



TEST REPORT

Test item description: Laptop
FCC ID: 2BQ6A-R2
Trademark(s): N/A
Model/Type reference: VGRE LOG R2
Applicant's name: Shenzhen Qianhai Zhonghongsheng Network Technology Co., LTD
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Manufacturer: Shenzhen Qianhai Zhonghongsheng Network Technology Co., LTD
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Sample Received Date: Dec. 22, 2025
Sample tested Date: Dec. 22, 2025 to Feb. 03, 2026
Issue Date: Feb. 03, 2026
Report No.: CTB25122209906RF03
Test Standards: FCC CFR Title 47 Part 15 Subpart C Section 15.247
ANSI C63.10:2020
Test Results: PASS
Remark: This is WIFI-2.4GHz band radio test report.

Compiled by:

Reviewed by:

Approved by:

Kai Chen

Martin Feng

Kai ChenMartin FengBin Mei / Director

Note: If there is any objection to the inspection results in this report, please submit a written report to the company within 15 days from the date of receiving the report. The test report is effective only with both signature and specialized stamp. This result(s) shown in this report refer only to the sample(s) tested. Without written approval of Shenzhen CTB Testing Technology Co., Ltd. this report can't be reproduced except in full. The tested sample(s) and the sample information are provided by the client. "*" indicates the testing items were fulfilled by subcontracted lab. "#" indicates the items are not in CNAS accreditation scope.

TABLE OF CONTENT

Test Report Declaration	Page
1. VERSION.....	3
2. TEST SUMMARY	4
3. MEASUREMENT UNCERTAINTY	5
4. PRODUCT INFORMATION AND TEST SETUP	6
4.1 Product Information	6
4.2 Test Setup Configuration.....	6
4.3 Support Equipment.....	6
4.4 Channel List	7
4.5 Test Mode	7
4.6 Test Environment	8
5. TEST FACILITY AND TEST INSTRUMENT USED	9
5.1 Test Facility	9
5.2 Test Instrument Used	9
6. AC POWER LINE CONDUCTED EMISSION	12
6.1 Block Diagram Of Test Setup.....	12
6.2 Limit.....	12
6.3 Test procedure	12
6.4 Test Result	14
7. RADIATED SPURIOUS EMISSION	16
7.1 Block Diagram Of Test Setup.....	16
7.2 Limit.....	16
7.3 Test procedure	17
7.4 Test Result	18
8. BAND EDGE AND RF CONDUCTED SPURIOUS EMISSIONS	30
8.1 Block Diagram Of Test Setup.....	30
8.2 Limit.....	30
8.3 Test procedure	30
8.4 Test Result	31
9. CONDUCTED OUTPUT POWER.....	55
9.1 Block Diagram Of Test Setup.....	55
9.2 Limit.....	55
9.3 Test procedure	55
9.4 Test Result	56
10. 6DB OCCUPIED BANDWIDTH.....	57
10.1 Block Diagram Of Test Setup.....	57
10.2 Limit.....	57
10.3 Test procedure	57
10.4 Test Result	58
11. POWER SPECTRAL DENSITY.....	72
11.1 Block Diagram Of Test Setup.....	72
11.2 Limit.....	72
11.3 Test procedure	72
11.4 Test Result	73
12. ANTENNA REQUIREMENT	86
13. EUT TEST SETUP PHOTOGRAPHS.....	87

(Note: N/A means not applicable)



1. VERSION

Report No.	Issue Date	Description	Approved
CTB25122209906RF03	Feb. 03, 2026	Original	Valid

2. TEST SUMMARY

The Product has been tested according to the following specifications:

Test Item	Test Requirement	Test method	Result
AC Power Line Conducted Emission	47 CFR Part 15 Subpart C Section 15.207	ANSI C63.10-2020	PASS
Radiated Spurious emissions	47 CFR Part 15 Subpart C Section 15.205/15.209	ANSI C63.10-2020	PASS
Band edge and RF Conducted Spurious Emissions	47 CFR Part 15 Subpart C Section 15.247(d)/15.205(a)	ANSI C63.10-2020	PASS
Conducted Peak Output Power	47 CFR Part 15 Subpart C Section 15.247 (b)(3)	ANSI C63.10-2020	PASS
6dB Occupied Bandwidth	47 CFR Part 15 Subpart C Section 15.247 (a)(2)	ANSI C63.10-2020	PASS
Power Spectral Density	47 CFR Part 15 Subpart C Section 15.247 (e)	ANSI C63.10-2020/ KDB 558074 D01 v05r02	PASS
Antenna Requirement	47 CFR Part 15 Subpart C Section 15.203/15.247 (b)	/	PASS
RF Exposure Evaluation	47 CFR Part 15 Subpart C Section 15.247 (i)/1.1310/2.1091	KDB447498D01v06	PASS

Remark:

Test according to ANSI C63.10-2020.

3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the Product as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Item	Uncertainty
Occupancy bandwidth	U=±54.3Hz
Conducted output power above 1G	U=±1.0dB
Conducted output power below 1G	U=±0.9dB
Power Spectral Density, Conduction	U=±1.0dB
Conduction spurious emissions	U=±2.8dB
Out of band emission	U=±54Hz
3m chamber Radiated spurious emission(9kHz-30MHz)	U=±4.8dB
3m chamber Radiated spurious emission(30MHz-1GHz)	U=±4.3dB
3m chamber Radiated spurious emission(1GHz-18GHz)	U=±4.5dB
3m chamber Radiated spurious emission(1GHz-40GHz)	U=±4.8dB
Humidity uncertainty	U=±5.3%
Temperature uncertainty	U=±0.59°C
Supply voltages	U=±3%
Time	U=±5%
Conducted Emission (9kHz-30MHz)	3.2 dB

4. PRODUCT INFORMATION AND TEST SETUP

4.1 Product Information

Model/Type reference:	VGRE LOG R2
Model Description:	N/A
Wi-Fi Specification:	IEEE 802.11b/g/n/ax
Hardware Version:	EM_IDL8139_S4_V2.1
Software Version:	WIN 11
Operation Frequency:	WiFi (2.4G): IEEE 802.11b/g/n/ax20: 2412-2462MHz/ 11 channel IEEE 802.11n/ax40: 2422-2452MHz/ 7 channel
Max. RF output power:	WiFi (2.4G): 24.919dBm
Type of Modulation:	WiFi (2.4G): DSSS, OFDM, OFDMA
Antenna installation:	WiFi (2.4G): Internal Antenna
Antenna Gain:	WiFi (2.4G) : ANT1: 2.99dBi ANT2: 2.99Bi
Ratings:	For AC ADAPTER: Input: 100-240V~, 50/60Hz, 1.5A Output: 20V=Max. 3.25A Max. For EUT: Input: 20V=3.25A Battery Capacity: 11.55V=5000mAh, 57.75Wh

4.2 Test Setup Configuration

See test photographs attached in EUT TEST SETUP PHOTOGRAPHS for the actual connections between Product and support equipment

4.3 Support Equipment

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Note
1.	Keyboard	DELL	KB216t	N/A	AE
2	Mouse	DELL	MS116c	N/A	AE
3	Monitor	DELL	SE2218HV	N/A	AE

Notes:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

4.4 Channel List

CH	Frequency (MHz)	CH	Frequency (MHz)	CH	Frequency (MHz)	CH	Frequency (MHz)
1	2412	2	2417	3	2422	4	2427
5	2432	6	2437	7	2442	8	2447
9	2452	10	2457	11	2462	/	/

4.5 Test Mode

All test mode(s) and condition(s) mentioned were considered and evaluated respectively by performing full tests, the worst data were recorded and reported.

ANT 1, ANT 2

Test mode	Low channel	Middle channel	High channel
Transmitting(802.11b/g/n/ax20)	2412MHz	2437MHz	2462MHz
Transmitting(802.11n/ax40)	2422MHz	2437MHz	2452MHz

MIMO(ANT 1+ANT 2)

Test mode	Low channel	Middle channel	High channel
Transmitting(802.11n/ax20)	2412MHz	2437MHz	2462MHz
Transmitting(802.11n/ax40)	2422MHz	2437MHz	2452MHz

EUT has two Internal Antenna with Max Antenna Gain 4.27dbi on every antenna, CDD device with two spatial streams, according to KDB662911 D01 v02r01,

Directional gain= GANT + Array Gain, where Array Gain is as follows.

1) For power spectral density(PSD) measurements,

Array Gain=10log(NANT/NSS)dB=10log(2/1)=3.01dB,

So the directional gain for PSD is 7.28dBi

2) For power measurements,

The Array gain=0 dB for NANT≤4,

So the directional gain for Power measurements is 4.27dBi

NOTE: Duty cycle>98%.

Test mode	Rate
802.11b	11M
802.11g	54M
802.11n/20	65M
802.11n/40	65M
802.11/ax20	65M
802.11/ax40	65M

4.6 Test Environment

Humidity(%):	54
Atmospheric Pressure(kPa):	101
Normal Voltage(AC):	120V
Normal Temperature(°C)	23
Low Temperature(°C)	0
High Temperature(°C)	50

5. TEST FACILITY AND TEST INSTRUMENT USED

5.1 Test Facility

All measurement facilities used to collect the measurement data are located at 1&2F., Building A, No. 26, Xinhua Road, Xinqiao, Xinqiao Street, Bao'an District, Shenzhen, Guangdong, China. The site and apparatus are constructed in conformance with the requirements of ANSI C63.4 and CISPR 16-1-1 other equivalent standards.

FCC Test Firm Registration Number: CN1276

5.2 Test Instrument Used

No.	Equipment	Manufacturer	Type No.	Serial No.	Firmware Version	Calibrated Date	Calibrated until
1	Spectrum Analyzer	Agilent	N9020A	MY52090073	A.14.16	2025/5/23	2026/5/22
2	Power Sensor	Agilent	U2021XA	MY56120032	/	2025/5/23	2026/5/22
3	Power Sensor	Agilent	U2021XA	MY56120034	/	2025/5/23	2026/5/22
4	Communication test set	R&S	CMW500	108058	V3.5.80	2025/5/23	2026/5/22
5	Spectrum Analyzer	KEYSIGHT	N9020A	MY51289897	A.14.16	2025/5/23	2026/5/22
6	Signal Generator	Agilent	N5181A	MY50140365	A.01.60	2025/5/22	2026/5/21
7	Vector signal generator	Agilent	N5182A	MY47420195	A.01.87	2025/5/22	2026/5/21
8	Communication test set	Agilent	E5515C	MY50102567	B.19.07 (E1962B)	2025/5/22	2026/5/21
9	2.4 GHz Filter	Shenxiang	MSF2400-2483.5MS-1154	20181015001	/	2025/6/18	2026/6/17
10	5 GHz Filter	Shenxiang	MSF5150-5850 MS-1155	20181015001	/	2025/6/18	2026/6/17
11	Filter	Xingbo	XBLBQ-DZA120	190821-1-1	/	2025/5/24	2026/5/23
12	BT&WI-FI Automatic test software	Microwave	MTS8310	Ver. 2.0.0.0	/	/	/
13	Rohde & Schwarz SFU Broadcast Test System	R&S	SFU	101017	/	2025/10/20	2026/10/19
14	Temperature humidity chamber	Hongjing	TH-80CH	DG-15174	/	2025/5/22	2026/5/21
15	234G Automatic test software	Microwave	MTS8200	Ver. 2.0.0.0	/	/	/
16	966 chamber	C.R.T.	966	/	/	2024/6/23	2027/6/22
17	Receiver	R&S	ESPI	100362	RF_ATTEN_7	2025/5/23	2026/5/22

					(104489/003)		
18	Amplifier	HP	8447E	2945A02747	/	2025/5/23	2026/5/22
19	Amplifier	Agilent	8449B	3008A01838	/	2025/6/2	2026/6/1
20	TRILOG Broadband Antenna	Schwarzbeck	VULB 9168	00869	/	2025/6/29	2026/6/28
21	Double Ridged Broadband Horn Antenna	Schwarzbeck	BBHA9120D	01911	/	2025/6/1	2026/5/31
22	EMI test software	Fala	EZ-EMC	FA-03A2 RE	/	/	/
23	Loop Antenna	Schwarzbeck	FMZB 1519B	1519B-224	/	2025/6/2	2026/6/1
24	loop antenna	ZHINAN	ZN30900A	GTS534	/	/	/
25	40G Horn antenna	A/H/System	SAS-574	588	/	2025/6/2	2026/6/1
26	Amplifier	AEROFLEX	Aeroflex	097	/	2025/6/2	2026/6/1
27	Power Meter	KEYSIGHT	N1912AP	N/A	A.05.00	2025/6/2	2026/6/1

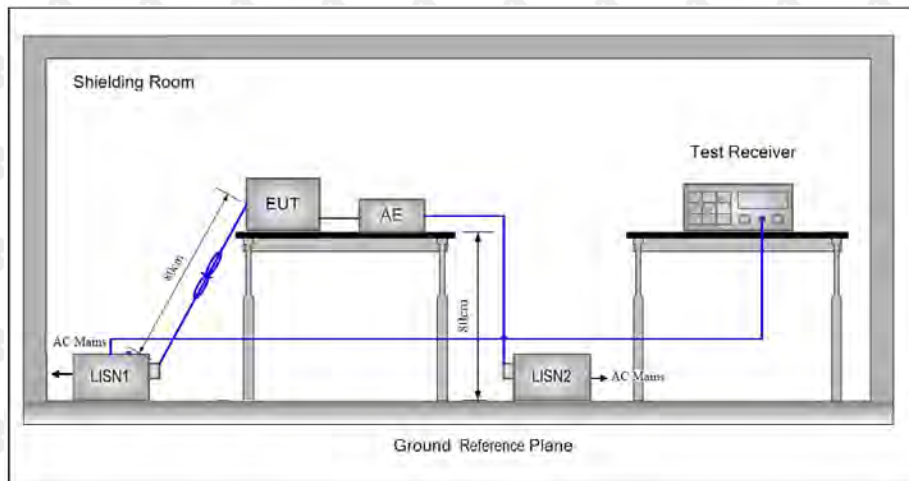
Continuous disturbance							
No.	Equipment	Manufacturer	Model No.	Serial No.	Firmware version	Calibrated Date	Calibrated until
1	843 Shield Room	C/ R/ T	843	/	/	2024/6/22	2027/6/21
2	LISN	ROHDE&SCHWARZ	ESH3-Z5	831551852	/	2025/5/22	2026/5/21
3	EMI TEST RECEIVER	ROHDE&SCHWARZ	ESCI	100428	V4.42.SP3	2025/5/22	2026/5/21
4	Coaxial cable	ZDECL	Z302S	18091904	/	2025/5/22	2026/5/21
5	ISN	Schwarzbeck	NTFM8158	183	/	2025/6/18	2026/6/17
6	Voltage sensor	Schwarzbeck	TK 9420	01189	/	2025/9/19	2026/9/18
7	EZ-EMC	Frad	EMC-con3A1.1	/	/	/	/
8	Current Probe	FCC	F-52B	199453	/	2025/5/24	2026/5/23
9	Communication test set	R&S	CMW500	108058	B.19.07 (E1962B)	2025/5/23	2026/5/22
10	Communication test set	Agilent	E5515C	MY50102567	V3.5.80	2025/5/23	2026/5/22

Radiated emission(No.1 Chamber)							
No.	Equipment	Manufacturer	Model No.	Serial No.	Firmware version	Calibrated until	Calibrated until
1	966 Chamber	C/ R/ T	966	/	/	2024/6/23	2027/6/22
2	Double Ridged Broadband Horn Antenna	Schwarzbeck	BBHA 9120 D	01911	/	2025/6/1	2026/5/31
3	TRILOG Broadband Antenna	Schwarzbeck	VULB 9168	00869	/	2025/6/29	2026/6/28

4	Amplifier	Agilent	8449B	3008A01838	/	2025/6/3	2026/6/2
5	Amplifier	HP	8447E	2945A02747	/	2025/5/23	2026/5/22
6	loop antenna	Schwarzbeck	FMZB 1519B	1519B-224	/	2025/6/2	2026/6/1
7	EMI TEST RECEIVER	ROHDE&SCHWARZ	ESPI	100362	RF_ATTEN_7 (104489/003)	2025/5/23	2026/5/22
8	Spectrum Analyzer	KEYSIGHT	N9020A	MY51289897	A.14.16	2025/5/23	2026/5/22
9	Coaxial cable	ETS	RFC-SNS-100-NMS-80	/	/	2025/5/24	2026/5/23
10	Coaxial cable	ETS	RFC-SN-100-NMS-20	/	/	2025/5/24	2026/5/23
11	Coaxial cable	ETS	RFC-SNS-100-SMS-20	/	/	2025/5/24	2026/5/23
12	Coaxial cable	ETS	RFC-NNS-100-NMS-300	/	/	2025/5/24	2026/5/23
13	EMI test software	Frad	EZ-EMC	Ver/ FA-03A2 RE	/	/	/
14	Communication test set	R&S	CMW500	108058	B.19.07 (E1962B)	2025/5/23	2026/5/22
15	Communication test set	Agilent	E5515C	MY50102567	V3.5.80	2025/5/23	2026/5/22

6. AC POWER LINE CONDUCTED EMISSION

6.1 Block Diagram Of Test Setup



6.2 Limit

Table 4 – AC power-line conducted emissions limits

Frequency (MHz)	Conducted limit (dBμV)	
	Quasi-peak	Average
0.15 - 0.5	66 to 56 ^{Note 1}	56 to 46 ^{Note 1}
0.5 - 5	56	46
5 - 30	60	50

Note 1: The level decreases linearly with the logarithm of the frequency.

* Decreasing linearly with the logarithm of the frequency

6.3 Test procedure

- 1) The mains terminal disturbance voltage test was conducted in a shielded room.
- 2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50Ω/50μH + 5Ω linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.
- 3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane,
- 4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0,4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0,8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane.

This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0,8 m from the LISN 2.

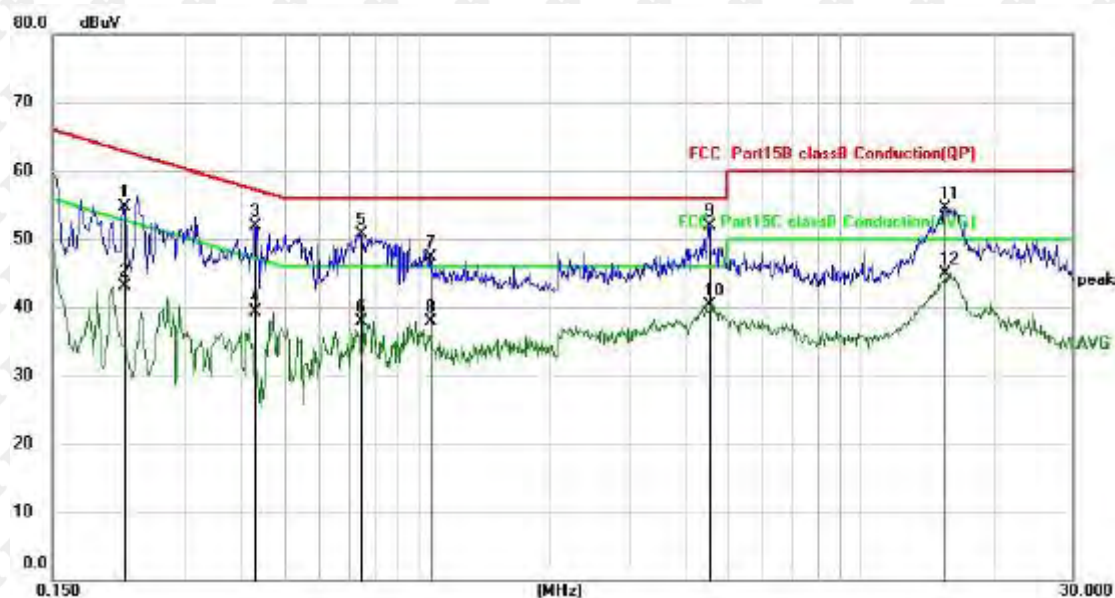
- 5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.

6.4 Test Result

Worst mode: ANT1 LOW CH1 (802.11b Mode)/2412

Test Specification: Line

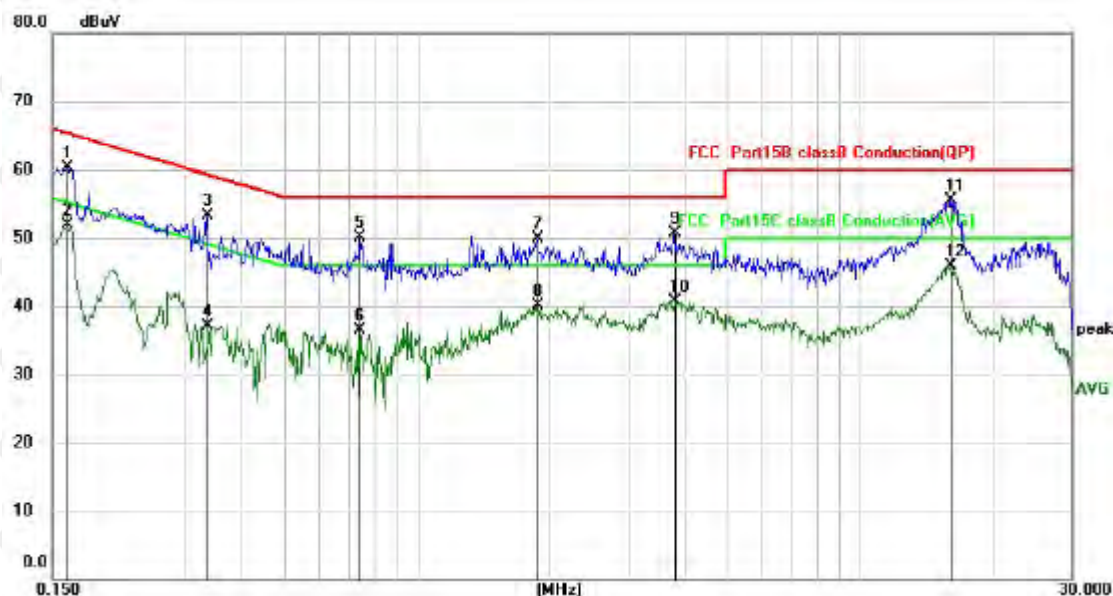
AC 120V 60Hz



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector
1		0.2179	44.59	10.18	54.77	62.90	-8.13	QP
2		0.2179	32.83	10.18	43.01	52.90	-9.89	AVG
3		0.4300	41.67	10.19	51.86	57.25	-5.39	QP
4		0.4300	29.02	10.19	39.21	47.25	-8.04	AVG
5		0.7459	40.54	10.25	50.79	56.00	-5.21	QP
6		0.7459	27.68	10.25	37.93	46.00	-8.07	AVG
7		1.0660	37.00	10.32	47.32	56.00	-8.68	QP
8		1.0660	27.59	10.32	37.91	46.00	-8.09	AVG
9	*	4.5377	40.44	11.46	51.90	56.00	-4.10	QP
10		4.5377	28.86	11.46	40.32	46.00	-5.68	AVG
11		15.3978	38.02	16.56	54.58	60.00	-5.42	QP
12		15.3978	28.29	16.56	44.85	50.00	-5.15	AVG

Remark: Factor = Cable loss + LISN factor, Margin = Measurement – Limit

Test Specification: Neutral
AC 120V 60Hz



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector
1		0.1621	50.21	10.17	60.38	65.36	-4.98	QP
2	*	0.1621	41.67	10.17	51.84	55.36	-3.52	AVG
3		0.3339	43.06	10.19	53.25	59.35	-6.10	QP
4		0.3339	27.01	10.19	37.20	49.35	-12.15	AVG
5		0.7419	39.84	10.25	50.09	56.00	-5.91	QP
6		0.7419	26.29	10.25	36.54	46.00	-9.46	AVG
7		1.8660	39.34	10.50	49.84	56.00	-6.16	QP
8		1.8660	29.51	10.50	40.01	46.00	-5.99	AVG
9		3.8020	39.45	11.19	50.64	56.00	-5.36	QP
10		3.8020	29.53	11.19	40.72	46.00	-5.28	AVG
11		15.9900	38.77	16.82	55.59	60.00	-4.41	QP
12		15.9900	29.11	16.82	45.93	50.00	-4.07	AVG

Remark: Factor = Cable loss + LISN factor, Margin = Measurement – Limit

7. RADIATED SPURIOUS EMISSION

7.1 Block Diagram Of Test Setup

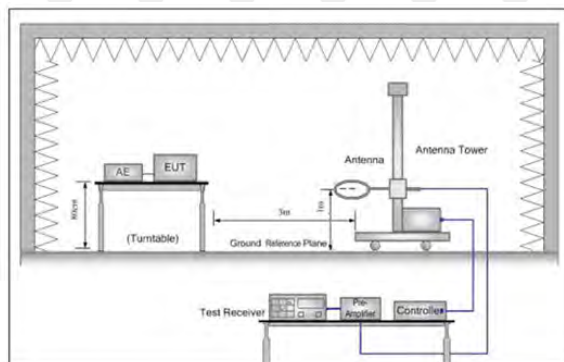


Figure 1. Below 30MHz

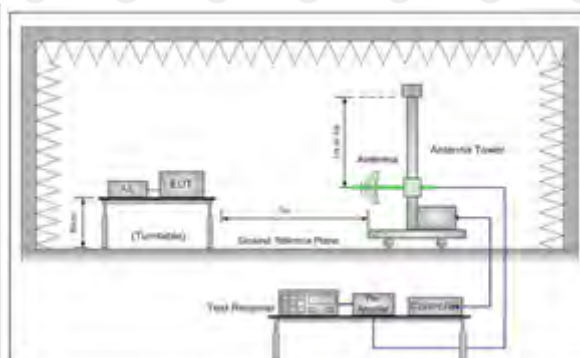


Figure 2. 30MHz to 1GHz

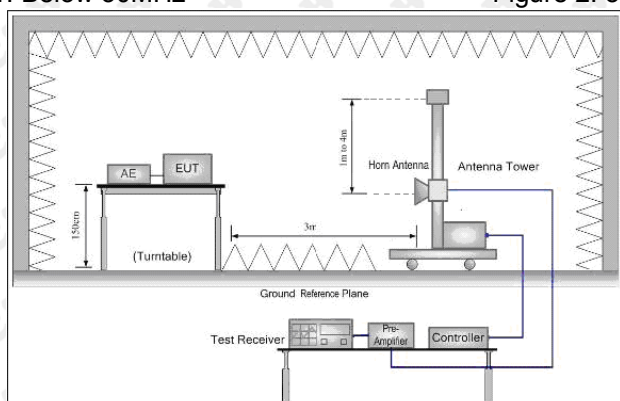


Figure 3. Above 1GHz

7.2 Limit

Spurious Emissions:

Frequency	Field strength (microvolt/meter)	Limit (dB μ V/m)	Remark	Measurement distance (m)
0.009MHz-0.490MHz	2400/F (kHz)	-	-	300
0.490MHz-1.705MHz	24000/F (kHz)	-	-	30
1.705MHz-30MHz	30	-	-	30
30MHz-88MHz	100	40.0	Quasi-peak	3
88MHz-216MHz	150	43.5	Quasi-peak	3
216MHz-960MHz	200	46.0	Quasi-peak	3
960MHz-1GHz	500	54.0	Quasi-peak	3
Above 1GHz	500	54.0	Average	3

Note: 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.

