Test Report

Verified code: 477378

Report No.: E20231019753001-4-G1

Customer:	Nofio Pty Ltd
Address:	55 Barry Parade Fortitude Valley QLD 4006 AUSTRALIA
Sample Name:	Nofio wireless adapter
Sample Model:	P008H
Receive Sample Date:	Oct.19,2023
Test Date:	Oct.21,2023 ~ Nov.16,2023
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: 2024-04-11

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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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REPORT ISSUED HISTORY

Report Version	Report No.	Description	Compile Date
1.0	E20231019753001-4	Original Issue	2023-11-16
2.0	E20231019753001-4-G1	Revised Issue	2024-04-11

Version 2.0:

1. This report is based on E20231019753001-4, adding standard KDB987594 D04 UN6GHZ Pre-Approval Guidance Checklist v02 to page 6 of the report. This has no effect on the test results.
2. This report replaced the original report E20231019753001-4, and from the date of issuance of this report, the report which being replaced become invalid.

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1. TEST RESULT SUMMARY

Standard	Item	Limit / Severity	Result
47 CFR Part 15 Subpart E (§15.407) & KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 & KDB 662911 D01 Multiple Transmitter Output v02r01 & KDB 987594 D02 U-NII 6 GHz EMC Measurement v02 & KDB 987594 D04 UN6GHZ Pre-Approval Guidance Checklist 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 Indoor Client (6XD).

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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:	P008H
Adding Model:	/
Model difference description:	/
Trade Name:	Nofio
FCC ID:	2BDFI-NWADP6E4
Power Supply:	DC12V-3A; DC15V-3A; DC20V-2.25A(According to the power input, the sample will automatically select the highest voltage)
P008H Portable charger Specification:	Model: zoo781-a300 Capacity:5000mAh Input(PD 2.0)：DC 5V-3A; DC 9V-3A; DC12V-2.5A; DC15V-2A; DC20V-1.5A (30W MAX) Output(QC 3.0)：DC 5V-3A; DC 9V-2A; DC12V-1.5A(18W MAX) Output(PD 2.0)：DC 5V-3A; DC 9V-3A; DC12V-3A; DC15V-3A; DC20V-2.25A (45W MAX)
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: 17.29dBm for IEEE 802.11ax HE160 U-NII-6: 17.00dBm for IEEE 802.11ax HE160 U-NII-7: 17.50dBm for IEEE 802.11ax HE160 U-NII-8: 15.47dBm for IEEE 802.11ax HE160
Equipment Classes:	6XD
Temperature Range:	10℃~+35℃
Hardware Version:	V2.0
Software Version:	0.00.1
Sample submitting way:	■Provided by customer □Sampling
Sample No:	E20231019753001-0002, E20231019753001-0003,E20231019753001-0005
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

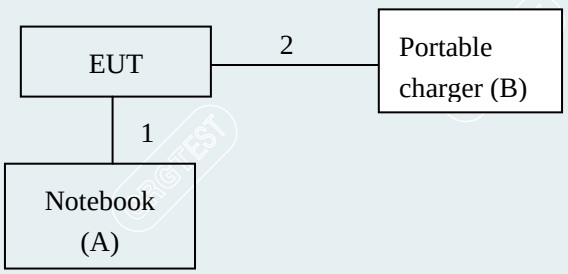
Mode	Band	Channel	Frequency (MHz)
IEEE 802.11ax HE160	U-NII-5	15	6025
		47	6185
		79	6345
	U-NII-6	111	6505
	U-NII-7	143	6665
		175	6825
	U-NII-8	207	6985

2.6. LOCAL SUPPORTIVEINSTRUMENTS

No.	Name of Equipment	Manufacturer	Model	Serial Number	Note
A	Notebook	DELL	Latitude3490	2095LR2	/
B	Portable charger	nofio	zoo781-a300	2332-0162	/
C	Adapter	BLACKTECH	10010308	/	/

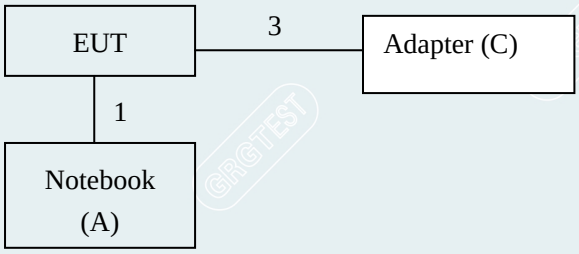
No.	Cable Type	Qty.	Shielded Type	Ferrite Core(Qty.)	Length
1	Type-C to USB cable	1	No	0	1.0m
2	Type-C to USB cable	1	No	0	1.0m
3	Type-C to Type-C cable	1	No	0	2.0m

2.7. CONFIGURATION OF SYSTEM UNDER TEST



For AC Power Line Conducted Emissions:

Power by an adapter



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Test software:

Software version	Mode	Channel	Frequency(MHz)	Test Level
putty	IEEE 802.11ax HE160	15	6025	6
		47	6185	6
		79	6345	6
		111	6505	6
		143	6665	6
		175	6825	6
		207	6985	6

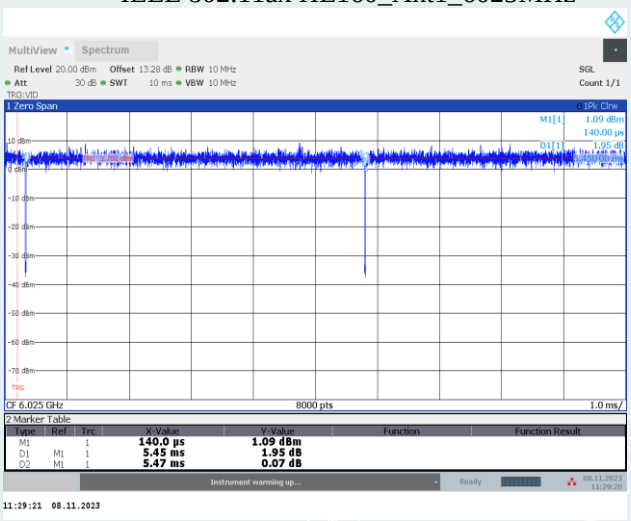
2.8. DUTY CYCLE

EUT Name	Nofio wireless adapter	**Model**	P008H
Environmental Conditions	25.8℃/65%RH/101.0kPa	**Test Voltage**	DC 20V
Tested By	Qin Tingting	**Tested Date**	2023-11-08

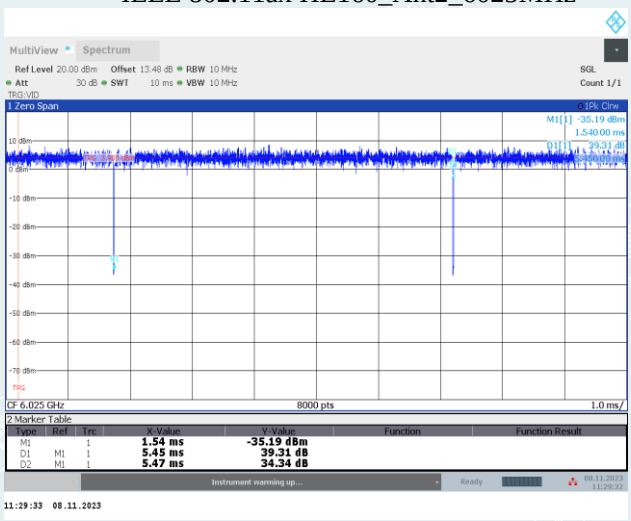
Duty Cycle Calculation

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	5.47	99.63	---	---
	Ant2	6025	5.45	5.47	99.63	---	---
	Ant1	6185	5.45	5.47	99.63	---	---
	Ant2	6185	5.45	5.46	99.82	---	---
	Ant1	6345	5.46	5.47	99.82	---	---
	Ant2	6345	5.45	5.47	99.63	---	---
	Ant1	6505	5.45	5.46	99.82	---	---
	Ant2	6505	5.45	5.47	99.63	---	---
	Ant1	6665	5.45	5.47	99.63	---	---
	Ant2	6665	5.45	5.46	99.82	---	---
	Ant1	6825	5.46	5.47	99.82	---	---
	Ant2	6825	5.45	5.47	99.63	---	---
	Ant1	6985	5.45	5.46	99.82	---	---
	Ant2	6985	5.45	5.46	99.82	---	---

IEEE 802.11ax HE160_Ant1_6025MHz



IEEE 802.11ax HE160_Ant2_6025MHz



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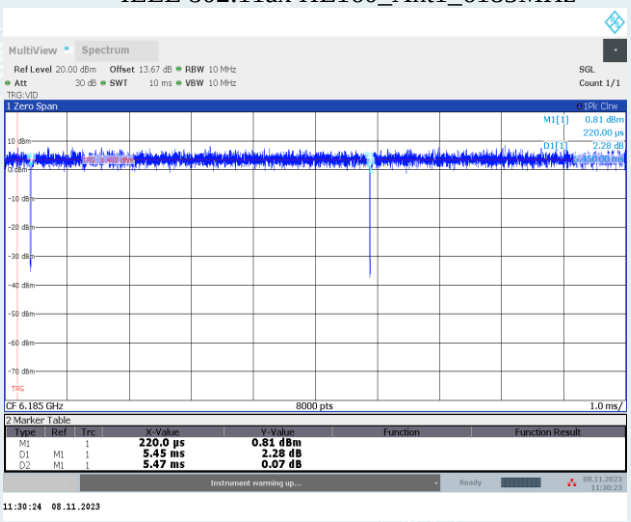
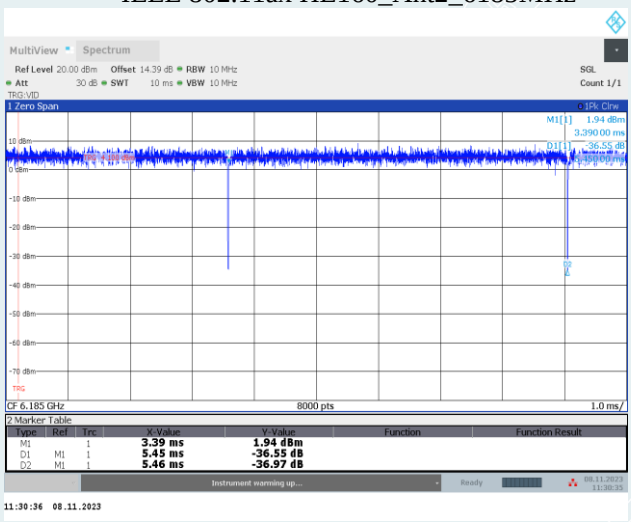


IEEE 802.11ax HE160_Ant2_6185MHz



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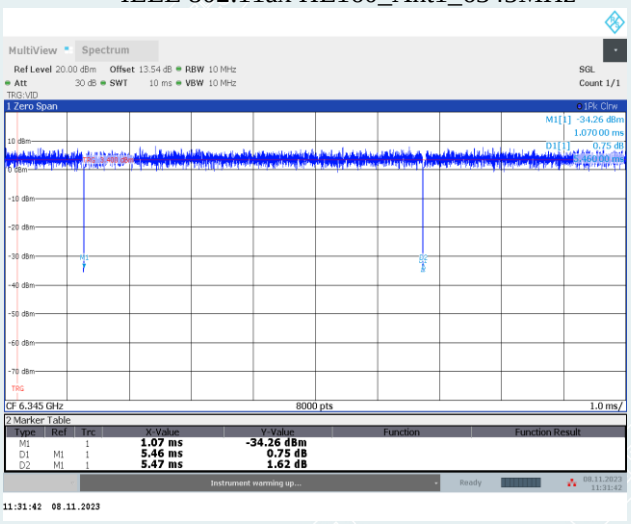
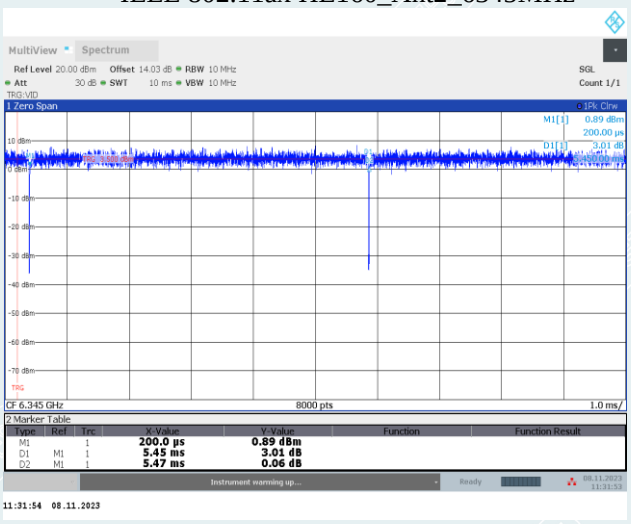
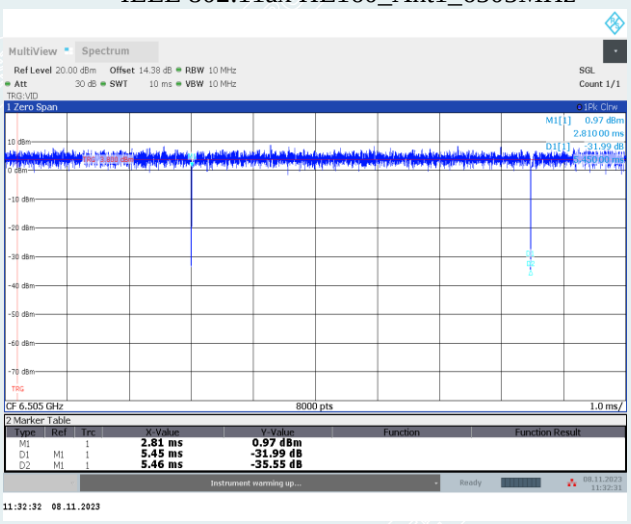
IEEE 802.11ax HE160_Ant1_6345MHz



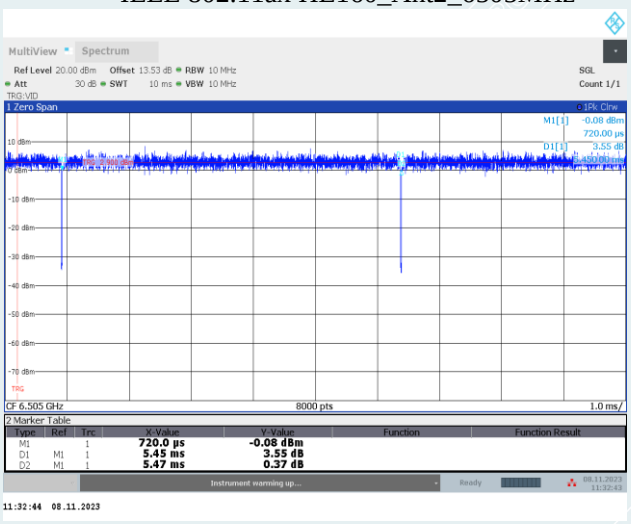
IEEE 802.11ax HE160_Ant2_6345MHz



IEEE 802.11ax HE160_Ant1_6505MHz



IEEE 802.11ax HE160_Ant2_6505MHz



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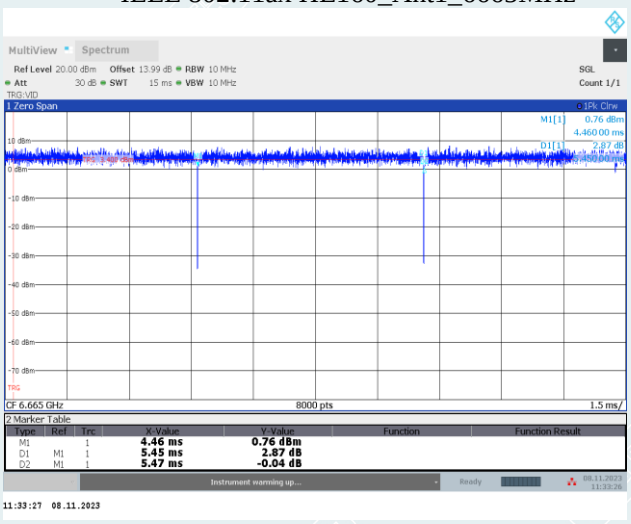
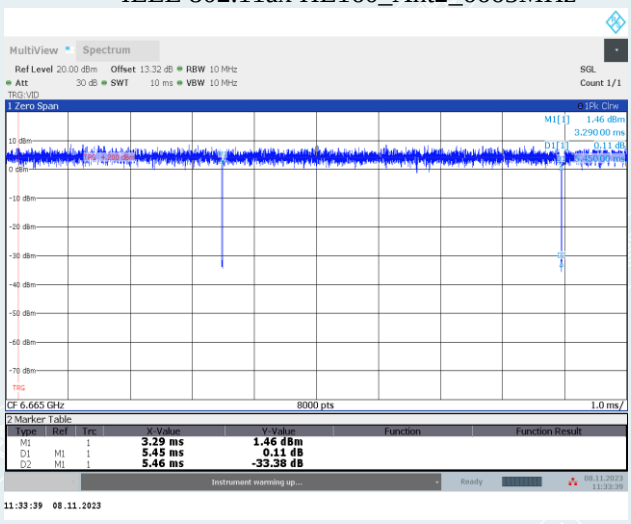
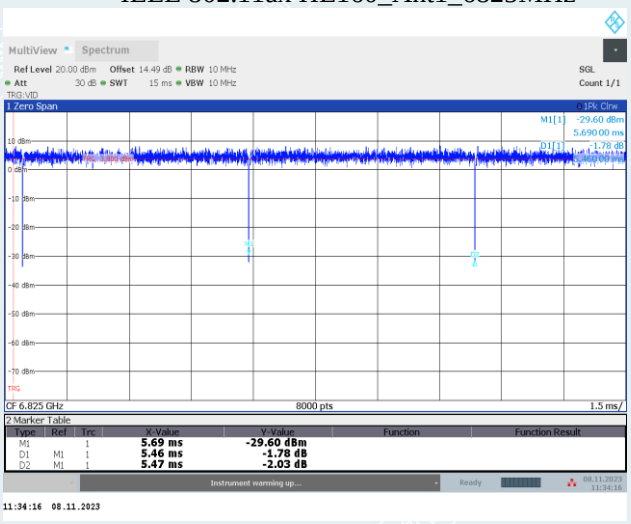
IEEE 802.11ax HE160_Ant1_6665MHz



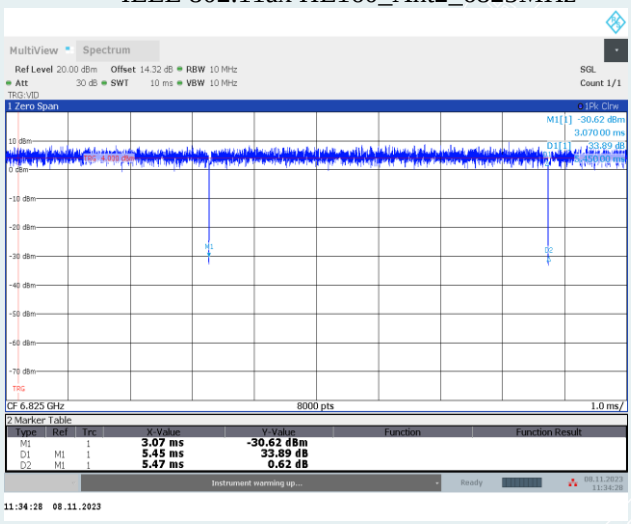
IEEE 802.11ax HE160_Ant2_6665MHz



IEEE 802.11ax HE160_Ant1_6825MHz



IEEE 802.11ax HE160_Ant2_6825MHz



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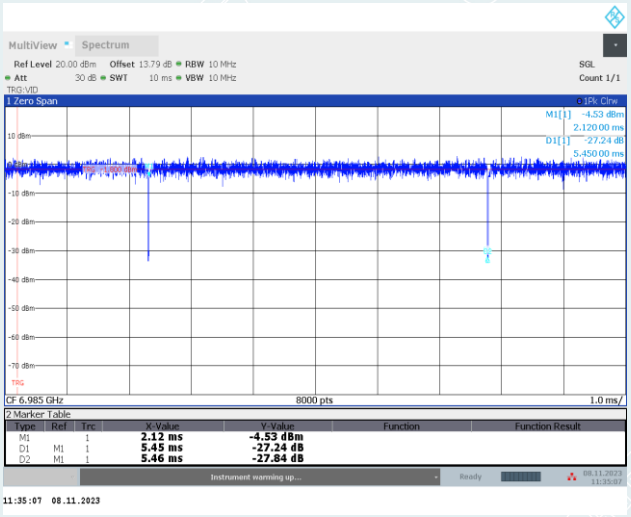
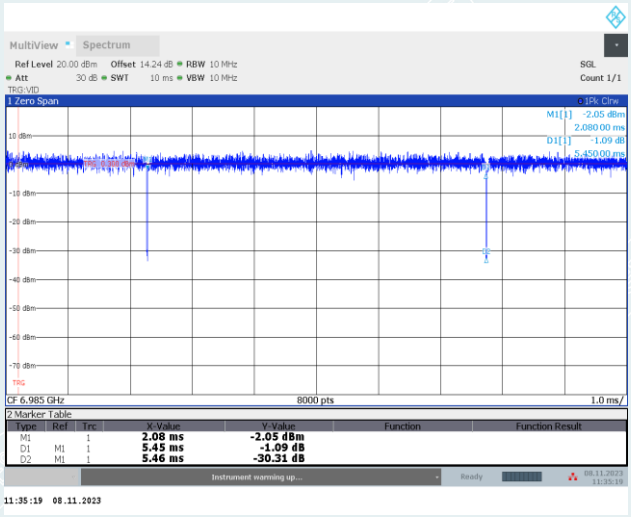
IEEE 802.11ax HE160_Ant1_6985MHz



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

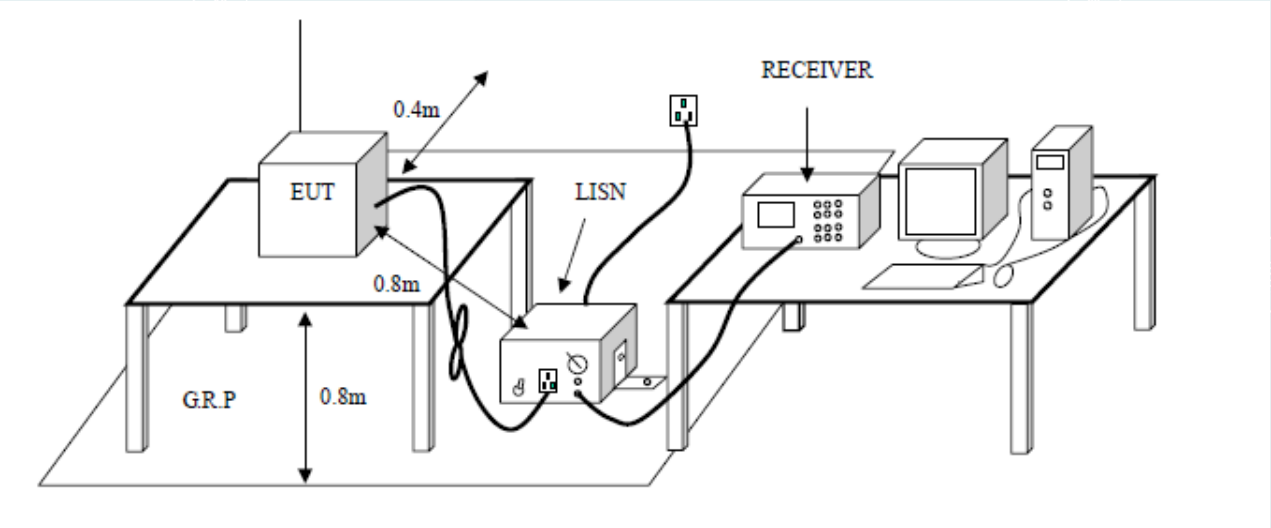
NOTE: (1) The lower limit shall apply at the transition frequencies.
(2) The limit decreases in line with the logarithm of the frequency in the range of 150 kHz to 0.5MHz.

