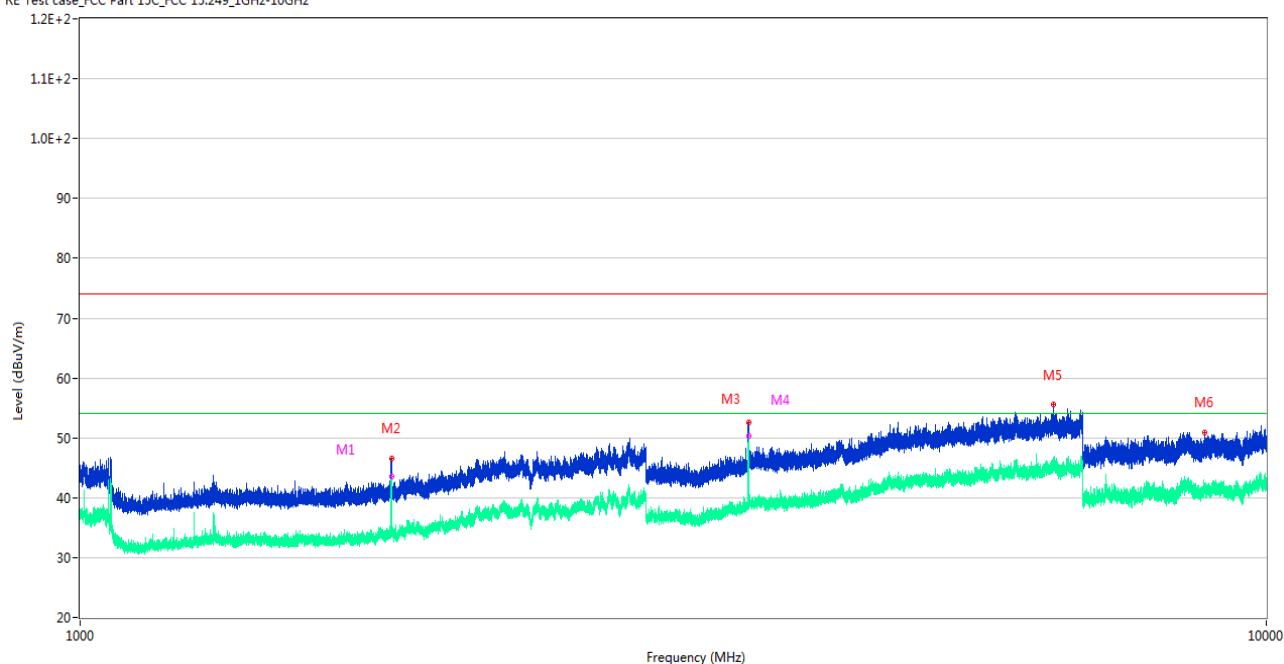
RE Test case_FCC Part 15C_FCC 15.249_1GHz-10GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1038.100	47.28	-13.34	74.0	26.72	Peak	71.00	150	Vertical	Pass
1**	1038.100	39.95	-13.34	54.0	14.05	AV	71.00	150	Vertical	Pass
2	2447.300	47.61	-8.63	74.0	26.39	Peak	257.00	150	Vertical	Pass
2**	2447.300	38.16	-8.63	54.0	15.84	AV	257.00	150	Vertical	Pass
3	3611.200	46.70	-6.35	74.0	27.30	Peak	273.00	150	Vertical	Pass
3**	3611.200	42.02	-6.35	54.0	11.98	AV	273.00	150	Vertical	Pass
4	5408.000	52.84	-1.51	74.0	21.16	Peak	308.00	150	Vertical	Pass
4**	5408.000	43.10	-1.51	54.0	10.90	AV	308.00	150	Vertical	Pass
5	6332.800	54.66	-0.43	74.0	19.34	Peak	184.00	150	Vertical	Pass
5**	6332.800	45.63	-0.43	54.0	8.37	AV	184.00	150	Vertical	Pass
6	9450.700	51.00	-0.81	74.0	23.00	Peak	347.00	150	Vertical	Pass
6**	9450.700	41.33	-0.81	54.0	12.67	AV	347.00	150	Vertical	Pass

