

FCC Test Report

Product Name : KNOT LR9 kit
Brand Name : MikroTik
Model No. : RB924iR-2nD-BT5&BG77&R11e-LR9,
RB924i-2nD-BT5&BG77
FCC ID : TV7924BT5LR9

Applicant : Mikrotikls SIA
Address : Brīvības gatve 214i,Rīga LV-1039 Latvia

Date of Receipt : Jul. 27, 2021
Issued Date : Dec. 20, 2021
Report No. : 2171120R-RFUSOTHV05-A
Report Version : V1.0



The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration of the equipment and evaluated measurement uncertainty herein.

This report must not be used to claim product endorsement by TAF or any agency of the government.

Measurement uncertainties evaluated for each testing system and associated connections are given here to provide the system information for reference. Compliance determinations do not take into account measurement uncertainties for each testing system, but are based on the results of the compliance measurement.

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Test Report Certification



Product Name : KNOT LR9 kit
Applicant : Mikrotiks SIA
Address : Brīvības gatve 214i, Rīga LV-1039 Latvia
Manufacturer : Mikrotiks SIA
Address : Brīvības gatve 214i, Rīga LV-1039 Latvia
Brand Name : MikroTik
Model No. : RB924iR-2nD-BT5&BG77&R11e-LR9, RB924i-2nD-BT5&BG77
FCC ID : TV7924BT5LR9
EUT Voltage : DC 5 ~ 24V
Testing Voltage : AC 120V/60Hz
Applicable Standard : FCC CFR Title 47 Part 15 Subpart C Section 15.247
ANSI C63.10: 2013
Laboratory Name : Hsin Chu Laboratory
Address : No.372-2, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu
County 310, Taiwan, R.O.C.
TEL: +886-3-582-8001 / FAX: +886-3-582-8958
Test Result : Complied

Documented By : *Amelia Wu*

(Amelia Wu / Project Specialist)

Approved By : *Louis Hsu*

(Louis Hsu / Deputy Manager)

The test results relate only to the samples tested.
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Revision History

Version	Description	Issued Date
V1.0	Initial issue of report	Dec. 20, 2021

TABLE OF CONTENTS

Description	Page
1. General Information	6
1.1 EUT Description	6
1.2 Test Mode	7
1.3 Comments and Remarks	7
1.4 Tested System Details	8
1.5 Configuration of tested System	8
1.6 EUT Operation of during Test	9
1.7 Test Facility	10
1.8 List of Test Equipment	12
1.10 Measurement Uncertainty	13
1.11 Duty Cycle	13
2. AC Power Line Conducted Emission	14
2.1 Test Setup	14
2.2 Test Limit	14
2.3 Test Procedure	14
2.4 Test Specification	14
2.5 Test Result of AC Power Line Conducted Emission	15
3. Maximum Conducted Output Power	19
3.1 Test Setup	19
3.2 Test Limit	19
3.3 Test procedures	19
3.4 Test Specification	19
3.5 Test Result of Maximum Conducted Output Power	20
4. Radiated Emission	21
4.1 Test Setup	21
4.2 Test Limit	22
4.3 Test Procedure	23
4.4 Test Specification	23
4.5 Test Result of Radiated Emissions	24
5. Antenna Port Conducted Emission	38
5.1 Test Setup	38
5.2 Test Limit	38
5.3 Test Procedure	38
5.4 Test Specification	38
5.5 Test Result of Antenna Port Conducted Emission	39
6. Occupied Bandwidth & DTS Bandwidth	40
6.1 Test Setup	40
6.2 Test Limit	40
6.3 Test Procedures	40
6.4 Test Specification	40
6.5 Test Result of Occupied Bandwidth	41
6.6 Test Result of DTS Bandwidth	43

7.	Maximum Power Spectral Density	45
7.1	Test Setup.....	45
7.2	Test Limit	45
7.3	Test Procedures.....	45
7.4	Test Specification.....	45
7.5	Test Result of Maximum Power Spectral Density	46
Appendix A	48
	Test Result of Radiated Emissions Co-location	48
Appendix B	56
<input type="checkbox"/>	Test Setup Photograph	56

1. General Information

1.1 EUT Description

Product Name	KNOT LR9 kit
Brand Name	MikroTik
Model No.	RB924iR-2nD-BT5&BG77&R11e-LR9, RB924i-2nD-BT5&BG77
Frequency Range	903 ~ 927.5 MHz
Channel Number	16 Channels
Type of Modulation	FSK

Accessories Information				
No.	Equipment Name	Brand Name	Model No.	Rating
1	Adapter	ULLPOWER	SAW30-240-1200U	INPUT: AC 100-240V, 50/60Hz, 0.8A OUTPUT: DC 24V, 1200mA
2	PoE injector / PoE injector connected to ETH 1 (PoE in)	MikroTik	RBGPOE	DC 18-57 V

The difference for each model is shown as below:

Model No.	LoRa Function
RB924iR-2nD-BT5&BG77&R11e-LR9	With
RB924i-2nD-BT5&BG77	Without

Antenna Information				
Ant.	Brand Name	Model No.	Type	Gain (dBi)
0	TESSWAVE	TOF-0809-7V-S1	FRP Antenna	6.5

Working Frequency of Each Channel			
Channel	Frequency	Channel	Frequency
00	903MHz	08	923.3MHz
01	904.6MHz	09	923.9MHz
02	906.2MHz	10	924.5MHz
03	907.8MHz	11	925.1MHz
04	909.4MHz	12	925.7MHz
05	911MHz	13	926.3MHz
06	912.6MHz	14	926.9MHz
07	914.2MHz	15	927.5MHz

Note:

1. Regards to the frequency band operation; the lowest · middle and highest frequency of channel were selected to perform the test, and then shown on this report.
2. The above EUT information is declared by the manufacturer.
3. This device contains WWAN LTE module FCC ID: XMR201912BG77.

1.2 Test Mode

DEKRA has verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows:

Test Mode	Mode 1: Transmit (Adapter) Mode 2: Transmit (PoE)
-----------	--

Test Items	Test Mode	Modulation	Channel	Result
AC Power Line Conducted Emission	Mode 1 Mode 2	FSK	15	Pass
Maximum Conducted Output Power	Mode 1	FSK	00/08/15	Pass
Radiated Emission Below 1 GHz Radiated Emission Band Edge	Mode 1 Mode 2	FSK	15	Pass
Radiated Emission Above 1 GHz	Mode 1	FSK	00/08/15	Pass
Antenna Port Conducted Emission	Mode 1	FSK	00/08/15	Pass
Occupied Bandwidth & DTS Bandwidth	Mode 1	FSK	00/08/15	Pass
Maximum Power Spectral Density	Mode 1	FSK	00/08/15	Pass

Note:

1. Determining compliance shall be based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
2. For radiated emission below 1 GHz, radiated emission band edge and AC power line conducted emission have performed all modes of operation were investigated and the worst-case emissions are reported.
3. The EUT could be applied with WLAN 2.4 GHz function, Bluetooth function, LoRa function and WWAN LTE function; therefore Co-location Maximum Permissible Exposure (Please refer to DEKRA Report No.: 2171120R-RFUSMPEV02) and Radiated Emission Co-location (Please refer to Appendix A) tests are added for simultaneously transmit between WLAN 2.4 GHz function, Bluetooth function, LoRa function and WWAN LTE function. <Simultaneous Transmission Analysis Mode: 1. WLAN 2.4 GHz function + WWAN LTE function, 2. Bluetooth function + WWAN LTE function, 3. LoRa function + WWAN LTE function>

1.3 Comments and Remarks

The product specification and testing instructions for the EUT declared in the report are provided by the manufacturer who will take all responsibilities for the accuracy.

1.4 Tested System Details

The types for all equipment, plus descriptions of all cables used in the tested system.

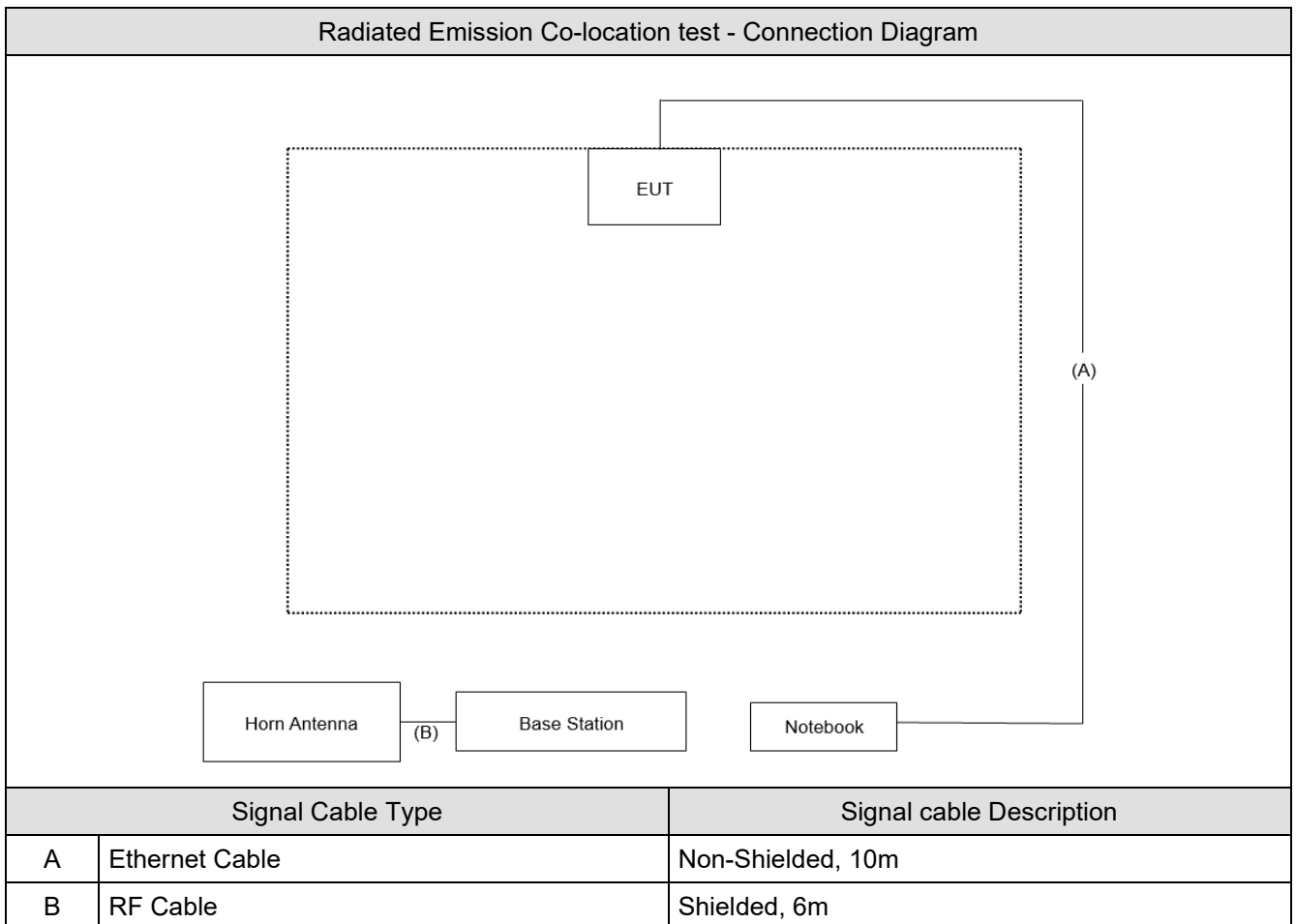
For Radiated Emission Co-location test:

	Product	Manufacturer	Model No.	Serial No.	FCC ID
1	Notebook	Lenovo	Lenovo Ideapad 510S	MP16Z7TB	SDoC
2	Base Station	R&S	CMW500	157118	-
3	Horn Antenna	Schwarzbeck	BBHA 9120D	1640	-

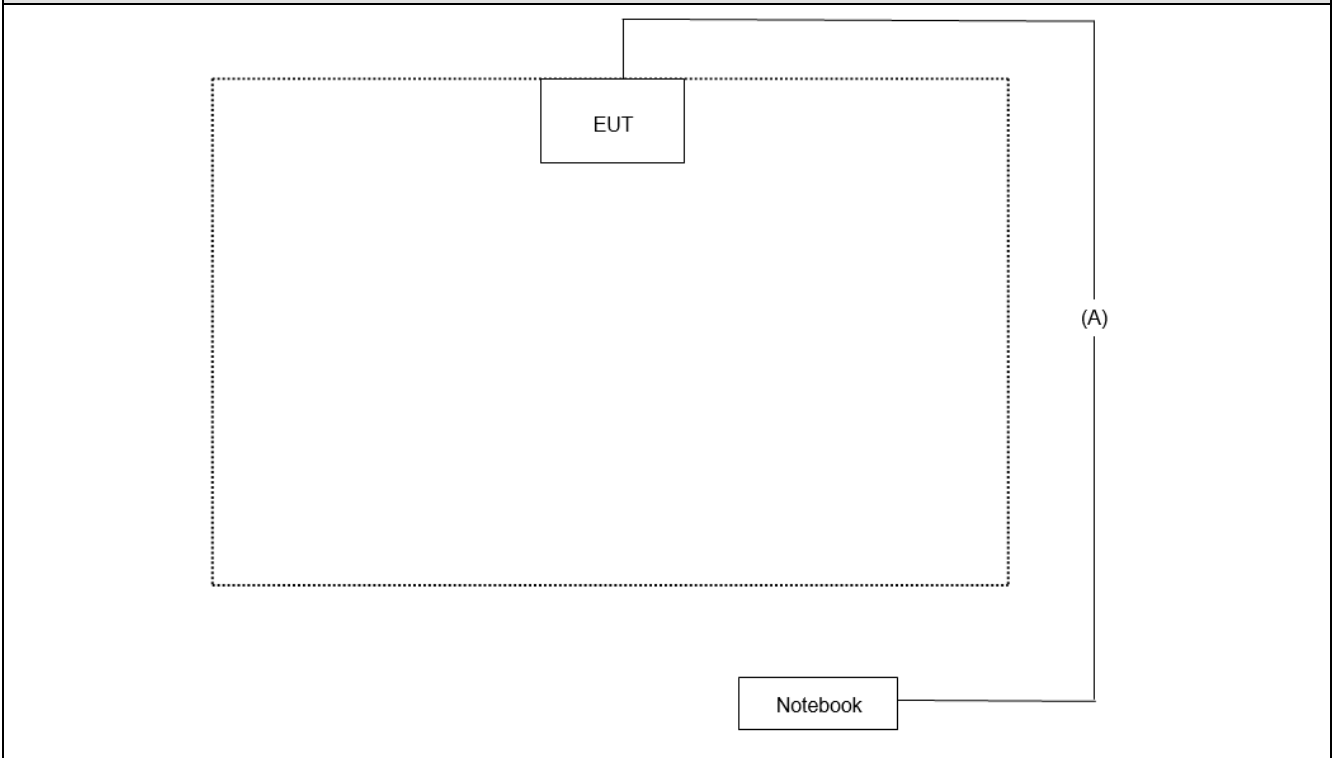
For other test:

	Product	Manufacturer	Model No.	Serial No.	FCC ID
1	Notebook	Lenovo	Lenovo Ideapad 510S	MP16Z7TB	SDoC

1.5 Configuration of tested System



Other test - Connection Diagram



	Signal Cable Type	Signal cable Description
A	Ethernet Cable	Non-Shielded, 10m

1.6 EUT Operation of during Test

1	Set the EUT as shown.
2	Execute the Winbox v3.27 on the laptop.
3	Configure test mode, test channel and data rate.
4	Let the EUT start transmitting signal continuously.
5	Verify that the device is working properly.

1.7 Test Facility

Ambient conditions in the laboratory:

Items	Test Item	Actually	Tested by	Test Date	Test Site
Temperature (°C)	AC power Line Conducted Emission	22.9	Ling Chen	2021/11/25	SR2-H
Humidity (%RH)		59			
Temperature (°C)	Maximum Peak Conducted	20	Elwin Lin	2021/11/25	SR12-H
Humidity (%RH)	Output Power	62			
Temperature (°C)	Radiated Emission	21.4	Ling Chen	2021/11/24	CB2-H
Humidity (%RH)		52			
Temperature (°C)	Antenna Port Conducted Emission	20	Elwin Lin	2021/11/25	SR12-H
Humidity (%RH)		62			
Temperature (°C)	Radiated Emission Band Edge	21.4	Ling Chen	2021/11/24	CB2-H
Humidity (%RH)		52			
Temperature (°C)	Occupied Bandwidth &	20	Elwin Lin	2021/11/25	SR12-H
Humidity (%RH)	DTS Bandwidth	62			
Temperature (°C)	Maximum Power Spectral Density	20	Elwin Lin	2021/11/25	SR12-H
Humidity (%RH)		62			

Note: Test site information refers to Laboratory Information.

