FCC PART 15E TEST REPORT FOR CERTIFICATION
On Behalf of

Linkplay Technoiogy lnc

WiiM Sub Pro Smart Subwoofer

Model Number: SUB001

FCC ID: 2BABF-SUB001

Applicant :	Linkplay Technology lnc
Address:	8000 Jarvis Avenue Suite #130, Newark, California, 94560,
	United States
Prepared By:	EST Technology Co., Ltd.
	Chilingxiang, Qishantou, Santun, Houjie, Dongguan, Guangdong, China
Tel: 86-769-83081888-808	

Report Number:	ESTE-R2504091
Date of Test:	Mar. 14, 2025 ~ Apr. 01, 2025
Date of Report:	May. 26, 2025

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Applicant: **Address:**	Linkplay Technoiogy Inc 8000 Jarvis Avenue Suite #130, Newark, California, 94560, United States		
Manufacturer: **Address:**	Linkplay Technoiogy Inc 8000 Jarvis Avenue Suite #130, Newark, California, 94560, United States		
Factory: **Address:**	DONGGUAN TRISTAR ELECTRONIC CO., LTD. Building 1 & Building 2, No.196, Tangxia Dongxing Road, Tangxia Town, Dongguan City, Guangdong Province, China		
E.U.T:	WiiM Sub Pro Smart Subwoofer		
Model Number:	SUB001		
Power Supply:	100~240V AC, 50/60Hz 350W		
Trade Name:	WiiM	Serial No.:	------
Date of Receipt:	Mar. 14, 2025	Date of Test:	Mar. 14, 2025 ~ Apr. 01, 2025
Test Specification:	FCC Part 15 Subpart E 15.407 ANSI C63.10:2013 FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01 FCC KDB 662911 D01 Multiple Transmitter Output v02r01 KDB 987594 D02 U-NII 6GHz EMC Measurement v01r01		
Test Result:	The device described above is tested by EST Technology Co., Ltd. The measurement results were contained in this test report and EST Technology Co., Ltd. was assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT to be technically compliance with the FCC Rules and Regulations Part 15 Subpart E requirements. This report applies to above tested sample only and shall not be reproduced in part without written approval of EST Technology Co., Ltd. **Date:** May. 26, 2025		

Prepared by:	Reviewed by:	Approved by:
Zephyr Zhu		
Zephyr Zhu / Assistant	Seven Wang / Engineer	Iceman Hu / Manager

Other Aspects:
None.

Abbreviations: OK/P=passed fail/F=failed n.a/N=not applicable E.U.T=equipment under tested

1.GENERAL INFORMATION

1.1.Description of Device (EUT)

FCC ID	:	2BABF-SUB001	
Product Name	:	WiiM Sub Pro Smart Subwoofer	
Model Number	:	SUB001	
Software Version	:	N/A	
Hardware Version	:	N/A	
Operation frequency	:	UNII-5 Band: 5925 ~ 6425 MHz	
Number of channel	:	U-NII-5: IEEE 802.ax HE20: 25 Channels; IEEE 802.ax HE40: 12Channels; IEEE 802.11ax HE80: 6 Channels.	
Modulation	:	OFDMA (BPSK, QPSK,16QAM,64QAM,256QAM, 1024QAM)	
Transmit Data Rate	:	IEEE 802.11ax: up to 601 Mbps;	
Channels Spacing	:	IEEE 802.11ax HE20: 20MHz; IEEE 802.11ax HE40: 40MHz; IEEE 802.11ax HE80: 80MHz;	
Transmit Power	:	U-NII-5	U-NII-5 IEEE 802.11ax HE20: 7.58dBm IEEE 802.11ax HE40: 10.08dBm IEEE 802.11ax HE80:13.09dBm
Sample Type	:	Prototype production	

Note: For a more detailed features description, please refer to the manufacturer’s specifications or the user's manual.

1.2.The antenna information for EUT

Ant No.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	-	-	Internal	-	2.5
2	-	-	Internal	-	3.2

Remark:
(1) The product only supports SISO transmission and reception.
(2) After pre-test all antenna configurations, the worst case configuration as list below.
(3) The antenna gain is declared by the customer and the laboratory is not responsible for the accuracy of the antenna gain.
(4) The test results of this report only apply to the sample as received.

ANT No. / TX Mode	SISO Configuration	MIMO Configuration
IEEE 802.11ax HE20	ANT1 and ANT2	/
IEEE 802.11ax HE40	ANT1 and ANT2	/
IEEE 802.11ax HE80	ANT1 and ANT2	/

1.3.Information of RF Cable

Cable Loss(dB)	Provided by
1.0	Linkplay Technoiogy lnc
Note: 1.The customer declared the loss value of the RF Cable. and the test results of this report only apply to the sample as received. 2.The laboratory is not responsible for the accuracy of the cable loss.	

2.SUMMARY OF TEST

2.1.Summary of test result

No.	Description of Test Item	FCC Standard Section	Results
1	26dB Bandwidth & 99% Occupied Bandwidth	15.407(a) 15.407(e)	PASS
2	Maximum Conducted Output Power	15.407(a)	PASS
3	Peak Power Spectral Density	15.407(a)	PASS
4	In-Band Emissions	15.407(b)	PASS
5	Contention-based Protocol	FCC 15.407 (d)	PASS
6	Frequency Stability	15.407(g)	PASS
7	AC Power Line Conducted Emissions	15.207 15.407(b)(9)	PASS
8	Radiated Emissions	15.209 15.205 15.407(b)	PASS
9	Antenna Requirement	15.203	PASS

Note:“N/A” denotes test is not applicable in this test report.

2.2.Test Facilities

EMC Lab : Accredited by CNAS, CHINA
Registration No.: L5288
This Accreditation is valid until: November 12, 2029

Recognized by FCC, USA
Designation Number: CN1215
This Recognition is valid until: January 31, 2026

Accredited by A2LA, USA
Registration No.: 4366.01
This Accreditation is valid until: January 31, 2026

Recognized by Industry Canada
CAB identifier No.: CN0035
This Recognition is valid until: January 31, 2026

Recognized by VCCI, Japan
Registration No.:C-14103; T-20073; R-13663;
R-20103; G-20097
Date of registration: Apr. 20, 2020
This Recognition is valid until: Apr. 19, 2026

Recognized by TUV Rheinland, Germany
Registration No.: UA 50413872 0001
Date of registration: July 31, 2018

Recognized by Intertek
Registration No.: 2011-RTL-L2-64
Date of registration: November 08, 2018

Name of Firm : EST Technology Co., Ltd.

Site Location : Chilingxiang, Qishantou, Santun, Houjie, Dongguan, Guangdong, China

2.3.Measurement uncertainty

Test Item	Uncertainty
Uncertainty for Conduction emission test	2.54dB
Uncertainty for spurious emissions test (Below 30MHz)	±1.62 dB
Uncertainty for Radiation Emission test (30MHz-1GHz)	3.62
Uncertainty for Radiation Emission test (1GHz to 18GHz)	4.86
Uncertainty for spurious emissions test (18GHz to 40GHz)	4.67
Uncertainty for radio frequency	7×10-8
Uncertainty for conducted RF Power	1.08dB
Uncertainty for Power density test	0.26dB
Temperature	±0.6°C
Humidity	±4.0 %
Volatage DC	±1.0%
Volatage (AC, <10KHz)	±1.5%

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

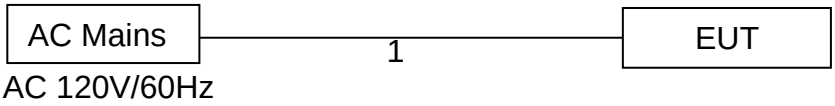
2.4.Assistant equipment used for test

Item	Equipment	Brand	Model Name/Type No.	FCC ID	Series No.
-	-	-	-	-	-

Item	Shielded Type	Ferrite Core	Length	Note
1	NO	NO	1.5m	AC Cable

2.5.Block Diagram

For radiated emissions test: EUT was placed on a turn table, which is 0.8 (or 1.5) meter high above ground.



AC 120V/60Hz

(EUT: WiiM Sub Pro Smart Subwoofer)

2.6.Test Mode

Pre-scan has been combined all possible modulations and date rates to determine the worst case test mode,the worst case test mode was selected for the final test as listed below.

Test Item	Test Mode	Channel	Modulation	Data rate
26dB Bandwidth	IEEE 802.11ax HE20	1/45/93	OFDMA	MCS0
	IEEE 802.11ax HE40	3/43/91	OFDMA	MCS0
	IEEE 802.11ax HE80	7/39/87	OFDMA	MCS0
99% Occupied Bandwidth	IEEE 802.11ax HE20	1/45/93	OFDMA	MCS0
	IEEE 802.11ax HE40	3/43/91	OFDMA	MCS0
	IEEE 802.11ax HE80	7/39/87	OFDMA	MCS0
Maximum Conducted Output Power	IEEE 802.11ax HE20	1/45/93	OFDMA	MCS0
	IEEE 802.11ax HE40	3/43/91	OFDMA	MCS0
	IEEE 802.11ax HE80	7/39/87	OFDMA	MCS0
Peak Power Spectral Density	IEEE 802.11ax HE20	1/45/93	OFDMA	MCS0
	IEEE 802.11ax HE40	3/43/91	OFDMA	MCS0
	IEEE 802.11ax HE80	7/39/87	OFDMA	MCS0
In-Band Emissions	IEEE 802.11ax HE20	1/45/93	OFDMA	MCS0
	IEEE 802.11ax HE40	3/43/91	OFDMA	MCS0
	IEEE 802.11ax HE80	7/39/87	OFDMA	MCS0
Contention-based Protocol	IEEE 802.11ax HE20	33/45/93	OFDMA	MCS0
Frequency Stability	IEEE 802.11ax HE20	1/45/93	OFDMA	MCS0
	IEEE 802.11ax HE40	3/43/91	OFDMA	MCS0
	IEEE 802.11ax HE80	7/39/87	OFDMA	MCS0
AC Power Line Conducted Emissions	IEEE 802.11ax HE20	1	OFDMA	MCS0
Radiated Emissions	IEEE 802.11ax HE20	1/45/93	OFDMA	MCS0
	IEEE 802.11ax HE40	3/43/91	OFDMA	MCS0
	IEEE 802.11ax HE80	7/39/87	OFDMA	MCS0

Note: In radiated measurement, the EUT had been pre-scan on the positioned of each 3 axis(X,Y,Z), the worst case was found when positioned on **X-plane.**

2.7.Channel List

Band	Mode	Channel	Frequency (MHz)
U-NII-5	IEEE 802.11ax HE20	1	5955
		5	5975
		9	5995
		13	6015
		17	6035
		21	6055
		25	6075
		29	6095
		33	6115
		37	6135
		41	6155
		45	6175
		49	6195
		53	6215
		57	6235
		61	6225
		65	6275
		69	6295
		73	6315
		77	6335
		81	6355
		85	6375
		89	6395
		93	6415
	IEEE 802.11ax HE40	3	5965
		11	6005
		19	6045
		27	6085
		35	6125
		43	6165
		51	6205
		59	6245
		67	6285
		75	6325
		83	6365
		91	6405
	IEEE 802.11ax HE80	7	5985
		23	6065
		39	6145
		55	6225
		71	6305
		87	6385

2.8.Power Setting of Test Software

Software Name	CMD		
Frequency(MHz)	5955	6175	6415
IEEE 802.11ax HE20Setting	5,5	9,9,	7,7
Frequency(MHz)	5965	6165	6405
IEEE 802.11ax HE40 Setting	7,7	9,9,	11,11
Frequency(MHz)	5985	6145	6385
IEEE 802.11ax HE80 Setting	11,11	13,13	13,13

Note: This information is provided by the applicant.

2.9.Duty Cycle of Test Signal

Refer to Appendix B of Appendix FCC ID 6G Wi-Fi (the test data).

Note:

1. Duty Cycle=On Time/Total Time×100%.
2. Duty Factor=10×LOG(1/Duty Cycle).
3. If duty cycle <98 %, the conducted average output power and average power spectral density should be add duty factor.
4. If duty cycle≥98 %,the EUT is consider to be transmitting continuously,the conducted average output power and average power spectral density no need to add duty factor.
5. The on-time time is transmission duration(T).
6. The VBW Setting is use for RMS measurement in Unwanted Emissions and Band Edge(Above 1GHz) Test.