7.3 Test procedure

Below 1GHz test procedure as below:

- The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rota table table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

Above 1GHz test procedure as below:

- Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber and change form table 0.8 meter to 1.5 meter(Above 18GHz the distance is 1 meter and table is 1.5 meter).
- Test the EUT in the lowest channel ,the middle channel ,the Highest channel
- Repeat above procedures until all frequencies measured was complete.

Receiver set:

Frequency	Detector	RBW	VBW	Remark
0.009MHz-0.090MHz	Peak	10kHz	30KHz	Peak
0.009MHz-0.090MHz	Average	10kHz	30KHz	Average
0.090MHz-0.110MHz	Quasi-peak	10kHz	30KHz	Quasi-peak
0.110MHz-0.490MHz	Peak	10kHz	30KHz	Peak
0.110MHz-0.490MHz	Average	10kHz	30KHz	Average
0.490MHz -30MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
30MHz-1GHz	Quasi-peak	120 kHz	300KHz	Quasi-peak
Above 1GHz	Peak	1MHz	3MHz	Peak
	Peak	1MHz	10Hz	Average

The EUT was pretested with 3 orientations placed on the table for the radiated emission measurement –X, Y, and Z-plane. The X-plane results were found as the worst case and were shown in this report.

7.4 Test Result

Worst mode: ANT1 LOW CH1 (802.11b Mode)/2412
Below 1GHz Test Results:
Antenna polarity: H



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Over dB	Detector
1	!	184.1665	42.30	-4.68	37.62	43.50	-5.88	QP
2	!	241.6759	47.02	-5.03	41.99	46.00	-4.01	QP
3		419.8435	40.53	-0.53	40.00	46.00	-6.00	QP
4	!	541.3721	38.34	2.20	40.54	46.00	-5.46	QP
5	*	796.1829	34.11	8.48	42.59	46.00	-3.41	QP
6	!	924.1345	32.75	9.40	42.15	46.00	-3.85	QP

Remark: Factor = Cable lose + Antenna factor - Pre-amplifier; Margin = Limit - Level

Antenna polarity: V



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	
		MHz	Level	Factor	ment			Detector
			dBuV	dB	dBuV/m	dB/m	dB	
1		41.1319	36.87	-5.93	30.94	40.00	-9.06	QP
2		120.9107	39.66	-5.86	33.80	43.50	-9.70	QP
3		184.1665	40.87	-4.68	36.19	43.50	-7.31	QP
4	!	546.1390	39.31	2.35	41.66	46.00	-4.34	QP
5	*	782.3451	34.30	8.18	42.48	46.00	-3.52	QP
6		991.2717	34.59	9.11	43.70	54.00	-10.30	QP

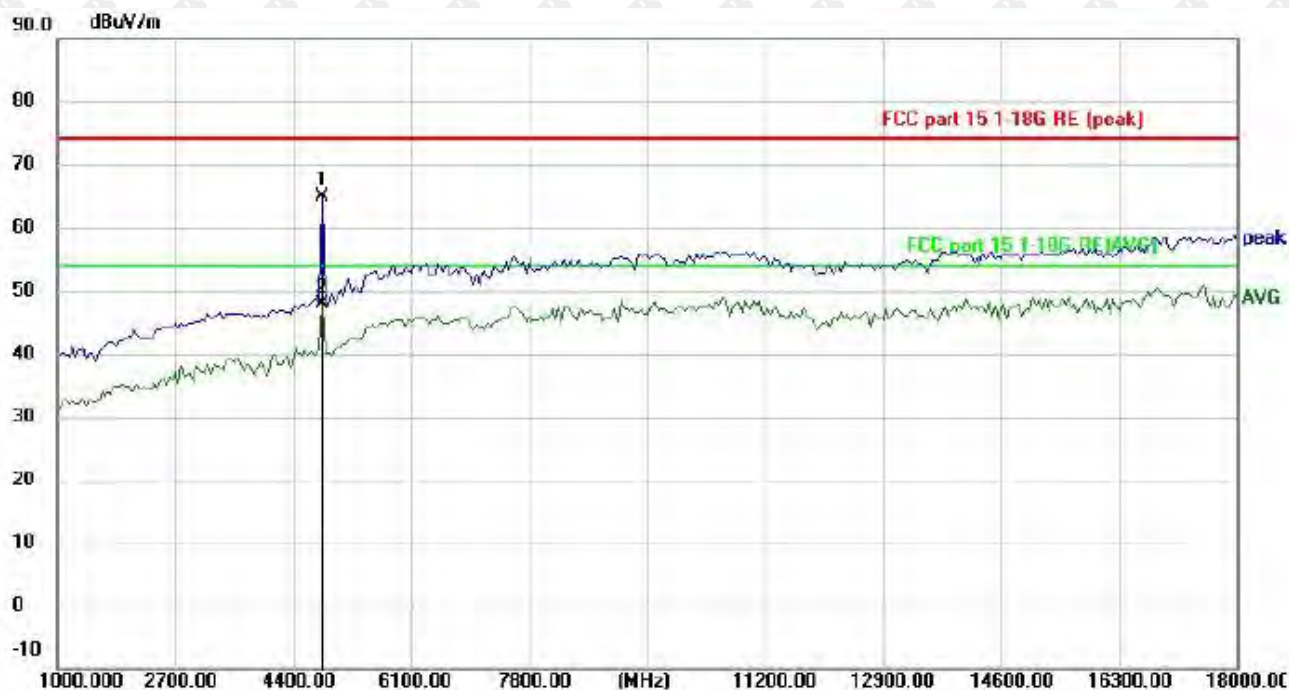
Remark: Factor = Cable lose + Antenna factor - Pre-amplifier; Margin = Limit – Level

1. The margin of 9k-30MHz measurement exceeds 20dB, so the test chart is not included.
2. All modes have been tested, and the test results show that ANT1 b-mode data is the worst, only ANT 1 b-mode test chart is put.

Above 1 GHz Test Results:

Antenna polarity: H

Worst mode :LOW CH1 (802.11n20 Mode)/2412/ANT 1+ANT 2



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Over dB	Detector
1		4825.000	51.02	13.82	64.84	74.00	-9.16	peak
2	*	4825.000	34.05	13.82	47.87	54.00	-6.13	AVG

Remark: Factor = Cable lose + Antenna factor - Pre-amplifier; Margin = Limit – Level

Antenna polarity: V
Worst mode :LOW CH1 (802.11n20 Mode)/2412/ANT 1+ ANT 2



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Over dB	Detector
1		4825.000	48.42	13.82	62.24	74.00	-11.76	peak
2	*	4825.000	33.62	13.82	47.44	54.00	-6.56	AVG

Remark: Factor = Cable lose + Antenna factor - Pre-amplifier; Margin = Limit – Level

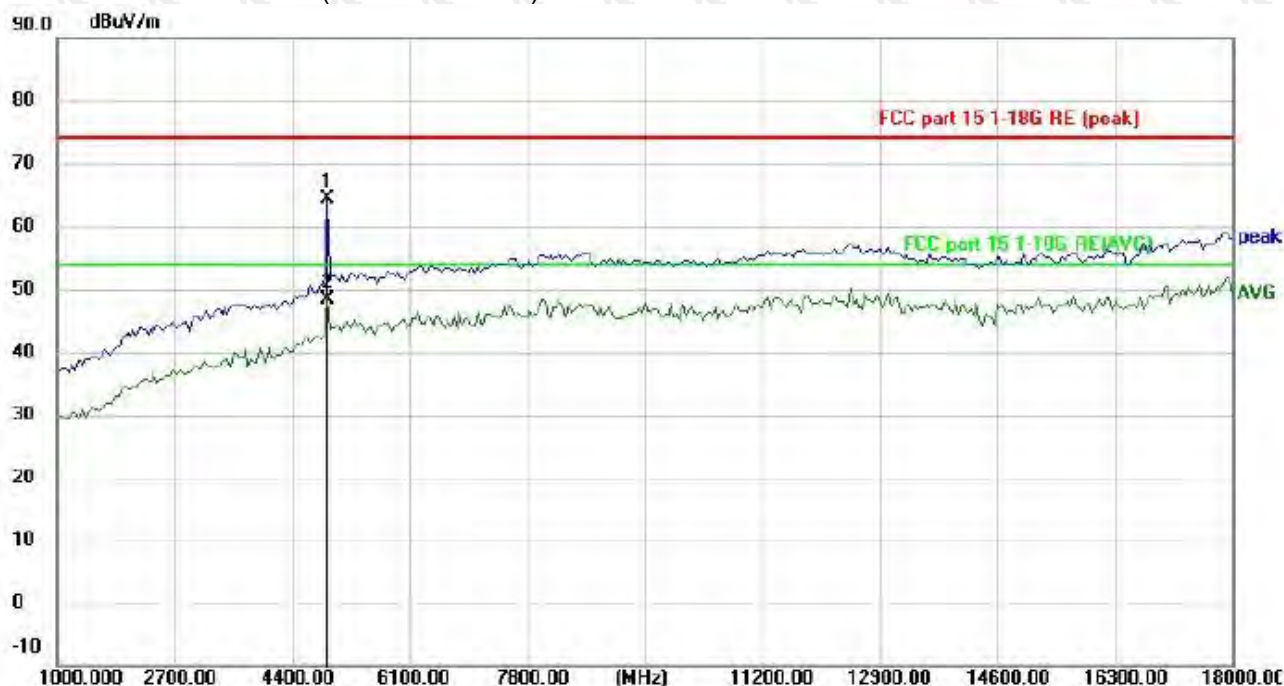
Antenna polarity: H
Worst mode :Mid CH6 (802.11n20 Mode)/2437/ANT 1+ ANT 2



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1		4867.500	50.50	14.00	64.50	74.00	-9.50	peak
2	*	4867.500	33.70	14.00	47.70	54.00	-6.30	AVG

Remark: Factor = Cable lose + Antenna factor - Pre-amplifier; Margin = Limit – Level

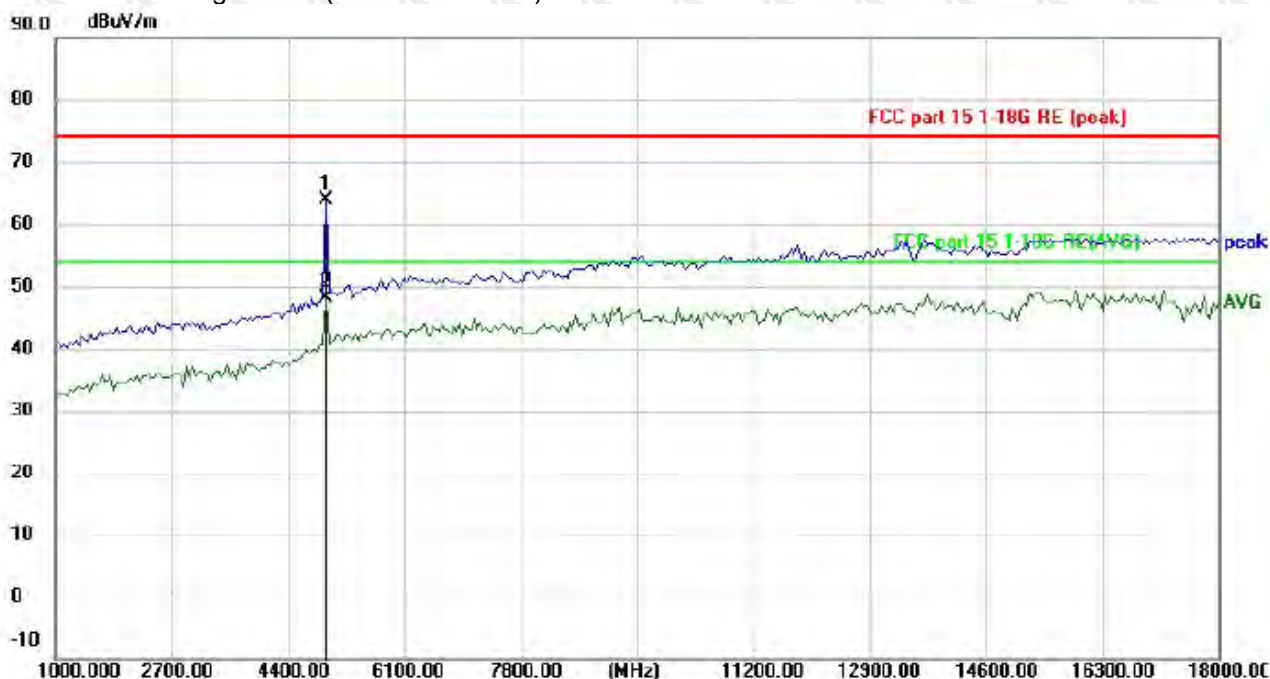
Antenna polarity: V
Worst mode :Mid CH6 (802.11n20 Mode)/2437/ANT 1+ ANT 2



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Over dB	Detector
1		4910.000	50.31	14.18	64.49	74.00	-9.51	peak
2	*	4910.000	34.32	14.18	48.50	54.00	-5.50	AVG

Remark: Factor = Cable lose + Antenna factor - Pre-amplifier; Margin = Limit – Level

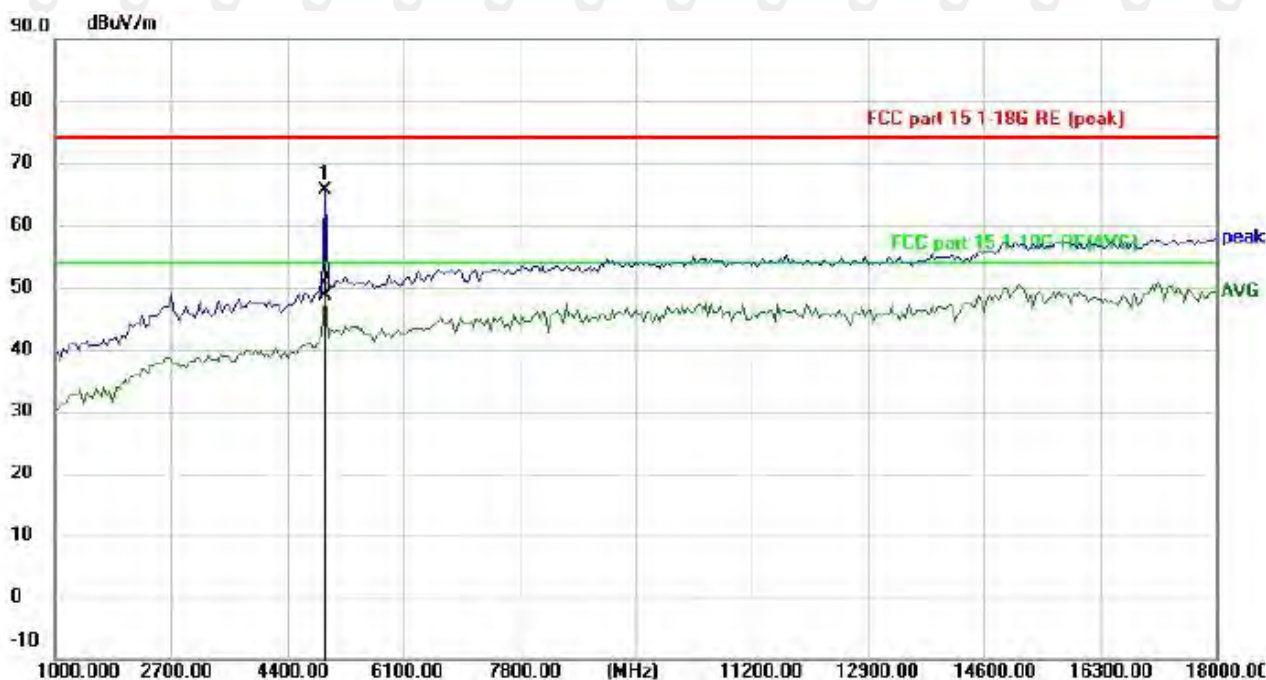
Antenna polarity: H
Worst mode :High CH11 (802.11n20 Mode)/2462/ANT 1+ ANT 2



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Over dB	Detector
1		4952.500	49.57	14.37	63.94	74.00	-10.06	peak
2	*	4952.500	33.87	14.37	48.24	54.00	-5.76	AVG

Remark: Factor = Cable lose + Antenna factor - Pre-amplifier; Margin = Limit – Level

Antenna polarity: V
Worst mode :High CH11 (802.11n20 Mode)/2462/ANT 1+ ANT 2



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Over dB	Detector
1		4952.500	51.26	14.37	65.63	74.00	-8.37	peak
2	*	4952.500	34.34	14.37	48.71	54.00	-5.29	AVG

Remark: Factor = Cable lose + Antenna factor - Pre-amplifier; Margin = Limit – Level

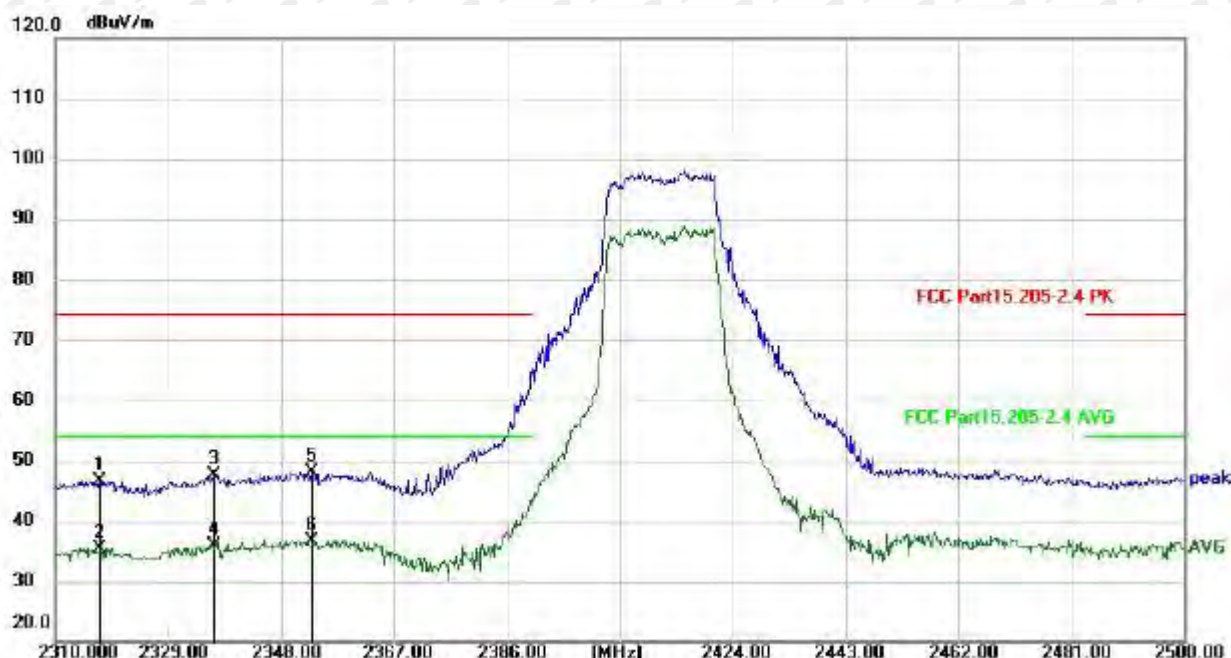
Remark :

- (1) Measuring frequencies from 1 GHz to the 25 GHz .
- (2) * denotes emission frequency which appearing within the Restricted Bands specified in provision of 15.205, then the general radiated emission limits in 15.209 apply.
- (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 EUT was tested in the low, mid, high channel and the worst case position data were reported.
- (5) When the test results of Peak Detected below the limits of Average Detected, the Average Detected is not need completed. For example: Top Channel at Fundamental 73.16dBuV/m(PK Value) <93.98(AV Limit), at harmonic 53.20 dBuV/m(PK Value) <54 dBuV/m(AV Limit), the Average Detected not need to completed.

Restricted bands around fundamental frequency (Radiated)

Antenna polarity: H

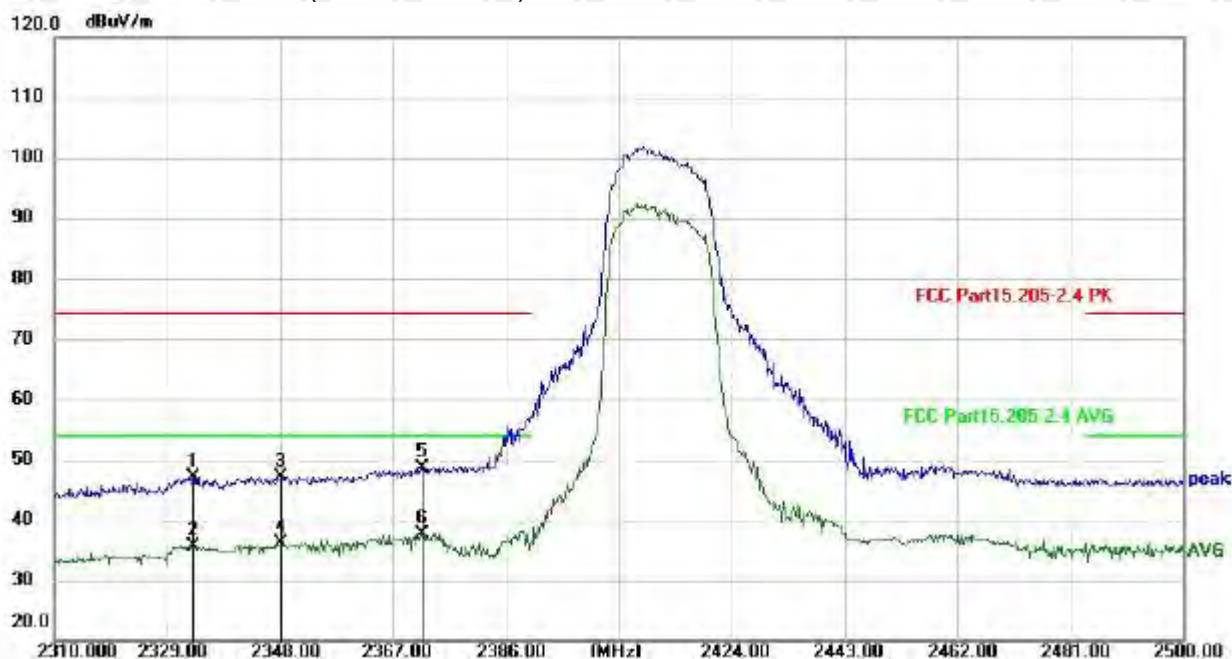
Worst mode :LOW CH1 (802.11n20 Mode)/2412/ANT 1+ANT 2



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Over dB	Detector
1		2317.410	57.24	-10.66	46.58	74.00	-27.42	peak
2		2317.410	46.15	-10.66	35.49	54.00	-18.51	AVG
3		2336.790	58.25	-10.64	47.61	74.00	-26.39	peak
4		2336.790	46.40	-10.64	35.76	54.00	-18.24	AVG
5		2353.130	58.87	-10.63	48.24	74.00	-25.76	peak
6	*	2353.130	47.24	-10.63	36.61	54.00	-17.39	AVG

Remark: Factor = Cable lose + Antenna factor - Pre-amplifier; Margin = Limit – Level

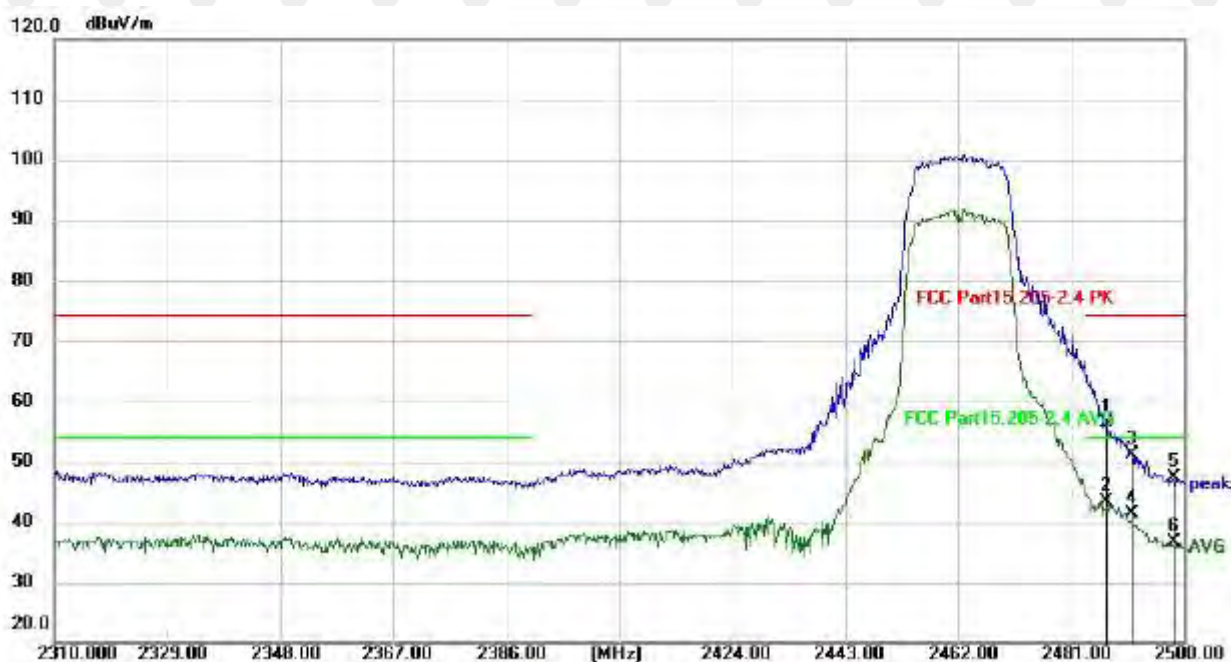
Antenna polarity: V
Worst mode :LOW CH1 (802.11n20 Mode)/2412/ANT 1+ ANT 2