Laboratory Information

USA : **FCC Registration Number: TW3024**
Canada : **CAB identifier : TW3024**

The address and introduction of DEKRA Testing and Certification Co., Ltd. laboratories can be founded in our Web site: <http://www.dekra.com.tw>

If you have any comments, please don't hesitate to contact us. Our test sites as below:

Test Laboratory	DEKRA Testing and Certification Co., Ltd.
Address	<ol style="list-style-type: none"> No.372-2, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County 31061, Taiwan, R.O.C. No.372, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County 31061, Taiwan, R.O.C.
Phone number	<ol style="list-style-type: none"> +886-3-582-8001 +886-3-582-8001
Fax number	<ol style="list-style-type: none"> +886-3-582-8958 +886-3-582-8958
Email address	info.tw@dekra.com
Website	http://www.dekra.com.tw
Note: Test site number for address 1 includes SR2-H. Test site number for address 2 includes CB2-H, CB3-H, CB4-H, SR10-H and SR12-H.	

1.8 List of Test Equipment

SR2-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Artificial Mains Network	R&S	ENV4200	848411/010	2020/12/24	2021/12/23
Test Receiver	R&S	ESCS 30	836858/022	2021/02/22	2022/02/21
LISN	R&S	ENV216	100092	2021/06/08	2022/06/07
Coaxial Cable(9 m)	Harbour	RG-400	SR2-H	2021/08/15	2022/08/14
DEKRA Testing System	DEKRA	Version 2.0	SR2-H	N/A	N/A

SR12-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
High Speed Peak Power Meter Dual Input	Anritsu	ML2496A	1602004	2021/11/12	2022/11/11
Pulse Power Sensor	Anritsu	MA2411B	1531043	2021/11/12	2022/11/11
EXA Signal Analyzer	Keysight	N9010A	MY51440132	2021/01/25	2022/01/24
Pulse Power Sensor	Anritsu	MA2411B	1531044	2021/11/12	2022/11/11
Power Meter	Keysight	8990B	MY51000248	2021/05/21	2022/05/20
Power Sensor	Keysight	N1923A	MY57240005	2021/05/21	2022/05/20
Spectrum Analyzer	Keysight	N9010B	MY57110159	2021/03/29	2022/03/28
Spectrum Analyzer	Agilent	N9010A	US47140172	2021/05/28	2022/05/27
Signal & Spectrum Analyzer	R&S	FSV40	101049	2021/03/31	2022/03/30

CB2-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Signal Analyzer	R&S	FSVA40	101455	2021/10/22	2022/10/21
Signal & Spectrum Analyzer	R&S	FSV40	101049	2021/03/31	2022/03/30
Signal Analyzer	R&S	FSVA40	101435	2021/06/04	2022/06/03
EXA Signal Analyzer	Keysight	N9010A	MY51440132	2021/01/25	2022/01/24
Trilog Broadband Antenna	Schwarzbeck	VULB 9168	1272	2021/08/20	2022/08/19
Bilog Antenna	Teseq	CBL6112D	23191	2021/02/26	2022/02/25
Horn Antenna	Schwarzbeck	BBHA 9120D	639	2021/05/17	2022/05/16
Pre-Amplifier	EMCI	EMC01820I	980365	2021/05/28	2022/05/27
Pre-Amplifier	EMEC	EM01G18GA	060741	2021/07/02	2022/07/01
Coaxial Cable(13m)	Huber+Suhner	SF104	CB2-H	2021/08/17	2022/08/16
DEKRA Testing System	DEKRA	Version 2.0	CB2-H	NA	NA

Note: All equipment upon which need to calibrated are with calibration period of 1 year.

1.10 Measurement Uncertainty

Uncertainties have been calculated according to the DEKRA internal document with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor ($k=2$)).

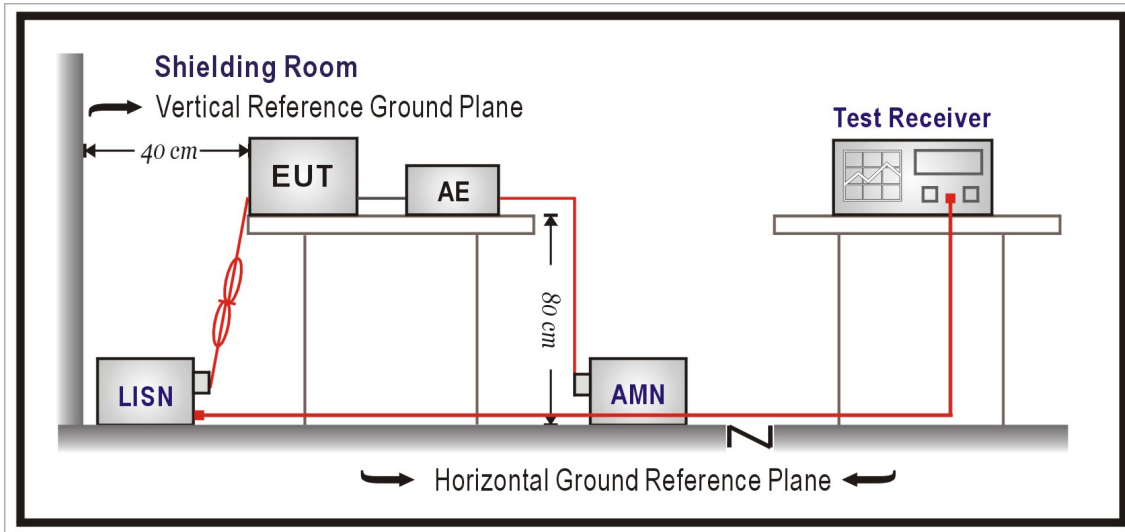
Test item	Uncertainty
AC Power Line Conducted Emission	± 2.10 dB
Maximum Conducted Output Power	± 1.16 dB
Radiated Emission	± 3.25 dB below 1 GHz ± 3.32 dB above 1 GHz
Antenna Port Conducted Emission	± 1.60 dB
Radiated Emission Band Edge	± 3.32 dB above 1 GHz
Occupied Bandwidth & DTS Bandwidth	± 105.93 Hz
Maximum Power Spectral Density	± 1.60 dB

1.11 Duty Cycle

Duty cycle of test signal is ≥ 98 %, duty factor is not required.

2. AC Power Line Conducted Emission

2.1 Test Setup



2.2 Test Limit

Frequency (MHz)	QP (dBuV)	AV (dBuV)
0.15 - 0.50	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30	60	50

Remarks: In the above table, the tighter limit applies at the band edges.

2.3 Test Procedure

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50 uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50 ohm/50 uH coupling impedance with 50 ohm termination. (Please refer to the block diagram of the test setup and photographs.)

Both sides of A.C. 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 C63.10: 2013 on conducted measurement.

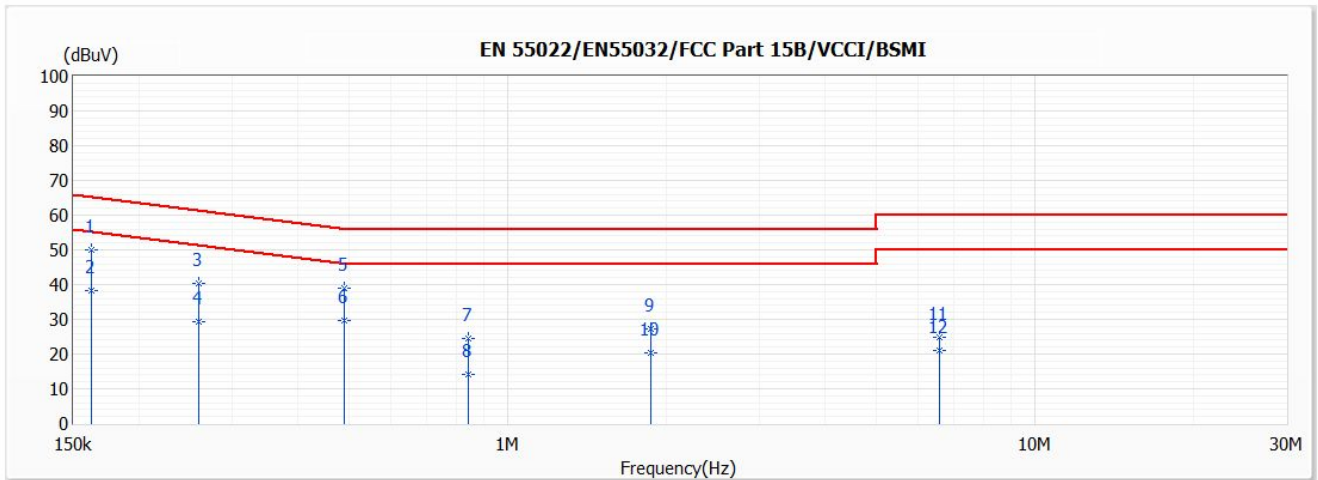
AC Power Line Conducted Emissions were investigated over the frequency range from 0.15 MHz to 30 MHz using a receiver bandwidth of 9 kHz.

2.4 Test Specification

According to FCC Part 15 Subpart C Paragraph 15.207.

2.5 Test Result of AC Power Line Conducted Emission

Test Mode	Mode 1: Transmit (Adapter)	Phase	Line
Test Condition	927.5MHz	Test Voltage	AC120V/60Hz

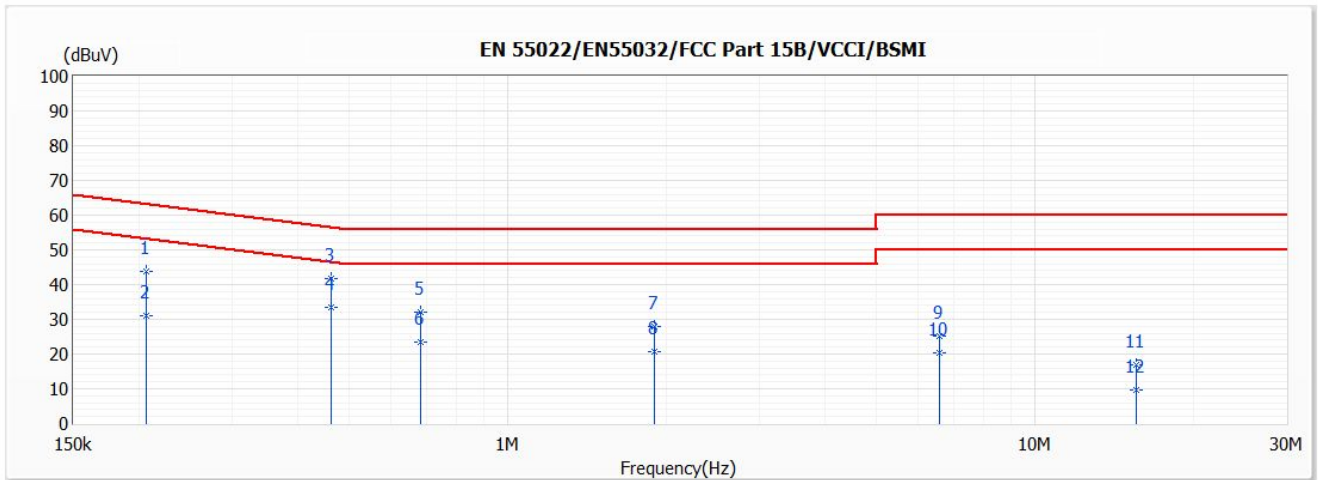


No	Frequency (MHz)	Emission Level (dBuV)	Limit (dBuV)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
*1	0.162	49.95	65.35	-15.40	40.32	9.63	QP
2	0.162	38.31	55.35	-17.04	28.68	9.63	AV
3	0.259	40.42	61.47	-21.05	30.78	9.64	QP
4	0.259	29.40	51.47	-22.07	19.76	9.64	AV
5	0.490	38.95	56.17	-17.22	29.28	9.67	QP
6	0.490	29.63	46.17	-16.54	19.96	9.67	AV
7	0.843	24.65	56.00	-31.35	14.94	9.71	QP
8	0.843	14.20	46.00	-31.80	4.49	9.71	AV
9	1.871	27.11	56.00	-28.89	17.34	9.77	QP
10	1.871	20.34	46.00	-25.66	10.57	9.77	AV
11	6.571	24.69	60.00	-35.31	14.70	9.99	QP
12	6.571	20.99	50.00	-29.01	11.00	9.99	AV

Note:

1. "*" means this data is the worst emission level.
2. Emission Level = Reading Level + Correct Factor (Correct Factor = LISN Insertion Loss + Cable Loss).
3. Margin = Emission Level - Limit.

Test Mode	Mode 1: Transmit (Adapter)	Phase	Neutral
Test Condition	927.5MHz	Test Voltage	AC120V/60Hz

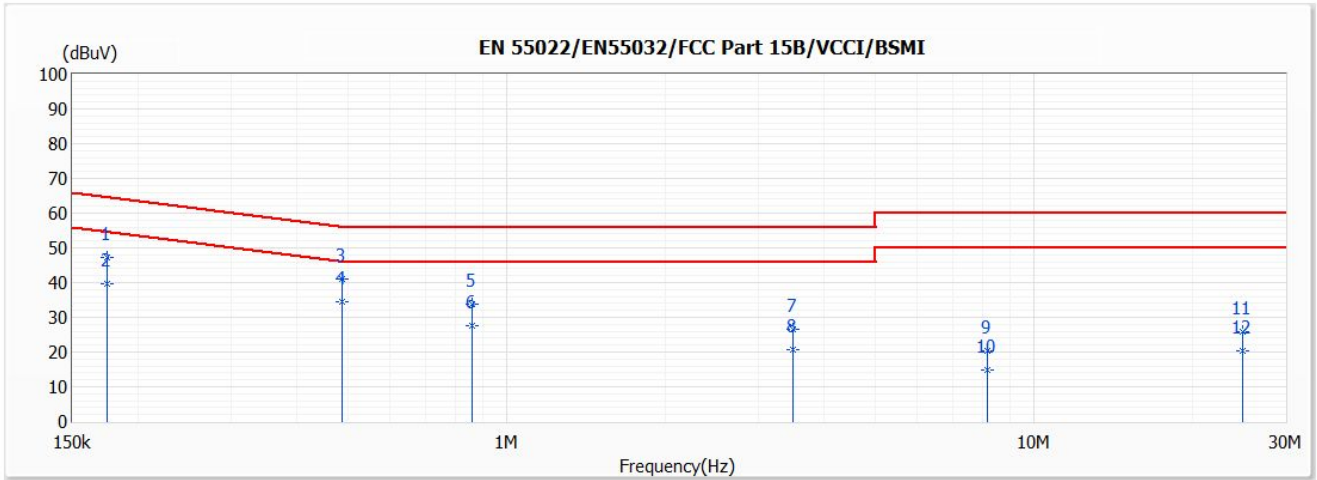


No	Frequency (MHz)	Emission Level (dBuV)	Limit (dBuV)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	0.206	43.64	63.36	-19.72	34.00	9.64	QP
2	0.206	30.92	53.36	-22.44	21.28	9.64	AV
3	0.461	41.80	56.67	-14.87	32.12	9.68	QP
*4	0.461	33.48	46.67	-13.19	23.80	9.68	AV
5	0.683	32.20	56.00	-23.80	22.51	9.69	QP
6	0.683	23.58	46.00	-22.42	13.89	9.69	AV
7	1.896	27.79	56.00	-28.21	18.01	9.78	QP
8	1.896	20.64	46.00	-25.36	10.86	9.78	AV
9	6.572	25.26	60.00	-34.74	15.25	10.01	QP
10	6.572	20.22	50.00	-29.78	10.21	10.01	AV
11	15.584	16.83	60.00	-43.17	6.44	10.39	QP
12	15.584	9.51	50.00	-40.49	-0.88	10.39	AV

Note:

1. "*" means this data is the worst emission level.
2. Emission Level = Reading Level + Correct Factor (Correct Factor = LISN Insertion Loss + Cable Loss).
3. Margin = Emission Level - Limit.

