FCC Radio Test Report

FCC ID: V7TMESH21XEP

Report No.	:	BTL-FCCP-4-2303C106
Equipment	:	AXE5700 Whole Home Mesh Wi-Fi 6E System
Model Name	:	Mesh21XEP, MX21 Pro, EX21 Pro
Brand Name	:	Tenda
Applicant	:	SHENZHEN TENDA TECHNOLOGY CO.,LTD.
Address	:	6-8 Floor, Tower E3, No. 1001, Zhongshanyuan Road, Nanshan District,Shenzhen, China. 518052
Equipment Class	:	6PP - 15E 6 GHz Subordinate Indoor Device
Radio Function	:	U-NII 6 GHz (U-NII 5, U-NII 6, U-NII 7, U-NII 8)
FCC Rule Part(s)	:	FCC CFR Title 47, Part 15, Subpart E (15.407)
Measurement Procedure(s)	:	ANSI C63.10-2013
Date of Receipt	:	2023/3/28
Date of Test	:	2023/4/18 ~ 2023/6/28
Issued Date	:	2023/7/13

The above equipment has been tested and found in compliance with the requirement of the above standards by BTL Inc.

Prepared by : Vincent Lee, Engineer

Approved by : Jerry Chuang, Supervisor

Testing Laboratory 0659

BTL Inc.

No.18, Ln. 171, Sec. 2, Jiuzong Rd., Neihu Dist., Taipei City 114, Taiwan

Tel: +886-2-2657-3299 Fax: +886-2-2657-3331 Web: www.newbtl.com Service mail: btl_qa@newbtl.com

Declaration

BTL represents to the client that testing is done in accordance with standard procedures as applicable and that test instruments used has been calibrated with standards traceable to international standard(s) and/or national standard(s).

BTL's reports apply only to the specific samples tested under conditions. It is manufacture's responsibility to ensure that additional production units of this model are manufactured with the identical electrical and mechanical components. **BTL** shall have no liability for any declarations, inferences or generalizations drawn by the client or others from **BTL** issued reports.

This report is the confidential property of the client. As a mutual protection to the clients, the public and ourselves, the test report shall not be reproduced, except in full, without our written approval.

BTL's laboratory quality assurance procedures are in compliance with the **ISO/IEC 17025** requirements, and accredited by the conformity assessment authorities listed in this test report.

BTL is not responsible for the sampling stage, so the results only apply to the sample as received.

The information, data and test plan are provided by manufacturer which may affect the validity of results, so it is manufacturer's responsibility to ensure that the apparatus meets the essential requirements of applied standards and in all the possible configurations as representative of its intended use.

Limitation

For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.

Please note that the measurement uncertainty is provided for informational purpose only and are not use in determining the Pass/Fail results.

CONTENTS

CONTENTS		3
REVISION HISTORY		5
1	SUMMARY OF TEST RESULTS	6
1.1	TEST FACILITY	7
1.2	MEASUREMENT UNCERTAINTY	7
1.3	TEST ENVIRONMENT CONDITIONS	7
1.4	DUTY CYCLE	8
2	GENERAL INFORMATION	9
2.1	EUT INFORMATION	9
2.2	TEST MODES	13
2.3	TESTED CONFIGURATION DIAGRAM	14
2.4	SUPPORT UNITS	15
3	MAXIMUM E.I.R.P. TEST	16
3.1	LIMITS	16
3.2	TEST PROCEDURE	16
3.3	DEVIATION FROM TEST STANDARD	18
3.4	TEST SETUP	18
3.5	EUT OPERATING CONDITIONS	18
3.6	TEST RESULT	18
4	MAXIMUM TRANSMITTER CHANNEL BANDWIDTH TEST	19
4.1	LIMITS	19
4.2	TEST PROCEDURE	19
4.3	DEVIATION FROM TEST STANDARD	20
4.4	TEST SETUP	20
4.5	EUT OPERATING CONDITIONS	20
4.6	TEST RESULT	20
5	MAXIMUM POWER SPECTRAL DENSITY TEST	21
5.1	LIMITS	21
5.2	TEST PROCEDURE	21
5.3	DEVIATION FROM TEST STANDARD	22
5.4	TEST SETUP	22
5.5	EUT OPERATING CONDITIONS	22
5.6	TEST RESULT	22
6	UNDESIRABLE EMISSIONS TEST	23
6.1	LIMITS	23
6.2	TEST PROCEDURE	24
6.3	DEVIATION FROM TEST STANDARD	25
6.4	TEST SETUP	25
6.5	EUT OPERATING CONDITIONS	26
6.6	TEST RESULT – BELOW 30 MHZ	26
6.7	TEST RESULT – 30 MHZ TO 1 GHZ	26
6.8	TEST RESULT – ABOVE 1 GHZ	26
7	IN-BAND EMISSION (MASK) TEST	27
7.1	LIMITS	27
7.2	TEST PROCEDURE	27
7.3	DEVIATION FROM TEST STANDARD	28

7.4	TEST SETUP	28
7.5	EUT OPERATING CONDITIONS	28
7.6	TEST RESULT	28
8	AC POWER LINE CONDUCTED EMISSIONS TEST	29
8.1	LIMITS	29
8.2	TEST PROCEDURE	29
8.3	DEVIATION FROM TEST STANDARD	30
8.4	TEST SETUP	30
8.5	EUT OPERATING CONDITIONS	30
8.6	TEST RESULT	30
9	CONTENTION-BASED PROTOCOL TEST	31
9.1	LIMITS	31
9.2	TEST PROCEDURE	31
9.3	DEVIATION FROM TEST STANDARD	32
9.4	TEST SETUP	33
9.5	EUT OPERATING CONDITIONS	33
9.6	TEST RESULT	33
10	LIST OF MEASURING EQUIPMENTS	34
11	EUT TEST PHOTOS	35
12	EUT PHOTOS	35

APPENDIX A	MAXIMUM E.I.R.P.	36
APPENDIX B	MAXIMUM TRANSMITTER CHANNEL BANDWIDTH	45
APPENDIX C	MAXIMUM POWER SPECTRAL DENSIT	59
APPENDIX D	UNDESIRABLE EMISSIONS - 30 MHZ TO 1 GHZ	90
APPENDIX E	UNDESIRABLE EMISSIONS - ABOVE 1 GHZ	93
APPENDIX F	IN-BAND EMISSION (MASK)	197
APPENDIX G	AC POWER LINE CONDUCTED EMISSIONS	218
APPENDIX H	CONTENTION-BASED PROTOCOL	223

REVISION HISTORY

Report No.	Version	Description	Issued Date	Note
BTL-FCCP-4-2303C106	R00	Original Report.	2023/7/10	Invalid
BTL-FCCP-4-2303C106	R01	Revised Typo.	2023/7/13	Valid

1 SUMMARY OF TEST RESULTS

Test procedures according to the technical standards.

Standard(s) Section	Description	Test Result	Judgement	Remark
15.203 15.407(a)(9)	Antenna requirement	------	Pass	------
15.407(a)(4)(5)(6)(7)(8)	Maximum e.i.r.p.	APPENDIX A	Pass	------
15.407(a)(10)	Maximum transmitter channel bandwidth	APPENDIX B	Pass	------
15.407(a)(12)	Maximum power spectral density	APPENDIX C	Pass	------
15.407(b)(6)(9)	Undesirable emissions	APPENDIX D APPENDIX E	Pass	------
15.407(b)(7)	In-band emission (Mask)	APPENDIX F	Pass	------
15.407(b)(9)	AC power line conducted emissions	APPENDIX G	Pass	------
15.407(b)(10)	Restricted bands of operation	------	Pass	------
15.407(c)	Automatically discontinue transmission	------	Pass	**NOTE (3)**
15.407(d)	Operational restrictions for 6 GHz U-NII devices	------	Pass	**NOTE (4)**
15.407(d)(6)	Contention-based protocol	APPENDIX H	Pass	**NOTE (5)**
15.407(g) 2.1055	Frequency stability	------	Pass	**NOTE (4)**

NOTE:
(1) ”N/A” denotes test is not applicable in this Test Report.
(2) The report format version is TP.1.1.1.
(3) The EUT can detect the controlling signal of ACK message transmitting from remote device and verify whether it shall resend or discontinue transmission.
(4) Declaration by manufacturer.
(5) Contention-Based Protocol Uses conducted method for testing.

1.1 TEST FACILITY

The test locations stated below are under the TAF Accreditation Number 0659.
The test location(s) used to collect the test data in this report are:
No. 68-1, Ln. 169, Sec. 2, Datong Rd., Xizhi Dist., New Taipei City 221, Taiwan
(FCC DN: TW0659)
☒ C05 ☐ CB08 ☐ CB11 ☒ SR10 ☐ SR11
No. 72, Ln. 169, Sec. 2, Datong Rd., Xizhi Dist., New Taipei City 221, Taiwan
(FCC DN: TW0659)
☐ C06 ☒ CB21 ☐ CB22

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement **y** ± **U**, where expanded uncertainty **U** is based on a standard uncertainty multiplied by a coverage factor of **k = 2**, providing a level of confidence of approximately **95 %**. The measurement instrumentation uncertainty considerations contained in CISPR 16-4-2. The BTL measurement uncertainty is less than the CISPR 16-4-2 U_{cispr} requirement.

A. Conducted test:

Test Item	U (dB)
Maximum e.i.r.p.	0.3669
Maximum transmitter channel bandwidth	0.5332
Maximum power spectral density	0.6590
In-band emission (Mask)	-
Contention-based protocol	-
Frequency stability	0.5333

B. Undesirable emissions test:

Test Site	Measurement Frequency Range	U (dB)
CB21	0.03 GHz ~ 0.2 GHz	4.17
	0.2 GHz ~ 1 GHz	4.72
	1 GHz ~ 6 GHz	5.21
	6 GHz ~ 18 GHz	5.51
	18 GHz ~ 26 GHz	3.69
	26 GHz ~ 40 GHz	4.23

C. AC power line conducted emissions test:

Test Site	Method	Measurement Frequency Range	U (dB)
C05	CISPR	150 kHz ~ 30MHz	3.44

NOTE:
Unless specifically mentioned, the uncertainty of measurement has not been taken into account to declare the compliance or non-compliance to the specification.

1.3 TEST ENVIRONMENT CONDITIONS

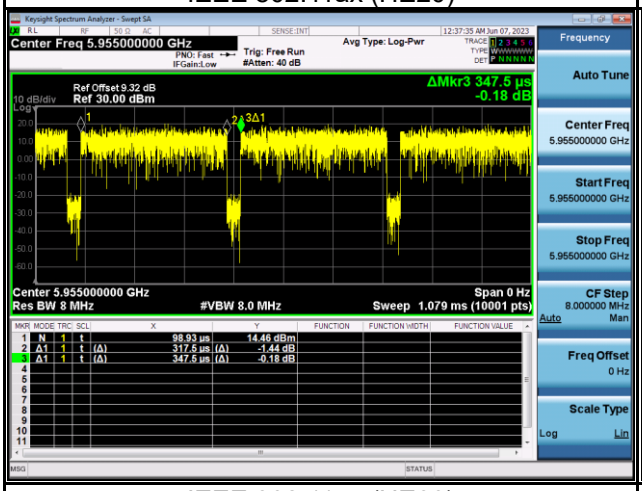
Test Item	Environment Condition	Test Voltage	Tested by
Maximum e.i.r.p.	24.3 °C, 51 %	AC 120V	Paul Shen
Maximum transmitter channel bandwidth	24.3 °C, 51 %	AC 120V	Paul Shen
Maximum power spectral density	24.3 °C, 51 %	AC 120V	Paul Shen
Undesirable emissions below 1 GHz	Refer to data	AC 120V	Mark Wang
Undesirable emissions above 1 GHz	Refer to data	AC 120V	Mark Wang
In-band emission (Mask)	24.3 °C, 51 %	AC 120V	Paul Shen
AC power line conducted emissions	25 °C, 66 %	AC 120V	Cora Lin
Contention-based protocol	23.4 °C, 55 %	AC 120V	Jay Tien
Frequency stability	24.3 °C, 51 %	AC 120V	Paul Shen

1.4 DUTY CYCLE

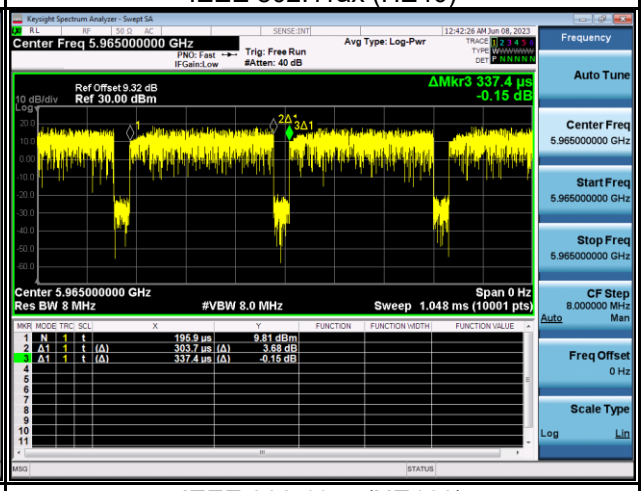
If duty cycle is ≥ 98 %, duty factor is not required.
If duty cycle is < 98 %, duty factor shall be considered.

Remark	Delta 1			Delta 2	On Time/Period	10 log(1/Duty Cycle)	1/On Time (B)
Mode	ON (ms)	Numbers (ON)	On Time (B) (ms)	Period (ON+OFF) (ms)	Duty Cycle (%)	Duty Factor (dB)	1/B Minimum VBW (kHz)
IEEE 802.11ax (HE20)	0.318	1	0.318	0.348	91.37%	0.39	3.150
IEEE 802.11ax (HE40)	0.304	1	0.304	0.337	90.01%	0.46	3.293
IEEE 802.11ax (HE80)	0.290	1	0.290	0.324	89.71%	0.47	3.446
IEEE 802.11ax (HE160)	0.292	1	0.292	0.325	89.75%	0.47	3.431

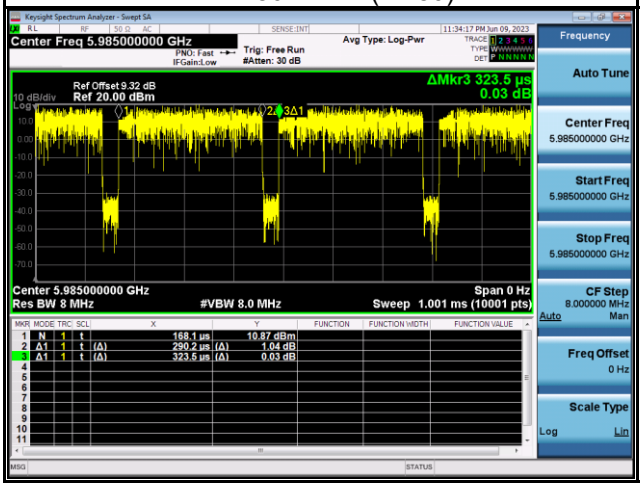
IEEE 802.11ax (HE20)



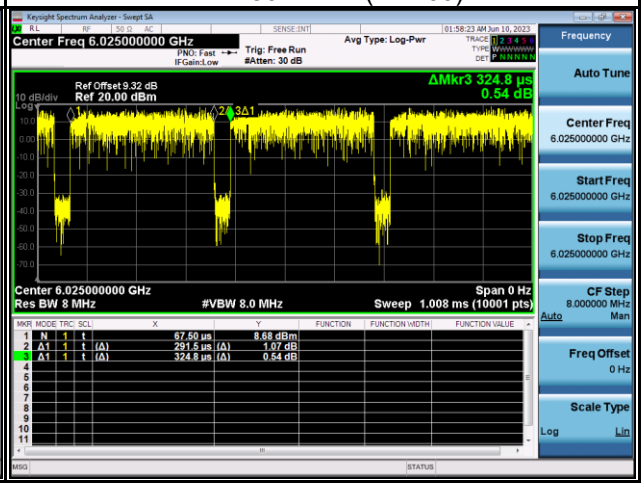
IEEE 802.11ax (HE40)



IEEE 802.11ax (HE80)



IEEE 802.11ax (HE160)



