Test Report

Verified code: 595106

Report No.: E20231019753001-5

Customer:	Nofio Pty Ltd
Address:	55 Barry Parade Fortitude Valley QLD 4006 AUSTRALIA
Sample Name:	Nofio wireless adapter
Sample Model:	P008B
Receive Sample Date:	Oct.19,2023
Test Date:	Oct.21,2023 ~ Nov.06,2023
Reference Document:	47 CFR Part 15 Subpart E Unlicensed National Information Infrastructure Devices
Test Result:	Pass

Prepared by: Lu Wei — Lu Wei

Reviewed by: Jiang Tao — Jiang Tao

Approved by: Xiao Liang — Xiao Liang

GRG METROLOGY & TEST GROUP CO., LTD.

Issued Date: 2024-02-02

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Statement

1. The report is invalid without "special seal for inspection and testing"; some copies are invalid; The report is invalid if it is altered or missing; The report is invalid without the signature of the person who prepared, reviewed and approved it.

2. The sample information is provided by the client and responsible for its authenticity; The content of the report is only valid for the samples sent this time.

3. When there are reports in both Chinese and English, the Chinese version will prevail when the language problems are inconsistent.

4. If there is any objection concerning the report, please inform us within 15 days from the date of receiving the report.

5. Without the agreement of the laboratory, the client is not authorized to use the test results for unapproved propaganda.

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TABLE OF CONTENTS

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REPORT ISSUED HISTORY

Report Version	Report No.	Description	Compile Date
1.0	E20231019753001-5	Original Issue	2023-11-16

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1. TEST RESULT SUMMARY

Standard	Item	Limit / Severity	Result
47 CFR Part 15 Subpart E (§15.407) & FCC KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 & FCC KDB 662911 D01 Multiple Transmitter Output v02r01 & 987594 D02 U-NII 6 GHz EMC Measurement v02	26dB Bandwidth & 99% Occupied Bandwidth	15.407(a) 15.407(e)	PASS
	AC Power Line Conducted Emissions	15.207 15.407(b)(9)	PASS
	Unwanted Emissions and Band Edge	15.205 15.209 15.407(b)	PASS
	Output Power	15.407(a)	PASS
	Power Spectral Density	15.407(a)	PASS
	In-Band Emissions	15.407(b)(7)	PASS
	Frequency Stability	15.407(g)	PASS
	Contention Based Protocol	15.407(d)	PASS
	Antenna Requirement	15.203	PASS[1)]

Note:

1. The EUT have two antennas. The antenna is PCB antenna. The max gain of antenna is 3.5dBi, which accordance 15.203 is considered sufficient to comply with the provisions of this section.
2. IEEE 802.11ax HE160 Resource Unit (RU) is full RU.
3. The applicant declares that using 6GHz WIFI is through the APP, the device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure.
4. Equipment class for this product is Low-power indoor Access Points (6ID).

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2. GENERAL DESCRIPTION OF EUT

2.1. APPLICANT

Name:	Nofio Pty Ltd
Address:	55 Barry Parade Fortitude Valley QLD 4006 AUSTRALIA

2.2. MANUFACTURER

Name:	Nofio Pty Ltd
Address:	55 Barry Parade Fortitude Valley QLD 4006 AUSTRALIA

2.3. BASIC DESCRIPTION OF EQUIPMENT UNDER TEST

Product Name:	Nofio wireless adapter
Product Model:	P008B
Adding Model:	/
Model difference description:	/
Trade Name:	Nofio
FCC ID:	2BDFI-NWADP6E3
Power Supply:	DC 12V-2.5A
Frequency Band:	U-NII-5: 6025 MHz~6345 MHz U-NII-6: 6505 MHz U-NII-7: 6665 MHz~6825 MHz U-NII-8: 6985 MHz
Modulation Type:	OFDMA
Antenna Specification:	PCB Antenna Antenna 1 with 3.5dBi gain (Max.) Antenna 2 with 3.5dBi gain (Max.)
Number Of Channel	U-NII-5: IEEE 802.11ax HE160: 3 Channel U-NII-6: IEEE 802.11 ax HE160: 1 Channel U-NII-7: IEEE 802.11ax HE160: 2 Channel U-NII-8: IEEE 802.11ax HE160: 1 Channel
Channels Spacing:	IEEE 802.11ax HE160: 160MHz

Transmit Power:	U-NII-5: 24.31dBm for IEEE 802.11ax HE160 U-NII-6: 24.02dBm for IEEE 802.11ax HE160 U-NII-7: 24.06dBm for IEEE 802.11ax HE160 U-NII-8: 22.44dBm for IEEE 802.11ax HE160
Equipment Classes:	6ID
Temperature Range:	10℃~+35℃
Hardware Version:	V2.0
Software Version:	0.00.1
Sample submitting way:	■Provided by customer □Sampling
Sample No:	E20231019753001-0001, E20231019753001-0004
Note:	The EUT antenna gain is provided by the applicant. This report is made solely on the basis of such data and/or information. We accept no responsibility for the authenticity and completeness of the above data and information and the validity of the results and/or conclusions.

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2.4. TEST OPERATION MODE

Mode No.	Description of the modes
1	6GHz RLAN TX mode
2	6GHz RLAN Normal mode

2.5. CHANNEL LIST

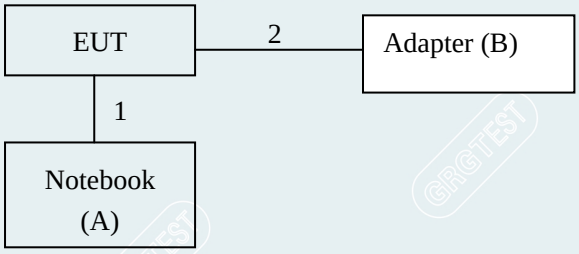
Mode	Band	Channel	Frequency[MHz]
IEEE 802.11ax HE160	U-NII-5	15	6025
		47	6185
		79	6345
	U-NII-6	111	6505
	U-NII-7	143	6665
		175	6825
	U-NII-8	207	6985

2.6. LOCAL SUPPORTIVEINSTRUMENTS

No.	Name of Equipment	Manufacturer	Model	Serial Number	Note
A	Notebook	DELL	Latitude3490	2095LR2	/
B	Adapter	Chicony	A16-030N1A	/	/

No.	Cable Type	Qty.	Shielded Type	Ferrite Core(Qty.)	Length
1	Type-C to USB cable	1	No	0	1.0m
2	DC cable	1	No	0	3.0m

2.7. CONFIGURATION OF SYSTEM UNDER TEST



Test software:

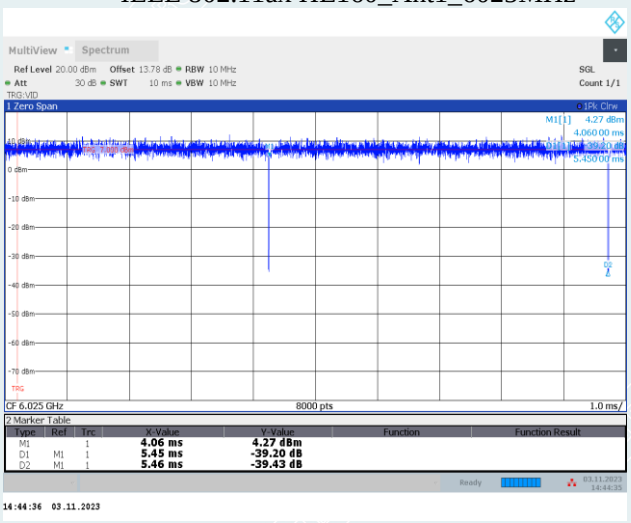
Software version	Mode	Channel	Frequency[MHz]	Test Level
putty	IEEE 802.11ax HE160	15	6025	13
		47	6185	13
		79	6345	13
		111	6505	13
		143	6665	13
		175	6825	13
		207	6985	13

2.8. DUTY CYCLE

EUT Name	Nofio wireless adapter	**Model**	P008B
Environmental Conditions	24.1℃/69%RH/101.0kPa	**Test Voltage**	DC 12V
Tested By	Qin Tingting	**Tested Date**	2023-11-03

Duty Cycle Calculation							
Mode	**Antenna**	**Frequency[MHz]**	**ON Time(ms)**	**Total Time(ms)**	**Duty Cycle(%)**	**Duty Factor (dB)**	**T(s)**
IEEE 802.11ax HE160 MIMO	Ant1	6025	5.45	5.46	99.82	---	---
	Ant2	6025	5.45	5.47	99.63	---	---
	Ant1	6185	5.46	5.47	99.82	---	---
	Ant2	6185	5.45	5.47	99.63	---	---
	Ant1	6345	5.45	5.47	99.63	---	---
	Ant2	6345	5.46	5.47	99.82	---	---
	Ant1	6505	5.46	5.47	99.82	---	---
	Ant2	6505	5.46	5.47	99.82	---	---
	Ant1	6665	5.46	5.47	99.82	---	---
	Ant2	6665	5.45	5.47	99.63	---	---
	Ant1	6825	5.45	5.47	99.63	---	---
	Ant2	6825	5.45	5.47	99.63	---	---
	Ant1	6985	5.45	5.47	99.63	---	---
	Ant2	6985	5.45	5.47	99.63	---	---

IEEE 802.11ax HE160_Ant1_6025MHz



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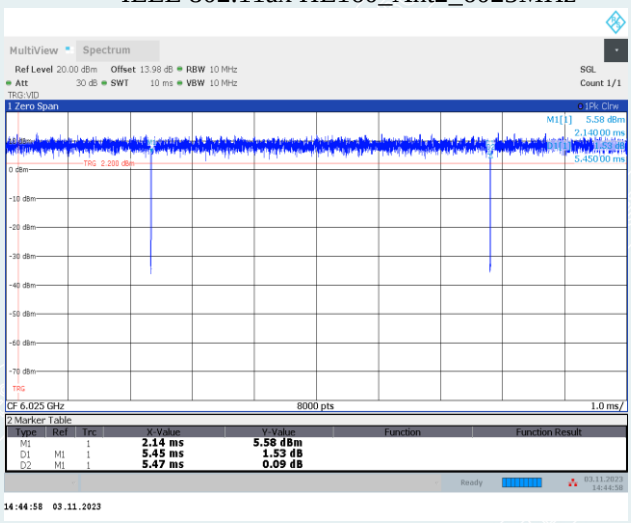
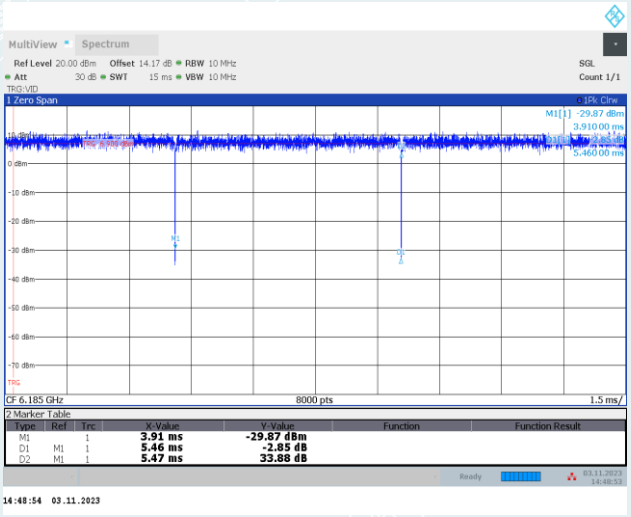


IEEE 802.11ax HE160_Ant1_6185MHz



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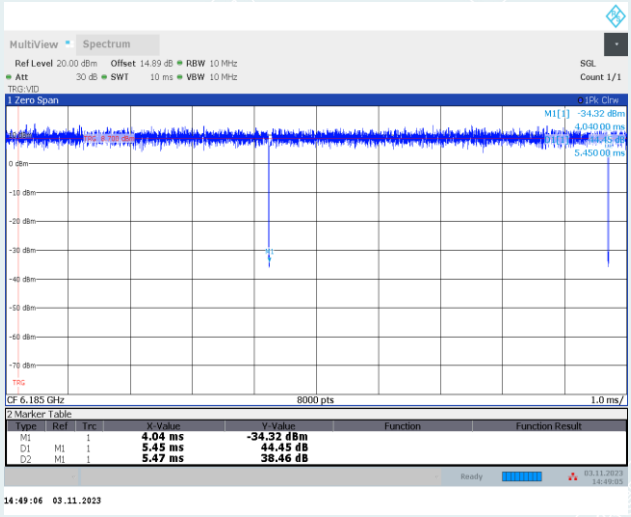

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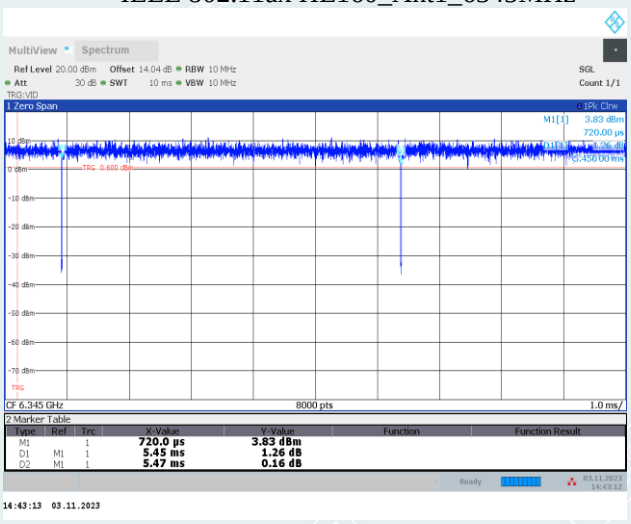

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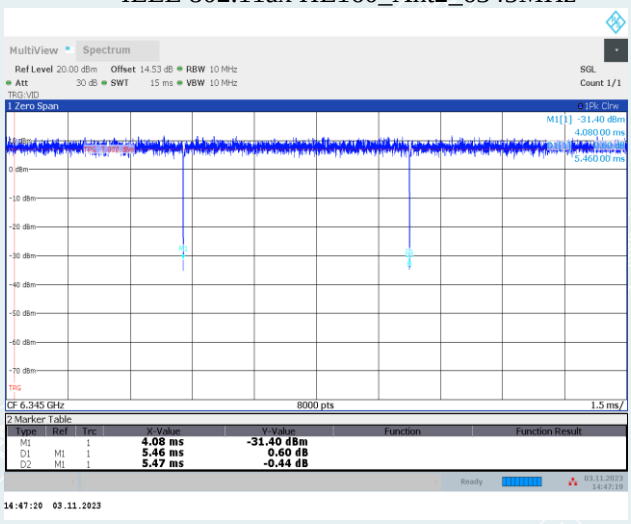
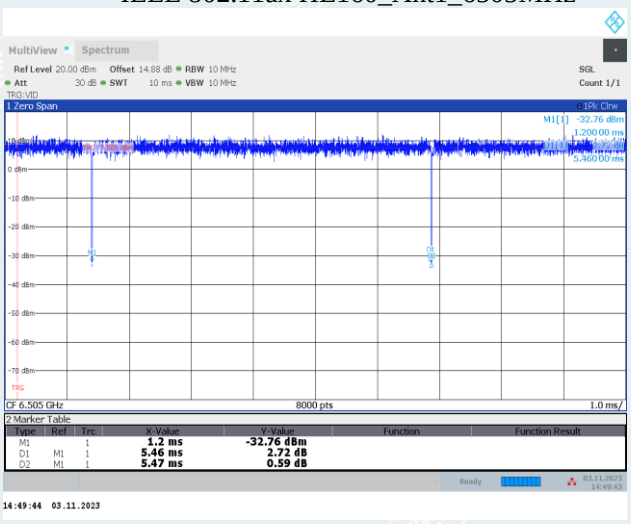
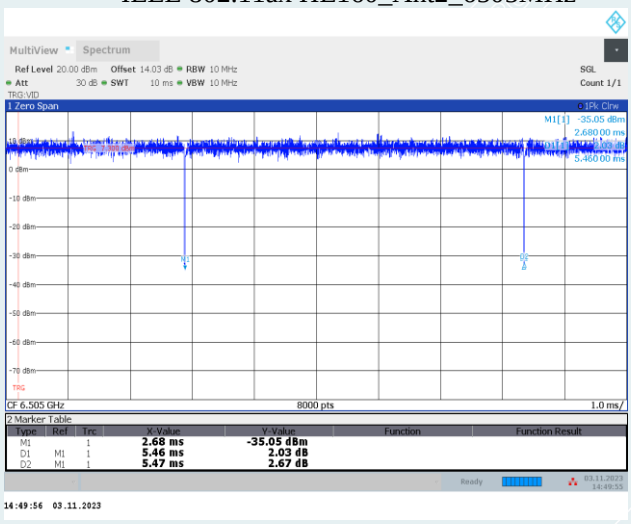


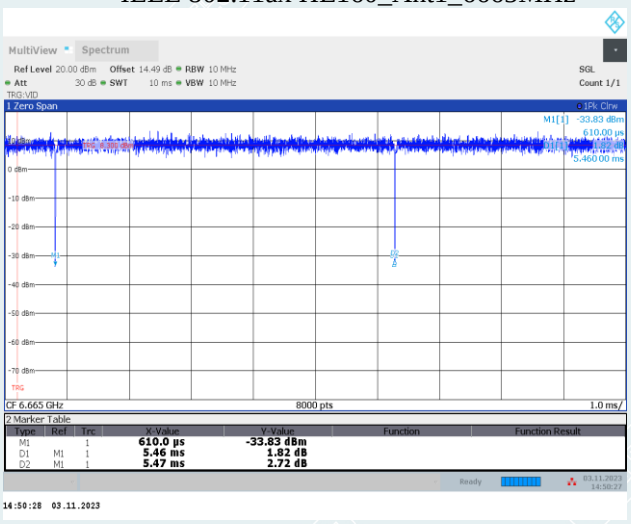
IEEE 802.11ax HE160_Ant1_6505MHz



IEEE 802.11ax HE160_Ant2_6505MHz



IEEE 802.11ax HE160_Ant1_6665MHz



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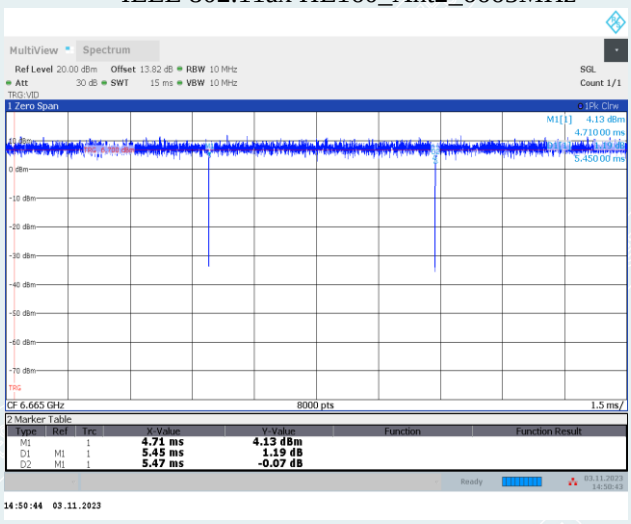

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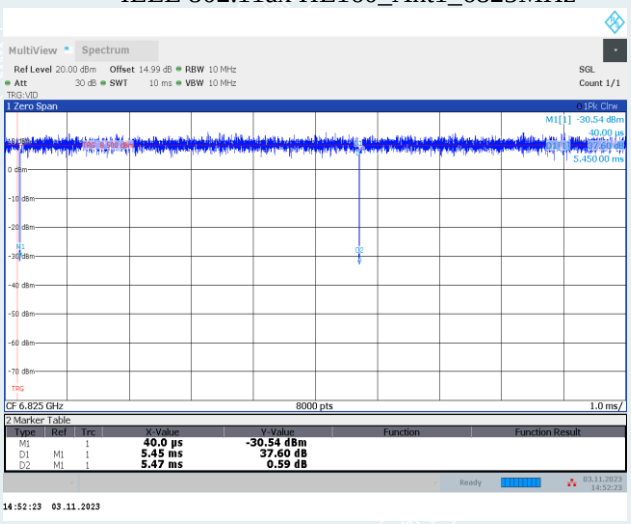
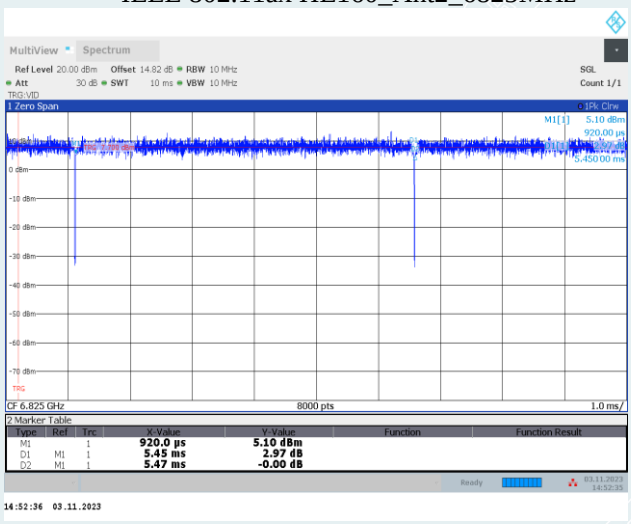
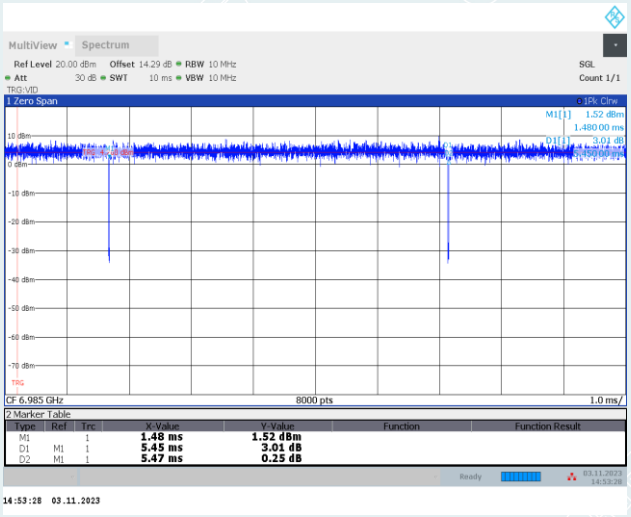


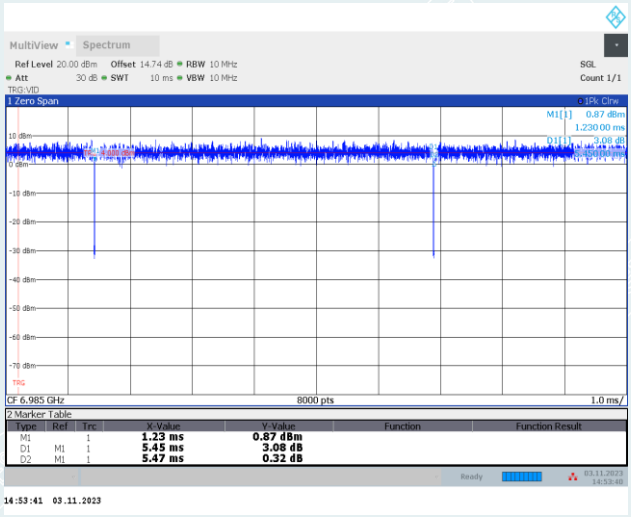
IEEE 802.11ax HE160_Ant2_6825MHz



IEEE 802.11ax HE160_Ant1_6985MHz



IEEE 802.11ax HE160_Ant2_6985MHz



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3. LABORATORY AND ACCREDITATIONS

3.1. LABORATORY

The tests & measurements refer to this report were performed by Shenzhen EMC Laboratory of GRG METROLOGY & TEST GROUP CO., LTD.

Add	No.1301 Guanguang Road Xinlan Community, Guanlan Street, Longhua District Shenzhen, 518110, People's Republic of China
P.C.	518110
Tel	0755-61180008
Fax	0755-61180008

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3.2. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement		Frequency	Uncertainty
Radiated Emission	Coplanar	9kHz～30MHz	4.4dB
	Coaxial	9kHz～30MHz	4.4dB
	Horizontal	30MHz～200MHz	4.6dB
		200MHz～1000MHz	4.8dB
		1GHz～18GHz	5.0dB
		18GHz～40GHz	5.2dB
	Vertical	30MHz～200MHz	4.7dB
		200MHz～1000MHz	4.7dB
		1GHz～18GHz	5.1dB
		18GHz～40GHz	5.4dB
Conduction Emission		150kHz～30MHz	3.3dB

Measurement	Uncertainty
RF frequency	6.0×10^{-6}
RF power conducted	0.78 dB
Power spectral density	0.78 dB
Occupied channel bandwidth	0.4 dB
Unwanted emission, conducted	0.68 dB
Humidity	6 %
Temperature	2℃

Note:

This uncertainty represents an expanded uncertainty expressed at approximately the 95%.

This uncertainty represents an expanded uncertainty factor of *k*=2.