Test Mode	Mode 2: Transmit (PoE)	Phase	Line
Test Condition	927.5MHz	Test Voltage	AC120V/60Hz

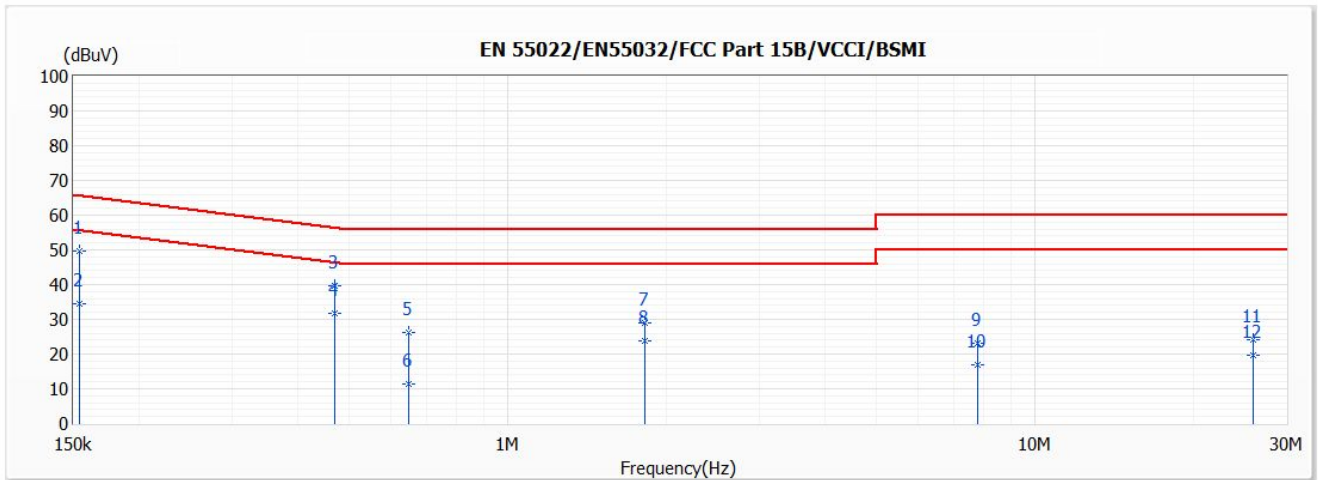


No	Frequency (MHz)	Emission Level (dBuV)	Limit (dBuV)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	0.175	47.28	64.74	-17.46	37.65	9.63	QP
2	0.175	39.49	54.74	-15.25	29.86	9.63	AV
3	0.486	41.15	56.23	-15.08	31.48	9.67	QP
*4	0.486	34.46	46.23	-11.77	24.79	9.67	AV
5	0.860	33.68	56.00	-22.32	23.97	9.71	QP
6	0.860	27.50	46.00	-18.50	17.79	9.71	AV
7	3.493	26.42	56.00	-29.58	16.57	9.85	QP
8	3.493	20.85	46.00	-25.15	11.00	9.85	AV
9	8.168	20.51	60.00	-39.49	10.46	10.05	QP
10	8.168	15.00	50.00	-35.00	4.95	10.05	AV
11	24.899	25.73	60.00	-34.27	15.27	10.46	QP
12	24.899	20.29	50.00	-29.71	9.83	10.46	AV

Note:

1. "*" means this data is the worst emission level.
2. Emission Level = Reading Level + Correct Factor (Correct Factor = LISN Insertion Loss + Cable Loss).
3. Margin = Emission Level - Limit.

Test Mode	Mode 2: Transmit (PoE)	Phase	Neutral
Test Condition	927.5MHz	Test Voltage	AC120V/60Hz



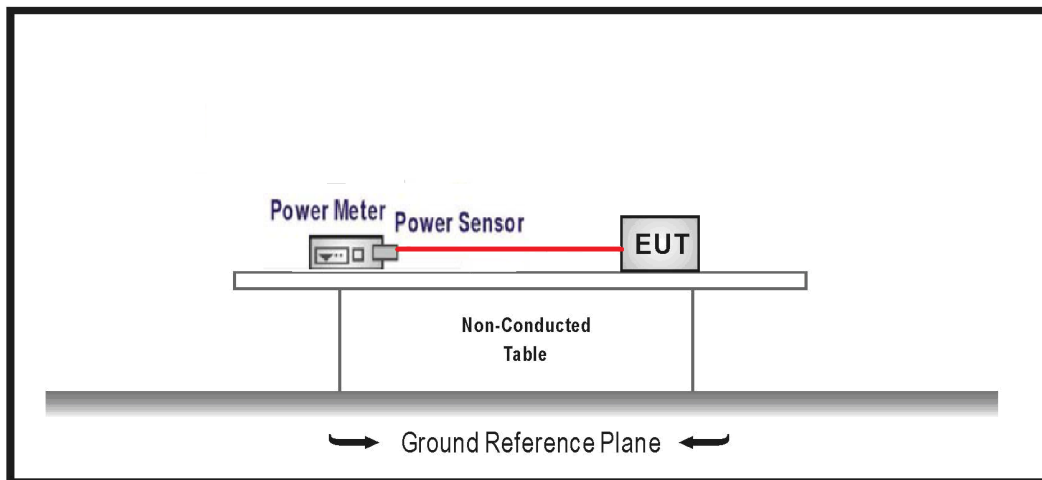
No	Frequency (MHz)	Emission Level (dBuV)	Limit (dBuV)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	0.154	49.60	65.80	-16.20	39.96	9.64	QP
2	0.154	34.40	55.80	-21.40	24.76	9.64	AV
3	0.470	39.52	56.51	-16.99	29.84	9.68	QP
*4	0.470	31.61	46.51	-14.90	21.93	9.68	AV
5	0.648	26.35	56.00	-29.65	16.66	9.69	QP
6	0.648	11.21	46.00	-34.79	1.52	9.69	AV
7	1.820	28.92	56.00	-27.08	19.14	9.78	QP
8	1.820	23.82	46.00	-22.18	14.04	9.78	AV
9	7.792	23.01	60.00	-36.99	12.95	10.06	QP
10	7.792	17.04	50.00	-32.96	6.98	10.06	AV
11	25.876	24.04	60.00	-35.96	13.33	10.71	QP
12	25.876	19.50	50.00	-30.50	8.79	10.71	AV

Note:

1. "*" means this data is the worst emission level.
2. Emission Level = Reading Level + Correct Factor (Correct Factor = LISN Insertion Loss + Cable Loss).
3. Margin = Emission Level - Limit.

3. Maximum Conducted Output Power

3.1 Test Setup



3.2 Test Limit

The Maximum Conducted Output Power shall be less 1 Watt.

3.3 Test procedures

The EUT was setup according to ANSI C63.10: 2013; tested according to DTS test procedure of KDB 558074 D01 v05r02 for compliance to FCC 47CFR 15.247 requirements.

3.4 Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247.

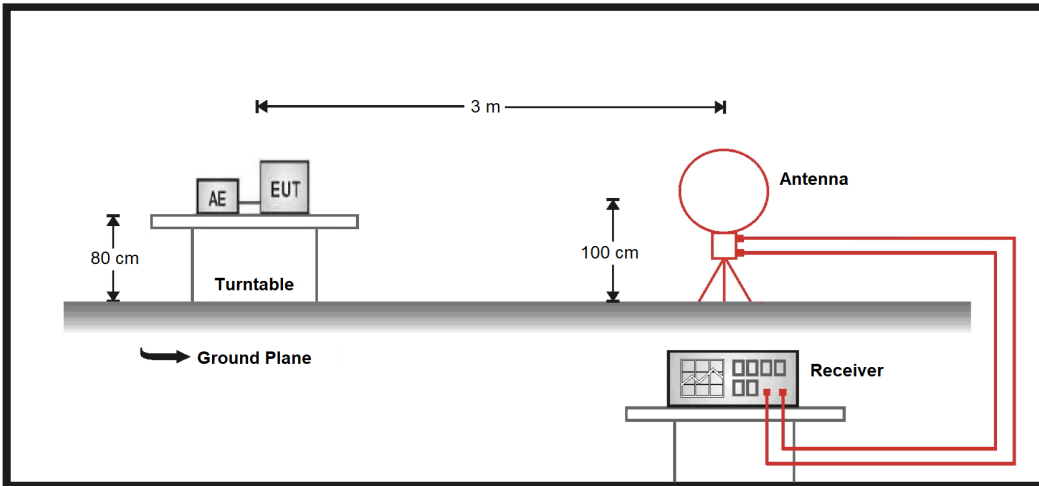
3.5 Test Result of Maximum Conducted Output Power

Modulation	Channel	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
FSK	00	903	1.690	≤ 30.00	Pass
	08	923.3	0.910	≤ 30.00	Pass
	15	927.5	1.440	≤ 30.00	Pass

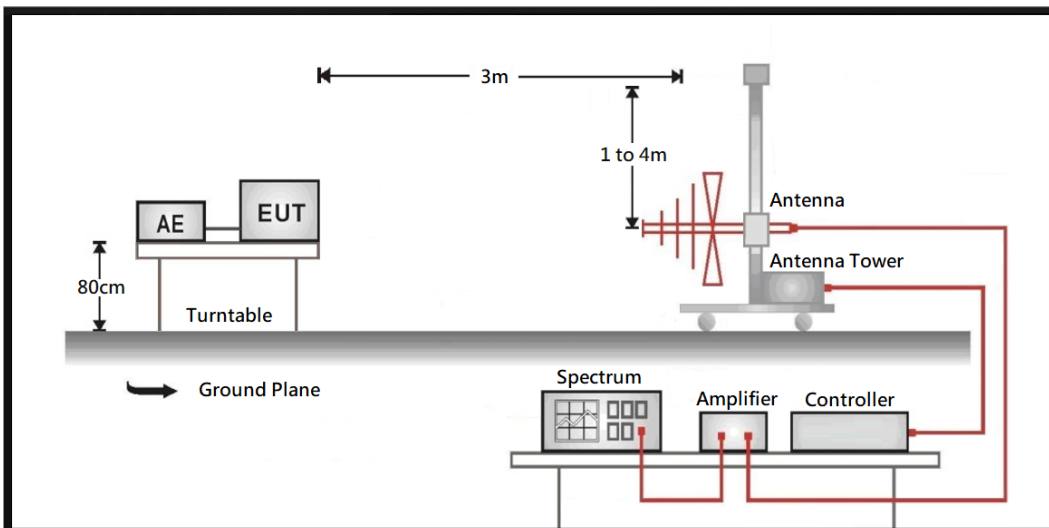
4. Radiated Emission

4.1 Test Setup

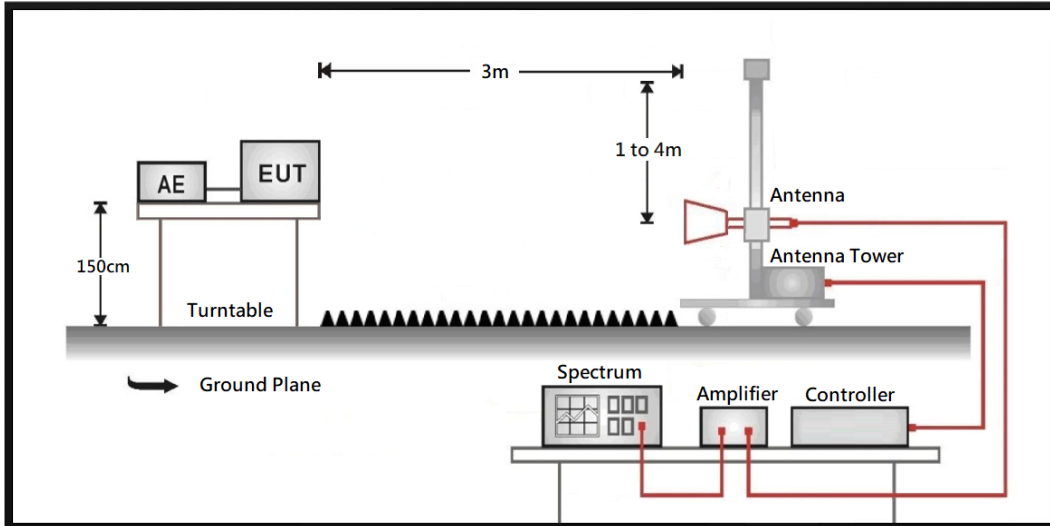
9 kHz ~ 30 MHz



30 MHz ~ 1 GHz



Above 1 GHz



4.2 Test Limit

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20 dB below the level of the fundamental or to the general radiated emission limit in paragraph 15.209, whichever is the lesser attenuation.

Frequency (MHz)	Field strength (uV/m)	Field strength (dBuV/m)	Measurement distance (m)
0.009 – 0.490	2400/F(kHz)	20 log (2400/F(kHz))	300
0.490 – 1.705	24000/F(kHz)	20 log (24000/F(kHz))	30
1.705 - 30	30	29.5	30
30 - 88	100	40	3
88 - 216	150	43.5	3
216 - 960	200	46	3
Above 960	500	54	3

Remarks:

1. Field strength (dBuV/m) = 20 log Field strength (uV/m)
2. In the Above Table, the tighter limit applies at the band edges.
3. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system

4.3 Test Procedure

The EUT was setup according to ANSI C63.10: 2013 and tested according to DTS test procedure of KDB 558074 D01V05r02 for compliance to FCC 47CFR 15.247 requirements.

The EUT and its simulators are placed on a turn table which is 0.8 or 1.5 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level.

The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level. Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.10: 2013 on radiated measurement.

On any frequency or frequencies from 9 kHz (include The the lowest oscillator frequency generated within the device up to the 10th harmonic) to 1000 MHz, the limit shown are based on measuring equipment employing a quasi-peak detector function and on any frequency or frequencies above 1000 MHz the radiated limit shown are based upon the use of measurement instrumentation employing an average detector function. When average radiated emission measurement are included emission measurement below 1000 MHz, there also is a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit.

The bandwidth below 1 GHz setting on the field strength meter is 120 kHz and above 1 GHz is 1MHz.

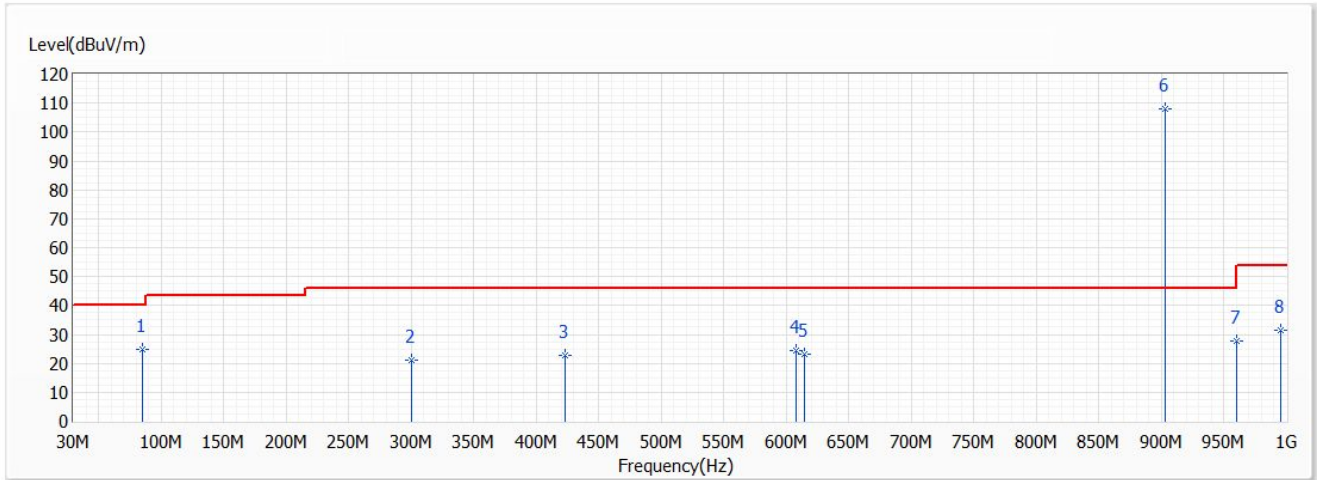
4.4 Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247.

4.5 Test Result of Radiated Emissions

30 MHz ~ 1 GHz Spurious and Band Edge

Test Mode	Mode 1: Transmit (Adapter)	Polarity	Horizontal
Test Condition	903MHz	Test Voltage	AC120V/60Hz

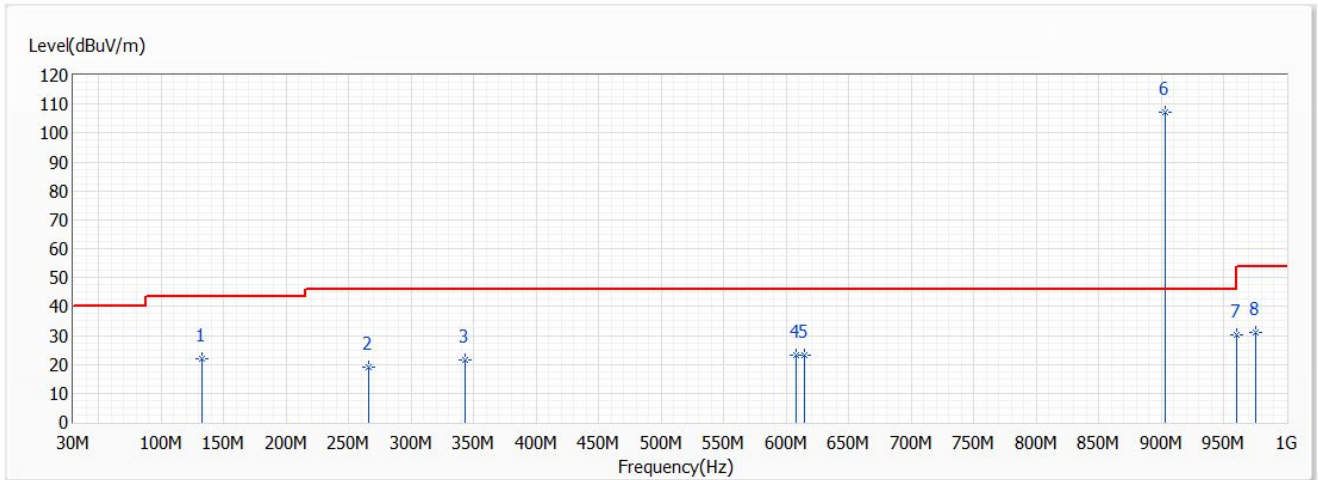


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	85.533	24.80	40.00	-15.20	32.55	-7.75	QP
2	300.024	21.31	46.00	-24.69	23.13	-1.82	QP
3	423.214	22.87	46.00	-23.13	21.34	1.53	QP
4	608.000	24.45	46.00	-21.55	18.27	6.18	QP
5	614.000	23.16	46.00	-22.84	16.91	6.25	QP
* 6	903.243	108.18	46.00	62.18	97.93	10.25	QP
7	960.000	27.85	46.00	-18.15	16.64	11.21	QP
8	995.393	31.43	54.00	-22.57	20.08	11.35	QP

Note:

1. All reading levels is Quasi-Peak value.
2. “ * ”, means this data is the worst value.
3. Emission Level = Reading Level + Correct Factor
4. The emission under 30MHz were not included is because their levels are lower than 20dB from limit.
5. “ * ”, means the fundamental for reference only, it's not restricted by unwanted emission limit.