2 GENERAL INFORMATION

2.1 EUT INFORMATION

Equipment	AXE5700 Whole Home Mesh Wi-Fi 6E System
Model Name	Mesh21XEP, MX21 Pro, EX21 Pro
Brand Name	Tenda
Model Difference	Only differ in model name.
Power Source	DC voltage supplied from AC/DC Adapter.
Power Rating	I/P: 100-240V~50/60Hz 1.0A Max O/P: 12.0V⎓ 2.5A
Products Covered	1 * Adapter: GQ24-120250-AU
Frequency Range	U-NII 5: 5925 MHz ~ 6425 MHz U-NII 6: 6425 MHz ~ 6525 MHz U-NII 7: 6525 MHz ~ 6875 MHz U-NII 8: 6875 MHz ~ 7125 MHz
Operation Frequency	UNII-5: 5955 MHz ~ 6435 MHz UNII-6: 6435 MHz ~ 6515 MHz UNII-7: 6535 MHz ~ 6875 MHz UNII-8: 6895 MHz ~ 7095 MHz
Modulation Technology	OFDMA
Transfer Rate	IEEE 802.11ax: up to 2402 Mbps
Maximum E.I.R.P. for UNII-5 - Non-Beamforming mode	IEEE 802.11ax (HE20): 22.79 dBm (0.1901 W) IEEE 802.11ax (HE40): 25.49 dBm (0.3540 W) IEEE 802.11ax (HE80): 28.30 dBm (0.6756 W) IEEE 802.11ax (HE160): 29.57 dBm (0.9047 W)
Maximum E.I.R.P. for UNII-5 - Beamforming mode	IEEE 802.11ax (HE20): 22.36 dBm (0.1720 W) IEEE 802.11ax (HE40): 25.44 dBm (0.3503 W) IEEE 802.11ax (HE80): 28.08 dBm (0.6420 W) IEEE 802.11ax (HE160): 29.10 dBm (0.8122 W)
Maximum E.I.R.P. for UNII-6 - Non-Beamforming mode	IEEE 802.11ax (HE20): 23.28 dBm (0.2126 W) IEEE 802.11ax (HE40): 26.00 dBm (0.3979 W) IEEE 802.11ax (HE80): 28.56 dBm (0.7172 W) IEEE 802.11ax (HE160): 29.73 dBm (0.9391 W)
Maximum E.I.R.P. for UNII-6 - Beamforming mode	IEEE 802.11ax (HE20): 22.65 dBm (0.1841 W) IEEE 802.11ax (HE40): 25.88 dBm (0.3871 W) IEEE 802.11ax (HE80): 28.51 dBm (0.7097 W) IEEE 802.11ax (HE160): 29.63 dBm (0.9190 W)
Maximum E.I.R.P. for UNII-7 - Non-Beamforming mode	IEEE 802.11ax (HE20): 22.63 dBm (0.1833 W) IEEE 802.11ax (HE40): 26.11 dBm (0.4086 W) IEEE 802.11ax (HE80): 27.98 dBm (0.6284 W) IEEE 802.11ax (HE160): 29.54 dBm (0.8989 W)
Maximum E.I.R.P. for UNII-7 - Beamforming mode	IEEE 802.11ax (HE20): 22.29 dBm (0.1695 W) IEEE 802.11ax (HE40): 25.82 dBm (0.3817 W) IEEE 802.11ax (HE80): 27.72 dBm (0.5912 W) IEEE 802.11ax (HE160): 28.95 dBm (0.7861 W)
Maximum E.I.R.P. for UNII-8 - Non-Beamforming mode	IEEE 802.11ax (HE20): 23.55 dBm (0.2267 W) IEEE 802.11ax (HE40): 25.44 dBm (0.3499 W) IEEE 802.11ax (HE80): 28.82 dBm (0.7613 W) IEEE 802.11ax (HE160): 29.74 dBm (0.9419 W)
Maximum E.I.R.P. for UNII-8 - Beamforming mode	IEEE 802.11ax (HE20): 23.30 dBm (0.2140 W) IEEE 802.11ax (HE40): 25.26 dBm (0.3355 W) IEEE 802.11ax (HE80): 28.75 dBm (0.7491 W) IEEE 802.11ax (HE160): 29.36 dBm (0.8620 W)
Operating Software	Access Manual Tool 3.2.1.3
Test Model	Mesh21XEP
Sample Status	Engineering Sample
EUT Modification(s)	N/A

NOTE:
(1) The above EUT information is declared by manufacturer and for more detailed features description, please refers to the manufacturer's specifications or user's manual.

(2) Channel List:

UNII-5							
IEEE 802.11ax (HE20)		IEEE 802.11ax (HE40)		IEEE 802.11ax (HE80)		IEEE 802.11ax (HE160)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	5955	3	5965	7	5985	15	6025
5	5975	11	6005	23	6065	47	6185
9	5995	19	6045	39	6145	79	6345
13	6015	27	6085	55	6225		
17	6035	35	6125	71	6305		
21	6055	43	6165	87	6385		
25	6075	51	6205				
29	6095	59	6245				
33	6115	67	6285				
37	6135	75	6325				
41	6155	83	6365				
45	6175	91	6405				
49	6195						
53	6215						
57	6235						
61	6255						
65	6275						
69	6295						
73	6315						
77	6335						
81	6355						
85	6375						
89	6395						
93	6415						

UNII-6							
IEEE 802.11ax (HE20)		IEEE 802.11ax (HE40)		IEEE 802.11ax (HE80)		IEEE 802.11ax (HE160)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
97	6435	99	6445	103	6465	111	6505
101	6455	107	6485	119	6545		
105	6475						
109	6495						
113	6515						

UNII-7							
IEEE 802.11ax (HE20)		IEEE 802.11ax (HE40)		IEEE 802.11ax (HE80)		IEEE 802.11ax (HE160)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
117	6535	115	6525	135	6625	143	6665
121	6555	123	6565	151	6705	175	6825
125	6575	131	6605	167	6785		
129	6595	139	6645				
133	6615	147	6685				
137	6635	155	6725				
141	6655	163	6765				
145	6675	171	6805				
149	6695	179	6845				
153	6715						
157	6735						
161	6755						
165	6775						
169	6795						
173	6815						
177	6835						
181	6855						

UNII-8							
IEEE 802.11ax (HE20)		IEEE 802.11ax (HE40)		IEEE 802.11ax (HE80)		IEEE 802.11ax (HE160)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
185	6875	187	6885	183	6865	207	6985
189	6895	195	6925	199	6945		
193	6915	203	6965	215	7025		
197	6935	211	7005				
201	6955	219	7045				
205	6975	227	7085				
209	6995						
213	7015						
217	7035						
221	7055						
225	7075						
229	7095						

(3) Table for Filed Antenna:

Ant.	Brand	Part number	Type	Connector	Frequency Range (MHz)	Gain (dBi)
1	Tenda	MX21V1.0	PIFA	I-PEX	5900-7100	5.89
2	Tenda	MX21V1.0	PIFA	I-PEX	5900-7100	6.27

CDD Directional Gain = Antenna Gain + Array Gain, Array Gain = 0 dB for NANT ≤ 4; Beamforming Directional Gain = Antenna Gain + 10*log (NANT/NSS).

(4) The above Antenna information are derived from the antenna data sheet provided by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.

(5) Operating Mode and Antenna Configuration

Operating Mode / TX Mode	2TX
IEEE 802.11ax (HE20)	V (Ant. 1 + Ant. 2)
IEEE 802.11ax (HE40)	V (Ant. 1 + Ant. 2)
IEEE 802.11ax (HE80)	V (Ant. 1 + Ant. 2)
IEEE 802.11ax (HE160)	V (Ant. 1 + Ant. 2)

2.2 TEST MODES

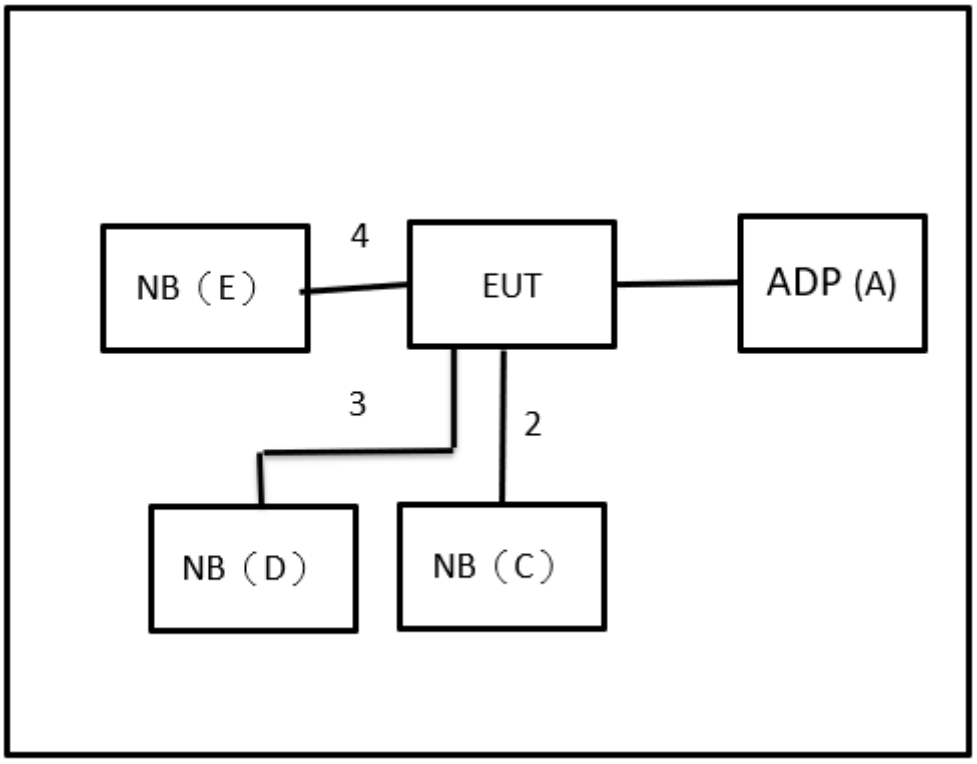
Test Items	Test mode	Channel	Note
AC power line conducted emissions	Normal/Idle	-	-
Undesirable emissions (below 1GHz)	IEEE 802.11ax (HE160)	207	-
Undesirable emissions (above 1GHz)	IEEE 802.11ax (HE20)	1/93, 97/113 117/181, 185/229	Bandedge
	IEEE 802.11ax (HE40)	3/91, 99/107 115/179, 187/227	
	IEEE 802.11ax (HE80)	7/87, 103/119 135/167, 183/215	
	IEEE 802.11ax (HE160)	15/79, 111 143, 207	
	IEEE 802.11ax (HE20)	1/45/93 97/105/113 117/149/181 185/209/229	Harmonic
	IEEE 802.11ax (HE40)	3/43/91, 99/107 115/147/179 187/227	
	IEEE 802.11ax (HE80)	7/39/87, 103/119 135/167 183/199/215	
	IEEE 802.11ax (HE160)	15/79, 111 143, 207	
Maximum e.i.r.p. & Maximum transmitter channel bandwidth & Maximum power spectral density & In-band emission (Mask)	IEEE 802.11ax (HE20)	1/45/93 97/105/113 117/149/181 185/209/229	-
	IEEE 802.11ax (HE40)	3/43/91, 99/107 115/147/179 187/227	
	IEEE 802.11ax (HE80)	7/39/87, 103/119 135/167 183/199/215	
	IEEE 802.11ax (HE160)	15/79, 111 143, 207	
Contention-based protocol	IEEE 802.11ax (HE20)	37, 101 117, 197	-
	IEEE 802.11ax (HE160)	15, 111 143, 207	

NOTE:
(1) For radiated emission band edge test, both Vertical and Horizontal are evaluated, but only the worst case (Vertical) is recorded.
(2) All X, Y and Z axes are evaluated, but only the worst case (X axis) is recorded.
(3) For IEEE 802.11ax modes, refer to TCB Workshop presentations on October 3, 2018, after evaluated, all testing are performed under fully loaded conditions (Full RU). In the test data, only the partially loaded conditions data are marked with tones.

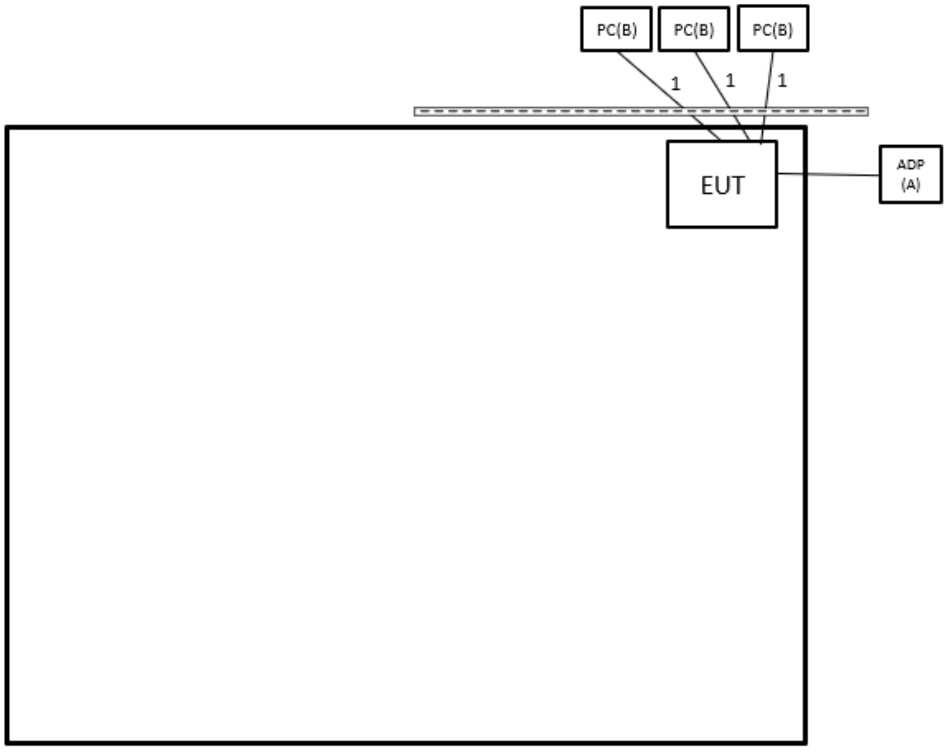
2.3 TESTED CONFIGURATION DIAGRAM

Equipment letters and Cable numbers refer to item numbers described in the tables of clause 2.4.

Undesirable emissions



AC power line conducted emissions



2.4 SUPPORT UNITS

Item	Equipment	Brand	Model No.	Series No.	Remarks
A	ADAPTER	Intertek	GQ24-120250-AU	N/A	Supplied by test requester
B	PC	DELL	OptiPlex 790 MT	64NJVBX	Furnished by test lab.
C	NB	HP	TPN-C125	N/A	Furnished by test lab.
D	NB	HP	TPN-C125	N/A	Furnished by test lab.
E	NB	Acer	N/A	N/A	Furnished by test lab.

Item	Shielded	Ferrite Core	Length	Cable Type	Remarks
1	No	No	6m	RJ-45 Cable	Furnished by test lab.
2	No	No	1m	RJ-45 Cable	Furnished by test lab.
3	No	No	1m	RJ-45 Cable	Furnished by test lab.
4	No	No	1m	RJ-45 Cable	Furnished by test lab.

3 MAXIMUM E.I.R.P. TEST

3.1 LIMITS

According to 15.407(a)(4)(5)(6)(7)(8) the limits are as follows:

Equipment Category	Band	Maximum e.i.r.p. Limit
Standard power access point* Fixed client*	U-NII 5 (5.925-6.425 GHz)	36 dBm
	U-NII 7 (6.525-6.875 GHz)	
Indoor access point Subordinate device	U-NII 5 (5.925-6.425 GHz)	30 dBm
	U-NII 6 (6.425-6.525 GHz)	
	U-NII 7 (6.525-6.875 GHz)	
	U-NII 8 (6.875-7.125 GHz)	
Standard power access point client devices	U-NII 5 (5.925-6.425 GHz)	30 dBm and the device must limit its power to no more than 6 dB below its associated standard power access point's authorized transmit power
	U-NII 6 (6.425-6.525 GHz)	
	U-NII 7 (6.525-6.875 GHz)	
	U-NII 8 (6.875-7.125 GHz)	
Indoor access point client devices	U-NII 5 (5.925-6.425 GHz)	24 dBm
	U-NII 6 (6.425-6.525 GHz)	
	U-NII 7 (6.525-6.875 GHz)	
	U-NII 8 (6.875-7.125 GHz)	
* For outdoor devices, the maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).		

According to 15.407(a)(11):
The maximum conducted output power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage.

3.2 TEST PROCEDURE

Referring to FCC KDB 987594 D02, clause E. and FCC KDB 789033 D02, clause E. 3 Measurement using a Power Meter (PM):

a. The maximum peak conducted output power was performed in accordance with method of clause E. 3. a) Method PM (Measurement using an RF average power meter):
   (i) Measurements may be performed using a wideband RF power meter with a thermocouple detector or equivalent if all of the following conditions are satisfied:
   - The EUT is configured to transmit continuously or to transmit with a constant duty cycle.
   - At all times when the EUT is transmitting, it must be transmitting at its maximum power control level.
   - The integration period of the power meter exceeds the repetition period of the transmitted signal by at least a factor of five.

   (ii) If the transmitter does not transmit continuously, measure the duty cycle, x, of the transmitter output signal.
   (iii) Measure the average power of the transmitter. This measurement is an average over both the on and off periods of the transmitter.
   (iv) Adjust the measurement in dBm by adding 10 log (1/x) where x is the duty cycle (e.g., 10 log (1/0.25) if the duty cycle is 25%).

b. The maximum peak conducted output power was performed in accordance with method of clause E. 3. b) Method PM-G (Measurement using a gated RF average power meter):
   Measurements may be performed using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

Referring to FCC KDB 987594 D02, clause H. Measurement of emission at elevation angles higher than 30° from horizon:

Note: Elevation angle is defined as 0° is horizontal and 90° is straight-up.