4. LIST OF USED TEST EQUIPMENT AT GRGT

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Conducted Emissions				
EZ-EMC	EZ	CCS-3A1-CE	/	/
EMI Receiver	R&S	ESCI	100783	2024-08-11
LISN(EUT)	R&S	ENV216	101543	2024-08-03
Radiated Spurious Emission&Restricted bands of operation				
Loop Antenna	Schwarzbeck	FMZB 1513-60	1513-60-56	2024-07-15
Bi-log Antenna	Schwarzbeck	VULB 9160	VULB9160-3402	2024-10-06
Horn Antenna	Schwarzbeck	BBHA 9120D	02143	2024-09-23
Test Receiver	R&S	ESR26	101758	2024-09-22
Spectrum Analyzer	R&S	FSW43	102072	2024-07-09
Board-Band Horn Antenna	Schwarzbeck	BBHA 9170	BBHA 9170-497	2024-09-18
Amplifier	Tonscend	TAP01018048	AP20E8060075	2024-04-11
Amplifier	Tonscend	TAP184050	AP20E806071	2024-04-16
Amplifier	SHIRONG ELECTRONIC	DLNA-30M1G-G40	20200928003	2023-12-19
Amplifier	SHIRONG ELECTRONIC	DLNA-1G18G-G40	20200928005	2024-08-17
Test S/W	Tonscend	JS32-RE		
26DB Bandwidth& 99% Occupied bandwidth & Power Spectral Density & In-Band Emissions				
Spectrum Analyzer	R&S	FSW43	102072	2024-07-09
Automatic power measuring unit	TONSCEND	JS0806-2	21B8060365	2023-11-17
Output Power				
Pulse power sensor	Anritsu	MA2411B	1126150	2024-02-12
Power Meter	Anritsu	ML2495A	1204003	2024-02-12

Frequency Stability				
Spectrum Analyzer	R&S	FSW43	102072	2024-07-09
Programmable constant temperature and humidity test chamber	FC	FPHC-23AW-40	FD202306015	2024-09-10
DC Source	Keysight	E36131A	MY59001139	2024-10-07
Automatic power measuring unit	TONSCEND	JS0806-2	21B8060365	2023-11-17
Contention-based Protocol				
Spectrum Analyzer	R&S	FSW43	102072	2024-07-09
Automatic power measuring unit	TONSCEND	JS0806-2	21B8060365	2023-11-17
Signal Generator	R&S	SMM100A	101629	2024-09-08

Note: The calibration interval of the above test instruments is 12 months.

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5. CONDUCTED EMISSION MEASUREMENT

5.1. LIMITS

Frequency range	Limits (dBμV)	
	Quasi-peak	Average
150kHz～0.5MHz	66～56	56～46
0.5MHz～5MHz	56	46
5MHz～30MHz	60	50

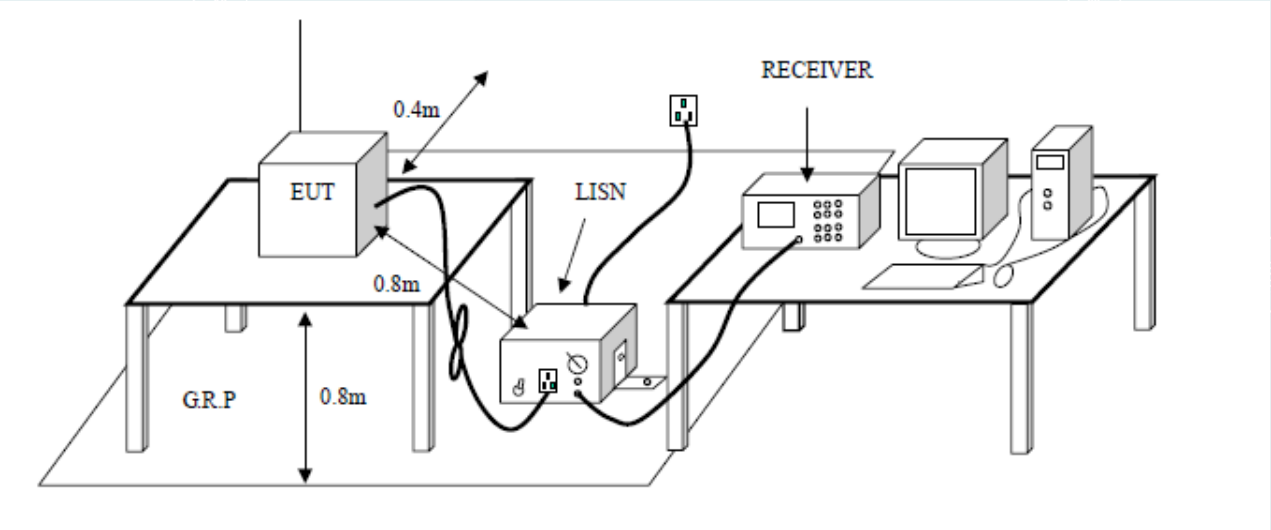
NOTE: (1) The lower limit shall apply at the transition frequencies.
(2) The limit decreases in line with the logarithm of the frequency in the range of 150 kHz to 0.5MHz.

5.2. TEST PROCEDURES

Procedure of Preliminary Test
Test procedures follow ANSI C63.10:2020.
For measurement of the disturbance voltage the equipment under test (EUT) is connected to the power supply mains and any other extended network via one or more artificial network(s). An EUT, whether intended to be grounded or not, and which is to be used on a table is configured as follows:
– Either the bottom or the rear of the EUT shall be at a controlled distance of 40 cm from a reference ground plane. This ground plane is normally the wall or floor of a shielded room. It may also be a grounded metal plane of at least 2 m by 2 m. This is physically accomplished as follows:
1) place the EUT on a table of non-conducting material which is at least 80 cm high. Place the EUT so that it is 40 cm from the wall of the shielded room, or
2) place the EUT on a table of non-conducting material which is 40 cm high so that the bottom of the EUT is 40 cm above the ground plane;
– All other conductive surfaces of the EUT shall be at least 80 cm from the reference ground plane;
– The EUT are placed on the floor that one side of the housings is 40 cm from the vertical reference ground plane and other metallic parts;
– Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth forming a bundle 30 cm to 40 cm long, hanging approximately in the middle between the ground plane and the table.
– Use serial board or connecting line to make EUT and notebook to communicate, according to the actual demand to make EUT emit fixed frequency signal.
The test mode(s) described in Item 2.4 were scanned during the preliminary test. After the preliminary scan, we found the test mode described in Item 2.4 producing the highest emission level.The EUT configuration and cable configuration of the above highest emission levels were recorded for reference of the final test.

Procedure of Final Test
EUT and support equipment were set up on the test bench as per the configuration with highest emission level in the preliminary test. A scan was taken on both power lines, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. The test data of the worst-case condition(s) was recorded.

5.3. TEST SETUP



5.4. DATA SAMPLE

Frequency (MHz)	QuasiPeak Reading (dBuV)	Average Reading (dBuV)	Correction Factor (dB)	QuasiPeak Result (dBuV)	Average Result (dBuV)	QuasiPeak Limit (dBuV)	Average Limit (dBuV)	QuasiPeak Margin (dB)	Average Margin (dB)	Remark (Pass/Fail)
X.XXXX	32.69	25.65	11.52	44.21	37.17	65.78	55.79	-21.57	-18.62	Pass

Factor = Insertion loss of LISN + Cable Loss
Result = Quasi-peak Reading/ Average Reading + Factor
Limit = Limit stated in standard
Margin = Result (dBuV) – Limit (dBuV)

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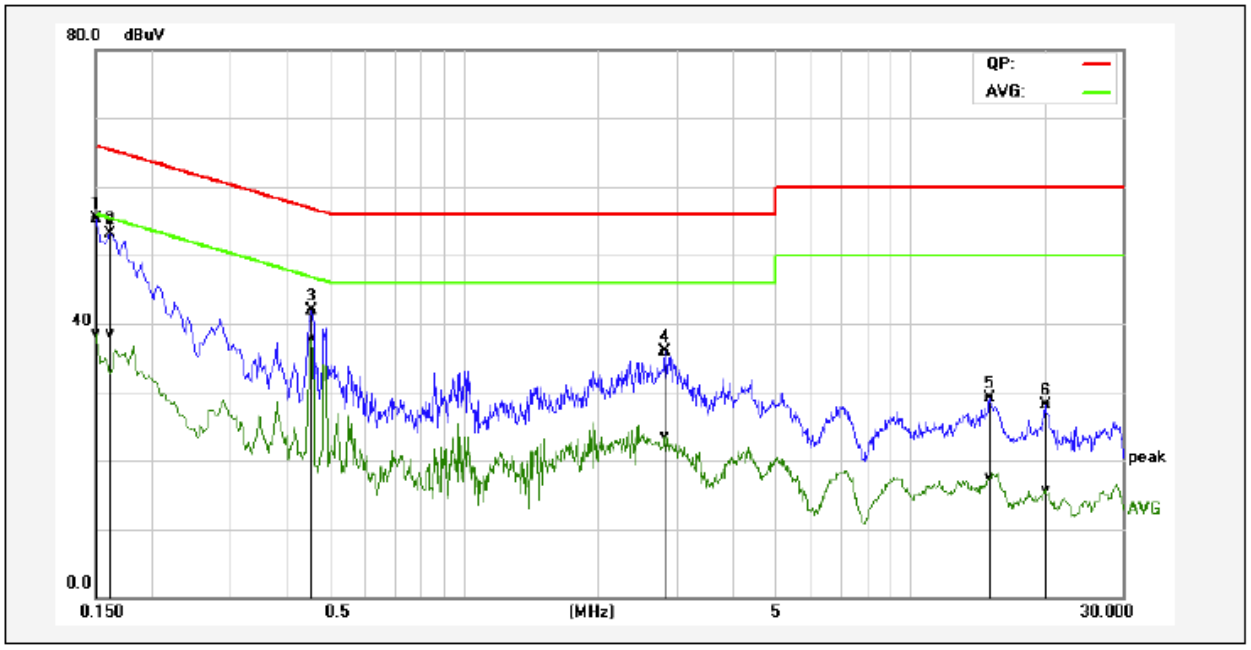
5.5. TEST RESULTS

All models were pretested and only the worst modes and channels were recorded in this report. (IEEE 802.11ax HE160 6025MHz)

EUT Name	Nofio wireless adapter	Model	P008B
Environmental Conditions	25.2℃/54%RH	Test Mode	Mode 1
Power supply	AC 120V/60Hz	Test Engineer	Huang Xinlong
Test Date	2023-11-01	Sample No.	E20231019753001-0001

IEEE 802.11ax HE160:6025MHz

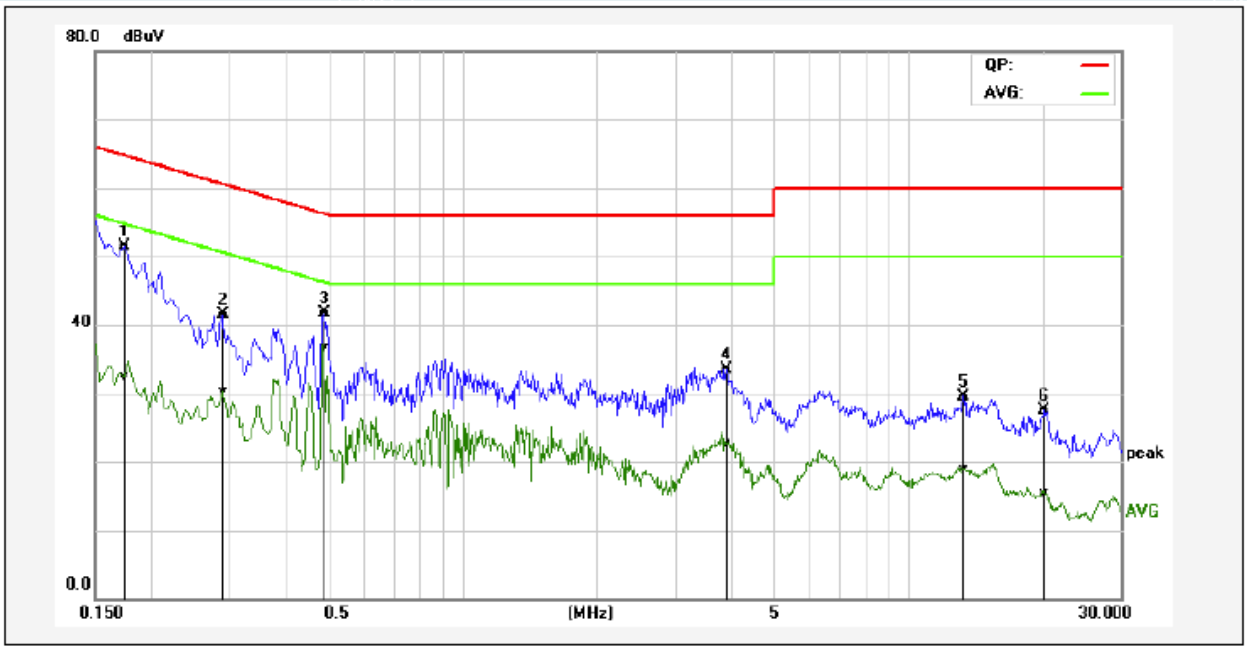


No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1	0.1500	45.71	28.75	9.66	55.37	38.41	65.99	56.00	-10.62	-17.59	Pass
2	0.1620	45.70	28.74	9.67	55.37	38.41	65.36	55.36	-9.99	-16.95	Pass
3*	0.4580	32.11	28.02	9.69	41.80	37.71	56.73	46.73	-14.93	-9.02	Pass
4	2.8380	26.17	13.86	9.74	35.91	23.60	56.00	46.00	-20.09	-22.40	Pass
5	15.0780	19.22	7.61	9.86	29.08	17.47	60.00	50.00	-30.92	-32.53	Pass
6	20.1060	18.09	5.75	9.98	28.07	15.73	60.00	50.00	-31.93	-34.27	Pass

Note: *L = Live Line*

EUT Name	Nofio wireless adapter	Model	P008B
Environmental Conditions	25.2℃/54%RH	Test Mode	Mode 1
Power supply	AC 120V/60Hz	Test Engineer	Huang Xinlong
Test Date	2023-11-01	Sample No.	E20231019753001-0001

IEEE 802.11ax HE160:6025MHz



No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1	0.1740	41.85	22.76	9.66	51.51	32.42	64.76	54.77	-13.25	-22.35	Pass
2	0.2900	31.83	20.67	9.66	41.49	30.33	60.52	50.52	-19.03	-20.19	Pass
3*	0.4900	32.11	26.98	9.68	41.79	36.66	56.17	46.17	-14.38	-9.51	Pass
4	3.9020	23.74	12.97	9.75	33.49	22.72	56.00	46.00	-22.51	-23.28	Pass
5	13.3020	19.70	8.91	9.90	29.60	18.81	60.00	50.00	-30.40	-31.19	Pass
6	20.1860	17.56	5.53	10.01	27.57	15.54	60.00	50.00	-32.43	-34.46	Pass

Note: N = Neutral Line.

6. RADIATED SPURIOUS EMISSIONS

6.1. LIMITS

(1) Unwanted emissions must comply with the general field strength in the following table:

15.209 Radiated emission limits

Frequency (MHz)	Field Strength(μV/m)	Distance(m)	Quasi-peak(dBμV/m)@distance 3m
0.009-0.490	2400/F(kHz)	300	128.5~93.8
0.490-1.705	24000/F(kHz)	30	73.8~63
1.705-30	30	30	69.5
30-88	100	3	40
88-216	150	3	43.5
216-960	200	3	46
Above 960	500	3	54

(2) Any emissions outside of the 5925-7125 MHz frequency band shall not exceed –27 dBm/MHz e.i.r.p. spectral density.

EIRP (dBm)	Field Strength at 3m(dBμV/m)
-27(RMS)	68.3
-7(Peak)	88.3

(3) Only spurious emissions are permitted in any of the frequency bands listed below:

Frequency(MHz)	Frequency(MHz)	Frequency(MHz)	Frequency(GHz)
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
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	2655 - 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	Above 38.6
13.36 - 13.41			

6.2. TEST PROCEDURES

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 please see the below table.
g. Repeat above procedures until all channels were measured.
h. Record the results in the test report.

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/AVG
Trace Mode	Max Hold

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

---------- **The following blanks** ----------

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:

(1) T is the on-time time of the duty cycle,when EUT transmit continuously with maximum output power,unit is seconds. reference section 2.8 for the on-time time.

(2) Convert the resultant EIRP level to an equivalent electric field strength using the following relationship:
E = EIRP – 20log D + 104.8
where:
E = electric field strength in dBμV/m,
EIRP = equivalent isotropic radiated power in dBm
D = specified measurement distance in meters.
So: The RMS Limit E= -27 – 20log 3 + 104.8=68.3 (dBμV/m).
the Peak Limit=68.3+20=88.3(dBμV/m)

(3) The unwanted emissions which fall in Restricted bands shall not exceed the field strength ,Above 18G test distance is 1m, so the Peak Limit=74+20*log(3/1)=83.54 (dBμV/m).
The Avg Limit=54+20*log(3/1)=63.54 (dBμV/m).

(4) The maximum emissions of the operation frequency bands ,Above 18G test distance is 1m, so the Peak Limit=88.3+20*log(3/1)=97.84 (dBμV/m).
The Rms Limit=68.3+20*log(3/1)=77.84 (dBμV/m).

6.3. TEST SETUP

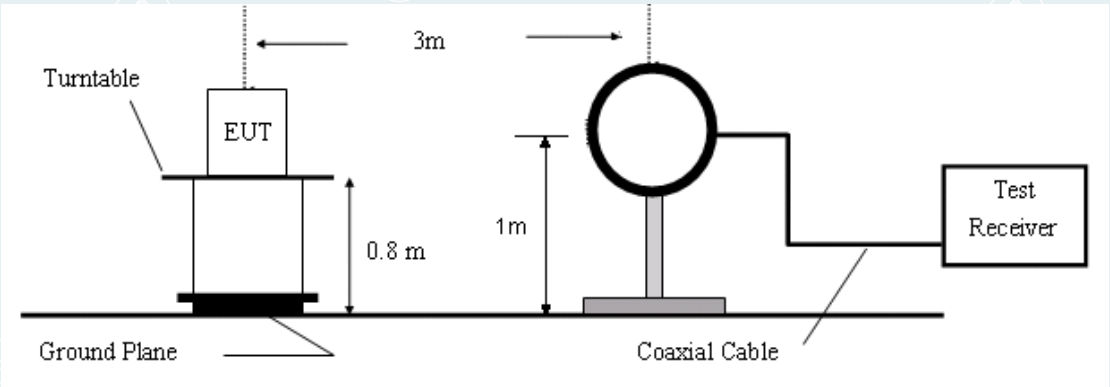


Figure 1. 9kHz to 30MHz radiated emissions test configuration

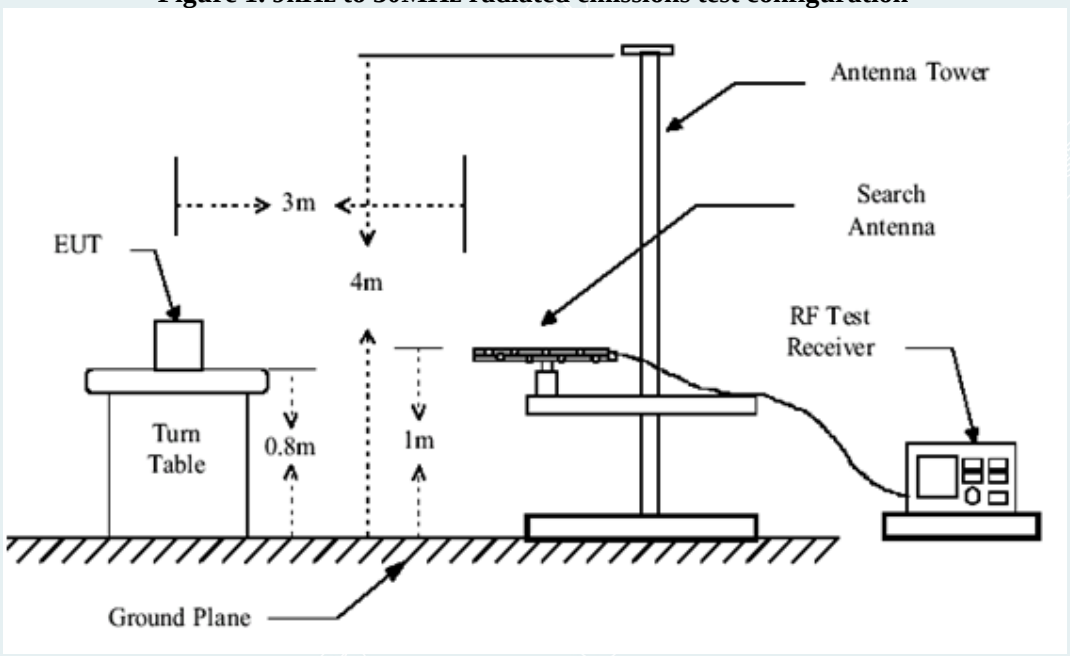


Figure 2. 30MHz to 1GHz radiated emissions test configuration

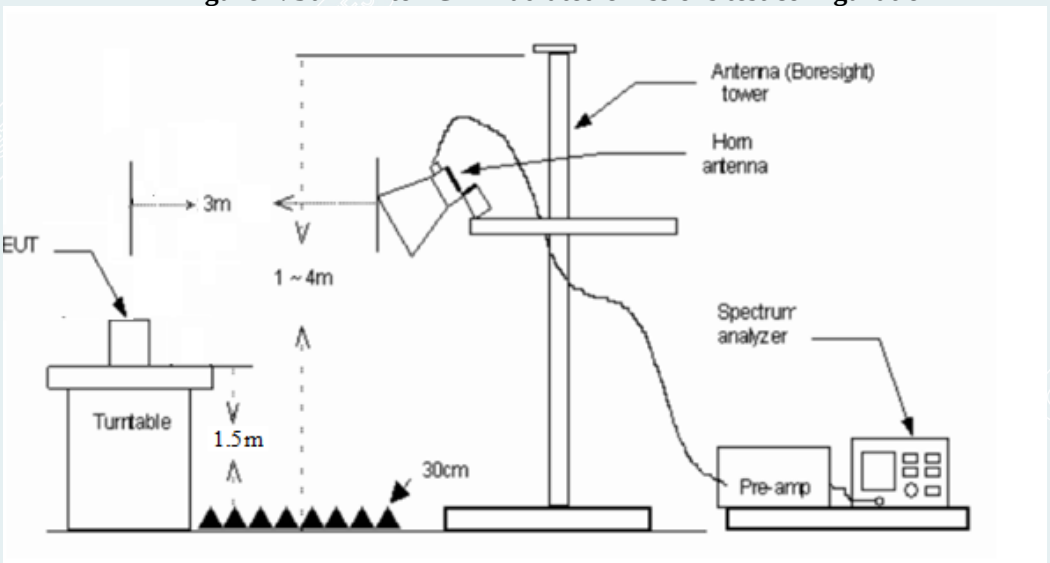


Figure 3. 1GHz-18GHz radiated emissions test configuration

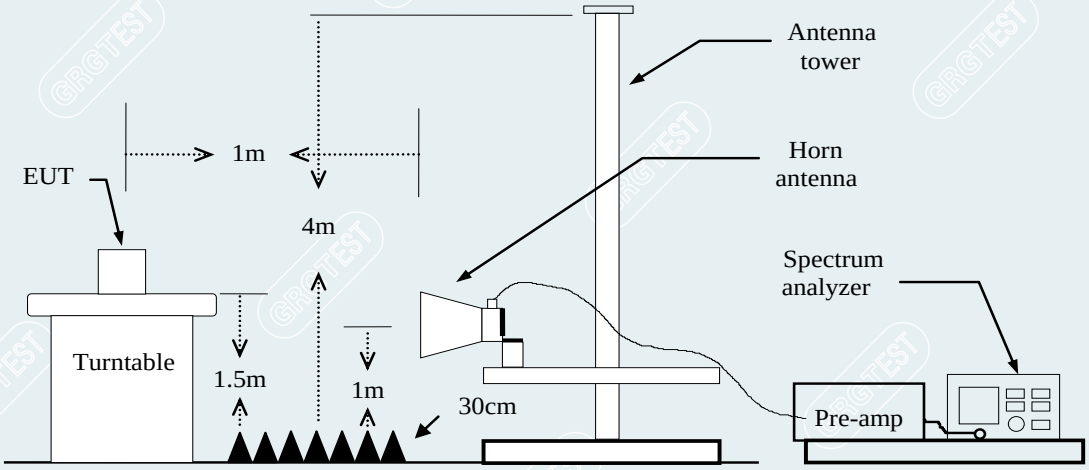


Figure 4. Above 18GHz radiated emissions test configuration

6.4. DATA SAMPLE

30MHz to 1GHz

No.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
xxx	XXXX	63.53	36.38	-27.15	43.50	7.12	0	100	Horizontal

Frequency (MHz) = Emission frequency in MHz

Reading (dBuV/m) = Uncorrected Analyzer / Receiver reading

Level (dBuV/m) = Reading (dBuV/m) + Factor (dB)

Limit (dBuV/m) = Limit stated in standard

Margin (dB) = Limit(dBuV/m) – Level (dBuV/m)

Polarity = Antenna polarization

---------- **The following blanks** ----------

1GHz-18GHz

No.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Remark
xxx	xxxx	78.01	55.30	-22.71	74.00	18.70	100	50	Horizontal	Peak
xxx	xxxx	66.37	43.66	-22.71	54.00	10.34	100	50	Horizontal	AVG

Above 18GHz

No.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Remark
xxx	xxxx	54.49	42.38	-12.11	83.54	41.16	100	211	Vertical	Peak
xxx	xxxx	43.99	31.88	-12.11	63.54	31.66	100	211	Vertical	AVG

Frequency (MHz) = Emission frequency in MHz

Reading (dBuV/m) = Uncorrected Analyzer / Receiver reading

Factor (dB) = Antenna factor + Cable loss – Amplifier gain

Level (dBuV/m) = Reading (dBuV/m) + Factor (dB)

Limit (dBuV/m) = Limit stated in standard

Margin (dB) = Limit (dBuV/m) – Level (dBuV/m)