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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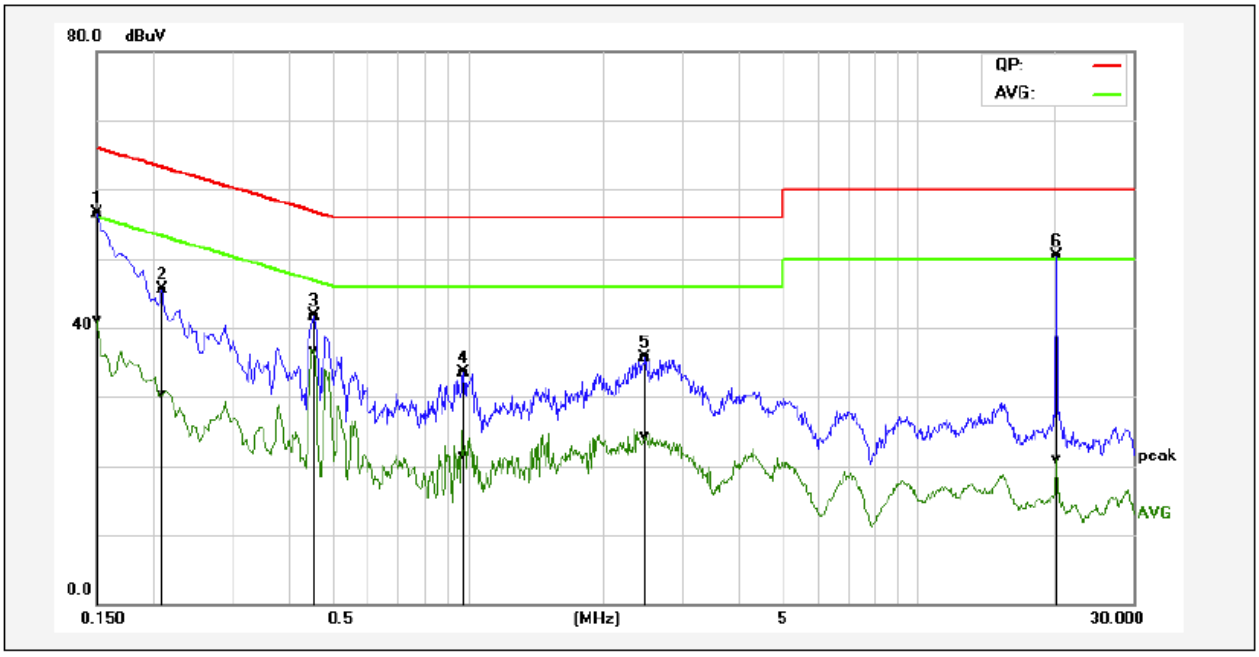
5.5. TEST RESULTS

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	P008H
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.	E20231019753001-0003

IEEE 802.11ax HE160:6025MHz

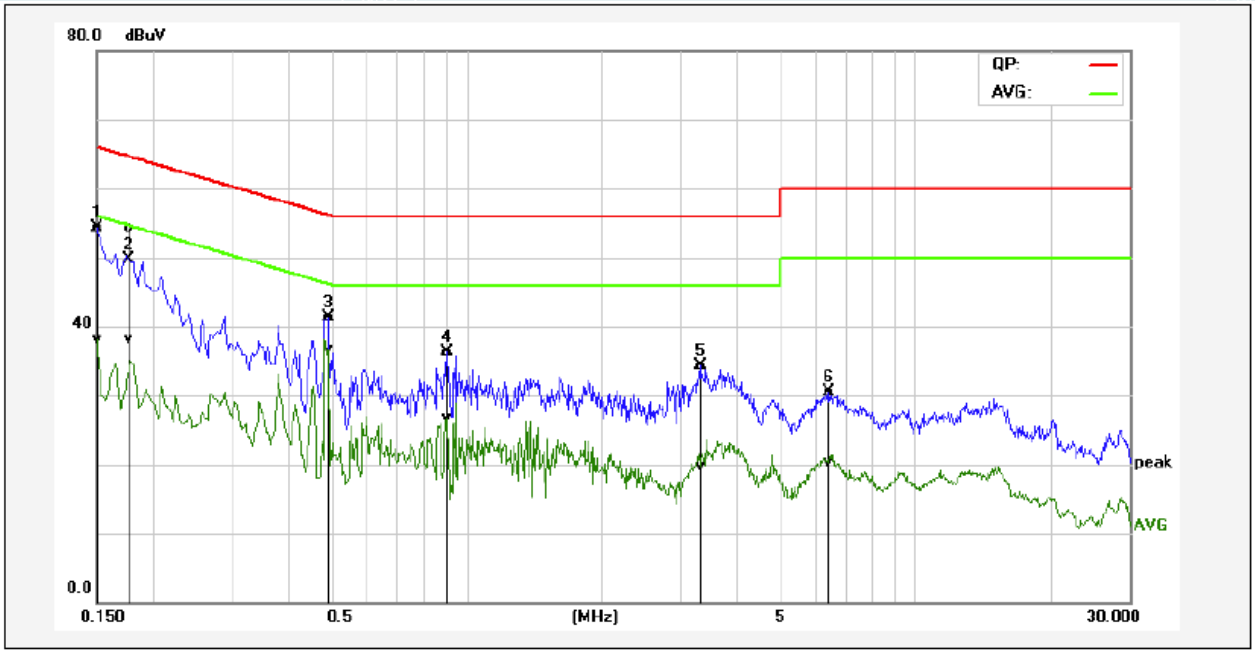


No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1*	0.1500	46.89	31.53	9.66	56.55	41.19	65.99	56.00	-9.44	-14.81	Pass
2	0.2100	35.76	20.60	9.66	45.42	30.26	63.20	53.21	-17.78	-22.95	Pass
3	0.4580	32.06	27.01	9.69	41.75	36.70	56.73	46.73	-14.98	-10.03	Pass
4	0.9820	23.73	11.74	9.70	33.43	21.44	56.00	46.00	-22.57	-24.56	Pass
5	2.4860	25.96	14.60	9.72	35.68	24.32	56.00	46.00	-20.32	-21.68	Pass
6	20.3340	40.35	10.84	9.98	50.33	20.82	60.00	50.00	-9.67	-29.18	Pass

Note: *L = Live Line*

EUT Name	Nofio wireless adapter	Model	P008H
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.	E20231019753001-0003

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	44.56	28.38	9.65	54.21	38.03	65.99	56.00	-11.78	-17.97	Pass
2	0.1787	44.56	28.38	9.65	54.21	38.03	64.54	54.55	-10.33	-16.52	Pass
3*	0.4940	31.59	26.95	9.68	41.27	36.63	56.10	46.10	-14.83	-9.47	Pass
4	0.9060	26.59	17.05	9.70	36.29	26.75	56.00	46.00	-19.71	-19.25	Pass
5	3.3180	24.53	10.02	9.73	34.26	19.75	56.00	46.00	-21.74	-26.25	Pass
6	6.4300	20.80	10.57	9.78	30.58	20.35	60.00	50.00	-29.42	-29.65	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.

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

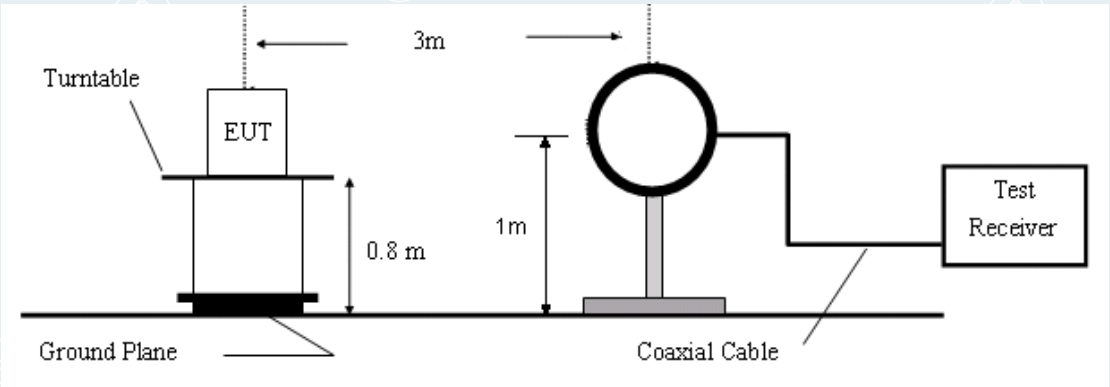


Figure 1. 9kHz to 30MHz radiated emissions test configuration

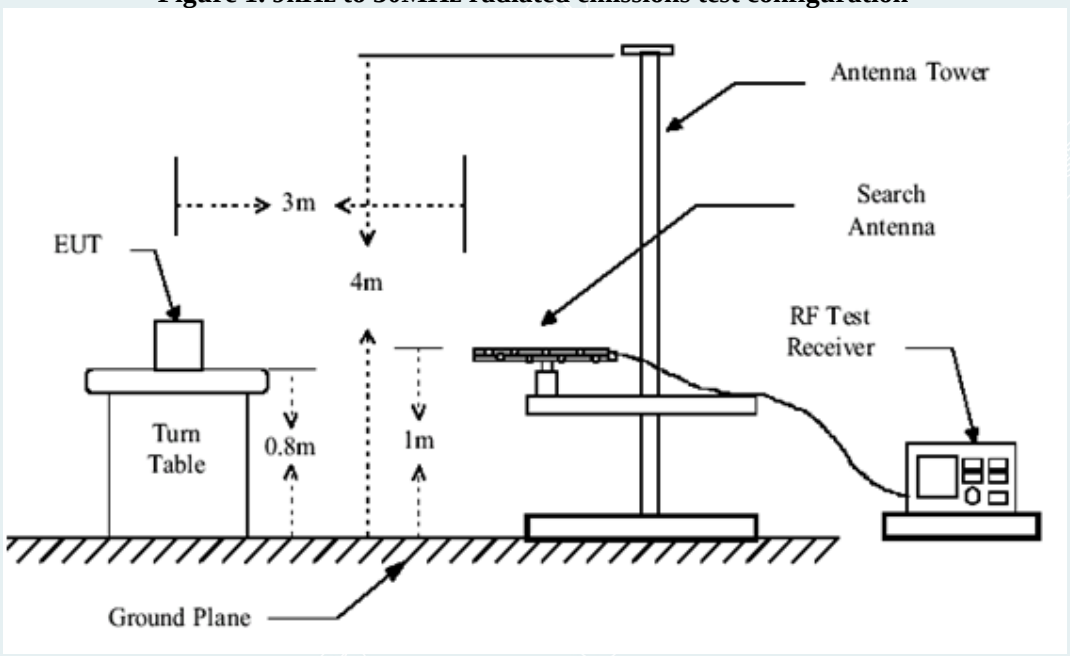


Figure 2. 30MHz to 1GHz radiated emissions test configuration

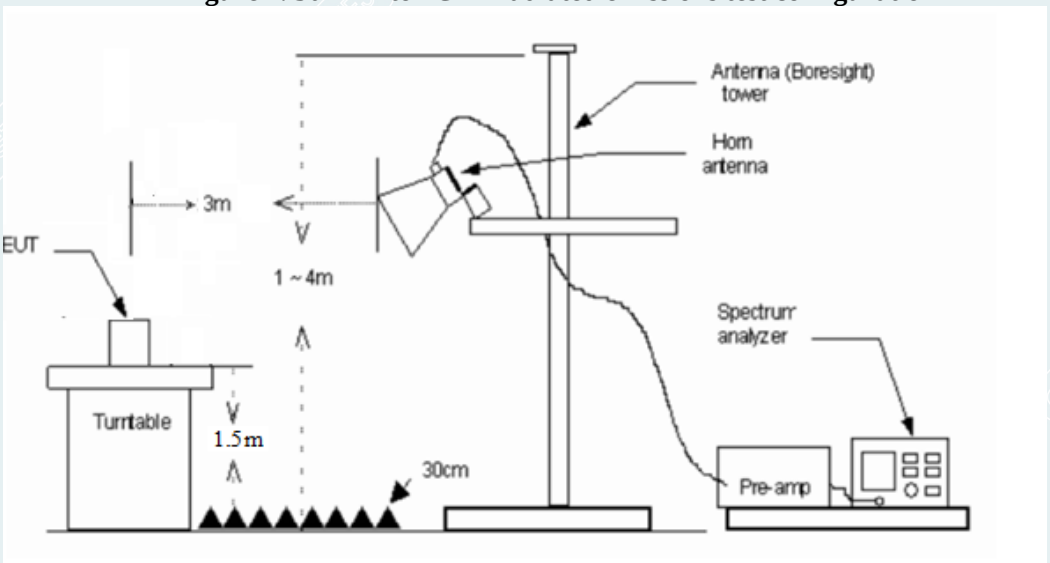


Figure 3. 1GHz-18GHz radiated emissions test configuration

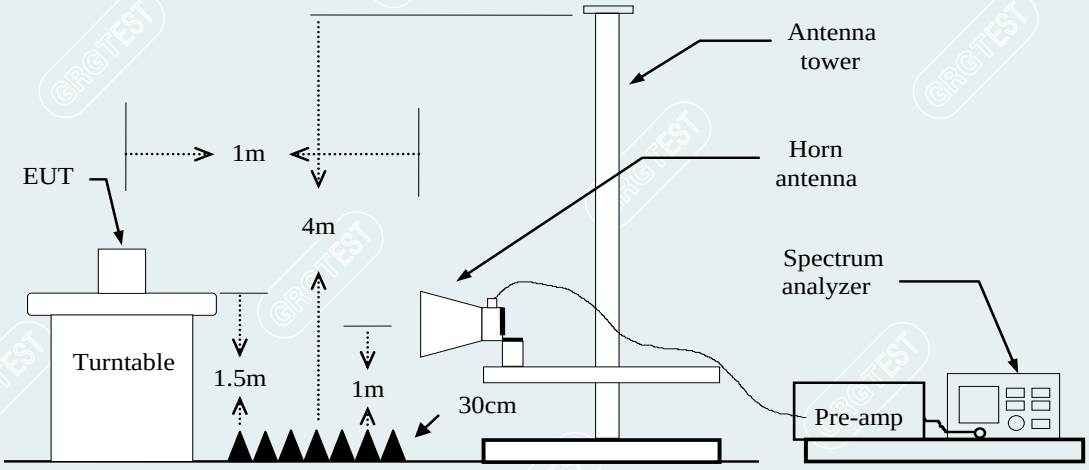


Figure 4. Above 18GHz radiated emissions test configuration

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

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

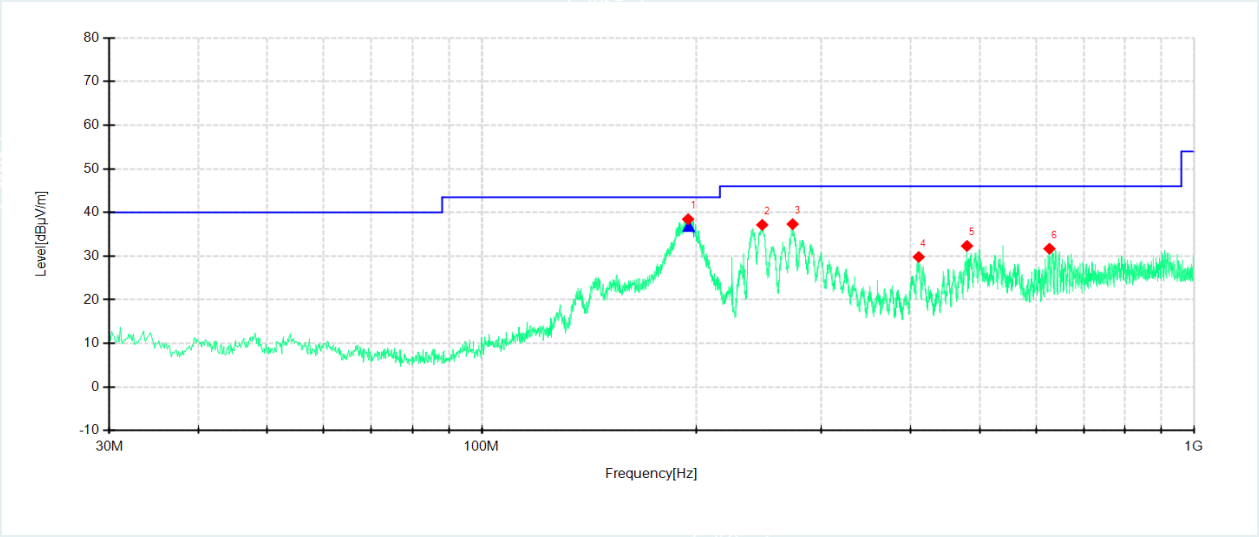
---------- **The following blanks** ----------

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**	P008H
Environmental Conditions	25.0℃/54%RH	**Test Voltage**	DC 20V
Test Mode	Mode 1	**Polarity**	Horizontal
Tested By	Zhang Zishan	**Tested Date**	2023-10-27
Note	/		



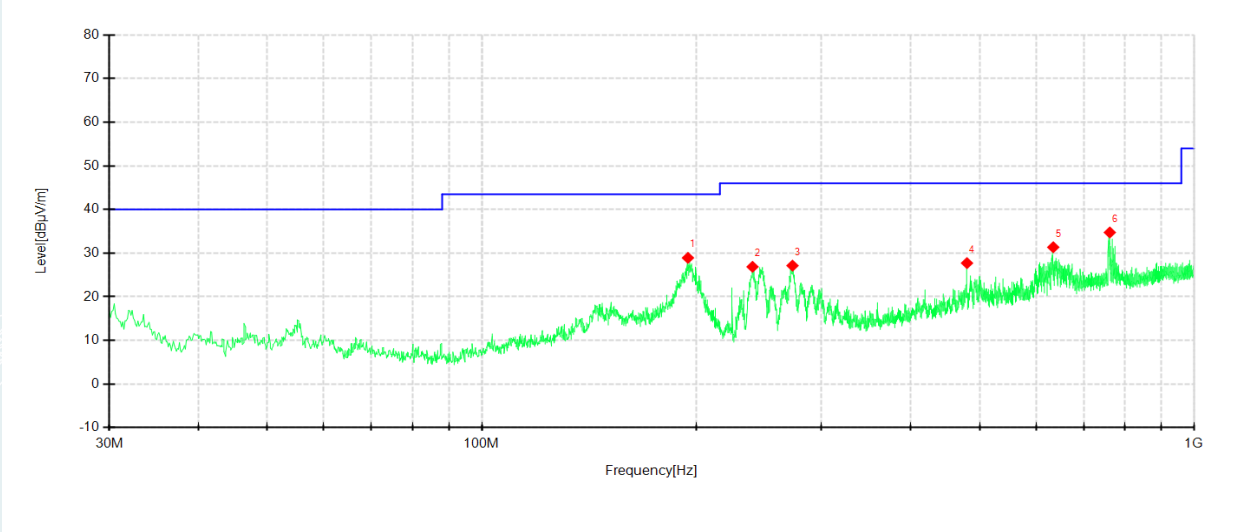
Suspected Data List

NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	194.9206	69.46	38.46	-31.00	43.50	4.00	200	186	Horizontal
2	247.6710	66.56	37.17	-29.39	46.00	8.83	100	20	Horizontal
3	273.2579	65.87	37.35	-28.52	46.00	8.65	100	216	Horizontal
4	410.7726	53.74	29.81	-23.93	46.00	16.19	100	358	Horizontal
5	480.1363	54.27	32.34	-21.93	46.00	13.66	200	340	Horizontal
6	626.7458	50.51	31.70	-18.81	46.00	14.30	100	162	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	195.2591	-31.00	67.88	36.88	43.50	6.62	188	21.4	Horizontal

EUT Name	Nofio wireless adapter	Model	P008H
Environmental Conditions	25.0℃/54%RH	Test Voltage	DC 20V
Test Mode	Mode 1	Polarity	Vertical
Tested By	Zhang Zishan	Tested Date	2023-10-27
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	194.7994	59.91	28.92	-30.99	43.50	14.58	100	128	Vertical
2	240.0313	56.52	26.87	-29.65	46.00	19.13	200	258	Vertical
3	273.1366	55.66	27.14	-28.52	46.00	18.86	200	91	Vertical
4	480.1363	49.65	27.72	-21.93	46.00	18.28	200	245	Vertical
5	634.5068	50.09	31.35	-18.74	46.00	14.65	100	85	Vertical
6	761.8352	51.45	34.74	-16.71	46.00	11.26	100	228	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 Frequency:6025MHz
Environment: 26.0℃/60%RH/101.0kPa Power supply: DC 20V
Test Engineer: Zhang Zishan Test Date:2023-10-26

