VARIANT FCC TEST REPORT

(Part 15, Subpart C)

Applicant:	Nokia of America Corp
Address:	3201, Olympus Blvd, Dallas, TX 75019, USA

Manufacturer or Supplier:	Nokia of America Corp
Address:	3201, Olympus Blvd, Dallas, TX 75019, USA
Product:	Nokia Industrial 5G handheld HHRA501x
Brand Name:	Nokia
Model Name:	HHRA501a
Marketing Name:	Nokia Industrial 5G handheld HHRA501a
FCC ID:	2AVO2-HHRA501A
Date of tests:	Nov. 24, 2022 ~ Feb. 03, 2023

The tests have been carried out according to the requirements of the following standard:

☒ **FCC Part 15, Subpart C, Section 15.247**

☒ **ANSI C63.10-2013**

CONCLUSION: The submitted sample was found to COMPLY with the test requirement

Prepared by Simon Wang	Approved by Luke Lu
Engineer / Mobile Department	Manager / Mobile Department
Simon Wang	Luke Lu
Date: Oct. 23, 2023	Date: Oct. 23, 2023

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
W7L-P22110036RF02	Original release	Feb. 03, 2023
W7L-P23100014RF02	Based on the original product changing the model name and FCC ID, brand name, marketing name, product name, battery model, applicant and manufacturer information.	Oct. 23, 2023

1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART C (SECTION 15.247)		
STANDARD SECTION	**TEST TYPE AND LIMIT**	**RESULT**
15.207	AC Power Conducted Emission	Compliance
15.205 15.209	Radiated Emissions	Compliance
15.247(d)	Out of band Emission Measurement	Compliance
15.247(a)(2)	6dB bandwidth	Compliance
15.247(b)	Conducted Output power	Compliance
15.247(e)	Power Spectral Density	Compliance
15.203	Antenna Requirement	Compliance

Note：1.Except RSE, other data please refer to Appendix 1 (for WIFI-2.4G) and Appendix 2 (for BLE).

2. WLAN(normal mode& RU-OFDMA)2.4G supports SISO&MIMO mode，the whole testing have assessed the MIMO mode by referring to their maximum conducted power.

3. 11ax OFDMA Mode Only support full RU tone.

4. For WIFI-2.4G, RSE had been tested on SISO&MIMO mode of EUT. The worst case was found on MIMO mode, only the worst case data had been reported in the report.

1.1 MEASUREMENT UNCERTAINTY

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

MEASUREMENT	UNCERTAINTY
AC Power Conducted emissions	±2.70dB
Radiated emissions (9KHz~30MHz)	±2.68dB
Radiated emissions (30MHz~1GHz)	±4.98dB
Radiated emissions (1GHz ~6GHz)	±4.70dB
Radiated emissions (6GHz ~18GHz)	±4.60dB
Radiated emissions (18GHz ~40GHz)	±4.12dB
Conducted emissions	±4.01dB
Occupied Channel Bandwidth	±43.58KHz
Conducted Output power	±2.06dB
Power Spectral Density	±0.85 dB

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

2 GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Nokia Industrial 5G handheld HHRA501x
BRAND NAME	Nokia
MODEL NAME	HHRA501a
MARKETING NAME	Nokia Industrial 5G handheld HHRA501a
NOMINAL VOLTAGE	5.0Vdc(adapter or host equipment) 3.7Vdc (Li-ion, battery)
MODULATION	DSSS, OFDM, GFSK, OFDMA
TRANSMISSION RATE	802.11b: 11/ 5.5/ 2.0 / 1.0 Mbps 802.11g: 54/ 48/ 36 / 24 / 18 / 9/ 6 Mbps 802.11n20: up to 144.4 Mbps 802.11n40: up to 300 Mbps BT_LE: 0.125 Mbps /0.5 Mbps /1 Mbps/2 Mbps 802.11ax 20 (RU242): up to 286.8Mbps 802.11ax 40 (RU484): up to 573.5Mbps
OPERATING FREQUENCY	2412-2462MHz for 11b/g/n(HT20/40) 2402-2480MHz for BT-LE(GFSK) 2412-2462MHz for ax(20M RU242)/ax (40M RU484)
MAX. OUTPUT POWER	WLAN: 299.23mW (Maximum) BT-LE: 8.91mW (Maximum) RU WLAN: 152.05mW (Maximum)
ANTENNA TYPE	ANT 1: PIFA Antenna with 0.1dBi gain for WIFI ANT 2: PIFA Antenna with -3.7dBi gain for WIFI
HW VERSION	V02
SW VERSION	IS540_ROW_00.00_1_20221017
I/O PORTS	Refer to user's manual
CABLE SUPPLIED	USB cable1: non-shielded cable, with w/o ferrite core, 1.0 meter USB cable2: non-shielded cable, with w/o ferrite core, 1.0 meter

NOTE:

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

2. The EUT incorporates a MIMO function. Physically, the EUT provides two transmitter and two receiver.

MODULATION MODE	TX/RX FUNCTION
802.11b	2TX /2RX
802.11g	2TX /2RX
802.11n (20MHz)	2TX /2RX
802.11n (40MHz)	2TX /2RX
802.11ax (20MHz RU 242)	2TX /2RX
802.11ax (40MHz RU 484)	2TX /2RX
BT_LE(1MHz)	1TX /1RX

3. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.

List of Accessory:

ACCESSORIES	BRAND	MANUFACTURER	MODEL	SPECIFICATION
Battery	N/A	FPR Connectivity Technology Inc.	BL440ACP	Capacity：3.7Vdc, 4400mAh
AC Adapter	N/A	SHENZHEN SHI YINGYUAN POWER SUPPLY TECHNOLOGY CO., LTD.	ICP12-050-2000B	I/P: 100-240Vac, 0.3A, O/P: 5.0Vdc, 2A
USB Cable 1	N/A	Winpower Technology Co., LTD	PROTECTOR 2.0	Signal Line,1.0meter
USB Cable 2	N/A	Winpower Technology Co., LTD	USB2.0	Signal Line,1.0meter

2.2 DESCRIPTION OF TEST MODES

11 channels are provided for 802.11b, 802.11g and 802.11n (HT20), 802.11ax20 (RU 242):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
1	2412 MHz	7	2442 MHz
2	2417 MHz	8	2447 MHz
3	2422 MHz	9	2452 MHz
4	2427 MHz	10	2457 MHz
5	2432 MHz	11	2462 MHz
6	2437 MHz		

7 channels are provided for 802.11n (HT40), 802.11ax40 (RU 484):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
3	2422 MHz	7	2442 MHz
4	2427 MHz	8	2447 MHz
5	2432 MHz	9	2452 MHz
6	2437 MHz		

40 channels are provided for BT-LE (GFSK):

CHANNEL	FREQ. (MHZ)	CHANNEL	FREQ. (MHZ)	CHANNEL	FREQ. (MHZ)	CHANNEL	FREQ. (MHZ)
0	2402	10	2422	20	2442	30	2462
1	2404	11	2424	21	2444	31	2464
2	2406	12	2426	22	2446	32	2466
3	2408	13	2428	23	2448	33	2468
4	2410	14	2430	24	2450	34	2470
5	2412	15	2432	25	2452	35	2472
6	2414	16	2434	26	2454	36	2474
7	2416	17	2436	27	2456	37	2476
8	2418	18	2438	28	2458	38	2478
9	2420	19	2440	29	2460	39	2480

2.2.1 CONFIGURATION OF SYSTEM UNDER TEST

Please see section 5 photographs of the test configuration for reference.

2.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis and antenna ports.
The worst case was found when positioned on Y axis for radiated emission. Following test modes were selected for the final test, and the final worst case is marked in boldface and recorded in the report:

EUT CONFIGURE MODE	APPLICABLE TO				MODE
	RE<1G	RE≥1G	PLC	APCM	
-	√	√	√	√	-

Where **RE<1G:** Radiated Emission below 1GHz **RE≥1G:** Radiated Emission above 1GHz
PLC: Power Line Conducted Emission **APCM:** Antenna Port Conducted Measurement

NOTE: No need to concern of Conducted Emission due to the EUT is powered by battery.

RADIATED EMISSION TEST (BELOW 1GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)
802.11ax 40 (RU 484)	3 to 9	3	OFDMA	MCS0
BT-LE	0 to 39	39	GFSK	0.125

RADIATED EMISSION TEST (ABOVE 1GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	1.0
802.11g	1 to 11	1, 6, 11	OFDM	6.0
802.11n HT20	1 to 11	1, 6, 11	OFDM	MCS0
802.11n HT40	3 to 9	3,6,9	OFDM	MCS0
BT-LE	0 to 39	0,19, 39	GFSK	0.125&0.5&1&2
802.11ax 20 (RU 242)	1 to 11	1, 11	OFDMA	MCS0
802.11ax 40 (RU 484)	3 to 9	3, 9	OFDMA	MCS0

POWER LINE CONDUCTED EMISSION TEST

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)
802.11ax 40 (RU 484)	3 to 9	3	OFDMA	MCS0

BANDEDGE MEASUREMENT:

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	1.0
802.11g	1 to 11	1, 6, 11	OFDM	6.0
802.11n HT20	1 to 11	1, 6, 11	OFDM	MCS0
802.11n HT40	3 to 9	3,6,9	OFDM	MCS0
BT-LE	0 to 39	0,19, 39	GFSK	0.125&0.5&1&2
802.11ax 20 (RU 242)	1 to 11	1,11	OFDMA	MCS0
802.11ax 40 (RU 484)	3 to 9	3 ,9	OFDMA	MCS0

ANTENNA PORT CONDUCTED MEASUREMENT:

☒ This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	1.0
802.11g	1 to 11	1, 6, 11	OFDM	6.0
802.11n HT20	1 to 11	1, 6, 11	OFDM	MCS0
802.11n HT40	3 to 9	3,6,9	OFDM	MCS0
BT-LE	0 to 39	0,19, 39	GFSK	0.125&0.5&1&2
802.11ax 20 (RU 242)	1 to 11	1,11	OFDMA	MCS0
802.11ax 40 (RU 484)	3 to 9	3 ,9	OFDMA	MCS0

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	TEST VOLTAGE	TESTED BY
RE<1G	23deg. C, 70%RH	DC 5V By Adapter	Jace Hu
RE≥1G	23deg. C, 70%RH	DC 5V By Adapter	Jace Hu
PLC	25deg. C, 52%RH	DC 5V By Adapter	Carl Xie
APCM	25deg. C, 60%RH	DC 3.7V By DC Supply	James Fu

2.3 DUTY CYCLE OF TEST SIGNAL

Please Refer to Appendix1/2 Of this test report.

WORST-CASE DATA:

Measured Duty Cycle		
Mode		Duty Cycle [%]
		ANT1/2
WIFI 2.4GHz	11B	98.53
	11G	99.53
	11N20	99.82
	11N40	99.63
	11ax20	99.82
	11ax40	99.82
	11ax 20 (RU 242)	99.63
	11ax 40 (RU 484)	99.63
BT LE	BT4.0	61.90
	BT5.0	33.33
	BTS2	57.45
	BTS8	82.93

Note:

Duty cycle of test signal is < 98%, duty factor shall be considered.

2.4 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC Part 15, Subpart C, Section 15.247

KDB 558074 D01 DTS Meas Guidance v05r02

ANSI C63.10-2013

Note：

1. All test items have been performed and recorded as per the above standards.
2. The EUT is also considered as a kind of computer peripheral, because the connection to computer is necessary for typical use. It has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (Certification). The test report has been issued separately.

2.5 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	Desktop	Lenovo	M73 SFF	PC04GRQV	N/A
2	Desktop	Lenovo	M73 SFF	PC06CS27	N/A
3	Laptop	Lenovo	Thinkpad T450	PC-049PT1	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	AC Line: Unshielded, Detachable 1.5m
2	AC Line: Unshielded, Detachable 1.5m
3	AC Line: Unshielded, Detachable 1.5m

3 TEST TYPES AND RESULTS

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dBμV)	
	Quasi-peak	Average
0.15 ~ 0.5	66 to 56	56 to 46
0.5 ~ 5	56	46
5 ~ 30	60	50

NOTE: 1.The lower limit shall apply at the transition frequencies.

2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

3.1.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESR3	101900	Feb. 15,22	Feb. 14,23
EMC32 test software	Rohde&Schwarz	EMC32	NA	NA	NA
LISN network	Rohde&Schwarz	ENV216	101922	Mar. 04,22	Mar. 03,23

NOTE:

1. The test was performed in CE shielded room.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

3.1.3 TEST PROCEDURES

a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.

b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

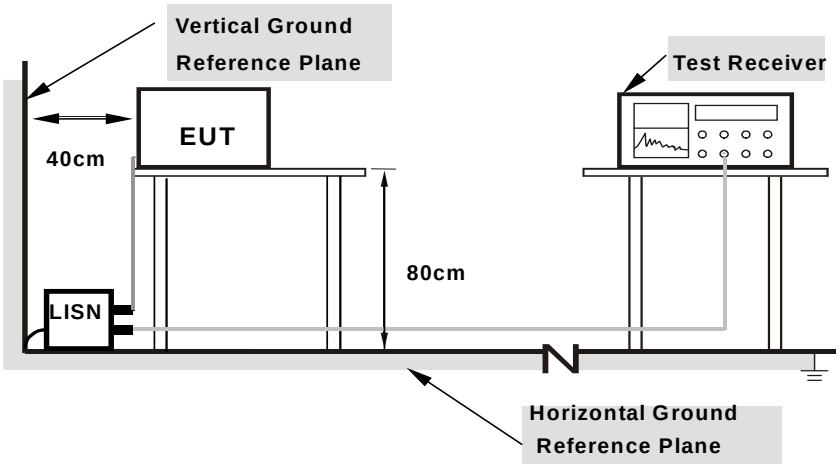
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

NOTE: All modes of operation were investigated and the worst-case emissions are reported.

3.1.4 DEVIATION FROM TEST STANDARD

No deviation.

3.1.5 TEST SETUP



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

For the actual test configuration, please refer to the attached file (Test Setup Photo).

3.1.6 EUT OPERATING CONDITIONS

a. Turned on the power and connected of all equipment.
b. EUT was operated according to the type used was description in manufacturer's specifications or the User's Manual.

3.1.7 TEST RESULTS

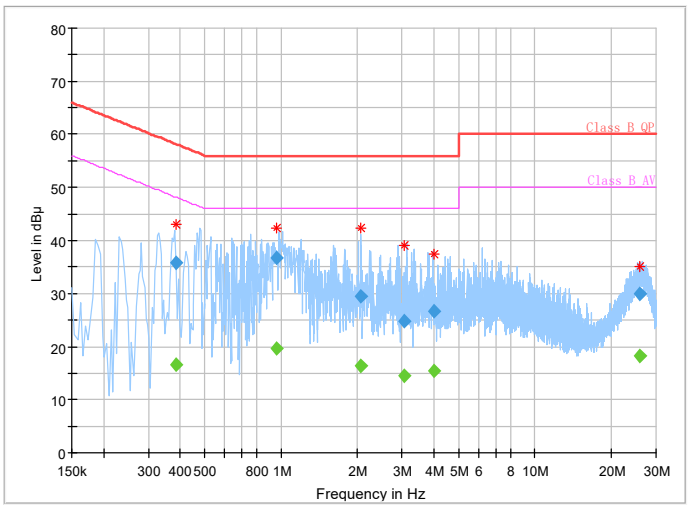
CONDUCTED WORST-CASE DATA:

Frequency Range	150KHz ~ 30MHz	**Detector Function & Resolution Bandwidth**	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120Vac, 60Hz	**Environmental Conditions**	26deg. C, 51%RH
Tested By	Carl Xie		

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.388000	---	16.71	48.11	31.39	L1	ON	9.7
0.388000	35.85	---	58.11	22.26	L1	ON	9.7
0.956000	---	19.66	46.00	26.34	L1	ON	9.7
0.956000	36.61	---	56.00	19.39	L1	ON	9.7
2.072000	---	16.34	46.00	29.66	L1	ON	9.7
2.072000	29.43	---	56.00	26.57	L1	ON	9.7
3.060000	---	14.41	46.00	31.59	L1	ON	9.7
3.060000	24.76	---	56.00	31.24	L1	ON	9.7
4.012000	---	15.32	46.00	30.68	L1	ON	9.7
4.012000	26.62	---	56.00	29.38	L1	ON	9.7
25.884000	---	18.17	50.00	31.83	L1	ON	9.8
25.884000	29.88	---	60.00	30.12	L1	ON	9.8

REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Limit value -Emission level
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.

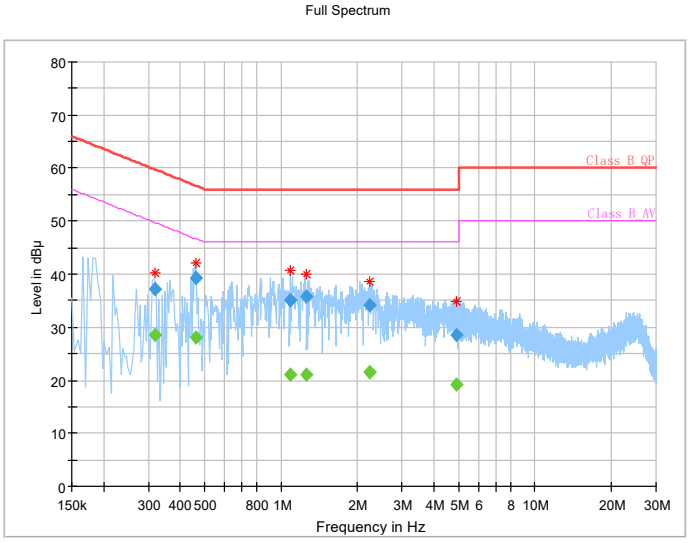
Full Spectrum



Frequency Range	150KHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120Vac, 60Hz	Environmental Conditions	26deg. C, 51%RH
Tested By	Carl Xie		

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.320000	---	28.46	49.71	21.25	N	ON	9.7
0.320000	37.25	---	59.71	22.45	N	ON	9.7
0.460000	---	28.09	46.69	18.60	N	ON	9.7
0.460000	39.21	---	56.69	17.48	N	ON	9.7
1.084000	---	21.00	46.00	25.00	N	ON	9.8
1.084000	35.06	---	56.00	20.94	N	ON	9.8
1.252000	---	21.07	46.00	24.93	N	ON	9.8
1.252000	35.76	---	56.00	20.24	N	ON	9.8
2.228000	---	21.44	46.00	24.56	N	ON	9.8
2.228000	34.11	---	56.00	21.89	N	ON	9.8
4.900000	---	19.19	46.00	26.81	N	ON	9.8
4.900000	28.58	---	56.00	27.42	N	ON	9.8

REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Limit value -Emission level
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.



3.2 RADIATED EMISSION MEASUREMENT

3.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

FREQUENCIES (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
Above 960	500	3

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

3.2.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
3m Semi-anechoic Chamber	ETS-LINDGREN	9m*6m*6m	Euroshieldpn-CT0001143-1216	May. 19,20	May. 18,23
Bilog Antenna	ETS-LINDGREN	3143B	00161965	Mar. 06,22	Mar. 05,23
Horn Antenna	ETS-LINDGREN	3117	00168692	Mar. 06,22	Mar. 05,23
Horn Antenna (18GHz-40GHz)	N/A	QWH-SL-18-40-K-SG/QMS-00361	15433	Aug. 27, 22	Aug. 26, 23
Test Software	E3	V 9.160323	N/A	N/A	N/A
Test Software	JS1120-3	3.2.06	N/A	N/A	N/A
10dB Attenuator	JFW/USA	50HF-010-SMA	1505	Jun. 02,22	Jun. 01,23
MXE EMI Receiver	KEYSIGHT	N9038A-544	MY54450026	Feb. 21,22	Feb. 20,23
Signal Pre-Amplifier	EMSI	EMC 9135	980249	May.12,22	May.11,23
Signal Pre-Amplifier	EMSI	EMC 012645B	980257	May.12,22	May.11,23
Signal Pre-Amplifier	EMSI	EMC 184045B	980259	Feb. 21,22	Feb.20,23
DC Source	Kikusui/JP	PMX18-5A	0000001	Aug. 24,22	Aug. 23,23
Power Meter	Anritsu	ML2495A	1506002	Feb. 22,22	Feb. 21,23
Power Sensor	Anritsu	MA2411B	1339352	May. 14,22	May. 13,23
Loop Antenna	Schwarzbeck	FMZB 1519B	00173	Sep. 04,22	Sep. 03,23

NOTE: 1. The calibration interval of the above test instruments is 12 months or 36 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

2. The test was performed in 3m Chamber.

3. The FCC Site Registration No. is 525120; The Designation No. is CN1171.

3.2.3 TEST PROCEDURES

a. The EUT was placed on the top of a rotating table 0.8 meters (for below 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meter chamber room for test. 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. The antenna is a broadband antenna, and its 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.

d. 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 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 Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, For battery operated equipment, the equipment tests shall be perform using fresh batteries. The turntable was rotated to maximize the emission level.

Note:

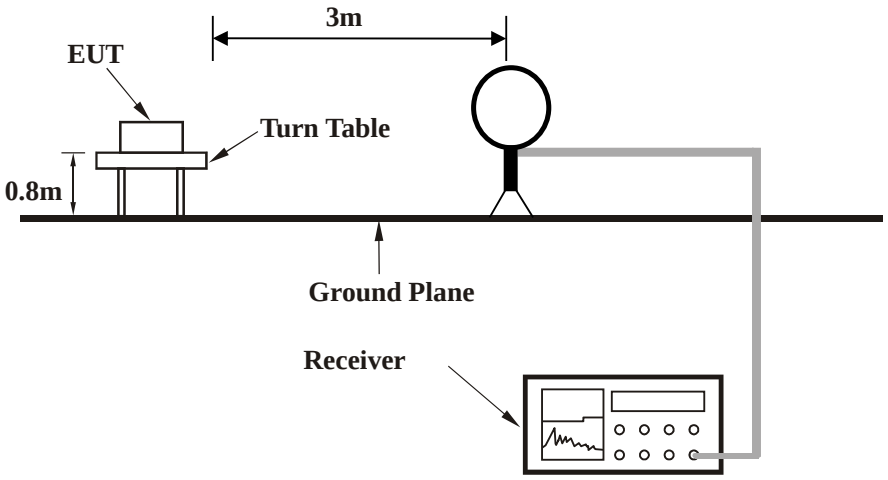
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 3MHz for RMS Average (Duty cycle < 98%) for Average detection (AV) at frequency above 1GHz, then the measurement results was added to a correction factor (10 log(1/duty cycle)).
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz (Duty cycle ≥ 98%) for Average detection (AV) at frequency above 1GHz.
5. All modes of operation were investigated and the worst-case emissions are reported.