Polarity = Antenna polarization

Peak = Peak Reading

AVG = Average Reading

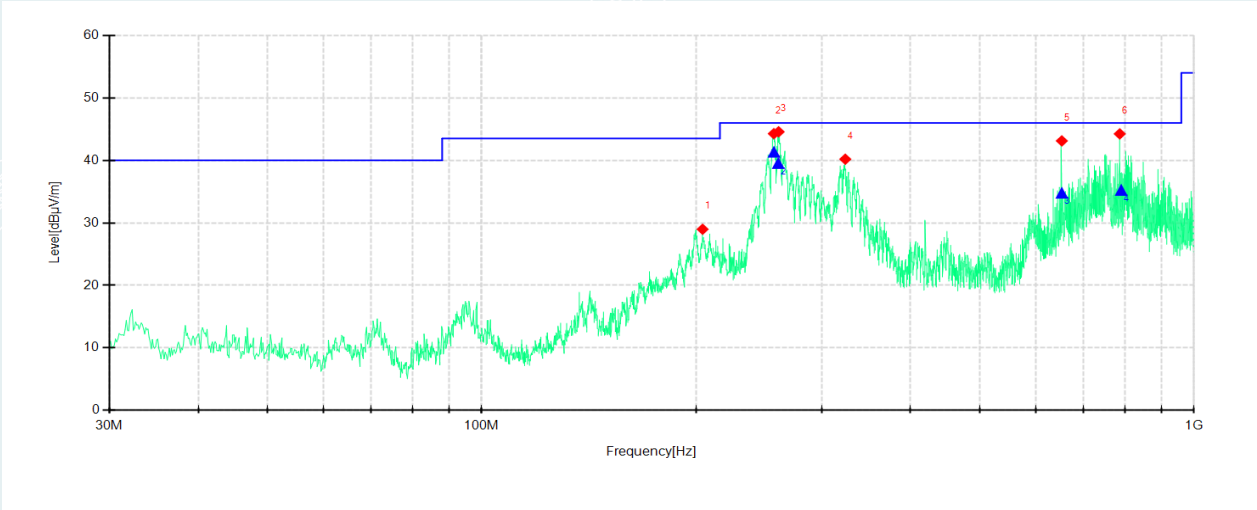
---------- The following blanks ----------

6.5. TEST RESULTS

Below 1GHz

All models were pretested and only the worst modes and channels were recorded in this report. (IEEE 802.11ax HE160 6025MHz)

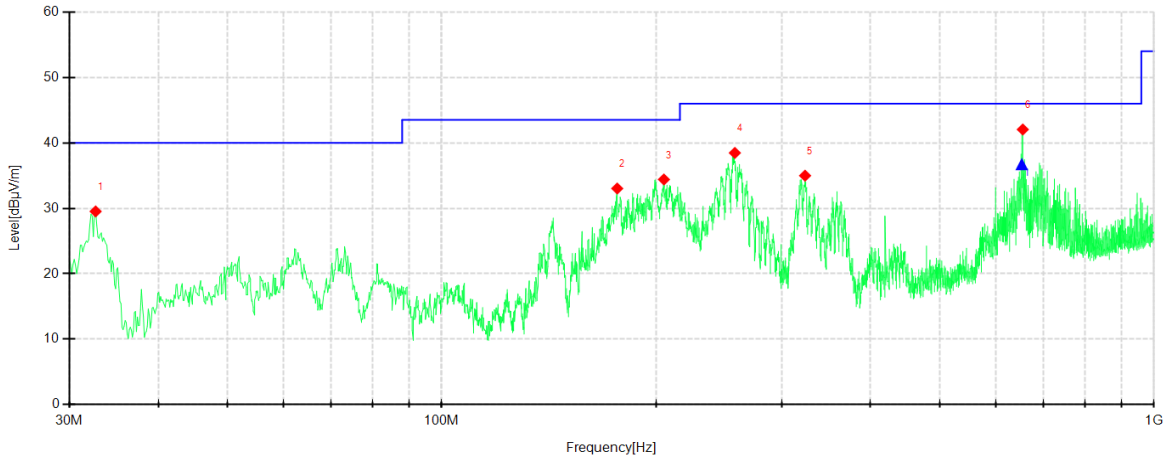
EUT Name	Nofio wireless adapter	**Model**	P008B
Environmental Conditions	24.6℃/50%RH	**Test Voltage**	DC 12V
Test Mode	Mode 1	**Polarity**	Horizontal
Tested By	Zhang Zishan	**Tested Date**	2023-11-02
Note	/		



Suspected Data List									
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	204.2580	60.31	28.98	-31.33	43.50	14.52	200	20	Horizontal
2	257.1296	73.40	44.27	-29.13	46.00	1.73	100	156	Horizontal
3	261.1314	73.58	44.57	-29.01	46.00	1.43	100	182	Horizontal
4	323.9467	66.34	39.59	-26.75	46.00	6.41	100	340	Horizontal
5	652.3328	61.50	43.12	-18.38	46.00	2.88	100	340	Horizontal
6	786.5733	60.66	44.24	-16.42	46.00	1.76	100	182	Horizontal

Final Data List									
NO.	Freq. [MHz]	Factor [dB]	QP Reading [dBµV/m]	QP Value [dBµV/m]	QP Limit [dBµV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
1	257.1966	-29.13	70.46	41.33	46.00	4.67	121	175.8	Horizontal
2	260.7572	-29.01	68.52	39.51	46.00	6.49	100	185.6	Horizontal
3	652.3044	-18.38	53.15	34.77	46.00	11.23	109	144.4	Horizontal
4	790.3755	-16.42	51.64	35.22	46.00	10.78	100	204	Horizontal

EUT Name	Nofio wireless adapter	Model	P008B
Environmental Conditions	24.6℃/50%RH	Test Voltage	DC 12V
Test Mode	Mode 1	Polarity	Vertical
Tested By	Zhang Zishan	Tested Date	2023-11-02
Note	/		



Suspected Data List

NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	32.6678	58.62	29.53	-29.09	40.00	10.47	100	342	Vertical
2	176.3670	62.31	33.03	-29.28	43.50	10.47	100	196	Vertical
3	205.1069	65.70	34.41	-31.29	43.50	9.09	100	156	Vertical
4	257.9785	67.58	38.47	-29.11	46.00	7.53	200	296	Vertical
5	323.7042	61.75	34.99	-26.76	46.00	11.01	100	118	Vertical
6	654.3943	60.36	42.05	-18.31	46.00	3.95	100	223	Vertical

Final Data List

NO.	Freq. [MHz]	Factor [dB]	QP Reading [dBµV/m]	QP Value [dBµV/m]	QP Limit [dBµV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
1	652.2729	-18.31	55.01	36.70	46.00	9.30	100	186.8	Vertical

Remark:

1 No emission found between lowest internal used/generated frequency to 30MHz.

2 Radiated emissions measured in frequency range from 9kHz to 1GHz were made with an instrument using Quasi-peak detector mode.

3 Data of measurement within this frequency range shown "---" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

4 The IF bandwidth of Receiver between 30MHz to 1GHz was 120 kHz.

5 The results of prescan with a peak margin greater than 6dB are also considered to meet the requirements of the Quasi-peak detector mode. No need to test with Quasi-peak detector mode

1GHz-18GHz

According to C63.10, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement, so AV emission value did not show in below table if the peak value complies with average limit.

Mode: Mode 1/ IEEE 802.11ax HE160
Environment: 25.0℃/54%RH/101.0kPa
Test Engineer: Zhang Zishan

Frequency:6025MHz
Power supply: DC 12V
Test Date: 2023-10-27

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1017.0000	65.88	44.65	-21.23	74.00	29.35	100	110	Horizontal
2	1198.9000	65.44	44.43	-21.01	74.00	29.57	100	110	Horizontal
3	1807.5000	62.80	42.07	-20.73	88.30	46.23	200	209	Horizontal
4	5741.3000	53.86	45.95	-7.91	88.30	42.35	200	332	Horizontal
5	8032.9000	48.29	45.39	-2.90	74.00	28.61	200	156	Horizontal
6	15771.3000	40.39	49.96	9.57	74.00	24.04	100	41	Horizontal

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	15757.1518	9.57	29.35	38.92	54.00	15.08	133	256.7	Horizontal

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1198.9000	67.07	46.04	-21.03	74.00	27.96	100	152	Vertical
2	2164.5000	57.51	40.08	-17.43	88.30	48.22	100	99	Vertical
3	2822.4000	58.30	41.96	-16.34	74.00	32.04	200	151	Vertical
4	5680.1000	51.38	43.50	-7.88	88.30	44.80	200	58	Vertical
5	8032.9000	47.69	44.96	-2.73	74.00	29.04	100	125	Vertical
6	12660.3000	36.54	46.08	9.54	74.00	27.92	100	261	Vertical

---------- The following blanks ----------

Mode: Mode 1/ IEEE 802.11ax HE160
Environment: 25.0℃/54%RH/101.0kPa
Test Engineer: Zhang Zishan

Frequency:6185MHz
Power supply: DC 12V
Test Date:2023-10-27

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1023.8000	62.09	40.87	-21.22	74.00	33.13	100	170	Horizontal
2	1418.2000	61.38	41.22	-20.16	74.00	32.78	100	129	Horizontal
3	1814.3000	61.78	41.08	-20.70	88.30	47.22	100	197	Horizontal
4	3997.1000	54.03	40.47	-13.56	74.00	33.53	100	88	Horizontal
5	8247.1000	46.35	43.84	-2.51	74.00	30.16	200	44	Horizontal
6	12656.9000	37.08	47.12	10.04	74.00	26.88	100	75	Horizontal

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1190.4000	62.82	41.67	-21.15	74.00	32.33	100	122	Vertical
2	1498.1000	58.57	38.64	-19.93	74.00	35.36	100	42	Vertical
3	1991.1000	62.74	42.42	-20.32	88.30	45.88	200	114	Vertical
4	2388.9000	58.92	41.25	-17.67	74.00	32.75	200	274	Vertical
5	2660.9000	64.59	46.97	-17.62	88.30	41.33	200	129	Vertical
6	8247.1000	48.89	46.67	-2.22	74.00	27.33	100	189	Vertical

---------- The following blanks ----------

Mode: Mode 1/ IEEE 802.11ax HE160
Environment: 25.0℃/54%RH/101.0kPa
Test Engineer: Zhang Zishan

Frequency:6345MHz
Power supply: DC 12V
Test Date:2023-10-27

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1185.3000	63.51	42.64	-20.87	74.00	31.36	100	74	Horizontal
2	1785.4000	61.04	40.35	-20.69	88.30	47.95	100	222	Horizontal
3	2655.8000	54.75	37.11	-17.64	88.30	51.19	100	182	Horizontal
4	6661.0000	54.87	48.68	-6.19	88.30	39.62	200	70	Horizontal
5	8459.6000	48.49	46.34	-2.15	74.00	27.66	200	284	Horizontal
6	15778.1000	38.84	48.51	9.67	74.00	25.49	200	284	Horizontal

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	15770.4548	9.67	29.25	38.92	54.00	15.08	148	234.8	Horizontal

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1198.9000	64.42	43.39	-21.03	74.00	30.61	100	286	Vertical
2	1999.6000	63.29	42.89	-20.40	88.30	45.41	100	97	Vertical
3	3983.5000	54.72	41.03	-13.69	74.00	32.97	100	70	Vertical
4	6632.1000	49.31	43.38	-5.93	88.30	44.92	100	260	Vertical
5	8459.6000	51.67	49.56	-2.11	74.00	24.44	100	191	Vertical
6	15769.6000	39.82	47.59	7.77	74.00	26.41	200	224	Vertical

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	8459.9060	-2.11	50.93	48.82	54.00	5.18	100	195	Vertical

Mode: Mode 1/ IEEE 802.11ax HE160
Environment: 25.0℃/54%RH/101.0kPa
Test Engineer: Zhang Zishan

Frequency:6505MHz
Power supply: DC 12V
Test Date:2023-10-27

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1198.9000	63.42	42.41	-21.01	74.00	31.59	200	356	Horizontal
2	1690.2000	60.23	39.66	-20.57	74.00	34.34	200	129	Horizontal
3	6655.9000	69.58	63.41	-6.17	88.30	24.89	200	317	Horizontal
4	8673.8000	47.92	46.58	-1.34	88.30	41.72	200	290	Horizontal
5	13156.7000	41.48	51.01	9.53	88.30	37.29	200	303	Horizontal
6	16436.0000	38.50	49.30	10.80	88.30	39.00	200	210	Horizontal

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	6647.1833	-6.17	61.13	54.96	68.30	13.34	200	145	Horizontal

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1198.9000	63.81	42.78	-21.03	74.00	31.22	100	45	Vertical
2	2666.0000	62.33	44.81	-17.52	88.30	43.49	100	140	Vertical
3	6647.4000	65.73	59.53	-6.20	88.30	28.77	100	288	Vertical
4	8673.8000	50.46	49.11	-1.35	88.30	39.19	100	194	Vertical
5	12668.8000	37.41	46.84	9.43	74.00	27.16	100	60	Vertical
6	16391.8000	37.49	47.02	9.53	88.30	41.28	200	70	Vertical

---------- The following blanks ----------

Mode: Mode 1/ IEEE 802.11ax HE160
Environment: 25.0℃/54%RH/101.0kPa
Test Engineer: Zhang Zishan

Frequency:6665MHz
Power supply: DC 12V
Test Date:2023-10-27

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1022.1000	64.28	43.06	-21.22	74.00	30.94	200	143	Horizontal
2	1200.6000	64.01	42.99	-21.02	74.00	31.01	100	192	Horizontal
3	2825.8000	54.38	38.20	-16.18	74.00	35.80	100	178	Horizontal
4	6419.6000	62.85	55.62	-7.23	88.30	32.68	200	345	Horizontal
5	8886.3000	47.03	45.98	-1.05	88.30	42.32	200	345	Horizontal
6	15769.6000	39.07	48.62	9.55	74.00	25.38	200	211	Horizontal

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	15758.1860	9.55	29.23	38.78	54.00	15.22	180	5	Horizontal

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1193.8000	65.20	44.09	-21.11	74.00	29.91	100	305	Vertical
2	2657.5000	57.25	39.58	-17.67	88.30	48.72	200	124	Vertical
3	3993.7000	53.95	40.00	-13.95	74.00	34.00	200	57	Vertical
4	6404.3000	58.35	50.84	-7.51	88.30	37.46	100	129	Vertical
5	8886.3000	51.74	51.16	-0.58	88.30	37.14	100	169	Vertical
6	16063.7000	39.58	46.87	7.29	74.00	27.13	200	260	Vertical

---------- The following blanks ----------

Mode: Mode 1/ IEEE 802.11ax HE160
Environment: 25.0℃/54%RH/101.0kPa
Test Engineer: Zhang Zishan

Frequency:6825MHz
Power supply: DC 12V
Test Date:2023-10-27

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1198.9000	70.06	49.05	-21.01	74.00	24.95	200	138	Horizontal
2	1416.5000	60.97	40.80	-20.17	74.00	33.20	100	141	Horizontal
3	2664.3000	58.49	40.95	-17.54	88.30	47.35	100	168	Horizontal
4	6978.9000	71.12	65.56	-5.56	88.30	22.74	200	232	Horizontal
5	9100.5000	44.47	43.67	-0.80	74.00	30.33	200	339	Horizontal
6	16551.6000	37.05	48.99	11.94	88.30	39.31	200	205	Horizontal

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1199.7589	-21.01	57.17	36.16	54.00	17.84	130	53.1	Horizontal
2	6978.0918	-5.56	62.28	56.72	68.30	11.58	200	72.7	Horizontal

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1198.9000	65.70	44.67	-21.03	74.00	29.33	100	56	Vertical
2	1496.4000	57.56	37.60	-19.96	74.00	36.40	200	101	Vertical
3	2660.9000	59.23	41.61	-17.62	88.30	46.69	100	109	Vertical
4	4799.5000	49.72	39.36	-10.36	74.00	34.64	200	19	Vertical
5	6904.1000	64.96	59.36	-5.60	88.30	28.94	100	231	Vertical
6	15766.2000	39.29	47.03	7.74	74.00	26.97	200	235	Vertical

---------- The following blanks ----------

Mode: Mode 1/ IEEE 802.11ax HE160
Environment: 25.0℃/54%RH/101.0kPa
Test Engineer: Zhang Zishan

Frequency:6985MHz
Power supply: DC 12V
Test Date:2023-10-27

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1018.7000	64.15	42.93	-21.22	74.00	31.07	100	219	Horizontal
2	1809.2000	62.03	41.30	-20.73	88.30	47.00	100	179	Horizontal
3	6720.5000	62.04	55.90	-6.14	88.30	32.40	200	60	Horizontal
4	7274.7000	54.96	50.69	-4.27	74.00	23.31	200	114	Horizontal
5	9313.0000	44.97	44.95	-0.02	74.00	29.05	200	234	Horizontal
6	12662.0000	37.23	47.21	9.98	74.00	26.79	100	84	Horizontal

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	7258.8553	-4.27	43.89	39.62	54.00	14.38	200	318.3	Horizontal

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1163.2000	63.33	41.82	-21.51	74.00	32.18	100	290	Vertical
2	2655.8000	61.26	43.55	-17.71	88.30	44.75	200	286	Vertical
3	6783.4000	57.73	51.97	-5.76	88.30	36.33	100	130	Vertical
4	7220.3000	53.94	49.83	-4.11	88.30	38.47	100	130	Vertical
5	9313.0000	46.99	46.92	-0.07	74.00	27.08	100	210	Vertical
6	13090.4000	37.45	46.81	9.36	88.30	41.49	200	83	Vertical

Remark:

1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.
2 Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3 Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4 Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

Above 18 GHz

According to C63.10, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement, so AV emission value did not show in below table if the peak value complies with average limit.

Mode: Mode 1/ IEEE 802.11ax HE160 Frequency:6025MHz
Environment: 23.2℃/64%RH/101.0kPa Power supply: DC 12V
Test Engineer: Zhang Zishan Test Date:2023-11-04

Suspected Data List										
NO.	Freq. [MHz]	Reading [dBμV/m]	Level for 1m [dBμV/m]	Level for 3m [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18639.1000	56.93	39.68	30.14	-17.25	74.00	43.86	100	65	Horizontal
2	19930.5000	53.26	36.74	27.20	-16.52	74.00	46.80	100	110	Horizontal
3	23302.0000	52.60	37.93	28.39	-14.67	88.30	59.91	200	298	Horizontal
4	29106.7000	51.35	36.60	27.06	-14.75	88.30	61.24	100	79	Horizontal
5	33051.3000	52.69	37.95	28.41	-14.74	88.30	59.89	100	110	Horizontal
6	36493.2000	51.80	38.95	29.41	-12.85	74.00	44.59	100	16	Horizontal

Suspected Data List										
NO.	Freq. [MHz]	Reading [dBμV/m]	Level for 1m [dBμV/m]	Level for 3m [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18639.1000	56.59	39.39	29.85	-17.20	74.00	44.15	200	78	Vertical
2	21161.4000	52.77	37.08	27.54	-15.69	74.00	46.46	100	359	Vertical
3	23518.7000	50.58	36.05	26.51	-14.53	88.30	61.79	200	250	Vertical
4	29210.1000	50.98	36.29	26.75	-14.69	88.30	61.55	200	345	Vertical
5	32512.3000	52.70	37.85	28.31	-14.85	88.30	59.99	100	266	Vertical
6	36272.1000	52.15	39.64	30.10	-12.51	88.30	58.20	100	266	Vertical

Note: Above 18G test distance is 1m, so the Level for 3m= Level for 1m + 20*log(1/3). The pre measurement result margin is greater than 20dB, and final measurement is not required.

---------- **The following blanks** ----------

Mode: Mode 1/ IEEE 802.11ax HE160
Environment: 23.2℃/64%RH/101.0kPa
Test Engineer: Zhang Zishan

Frequency:6185MHz
Power supply: DC 12V
Test Date:2023-11-04

Suspected Data List										
NO.	Freq. [MHz]	Reading [dBμV/m]	Level for 1m [dBμV/m]	Level for 3m [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18575.3000	53.72	36.39	26.85	-17.33	74.00	47.15	100	220	Horizontal
2	22882.9000	51.67	36.97	27.43	-14.70	74.00	46.57	200	251	Horizontal
3	24814.5000	49.50	35.50	25.96	-14.00	88.30	62.34	200	156	Horizontal
4	28538.0000	51.14	36.43	26.89	-14.71	88.30	61.41	200	1	Horizontal
5	34239.3000	53.28	39.11	29.57	-14.17	88.30	58.73	200	109	Horizontal
6	36829.8000	52.60	40.12	30.58	-12.48	88.30	57.72	200	204	Horizontal

Suspected Data List										
NO.	Freq. [MHz]	Reading [dBμV/m]	Level for 1m [dBμV/m]	Level for 3m [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18712.8000	53.98	36.86	27.32	-17.12	74.00	46.68	200	15	Vertical
2	22886.2000	51.10	36.40	26.86	-14.70	74.00	47.14	100	251	Vertical
3	24562.6000	50.99	36.92	27.38	-14.07	88.30	60.92	100	267	Vertical
4	28617.2000	51.07	36.50	26.96	-14.57	88.30	61.34	100	298	Vertical
5	34013.8000	52.65	38.45	28.91	-14.20	88.30	59.39	200	251	Vertical
6	37499.7000	52.04	40.10	30.56	-11.94	88.30	57.74	100	94	Vertical

Note: Above 18G test distance is 1m, so the Level for 3m= Level for 1m + 20*log(1/3). The pre measurement result margin is greater than 20dB, and final measurement is not required.

---------- **The following blanks** ----------

Mode: Mode 1/ IEEE 802.11ax HE160
Environment: 23.2℃/64%RH/101.0kPa
Test Engineer: Zhang Zishan

Frequency:6345MHz
Power supply: DC 12V
Test Date:2023-11-04

Suspected Data List										
NO.	Freq. [MHz]	Reading [dBμV/m]	Level for 1m [dBμV/m]	Level for 3m [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18271.7000	54.49	36.83	27.29	-17.66	74.00	46.71	100	78	Horizontal
2	19406.9000	53.10	36.32	26.78	-16.78	74.00	47.22	200	93	Horizontal
3	22841.1000	51.14	36.42	26.88	-14.72	74.00	47.12	100	251	Horizontal
4	28532.5000	51.24	36.52	26.98	-14.72	88.30	61.32	200	266	Horizontal
5	33621.1000	53.11	38.84	29.30	-14.27	88.30	59.00	200	218	Horizontal
6	38104.7000	50.83	39.26	29.72	-11.57	88.30	58.58	100	16	Horizontal

Suspected Data List										
NO.	Freq. [MHz]	Reading [dBμV/m]	Level for 1m [dBμV/m]	Level for 3m [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18971.3000	52.90	35.93	26.39	-16.97	74.00	47.61	200	31	Vertical
2	22840.0000	51.21	36.49	26.95	-14.72	74.00	47.05	100	250	Vertical
3	26696.6000	49.03	35.49	25.95	-13.54	88.30	62.35	200	204	Vertical
4	28593.0000	51.89	37.31	27.77	-14.58	88.30	60.53	100	234	Vertical
5	35721.0000	52.77	39.60	30.06	-13.17	88.30	58.24	100	173	Vertical
6	37028.9000	51.86	39.67	30.13	-12.19	88.30	58.17	100	126	Vertical

Note: Above 18G test distance is 1m, so the Level for 3m= Level for 1m + 20*log(1/3). The pre measurement result margin is greater than 20dB, and final measurement is not required.

---------- **The following blanks** ----------

Mode: Mode 1/ IEEE 802.11ax HE160
Environment: 23.2℃/64%RH/101.0kPa
Test Engineer: Zhang Zishan

Frequency:6505MHz
Power supply: DC 12V
Test Date:2023-11-04

Suspected Data List										
NO.	Freq. [MHz]	Reading [dBμV/m]	Level for 1m [dBμV/m]	Level for 3m [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18875.6000	53.77	36.75	27.21	-17.02	74.00	46.79	100	158	Horizontal
2	21273.6000	51.92	36.17	26.63	-15.75	74.00	47.37	100	158	Horizontal
3	24048.9000	50.70	36.20	26.66	-14.50	88.30	61.64	200	80	Horizontal
4	28517.1000	53.27	38.56	29.02	-14.71	88.30	59.28	100	267	Horizontal
5	33105.2000	52.67	37.96	28.42	-14.71	88.30	59.88	200	80	Horizontal
6	36976.1000	51.82	39.58	30.04	-12.24	88.30	58.26	100	48	Horizontal

Suspected Data List										
NO.	Freq. [MHz]	Reading [dBμV/m]	Level for 1m [dBμV/m]	Level for 3m [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18207.9000	54.11	36.38	26.84	-17.73	74.00	47.16	100	78	Vertical
2	21137.2000	51.80	36.10	26.56	-15.70	74.00	47.44	100	142	Vertical
3	26651.5000	49.37	35.74	26.20	-13.63	88.30	62.10	100	156	Vertical
4	28477.5000	51.29	36.65	27.11	-14.64	88.30	61.19	100	250	Vertical
5	36201.7000	51.70	39.17	29.63	-12.53	88.30	58.67	100	16	Vertical
6	37465.6000	51.30	39.33	29.79	-11.97	88.30	58.51	200	267	Vertical

Note: Above 18G test distance is 1m, so the Level for 3m= Level for 1m + 20*log(1/3). The pre measurement result margin is greater than 20dB, and final measurement is not required.