Test Mode	Mode 1: Transmit (Adapter)	Polarity	Vertical
Test Condition	903MHz	Test Voltage	AC120V/60Hz

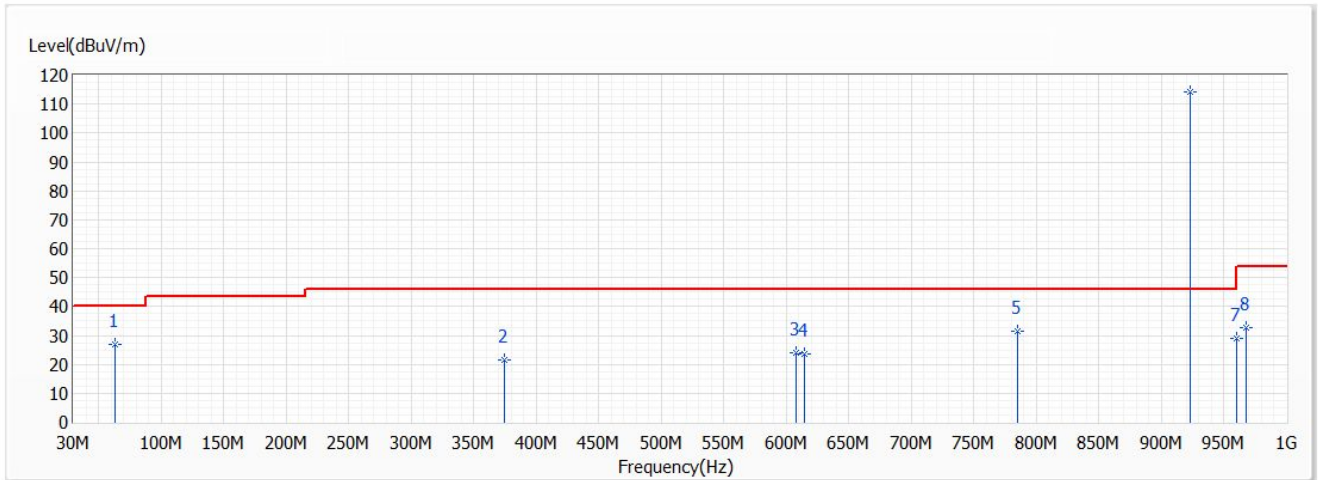


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	132.941	22.03	43.50	-21.47	25.65	-3.62	QP
2	265.710	19.04	46.00	-26.96	22.25	-3.21	QP
3	342.825	21.67	46.00	-24.33	22.31	-0.64	QP
4	608.000	23.31	46.00	-22.69	17.13	6.18	QP
5	614.000	23.02	46.00	-22.98	16.77	6.25	QP
* 6	903.243	107.09	46.00	61.09	96.84	10.25	QP
7	960.000	30.01	46.00	-15.99	18.80	11.21	QP
8	975.629	31.21	54.00	-22.79	19.91	11.30	QP

Note:

1. All reading levels is Quasi-Peak value.
2. “ * ”, means this data is the worst value.
3. Emission Level = Reading Level + Correct Factor
4. The emission under 30MHz were not included is because their levels are lower than 20dB from limit.
5. “ * ”, means the fundamental for reference only, it's not restricted by unwanted emission limit.

Test Mode	Mode 1: Transmit (Adapter)	Polarity	Horizontal
Test Condition	923.3MHz	Test Voltage	AC120V/60Hz

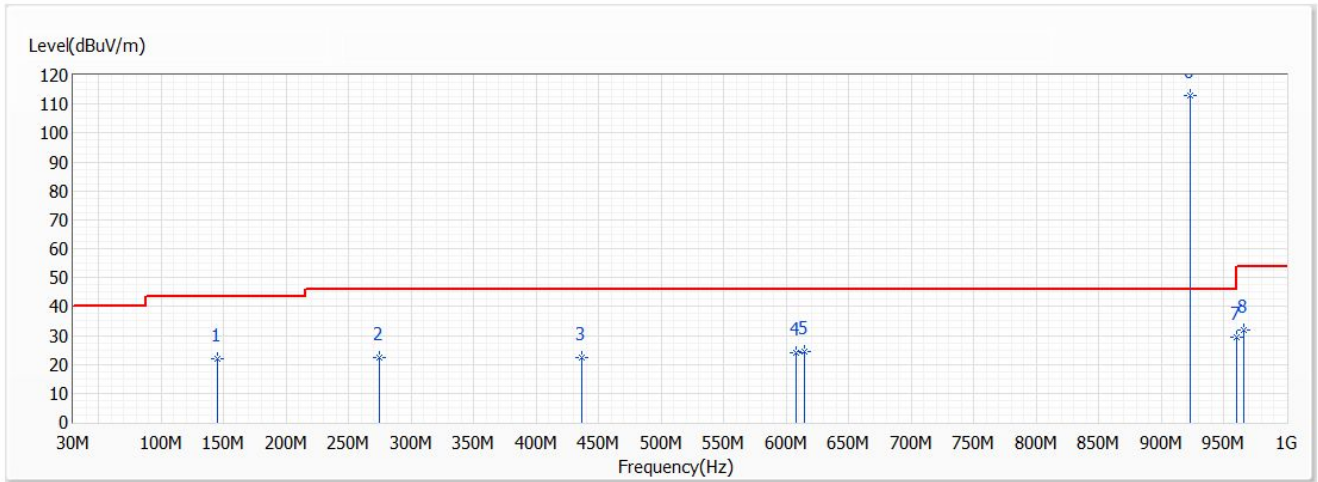


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	63.708	26.82	40.00	-13.18	29.91	-3.09	QP
2	374.956	21.62	46.00	-24.38	21.42	0.20	QP
3	608.000	24.11	46.00	-21.89	17.93	6.18	QP
4	614.000	23.74	46.00	-22.26	17.49	6.25	QP
5	784.903	31.45	46.00	-14.55	22.56	8.89	QP
* 6	923.249	114.08	46.00	68.08	103.28	10.80	QP
7	960.000	28.89	46.00	-17.11	17.68	11.21	QP
8	967.626	32.87	54.00	-21.13	21.62	11.25	QP

Note:

1. All reading levels is Quasi-Peak value.
2. “ * ”, means this data is the worst value.
3. Emission Level = Reading Level + Correct Factor
4. The emission under 30MHz were not included is because their levels are lower than 20dB from limit.
5. “ * ”, means the fundamental for reference only, it's not restricted by unwanted emission limit.

Test Mode	Mode 1: Transmit (Adapter)	Polarity	Vertical
Test Condition	923.3MHz	Test Voltage	AC120V/60Hz

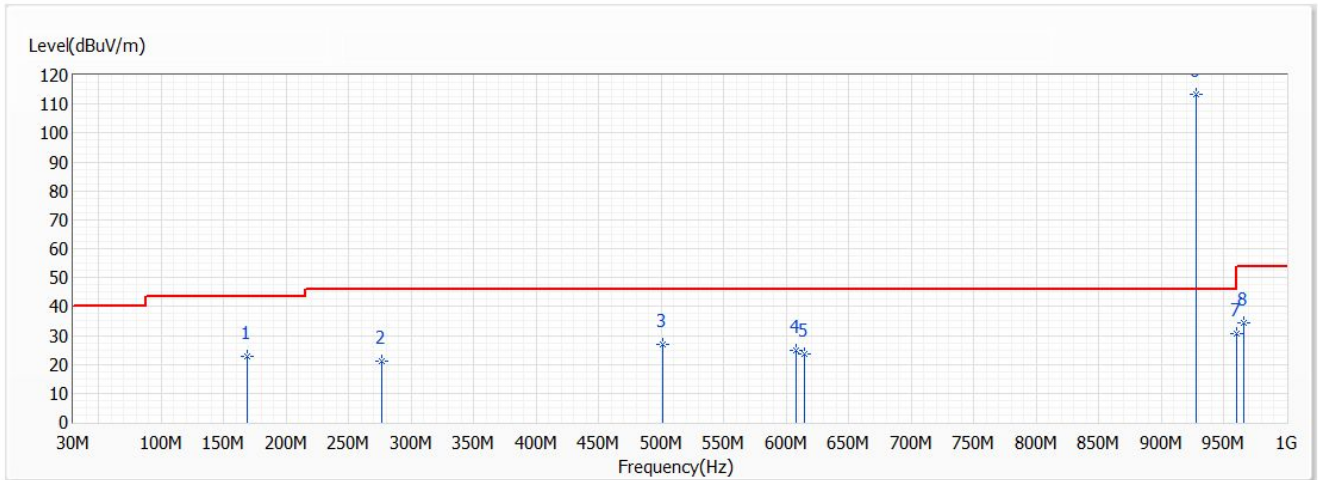


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	144.824	22.07	43.50	-21.43	24.95	-2.88	QP
2	274.440	22.17	46.00	-23.83	24.82	-2.65	QP
3	436.309	22.35	46.00	-23.65	20.36	1.99	QP
4	608.000	24.14	46.00	-21.86	17.96	6.18	QP
5	614.000	24.34	46.00	-21.66	18.09	6.25	QP
* 6	923.128	113.13	46.00	67.13	102.33	10.80	QP
7	960.000	29.58	46.00	-16.42	18.37	11.21	QP
8	966.050	32.05	54.00	-21.95	20.82	11.23	QP

Note:

1. All reading levels is Quasi-Peak value.
2. “ * ”, means this data is the worst value.
3. Emission Level = Reading Level + Correct Factor
4. The emission under 30MHz were not included is because their levels are lower than 20dB from limit.
5. “ * ”, means the fundamental for reference only, it's not restricted by unwanted emission limit.

Test Mode	Mode 1: Transmit (Adapter)	Polarity	Horizontal
Test Condition	927.5MHz	Test Voltage	AC120V/60Hz

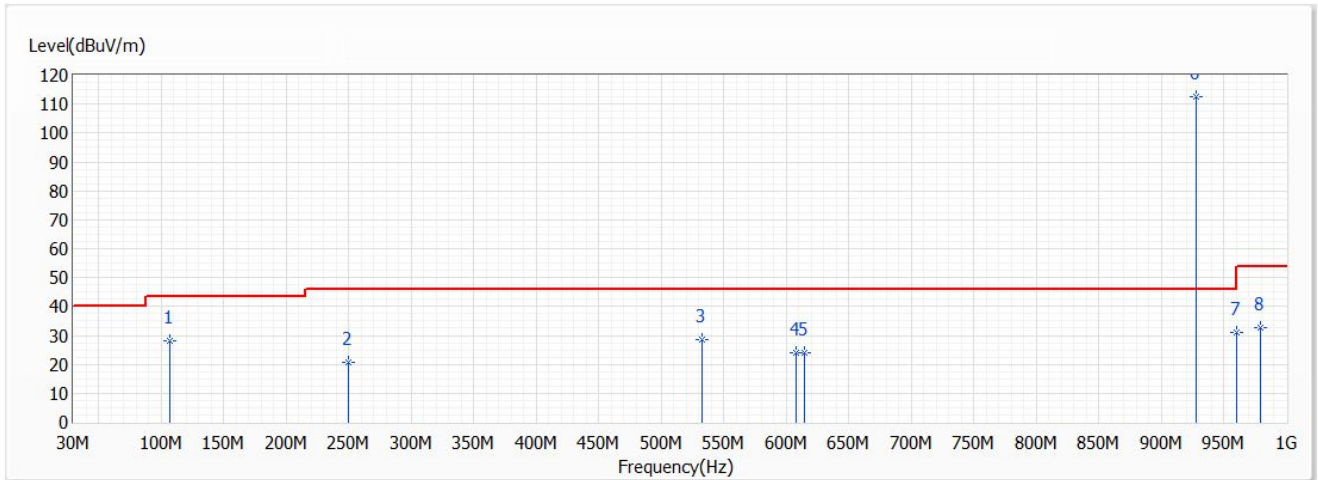


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	169.074	22.72	43.50	-20.78	25.72	-3.00	QP
2	276.501	21.08	46.00	-24.92	23.60	-2.52	QP
3	501.663	26.92	46.00	-19.08	23.63	3.29	QP
4	608.000	24.88	46.00	-21.12	18.70	6.18	QP
5	614.000	23.48	46.00	-22.52	17.23	6.25	QP
* 6	927.493	113.44	46.00	67.44	102.62	10.82	QP
7	960.000	30.60	46.00	-15.40	19.39	11.21	QP
8	966.050	34.37	54.00	-19.63	23.14	11.23	QP

Note:

1. All reading levels is Quasi-Peak value.
2. “ * ”, means this data is the worst value.
3. Emission Level = Reading Level + Correct Factor
4. The emission under 30MHz were not included is because their levels are lower than 20dB from limit.
5. “ * ”, means the fundamental for reference only, it's not restricted by unwanted emission limit.

Test Mode	Mode 1: Transmit (Adapter)	Polarity	Vertical
Test Condition	927.5MHz	Test Voltage	AC120V/60Hz

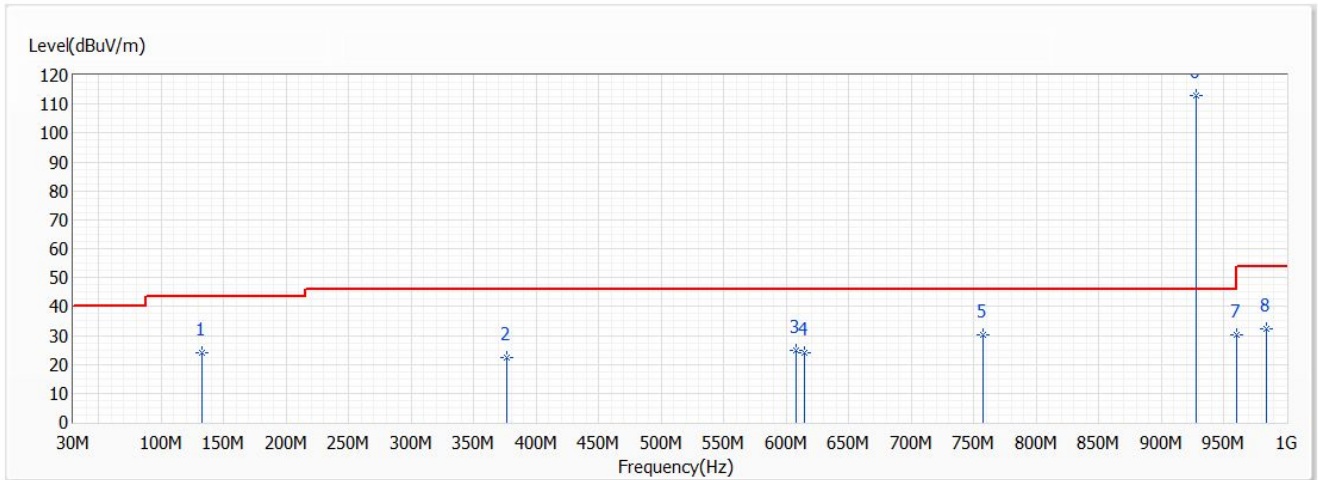


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	106.630	28.19	43.50	-15.31	34.37	-6.18	QP
2	249.948	20.67	46.00	-25.33	24.38	-3.71	QP
3	532.460	28.40	46.00	-17.60	24.32	4.08	QP
4	608.000	24.19	46.00	-21.81	18.01	6.18	QP
5	614.000	23.81	46.00	-22.19	17.56	6.25	QP
* 6	927.614	112.66	46.00	66.66	101.82	10.84	QP
7	960.000	30.92	46.00	-15.08	19.71	11.21	QP
8	978.903	32.64	54.00	-21.36	21.19	11.45	QP

Note:

1. All reading levels is Quasi-Peak value.
2. “ * ”, means this data is the worst value.
3. Emission Level = Reading Level + Correct Factor
4. The emission under 30MHz were not included is because their levels are lower than 20dB from limit.
5. “ * ”, means the fundamental for reference only, it's not restricted by unwanted emission limit.