2.10. Test Equipment List

For AC power conducted emissions test						
Equipment	Manufacturer	Model No.	Serial No.	Calibration Body	Last Cal.	Next Cal.
EMI Test Receiver	Rohde & Schwarz	ESRP3	EST-E070	LISAI	June 11,24	June 10,25
Artificial Mains Network	Rohde & Schwarz	ENV216	EST-E048	LISAI	June 11,24	June 10,25
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	EST-E078	LISAI	June 11,24	June 10,25
Test Software	Audix	e3-6.111221a	N/A	N/A	N/A	N/A

For radiated emissions test(9KHz-30MHz)						
Equipment	Manufacturer	Model No.	Serial No.	Calibration Body	Last Cal.	Next Cal.
EMI Test Receiver	Rohde & Schwarz	ESR7	EST-E047	LISAI	June 11,24	June 10,25
Active Loop Antenna	SCHWAREBECK	FMZB 1519B	EST-E054	LISAI	June 11,24	June 10,25
Test Software	Audix	e3-6.111221a	N/A	N/A	N/A	N/A
9kHz-30MHz Cable	N/A	EST-001	N/A	N/A	N/A	N/A

For radiated emissions test(30MHz-1000MHz)

Equipment	Manufacturer	Model No.	Serial No.	Calibration Body	Last Cal.	Next Cal.
EMI Test Receiver	Rohde & Schwarz	ESR7	EST-E047	LISAI	June 11,24	June 10,25
Bilog Antenna	Teseq	CBL 6111D	EST-E034	LISAI	June 11,24	June 10,25
Test Software	Audix	e3-6.111221a	N/A	N/A	N/A	N/A
30-1000MHz Cable	N/A	EST-002	N/A	N/A	N/A	N/A

For radiated emission test(Above 1000MHz)						
Equipment	Manufacturer	Model No.	Serial No.	Calibration Body	Last Cal.	Next Cal.
Horn Antenna	SCHWARZBECK	BBHA9120D	EST-E144	LISAI	June 11,24	June 10,25
Horn Antenna	Com-Power	AHA-840	EST-E133	LISAI	June 11,24	June 10,25
Low Noise Amplifier	RF	TRLA-010180 G45N	EST-E142	LISAI	June 11,24	June 10,25
Spectrum Analyzer	Rohde &Schwarz	FSV40	EST-E069	LISAI	June 11,24	June 10,25
Test Software	Audix	e3-6.111221a	N/A	N/A	N/A	N/A
Above 1GHz Cable	N/A	EST-003	N/A	N/A	N/A	N/A

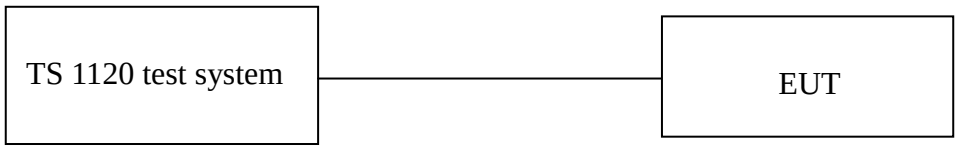
For connect EUT antenna terminal test						
Equipment	Manufacturer	Model No.	Serial No.	Calibration Body	Last Cal.	Next Cal.
TS 1120	Tonscend	/	/	/	/	/
Test Software	Tonscend	JS1120-3	3.5.39	/	/	/
RF Control Unit	Tonscend	JS0806-2	EST-E134	LISAI	June 11,24	June 10,25
WiFi-7GHz Band Extender	Tonscend	TS-WF7U	EST-E135	LISAI	June 11,24	June 10,25
Signal and Spectrum Analyzer	Keysight	N9010B	EST-E141	LISAI	June 11,24	June 10,25
Wireless Connectivity Tester	Rohde &Schwarz	CMW 500	EST-E137	LISAI	June 11,24	June 10,25
MXG Vector Signal Generator	Keysight	N5182B	EST-E138	LISAI	June 11,24	June 10,25
Signal Generator	Rohde &Schwarz	SRM20	EST-E139	LISAI	June 11,24	June 10,25

3.26dB Bandwidth & 99% Occupied Bandwidth

3.1.Limit

Band	Frequency (MHz)	Test Item	Limit
U-NII-5 U-NII-6 U-NII-7 U-NII-8	5925-7125	26dB Bandwidth&99% Occupied Bandwidth	320 megahertz

3.2.Test Setup



3.3.Spectrum Analyzer Setting

26dB Bandwidth	
Spectrum Parameters	Setting
RBW	approximately 1% of the emission bandwidth
VBW	＞RBW
Span	40MHz(20MHz Bandwidth mode) 60MHz(40MHz Bandwidth mode) 120MHz(80MHz Bandwidth mode)
Sweep Time	Auto
Detector	Peak
Trace Mode	Max Hold

99% Occupied Bandwidth	
Spectrum Parameters	Setting
RBW	1% to 5% of the OBW
VBW	approximately three times the RBW
Span	between 1.5 times and 5.0 times the OBW
Sweep Time	Auto
Detector	Peak
Trace Mode	Max Hold

3.4.Test Procedure

For 26dB Bandwidth Measurement :

a. Connect EUT antenna terminal to the spectrum analyzer with RF cable.
b. Spectrum analyzer setting parameters in accordance with section 3.3.
c. Set the EUT transmit continuously with maximum output power.
d. Allow trace to stabilize, measure the maximum width of the emission that is 26 dB down from the peak of the emission.Compare this with the RBW setting of the instrument. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.
e. Repeat above procedures until all modes and channels were measured.
f. Record the results in the test report.

For 99% Occupied Bandwidth Measurement :

a. Connect EUT antenna terminal to the spectrum analyzer with RF cable.
b. Spectrum analyzer setting parameters in accordance with section 3.3.
c. Set the EUT transmit continuously with maximum output power.
d. Allow trace to stabilize, use the 99% power bandwidth function to measure bandwidth.
e. Repeat above procedures until all modes and channels were measured.
f. Record the results in the test report.

3.5.Test Result

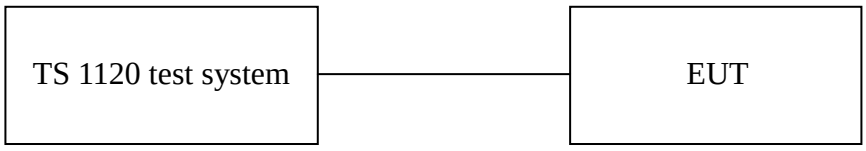
Refer to Appendix A1 & A2 of Appendix FCC ID 6G Wi-Fi (the test data).

4.MAXIMUM CONDUCTED OUTPUT POWER

4.1.Limit

Test Item	Frequency Range (MHz)	Limit
Conducted Output Power	5.925-6.425 GHz 6.525-6.875 GHz	Standard Power Access Point The maximum e.i.r.p. over the frequency band of operation must not exceed 36 dBm. For outdoor devices, the 5.925-6.425 GHz maximum e.i.r.p. at any elevation angle above 30 degrees 6.525-6.875 GHz as measured from the horizon must not exceed 125 mW (21dBm).
	5.925-7.125 GHz	Indoor Access Point The maximum e.i.r.p. over the frequency band of operation Must not exceed 30 dBm.
	5.925-7.125 GHz	Subordinate Device The maximum e.i.r.p. over the frequency band of operation Must not exceed 30 dBm.
	5.925-6.425 GHz 6.525-6.875 GHz	Client Devices, Operating Under The Control Of A Standard Power Access Point The maximum e.i.r.p. over the frequency band of operation must not exceed 30 dBm and the device must limit its power to no more than 6 dB below its associated standard power Access point's authorized transmit power.
	5.925-7.125 GHz	Client Devices, Operating Under The Control Of An Indoor Access Point The maximum e.i.r.p. over the frequency band of operation Must not exceed 24 dBm.

4.2.Test Setup



4.3.Spectrum Analyzer Setting

Spectrum Parameters	Setting
RBW	1MHz
VBW	3MHz
Span	40MHz(20MHz Bandwidth mode) 80MHz(40MHz Bandwidth mode) 160MHz(80MHz Bandwidth mode)
Sweep Time	Auto
Detector	RMS
Trace Mode	Max Hold

4.4.Test Procedure

a. Connect EUT antenna terminal to the spectrum analyzer with RF cable.
b. Spectrum analyzer setting parameters in accordance with section 4.3.
c. Set the EUT transmit continuously with maximum output power.
d. Use the channel power function to measure maximum peak output power, allow trace to stabilize,
save test pictures.
e. Repeat above procedures until all modes and channels were measured.
f. Record the results in the test report.

4.5.Test Result

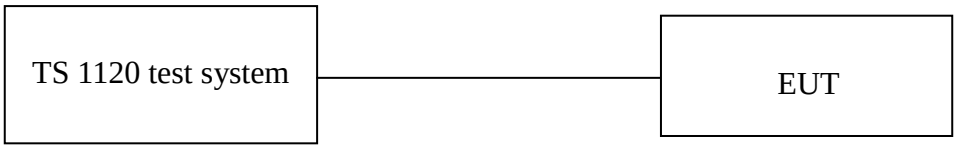
Refer to Appendix C of Appendix FCC ID 6G Wi-Fi (the test data).

5.PEAK POWER SPECTRAL DENSITY

5.1.Limit

Test Item	Frequency Range (MHz)	Limit
Conducted Output Power	5.925-6.425 GHz 6.525-6.875 GHz	Standard Power Access Point The maximum power spectral density must not exceed 23 dBm e.i.r.p in any 1-megahertz band.
	5.925-7.125 GHz	Indoor Access Point The maximum power spectral density must not exceed 5 dBm e.i.r.p. in any 1-megahertz band..
	5.925-7.125 GHz	Subordinate Device The maximum power spectral density must not exceed 5 dBm e.i.r.p in any 1-megahertz band.
	5.925-6.425 GHz 6.525-6.875 GHz	Client Devices, Operating Under The Control Of A Standard Power Access Point The maximum power spectral density must not exceed 17 dBm e.i.r.p. in any 1-megahertz band.
	5.925-7.125 GHz	Client Devices, Operating Under The Control Of An Indoor Access Point The maximum power spectral density must not exceed −1 dBm e.i.r.p. in any 1-megahertz band..

5.2.Test Setup



5.3.Spectrum Analyzer Setting

Spectrum Parameters	Setting
RBW	1MHz
VBW	3MHz
Span	encompass the entire 26 dB EBW or 99% OBW of the signal
Sweep Time	Auto
Number of Sweep Point	≥2×SPAN/RBW
Detector	RMS(power averaging)
Trace Average	≥100 traces

5.4.Test Procedure

a. Connect EUT antenna terminal to the spectrum analyzer with RF cable.
b. Spectrum analyzer setting parameters in accordance with section 5.3.
c. Set the EUT transmit continuously with maximum output power.
d. Allow trace to stabilize, use the marker-to-peak function to set the marker to the average of the emission.
e. If the duty cycle of test siganl＜98%,the result=max measured value+10×log(1/duty cycle); If the duty cycle of test siganl≥98%,the esult=max measured value.
f. Repeat above procedures until all modes and channels were measured.
g. Record the results in the test report.

5.5.Test Result

Refer to Appendix D of Appendix FCC ID 6G Wi-Fi (the test data).

6.IN-BAND EMISSIONS

6.1.Limit

Please refer to CFR 47 FCC §15.407 (b) (7)

For transmitters operating within the 5.925-7.125 GHz bands: Power spectral density must be Suppressed by 20 dB at 1 MHz outside of channel edge, by 28 dB at one channel bandwidth from the channel center, and by 40 dB at one- and one-half times the channel bandwidth away from channel center. At frequencies between one megahertz outside an unlicensed device's channel edge and one channel bandwidth from the center of the channel, the limits must be linearly interpolated between 20 dB and 28 dB suppression, and at frequencies between one and one- and one-half times an unlicensed device's channel Bandwidth, the limits must be linearly interpolated between 28 dB and 40 dB suppression. Emissions removed from the channel center by more than one- and one-half times the channel bandwidth Must be suppressed by at least 40 dB.