3.2.4 DEVIATION FROM TEST STANDARD

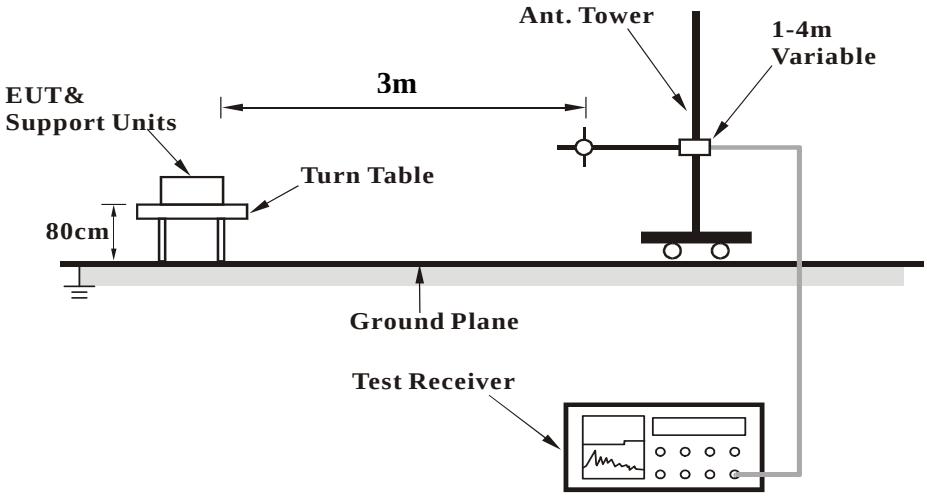
No deviation

3.2.5 TEST SETUP

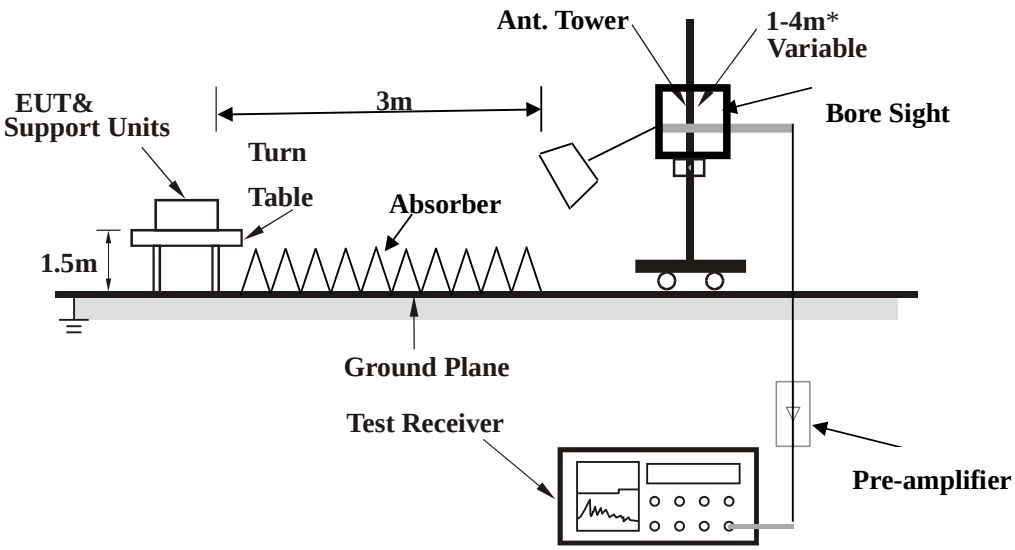
<Frequency Range 9KHz~30MHz >



< Frequency Range 30MHz~1GHz >



<Frequency Range above 1GHz>



Note: Above 1G is a directional antenna

Depends on the EUT height and the antenna 3dB beamwidth both, refer to section 7.3 of CISPR 16-2-3.

For the actual test configuration, please refer to the attached file (Test Setup Photo).

3.2.6 EUT OPERATING CONDITIONS

a. Set the EUT under full load condition and placed them on a testing table.

b. Set the transmitter part of EUT under transmission condition continuously at specific channel frequency.

c. The necessary accessories enable the EUT in full functions.

3.2.7 TEST RESULTS

NOTE ：The 9K~30MHz amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required in the report.

BELOW 1GHz WORST-CASE DATA:

30 MHz – 1GHz data:

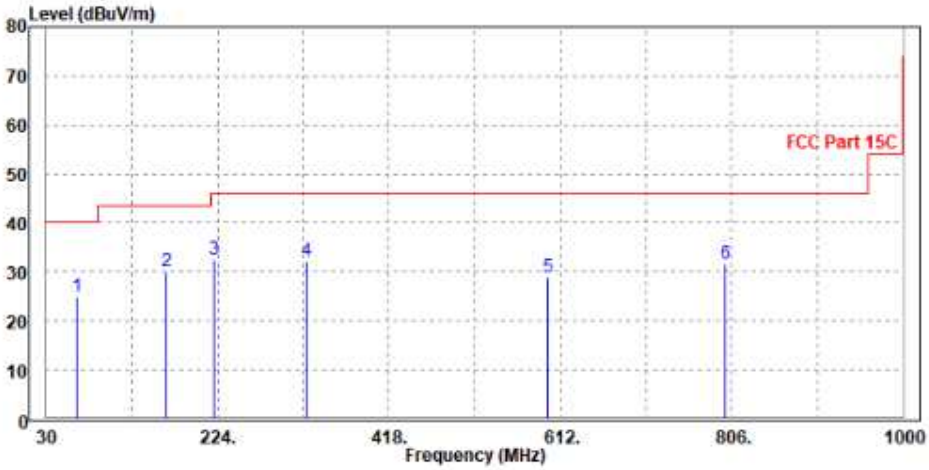
802.11ax (40MHz) (RU484):

CHANNEL	TX Channel 3	**DETECTOR FUNCTION**	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
63.950	24.97	52.86	40.00	-15.03	8.61	0.45	36.95	100	360	QP
165.800	30.07	54.81	43.50	-13.43	11.05	0.68	36.47	100	360	QP
220.120	32.55	55.87	46.00	-13.45	12.19	0.77	36.28	100	360	QP
323.910	32.17	52.99	46.00	-13.83	14.53	0.95	36.30	100	360	QP
598.420	28.94	44.76	46.00	-17.06	19.67	1.36	36.85	100	360	QP
799.210	31.54	44.77	46.00	-14.46	22.39	1.58	37.20	100	360	QP

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.

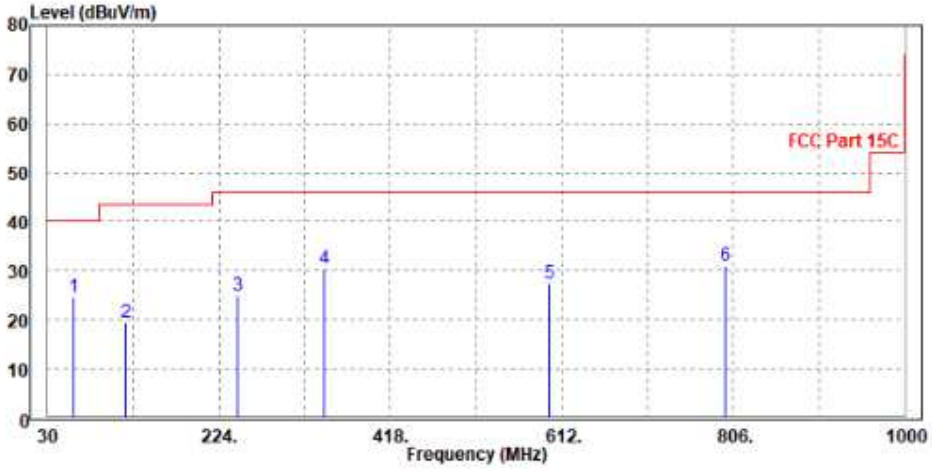


CHANNEL	TX Channel 3	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
59.100	24.50	52.31	40.00	-15.50	8.70	0.44	36.95	100	0	QP
118.270	19.56	47.16	43.50	-23.94	8.55	0.58	36.73	100	0	QP
245.340	25.07	48.03	46.00	-20.93	12.50	0.82	36.28	100	0	QP
342.340	30.42	50.80	46.00	-15.58	14.97	0.98	36.33	100	0	QP
598.420	27.53	43.45	46.00	-18.47	19.57	1.36	36.85	100	0	QP
797.270	30.92	44.97	46.00	-15.08	21.57	1.58	37.20	100	0	QP

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.



ABOVE 1GHz WORST-CASE DATA:

Note: 1. For radiated emissions testing，the full testing range of different modes have been scanned，only the worst case harmonic data is reported in the sheet.

2. All other emissions were greater than 20dB below the limit was not recorded

802.11b:

CHANNEL	TX Channel 1	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390.000	49.63	57.67	74.00	-24.37	31.75	6.18	45.97	175	35	Peak
2390.000	43.93	51.97	54.00	-10.07	31.75	6.18	45.97	175	35	Average
2412.000	107.21	115.14	/	/	31.82	6.21	45.96	175	35	Peak
2412.000	106.03	113.96	/	/	31.82	6.21	45.96	175	35	Average
2483.500	51.69	59.26	74.00	-22.31	32.05	6.31	45.93	175	35	Peak
2483.500	44.02	51.59	54.00	-9.98	32.05	6.31	45.93	175	35	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390.000	50.67	58.32	74.00	-23.33	32.14	6.18	45.97	100	315	Peak
2390.000	44.08	51.73	54.00	-9.92	32.14	6.18	45.97	100	315	Average
2412.000	103.71	111.27	/	/	32.19	6.21	45.96	100	315	Peak
2412.000	101.64	109.20	/	/	32.19	6.21	45.96	100	315	Average
2483.500	50.88	58.14	74.00	-23.12	32.36	6.31	45.93	100	315	Peak
2483.500	43.78	51.04	54.00	-10.22	32.36	6.31	45.93	100	315	Average

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2412MHz: Fundamental frequency.

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390.000	51.49	59.53	74.00	-22.51	31.75	6.18	45.97	175	35	Peak
2390.000	43.42	51.46	54.00	-10.58	31.75	6.18	45.97	175	35	Average
2437.000	105.62	113.43	/	/	31.90	6.24	45.95	175	35	Peak
2437.000	104.14	111.95	/	/	31.90	6.24	45.95	175	35	Average
2483.500	49.88	57.45	74.00	-24.12	32.05	6.31	45.93	175	35	Peak
2483.500	43.38	50.95	54.00	-10.62	32.05	6.31	45.93	175	35	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390.000	51.15	58.80	74.00	-22.85	32.14	6.18	45.97	100	320	Peak
2390.000	43.77	51.42	54.00	-10.23	32.14	6.18	45.97	100	320	Average
2437.000	101.21	108.67	/	/	32.25	6.24	45.95	100	320	Peak
2437.000	99.26	106.72	/	/	32.25	6.24	45.95	100	320	Average
2483.500	51.02	58.28	74.00	-22.98	32.36	6.31	45.93	100	320	Peak
2483.500	43.82	51.08	54.00	-10.18	32.36	6.31	45.93	100	320	Average

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2437MHz: Fundamental frequency.

CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390.000	50.89	58.93	74.00	-23.11	31.75	6.18	45.97	190	35	Peak
2390.000	43.23	51.27	54.00	-10.77	31.75	6.18	45.97	190	35	Average
2462.000	106.48	114.16	/	/	31.98	6.28	45.94	190	35	Peak
2462.000	105.08	112.76	/	/	31.98	6.28	45.94	190	35	Average
2483.500	51.66	59.23	74.00	-22.34	32.05	6.31	45.93	190	35	Peak
2483.500	43.67	51.24	54.00	-10.33	32.05	6.31	45.93	190	35	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390.000	52.23	59.88	74.00	-21.77	32.14	6.18	45.97	100	280	Peak
2390.000	43.53	51.18	54.00	-10.47	32.14	6.18	45.97	100	280	Average
2462.000	104.15	111.50	/	/	32.31	6.28	45.94	100	280	Peak
2462.000	101.74	109.09	/	/	32.31	6.28	45.94	100	280	Average
2483.500	52.11	59.37	74.00	-21.89	32.36	6.31	45.93	100	280	Peak
2483.500	44.79	52.05	54.00	-9.21	32.36	6.31	45.93	100	280	Average

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2462MHz: Fundamental frequency.

802.11g

CHANNEL	TX Channel 1	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	**EMISSION LEVEL (dBuV/m)**	**READ LEVEL (dBuV)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA FACTOR (dB /m)**	**CABLE LOSS (dB)**	**PREAMP FACTOR (dB)**	**ANTENNA HEIGHT (cm)**	**TABLE ANGLE (Degree)**	**REMARK**
2390.000	52.19	60.23	74.00	-21.81	31.75	6.18	45.97	190	35	Peak
2390.000	43.44	51.48	54.00	-10.56	31.75	6.18	45.97	190	35	Average
2412.000	108.57	116.50	/	/	31.82	6.21	45.96	190	35	Peak
2412.000	105.03	112.96	/	/	31.82	6.21	45.96	190	35	Average
2483.500	51.52	59.09	74.00	-22.48	32.05	6.31	45.93	190	35	Peak
2483.500	43.38	50.95	54.00	-10.62	32.05	6.31	45.93	190	35	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	**EMISSION LEVEL (dBuV/m)**	**READ LEVEL (dBuV)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA FACTOR (dB /m)**	**CABLE LOSS (dB)**	**PREAMP FACTOR (dB)**	**ANTENNA HEIGHT (cm)**	**TABLE ANGLE (Degree)**	**REMARK**
2390.000	51.24	58.89	74.00	-22.76	32.14	6.18	45.97	100	280	Peak
2390.000	44.10	51.75	54.00	-9.90	32.14	6.18	45.97	100	280	Average
2412.000	103.34	110.90	/	/	32.19	6.21	45.96	100	280	Peak
2412.000	99.89	107.45	/	/	32.19	6.21	45.96	100	280	Average
2483.500	51.61	58.87	74.00	-22.39	32.36	6.31	45.93	100	280	Peak
2483.500	44.24	51.50	54.00	-9.76	32.36	6.31	45.93	100	280	Average

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2412MHz: Fundamental frequency.

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390.000	50.89	58.93	74.00	-23.11	31.75	6.18	45.97	190	35	Peak
2390.000	43.50	51.54	54.00	-10.50	31.75	6.18	45.97	190	35	Average
2437.000	106.74	114.55	/	/	31.90	6.24	45.95	190	35	Peak
2437.000	102.28	110.09	/	/	31.90	6.24	45.95	190	35	Average
2483.500	51.69	59.26	74.00	-22.31	32.05	6.31	45.93	190	35	Peak
2483.500	43.82	51.39	54.00	-10.18	32.05	6.31	45.93	190	35	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390.000	50.96	58.61	74.00	-23.04	32.14	6.18	45.97	100	280	Peak
2390.000	44.53	52.18	54.00	-9.47	32.14	6.18	45.97	100	280	Average
2437.000	103.22	110.68	/	/	32.25	6.24	45.95	100	280	Peak
2437.000	98.59	106.05	/	/	32.25	6.24	45.95	100	280	Average
2483.500	51.47	58.73	74.00	-22.53	32.36	6.31	45.93	100	280	Peak
2483.500	45.07	52.33	54.00	-8.93	32.36	6.31	45.93	100	280	Average

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
   2. 2437MHz: Fundamental frequency.

CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390.000	51.06	59.10	74.00	-22.94	31.75	6.18	45.97	190	35	Peak
2390.000	43.93	51.97	54.00	-10.07	31.75	6.18	45.97	190	35	Average
2462.000	109.21	116.89	/	/	31.98	6.28	45.94	190	35	Peak
2462.000	103.93	111.61	/	/	31.98	6.28	45.94	190	35	Average
2483.500	52.31	59.88	74.00	-21.69	32.05	6.31	45.93	190	35	Peak
2483.500	43.89	51.46	54.00	-10.11	32.05	6.31	45.93	190	35	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390.000	50.75	58.40	74.00	-23.25	32.14	6.18	45.97	100	280	Peak
2390.000	44.22	51.87	54.00	-9.78	32.14	6.18	45.97	100	280	Average
2462.000	104.30	111.65	/	/	32.31	6.28	45.94	100	280	Peak
2462.000	100.19	107.54	/	/	32.31	6.28	45.94	100	280	Average
2483.500	52.42	59.68	74.00	-21.58	32.36	6.31	45.93	100	280	Peak
2483.500	44.15	51.41	54.00	-9.85	32.36	6.31	45.93	100	280	Average

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2462MHz: Fundamental frequency.

802.11n (20MHz)

CHANNEL	TX Channel 1	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	**EMISSION LEVEL (dBuV/m)**	**READ LEVEL (dBuV)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA FACTOR (dB /m)**	**CABLE LOSS (dB)**	**PREAMP FACTOR (dB)**	**ANTENNA HEIGHT (cm)**	**TABLE ANGLE (Degree)**	**REMARK**
2390.000	53.88	61.92	74.00	-20.12	31.75	6.18	45.97	175	35	Peak
2390.000	44.89	52.93	54.00	-9.11	31.75	6.18	45.97	175	35	Average
2412.000	105.74	113.67	/	/	31.82	6.21	45.96	175	35	Peak
2412.000	98.49	106.42	/	/	31.82	6.21	45.96	175	35	Average
2483.500	52.61	60.18	74.00	-21.39	32.05	6.31	45.93	175	35	Peak
2483.500	43.79	51.36	54.00	-10.21	32.05	6.31	45.93	175	35	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	**EMISSION LEVEL (dBuV/m)**	**READ LEVEL (dBuV)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA FACTOR (dB /m)**	**CABLE LOSS (dB)**	**PREAMP FACTOR (dB)**	**ANTENNA HEIGHT (cm)**	**TABLE ANGLE (Degree)**	**REMARK**
2390.000	51.22	58.87	74.00	-22.78	32.14	6.18	45.97	100	295	Peak
2390.000	44.21	51.86	54.00	-9.79	32.14	6.18	45.97	100	295	Average
2412.000	101.22	108.78	/	/	32.19	6.21	45.96	100	295	Peak
2412.000	93.48	101.04	/	/	32.19	6.21	45.96	100	295	Average
2483.500	51.44	58.70	74.00	-22.56	32.36	6.31	45.93	100	295	Peak
2483.500	43.76	51.02	54.00	-10.24	32.36	6.31	45.93	100	295	Average

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2412MHz: Fundamental frequency.

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390.000	50.45	58.49	74.00	-23.55	31.75	6.18	45.97	175	35	Peak
2390.000	44.25	52.29	54.00	-9.75	31.75	6.18	45.97	175	35	Average
2437.000	103.89	111.70	/	/	31.90	6.24	45.95	175	35	Peak
2437.000	96.47	104.28	/	/	31.90	6.24	45.95	175	35	Average
2483.500	52.05	59.62	74.00	-21.95	32.05	6.31	45.93	175	35	Peak
2483.500	44.19	51.76	54.00	-9.81	32.05	6.31	45.93	175	35	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390.000	51.45	59.10	74.00	-22.55	32.14	6.18	45.97	100	280	Peak
2390.000	44.06	51.71	54.00	-9.94	32.14	6.18	45.97	100	280	Average
2437.000	100.64	108.10	/	/	32.25	6.24	45.95	100	280	Peak
2437.000	92.48	99.94	/	/	32.25	6.24	45.95	100	280	Average
2483.500	52.73	59.99	74.00	-21.27	32.36	6.31	45.93	100	280	Peak
2483.500	43.73	50.99	54.00	-10.27	32.36	6.31	45.93	100	280	Average

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
   2. 2437MHz: Fundamental frequency.

CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390.000	50.82	58.86	74.00	-23.18	31.75	6.18	45.97	175	35	Peak
2390.000	43.01	51.05	54.00	-10.99	31.75	6.18	45.97	175	35	Average
2462.000	104.46	112.14	/	/	31.98	6.28	45.94	175	35	Peak
2462.000	97.15	104.83	/	/	31.98	6.28	45.94	175	35	Average
2483.500	51.67	59.24	74.00	-22.33	32.05	6.31	45.93	175	35	Peak
2483.500	45.07	52.64	54.00	-8.93	32.05	6.31	45.93	175	35	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390.000	52.06	59.71	74.00	-21.94	32.14	6.18	45.97	100	280	Peak
2390.000	43.61	51.26	54.00	-10.39	32.14	6.18	45.97	100	280	Average
2462.000	100.39	107.74	/	/	32.31	6.28	45.94	100	280	Peak
2462.000	93.56	100.91	/	/	32.31	6.28	45.94	100	280	Average
2483.500	52.05	59.31	74.00	-21.95	32.36	6.31	45.93	100	280	Peak
2483.500	45.20	52.46	54.00	-8.80	32.36	6.31	45.93	100	280	Average

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2462MHz: Fundamental frequency.

802.11n (40MHz)

CHANNEL	TX Channel 3	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390.000	56.57	64.61	74.00	-17.43	31.75	6.18	45.97	175	35	Peak
2390.000	47.41	55.45	54.00	-6.59	31.75	6.18	45.97	175	35	Average
2422.000	103.70	111.59	/	/	31.85	6.22	45.96	175	35	Peak
2422.000	95.77	103.66	/	/	31.85	6.22	45.96	175	35	Average
2483.500	51.59	59.16	74.00	-22.41	32.05	6.31	45.93	175	35	Peak
2483.500	43.14	50.71	54.00	-10.86	32.05	6.31	45.93	175	35	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390.000	50.90	58.55	74.00	-23.10	32.14	6.18	45.97	100	280	Peak
2390.000	44.48	52.13	54.00	-9.52	32.14	6.18	45.97	100	280	Average
2422.000	98.43	105.96	/	/	32.21	6.22	45.96	100	280	Peak
2422.000	91.23	98.76	/	/	32.21	6.22	45.96	100	280	Average
2483.500	52.43	59.69	74.00	-21.57	32.36	6.31	45.93	100	280	Peak
2483.500	44.44	51.70	54.00	-9.56	32.36	6.31	45.93	100	280	Average

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2422MHz: Fundamental frequency.

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390.000	51.18	59.22	74.00	-22.82	31.75	6.18	45.97	175	35	Peak
2390.000	42.80	50.84	54.00	-11.20	31.75	6.18	45.97	175	35	Average
2437.000	101.55	109.36	/	/	31.90	6.24	45.95	175	35	Peak
2437.000	94.74	102.55	/	/	31.90	6.24	45.95	175	35	Average
2483.500	52.34	59.91	74.00	-21.66	32.05	6.31	45.93	175	35	Peak
2483.500	45.41	52.98	54.00	-8.59	32.05	6.31	45.93	175	35	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390.000	52.60	60.25	74.00	-21.40	32.14	6.18	45.97	100	280	Peak
2390.000	44.67	52.32	54.00	-9.33	32.14	6.18	45.97	100	280	Average
2437.000	99.10	106.56	/	/	32.25	6.24	45.95	100	280	Peak
2437.000	91.71	99.17	/	/	32.25	6.24	45.95	100	280	Average
2483.500	51.38	58.64	74.00	-22.62	32.36	6.31	45.93	100	280	Peak
2483.500	44.48	51.74	54.00	-9.52	32.36	6.31	45.93	100	280	Average

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
   2. 2437MHz: Fundamental frequency.

