



TEST REPORT

APPLICANT : Linkplay Technology Inc.

PRODUCT NAME : WiiM Pro Plus Hi-Res Audio Streamer

MODEL NAME : ASR003

BRAND NAME : WiiM

FCC ID : 2BABF-ASR003

STANDARD(S) : 47 CFR Part 15 Subpart C

RECEIPT DATE : 2023-06-25

TEST DATE : 2023-07-02 to 2023-07-07

ISSUE DATE : 2023-07-19



Edited by: Su Xiaoxian
Su Xiaoxian (Rapporteur)

Approved by: Shen Junsheng
Shen Junsheng (Supervisor)

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Change History		
Version	Date	Reason for change
1.0	2023-07-19	First edition



1. Technical Information

Note: Provide by applicant.

1.1. Applicant and Manufacturer Information

Applicant:	Linkplay Technology Inc.
Applicant Address:	8000 Jarvis Avenue Suite #130, Newark, CA 94560
Manufacturer:	Linkplay Technology Inc.
Manufacturer Address:	8000 Jarvis Avenue Suite #130, Newark, CA 94560

1.2. Equipment Under Test (EUT) Description

Product Name:	WiiM Pro Plus Hi-Res Audio Streamer	
Sample No.:	3#	
Hardware Version:	Main Board V01+Audio Board V03+Touch Board V04	
Software Version:	Linkplay.4.8.518646	
Equipment Type:	Bluetooth LE	
Bluetooth Version:	5.0	
Modulation Type:	GFSK	
Data Rate:	1Mbps, 2Mbps	
Operating Frequency Range:	2402MHz-2480MHz	
Antenna Type:	PIFA Antenna	
Antenna Gain:	1.90dBi	
Accessory Information:	AC Adapter 1	
	Brand Name:	N/A
	Model No.:	MDY-08-EZ
	Serial No.:	N/A
	Rated Output:	5V \pm 2A
	Rated Input:	100-240V \sim 50/60Hz, 0.35A
	Manufacturer:	Jiangsu Chenyang Electron Co.,Ltd.



Accessory Information:	AC Adapter 2	
	Brand Name:	N/A
	Model No.:	TPA-147A050200UU01
	Serial No.:	N/A
	Rated Output:	5V $\overline{=}$ 2A
	Rated Input:	100-240V \sim 50/60Hz, 0.3A
	Manufacturer:	SHENZHEN TIANYIN ELECTRONICS CO.,LTD.

Note 1: The test results of all conducted test items please refer to the module FCC test report (Report No.: SZ20110203W01, FCC ID: 2ANOG-A98M), which issued on December 18, 2020 by Shenzhen Morlab Communications Technology Co., Ltd. We only recorded the radiated test result in this report.



1.3. The Channel Number and Frequency

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	2402	10	2422	20	2442	30	2462
1	2404	11	2424	21	2444	31	2464
2	2406	12	2426	22	2446	32	2466
3	2408	13	2428	23	2448	33	2468
4	2410	14	2430	24	2450	34	2470
5	2412	15	2432	25	2452	35	2472
6	2414	16	2434	26	2454	36	2474
7	2416	17	2436	27	2456	37	2476
8	2418	18	2438	28	2458	38	2478
9	2420	19	2440	29	2460	39	2480

Note 1: The black bold channels were selected for test.



1.4. Test Standards and Results

The objective of the report is to perform testing according to 47 CFR Part 15 Subpart C for the EUT FCC ID Certification:

No.	Identity	Document Title
1	47 CFR Part 15	Radio Frequency Devices

Test detailed items/section required by FCC rules and results are as below:

No.	Section	Description	Test Date	Test Engineer	Result	Method Determination /Remark
1	15.203	Antenna Requirement	N/A	N/A _{Note1}	N/A	N/A
2	N/A	Duty Cycle of Test Signal	N/A	N/A _{Note1}	N/A	N/A
3	15.247(b)	Maximum Peak Conducted Output Power	N/A	N/A _{Note1}	N/A	N/A
4	15.247(b)	Maximum Average Conducted Output Power	N/A	N/A _{Note1}	N/A	N/A
5	15.247(a)	Bandwidth	N/A	N/A _{Note1}	N/A	N/A
6	15.247(d)	Conducted Spurious Emission and Band Edge	N/A	N/A _{Note1}	N/A	N/A
7	15.247(e)	Power Spectral Density	N/A	N/A _{Note1}	N/A	N/A
8	15.207	Conducted Emission	Jul. 03, 2023	Fan Zehang	PASS	No deviation
9	15.247(d)	Restricted Frequency Bands	Jul. 01, 2023	Gao Jianrou	PASS	No deviation
10	15.209, 15.247(d)	Radiated Emission	Jul. 02, 2023	Gao Jianrou	PASS	No deviation

Note 1: The test results of all conducted test items please refer to the module FCC test report (Report No.: SZ20110203W01, FCC ID: 2ANOG-A98M), which issued on December 18, 2020



by Shenzhen Morlab Communications Technology Co., Ltd.

Note 2: The tests were performed according to the method of measurements prescribed in ANSIC63.10-2013 and KDB558074 D01 v05r02.

Note 3: Additions to, deviation, or exclusions from the method shall be judged in the "method determination" column of add, deviate or exclude from the specific method shall be explained in the "Remark" of the above table.

Note 4: When the test result is a critical value, we will use the measurement uncertainty give the judgment result based on the 95% confidence intervals.

1.5. Environmental Conditions

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

Temperature (°C):	15-35
Relative Humidity (%):	30-60
Atmospheric Pressure (kPa):	86-106

2. 47 CFR Part 15C Requirements

2.1. Conducted Emission

2.1.1. Requirement

According to FCC section 15.207, 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 150kHz to 30MHz shall not exceed the limits in the following table, as measured using a 50μH/50Ω line impedance stabilization network (LISN).

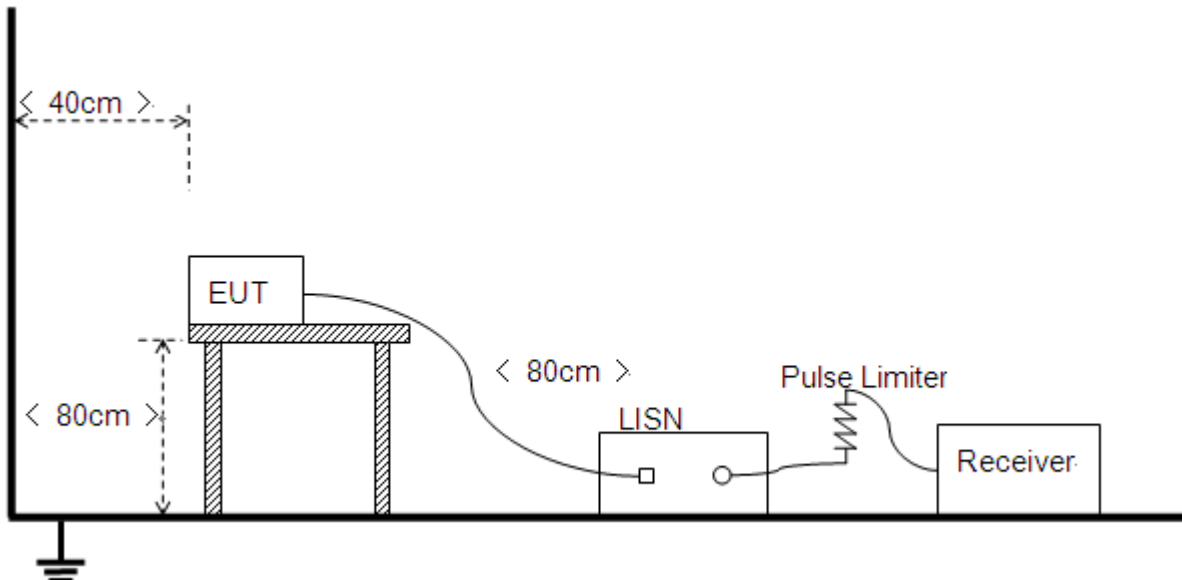
Frequency Range (MHz)	Conducted Limit (dBμV)	
	Quai-peak	Average
0.15 - 0.50	66 to 56	56 to 46
0.50 - 5	56	46
5 - 30	60	50

Note:

- (a) The lower limit shall apply at the band edges.
- (b) The limit decreases linearly with the logarithm of the frequency in the range 0.15 - 0.50MHz.

2.1.2. Test Description

Test Setup:



The Table-top EUT was placed upon a non-metallic table 0.8m above the horizontal metal reference ground plane. EUT was connected to LISN and LISN was connected to reference



Ground Plane. EUT was 80cm from LISN. The set-up and test methods were according to ANSI C63.10: 2013.

2.1.3. Test Result

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. Set RBW=9kHz, VBW=30kHz. Refer to recorded points and plots below.

Note: Both of the test voltage AC 120V/60Hz and AC 230V/50Hz were considered and tested respectively, only the results of the worst case AC 120V/60Hz were recorded in this report.