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	
		MHz	Level	Factor	ment			Detector
			dBuV	dB	dBuV/m	dB/m	dB	
1		2333.370	57.83	-10.64	47.19	74.00	-26.81	peak
2		2333.370	46.27	-10.64	35.63	54.00	-18.37	AVG
3		2348.190	57.84	-10.63	47.21	74.00	-26.79	peak
4		2348.190	46.73	-10.63	36.10	54.00	-17.90	AVG
5		2371.940	59.27	-10.62	48.65	74.00	-25.35	peak
6	*	2371.940	48.34	-10.62	37.72	54.00	-16.28	AVG

Remark: Factor = Cable lose + Antenna factor - Pre-amplifier; Margin = Limit – Level

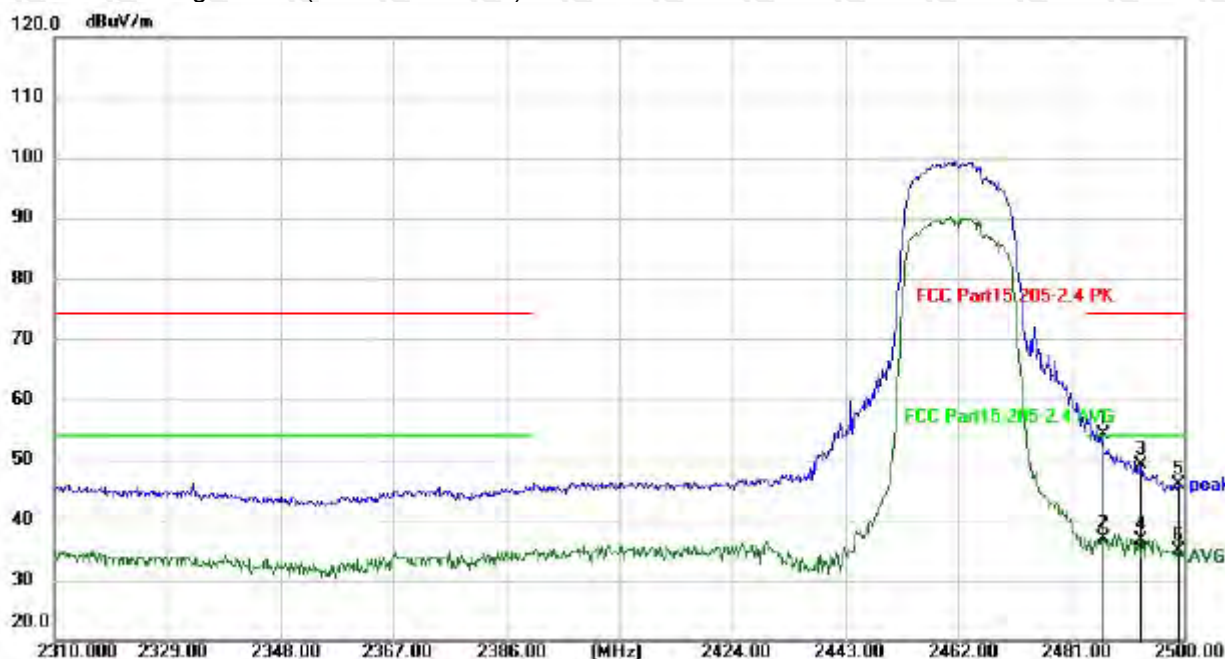
Antenna polarity: H
Worst mode :High CH11 (802.11n20 Mode)/2462/ANT 1+ ANT 2



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over
		MHz	dBuV	dB	dBuV/m	dB/m	dB
1		2486.890	67.00	-10.53	56.47	74.00	-17.53
2	*	2486.890	53.91	-10.53	43.38	54.00	-10.62
3		2491.260	61.62	-10.53	51.09	74.00	-22.91
4		2491.260	51.89	-10.53	41.36	54.00	-12.64
5		2498.290	57.81	-10.53	47.28	74.00	-26.72
6		2498.290	47.18	-10.53	36.65	54.00	-17.35

Remark: Factor = Cable lose + Antenna factor - Pre-amplifier; Margin = Limit – Level

Antenna polarity: V
Worst mode :High CH11 (802.11n20 Mode)/2462/ANT 1+ ANT 2



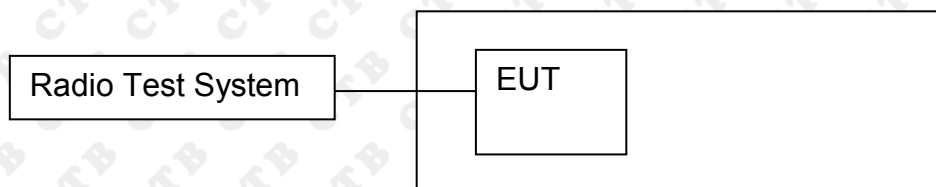
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Over dB	Detector
1		2486.320	64.70	-10.53	54.17	74.00	-19.83	peak
2	*	2486.320	47.38	-10.53	36.85	54.00	-17.15	AVG
3		2492.780	59.74	-10.53	49.21	74.00	-24.79	peak
4		2492.780	47.17	-10.53	36.64	54.00	-17.36	AVG
5		2499.050	56.32	-10.53	45.79	74.00	-28.21	peak
6		2499.050	45.32	-10.53	34.79	54.00	-19.21	AVG

Remark: Factor = Cable lose + Antenna factor - Pre-amplifier; Margin = Limit – Level

Note: All modes were test at Low, High channel, ANT 1,ANT 2 and ANT 1+ANT 2 tested and passed, the worst result of (802.11n20 Mode) /ANT 1+ ANT 2 was reported

8. BAND EDGE AND RF CONDUCTED SPURIOUS EMISSIONS

8.1 Block Diagram Of Test Setup



8.2 Limit

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

8.3 Test procedure

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;
2. Set the spectrum analyzer:

Below 30MHz:

RBW = 100kHz, VBW = 300kHz, Sweep = auto

Detector function = peak, Trace = max hold

Above 30MHz:

RBW = 100kHz, VBW = 300kHz, Sweep = auto

Detector function = peak, Trace = max hold

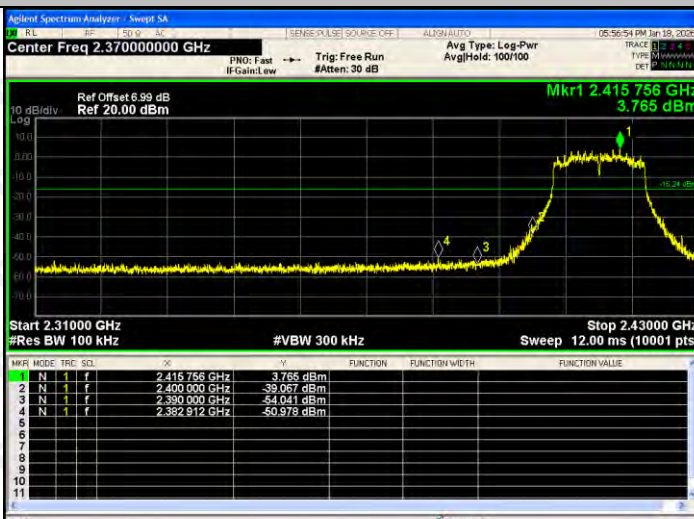
8.4 Test Result

ANT1:

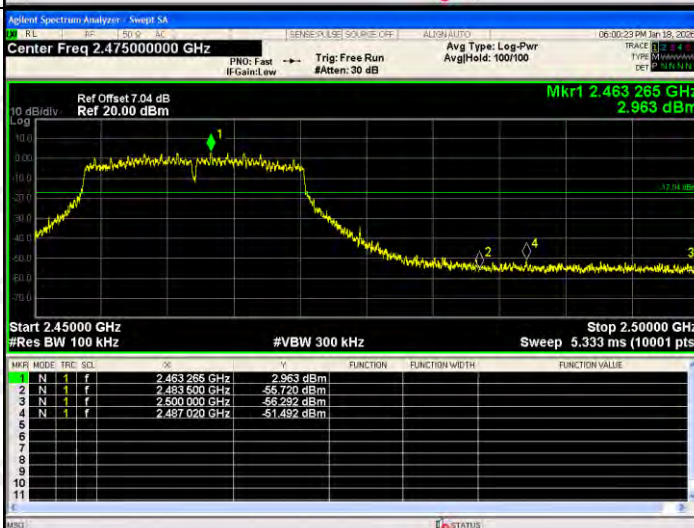


BAND EDGE Graphs

802.11g/LCH

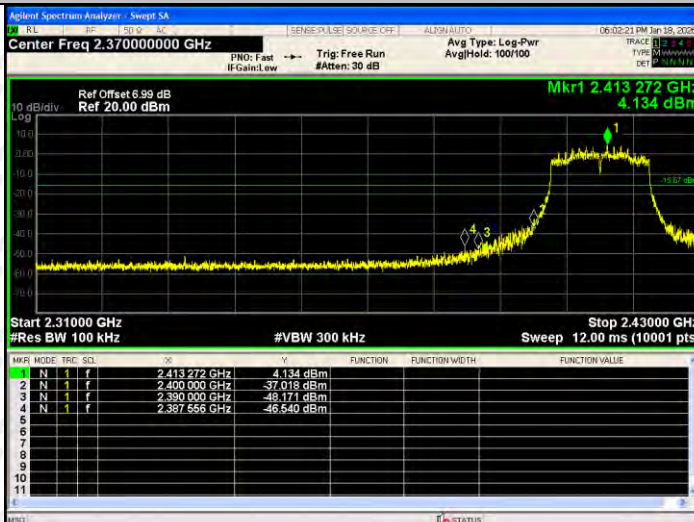


802.11g/HCH

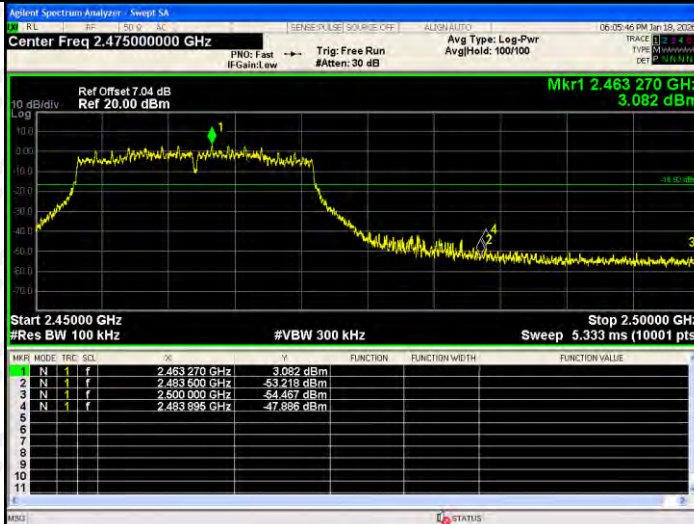


BAND EDGE Graphs

802.11n(HT20)/LCH

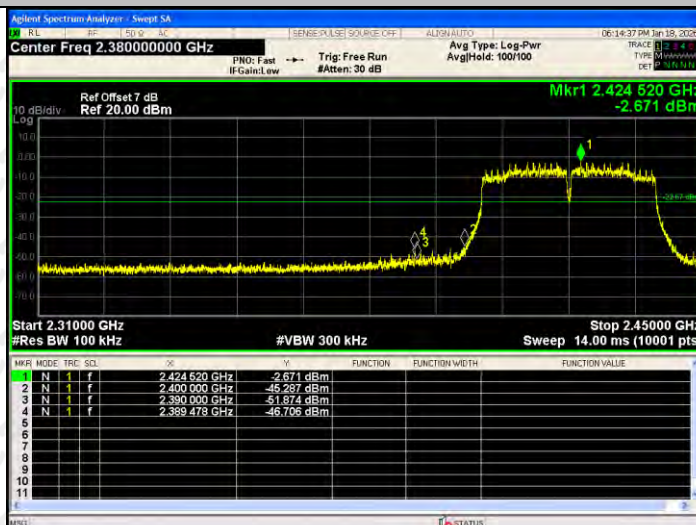


802.11n(HT20)/HCH

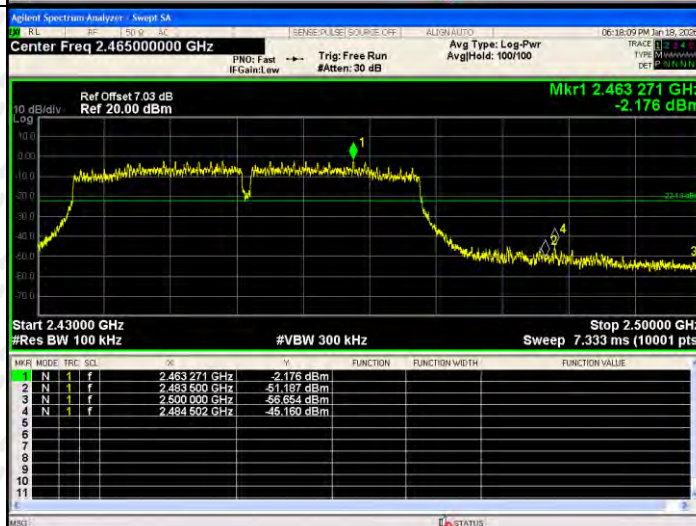


BAND EDGE Graphs

802.11n(HT40)/LCH

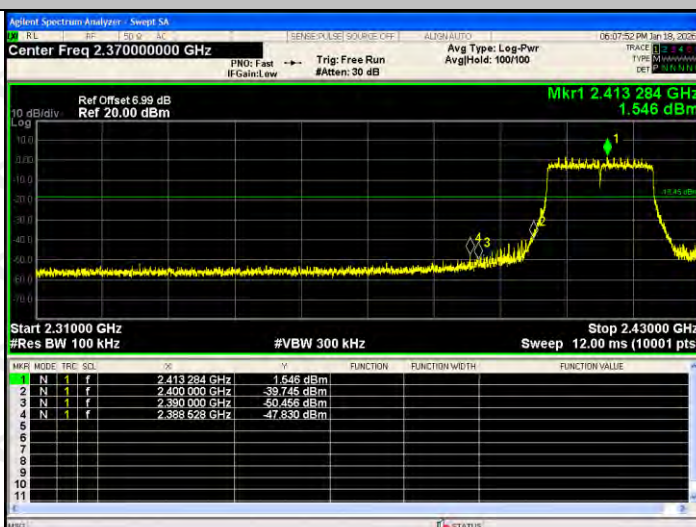


802.11n(HT40)/HCH

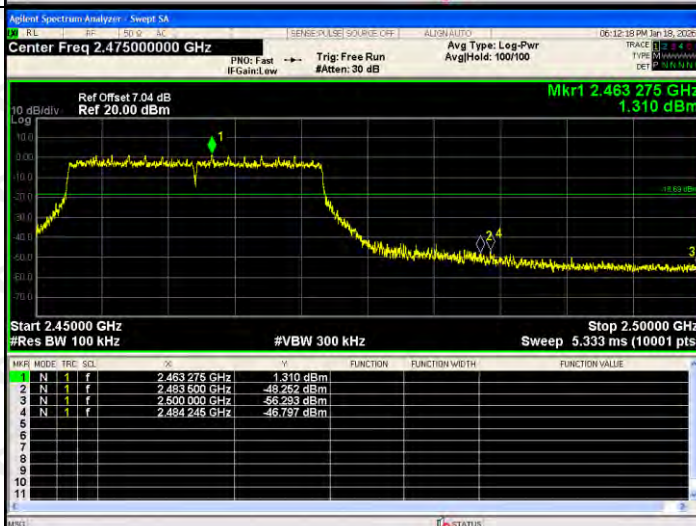


BAND EDGE Graphs

802.11ax(HE20)/
LCH

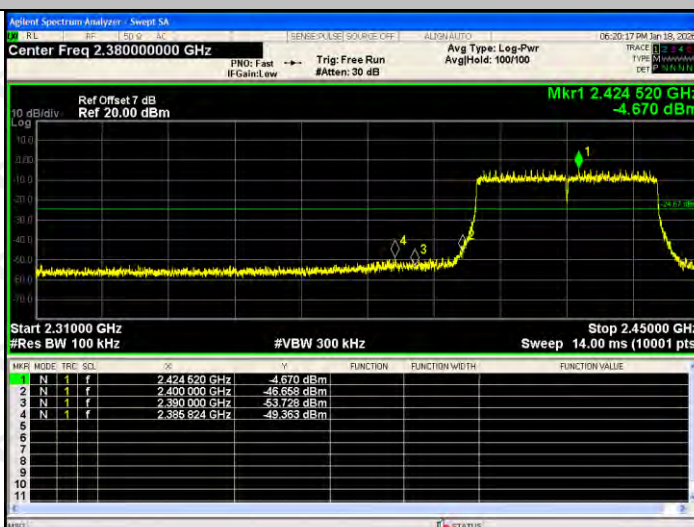


802.11ax(HE20)/
HCH

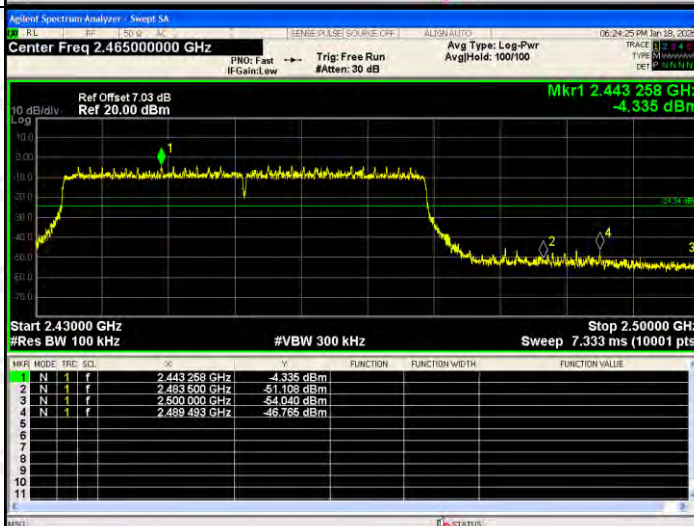


BAND EDGE Graphs

802.11ax(HE40)/
LCH

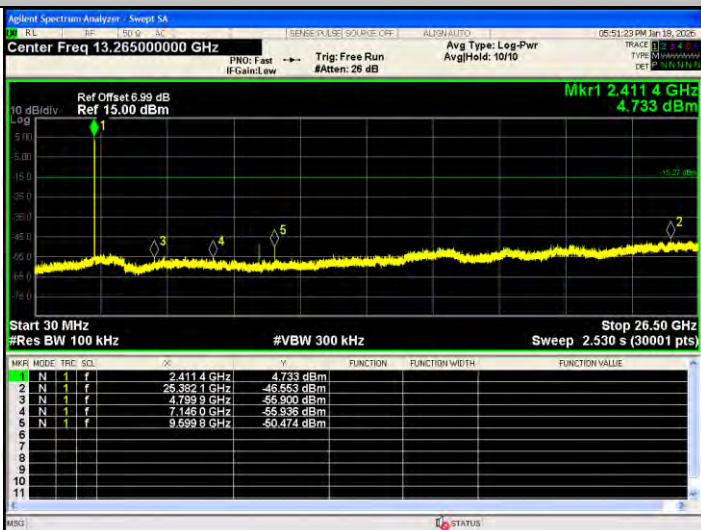


802.11ax(HE40)/
HCH

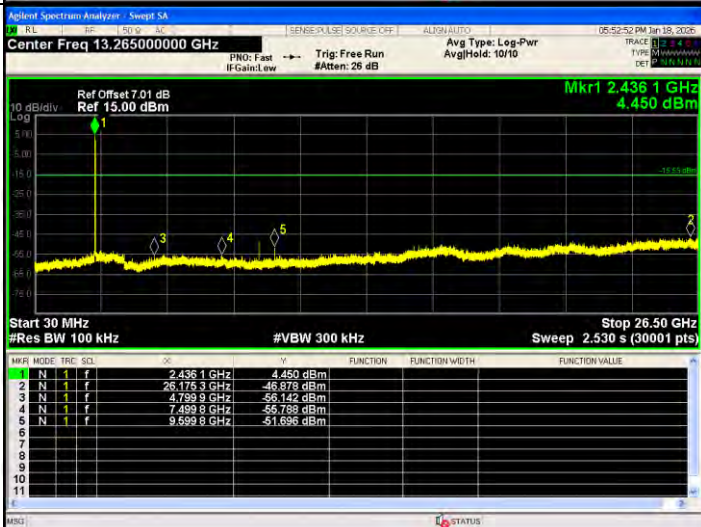


RF Conducted Spurious Emissions Graphs

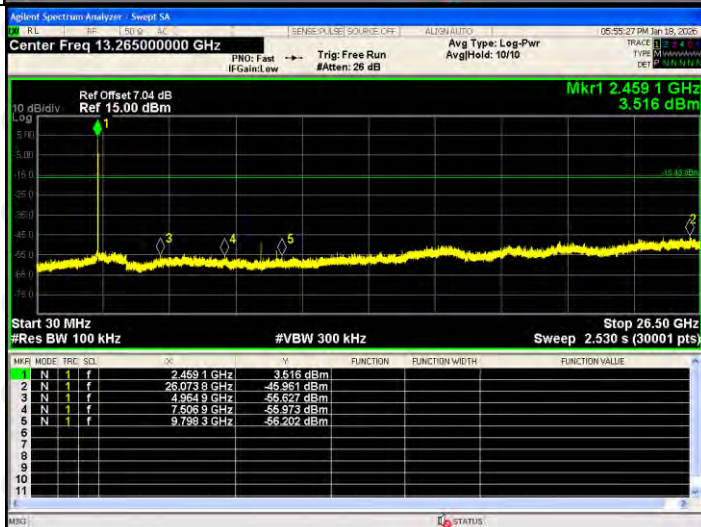
802.11b/LCH



802.11b/MCH

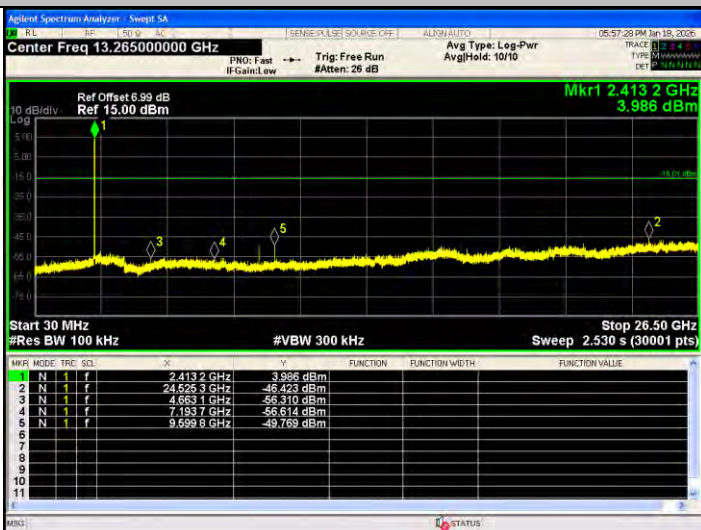


802.11b/HCH

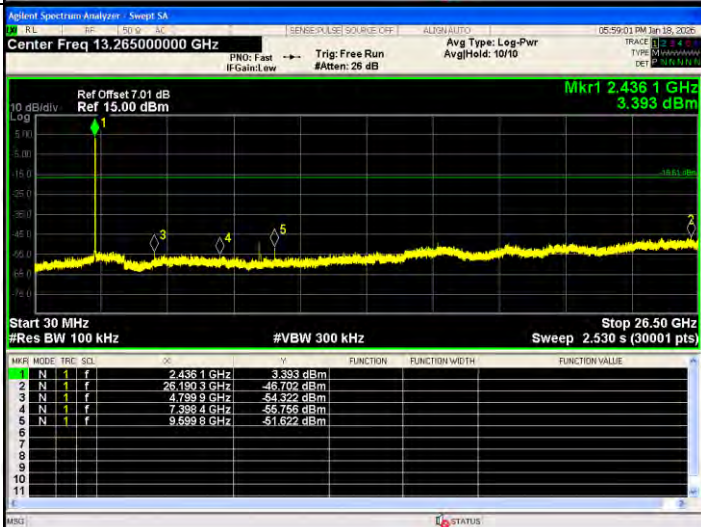


RF Conducted Spurious Emissions Graphs

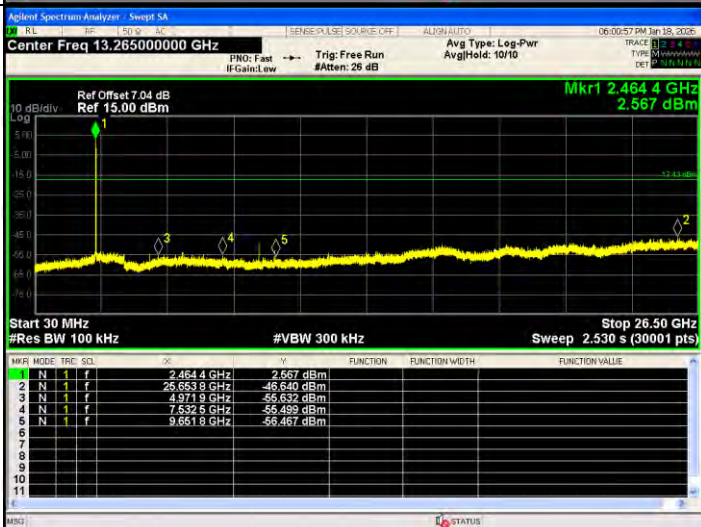
802.11g/LCH



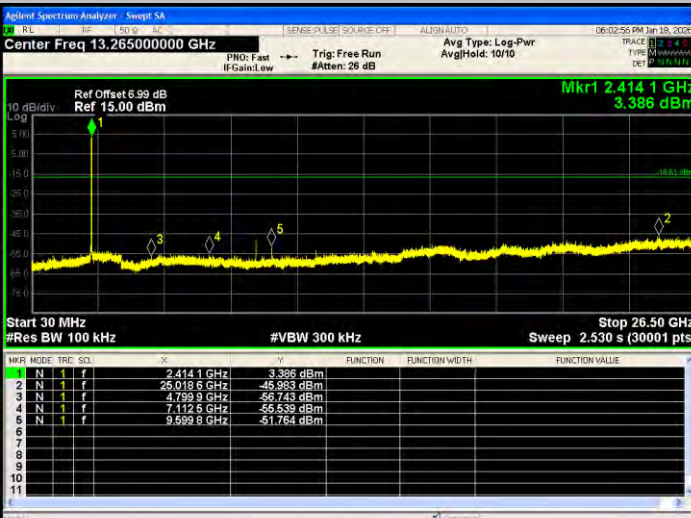
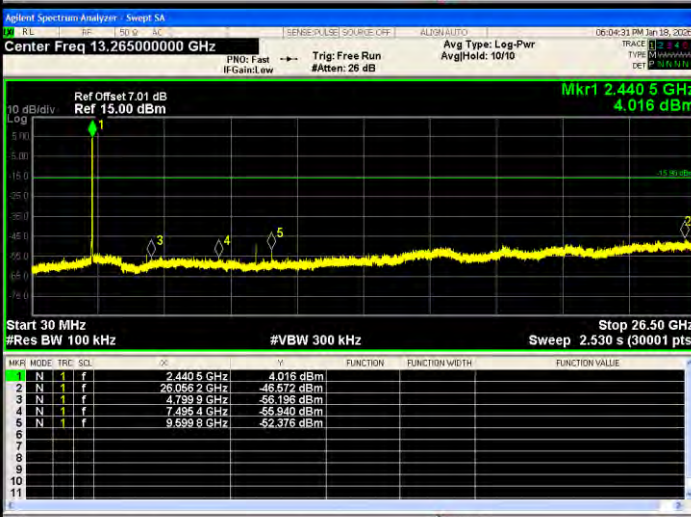
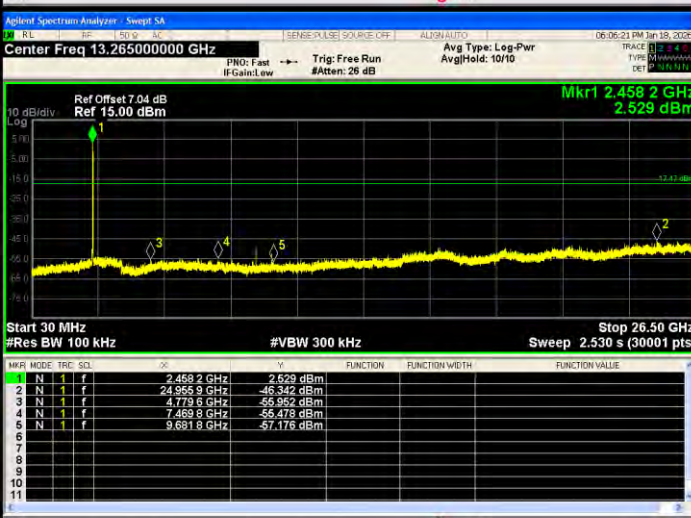
802.11g/MCH