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1199.6500	60.87	39.96	-20.91	74.00	34.04	200	13	Horizontal
2	2443.7500	61.61	44.17	-17.44	88.30	44.13	100	230	Horizontal
3	5725.6000	54.69	49.47	-5.22	88.30	38.83	200	97	Horizontal
4	8032.9500	46.61	47.66	1.05	74.00	26.34	200	350	Horizontal
5	15655.1500	37.61	45.30	7.69	74.00	28.70	100	223	Horizontal
6	17872.3500	37.66	44.25	6.59	74.00	29.75	200	254	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	1206.8000	59.84	39.17	-20.67	74.00	34.83	200	5	Vertical
2	2434.9500	55.60	38.77	-16.83	88.30	49.53	200	194	Vertical
3	3406.8000	56.60	42.74	-13.86	88.30	45.56	100	98	Vertical
4	5742.6500	54.50	49.04	-5.46	88.30	39.26	100	69	Vertical
5	8032.9500	48.48	49.70	1.22	74.00	24.30	200	22	Vertical
6	17926.4000	37.73	46.26	8.53	74.00	27.74	200	22	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	8033.4736	1.22	46.69	47.91	54.00	6.09	200	33	Vertical

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

Mode: Mode 1/ IEEE 802.11ax HE160
Environment: 26.0℃/60%RH/101.0kPa
Test Engineer: Zhang Zishan

Frequency:6185MHz
Power supply: DC 20V
Test Date:2023-10-26

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1623.9000	58.84	38.09	-20.75	74.00	35.91	100	96	Horizontal
2	1997.9000	57.65	38.53	-19.12	88.30	49.77	100	83	Horizontal
3	2824.1000	56.55	40.39	-16.16	74.00	33.61	100	164	Horizontal
4	3998.8000	54.29	40.70	-13.59	74.00	33.30	100	137	Horizontal
5	8247.1000	44.56	42.05	-2.51	74.00	31.95	200	222	Horizontal
6	16760.7000	38.50	49.14	10.64	88.30	39.16	100	339	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	1246.5000	58.10	38.66	-19.44	88.30	49.64	100	114	Vertical
2	1724.2000	60.20	39.04	-21.16	88.30	49.26	200	149	Vertical
3	2657.5000	59.02	41.35	-17.67	88.30	46.95	100	34	Vertical
4	3995.4000	55.14	41.15	-13.99	74.00	32.85	200	260	Vertical
5	8247.1000	45.98	43.76	-2.22	74.00	30.24	200	233	Vertical
6	16556.7000	37.28	47.85	10.57	88.30	40.45	200	177	Vertical

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

Mode: Mode 1/ IEEE 802.11ax HE160
Environment: 26.0℃/60%RH/101.0kPa
Test Engineer: Zhang Zishan

Frequency:6345MHz
Power supply: DC 20V
Test Date:2023-10-26

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	56.64	36.01	-20.63	74.00	37.99	100	205	Horizontal
2	2414.4000	55.82	37.73	-18.09	88.30	50.57	200	346	Horizontal
3	2827.5000	55.58	39.39	-16.19	74.00	34.61	100	96	Horizontal
4	6485.9000	51.37	44.51	-6.86	88.30	43.79	200	129	Horizontal
5	8459.6000	47.43	45.28	-2.15	74.00	28.72	200	250	Horizontal
6	16728.4000	39.65	49.85	10.20	88.30	38.45	100	111	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	1159.8000	62.20	40.65	-21.55	74.00	33.35	200	54	Vertical
2	2657.5000	57.55	39.88	-17.67	88.30	48.42	200	218	Vertical
3	3981.8000	52.89	39.26	-13.63	74.00	34.74	200	300	Vertical
4	6487.6000	54.79	48.00	-6.79	88.30	40.30	100	266	Vertical
5	8459.6000	50.46	48.35	-2.11	74.00	25.65	200	244	Vertical
6	16765.8000	38.23	47.83	9.60	88.30	40.47	100	225	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	8459.9670	-2.11	49.19	47.08	54.00	6.92	200	246.3	Vertical

Mode: Mode 1/ IEEE 802.11ax HE160
Environment: 26.0℃/60%RH/101.0kPa
Test Engineer: Zhang Zishan

Frequency:6505MHz
Power supply: DC 20V
Test Date:2023-10-26

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	57.71	36.70	-21.01	74.00	37.30	100	218	Horizontal
2	1736.1000	59.70	39.16	-20.54	88.30	49.14	100	12	Horizontal
3	2414.4000	58.40	40.31	-18.09	88.30	47.99	200	334	Horizontal
4	8673.8000	48.37	47.03	-1.34	88.30	41.27	200	268	Horizontal
5	12624.6000	37.27	46.83	9.56	74.00	27.17	100	69	Horizontal
6	16767.5000	38.80	49.44	10.64	88.30	38.86	200	167	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	64.54	43.43	-21.11	74.00	30.57	100	34	Vertical
2	1997.9000	58.90	38.51	-20.39	88.30	49.79	200	314	Vertical
3	2660.9000	62.28	44.66	-17.62	88.30	43.64	200	205	Vertical
4	4792.7000	51.54	41.15	-10.39	74.00	32.85	100	34	Vertical
5	5760.0000	51.51	43.27	-8.24	88.30	45.03	100	90	Vertical
6	8673.8000	49.27	47.92	-1.35	88.30	40.38	200	247	Vertical

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

Mode: Mode 1/ IEEE 802.11ax HE160
Environment: 26.0℃/60%RH/101.0kPa
Test Engineer: Zhang Zishan

Frequency:6665MHz
Power supply: DC 20V
Test Date:2023-10-26

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	56.70	35.69	-21.01	74.00	38.31	200	237	Horizontal
2	2081.2000	54.32	35.97	-18.35	88.30	52.33	200	22	Horizontal
3	3400.4000	53.63	38.63	-15.00	88.30	49.67	100	95	Horizontal
4	6446.8000	57.69	50.46	-7.23	88.30	37.84	200	250	Horizontal
5	8886.3000	47.46	46.41	-1.05	88.30	41.89	200	278	Horizontal
6	17100.7000	37.59	49.30	11.71	88.30	39.00	200	290	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	61.91	40.40	-21.51	74.00	33.60	200	93	Vertical
2	1659.6000	61.08	39.83	-21.25	88.30	48.47	200	231	Vertical
3	2659.2000	63.31	45.67	-17.64	88.30	42.63	200	175	Vertical
4	6448.5000	60.17	52.84	-7.33	88.30	35.46	100	103	Vertical
5	8886.3000	50.14	49.56	-0.58	88.30	38.74	200	259	Vertical
6	16570.3000	38.44	48.67	10.23	88.30	39.63	100	143	Vertical

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

Mode: Mode 1/ IEEE 802.11ax HE160
Environment: 26.0℃/60%RH/101.0kPa
Test Engineer: Zhang Zishan

Frequency:6825MHz
Power supply: DC 20V
Test Date:2023-10-26

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1992.8000	57.78	38.61	-19.17	88.30	49.69	200	304	Horizontal
2	3332.4000	54.08	38.55	-15.53	74.00	35.45	100	109	Horizontal
3	5760.0000	50.65	42.65	-8.00	88.30	45.65	100	138	Horizontal
4	6902.4000	64.89	59.43	-5.46	88.30	28.87	200	74	Horizontal
5	9100.5000	44.92	44.12	-0.80	74.00	29.88	200	251	Horizontal
6	16082.4000	40.58	49.59	9.01	74.00	24.41	200	194	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	16093.9240	9.01	29.08	38.09	54.00	15.91	139	44.2	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	1816.0000	58.75	38.25	-20.50	88.30	50.05	100	168	Vertical
2	1991.1000	59.92	39.60	-20.32	88.30	48.70	200	325	Vertical
3	2662.6000	62.72	45.14	-17.58	88.30	43.16	100	210	Vertical
4	3992.0000	56.05	42.14	-13.91	74.00	31.86	100	154	Vertical
5	6902.4000	66.27	60.69	-5.58	88.30	27.61	100	100	Vertical
6	9100.5000	46.51	45.91	-0.60	74.00	28.09	200	259	Vertical

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

Mode: Mode 1/ IEEE 802.11ax HE160

Frequency:6985MHz

Environment: 26.0℃/60%RH/101.0kPa

Power supply: DC 20V

Test Engineer: Zhang Zishan

Test Date:2023-10-26

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	59.20	38.19	-21.01	74.00	35.81	200	22	Horizontal
2	2657.5000	56.94	39.32	-17.62	88.30	48.98	100	72	Horizontal
3	5760.0000	51.60	43.60	-8.00	88.30	44.70	200	103	Horizontal
4	7203.3000	51.88	48.11	-3.77	88.30	40.19	200	52	Horizontal
5	9313.0000	45.77	45.75	-0.02	74.00	28.25	200	230	Horizontal
6	16752.2000	38.89	49.54	10.65	88.30	38.76	100	343	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	60.03	38.52	-21.51	74.00	35.48	200	21	Vertical
2	2662.6000	56.48	38.90	-17.58	88.30	49.40	200	237	Vertical
3	5760.0000	52.70	44.46	-8.24	88.30	43.84	100	81	Vertical
4	6730.7000	59.95	53.67	-6.28	88.30	34.63	100	108	Vertical
5	7199.9000	52.82	49.09	-3.73	88.30	39.21	100	108	Vertical
6	16726.7000	38.88	47.85	8.97	88.30	40.45	200	183	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.

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

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: 26.0℃/60%RH/101.0kPa Power supply: DC 20V
Test Engineer: Zhang Zishan Test Date:2023-10-26

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	19224.3000	51.17	39.43	29.89	-11.74	74.00	44.11	100	235	Horizontal
2	20719.2000	51.55	41.24	31.70	-10.31	74.00	42.30	100	9	Horizontal
3	23852.0000	49.2	40.49	30.95	-8.71	74.00	43.05	100	125	Horizontal
4	26805.5000	48.2	41.11	31.57	-7.09	88.30	56.73	100	332	Horizontal
5	32517.8000	52.62	42.75	33.21	-9.87	88.30	55.09	200	152	Horizontal
6	39688.7000	47.71	47.11	37.57	-0.60	74.00	36.43	100	170	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	18020.9000	52.52	39.87	30.33	-12.65	74.00	43.67	100	161	Vertical
2	20720.3000	51.52	41.19	31.65	-10.33	74.00	42.35	200	58	Vertical
3	24972.9000	48.49	40.97	31.43	-7.52	88.30	56.87	100	219	Vertical
4	26818.7000	49.32	41.95	32.41	-7.37	88.30	55.89	100	13	Vertical
5	34190.9000	53.2	43.13	33.59	-10.07	88.30	54.71	200	19	Vertical
6	38588.7000	49.35	46.96	37.42	-2.39	88.30	50.88	200	64	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: 26.0℃/60%RH/101.0kPa
Test Engineer: Zhang Zishan

Frequency:6185MHz
Power supply: DC 20V
Test Date:2023-10-26

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	19479.5000	51.12	39.58	30.04	-11.54	74.00	43.96	100	267	Horizontal
2	23027.0000	48.95	40.11	30.57	-8.84	74.00	43.43	100	234	Horizontal
3	25080.7000	48.82	41.34	31.80	-7.48	88.30	56.50	200	274	Horizontal
4	28423.6000	50.36	41.19	31.65	-9.17	88.30	56.65	200	150	Horizontal
5	31253.9000	51.91	42.36	32.82	-9.55	74.00	41.18	200	79	Horizontal
6	39653.5000	47.56	46.96	37.42	-0.60	74.00	36.58	200	215	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	18675.4000	52.39	40.19	30.65	-12.20	74.00	43.35	100	347	Vertical
2	22145.9000	49.82	40.1	30.56	-9.72	74.00	43.44	200	276	Vertical
3	26807.7000	49.15	41.82	32.28	-7.33	88.30	56.02	100	217	Vertical
4	32500.2000	53.17	43.22	33.68	-9.95	88.30	54.62	100	289	Vertical
5	33644.2000	53.74	43.57	34.03	-10.17	88.30	54.27	100	35	Vertical
6	39667.8000	47.64	47.17	37.63	-0.47	74.00	36.37	200	210	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: 26.0℃/60%RH/101.0kPa
Test Engineer: Zhang Zishan

Frequency:6345MHz
Power supply: DC 20V
Test Date:2023-10-26

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	19171.5000	52.14	40.33	30.79	-11.81	74.00	43.21	100	108	Horizontal
2	23832.2000	49.61	40.88	31.34	-8.73	74.00	42.66	100	24	Horizontal
3	26695.5000	48.77	41.82	32.28	-6.95	88.30	56.02	200	140	Horizontal
4	29578.6000	50.81	41.36	31.82	-9.45	88.30	56.48	100	230	Horizontal
5	32491.4000	53.33	43.49	33.95	-9.84	88.30	54.35	200	270	Horizontal
6	39202.5000	47.41	46.31	36.77	-1.10	74.00	37.23	100	192	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	18915.2000	51.68	39.63	30.09	-12.05	74.00	43.91	100	309	Vertical
2	22798.2000	48.84	39.91	30.37	-8.93	74.00	43.63	200	142	Vertical
3	26690.0000	48.51	41.29	31.75	-7.22	88.30	56.55	200	322	Vertical
4	30991.0000	52.34	42.52	32.98	-9.82	88.30	55.32	200	187	Vertical
5	35440.5000	53.45	44.34	34.80	-9.11	88.30	53.50	100	136	Vertical
6	39252.0000	47.01	46.1	36.56	-0.91	74.00	37.44	100	59	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: 26.0℃/60%RH/101.0kPa
Test Engineer: Zhang Zishan

Frequency:6505MHz
Power supply: DC 20V
Test Date:2023-10-26

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	18874.5000	51.19	39.11	29.57	-12.08	74.00	44.43	100	71	Horizontal
2	21611.3000	49.85	40.09	30.55	-9.76	88.30	57.75	100	245	Horizontal
3	26782.4000	48.63	41.65	32.11	-6.98	88.30	56.19	200	227	Horizontal
4	31244.0000	52.33	42.80	33.26	-9.53	74.00	40.74	200	200	Horizontal
5	33083.2000	55.17	44.77	35.23	-10.40	88.30	53.07	100	304	Horizontal
6	38732.8000	48.27	46.25	36.71	-2.02	74.00	37.29	200	227	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	19031.8000	52.20	40.23	30.69	-11.97	74.00	43.31	200	231	Vertical
2	20649.9000	51.19	40.78	31.24	-10.41	74.00	42.76	100	5	Vertical
3	24415.2000	48.97	40.79	31.25	-8.18	88.30	57.05	100	243	Vertical
4	29573.1000	51.44	41.92	32.38	-9.52	88.30	55.92	100	224	Vertical
5	34227.2000	52.98	42.93	33.39	-10.05	88.30	54.91	200	237	Vertical
6	38097.0000	49.36	45.75	36.21	-3.61	88.30	52.09	100	211	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: 26.0℃/60%RH/101.0kPa
Test Engineer: Zhang Zishan

Frequency:6665MHz
Power supply: DC 20V
Test Date:2023-10-26

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	18488.4000	51.67	39.34	29.80	-12.33	74.00	44.20	100	153	Horizontal
2	21679.5000	49.58	39.82	30.28	-9.76	88.30	58.02	100	302	Horizontal
3	26775.8000	48.25	41.31	31.77	-6.94	88.30	56.53	100	147	Horizontal
4	30760.0000	51.84	41.87	32.33	-9.97	88.30	55.97	100	134	Horizontal
5	33640.9000	52.94	42.72	33.18	-10.22	88.30	55.12	200	114	Horizontal
6	39189.3000	47.93	46.82	37.28	-1.11	74.00	36.72	200	244	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	18905.3000	52.13	40.07	30.53	-12.06	74.00	43.47	200	46	Vertical
2	21707.0000	49.69	39.93	30.39	-9.76	88.30	57.91	200	39	Vertical
3	23845.4000	49.28	40.62	31.08	-8.66	74.00	42.92	100	258	Vertical
4	29606.1000	51.56	42.04	32.50	-9.52	88.30	55.80	200	149	Vertical
5	35332.7000	53.34	44.09	34.55	-9.25	88.30	53.75	200	188	Vertical
6	39589.7000	47.20	46.75	37.21	-0.45	74.00	36.79	100	297	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: 26.0℃/60%RH/101.0kPa
Test Engineer: Zhang Zishan

Frequency:6825MHz
Power supply: DC 20V
Test Date:2023-10-26

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	19338.7000	51.15	39.51	29.97	-11.64	74.00	44.03	100	111	Horizontal
2	23816.8000	49.36	40.61	31.07	-8.75	74.00	42.93	200	272	Horizontal
3	26801.1000	49.68	42.61	33.07	-7.07	88.30	55.23	100	52	Horizontal
4	29607.2000	51.55	42.09	32.55	-9.46	88.30	55.75	100	182	Horizontal
5	32561.8000	54.43	44.50	34.96	-9.93	88.30	53.34	200	182	Horizontal
6	39506.1000	48.22	47.53	37.99	-0.69	74.00	36.01	100	349	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	18789.8000	50.41	38.28	28.74	-12.13	74.00	45.26	100	125	Vertical
2	22999.5000	47.36	38.52	28.98	-8.84	74.00	45.02	200	283	Vertical
3	26860.5000	47.70	40.18	30.64	-7.52	88.30	57.66	100	283	Vertical
4	30843.6000	50.82	40.92	31.38	-9.90	88.30	56.92	100	358	Vertical
5	34559.4000	51.87	41.85	32.31	-10.02	88.30	55.99	100	15	Vertical
6	39180.5000	46.62	45.52	35.98	-1.10	74.00	38.02	100	47	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: 26.0℃/60%RH/101.0kPa
Test Engineer: Zhang Zishan

Frequency:6985MHz
Power supply: DC 20V
Test Date:2023-10-26

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	19094.5000	51.22	39.33	29.79	-11.89	74.00	44.21	200	193	Horizontal
2	22847.7000	50.08	41.17	31.63	-8.91	74.00	42.37	100	276	Horizontal
3	26753.8000	48.26	41.42	31.88	-6.84	88.30	56.42	200	321	Horizontal
4	31275.9000	51.84	42.22	32.68	-9.62	74.00	41.32	100	230	Horizontal
5	34278.9000	53.11	43.10	33.56	-10.01	88.30	54.74	200	334	Horizontal
6	39128.8000	48.02	46.85	37.31	-1.17	74.00	36.69	200	116	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	19459.7000	51.12	39.55	30.01	-11.57	74.00	43.99	200	224	Vertical
2	23896.0000	49.86	41.24	31.70	-8.62	74.00	42.30	100	164	Vertical
3	29112.2000	51.05	41.39	31.85	-9.66	88.30	56.45	200	96	Vertical
4	32350.6000	53.41	43.53	33.99	-9.88	88.30	54.31	100	276	Vertical
5	37431.5000	49.46	44.19	34.65	-5.27	88.30	53.65	200	237	Vertical
6	39134.3000	47.60	46.40	36.86	-1.20	74.00	37.14	200	157	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

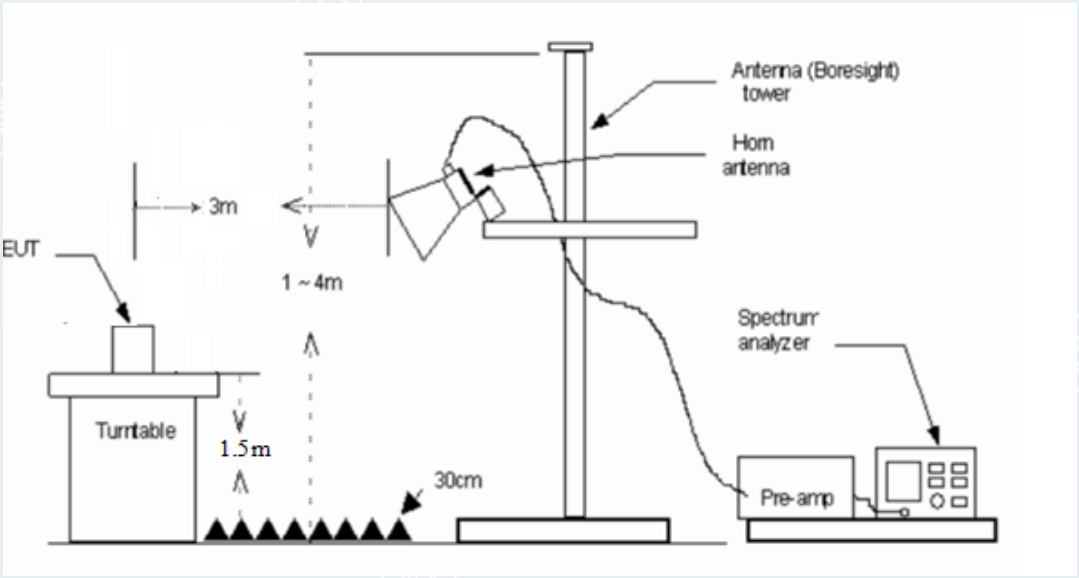
(3) Only spurious emissions are permitted in any of the frequency bands listed below:

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



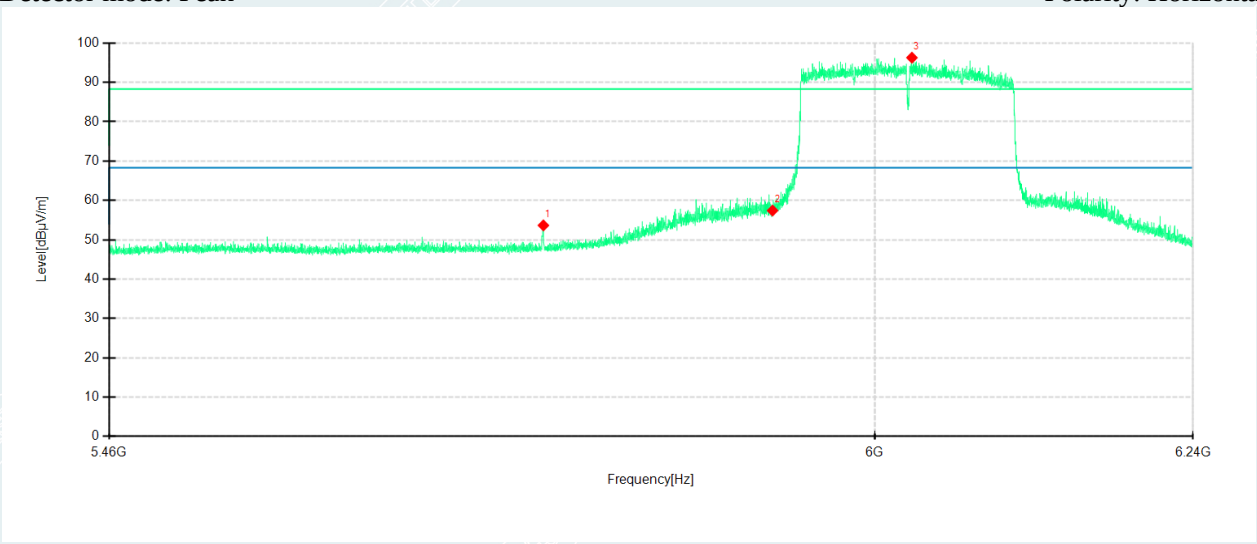
---------- **The following blanks** ----------

7.4. TEST RESULTS

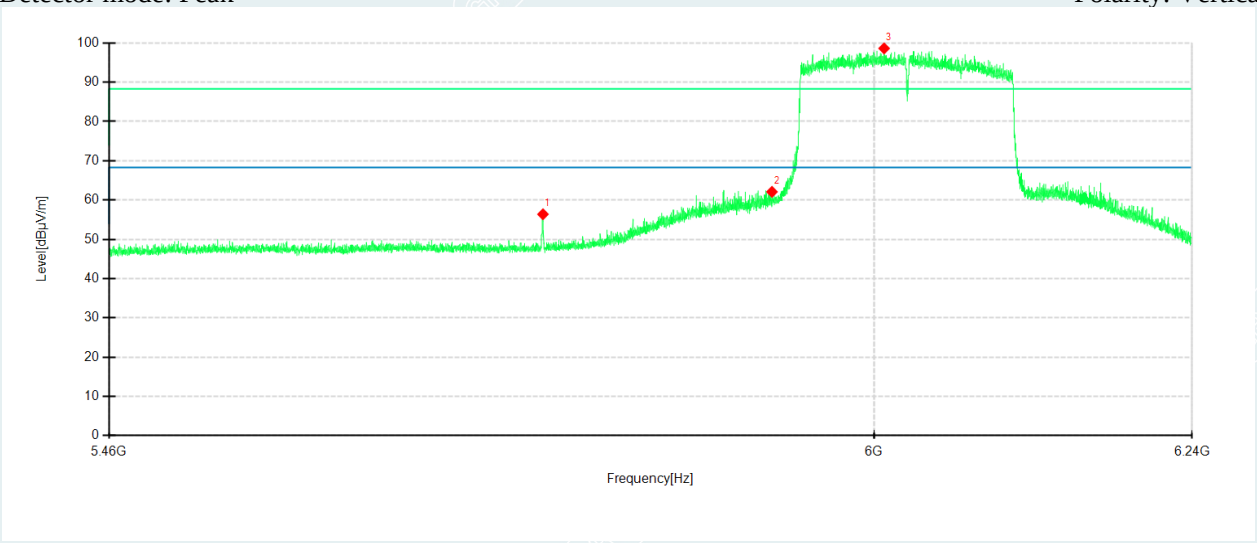
Environment: 23.0℃/45%RH/101.0kPa	Power supply: DC 20V
Test Engineer: Zhang Zishan	Test Date: 2023-11-10

IEEE 802.11ax HE160 mode/6025MHz

Detector mode: Peak Polarity: Horizontal



Detector mode: Peak Polarity: Vertical

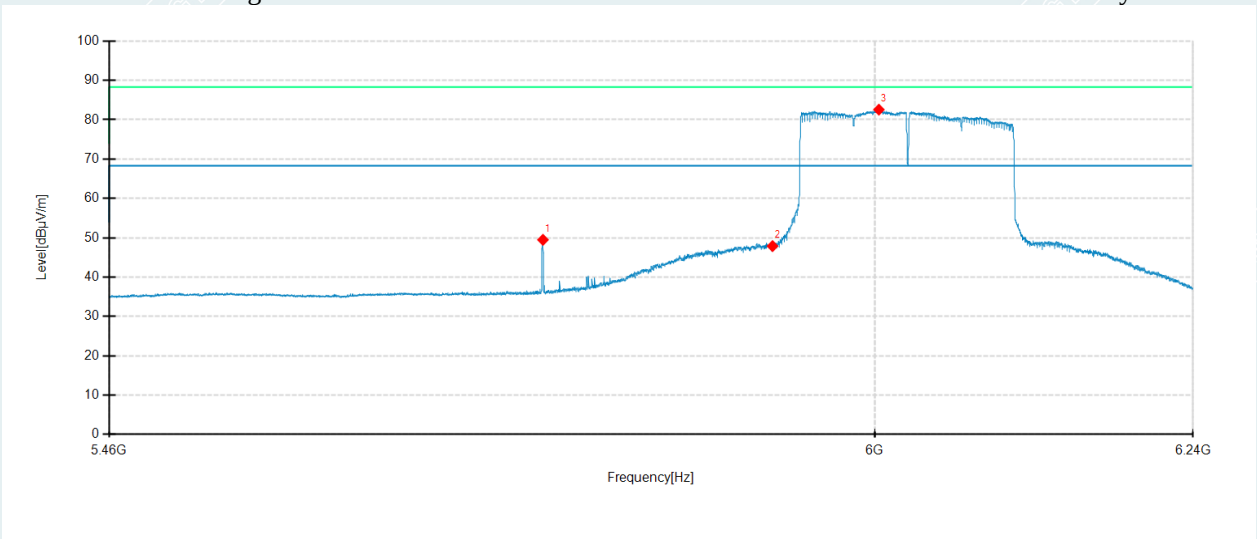


No.	Frequency MHz	Reading dBµV/m	Level dBµV/m	Factor dB	Limit dBuV/m	Margin dB	Height cm	Angle °	Pole	Comment
1	5760.0660	48.92	53.65	4.73	88.30	34.65	200	122	Horizontal	/
2	5925.0000	52.04	57.43	5.39	88.30	30.87	200	327	Horizontal	/
3	6027.6060	90.60	96.28	5.68	-	-	200	53	Horizontal	No limit
1	5760.0660	51.90	56.39	4.49	88.30	31.91	100	57	Vertical	/
2	5925.0000	56.76	62.10	5.34	88.30	26.20	100	247	Vertical	/
3	6007.4820	92.93	98.62	5.69	-	-	100	57	Vertical	No limit

IEEE 802.11ax HE160 mode/6025MHz

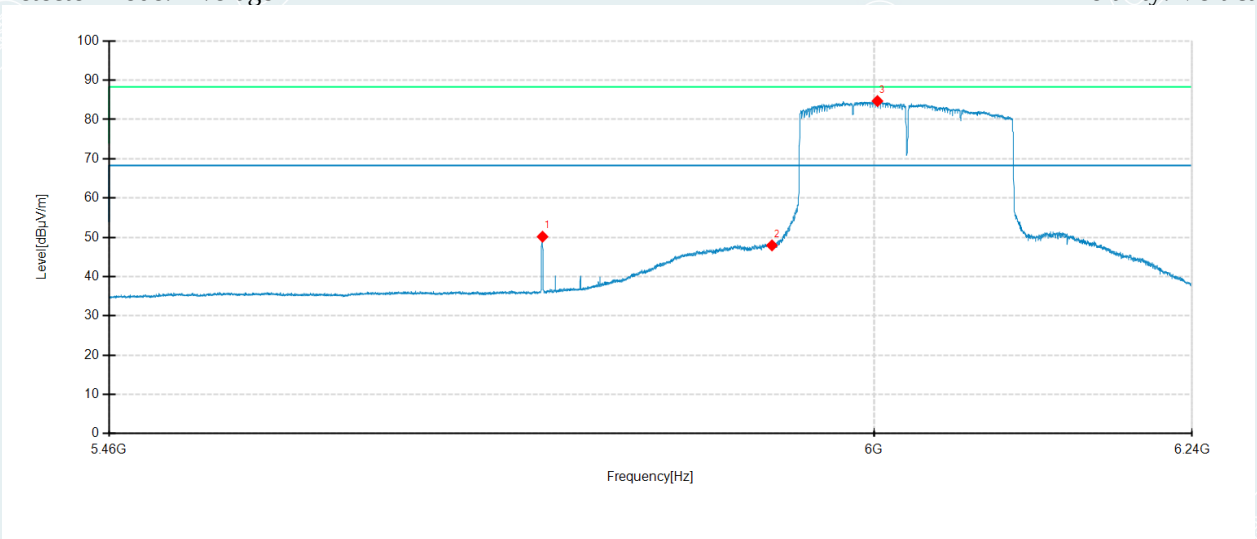
Detector mode: Average

Polarity: Horizontal



Detector mode: Average

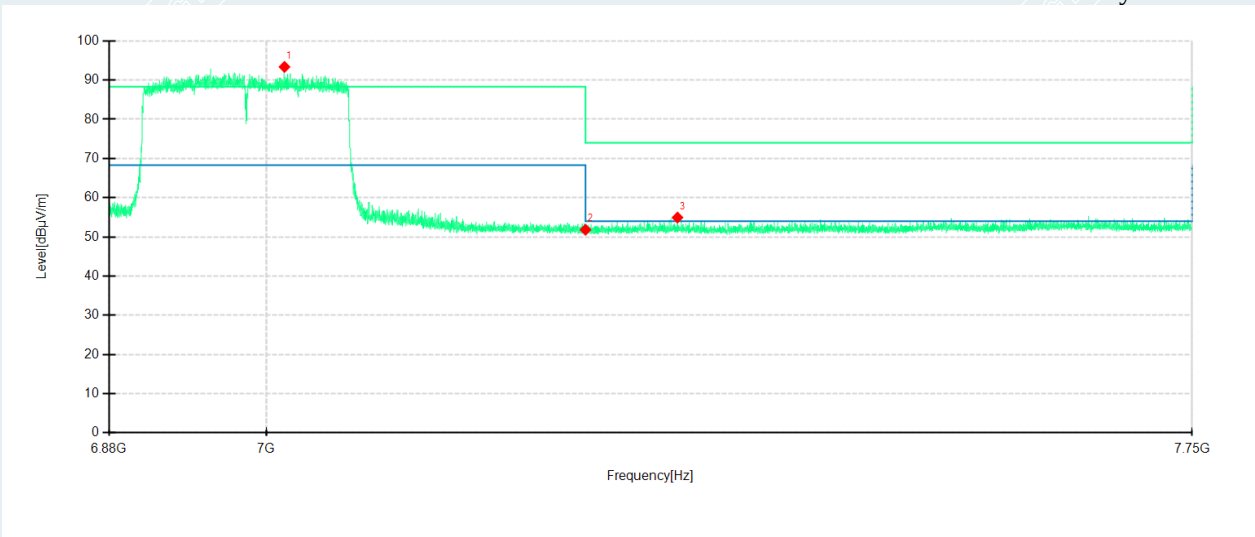
Polarity: Vertical



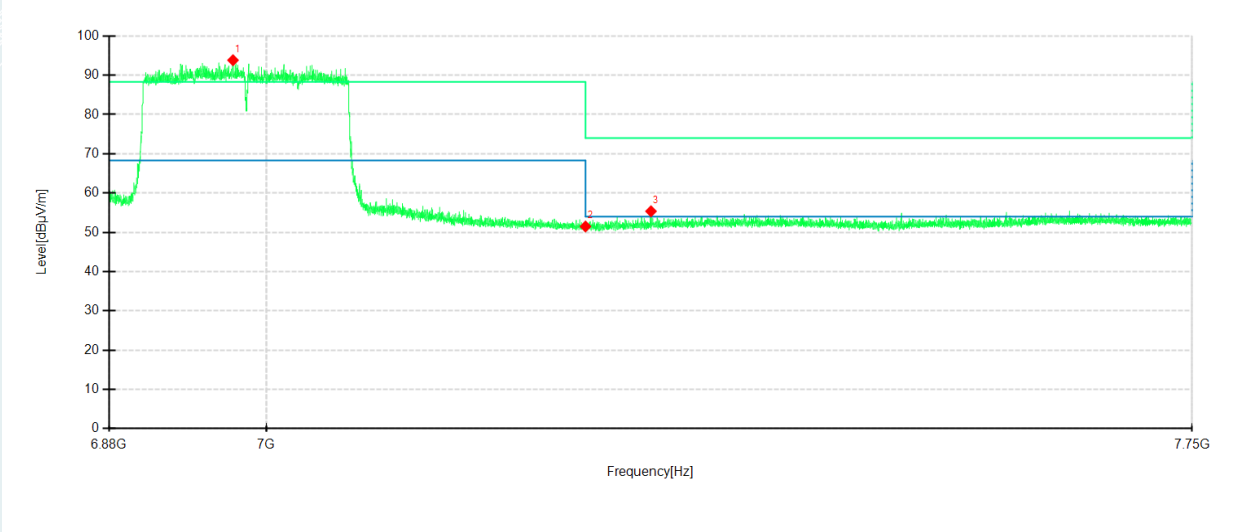
No.	Frequency MHz	Reading dBµV/m	Level dBµV/m	Factor dB	Limit dBuV/m	Margin dB	Height cm	Angle °	Pole	Comment
1	5759.7540	44.76	49.48	4.72	68.30	18.82	200	123	Horizontal	/
2	5925.0000	42.49	47.88	5.39	68.30	20.42	200	300	Horizontal	/
3	6003.1140	76.81	82.56	5.75	-	-	200	327	Horizontal	No limit
1	5759.7540	45.68	50.16	4.48	68.30	18.14	100	67	Vertical	/
2	5925.0000	42.61	47.95	5.34	68.30	20.35	100	54	Vertical	/
3	6002.5680	78.98	84.71	5.73	-	-	100	54	Vertical	No limit

IEEE 802.11ax HE160 mode/6985MHz

Detector mode: Peak Polarity: Horizontal



Detector mode: Peak Polarity: Vertical

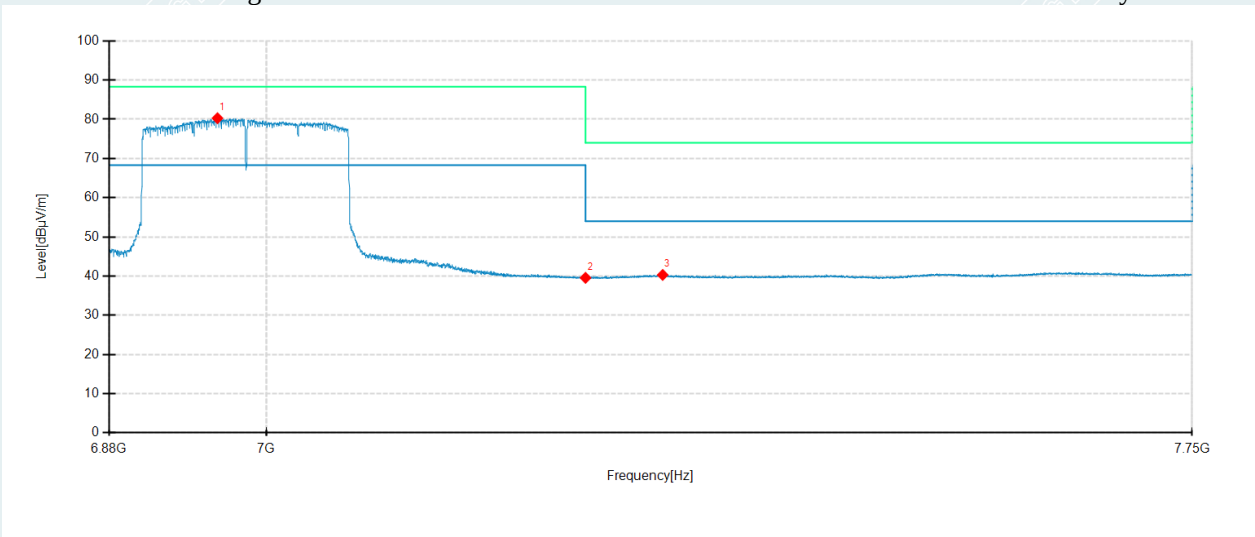


No.	Frequency MHz	Reading dBµV/m	Level dBµV/m	Factor dB	Limit dBuV/m	Margin dB	Height cm	Angle °	Pole	Comment
1	7013.9800	86.04	93.37	7.33	-	-	200	232	Horizontal	No limit
2	7250.0000	43.36	51.83	8.47	74.00	22.17	100	331	Horizontal	/
3	7323.7000	46.49	54.93	8.44	74.00	19.07	100	20	Horizontal	/
1	6974.3950	86.97	93.83	6.86	-	-	100	170	Vertical	No limit
2	7250.0000	43.32	51.49	8.17	74.00	22.51	200	273	Vertical	/
3	7302.3850	46.95	55.36	8.41	74.00	18.64	200	210	Vertical	/

IEEE 802.11ax HE160 mode/6985MHz

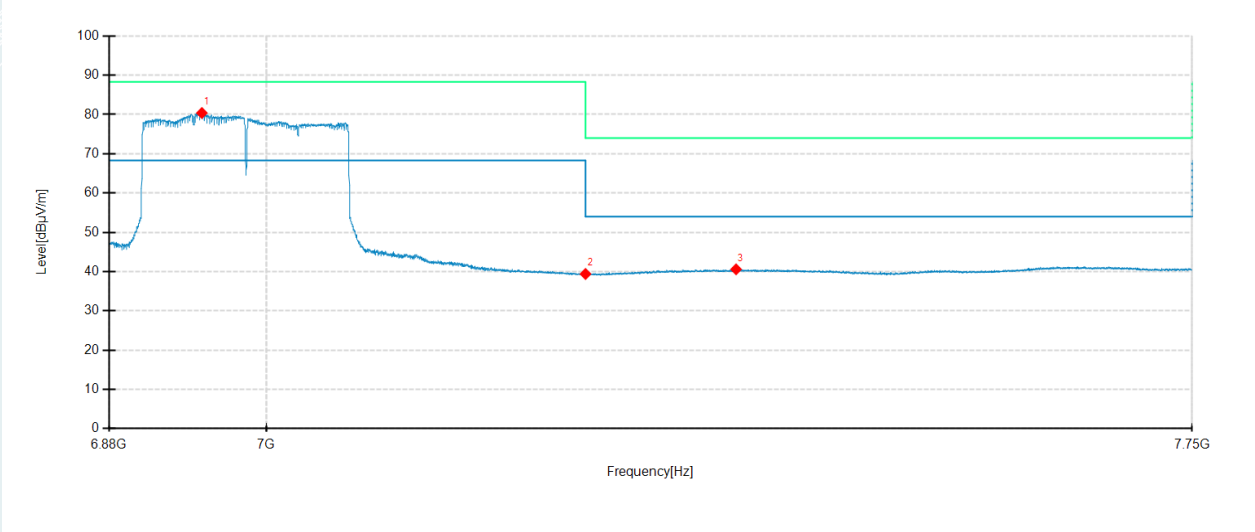
Detector mode: Average

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	6962.4760	72.83	80.28	7.45	-	-	200	232	Horizontal	No limit
2	7250.0000	31.08	39.55	8.47	54.00	14.45	100	307	Horizontal	/
3	7311.7810	31.78	40.30	8.52	54.00	13.70	100	210	Horizontal	/
1	6950.5570	73.50	80.39	6.89	-	-	100	68	Vertical	No limit
2	7250.0000	31.22	39.39	8.17	54.00	14.61	200	307	Vertical	/
3	7371.0280	31.82	40.58	8.76	54.00	13.42	100	338	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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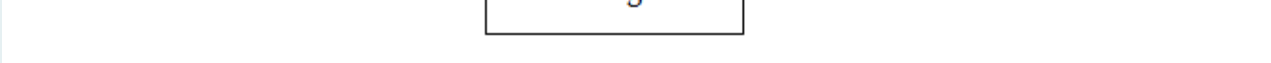
Table 1:

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	25.8℃/65%RH/101.0kPa	Test Voltage	DC 20V
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	167.04	5941.80	6108.84	≤320	PASS
	Ant2	6025	167.04	5941.80	6108.84	≤320	PASS
	Ant1	6185	167.36	6101.16	6268.52	≤320	PASS
	Ant2	6185	167.04	6100.52	6267.56	≤320	PASS
	Ant1	6345	166.40	6261.48	6427.88	≤320	PASS
	Ant2	6345	168.00	6260.84	6428.84	≤320	PASS
	Ant1	6505	167.36	6420.52	6587.88	≤320	PASS
	Ant2	6505	168.32	6419.24	6587.56	≤320	PASS
	Ant1	6665	167.68	6580.52	6748.20	≤320	PASS
	Ant2	6665	166.40	6581.48	6747.88	≤320	PASS
	Ant1	6825	168.32	6740.20	6908.52	≤320	PASS
	Ant2	6825	169.92	6738.60	6908.52	≤320	PASS
	Ant1	6985	167.36	6900.84	7068.20	≤320	PASS
	Ant2	6985	168.64	6900.20	7068.84	≤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	157.609	5946.417	6104.026	---	PASS
	Ant2	6025	157.531	5946.389	6103.920	---	PASS
	Ant1	6185	157.680	6105.745	6263.425	---	PASS
	Ant2	6185	157.625	6105.804	6263.429	---	PASS
	Ant1	6345	157.654	6265.864	6423.518	---	PASS
	Ant2	6345	157.747	6265.811	6423.558	---	PASS
	Ant1	6505	157.602	6425.292	6582.895	---	PASS
	Ant2	6505	157.803	6425.365	6583.168	---	PASS
	Ant1	6665	158.447	6585.783	6744.229	---	PASS
	Ant2	6665	157.860	6585.941	6743.801	---	PASS
	Ant1	6825	157.908	6745.448	6903.356	---	PASS
	Ant2	6825	157.798	6745.550	6903.348	---	PASS
	Ant1	6985	158.430	6905.152	7063.581	---	PASS
	Ant2	6985	157.934	6905.458	7063.392	---	PASS