A. Test Setup:

Test Mode: EUT + Adapter + USB cable + BT TX

Test voltage: AC 120V/60Hz

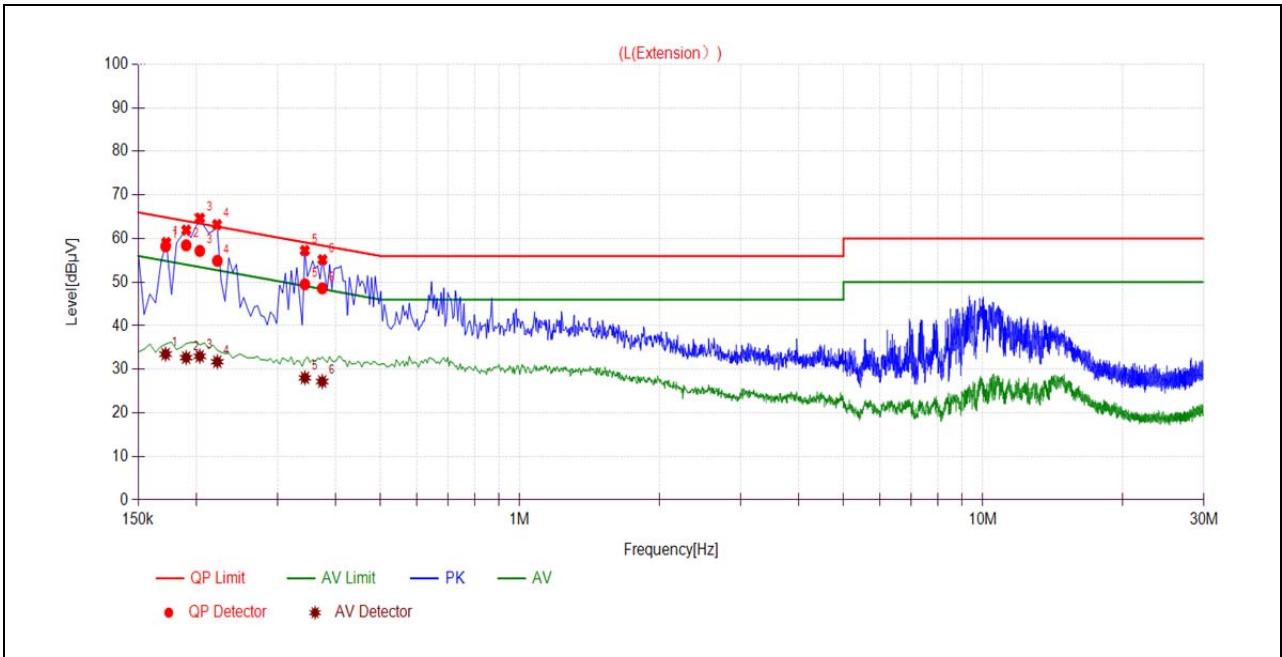
The measurement results are obtained as below:

$$E \text{ [dB}\mu\text{V]} = U_R + L_{\text{Cable loss}} \text{ [dB]} + A_{\text{Factor}}$$

U_R : Receiver Reading

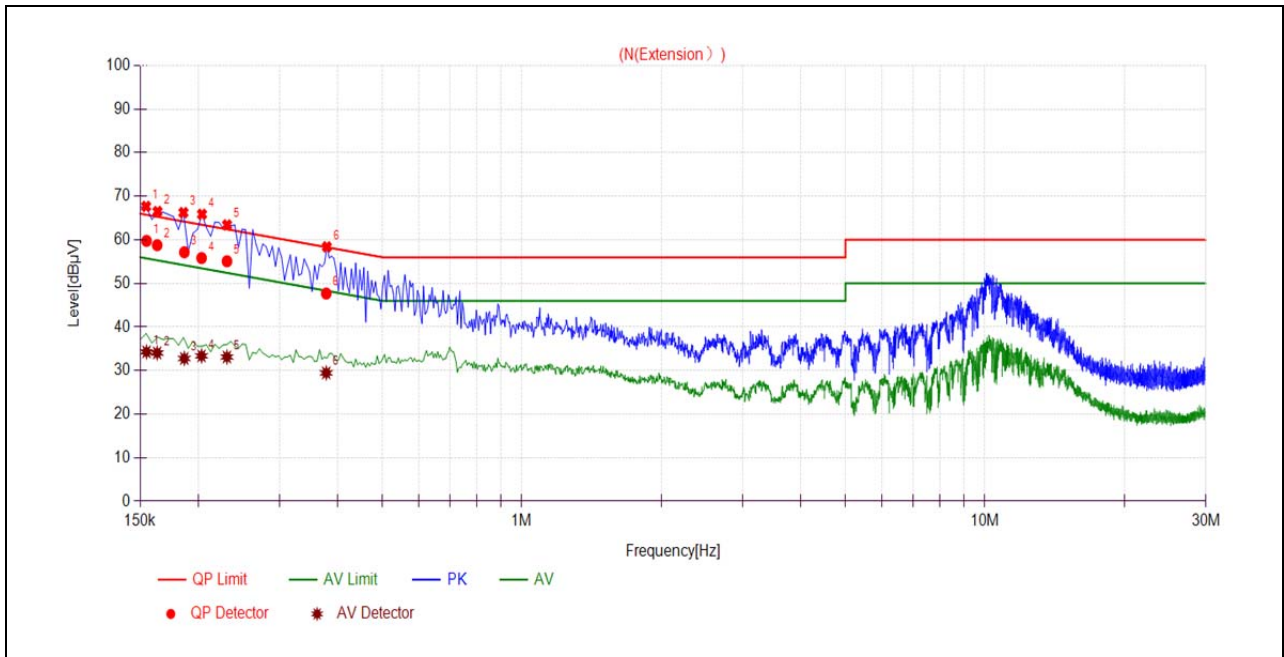
A_{Factor} : Voltage division factor of LISN

B. Test Plot:



(L Phase)

No.	Fre. (MHz)	Emission Level (dBµV)		Limit (dBµV)		Power-line	Verdict
		Quai-peak	Average	Quai-peak	Average		
1	0.1719	58.21	33.48	64.87	54.87	Line	PASS
2	0.1904	58.45	32.67	64.02	54.02		PASS
3	0.2037	57.16	32.99	63.46	53.46		PASS
4	0.2223	54.89	31.72	62.73	52.73		PASS
5	0.3436	49.49	28.03	59.12	49.12		PASS
6	0.3745	48.57	27.18	58.40	48.40		PASS



(N Phase)

No.	Fre. (MHz)	Emission Level (dBµV)		Limit (dBµV)		Power-line	Verdict
		Quai-peak	Average	Quai-peak	Average		
1	0.1548	59.77	34.28	65.74	55.74	Neutral	PASS
2	0.1632	58.77	34.03	65.30	55.30		PASS
3	0.1868	57.15	32.77	64.18	54.18		PASS
4	0.2035	55.82	33.36	63.47	53.47		PASS
5	0.2309	55.09	33.11	62.42	52.42		PASS
6	0.3783	47.68	29.45	58.32	48.32		PASS

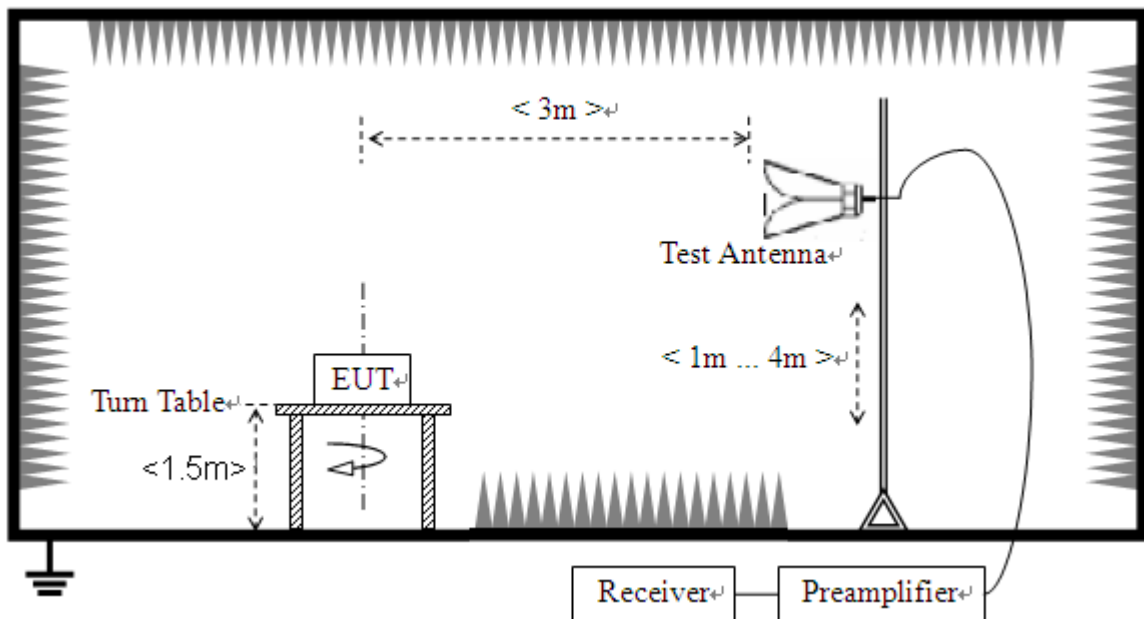
2.2. Restricted Frequency Bands

2.2.1. Requirement

According to FCC section 15.247(d), in any 100kHz 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 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power. In addition, radiated emissions which fall in the restricted bands, as defined in 15.205(a), must also comply with the radiated emission limits specified in 15.209(a).