For fixed infrastructure, not electrically or mechanically steerable beam antenna

a. If elevation plane radiation pattern is available:
   (i) Determine the device intended mounting elevation angle and define 0° reference angle on the elevation plane radiation pattern.
   (ii) Indicate any radiation pattern between 30° and 90° which has the highest gain.
   (iii) Calculate the EIRP based on this highest gain and conducted output power.
   (iv) Compare to the 125 mW limit to establish compliance.
   (v) Include the elevation pattern data in the application filing with the test report to show how the calculations are made.
   Note: For MIMO devices, take the maximum gain of each antenna and apply the guidance in KDB Publication 662911 for calculating the overall gain including directional gain for the maximum EIRP calculation.
b. If the elevation plane radiation pattern is not available, but the antenna type (such as dipole omnidirectional, Yagi, parabolic, or sector antenna) has a symmetrical elevation plane pattern referenced at the main beam and all lobes on the main beam elevation plane have highest gains, then the following measurement method is acceptable to determine compliance:
   (i) Determine the device's intended mounting elevation angle referenced to the horizon.
   (ii) Rotate the EUT antenna by 90° around the main beam axis in a horizontal position to transform the measurement in elevation angle into an azimuth angle and define a 0° reference angle based on the device's intended mounting elevation angle.
   (iii) Move the test antenna along the horizontal arc, or rotate the turntable with the EUT antenna placed at the center, between 30° and 90° relative to the 0° reference angle, and then continuing down from 90° to 30° on the other side of the pattern, while maintaining the test antenna pointing with constant distance to the EUT antenna. Search for the spot which has the highest measured emission. Both horizontal and vertical polarization shall be investigated to determine the maximum radiated emission level.
   Note: Moving the test antenna along the horizontal arc, or rotating the turntable, shall be performed in an angular step size as small as possible, but not larger than 3°.
   (iv) Calculate the EIRP based on the highest measured emission. Compare to the limit of 125 mW to determine compliance.
   (v) The antenna pattern measurements must be included in the filing.

For All Other Antenna Types

For all other antenna types (such as patch antennas, array antennas, antennas with irregular radiator shapes, etc.) which have any combination of following characteristics:

- Asymmetrical, complex radiation patterns
- 2-D or 3-D steerable beam
- Portable/mobile, not fixed infrastructure device

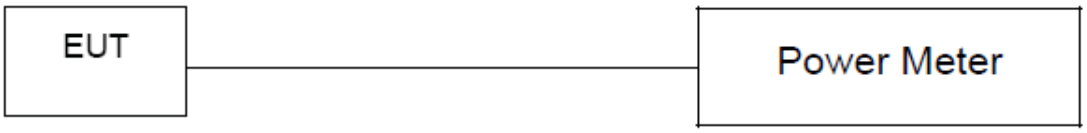
Provide the following information in the report:

a. Describe what type of antenna is used.
b. Determine by calculation, measurement or simulation, all radiation lobes/beams, which have EIRP higher than 125 mW within a 3-dB elevation beamwidth.
c. Provide an explanation of how these antenna beams are controlled to be kept below the 30° elevation angle. The explanation should include device installation instructions, mechanical control, electro-mechanical control or software algorithms, if the beams are electrically controlled by software.

3.3 DEVIATION FROM TEST STANDARD

No deviation.

3.4 TEST SETUP



3.5 EUT OPERATING CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

3.6 TEST RESULT

Please refer to the APPENDIX A.

4 MAXIMUM TRANSMITTER CHANNEL BANDWIDTH TEST

4.1 LIMITS

According to 15.407(a)(10):
The maximum transmitter channel bandwidth for U-NII devices in the 5.925-7.125 GHz band is 320 megahertz.

4.2 TEST PROCEDURE

For Emission Bandwidth (EBW):
Referring to FCC KDB 987594 D02, clause C. and FCC KDB 789033 D02, clause C. 1. Emission Bandwidth (EBW):
a) Set RBW = approximately 1% of the emission bandwidth.
b) Set the VBW > RBW.
c) Detector = Peak.
d) Trace mode = max hold.
e) Measure the maximum width of the emission that is 26 dB down from the maximum of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

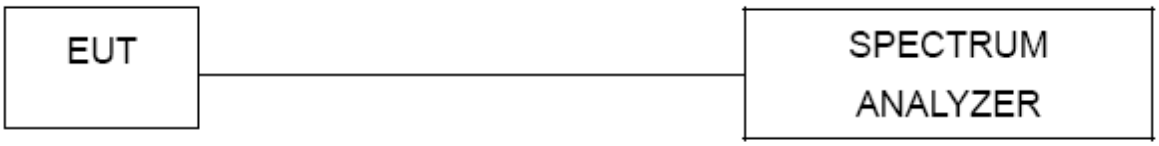
For 99% Occupied Bandwidth:
Referring to FCC KDB 987594 D02, clause D. and FCC KDB 789033 D02, clause D. 99% Occupied Bandwidth:
The 99% occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers are each equal to 0.5% of the total mean power of the given emission. Measurement of the 99% occupied bandwidth is required only as a condition for using the optional band-edge measurement techniques. Measurements of 99% occupied bandwidth may also optionally be used in lieu of the EBW to define the minimum frequency range over which the spectrum is integrated when measuring maximum conducted output power. However, the EBW must be measured to determine bandwidth dependent limits on maximum conducted output power in accordance with Section 15.407(a).

The following procedure shall be used for measuring (99%) power bandwidth:
1. Set center frequency to the nominal EUT channel center frequency.
2. Set span = 1.5 times to 5.0 times the OBW.
3. Set RBW = 1% to 5% of the OBW
4. Set VBW ≥ 3 RBW
5. Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
6. Use the 99% power bandwidth function of the instrument (if available).
7. If the instrument does not have a 99% power bandwidth function, the trace data points are recovered and directly summed in power units. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5% of the total is reached; that frequency is recorded as the upper frequency. The 99% occupied bandwidth is the difference between these two frequencies.

4.3 DEVIATION FROM TEST STANDARD

No deviation.

4.4 TEST SETUP



4.5 EUT OPERATING CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

4.6 TEST RESULT

Please refer to the APPENDIX B.

5 MAXIMUM POWER SPECTRAL DENSITY TEST

5.1 LIMITS

According to 15.407(a)(4)(5)(6)(7)(8) the limits are as follows:

Equipment Category	Band	Maximum Power Spectral Density (e.i.r.p.) Limit
Standard power access point Fixed client	U-NII 5 (5.925-6.425 GHz)	23 dBm/MHz
	U-NII 7 (6.525-6.875 GHz)	
Indoor access point Subordinate device	U-NII 5 (5.925-6.425 GHz)	5 dBm/MHz
	U-NII 6 (6.425-6.525 GHz)	
	U-NII 7 (6.525-6.875 GHz)	
	U-NII 8 (6.875-7.125 GHz)	
Standard power access point client devices	U-NII 5 (5.925-6.425 GHz)	17 dBm/MHz
	U-NII 6 (6.425-6.525 GHz)	
	U-NII 7 (6.525-6.875 GHz)	
	U-NII 8 (6.875-7.125 GHz)	
Indoor access point client devices	U-NII 5 (5.925-6.425 GHz)	-1 dBm/MHz
	U-NII 6 (6.425-6.525 GHz)	
	U-NII 7 (6.525-6.875 GHz)	
	U-NII 8 (6.875-7.125 GHz)	

5.2 TEST PROCEDURE

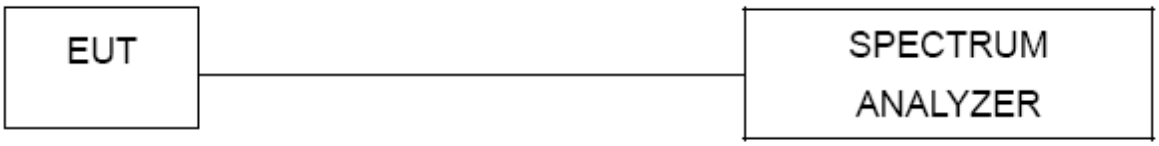
Referring to FCC KDB 987594 D02, clause F. and FCC KDB 789033 D02, clause F. Maximum Power Spectral Density (PSD):
Method SA-1 is used.

a. Set Attenuation = auto.
b. Span Frequency = Encompass the entire emissions bandwidth (EBW) of the signal.
c. Set RBW = 1 MHz.
d. Set VBW > 3 MHz.
e. Detector = RMS.
f. Trace mode = max hold.
g. Sweep time = auto.
h. Record the maximum value.
i. Record the maximum value and add 10 log (1/ duty cycle).
j. Record the maximum value and add 1 dB.

5.3 DEVIATION FROM TEST STANDARD

No deviation.

5.4 TEST SETUP



5.5 EUT OPERATING CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

5.6 TEST RESULT

Please refer to the APPENDIX C.

6 UNDESIRABLE EMISSIONS TEST

6.1 LIMITS

According to 15.407(b)(6) the limits are as follows:
For transmitters operating within the 5.925-7.125 GHz band: Any emissions outside of the 5.925-7.125 GHz band must not exceed an e.i.r.p. of −27 dBm/MHz.

According to FCC KDB 987594 D02, clause G. Unwanted Emission Measurement:
Use guidance in KDB 789033 for measurements below 1000 MHz and above 1000 MHz. Unwanted emissions outside of restricted bands are measured with a RMS detector. In addition, 15.35(b) applies where the peak emissions must be limited to no more than 20 dB above the average limit

Item	Maximum e.i.r.p. Limit	Maximum field strength Limit @ 3m
Any emissions outside of the 5.925-7.125 GHz band	Peak: -7 dBm/MHz	88.2 dBuV/m
	Average: -27 dBm/MHz	68.2 dBuV/m

Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in § 15.209.

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(kHz)	300
0.490~1.705	24000/F(kHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
960~1000	500	3

According to 15.407(b)(9) the limits are as follows:
Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in § 15.209.

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(kHz)	300
0.490~1.705	24000/F(kHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
960~1000	500	3

NOTE:
(1) e.i.r.p. Limit (dBuV/m at 3m) = Power Limit(dBm) + 95.2. (Referring to FCC KDB 987594 D02, clause G.2.d)(iii))
(2) Emission level (dBuV/m) = 20log Emission level (uV/m).
3 m Emission level = 10 m Emission level + 20log(10 m/3 m).

(3) The test result calculated as following:
Measurement Value = Reading Level + Correct Factor
Correct Factor = Antenna Factor + Cable Loss - Amplifier Gain (if use)
Margin Level = Measurement Value - Limit Value
Calculation example:

Reading Level		Correct Factor		Measurement Value
19.11	+	2.11	=	21.22

Measurement Value		Limit Value		Margin Level
21.22	-	68.2	=	-46.98

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RBW / VBW (Emission in restricted band)	1MHz / 3MHz for Peak, 1MHz / 1/T for Average

Spectrum Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9KHz~90KHz for PK/AVG detector
Start ~ Stop Frequency	90KHz~110KHz for QP detector
Start ~ Stop Frequency	110KHz~490KHz for PK/AVG detector
Start ~ Stop Frequency	490KHz~30MHz for QP detector
Start ~ Stop Frequency	30MHz~1000MHz for QP detector

6.2 TEST PROCEDURE

Referring to FCC KDB 987594 D02, clause G. and FCC KDB 789033 D02, clause G. Unwanted Emission Measurement:

For measurements below 30 MHz:
a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
c. Parallel, perpendicular, and ground-parallel orientations of the antenna are set to make the measurement.
d. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
e. The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

For measurements 30 MHz to 40 GHz:
a. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation. (between 30 MHz to 1 GHz)
b. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 1.5 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation. (between 1 GHz to 40 GHz)
c. The height of the equipment or of the substitution antenna shall be 0.8 m or 1.5 m, the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights find the maximum reading (used Bore sight function).
e. The receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1GHz.

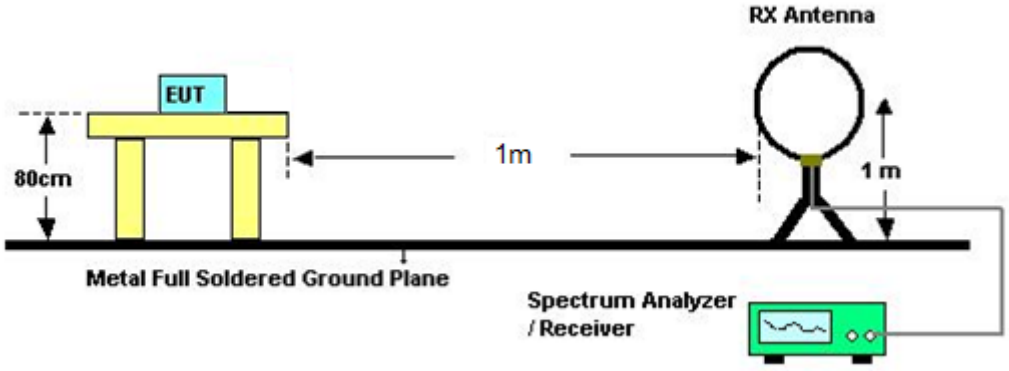
f. The initial step in collecting radiated emission data is a receiver peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
g. All readings are Peak unless otherwise stated QP in column of Note. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform. (between 30 MHz to 1 GHz)
h. All readings are Peak Mode value unless otherwise stated AVG in column of Note. If the Peak Mode Measured value compliance with the Peak Limits and lower than AVG Limits, the EUT shall be deemed to meet both Peak & AVG Limits and then only Peak Mode was measured, but AVG Mode didn't perform. (between 30 MHz to 1 GHz)

6.3 DEVIATION FROM TEST STANDARD

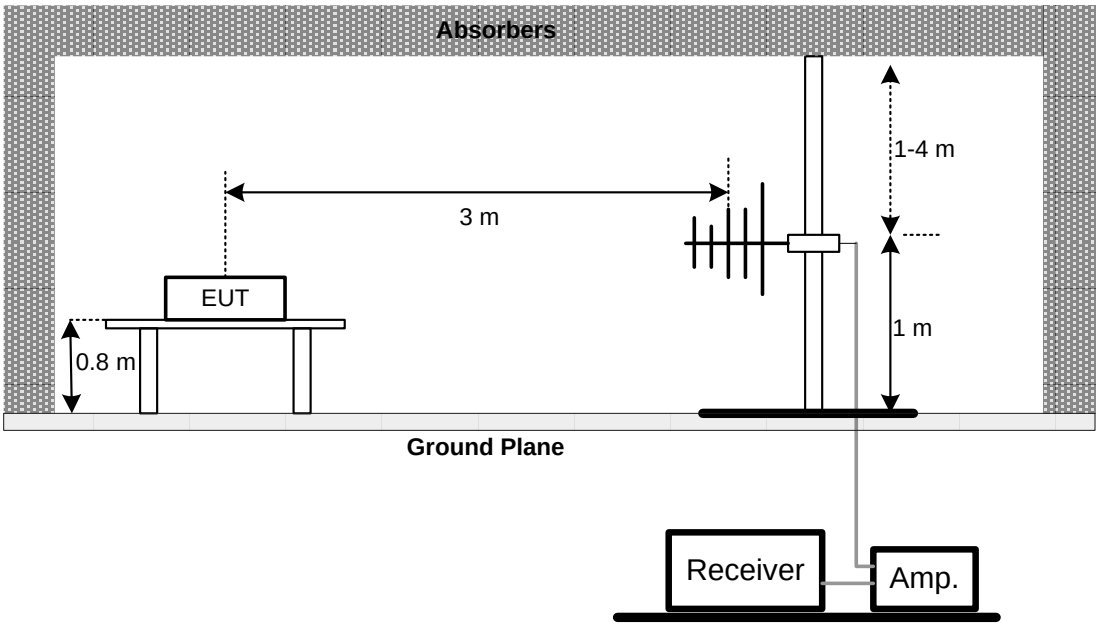
No deviation.

6.4 TEST SETUP

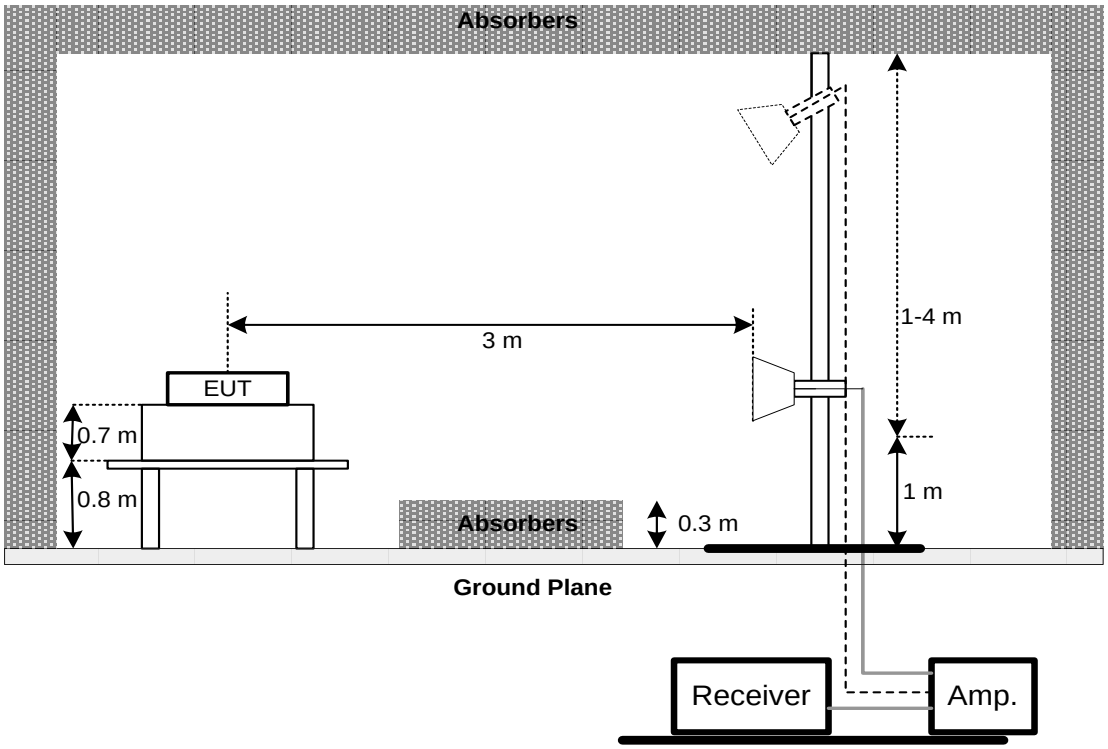
9 kHz to 30 MHz



30 MHz to 1 GHz



Above 1 GHz



6.5 EUT OPERATING CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

NOTE:
(1) Distance extrapolation factor = 40 log (specific distance / test distance) (dB).
(2) Limit line = specific limits (dBuV) + distance extrapolation factor.