---------- **The following blanks** ----------

Mode: Mode 1/ IEEE 802.11ax HE160
Environment: 23.2℃/64%RH/101.0kPa
Test Engineer: Zhang Zishan

Frequency:6665MHz
Power supply: DC 12V
Test Date:2023-11-04

Suspected Data List										
NO.	Freq. [MHz]	Reading [dBμV/m]	Level for 1m [dBμV/m]	Level for 3m [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18920.7000	50.03	38.86	29.32	-11.17	74.00	44.68	200	52	Horizontal
2	21604.7000	47.66	37.74	28.20	-9.92	88.30	60.10	200	239	Horizontal
3	25021.3000	47.12	39.25	29.71	-7.87	88.30	58.59	100	174	Horizontal
4	30817.2000	50.15	41.69	32.15	-8.46	88.30	56.15	200	167	Horizontal
5	34228.3000	51.25	42.28	32.74	-8.97	88.30	55.56	200	123	Horizontal
6	40000.0000	45.50	44.53	34.99	-0.97	74.00	39.01	100	232	Horizontal

Suspected Data List										
NO.	Freq. [MHz]	Reading [dBμV/m]	Level for 1m [dBμV/m]	Level for 3m [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18999.9000	48.78	37.68	28.14	-11.10	74.00	45.86	200	138	Vertical
2	23882.8000	47.08	38.70	29.16	-8.38	74.00	44.84	100	61	Vertical
3	25893.6000	47.18	38.94	29.40	-8.24	88.30	58.90	100	268	Vertical
4	29966.9000	49.35	41.19	31.65	-8.16	88.30	56.65	100	10	Vertical
5	34662.8000	51.64	42.44	32.90	-9.20	88.30	55.40	100	321	Vertical
6	37980.4000	47.42	44.17	34.63	-3.25	88.30	53.67	200	169	Vertical

Note: Above 18G test distance is 1m, so the Level for 3m= Level for 1m + 20*log(1/3). The pre measurement result margin is greater than 20dB, and final measurement is not required.

---------- **The following blanks** ----------

Mode: Mode 1/ IEEE 802.11ax HE160
Environment: 23.2℃/64%RH/101.0kPa
Test Engineer: Zhang Zishan

Frequency:6825MHz
Power supply: DC 12V
Test Date:2023-11-04

Suspected Data List										
NO.	Freq. [MHz]	Reading [dBμV/m]	Level for 1m [dBμV/m]	Level for 3m [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18336.6000	49.71	38.16	28.62	-11.55	74.00	45.38	200	64	Horizontal
2	22317.5000	46.75	37.17	27.63	-9.58	74.00	46.37	200	332	Horizontal
3	25906.8000	49.18	40.92	31.38	-8.26	88.30	56.92	100	211	Horizontal
4	30842.5000	50.29	41.84	32.30	-8.45	88.30	56.00	200	64	Horizontal
5	35238.1000	51.21	42.42	32.88	-8.79	88.30	55.42	200	199	Horizontal
6	38933.0000	46.52	44.24	34.70	-2.28	74.00	39.30	100	345	Horizontal

Suspected Data List										
NO.	Freq. [MHz]	Reading [dBμV/m]	Level for 1m [dBμV/m]	Level for 3m [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18676.5000	49.62	38.26	28.72	-11.36	74.00	45.28	200	282	Vertical
2	23815.7000	47.61	39.16	29.62	-8.45	74.00	44.38	200	82	Vertical
3	25183.0000	47.26	39.61	30.07	-7.65	88.30	58.23	200	242	Vertical
4	28772.3000	48.47	40.30	30.76	-8.17	88.30	57.54	100	334	Vertical
5	34194.2000	51.40	42.41	32.87	-8.99	88.30	55.43	200	158	Vertical
6	39642.5000	46.58	45.25	35.71	-1.33	74.00	38.29	200	82	Vertical

Note: Above 18G test distance is 1m, so the Level for 3m= Level for 1m + 20*log(1/3). The pre measurement result margin is greater than 20dB, and final measurement is not required

---------- **The following blanks** ----------

Mode: Mode 1/ IEEE 802.11ax HE160
Environment: 23.2℃/64%RH/101.0kPa
Test Engineer: Zhang Zishan

Frequency:6985MHz
Power supply: DC 12V
Test Date:2023-11-04

Suspected Data List										
NO.	Freq. [MHz]	Reading [dBμV/m]	Level for 1m [dBμV/m]	Level for 3m [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18887.7000	49.84	38.64	29.10	-11.20	74.00	44.90	100	174	Horizontal
2	23845.4000	47.01	38.59	29.05	-8.42	74.00	44.95	200	199	Horizontal
3	27306.0000	47.56	39.53	29.99	-8.03	88.30	58.31	100	295	Horizontal
4	29530.2000	49.70	41.86	32.32	-7.84	88.30	55.98	200	141	Horizontal
5	34010.5000	51.56	42.49	32.95	-9.07	88.30	55.35	200	264	Horizontal
6	39697.5000	45.58	44.31	34.77	-1.27	74.00	39.23	100	104	Horizontal

Suspected Data List										
NO.	Freq. [MHz]	Reading [dBμV/m]	Level for 1m [dBμV/m]	Level for 3m [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18347.6000	50.55	39.00	29.46	-11.55	74.00	44.54	100	26	Vertical
2	21428.7000	48.19	38.12	28.58	-10.07	88.30	45.42	200	167	Vertical
3	25151.1000	46.62	38.93	29.39	-7.69	88.30	58.91	200	283	Vertical
4	30051.6000	50.52	42.25	32.71	-8.27	88.30	55.59	100	231	Vertical
5	35395.4000	51.32	42.66	33.12	-8.66	88.30	55.18	100	347	Vertical
6	39653.5000	45.74	44.42	34.88	-1.32	74.00	39.12	100	296	Vertical

Note: Above 18G test distance is 1m, so the Level for 3m= Level for 1m + 20*log(1/3). The pre measurement result margin is greater than 20dB, and final measurement is not required

---------- **The following blanks** ----------

7. RESTRICTED BANDS OF OPERATION

7.1. LIMITS

(1) Unwanted emissions must comply with the general field strength in the following table:

15.209 Radiated emission limits

Frequency (MHz)	Field Strength(μV/m)	Distance(m)	Quasi-peak(dBμV/m)@distance 3m
0.009-0.490	2400/F(kHz)	300	128.5~93.8
0.490-1.705	24000/F(kHz)	30	73.8~63
1.705-30	30	30	69.5
30-88	100	3	40
88-216	150	3	43.5
216-960	200	3	46
Above 960	500	3	54

(2) Any emissions outside of the 5925-7125 MHz frequency band shall not exceed –27 dBm/MHz e.i.r.p. spectral density.

EIRP (dBm)	Field Strength at 3m(dBμV/m)
-27(RMS)	68.3
-7(Peak)	88.3

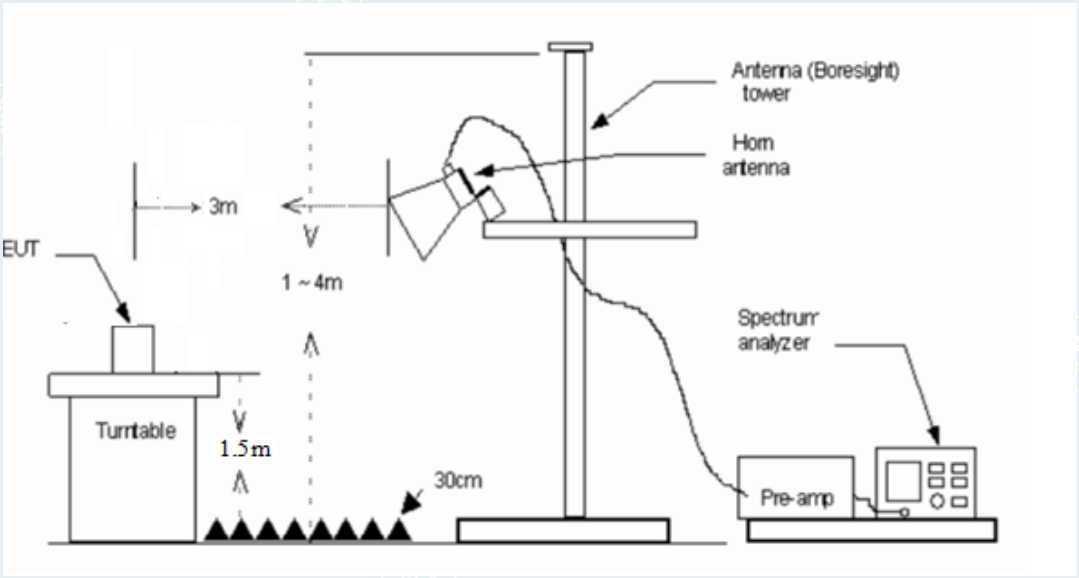
(3) Only spurious emissions are permitted in any of the frequency bands listed below:

Frequency(MHz)	Frequency(MHz)	Frequency(MHz)	Frequency(GHz)
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
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	2655 - 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	Above 38.6
13.36 - 13.41			

7.2. TEST PROCEDURES

1) The EUT is placed on a turntable, which is 1.5m above the ground plane.
2) The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3) EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
4) Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:
   a) PEAK Measurement: RBW=1MHz / VBW=3MHz / Sweep=AUTO
   b) AVERAGE Measurement: RBW=1MHz, Sweep=AUTO,There are two cases of VBW.
   If the EUT is configured to transmit with duty cycle ≥98%, set VBW=10Hz.If the EUT duty cycle is ＜98%,set VBW≥1/T, Where T is defined in section 2.8.
5) Repeat the procedures until all the PEAK and AVERAGE versus polarization are measured.

7.3. TEST SETUP



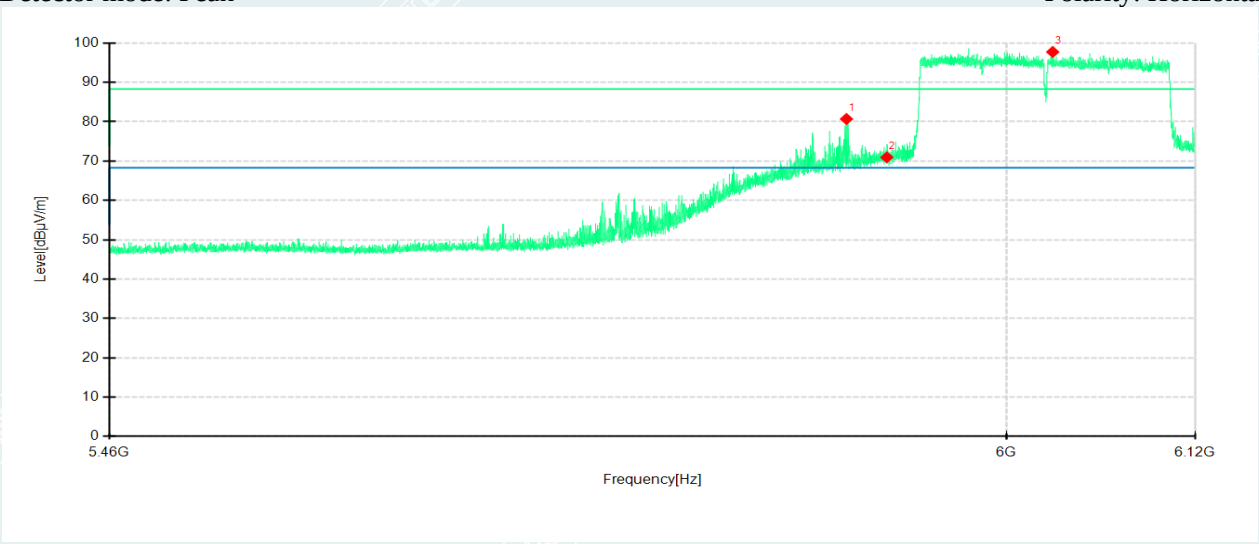
---------- **The following blanks** ----------

7.4. TEST RESULTS

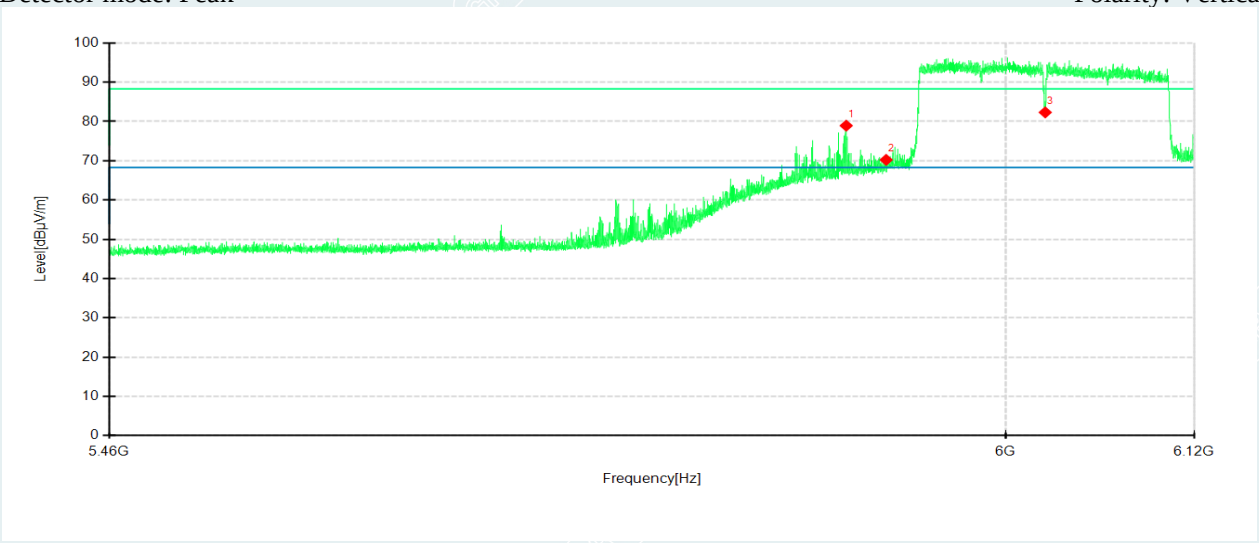
Environment: 24.6℃/50%RH/101.0kPa	Power supply: DC 12V
Test Engineer: Zhang Zishan	Test Date: 2023-11-01

IEEE 802.11ax HE160 mode/6025MHz

Detector mode: Peak Polarity: Horizontal



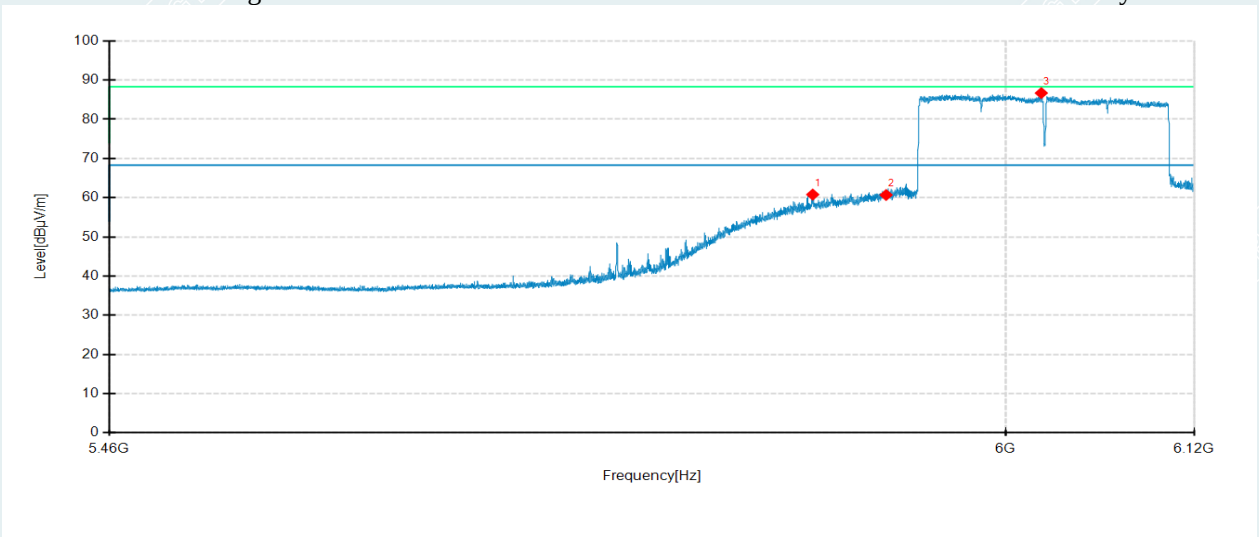
Detector mode: Peak Polarity: Vertical



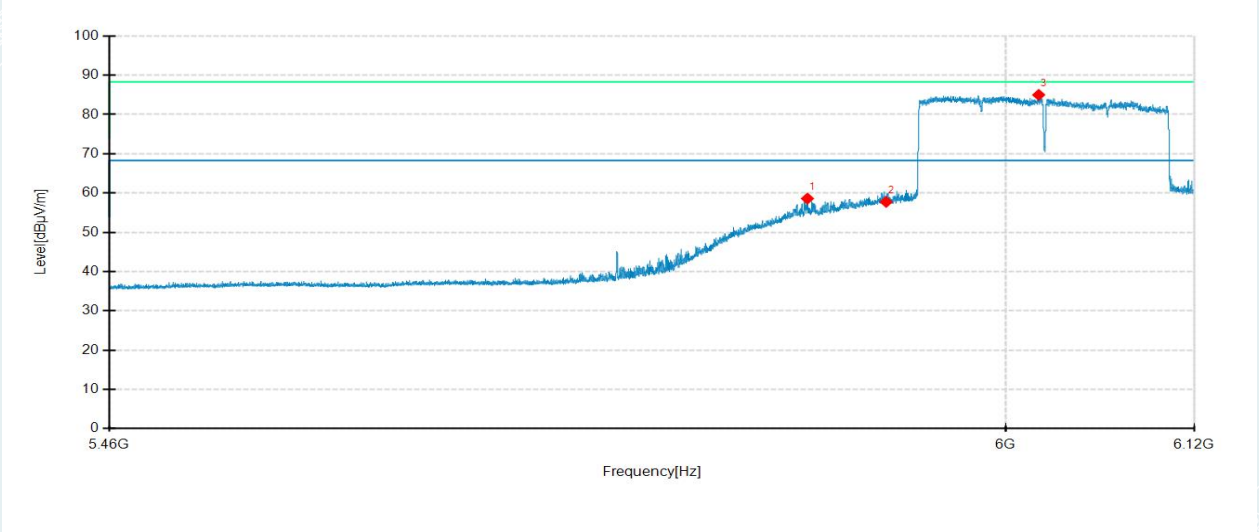
No.	Frequency MHz	Reading dBµV/m	Level dBµV/m	Factor dB	Limit dBuV/m	Margin dB	Height cm	Angle °	Pole	Comment
1	5899.8900	75.30	80.70	5.40	88.30	7.60	200	104	Horizontal	/
2	5925.0000	65.57	70.96	5.39	88.30	17.34	200	118	Horizontal	/
3	6029.1840	92.07	97.74	5.67	-	-	200	320	Horizontal	No limit
1	5900.1540	73.64	78.94	5.30	88.30	9.36	100	62	Vertical	/
2	5925.0000	64.89	70.23	5.34	88.30	18.07	200	230	Vertical	/
3	6025.0000	76.78	82.32	5.54	-	-	200	108	Vertical	No limit

IEEE 802.11ax HE160 mode/6025MHz

Detector mode: Average Polarity: Horizontal



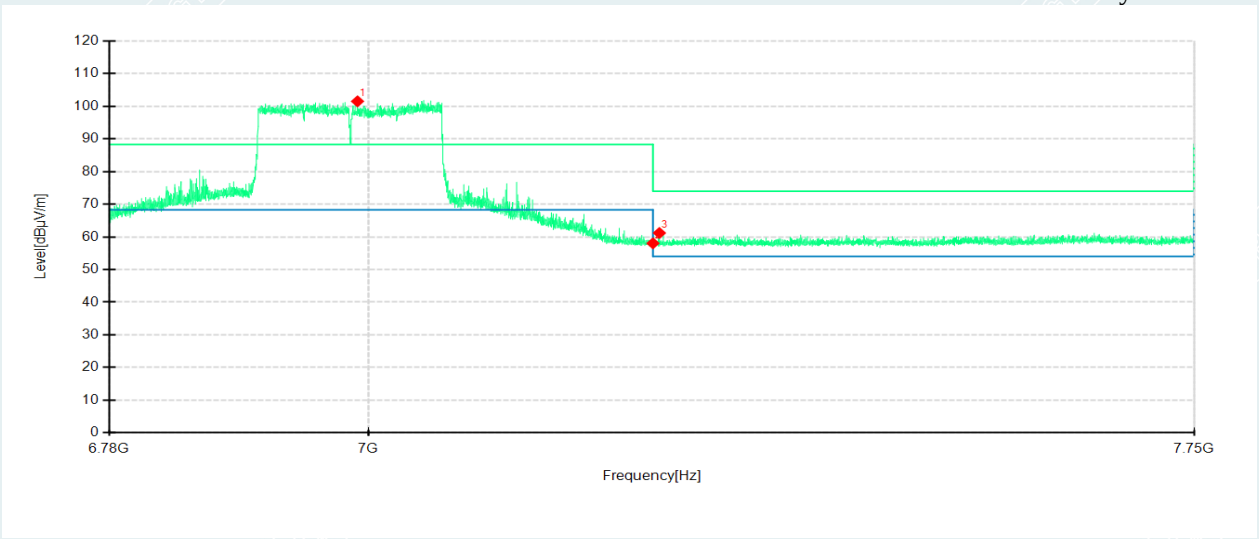
Detector mode: Average Polarity: Vertical



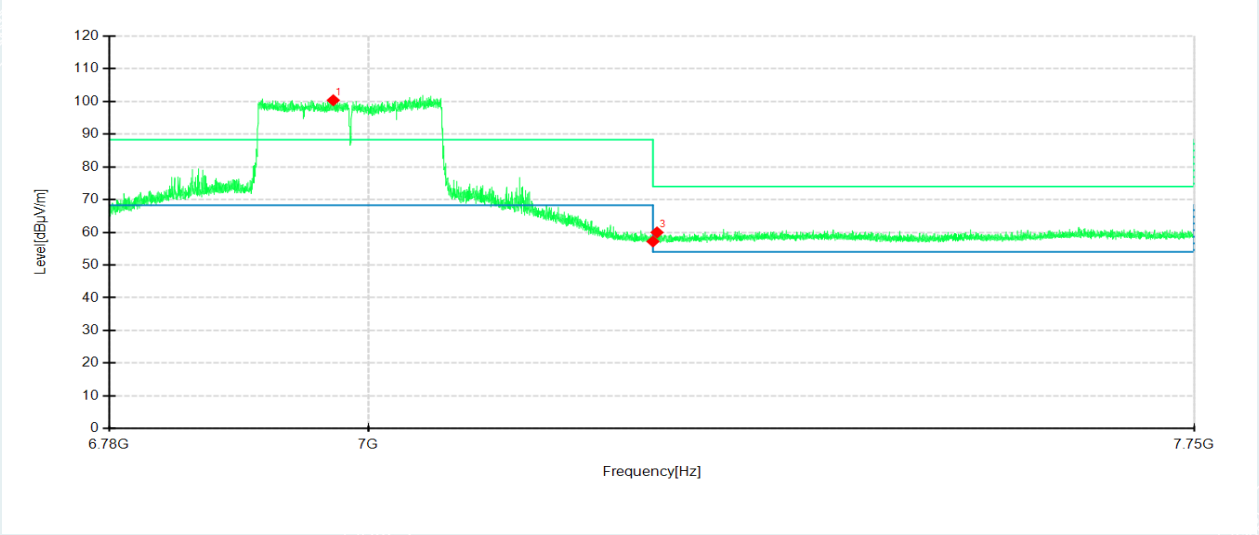
No.	Frequency MHz	Reading dBµV/m	Level dBµV/m	Factor dB	Limit dBuV/m	Margin dB	Height cm	Angle °	Pole	Comment
1	5879.4300	55.26	60.80	5.54	68.30	7.50	200	114	Horizontal	/
2	5925.0000	55.30	60.69	5.39	68.30	7.61	200	101	Horizontal	/
3	6022.5180	81.00	86.70	5.70	-	-	200	316	Horizontal	No limit
1	5876.1300	53.24	58.60	5.36	68.30	9.70	100	59	Vertical	/
2	5925.0000	52.41	57.75	5.34	68.30	10.55	200	121	Vertical	/
3	6020.8680	79.43	85.00	5.57	-	-	200	121	Vertical	No limit