CHANNEL	TX Channel 9	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390.000	50.71	58.75	74.00	-23.29	31.75	6.18	45.97	175	35	Peak
2390.000	43.82	51.86	54.00	-10.18	31.75	6.18	45.97	175	35	Average
2452.000	102.06	109.80	/	/	31.95	6.26	45.95	175	35	Peak
2452.000	95.03	102.77	/	/	31.95	6.26	45.95	175	35	Average
2483.500	54.61	62.18	74.00	-19.39	32.05	6.31	45.93	175	35	Peak
2483.500	47.13	54.70	54.00	-6.87	32.05	6.31	45.93	175	35	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390.000	51.68	59.33	74.00	-22.32	32.14	6.18	45.97	100	280	Peak
2390.000	44.18	51.83	54.00	-9.82	32.14	6.18	45.97	100	280	Average
2452.000	97.40	104.81	/	/	32.28	6.26	45.95	100	280	Peak
2452.000	90.97	98.38	/	/	32.28	6.26	45.95	100	280	Average
2483.500	52.67	59.93	74.00	-21.33	32.36	6.31	45.93	100	280	Peak
2483.500	44.96	52.22	54.00	-9.04	32.36	6.31	45.93	100	280	Average

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2452MHz: Fundamental frequency.

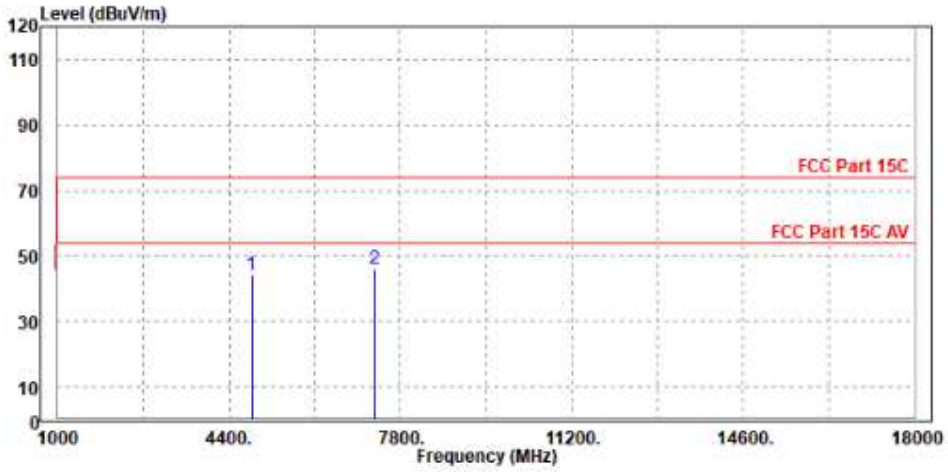
Worst case harmonic:

802.11n (40MHz)

CHANNEL	TX Channel 3	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

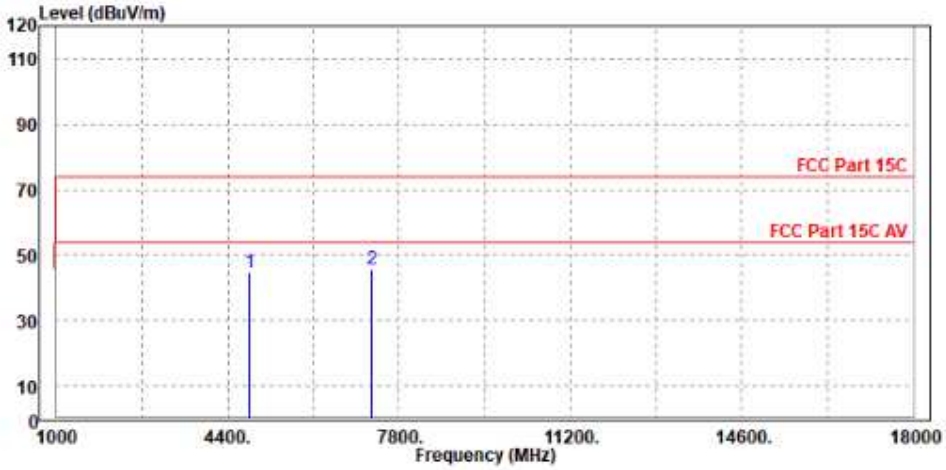
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

		Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
		MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m		
1		4844.000	44.07	45.45	74.00	-29.93	-1.38	Peak	Horizontal
2	PP	7273.000	46.07	44.26	74.00	-27.93	1.81	Peak	Horizontal



ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m		
1	4842.000	44.66	45.84	74.00	-29.34	-1.18	Peak	Vertical
2 PP	7266.000	45.65	43.76	74.00	-28.35	1.89	Peak	Vertical



REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2422MHz: Fundamental frequency.
3. For frequency above 18GHz, the emission was tested 20db below the limit so the data not recorded in the sheet.

2.4G WIFI-RU

802.11ax (20MHz) (RU242):

CHANNEL	TX Channel 1	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	**EMISSION LEVEL (dBuV/m)**	**READ LEVEL (dBuV)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA FACTOR (dB /m)**	**CABLE LOSS (dB)**	**PREAMP FACTOR (dB)**	**ANTENNA HEIGHT (cm)**	**TABLE ANGLE (Degree)**	**REMARK**
2390.000	51.04	59.08	74.00	-22.96	31.75	6.18	45.97	100	235	Peak
2390.000	43.73	51.77	54.00	-10.27	31.75	6.18	45.97	100	235	Average
2412.000	97.87	105.80	/	/	31.82	6.21	45.96	100	235	Peak
2412.000	87.53	95.46	/	/	31.82	6.21	45.96	100	235	Average
2483.500	51.48	59.05	74.00	-22.52	32.05	6.31	45.93	100	235	Peak
2483.500	43.76	51.33	54.00	-10.24	32.05	6.31	45.93	100	235	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	**EMISSION LEVEL (dBuV/m)**	**READ LEVEL (dBuV)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA FACTOR (dB /m)**	**CABLE LOSS (dB)**	**PREAMP FACTOR (dB)**	**ANTENNA HEIGHT (cm)**	**TABLE ANGLE (Degree)**	**REMARK**
2390.000	52.42	60.07	74.00	-21.58	32.14	6.18	45.97	125	305	Peak
2390.000	43.90	51.55	54.00	-10.10	32.14	6.18	45.97	125	305	Average
2412.000	102.01	109.57	/	/	32.19	6.21	45.96	125	305	Peak
2412.000	91.59	99.15	/	/	32.19	6.21	45.96	125	305	Average
2483.500	51.60	58.86	74.00	-22.40	32.36	6.31	45.93	125	305	Peak
2483.500	44.39	51.65	54.00	-9.61	32.36	6.31	45.93	125	305	Average

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2412MHz: Fundamental frequency.

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390.000	52.00	60.04	74.00	-22.00	31.75	6.18	45.97	100	210	Peak
2390.000	43.48	51.52	54.00	-10.52	31.75	6.18	45.97	100	210	Average
2437.000	97.41	105.22	/	/	31.90	6.24	45.95	100	210	Peak
2437.000	86.53	94.34	/	/	31.90	6.24	45.95	100	210	Average
2483.500	52.04	59.61	74.00	-21.96	32.05	6.31	45.93	100	210	Peak
2483.500	43.70	51.27	54.00	-10.30	32.05	6.31	45.93	100	210	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390.000	51.02	58.67	74.00	-22.98	32.14	6.18	45.97	100	305	Peak
2390.000	44.21	51.86	54.00	-9.79	32.14	6.18	45.97	100	305	Average
2437.000	99.64	107.10	/	/	32.25	6.24	45.95	100	305	Peak
2437.000	89.55	97.01	/	/	32.25	6.24	45.95	100	305	Average
2483.500	52.17	59.43	74.00	-21.83	32.36	6.31	45.93	100	305	Peak
2483.500	44.67	51.93	54.00	-9.33	32.36	6.31	45.93	100	305	Average

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
   2. 2437MHz: Fundamental frequency.

CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390.000	51.12	59.16	74.00	-22.88	31.75	6.18	45.97	100	210	Peak
2390.000	44.00	52.04	54.00	-10.00	31.75	6.18	45.97	100	210	Average
2462.000	96.35	104.03	/	/	31.98	6.28	45.94	100	210	Peak
2462.000	86.41	94.09	/	/	31.98	6.28	45.94	100	210	Average
2483.500	51.86	59.43	74.00	-22.14	32.05	6.31	45.93	100	210	Peak
2483.500	43.98	51.55	54.00	-10.02	32.05	6.31	45.93	100	210	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390.000	51.39	59.04	74.00	-22.61	32.14	6.18	45.97	128	305	Peak
2390.000	44.08	51.73	54.00	-9.92	32.14	6.18	45.97	128	305	Average
2462.000	100.34	107.69	/	/	32.31	6.28	45.94	128	305	Peak
2462.000	89.87	97.22	/	/	32.31	6.28	45.94	128	305	Average
2483.500	52.39	59.65	74.00	-21.61	32.36	6.31	45.93	128	305	Peak
2483.500	44.30	51.56	54.00	-9.70	32.36	6.31	45.93	128	305	Average

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2462MHz: Fundamental frequency.

802.11ax (40MHz) (RU484):

CHANNEL	TX Channel 3	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390.000	51.07	59.11	74.00	-22.93	31.75	6.18	45.97	100	210	Peak
2390.000	43.72	51.76	54.00	-10.28	31.75	6.18	45.97	100	210	Average
2422.000	93.47	101.36	/	/	31.85	6.22	45.96	100	210	Peak
2422.000	83.38	91.27	/	/	31.85	6.22	45.96	100	210	Average
2483.500	50.97	58.54	74.00	-23.03	32.05	6.31	45.93	100	210	Peak
2483.500	43.84	51.41	54.00	-10.16	32.05	6.31	45.93	100	210	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390.000	50.86	58.51	74.00	-23.14	32.14	6.18	45.97	125	305	Peak
2390.000	45.00	52.65	54.00	-9.00	32.14	6.18	45.97	125	305	Average
2422.000	98.26	105.79	/	/	32.21	6.22	45.96	125	305	Peak
2422.000	88.72	96.25	/	/	32.21	6.22	45.96	125	305	Average
2483.500	52.34	59.60	74.00	-21.66	32.36	6.31	45.93	125	305	Peak
2483.500	44.71	51.97	54.00	-9.29	32.36	6.31	45.93	125	305	Average

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2422MHz: Fundamental frequency.

802.11ax (40MHz) (RU484):

CHANNEL	TX Channel 6	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390.000	52.16	60.20	74.00	-21.84	31.75	6.18	45.97	100	210	Peak
2390.000	43.69	51.73	54.00	-10.31	31.75	6.18	45.97	100	210	Average
2437.000	93.32	101.13	/	/	31.90	6.24	45.95	100	210	Peak
2437.000	83.57	91.38	/	/	31.90	6.24	45.95	100	210	Average
2483.500	51.26	58.83	74.00	-22.74	32.05	6.31	45.93	100	210	Peak
2483.500	44.48	52.05	54.00	-9.52	32.05	6.31	45.93	100	210	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390.000	51.18	58.83	74.00	-22.82	32.14	6.18	45.97	105	305	Peak
2390.000	43.80	51.45	54.00	-10.20	32.14	6.18	45.97	105	305	Average
2437.000	97.02	104.48	/	/	32.25	6.24	45.95	105	305	Peak
2437.000	87.73	95.19	/	/	32.25	6.24	45.95	105	305	Average
2483.500	51.54	58.80	74.00	-22.46	32.36	6.31	45.93	105	305	Peak
2483.500	44.60	51.86	54.00	-9.40	32.36	6.31	45.93	105	305	Average

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2437MHz: Fundamental frequency.

802.11ax (40MHz) (RU484):

CHANNEL	TX Channel 9	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390.000	50.82	58.86	74.00	-23.18	31.75	6.18	45.97	100	210	Peak
2390.000	43.80	51.84	54.00	-10.20	31.75	6.18	45.97	100	210	Average
2452.000	94.49	102.23	/	/	31.95	6.26	45.95	100	210	Peak
2452.000	84.10	91.84	/	/	31.95	6.26	45.95	100	210	Average
2483.500	51.44	59.01	74.00	-22.56	32.05	6.31	45.93	100	210	Peak
2483.500	44.10	51.67	54.00	-9.90	32.05	6.31	45.93	100	210	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390.000	51.37	59.02	74.00	-22.63	32.14	6.18	45.97	100	305	Peak
2390.000	44.37	52.02	54.00	-9.63	32.14	6.18	45.97	100	305	Average
2452.000	96.76	104.17	/	/	32.28	6.26	45.95	100	305	Peak
2452.000	87.13	94.54	/	/	32.28	6.26	45.95	100	305	Average
2483.500	52.52	59.78	74.00	-21.48	32.36	6.31	45.93	100	305	Peak
2483.500	44.82	52.08	54.00	-9.18	32.36	6.31	45.93	100	305	Average

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2452MHz: Fundamental frequency.

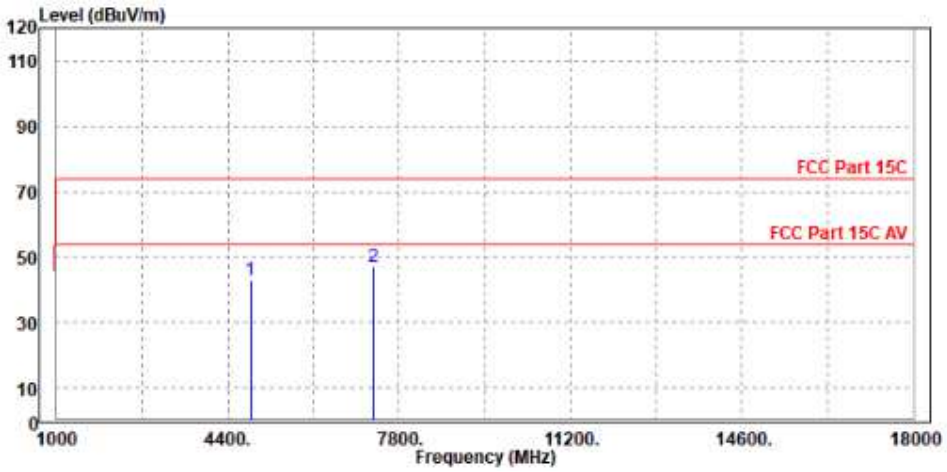
Worst case harmonic:

802.11ax (40MHz) (RU484):

CHANNEL	TX Channel 3	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

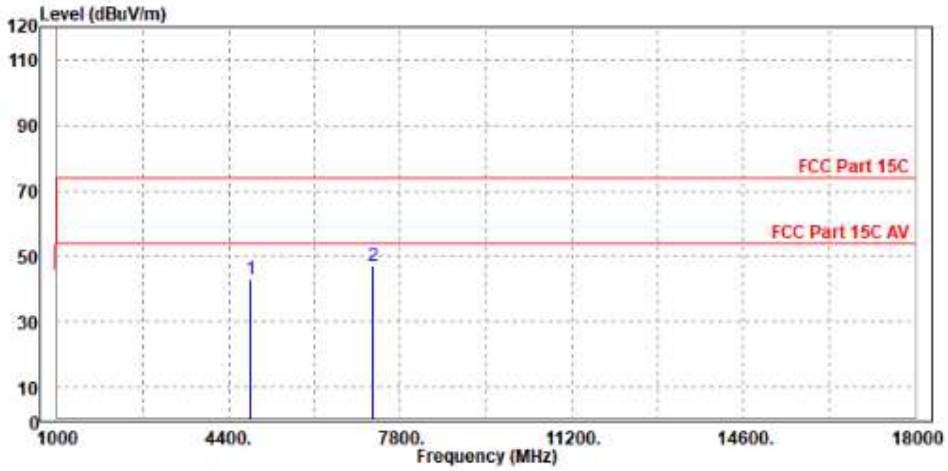
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m		
1	4844.000	43.04	44.42	74.00	-30.96	-1.38	Peak	Horizontal
2 PP	7273.000	46.98	45.17	74.00	-27.02	1.81	Peak	Horizontal



ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m		
1	4842.000	42.68	43.86	74.00	-31.32	-1.18	Peak	Vertical
2 PP	7266.000	47.12	45.23	74.00	-26.88	1.89	Peak	Vertical



REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2422MHz: Fundamental frequency.
3. For frequency above 18GHz, the emission was tested 20db below the limit so the data not recorded in the sheet.

BELOW 1GHz WORST-CASE DATA:

30 MHz – 1GHz data:

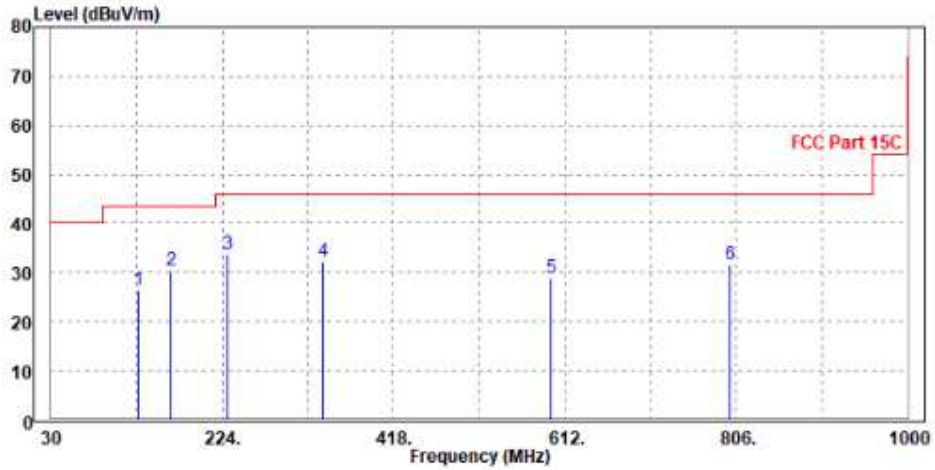
BT-LE _S8

CHANNEL	TX Channel 39	**0DETECTOR FUNCTION**	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
127.970	26.42	53.74	43.50	-17.08	8.76	0.60	36.68	100	360	QP
165.800	30.44	55.18	43.50	-13.06	11.05	0.68	36.47	100	360	QP
229.820	33.67	56.55	46.00	-12.33	12.61	0.79	36.28	100	360	QP
338.460	32.12	52.62	46.00	-13.88	14.85	0.97	36.32	100	360	QP
596.480	28.81	44.65	46.00	-17.19	19.64	1.36	36.84	100	360	QP
799.210	31.55	44.78	46.00	-14.45	22.39	1.58	37.20	100	360	QP

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

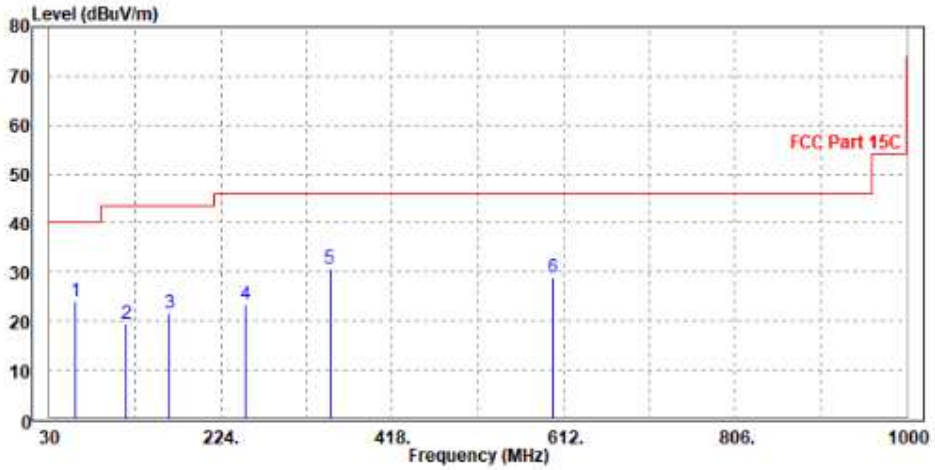


CHANNEL	TX Channel 39	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
59.100	23.89	51.70	40.00	-16.11	8.70	0.44	36.95	100	0	QP
116.330	19.58	47.14	43.50	-23.92	8.61	0.57	36.74	100	0	QP
165.800	21.72	46.52	43.50	-21.78	10.99	0.68	36.47	100	0	QP
251.160	23.53	46.33	46.00	-22.47	12.63	0.84	36.27	100	0	QP
347.190	30.86	51.12	46.00	-15.14	15.09	0.99	36.34	100	0	QP
599.390	28.75	44.65	46.00	-17.25	19.59	1.36	36.85	100	0	QP

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value



ABOVE 1GHz TEST DATA

Note: 1. For radiated emissions testing，the full testing range of different modes have been scanned，only the worst case harmonic data is reported in the sheet.

2. All other emissions were greater than 20dB below the limit was not recorded

BT-LE _1M

CHANNEL	TX Channel 0	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390.000	51.29	59.33	74.00	-22.71	31.75	6.18	45.97	100	190	Peak
2390.000	43.80	51.84	54.00	-10.20	31.75	6.18	45.97	100	190	Average
2402.000	96.98	104.97	/	/	31.79	6.19	45.97	100	190	Peak
2402.000	96.70	104.69	/	/	31.79	6.19	45.97	100	190	Average
2483.500	51.46	59.03	74.00	-22.54	32.05	6.31	45.93	100	190	Peak
2483.500	43.53	51.10	54.00	-10.47	32.05	6.31	45.93	100	190	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390.000	50.87	58.52	74.00	-23.13	32.14	6.18	45.97	135	310	Peak
2390.000	44.46	52.11	54.00	-9.54	32.14	6.18	45.97	135	310	Average
2402.000	100.79	108.41	/	/	32.16	6.19	45.97	135	310	Peak
2402.000	100.51	108.13	/	/	32.16	6.19	45.97	135	310	Average
2483.500	51.48	58.74	74.00	-22.52	32.36	6.31	45.93	135	310	Peak
2483.500	44.13	51.39	54.00	-9.87	32.36	6.31	45.93	135	310	Average

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2402MHz: Fundamental frequency.

CHANNEL	TX Channel 19	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390.000	51.13	59.17	74.00	-22.87	31.75	6.18	45.97	100	190	Peak
2390.000	44.09	52.13	54.00	-9.91	31.75	6.18	45.97	100	190	Average
2440.000	98.90	106.69	/	/	31.91	6.25	45.95	100	190	Peak
2440.000	98.36	106.15	/	/	31.91	6.25	45.95	100	190	Average
2483.500	52.99	60.56	74.00	-21.01	32.05	6.31	45.93	100	190	Peak
2483.500	43.67	51.24	54.00	-10.33	32.05	6.31	45.93	100	190	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390.000	51.48	59.13	74.00	-22.52	32.14	6.18	45.97	135	310	Peak
2390.000	44.19	51.84	54.00	-9.81	32.14	6.18	45.97	135	310	Average
2440.000	101.43	108.87	/	/	32.26	6.25	45.95	135	310	Peak
2440.000	101.14	108.58	/	/	32.26	6.25	45.95	135	310	Average
2483.500	53.04	60.30	74.00	-20.96	32.36	6.31	45.93	135	310	Peak
2483.500	43.96	51.22	54.00	-10.04	32.36	6.31	45.93	135	310	Average

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2440MHz: Fundamental frequency.