Test Mode	Mode 2: Transmit (PoE)	Polarity	Horizontal
Test Condition	927.5MHz	Test Voltage	AC120V/60Hz

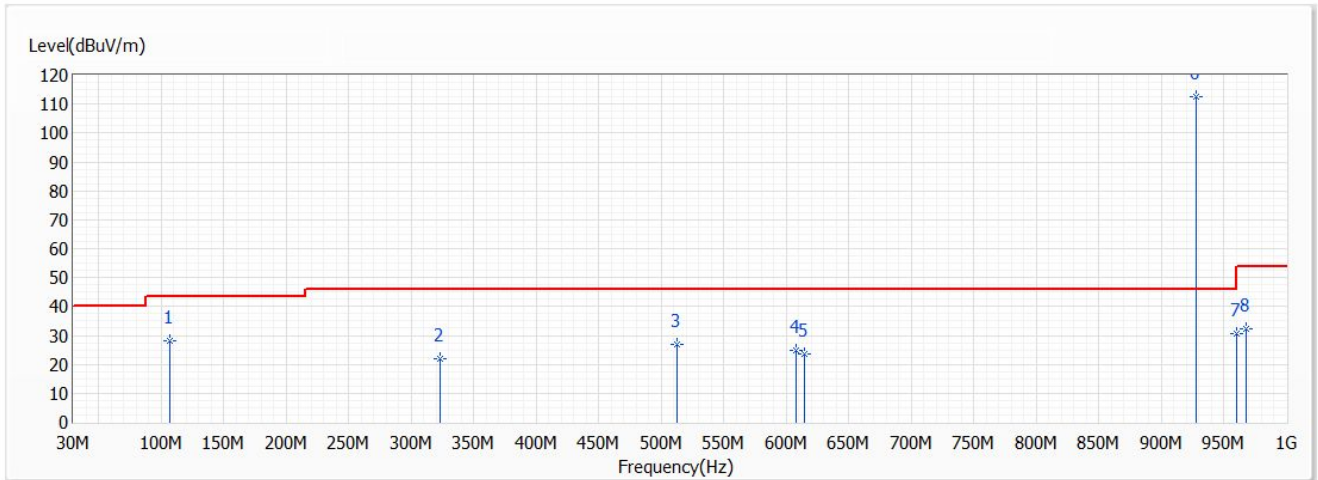


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	132.941	24.05	43.50	-19.45	27.67	-3.62	QP
2	376.169	22.24	46.00	-23.76	22.01	0.23	QP
3	608.000	24.88	46.00	-21.12	18.70	6.18	QP
4	614.000	23.92	46.00	-22.08	17.67	6.25	QP
5	757.258	30.31	46.00	-15.69	21.65	8.66	QP
* 6	927.493	113.14	46.00	67.14	102.32	10.82	QP
7	960.000	30.24	46.00	-15.76	19.03	11.21	QP
8	983.753	32.12	54.00	-21.88	20.76	11.36	QP

Note:

1. All reading levels is Quasi-Peak value.
2. “ * ”, means this data is the worst value.
3. Emission Level = Reading Level + Correct Factor
4. The emission under 30MHz were not included is because their levels are lower than 20dB from limit.
5. “ * ”, means the fundamental for reference only, it's not restricted by unwanted emission limit.

Test Mode	Mode 2: Transmit (PoE)	Polarity	Vertical
Test Condition	927.5MHz	Test Voltage	AC120V/60Hz



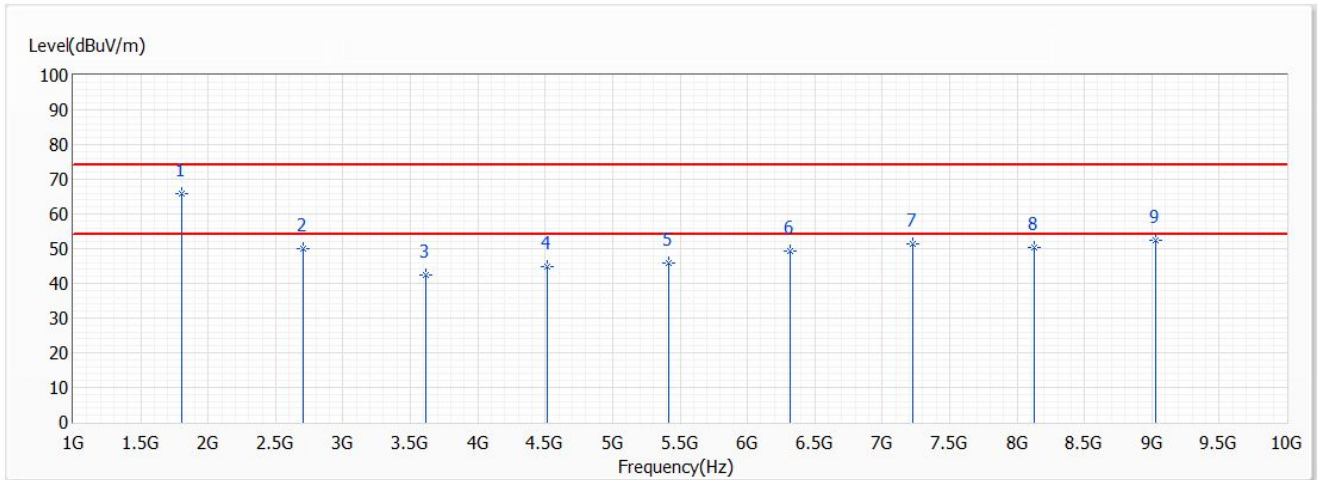
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	106.630	28.19	43.50	-15.31	34.37	-6.18	QP
2	323.425	22.00	46.00	-24.00	23.05	-1.05	QP
3	512.211	26.87	46.00	-19.13	23.22	3.65	QP
4	608.000	24.65	46.00	-21.35	18.47	6.18	QP
5	614.000	23.57	46.00	-22.43	17.32	6.25	QP
* 6	927.614	112.36	46.00	66.36	101.52	10.84	QP
7	960.000	30.42	46.00	-15.58	19.21	11.21	QP
8	967.384	32.30	54.00	-21.70	21.07	11.23	QP

Note:

1. All reading levels is Quasi-Peak value.
2. “ * ”, means this data is the worst value.
3. Emission Level = Reading Level + Correct Factor
4. The emission under 30MHz were not included is because their levels are lower than 20dB from limit.
5. “ * ”, means the fundamental for reference only, it's not restricted by unwanted emission limit.

1 GHz ~ 10th Harmonic Spurious

Test Mode	Mode 1: Transmit (Adapter)	Polarity	Horizontal
Test Condition	903MHz	Test Voltage	AC120V/60Hz

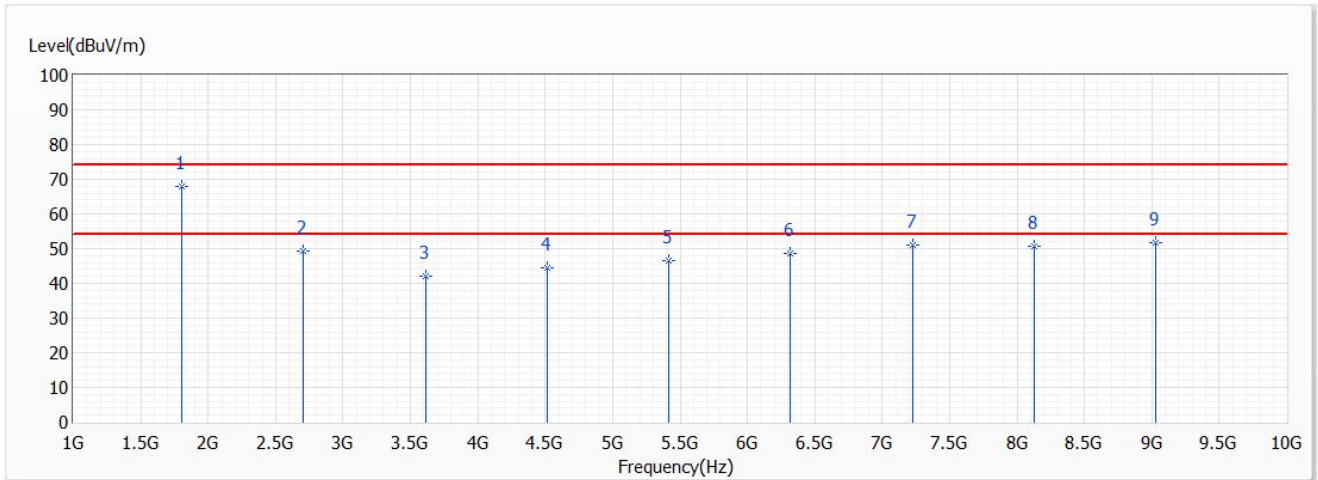


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
* 1	1806.000	65.85	74.00	-8.15	89.89	-24.04	PK
2	2709.000	50.09	74.00	-23.91	70.32	-20.23	PK
3	3612.000	42.47	74.00	-31.53	60.40	-17.93	PK
4	4515.000	44.90	74.00	-29.10	59.87	-14.97	PK
5	5418.000	45.91	74.00	-28.09	57.71	-11.80	PK
6	6321.000	49.27	74.00	-24.73	57.31	-8.04	PK
7	7224.000	51.40	74.00	-22.60	56.11	-4.71	PK
8	8127.000	50.40	74.00	-23.60	55.23	-4.83	PK
9	9030.000	52.46	74.00	-21.54	55.50	-3.04	PK

Note:

- 1.All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. “ * ”, means this data is the worst value.
- 3.Emission Level = Reading Level + Correct Factor.
- 4.The average measurement was not performed when the peak measured data under the limit of average detection.
- 5.The emission above 13GHz were not included is because their levels are lower than 20dB form limit.

Test Mode	Mode 1: Transmit (Adapter)	Polarity	Vertical
Test Condition	903MHz	Test Voltage	AC120V/60Hz

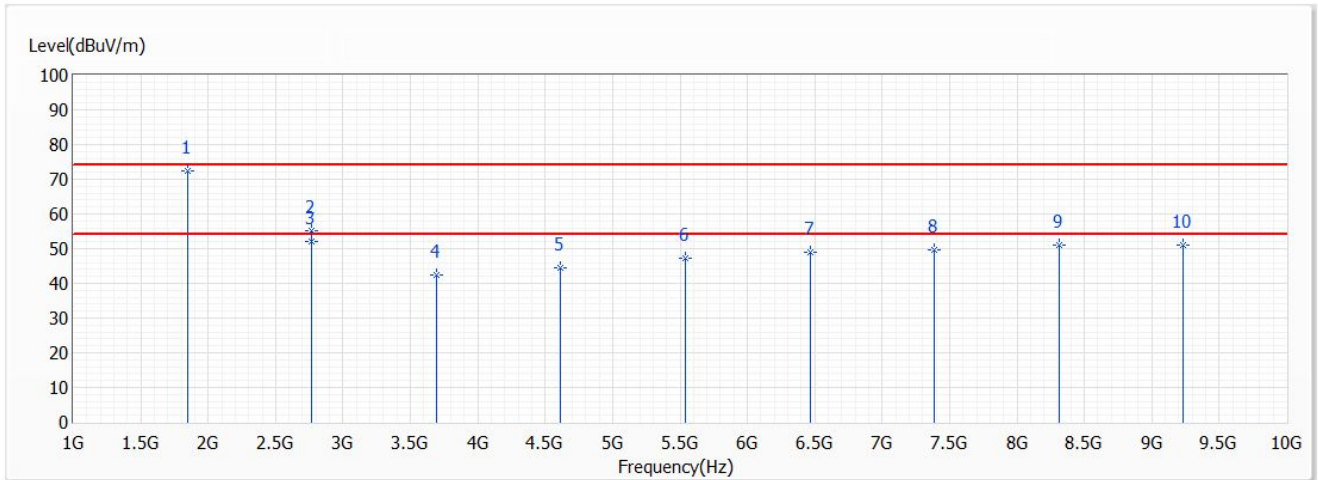


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
* 1	1806.000	67.89	74.00	-6.11	91.93	-24.04	PK
2	2709.000	49.45	74.00	-24.55	69.68	-20.23	PK
3	3612.000	42.06	74.00	-31.94	59.99	-17.93	PK
4	4515.000	44.35	74.00	-29.65	59.32	-14.97	PK
5	5418.000	46.41	74.00	-27.59	58.21	-11.80	PK
6	6321.000	48.58	74.00	-25.42	56.62	-8.04	PK
7	7224.000	51.01	74.00	-22.99	55.72	-4.71	PK
8	8127.000	50.52	74.00	-23.48	55.35	-4.83	PK
9	9030.000	51.81	74.00	-22.19	54.85	-3.04	PK

Note:

- 1.All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. “ * ”, means this data is the worst value.
- 3.Emission Level = Reading Level + Correct Factor.
- 4.The average measurement was not performed when the peak measured data under the limit of average detection.
- 5.The emission above 13GHz were not included is because their levels are lower than 20dB form limit.

Test Mode	Mode 1: Transmit (Adapter)	Polarity	Horizontal
Test Condition	923.3MHz	Test Voltage	AC120V/60Hz

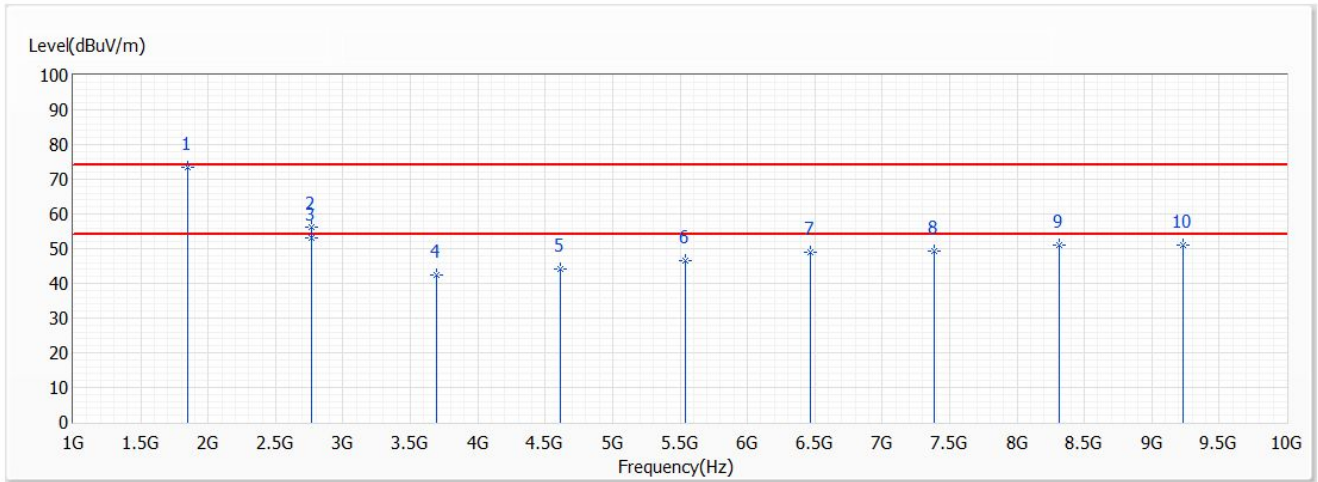


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
* 1	1846.600	72.54	74.00	-1.46	96.45	-23.91	PK
2	2769.900	55.12	74.00	-18.88	75.09	-19.97	PK
3	2769.900	52.15	54.00	-1.85	72.12	-19.97	AV
4	3693.200	42.56	74.00	-31.44	60.18	-17.62	PK
5	4616.500	44.56	74.00	-29.44	59.13	-14.57	PK
6	5539.800	47.22	74.00	-26.78	58.57	-11.35	PK
7	6463.100	49.02	74.00	-24.98	56.65	-7.63	PK
8	7386.400	49.79	74.00	-24.21	54.29	-4.50	PK
9	8309.700	51.17	74.00	-22.83	55.45	-4.28	PK
10	9233.000	51.08	74.00	-22.92	53.94	-2.86	PK

Note:

- 1.All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. “ * ”, means this data is the worst value.
- 3.Emission Level = Reading Level + Correct Factor.
- 4.The average measurement was not performed when the peak measured data under the limit of average detection.
- 5.The emission above 13GHz were not included is because their levels are lower than 20dB form limit.