6.2.Spectrum Analyzer Setting

Spectrum Parameters	Setting
RBW	same RBW used for 26 dB EBW measurement
VBW	3 X RBW
Sweep Time	Auto
Number of points in sweep	≥ 2 X span / RBW
Detector	RMS
Trace Mode	Max Hold

6.3.Test Procedure

a. Connect EUT antenna terminal to the spectrum analyzer with RF cable.
b. Spectrum analyzer setting parameters in accordance with section 4.3.
c. Set the EUT transmit continuously with maximum output power.
d. Use the channel power function to measure maximum peak output power, allow trace to stabilize,
save test pictures.
e. Repeat above procedures until all modes and channels were measured.
f. Record the results in the test report.

6.4.Test Procedure

Refer to Appendix E of Appendix FCC ID 6G Wi-Fi (the test data).

7.CONTENTION-BASED PROTOCOL

7.1.LIMITS

Please refer to CFR 47 FCC §15.407 (d) (6) and RSS-248 Issue 2 Clause 4.7

Indoor access points, subordinate devices and client devices operating in the 5.925-7.125 GHz band (herein referred to as unlicensed devices) are required to use technologies that include a contention-based protocol to avoid co-channel interference with incumbent devices sharing the band. To ensure incumbent co-channel operations are detected in a technology-agnostic manner, unlicensed devices are required to detect co-channel radio frequency energy (energy detect) and avoid simultaneous transmission.

Unlicensed low-power indoor devices must detect co-channel radio frequency power that is at least -62 dBm or lower. Upon detection of energy in the band, unlicensed low power indoor devices must vacate the channel (in which incumbent signal is transmitted) and stay off the incumbent channel as long as detected radio frequency power is equal to or greater than the threshold (-62 dBm)1. The -62 dBm (or lower) threshold is referenced to a 0 dBi antenna gain. To ensure incumbent operations are reliably detected in the band, low power indoor devices must detect RF energy throughout their intended operating channel. For example, an 802.11 device that plans to transmit a 40 MHz- wide signal (on a primary 20 MHz channel and a secondary 20 MHz channel) must detect energy throughout the entire 40 MHz channel. Additionally, low-power indoor devices must detect co-channel energy with 90% or greater certainty.

a) Simulating Incumbent Signal

The incumbent signal is assumed to be noise-like. One example of such transmission could be digital Video Broadcasting (DVB) systems that use Orthogonal Frequency Division Multiplexing (OFDM). Incumbent systems may also use different bandwidths for their transmissions. A 10 MHz-wide additive white Gaussian noise (AWGN) signal is selected to simulate and represent incumbent transmission.

b) Required number of tests

Incumbent and EUT (access point, subordinate or client) signals may occupy different portions of the channel. Depending on the EUT transmission bandwidth and incumbent signal center frequency (simulated by a 10 MHz-wide AWGN signal), the center frequency of the EUT signal ffcc1 may fall within the incumbent’s occupied bandwidth (Figure 1.a), or outside of it (Figure 1.b).

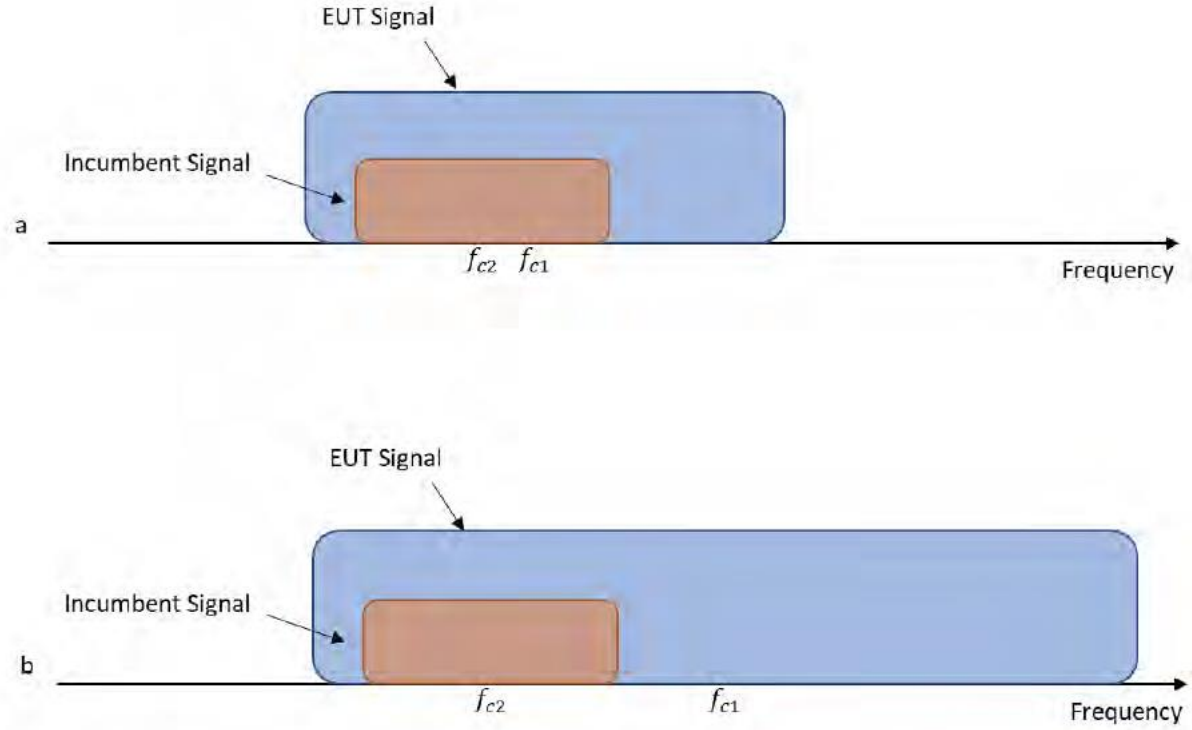
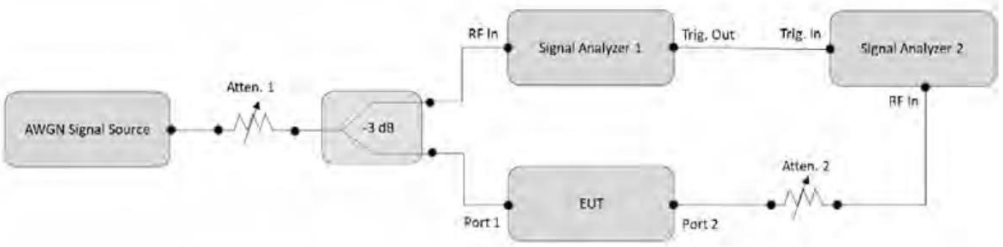


Figure 1. Two possible scenarios where a) center frequency of EUT transmission falls within incumbent's bandwidth, or b) outside of it



To ensure EUT reliably detects an incumbent signal in both scenarios shown in Figure 1, the detection threshold test may be repeated more than once with the incumbent signal (having center frequency $ffcc2$) tuned to different center frequencies within the UT transmission bandwidth. The criteria specified in Table 1 determines how many times the detection threshold test must be performed;

Table 1. Criteria to determine number of times detection threshold test may be performed

If	Number of Tests	Placement of Incumbent Transmission
$BW_{EUT} \leq BW_{Inc}$	Once	Tune incumbent and EUT transmissions ($f_{c1} = f_{c2}$)
$BW_{Inc} < BW_{EUT} \leq 2BW_{Inc}$	Once	Incumbent transmission is contained within BW_{EUT}
$2BW_{Inc} < BW_{EUT} \leq 4BW_{Inc}$	Twice. Incumbent transmission is contained within BW_{EUT}	Incumbent transmission is located as closely as possible to the lower edge and upper edge, respectively, of the EUT channel
$BW_{EUT} > 4BW_{Inc}$	Three times	Incumbent transmission is located as closely as possible to the lower edge of the EUT channel, in the middle of EUT channel, and as closely as possible to the upper edge of the EUT channel

Where:
BWEUT: Transmission bandwidth of EUT signal
BWInc: Transmission bandwidth of the simulated incumbent signal (10 MHz wide AWGN signal)
$fc1$: Center frequency of EUT transmission
$fc2$: Center frequency of simulated incumbent signal

7.2.TEST PROCEDURE

To ensure the EUT is capable of detecting co-channel energy, the first step is to configure the EUT to transmit with a constant duty cycle.2 to simulate an incumbent signal, a signal generator (or similar source) that is capable of generating band-limited additive white Gaussian noise (AWGN) is required. Depending on the EUT antenna configuration, the AWGN signal can be provided to the EUT receiver via a conducted method (Figure 2) or a radiated method (Figure 3). Figure 2 shows the conducted test setup where a band-limited AWGN signal is generated at a very low power level and injected into the EUT's antenna port. The AWGN signal power level is then incrementally increased while the EUT transmission is monitored on a signal analyzer 2 to verify if the EUT can sense the AWGN signal and can subsequently cease its transmission. A triggered measurement, as shown in Figure 2, is optional, and assists with determining the time it takes the EUT to cease transmission (or vacate the channel) upon detecting RF energy. If the EUT has only one antenna port, then an AWGN signal source can be connected to the same antenna port.
1. Configure the EUT to transmit with a constant duty cycle.
2. Set the operating parameters of the EUT including power level, operating frequency, modulation and bandwidth.
3. Set the signal analyzer center frequency to the nominal EEUT channel center frequency. The span range of the signal analyzer shall be between two times and five times the OBW of the EUT. Connect the output port of the EUT to the signal analyzer 2, as shown in Figure 2. Ensure that the attenuator 2 provides enough attenuation to not overload the signal analyzer 2 receiver.
4. Monitoring the signal analyzer 2, verify the EUT is operating and transmitting with the

parameters set at step two.
5. Using an AWGN signal source, generate (but do not transmit, i.e., RF OFF) a 10 MHz-wide AWGN signal. Use Table 1 to determine the center frequency of the 10 MHz AWGN signal relative to the EUT's channel bandwidth and center frequency.
6. Set the AWGN signal power to an extremely low level (more than 20 dB below the -62 dBm threshold). Connect the AWGN signal source, via a 3-dB splitter, to the signal analyzer 1 and the EUT as shown in Figure 2.
7. Transmit the AWGN signal (RF ON) and verify its characteristics on the signal analyzer 1.
8. Monitor the signal analyzer 2 to verify if the AWGN signal has been detected and the EUT has ceased transmission. If the EUT continues to transmit, then incrementally increase the AWGN signal power level until the EUT stops transmitting.
9. (Including all losses in the RF paths) Determine and record the AWGN signal power level (at the EUT's antenna port) at which the EUT ceased transmission. Repeat the procedure at least 10 times to verify the EUT can detect an AWGN signal with 90% (or better) level of certainty.
10. Refer to Table 1 to determine number of times the detection threshold testing needs to be repeated. If testing is required more than once, then go back to step 5, choose a different center frequency for the AWGN signal and repeat the process.