CHANNEL	TX Channel 39	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390.000	51.53	59.57	74.00	-22.47	31.75	6.18	45.97	100	0	Peak
2390.000	44.05	52.09	54.00	-9.95	31.75	6.18	45.97	100	0	Average
2480.000	97.34	104.93	/	/	32.04	6.30	45.93	100	0	Peak
2480.000	96.97	104.56	/	/	32.04	6.30	45.93	100	0	Average
2483.500	51.63	59.20	74.00	-22.37	32.05	6.31	45.93	100	0	Peak
2483.500	43.90	51.47	54.00	-10.10	32.05	6.31	45.93	100	0	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390.000	51.80	59.45	74.00	-22.20	32.14	6.18	45.97	130	290	Peak
2390.000	44.08	51.73	54.00	-9.92	32.14	6.18	45.97	130	290	Average
2480.000	100.02	107.30	/	/	32.35	6.30	45.93	130	290	Peak
2480.000	99.65	106.93	/	/	32.35	6.30	45.93	130	290	Average
2483.500	52.06	59.32	74.00	-21.94	32.36	6.31	45.93	130	290	Peak
2483.500	44.70	51.96	54.00	-9.30	32.36	6.31	45.93	130	290	Average

REMARKS:

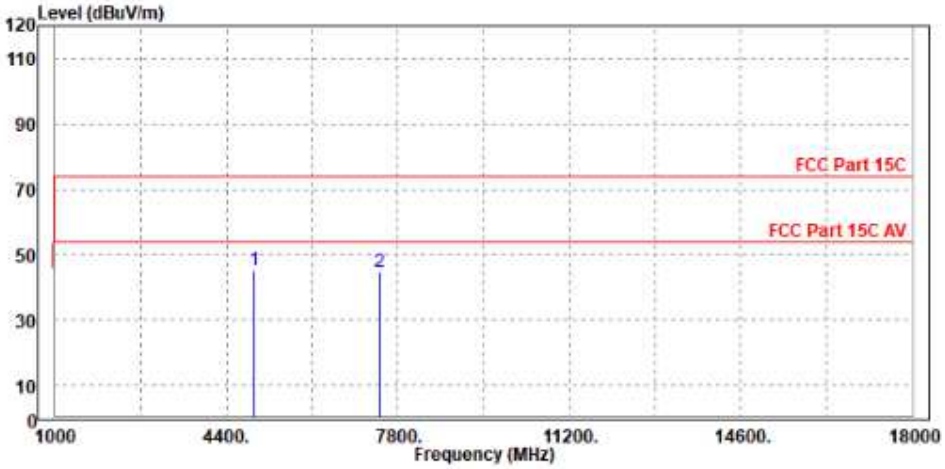
1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2480MHz: Fundamental frequency.

Worst case harmonic:

CHANNEL	TX Channel 39	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

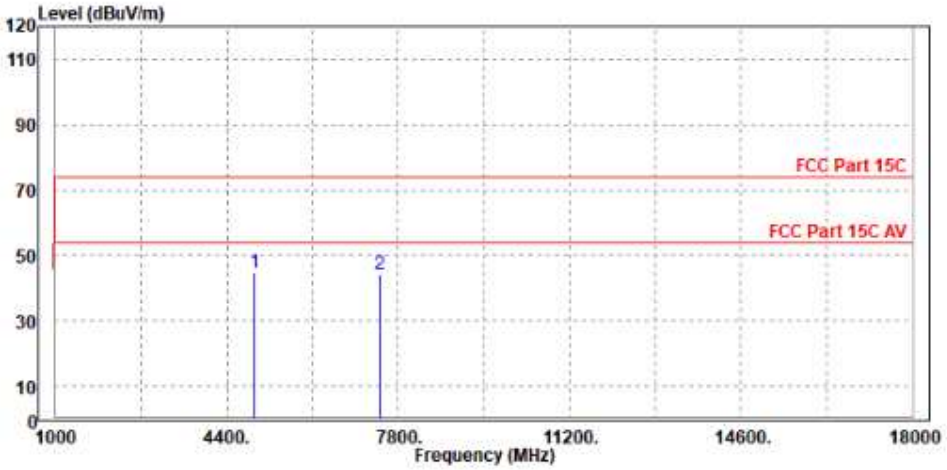
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m		
1 PP	4960.000	45.14	46.33	74.00	-28.86	-1.19	Peak	Horizontal
2	7443.000	44.66	42.68	74.00	-29.34	1.98	Peak	Horizontal



ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m		
1 PP	4961.000	44.77	45.76	74.00	-29.23	-0.99	Peak	Vertical
2	7440.000	44.31	42.30	74.00	-29.69	2.01	Peak	Vertical



REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2480MHz: Fundamental frequency.
3. For frequency above 18GHz, the emission was tested 20db below the limit so the data not recorded in the sheet.

BT-LE _2M

CHANNEL	TX Channel 0	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390.000	51.53	59.57	74.00	-22.47	31.75	6.18	45.97	100	190	Peak
2390.000	44.24	52.28	54.00	-9.76	31.75	6.18	45.97	100	190	Average
2402.000	97.12	105.11	/	/	31.79	6.19	45.97	100	190	Peak
2402.000	95.20	103.19	/	/	31.79	6.19	45.97	100	190	Average
2483.500	51.74	59.31	74.00	-22.26	32.05	6.31	45.93	100	190	Peak
2483.500	44.35	51.92	54.00	-9.65	32.05	6.31	45.93	100	190	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390.000	52.80	60.45	74.00	-21.20	32.14	6.18	45.97	130	290	Peak
2390.000	44.59	52.24	54.00	-9.41	32.14	6.18	45.97	130	290	Average
2402.000	100.95	108.57	/	/	32.16	6.19	45.97	130	290	Peak
2402.000	98.96	106.58	/	/	32.16	6.19	45.97	130	290	Average
2483.500	52.97	60.23	74.00	-21.03	32.36	6.31	45.93	130	290	Peak
2483.500	45.09	52.35	54.00	-8.91	32.36	6.31	45.93	130	290	Average

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2402MHz: Fundamental frequency.

CHANNEL	TX Channel 19	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390.000	51.18	59.22	74.00	-22.82	31.75	6.18	45.97	100	190	Peak
2390.000	43.67	51.71	54.00	-10.33	31.75	6.18	45.97	100	190	Average
2440.000	98.38	106.17	/	/	31.91	6.25	45.95	100	190	Peak
2440.000	96.40	104.19	/	/	31.91	6.25	45.95	100	190	Average
2483.500	51.00	58.57	74.00	-23.00	32.05	6.31	45.93	100	190	Peak
2483.500	44.76	52.33	54.00	-9.24	32.05	6.31	45.93	100	190	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390.000	51.74	59.39	74.00	-22.26	32.14	6.18	45.97	100	310	Peak
2390.000	44.17	51.82	54.00	-9.83	32.14	6.18	45.97	100	310	Average
2440.000	102.40	109.84	/	/	32.26	6.25	45.95	100	310	Peak
2440.000	100.05	107.49	/	/	32.26	6.25	45.95	100	310	Average
2483.500	52.04	59.30	74.00	-21.96	32.36	6.31	45.93	100	310	Peak
2483.500	44.21	51.47	54.00	-9.79	32.36	6.31	45.93	100	310	Average

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2440MHz: Fundamental frequency.

CHANNEL	TX Channel 39	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390.000	51.96	60.00	74.00	-22.04	31.75	6.18	45.97	100	0	Peak
2390.000	43.88	51.92	54.00	-10.12	31.75	6.18	45.97	100	0	Average
2480.000	97.38	104.97	/	/	32.04	6.30	45.93	100	0	Peak
2480.000	95.40	102.99	/	/	32.04	6.30	45.93	100	0	Average
2483.500	52.05	59.62	74.00	-21.95	32.05	6.31	45.93	100	0	Peak
2483.500	44.76	52.33	54.00	-9.24	32.05	6.31	45.93	100	0	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390.000	51.72	59.37	74.00	-22.28	32.14	6.18	45.97	130	290	Peak
2390.000	44.69	52.34	54.00	-9.31	32.14	6.18	45.97	130	290	Average
2480.000	100.09	107.37	/	/	32.35	6.30	45.93	130	290	Peak
2480.000	98.17	105.45	/	/	32.35	6.30	45.93	130	290	Average
2483.500	53.01	60.27	74.00	-20.99	32.36	6.31	45.93	130	290	Peak
2483.500	44.71	51.97	54.00	-9.29	32.36	6.31	45.93	130	290	Average

REMARKS:

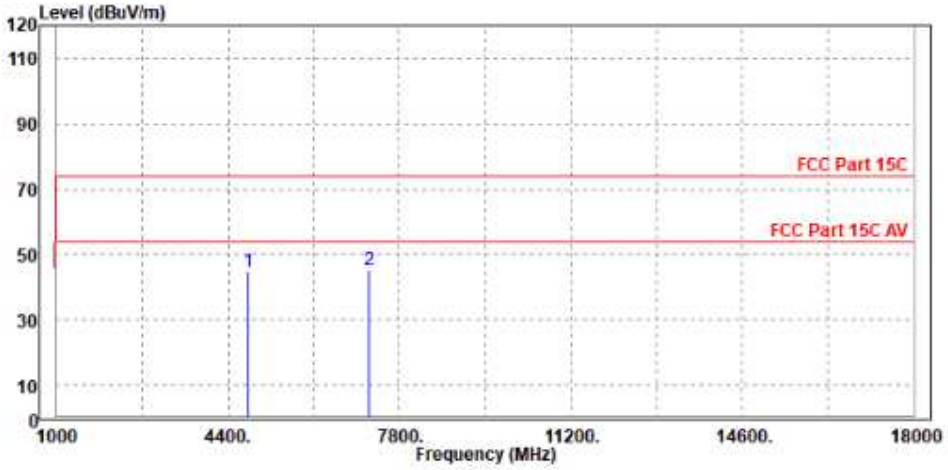
1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2480MHz: Fundamental frequency.

Worst case harmonic:

CHANNEL	TX Channel 0	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

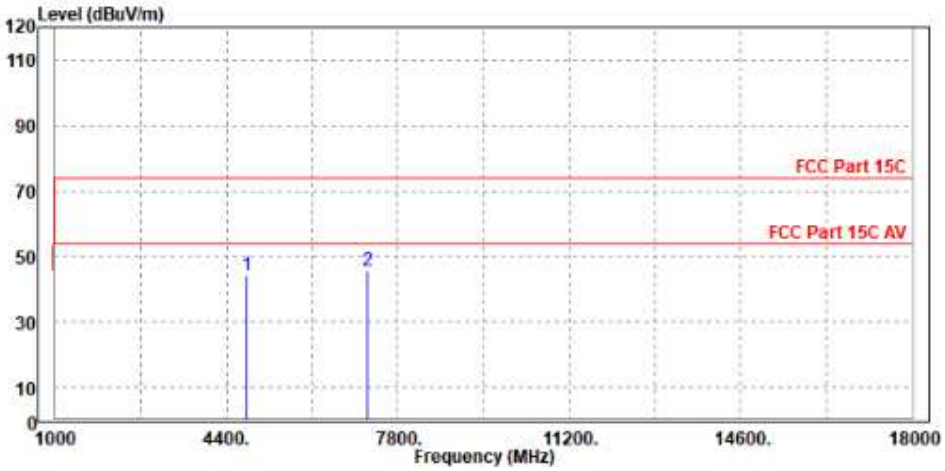
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m		
1	4808.000	44.93	46.37	74.00	-29.07	-1.44	Peak	Horizontal
2 PP	7206.000	45.31	43.57	74.00	-28.69	1.74	Peak	Horizontal



ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m		
1	4804.000	44.10	45.34	74.00	-29.90	-1.24	Peak	Vertical
2 PP	7205.000	45.74	43.88	74.00	-28.26	1.86	Peak	Vertical



REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2402MHz: Fundamental frequency.
3. For frequency above 18GHz, the emission was tested 20db below the limit so the data not recorded in the sheet

BT-LE _S2

CHANNEL	TX Channel 0	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	**EMISSION LEVEL (dBuV/m)**	**READ LEVEL (dBuV)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA FACTOR (dB /m)**	**CABLE LOSS (dB)**	**PREAMP FACTOR (dB)**	**ANTENNA HEIGHT (cm)**	**TABLE ANGLE (Degree)**	**REMARK**
2390.000	51.00	59.04	74.00	-23.00	31.75	6.18	45.97	100	190	Peak
2390.000	43.21	51.25	54.00	-10.79	31.75	6.18	45.97	100	190	Average
2402.000	97.16	105.15	/	/	31.79	6.19	45.97	100	190	Peak
2402.000	96.88	104.87	/	/	31.79	6.19	45.97	100	190	Average
2483.500	51.75	59.32	74.00	-22.25	32.05	6.31	45.93	100	190	Peak
2483.500	44.57	52.14	54.00	-9.43	32.05	6.31	45.93	100	190	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	**EMISSION LEVEL (dBuV/m)**	**READ LEVEL (dBuV)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA FACTOR (dB /m)**	**CABLE LOSS (dB)**	**PREAMP FACTOR (dB)**	**ANTENNA HEIGHT (cm)**	**TABLE ANGLE (Degree)**	**REMARK**
2390.000	51.02	58.67	74.00	-22.98	32.14	6.18	45.97	135	310	Peak
2390.000	44.11	51.76	54.00	-9.89	32.14	6.18	45.97	135	310	Average
2402.000	100.87	108.49	/	/	32.16	6.19	45.97	135	310	Peak
2402.000	100.69	108.31	/	/	32.16	6.19	45.97	135	310	Average
2483.500	51.94	59.20	74.00	-22.06	32.36	6.31	45.93	135	310	Peak
2483.500	44.42	51.68	54.00	-9.58	32.36	6.31	45.93	135	310	Average

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2402MHz: Fundamental frequency.

CHANNEL	TX Channel 19	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390.000	51.68	59.72	74.00	-22.32	31.75	6.18	45.97	100	190	Peak
2390.000	44.32	52.36	54.00	-9.68	31.75	6.18	45.97	100	190	Average
2440.000	99.10	106.89	/	/	31.91	6.25	45.95	100	190	Peak
2440.000	98.22	106.01	/	/	31.91	6.25	45.95	100	190	Average
2483.500	52.84	60.41	74.00	-21.16	32.05	6.31	45.93	100	190	Peak
2483.500	44.03	51.60	54.00	-9.97	32.05	6.31	45.93	100	190	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390.000	51.05	58.70	74.00	-22.95	32.14	6.18	45.97	135	310	Peak
2390.000	43.78	51.43	54.00	-10.22	32.14	6.18	45.97	135	310	Average
2440.000	102.27	109.71	/	/	32.26	6.25	45.95	135	310	Peak
2440.000	101.69	109.13	/	/	32.26	6.25	45.95	135	310	Average
2483.500	52.23	59.49	74.00	-21.77	32.36	6.31	45.93	135	310	Peak
2483.500	44.22	51.48	54.00	-9.78	32.36	6.31	45.93	135	310	Average

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2440MHz: Fundamental frequency.

CHANNEL	TX Channel 39	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390.000	52.23	60.27	74.00	-21.77	31.75	6.18	45.97	100	0	Peak
2390.000	43.50	51.54	54.00	-10.50	31.75	6.18	45.97	100	0	Average
2480.000	97.51	105.10	/	/	32.04	6.30	45.93	100	0	Peak
2480.000	97.15	104.74	/	/	32.04	6.30	45.93	100	0	Average
2483.500	51.84	59.41	74.00	-22.16	32.05	6.31	45.93	100	0	Peak
2483.500	43.87	51.44	54.00	-10.13	32.05	6.31	45.93	100	0	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390.000	52.16	59.81	74.00	-21.84	32.14	6.18	45.97	130	290	Peak
2390.000	44.39	52.04	54.00	-9.61	32.14	6.18	45.97	130	290	Average
2480.000	100.20	107.48	/	/	32.35	6.30	45.93	130	290	Peak
2480.000	99.99	107.27	/	/	32.35	6.30	45.93	130	290	Average
2483.500	52.83	60.09	74.00	-21.17	32.36	6.31	45.93	130	290	Peak
2483.500	44.22	51.48	54.00	-9.78	32.36	6.31	45.93	130	290	Average

REMARKS:

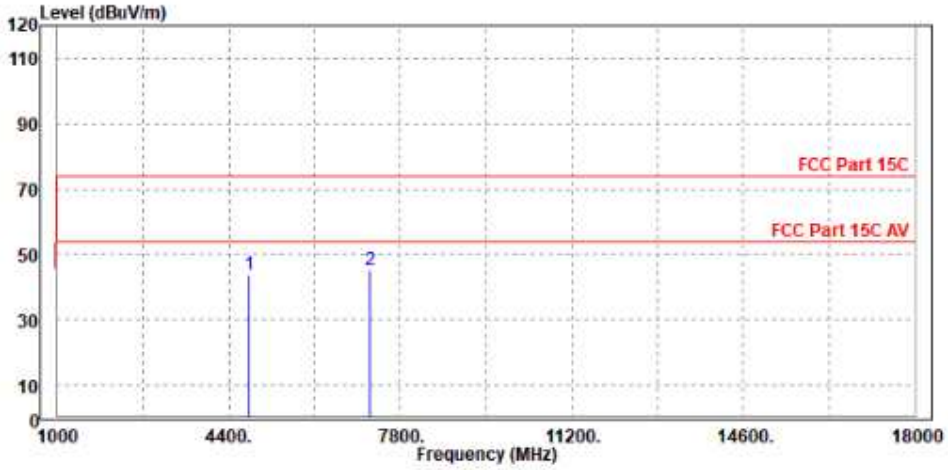
1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2480MHz: Fundamental frequency.

Worst case harmonic:

CHANNEL	TX Channel 0	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

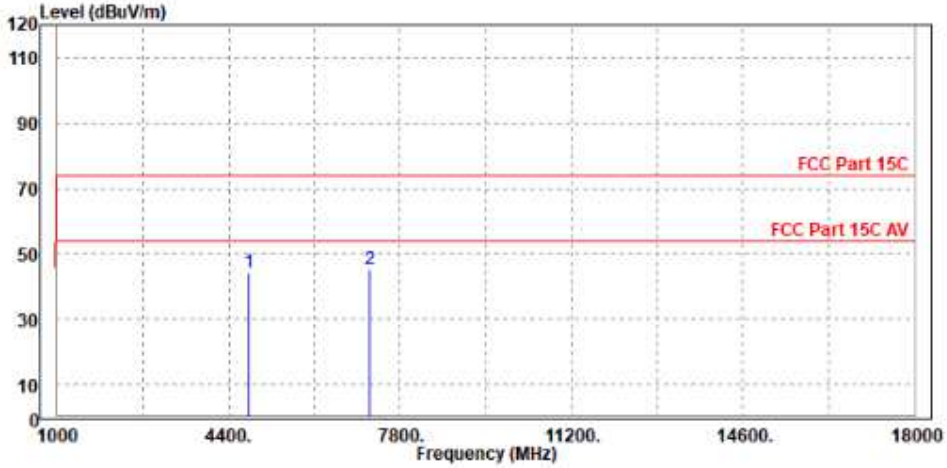
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m		
1	4804.000	43.97	45.41	74.00	-30.03	-1.44	Peak	Horizontal
2 PP	7205.000	45.02	43.28	74.00	-28.98	1.74	Peak	Horizontal



ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m		
1	4808.000	44.09	45.33	74.00	-29.91	-1.24	Peak	Vertical
2 PP	7206.000	45.32	43.46	74.00	-28.68	1.86	Peak	Vertical



REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2402MHz: Fundamental frequency.
3. For frequency above 18GHz, the emission was tested 20db below the limit so the data not recorded in the sheet

BT-LE _S8

CHANNEL	TX Channel 0	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	**EMISSION LEVEL (dBuV/m)**	**READ LEVEL (dBuV)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA FACTOR (dB /m)**	**CABLE LOSS (dB)**	**PREAMP FACTOR (dB)**	**ANTENNA HEIGHT (cm)**	**TABLE ANGLE (Degree)**	**REMARK**
2390.000	51.08	59.12	74.00	-22.92	31.75	6.18	45.97	100	190	Peak
2390.000	43.58	51.62	54.00	-10.42	31.75	6.18	45.97	100	190	Average
2402.000	97.30	105.29	/	/	31.79	6.19	45.97	100	190	Peak
2402.000	96.62	104.61	/	/	31.79	6.19	45.97	100	190	Average
2483.500	51.56	59.13	74.00	-22.44	32.05	6.31	45.93	100	190	Peak
2483.500	43.93	51.50	54.00	-10.07	32.05	6.31	45.93	100	190	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	**EMISSION LEVEL (dBuV/m)**	**READ LEVEL (dBuV)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA FACTOR (dB /m)**	**CABLE LOSS (dB)**	**PREAMP FACTOR (dB)**	**ANTENNA HEIGHT (cm)**	**TABLE ANGLE (Degree)**	**REMARK**
2390.000	51.33	58.98	74.00	-22.67	32.14	6.18	45.97	130	290	Peak
2390.000	43.90	51.55	54.00	-10.10	32.14	6.18	45.97	130	290	Average
2402.000	101.54	109.16	/	/	32.16	6.19	45.97	130	290	Peak
2402.000	100.35	107.97	/	/	32.16	6.19	45.97	130	290	Average
2483.500	51.91	59.17	74.00	-22.09	32.36	6.31	45.93	130	290	Peak
2483.500	43.67	50.93	54.00	-10.33	32.36	6.31	45.93	130	290	Average

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2402MHz: Fundamental frequency.

CHANNEL	TX Channel 19	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390.000	51.28	59.32	74.00	-22.72	31.75	6.18	45.97	100	190	Peak
2390.000	43.60	51.64	54.00	-10.40	31.75	6.18	45.97	100	190	Average
2440.000	98.48	106.27	/	/	31.91	6.25	45.95	100	190	Peak
2440.000	97.90	105.69	/	/	31.91	6.25	45.95	100	190	Average
2483.500	51.63	59.20	74.00	-22.37	32.05	6.31	45.93	100	190	Peak
2483.500	43.97	51.54	54.00	-10.03	32.05	6.31	45.93	100	190	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390.000	51.52	59.17	74.00	-22.48	32.14	6.18	45.97	135	290	Peak
2390.000	44.60	52.25	54.00	-9.40	32.14	6.18	45.97	135	290	Average
2440.000	102.64	110.08	/	/	32.26	6.25	45.95	135	290	Peak
2440.000	101.93	109.37	/	/	32.26	6.25	45.95	135	290	Average
2483.500	52.35	59.61	74.00	-21.65	32.36	6.31	45.93	135	290	Peak
2483.500	44.02	51.28	54.00	-9.98	32.36	6.31	45.93	135	290	Average

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2440MHz: Fundamental frequency.