Test Mode	Mode 1: Transmit (Adapter)	Polarity	Vertical
Test Condition	923.3MHz	Test Voltage	AC120V/60Hz

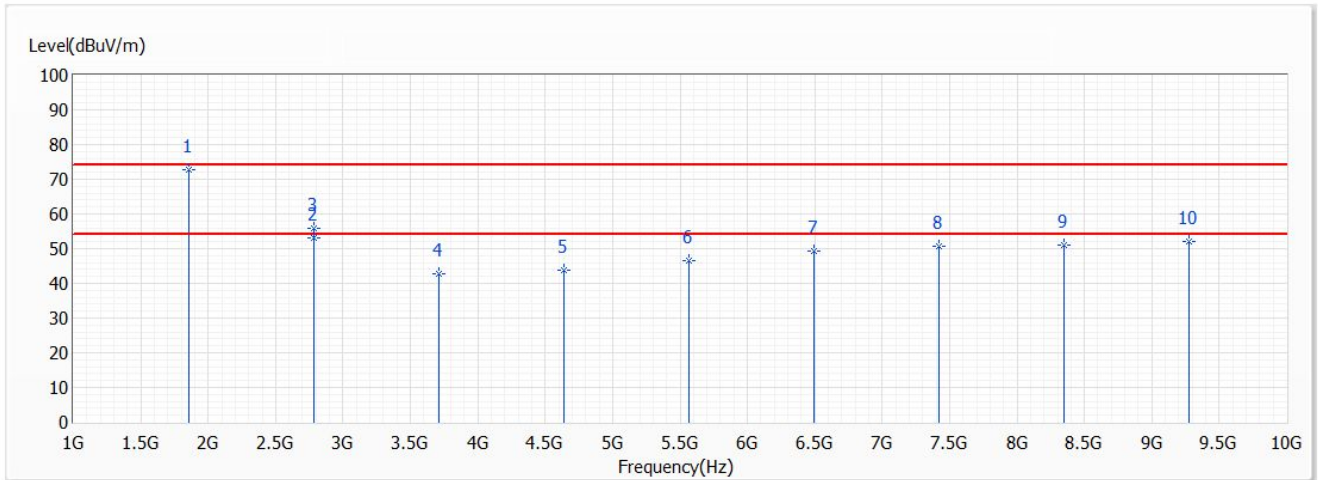


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
* 1	1846.600	73.36	74.00	-0.64	97.27	-23.91	PK
2	2769.900	56.23	74.00	-17.77	76.20	-19.97	PK
3	2769.900	53.25	54.00	-0.75	73.22	-19.97	AV
4	3693.200	42.53	74.00	-31.47	60.15	-17.62	PK
5	4616.500	44.12	74.00	-29.88	58.69	-14.57	PK
6	5539.800	46.43	74.00	-27.57	57.78	-11.35	PK
7	6463.100	48.82	74.00	-25.18	56.45	-7.63	PK
8	7386.400	49.41	74.00	-24.59	53.91	-4.50	PK
9	8309.700	51.06	74.00	-22.94	55.34	-4.28	PK
10	9233.000	51.20	74.00	-22.80	54.06	-2.86	PK

Note:

- 1.All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. “ * ”, means this data is the worst value.
- 3.Emission Level = Reading Level + Correct Factor.
- 4.The average measurement was not performed when the peak measured data under the limit of average detection.
- 5.The emission above 13GHz were not included is because their levels are lower than 20dB form limit.

Test Mode	Mode 1: Transmit (Adapter)	Polarity	Horizontal
Test Condition	927.5MHz	Test Voltage	AC120V/60Hz

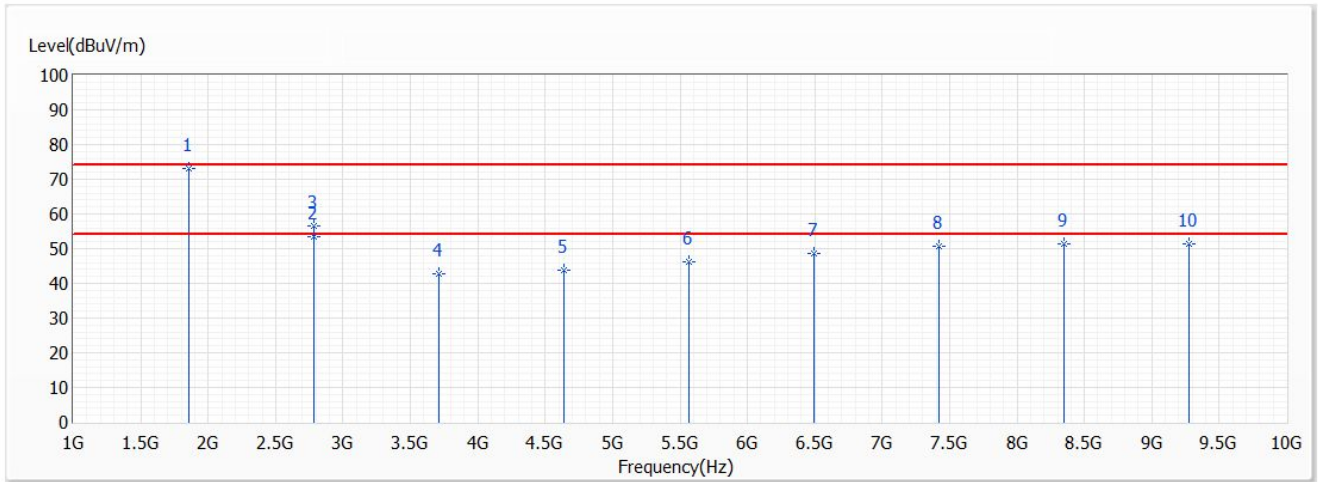


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	1855.000	72.87	74.00	-1.13	96.75	-23.88	PK
* 2	2782.500	53.19	54.00	-0.81	73.10	-19.91	AV
3	2782.500	55.94	74.00	-18.06	75.85	-19.91	PK
4	3710.000	42.93	74.00	-31.07	60.49	-17.56	PK
5	4637.500	43.67	74.00	-30.33	58.16	-14.49	PK
6	5565.000	46.69	74.00	-27.31	57.91	-11.22	PK
7	6492.500	49.19	74.00	-24.81	56.73	-7.54	PK
8	7420.000	50.58	74.00	-23.42	55.04	-4.46	PK
9	8347.500	51.06	74.00	-22.94	55.23	-4.17	PK
10	9275.000	52.12	74.00	-21.88	54.95	-2.83	PK

Note:

- 1.All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. “ * ”, means this data is the worst value.
- 3.Emission Level = Reading Level + Correct Factor.
- 4.The average measurement was not performed when the peak measured data under the limit of average detection.
- 5.The emission above 13GHz were not included is because their levels are lower than 20dB form limit.

Test Mode	Mode 1: Transmit (Adapter)	Polarity	Vertical
Test Condition	927.5MHz	Test Voltage	AC120V/60Hz



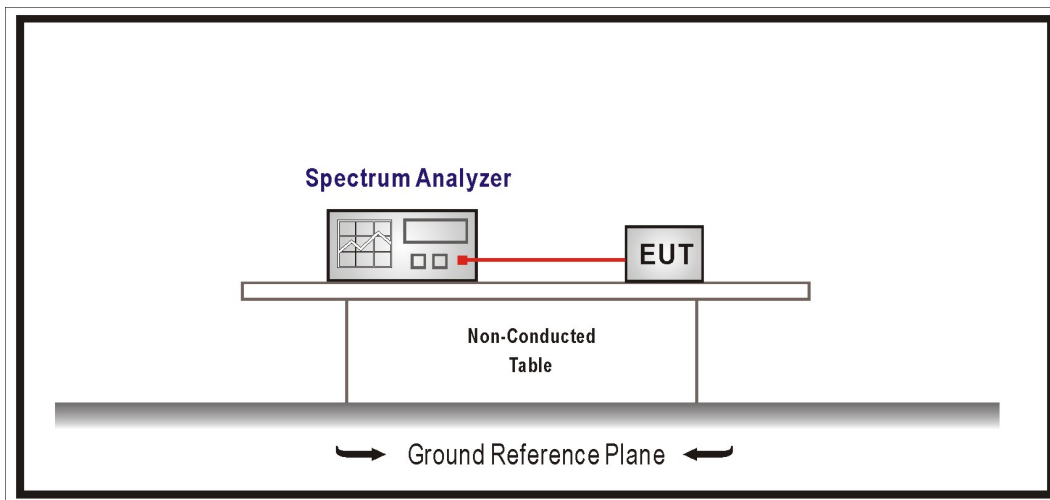
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	1855.000	73.15	74.00	-0.85	97.03	-23.88	PK
* 2	2782.500	53.47	54.00	-0.53	73.38	-19.91	AV
3	2782.500	56.55	74.00	-17.45	76.46	-19.91	PK
4	3710.000	42.85	74.00	-31.15	60.41	-17.56	PK
5	4637.500	43.84	74.00	-30.16	58.33	-14.49	PK
6	5565.000	46.32	74.00	-27.68	57.54	-11.22	PK
7	6492.500	48.55	74.00	-25.45	56.09	-7.54	PK
8	7420.000	50.63	74.00	-23.37	55.09	-4.46	PK
9	8347.500	51.37	74.00	-22.63	55.54	-4.17	PK
10	9275.000	51.24	74.00	-22.76	54.07	-2.83	PK

Note:

- 1.All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. “ * ”, means this data is the worst value.
- 3.Emission Level = Reading Level + Correct Factor.
- 4.The average measurement was not performed when the peak measured data under the limit of average detection.
- 5.The emission above 13GHz were not included is because their levels are lower than 20dB form limit.

5. Antenna Port Conducted Emission

5.1 Test Setup



5.2 Test Limit

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, provided the transmitter demonstrates compliance with the peak conducted power limit. If the transmitter complies with the conducted power limit based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limit specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limit specified in §15.209(a) (see §15.205(c)).

5.3 Test Procedure

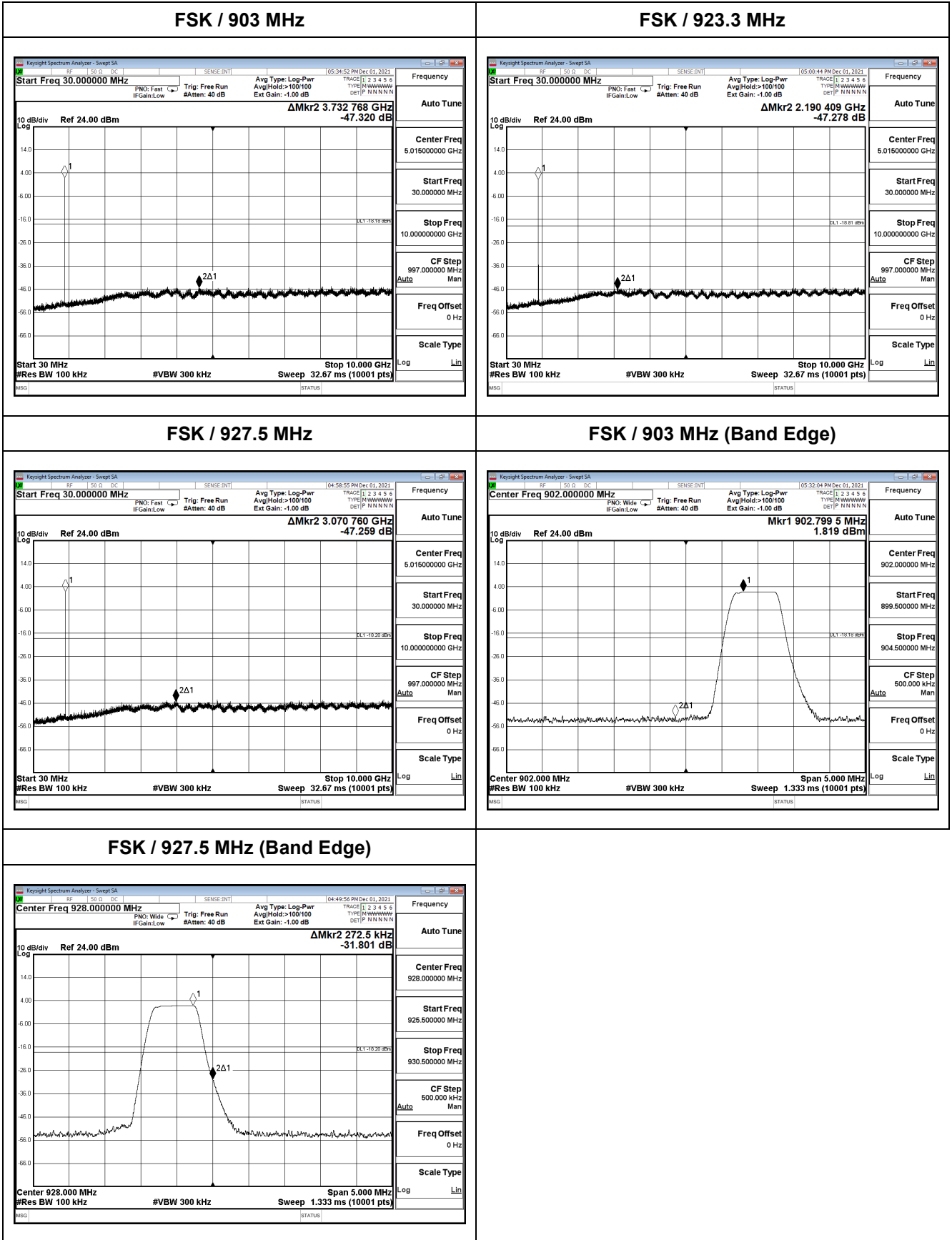
The EUT was setup according to ANSI C63.10: 2013 and tested according to DTS test procedure of KDB 558074 D01 V05r02 for compliance to FCC 47CFR 15.247 requirements.

Set RBW = 100 kHz, Set VBW > RBW, scan up through 10th harmonic.

5.4 Test Specification

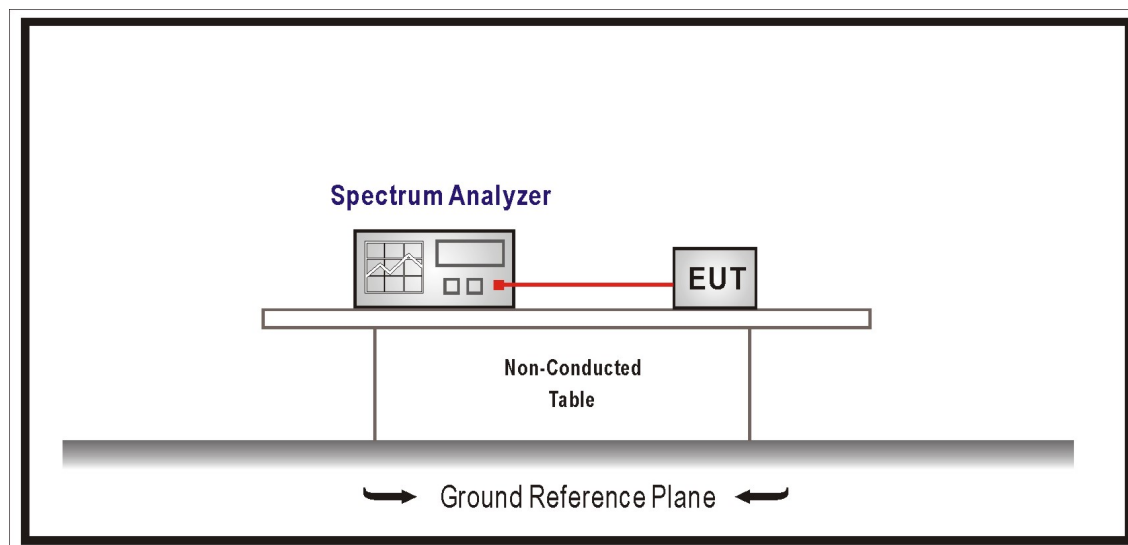
According to FCC Part 15 Subpart C Paragraph 15.247.

5.5 Test Result of Antenna Port Conducted Emission



6. Occupied Bandwidth & DTS Bandwidth

6.1 Test Setup



6.2 Test Limit

The 6 dB bandwidth: ≥ 500 kHz.

Occupied Bandwidth: NA

6.3 Test Procedures

The EUT was setup according to ANSI C63.10: 2013; tested according to DTS test procedure of KDB 558074 D01 V05r02 for compliance to FCC 47CFR 15.247 requirements.

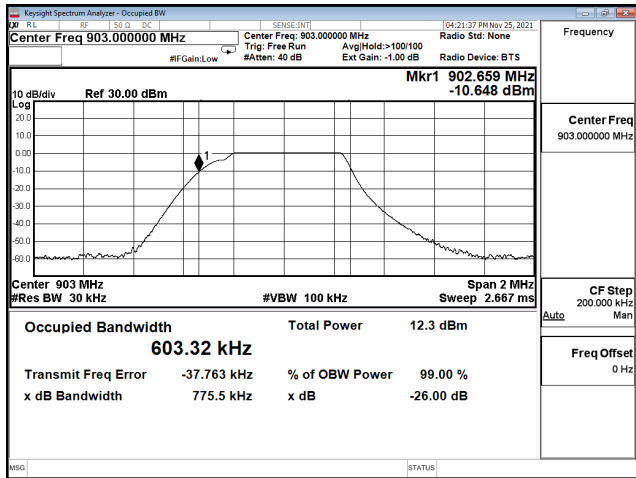
6.4 Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247.