7.3.Test Procedure

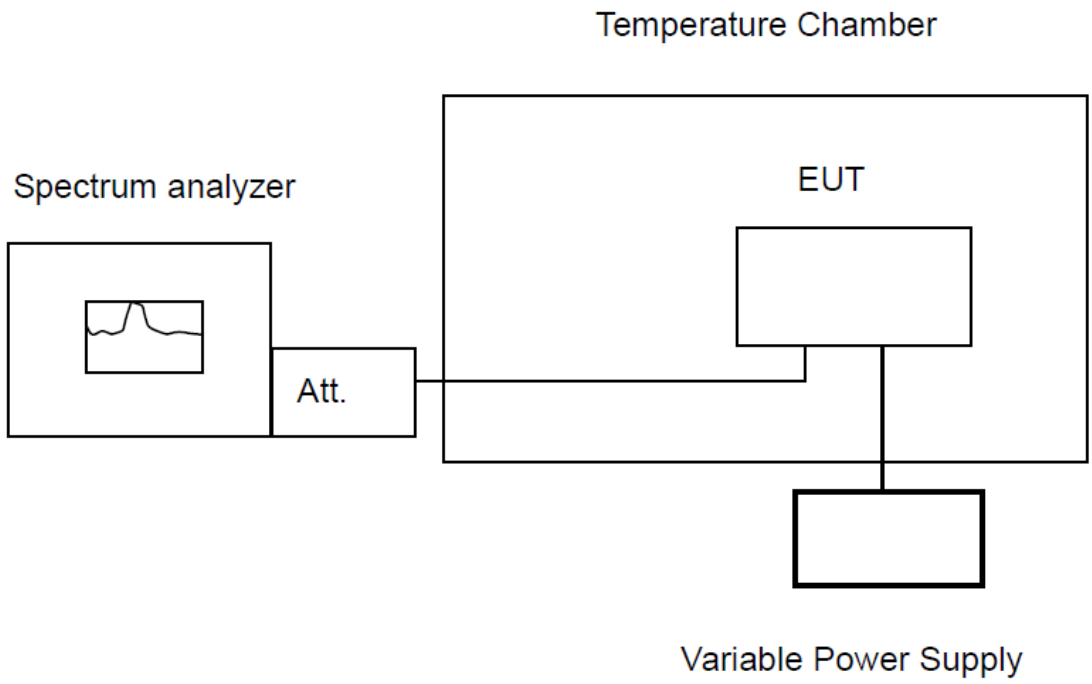
Refer to Appendix F of Appendix FCC ID 6G Wi-Fi (the test data).

8.FREQUENCY STABILITY

8.1.Limit

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the operational description.

8.2.Test Setup



8.3.Spectrum Analyzer Setting

Spectrum Parameters	Setting
RBW	10KHz
VBW	10KHz
Span	200KHz
Sweep Time	Auto
Detector	PEAK
Trace Mode	Max Hold

8.4.Test Procedure

For measurement frequency stability under temperature variation :

a. Supply the EUT with a nominal ac voltage or install a new or fully charged battery in the EUT.
b. Turn the EUT OFF and place it inside the environmental temperature chamber.
c. Connect EUT antenna terminal to the spectrum analyzer with RF cable.
d. Spectrum analyzer setting parameters in accordance with section 7.3.
e. Set the temperature control on the chamber to the Specified temperature and allow the oscillator heater and the chamber temperature to stabilize.
f. Turn the EUT ON with the rated voltage, and the EUT transmit continuously with maximum output power.
g. Record the operating frequency at startup, and at 2 minutes, 5 minutes, and 10 minutes after the EUT is energized.
h. Repeat step d through step f to measured the temperature form -20℃ to +50℃ in 10℃ steps.

For frequency stability under voltage variation:

a. Supply the EUT with a nominal ac voltage or install a new or fully charged battery in the EUT.
b. Turn the EUT OFF and place it inside the environmental temperature chamber.
c. Connect EUT antenna terminal to the spectrum analyzer with RF cable.
d. Spectrum analyzer setting parameters in accordance with section 7.3.
e. Unless otherwise specified, set the temperature control on the chamber to the ambient room temperature (+15℃ to +25℃) and allow the oscillator heater and the chamber temperature to stabilize.
f. Turn the EUT ON with the rated voltage, and the EUT transmit continuously with maximum output power.
g. Record the operating frequency.
h. Repeat step d through step f to measured the varied from 85% to 115% of the rated voltage.

8.5.Test Result

Refer to Appendix G of Appendix FCC ID 6G Wi-Fi (the test data).

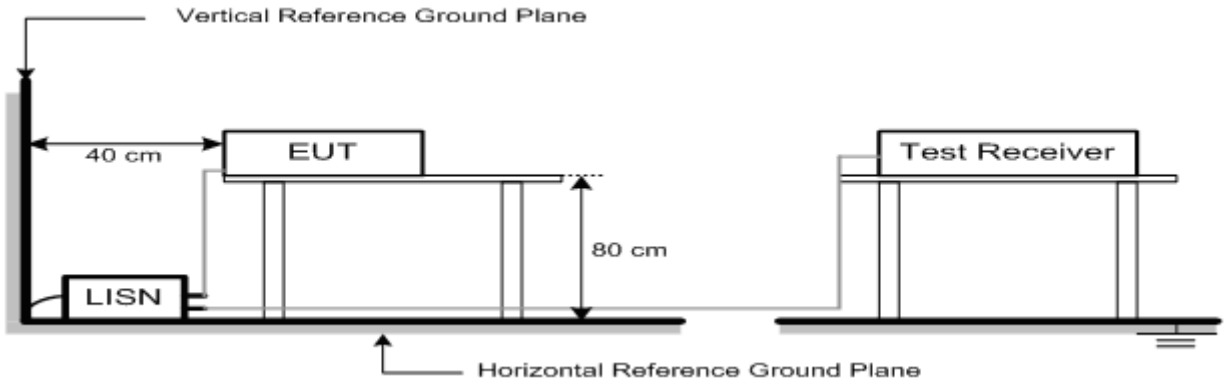
9.AC POWER LINE CONDUCTED EMISSIONS

9.1.Limit

Frequency			Maximum RF Line Voltage	
			Quasi-Peak Level dB(μV)	Average Level dB(μV)
150kHz	~	500kHz	66 ~ 56*	56 ~ 46*
500kHz	~	5MHz	56	46
5MHz	~	30MHz	60	50

Notes:
1. * Decreasing linearly with logarithm of frequency.
2. The lower limit shall apply at the transition frequencies.

9.2.Test Setup



9.3.Spectrum Analyzer Setting

Spectrum Parameters	Setting
RBW	9KHz
VBW	9KHz
Start frequency	150KHz
Stop frequency	30MHz
Sweep Time	Auto
Detector	QP/AVG
Trace Mode	Max Hold

9.4.Test Procedure

a. The EUT was placed on a non-metallic table, 80cm above the ground plane.
b. The EUT Power connected to the power mains through a line impedance stabilization network.
c. Provides a 50 ohm coupling impedance for the EUT (Please refer the block diagram of the test setup and photographs).
d. Set the EUT transmit continuously with maximum output power.
e. Spectrum analyzer setting parameters in accordance with section 8.3.
f. The AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.10: 2013 on Conducted Emission Test.
g. Record the results in the test report.

9.5.Test Result

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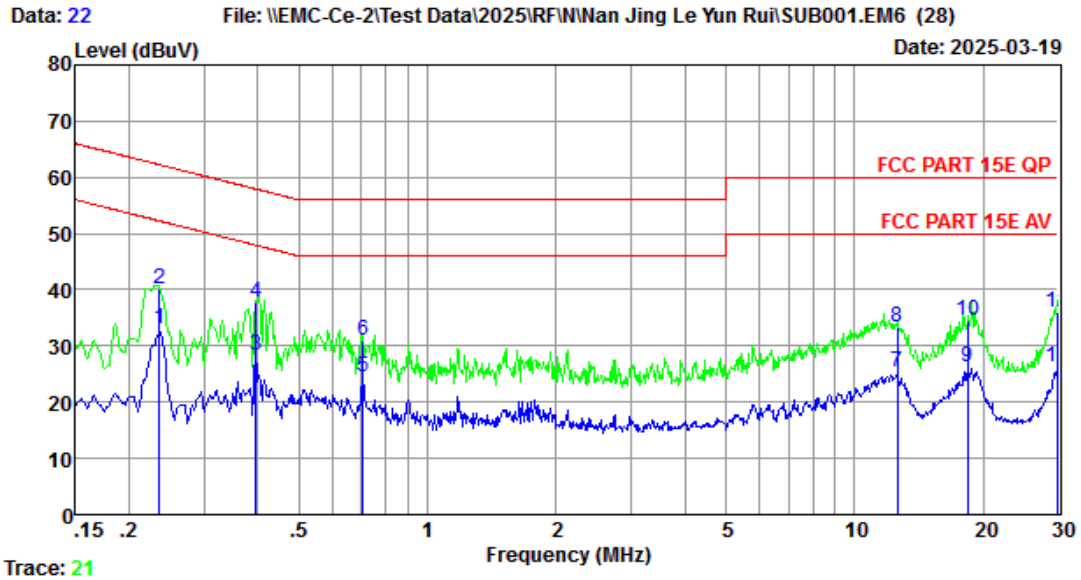

Trace: 21

Site no : 2#CE Shield Room Data no. : 22
Env. / Ins. : Temp:23.8℃ Humi:53% Press:101.30kPa LINE Phase : LINE
Limit : FCC PART 15E QP
Engineer : Nico Chen
EUT : WiiM Sub Pro Smart Subwoofer
Power : AC 120V/60Hz
M/N : SUB001
Test Mode : TX Mode

	Freq. (MHz)	LISN Factor (db)	Cable Loss (db)	Reading dBuV)	Emission Level (dBuv)	Limits (dBuv)	Margin (dB)	Remark
1	0.24	9.59	9.90	13.60	33.09	52.26	19.17	Average
2	0.24	9.59	9.90	20.53	40.02	62.26	22.24	QP
3	0.40	9.58	9.89	8.86	28.33	47.95	19.62	Average
4	0.40	9.58	9.89	18.25	37.72	57.95	20.23	QP
5	0.70	9.55	9.88	5.20	24.63	46.00	21.37	Average
6	0.70	9.55	9.88	11.53	30.96	56.00	25.04	QP
7	12.58	9.75	10.17	5.54	25.46	50.00	24.54	Average
8	12.58	9.75	10.17	13.56	33.48	60.00	26.52	QP
9	18.43	9.79	10.24	6.35	26.38	50.00	23.62	Average
10	18.43	9.79	10.24	14.52	34.55	60.00	25.45	QP
11	29.84	9.92	10.43	5.98	26.33	50.00	23.67	Average
12	29.84	9.92	10.43	15.53	35.88	60.00	24.12	QP

Remarks: 1. Emission Level= LISN Factor + Cable Loss + Reading.
2. Margin= Limit - Emission Level.
3. If the average limit is met when useing a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

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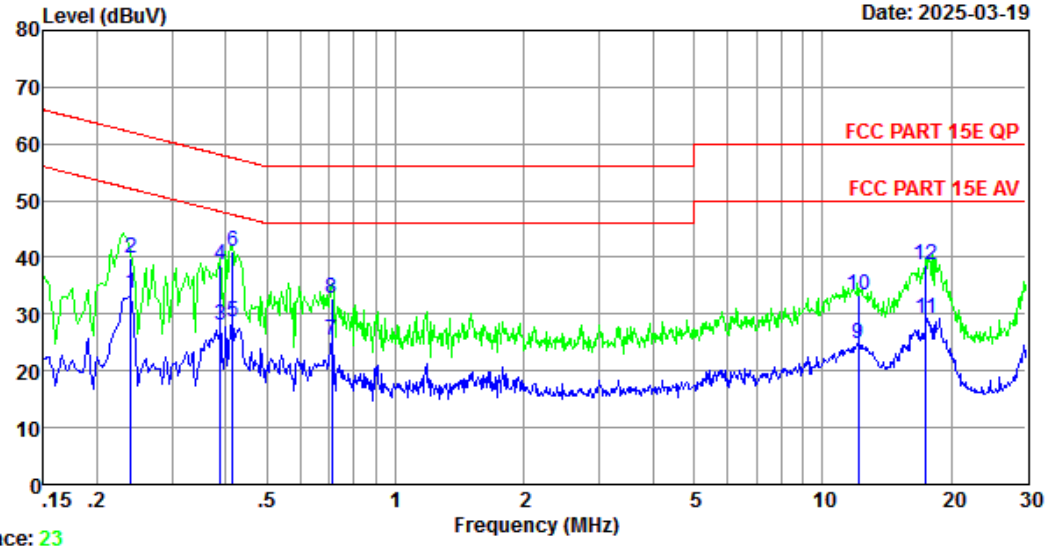
Data: 24 File: \\EMC-Ce-2\Test Data\2025\RF\N\Nan Jing Le Yun Rui\SUB001.EM6 (28)



Trace: 23

Site no : 2#CE Shield Room Data no. : 24
Env. / Ins. : Temp:23.8℃ Humi:53% Press:101.30kPa LINE Phase : NEUTRAL
Limit : FCC PART 15E QP
Engineer : Nico Chen
EUT : WiiM Sub Pro Smart Subwoofer
Power : AC 120V/60Hz
M/N : SUB001
Test Mode : TX Mode

	Freq. (MHz)	LISN Factor (db)	Cable Loss (db)	Reading dBuV)	Emission Level (dBuv)	Limits (dBuv)	Margin (dB)	Remark
1	0.24	9.57	9.90	14.04	33.51	52.08	18.57	Average
2	0.24	9.57	9.90	20.51	39.98	62.08	22.10	QP
3	0.39	9.56	9.89	8.62	28.07	48.08	20.01	Average
4	0.39	9.56	9.89	19.29	38.74	58.08	19.34	QP
5	0.41	9.56	9.89	9.08	28.53	47.55	19.02	Average
6	0.41	9.56	9.89	21.56	41.01	57.55	16.54	QP
7	0.71	9.55	9.88	5.84	25.27	46.00	20.73	Average
8	0.71	9.55	9.88	13.46	32.89	56.00	23.11	QP
9	12.12	9.75	10.15	4.99	24.89	50.00	25.11	Average
10	12.12	9.75	10.15	13.57	33.47	60.00	26.53	QP
11	17.47	9.86	10.24	9.15	29.25	50.00	20.75	Average
12	17.47	9.86	10.24	18.64	38.74	60.00	21.26	QP

Remarks: 1. Emission Level= LISN Factor + Cable Loss + Reading.
2. Margin= Limit - Emission Level.
3. If the average limit is met when useing a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

10.RADIATED EMISSIONS

10.1.Limit

The maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:
(For transmitters operating within the 5.925-7.125 GHz band: Any emissions outside of the 5.925-
7.125 GHz band must not exceed an e.i.r.p. of −27 dBm/MHz.