6.6 TEST RESULT – BELOW 30 MHZ

There were no emissions found below 30 MHz within 20 dB of the limit.

6.7 TEST RESULT – 30 MHZ TO 1 GHZ

Please refer to the APPENDIX D.

6.8 TEST RESULT – ABOVE 1 GHZ

Please refer to the APPENDIX E.

7 IN-BAND EMISSION (MASK) TEST

7.1 LIMITS

According to 15.407(b)(7) the limits are as follows:

Item	Test Frequency Range	Power spectral density suppressed Limit
In-Band Emissions (Mask)	at 1 MHz outside of channel edge	20 dB
	at one channel bandwidth from the channel center	28 dB
	at one- and one-half times the channel bandwidth away from channel center	40 dB
	Emissions removed from the channel center by more than one- and one-half times the channel bandwidth	40 dB
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.		

7.2 TEST PROCEDURE

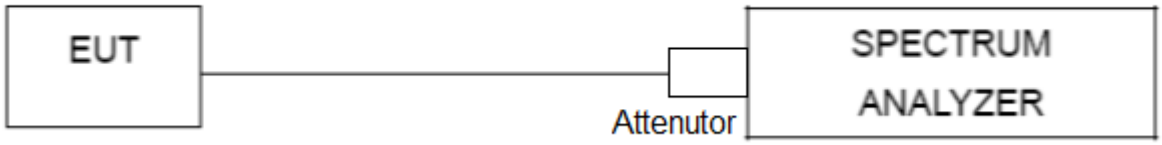
Referring to FCC KDB 987594 D02, clause J. In-Band Emissions:

a. Connect output of the antenna port to a spectrum analyzer or EMI receiver, with appropriate attenuation, as to not damage the instrumentation.
b. Set the reference level of the measuring equipment in accordance with procedure 4.1.5.2 of ANSI C63.10-2013.
c. Measure the 26 dB EBW using the test procedure 12.4.1 of ANSI C63.10-2013. (This will be used to determine the channel edge.)
d. Measure the power spectral density (which will be used for emissions mask reference) using the following procedure:
   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.
e. For the purposes of developing the emission mask, the channel bandwidth is defined as the 26 dB EBW.
f. Using the measuring equipment limit line function, develop the emissions mask based on the following requirements. The emissions power spectral density must be reduced below the peak power spectral density (in dB) as follows:
g. Suppressed by 20 dB at 1 MHz outside of the channel edge. (The channel edge is defined as the 26-dB point on either side of the carrier center frequency.)
h. Suppressed by 28 dB at one channel bandwidth from the channel center.
i. Suppressed by 40 dB at one- and one-half times the channel bandwidth from the channel center.
j. Adjust the span to encompass the entire mask as necessary.
k. Clear trace.
l. Trace average at least 100 traces in power averaging (rms) mode.
m. Adjust the reference level as necessary so that the crest of the channel touches the top of the emission mask.

7.3 DEVIATION FROM TEST STANDARD

No deviation.

7.4 TEST SETUP



7.5 EUT OPERATING CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

7.6 TEST RESULT

Please refer to the APPENDIX F.

8 AC POWER LINE CONDUCTED EMISSIONS TEST

8.1 LIMITS

According to 15.407(b)(9) the limits are as follows:

Frequency (MHz)	Limit (dBμV)	
	Quasi-peak	Average
0.15 - 0.5	66 - 56 *	56 - 46 *
0.50 - 5.0	56	46
5.0 - 30.0	60	50

NOTE:
(1) The tighter limit applies at the band edges.
(2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.
(3) The test result calculated as following:
Measurement Value = Reading Level + Correct Factor
Correct Factor = Insertion Loss + Cable Loss + Attenuator Factor (if use)
Margin Level = Measurement Value – Limit Value
Calculation example:

Reading Level		Correct Factor		Measurement Value
38.22	+	3.45	=	41.67

Measurement Value		Limit Value		Margin Level
41.67	-	60	=	-18.33

The following table is the setting of the receiver.

Receiver Parameter	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 KHz

8.2 TEST PROCEDURE

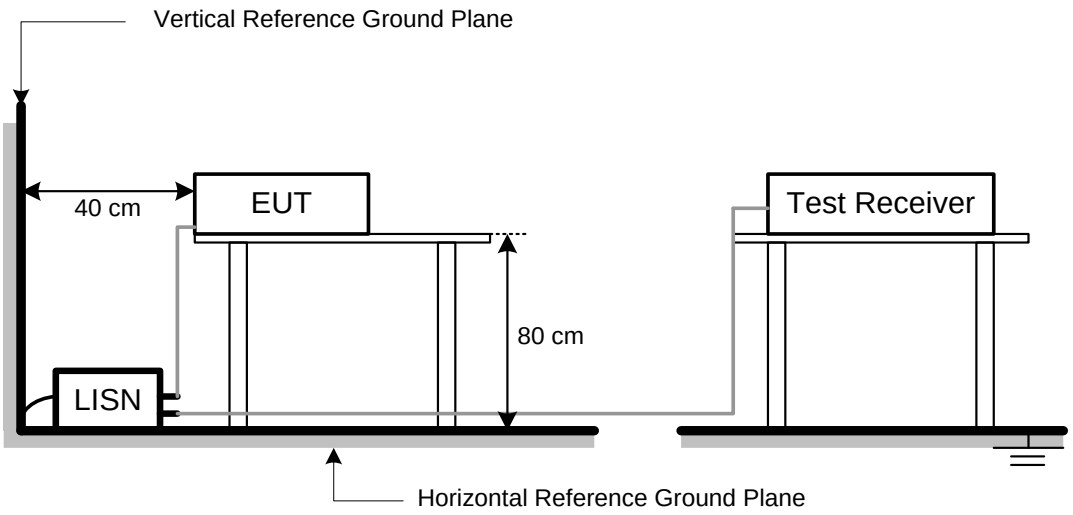
a. The EUT was placed 0.8 m above the horizontal ground plane with the EUT being connected to the power mains through a line impedance stabilization network (LISN).
All other support equipment were powered from an additional LISN(s).
The LISN provides 50 Ohm/50uH of impedance for the measuring instrument.
b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle to keep the cable above 40 cm.
c. Excess I/O cables that are not connected to a peripheral shall be bundled in the center.
The end of the cable will be terminated, using the correct terminating impedance.
The overall length shall not exceed 1 m.
d. The LISN is spaced at least 80 cm from the nearest part of the EUT chassis.
e. For the actual test configuration, please refer to the related Item – EUT TEST PHOTOS.

NOTE:
(1) In the results, each reading is marked as Peak, QP or AVG per the detector used.
BW=9 kHz (6 dB Bandwidth)
(2) All readings are Peak unless otherwise stated QP or AVG in column of Note. Both the QP and the AVG readings must be less than the limit for compliance.

8.3 DEVIATION FROM TEST STANDARD

No deviation.

8.4 TEST SETUP



8.5 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.
The EUT was programmed to be in continuously transmitting/TX mode.

8.6 TEST RESULT

Please refer to the APPENDIX G.

9 CONTENTION-BASED PROTOCOL TEST

9.1 LIMITS

According to 15.407(d)(6) the limits are as follows:

Indoor access points, subordinate devices and client devices operating in the 5.925-7.125 GHz band must employ a contention-based protocol.

According to FCC KDB 987594 D02, clause I. Contention Based Protocol:

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

Unlicensed low-power indoor devices must detect co-channel radio frequency power that is at least -62 dBm or lower. Upon detection of energy in the band, unlicensed low power indoor devices must vacate the channel (in which incumbent signal is transmitted) and stay off the incumbent channel as long as detected radio frequency power is equal to or greater than the threshold (-62 dBm)1. The -62 dBm (or lower) threshold is referenced to a 0 dBi antenna gain.

To ensure incumbent operations are reliably detected in the band, low power indoor devices must detect RF energy throughout their intended operating channel. For example, an 802.11 device that plans to transmit a 40 MHz- wide signal (on a primary 20 MHz channel and a secondary 20 MHz channel) must detect energy throughout the entire 40 MHz channel. Additionally, low-power indoor devices must detect co-channel energy with 90% or greater certainty.

9.2 TEST PROCEDURE

Referring to FCC KDB 987594 D02, clause I. Contention Based Protocol:

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

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

For Conducted measurement:

a. Configure the EUT to transmit with a constant duty cycle.
b. Set the operating parameters of the EUT including power level, operating frequency, modulation and bandwidth.
c. Set the signal analyzer center frequency to the nominal EUT 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. Ensure that the attenuator 2 provides enough attenuation to not overload the signal analyzer 2 receiver.
d. Monitoring the signal analyzer 2, verify the EUT is operating and transmitting with the parameters set at step b.
e. 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.
f. 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.
g. Transmit the AWGN signal (RF ON) and verify its characteristics on the signal analyzer 1.
h. 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.
i. (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.
j. 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 e, choose a different center frequency for the AWGN signal and repeat the process.

For Radiated measurement:

a. Using the 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.
b. Connect the AWGN signal source to antenna 1 and transmit the signal (RF ON).
c. Using signal analyzer 1 and antenna 2, measure the AWGN signal power level. Align antenna 2 and antenna 1 to maximize emission.
d. Using equation $P_2 = P_{meas} + L - G_2$, correct the measured power P_{meas} by the gain of antenna 2, G_2 and all cable losses and attenuations L to obtain the AWGN signal power level at antenna 2, P_2.
e. Set the corrected power P_2 to an extremely low level (more than 20 dB below the -62 dBm threshold).
f. Place the EUT exactly where antenna 2 was. Configure the EUT to transmit a constant duty cycle.
g. Set the operating parameters of the EUT including power level, operating frequency, modulation and bandwidth.
h. Set the signal analyzer 1 center frequency to the nominal EUT channel center frequency. The span range of the signal analyzer shall be between two times and five times the OBW of EUT.
i. Monitor the signal analyzer 1 to verify if AWGN signal has been detected and EUT has ceased transmission. If the EUT continues to transmit, then incrementally increase the AWGN signal power level until the EUT stops transmitting.
j. Determine and record the AWGN signal power level at which the EUT ceased transmission. Repeat the procedure at least 10 times to verify the EUT can detect the AWGN signal with 90% (or better) level of certainty.
k. 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 a, choose a different center frequency for the AWGN signal and repeat the process.

9.3 DEVIATION FROM TEST STANDARD

No deviation.

9.4 TEST SETUP

For Conducted measurement:

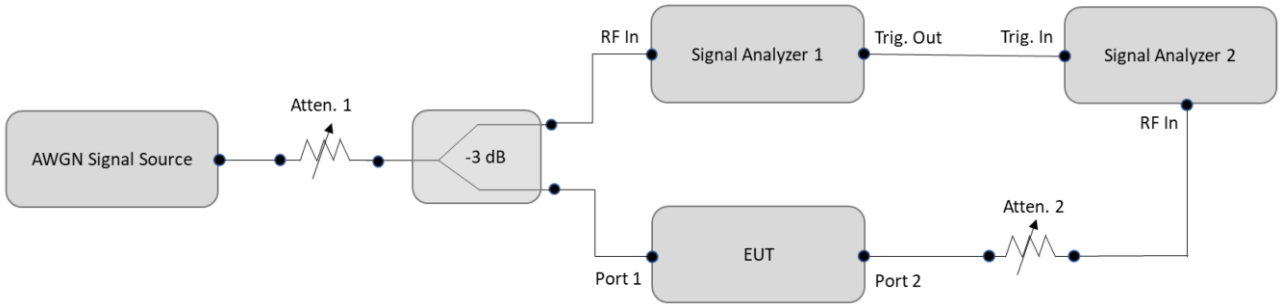


Figure 2. Contention-based protocol test setup, conducted method Step-by-Step Procedure, Conducted Setup

For Radiated measurement:

Figure 3. Contention-based protocol test setup, radiated method, power measurement

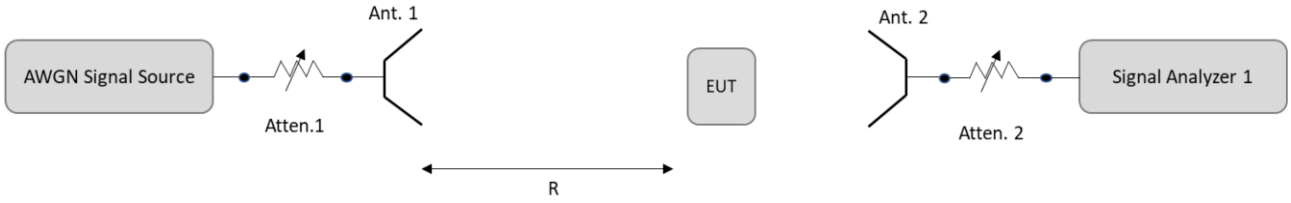


Figure 4. Contention-based protocol test setup, radiated method, detection threshold measurement

9.5 EUT OPERATING CONDITIONS

The EUT was Configured to be in normally transmitting mode with a constant duty cycle.

9.6 TEST RESULT

Please refer to the APPENDIX H.

10 LIST OF MEASURING EQUIPMENTS

Maximum e.i.r.p.						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until
1	Power Meter	Anritsu	ML2495A	1128008	2023/5/12	2024/5/11
2	Power Sensor	Anritsu	MA2411B	1126001	2023/5/12	2024/5/11

Maximum transmitter channel bandwidth & Maximum power spectral density & In-band emission (Mask)						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until
1	Spectrum Analyzer	Keysight	N9010A	MY56480489	2022/10/19	2023/10/18

Undesirable Emissions						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until
1	Preamplifier	EMCI	EMC330N	980850	2022/9/19	2023/9/18
2	Preamplifier	EMCI	EMC118A45SE	980819	2023/3/7	2024/3/6
3	Pre-Amplifier	EMCI	EMC184045SE	980907	2022/9/28	2023/9/27
4	Preamplifier	EMCI	EMC001340	980579	2022/9/30	2023/9/29
5	Test Cable	EMCI	EMC104-SM-SM-1000	220319	2023/3/14	2024/3/13
6	Test Cable	EMCI	EMC104-SM-SM-3000	220322	2023/3/14	2024/3/13
7	Test Cable	EMCI	EMC104-SM-SM-7000	220324	2023/3/14	2024/3/13
8	EXA Signal Analyzer	keysight	N9020B	MY57120120	2023/2/24	2024/2/23
9	Loop Ant	Electro-Metrics	EMCI-LPA600	291	2022/9/19	2023/9/18
10	Horn Antenna	RFSPIN	DRH18-E	211202A18EN	2023/5/12	2024/5/11
11	Horn Ant	Schwarzbeck	BBHA 9170D	1136	2023/5/12	2024/5/11
12	Log-bicon Antenna	Schwarzbeck	VULB9168	1369	2023/5/9	2024/5/8
13	6dB Attenuator	EMCI	EMCI-N-6-06	AT-06001	2023/5/9	2024/5/8
14	Test Cable	EMCI	EMC101G-KM-KM-3000	220329	2023/3/14	2024/3/13
15	Test Cable	EMCI	EMC102-KM-KM-1000	220327	2023/3/14	2024/3/13
16	Measurement Software	EZ	EZ_EMC (Version NB-03A1-01)	N/A	N/A	N/A

AC Power Line Conducted Emissions						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until
1	TWO-LINE V-NETWORK	R&S	ENV216	101339	2021/3/10	2022/3/9
2	Test Cable	EMCI	EMCCFD300-BM-BMR-6000	170714	2021/6/7	2022/6/6
3	EMI Test Receiver	R&S	ESR 7	101433	2021/11/24	2022/11/23
4	Measurement Software	EZ	EZ_EMC (Version NB-03A1-01)	N/A	N/A	N/A

Contention Based Protocol						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until
1	Spectrum Analyzer	Keysight	N9010A	MY54200240	2022/6/9	2023/6/8
2	MXG Vector Signal Generator	Agilent	N5182B	MY51350711	2023/2/21	2024/2/20
3	Frequency Extender	Keysight	N5182BX07	MY59360246	2023/2/21	2024/2/20

11 EUT TEST PHOTOS

Please refer to document Appendix No.: TP-2303C106-FCCP-1 (APPENDIX-TEST PHOTOS).

12 EUT PHOTOS

Please refer to document Appendix No.: EP-2303C106-1 (APPENDIX-EUT PHOTOS).

APPENDIX A MAXIMUM E.I.R.P.