MIDDLE CHANNEL 1 GHz to 10 GHz, ANT H

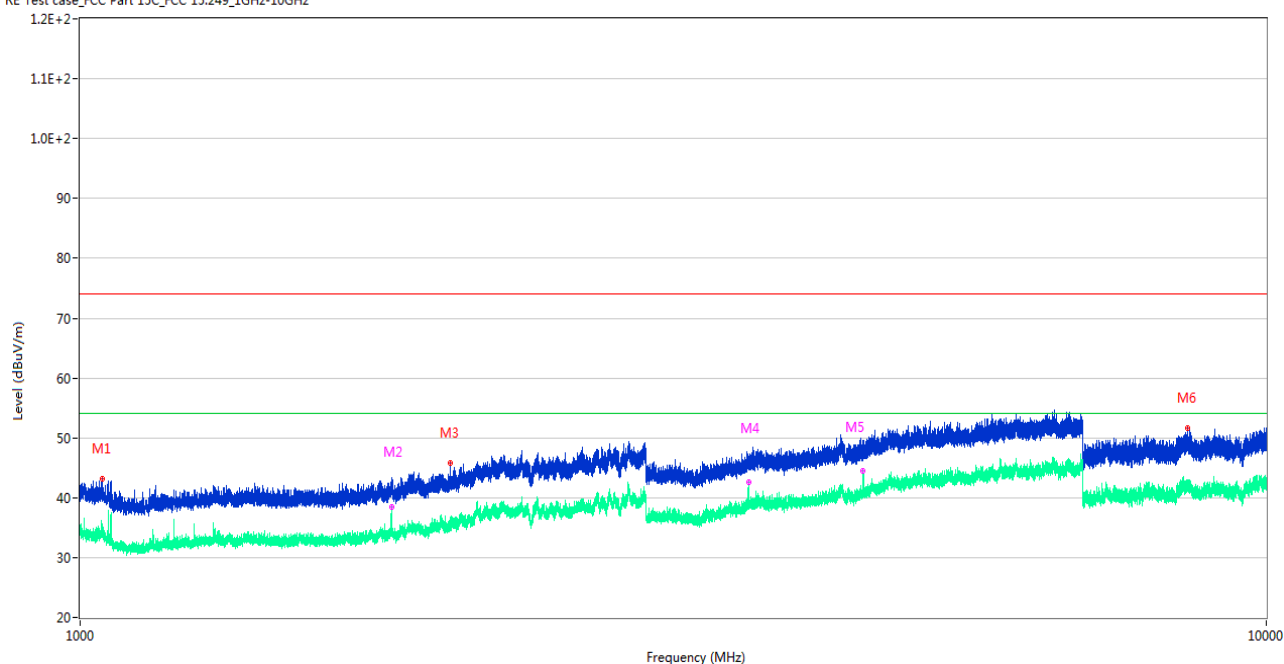
RE Test case_FCC Part 15C_FCC 15.249_1GHz-10GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1829.500	45.85	-12.58	74.0	28.15	Peak	248.00	150	Horizontal	Pass
1**	1829.500	43.46	-12.58	54.0	10.54	AV	248.00	150	Horizontal	Pass
2	1829.600	46.55	-12.58	74.0	27.45	Peak	255.00	150	Horizontal	Pass
2**	1829.600	43.10	-12.58	54.0	10.90	AV	255.00	150	Horizontal	Pass
3	3659.000	52.50	-5.55	74.0	21.50	Peak	255.00	150	Horizontal	Pass
3**	3659.000	49.94	-5.55	54.0	4.06	AV	255.00	150	Horizontal	Pass
4	3659.200	52.35	-5.57	74.0	21.65	Peak	244.00	150	Horizontal	Pass
4**	3659.200	50.39	-5.57	54.0	3.61	AV	244.00	150	Horizontal	Pass
5	6619.600	55.51	0.51	74.0	18.49	Peak	327.00	150	Horizontal	Pass
5**	6619.600	44.74	0.51	54.0	9.26	AV	327.00	150	Horizontal	Pass
6	8873.650	50.96	-0.83	74.0	23.04	Peak	301.00	150	Horizontal	Pass
6**	8873.650	41.17	-0.83	54.0	12.83	AV	301.00	150	Horizontal	Pass