The unwanted emissions which fall in Restricted bands shall not exceed the field strength levels specified in the following table:

15.209 Radiated emission limits

Frequency (MHz)	Field Strength(μV/m)	Distance(m)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

15.205 Restricted frequency band

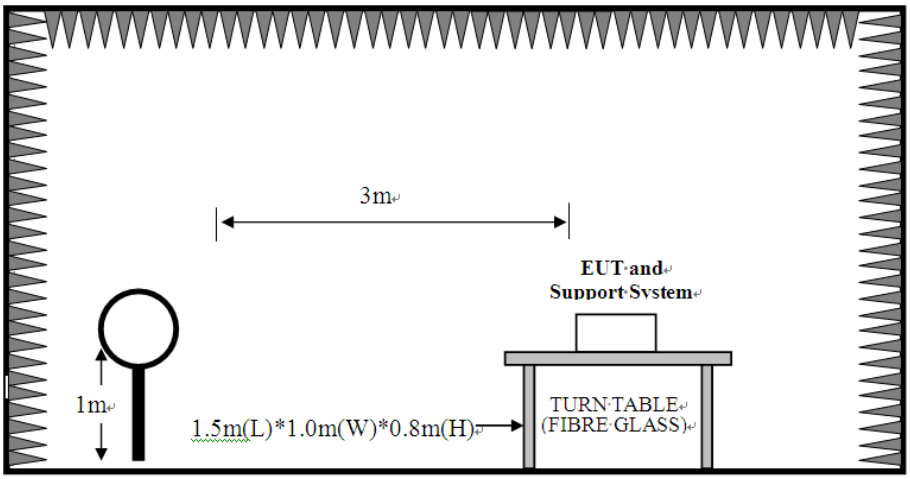
MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1]0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	([2])

Note：

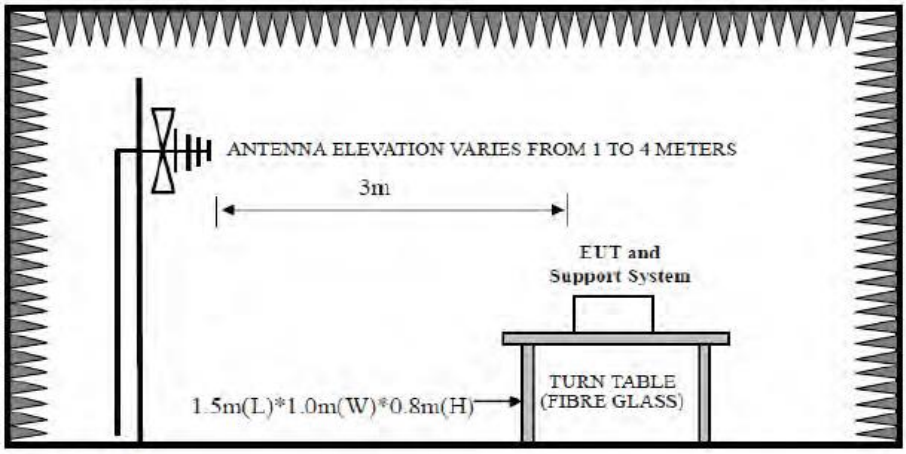
1. dBμV/m=20Log(μV/m)
2. Above 1GHz the formula is used to convert the EIRP to field strength
   E[dBμV/m] = EIRP[dBm] 20 log (*d*[m]) + 104.77,
   where E is field strength and d is distance at which the field strength limit is specified in the applicable requirements.
   for example,3m field strength(dBμV/m)=EIRP-20log(3)+104.77=EIRP+95.2

10.2.Test Setup

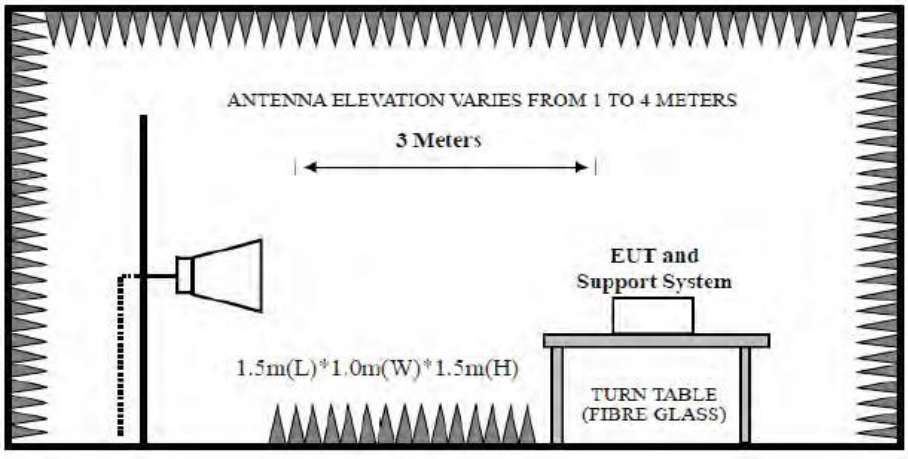
9kHz~30MHz



30~1000MHz



Above 1GHz



10.3.Spectrum Analyzer Setting

For 9KHz-150KHz

Spectrum Parameters	Setting
RBW	300Hz(for Peak&AVG)/CISPR 200Hz(for QP)
VBW	300Hz(for Peak&AVG)/CISPR 200Hz(for QP)
Start frequency	9KHz
Stop frequency	150KHz
Sweep Time	Auto
Detector	PEAK/QP/AVG
Trace Mode	Max Hold

Note : For 9KHz-90KHz&110KHz-150KHz,the detector is average,other frequency is CISPR QP detector.

For 150KHz-30MHz

Spectrum Parameters	Setting
RBW	9KHz
VBW	9KHz
Start frequency	150KHz
Stop frequency	30MHz
Sweep Time	Auto
Detector	QP
Trace Mode	Max Hold

Note : For 150KHz-490KHz,the detector is average,other frequency is CISPR QP detector.

For 30MHz-1GHz

Spectrum Parameters	Setting
RBW	120KHz
VBW	300KHz
Start frequency	30MHz
Stop frequency	1GHz
Sweep Time	Auto
Detector	QP
Trace Mode	Max Hold

For Above 1GHz

Spectrum Parameters	Setting	
RBW	1MHz	
VBW	PEAK Measurement	AVG Measurement
	3MHz	Duty cycle≥98%,VBW=10Hz Duty cycle＜98%,VBW≥1/T Video bandwidth mode=RMS (power averaging)
Start frequency	1GHz	
Stop frequency	40GHz	
Sweep Time	Auto	

Detector	PEAK
Trace Mode	Max Hold

Note : T is the on-time time of the duty cycle,when EUT transmit continuously with maximum output power,unit is seconds. reference section 2.7 for the on-time time.

10.4.Test Procedure

a. EUT was placed on a turn table, which is 0.8 meter high above ground for below 1GHz test, and which is 1.5 meter high above ground for above 1GHz test.
b. EUT is set 3 meters away from the receiving antenna, which is mounted on a antenna tower.
c. Set the EUT transmit continuously with maximum output power.
d. The turn table can rotate 360 degrees to determine the position of the maximum emission level.
e. The antenna can be moved 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 test.
f. Spectrum analyzer setting parameters in accordance with section 6.3.
g. Repeat above procedures until all channels were measured.
h. Record the results in the test report.

10.5.Test Result

Radiated Emissions Below 1GHz

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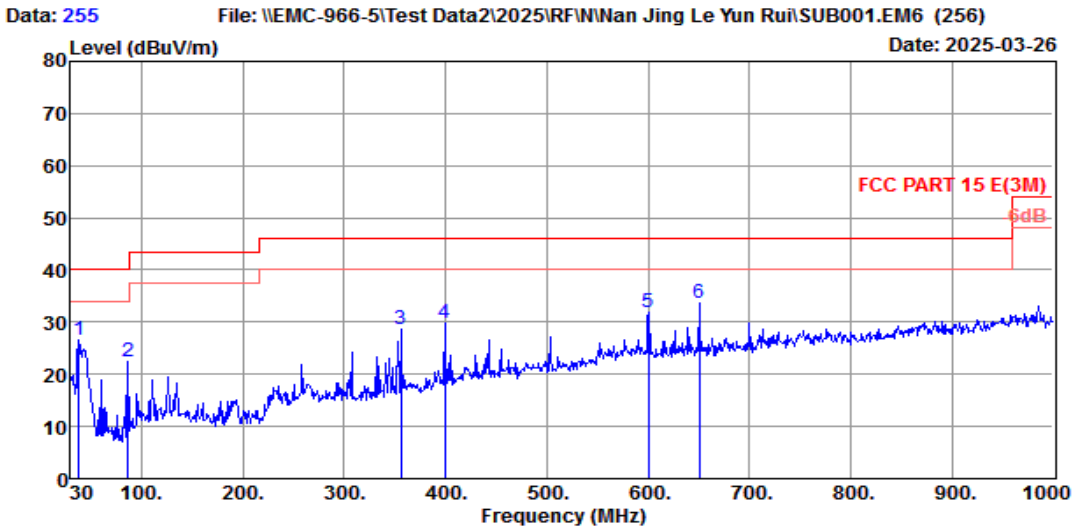

Site no. : 5# 966 Chamber Data no. : 255
Dis. / Ant. : 3m 54681 Ant. pol. : VERTICAL
Limit : FCC PART 15 E(3M)
Env. / Ins. : Temp:23.8℃;Humi:54%;Press:101.1kPa
Engineer : Wind Li
EUT : WiiM Sub Pro Smart Subwoofer
Power : AC 120V/60Hz
M/N : SUB001
Test Mode : TX Mode

	Freq. (MHz)	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	37.76	15.10	1.02	10.38	26.50	40.00	13.50	QP
2	86.26	8.00	1.18	13.26	22.44	40.00	17.56	QP
3	355.92	14.64	3.31	10.77	28.72	46.00	17.28	QP
4	399.57	16.00	3.53	10.37	29.90	46.00	16.10	QP
5	600.36	19.90	4.39	7.73	32.02	46.00	13.98	QP
6	650.80	20.50	4.58	8.66	33.74	46.00	12.26	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. Margin= Limit - Emission Level.
3. The emission levels that are 20dB below the official limit are not reported.