Operation Mode	Non-Beamforming mode

Test Mode	IEEE 802.11ax (HE20)_ Ant 1	Tested Date	2023/5/17~6/28

Test Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	E.I.R.P. (dBm)	E.I.R.P. (W)	E.I.R.P. Limit (dBm)	E.I.R.P. Limit (W)	Result
5955	13.25	0.0211	19.52	0.0895	30.00	1.000	Pass
6175	13.79	0.0239	20.06	0.1014	30.00	1.000	Pass
6415	13.35	0.0216	19.62	0.0916	30.00	1.000	Pass
6435	14.34	0.0272	20.61	0.1151	30.00	1.000	Pass
6475	13.46	0.0222	19.73	0.0940	30.00	1.000	Pass
6515	12.79	0.0190	19.06	0.0805	30.00	1.000	Pass
6535	12.68	0.0185	18.95	0.0785	30.00	1.000	Pass
6695	13.97	0.0249	20.24	0.1057	30.00	1.000	Pass
6855	13.33	0.0215	19.60	0.0912	30.00	1.000	Pass
6875	13.95	0.0248	20.22	0.1052	30.00	1.000	Pass
6995	15.21	0.0332	21.48	0.1406	30.00	1.000	Pass
7095	13.27	0.0212	19.54	0.0899	30.00	1.000	Pass

Test Mode	IEEE 802.11ax (HE20)_ Ant 2	Tested Date	2023/5/17~6/28

Test Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	E.I.R.P. (dBm)	E.I.R.P. (W)	E.I.R.P. Limit (dBm)	E.I.R.P. Limit (W)	Result
5955	12.86	0.0193	19.13	0.0818	30.00	1.000	Pass
6175	13.21	0.0209	19.48	0.0887	30.00	1.000	Pass
6415	13.12	0.0205	19.39	0.0869	30.00	1.000	Pass
6435	13.62	0.0230	19.89	0.0975	30.00	1.000	Pass
6475	13.95	0.0248	20.22	0.1052	30.00	1.000	Pass
6515	13.77	0.0238	20.04	0.1009	30.00	1.000	Pass
6535	13.59	0.0229	19.86	0.0968	30.00	1.000	Pass
6695	12.63	0.0183	18.90	0.0776	30.00	1.000	Pass
6855	12.88	0.0194	19.15	0.0822	30.00	1.000	Pass
6875	12.35	0.0172	18.62	0.0728	30.00	1.000	Pass
6995	13.08	0.0203	19.35	0.0861	30.00	1.000	Pass
7095	12.68	0.0185	18.95	0.0785	30.00	1.000	Pass

Test Mode	IEEE 802.11ax (HE20)_Total	Tested Date	2023/5/17~6/28

Test Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	E.I.R.P. (dBm)	E.I.R.P. (W)	E.I.R.P. Limit (dBm)	E.I.R.P. Limit (W)	Result
5955	16.07	0.0405	22.34	0.1714	30.00	1.000	Pass
6175	16.52	0.0449	22.79	0.1901	30.00	1.000	Pass
6415	16.25	0.0421	22.52	0.1785	30.00	1.000	Pass
6435	17.01	0.0502	23.28	0.2126	30.00	1.000	Pass
6475	16.72	0.0470	22.99	0.1992	30.00	1.000	Pass
6515	16.32	0.0428	22.59	0.1815	30.00	1.000	Pass
6535	16.17	0.0414	22.44	0.1754	30.00	1.000	Pass
6695	16.36	0.0433	22.63	0.1833	30.00	1.000	Pass
6855	16.12	0.0409	22.39	0.1734	30.00	1.000	Pass
6875	16.23	0.0420	22.50	0.1780	30.00	1.000	Pass
6995	17.28	0.0535	23.55	0.2267	30.00	1.000	Pass
7095	16.00	0.0398	22.27	0.1685	30.00	1.000	Pass

Test Mode	IEEE 802.11ax (HE40)_ Ant 1	Tested Date	2023/5/17~6/28

Test Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	E.I.R.P. (dBm)	E.I.R.P. (W)	E.I.R.P. Limit (dBm)	E.I.R.P. Limit (W)	Result
5965	16.19	0.0416	22.46	0.1762	30.00	1.000	Pass
6165	16.29	0.0426	22.56	0.1803	30.00	1.000	Pass
6405	16.61	0.0458	22.88	0.1941	30.00	1.000	Pass
6445	16.97	0.0498	23.24	0.2109	30.00	1.000	Pass
6485	15.93	0.0392	22.20	0.1660	30.00	1.000	Pass
6525	16.42	0.0439	22.69	0.1858	30.00	1.000	Pass
6685	16.99	0.0500	23.26	0.2118	30.00	1.000	Pass
6845	15.94	0.0393	22.21	0.1663	30.00	1.000	Pass
6885	16.89	0.0489	23.16	0.2070	30.00	1.000	Pass
7085	15.79	0.0379	22.06	0.1607	30.00	1.000	Pass

Test Mode	IEEE 802.11ax (HE40)_ Ant 2	Tested Date	2023/5/17~6/28

Test Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	E.I.R.P. (dBm)	E.I.R.P. (W)	E.I.R.P. Limit (dBm)	E.I.R.P. Limit (W)	Result
5965	15.32	0.0340	21.59	0.1442	30.00	1.000	Pass
6165	15.45	0.0351	21.72	0.1486	30.00	1.000	Pass
6405	15.77	0.0378	22.04	0.1600	30.00	1.000	Pass
6445	16.45	0.0442	22.72	0.1871	30.00	1.000	Pass
6485	16.13	0.0410	22.40	0.1738	30.00	1.000	Pass
6525	17.21	0.0526	23.48	0.2228	30.00	1.000	Pass
6685	15.49	0.0354	21.76	0.1500	30.00	1.000	Pass
6845	15.67	0.0369	21.94	0.1563	30.00	1.000	Pass
6885	15.28	0.0337	21.55	0.1429	30.00	1.000	Pass
7085	15.67	0.0369	21.94	0.1563	30.00	1.000	Pass

Test Mode	IEEE 802.11ax (HE40)_ Total	Tested Date	2023/5/17~6/28

Test Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	E.I.R.P. (dBm)	E.I.R.P. (W)	E.I.R.P. Limit (dBm)	E.I.R.P. Limit (W)	Result
5965	18.79	0.0756	25.06	0.3204	30.00	1.000	Pass
6165	18.90	0.0776	25.17	0.3289	30.00	1.000	Pass
6405	19.22	0.0836	25.49	0.3540	30.00	1.000	Pass
6445	19.73	0.0939	26.00	0.3979	30.00	1.000	Pass
6485	19.04	0.0802	25.31	0.3397	30.00	1.000	Pass
6525	19.84	0.0965	26.11	0.4086	30.00	1.000	Pass
6685	19.31	0.0854	25.58	0.3618	30.00	1.000	Pass
6845	18.82	0.0762	25.09	0.3227	30.00	1.000	Pass
6885	19.17	0.0826	25.44	0.3499	30.00	1.000	Pass
7085	18.74	0.0748	25.01	0.3170	30.00	1.000	Pass

Test Mode	IEEE 802.11ax (HE80)_ Ant 1	Tested Date	2023/5/17~6/28

Test Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	E.I.R.P. (dBm)	E.I.R.P. (W)	E.I.R.P. Limit (dBm)	E.I.R.P. Limit (W)	Result
5985	18.83	0.0764	25.10	0.3236	30.00	1.000	Pass
6145	19.30	0.0851	25.57	0.3606	30.00	1.000	Pass
6385	19.43	0.0877	25.70	0.3715	30.00	1.000	Pass
6465	19.38	0.0867	25.65	0.3673	30.00	1.000	Pass
6545	18.93	0.0782	25.20	0.3311	30.00	1.000	Pass
6625	18.22	0.0664	24.49	0.2812	30.00	1.000	Pass
6785	18.57	0.0719	24.84	0.3048	30.00	1.000	Pass
6865	19.11	0.0815	25.38	0.3451	30.00	1.000	Pass
6945	20.49	0.1119	26.76	0.4742	30.00	1.000	Pass
7025	19.27	0.0845	25.54	0.3581	30.00	1.000	Pass

Test Mode	IEEE 802.11ax (HE80)_ Ant 2	Tested Date	2023/5/17~6/28

Test Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	E.I.R.P. (dBm)	E.I.R.P. (W)	E.I.R.P. Limit (dBm)	E.I.R.P. Limit (W)	Result
5985	18.02	0.0634	24.29	0.2685	30.00	1.000	Pass
6145	18.18	0.0658	24.45	0.2786	30.00	1.000	Pass
6385	18.56	0.0718	24.83	0.3041	30.00	1.000	Pass
6465	19.17	0.0826	25.44	0.3499	30.00	1.000	Pass
6545	18.88	0.0773	25.15	0.3273	30.00	1.000	Pass
6625	16.63	0.0460	22.90	0.1950	30.00	1.000	Pass
6785	18.83	0.0764	25.10	0.3236	30.00	1.000	Pass
6865	18.25	0.0668	24.52	0.2831	30.00	1.000	Pass
6945	18.31	0.0678	24.58	0.2871	30.00	1.000	Pass
7025	18.03	0.0635	24.30	0.2692	30.00	1.000	Pass

Test Mode	IEEE 802.11ax (HE80)_ Total	Tested Date	2023/5/17~6/28

Test Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	E.I.R.P. (dBm)	E.I.R.P. (W)	E.I.R.P. Limit (dBm)	E.I.R.P. Limit (W)	Result
5985	21.45	0.1398	27.72	0.5921	30.00	1.000	Pass
6145	21.79	0.1509	28.06	0.6392	30.00	1.000	Pass
6385	22.03	0.1595	28.30	0.6756	30.00	1.000	Pass
6465	22.29	0.1693	28.56	0.7172	30.00	1.000	Pass
6545	21.92	0.1554	28.19	0.6585	30.00	1.000	Pass
6625	20.51	0.1124	26.78	0.4762	30.00	1.000	Pass
6785	21.71	0.1483	27.98	0.6284	30.00	1.000	Pass
6865	21.71	0.1483	27.98	0.6283	30.00	1.000	Pass
6945	22.55	0.1797	28.82	0.7613	30.00	1.000	Pass
7025	21.70	0.1481	27.97	0.6272	30.00	1.000	Pass

Test Mode	IEEE 802.11ax (HE160)_ Ant 1	Tested Date	2023/5/17~6/28

Test Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	E.I.R.P. (dBm)	E.I.R.P. (W)	E.I.R.P. Limit (dBm)	E.I.R.P. Limit (W)	Result
6025	20.92	0.1236	27.19	0.5236	30.00	1.000	Pass
6345	21.12	0.1294	27.39	0.5483	30.00	1.000	Pass
6505	21.45	0.1396	27.72	0.5916	30.00	1.000	Pass
6665	21.06	0.1276	27.33	0.5408	30.00	1.000	Pass
6985	21.93	0.1560	28.20	0.6607	30.00	1.000	Pass

Test Mode	IEEE 802.11ax (HE160)_ Ant 2	Tested Date	2023/5/17~6/28

Test Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	E.I.R.P. (dBm)	E.I.R.P. (W)	E.I.R.P. Limit (dBm)	E.I.R.P. Limit (W)	Result
6025	19.35	0.0861	25.62	0.3648	30.00	1.000	Pass
6345	19.25	0.0841	25.52	0.3565	30.00	1.000	Pass
6505	19.14	0.0820	25.41	0.3475	30.00	1.000	Pass
6665	19.27	0.0845	25.54	0.3581	30.00	1.000	Pass
6985	18.22	0.0664	24.49	0.2812	30.00	1.000	Pass

Test Mode	IEEE 802.11ax (HE160)_ Total	Tested Date	2023/5/17~6/28

Test Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	E.I.R.P. (dBm)	E.I.R.P. (W)	E.I.R.P. Limit (dBm)	E.I.R.P. Limit (W)	Result
6025	23.22	0.2097	29.49	0.8884	30.00	1.000	Pass
6345	23.30	0.2136	29.57	0.9047	30.00	1.000	Pass
6505	23.46	0.2217	29.73	0.9391	30.00	1.000	Pass
6665	23.27	0.2122	29.54	0.8989	30.00	1.000	Pass
6985	23.47	0.2223	29.74	0.9419	30.00	1.000	Pass

Operation Mode	Beamforming mode

Test Mode	IEEE 802.11ax (HE20)_ Ant 1	Tested Date	2023/5/17~6/28

Test Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	E.I.R.P. (dBm)	E.I.R.P. (W)	E.I.R.P. Limit (dBm)	E.I.R.P. Limit (W)	Result
5955	10.51	0.0112	16.78	0.0476	30.00	1.000	Pass
6175	11.14	0.0130	17.41	0.0551	30.00	1.000	Pass
6415	10.56	0.0114	16.83	0.0482	30.00	1.000	Pass
6435	10.77	0.0119	17.04	0.0506	30.00	1.000	Pass
6475	10.49	0.0112	16.76	0.0474	30.00	1.000	Pass
6515	10.20	0.0105	16.47	0.0444	30.00	1.000	Pass
6535	10.26	0.0106	16.53	0.0450	30.00	1.000	Pass
6695	10.34	0.0108	16.61	0.0458	30.00	1.000	Pass
6855	10.15	0.0104	16.42	0.0439	30.00	1.000	Pass
6875	10.79	0.0120	17.06	0.0508	30.00	1.000	Pass
6995	12.25	0.0168	18.52	0.0711	30.00	1.000	Pass
7095	10.53	0.0113	16.80	0.0479	30.00	1.000	Pass

Test Mode	IEEE 802.11ax (HE20)_ Ant 2	Tested Date	2023/5/17~6/28

Test Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	E.I.R.P. (dBm)	E.I.R.P. (W)	E.I.R.P. Limit (dBm)	E.I.R.P. Limit (W)	Result
5955	8.95	0.0079	15.22	0.0333	30.00	1.000	Pass
6175	8.47	0.0070	14.74	0.0298	30.00	1.000	Pass
6415	9.53	0.0090	15.80	0.0380	30.00	1.000	Pass
6435	9.93	0.0098	16.20	0.0417	30.00	1.000	Pass
6475	9.22	0.0084	15.49	0.0354	30.00	1.000	Pass
6515	9.23	0.0084	15.50	0.0355	30.00	1.000	Pass
6535	9.75	0.0094	16.02	0.0400	30.00	1.000	Pass
6695	8.32	0.0068	14.59	0.0288	30.00	1.000	Pass
6855	9.43	0.0088	15.70	0.0372	30.00	1.000	Pass
6875	9.35	0.0086	15.62	0.0365	30.00	1.000	Pass
6995	9.31	0.0085	15.58	0.0361	30.00	1.000	Pass
7095	8.98	0.0079	15.25	0.0335	30.00	1.000	Pass

Test Mode	IEEE 802.11ax (HE20)_Total	Tested Date	2023/5/17~6/28

Test Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	E.I.R.P. (dBm)	E.I.R.P. (W)	E.I.R.P. Limit (dBm)	E.I.R.P. Limit (W)	Result
5955	12.81	0.0191	22.08	0.1614	30.00	1.000	Pass
6175	13.02	0.0200	22.29	0.1693	30.00	1.000	Pass
6415	13.09	0.0204	22.36	0.1720	30.00	1.000	Pass
6435	13.38	0.0218	22.65	0.1841	30.00	1.000	Pass
6475	12.91	0.0196	22.18	0.1653	30.00	1.000	Pass
6515	12.75	0.0188	22.02	0.1593	30.00	1.000	Pass
6535	13.02	0.0201	22.29	0.1695	30.00	1.000	Pass
6695	12.46	0.0176	21.73	0.1488	30.00	1.000	Pass
6855	12.82	0.0191	22.09	0.1616	30.00	1.000	Pass
6875	13.14	0.0206	22.41	0.1742	30.00	1.000	Pass
6995	14.03	0.0253	23.30	0.2140	30.00	1.000	Pass
7095	12.83	0.0192	22.10	0.1623	30.00	1.000	Pass

Test Mode	IEEE 802.11ax (HE40)_ Ant 1	Tested Date	2023/5/17~6/28

Test Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	E.I.R.P. (dBm)	E.I.R.P. (W)	E.I.R.P. Limit (dBm)	E.I.R.P. Limit (W)	Result
5965	13.41	0.0219	19.68	0.0929	30.00	1.000	Pass
6165	13.56	0.0227	19.83	0.0962	30.00	1.000	Pass
6405	13.77	0.0238	20.04	0.1009	30.00	1.000	Pass
6445	14.25	0.0266	20.52	0.1127	30.00	1.000	Pass
6485	13.35	0.0216	19.62	0.0916	30.00	1.000	Pass
6525	14.07	0.0255	20.34	0.1081	30.00	1.000	Pass
6685	14.25	0.0266	20.52	0.1127	30.00	1.000	Pass
6845	13.22	0.0210	19.49	0.0889	30.00	1.000	Pass
6885	13.89	0.0245	20.16	0.1038	30.00	1.000	Pass
7085	13.52	0.0225	19.79	0.0953	30.00	1.000	Pass

Test Mode	IEEE 802.11ax (HE40)_ Ant 2	Tested Date	2023/5/17~6/28

Test Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	E.I.R.P. (dBm)	E.I.R.P. (W)	E.I.R.P. Limit (dBm)	E.I.R.P. Limit (W)	Result
5965	11.62	0.0145	17.89	0.0615	30.00	1.000	Pass
6165	11.30	0.0135	17.57	0.0571	30.00	1.000	Pass
6405	12.46	0.0176	18.73	0.0746	30.00	1.000	Pass
6445	12.83	0.0192	19.10	0.0813	30.00	1.000	Pass
6485	12.02	0.0159	18.29	0.0675	30.00	1.000	Pass
6525	12.93	0.0196	19.20	0.0832	30.00	1.000	Pass
6685	11.34	0.0136	17.61	0.0577	30.00	1.000	Pass
6845	11.98	0.0158	18.25	0.0668	30.00	1.000	Pass
6885	11.82	0.0152	18.09	0.0644	30.00	1.000	Pass
7085	11.72	0.0149	17.99	0.0630	30.00	1.000	Pass