MIDDLE CHANNEL 1 GHz to 10 GHz, ANT V

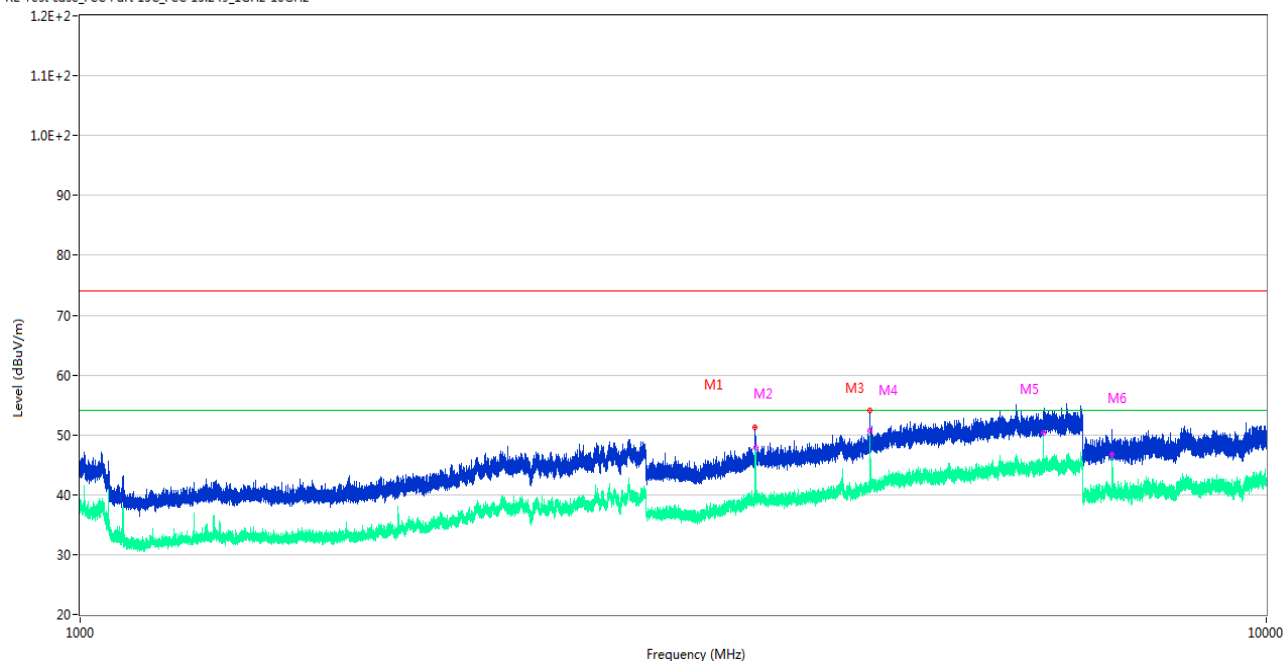
RE Test case_FCC Part 15C_FCC 15.249_1GHz-10GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1044.000	43.20	-13.33	74.0	30.80	Peak	27.00	150	Vertical	Pass
1**	1044.000	34.47	-13.33	54.0	19.53	AV	27.00	150	Vertical	Pass
2	1829.600	42.93	-12.58	74.0	31.07	Peak	251.00	150	Vertical	Pass
2**	1829.600	38.47	-12.58	54.0	15.53	AV	251.00	150	Vertical	Pass
3	2050.800	45.81	-10.99	74.0	28.19	Peak	44.00	150	Vertical	Pass
3**	2050.800	36.06	-10.99	54.0	17.94	AV	44.00	150	Vertical	Pass
4	3659.000	46.60	-5.55	74.0	27.40	Peak	0.00	150	Vertical	Pass
4**	3659.000	42.62	-5.55	54.0	11.38	AV	0.00	150	Vertical	Pass
5	4573.800	49.48	-3.80	74.0	24.52	Peak	241.00	150	Vertical	Pass
5**	4573.800	44.45	-3.80	54.0	9.55	AV	241.00	150	Vertical	Pass
6	8577.550	51.67	-2.09	74.0	22.33	Peak	268.00	150	Vertical	Pass
6**	8577.550	42.91	-2.09	54.0	11.09	AV	268.00	150	Vertical	Pass