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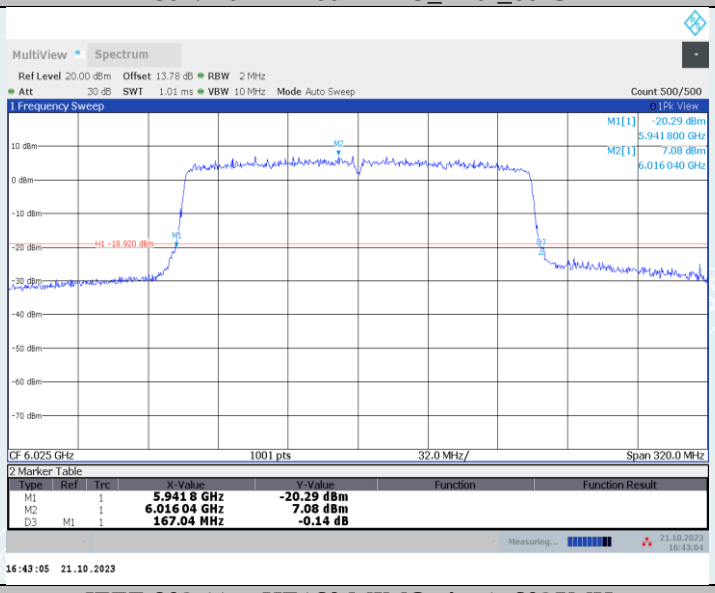
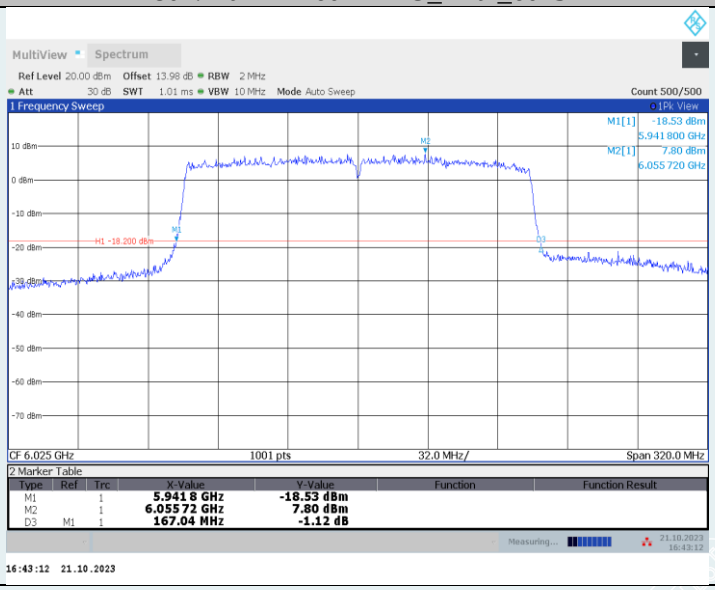
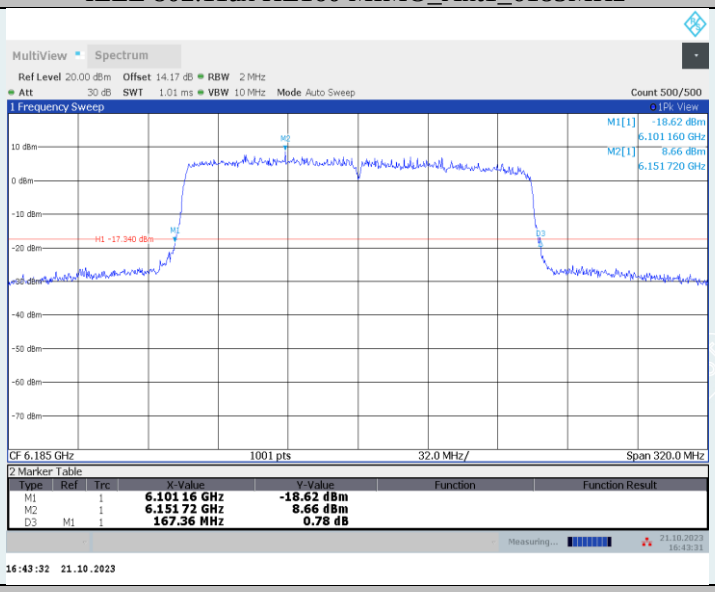
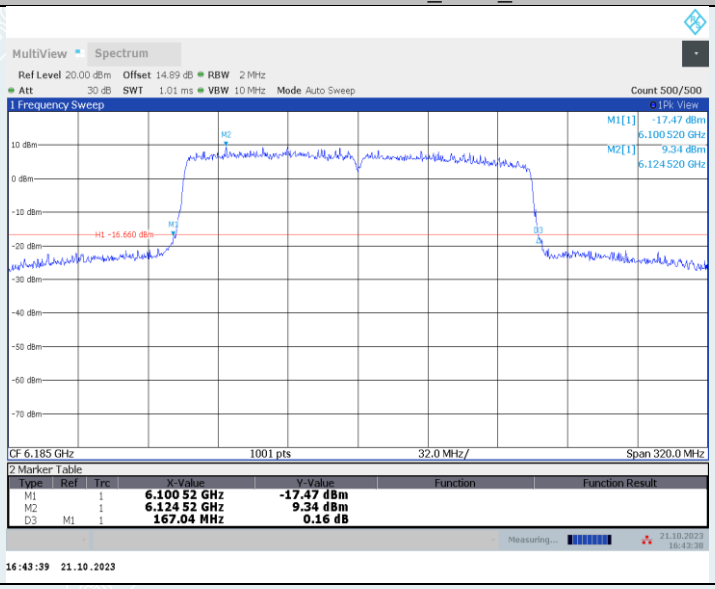
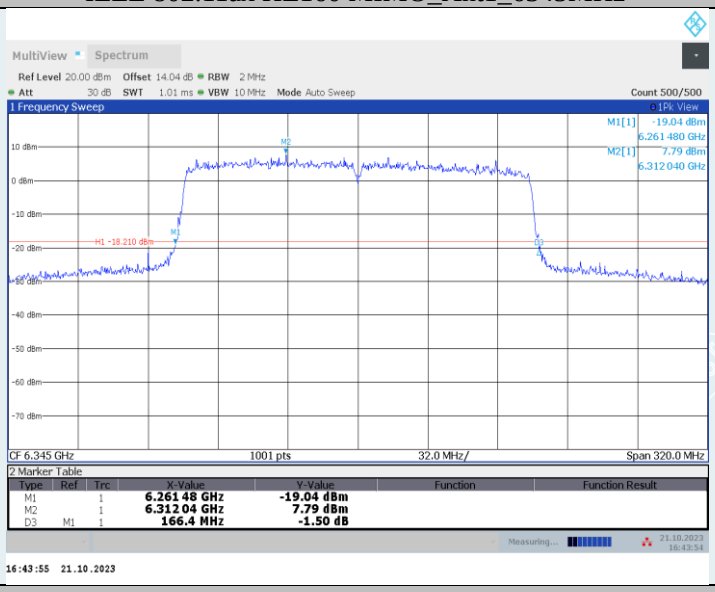
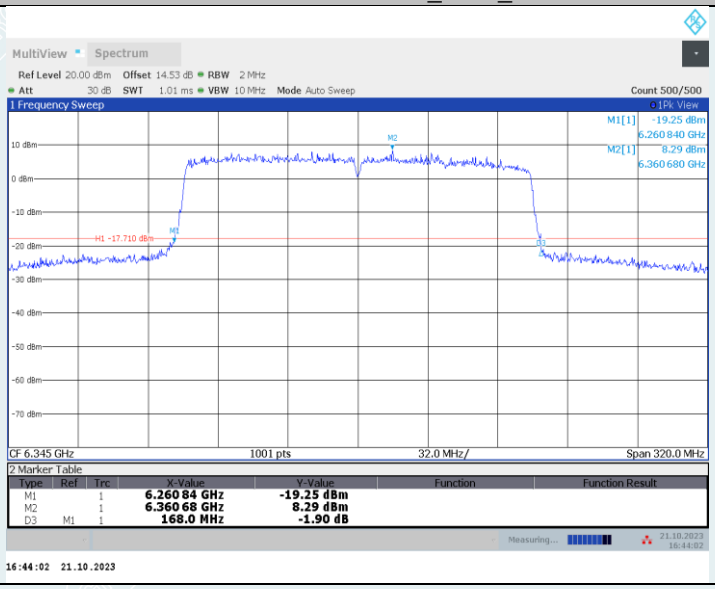
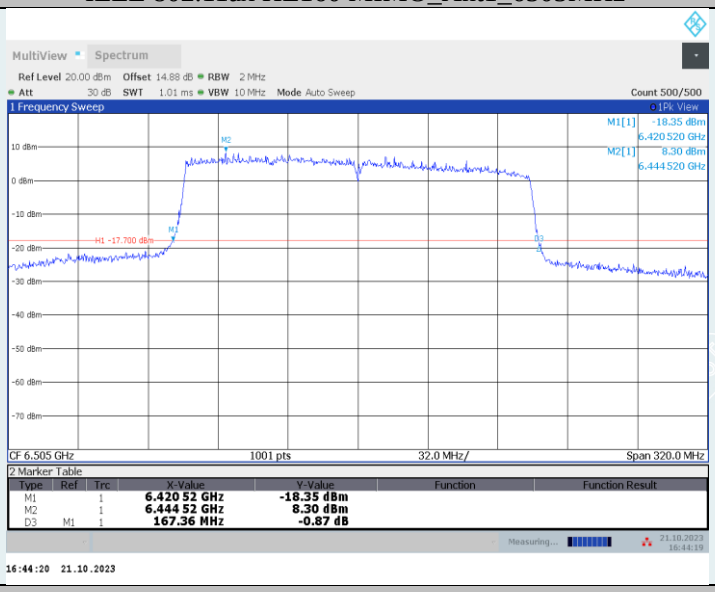
26dB BANDWIDTH

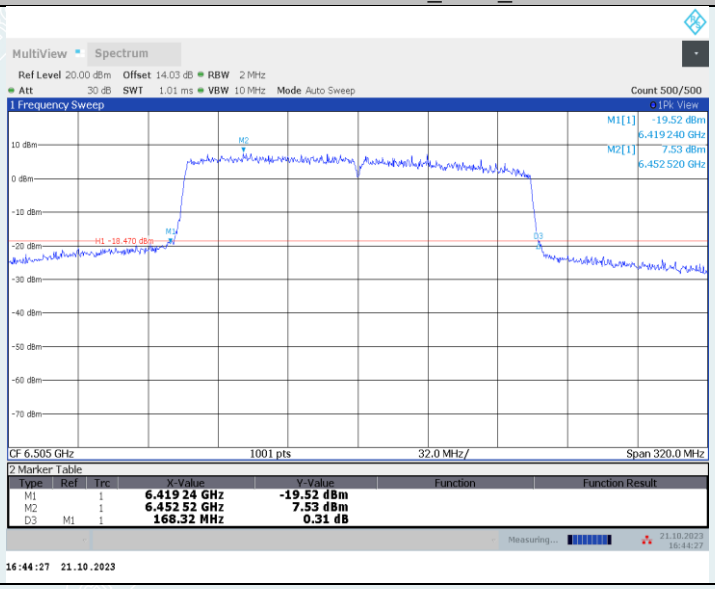
IEEE 802.11ax HE160 MIMO_Ant1_6025MHz

IEEE 802.11ax HE160 MIMO_Ant1_6025MHz


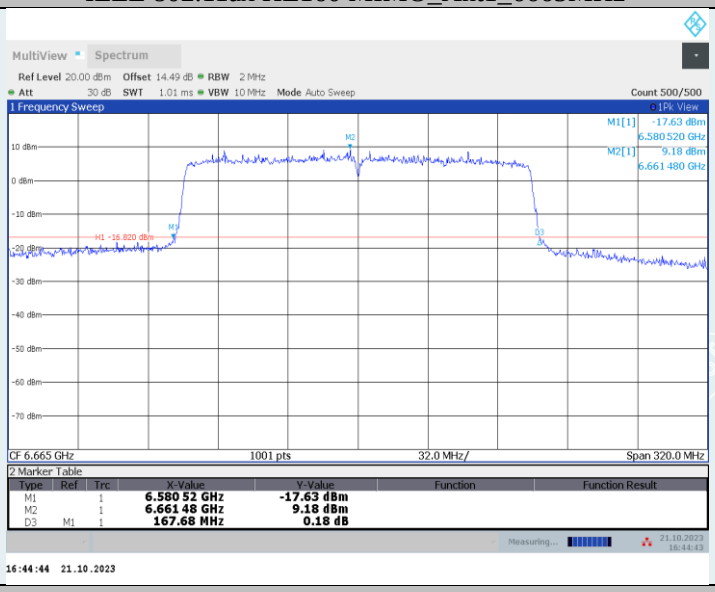
IEEE 802.11ax HE160 MIMO_Ant1_6185MHz

IEEE 802.11ax HE160 MIMO_Ant2_6185MHz


IEEE 802.11ax HE160 MIMO_Ant1_6345MHz


IEEE 802.11ax HE160 MIMO_Ant2_6345MHz


IEEE 802.11ax HE160 MIMO_Ant1_6505MHz


IEEE 802.11ax HE160 MIMO_Ant2_6505MHz


IEEE 802.11ax HE160 MIMO_Ant1_6665MHz

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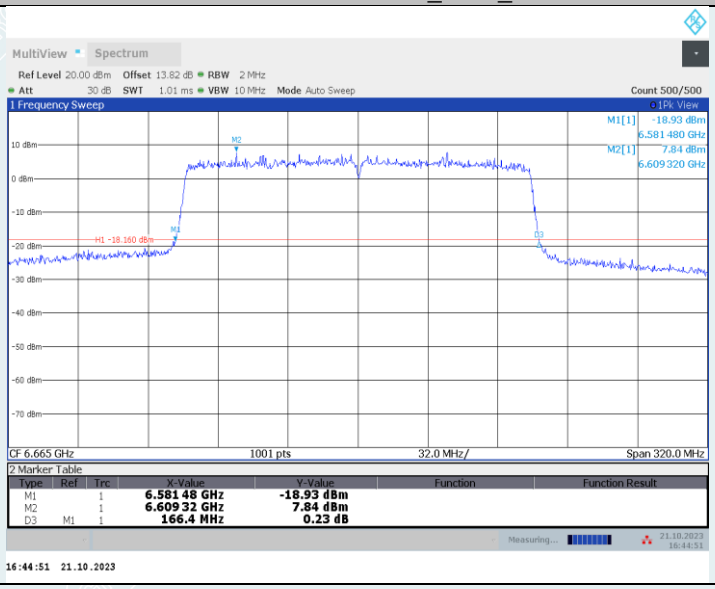
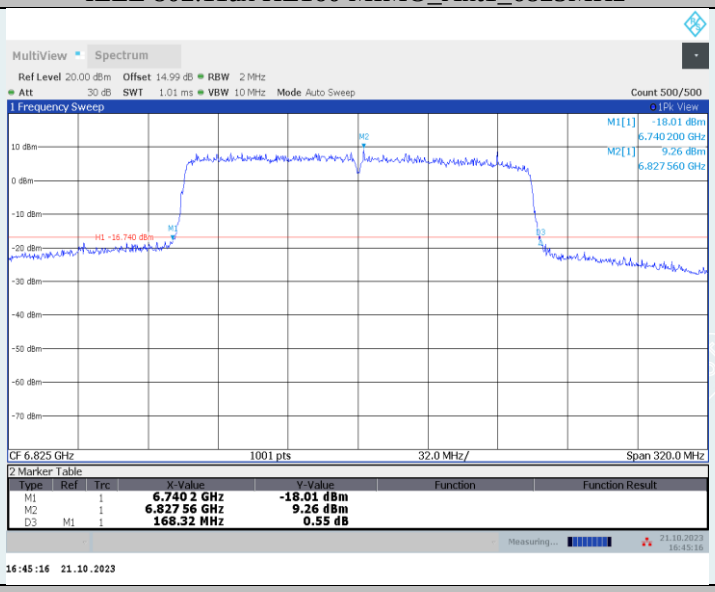
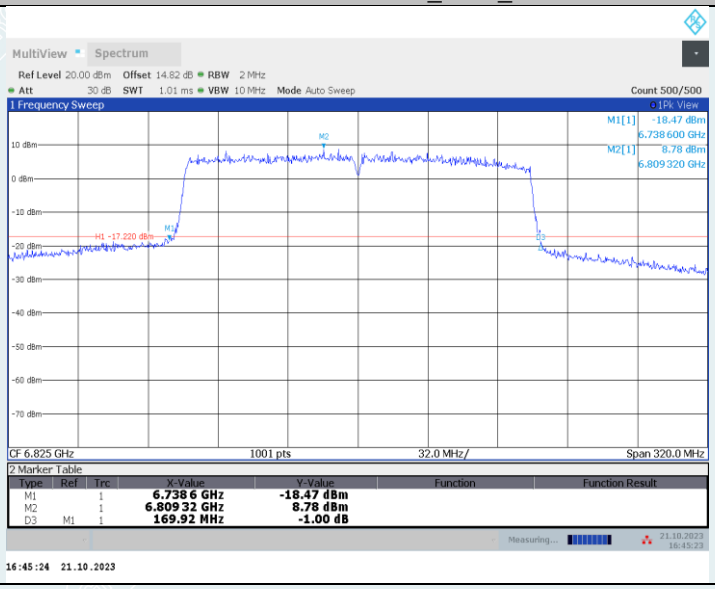
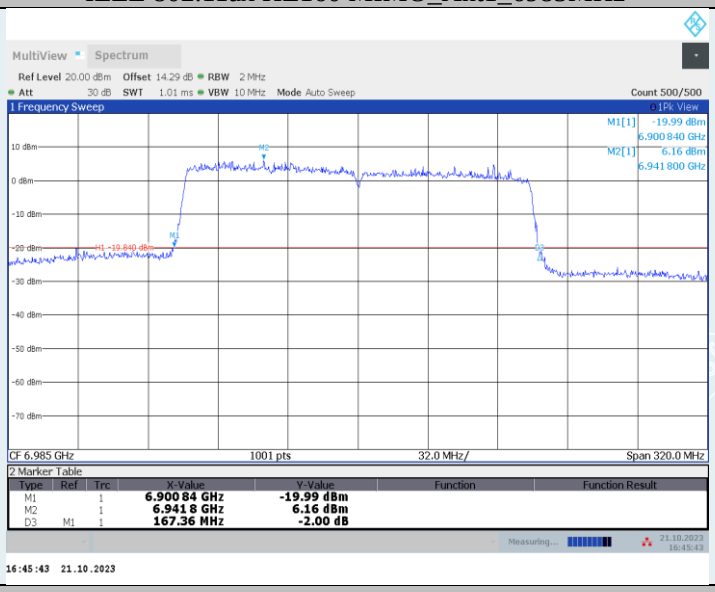


IEEE 802.11ax HE160 MIMO_Ant1_6825MHz

IEEE 802.11ax HE160 MIMO_Ant2_6825MHz


IEEE 802.11ax HE160 MIMO_Ant1_6985MHz

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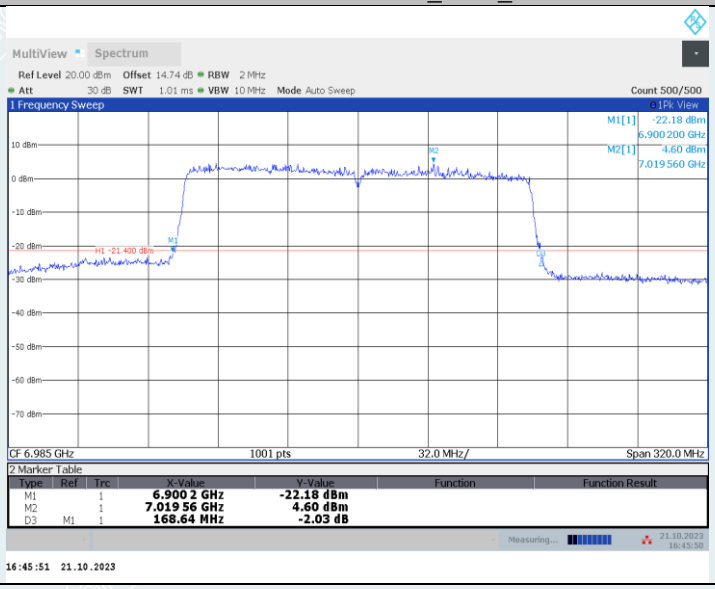
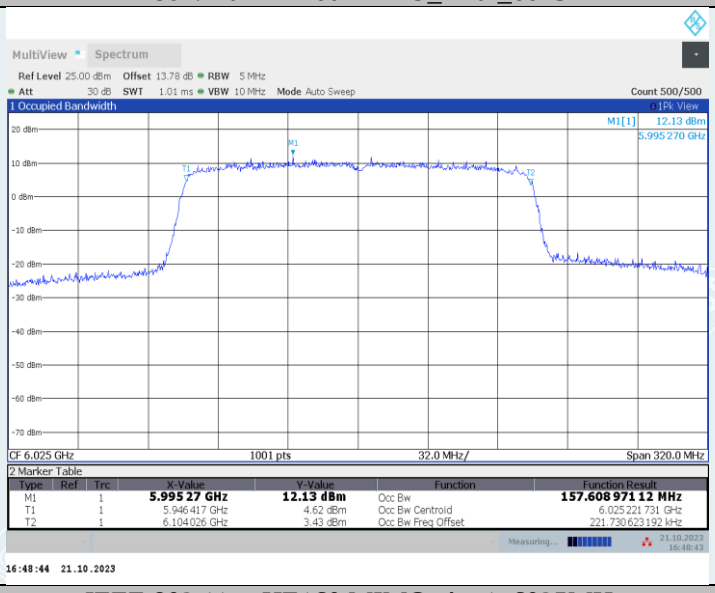
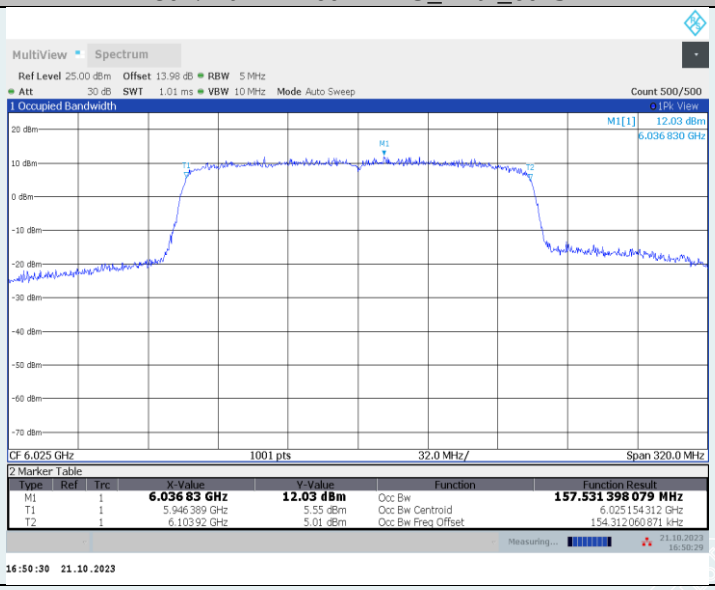
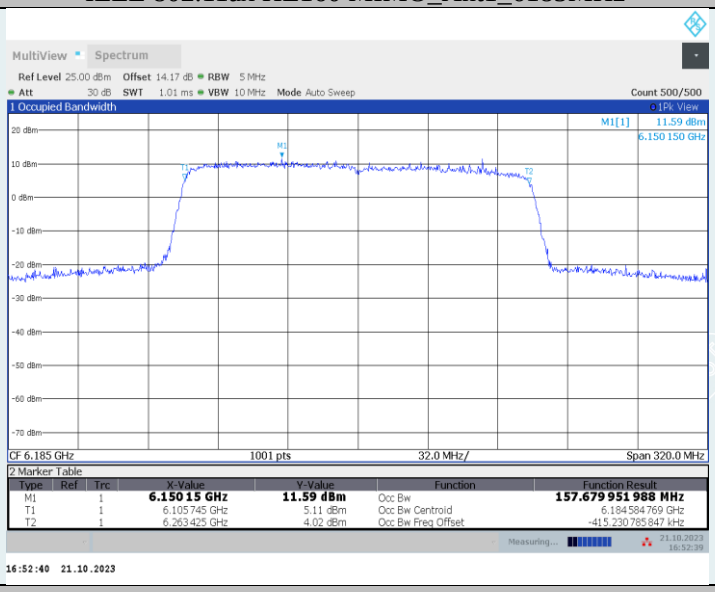