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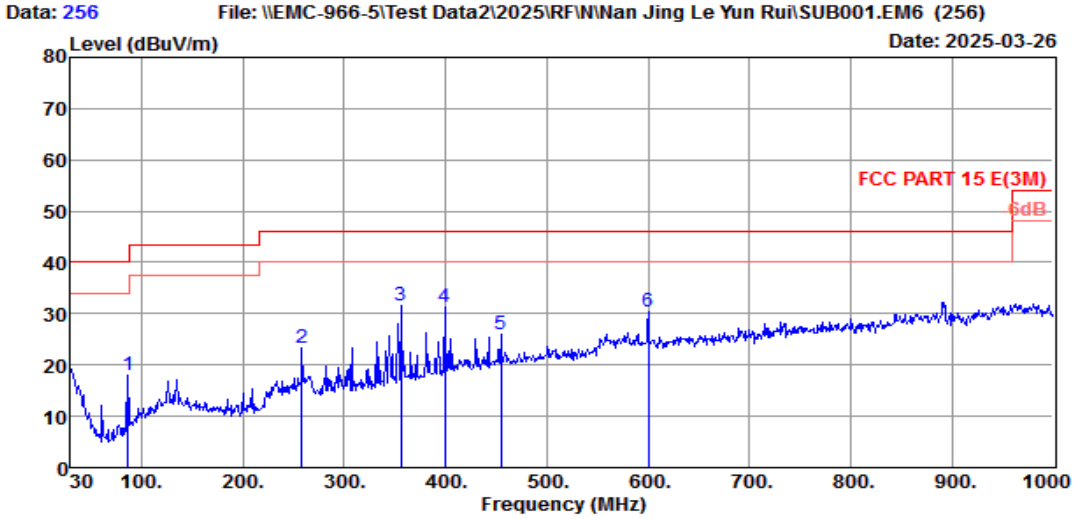

Site no. : 5# 966 Chamber Data no. : 256
Dis. / Ant. : 3m 54681 Ant. pol. : HORIZONTAL
Limit : FCC PART 15 E(3M)
Env. / Ins. : Temp:23.8℃;Humi:54%;Press:101.1kPa
Engineer : Wind Li
EUT : WiiM Sub Pro Smart Subwoofer
Power : AC 120V/60Hz
M/N : SUB001
Test Mode : TX Mode

	Freq. (MHz)	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	86.26	8.00	1.18	8.87	18.05	40.00	21.95	QP
2	257.95	14.12	2.79	6.41	23.32	46.00	22.68	QP
3	355.92	14.64	3.31	13.69	31.64	46.00	14.36	QP
4	399.57	16.00	3.53	11.88	31.41	46.00	14.59	QP
5	454.86	17.20	3.78	4.98	25.96	46.00	20.04	QP
6	600.36	19.90	4.39	6.22	30.51	46.00	15.49	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. Margin= Limit - Emission Level.
3. The emission levels that are 20dB below the official limit are not reported.

Note:

1. The amplitude of 9KHz to 30MHz spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be reported.
2. All channels had been pre-test,only the worst case was reported.

Radiated Emissions Above 1G

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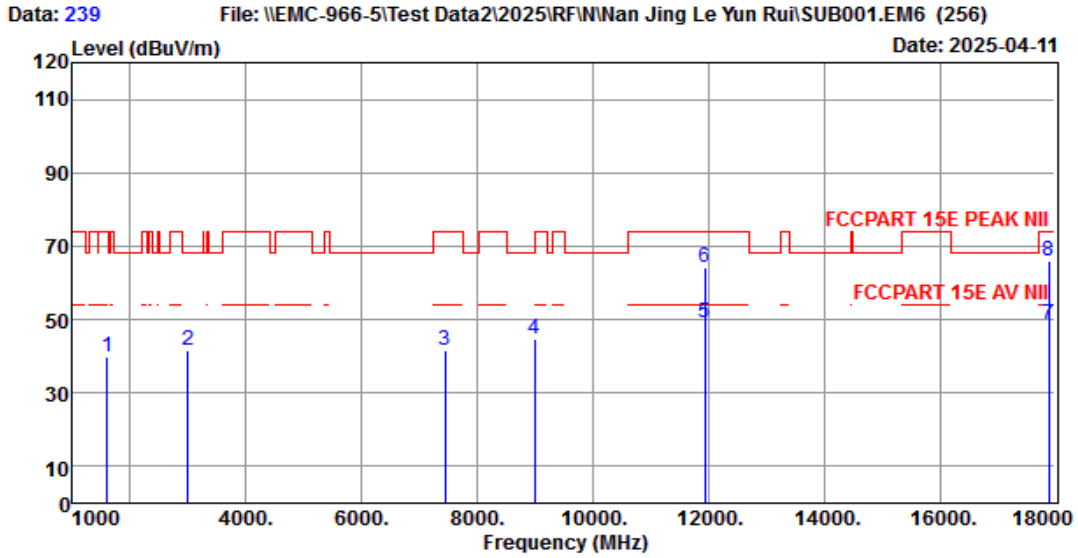

Site no. : 5# 966 Chamber Data no. : 239
Dis. / Ant. : 3m BBHA9120D-2667 Ant. pol. : HORIZONTAL
Limit : FCCPART 15E PEAK NII
Env. / Ins. : Temp:19.5℃;Humi:51%;Press:101.55kPa
Engineer : Aron Zhang
EUT : WiiM Sub Pro Smart Subwoofer
Power : AC 120V/60Hz
M/N : SUB001
Test Mode : IEEE 802.11ax HE20 TX 5955MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	1595.00	25.30	3.86	45.19	55.88	39.85	74.00	34.15	Peak
2	2989.00	29.40	5.66	43.32	50.08	41.82	68.20	26.38	Peak
3	7443.00	36.30	8.48	42.90	39.74	41.62	74.00	32.38	Peak
4	8990.00	38.00	9.18	42.31	39.90	44.77	68.20	23.43	Peak
5	11931.00	39.50	11.04	40.82	39.52	49.24	54.00	4.76	Average
6	11931.00	39.50	11.04	40.82	54.58	64.30	74.00	9.70	Peak
7	17881.00	44.60	14.29	41.45	31.12	48.56	54.00	5.44	Average
8	17881.00	44.60	14.29	41.45	48.46	65.90	74.00	8.10	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
2. Margin= Limit - Emission Level.
3. The emission levels that are 20dB below the official limit are not reported.

EST Technology

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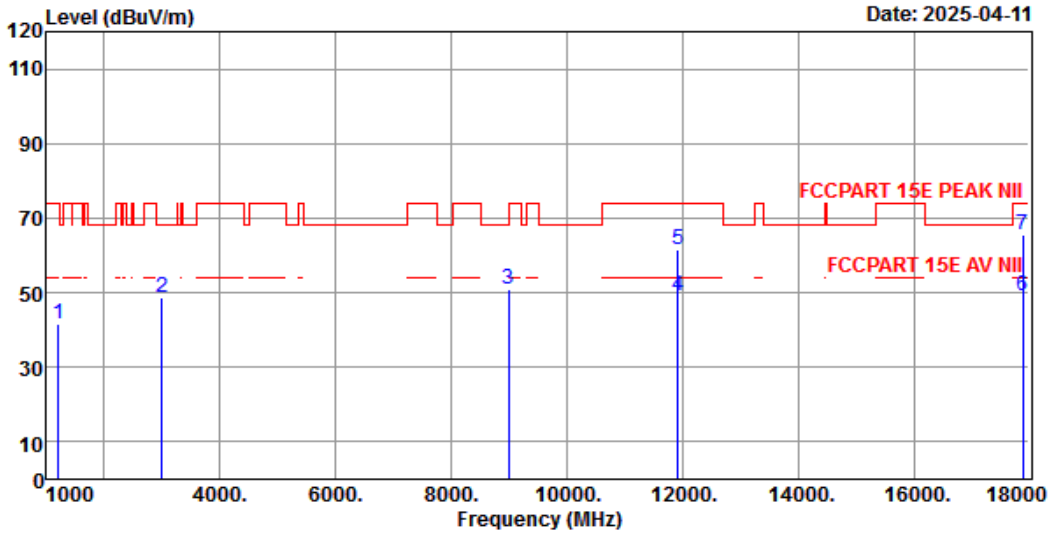
Data: 240 File: \\EMC-966-5\Test Data2\2025\RF\N\Nan Jing Le Yun Rui\SUB001.EM6 (256)



Site no. : 5# 966 Chamber Data no. : 240
Dis. / Ant. : 3m BBHA9120D-2667 Ant. pol. : VERTICAL
Limit : FCCPART 15E PEAK NII
Env. / Ins. : Temp:19.5℃;Humi:51%;Press:101.55kPa
Engineer : Aron Zhang
EUT : WiiM Sub Pro Smart Subwoofer
Power : AC 120V/60Hz
M/N : SUB001
Test Mode : IEEE 802.11ax HE20 TX 5955MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	1204.00	25.20	3.37	45.66	58.73	41.64	74.00	32.36	Peak
2	2989.00	29.40	5.66	43.32	56.78	48.52	68.20	19.68	Peak
3	8990.00	38.00	9.18	42.31	46.22	51.09	68.20	17.11	Peak
4	11914.00	39.50	11.03	40.83	39.54	49.24	54.00	4.76	Average
5	11914.00	39.50	11.03	40.83	52.06	61.76	74.00	12.24	Peak
6	17881.00	44.60	14.29	41.45	31.57	49.01	54.00	4.99	Average
7	17881.00	44.60	14.29	41.45	47.97	65.41	74.00	8.59	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
2. Margin= Limit - Emission Level.
3. The emission levels that are 20dB below the official limit are not reported.

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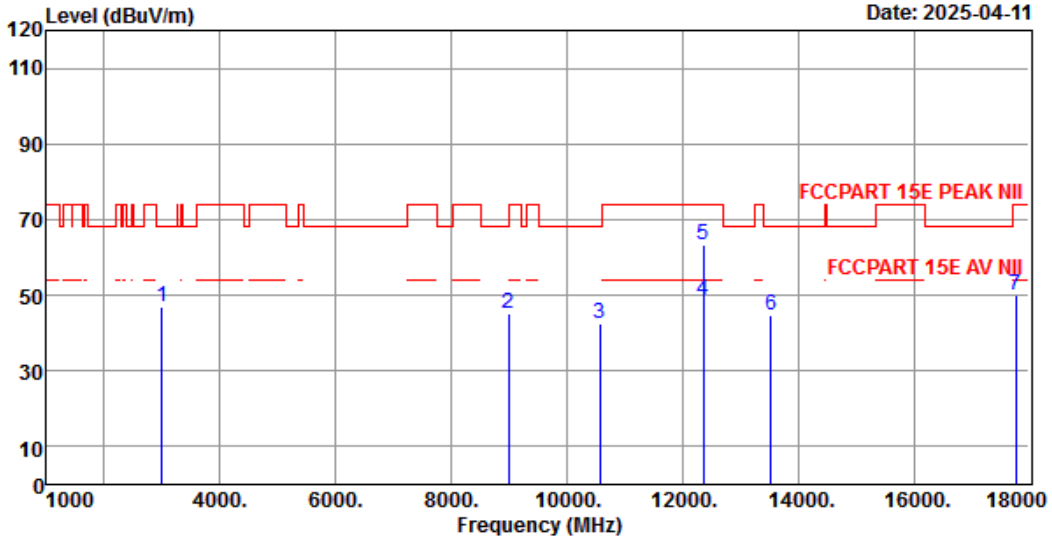
Data: 241 File: \\EMC-966-5\Test Data2\2025\RF\N\Nan Jing Le Yun Rui\SUB001.EM6 (256)



Site no. : 5# 966 Chamber Data no. : 241
Dis. / Ant. : 3m BBHA9120D-2667 Ant. pol. : HORIZONTAL
Limit : FCCPART 15E PEAK NII
Env. / Ins. : Temp:19.5℃;Humi:51%;Press:101.55kPa
Engineer : Aron Zhang
EUT : WiiM Sub Pro Smart Subwoofer
Power : AC 120V/60Hz
M/N : SUB001
Test Mode : IEEE 802.11ax HE20 TX 6175MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2989.00	29.40	5.66	43.32	55.38	47.12	68.20	21.08	Peak
2	8990.00	38.00	9.18	42.31	40.16	45.03	68.20	23.17	Peak
3	10571.00	38.63	10.25	41.35	34.94	42.47	68.20	25.73	Peak
4	12356.00	39.45	11.16	40.30	38.36	48.67	54.00	5.33	Average
5	12356.00	39.45	11.16	40.30	52.89	63.20	74.00	10.80	Peak
6	13529.00	41.03	11.29	39.87	32.42	44.87	68.20	23.33	Peak
7	17762.00	43.27	14.20	41.61	34.19	50.05	74.00	23.95	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
2. Margin= Limit - Emission Level.
3. The emission levels that are 20dB below the official limit are not reported.