IEEE 802.11ax HE160 mode/6985MHz

Detector mode: Peak Polarity: Horizontal



Detector mode: Peak Polarity: Vertical

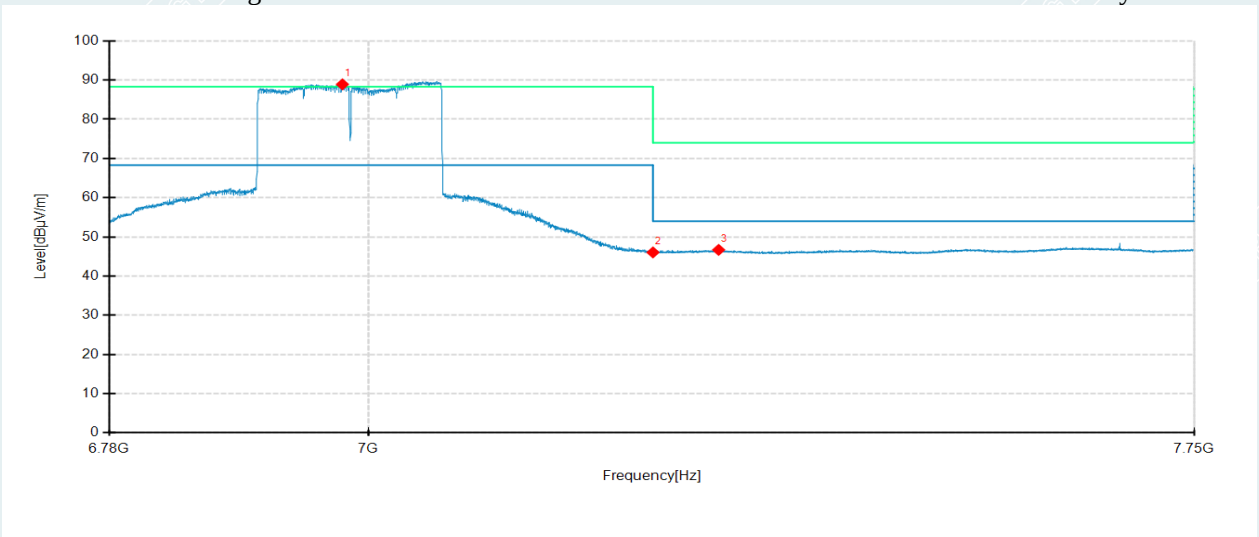


No.	Frequency MHz	Reading dBµV/m	Level dBµV/m	Factor dB	Limit dBuV/m	Margin dB	Height cm	Angle °	Pole	Comment
1	6990.6840	84.37	101.50	17.13	-	-	200	336	Horizontal	No limit
2	7250.0000	39.57	58.04	18.47	74.00	15.96	200	107	Horizontal	/
3	7255.7850	42.72	61.20	18.48	74.00	12.80	200	38	Horizontal	/
1	6969.8290	83.48	100.35	16.87	-	-	100	48	Vertical	No limit
2	7250.0000	39.04	57.21	18.17	74.00	16.79	100	48	Vertical	/
3	7253.6510	41.80	59.98	18.18	74.00	14.02	100	149	Vertical	/

IEEE 802.11ax HE160 mode/6985MHz

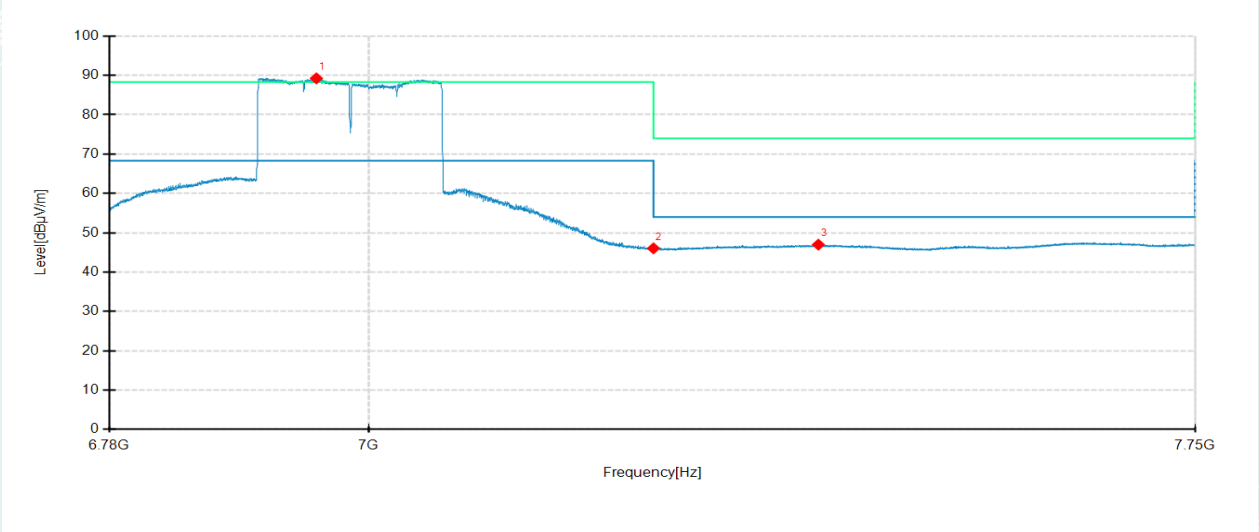
Detector mode: Average

Polarity: Horizontal



Detector mode: Average

Polarity: Vertical



No.	Frequency MHz	Reading dBµV/m	Level dBµV/m	Factor dB	Limit dBuV/m	Margin dB	Height cm	Angle °	Pole	Comment
1	6977.6860	71.63	88.92	17.29	-	-	100	36	Horizontal	No limit
2	7250.0000	27.57	46.04	18.47	54.00	7.96	200	88	Horizontal	/
3	7308.9410	28.16	46.69	18.53	54.00	7.31	100	197	Horizontal	/
1	6955.0850	72.36	89.24	16.88	-	-	100	28	Vertical	No limit
2	7250.0000	27.87	46.04	18.17	54.00	7.96	100	162	Vertical	/
3	7398.7630	28.23	46.98	18.75	54.00	7.02	100	43	Vertical	/

8. 26dB BANDWIDTH & 99% OCCUPIED BANDWIDTH

8.1. LIMITS

The occupied bandwidth of an RLAN device shall not exceed 320 MHz.

8.2. TEST PROCEDURES

For 26dB Bandwidth Measurement :

a. Connect EUT antenna terminal to the spectrum analyzer with RF cable.
b. Spectrum analyzer setting parameters in accordance with table 1.
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 measurementas 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 BandwidthMeasurement :

a. Connect EUT antenna terminal to the spectrum analyzer with RF cable.
b. Spectrum analyzer setting parameters in accordance with table 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.

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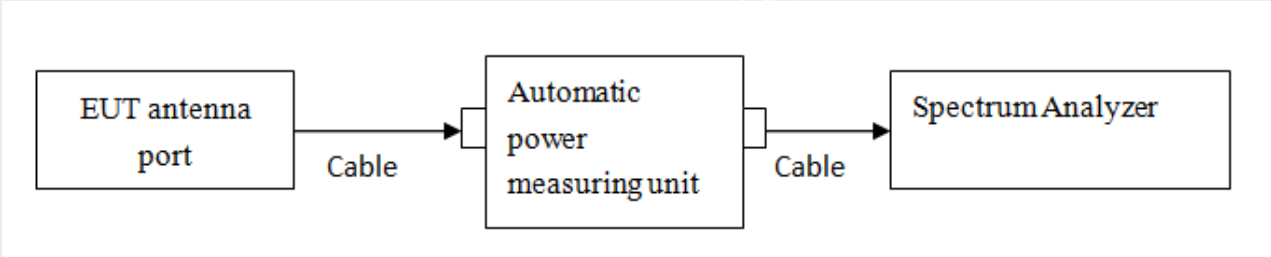
Table 1:

26dB Bandwidth	
Spectrum Parameters	Setting
RBW	approximately 1% of the emission bandwidth
VBW	＞RBW
Span	40MHz(20MHz Bandwidth mode) 80MHz(40MHz Bandwidth mode) 160MHz(80MHz Bandwidth mode) 320MHz(160MHz Bandwidth mode)
Sweep Time	Auto
Detector	Peak
Trace Mode	Max Hold

Table 2:

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

8.3. TEST SETUP



8.4. TEST RESULTS

Environmental Conditions	24.6℃/64%RH/101.0kPa	Test Voltage	DC 12V
Tested By	Qin Tingting	Tested Date	2023-10-21

26dB BANDWIDTH

Test Mode	Antenna	Frequency[MHz]	26dB EBW [MHz]	F_L[MHz]	F_H[MHz]	Limit[MHz]	Verdict
IEEE 802.11ax HE160	Ant1	6025	168.00	5940.84	6108.84	≤320	PASS
	Ant2	6025	167.04	5940.84	6107.88	≤320	PASS
	Ant1	6185	167.68	6099.88	6267.56	≤320	PASS
	Ant2	6185	167.36	6100.52	6267.88	≤320	PASS
	Ant1	6345	168.00	6260.52	6428.52	≤320	PASS
	Ant2	6345	166.72	6260.84	6427.56	≤320	PASS
	Ant1	6505	167.68	6420.20	6587.88	≤320	PASS
	Ant2	6505	167.04	6420.52	6587.56	≤320	PASS
	Ant1	6665	169.92	6579.24	6749.16	≤320	PASS
	Ant2	6665	167.68	6581.16	6748.84	≤320	PASS
	Ant1	6825	168.64	6740.20	6908.84	≤320	PASS
	Ant2	6825	169.92	6737.96	6907.88	≤320	PASS
	Ant1	6985	166.72	6900.52	7067.24	≤320	PASS
	Ant2	6985	167.04	6901.16	7068.20	≤320	PASS

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99% OCCUPIED BANDWIDTH

Test Mode	Antenna	Frequency [MHz]	OCB[MHz]	F_L[MHz]	F_H[MHz]	Limit[MHz]	Verdict
IEEE 802.11ax HE160	Ant1	6025	157.658	5946.214	6103.871	---	PASS
	Ant2	6025	159.584	5945.263	6104.847	---	PASS
	Ant1	6185	158.566	6105.112	6263.679	---	PASS
	Ant2	6185	159.094	6104.950	6264.045	---	PASS
	Ant1	6345	158.371	6265.344	6423.714	---	PASS
	Ant2	6345	159.647	6264.631	6424.278	---	PASS
	Ant1	6505	158.325	6424.920	6583.246	---	PASS
	Ant2	6505	157.646	6425.309	6582.955	---	PASS
	Ant1	6665	158.056	6585.760	6743.817	---	PASS
	Ant2	6665	158.683	6585.410	6744.094	---	PASS
	Ant1	6825	157.916	6745.542	6903.458	---	PASS
	Ant2	6825	158.351	6745.330	6903.682	---	PASS
	Ant1	6985	158.837	6904.614	7063.451	---	PASS
	Ant2	6985	158.060	6905.413	7063.474	---	PASS

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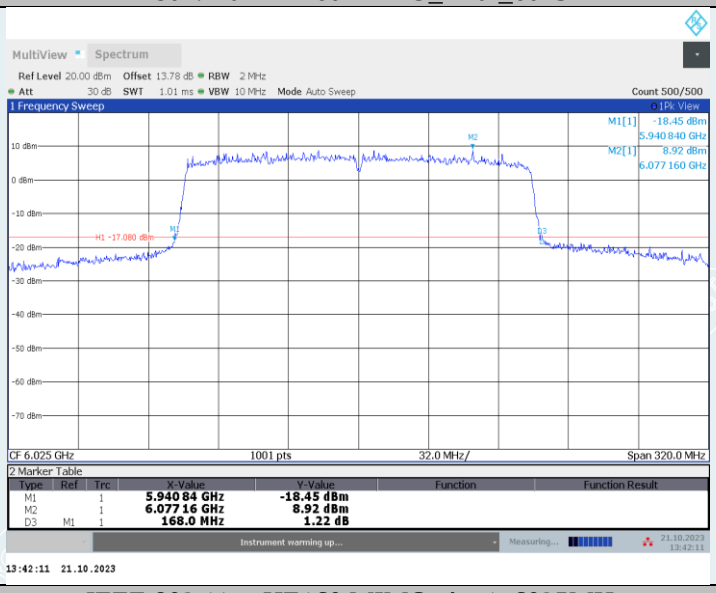
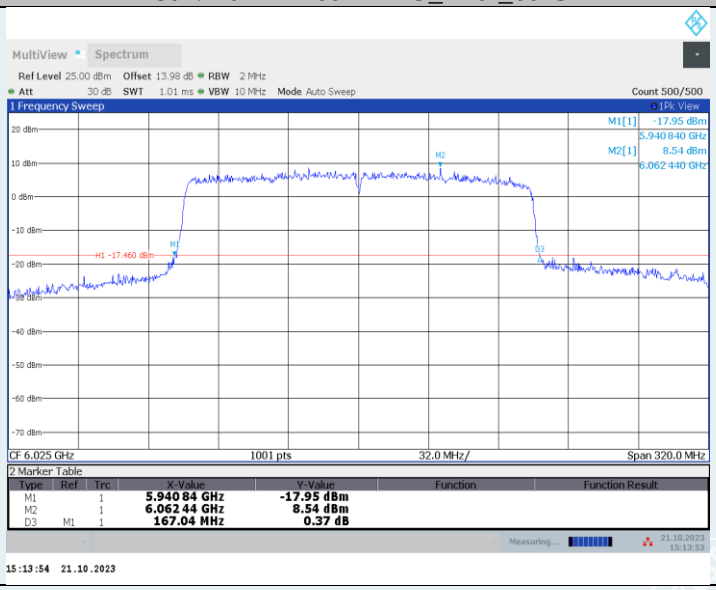
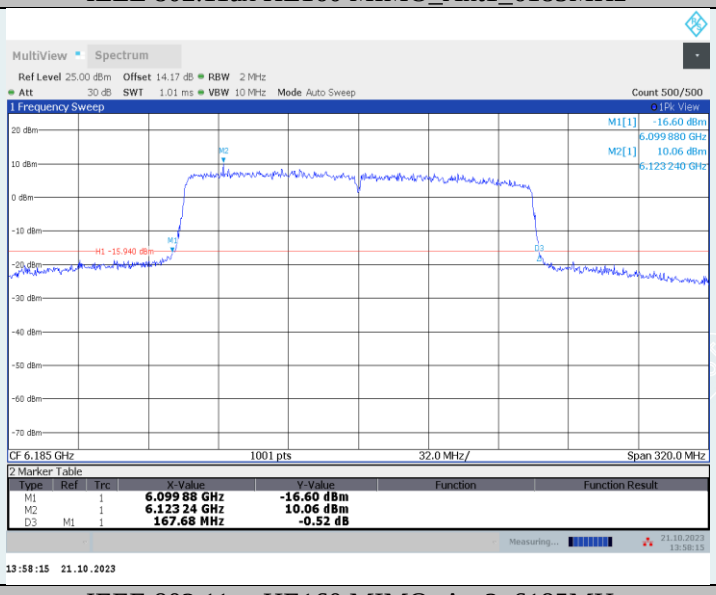
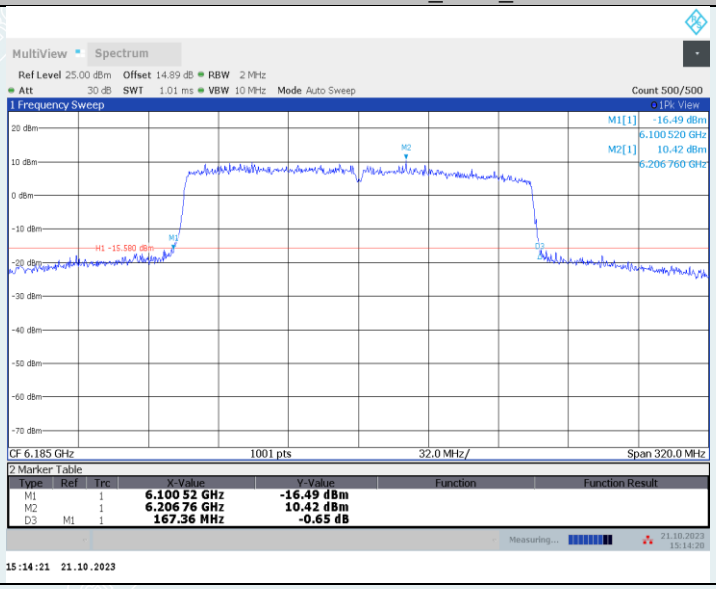
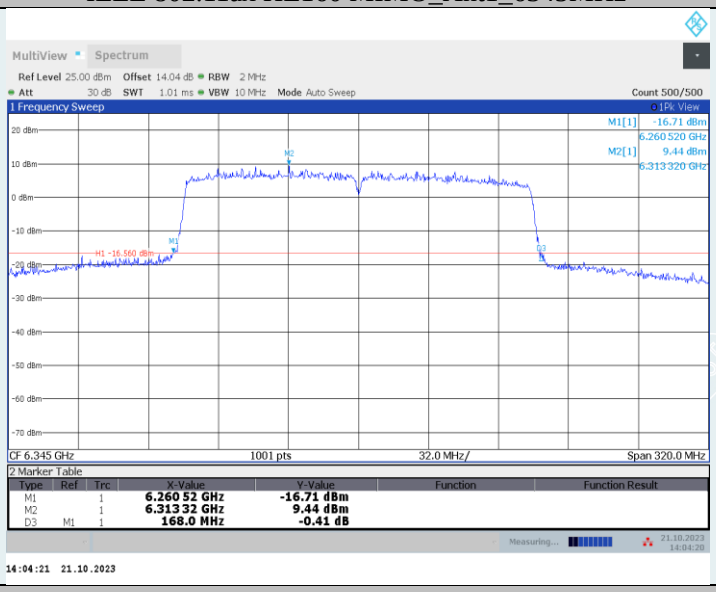
26dB BANDWIDTH

IEEE 802.11ax HE160 MIMO_Ant1_6025MHz

IEEE 802.11ax HE160 MIMO_Ant1_6025MHz


IEEE 802.11ax HE160 MIMO_Ant1_6185MHz


IEEE 802.11ax HE160 MIMO_Ant2_6185MHz


IEEE 802.11ax HE160 MIMO_Ant1_6345MHz

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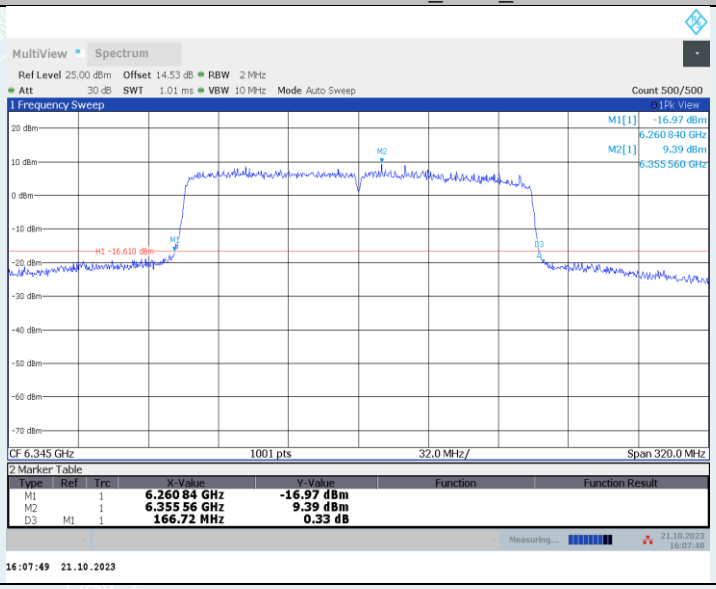

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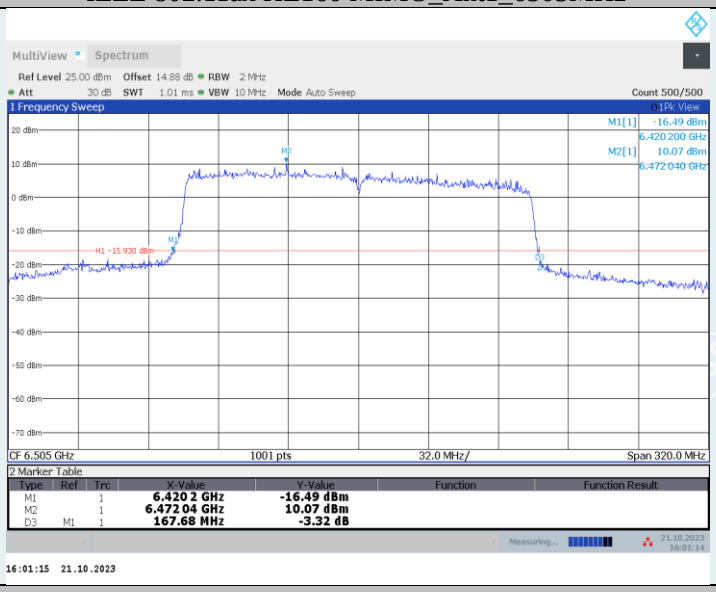
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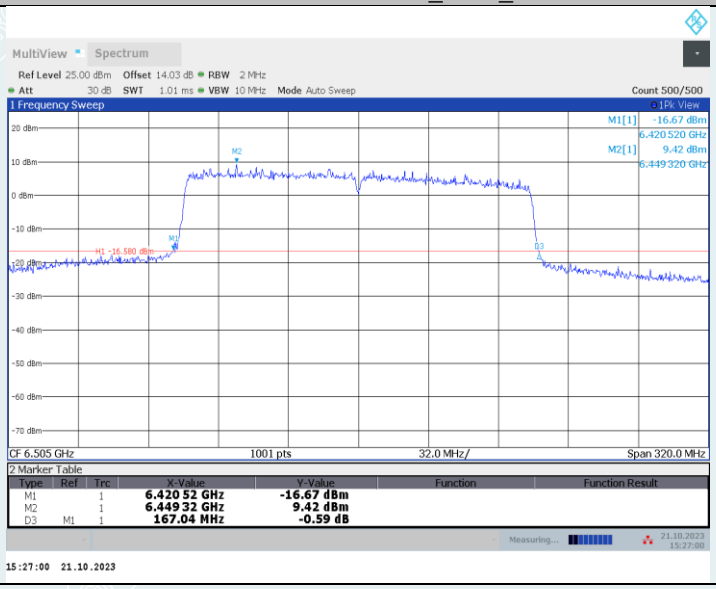
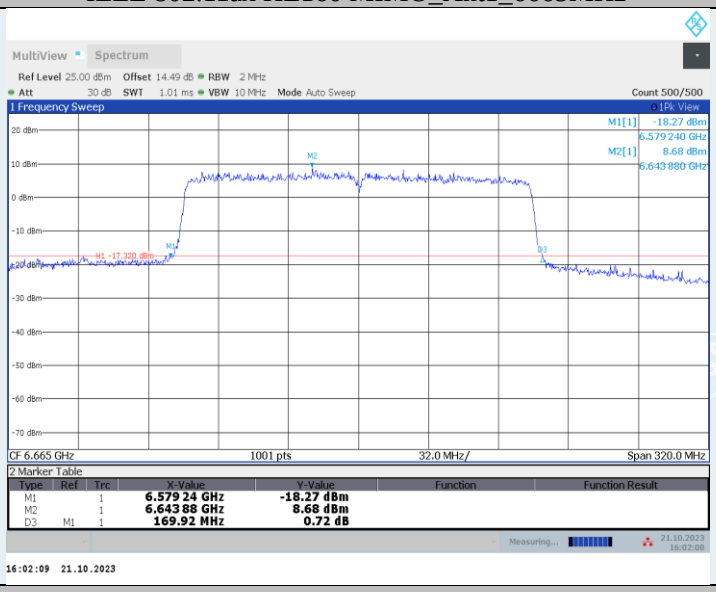
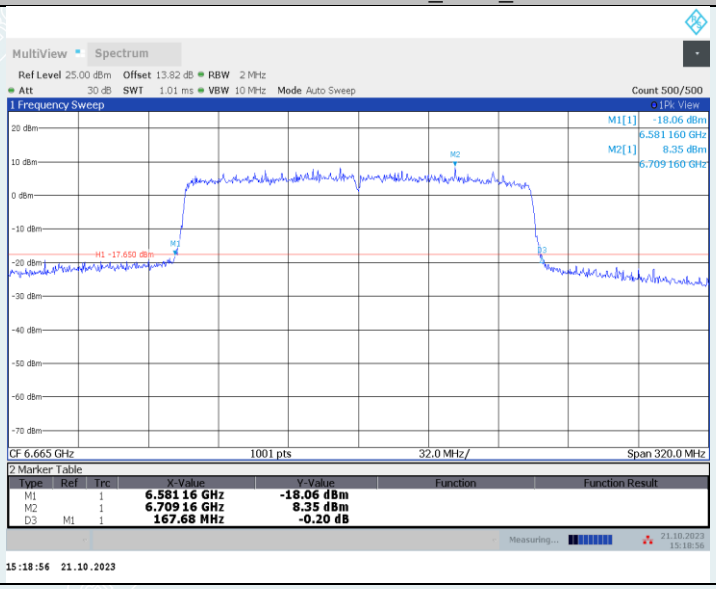
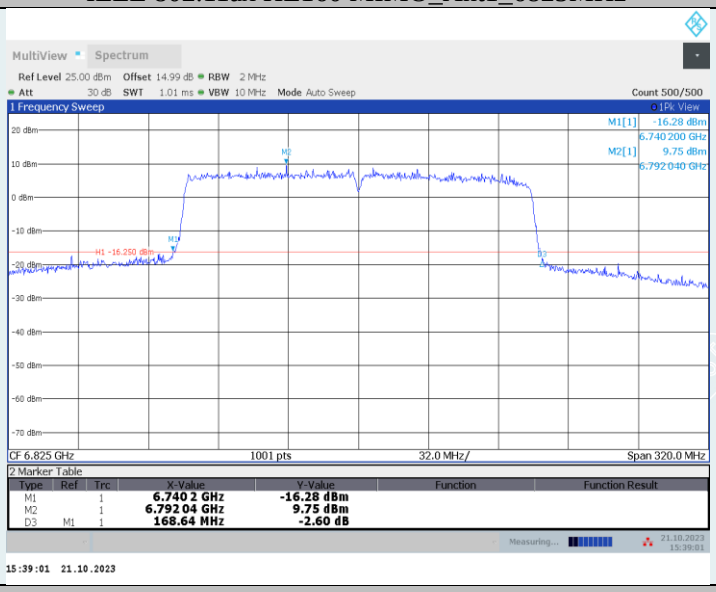
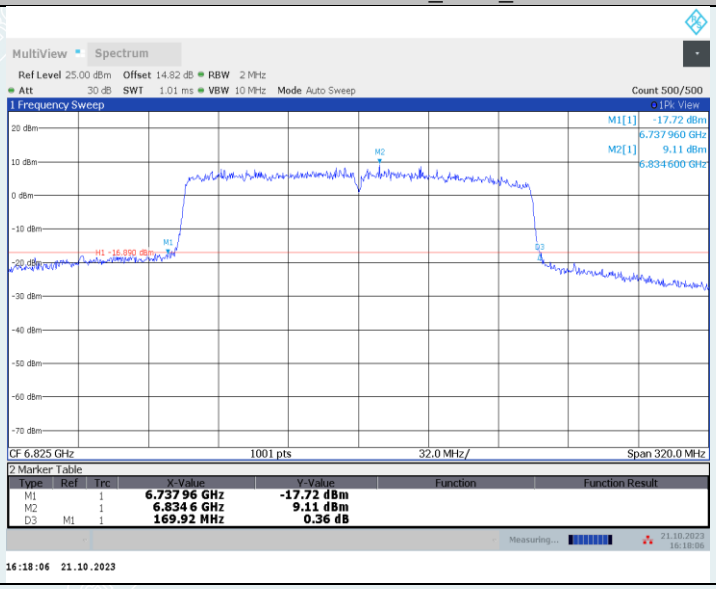