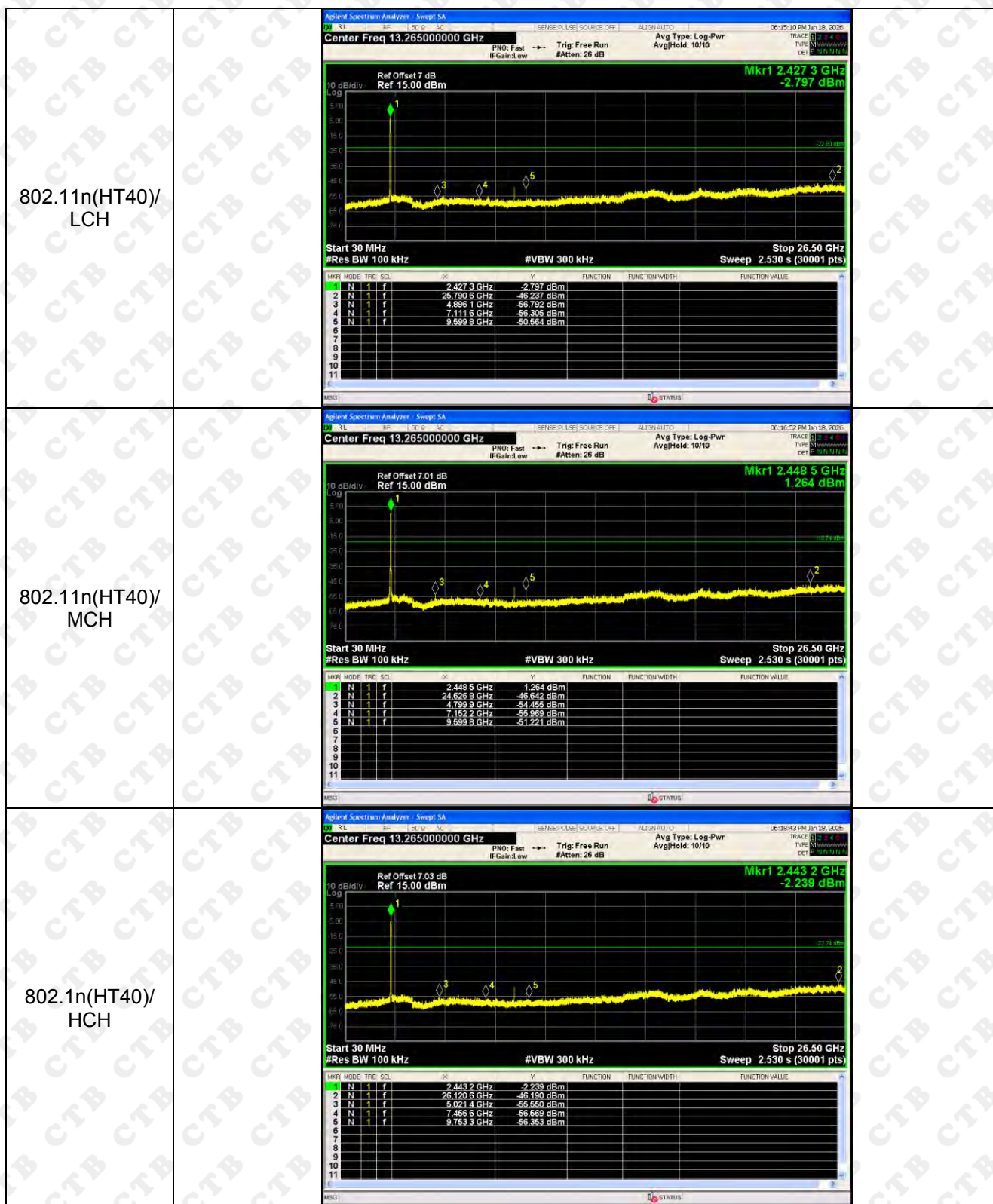


802.11g/HCH



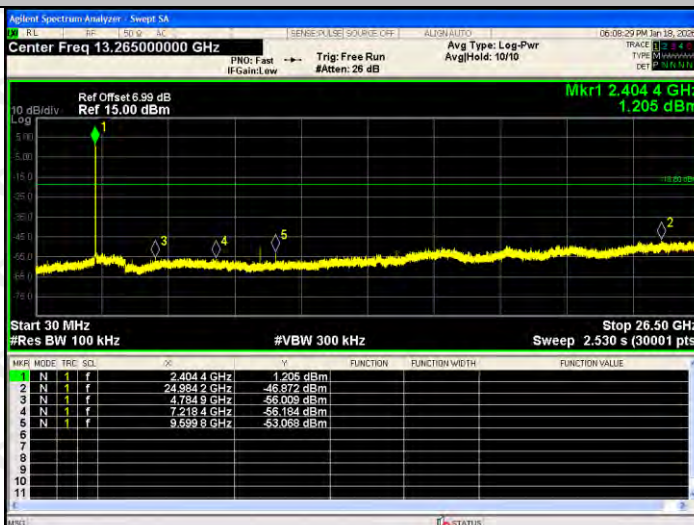
RF Conducted Spurious Emissions Graphs

RF Conducted Spurious Emissions Graphs																																																							
802.11n(HT20)/ LCH	 <table><tr><th>MNR</th><th>MODE</th><th>TRC</th><th>SQL</th><th>F</th><th>P</th><th>FUNCTION</th><th>FUNCTION WIDTH</th><th>FUNCTION VALUE</th></tr><tr><td>1</td><td>N</td><td>1</td><td>f</td><td>2.4141 GHz</td><td>3.386 dBm</td><td></td><td></td><td></td></tr><tr><td>2</td><td>N</td><td>1</td><td>f</td><td>25.0186 GHz</td><td>-46.993 dBm</td><td></td><td></td><td></td></tr><tr><td>3</td><td>N</td><td>1</td><td>f</td><td>4.7999 GHz</td><td>-56.743 dBm</td><td></td><td></td><td></td></tr><tr><td>4</td><td>N</td><td>1</td><td>f</td><td>7.1125 GHz</td><td>-56.539 dBm</td><td></td><td></td><td></td></tr><tr><td>5</td><td>N</td><td>1</td><td>f</td><td>9.5999 GHz</td><td>-57.764 dBm</td><td></td><td></td><td></td></tr></table>	MNR	MODE	TRC	SQL	F	P	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1	N	1	f	2.4141 GHz	3.386 dBm				2	N	1	f	25.0186 GHz	-46.993 dBm				3	N	1	f	4.7999 GHz	-56.743 dBm				4	N	1	f	7.1125 GHz	-56.539 dBm				5	N	1	f	9.5999 GHz	-57.764 dBm			
MNR	MODE	TRC	SQL	F	P	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE																																															
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802.11n(HT20)/ MCH	 <table><tr><th>MNR</th><th>MODE</th><th>TRC</th><th>SQL</th><th>F</th><th>P</th><th>FUNCTION</th><th>FUNCTION WIDTH</th><th>FUNCTION VALUE</th></tr><tr><td>1</td><td>N</td><td>1</td><td>f</td><td>2.4405 GHz</td><td>4.016 dBm</td><td></td><td></td><td></td></tr><tr><td>2</td><td>N</td><td>1</td><td>f</td><td>25.0562 GHz</td><td>-46.972 dBm</td><td></td><td></td><td></td></tr><tr><td>3</td><td>N</td><td>1</td><td>f</td><td>4.7999 GHz</td><td>-56.196 dBm</td><td></td><td></td><td></td></tr><tr><td>4</td><td>N</td><td>1</td><td>f</td><td>7.4954 GHz</td><td>-56.940 dBm</td><td></td><td></td><td></td></tr><tr><td>5</td><td>N</td><td>1</td><td>f</td><td>9.5999 GHz</td><td>-52.376 dBm</td><td></td><td></td><td></td></tr></table>	MNR	MODE	TRC	SQL	F	P	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1	N	1	f	2.4405 GHz	4.016 dBm				2	N	1	f	25.0562 GHz	-46.972 dBm				3	N	1	f	4.7999 GHz	-56.196 dBm				4	N	1	f	7.4954 GHz	-56.940 dBm				5	N	1	f	9.5999 GHz	-52.376 dBm			
MNR	MODE	TRC	SQL	F	P	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE																																															
1	N	1	f	2.4405 GHz	4.016 dBm																																																		
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3	N	1	f	4.7999 GHz	-56.196 dBm																																																		
4	N	1	f	7.4954 GHz	-56.940 dBm																																																		
5	N	1	f	9.5999 GHz	-52.376 dBm																																																		
802.11n(HT20)/ HCH	 <table><tr><th>MNR</th><th>MODE</th><th>TRC</th><th>SQL</th><th>F</th><th>P</th><th>FUNCTION</th><th>FUNCTION WIDTH</th><th>FUNCTION VALUE</th></tr><tr><td>1</td><td>N</td><td>1</td><td>f</td><td>2.4582 GHz</td><td>2.629 dBm</td><td></td><td></td><td></td></tr><tr><td>2</td><td>N</td><td>1</td><td>f</td><td>24.9559 GHz</td><td>-46.342 dBm</td><td></td><td></td><td></td></tr><tr><td>3</td><td>N</td><td>1</td><td>f</td><td>4.7799 GHz</td><td>-56.952 dBm</td><td></td><td></td><td></td></tr><tr><td>4</td><td>N</td><td>1</td><td>f</td><td>7.4689 GHz</td><td>-55.478 dBm</td><td></td><td></td><td></td></tr><tr><td>5</td><td>N</td><td>1</td><td>f</td><td>9.5919 GHz</td><td>-57.176 dBm</td><td></td><td></td><td></td></tr></table>	MNR	MODE	TRC	SQL	F	P	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1	N	1	f	2.4582 GHz	2.629 dBm				2	N	1	f	24.9559 GHz	-46.342 dBm				3	N	1	f	4.7799 GHz	-56.952 dBm				4	N	1	f	7.4689 GHz	-55.478 dBm				5	N	1	f	9.5919 GHz	-57.176 dBm			
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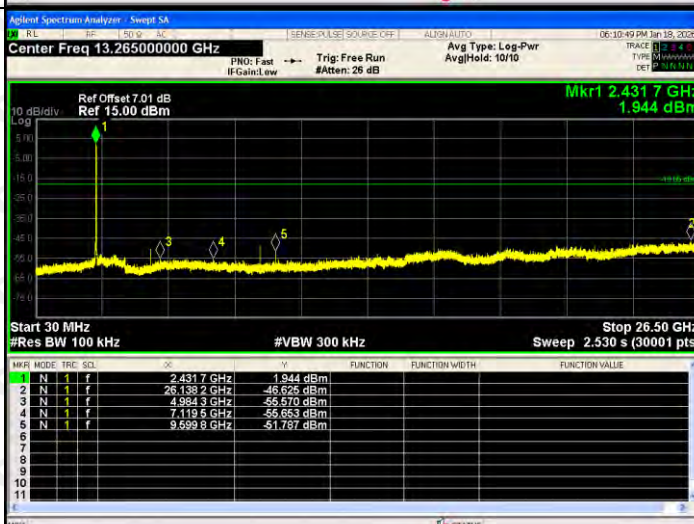


RF Conducted Spurious Emissions Graphs

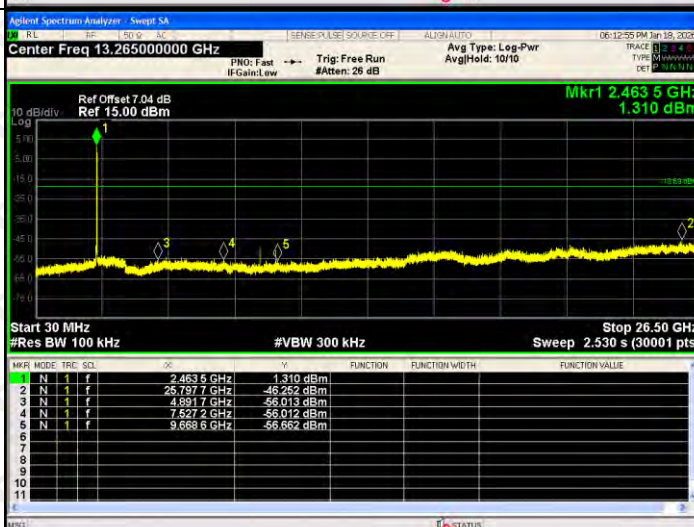
802.11ax(HE20)/
LCH



802.11ax(HE20)/
MCH

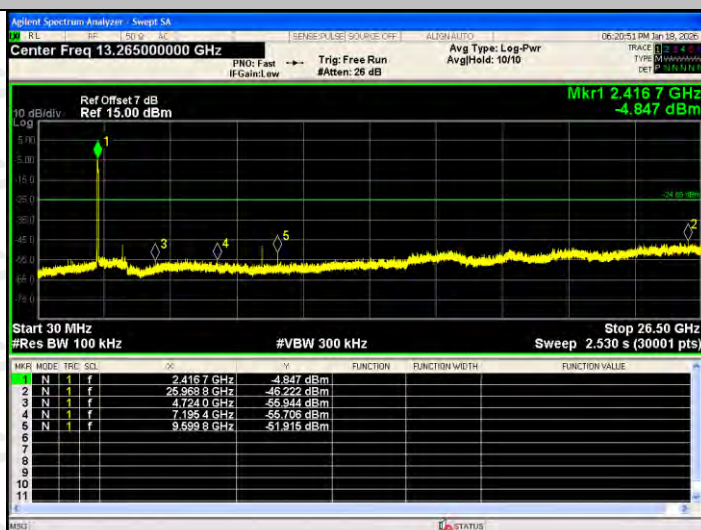


802.11ax(HE20)/
HCH

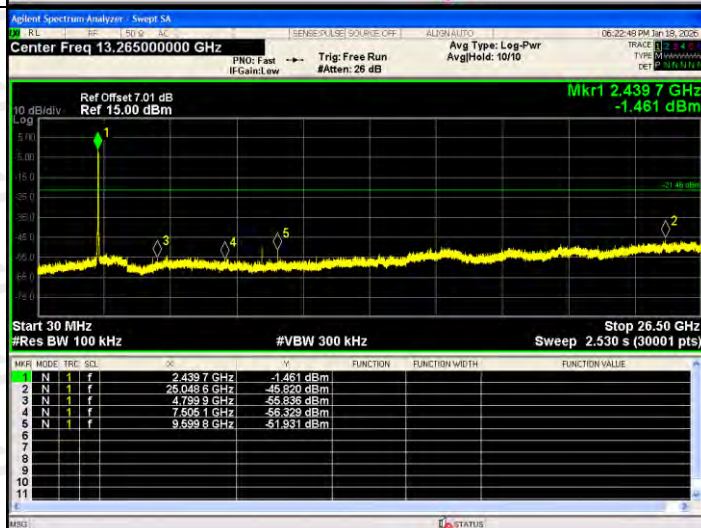


RF Conducted Spurious Emissions Graphs

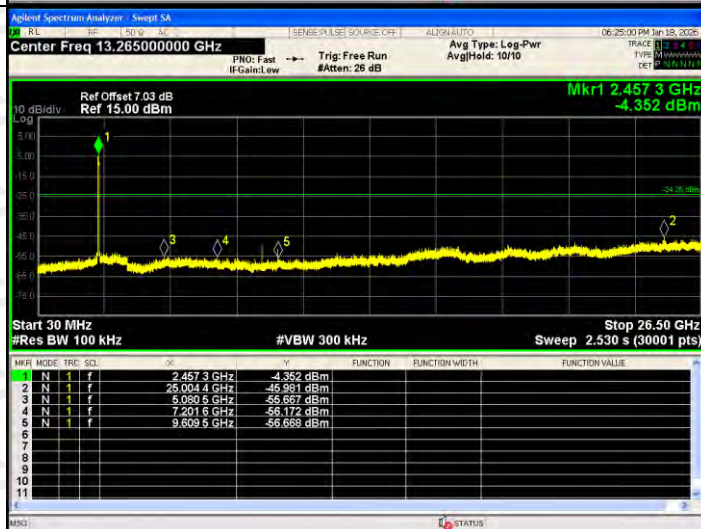
802.11ax(HE40)/
LCH



802.11ax(HE40)/
MCH



802.11ax(HE40)/
HCH

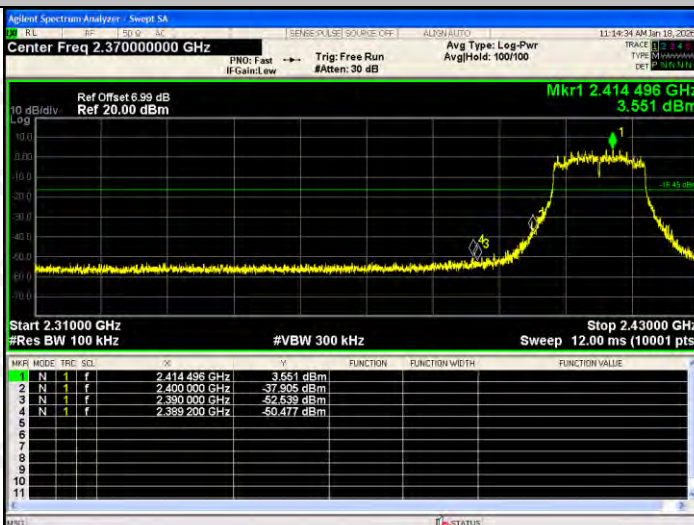


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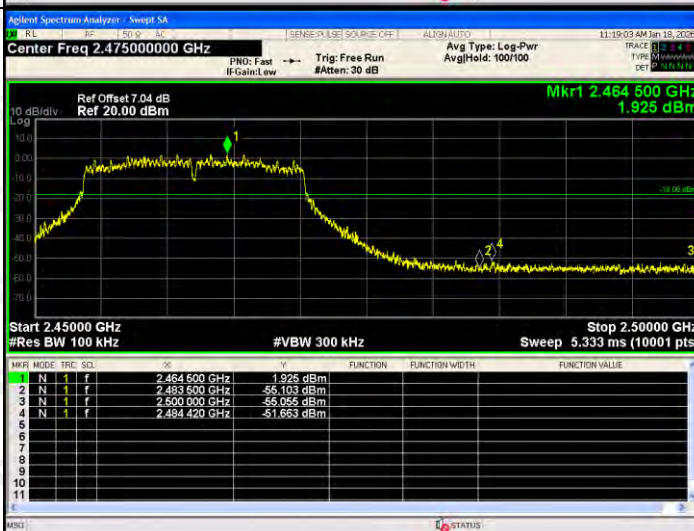


BAND EDGE Graphs

802.11g/LCH

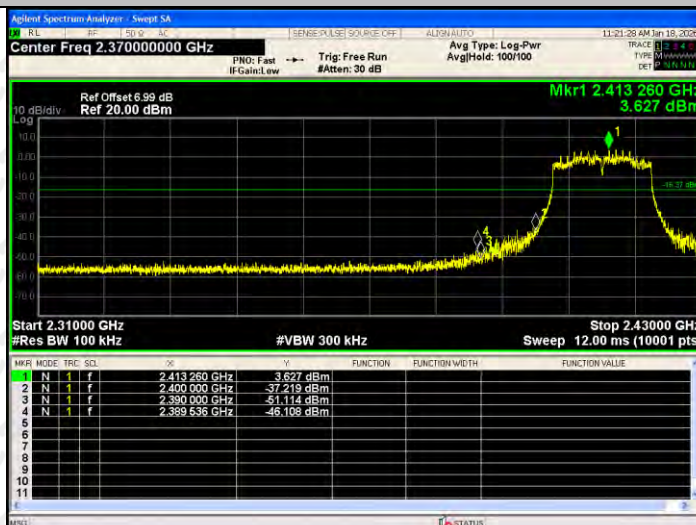


802.11g/HCH

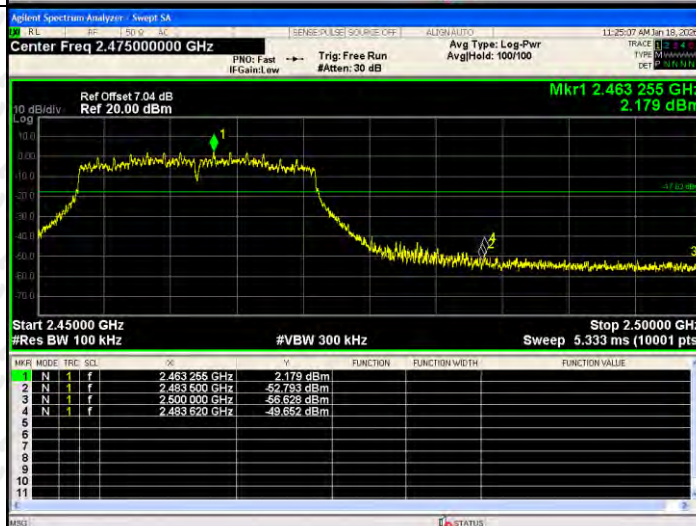


BAND EDGE Graphs

802.11n(HT20)/LCH

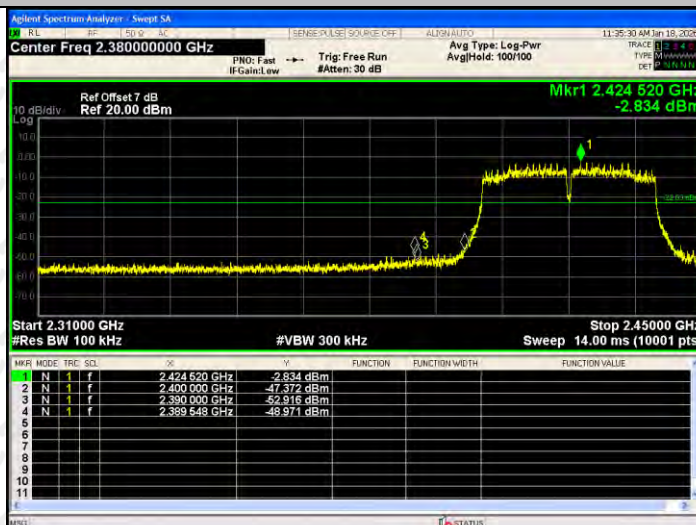


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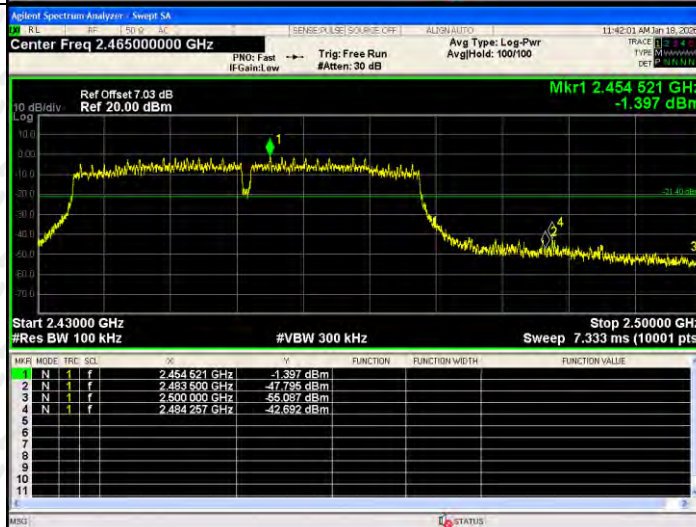