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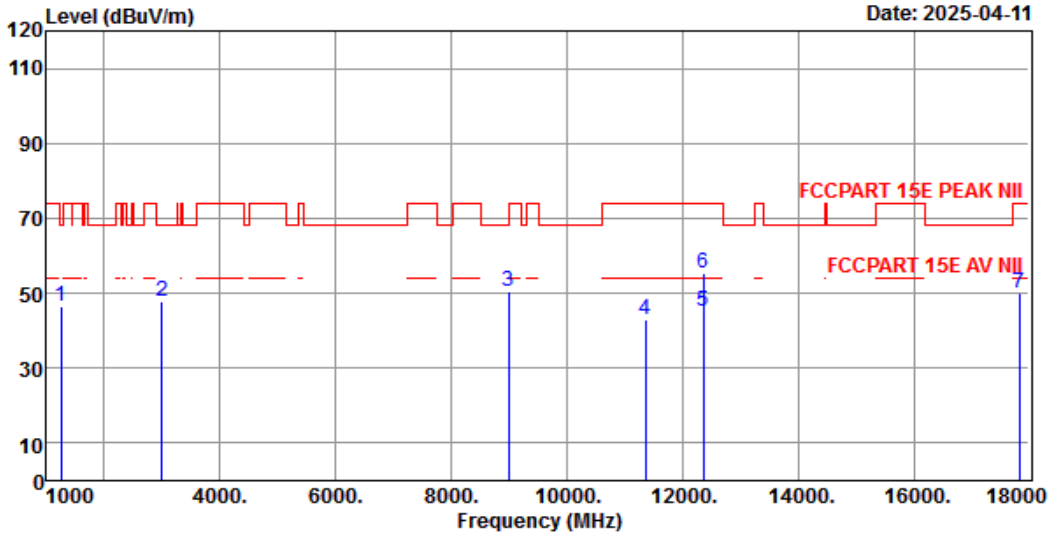
Data: 242 File: \\EMC-966-5\Test Data2\2025\RF\N\Nan Jing Le Yun Rui\SUB001.EM6 (256)



Site no. : 5# 966 Chamber Data no. : 242
Dis. / Ant. : 3m BBHA9120D-2667 Ant. pol. : VERTICAL
Limit : FCCPART 15E PEAK NII
Env. / Ins. : Temp:19.5℃;Humi:51%;Press:101.55kPa
Engineer : Aron Zhang
EUT : WiiM Sub Pro Smart Subwoofer
Power : AC 120V/60Hz
M/N : SUB001
Test Mode : IEEE 802.11ax HE20 TX 6175MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	1255.00	24.90	3.43	45.59	63.83	46.57	68.20	21.63	Peak
2	2989.00	29.40	5.66	43.32	56.25	47.99	68.20	20.21	Peak
3	8990.00	38.00	9.18	42.31	45.50	50.37	68.20	17.83	Peak
4	11353.00	40.00	10.75	40.99	33.41	43.17	74.00	30.83	Peak
5	12356.00	39.45	11.16	40.30	34.75	45.06	54.00	8.94	Average
6	12356.00	39.45	11.16	40.30	44.96	55.27	74.00	18.73	Peak
7	17830.00	44.30	14.25	41.52	32.87	49.90	74.00	24.10	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
2. Margin= Limit - Emission Level.
3. The emission levels that are 20dB below the official limit are not reported.

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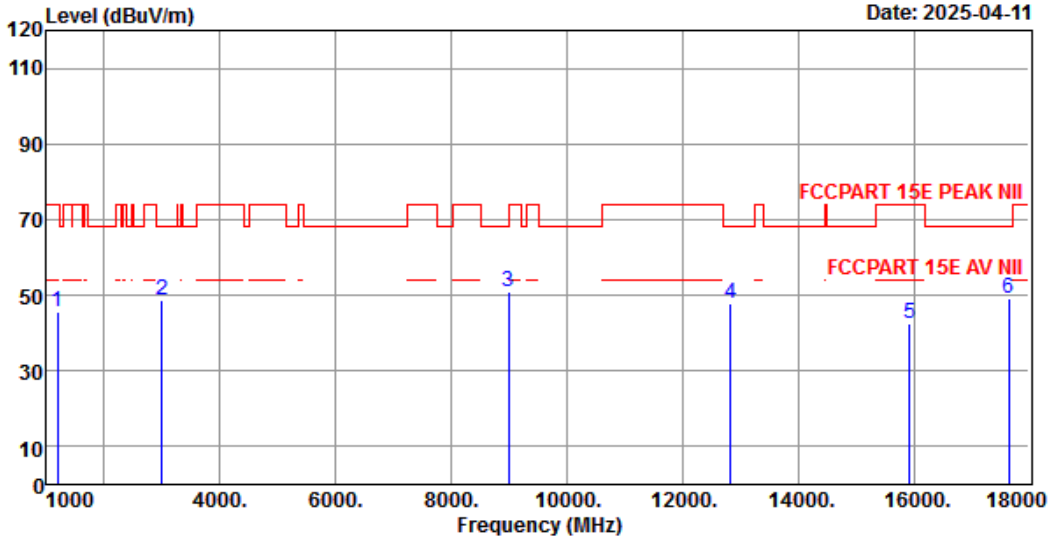
Data: 243 File: \\EMC-966-5\Test Data2\2025\RF\N\Nan Jing Le Yun Rui\SUB001.EM6 (256)



Site no. : 5# 966 Chamber Data no. : 243
Dis. / Ant. : 3m BBHA9120D-2667 Ant. pol. : VERTICAL
Limit : FCCPART 15E PEAK NII
Env. / Ins. : Temp:19.5℃;Humi:51%;Press:101.55kPa
Engineer : Aron Zhang
EUT : WiiM Sub Pro Smart Subwoofer
Power : AC 120V/60Hz
M/N : SUB001
Test Mode : IEEE 802.11ax HE20 TX 6415MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	1187.00	25.30	3.34	45.68	62.65	45.61	74.00	28.39	Peak
2	2989.00	29.40	5.66	43.32	57.00	48.74	68.20	19.46	Peak
3	8990.00	38.00	9.18	42.31	46.08	50.95	68.20	17.25	Peak
4	12832.00	40.07	11.29	39.64	35.97	47.69	68.20	20.51	Peak
5	15926.00	36.93	12.21	42.77	36.19	42.56	74.00	31.44	Peak
6	17643.00	41.65	14.11	41.76	35.34	49.34	68.20	18.86	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
2. Margin= Limit - Emission Level.
3. The emission levels that are 20dB below the official limit are not reported.

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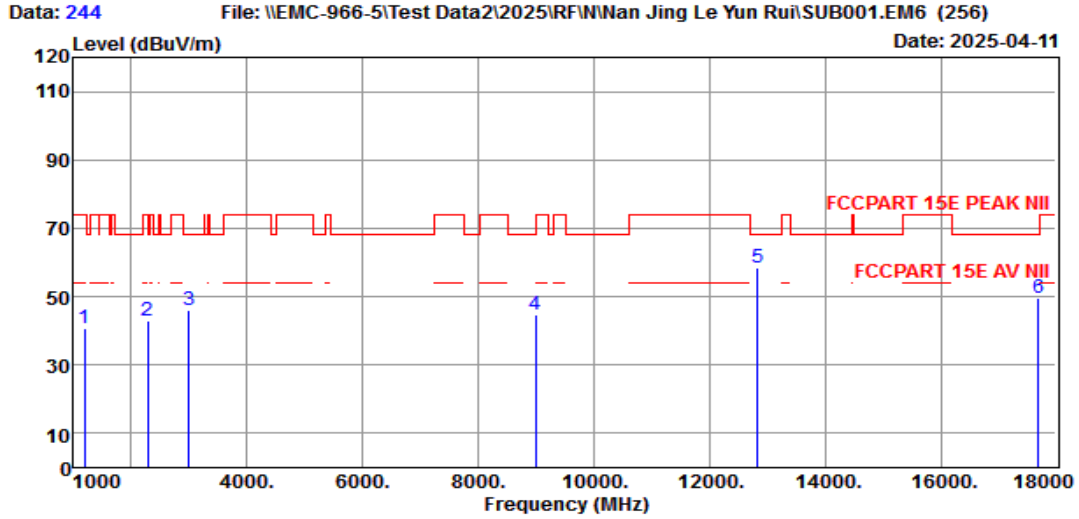

Site no. : 5# 966 Chamber Data no. : 244
Dis. / Ant. : 3m BBHA9120D-2667 Ant. pol. : HORIZONTAL
Limit : FCCPART 15E PEAK NII
Env. / Ins. : Temp:19.5℃;Humi:51%;Press:101.55kPa
Engineer : Aron Zhang
EUT : WiiM Sub Pro Smart Subwoofer
Power : AC 120V/60Hz
M/N : SUB001
Test Mode : IEEE 802.11ax HE20 TX 6415MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	1187.00	25.30	3.34	45.68	57.75	40.71	74.00	33.29	Peak
2	2275.00	27.30	4.73	44.32	55.29	43.00	74.00	31.00	Peak
3	2989.00	29.40	5.66	43.32	54.21	45.95	68.20	22.25	Peak
4	8990.00	38.00	9.18	42.31	39.64	44.51	68.20	23.69	Peak
5	12832.00	40.07	11.29	39.64	46.86	58.58	68.20	9.62	Peak
6	17694.00	41.60	14.15	41.70	35.37	49.42	68.20	18.78	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
2. Margin= Limit - Emission Level.
3. The emission levels that are 20dB below the official limit are not reported.

Note:

1. The amplitude of 18GHz to 40GHz spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be reported.
2. All test mode had been pre-test, only Low/Middle/High Channel of the worst case modulation mode was reported

Band Edge

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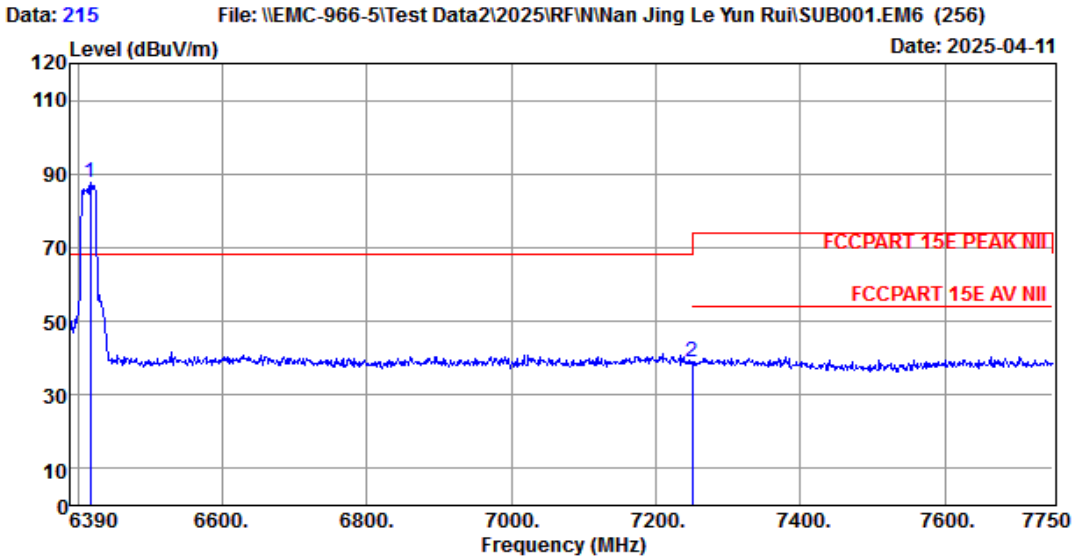

Site no. : 5# 966 Chamber Data no. : 215
Dis. / Ant. : 3m BBHA9120D-2667 Ant. pol. : HORIZONTAL
Limit : FCCPART 15E PEAK NII
Env. / Ins. : Temp:19.5℃;Humi:51%;Press:101.55kPa
Engineer : Aron Zhang
EUT : WiiM Sub Pro Smart Subwoofer
Power : AC 120V/60Hz
M/N : SUB001
Test Mode : IEEE 802.11ax HE20 TX 6415MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	6417.20	35.73	8.08	42.84	86.62	87.59	68.20	-19.39	Peak
2	7250.00	36.80	8.42	42.90	36.63	38.95	68.20	29.25	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
2. Margin= Limit - Emission Level.
3. The emission levels that are 20dB below the official limit are not reported.