99% OCCUPIED BANDWIDTH

IEEE 802.11ax HE160 MIMO_Ant1_6025MHz

IEEE 802.11ax HE160 MIMO_Ant1_6025MHz


IEEE 802.11ax HE160 MIMO_Ant1_6185MHz

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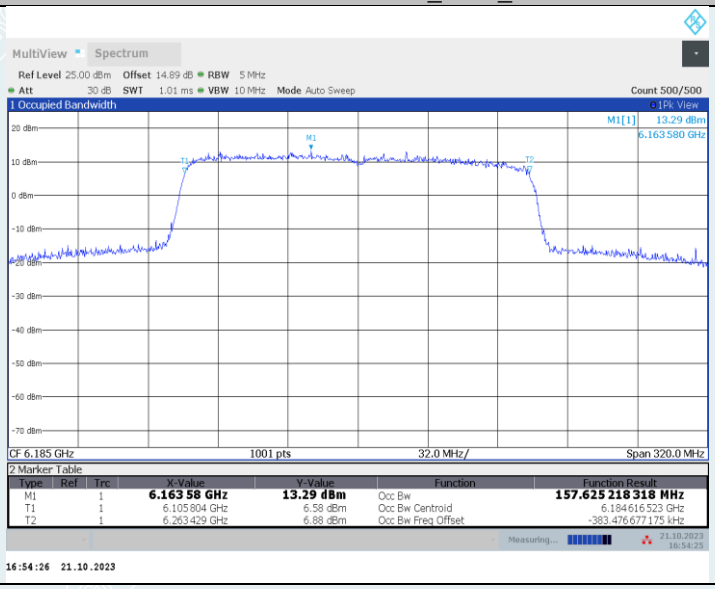
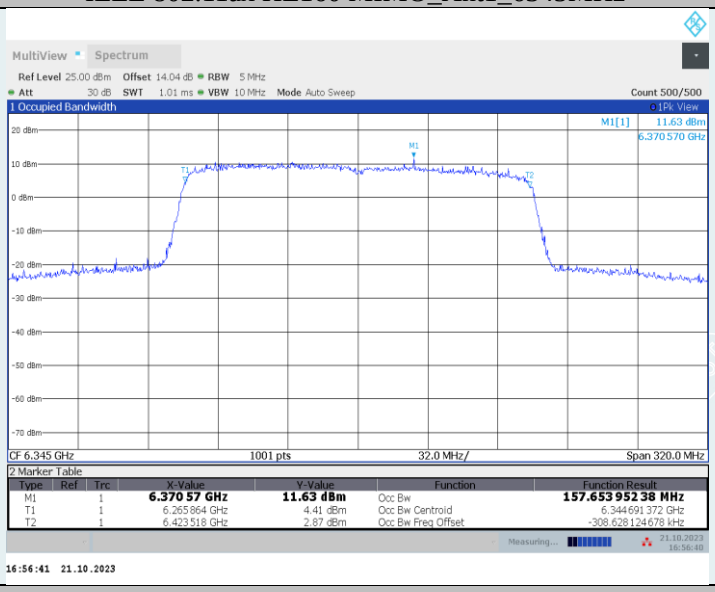
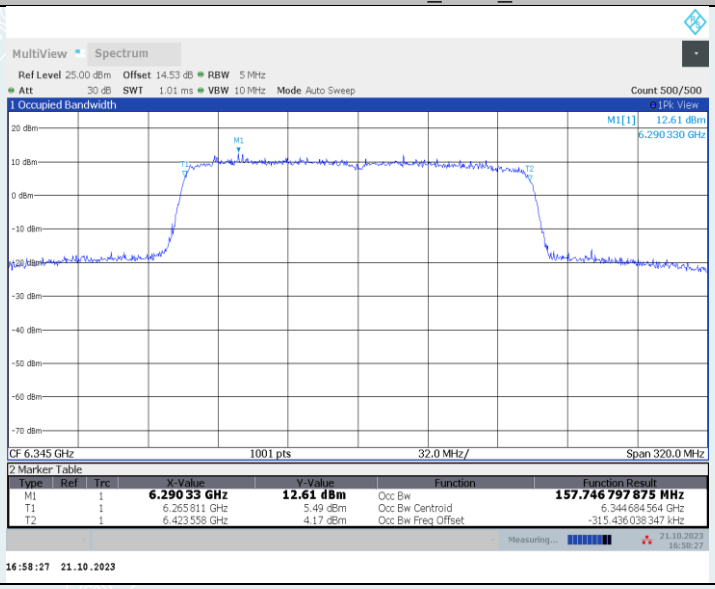


IEEE 802.11ax HE160 MIMO_Ant1_6345MHz



IEEE 802.11ax HE160 MIMO_Ant2_6345MHz



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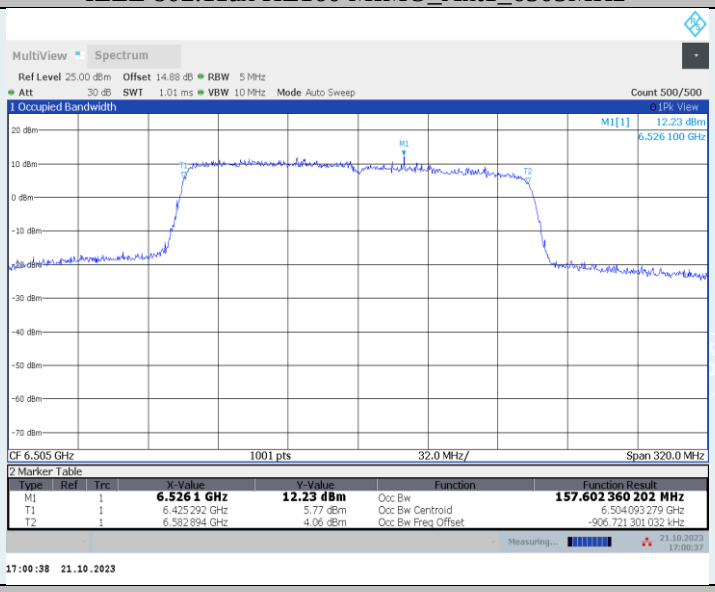
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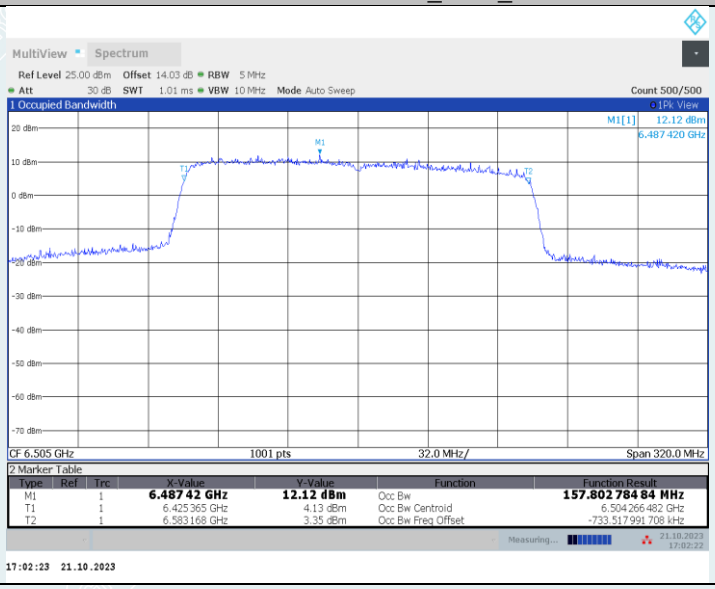
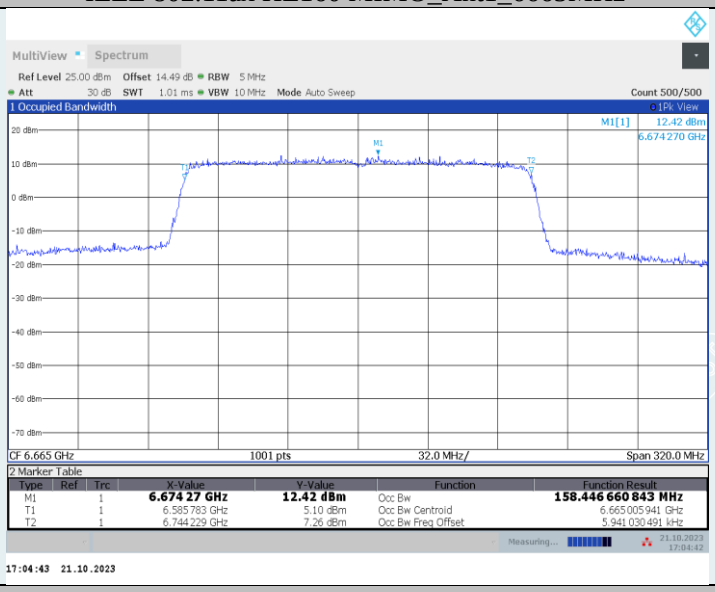


IEEE 802.11ax HE160 MIMO_Ant1_6665MHz

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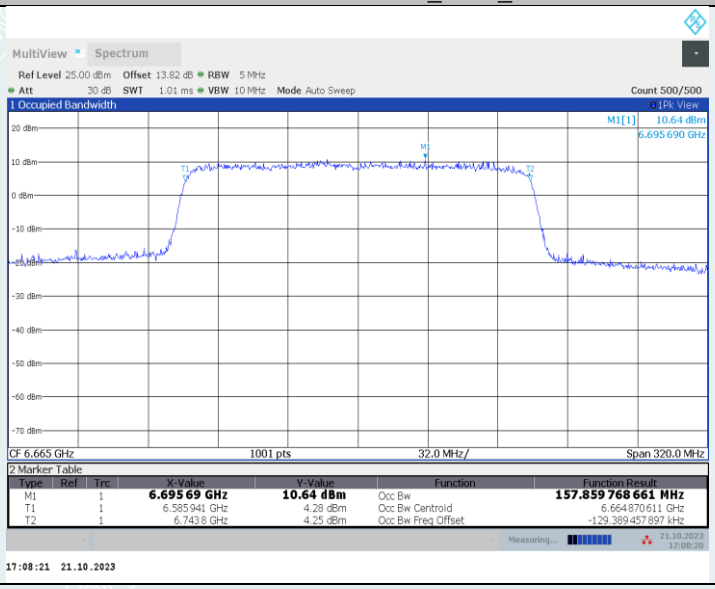
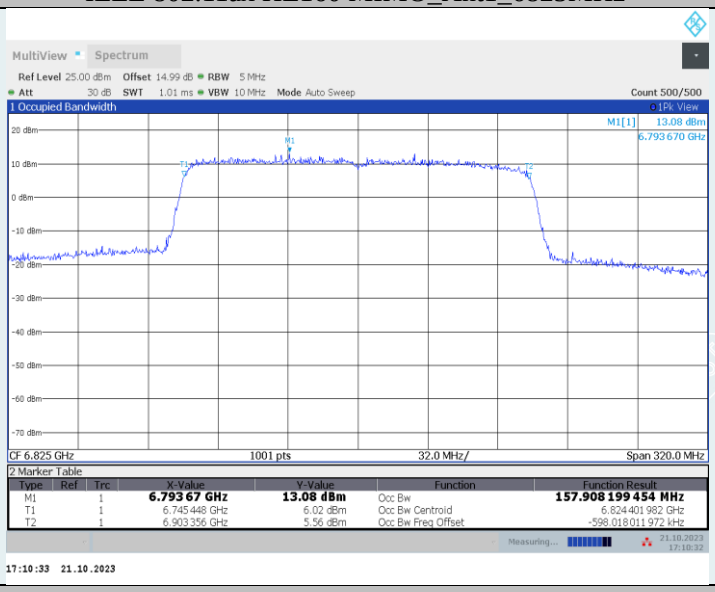
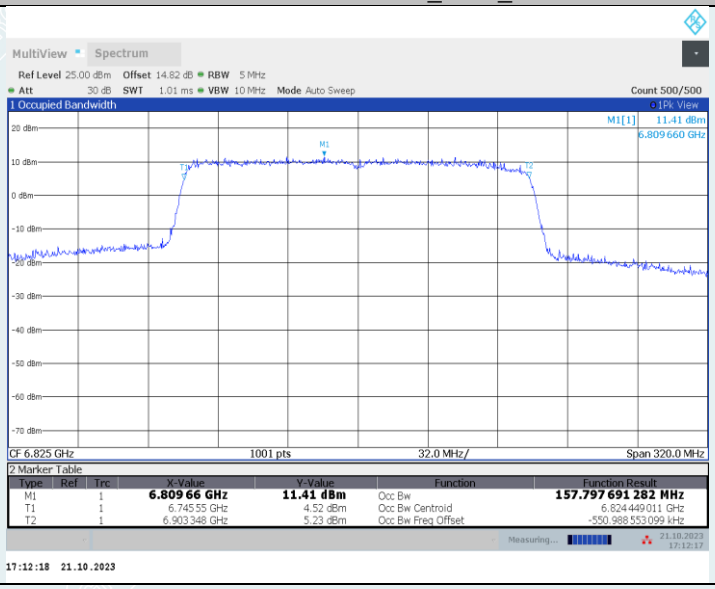


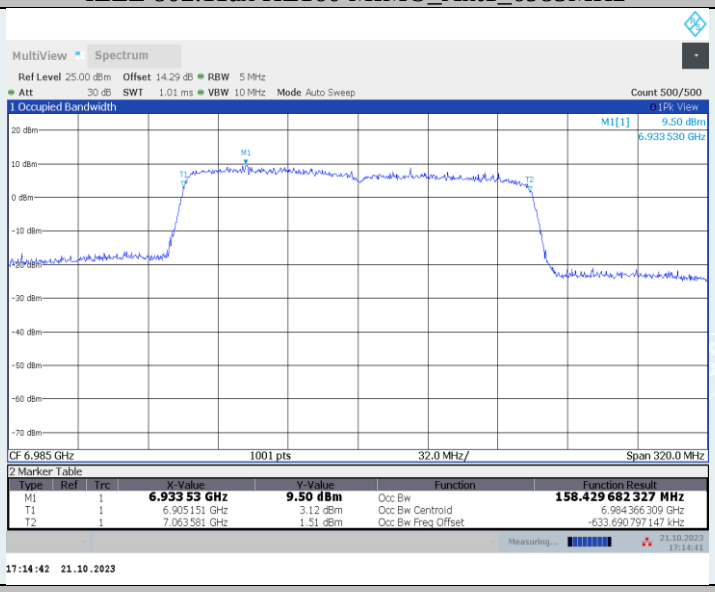
IEEE 802.11ax HE160 MIMO_Ant1_6825MHz



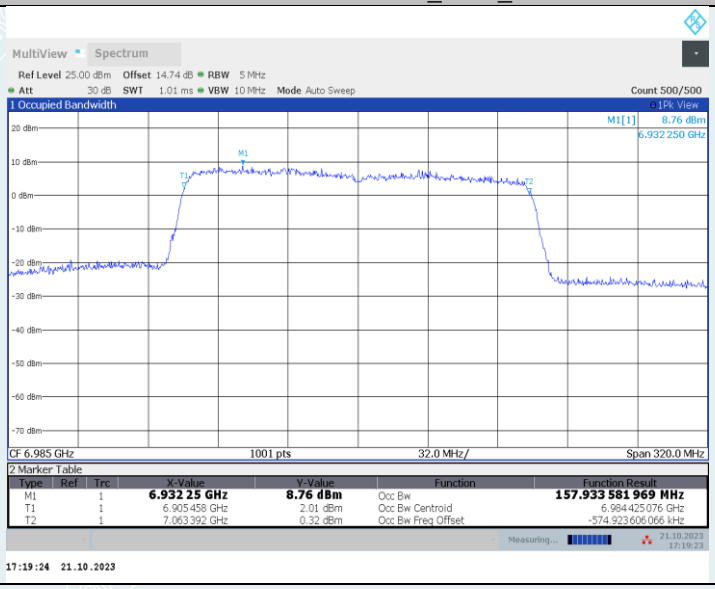
IEEE 802.11ax HE160 MIMO_Ant2_6825MHz



IEEE 802.11ax HE160 MIMO_Ant1_6985MHz



IEEE 802.11ax HE160 MIMO_Ant2_6985MHz



9. OUTPUT POWER

9.1. LIMITS

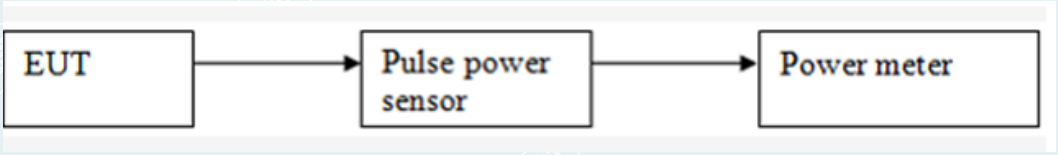
The FCC 15.407(a) The maximum conducted output power should not exceed:

EUT Type	Eq Class	Limit
Indoor Client	6XD	Max EIRP 24dBm(250mW)

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	25.8℃/65%RH/101.0kPa	Test Voltage	DC 20V
Tested By	Qing Tingting	Tested Date	2023-11-08

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	7.46	8.06	10.78	17.29	24.00	Pass
	6185	7.10	8.22	10.71	17.22		Pass
	6345	5.41	6.32	8.90	15.41		Pass
	6505	7.35	7.61	10.49	17.00		Pass
	6665	8.52	7.09	10.87	17.38		Pass
	6825	8.43	7.48	10.99	17.50		Pass
	6985	6.64	5.12	8.96	15.47		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

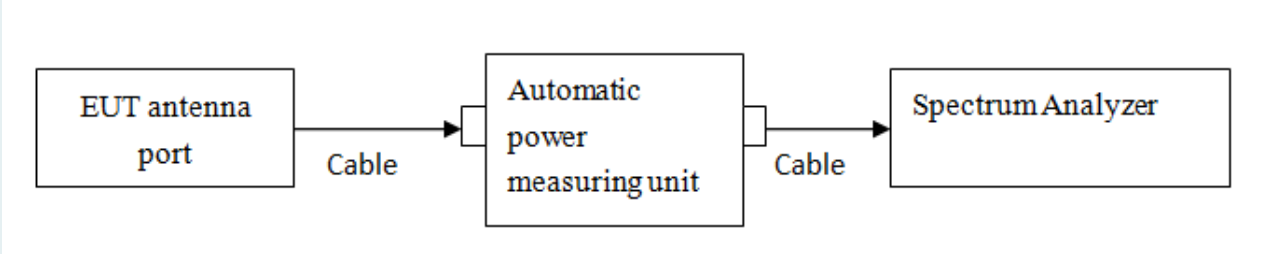
FCC 15.407(a) The maximum power spectral density should not exceed:

EUT Type	Eq Class	Limit
Indoor Client	6XD	Max EIRP -1dBm/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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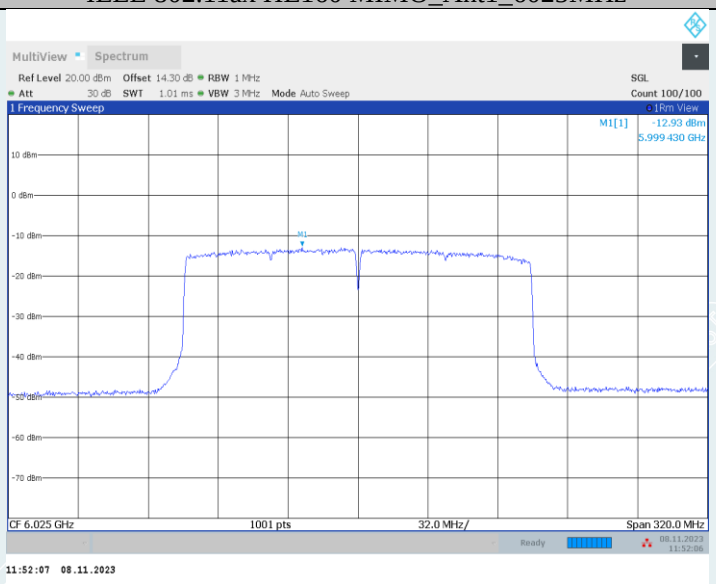
10.4. TEST RESULTS

Environmental Conditions	25.8℃/65%RH/101.0kPa	Test Voltage	DC 20V
Tested By	Qing Tingting	Tested Date	2023-11-08

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	-12.93	-9.43	≤-1.00	PASS
	Ant2	6025	-12.41	-8.91	≤-1.00	PASS
	total	6025	-9.65	-3.14	≤-1.51	PASS
	Ant1	6185	-12.76	-9.26	≤-1.00	PASS
	Ant2	6185	-11.26	-7.76	≤-1.00	PASS
	total	6185	-8.94	-2.43	≤-1.51	PASS
	Ant1	6345	-14.89	-11.39	≤-1.00	PASS
	Ant2	6345	-14.18	-10.68	≤-1.00	PASS
	total	6345	-11.51	-5.00	≤-1.51	PASS
	Ant1	6505	-11.60	-8.10	≤-1.00	PASS
	Ant2	6505	-12.97	-9.47	≤-1.00	PASS
	total	6505	-9.22	-2.71	≤-1.51	PASS
	Ant1	6665	-11.94	-8.44	≤-1.00	PASS
	Ant2	6665	-14.01	-10.51	≤-1.00	PASS
	total	6665	-9.84	-3.33	≤-1.51	PASS
	Ant1	6825	-11.59	-8.09	≤-1.00	PASS
	Ant2	6825	-12.70	-9.20	≤-1.00	PASS
	total	6825	-9.10	-2.59	≤-1.51	PASS
	Ant1	6985	-13.34	-9.84	≤-1.00	PASS
	Ant2	6985	-11.70	-8.20	≤-1.00	PASS
	total	6985	-9.43	-2.92	≤-1.51	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=-1-(6.51-6)=-1.51dBm/MHz.