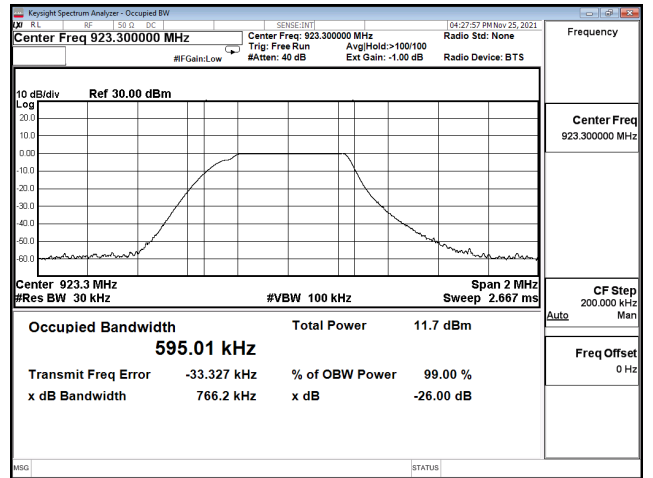
6.5 Test Result of Occupied Bandwidth

Modulation	Channel	Frequency (MHz)	Measure Level (MHz)	Limit (MHz)
FSK	00	903	0.603	-
	08	923.3	0.595	-
	15	927.5	0.594	-

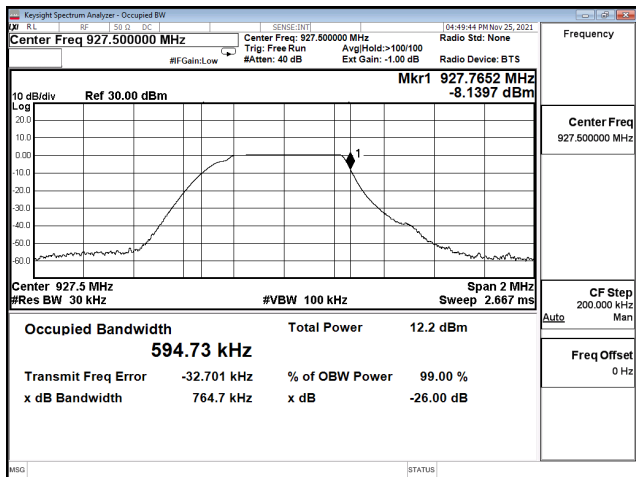
FSK / 903 MHz



FSK / 923.3 MHz



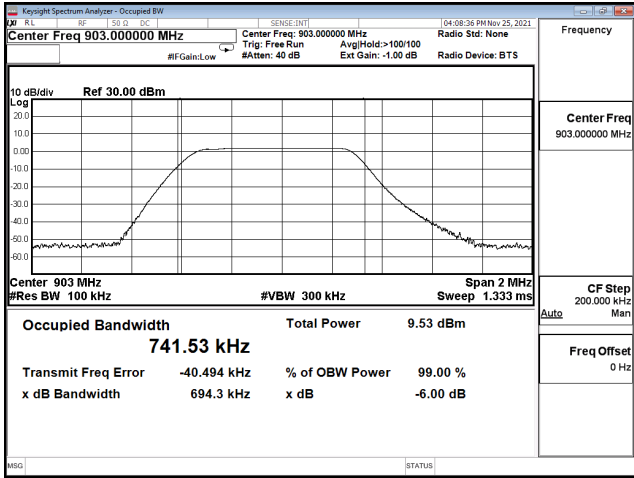
FSK / 927.5 MHz



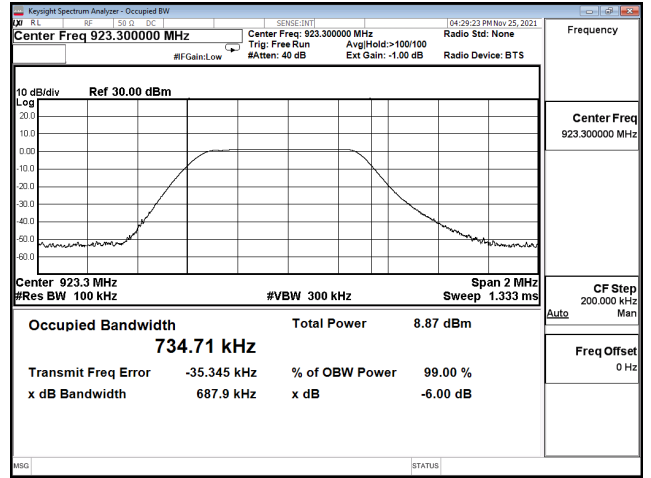
6.6 Test Result of DTS Bandwidth

Modulation	Channel	Frequency (MHz)	Measure Level (MHz)	Limit (MHz)	Result
FSK	00	903	0.694	≥ 0.500	Pass
	08	923.3	0.687	≥ 0.500	Pass
	15	927.5	0.686	≥ 0.500	Pass

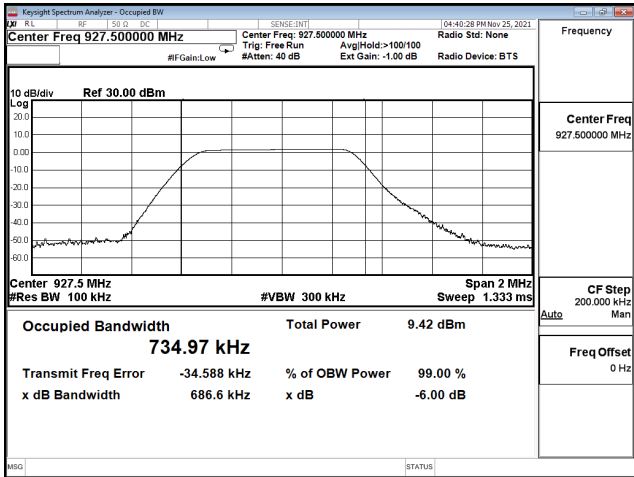
FSK / 903 MHz



FSK / 923.3 MHz

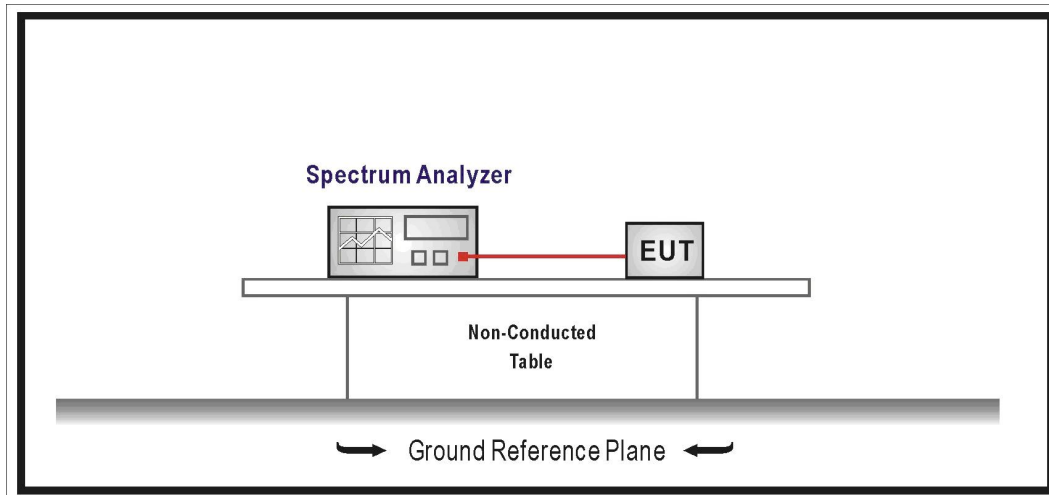


FSK / 927.5 MHz



7. Maximum Power Spectral Density

7.1 Test Setup



7.2 Test Limit

The peak power spectral density conducted from the intentional radiated to the antenna shall not be greater than +8 dBm in any 3 kHz band during any time interval of continuous transmission.

7.3 Test Procedures

The EUT was setup according to ANSI C63.10: 2013; tested according to DTS test procedure of KDB 558074 D01 V05r02 for compliance to FCC 47CFR 15.247 requirements.

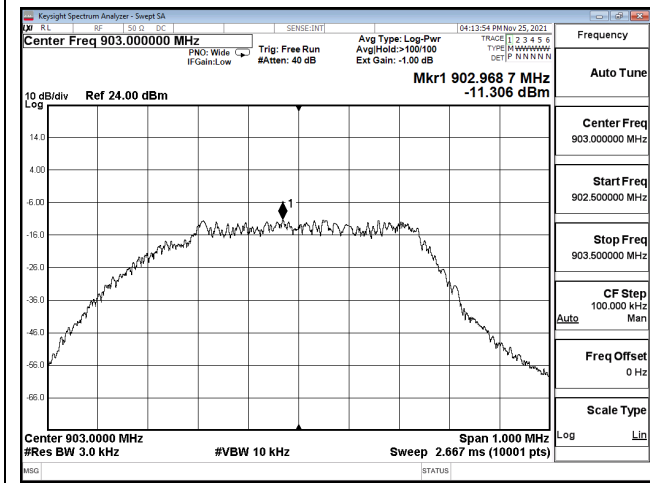
7.4 Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247

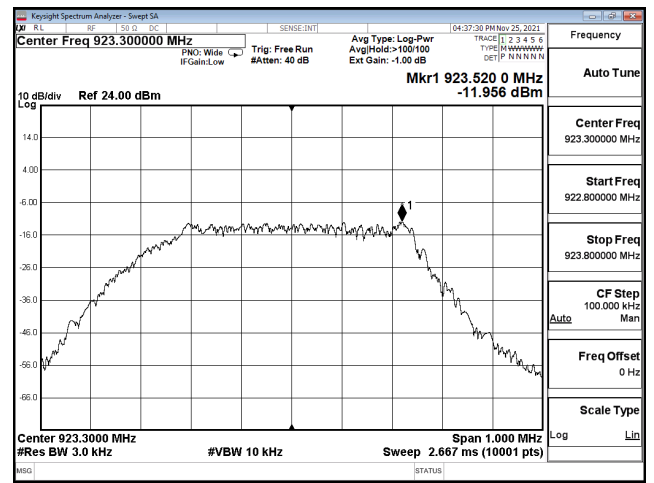
7.5 Test Result of Maximum Power Spectral Density

Modulation	Channel	Frequency (MHz)	Measure Value (dBm/3kHz)	Limit (dBm/3kHz)	Result
FSK	00	903	-11.306	≤ 8.000	Pass
	08	923.3	-11.956	≤ 8.000	Pass
	15	927.5	-11.388	≤ 8.000	Pass

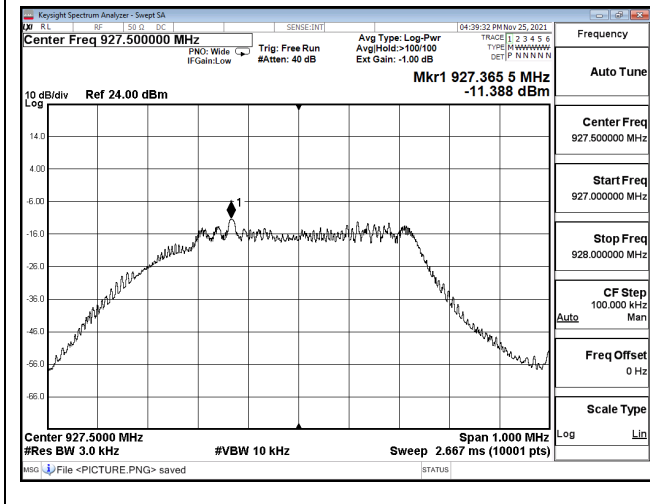
FSK / 903 MHz



FSK / 923.3 MHz



FSK / 927.5 MHz



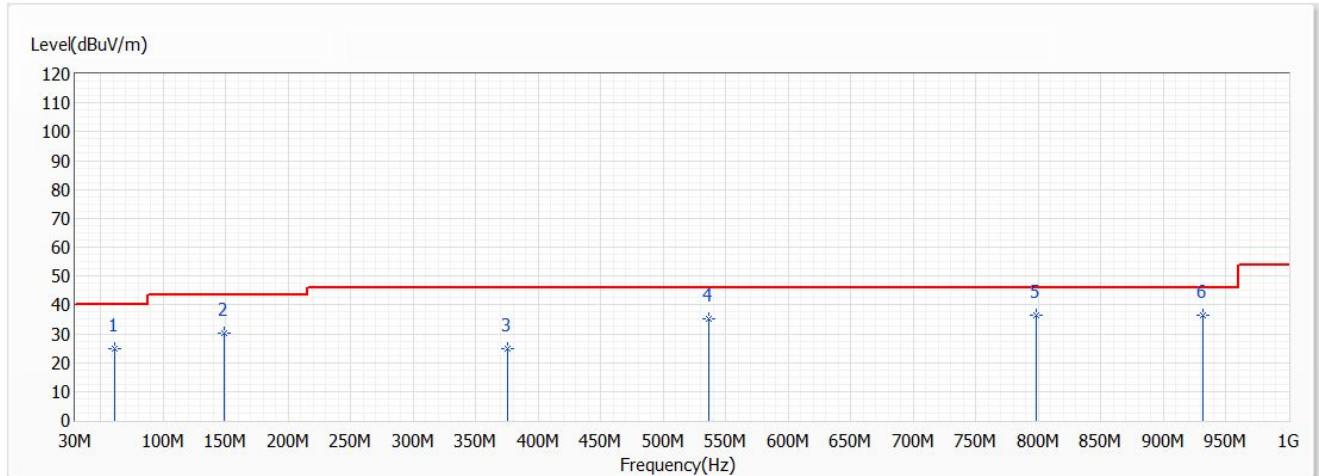
Appendix A

➤ Test Result of Radiated Emissions Co-location

LoRa + WWAN LTE function

30 MHz ~ 1 GHz:

Test Mode	Mode 1: Transmit (Adapter)	Polarity	Horizontal
Test Condition	LoRa + LTE Cat M1		

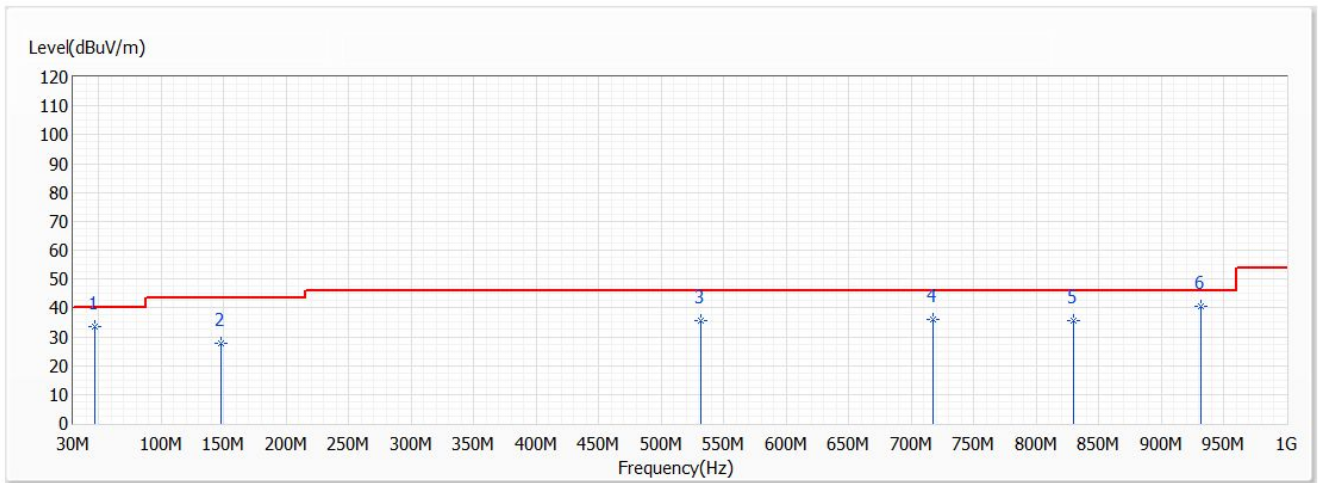


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	61.889	24.91	40.00	-15.09	27.66	-2.75	QP
2	149.310	30.28	43.50	-13.22	33.22	-2.94	QP
3	375.078	25.02	46.00	-20.98	24.81	0.21	QP
4	536.825	35.28	46.00	-10.72	31.08	4.20	QP
* 5	798.119	36.53	46.00	-9.47	27.55	8.98	QP
6	931.009	36.31	46.00	-9.69	25.52	10.79	QP

Note:

1. All reading levels is Quasi-Peak value.
2. “ * ”, means this data is the worst value.
3. Emission Level = Reading Level + Correct Factor
4. The emission under 30MHz were not included is because their levels are lower than 20dB from limit.

Test Mode	Mode 1: Transmit (Adapter)	Polarity	Vertical
Test Condition	LoRa + LTE Cat M1		

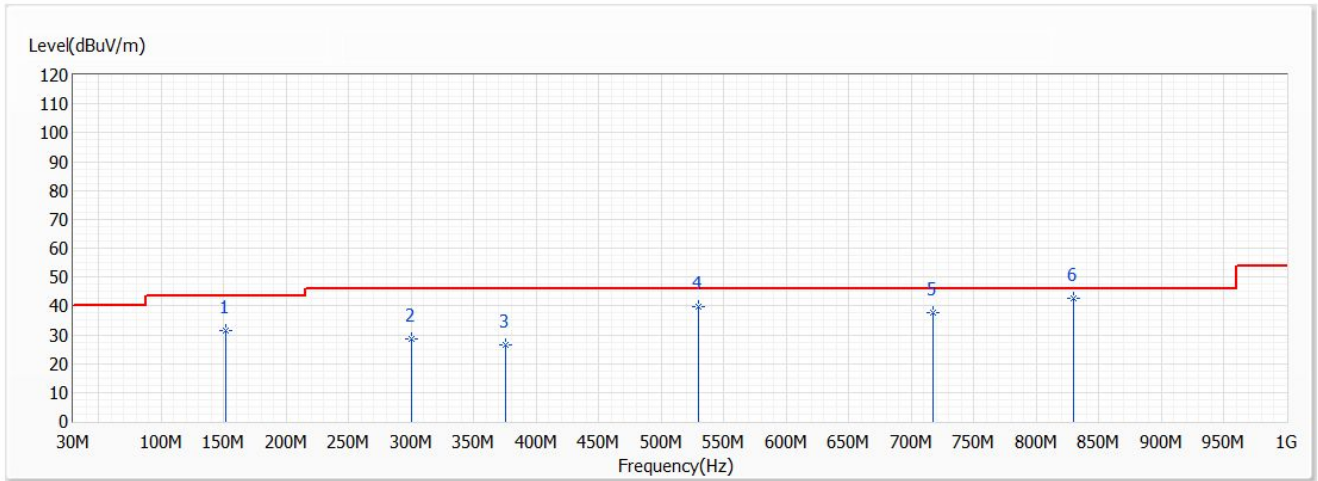


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	47.581	33.42	40.00	-6.58	35.33	-1.91	QP
2	147.613	27.91	43.50	-15.59	30.58	-2.67	QP
3	531.975	35.73	46.00	-10.27	31.66	4.07	QP
4	717.124	36.19	46.00	-9.81	28.58	7.61	QP
5	829.886	35.65	46.00	-10.35	26.11	9.54	QP
* 6	931.009	40.41	46.00	-5.59	29.62	10.79	QP

Note:

1. All reading levels is Quasi-Peak value.
2. “ * ”, means this data is the worst value.
3. Emission Level = Reading Level + Correct Factor
4. The emission under 30MHz were not included is because their levels are lower than 20dB from limit.