HIGH CHANNEL 1 GHz to 10 GHz, ANT H

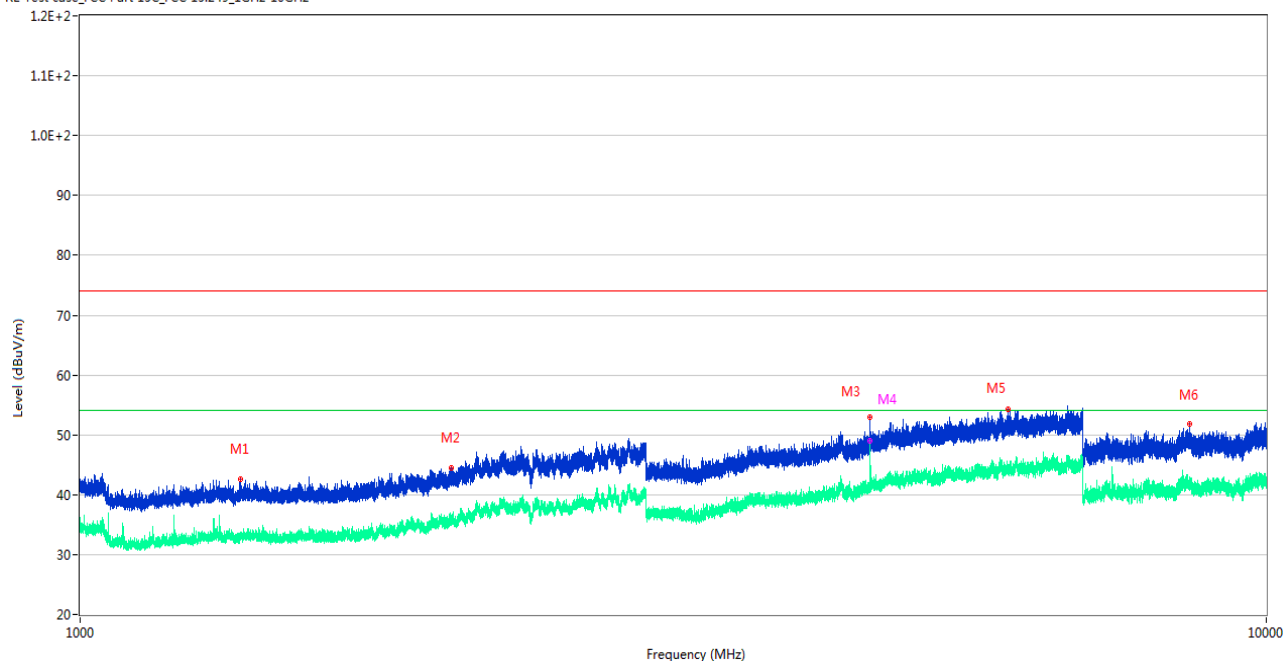
RE Test case_FCC Part 15C_FCC 15.249_1GHz-10GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	3709.200	51.30	-4.99	74.0	22.70	Peak	250.00	150	Horizontal	Pass
1**	3709.200	47.37	-4.99	54.0	6.63	AV	250.00	150	Horizontal	Pass
2	3709.400	48.44	-4.96	74.0	25.56	Peak	250.00	150	Horizontal	Pass
2**	3709.400	47.87	-4.96	54.0	6.13	AV	250.00	150	Horizontal	Pass
3	4636.200	54.14	-3.55	74.0	19.86	Peak	205.00	150	Horizontal	Pass
3**	4636.200	50.60	-3.55	54.0	3.40	AV	205.00	150	Horizontal	Pass
4	4636.400	52.77	-3.54	74.0	21.23	Peak	182.00	150	Horizontal	Pass
4**	4636.400	50.66	-3.54	54.0	3.34	AV	182.00	150	Horizontal	Pass
5	6490.800	53.60	-1.29	74.0	20.40	Peak	317.00	150	Horizontal	Pass
5**	6490.800	50.32	-1.29	54.0	3.68	AV	317.00	150	Horizontal	Pass
6	7417.900	50.84	-3.74	74.0	23.16	Peak	316.00	150	Horizontal	Pass
6**	7417.900	46.77	-3.74	54.0	7.23	AV	316.00	150	Horizontal	Pass