2.2.2. Test Description

Test Setup



The EUT is located in a 3m Semi-Anechoic Chamber; the antenna factors, cable loss and so on of the site as factors are calculated to correct the reading.

For the Test Antenna:

Test Antenna is 3m away from the EUT. Test Antenna height is varied from 1m to 4m above the ground to determine the maximum value of the field strength.



2.2.3. Test Procedure

Span = wide enough to fully capture the emission being measured

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

VBW = 3 MHz

Sweep = auto

Detector function = peak/average

Trace = max hold

Allow the trace to stabilize

2.2.4. Test Result

The lowest and highest channels are tested to verify the Restricted Frequency Bands.

The measurement results are obtained as below:

$$E \text{ [dB}\mu\text{V/m]} = U_R + A_T + A_{\text{Factor}} \text{ [dB]}; A_T = L_{\text{Cable loss}} \text{ [dB]} - G_{\text{preamp}} \text{ [dB]}$$

A_T : Total correction Factor except Antenna

U_R : Receiver Reading

G_{preamp} : Preamplifier Gain

A_{Factor} : Antenna Factor at 3m

Note: Restricted Frequency Bands were performed when antenna was at vertical and horizontal polarity, and only the worse test condition (vertical) was recorded in this test report.

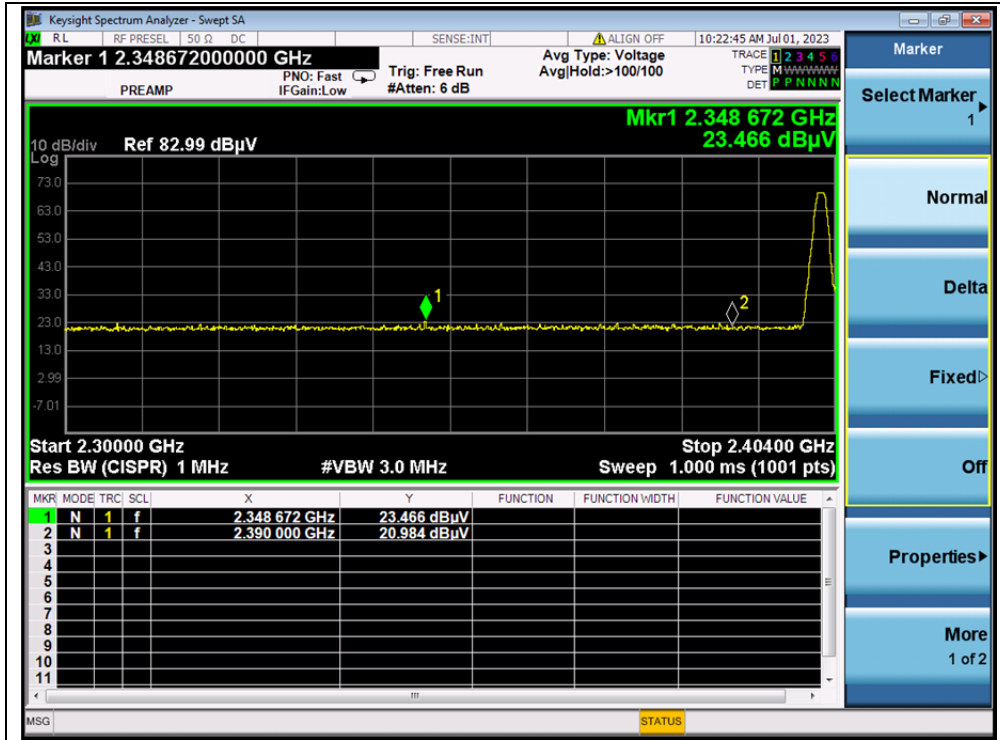
1Mbps

A. Test Verdict:

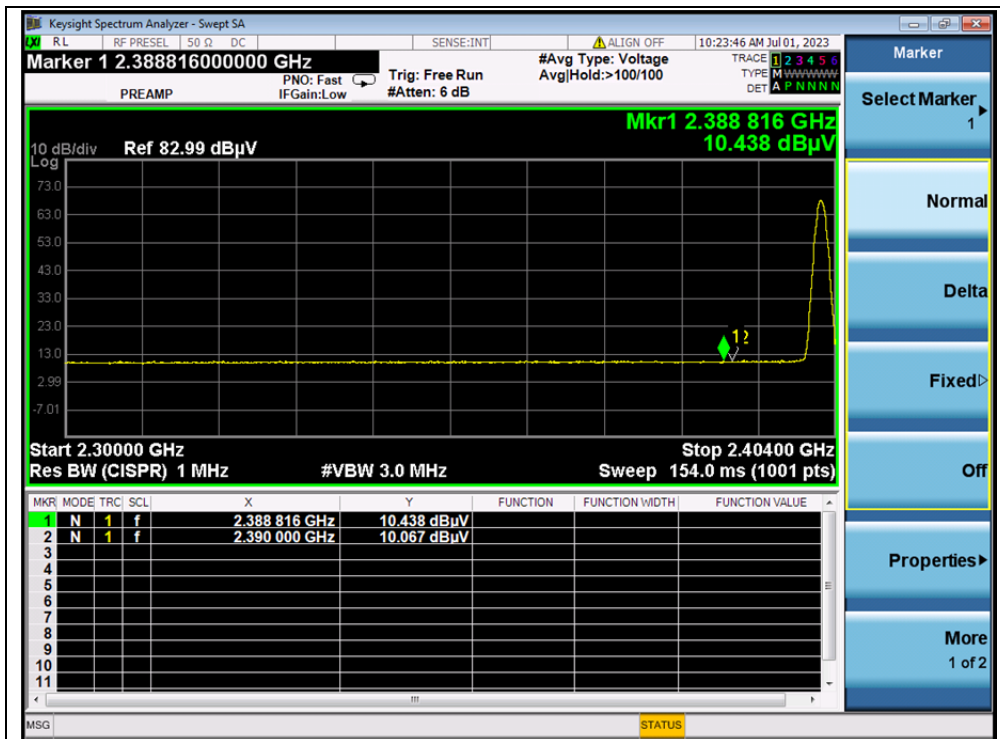
Channel	Frequency (MHz)	Detector	Receiver Reading	A_T (dB)	A_{Factor} (dB@3m)	Max. Emission E (dB μ V/m)	Limit (dB μ V/m)	Verdict
		PK/ AV	U_R (dB μ V)					
0	2348.67	PK	23.47	6.74	27.20	57.41	74	PASS
0	2388.82	AV	10.44	6.74	27.20	44.38	54	PASS
39	2485.24	PK	22.21	6.74	27.20	56.15	74	PASS
39	2483.50	AV	10.94	6.74	27.20	44.88	54	PASS



B. Test Plot:



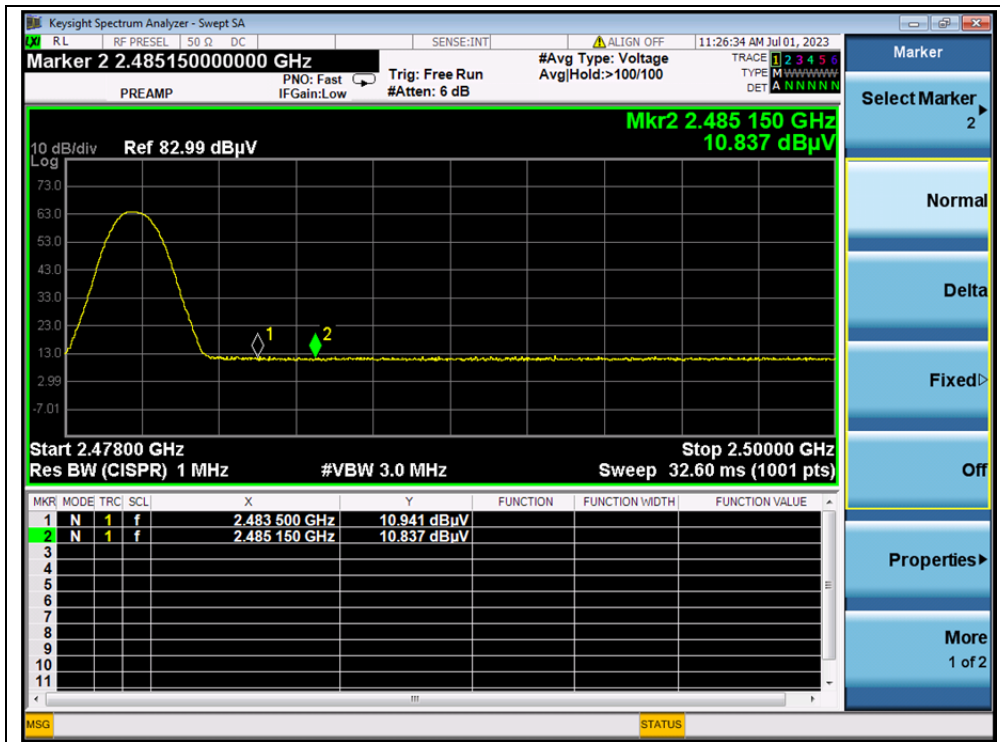
(PEAK, Channel 0)