Test Mode	Mode 1: Transmit (Adapter)	Polarity	Horizontal
Test Condition	LoRa + LTE NB-IoT		

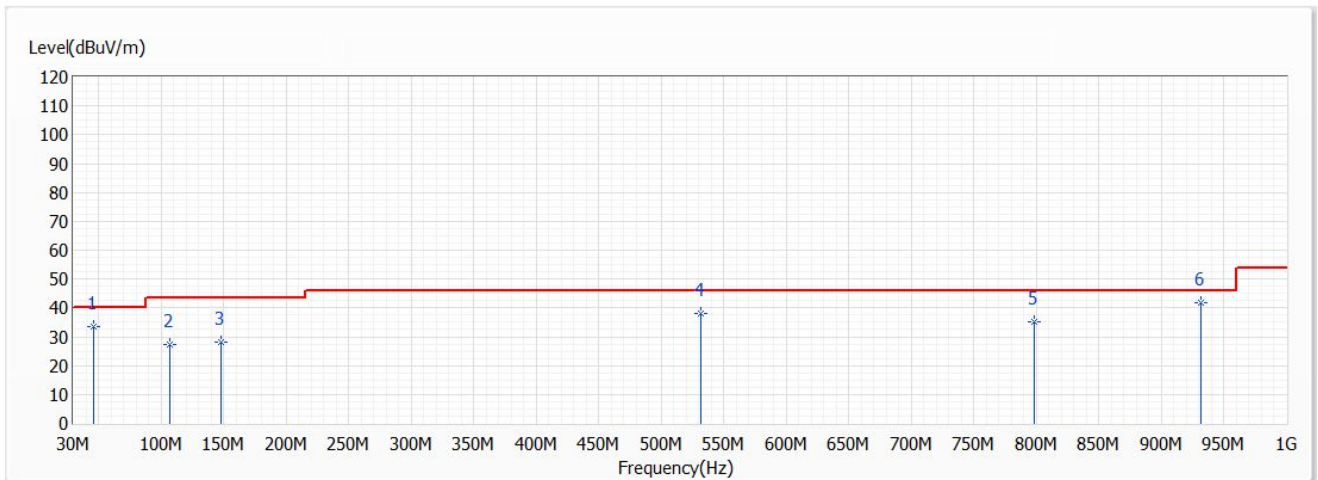


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	152.220	31.41	43.50	-12.09	33.96	-2.55	QP
2	300.024	28.46	46.00	-17.54	30.28	-1.82	QP
3	375.078	26.46	46.00	-19.54	26.25	0.21	QP
4	529.429	39.54	46.00	-6.46	35.52	4.02	QP
5	717.003	37.63	46.00	-8.37	30.02	7.61	QP
* 6	829.523	42.81	46.00	-3.19	33.28	9.53	QP

Note:

1. All reading levels is Quasi-Peak value.
2. “ * ”, means this data is the worst value.
3. Emission Level = Reading Level + Correct Factor
4. The emission under 30MHz were not included is because their levels are lower than 20dB from limit.

Test Mode	Mode 1: Transmit (Adapter)	Polarity	Vertical
Test Condition	LoRa + LTE NB-IoT		



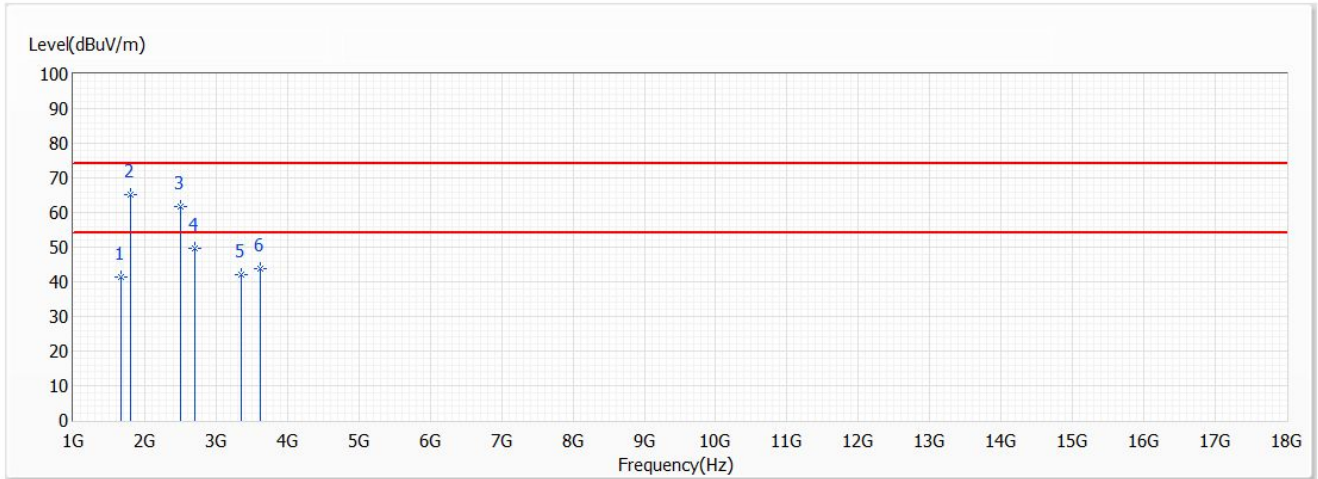
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	45.763	33.66	40.00	-6.34	35.51	-1.85	QP
2	106.751	27.51	43.50	-15.99	33.67	-6.16	QP
3	147.613	28.04	43.50	-15.46	30.71	-2.67	QP
4	531.975	37.99	46.00	-8.01	33.92	4.07	QP
5	798.119	35.05	46.00	-10.95	26.07	8.98	QP
* 6	931.009	41.72	46.00	-4.28	30.93	10.79	QP

Note:

1. All reading levels is Quasi-Peak value.
2. “ * ”, means this data is the worst value.
3. Emission Level = Reading Level + Correct Factor
4. The emission under 30MHz were not included is because their levels are lower than 20dB from limit.

Above 1 GHz:

Test Mode	Mode 1: Transmit (Adapter)	Polarity	Horizontal
Test Condition	LoRa + LTE Cat M1		

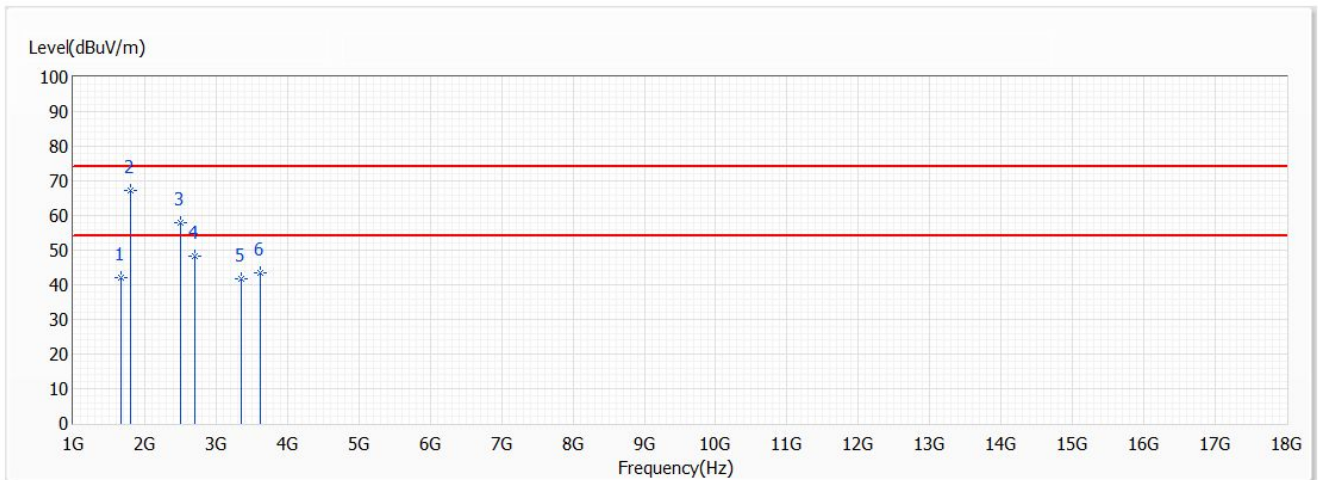


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	1673.000	41.25	74.00	-32.75	65.75	-24.50	PK
* 2	1806.000	65.20	74.00	-8.80	89.24	-24.04	PK
3	2509.500	61.83	74.00	-12.17	82.89	-21.06	PK
4	2709.000	49.66	74.00	-24.34	69.89	-20.23	PK
5	3346.000	42.12	74.00	-31.88	60.68	-18.56	PK
6	3612.000	43.91	74.00	-30.09	61.84	-17.93	PK

Note:

1. All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. “ * ”, means this data is the worst value.
3. Emission Level = Reading Level + Correct Factor.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission above 13GHz were not included is because their levels are lower than 20dB form limit.

Test Mode	Mode 1: Transmit (Adapter)	Polarity	Vertical
Test Condition	LoRa + LTE Cat M1		

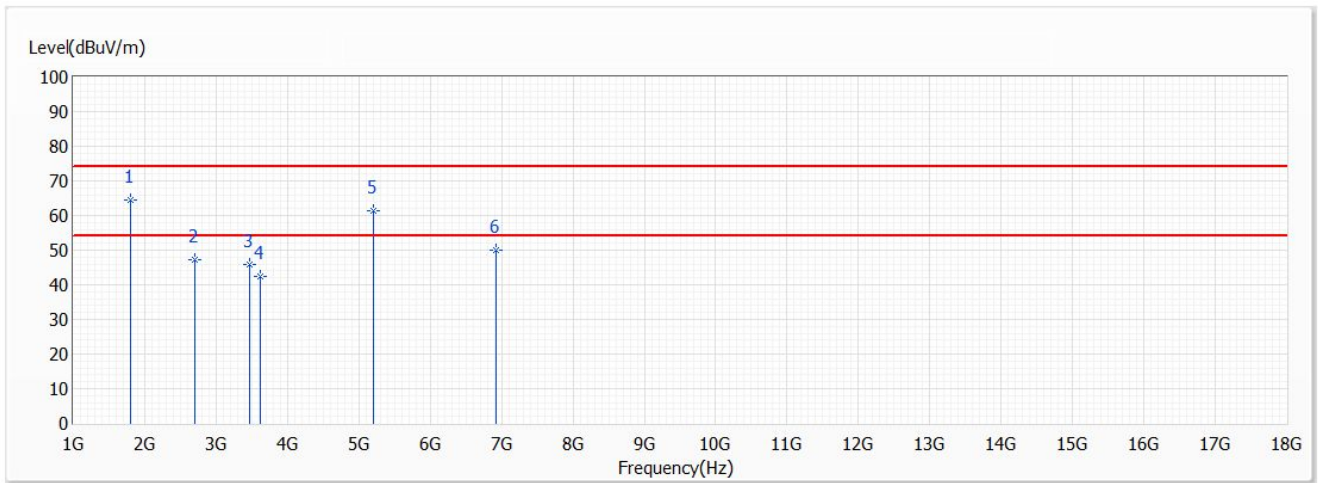


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	1673.000	42.13	74.00	-31.87	66.81	-24.68	PK
* 2	1806.000	67.21	74.00	-6.79	91.40	-24.19	PK
3	2509.500	57.82	74.00	-16.18	78.87	-21.05	PK
4	2709.000	48.31	74.00	-25.69	68.47	-20.16	PK
5	3346.000	41.89	74.00	-32.11	60.24	-18.35	PK
6	3612.000	43.29	74.00	-30.71	60.98	-17.69	PK

Note:

- 1.All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. “ * ”, means this data is the worst value.
- 3.Emission Level = Reading Level + Correct Factor.
- 4.The average measurement was not performed when the peak measured data under the limit of average detection.
- 5.The emission above 13GHz were not included is because their levels are lower than 20dB form limit.

Test Mode	Mode 1: Transmit (Adapter)	Polarity	Horizontal
Test Condition	LoRa + LTE NB-IoT		

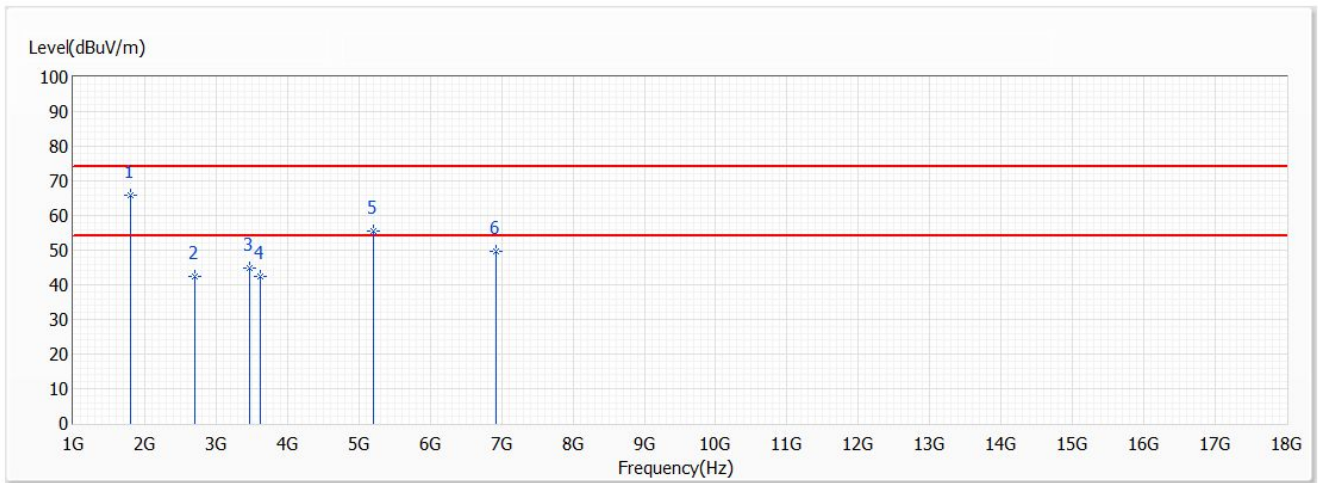


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
* 1	1806.000	64.35	74.00	-9.65	88.39	-24.04	PK
2	2709.000	47.14	74.00	-26.86	67.37	-20.23	PK
3	3465.000	45.75	74.00	-28.25	64.15	-18.40	PK
4	3612.000	42.48	74.00	-31.52	60.41	-17.93	PK
5	5197.500	61.33	74.00	-12.67	73.80	-12.47	PK
6	6930.000	50.15	74.00	-23.85	55.51	-5.36	PK

Note:

- 1.All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. “ * ”, means this data is the worst value.
- 3.Emission Level = Reading Level + Correct Factor.
- 4.The average measurement was not performed when the peak measured data under the limit of average detection.
- 5.The emission above 13GHz were not included is because their levels are lower than 20dB form limit.

Test Mode	Mode 1: Transmit (Adapter)	Polarity	Vertical
Test Condition	LoRa + LTE NB-IoT		



No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
* 1	1806.000	65.82	74.00	-8.18	90.01	-24.19	PK
2	2709.000	42.48	74.00	-31.52	62.64	-20.16	PK
3	3465.000	44.68	74.00	-29.32	62.86	-18.18	PK
4	3612.000	42.53	74.00	-31.47	60.22	-17.69	PK
5	5197.500	55.52	74.00	-18.48	67.73	-12.21	PK
6	6930.000	49.64	74.00	-24.36	56.47	-6.83	PK

Note:

- 1.All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. “ * ”, means this data is the worst value.
- 3.Emission Level = Reading Level + Correct Factor.
- 4.The average measurement was not performed when the peak measured data under the limit of average detection.
- 5.The emission above 13GHz were not included is because their levels are lower than 20dB form limit.