HIGH CHANNEL 1 GHz to 10 GHz, ANT V

RE Test case_FCC Part 15C_FCC 15.249_1GHz-10GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1366.100	42.59	-13.51	74.0	31.41	Peak	200.00	150	Vertical	Pass
1**	1366.100	32.68	-13.51	54.0	21.32	AV	200.00	150	Vertical	Pass
2	2056.100	44.54	-10.85	74.0	29.46	Peak	360.00	150	Vertical	Pass
2**	2056.100	35.63	-10.85	54.0	18.37	AV	360.00	150	Vertical	Pass
3	4636.200	53.04	-3.55	74.0	20.96	Peak	244.00	150	Vertical	Pass
3**	4636.200	47.92	-3.55	54.0	6.08	AV	244.00	150	Vertical	Pass
4	4636.400	51.61	-3.54	74.0	22.39	Peak	255.00	150	Vertical	Pass
4**	4636.400	49.08	-3.54	54.0	4.92	AV	255.00	150	Vertical	Pass
5	6054.200	54.23	-1.58	74.0	19.77	Peak	0.00	150	Vertical	Pass
5**	6054.200	44.10	-1.58	54.0	9.90	AV	0.00	150	Vertical	Pass
6	8616.401	51.75	-2.09	74.0	22.25	Peak	49.00	150	Vertical	Pass
6**	8616.401	41.36	-2.09	54.0	12.64	AV	49.00	150	Vertical	Pass

A.9 Band Edge (Restricted-band band-edge)

Note ¹: The lowest and highest channels are tested to verify the band edge emissions. Please refer to the following the plots for emissions values.

Note ²: The test data all are tested in the vertical and horizontal antenna which the trace is max hold. So these plots have shown the worst case.

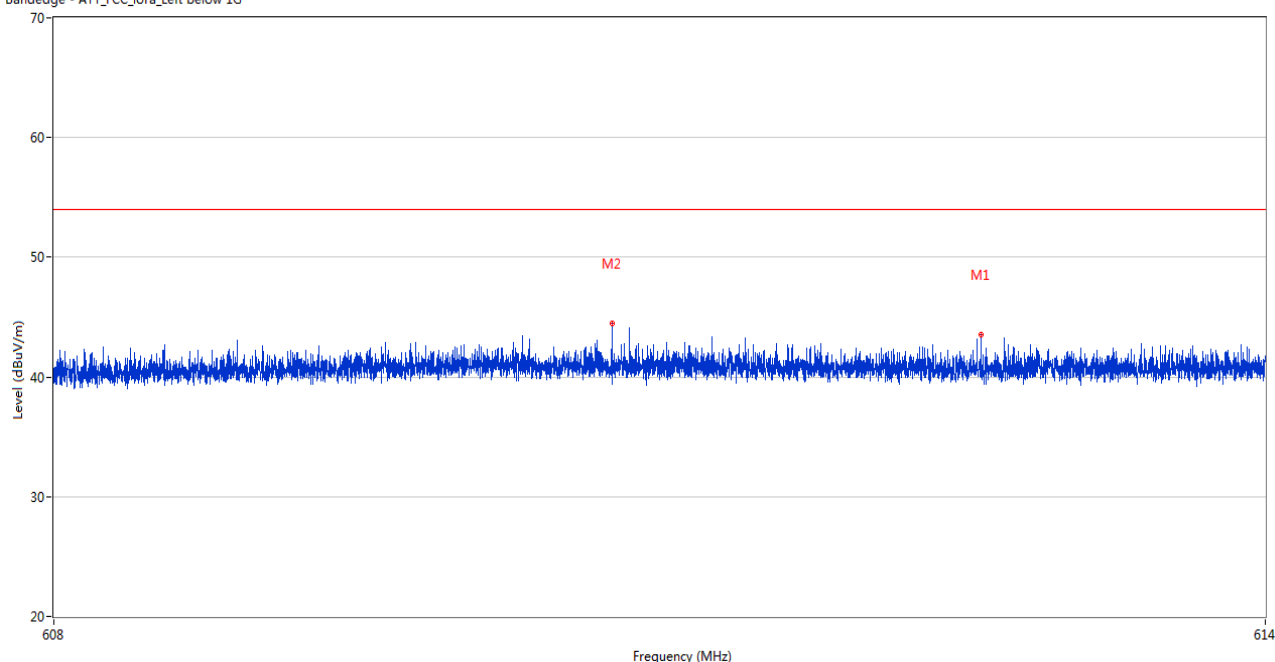
Note ³: According the ANSI C63.10-2013, where limits are specified for both average and peak (or quasi-peak) detector functions, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement.