(AVERAGE, Channel 0)



(PEAK, Channel 39)



(AVERAGE, Channel 39)

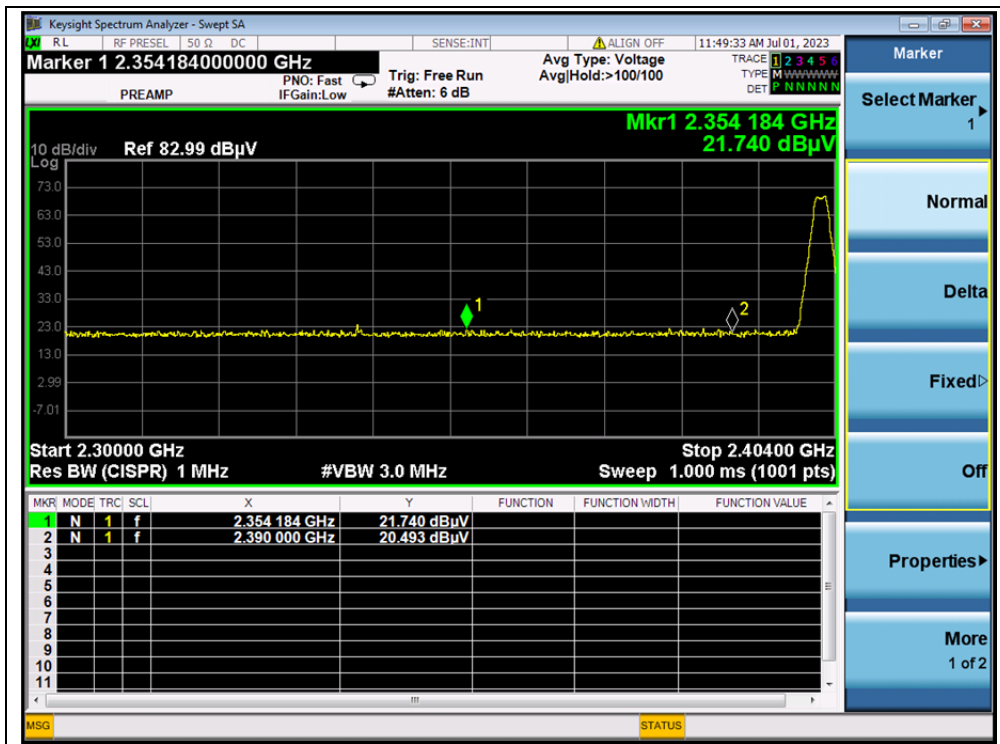


2Mbps

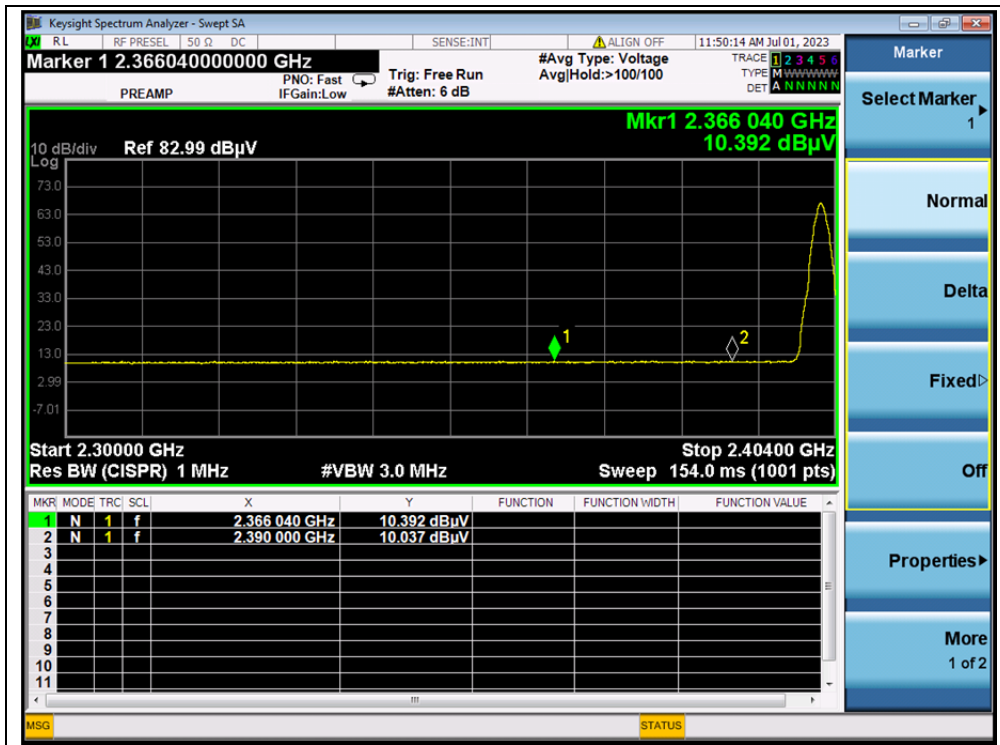
A. Test Verdict:

Channel	Frequency (MHz)	Detector	Receiver Reading	A _T (dB)	A _{Factor} (dB@3m)	Max. Emission E (dBμV/m)	Limit (dBμV/m)	Verdict
		PK/ AV	U _R (dBμV)					
0	2354.18	PK	21.74	6.74	27.20	55.68	74	PASS
0	2366.04	AV	10.39	6.74	27.20	44.33	54	PASS
39	2485.77	PK	21.93	6.74	27.20	55.87	74	PASS
39	2487.57	AV	11.52	6.74	27.20	45.46	54	PASS

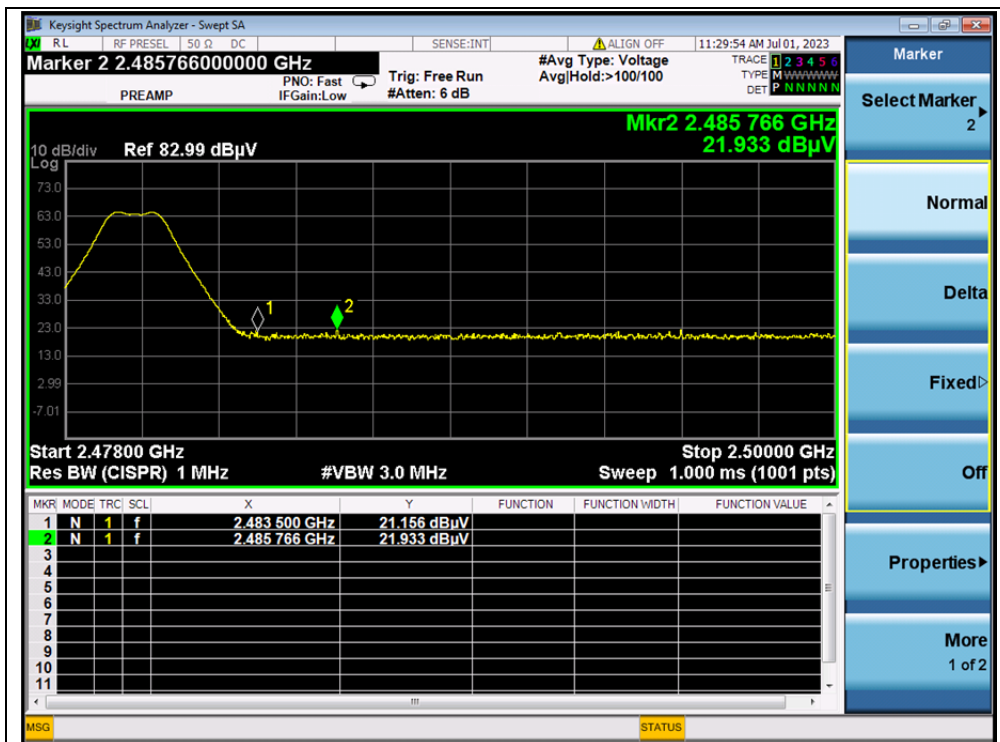
B. Test Plot:



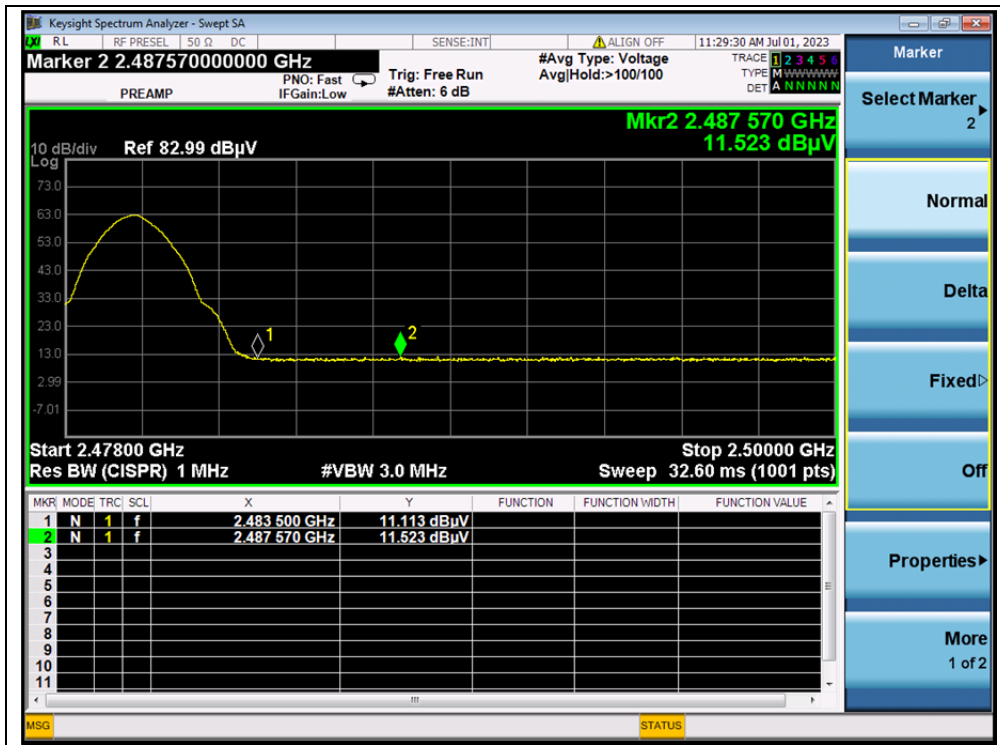
(PEAK, Channel 0)



(AVERAGE, Channel 0)



(PEAK, Channel 39)



(AVERAGE, Channel 39)



2.3. Radiated Emission

2.3.1. Requirement

According to FCC section 15.247(d), 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 ($\mu\text{V}/\text{m}$)	Measurement Distance (m)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/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

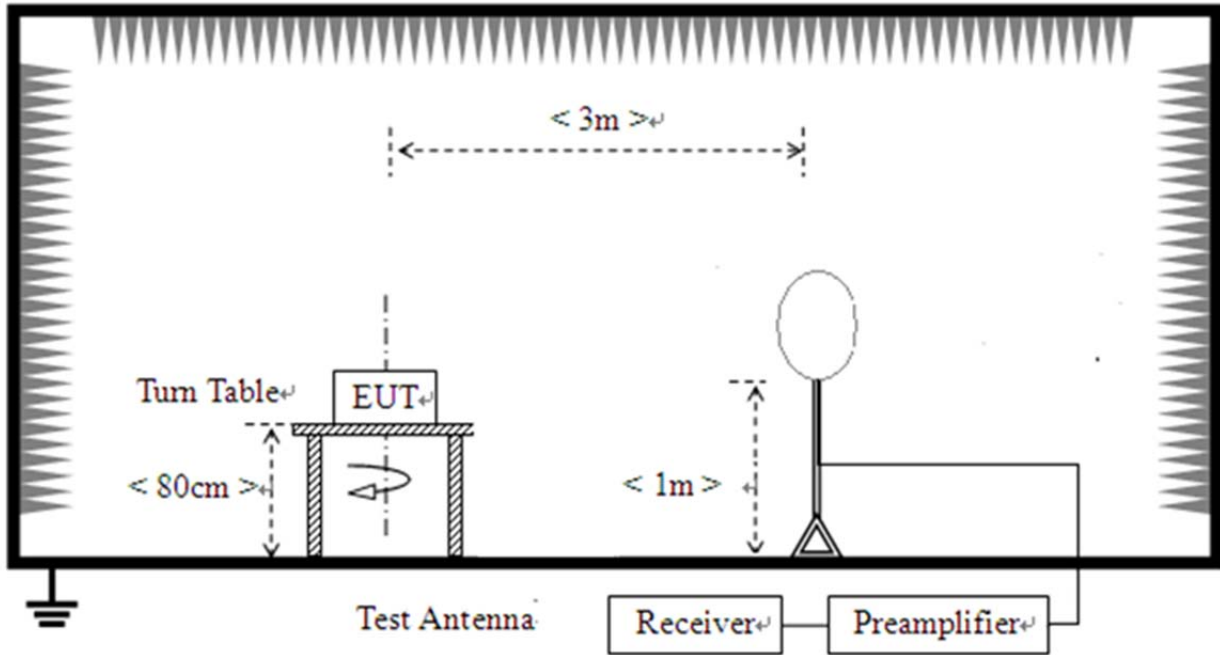
Note1: For above 1000MHz, the emission limit in this paragraph is based on measurement instrumentation employing an average detector, measurement using instrumentation with a peak detector function, corresponding to 20dB above the maximum permitted average limit.

Note2: For above 1000MHz, limit field strength of harmonics: 54dBuV/m@3m (AV) and 74dBuV/m@3m (PK). In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), also should comply with the radiated emission limits specified in Section 15.209(a)(above table).

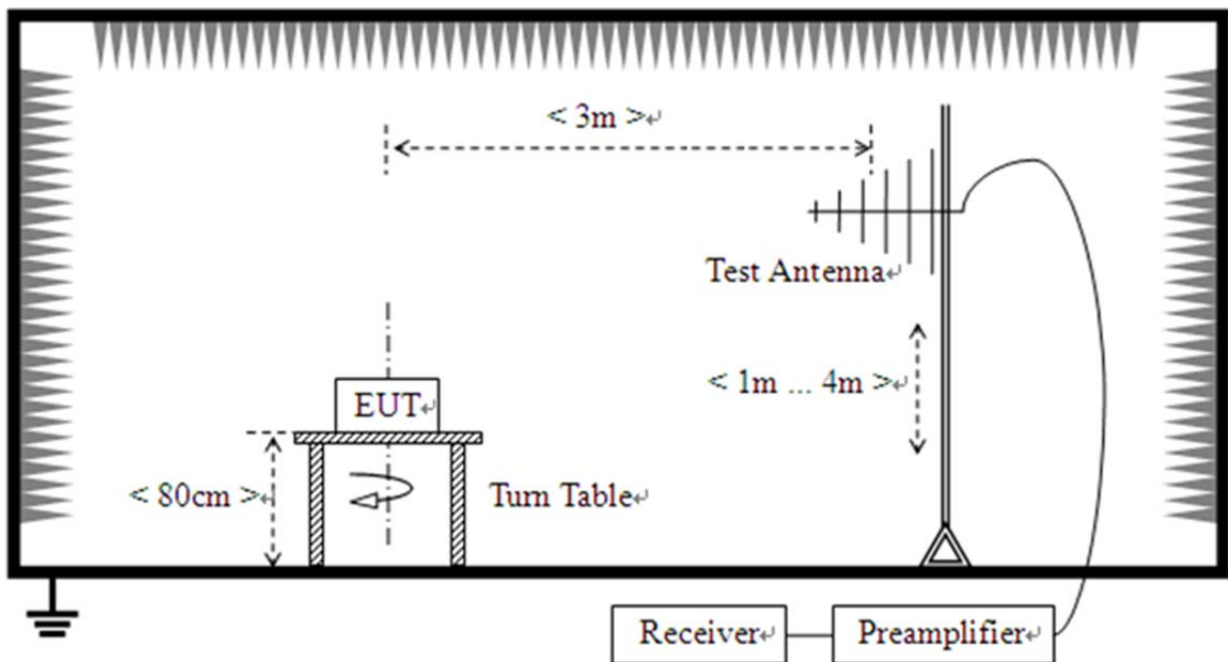
2.3.2. Test Description

Test Setup:

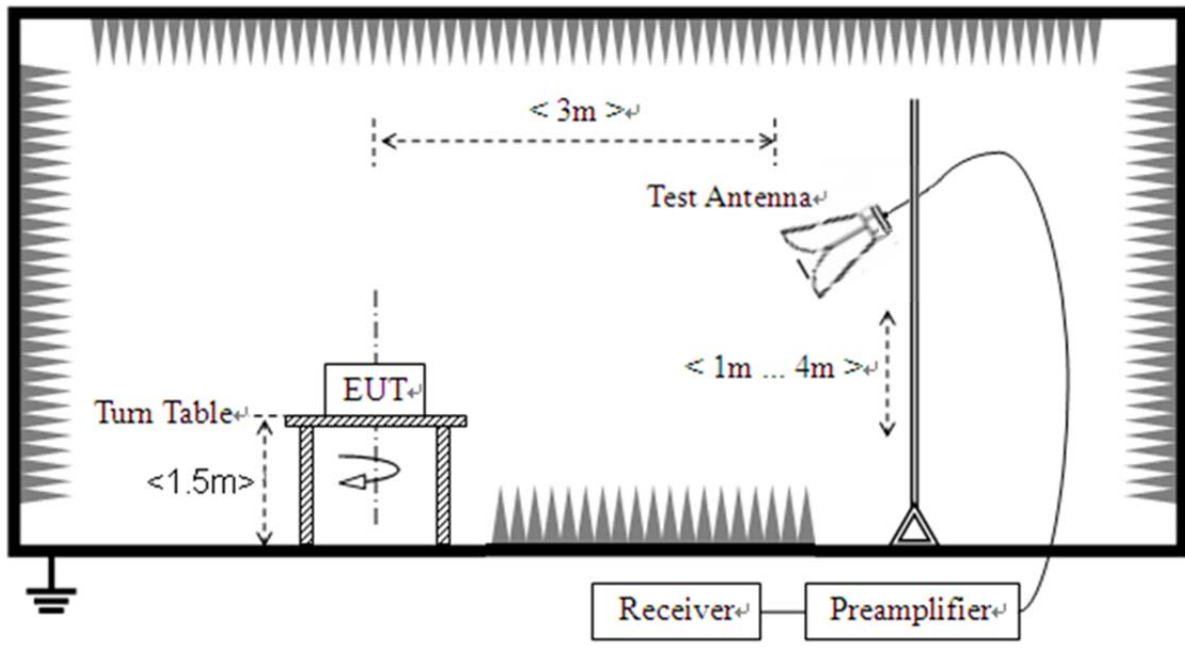
- 1) For radiated emissions from 9kHz to 30MHz



- 2) For radiated emissions from 30MHz to 1GHz



3) For radiated emissions above 1GHz



The EUT is placed on a non-conducting table 80 cm above the ground plane for measurement below 1GHz; 1.5 m above the ground plane for measurement above 1GHz. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.10. The EUT is set to transmit in a continuous mode.

For measurements below 30MHz, the emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9kHz-90 kHz, 110kHz-490 kHz. Radiated emission limits in these two bands are based on measurements employing an average detector.

For measurements below 1GHz the resolution bandwidth is set to 100kHz for peak detection measurements or 120kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1GHz the resolution bandwidth is set to 1MHz, the video band width is set to 3MHz for peak measurements and as applicable for average measurements.

The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions. For measurements above 1 GHz, keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response.



2.3.3. Test Result

According to ANSI C63.10, because of peak detection will yield amplitudes equal to or greater than amplitudes measured with the quasi-peak (or average) detector, the measurement data from a spectrum analyzer peak detector will represent the worst-case results, if the peak measured value complies with the quasi-peak (or average) limit, it is unnecessary to perform an quasi-peak measurement (or average).

The measurement results are obtained as below:

$$E \text{ [dB}\mu\text{V/m]} = U_R + A_T + A_{\text{Factor}} \text{ [dB]}; A_T = L_{\text{Cable loss}} \text{ [dB]} - G_{\text{preamp}} \text{ [dB]}$$

A_T : Total correction Factor except Antenna

U_R : Receiver Reading

G_{preamp} : Preamplifier Gain

A_{Factor} : Antenna Factor at 3m

During the test, the total correction Factor A_T and A_{Factor} were built in test software.

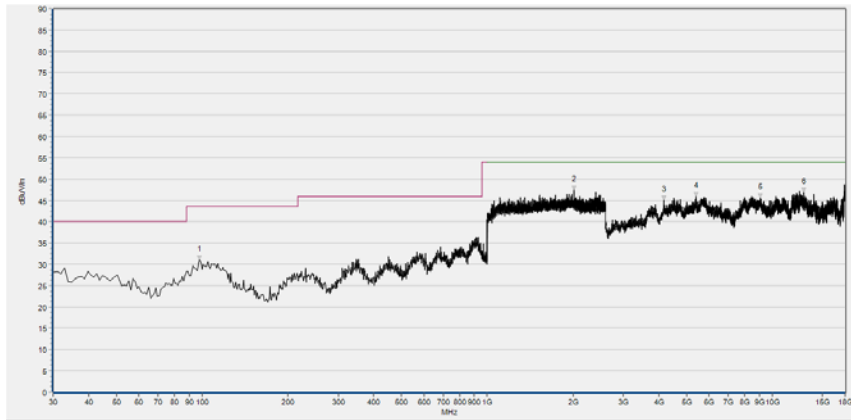
Note1: All radiated emission tests were performed in X, Y, Z axis direction. And only the worst axis test condition was recorded in this test report.

Note2: For the frequency, which started from 9kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit was not recorded.

Note3: For the frequency, which started from 18GHz to 10th harmonic of the highest frequency, was pre-scanned and the result which was 20dB lower than the limit was not recorded.

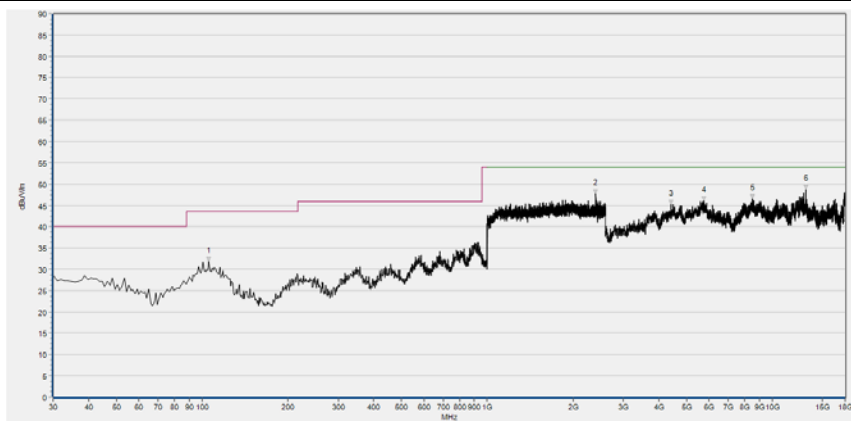
1Mbps

Plot for Channel 0



Fre. (MHz)	PK (dBµV/m)	QP (dBµV/m)	AV (dBµV/m)	Limit-PK (dBµV/m)	Limit-QP (dBµV/m)	Limit-AV (dBµV/m)	Antenna	Verdict
97.900	31.00	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
2010.667	47.42	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
4155.400	45.15	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5402.800	45.96	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
9058.760	45.62	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12881.040	46.86	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

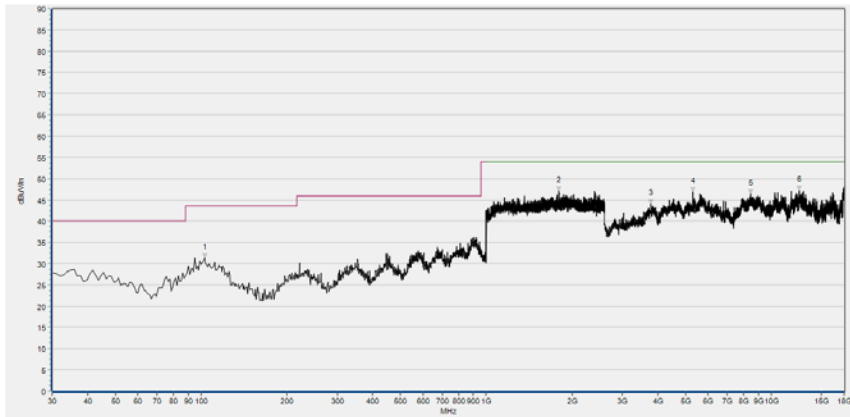
(Antenna Horizontal, 30MHz to 18GHz)



Fre. (MHz)	PK (dBµV/m)	QP (dBµV/m)	AV (dBµV/m)	Limit-PK (dBµV/m)	Limit-QP (dBµV/m)	Limit-AV (dBµV/m)	Antenna	Verdict
105.660	31.89	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
2401.600	47.68	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
4404.880	45.33	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
5760.080	46.06	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
8516.680	46.54	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
13099.720	48.83	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