BAND EDGE Graphs

802.11n(HT40)/LCH

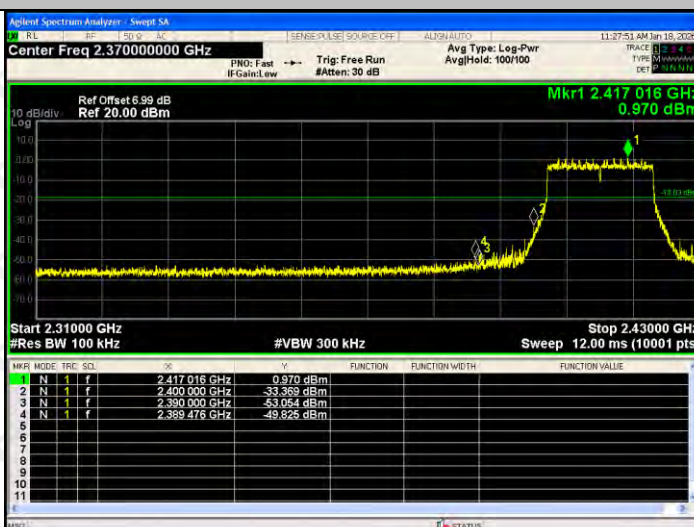


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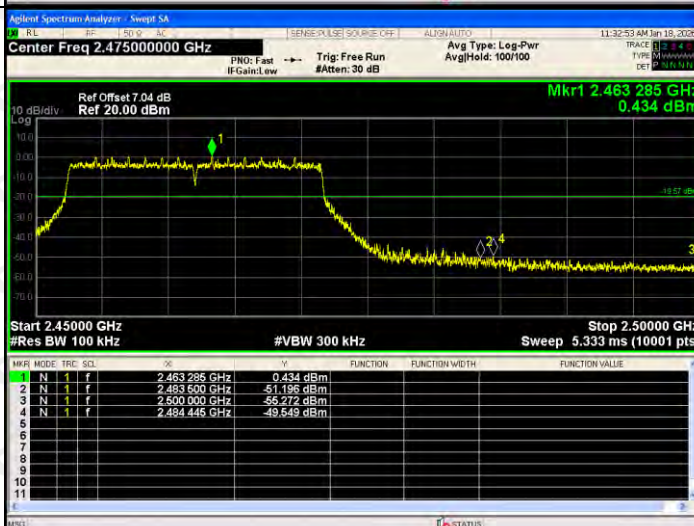


BAND EDGE Graphs

802.11ax(HE20)/
LCH

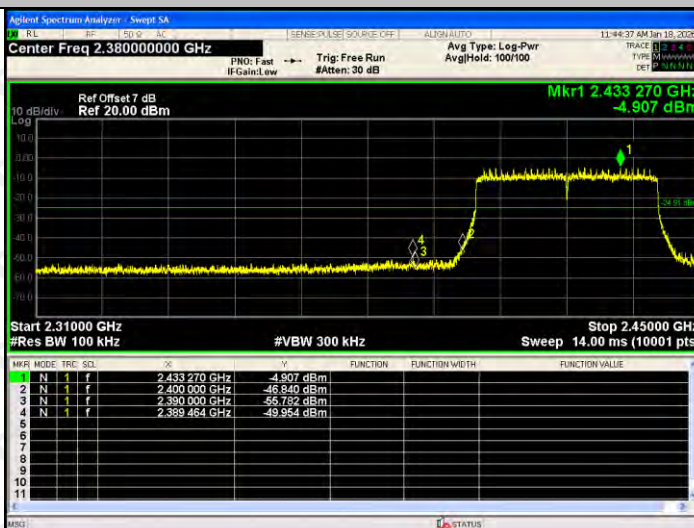


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HCH

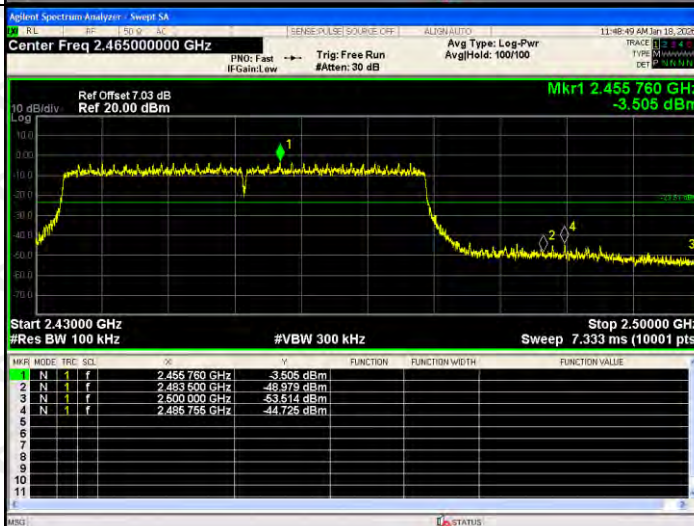


BAND EDGE Graphs

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LCH

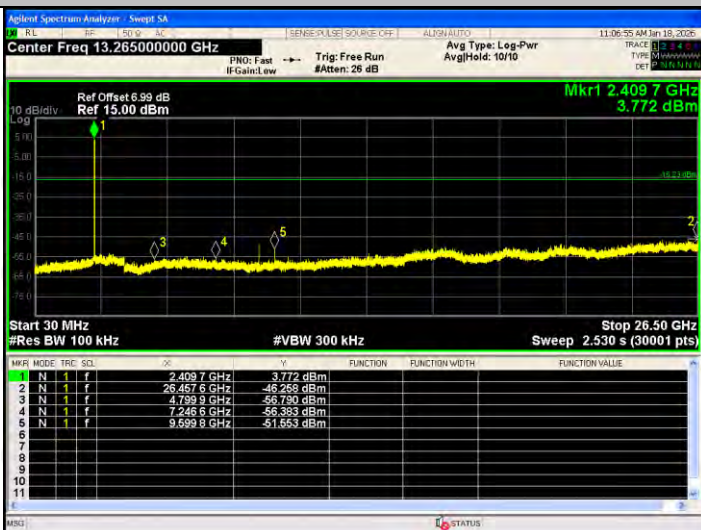


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HCH

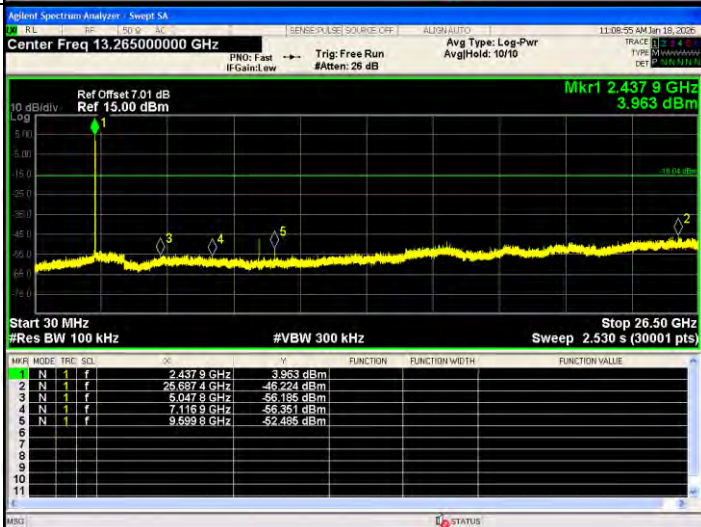


RF Conducted Spurious Emissions Graphs

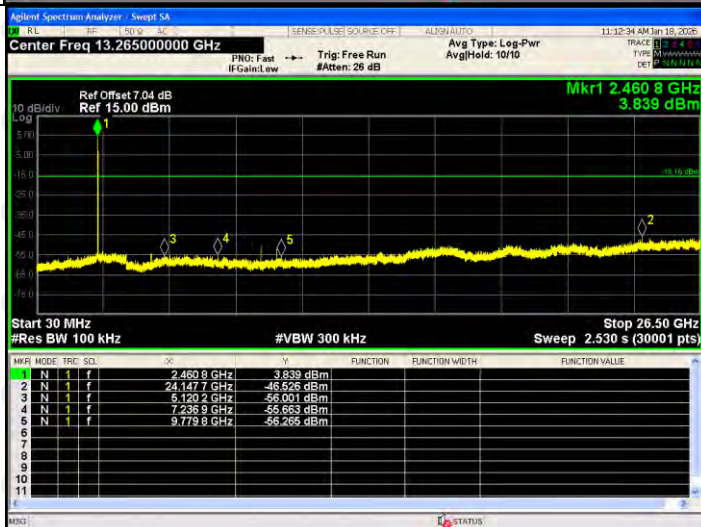
802.11b/LCH



802.11b/MCH

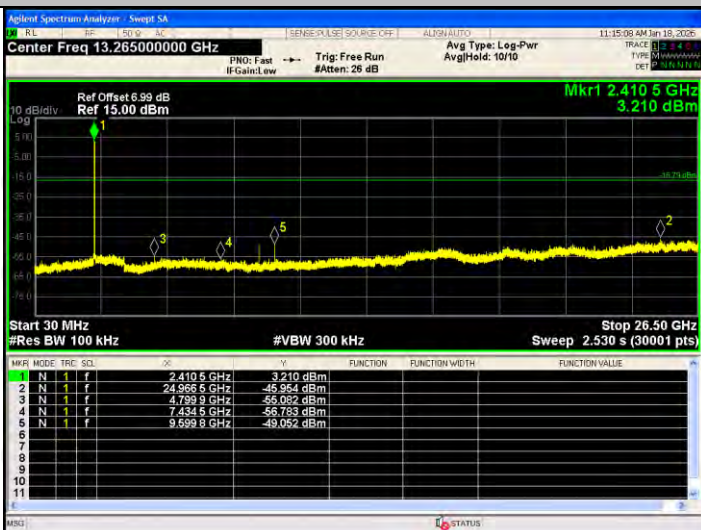


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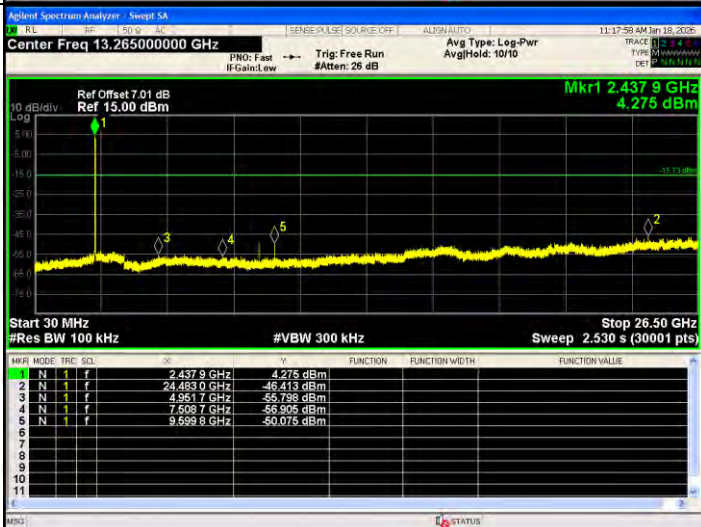


RF Conducted Spurious Emissions Graphs

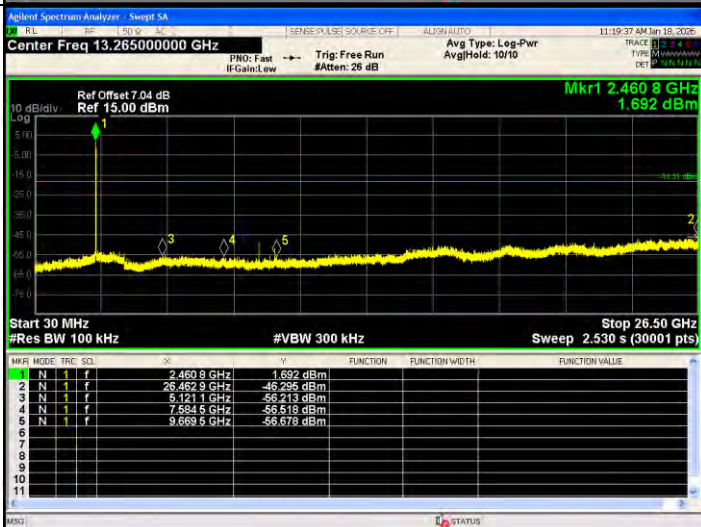
802.11g/LCH



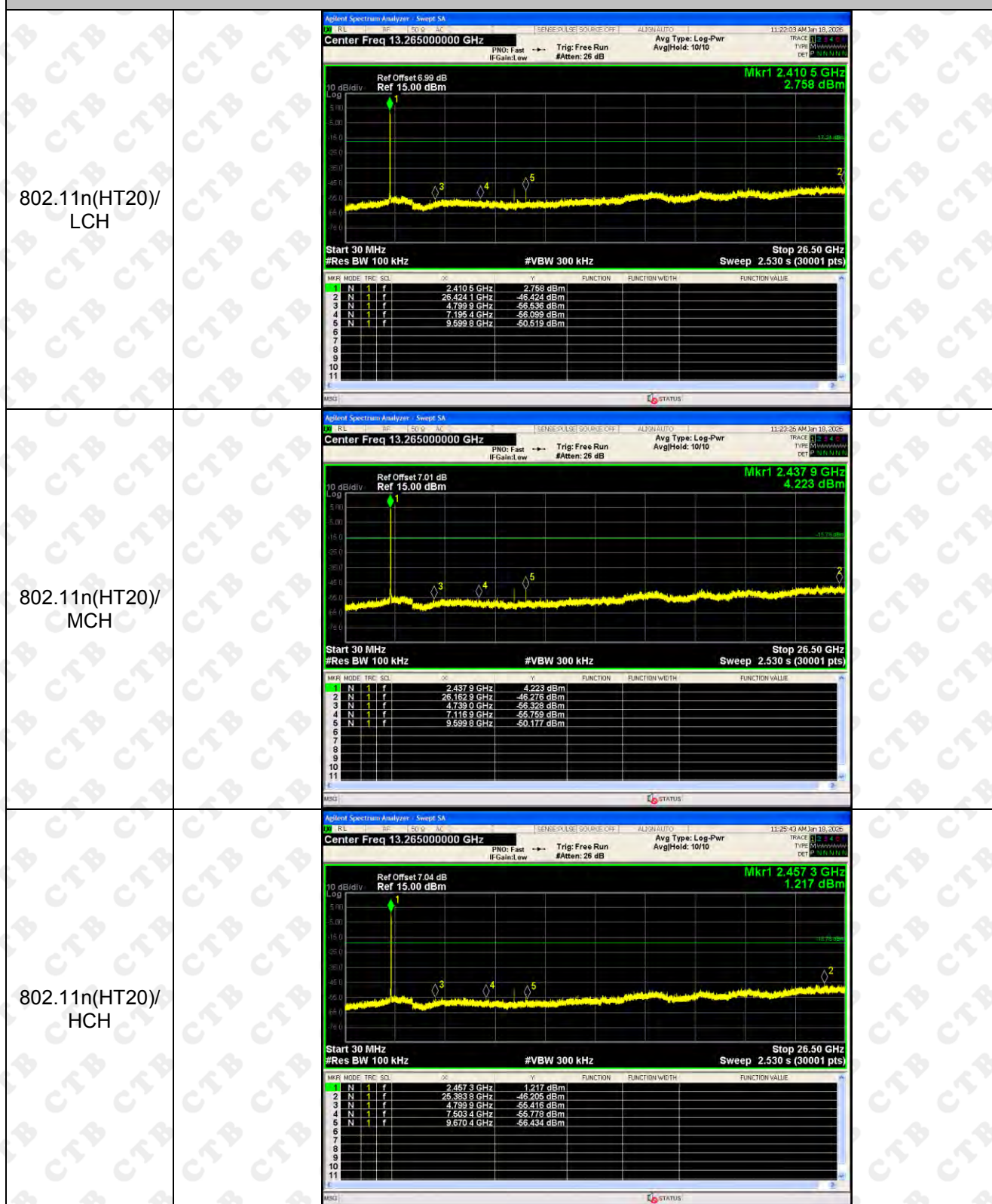
802.11g/MCH



802.11g/HCH



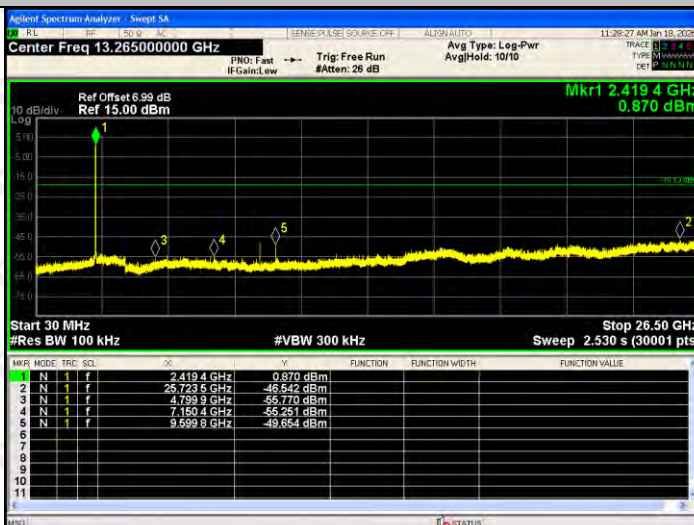
RF Conducted Spurious Emissions Graphs



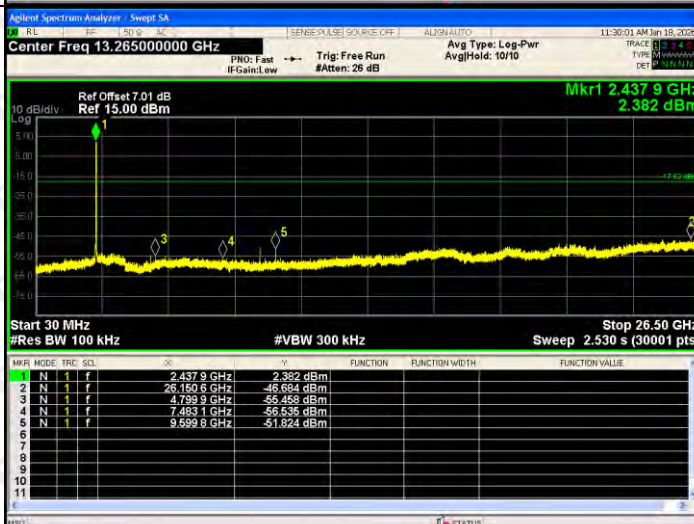
802.11n(HT40)/ LCH	<table><tr><th>MKR</th><th>MODE</th><th>TRC</th><th>SQL</th><th>F</th><th>V</th><th>FUNCTION</th><th>FUNCTION WIDTH</th><th>FUNCTION VALUE</th></tr><tr><td>2</td><td>N</td><td>1</td><td>f</td><td>2.427 3 GHz</td><td>-2.941 dBm</td><td></td><td></td><td></td></tr><tr><td>3</td><td>N</td><td>1</td><td>f</td><td>25.744 7 GHz</td><td>-46.037 dBm</td><td></td><td></td><td></td></tr><tr><td>4</td><td>N</td><td>1</td><td>f</td><td>4.799 9 GHz</td><td>-56.732 dBm</td><td></td><td></td><td></td></tr><tr><td>5</td><td>N</td><td>1</td><td>f</td><td>7.174 3 GHz</td><td>-56.228 dBm</td><td></td><td></td><td></td></tr><tr><td>6</td><td>N</td><td>1</td><td>f</td><td>9.699 8 GHz</td><td>-51.338 dBm</td><td></td><td></td><td></td></tr></table>	MKR	MODE	TRC	SQL	F	V	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	2	N	1	f	2.427 3 GHz	-2.941 dBm				3	N	1	f	25.744 7 GHz	-46.037 dBm				4	N	1	f	4.799 9 GHz	-56.732 dBm				5	N	1	f	7.174 3 GHz	-56.228 dBm				6	N	1	f	9.699 8 GHz	-51.338 dBm			
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RF Conducted Spurious Emissions Graphs

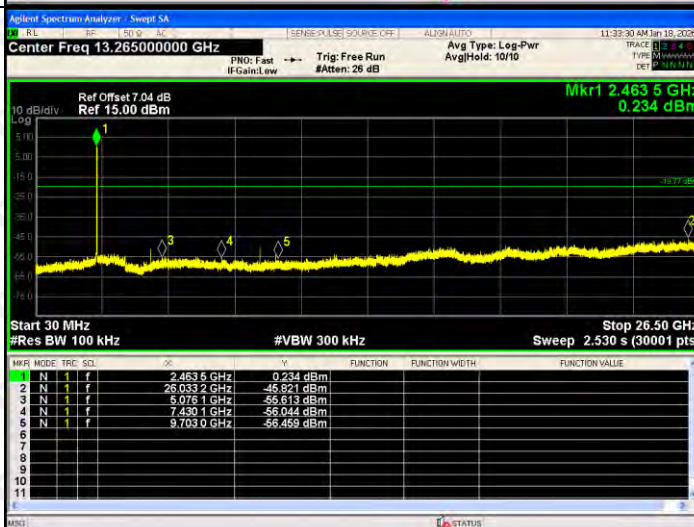
802.11ax(HE20)/
LCH



802.11ax(HE20)/
MCH

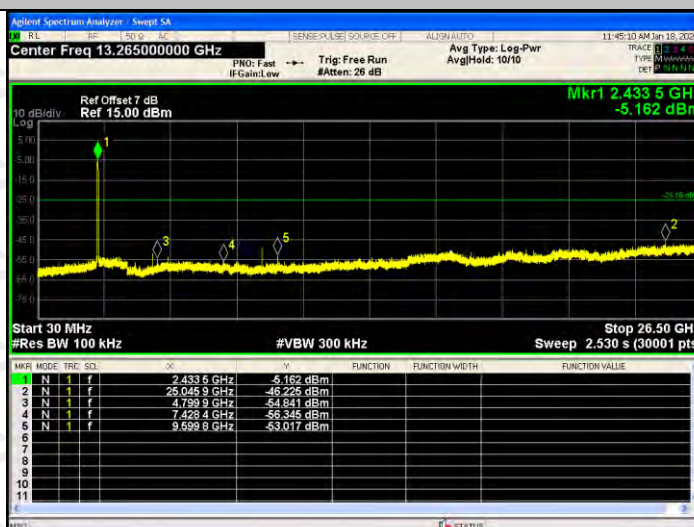


802.11ax(HE20)/
HCH

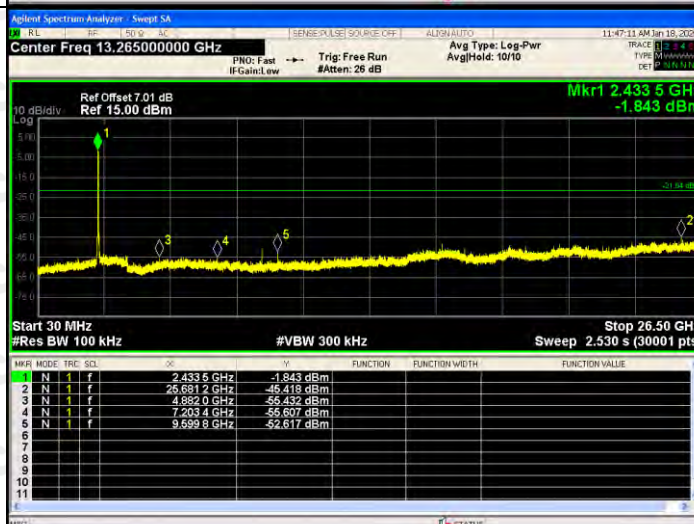


RF Conducted Spurious Emissions Graphs

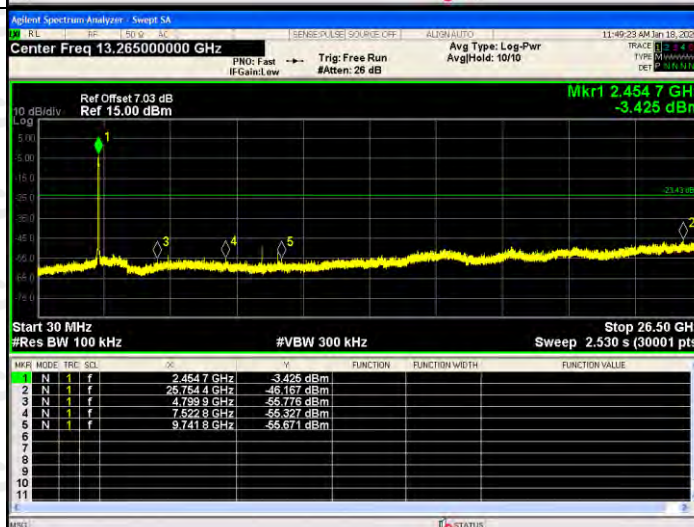
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LCH



802.11ax(HE40)/
MCH

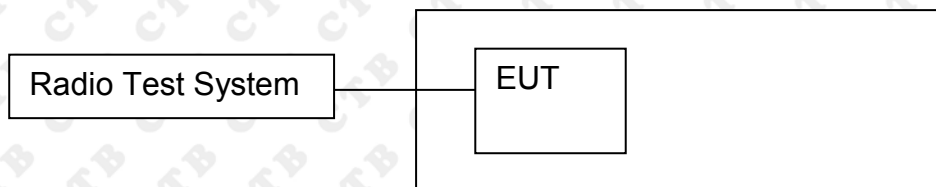


802.11ax(HE40)/
HCH



9. CONDUCTED OUTPUT POWER

9.1 Block Diagram Of Test Setup



9.2 Limit

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(b)(3)	Peak Output Power	1 watt or 30dBm	2400-2483.5	PASS

9.3 Test procedure

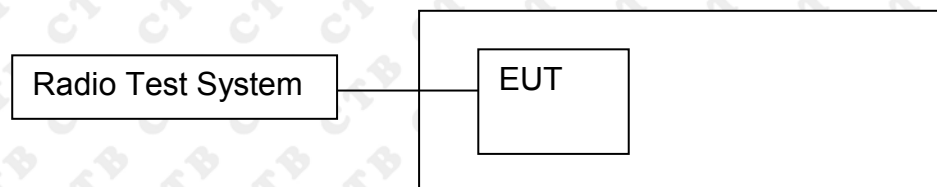
1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.
2. Set the spectrum analyzer: RBW = 1MHz. VBW = 3MHz. Sweep = auto; Detector Function = Peak. Channel power function is used
3. Keep the EUT in transmitting at lowest, middle and highest channel individually. Record the max value.