IEEE 802.11ax HE160 MIMO_Ant1_6665MHz


IEEE 802.11ax HE160 MIMO_Ant2_6665MHz


IEEE 802.11ax HE160 MIMO_Ant1_6825MHz

IEEE 802.11ax HE160 MIMO_Ant2_6825MHz


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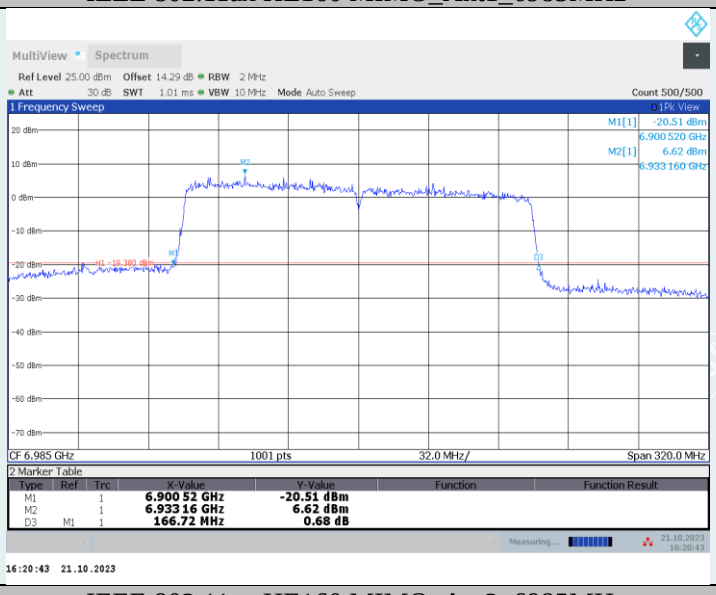

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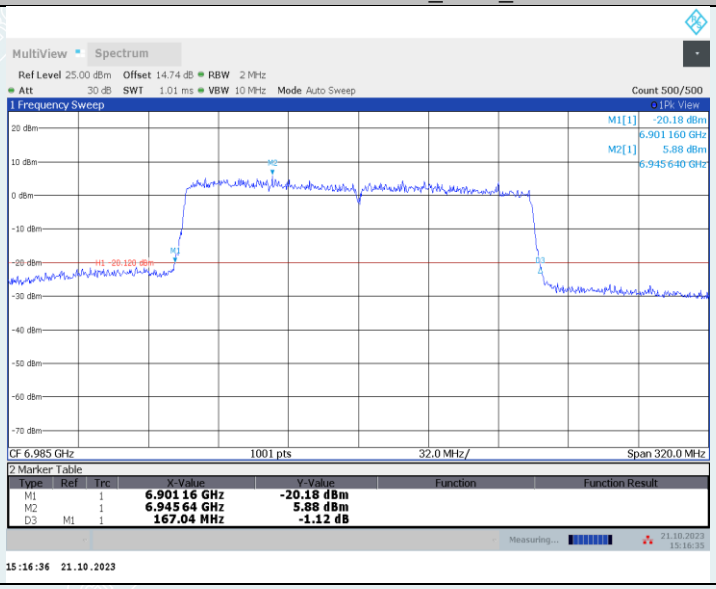
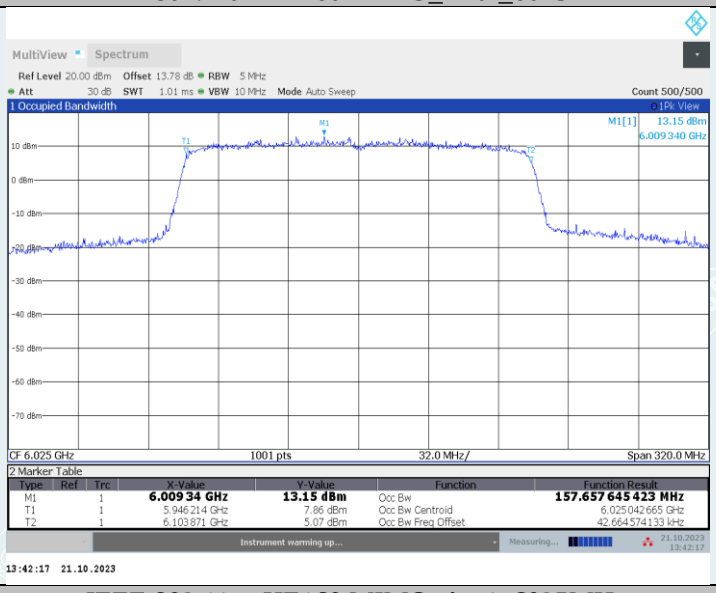
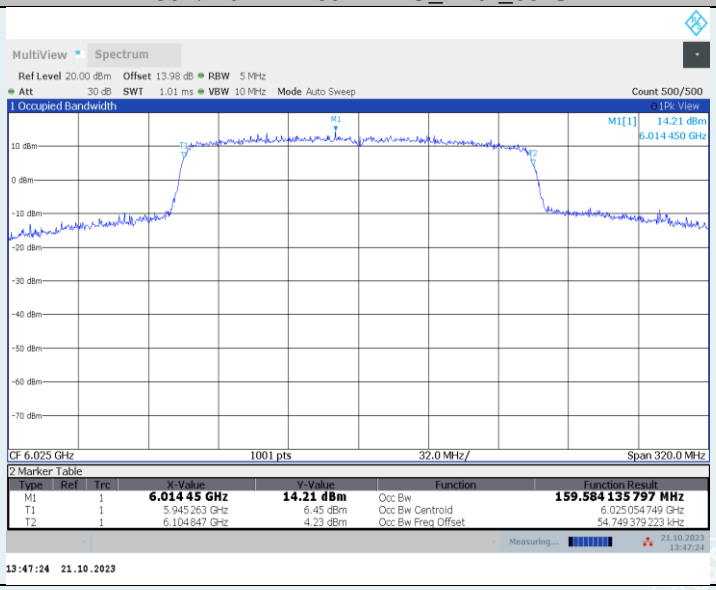
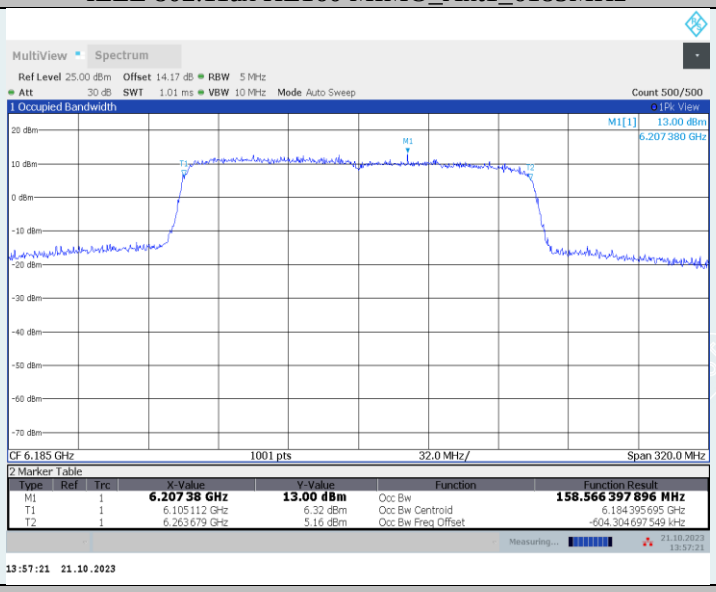


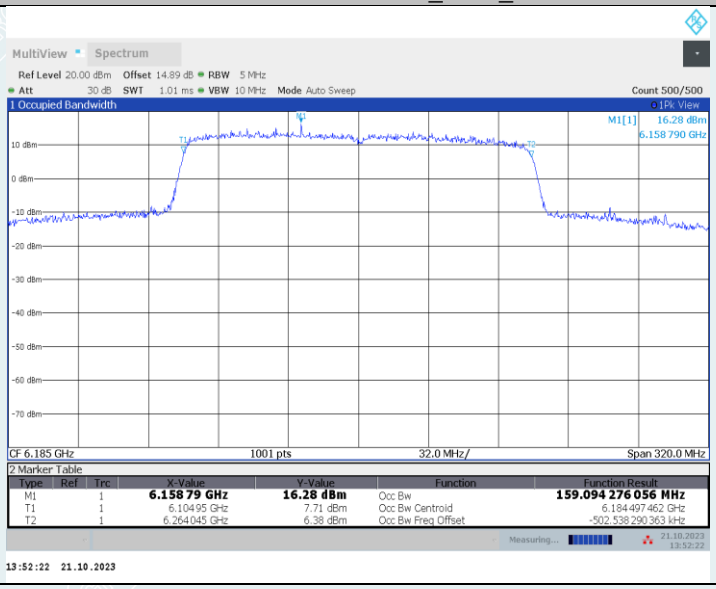
99% OCCUPIED BANDWIDTH

IEEE 802.11ax HE160 MIMO_Ant1_6025MHz

IEEE 802.11ax HE160 MIMO_Ant1_6025MHz


IEEE 802.11ax HE160 MIMO_Ant1_6185MHz



IEEE 802.11ax HE160 MIMO_Ant2_6185MHz



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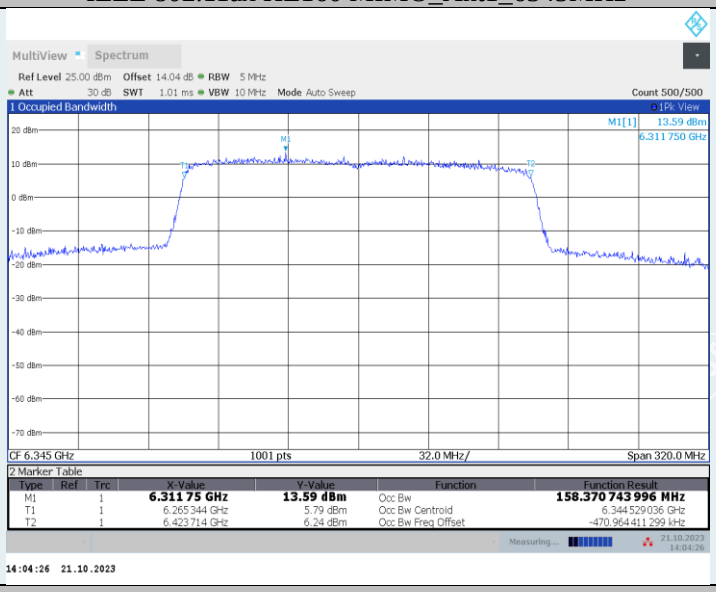

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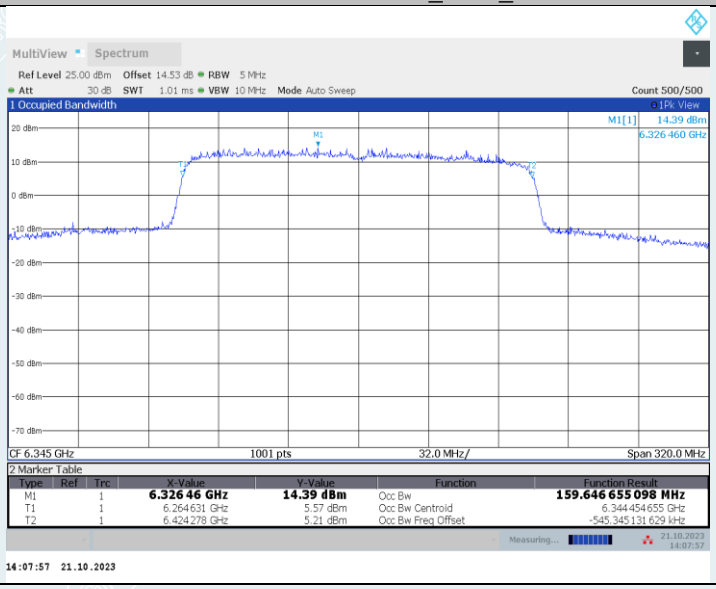

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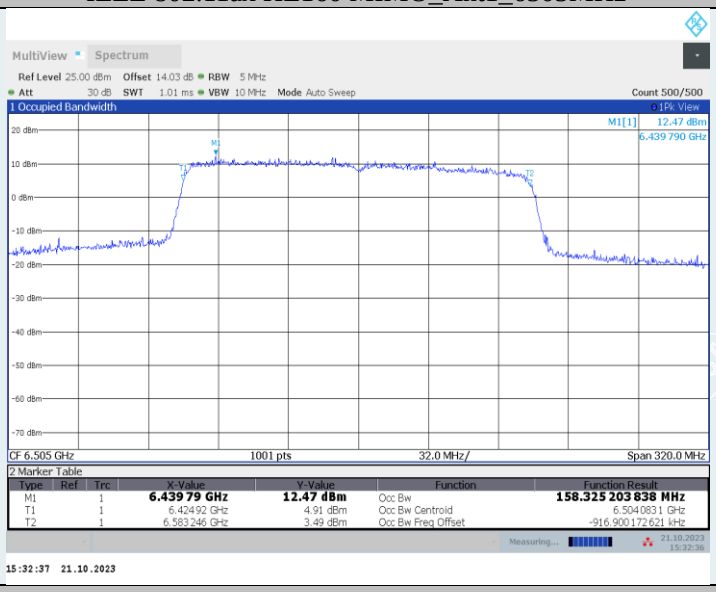
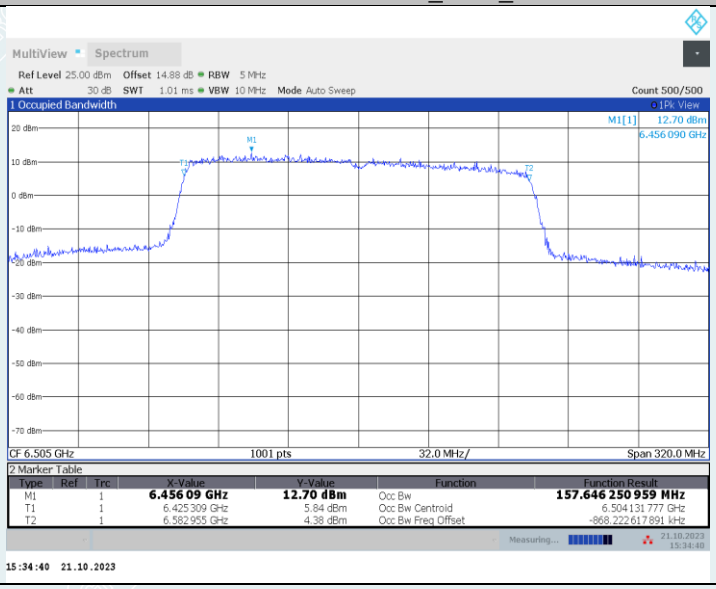
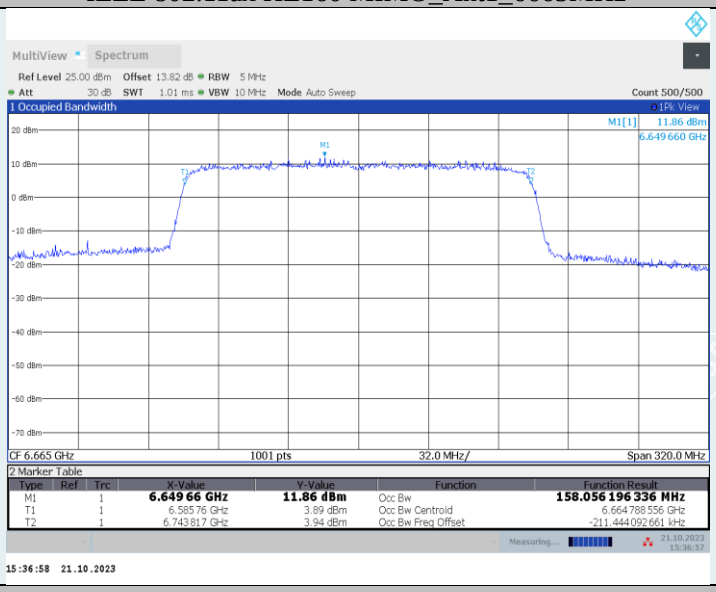
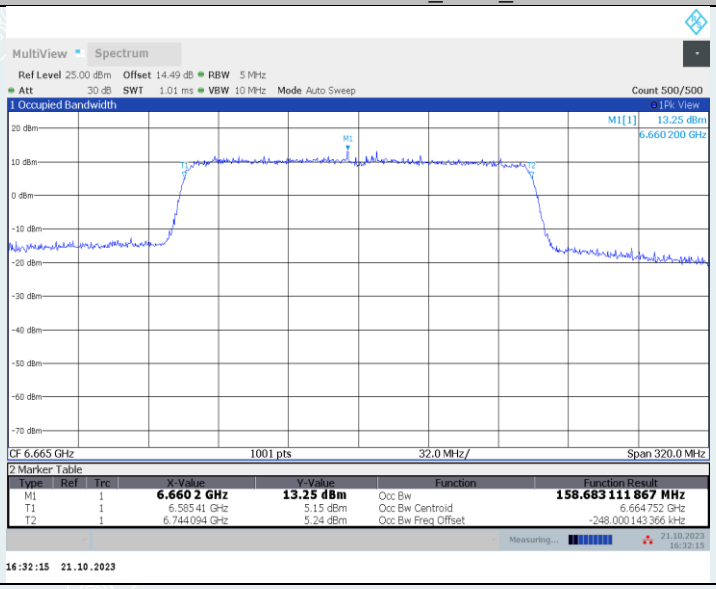
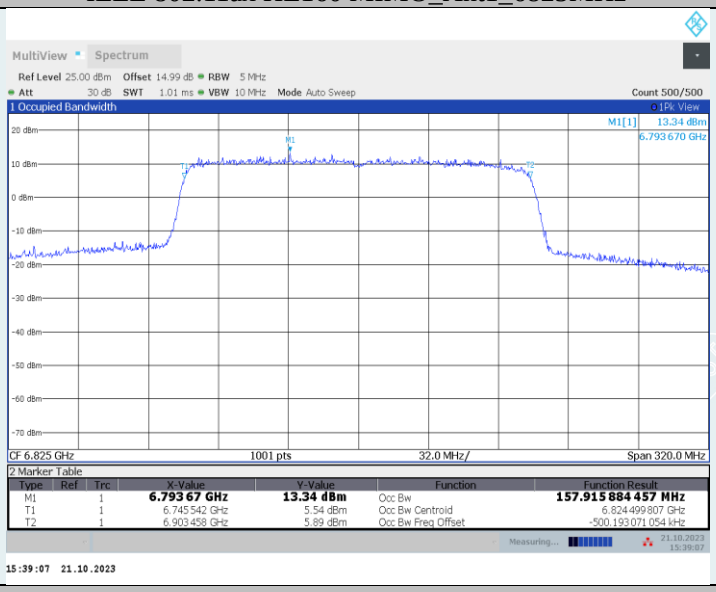


IEEE 802.11ax HE160 MIMO_Ant2_6505MHz


IEEE 802.11ax HE160 MIMO_Ant1_6665MHz


IEEE 802.11ax HE160 MIMO_Ant2_6665MHz


IEEE 802.11ax HE160 MIMO_Ant1_6825MHz

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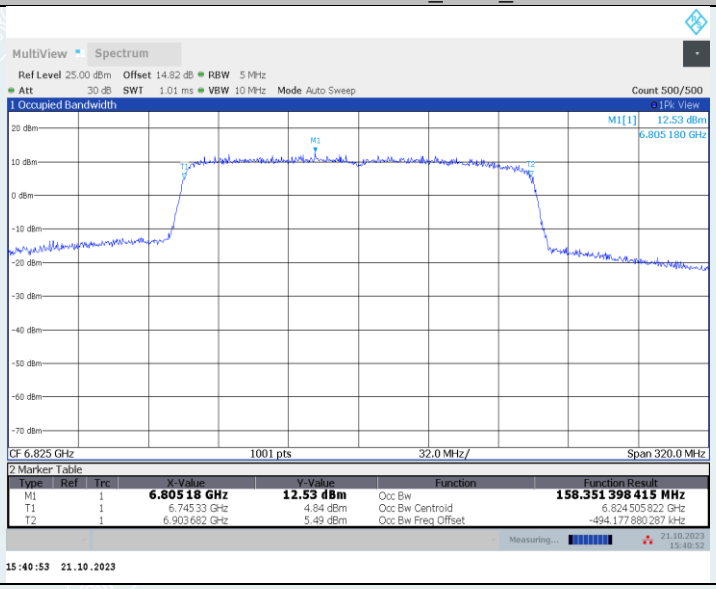
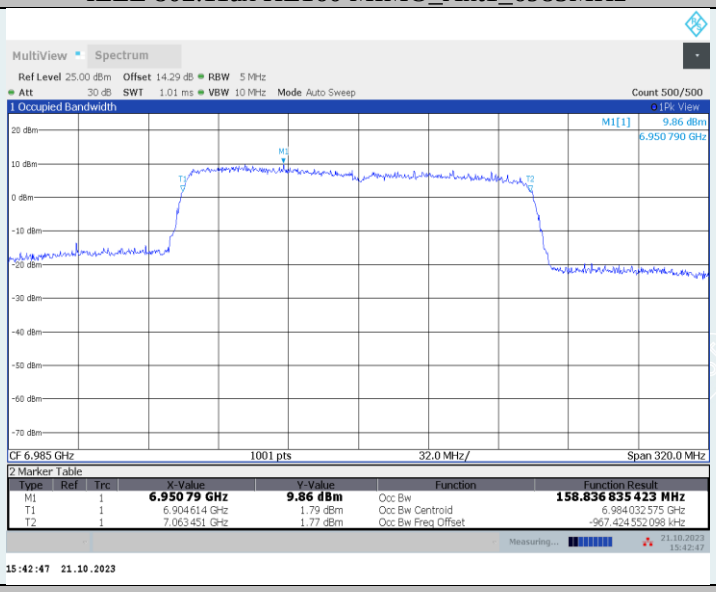


IEEE 802.11ax HE160 MIMO_Ant1_6985MHz


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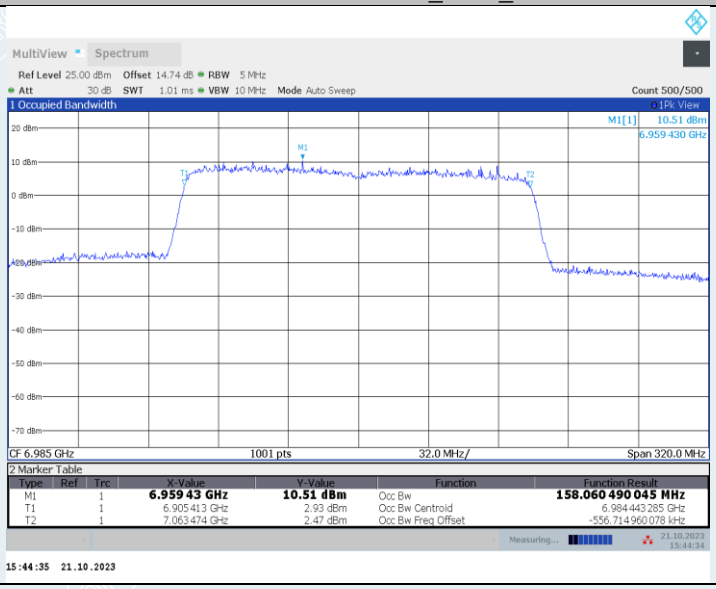


9. OUTPUT POWER

9.1. LIMITS

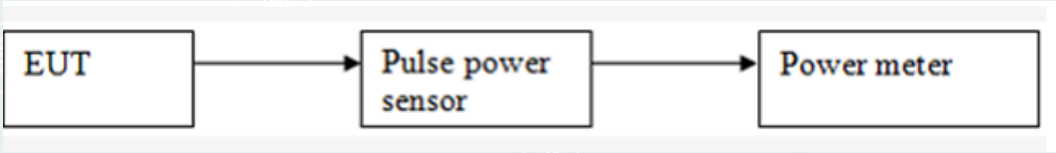
The FCC 15.407(a) The maximum conducted output power should not exceed:

EUT Type	Eq Class	Limit
Low-power indoor Access Points	6ID	Max EIRP 30dBm(1W)

9.2. TEST PROCEDURES

1) The RF output of EUT was connected to the broadband average RF power meter by RF cable and attenuator. The path loss was compensated to the results for each measurement.
2) Set to the maximum power setting and enable the EUT transmit continuously.
3) Measure the conducted output power and record the results in the test report.