CHANNEL	TX Channel 39	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390.000	51.30	59.34	74.00	-22.70	31.75	6.18	45.97	100	0	Peak
2390.000	44.41	52.45	54.00	-9.59	31.75	6.18	45.97	100	0	Average
2480.000	97.31	104.90	/	/	32.04	6.30	45.93	100	0	Peak
2480.000	96.55	104.14	/	/	32.04	6.30	45.93	100	0	Average
2483.500	51.80	59.37	74.00	-22.20	32.05	6.31	45.93	100	0	Peak
2483.500	43.57	51.14	54.00	-10.43	32.05	6.31	45.93	100	0	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390.000	51.97	59.62	74.00	-22.03	32.14	6.18	45.97	135	290	Peak
2390.000	43.83	51.48	54.00	-10.17	32.14	6.18	45.97	135	290	Average
2480.000	100.64	107.92	/	/	32.35	6.30	45.93	135	290	Peak
2480.000	98.95	106.23	/	/	32.35	6.30	45.93	135	290	Average
2483.500	51.12	58.38	74.00	-22.88	32.36	6.31	45.93	135	290	Peak
2483.500	45.55	52.81	54.00	-8.45	32.36	6.31	45.93	135	290	Average

REMARKS:

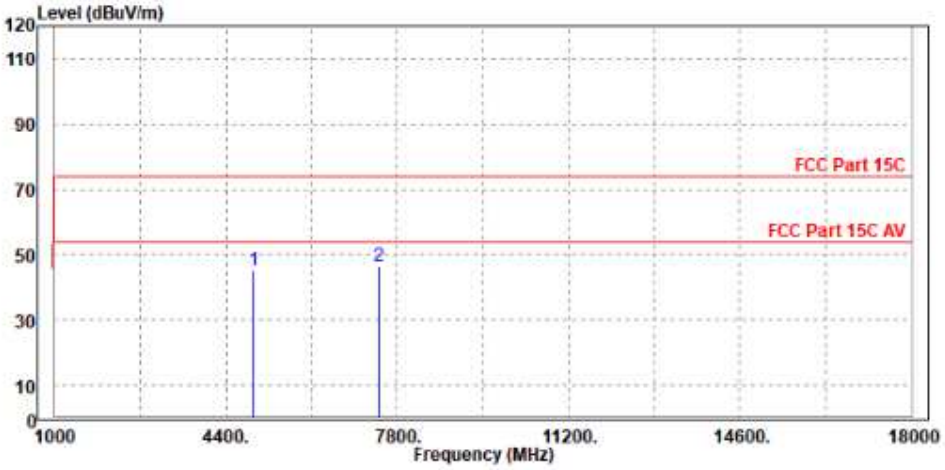
1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2480MHz: Fundamental frequency.

Worst case harmonic:

CHANNEL	TX Channel 39	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

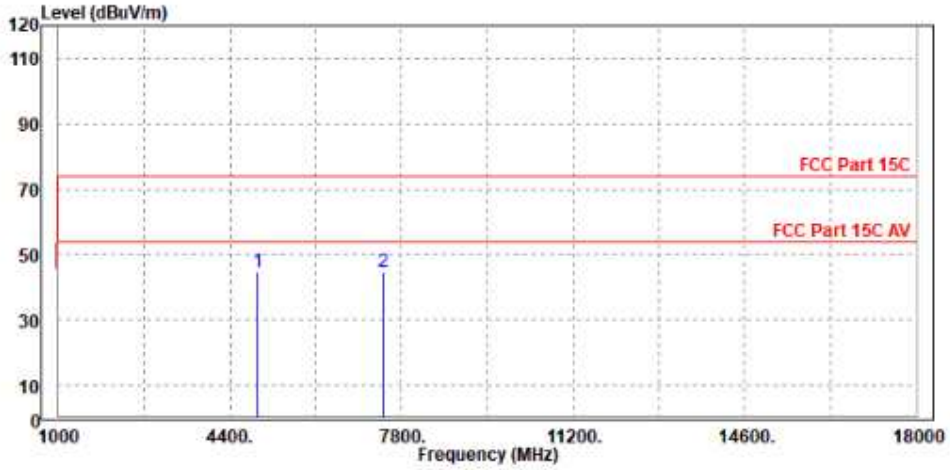
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m		
1	4961.000	45.31	46.50	74.00	-28.69	-1.19	Peak	Horizontal
2 PP	7440.000	46.36	44.38	74.00	-27.64	1.98	Peak	Horizontal



ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m		
1	4960.000	44.64	45.63	74.00	-29.36	-0.99	Peak	Vertical
2 PP	7443.000	44.91	42.91	74.00	-29.09	2.00	Peak	Vertical



REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2480MHz: Fundamental frequency.
3. For frequency above 18GHz, the emission was tested 20db below the limit so the data not recorded in the sheet

3.3 6 dB BANDWIDTH MEASUREMENT

3.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

3.3.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Power Meter	ANRITSU	ML2495A	1506002	Feb. 22,22	Feb. 21,23
EXA Signal Analyzer	KEYSIGHT	N9010A-526	MY54510322	Feb. 18,22	Feb. 17,23
EXA Signal Analyzer	KEYSIGHT	N9010A-544	MY54510355	May.15,22	May.14,23
Power Sensor	ANRITSU	MA2411B	1339352	May. 06,22	May. 05,23

NOTE:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.
2. The test was performed in RF Oven room.

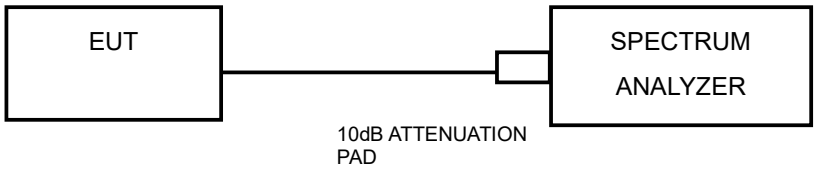
3.3.3 TEST PROCEDURE

1. Set RBW = 100 kHz.
2. Set the video bandwidth (VBW) ≥ 3 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.

3.3.4 DEVIATION FROM TEST STANDARD

No deviation.

3.3.5 TEST SETUP



3.3.6 EUT OPERATING CONDITIONS

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

3.3.7 TEST RESULTS

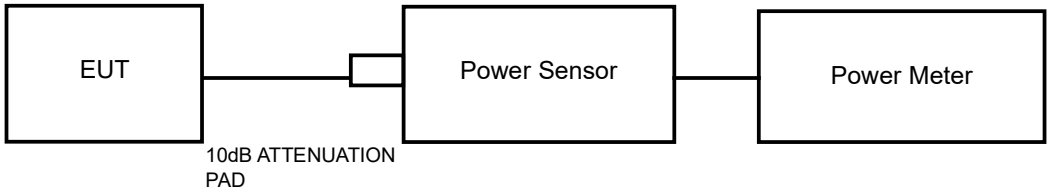
Please Refer to Appendix1/2 Of this test report.

3.4 CONDUCTED OUTPUT POWER

3.4.1 LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT

For systems using digital modulation in the 2400–2483.5 MHz band: 1 Watt (30dBm)

3.4.2 TEST SETUP



3.4.3 TEST INSTRUMENTS

Refer to section 3.3.2 to get information of above instrument.

3.4.4 TEST PROCEDURES

A peak power sensor was used on the output port of the EUT. A power meter was used to read the response of the peak power sensor. Record the power level.

3.4.5 DEVIATION FROM TEST STANDARD

No deviation.

3.4.6 EUT OPERATING CONDITIONS

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

3.4.7 TEST RESULTS

3.4.7.1 MAXIMUM PEAK OUTPUT POWER

Please Refer to Appendix1/2 Of this test report.

3.4.7.2 AVERAGE OUTPUT POWER (FOR REFERENCE)

The average power sensor was used on the output port of the EUT. A power meter was used to read the response of the power sensor. Record the power level.

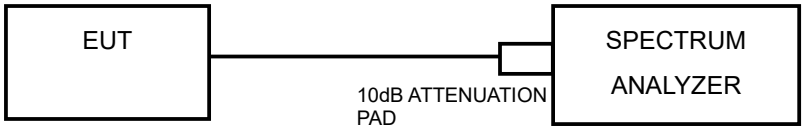
Please Refer to Appendix1/2 Of this test report.

3.5 POWER SPECTRAL DENSITY MEASUREMENT

3.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm/3KHz.

3.5.2 TEST SETUP



3.5.3 TEST INSTRUMENTS

Refer to section 3.3.2 to get information of above instrument.

3.5.4 TEST PROCEDURE

1. Set the span to 1.5 times the DTS bandwidth
2. Set the RBW = 3 kHz, VBW ≥ 3 x RBW, Detector = peak.
3. Sweep time = auto couple, Trace mode = max hold, allow trace to fully stabilize.
4. Use the peak marker function to determine the maximum amplitude level.

3.5.5 DEVIATION FROM TEST STANDARD

No deviation.

3.5.6 EUT OPERATING CONDITION

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

3.5.7 TEST RESULTS

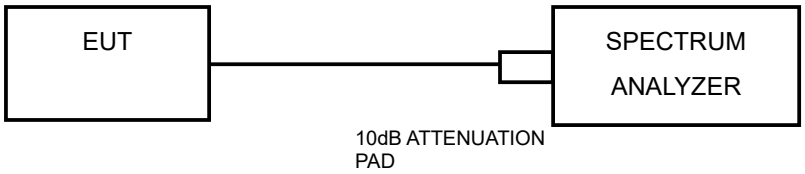
Please Refer to Appendix1/2 Of this test report.

3.6 OUT OF BAND EMISSION MEASUREMENT

3.6.1 LIMITS OF OUT OF BAND EMISSION MEASUREMENT

Below –20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

3.6.2 TEST SETUP



3.6.3 TEST INSTRUMENTS

Refer to section 3.3.2 to get information of above instrument.

3.6.4 TEST PROCEDURE

MEASUREMENT PROCEDURE REF

1. Set the RBW = 100 kHz.
2. Set the VBW ≥ 300 kHz.
3. Detector = peak.
4. Sweep time = auto couple.
5. Trace mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.

MEASUREMENT PROCEDURE OOBE

1. Set RBW = 100 kHz.
2. Set VBW ≥ 300 kHz.
3. Set span to encompass the spectrum to be examined
4. Detector = peak.
5. Trace Mode = max hold.
6. Sweep = auto couple.

3.6.5 DEVIATION FROM TEST STANDARD

No deviation.

3.6.6 EUT OPERATING CONDITION

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

3.6.7 TEST RESULTS

The spectrum plots are attached on the following images. D1 line indicates the highest level. D2 line indicates the 20dB offset below D1. It shows compliance to the requirement.

Please Refer to Appendix1/2 Of this test report.

3.7 ANTENNA REQUIREMENTS

3.7.1 STANDARD APPLICABLE

If transmitting antenna directional gain is greater than 6 dBi, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

3.7.2 ANTENNA CONNECTED CONSTRUCTION

An embedded-in antenna design is used.

3.7.3 ANTENNA GAIN

Accoring to FCC KDB 662911 D01 Multiple Transmitter Output v02r01
For CDD transmissions,directional gain is calculated as
Directional gain=GANT +Array Gain, where Array Gain is as follows.
For power spectral density (PSD) measurements on all devices,
Array Gain= 10 log(NANT/ Nss) dB;
For power measurements on IEEE 802.11 devices,Array Gain = 0 dB for NANT≤ 4;
The EUT supports Cyclic Delay Diversity (CDD) mode,
For power measurements,the directional GANT is set equal to the antenna having the highest gain as following formulas.

Directional Gain = Max.Gain + Array Gain.

For PSD measurements,the directional GANT is calculation is following F)2)f)ii of KDB 662911 D01 v02r01.
The directional gain is calculated as following table.

2.4GHz	Ant 1 (dBi)	Ant 2 (dBi)	DG For Power (dBi)	DG For PSD (dBi)	Power Limit Reduction (dB)	PSD Limit Reduction (dB)
	0.10	-3.70	0.10	1.42	0.00	0.00

NOTE :DG= directional gain, Power Limit Reduction = DG For Power Gain -6dbi<0

PSD Limit Reduction = DG For PSD – 6dBi<0.Therefore, it is not necessary to reduce maximum peak output power and PSD limit.

4 PHOTOGRAPHS OF THE TEST CONFIGURATION

Please refer to the attached file (Test Setup Photo).

5 MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications are made to the EUT by the lab during the test.

6 Appendix 1

WLAN 2.4G
DTS BANDWIDTH

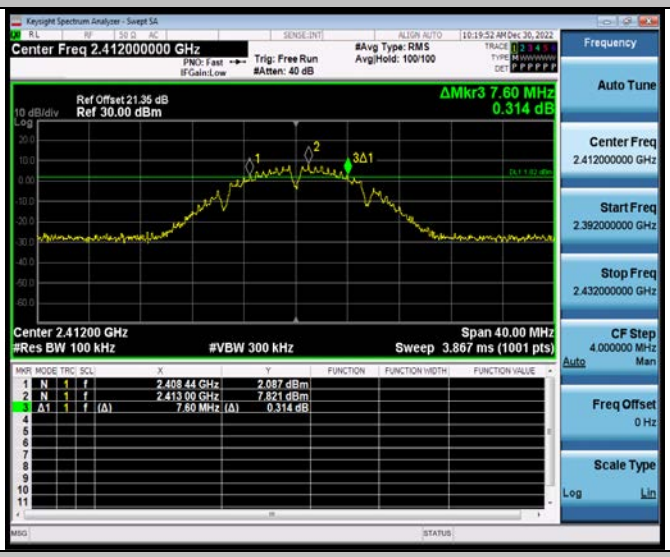
TEST RESULT

TestMode	Antenna	Frequency[MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B-CDD	Ant1	2412	7.560	2408.000	2415.560	0.5	PASS
	Ant2	2412	7.600	2408.440	2416.040	0.5	PASS
	Ant1	2437	7.800	2432.960	2440.760	0.5	PASS
	Ant2	2437	8.120	2432.520	2440.640	0.5	PASS
	Ant1	2462	8.080	2457.960	2466.040	0.5	PASS
	Ant2	2462	8.040	2457.960	2466.000	0.5	PASS
11G-CDD	Ant1	2412	16.280	2403.880	2420.160	0.5	PASS
	Ant2	2412	16.320	2403.880	2420.200	0.5	PASS
	Ant1	2437	16.080	2428.840	2444.920	0.5	PASS
	Ant2	2437	16.360	2428.800	2445.160	0.5	PASS
	Ant1	2462	16.320	2453.840	2470.160	0.5	PASS
	Ant2	2462	16.320	2453.840	2470.160	0.5	PASS
11N20MIMO	Ant1	2412	15.600	2404.800	2420.400	0.5	PASS
	Ant2	2412	16.320	2404.480	2420.800	0.5	PASS
	Ant1	2437	17.560	2428.200	2445.760	0.5	PASS
	Ant2	2437	17.640	2428.160	2445.800	0.5	PASS
	Ant1	2462	17.560	2453.200	2470.760	0.5	PASS
	Ant2	2462	15.680	2453.200	2468.880	0.5	PASS
11N40MIMO	Ant1	2422	32.720	2404.240	2436.960	0.5	PASS
	Ant2	2422	32.560	2406.960	2439.520	0.5	PASS
	Ant1	2437	36.080	2418.840	2454.920	0.5	PASS
	Ant2	2437	36.320	2418.840	2455.160	0.5	PASS
	Ant1	2452	35.680	2433.840	2469.520	0.5	PASS
	Ant2	2452	35.680	2433.840	2469.520	0.5	PASS
11AX20MIMO	Ant1	2412	18.640	2402.720	2421.360	0.5	PASS
	Ant2	2412	16.920	2404.440	2421.360	0.5	PASS
	Ant1	2437	18.920	2427.520	2446.440	0.5	PASS

	Ant2	2437	18.720	2427.520	2446.240	0.5	PASS
	Ant1	2462	18.880	2452.480	2471.360	0.5	PASS
	Ant2	2462	17.680	2452.560	2470.240	0.5	PASS
11AX40MIMO	Ant1	2422	34.000	2403.680	2437.680	0.5	PASS
	Ant2	2422	34.880	2405.680	2440.560	0.5	PASS
	Ant1	2437	38.000	2417.880	2455.880	0.5	PASS
	Ant2	2437	37.040	2418.040	2455.080	0.5	PASS
	Ant1	2452	37.840	2433.120	2470.960	0.5	PASS
	Ant2	2452	36.480	2433.120	2469.600	0.5	PASS