9.4 Test Result

Mode	Channel.	Maximum Peak Power [dBm] ant 1	Maximum Peak Power [dBm] ant 2	Total Power Peak Output Power(dBm)	Limit[dBm]
802.11b	LCH	20.499	20.221	/	30
	MCH	20.547	20.381	/	30
	HCH	20.442	20.159	/	30
802.11g	LCH	21.596	21.291	/	30
	MCH	21.881	21.847	/	30
	HCH	20.654	19.866	/	30
802.11n(HT20)	LCH	21.599	21.311	24.468	30
	MCH	21.837	21.697	24.778	30
	HCH	20.592	19.825	23.236	30
802.11n(HT40)	LCH	18.079	18.007	21.053	30
	MCH	21.878	21.94	24.919	30
	HCH	18.648	19.402	22.052	30
802.11ax(HT20)	LCH	20.861	20.653	23.769	30
	MCH	21.855	21.724	24.800	30
	HCH	20.646	19.915	23.306	30
802.11ax(HT40)	LCH	17.573	17.413	20.504	30
	MCH	20.998	20.962	23.990	30
	HCH	18.131	18.944	21.567	30

10. 6DB OCCUPIED BANDWIDTH

10.1 Block Diagram Of Test Setup



10.2 Limit

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(a)(2)	Bandwidth	$\geq 500\text{kHz}$ (6dB bandwidth)	2400-2483.5	PASS

10.3 Test procedure

1. Rem1. Set RBW = 100 kHz.
2. Set the video bandwidth (VBW) $\geq 3 \times \text{RBW}$.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

10.4 Test Result

ANT1:

Test Mode	Frequency	6dB Bandwidth (MHz)	Limit(kHz)	Result
802.11b	LCH	10.147	500	PASS
	MCH	10.394	500	PASS
	HCH	10.222	500	PASS
802.11g	LCH	15.398	500	PASS
	MCH	15.346	500	PASS
	HCH	15.678	500	PASS
802.11n(HT20)	LCH	15.723	500	PASS
	MCH	15.404	500	PASS
	HCH	17.35	500	PASS
802.11n(HT40)	LCH	35.172	500	PASS
	MCH	35.174	500	PASS
	HCH	35.177	500	PASS
802.11ax(HE20)	LCH	19.053	500	PASS
	MCH	19.061	500	PASS
	HCH	18.914	500	PASS
802.11ax(HE40)	LCH	38.141	500	PASS
	MCH	38.151	500	PASS
	HCH	38.115	500	PASS

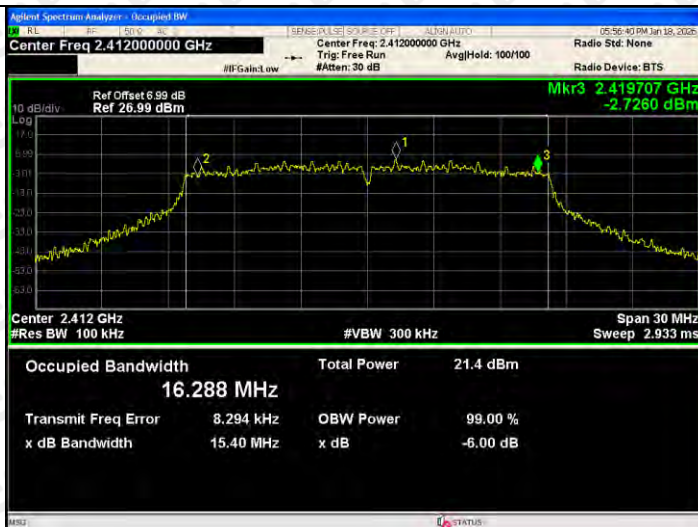
ANT2:

Test Mode	Frequency	6dB Bandwidth (MHz)	Limit(kHz)	Result
802.11b	LCH	10.46	500	PASS
	MCH	10.06	500	PASS
	HCH	10.621	500	PASS
802.11g	LCH	15.446	500	PASS
	MCH	15.769	500	PASS
	HCH	15.353	500	PASS
802.11n(HT20)	LCH	16.002	500	PASS
	MCH	15.978	500	PASS
	HCH	15.374	500	PASS
802.11n(HT40)	LCH	35.174	500	PASS
	MCH	35.174	500	PASS
	HCH	35.648	500	PASS
802.11ax(HE20)	LCH	19.032	500	PASS
	MCH	18.971	500	PASS
	HCH	19.064	500	PASS
802.11ax(HE40)	LCH	38.157	500	PASS
	MCH	38.055	500	PASS
	HCH	38.138	500	PASS

ANT1:
Test Graph:



802.11g/LCH

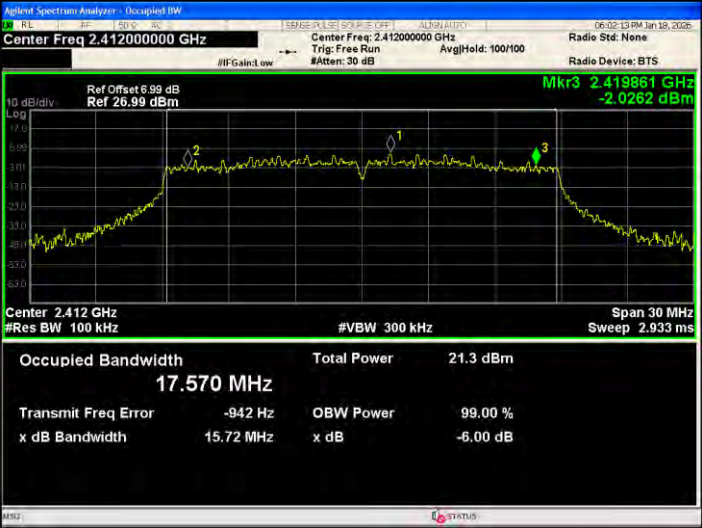
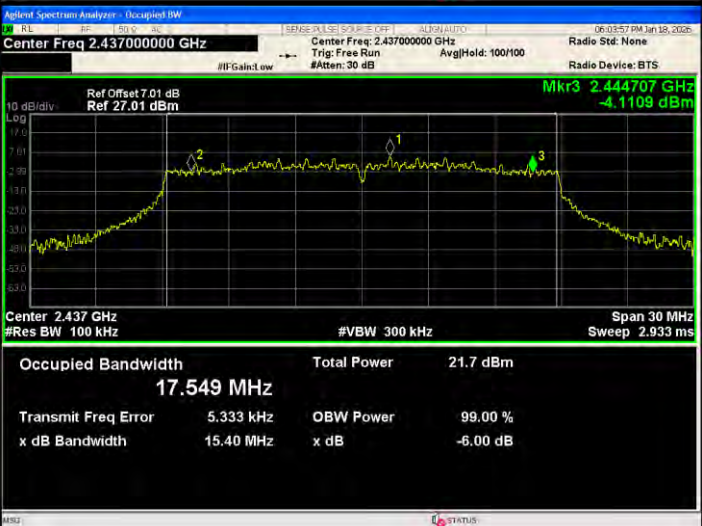


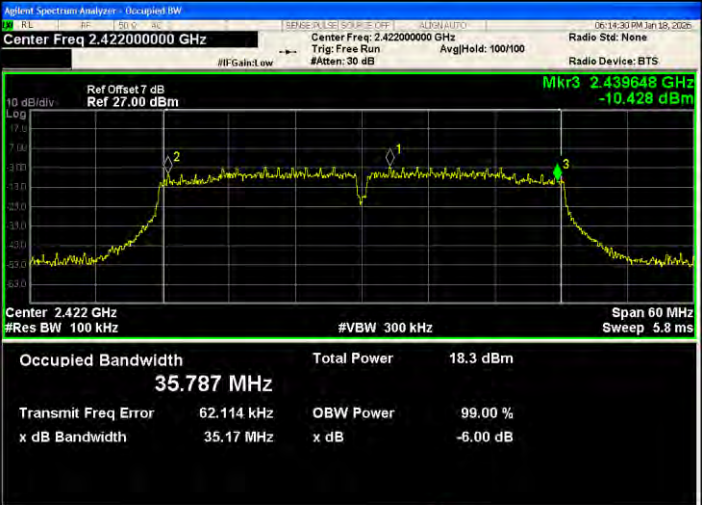
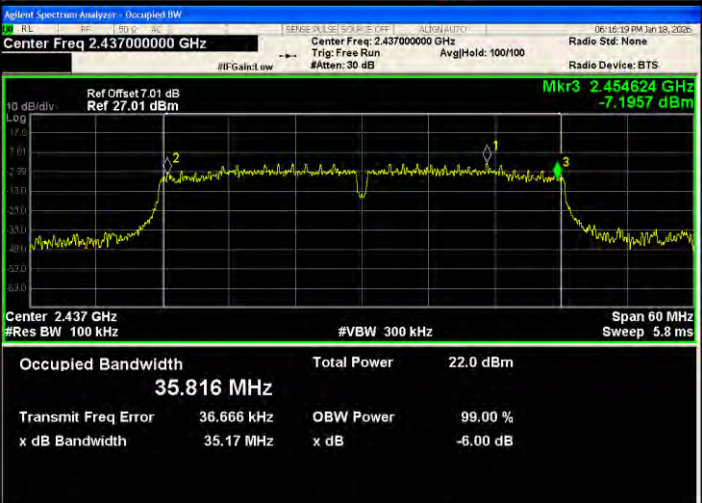
802.11g/MCH

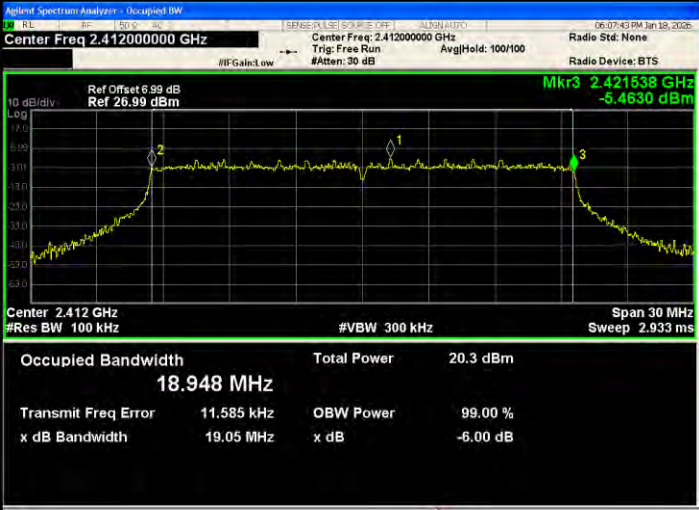
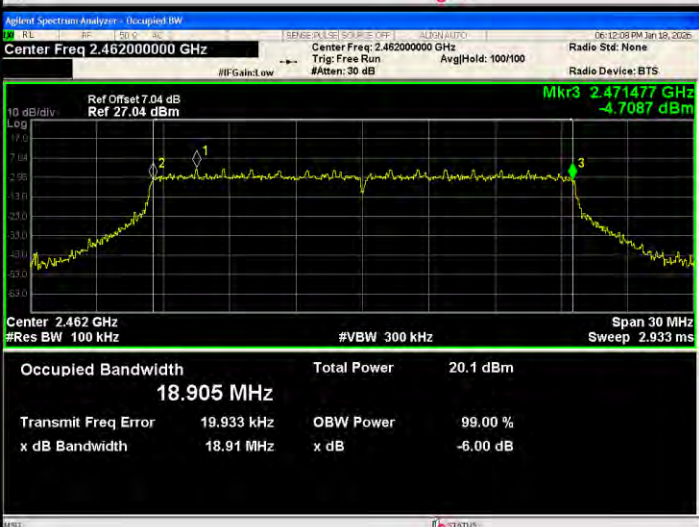


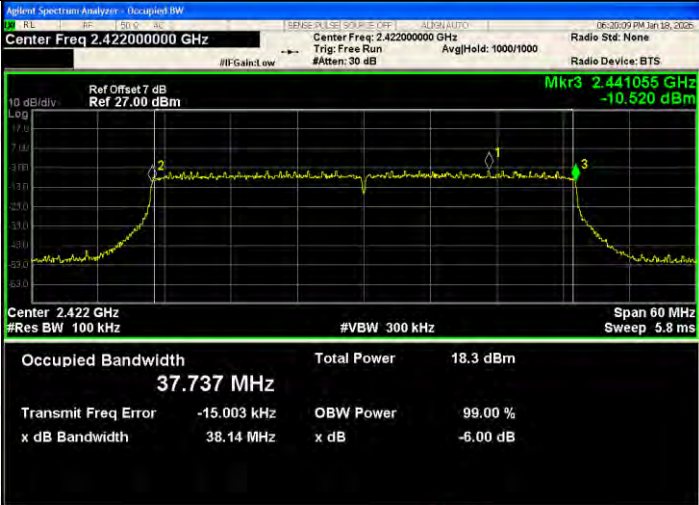
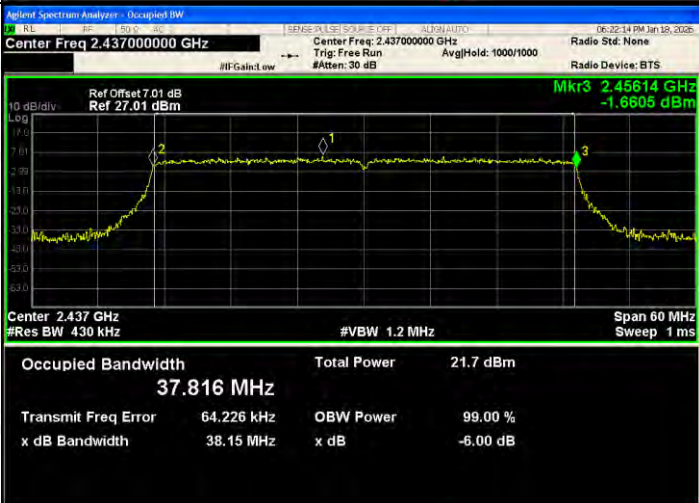
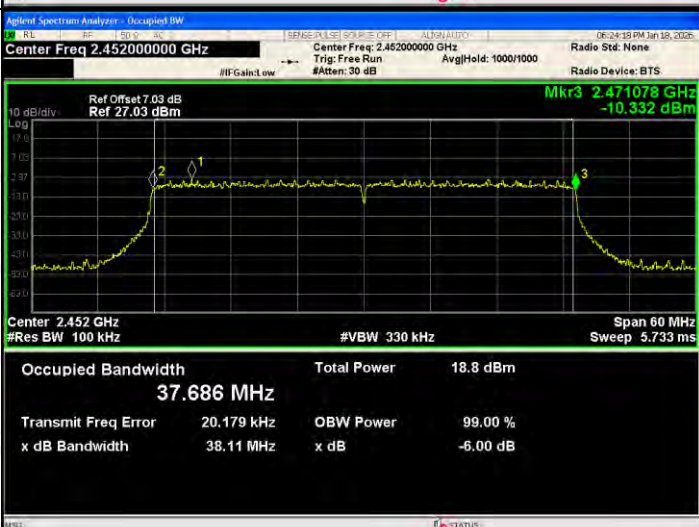
802.11g/HCH



802.11n(HT20) /LCH	 Agilent Spectrum Analyzer - Occupied BW Center Freq 2.41200000 GHz Ref Offset 6.99 dB Ref 26.99 dBm Center Freq: 2.41200000 GHz Trig: Free Run #Att: 30 dB Radio Std: None Radio Device: BTS Span 30 MHz Sweep 2.933 ms Occupied Bandwidth 17.570 MHz Total Power 21.3 dBm Transmit Freq Error -942 Hz OBW Power 99.00 % x dB Bandwidth 15.72 MHz x dB -6.00 dB
802.11n(HT20) /MCH	 Agilent Spectrum Analyzer - Occupied BW Center Freq 2.43700000 GHz Ref Offset 7.01 dB Ref 27.01 dBm Center Freq: 2.43700000 GHz Trig: Free Run #Att: 30 dB Radio Std: None Radio Device: BTS Span 30 MHz Sweep 2.933 ms Occupied Bandwidth 17.549 MHz Total Power 21.7 dBm Transmit Freq Error 5.333 kHz OBW Power 99.00 % x dB Bandwidth 15.40 MHz x dB -6.00 dB
802.11n(HT20) /HCH	 Agilent Spectrum Analyzer - Occupied BW Center Freq 2.46200000 GHz Ref Offset 7.04 dB Ref 27.04 dBm Center Freq: 2.46200000 GHz Trig: Free Run #Att: 30 dB Radio Std: None Radio Device: BTS Span 30 MHz Sweep 2.933 ms Occupied Bandwidth 17.557 MHz Total Power 20.4 dBm Transmit Freq Error -5.821 kHz OBW Power 99.00 % x dB Bandwidth 17.35 MHz x dB -6.00 dB

802.11n(HT40) /LCH	 Agilent Spectrum Analyzer - Occupied BW Center Freq 2.42200000 GHz Center Freq: 2.42200000 GHz Trig: Free Run #Att: 30 dB Radio Std: None Radio Device: BTS Ref Offset 7 dB Ref 27.00 dBm Mkr3 2.439648 GHz -10.428 dBm Center 2.422 GHz #Res BW 100 kHz #VBW 300 kHz Span 60 MHz Sweep 5.8 ms Occupied Bandwidth 35.787 MHz Total Power 18.3 dBm Transmit Freq Error 62.114 kHz OBW Power 99.00 % x dB Bandwidth 35.17 MHz x dB -6.00 dB
802.11n(HT40) /MCH	 Agilent Spectrum Analyzer - Occupied BW Center Freq 2.43700000 GHz Center Freq: 2.43700000 GHz Trig: Free Run #Att: 30 dB Radio Std: None Radio Device: BTS Ref Offset 7.01 dB Ref 27.01 dBm Mkr3 2.454624 GHz -7.1957 dBm Center 2.437 GHz #Res BW 100 kHz #VBW 300 kHz Span 60 MHz Sweep 5.8 ms Occupied Bandwidth 35.816 MHz Total Power 22.0 dBm Transmit Freq Error 36.666 kHz OBW Power 99.00 % x dB Bandwidth 35.17 MHz x dB -6.00 dB
802.11n(HT40) /HCH	 Agilent Spectrum Analyzer - Occupied BW Center Freq 2.45200000 GHz Center Freq: 2.45200000 GHz Trig: Free Run #Att: 30 dB Radio Std: None Radio Device: BTS Ref Offset 7.03 dB Ref 27.03 dBm Mkr3 2.469608 GHz -7.2150 dBm Center 2.452 GHz #Res BW 100 kHz #VBW 300 kHz Span 60 MHz Sweep 5.8 ms Occupied Bandwidth 35.942 MHz Total Power 18.7 dBm Transmit Freq Error 19.922 kHz OBW Power 99.00 % x dB Bandwidth 35.18 MHz x dB -6.00 dB

802.11ax(HE20) /LCH	 Agilent Spectrum Analyzer - Occupied BW Center Freq 2.41200000 GHz Ref Offset 6.99 dB Ref 26.99 dBm Occupied Bandwidth 18.948 MHz Total Power 20.3 dBm Transmit Freq Error 11.585 kHz OBW Power 99.00 % x dB Bandwidth 19.05 MHz x dB -6.00 dB
802.11ax(HE20) /MCH	 Agilent Spectrum Analyzer - Occupied BW Center Freq 2.43700000 GHz Ref Offset 7.01 dB Ref 27.01 dBm Occupied Bandwidth 18.925 MHz Total Power 21.3 dBm Transmit Freq Error 11.331 kHz OBW Power 99.00 % x dB Bandwidth 19.06 MHz x dB -6.00 dB
802.11ax(HE20) /HCH	 Agilent Spectrum Analyzer - Occupied BW Center Freq 2.46200000 GHz Ref Offset 7.04 dB Ref 27.04 dBm Occupied Bandwidth 18.905 MHz Total Power 20.1 dBm Transmit Freq Error 19.933 kHz OBW Power 99.00 % x dB Bandwidth 18.91 MHz x dB -6.00 dB

802.11ax(HE40) /LCH	 Agilent Spectrum Analyzer - Occupied BW Center Freq 2.42200000 GHz Ref Offset 7 dB Ref 27.00 dBm Mkr3 2.441055 GHz -10.520 dBm Center 2.422 GHz #Res BW 100 kHz #VBW 300 kHz Span 60 MHz Sweep 5.8 ms Occupied Bandwidth 37.737 MHz Total Power 18.3 dBm Transmit Freq Error -15.003 kHz OBW Power 99.00 % x dB Bandwidth 38.14 MHz x dB -6.00 dB
802.11ax(HE40) /MCH	 Agilent Spectrum Analyzer - Occupied BW Center Freq 2.43700000 GHz Ref Offset 7.01 dB Ref 27.01 dBm Mkr3 2.45614 GHz -1.6605 dBm Center 2.437 GHz #Res BW 430 kHz #VBW 1.2 MHz Span 60 MHz Sweep 1 ms Occupied Bandwidth 37.816 MHz Total Power 21.7 dBm Transmit Freq Error 64.226 kHz OBW Power 99.00 % x dB Bandwidth 38.15 MHz x dB -6.00 dB
802.11ax(HE40) /HCH	 Agilent Spectrum Analyzer - Occupied BW Center Freq 2.45200000 GHz Ref Offset 7.03 dB Ref 27.03 dBm Mkr3 2.471078 GHz -10.332 dBm Center 2.452 GHz #Res BW 100 kHz #VBW 330 kHz Span 60 MHz Sweep 5.733 ms Occupied Bandwidth 37.686 MHz Total Power 18.8 dBm Transmit Freq Error 20.179 kHz OBW Power 99.00 % x dB Bandwidth 38.11 MHz x dB -6.00 dB

ANT2:
Test Graph:



802.11g/LCH

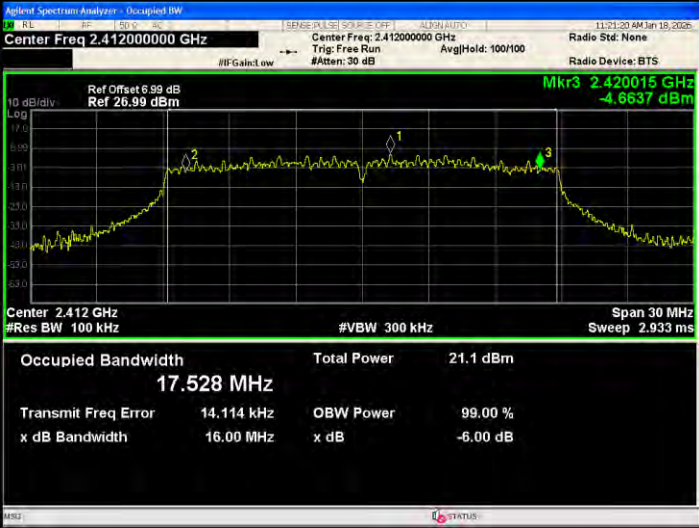
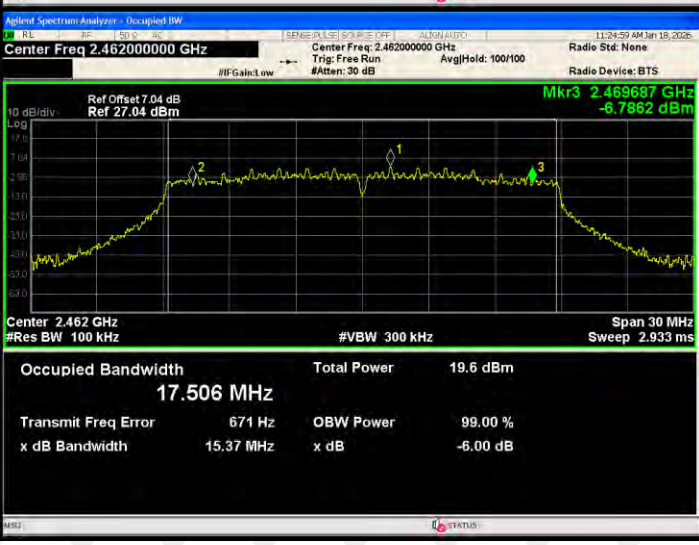