9.3. TEST SETUP



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9.4. TEST RESULTS

Environmental Conditions	24.6℃/64%RH/101.0kPa	Test Voltage	DC 12V
Tested By	Qing Tingting	Tested Date	2023-10-21

Test Mode	Frequency (MHz)	AVG Conducted Output Power with Duty Factor (dBm)				EIRP Limit (dBm)	Result
		antenna 1	antenna 2	total	EIRP		
IEEE 802.11ax HE160 MIMO	6025	14.25	15.23	17.78	24.29	30.00	Pass
	6185	14.13	15.36	17.80	24.31		Pass
	6345	13.96	14.50	17.25	23.76		Pass
	6505	14.04	14.91	17.51	24.02		Pass
	6665	14.81	14.26	17.55	24.06		Pass
	6825	14.13	14.53	17.34	23.85		Pass
	6985	13.22	12.59	15.93	22.44		Pass

Note
1) According to ANSI C63.10-2020 this EUT supports MIMO 2X2, the antenna gains are equal and any transmit signals are correlated with each other.
2) For power measurements on 802.11 devices, Directional gain = G_{ANT} + Array Gain, Array Gain = 10 log(N_{ANT}/N_{SS}) dBi.
3) The Directional gain =3.5+10log(2/1)=6.51dBi, so the EIRP Power=total AVG Power+ Directional gain.
4) The antenna gain is equal and the number of antennas is less than 4, Array gain=0, and power does not need to be counted as rollback.

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10. POWER SPECTRAL DENSITY

10.1. LIMITS

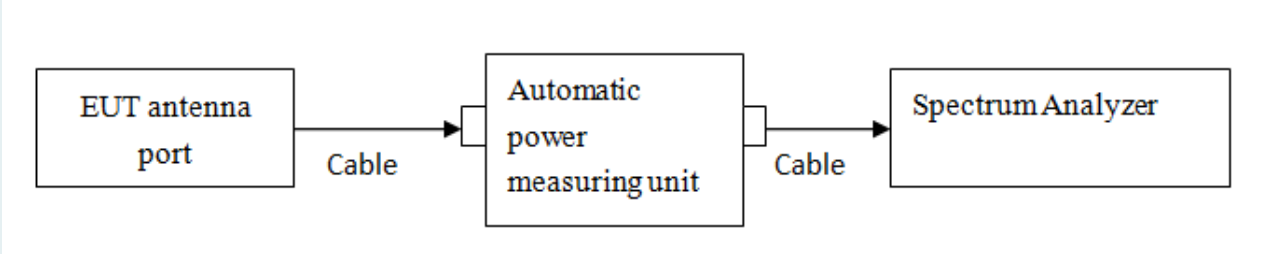
FCC 15.407(a) The maximum power spectral density should not exceed:

EUT Type	Eq Class	Limit
Low-power indoor Access Points	6ID	Max EIRP 5dBm/MHz

10.2. TEST PROCEDURES

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

10.3. TEST SETUP



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10.4. TEST RESULTS

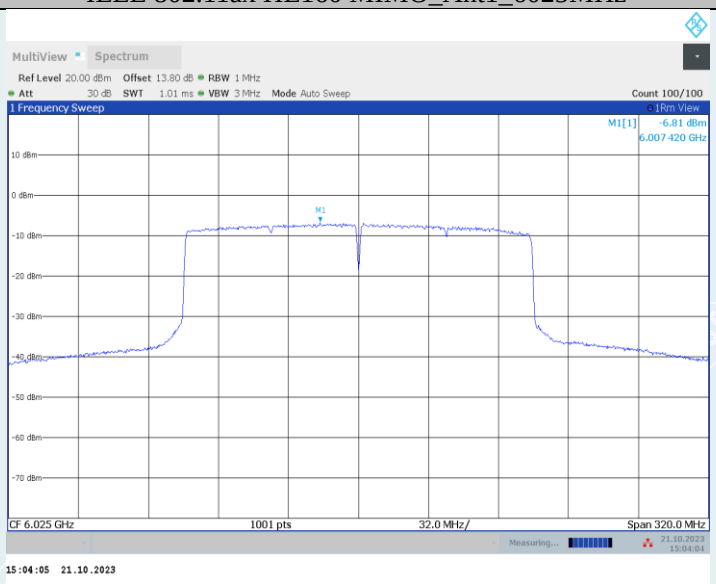
Environmental Conditions	24.6℃/64%RH/101.0kPa	Test Voltage	DC 12V
Tested By	Qing Tingting	Tested Date	2023-10-21

Test Mode	Antenna	Frequency [MHz]	Result+ Duty factor [dBm/MHz]	EIRP [dBm/MHz]	EIRP Limit [dBm/MHz]	Verdict
IEEE 802.11ax HE160 MIMO	Ant1	6025	-6.81	-3.31	≤ 5.00	PASS
	Ant2	6025	-5.55	-2.05	≤ 5.00	PASS
	total	6025	-3.12	3.39	≤ 4.49	PASS
	Ant1	6185	-6.33	-2.83	≤ 5.00	PASS
	Ant2	6185	-4.56	-1.06	≤ 5.00	PASS
	total	6185	-2.35	4.16	≤ 4.49	PASS
	Ant1	6345	-6.97	-3.47	≤ 5.00	PASS
	Ant2	6345	-6.07	-2.57	≤ 5.00	PASS
	total	6345	-3.49	3.02	≤ 4.49	PASS
	Ant1	6505	-5.67	-2.17	≤ 5.00	PASS
	Ant2	6505	-5.91	-2.41	≤ 5.00	PASS
	total	6505	-2.78	3.73	≤ 4.49	PASS
	Ant1	6665	-6.03	-2.53	≤ 5.00	PASS
	Ant2	6665	-6.56	-3.06	≤ 5.00	PASS
	total	6665	-3.28	3.23	≤ 4.49	PASS
	Ant1	6825	-5.61	-2.11	≤ 5.00	PASS
	Ant2	6825	-5.76	-2.26	≤ 5.00	PASS
	total	6825	-2.67	3.84	≤ 4.49	PASS
	Ant1	6985	-7.95	-4.45	≤ 5.00	PASS
	Ant2	6985	-8.48	-4.98	≤ 5.00	PASS
	total	6985	-5.20	1.31	≤ 4.49	PASS

Note:
1) This EUT supports MIMO 2X2, any transmit signals are correlated with each other. for Power Spectral Density measurements on IEEE 802.11 devices. So Directional gain = G_{ANT} + 10 log(N_{ANT}/N_{SS}) dBi, where N_{SS} =1, N_{ANT} =2,Directional gain = 3.5+10log(2) = 6.51dBi,
2) The Directional gain =3.5+10log(2/1)=6.51dBi, so the EIRP PSD=Total PSD + Directional gain.
3) Antenna gain is greater than 6, Limit=5-(6.51-6)=4.49dBm/MHz.

---------- The following blanks ----------

Test Graphs

IEEE 802.11ax HE160 MIMO_Ant1_6025MHz

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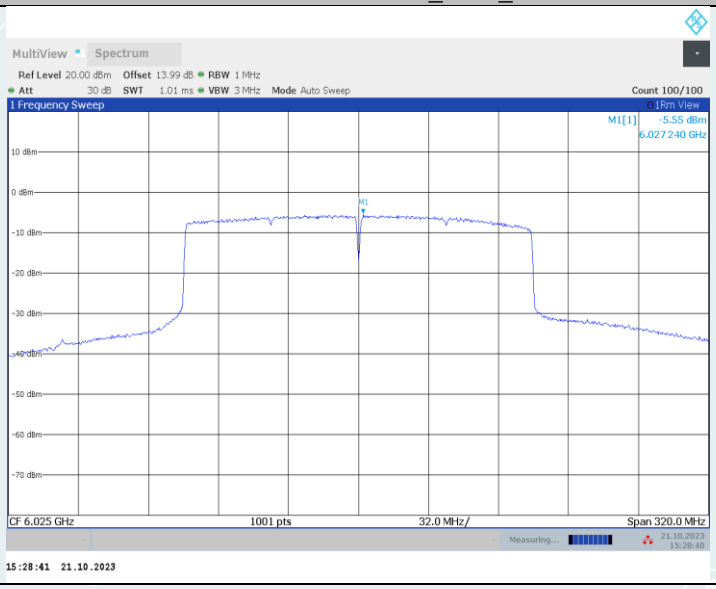

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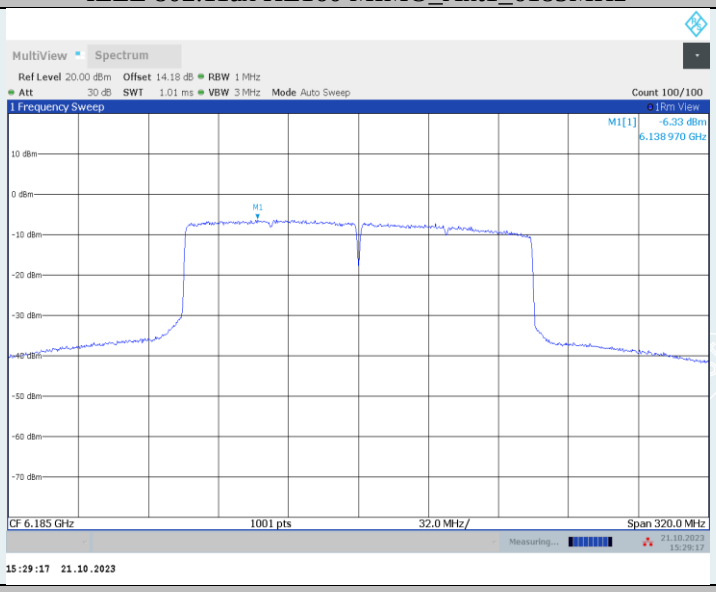
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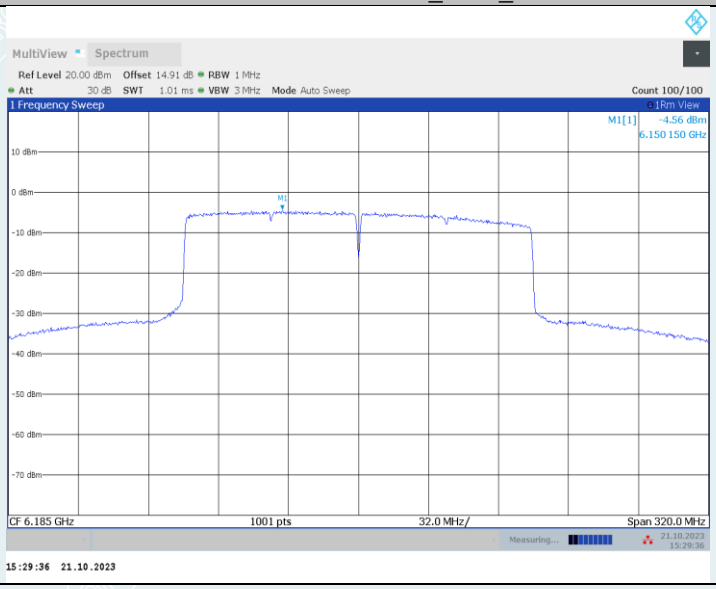
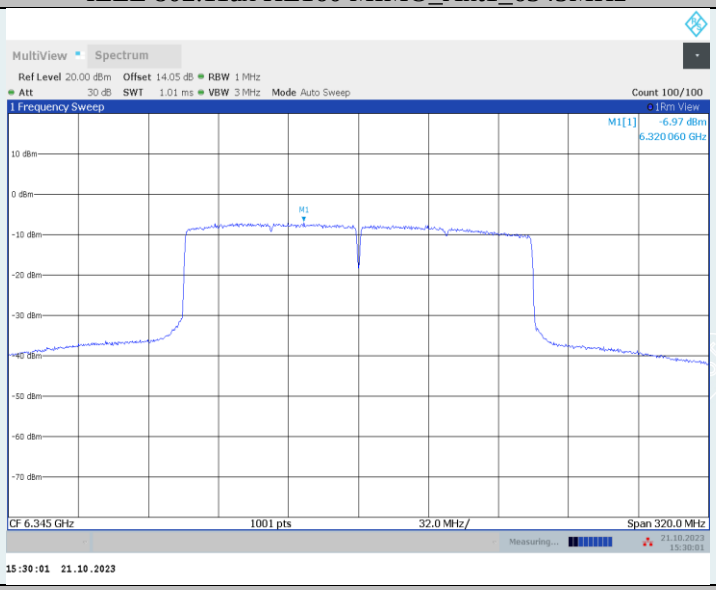


IEEE 802.11ax HE160 MIMO_Ant1_6345MHz

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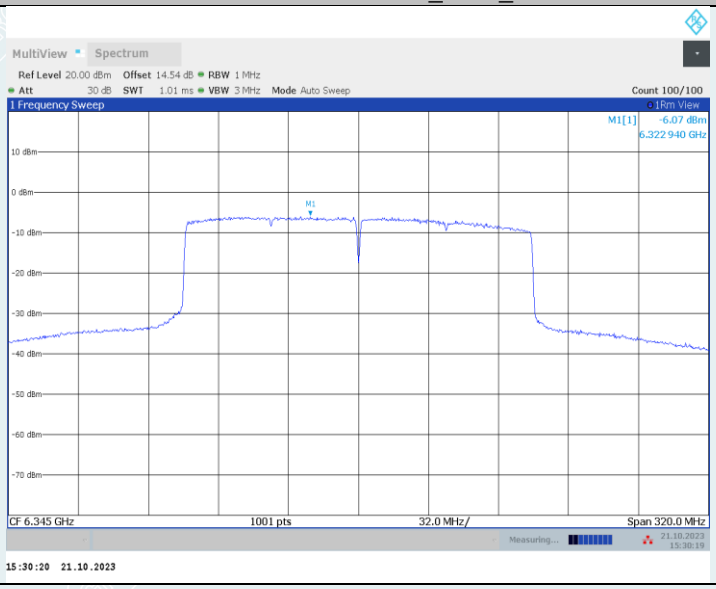

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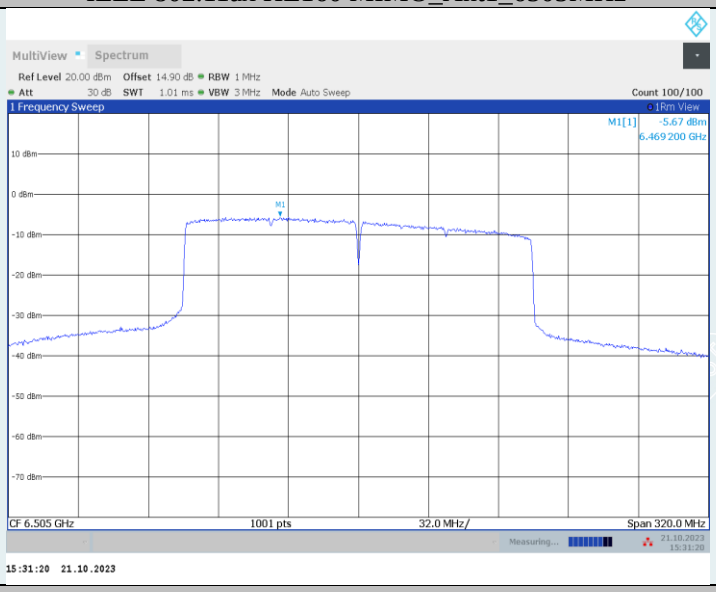
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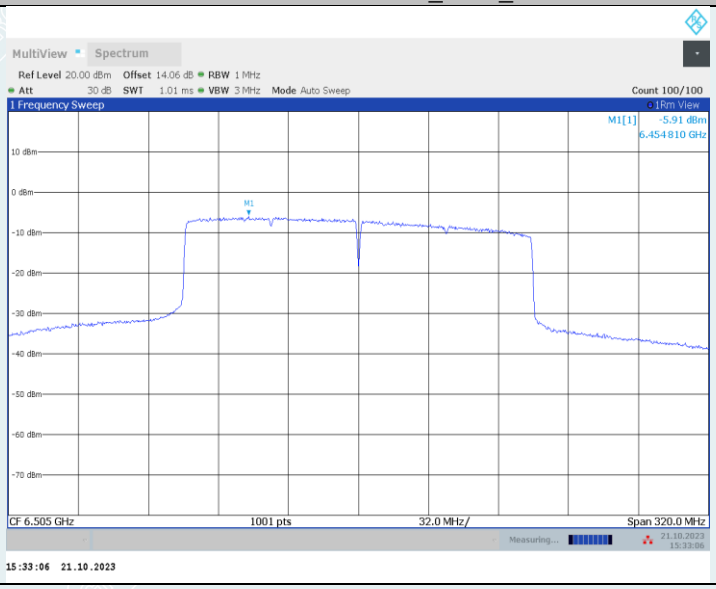

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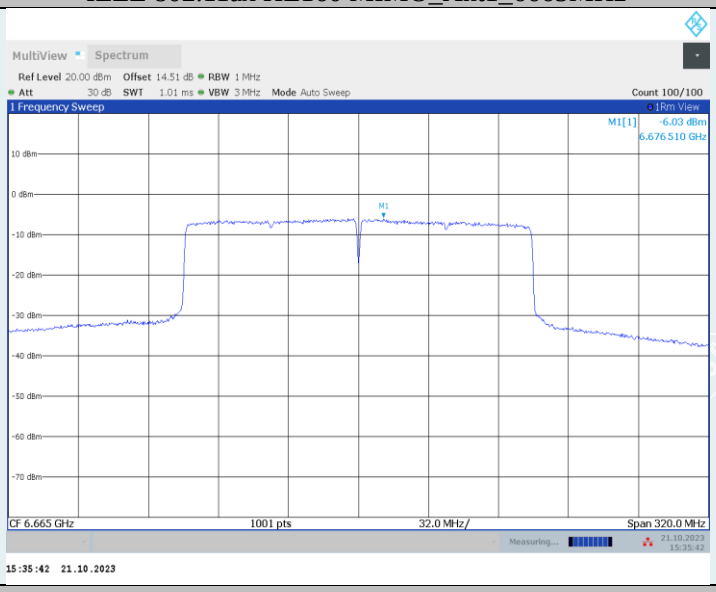
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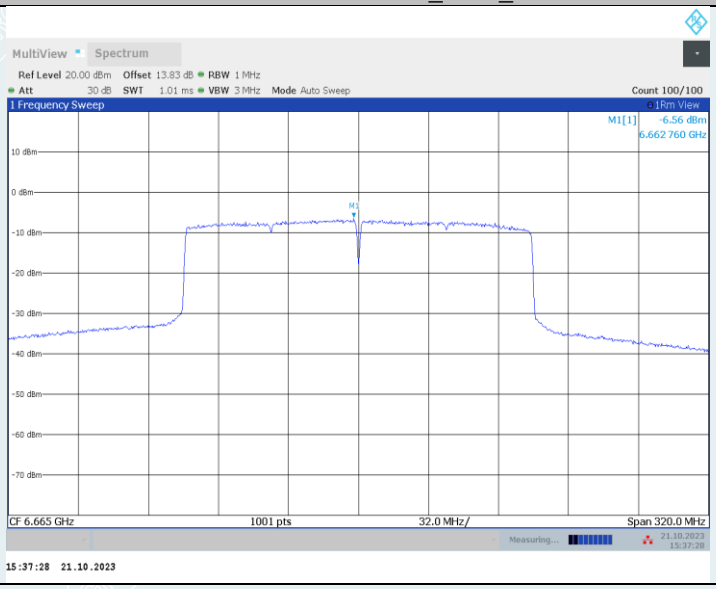

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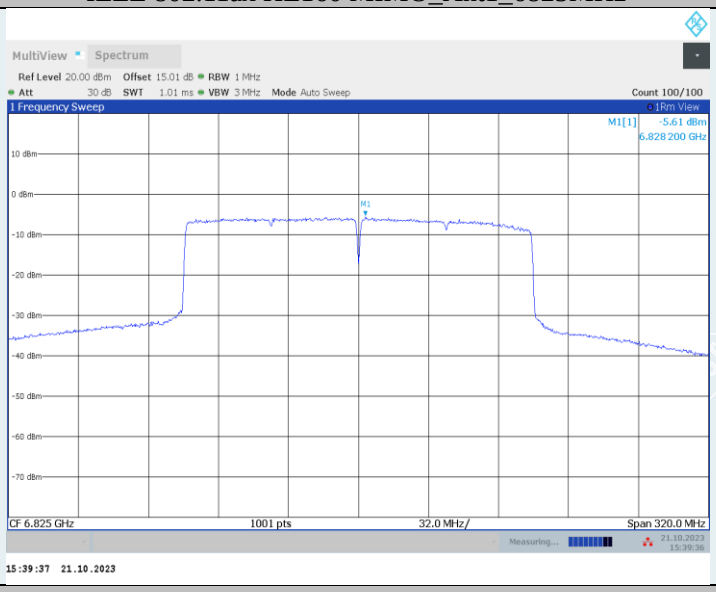
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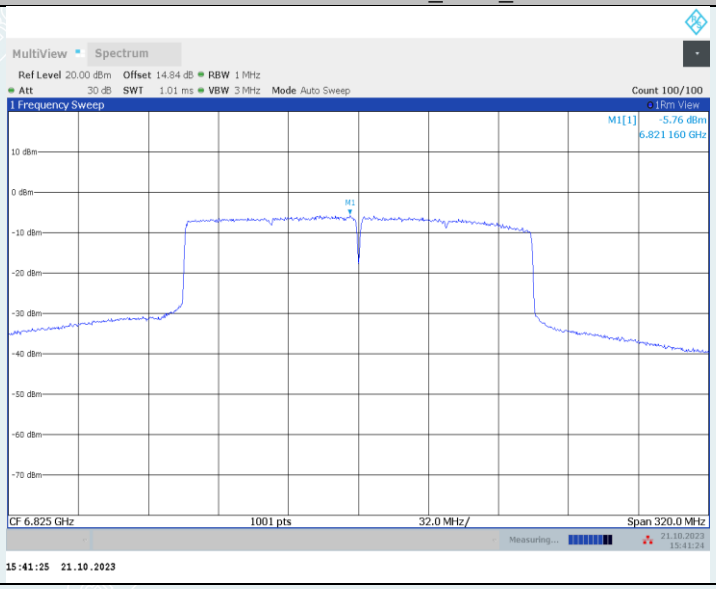

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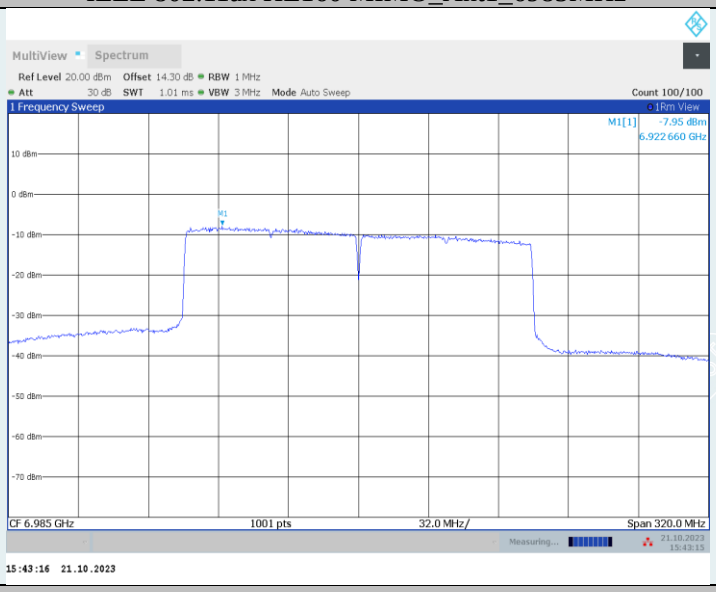
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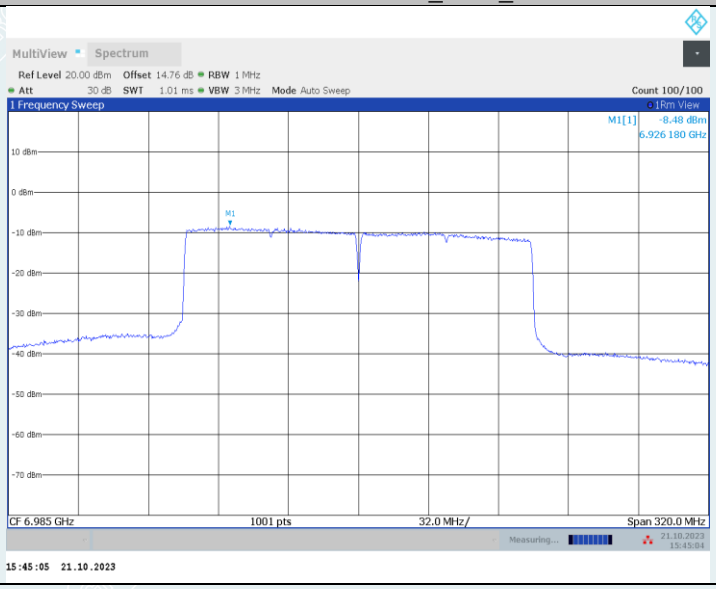


11. IN-BAND EMISSIONS

11.1. LIMITS

FCC 15.407(b) For transmitters operating within the 5.925–7.125 GHz bands: Power spectral density must be suppressed by20 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.

11.2. TEST PROCEDURES

a) Set the span to encompass the entire 26 dB EBW of the signal.

b) Set RBW = same RBW used for 26 dB EBW measurement.

c) Set VBW ≥ 3 X RBW

d) Number of points in sweep ≥ [2 X span / RBW].