Note ⁴: The Level (dBuV/m) has been corrected by factor.

Test Data and Plots

LOW CHANNEL

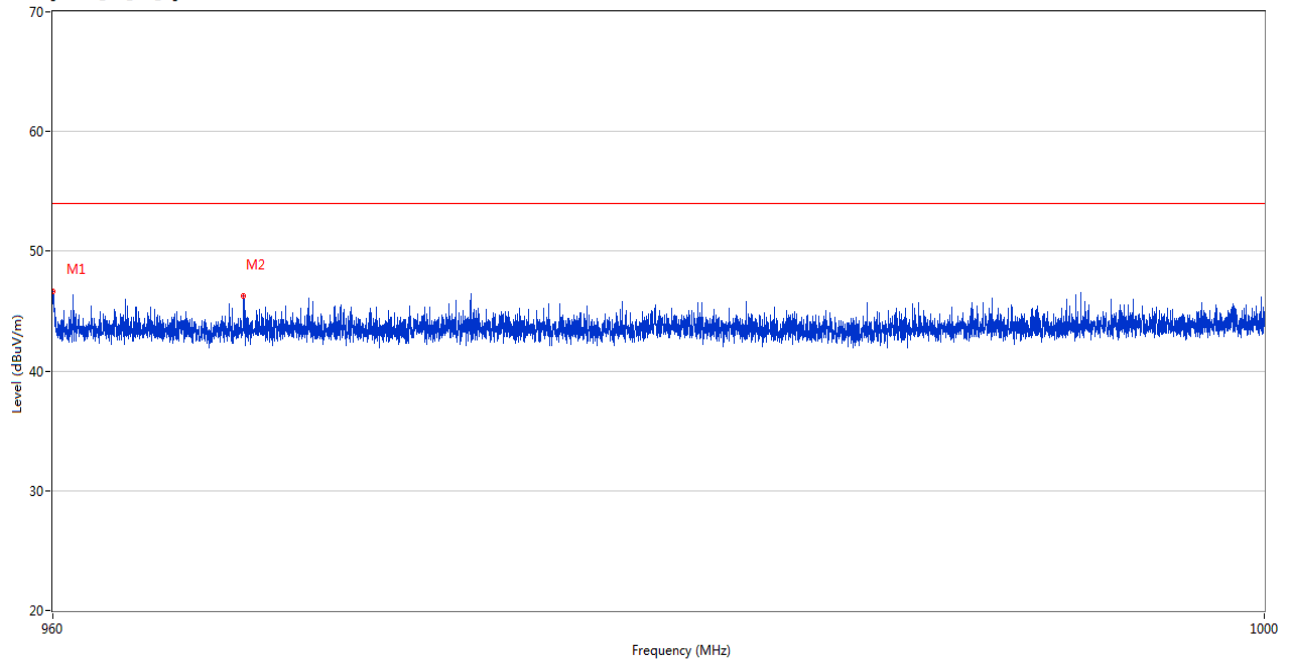
Bandedge - ATT_FCC_Jora_Left below 1G



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	612.588	43.53	6.23	54.0	10.47	Peak	133.00	150	Vertical	Pass
2	610.756	44.48	6.41	54.0	9.52	Peak	141.00	150	Vertical	Pass