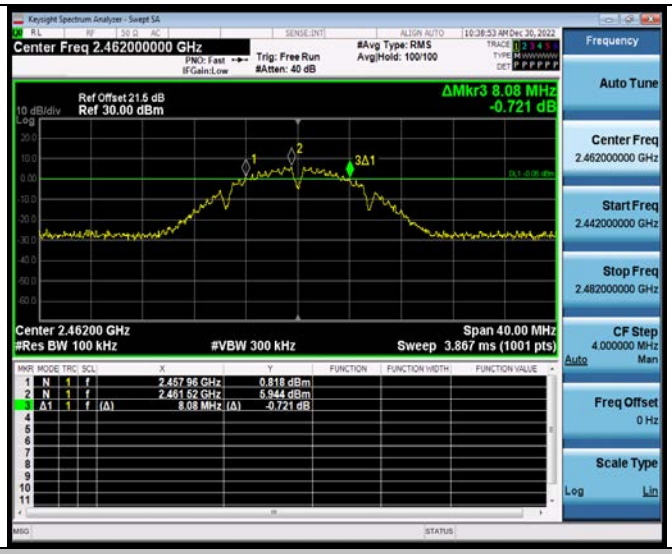
TEST GRAPHS

11B-CDD_Ant1_2412

11B-CDD_Ant2_2412

11B-CDD_Ant1_2437

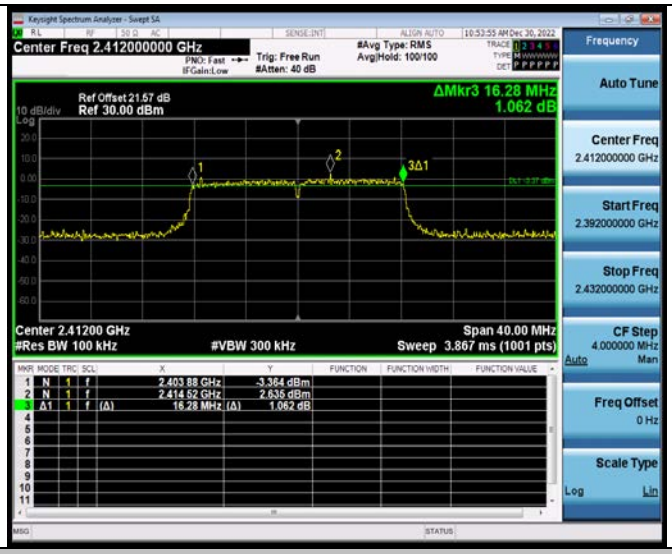
11B-CDD_Ant2_2437

11B-CDD_Ant1_2462

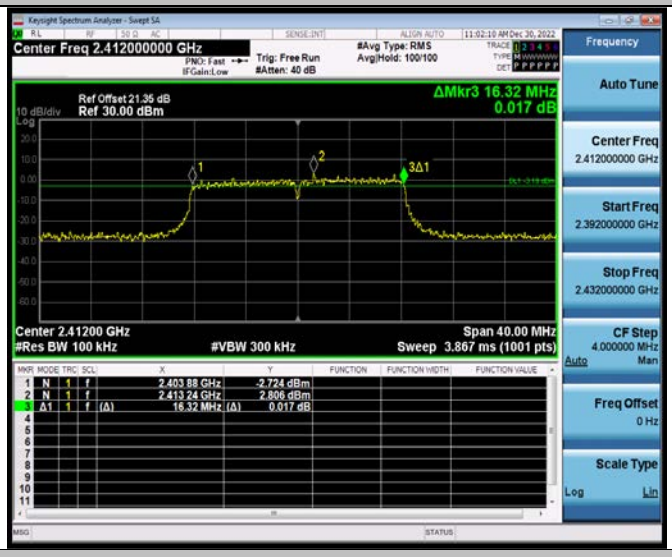


11B-CDD_Ant2_2462

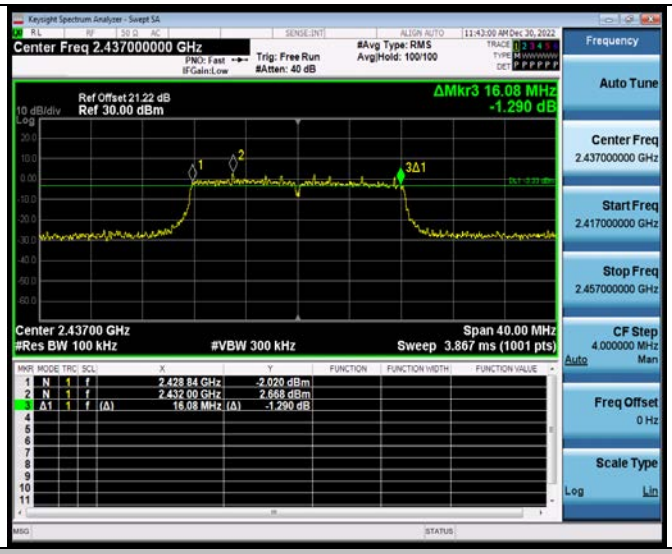
11G-CDD_Ant1_2412



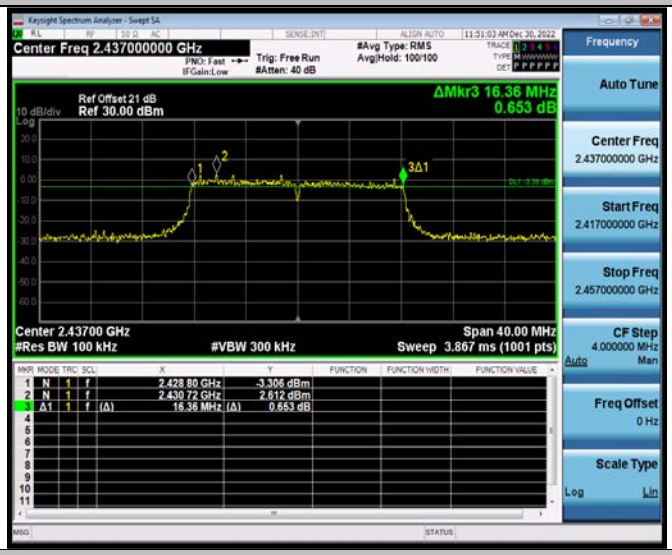
11G-CDD_Ant2_2412



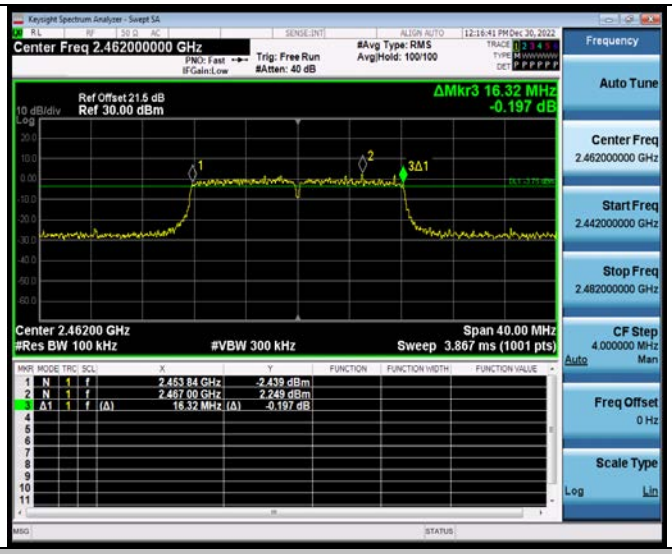
11G-CDD_Ant1_2437



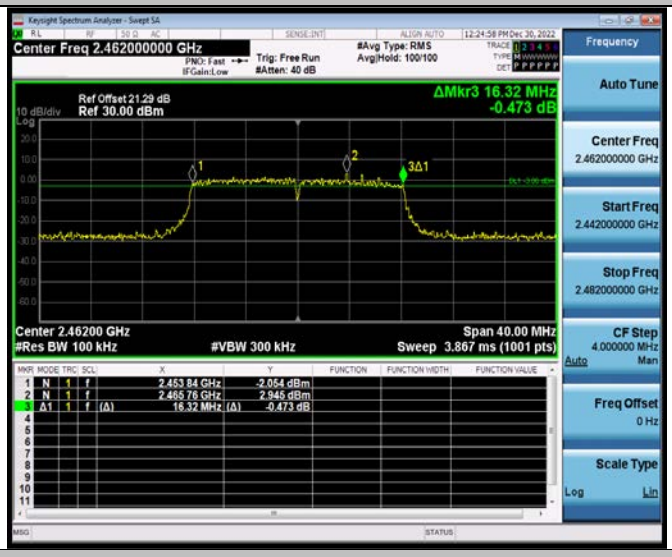
11G-CDD_Ant2_2437



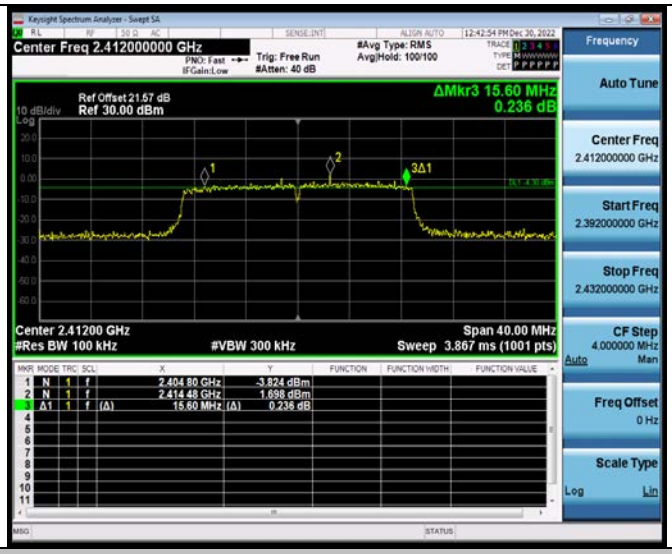
11G-CDD_Ant1_2462



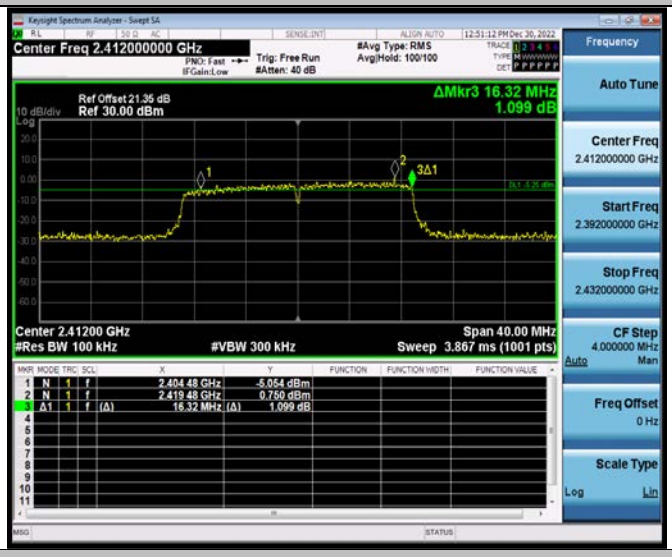
11G-CDD_Ant2_2462



11N20MIMO_Ant1_2412



11N20MIMO_Ant2_2412



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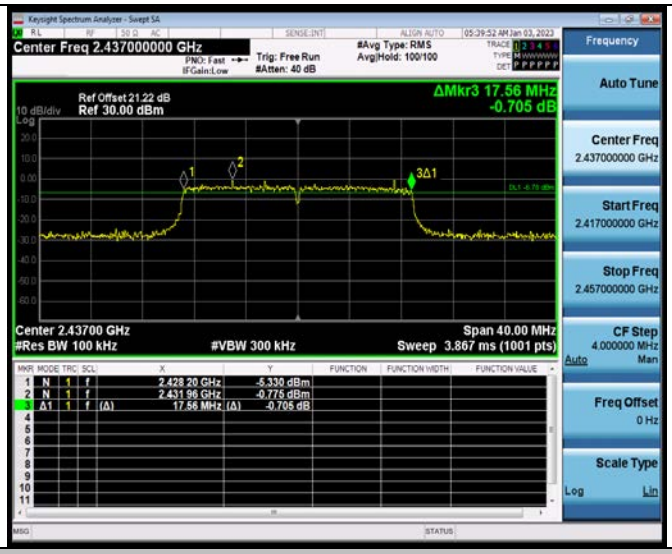
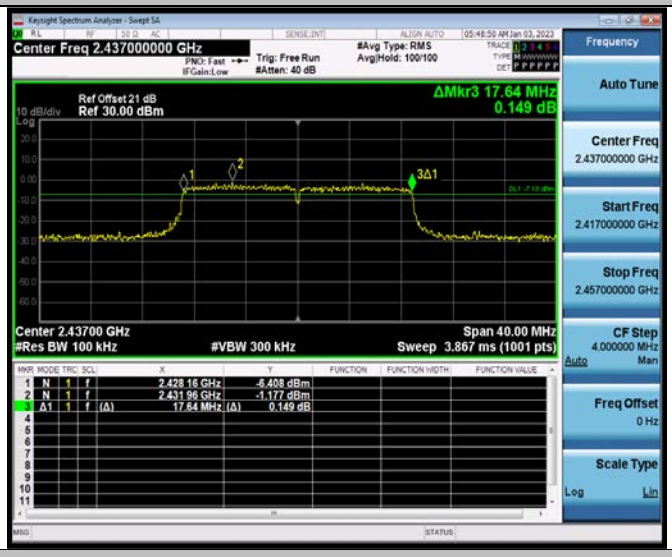
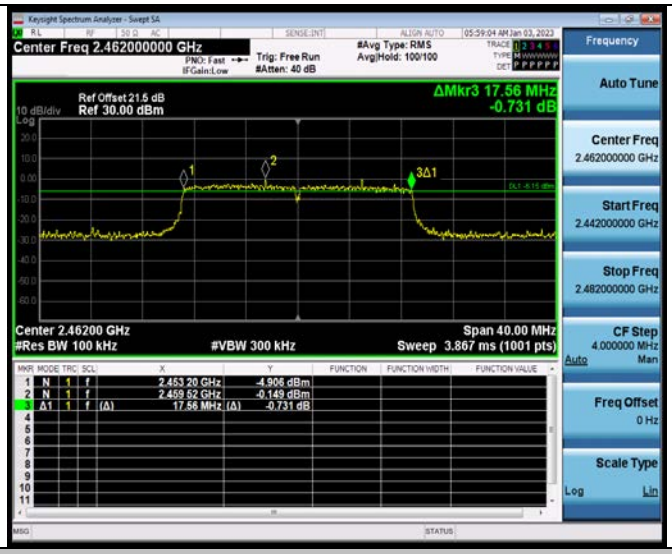


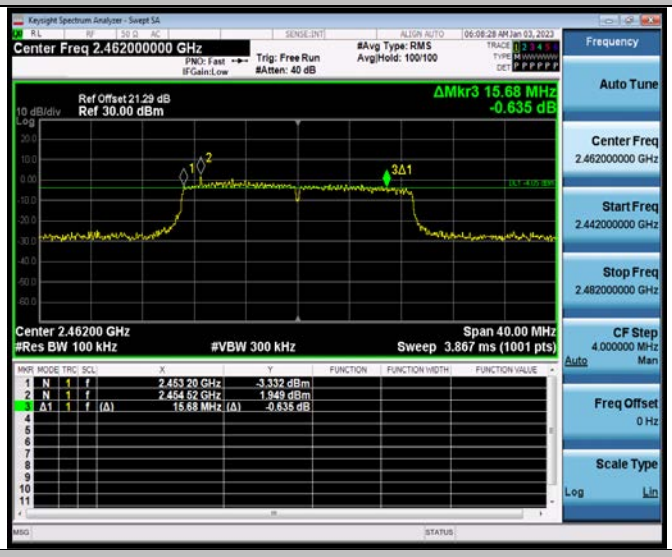
11N20MIMO_Ant2_2437



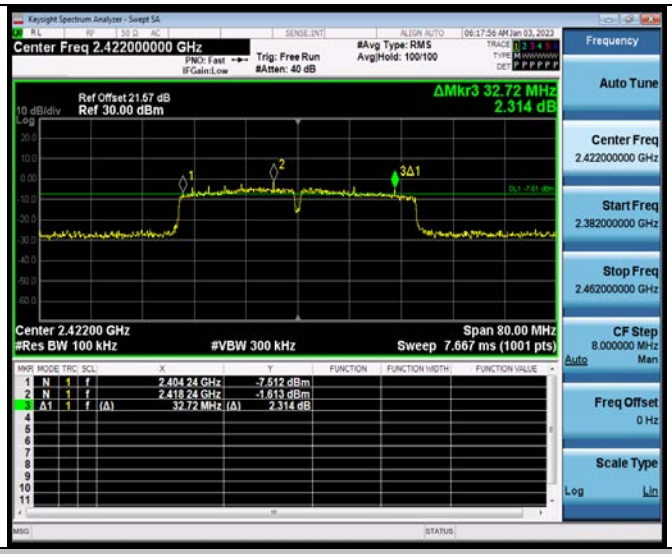
11N20MIMO_Ant1_2462



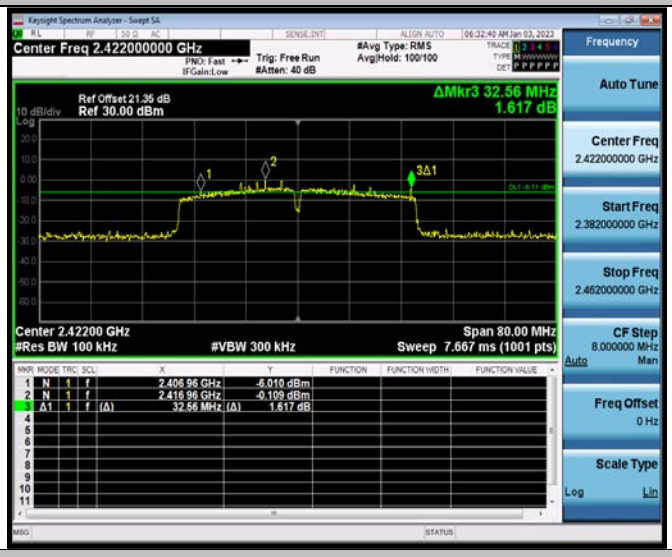
11N20MIMO_Ant2_2462



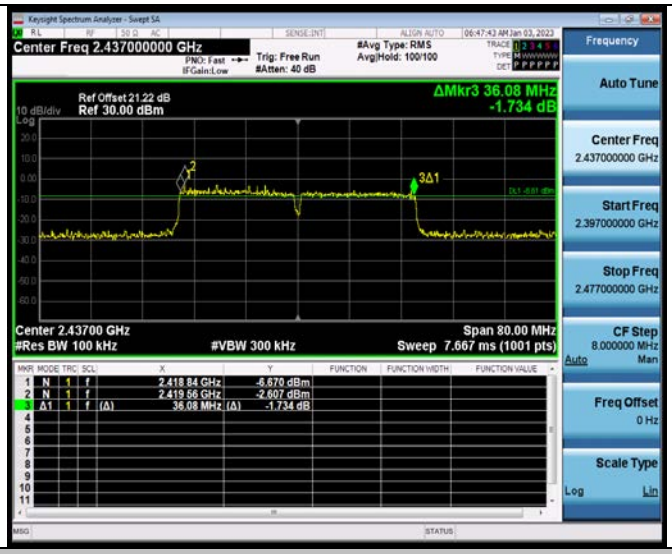
11N40MIMO_Ant1_2422



11N40MIMO_Ant2_2422



11N40MIMO_Ant1_2437



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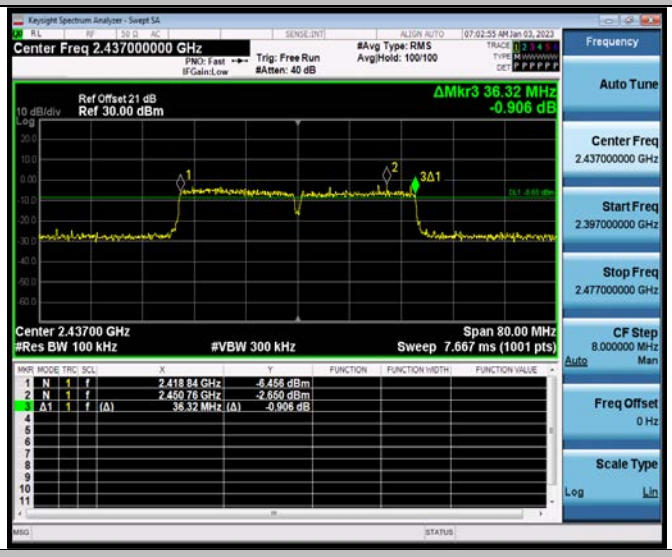

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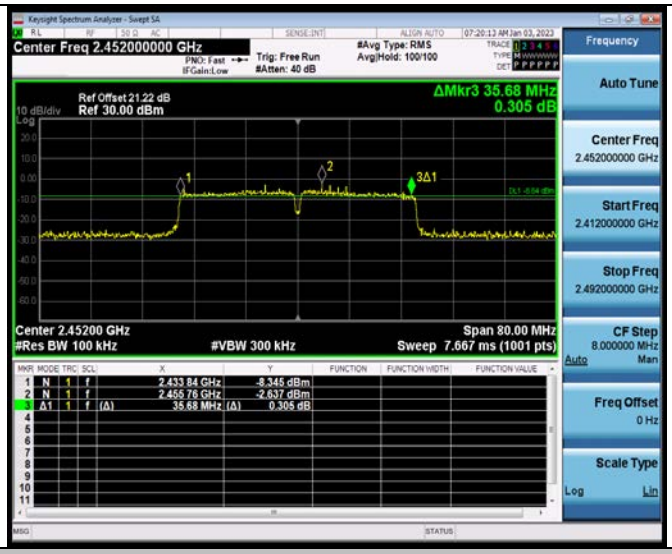
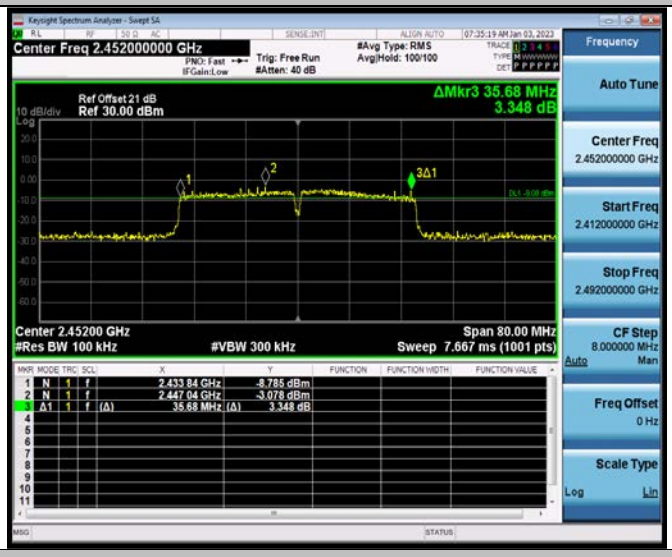
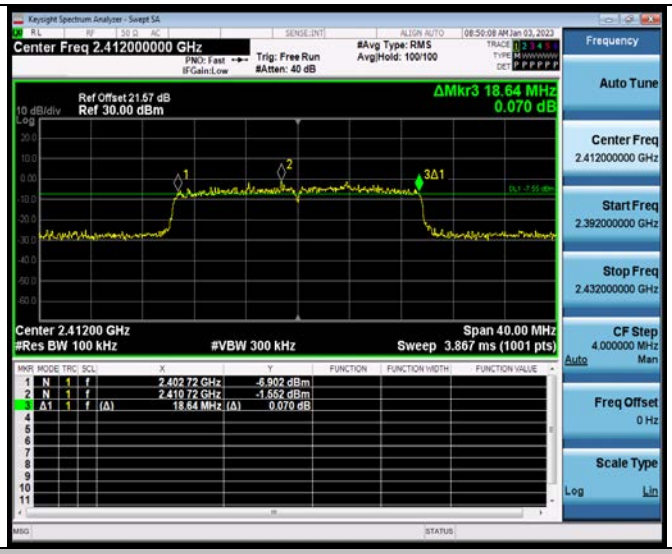


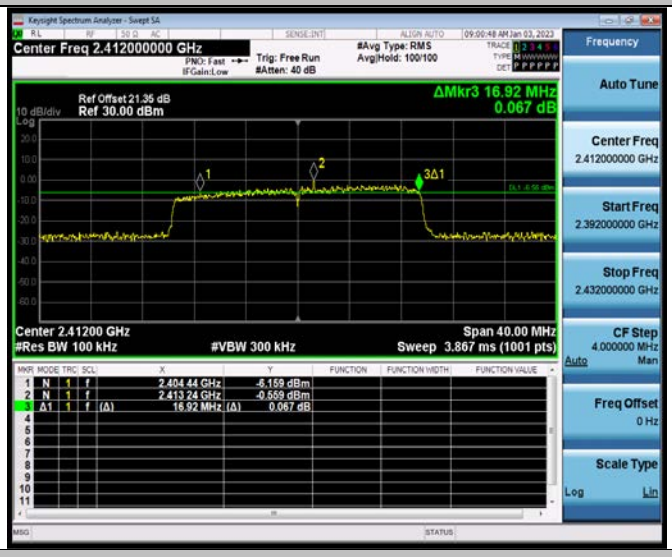
11N40MIMO_Ant2_2452



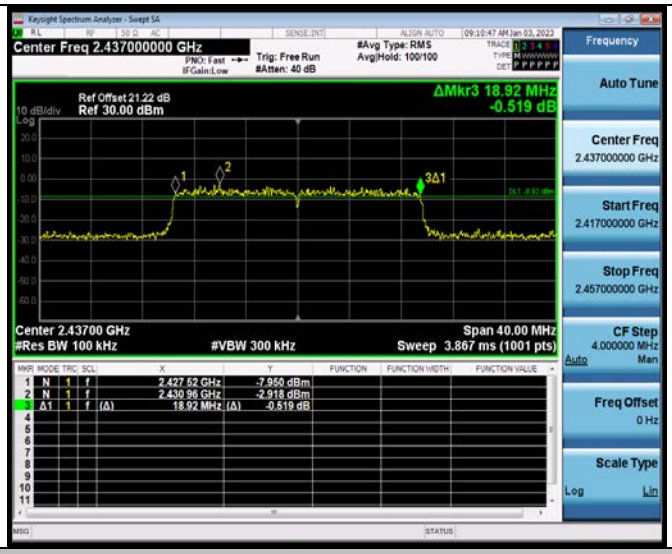
11AX20MIMO_Ant1_2412



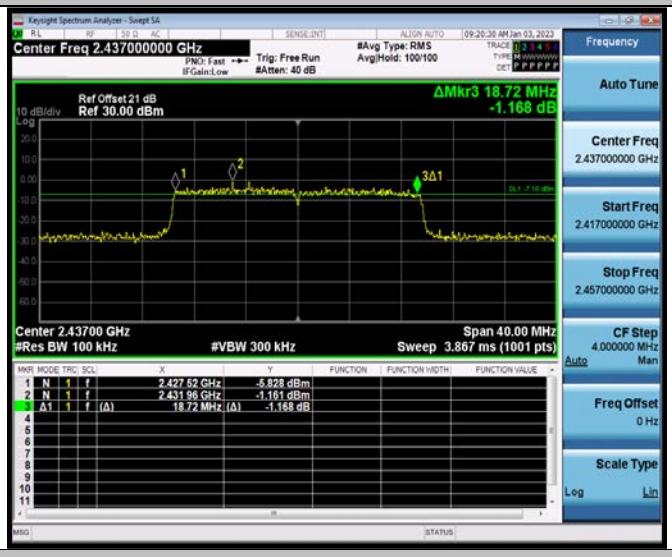
11AX20MIMO_Ant2_2412



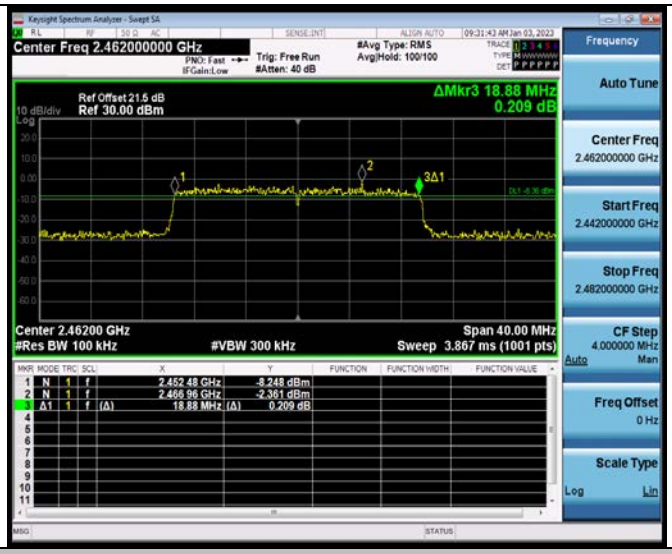
11AX20MIMO_Ant1_2437



11AX20MIMO_Ant2_2437



11AX20MIMO_Ant1_2462



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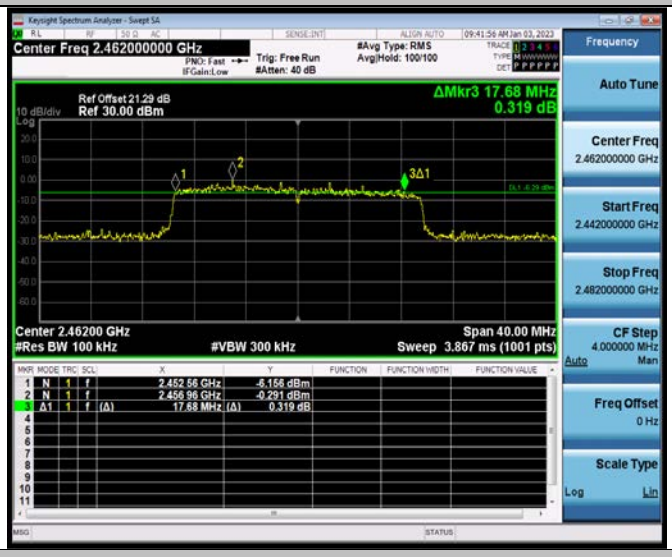
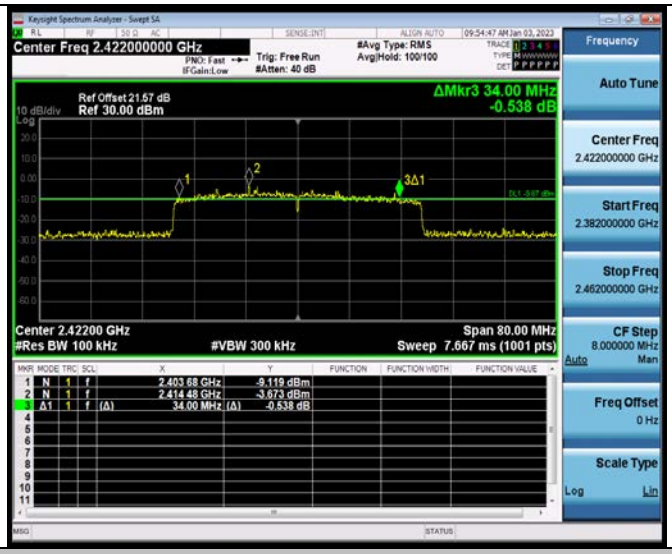
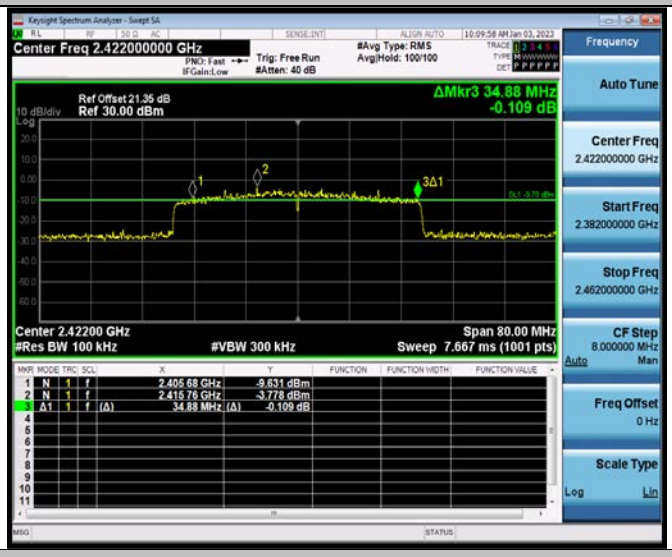