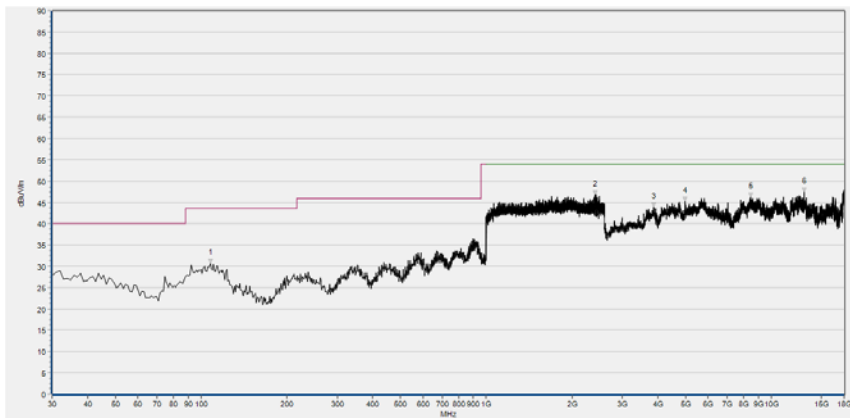
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 19



Fre. (MHz)	PK (dBµV/m)	QP (dBµV/m)	AV (dBµV/m)	Limit-PK (dBµV/m)	Limit-QP (dBµV/m)	Limit-AV (dBµV/m)	Antenna	Verdict
102.750	31.28	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
1800.000	47.09	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
3785.800	44.10	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5301.160	46.86	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
8470.480	46.47	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12554.560	47.27	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

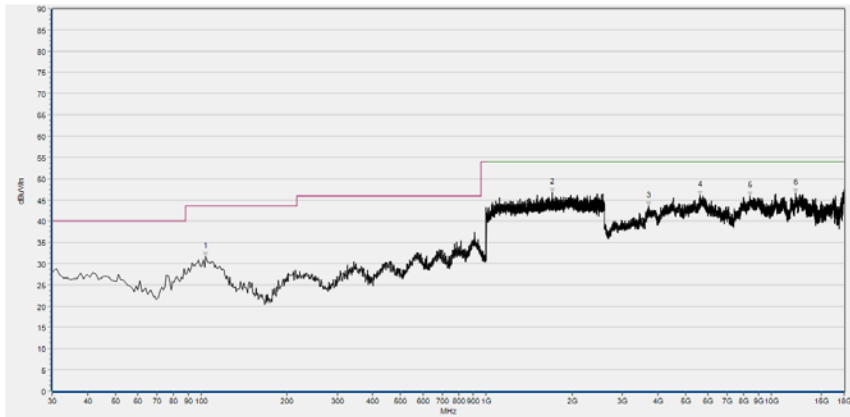


Fre. (MHz)	PK (dBµV/m)	QP (dBµV/m)	AV (dBµV/m)	Limit-PK (dBµV/m)	Limit-QP (dBµV/m)	Limit-AV (dBµV/m)	Antenna	Verdict
107.600	30.72	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
2402.133	46.72	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
3862.800	43.93	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
4971.600	45.24	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
8470.480	46.27	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
13053.520	47.38	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

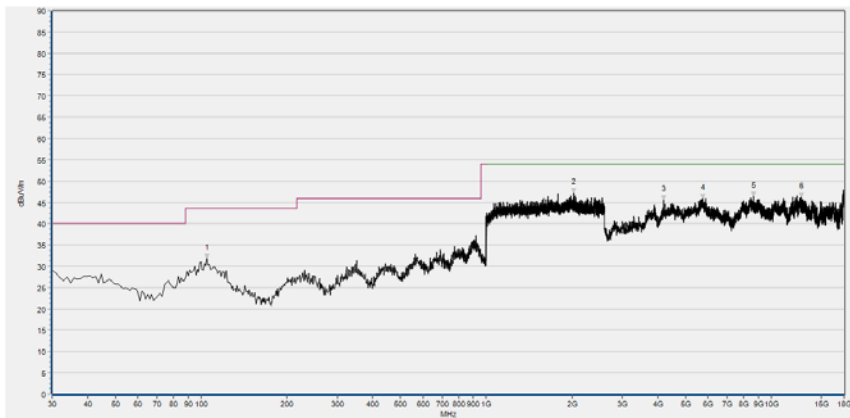


Plot for Channel 39



Fre. (MHz)	PK (dBµV/m)	QP (dBµV/m)	AV (dBµV/m)	Limit-PK (dBµV/m)	Limit-QP (dBµV/m)	Limit-AV (dBµV/m)	Antenna	Verdict
103.720	31.62	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
1707.733	46.75	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
3721.120	43.59	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5633.800	46.14	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
8405.800	45.85	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12141.840	46.63	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)



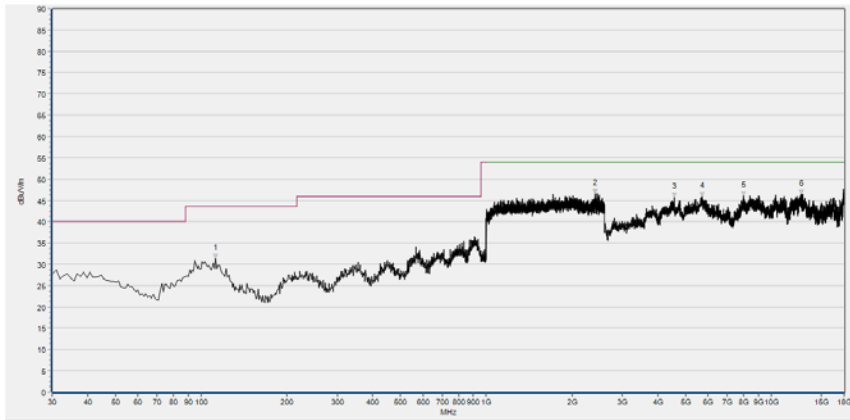
Fre. (MHz)	PK (dBµV/m)	QP (dBµV/m)	AV (dBµV/m)	Limit-PK (dBµV/m)	Limit-QP (dBµV/m)	Limit-AV (dBµV/m)	Antenna	Verdict
104.690	31.79	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
2028.800	47.33	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
4180.040	45.53	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
5757.000	45.98	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
8649.120	46.40	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12767.080	46.19	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)



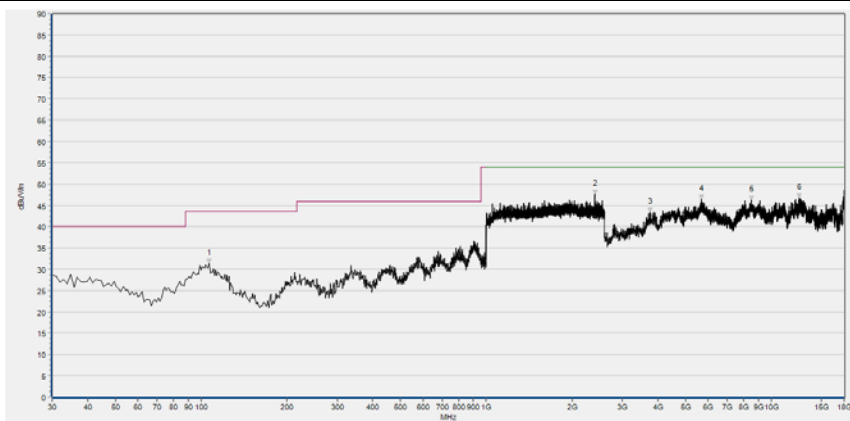
2Mbps

Plot for Channel 0



Fre. (MHz)	PK (dBµV/m)	QP (dBµV/m)	AV (dBµV/m)	Limit-PK (dBµV/m)	Limit-QP (dBµV/m)	Limit-AV (dBµV/m)	Antenna	Verdict
112.450	31.40	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
2415.467	46.57	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
4561.960	45.74	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5704.640	45.91	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
7965.360	46.04	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12739.360	46.40	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

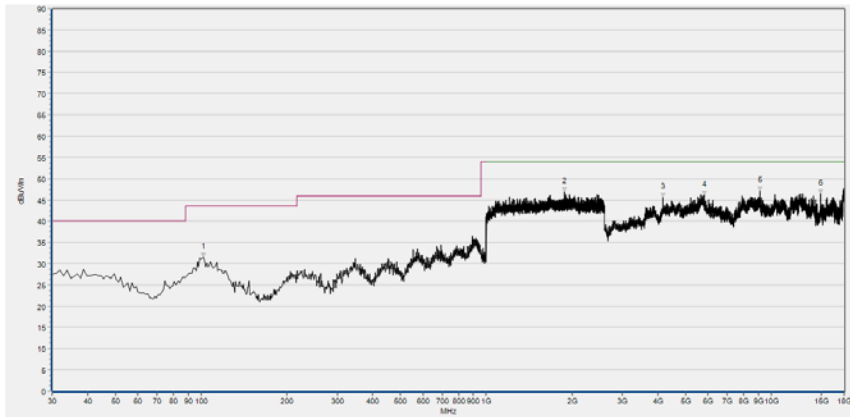
(Antenna Horizontal, 30MHz to 18GHz)