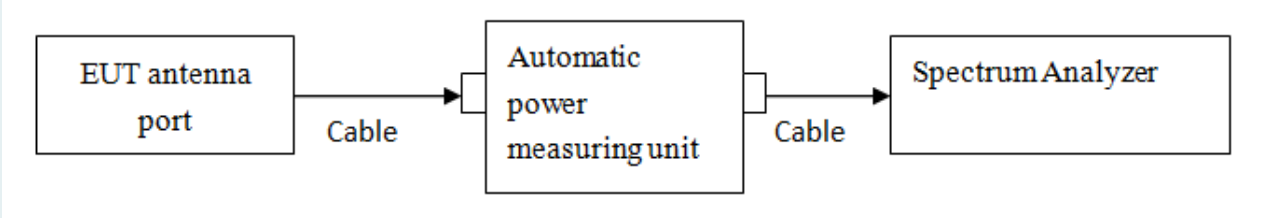
e) Sweep time = auto.

f) Detector = RMS (i.e., power averaging)

g) Trace average at least 100 traces in power averaging (rms) mode.

h) Use the peak search function on the instrument to find the peak of the spectrum.

11.3. TEST SETUP



11.4. TEST RESULTS

Tested By	Qing Tingting	**Tested Date**	2023-11-06
Environmental Conditions	25.0℃/69%RH/101.0kPa	**Test Voltage**	DC 12V

TestMode	Antenna	Frequency [MHz]	Result	Limit	Verdict
IEEE 802.11ax HE160	Ant1	6025	See test graph	See test graph	PASS
	Ant2	6025	See test graph	See test graph	PASS
	Ant1	6185	See test graph	See test graph	PASS
	Ant2	6185	See test graph	See test graph	PASS
	Ant1	6345	See test graph	See test graph	PASS
	Ant2	6345	See test graph	See test graph	PASS
	Ant1	6505	See test graph	See test graph	PASS
	Ant2	6505	See test graph	See test graph	PASS
	Ant1	6665	See test graph	See test graph	PASS
	Ant2	6665	See test graph	See test graph	PASS
	Ant1	6825	See test graph	See test graph	PASS
	Ant2	6825	See test graph	See test graph	PASS
	Ant1	6985	See test graph	See test graph	PASS
	Ant2	6985	See test graph	See test graph	PASS

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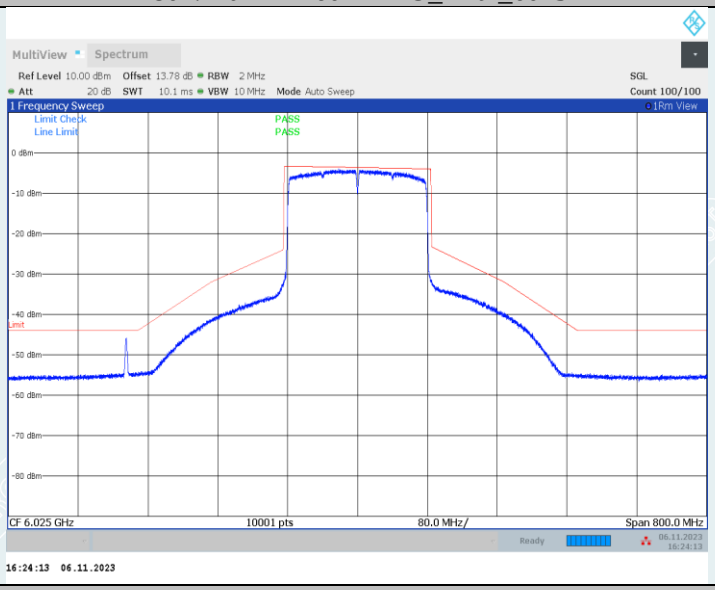
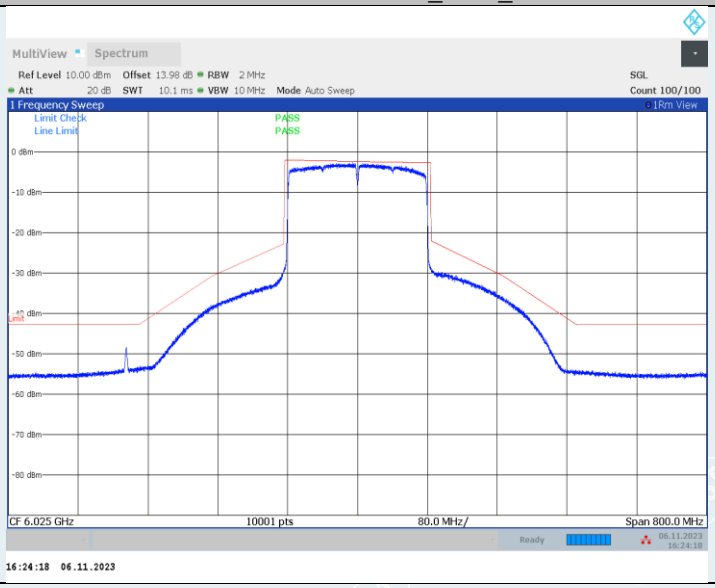
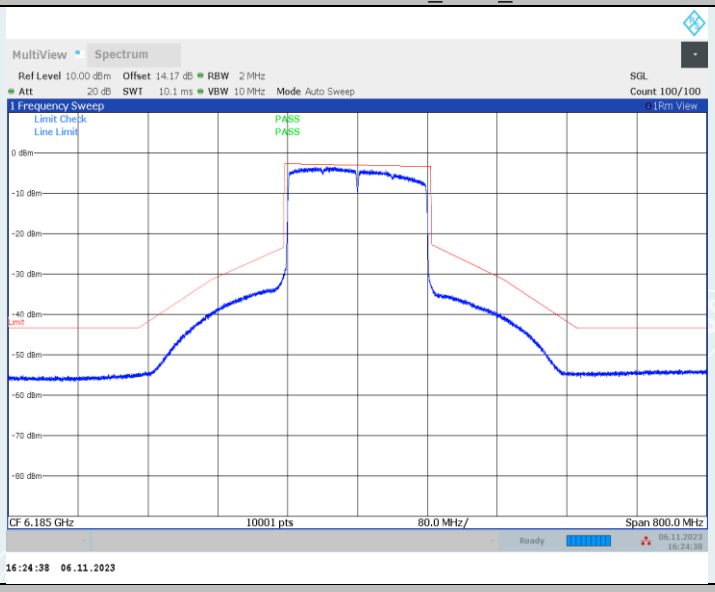
Test Graphs

IEEE 802.11ax HE160 MIMO_Ant1_6025MHz

IEEE 802.11ax HE160 MIMO_Ant2_6025MHz


IEEE 802.11ax HE160 MIMO_Ant1_6185MHz

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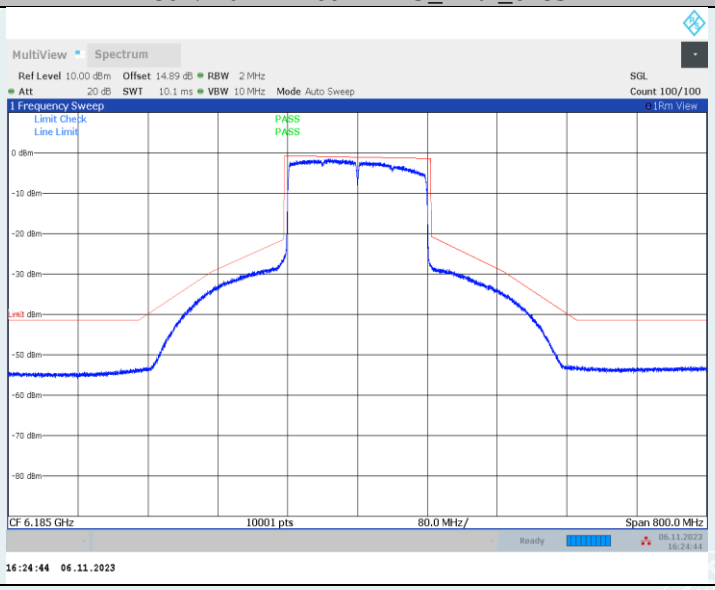
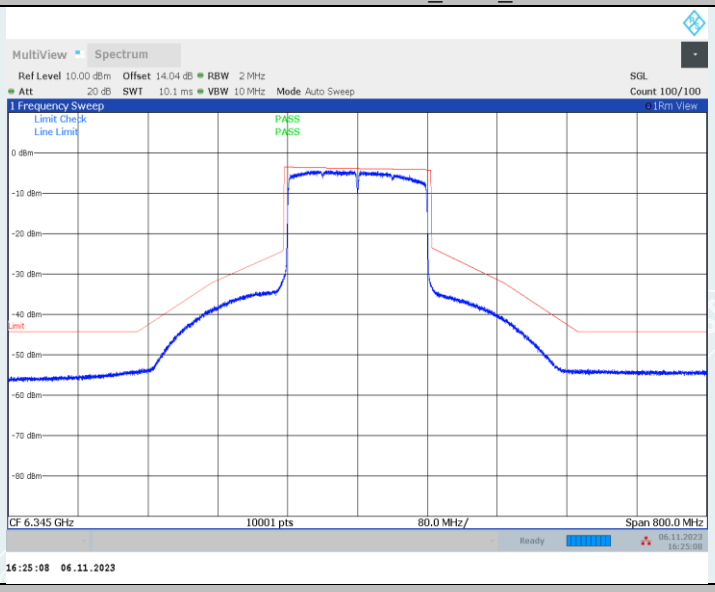


IEEE 802.11ax HE160 MIMO_Ant1_6345MHz

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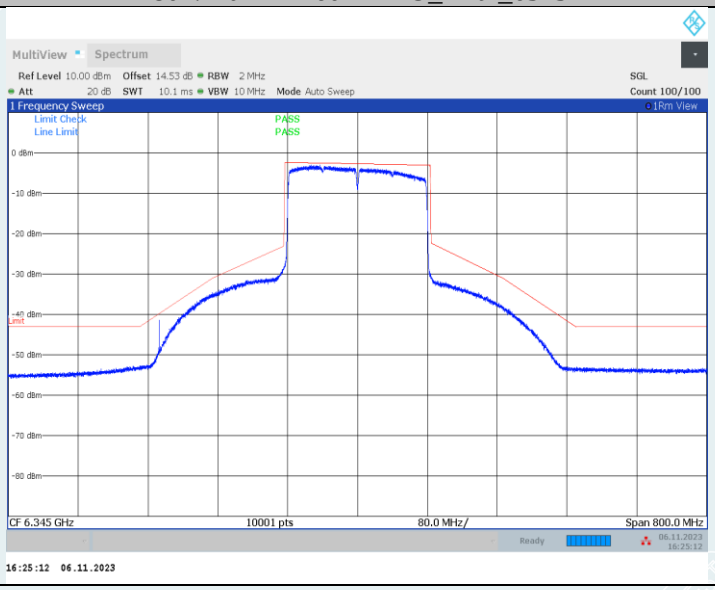

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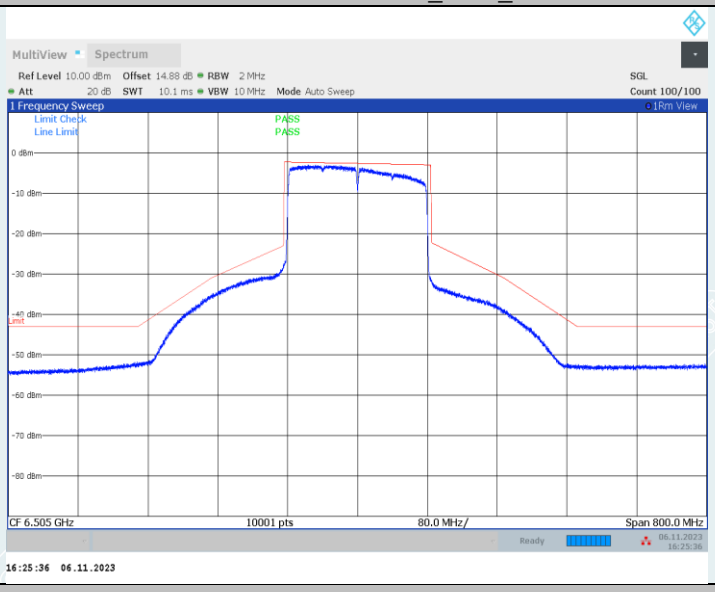
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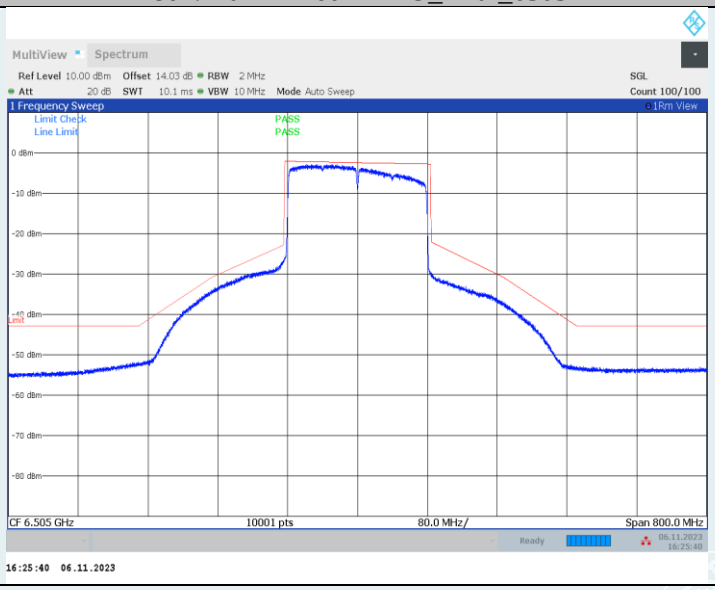

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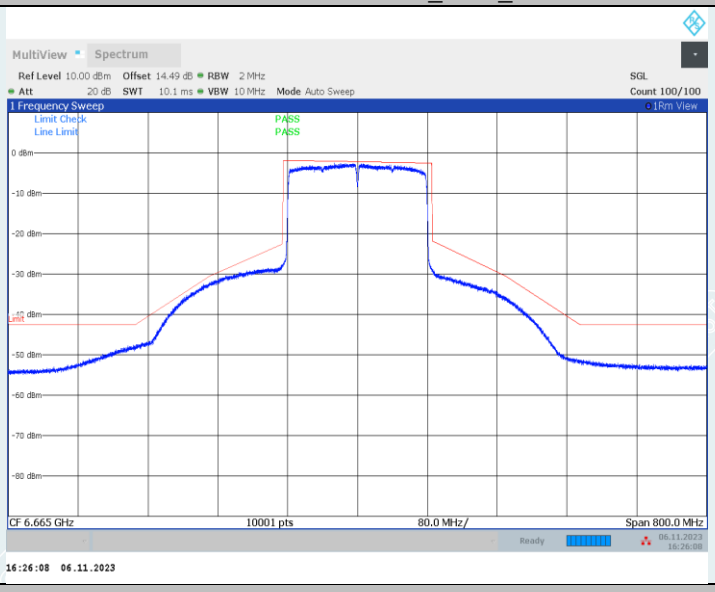
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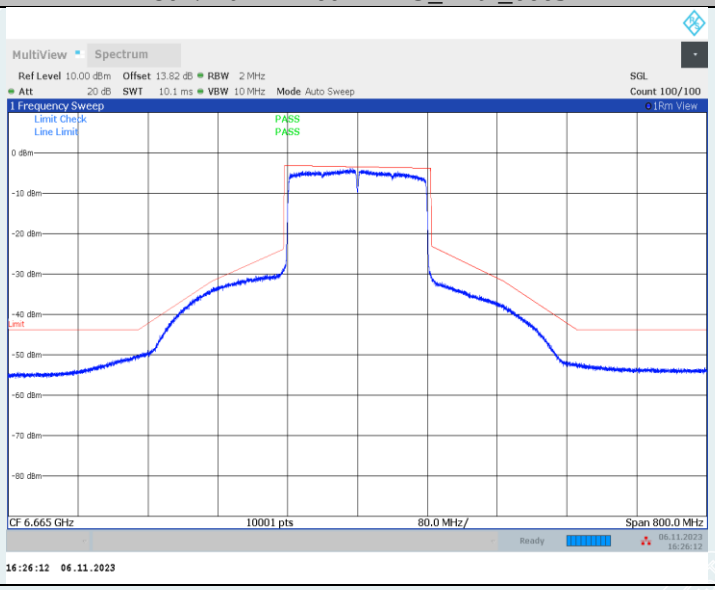

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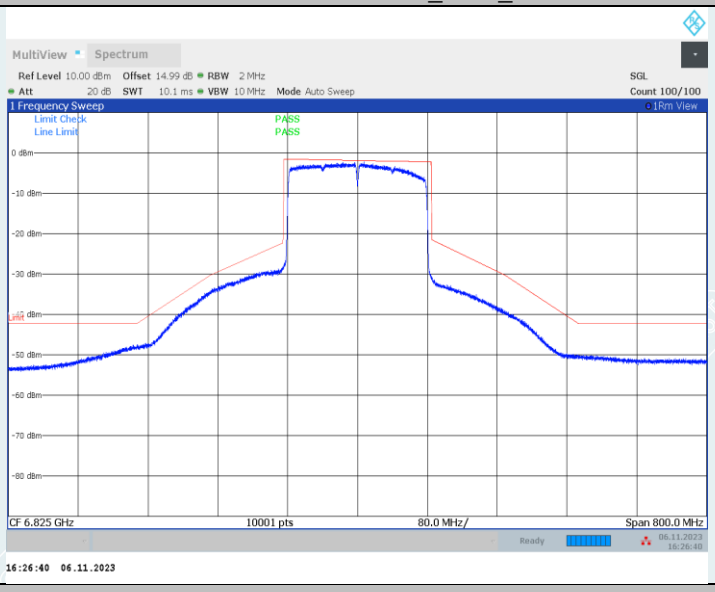
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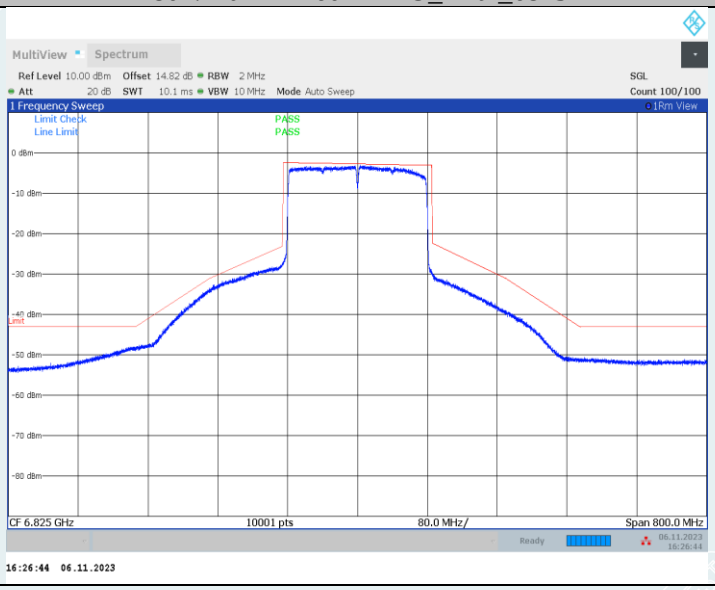

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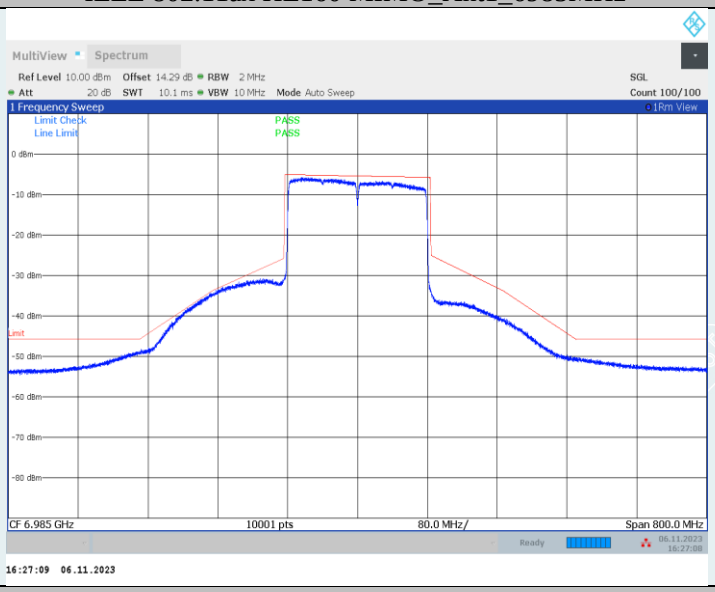
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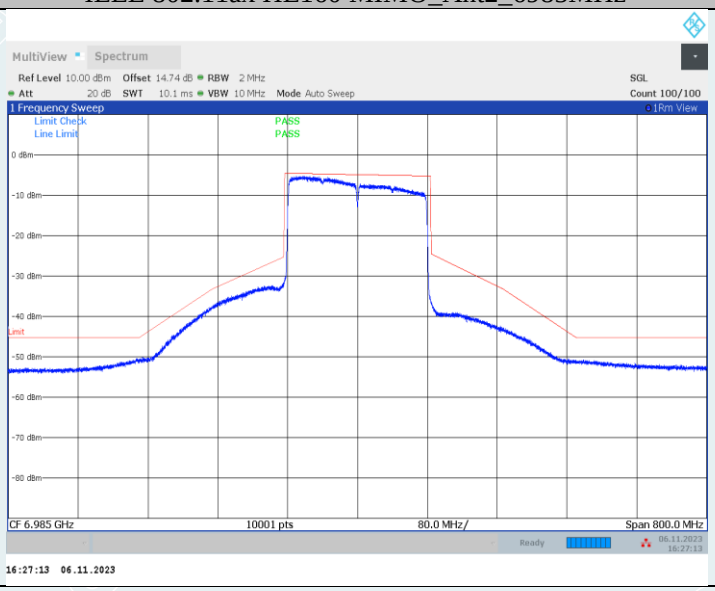


12. CONTENTION-BASED PROTOCOL

12.1. LIMITS

According to FCC 15.407(d), The minimum detection threshold power is the received power referenced to a 0 dBi antenna. Devices shall use a contention-based protocol to detect the presence of any emissions on the channel that the device intends to occupy. The device shall be able to detect, within its entire occupied bandwidth, a radio frequency power of at least -62 dBm or lower.

If an emission is detected on a channel, the device shall cease transmissions and shall not resume transmissions on this channel while the detected radio frequency power is at or above the -62 dBm threshold.

Detect co-channel energy with 90% or greater certainty.

12.2. TEST PROCEDURES

(1) Step-by-Step Procedure, Conducted Setup

i) Configure the EUT to transmit with a constant duty cycle.

j) Set the operating parameters of the EUT including power level, operating frequency, modulation and bandwidth.

k) 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.

l) Monitoring the signal analyzer 2, verify the EUT is operating and transmitting with the parameters set at step two.

m) 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.

n) 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 §10.3 TEST SETUP.

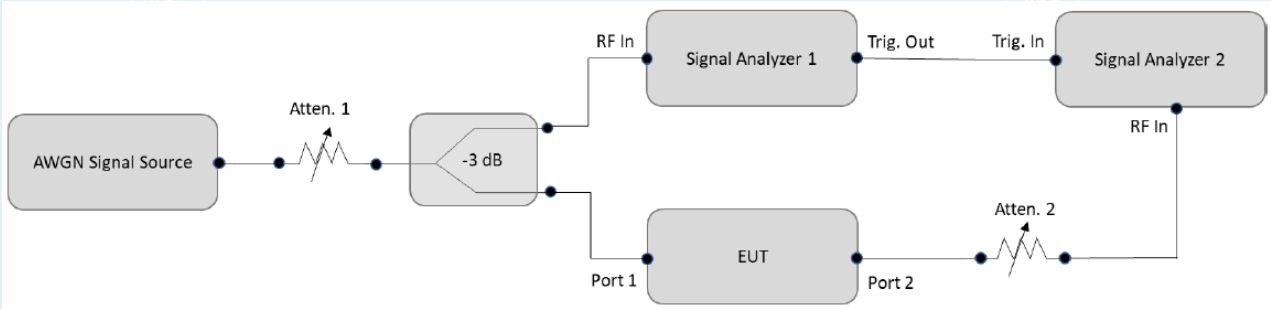
o) Transmit the AWGN signal (RF ON) and verify its characteristics on the signal analyzer 1.

p) 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.

q) (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.

r) 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.

12.3. TEST SETUP



12.4. TEST RESULTS

Tested By	Qing Tingting	Tested Date	2023-10-31 to 2023-11-01
Environmental Conditions	25.8℃/64%RH/101.0kPa	Test Voltage	DC 12V

Test Mode: Mode 2

Frequency [MHz]	Interference Frequency [MHz]		Detection Level [dBm]	Adjusted Power [dBm]	Detection Limit [dBm]	Margin [dB]	Verdict
6025	Low	5951.2138	-64.36	-67.86	-62	5.86	PASS
	Center	6025	-59.17	-62.67	-62	0.67	PASS
	High	6098.8715	-68.11	-71.61	-62	9.61	PASS
6505	Low	6429.9205	-59.96	-63.46	-62	1.46	PASS
	Center	6505	-62.55	-66.05	-62	4.05	PASS
	High	6578.2457	-63.93	-67.43	-62	5.43	PASS
6665	Low	6590.7605	-65.33	-68.83	-62	6.83	PASS
	Center	6665	-68.06	-71.56	-62	9.56	PASS
	High	6738.8167	-68.94	-72.44	-62	10.44	PASS
6985	Low	6909.6142	-64.97	-68.47	-62	6.47	PASS
	Center	6985	-63.23	-66.73	-62	4.73	PASS
	High	7058.4510	-69.19	-72.69	-62	10.69	PASS

Note

1. Adjusted Power = Detection (Injected AWGN) Level - maximum antenna gain(3.5dBi).
2. The antenna gain has included the path loss between RF connector and antenna.
3. Margin = Detection Limit -Adjusted Power.
4. Low Interference Frequency= Center Frequency-(99%OCW /2)+5MHz;
   High Interference Frequency= Center Frequency+(99%OCW /2)-5MHz.