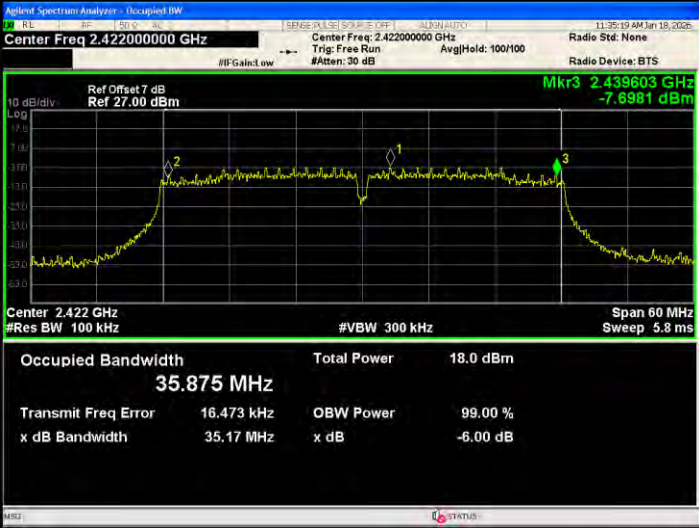
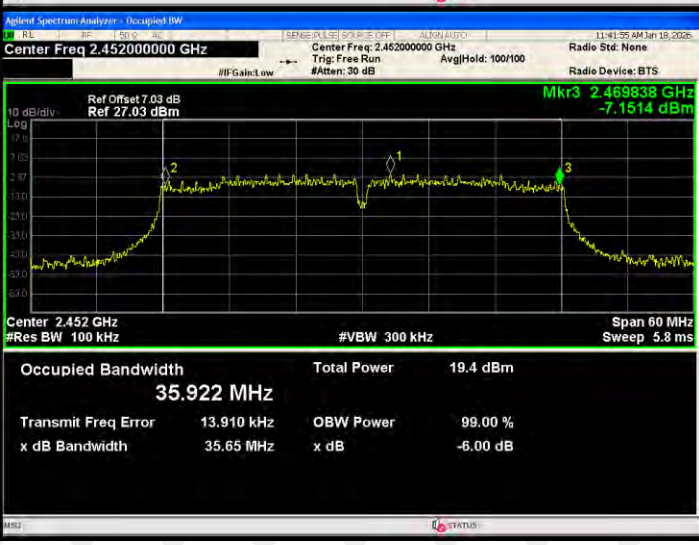
802.11g/MCH

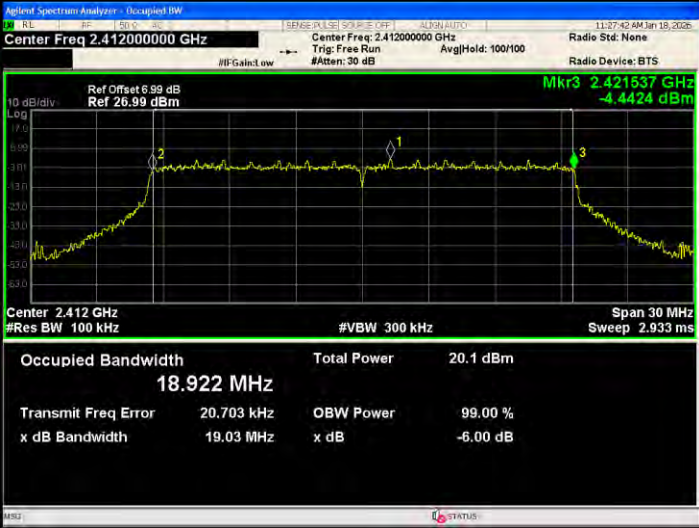
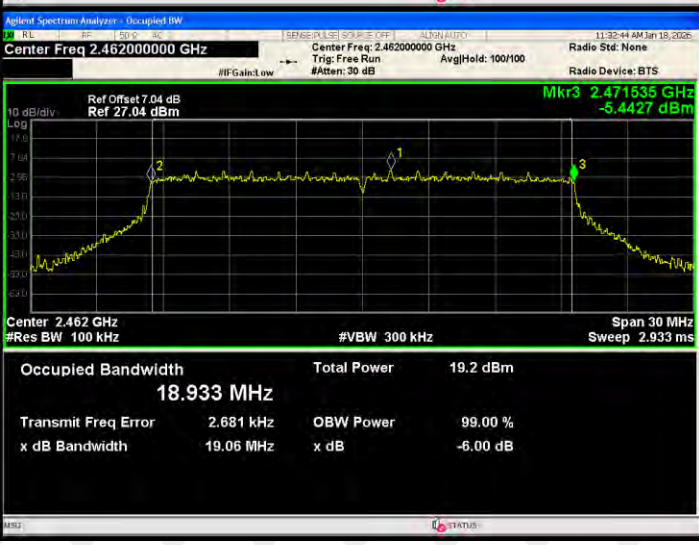


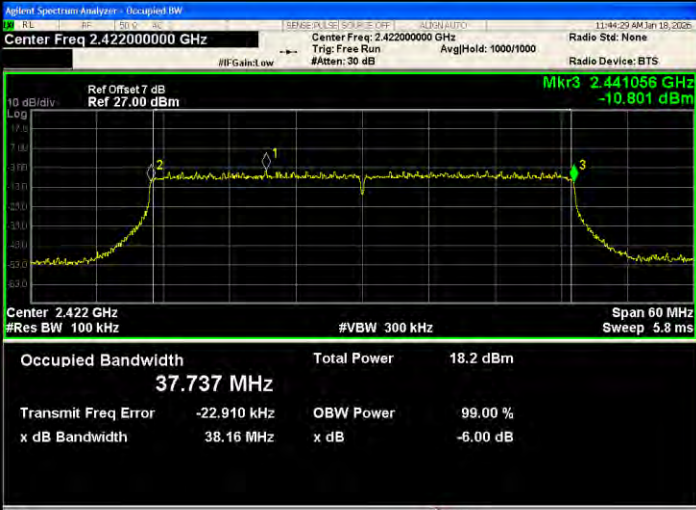
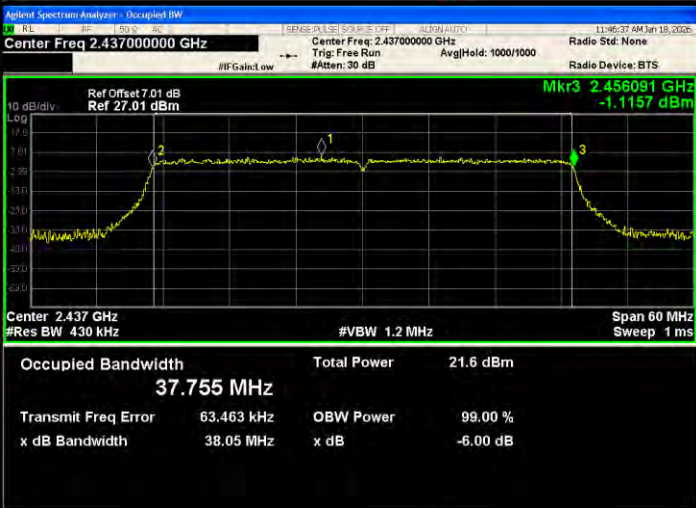
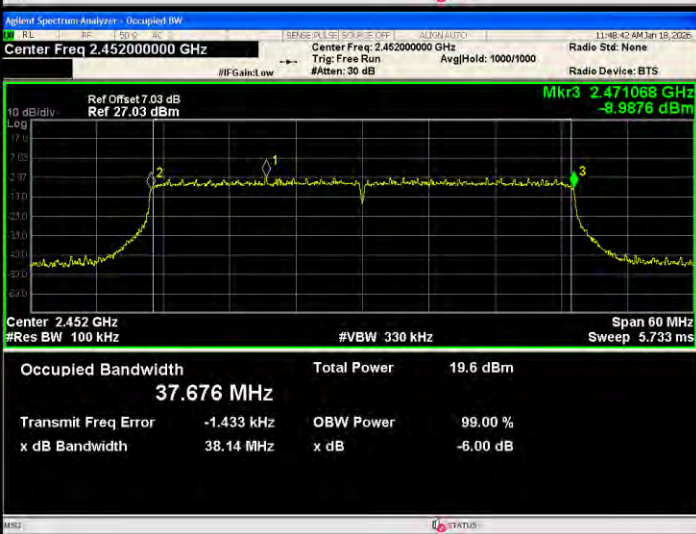
802.11g/HCH



802.11n(HT20) /LCH	 Agilent Spectrum Analyzer - Occupied BW Center Freq 2.41200000 GHz Ref Offset 6.99 dB Ref 26.99 dBm Mkr3 2.420015 GHz -4.6637 dBm Center 2.412 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz Sweep 2.933 ms Occupied Bandwidth 17.528 MHz Total Power 21.1 dBm Transmit Freq Error 14.114 kHz OBW Power 99.00 % x dB Bandwidth 16.00 MHz x dB -6.00 dB
802.11n(HT20) /MCH	 Agilent Spectrum Analyzer - Occupied BW Center Freq 2.43700000 GHz Ref Offset 7.01 dB Ref 27.01 dBm Mkr3 2.445009 GHz -4.6772 dBm Center 2.437 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz Sweep 2.933 ms Occupied Bandwidth 17.559 MHz Total Power 21.6 dBm Transmit Freq Error 20.667 kHz OBW Power 99.00 % x dB Bandwidth 15.98 MHz x dB -6.00 dB
802.11n(HT20) /HCH	 Agilent Spectrum Analyzer - Occupied BW Center Freq 2.46200000 GHz Ref Offset 7.04 dB Ref 27.04 dBm Mkr3 2.469687 GHz -6.7862 dBm Center 2.462 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz Sweep 2.933 ms Occupied Bandwidth 17.506 MHz Total Power 19.6 dBm Transmit Freq Error 671 Hz OBW Power 99.00 % x dB Bandwidth 15.37 MHz x dB -6.00 dB

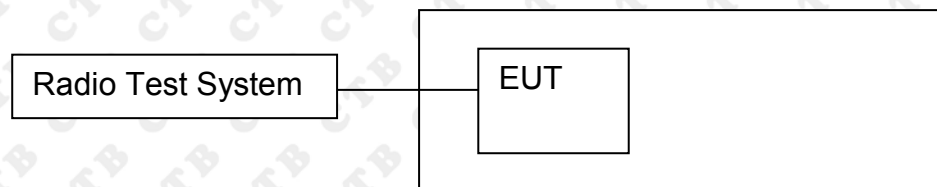
802.11n(HT40) /LCH	 Agilent Spectrum Analyzer - Occupied BW Center Freq 2.42200000 GHz Ref Offset 7 dB Ref 27.00 dBm Mkr3 2.439803 GHz -7.6981 dBm Center 2.422 GHz #Res BW 100 kHz #VBW 300 kHz Span 60 MHz Sweep 5.8 ms Occupied Bandwidth 35.875 MHz Total Power 18.0 dBm Transmit Freq Error 16.473 kHz OBW Power 99.00 % x dB Bandwidth 35.17 MHz x dB -6.00 dB
802.11n(HT40) /MCH	 Agilent Spectrum Analyzer - Occupied BW Center Freq 2.43700000 GHz Ref Offset 7.01 dB Ref 27.01 dBm Mkr3 2.454647 GHz -6.5641 dBm Center 2.437 GHz #Res BW 100 kHz #VBW 300 kHz Span 60 MHz Sweep 5.8 ms Occupied Bandwidth 35.817 MHz Total Power 22.0 dBm Transmit Freq Error 60.318 kHz OBW Power 99.00 % x dB Bandwidth 35.17 MHz x dB -6.00 dB
802.11n(HT40) /HCH	 Agilent Spectrum Analyzer - Occupied BW Center Freq 2.45200000 GHz Ref Offset 7.03 dB Ref 27.03 dBm Mkr3 2.469838 GHz -7.1514 dBm Center 2.452 GHz #Res BW 100 kHz #VBW 300 kHz Span 60 MHz Sweep 5.8 ms Occupied Bandwidth 35.922 MHz Total Power 19.4 dBm Transmit Freq Error 13.910 kHz OBW Power 99.00 % x dB Bandwidth 35.65 MHz x dB -6.00 dB

802.11ax(HE20) /LCH	 Agilent Spectrum Analyzer - Occupied BW Center Freq 2.41200000 GHz Ref Offset 6.99 dB Ref 26.99 dBm Mkr3 2.421537 GHz -4.4424 dBm Center 2.412 GHz #Res BW 100 kHz Span 30 MHz Sweep 2.933 ms Occupied Bandwidth 18.922 MHz Total Power 20.1 dBm Transmit Freq Error 20.703 kHz OBW Power 99.00 % x dB Bandwidth 19.03 MHz x dB -6.00 dB
802.11ax(HE20) /MCH	 Agilent Spectrum Analyzer - Occupied BW Center Freq 2.43700000 GHz Ref Offset 7.01 dB Ref 27.01 dBm Mkr3 2.446482 GHz -4.2872 dBm Center 2.437 GHz #Res BW 100 kHz Span 30 MHz Sweep 2.933 ms Occupied Bandwidth 18.890 MHz Total Power 21.2 dBm Transmit Freq Error -4.131 kHz OBW Power 99.00 % x dB Bandwidth 18.97 MHz x dB -6.00 dB
802.11ax(HE20) /HCH	 Agilent Spectrum Analyzer - Occupied BW Center Freq 2.46200000 GHz Ref Offset 7.04 dB Ref 27.04 dBm Mkr3 2.471535 GHz -5.4427 dBm Center 2.462 GHz #Res BW 100 kHz Span 30 MHz Sweep 2.933 ms Occupied Bandwidth 18.933 MHz Total Power 19.2 dBm Transmit Freq Error 2.681 kHz OBW Power 99.00 % x dB Bandwidth 19.06 MHz x dB -6.00 dB

802.11ax(HE40) /LCH	 Agilent Spectrum Analyzer - Occupied BW Center Freq 2.42200000 GHz Ref Offset 7 dB Ref 27.00 dBm Mkr3 2.441056 GHz -10.801 dBm Center 2.422 GHz #Res BW 100 kHz #VBW 300 kHz Span 60 MHz Sweep 5.8 ms Occupied Bandwidth 37.737 MHz Total Power 18.2 dBm Transmit Freq Error -22.910 kHz OBW Power 99.00 % x dB Bandwidth 38.16 MHz x dB -6.00 dB
802.11ax(HE40) /MCH	 Agilent Spectrum Analyzer - Occupied BW Center Freq 2.43700000 GHz Ref Offset 7.01 dB Ref 27.01 dBm Mkr3 2.456091 GHz -1.1157 dBm Center 2.437 GHz #Res BW 430 kHz #VBW 1.2 MHz Span 60 MHz Sweep 1 ms Occupied Bandwidth 37.755 MHz Total Power 21.6 dBm Transmit Freq Error 63.463 kHz OBW Power 99.00 % x dB Bandwidth 38.05 MHz x dB -6.00 dB
802.11ax(HE40) /HCH	 Agilent Spectrum Analyzer - Occupied BW Center Freq 2.45200000 GHz Ref Offset 7.03 dB Ref 27.03 dBm Mkr3 2.471068 GHz -8.9876 dBm Center 2.452 GHz #Res BW 100 kHz #VBW 330 kHz Span 60 MHz Sweep 5.733 ms Occupied Bandwidth 37.676 MHz Total Power 19.6 dBm Transmit Freq Error -1.433 kHz OBW Power 99.00 % x dB Bandwidth 38.14 MHz x dB -6.00 dB

11. POWER SPECTRAL DENSITY

11.1 Block Diagram Of Test Setup



11.2 Limit

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247	Power Spectral Density	8 dBm (in any 3kHz)	2400-2483.5	PASS

11.3 Test procedure

1. Set analyzer center frequency to DTS channel center frequency.
2. Set the span to 1.5 times the DTS bandwidth.
3. Set the RBW to: $3\text{ kHz} \leq \text{RBW} \leq 100\text{ kHz}$.
4. Set the VBW $\geq 3 \times \text{RBW}$.
5. Detector = Peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level within the RBW.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

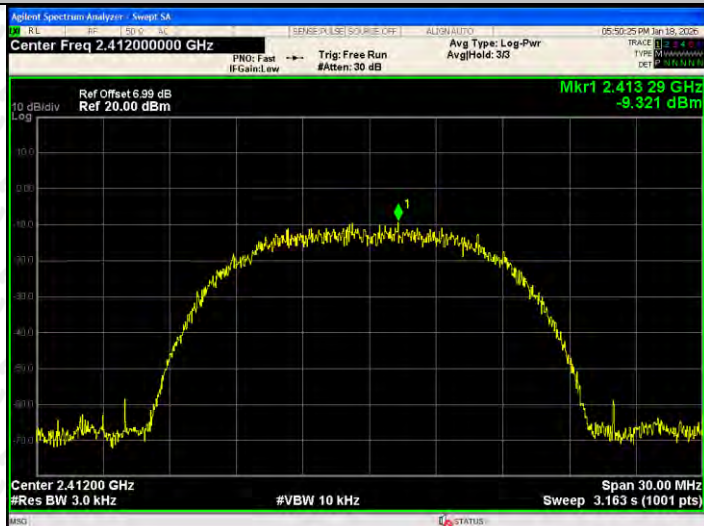
11.4 Test Result

Mode	Channel.	Power Spectral Density [dBm /3kHz] ANT 1	Power Spectral Density [dBm /3kHz] ANT 2	Power Spectral Density [dBm /3kHz] Total	Limit(dBm)
802.11b	LCH	-9.321	-9.603	/	8
	MCH	-10.076	-10.247	/	8
	HCH	-9.594	-10.023	/	8
802.11g	LCH	-11.343	-10.107	/	8
	MCH	-11.242	-11.357	/	8
	HCH	-12.259	-12.742	/	8
802.11n (HT20)	LCH	-11.503	-11.422	-8.452	8
	MCH	-10.783	-9.712	-7.204	8
	HCH	-12.549	-12.07	-9.293	8
802.11n (HT40)	LCH	-16.469	-17.109	-13.767	8
	MCH	-12.839	-13.61	-10.197	8
	HCH	-16.219	-15.661	-12.921	8
802.11ax (HE20)	LCH	-13.673	-14.743	-11.165	8
	MCH	-13.45	-12.945	-10.180	8
	HCH	-13.224	-14.792	-10.927	8
802.11ax (HE40)	LCH	-19.699	-20.401	-17.026	8
	MCH	-15.977	-15.64	-12.795	8
	HCH	-18.812	-18.96	-15.875	8