Fre. (MHz)	PK (dBµV/m)	QP (dBµV/m)	AV (dBµV/m)	Limit-PK (dBµV/m)	Limit-QP (dBµV/m)	Limit-AV (dBµV/m)	Antenna	Verdict
106.630	31.31	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
2402.133	47.53	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
3758.080	43.38	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
5692.320	46.49	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
8519.760	46.19	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12483.720	46.74	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

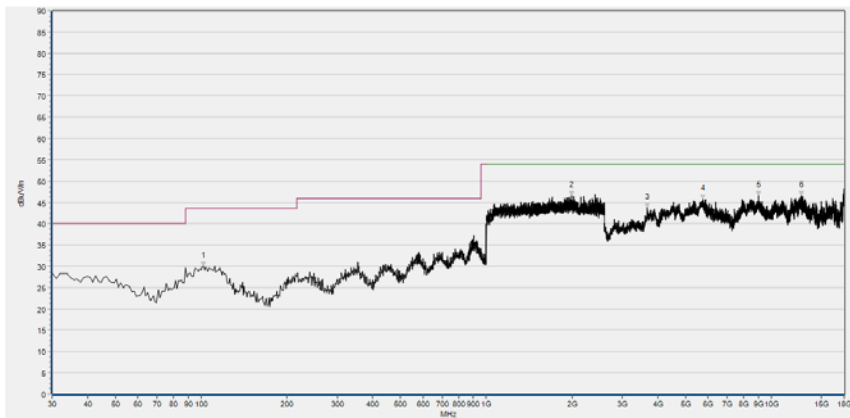
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 19



Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
101.780	31.57	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
1878.400	46.90	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
4164.640	45.53	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5806.280	46.06	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
9095.720	47.13	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
14876.880	46.41	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

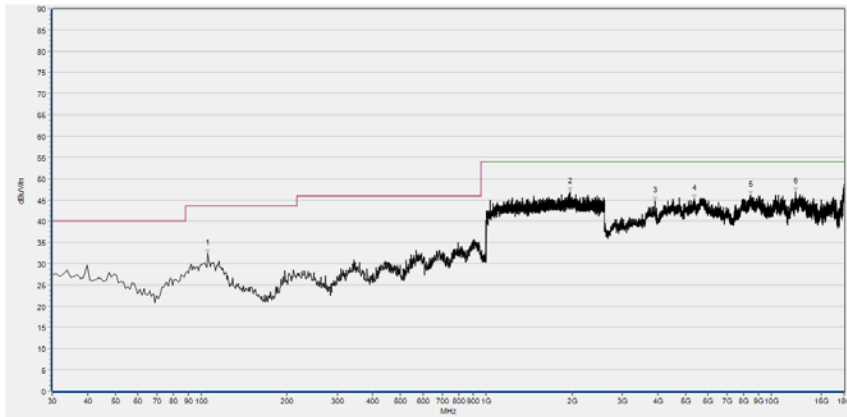
(Antenna Horizontal, 30MHz to 18GHz)



Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
101.780	29.99	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
1996.267	46.55	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
3674.920	43.82	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
5738.520	45.69	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
8997.160	46.53	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12739.360	46.53	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

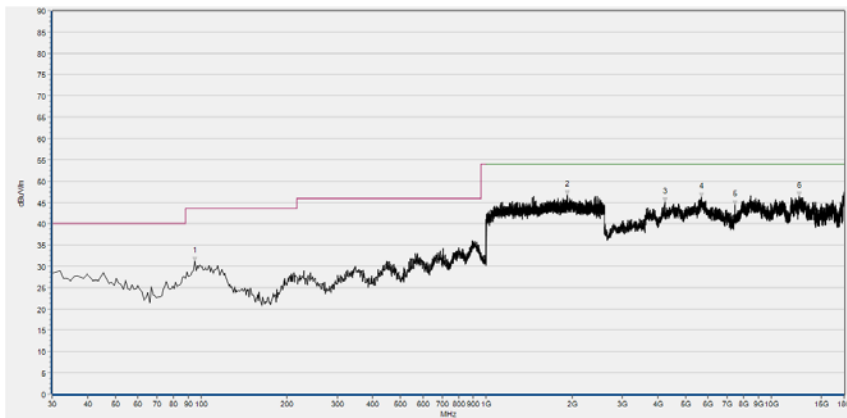
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 39



Fre. (MHz)	PK (dBµV/m)	QP (dBµV/m)	AV (dBµV/m)	Limit-PK (dBµV/m)	Limit-QP (dBµV/m)	Limit-AV (dBµV/m)	Antenna	Verdict
105.660	32.40	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
1971.733	46.89	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
3912.080	44.70	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5353.520	45.17	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
8461.240	46.04	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12175.720	46.90	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)



Fre. (MHz)	PK (dBµV/m)	QP (dBµV/m)	AV (dBµV/m)	Limit-PK (dBµV/m)	Limit-QP (dBµV/m)	Limit-AV (dBµV/m)	Antenna	Verdict
94.990	31.18	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
1927.467	46.73	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
4226.240	45.15	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
5673.840	46.19	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
7438.680	44.48	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12502.200	46.40	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)



Annex A Test Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for test performed on the EUT as specified in CISPR 16-1-2:

Test Items	Uncertainty
Restricted Frequency Bands	±5%
Radiated Emission	±2.95dB
Conducted Emission	±2.44dB

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



Annex B Testing Laboratory Information

1. Identification of the Responsible Testing Laboratory

Laboratory Name:	Shenzhen Morlab Communications Technology Co., Ltd.
Laboratory Address:	FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China
Telephone:	+86 755 36698555
Facsimile:	+86 755 36698525

2. Identification of the Responsible Testing Location

Name:	Shenzhen Morlab Communications Technology Co., Ltd.
Address:	FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China

3. Facilities and Accreditations

All measurement facilities used to collect the measurement data are located at FL.3, Building A, FeiYang Science Park, Block 67, BaoAn District, Shenzhen, 518101 P. R. China. The test site is constructed in conformance with the requirements of ANSI C63.10-2013 and CISPR Publication 22; the FCC designation number is CN1192, the test firm registration number is 226174.



4. Test Equipments Utilized

4.1 Conducted Emission Test Equipments

Equipment Name	Serial No.	Type	Manufacturer	Cal. Date	Due Date
Receiver	MY56400093	N9038A	KEYSIGHT	2023.02.09	2024.02.08
LISN	8127449	NSLK 8127	Schwarzbeck	2023.02.21	2024.02.20
Pulse Limiter (10dB)	VTSD 9561 F-B #206	VTSD 9561-F	Schwarzbeck	2022.06.27	2024.06.26
RF Coaxial Cable (DC-100MHz)	BNC	MRE04	Qualwave	2022.07.08	2023.07.07

4.2 List of Software Used

Description	Manufacturer	Software Version
Morlab EMCR V1.2	Morlab	V1.0
TS+ -[JS32-CE]	Tonscend	V2.5.0.0

**4.3 Radiated Test Equipments**

Equipment Name	Serial No.	Type	Manufacturer	Cal. Date	Due Date
Receiver	MY54130016	N9038A	Agilent	2023.06.21	2024.06.20
Test Antenna - Bi-Log	9163-519	VULB 9163	Schwarzbeck	2022.05.25	2025.05.24
Test Antenna - Loop	1519-022	FMZB1519	Schwarzbeck	2022.02.11	2025.02.10
Test Antenna – Horn	01774	BBHA 9120D	Schwarzbeck	2022.07.13	2025.07.12
Test Antenna – Horn	BBHA9170 #773	BBHA9170	Schwarzbeck	2022.07.14	2025.07.13
Preamplifier (10MHz-6GHz)	46732	S10M100L38 02	LUCIX CORP.	2022.07.08	2023.07.07
Preamplifier (2GHz-18GHz)	61171/61172	S020180L32 03	LUCIX CORP.	2022.07.08	2023.07.07
Preamplifier (18GHz-40GHz)	DS77209	DCLNA0118-40C-S	Decentest	2022.07.23	2023.07.22
RF Coaxial Cable (DC-18GHz)	MRE001	PE330	Pasternack	2022.07.08	2023.07.07
RF Coaxial Cable (DC-18GHz)	MRE002	CLU18	Pasternack	2022.07.08	2023.07.07
RF Coaxial Cable (DC-18GHz)	MRE003	CLU18	Pasternack	2022.07.08	2023.07.07
RF Coaxial Cable (DC-40GHz)	22290045	QA360-40-K K-0.5	Qualwave	2022.07.08	2023.07.07
RF Coaxial Cable (DC-40GHz)	22290046	QA360-40-K KF-2	Qualwave	2022.07.08	2023.07.07
RF Coaxial Cable (DC-18GHz)	22120181	QA500-18-N N-5	Qualwave	2022.07.08	2023.07.07
Notch Filter	N/A	WRCG-2400-2483.5-60SS	Wainwright	2022.07.08	2023.07.07
Anechoic Chamber	N/A	9m*6m*6m	CRT	2022.05.10	2025.05.09

END OF REPORT