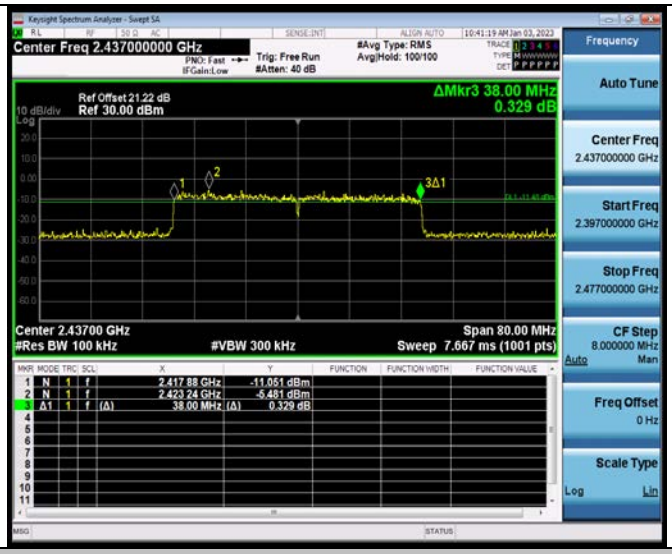
11AX40MIMO_Ant1_2422



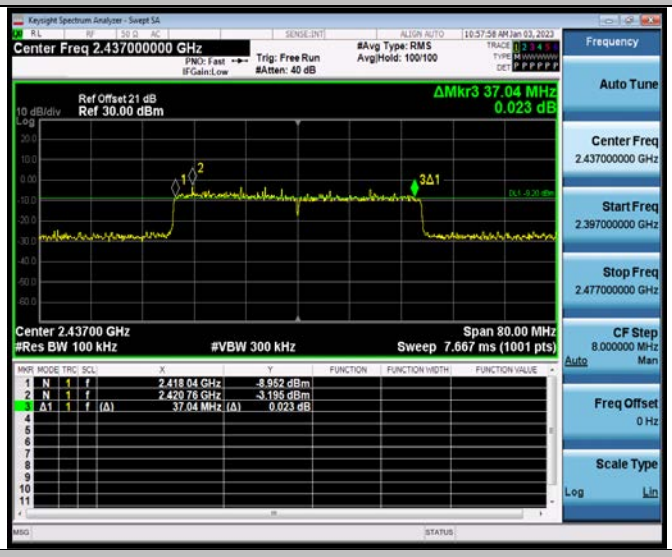
11AX40MIMO_Ant2_2422



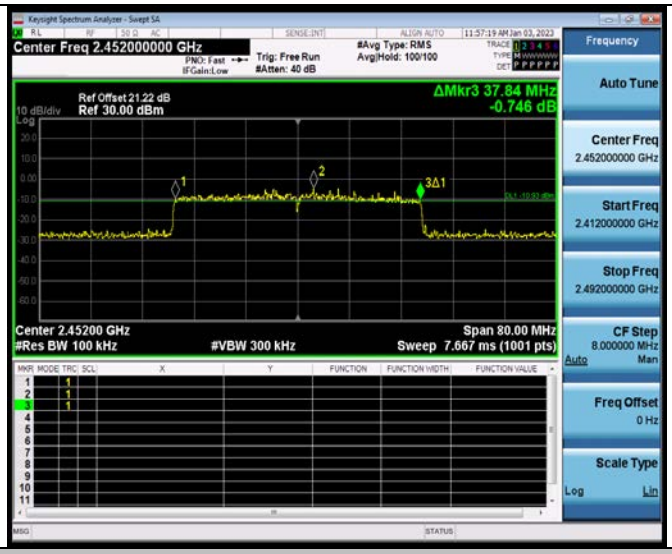
11AX40MIMO_Ant1_2437



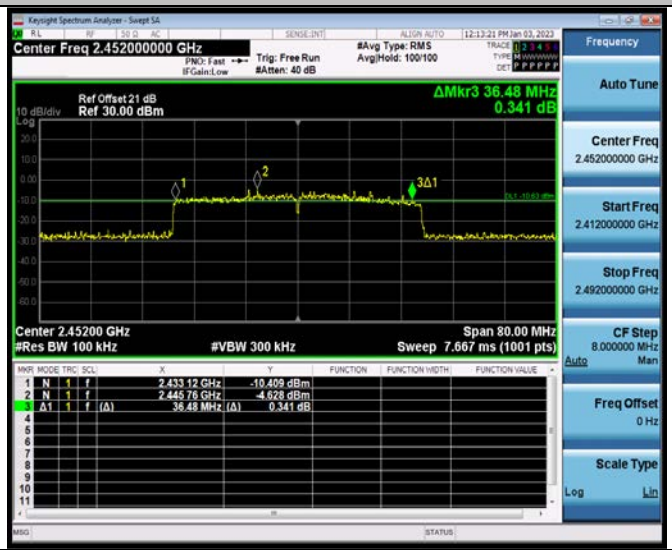
11AX40MIMO_Ant2_2437



11AX40MIMO_Ant1_2452



11AX40MIMO_Ant2_2452



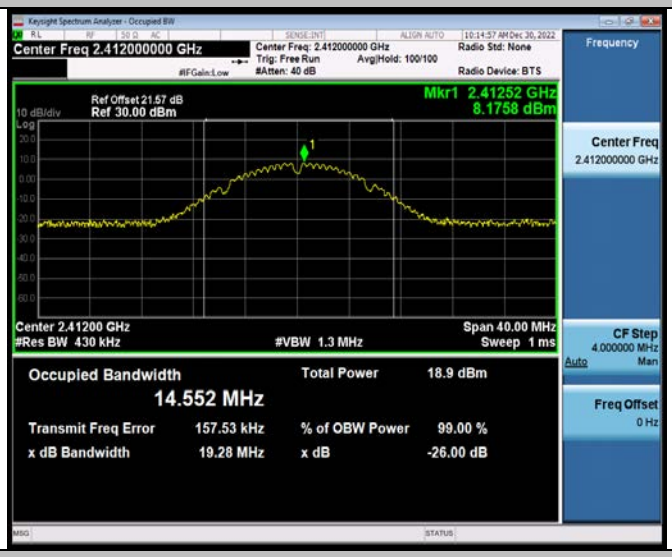
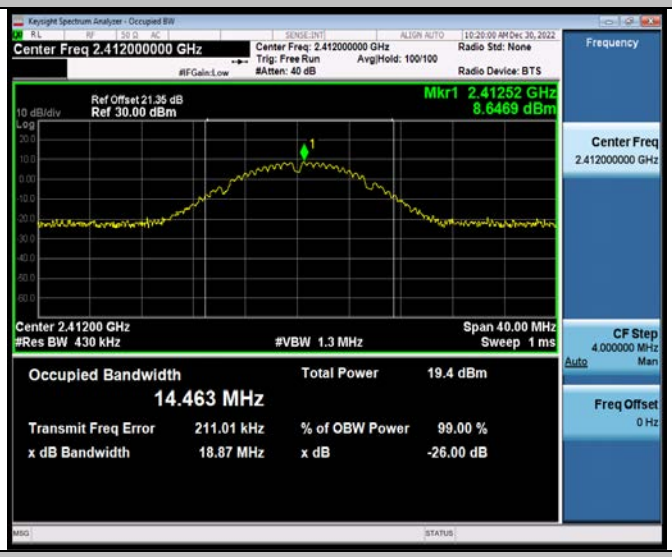
OCCUPIED CHANNEL BANDWIDTH

TEST RESULT

TestMode	Antenna	Channel Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B-CDD	Ant1	2412	14.552	2404.8815	2419.4335	---	---
	Ant2	2412	14.463	2404.9795	2419.4425	---	---
	Ant1	2437	14.957	2429.3897	2444.3467	---	---
	Ant2	2437	14.701	2429.4585	2444.1595	---	---
	Ant1	2462	14.704	2454.5867	2469.2907	---	---
	Ant2	2462	14.312	2454.7324	2469.0444	---	---
11G-CDD	Ant1	2412	16.766	2403.6575	2420.4235	---	---
	Ant2	2412	16.699	2403.7382	2420.4372	---	---
	Ant1	2437	16.863	2428.4972	2445.3602	---	---
	Ant2	2437	16.755	2428.5800	2445.3350	---	---
	Ant1	2462	16.793	2453.5651	2470.3581	---	---
	Ant2	2462	16.644	2453.6547	2470.2987	---	---
11N20MIMO	Ant1	2412	17.948	2403.1105	2421.0585	---	---
	Ant2	2412	17.963	2403.1407	2421.1037	---	---
	Ant1	2437	18.217	2427.8798	2446.0968	---	---
	Ant2	2437	18.104	2427.9401	2446.0441	---	---
	Ant1	2462	18.153	2452.8901	2471.0431	---	---
	Ant2	2462	17.981	2452.9347	2470.9157	---	---
11N40MIMO	Ant1	2422	37.197	2403.4365	2440.6335	---	---
	Ant2	2422	36.759	2403.7001	2440.4591	---	---
	Ant1	2437	37.553	2418.1261	2455.6791	---	---
	Ant2	2437	37.099	2418.4184	2455.5174	---	---
	Ant1	2452	37.519	2433.2925	2470.8115	---	---
	Ant2	2452	37.151	2433.3511	2470.5021	---	---
11AX20MIMO	Ant1	2412	19.239	2402.4305	2421.6695	---	---
	Ant2	2412	19.206	2402.4803	2421.6863	---	---
	Ant1	2437	19.343	2427.2983	2446.6413	---	---
	Ant2	2437	19.293	2427.3260	2446.6190	---	---
	Ant1	2462	19.347	2452.2928	2471.6398	---	---

	Ant2	2462	19.222	2452.3273	2471.5493	---	---
11AX40MIMO	Ant1	2422	39.743	2402.3195	2442.0625	---	---
	Ant2	2422	38.735	2402.7290	2441.4640	---	---
	Ant1	2437	42.035	2416.0149	2458.0499	---	---
	Ant2	2437	39.122	2417.4006	2456.5226	---	---
	Ant1	2452	42.408	2430.6269	2473.0349	---	---
	Ant2	2452	39.778	2432.0384	2471.8164	---	---