ANT1: Test Graph

Graphs

802.11b /LCH



802.11b /MCH



802.11b/HCH



802.11g/LCH

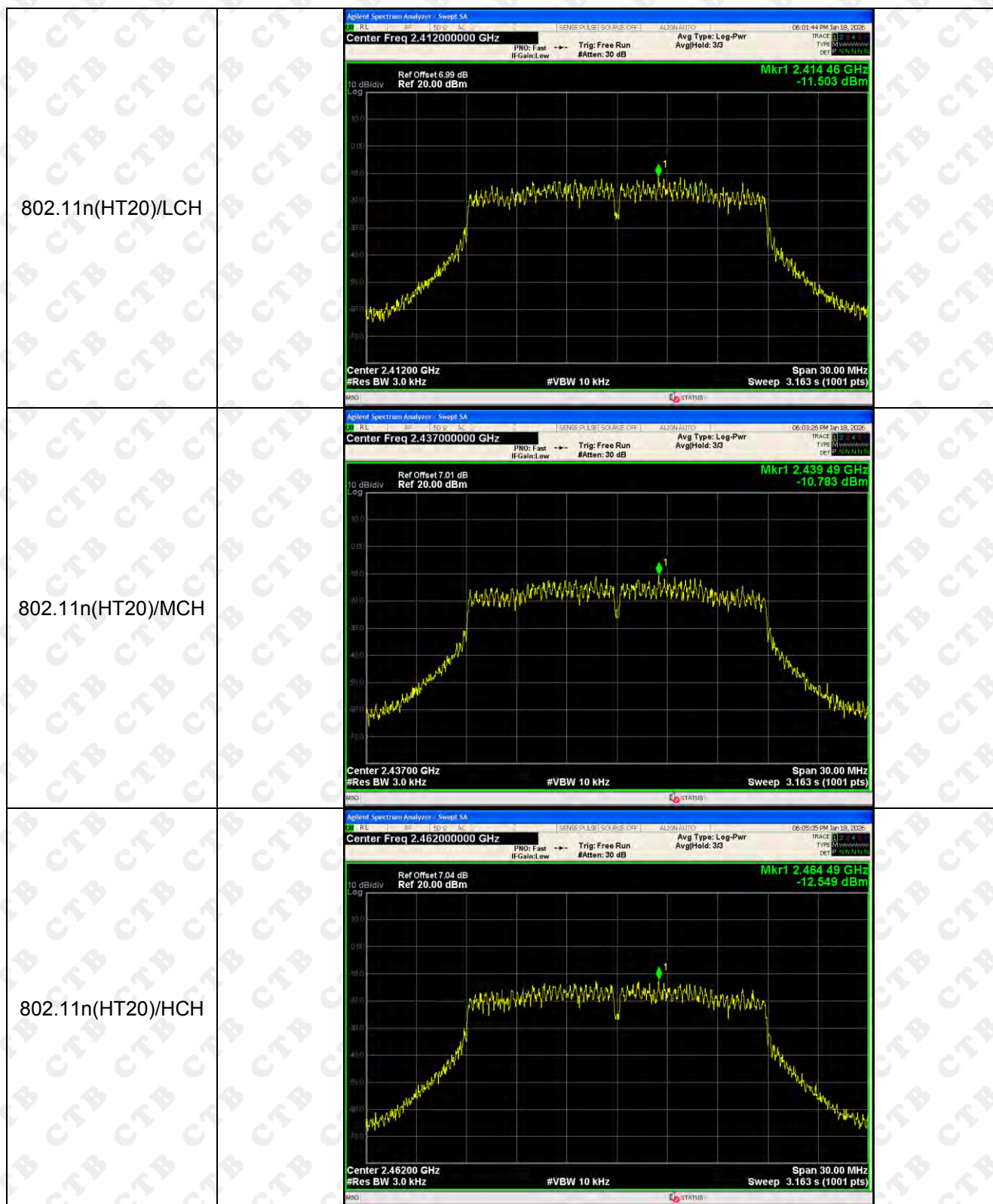


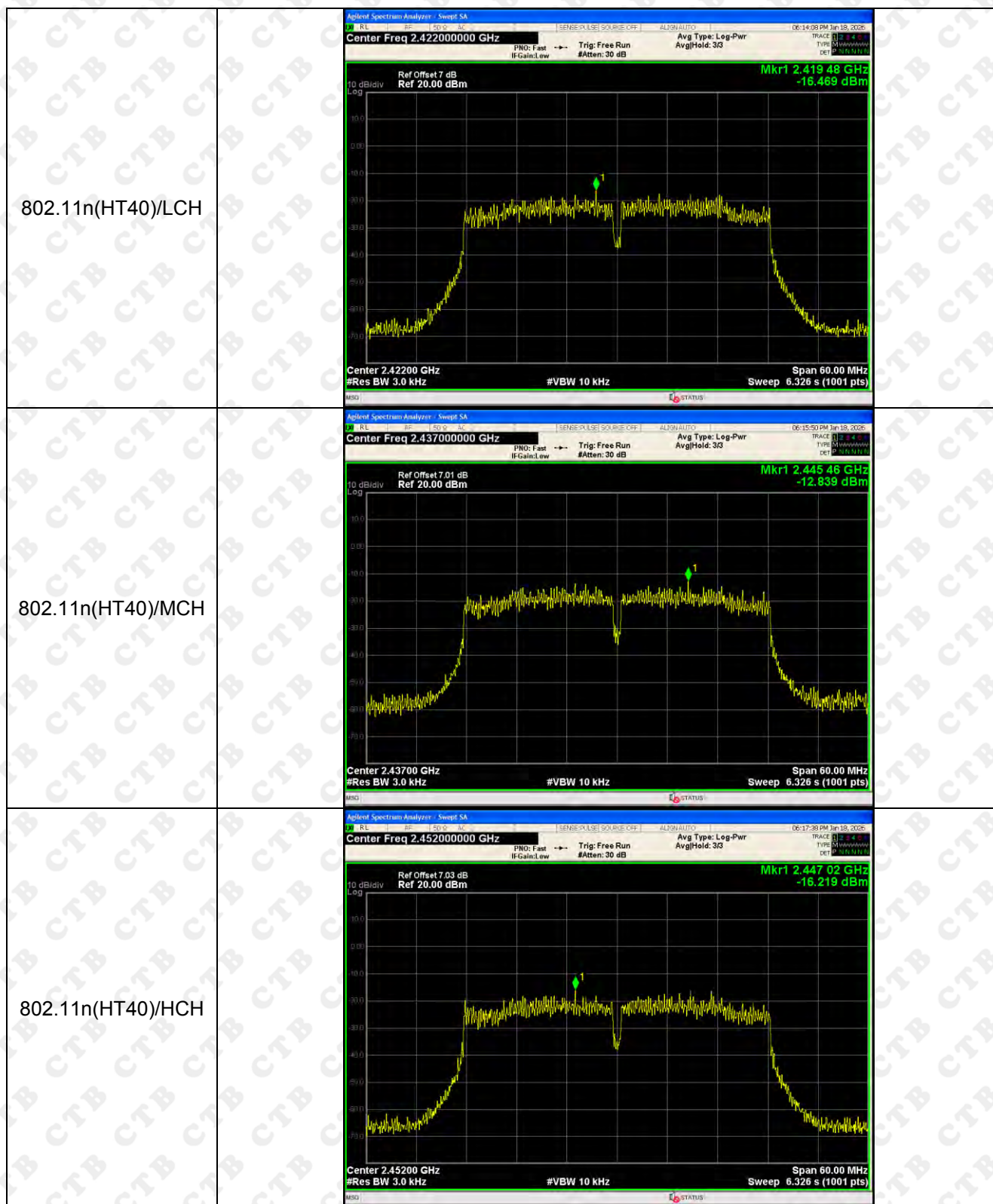
802.11g/MCH

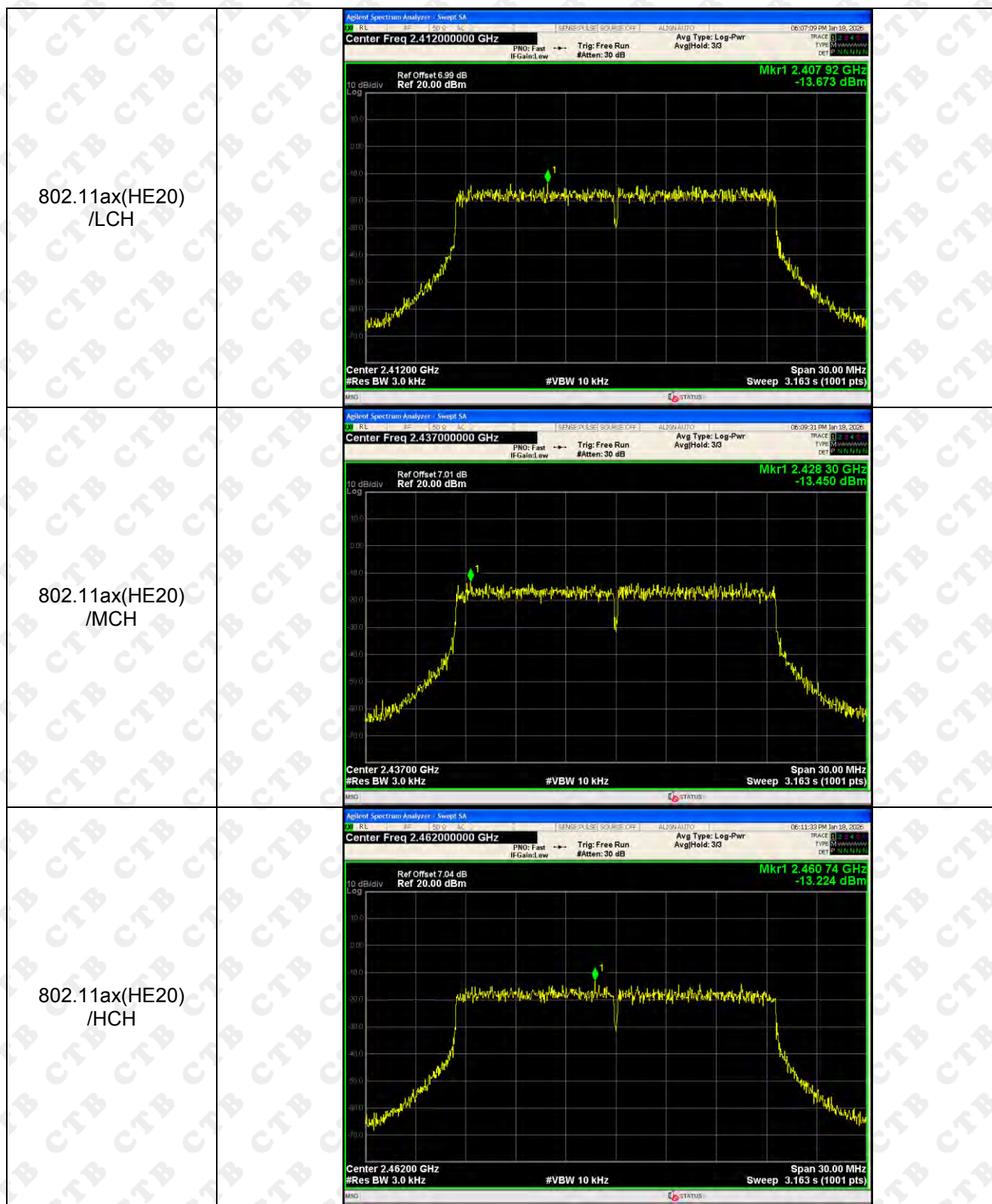


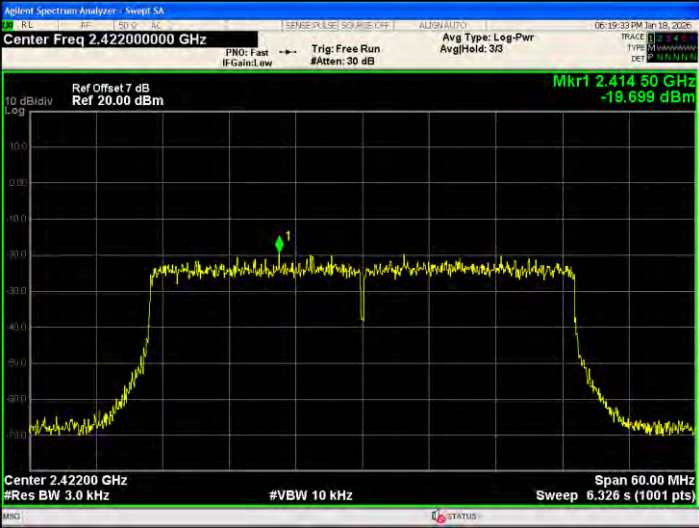
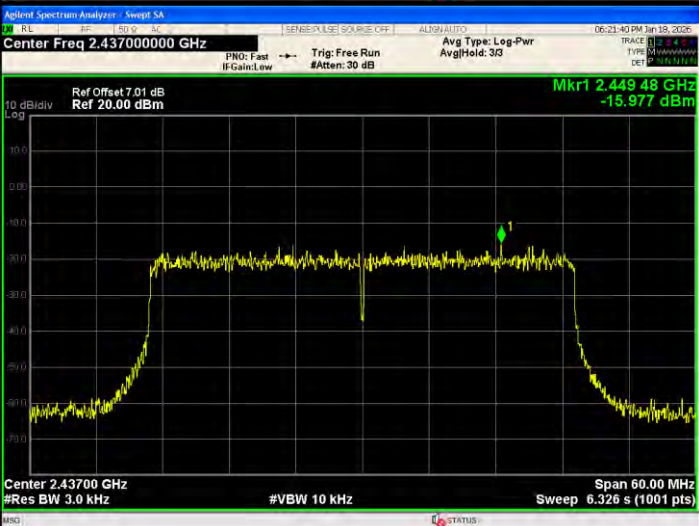
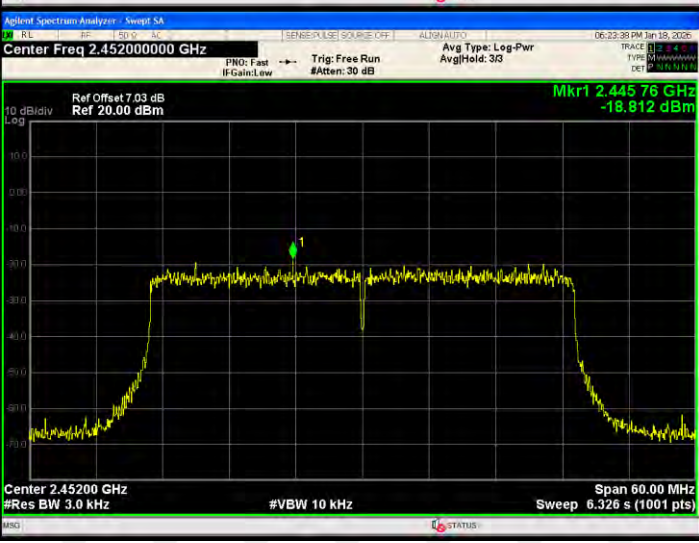
802.11g/HCH



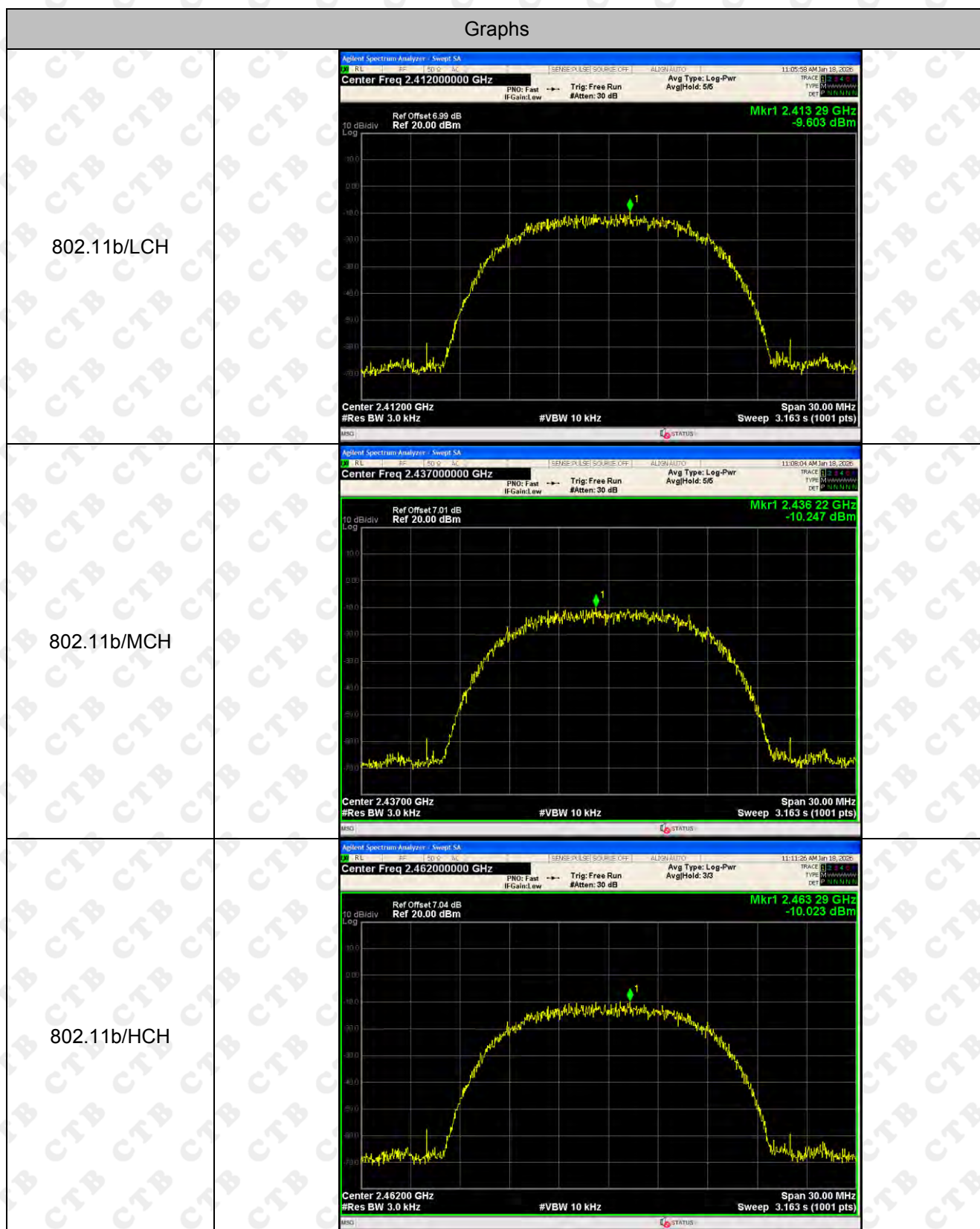


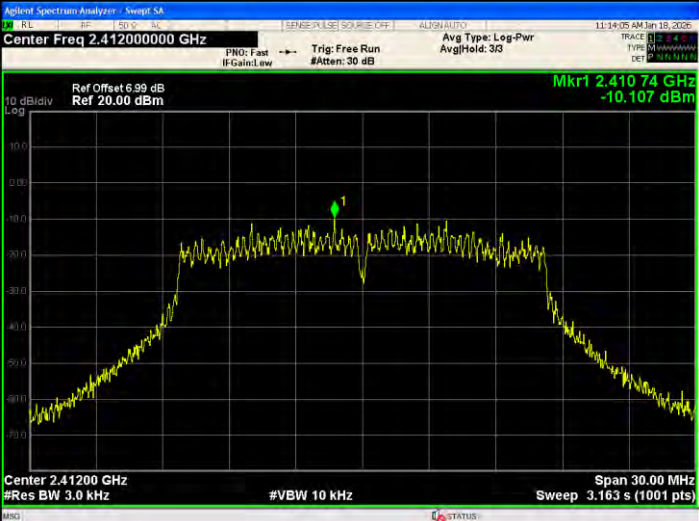
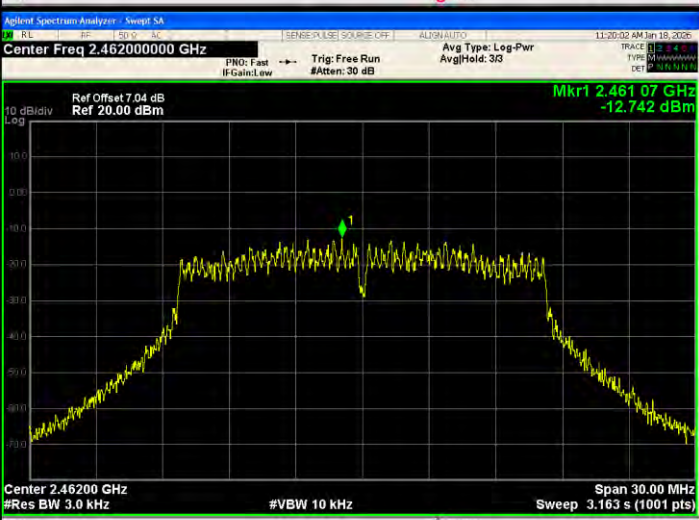


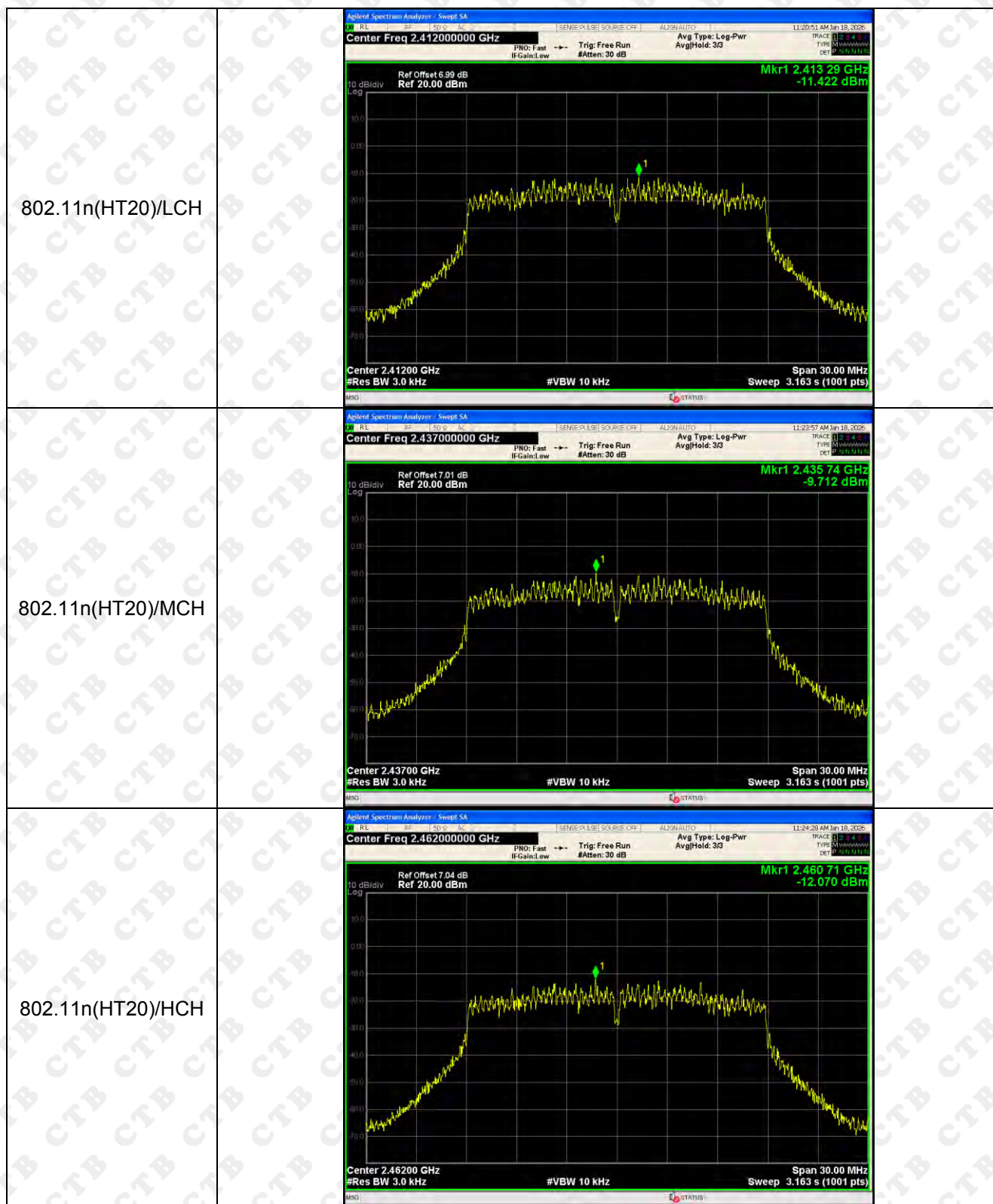


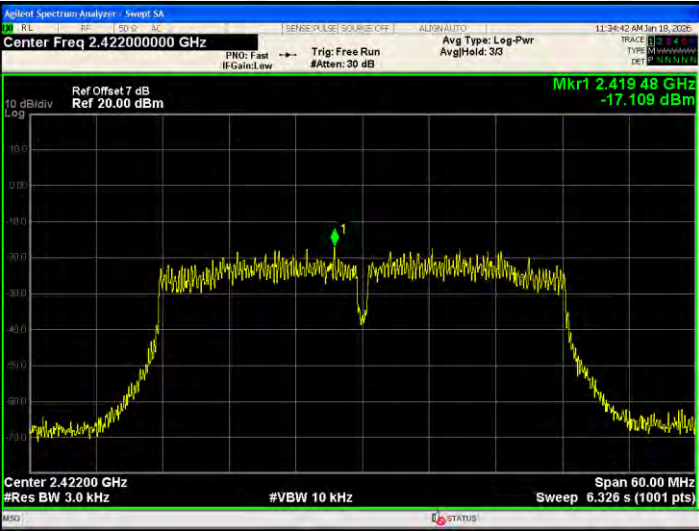
802.11ax(HE40) /LCH	 Agilent Spectrum Analyzer - Sweep SA Center Freq 2.422000000 GHz Ref Offset 7 dB Ref 20.00 dBm Mkr1 2.414 50 GHz -19.699 dBm Center 2.42200 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 60.00 MHz Sweep 6.326 s (1001 pts)
802.11ax(HE40) /MCH	 Agilent Spectrum Analyzer - Sweep SA Center Freq 2.437000000 GHz Ref Offset 7.01 dB Ref 20.00 dBm Mkr1 2.449 48 GHz -15.977 dBm Center 2.43700 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 60.00 MHz Sweep 6.326 s (1001 pts)
802.11ax(HE40) /HCH	 Agilent Spectrum Analyzer - Sweep SA Center Freq 2.452000000 GHz Ref Offset 7.03 dB Ref 20.00 dBm Mkr1 2.445 76 GHz -18.812 dBm Center 2.45200 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 60.00 MHz Sweep 6.326 s (1001 pts)

ANT 2:
Test Graph

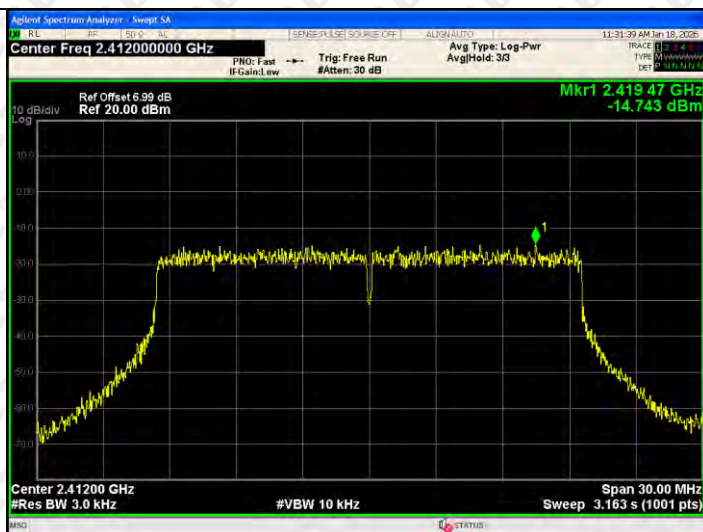


802.11g/LCH	 Agilent Spectrum Analyzer - Sweep SA Center Freq 2.412000000 GHz Ref Offset 6.99 dB Ref 20.00 dBm Mkr1 2.410 74 GHz -10.107 dBm Center 2.41200 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 30.00 MHz Sweep 3.163 s (1001 pts)
802.11g/MCH	 Agilent Spectrum Analyzer - Sweep SA Center Freq 2.437000000 GHz Ref Offset 7.01 dB Ref 20.00 dBm Mkr1 2.437 80 GHz -11.357 dBm Center 2.43700 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 30.00 MHz Sweep 3.163 s (1001 pts)
802.11g/HCH	 Agilent Spectrum Analyzer - Sweep SA Center Freq 2.462000000 GHz Ref Offset 7.04 dB Ref 20.00 dBm Mkr1 2.461 07 GHz -12.742 dBm Center 2.46200 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 30.00 MHz Sweep 3.163 s (1001 pts)



802.11n(HT40)/LCH	 Agilent Spectrum Analyzer - Sweep SA Center Freq 2.422000000 GHz PNO: Fast IF Gain: Low Trg: Free Run Avg Type: Log-Pwr Avg Hold: 3/3 Ref Offset 7 dB Ref 20.00 dBm Mkr1 2.419 48 GHz -17.109 dBm Center 2.42200 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 60.00 MHz Sweep 6.326 s (1001 pts)
802.11n(HT40)/MCH	 Agilent Spectrum Analyzer - Sweep SA Center Freq 2.437000000 GHz PNO: Fast IF Gain: Low Trg: Free Run Avg Type: Log-Pwr Avg Hold: 3/3 Ref Offset 7.01 dB Ref 20.00 dBm Mkr1 2.434 48 GHz -13.610 dBm Center 2.43700 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 60.00 MHz Sweep 6.326 s (1001 pts)
802.11n(HT40)/HCH	 Agilent Spectrum Analyzer - Sweep SA Center Freq 2.452000000 GHz PNO: Fast IF Gain: Low Trg: Free Run Avg Type: Log-Pwr Avg Hold: 3/3 Ref Offset 7.03 dB Ref 20.00 dBm Mkr1 2.456 68 GHz -15.661 dBm Center 2.45200 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 60.00 MHz Sweep 6.326 s (1001 pts)

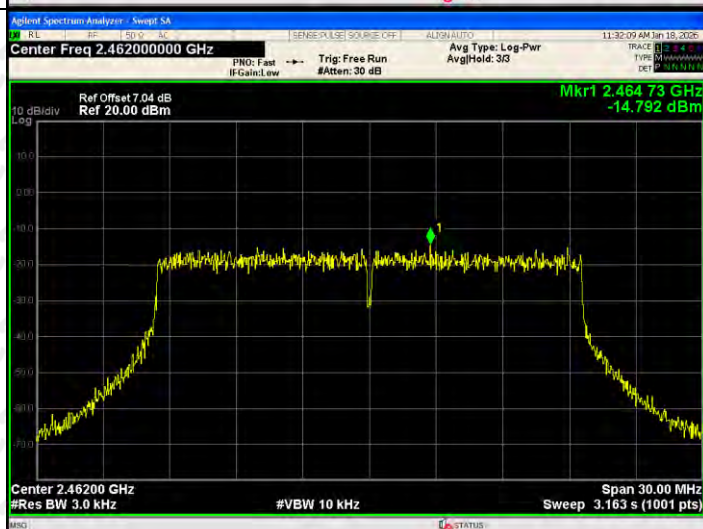
802.11ax(HE20)
/LCH



802.11ax(HE20)
/MCH



802.11ax(HE20)
/HCH



802.11ax(HE40)
/LCH

802.11ax(HE40)
/MCH

802.11ax(HE40)
/HCH


12. ANTENNA REQUIREMENT

15.203 requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

15.247(b) (4) requirement:

The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

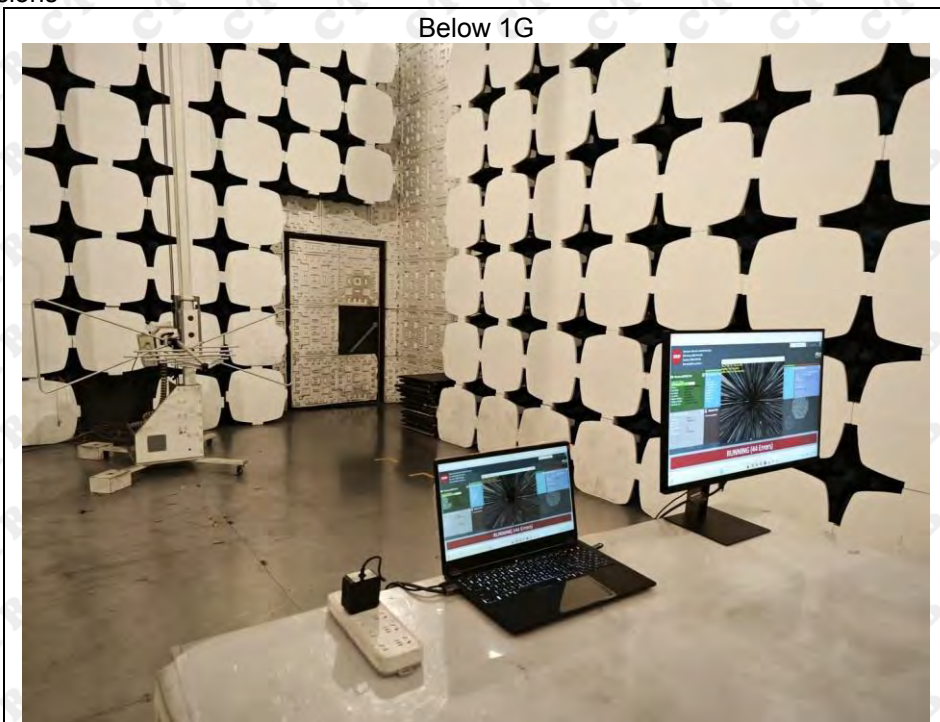
EUT Antenna:

The antenna is Internal antenna and no consideration of replacement. The best case gain of the antenna is ANT1:2.99dBi, ANT2:2.99dBi.

13. EUT TEST SETUP PHOTOGRAPHS

Radiated Emissions

Below 1G



Above 1G



Conducted emission



***** END OF REPORT *****