Test Mode	IEEE 802.11ax (HE40)_ Total	Tested Date	2023/5/17~6/28

Test Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	E.I.R.P. (dBm)	E.I.R.P. (W)	E.I.R.P. Limit (dBm)	E.I.R.P. Limit (W)	Result
5965	15.62	0.0364	24.89	0.3081	30.00	1.000	Pass
6165	15.59	0.0362	24.86	0.3059	30.00	1.000	Pass
6405	16.17	0.0414	25.44	0.3503	30.00	1.000	Pass
6445	16.61	0.0458	25.88	0.3871	30.00	1.000	Pass
6485	15.75	0.0375	25.02	0.3174	30.00	1.000	Pass
6525	16.55	0.0452	25.82	0.3817	30.00	1.000	Pass
6685	16.04	0.0402	25.31	0.3400	30.00	1.000	Pass
6845	15.65	0.0368	24.92	0.3108	30.00	1.000	Pass
6885	15.99	0.0397	25.26	0.3355	30.00	1.000	Pass
7085	15.72	0.0373	24.99	0.3157	30.00	1.000	Pass

Test Mode	IEEE 802.11ax (HE80)_ Ant 1	Tested Date	2023/5/17~6/28

Test Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	E.I.R.P. (dBm)	E.I.R.P. (W)	E.I.R.P. Limit (dBm)	E.I.R.P. Limit (W)	Result
5985	15.91	0.0390	22.18	0.1652	30.00	1.000	Pass
6145	16.67	0.0465	22.94	0.1968	30.00	1.000	Pass
6385	16.78	0.0476	23.05	0.2018	30.00	1.000	Pass
6465	16.92	0.0492	23.19	0.2084	30.00	1.000	Pass
6545	16.51	0.0448	22.78	0.1897	30.00	1.000	Pass
6625	15.21	0.0332	21.48	0.1406	30.00	1.000	Pass
6785	16.06	0.0404	22.33	0.1710	30.00	1.000	Pass
6865	16.32	0.0429	22.59	0.1816	30.00	1.000	Pass
6945	17.85	0.0610	24.12	0.2582	30.00	1.000	Pass
7025	16.79	0.0478	23.06	0.2023	30.00	1.000	Pass

Test Mode	IEEE 802.11ax (HE80)_ Ant 2	Tested Date	2023/5/17~6/28

Test Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	E.I.R.P. (dBm)	E.I.R.P. (W)	E.I.R.P. Limit (dBm)	E.I.R.P. Limit (W)	Result
5985	14.43	0.0277	20.70	0.1175	30.00	1.000	Pass
6145	14.12	0.0258	20.39	0.1094	30.00	1.000	Pass
6385	14.52	0.0283	20.79	0.1199	30.00	1.000	Pass
6465	15.41	0.0348	21.68	0.1472	30.00	1.000	Pass
6545	15.01	0.0317	21.28	0.1343	30.00	1.000	Pass
6625	12.86	0.0193	19.13	0.0818	30.00	1.000	Pass
6785	14.71	0.0296	20.98	0.1253	30.00	1.000	Pass
6865	14.41	0.0276	20.68	0.1169	30.00	1.000	Pass
6945	14.42	0.0277	20.69	0.1172	30.00	1.000	Pass
7025	13.72	0.0236	19.99	0.0998	30.00	1.000	Pass

Test Mode	IEEE 802.11ax (HE80)_ Total	Tested Date	2023/5/17~6/28

Test Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	E.I.R.P. (dBm)	E.I.R.P. (W)	E.I.R.P. Limit (dBm)	E.I.R.P. Limit (W)	Result
5985	18.24	0.0667	27.51	0.5640	30.00	1.000	Pass
6145	18.59	0.0723	27.86	0.6109	30.00	1.000	Pass
6385	18.81	0.0760	28.08	0.6420	30.00	1.000	Pass
6465	19.24	0.0840	28.51	0.7097	30.00	1.000	Pass
6545	18.83	0.0765	28.10	0.6464	30.00	1.000	Pass
6625	17.20	0.0525	26.47	0.4438	30.00	1.000	Pass
6785	18.45	0.0699	27.72	0.5912	30.00	1.000	Pass
6865	18.48	0.0705	27.75	0.5956	30.00	1.000	Pass
6945	19.48	0.0886	28.75	0.7491	30.00	1.000	Pass
7025	18.53	0.0713	27.80	0.6027	30.00	1.000	Pass

Test Mode	IEEE 802.11ax (HE160)_ Ant 1	Tested Date	2023/5/17~6/28

Test Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	E.I.R.P. (dBm)	E.I.R.P. (W)	E.I.R.P. Limit (dBm)	E.I.R.P. Limit (W)	Result
6025	17.60	0.0575	23.87	0.2438	30.00	1.000	Pass
6345	17.86	0.0611	24.13	0.2588	30.00	1.000	Pass
6505	18.03	0.0635	24.30	0.2692	30.00	1.000	Pass
6665	17.96	0.0625	24.23	0.2649	30.00	1.000	Pass
6985	18.38	0.0689	24.65	0.2917	30.00	1.000	Pass

Test Mode	IEEE 802.11ax (HE160)_ Ant 2	Tested Date	2023/5/17~6/28

Test Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	E.I.R.P. (dBm)	E.I.R.P. (W)	E.I.R.P. Limit (dBm)	E.I.R.P. Limit (W)	Result
6025	15.36	0.0344	21.63	0.1455	30.00	1.000	Pass
6345	15.44	0.0350	21.71	0.1483	30.00	1.000	Pass
6505	16.55	0.0452	22.82	0.1914	30.00	1.000	Pass
6665	14.84	0.0305	21.11	0.1291	30.00	1.000	Pass
6985	15.20	0.0331	21.47	0.1403	30.00	1.000	Pass

Test Mode	IEEE 802.11ax (HE160)_ Total	Tested Date	2023/5/17~6/28

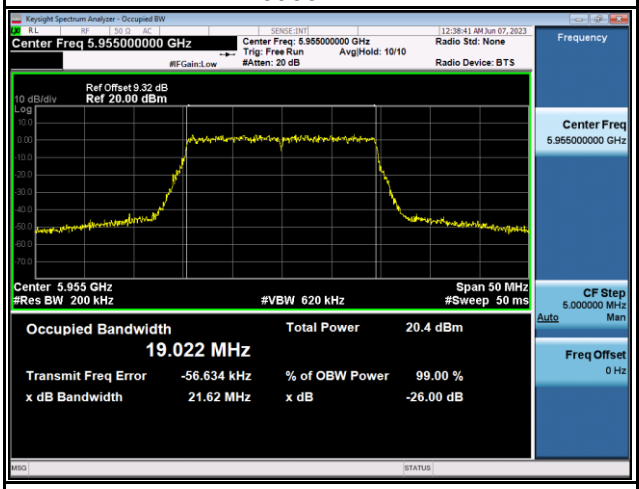
Test Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	E.I.R.P. (dBm)	E.I.R.P. (W)	E.I.R.P. Limit (dBm)	E.I.R.P. Limit (W)	Result
6025	19.63	0.0919	28.90	0.7768	30.00	1.000	Pass
6345	19.83	0.0961	29.10	0.8122	30.00	1.000	Pass
6505	20.36	0.1087	29.63	0.9190	30.00	1.000	Pass
6665	19.68	0.0930	28.95	0.7861	30.00	1.000	Pass
6985	20.09	0.1020	29.36	0.8620	30.00	1.000	Pass

APPENDIX B MAXIMUM TRANSMITTER CHANNEL BANDWIDTH

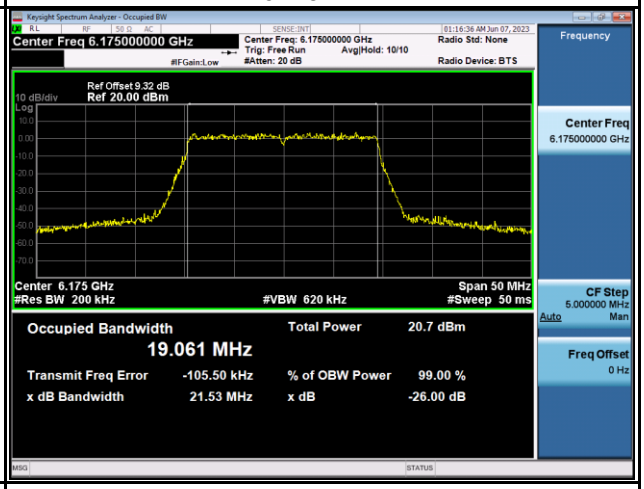
Test Mode	IEEE 802.11ax (HE20)_ Ant 1

Test Frequency (MHz)	26 dB Bandwidth (MHz)	99 % Occupied Bandwidth (MHz)	Limit (MHz)	Result
5955	21.62	19.02	320	Pass
6175	21.53	19.06	320	Pass
6415	21.31	19.06	320	Pass

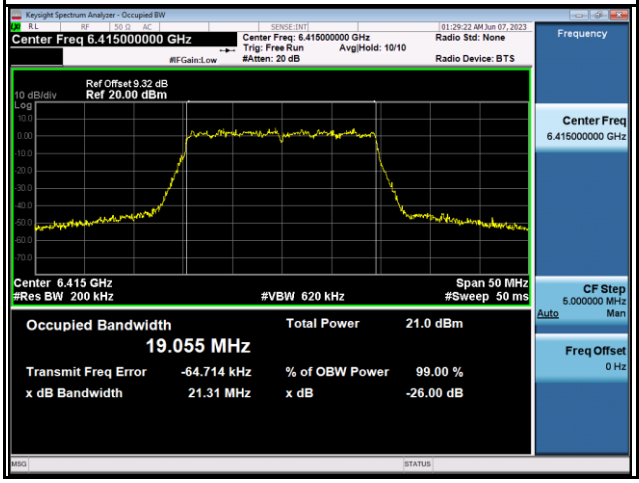
5955 MHz



6175 MHz

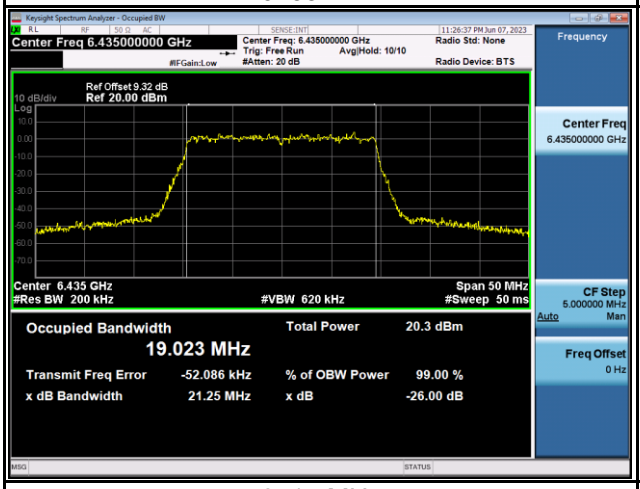
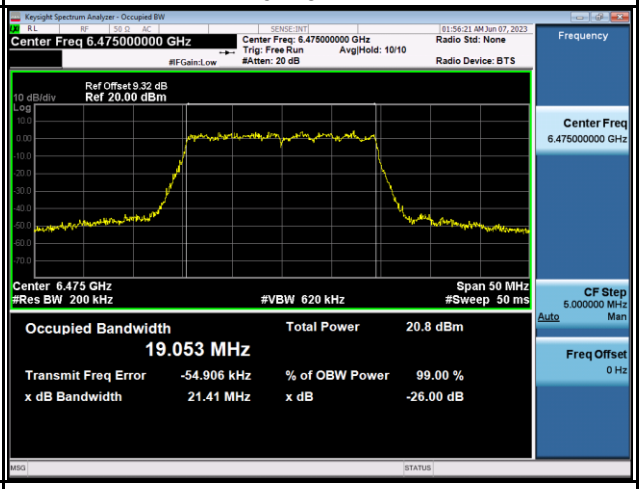
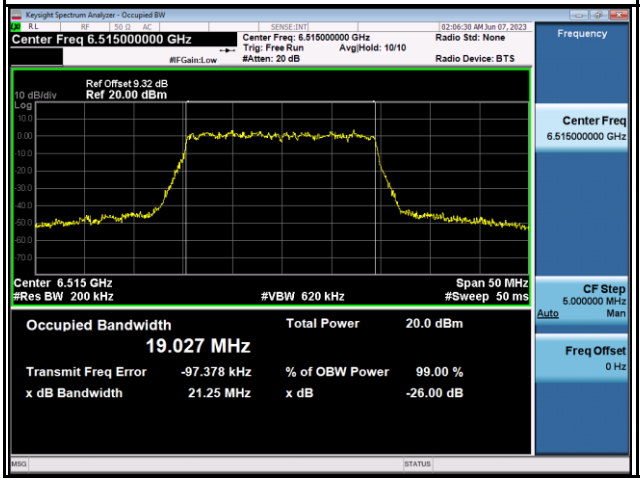


6415 MHz

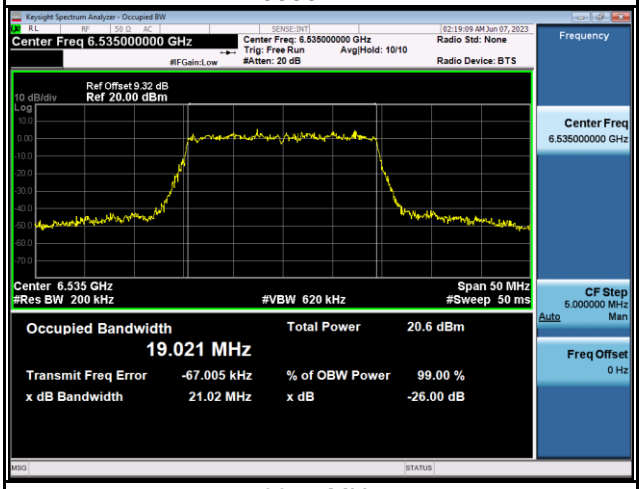
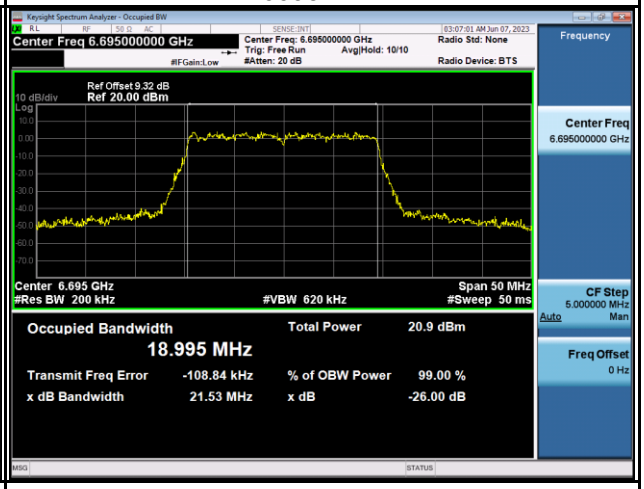
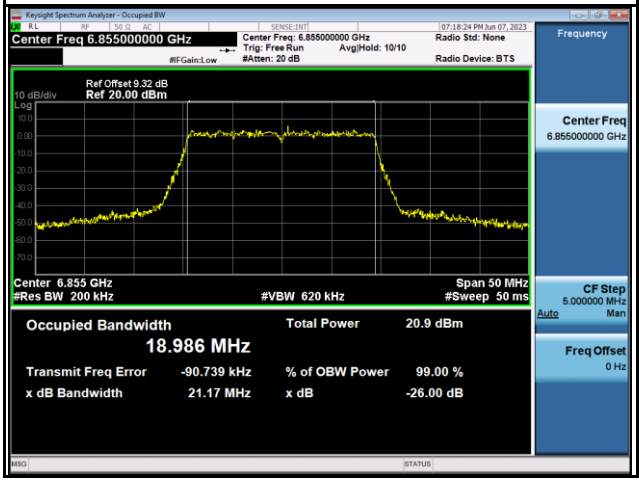