HIGH CHANNEL

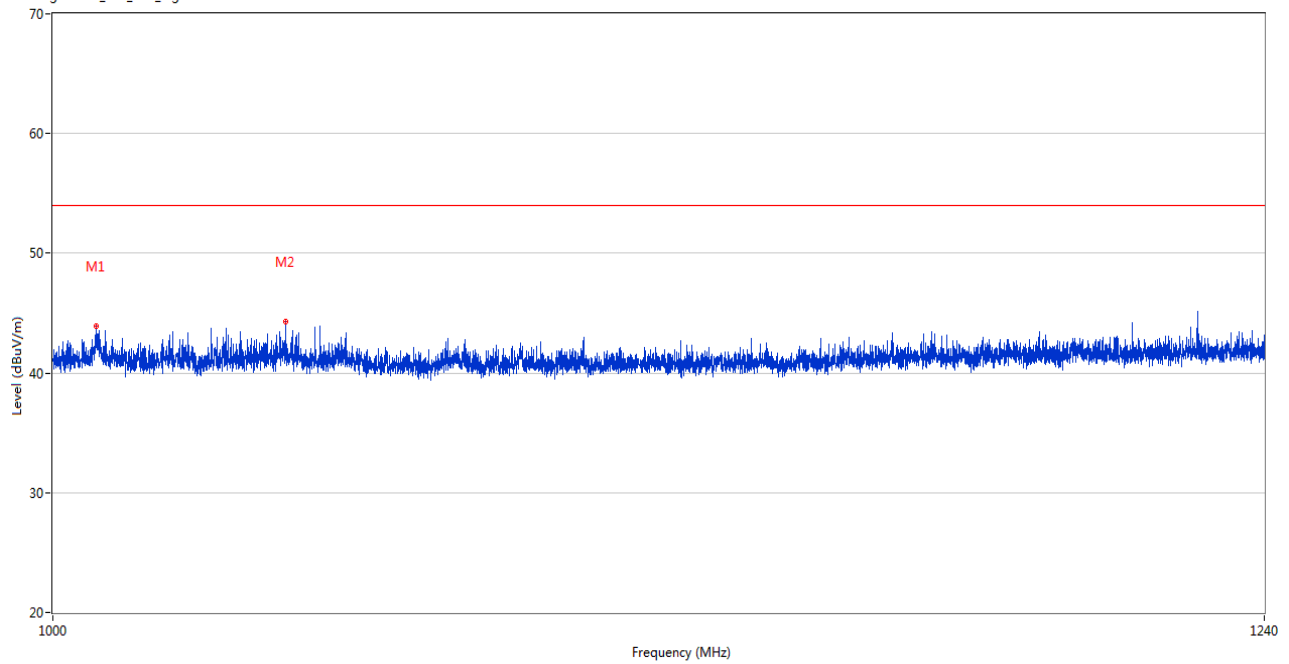
Bandedge - ATT_FCC_lora_Right below 1G



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	960.007	46.67	9.62	54.0	7.33	Peak	270.00	150	Vertical	Pass
2	966.180	46.25	9.42	54.0	7.75	Peak	272.00	150	Vertical	Pass

HIGH CHANNEL

Bandedge - ATT_FCC_Iora_Right above 1G



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1007.680	43.95	-12.18	54.0	10.05	Peak	75.00	150	Vertical	Pass
2	1042.160	44.32	-12.53	54.0	9.68	Peak	92.00	150	Vertical	Pass

ANNEX B TEST SETUP PHOTOS

Please refer the document “BL-SZ2410913-AR.PDF”.

ANNEX C EUT EXTERNAL PHOTOS

Please refer the document “BL-SZ2410913-AW.PDF”.

ANNEX D EUT INTERNAL PHOTOS

Please refer the document “BL-SZ2410913-AI.PDF”.

Statement

1. The laboratory guarantees the scientificity, accuracy and impartiality of the test, and is responsible for all the information in the report, except the information provided by the customer. The customer is responsible for the impact of the information provided on the validity of the results.
2. The report without China inspection body and laboratory Mandatory Approval (CMA) mark has no effect of proving to the society.
3. For the report with CNAS mark or A2LA mark, the items marked with "☆" are not within the accredited scope.
4. This report is invalid if it is altered, without the signature of the testing and approval personnel, or without the "inspection and testing dedicated stamp" or test report stamp.
5. The test data and results are only valid for the tested samples provided by the customer.
6. This report shall not be partially reproduced without the written permission of the laboratory.
7. Any objection shall be raised to the laboratory within 30 days after receiving the report.

--END OF REPORT--