Test Graphs

IEEE 802.11ax HE160 MIMO_Ant1_6025MHz

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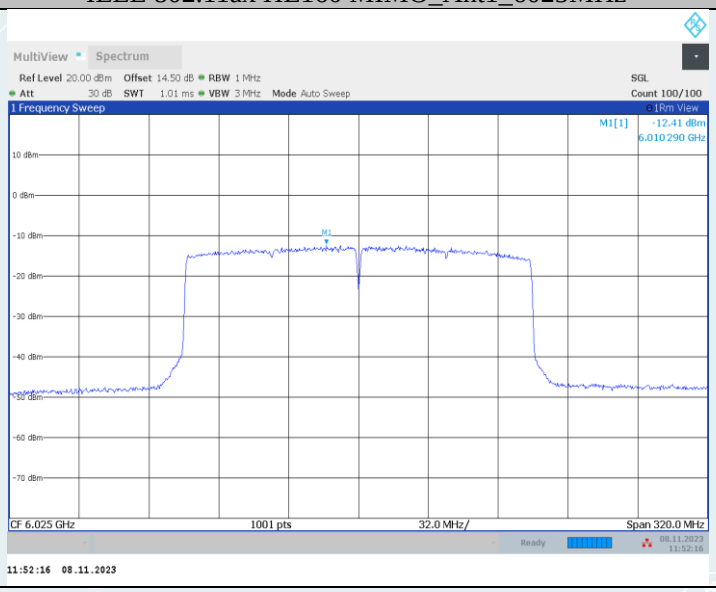
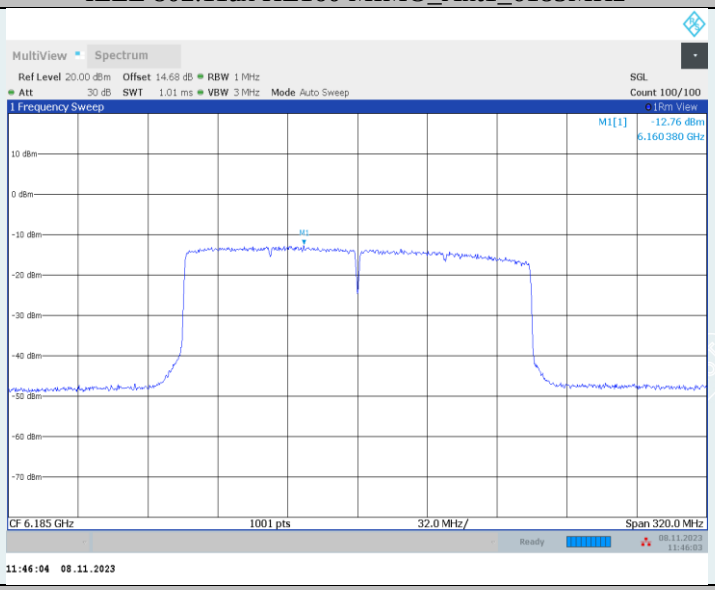


IEEE 802.11ax HE160 MIMO_Ant1_6185MHz

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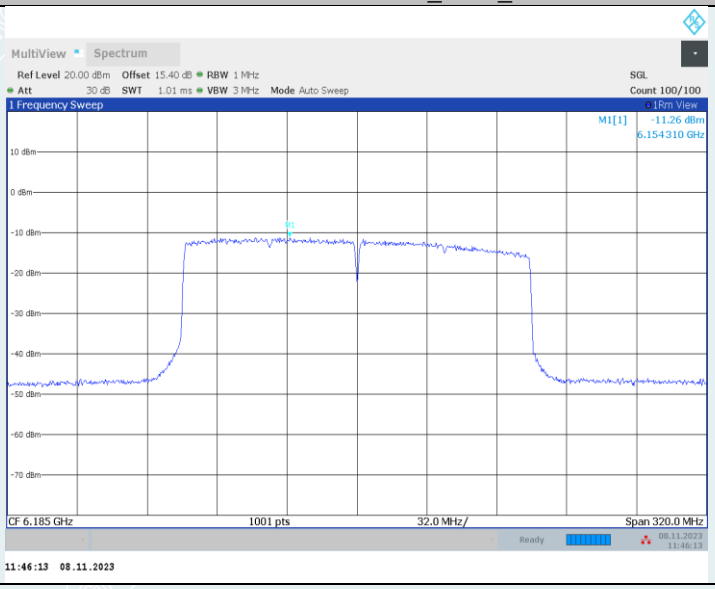
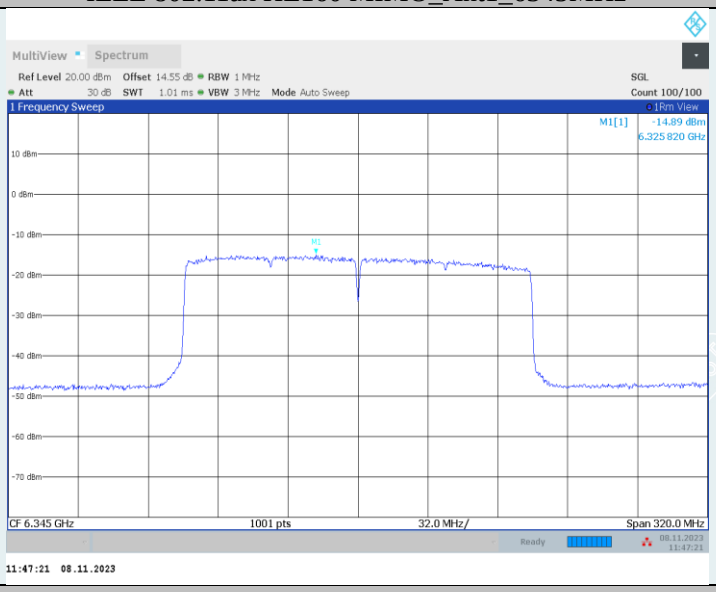


IEEE 802.11ax HE160 MIMO_Ant1_6345MHz

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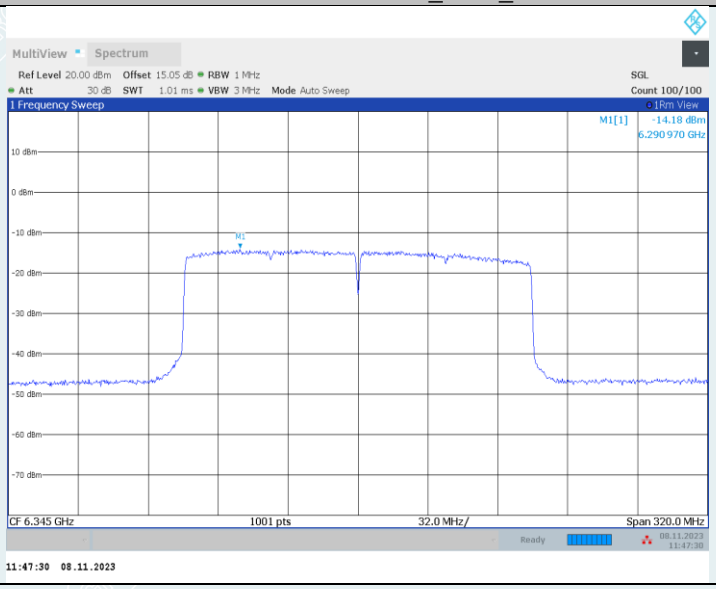
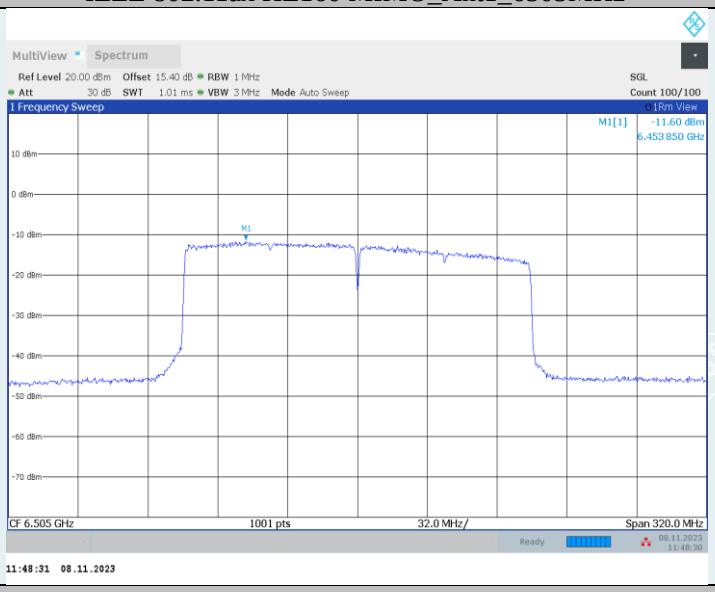
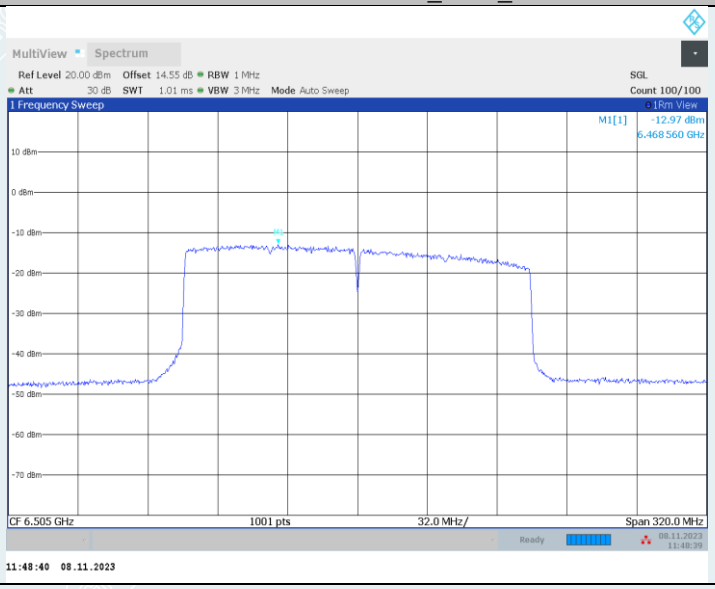
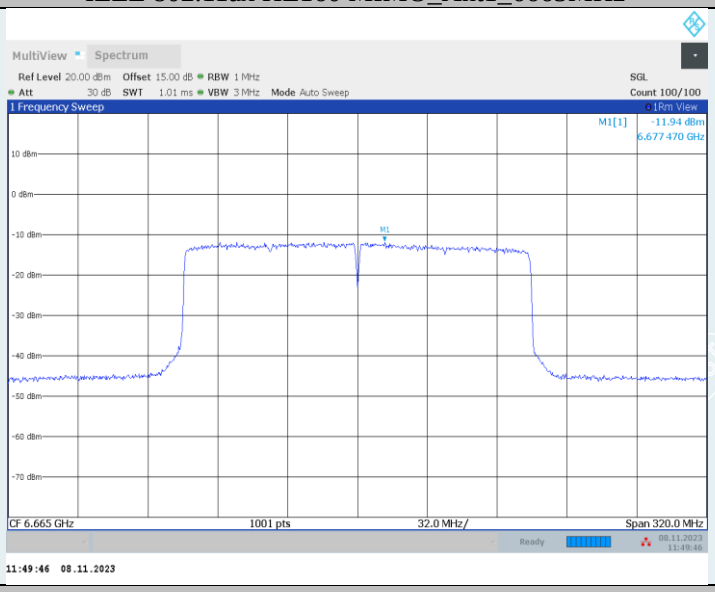


IEEE 802.11ax HE160 MIMO_Ant1_6505MHz

IEEE 802.11ax HE160 MIMO_Ant2_6505MHz


IEEE 802.11ax HE160 MIMO_Ant1_6665MHz

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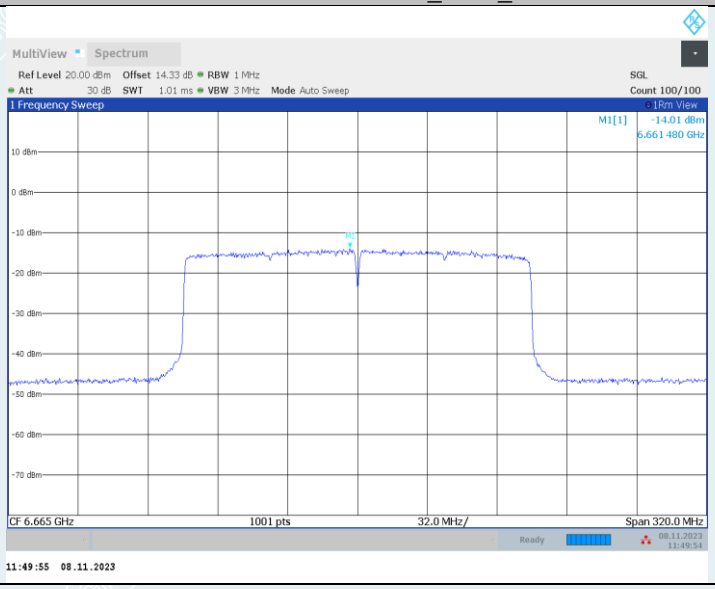
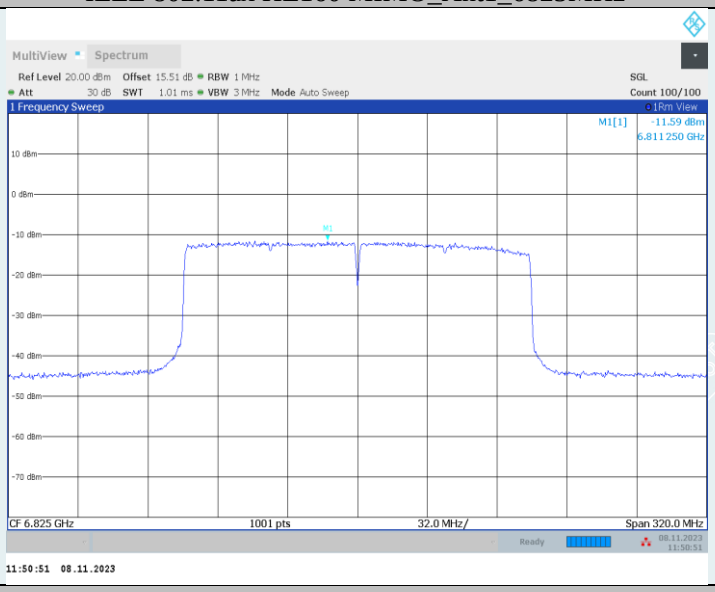


IEEE 802.11ax HE160 MIMO_Ant1_6825MHz

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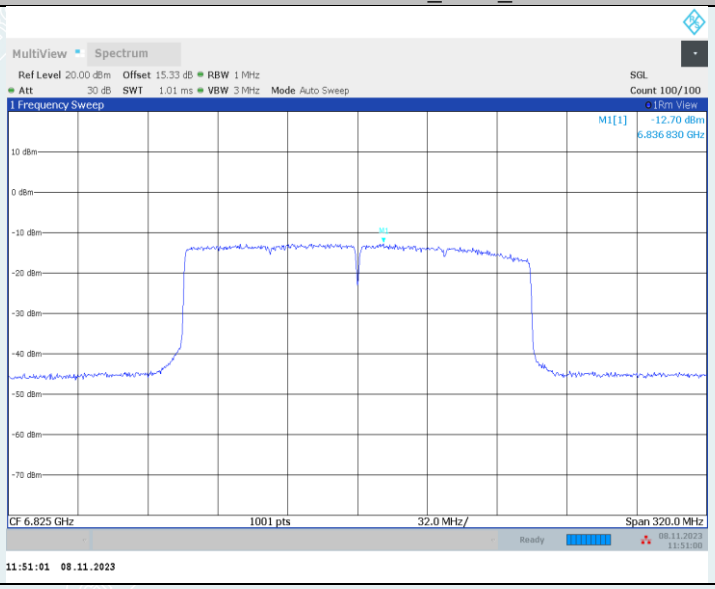
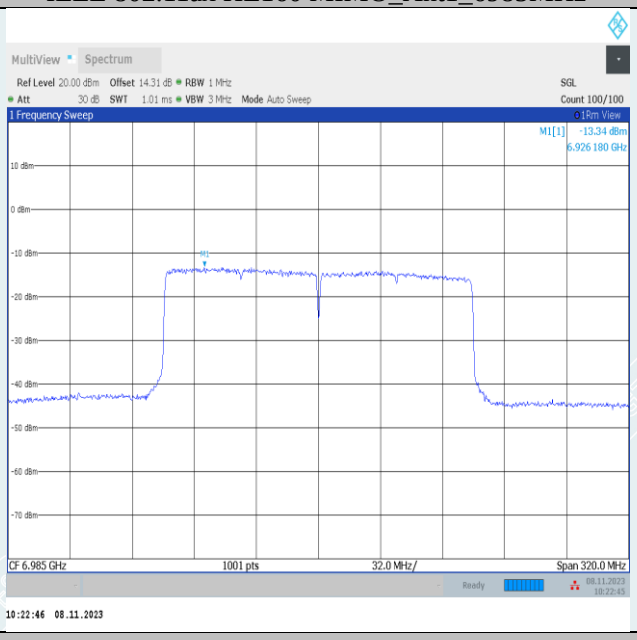


IEEE 802.11ax HE160 MIMO_Ant1_6985MHz


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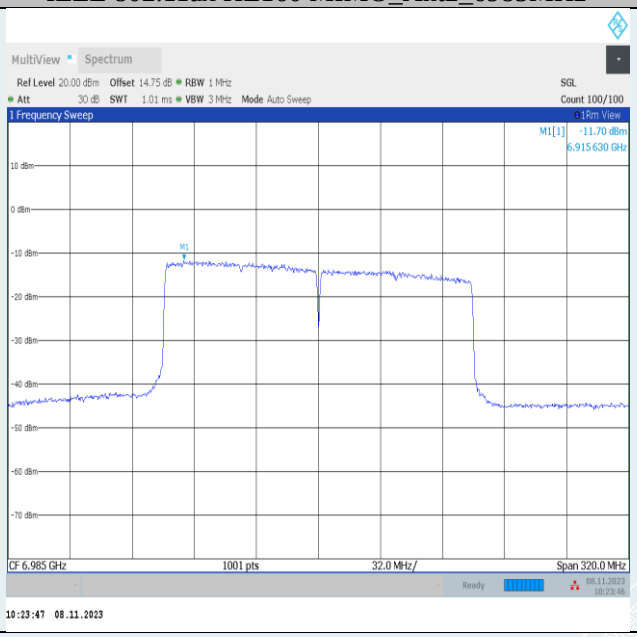


11. IN-BAND EMISSIONS

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].

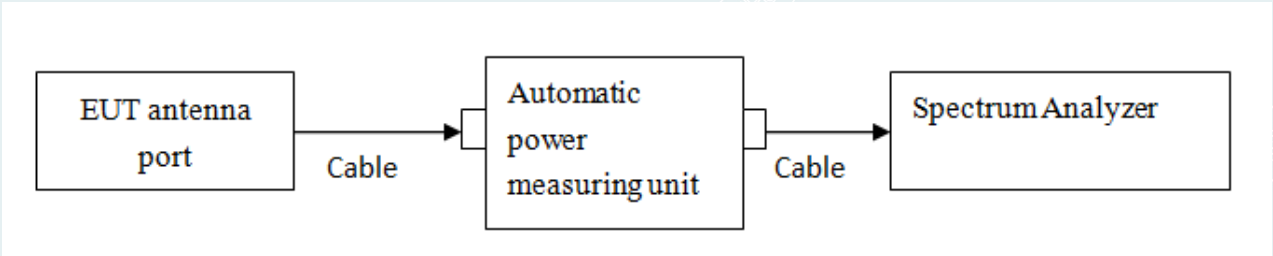
e) Sweep time = auto.