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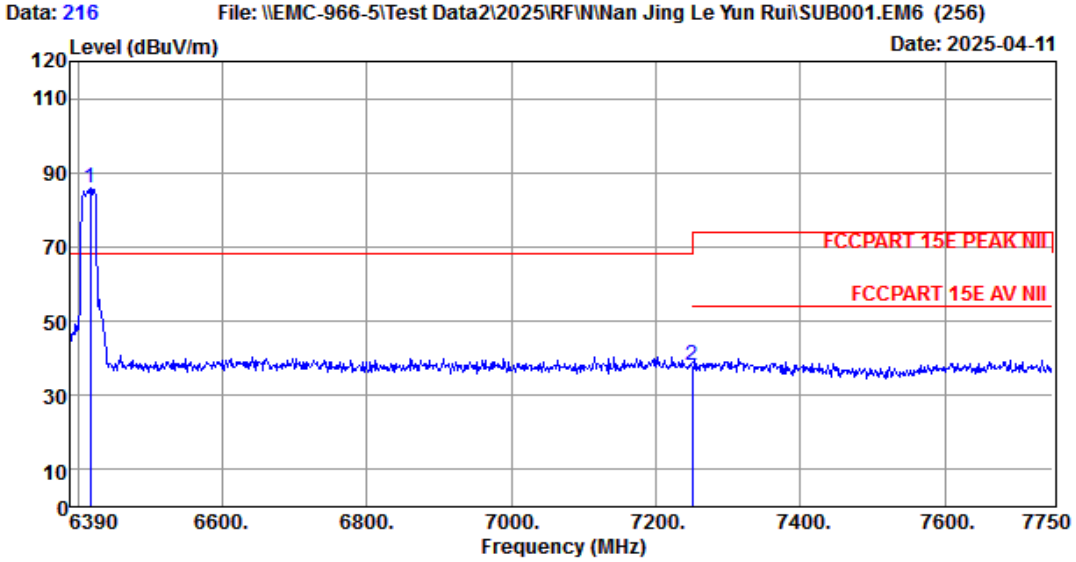

Site no. : 5# 966 Chamber Data no. : 216
Dis. / Ant. : 3m BBHA9120D-2667 Ant. pol. : VERTICAL
Limit : FCCPART 15E PEAK NII
Env. / Ins. : Temp:19.5℃;Humi:51%;Press:101.55kPa
Engineer : Aron Zhang
EUT : WiiM Sub Pro Smart Subwoofer
Power : AC 120V/60Hz
M/N : SUB001
Test Mode : IEEE 802.11ax HE20 TX 6415MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	6417.20	35.73	8.08	42.84	84.93	85.90	68.20	-17.70	Peak
2	7250.00	36.80	8.42	42.90	35.72	38.04	68.20	30.16	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
2. Margin= Limit - Emission Level.
3. The emission levels that are 20dB below the official limit are not reported.

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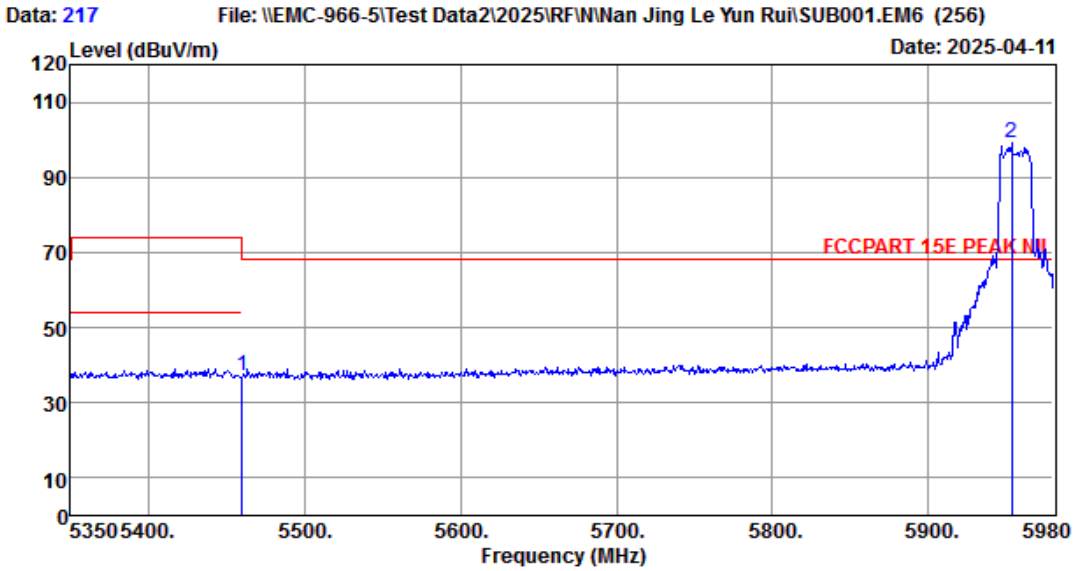

Site no. : 5# 966 Chamber Data no. : 217
Dis. / Ant. : 3m BBHA9120D-2667 Ant. pol. : HORIZONTAL
Limit : FCCPART 15E PEAK NII
Env. / Ins. : Temp:19.5℃;Humi:51%;Press:101.55kPa
Engineer : Aron Zhang
EUT : WiiM Sub Pro Smart Subwoofer
Power : AC 120V/60Hz
M/N : SUB001
Test Mode : IEEE 802.11ax HE20 TX 5955MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	5460.00	33.70	7.38	42.96	39.15	37.27	68.20	30.93	Peak
2	5953.54	35.00	7.83	42.82	98.96	98.97	68.20	-30.77	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
2. Margin= Limit - Emission Level.
3. The emission levels that are 20dB below the official limit are not reported.

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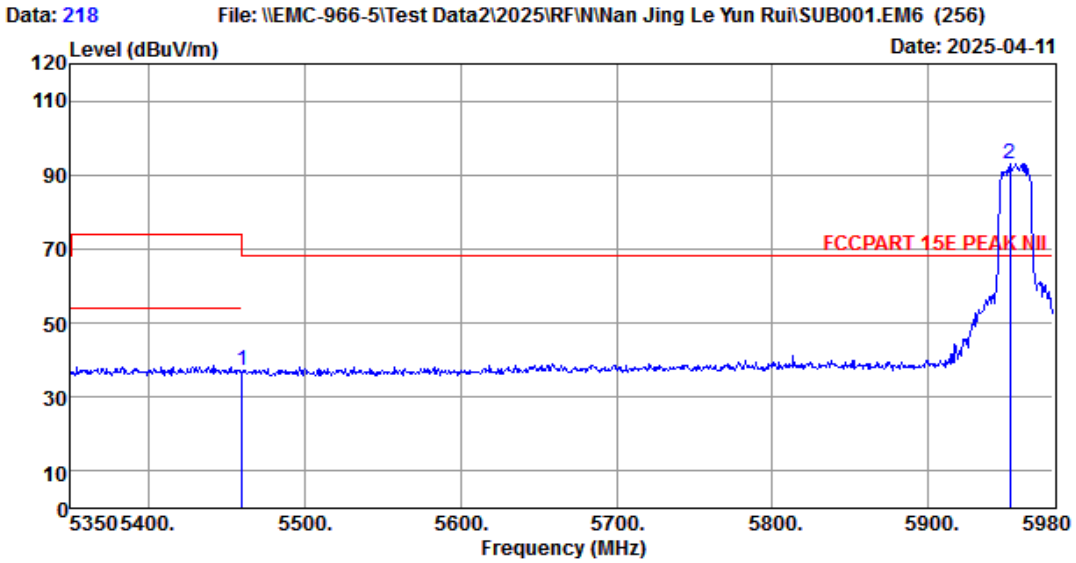


Site no. : 5# 966 Chamber Data no. : 218
Dis. / Ant. : 3m BBHA9120D-2667 Ant. pol. : VERTICAL
Limit : FCCPART 15E PEAK NII
Env. / Ins. : Temp:19.5℃;Humi:51%;Press:101.55kPa
Engineer : Aron Zhang
EUT : WiiM Sub Pro Smart Subwoofer
Power : AC 120V/60Hz
M/N : SUB001
Test Mode : IEEE 802.11ax HE20 TX 5955MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	5460.00	33.70	7.38	42.96	38.88	37.00	68.20	31.20	Peak
2	5952.28	35.00	7.83	42.82	93.09	93.10	68.20	-24.90	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
2. Margin= Limit - Emission Level.
3. The emission levels that are 20dB below the official limit are not reported.

18000MHz-40000MHz

Pass

Note: The amplitude of spurious emission that is attenuated by more than 20dB below the permissible
limit has no need to be reported.

11.ANTENNA REQUIREMENTS

11.1.Limit

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, 15.221, or §15.236. 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.

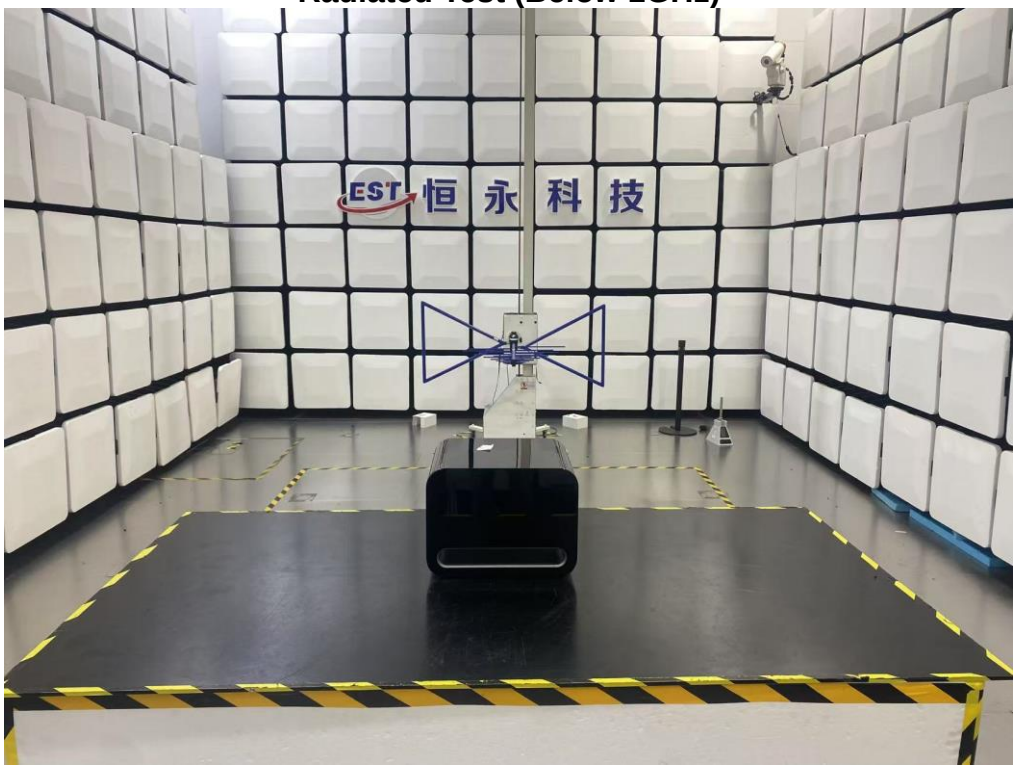
11.2.Test Result

The antennas used for this product is internal antenna, so compliance with antenna requirements. (Please refer to the EUT photo for details)

12. TEST SETUP PHOTO

Conducted Test

Radiated Test (Below 1GHz)



Radiated Test (Above 1GHz)

Contention-Based Protocol

13. EUT PHOTO

Refer to report no. ESTE-R2504065

End of Test Report