-

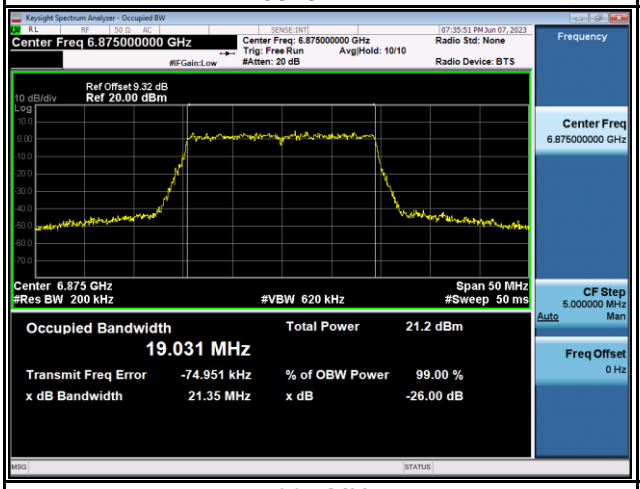
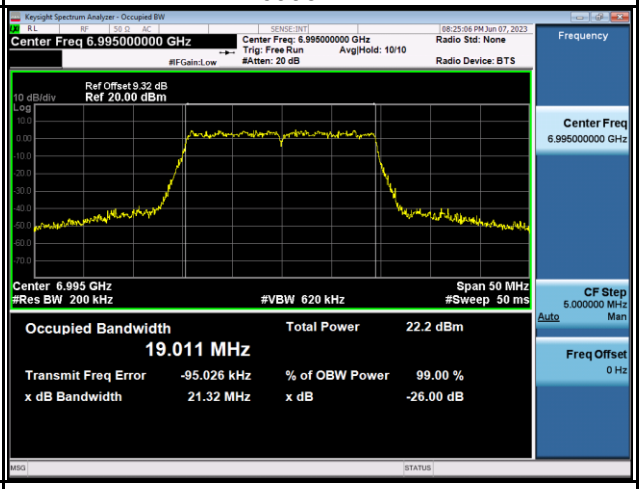
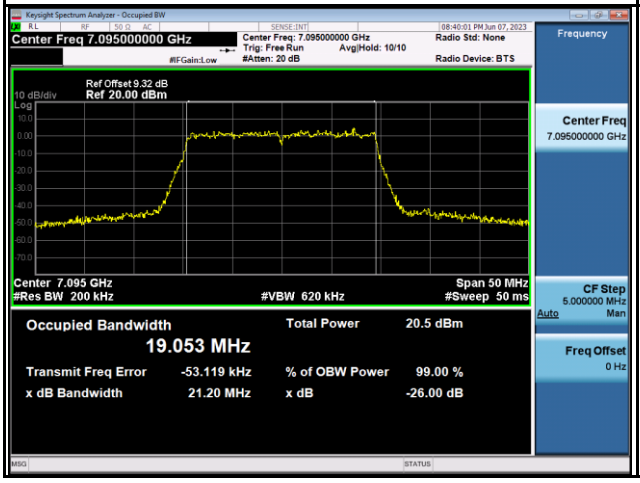
Test Frequency (MHz)	26 dB Bandwidth (MHz)	99 % Occupied Bandwidth (MHz)	Limit (MHz)	Result
6435	21.25	19.02	320	Pass
6475	21.41	19.05	320	Pass
6515	21.25	19.03	320	Pass

6435 MHz	6475 MHz
	
6515 MHz	-
	-

Test Frequency (MHz)	26 dB Bandwidth (MHz)	99 % Occupied Bandwidth (MHz)	Limit (MHz)	Result
6535	21.02	19.02	320	Pass
6695	21.53	19.00	320	Pass
6855	21.17	18.99	320	Pass

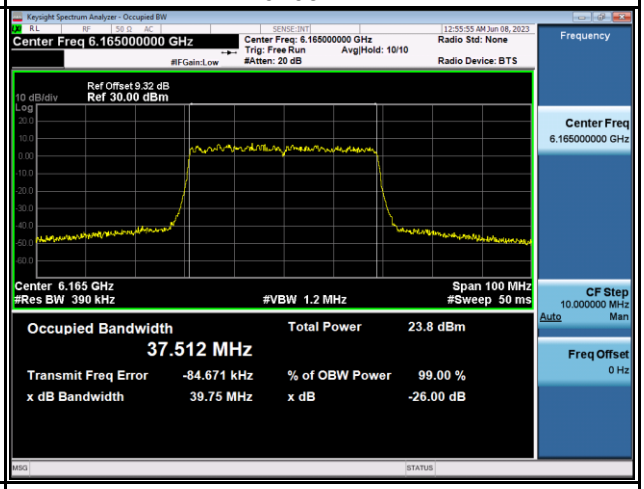
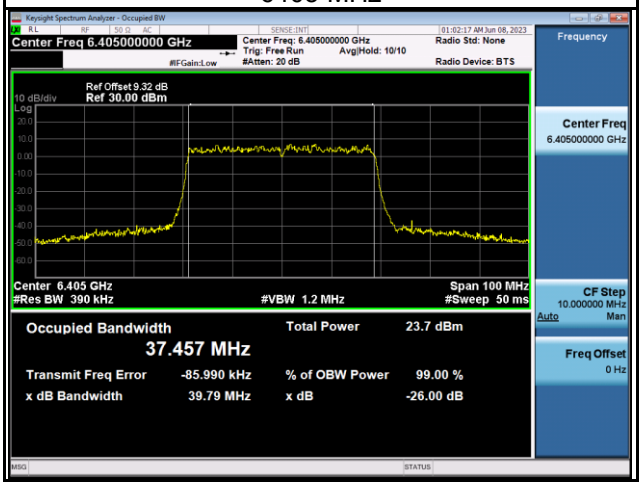
6535 MHz	6695 MHz
	
6855 MHz	-
	-

Test Frequency (MHz)	26 dB Bandwidth (MHz)	99 % Occupied Bandwidth (MHz)	Limit (MHz)	Result
6875	21.35	19.03	320	Pass
6995	21.32	19.01	320	Pass
7095	21.20	19.05	320	Pass

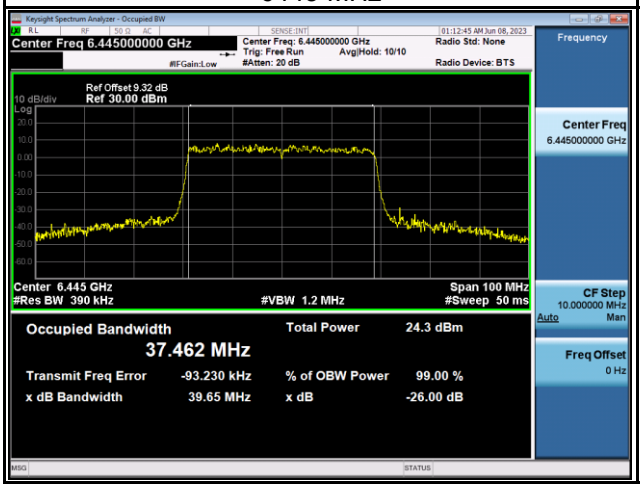
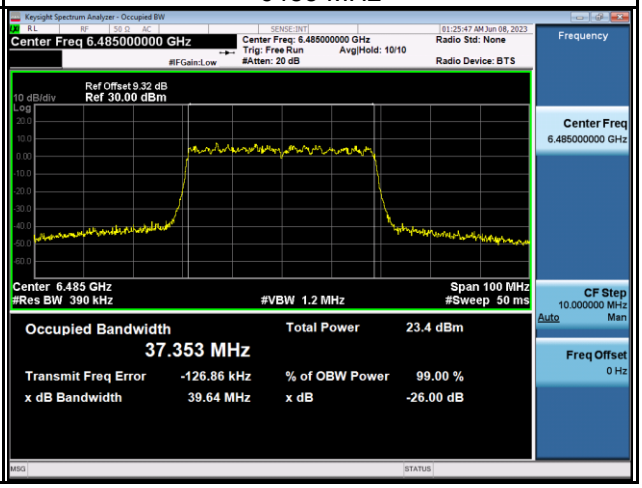
6875 MHz	6995 MHz
	
7095 MHz	-
	-

Test Mode	IEEE 802.11ax (HE40)_ Ant 1

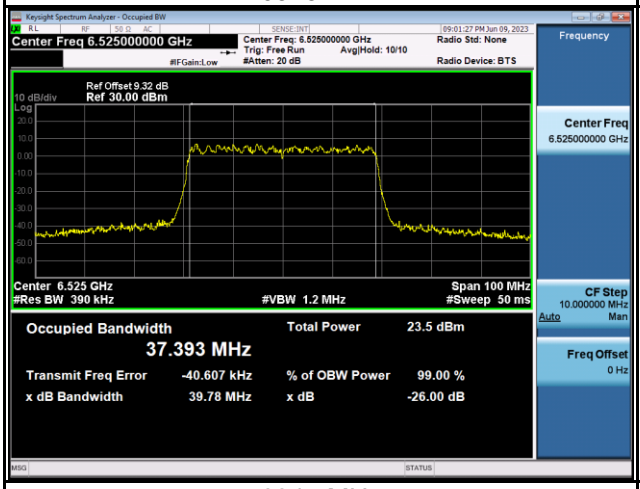
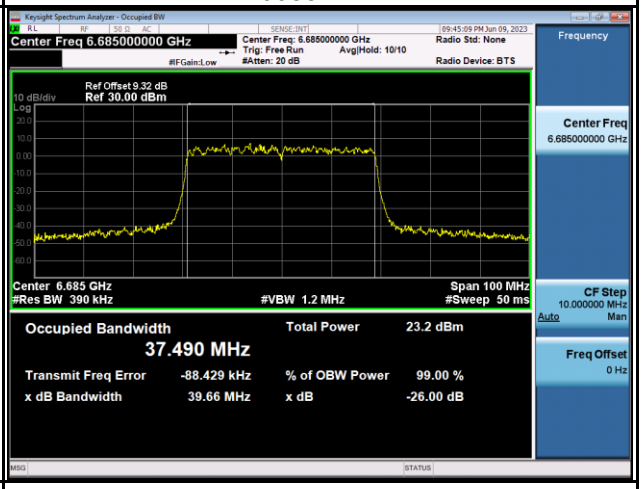
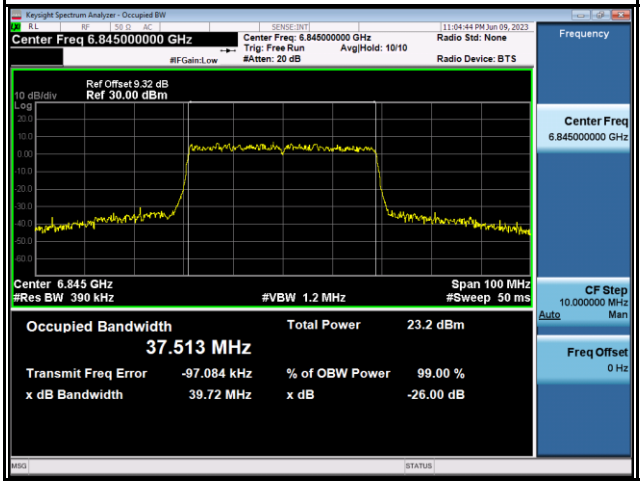
Test Frequency (MHz)	26 dB Bandwidth (MHz)	99 % Occupied Bandwidth (MHz)	Limit (MHz)	Result
5965	39.95	37.50	320	Pass
6165	39.75	37.51	320	Pass
6405	39.79	37.46	320	Pass

5965 MHz	6165 MHz
	
6405 MHz	-
	-

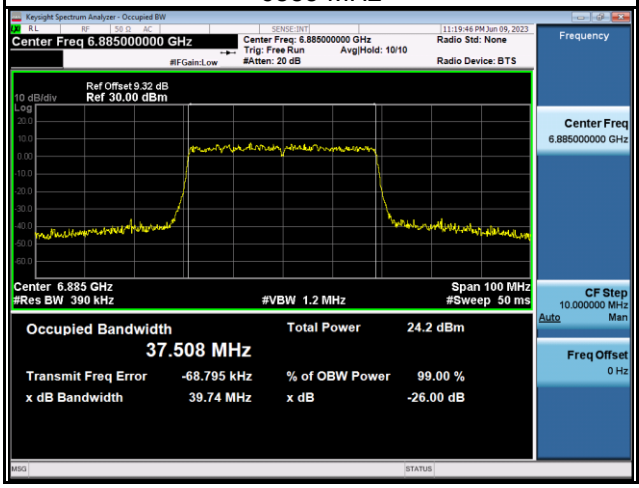
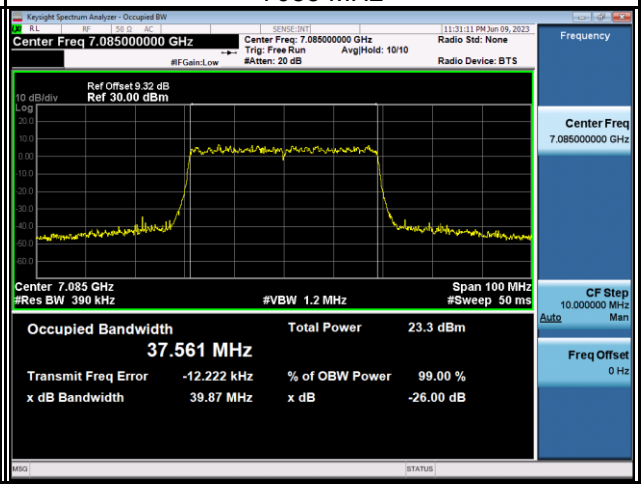
Test Frequency (MHz)	26 dB Bandwidth (MHz)	99 % Occupied Bandwidth (MHz)	Limit (MHz)	Result
6445	39.65	37.46	320	Pass
6485	39.64	37.35	320	Pass

6445 MHz	6485 MHz
	

Test Frequency (MHz)	26 dB Bandwidth (MHz)	99 % Occupied Bandwidth (MHz)	Limit (MHz)	Result
6525	39.78	37.39	320	Pass
6685	39.66	37.49	320	Pass
6845	39.72	37.51	320	Pass

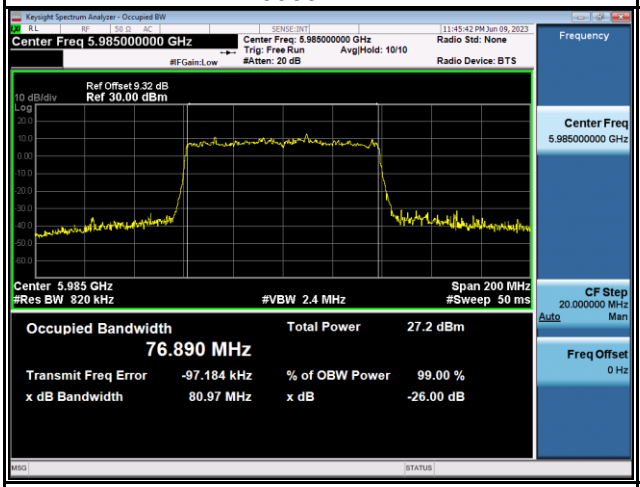
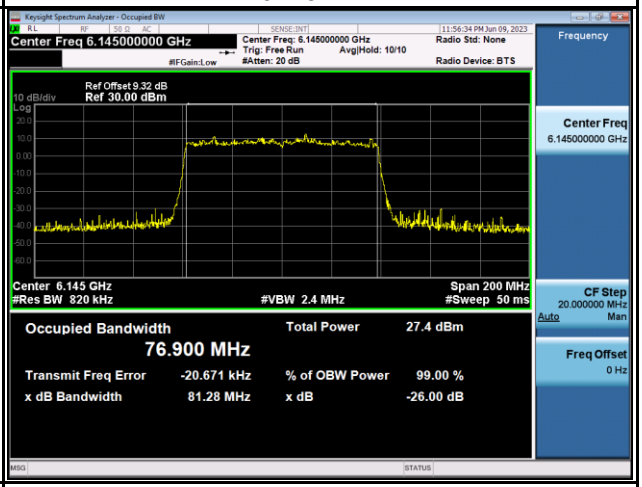
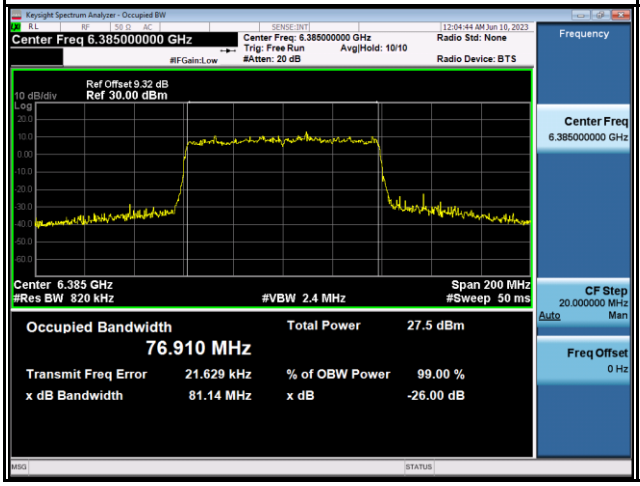
6525 MHz	6685 MHz
	
6845 MHz	-
	-

Test Frequency (MHz)	26 dB Bandwidth (MHz)	99 % Occupied Bandwidth (MHz)	Limit (MHz)	Result
6885	39.74	37.51	320	Pass
7085	39.87	37.56	320	Pass

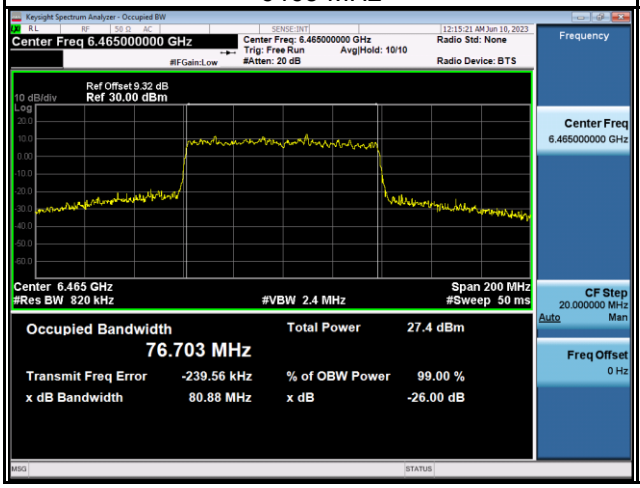
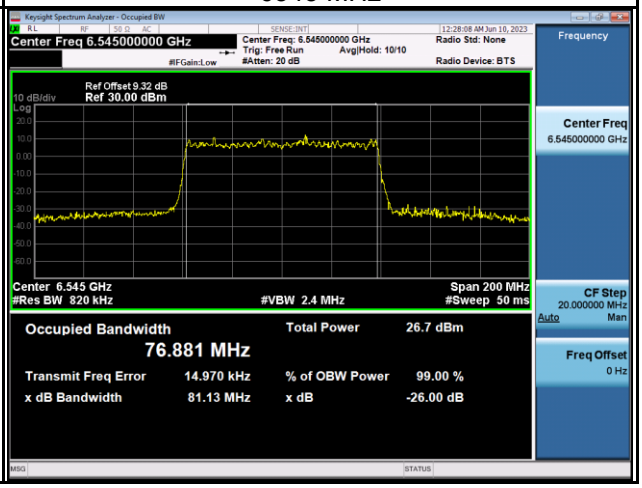
6885 MHz	7085 MHz
	