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**	2023-11-08
Environmental Conditions	25.8℃/65%RH/101.0kPa	**Test Voltage**	DC 20V

Test Mode	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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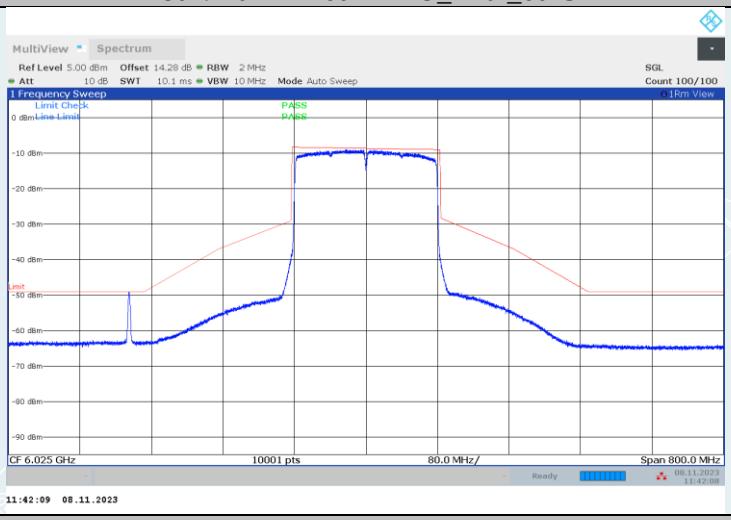
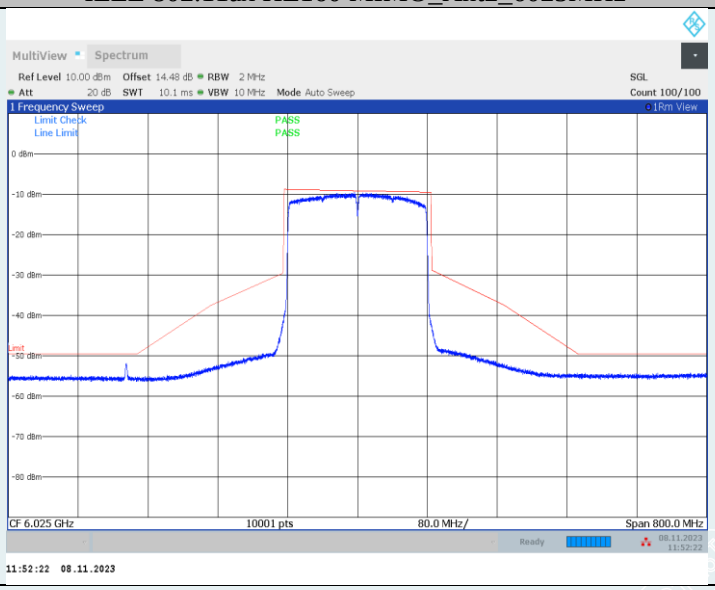
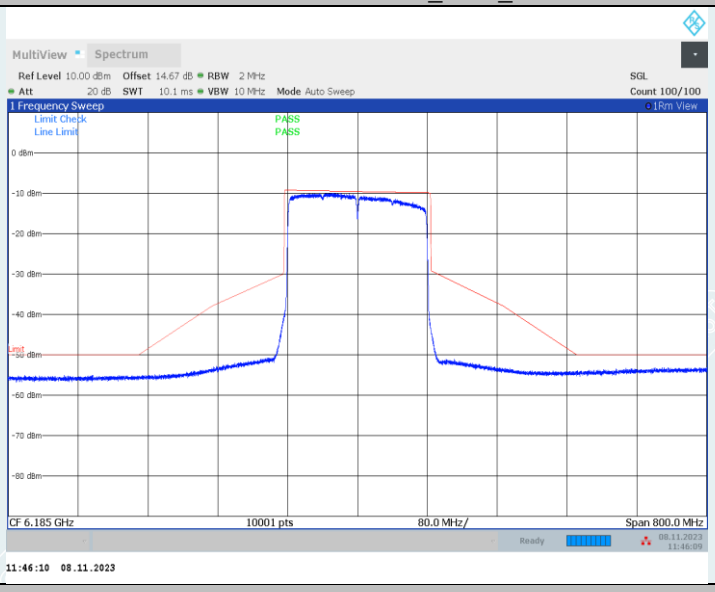
Test Graphs

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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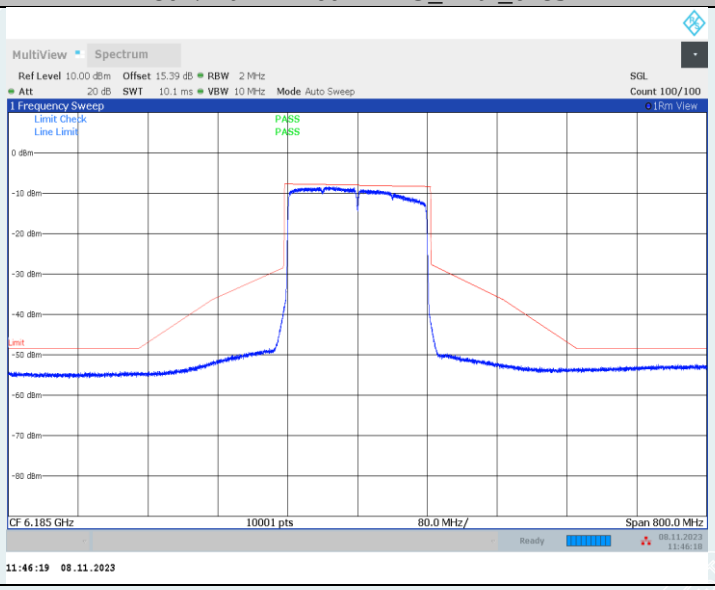
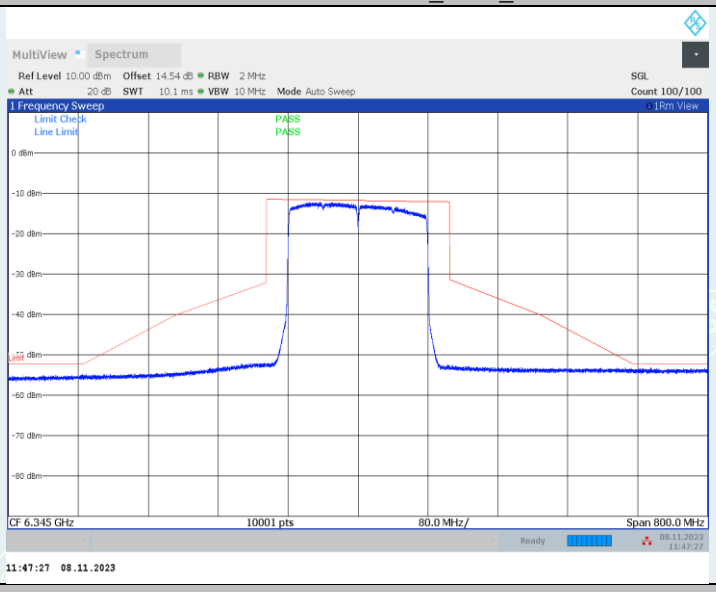


IEEE 802.11ax HE160 MIMO_Ant1_6345MHz

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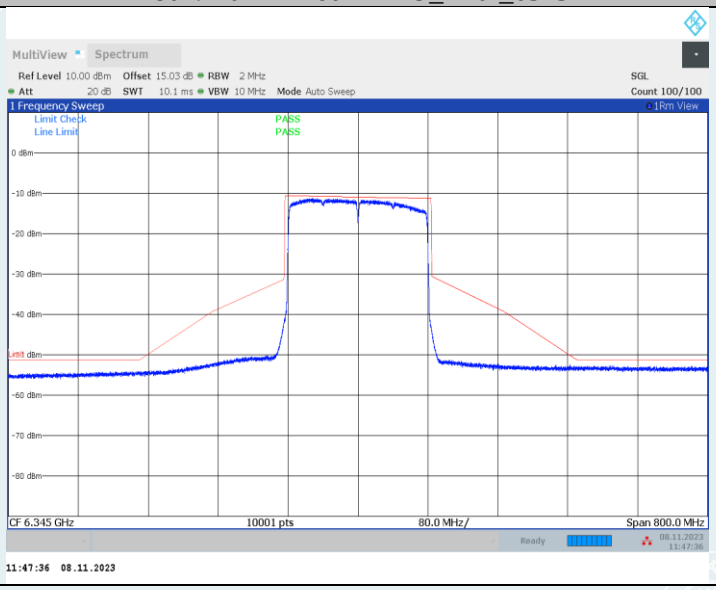
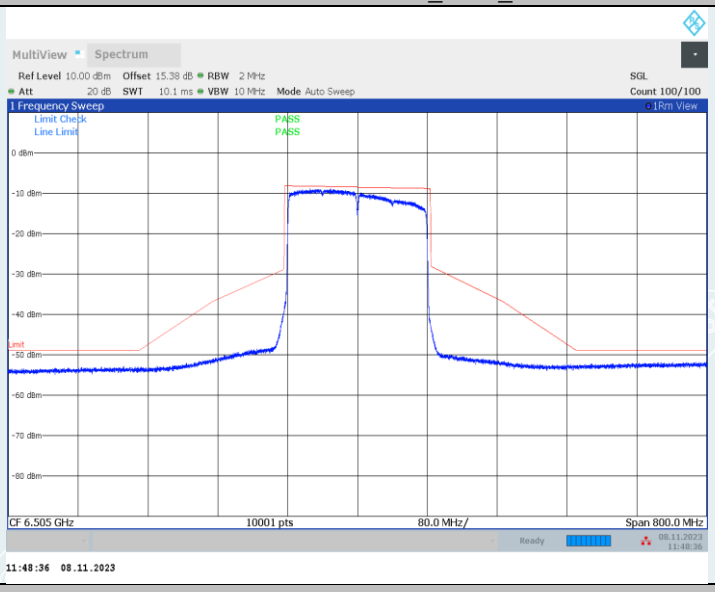


IEEE 802.11ax HE160 MIMO_Ant1_6505MHz

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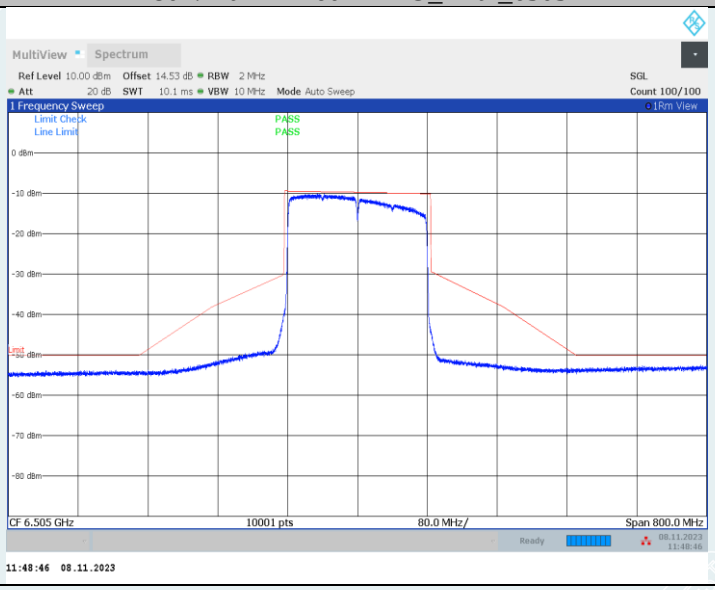
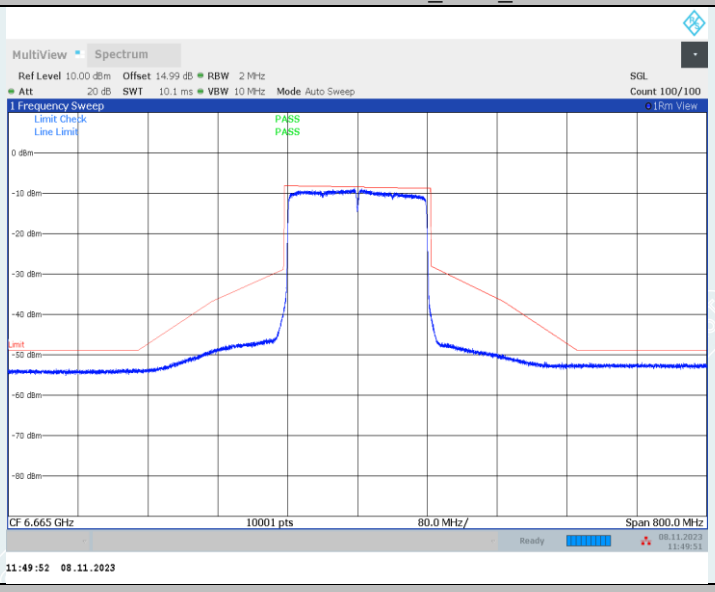


IEEE 802.11ax HE160 MIMO_Ant1_6665MHz

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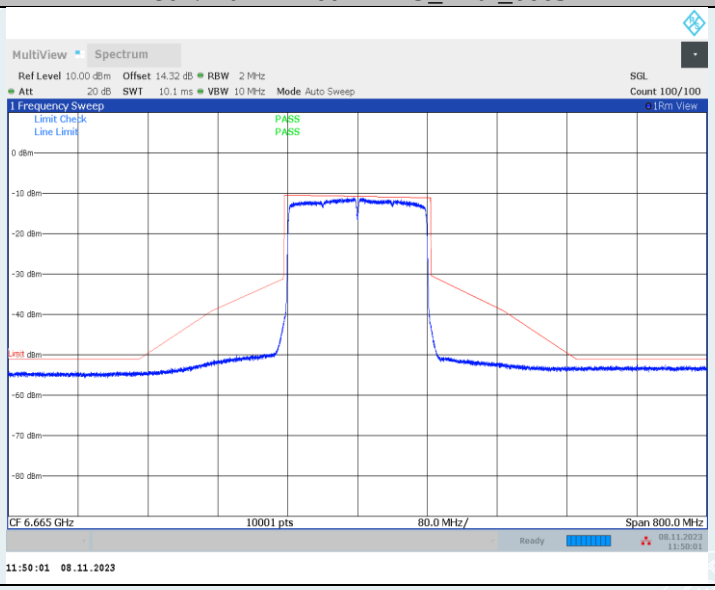
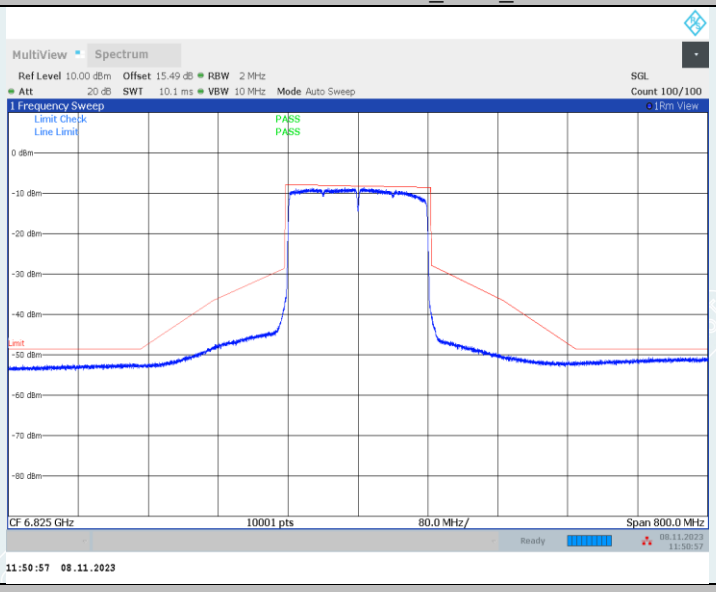
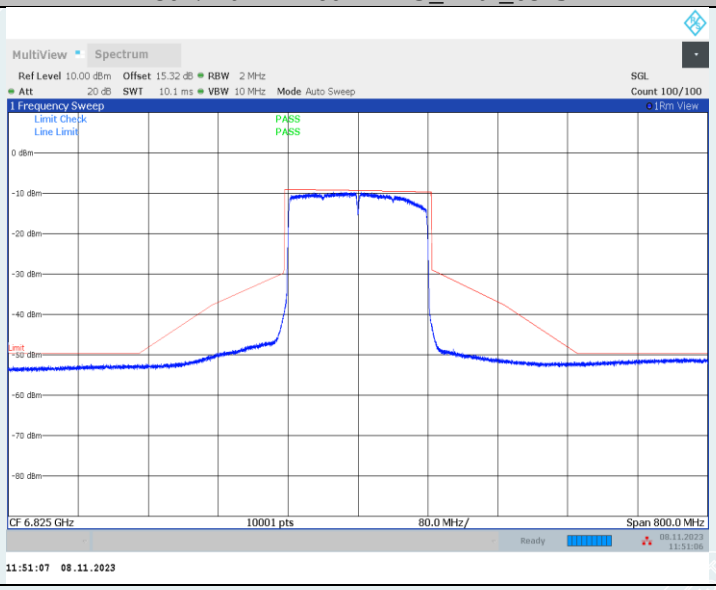
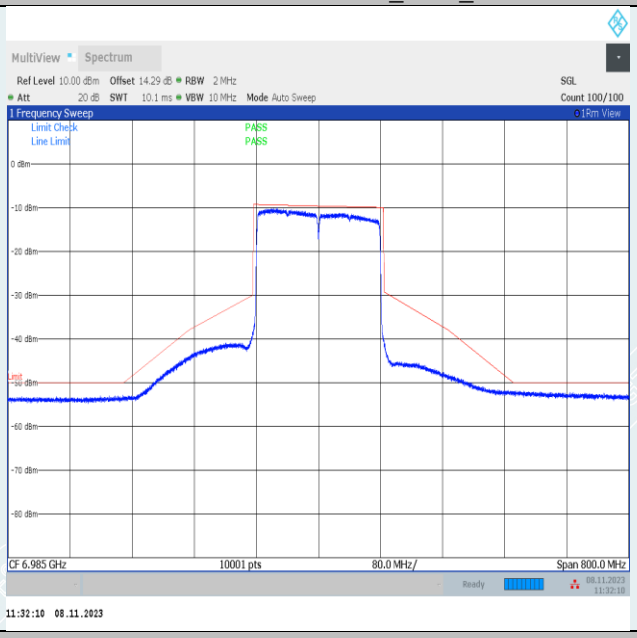
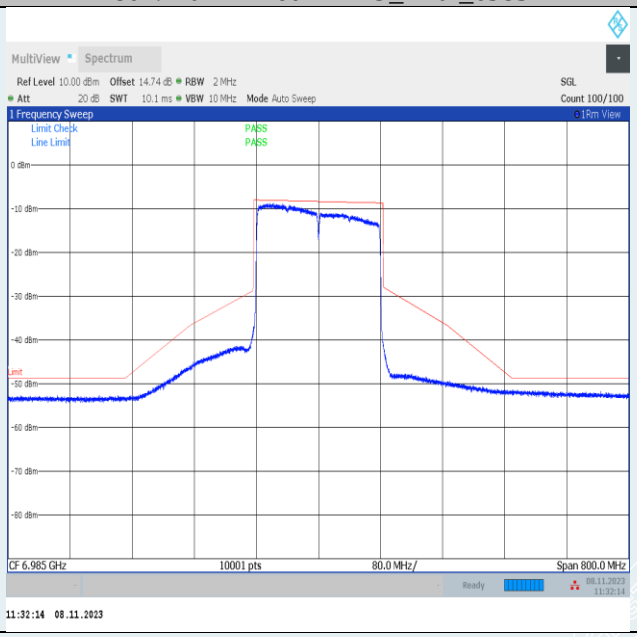


IEEE 802.11ax HE160 MIMO_Ant1_6825MHz

IEEE 802.11ax HE160 MIMO_Ant2_6825MHz


IEEE 802.11ax HE160 MIMO_Ant1_6985MHz

IEEE 802.11ax HE160 MIMO_Ant2_6985MHz


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.

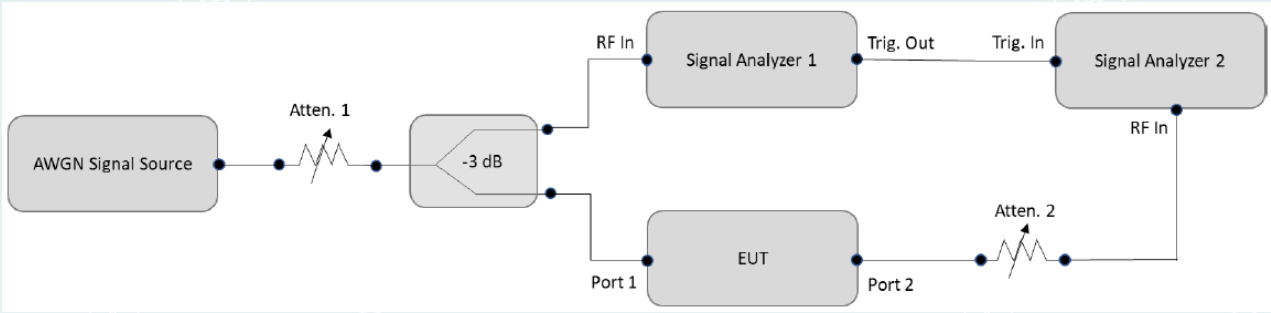
o) Transmit the AWGN signal (RF ON) and verify its characteristics on the signal analyzer 1.

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	2023-11-02
Environmental Conditions	25.3℃/65%RH/101.0kPa	Test Voltage	DC 20V

Test Mode: Mode 2

Frequency [MHz]	Interference Frequency [MHz]		Detection Level [dBm]	Adjusted Power [dBm]	Detection Limit [dBm]	Margin [dB]	Verdict
6025	Low	5951.4172	-68.13	-71.63	-62	9.63	PASS
	Center	6025	-66.69	-70.19	-62	8.19	PASS
	High	6099.0262	-70.76	-74.26	-62	12.26	PASS
6505	Low	6430.2921	-63.68	-67.18	-62	5.18	PASS
	Center	6505	-62.95	-66.45	-62	4.45	PASS
	High	6577.8945	-60.86	-64.36	-62	2.36	PASS
6665	Low	6590.7826	-69.1	-72.60	-62	10.60	PASS
	Center	6665	-69.03	-72.53	-62	10.53	PASS
	High	6739.2293	-70.01	-73.51	-62	11.51	PASS
6985	Low	6910.1515	-68.33	-71.83	-62	9.83	PASS
	Center	6985	-63.55	-67.05	-62	5.05	PASS
	High	7058.5812	-64.48	-67.98	-62	5.98	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.