Test Mode	IEEE 802.11ax (HE80)_ Ant 1

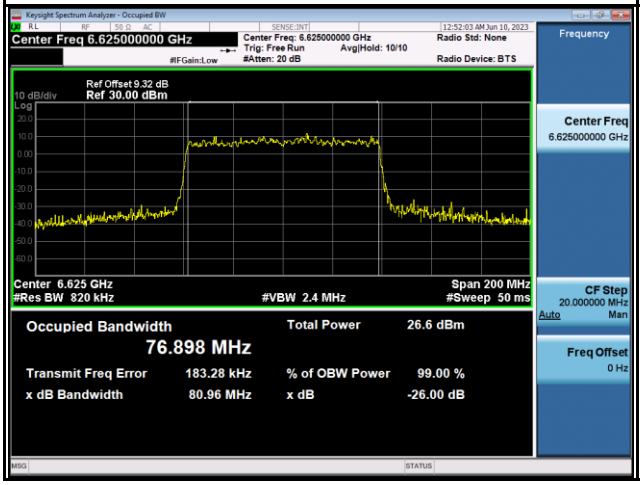
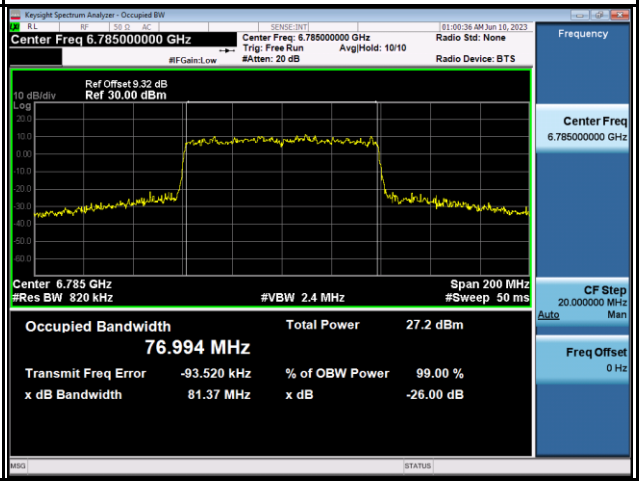
Test Frequency (MHz)	26 dB Bandwidth (MHz)	99 % Occupied Bandwidth (MHz)	Limit (MHz)	Result
5985	80.97	76.89	320	Pass
6145	81.28	76.90	320	Pass
6385	81.14	76.91	320	Pass

5985 MHz	6145 MHz
	
6385 MHz	-
	-

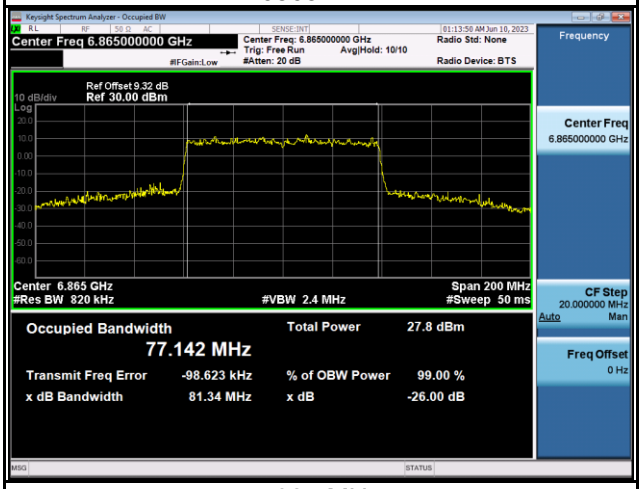
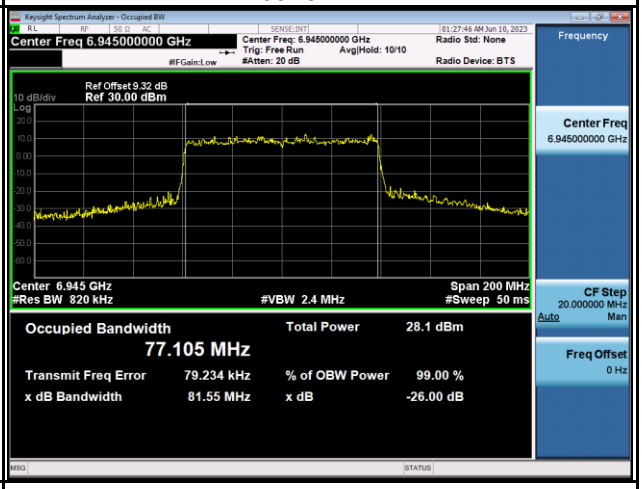
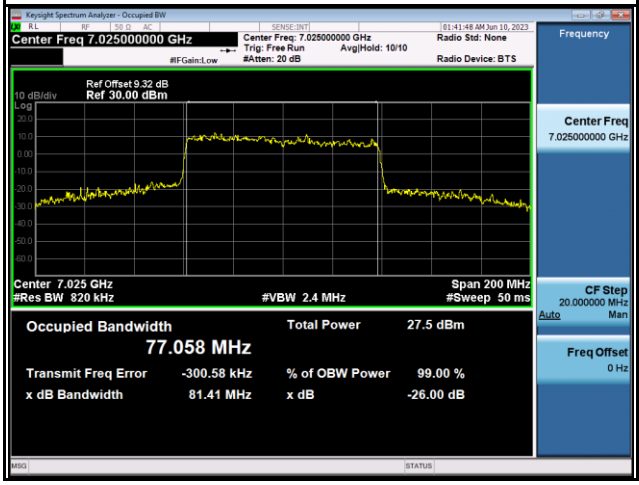
Test Frequency (MHz)	26 dB Bandwidth (MHz)	99 % Occupied Bandwidth (MHz)	Limit (MHz)	Result
6465	80.88	76.70	320	Pass
6545	81.13	76.88	320	Pass

6465 MHz	6545 MHz
	

Test Frequency (MHz)	26 dB Bandwidth (MHz)	99 % Occupied Bandwidth (MHz)	Limit (MHz)	Result
6625	80.96	76.90	320	Pass
6785	81.37	76.99	320	Pass

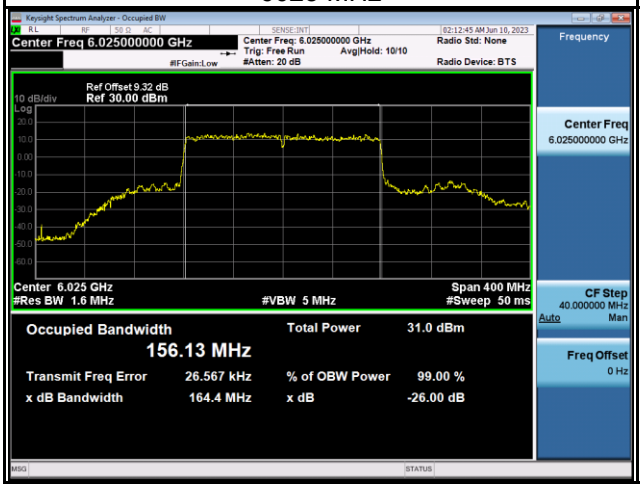
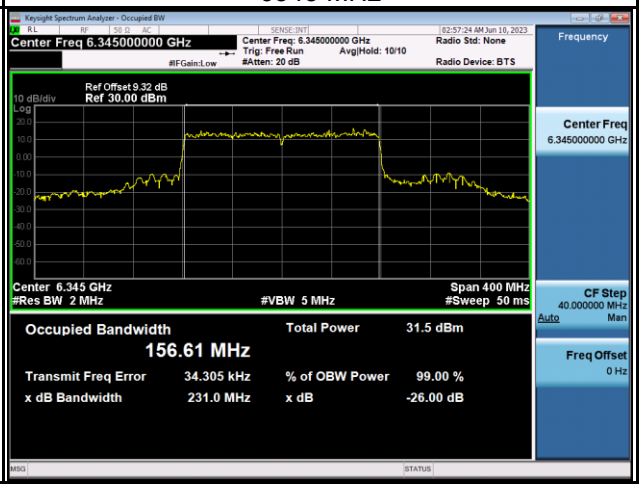
6625 MHz	6785 MHz
	

Test Frequency (MHz)	26 dB Bandwidth (MHz)	99 % Occupied Bandwidth (MHz)	Limit (MHz)	Result
6865	81.34	77.14	320	Pass
6945	81.55	77.11	320	Pass
7025	81.41	77.06	320	Pass

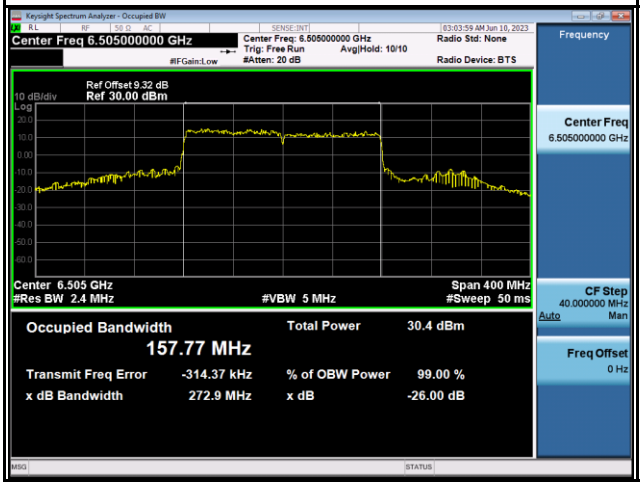
6865 MHz	6945 MHz
	
7025 MHz	-
	-

Test Mode	IEEE 802.11ax (HE160)_ Ant 1

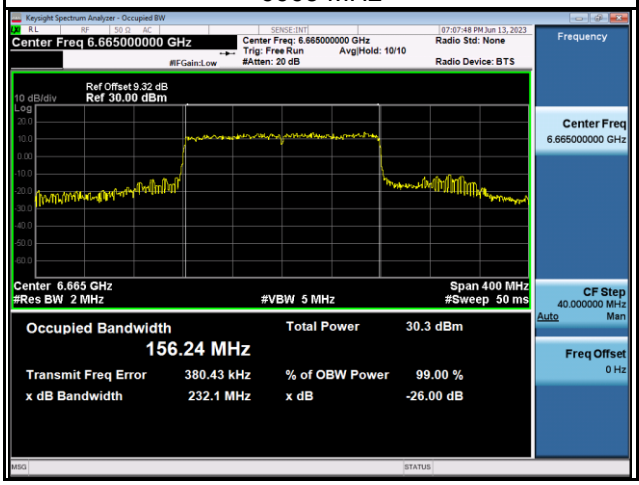
Test Frequency (MHz)	26 dB Bandwidth (MHz)	99 % Occupied Bandwidth (MHz)	Limit (MHz)	Result
6025	164.40	156.13	320	Pass
6345	231.00	156.61	320	Pass

6025 MHz	6345 MHz
	

Test Frequency (MHz)	26 dB Bandwidth (MHz)	99 % Occupied Bandwidth (MHz)	Limit (MHz)	Result
6505	272.90	157.77	320	Pass

6505 MHz	-
	-

Test Frequency (MHz)	26 dB Bandwidth (MHz)	99 % Occupied Bandwidth (MHz)	Limit (MHz)	Result
6665	232.10	156.24	320	Pass

6665 MHz	-
	-

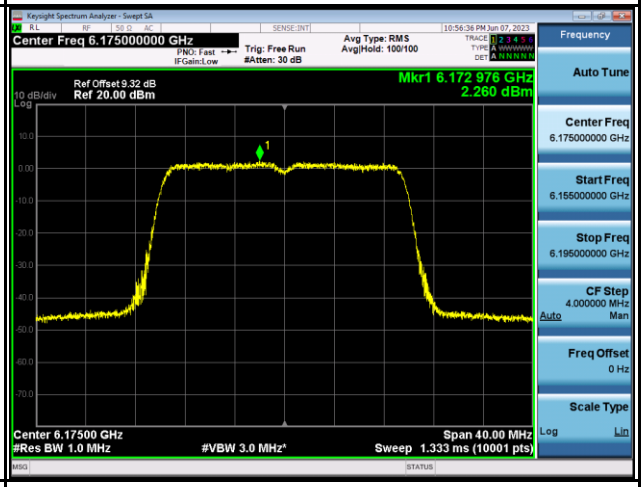
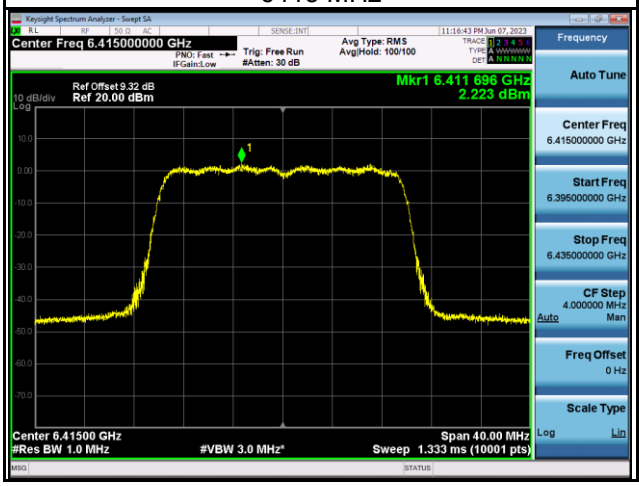
Test Frequency (MHz)	26 dB Bandwidth (MHz)	99 % Occupied Bandwidth (MHz)	Limit (MHz)	Result
6985	232.10	156.24	320	Pass

6985 MHz	-
	-

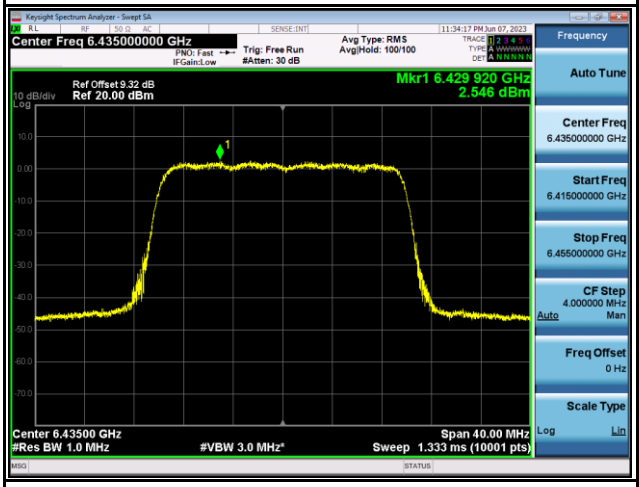
APPENDIX C MAXIMUM POWER SPECTRAL DENSIT

Test Mode	IEEE 802.11ax (HE20)_ Ant 1

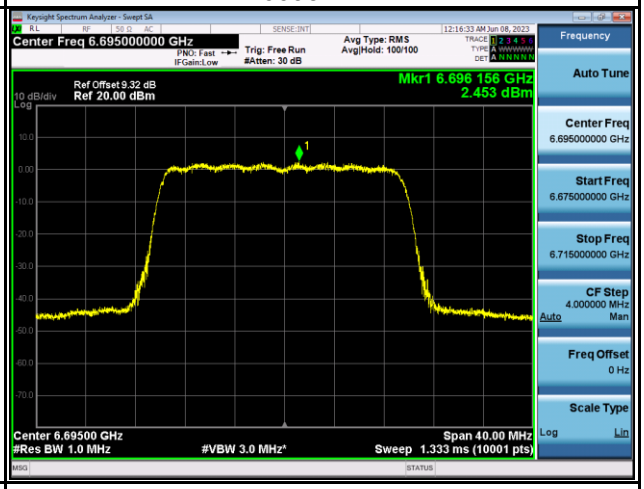
Test Frequency (MHz)	e.i.r.p. Spectral Density (dBm/MHz)	Duty Factor (dB)	Calculated e.i.r.p. Spectral Density (dBm/MHz)	Maximum Limit (dBm/MHz)	Result
5955	1.81	0.39	2.20	5.00	Pass
6175	2.26	0.39	2.65	5.00	Pass
6415	2.22	0.39	2.62	5.00	Pass

5955 MHz	6175 MHz
	
6415 MHz	-
	-

Test Frequency (MHz)	e.i.r.p. Spectral Density (dBm/MHz)	Duty Factor (dB)	Calculated e.i.r.p. Spectral Density (dBm/MHz)	Maximum Limit (dBm/MHz)	Result
6435	2.55	0.39	2.94	5.00	Pass
6475	2.42	0.39	2.81	5.00	Pass
6515	2.08	0.39	2.47	5.00	Pass

6435 MHz	6475 MHz
	
6515 MHz	-
	-

Test Frequency (MHz)	e.i.r.p. Spectral Density (dBm/MHz)	Duty Factor (dB)	Calculated e.i.r.p. Spectral Density (dBm/MHz)	Maximum Limit (dBm/MHz)	Result
6535	2.15	0.39	2.54	5.00	Pass
6695	2.45	0.39	2.85	5.00	Pass
6855	2.48	0.39	2.88	5.00	Pass

6535 MHz	6695 MHz
	
6855 MHz	-
	-