TEST GRAPHS

11B-CDD_Ant1_2412

11B-CDD_Ant2_2412

11B-CDD_Ant1_2437

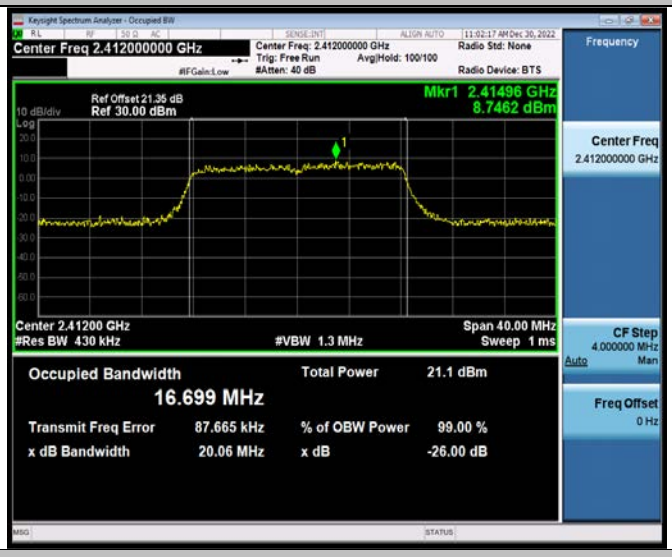
11B-CDD_Ant2_2437

11B-CDD_Ant1_2462

11B-CDD_Ant2_2462

11G-CDD_Ant1_2412

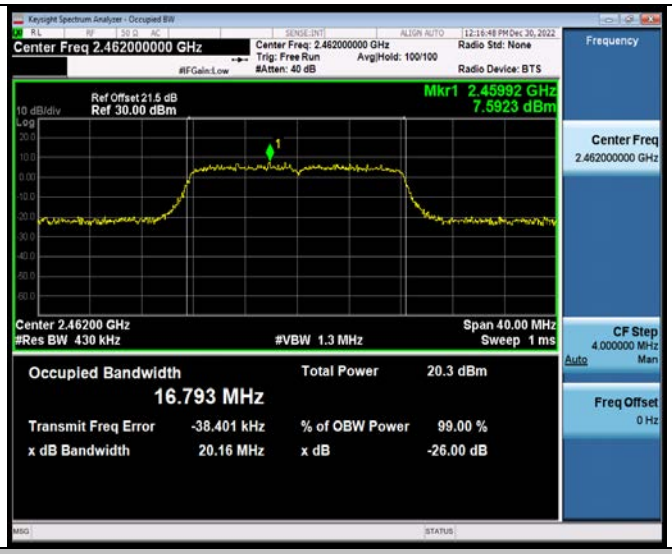
11G-CDD_Ant2_2412



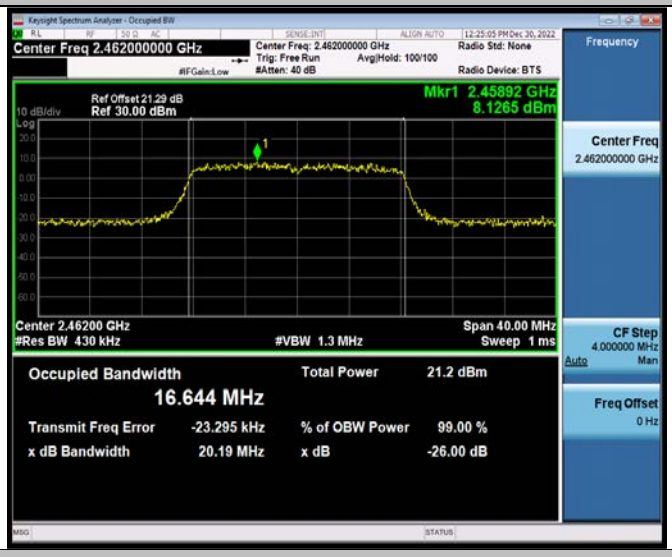
11G-CDD_Ant1_2437

11G-CDD_Ant2_2437

11G-CDD_Ant1_2462



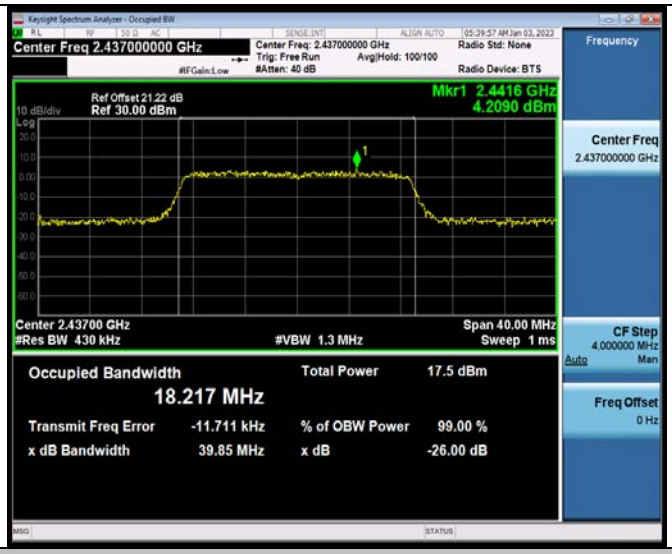
11G-CDD_Ant2_2462



11N20MIMO_Ant1_2412

11N20MIMO_Ant2_2412

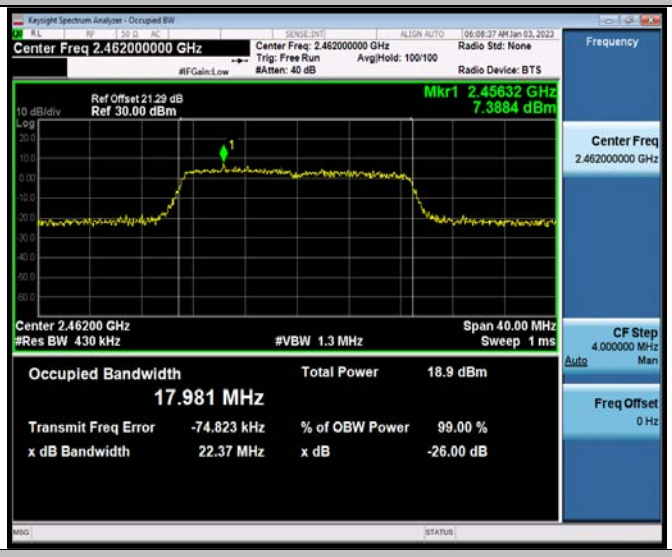
11N20MIMO_Ant1_2437



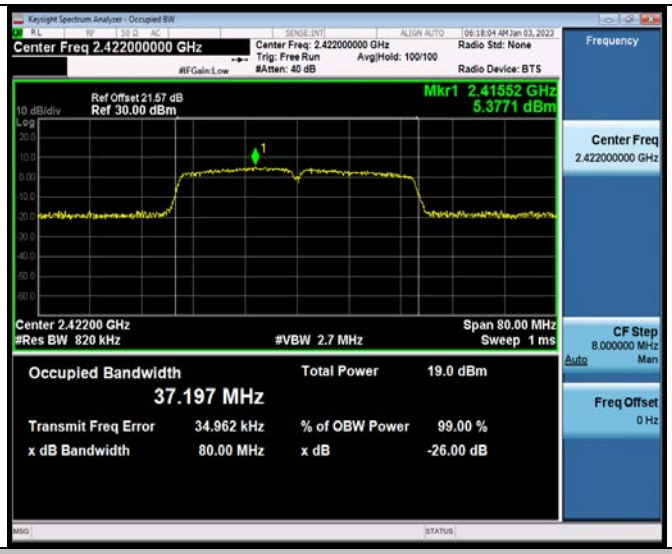
11N20MIMO_Ant2_2437

11N20MIMO_Ant1_2462

11N20MIMO_Ant2_2462

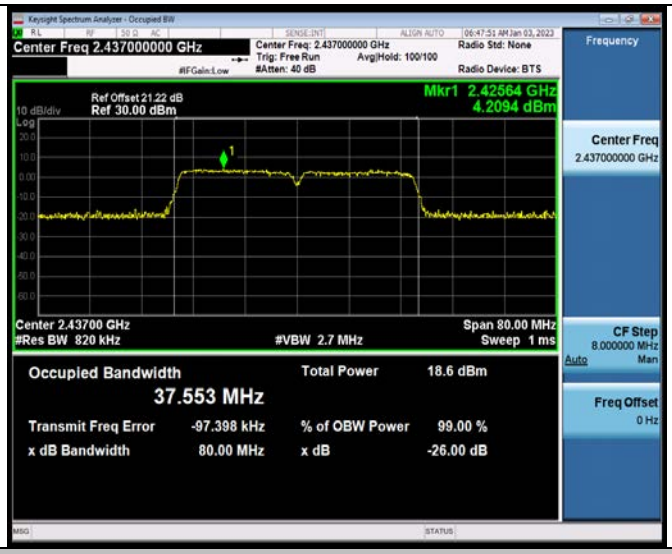


11N40MIMO_Ant1_2422



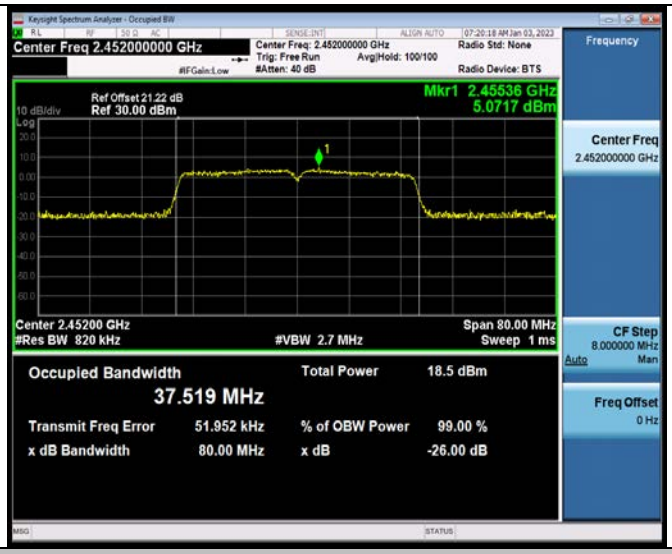
11N40MIMO_Ant2_2422

11N40MIMO_Ant1_2437



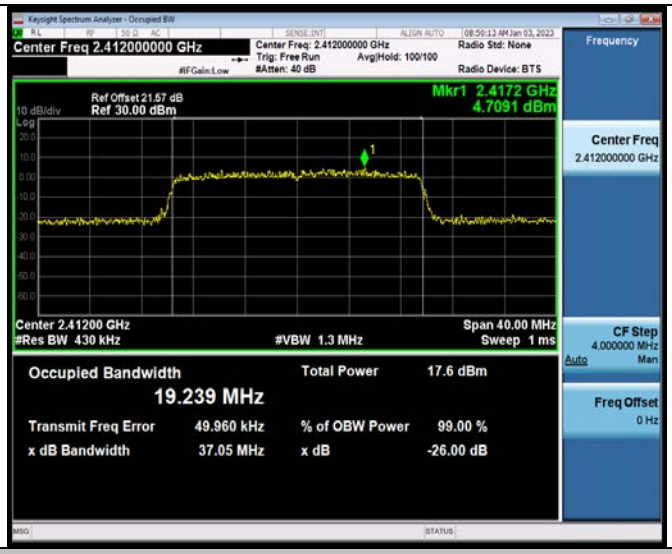
11N40MIMO_Ant2_2437

11N40MIMO_Ant1_2452



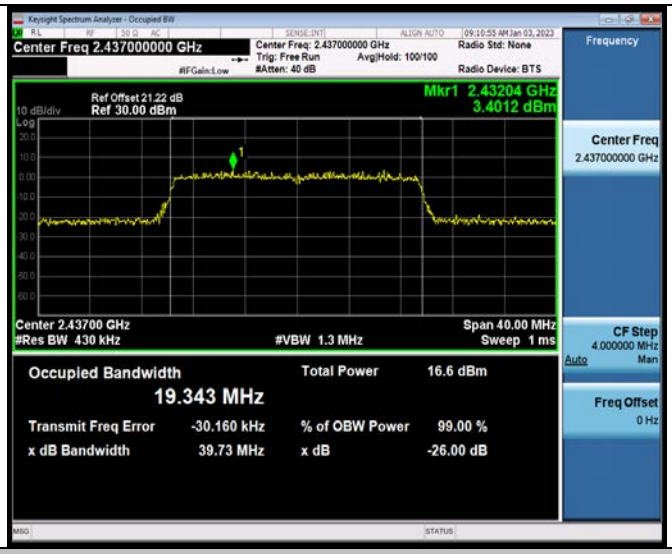
11N40MIMO_Ant2_2452

11AX20MIMO_Ant1_2412

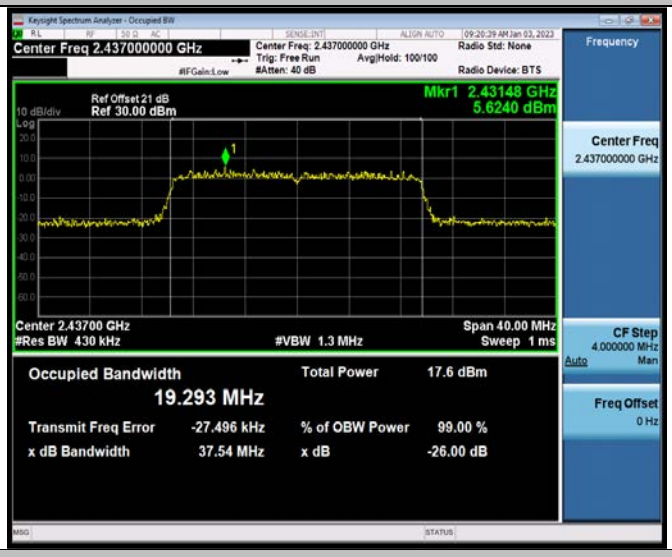


11AX20MIMO_Ant2_2412

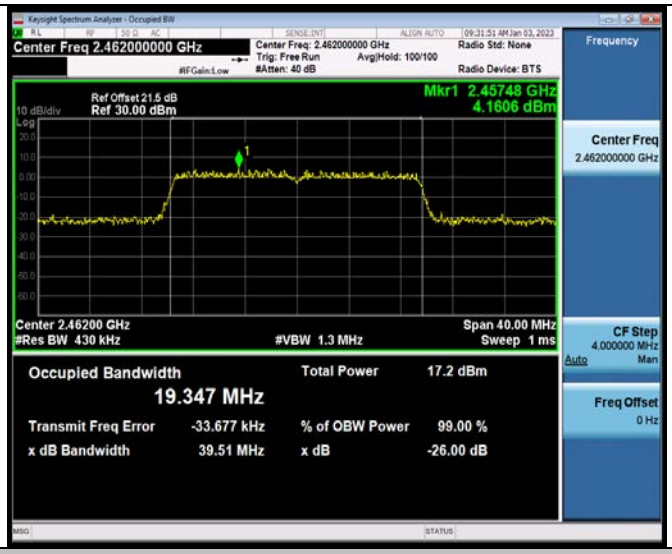
11AX20MIMO_Ant1_2437



11AX20MIMO_Ant2_2437

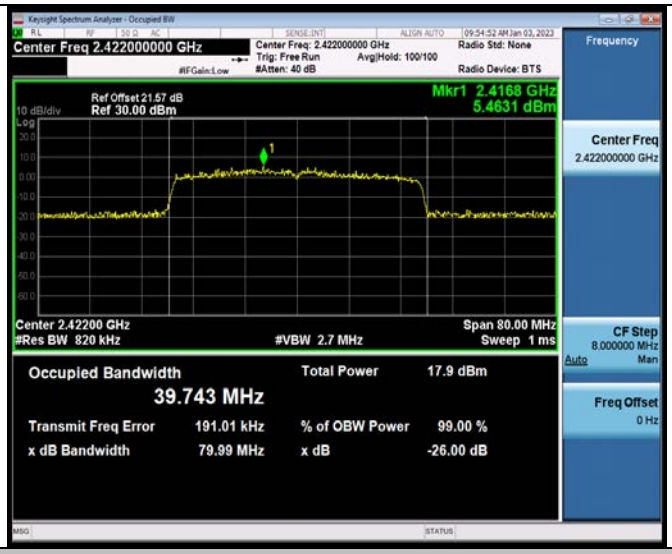


11AX20MIMO_Ant1_2462

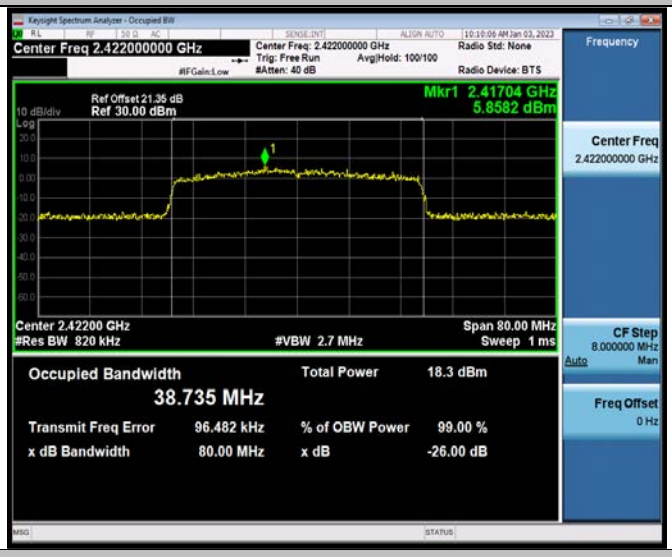


11AX20MIMO_Ant2_2462

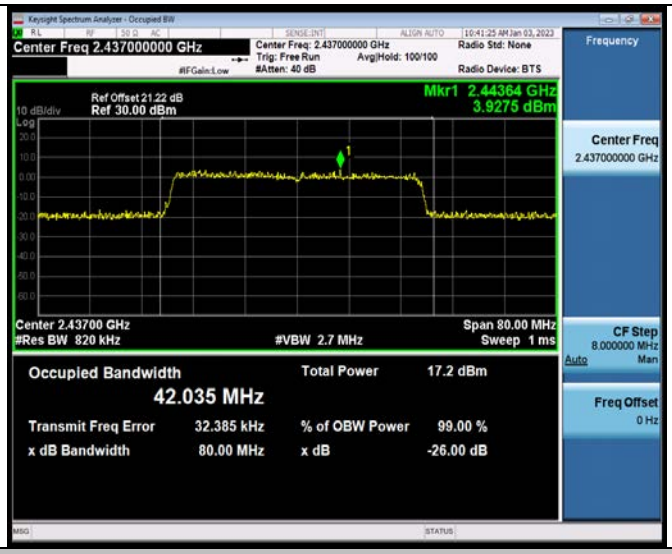
11AX40MIMO_Ant1_2422



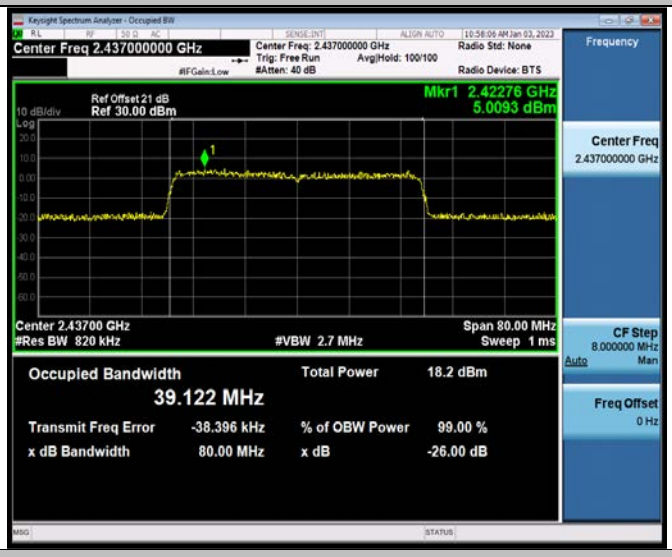
11AX40MIMO_Ant2_2422



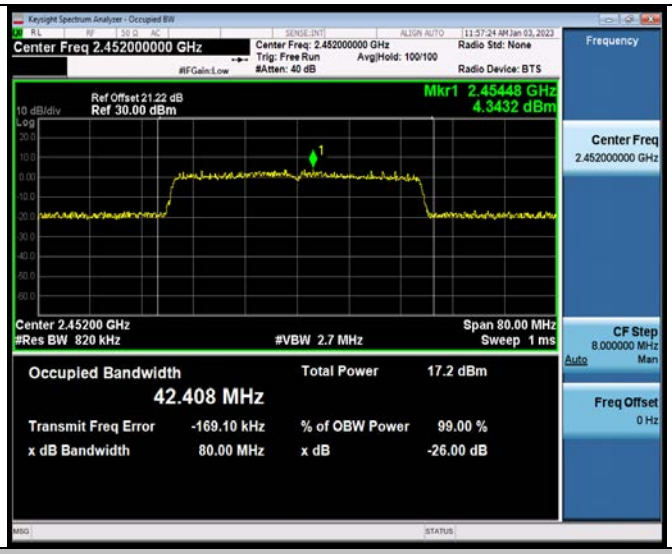
11AX40MIMO_Ant1_2437



11AX40MIMO_Ant2_2437



11AX40MIMO_Ant1_2452



11AX40MIMO_Ant2_2452

MAXIMUM CONDUCTED OUTPUT POWER

TEST RESULT

TestMode	Antenna	Frequency[MHz]	Average power [dBm]	Peak Power [dBm]	Peak Power [mw]	Conducted Limit[dBm]	EIRP [dBm]	EIRP [mw]	EIRP Limit[dBm]	Verdict	Power Setting
11B -SISO	Ant1	2412	15.10	17.61	57.68	≤30.00	17.71	59.02	≤36.00	PASS	16
	Ant1	2437	14.65	17.05	50.70	≤30.00	17.15	51.88	≤36.00	PASS	16
	Ant1	2462	14.74	17.15	51.88	≤30.00	17.25	53.09	≤36.00	PASS	16
	Ant2	2412	15.07	17.55	56.89	≤30.00	13.85	24.27	≤36.00	PASS	16
	Ant2	2437	15.00	17.60	57.54	≤30.00	13.90	24.55	≤36.00	PASS	16
	Ant2	2462	15.08	17.62	57.81	≤30.00	13.92	24.66	≤36.00	PASS	16
11B -CDD	Ant1	2412	15.22	17.84	---	---	---	---	---	---	---
	Ant2	2412	15.18	17.77	---	---	---	---	---	---	---
	total	2412	18.30	20.82	120.78	≤30.00	20.92	123.59	≤36.00	PASS	16
	Ant1	2437	14.77	17.28	---	---	---	---	---	---	---
	Ant2	2437	15.11	17.82	---	---	---	---	---	---	---
	total	2437	18.04	20.57	114.02	≤30.00	20.67	116.68	≤36.00	PASS	16
	Ant1	2462	14.86	17.38	---	---	---	---	---	---	---
	Ant2	2462	15.19	17.84	---	---	---	---	---	---	---
	total	2462	18.13	20.63	115.61	≤30.00	20.73	118.30	≤36.00	PASS	16

11G -SISO	Ant1	2412	12.83	21.00	125.89	≤30.00	20.73	118.3	≤36.00	PASS	14
	Ant1	2437	12.98	20.99	125.60	≤30.00	21.10	128.82	≤36.00	PASS	14
	Ant1	2462	12.95	21.06	127.64	≤30.00	21.09	128.53	≤36.00	PASS	14
	Ant2	2412	13.28	21.80	151.36	≤30.00	21.16	130.62	≤36.00	PASS	14
	Ant2	2437	13.32	21.52	141.91	≤30.00	18.10	64.57	≤36.00	PASS	14
	Ant2	2462	13.27	21.94	156.31	≤30.00	17.82	60.53	≤36.00	PASS	14
11G -CDD	Ant1	2412	12.99	21.23	---	---	---	---	---	---	---
	Ant2	2412	13.43	22.02	---	---	---	---	---	---	---
	total	2412	16.32	24.65	291.74	≤30.00	24.75	298.54	≤36.00	PASS	14
	Ant1	2437	13.14	21.22	---	---	---	---	---	---	---
	Ant2	2437	13.47	21.74	---	---	---	---	---	---	---
	total	2437	16.41	24.50	281.84	≤30.00	24.6	288.40	≤36.00	PASS	14
	Ant1	2462	13.11	21.29	---	---	---	---	---	---	---
	Ant2	2462	13.42	22.16	---	---	---	---	---	---	---
	total	2462	16.37	24.76	**299.23**	≤30.00	24.86	**306.20**	≤36.00	PASS	14
11N20 -SISO	Ant1	2412	10.82	19.12	81.66	≤30.00	19.22	83.56	≤36.00	PASS	12
	Ant1	2437	10.78	18.70	74.13	≤30.00	18.80	75.86	≤36.00	PASS	12
	Ant1	2462	10.73	18.60	72.44	≤30.00	18.70	74.13	≤36.00	PASS	12
	Ant2	2412	11.20	19.50	89.13	≤30.00	15.80	38.02	≤36.00	PASS	12
	Ant2	2437	11.14	19.37	86.50	≤30.00	15.67	36.90	≤36.00	PASS	12
	Ant2	2462	11.21	19.56	90.36	≤30.00	15.86	38.55	≤36.00	PASS	12

11N20 -MIMO	Ant1	2412	10.97	19.35	---	≤30.00	---	---	---	---	---
	Ant2	2412	11.34	19.72	---	≤30.00	---	---	---	---	---
	total	2412	14.26	22.55	179.89	≤30.00	22.65	184.08	≤36.00	PASS	12
	Ant1	2437	10.93	18.93	---	---	---	---	---	---	---
	Ant2	2437	11.28	19.59	---	---	---	---	---	---	---
	total	2437	14.21	22.28	169.04	≤30.00	22.38	172.98	≤36.00	PASS	12
	Ant1	2462	10.88	18.83	---	---	---	---	---	---	---
	Ant2	2462	11.35	19.78	---	---	---	---	---	---	---
	total	2462	14.22	22.34	171.40	≤30.00	22.44	175.39	≤36.00	PASS	12
11N40 -SISO	Ant1	2422	10.69	18.38	68.87	≤30.00	18.48	70.47	≤36.00	PASS	12
	Ant1	2437	10.85	18.46	70.15	≤30.00	18.56	71.78	≤36.00	PASS	12
	Ant1	2452	10.69	18.15	65.31	≤30.00	18.25	66.83	≤36.00	PASS	12
	Ant2	2422	11.33	19.56	90.36	≤30.00	15.86	38.55	≤36.00	PASS	12
	Ant2	2437	11.42	19.69	93.11	≤30.00	15.99	39.72	≤36.00	PASS	12
	Ant2	2452	11.39	19.58	90.78	≤30.00	15.88	38.73	≤36.00	PASS	12
11N40 -MIMO	Ant1	2422	10.85	18.61	---	---	---	---	---	---	---
	Ant2	2422	11.48	19.78	---	---	---	---	---	---	---
	total	2422	14.28	22.24	167.49	≤30.00	22.34	171.40	≤36.00	PASS	12
	Ant1	2437	11.01	18.69	---	---	---	---	≤36.00	PASS	12
	Ant2	2437	11.57	19.91	---	---	---	---	≤36.00	PASS	12
	total	2437	14.4	22.35	171.79	≤30.00	22.45	175.79	≤36.00	PASS	12

	Ant1	2452	10.85	18.38	---	---	---	---	---	---	---
	Ant2	2452	11.54	19.8	---	---	---	---	---	---	---
	total	2452	14.31	22.16	164.44	≤30.00	22.26	168.27	≤36.00	PASS	12
11AX20 -SISO	Ant1	2412	9.22	20.33	107.89	≤30.00	22.26	168.27	≤36.00	PASS	10
	Ant1	2437	8.92	19.99	99.77	≤30.00	20.43	110.41	≤36.00	PASS	10
	Ant1	2462	9.05	19.88	97.27	≤30.00	20.09	102.09	≤36.00	PASS	10
	Ant2	2412	9.24	18.52	71.12	≤30.00	19.98	99.54	≤36.00	PASS	10
	Ant2	2437	9.29	18.50	70.79	≤30.00	14.82	30.34	≤36.00	PASS	10
	Ant2	2462	9.18	18.59	72.28	≤30.00	14.80	30.20	≤36.00	PASS	10
11AX20 -MIMO	Ant1	2412	9.44	20.56	---	---	---	---	---	---	---
	Ant2	2412	9.45	18.74	---	---	---	---	---	---	---
	total	2412	12.55	22.75	188.36	≤30.00	22.85	192.75	≤36.00	PASS	10
	Ant1	2437	9.14	20.22	---	---	---	---	---	---	---
	Ant2	2437	9.50	18.72	---	---	---	---	---	---	---
	total	2437	12.42	22.54	179.47	≤30.00	22.64	183.65	≤36.00	PASS	10
	Ant1	2462	9.27	20.11	---	---	---	---	---	---	---
	Ant2	2462	9.39	18.81	---	---	---	---	---	---	---
	total	2462	12.43	22.52	178.65	≤30.00	22.62	182.81	≤36.00	PASS	10
11AX40 -SISO	Ant1	2422	9.11	20.22	105.20	≤30.00	22.62	182.81	≤36.00	PASS	10
	Ant1	2437	8.91	20.07	101.62	≤30.00	20.32	107.65	≤36.00	PASS	10
	Ant1	2452	8.94	19.95	98.86	≤30.00	20.17	103.99	≤36.00	PASS	10

	Ant2	2422	8.91	17.56	57.02	≤30.00	20.05	101.16	≤36.00	PASS	10
	Ant2	2437	8.92	17.75	59.57	≤30.00	13.86	24.32	≤36.00	PASS	10
	Ant2	2452	8.94	17.57	57.15	≤30.00	14.05	25.41	≤36.00	PASS	10
11AX40 -MIMO	Ant1	2422	9.33	20.45	---	---	---	---	---	---	---
	Ant2	2422	9.12	17.78	---	---	---	---	---	---	---
	total	2422	12.33	22.33	171.00	≤30.00	22.43	174.98	≤36.00	PASS	10
	Ant1	2437	9.13	20.30	---	---	---	---	---	---	---
	Ant2	2437	9.13	17.97	---	---	---	---	---	---	---
	total	2437	12.23	22.30	169.82	≤30.00	22.4	173.78	≤36.00	PASS	10
	Ant1	2452	9.16	20.18	---	---	---	---	---	---	---
	Ant2	2452	9.15	17.79	---	---	---	---	---	---	---
	total	2452	12.26	22.16	164.44	≤30.00	22.26	168.27	≤36.00	PASS	10

NOTE: EIRP = Peak Power + Gain

MAXIMUM POWER SPECTRAL DENSITY

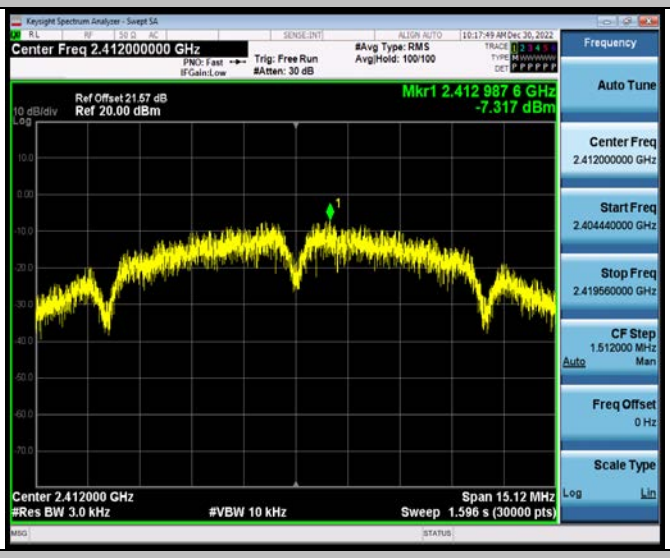
TEST RESULT

TestMode	Antenna	Frequency[MHz]	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
11B-CDD	Ant1	2412	-7.32	≤8.00	PASS
	Ant2	2412	-6.78	≤8.00	PASS
	total	2412	-4.03	≤8.00	PASS
	Ant1	2437	-7.89	≤8.00	PASS
	Ant2	2437	-7.19	≤8.00	PASS
	total	2437	-4.52	≤8.00	PASS
	Ant1	2462	-7.19	≤8.00	PASS
	Ant2	2462	-6.71	≤8.00	PASS
	total	2462	-3.93	≤8.00	PASS
11G-CDD	Ant1	2412	-10.51	≤8.00	PASS
	Ant2	2412	-9.85	≤8.00	PASS
	total	2412	-7.16	≤8.00	PASS
	Ant1	2437	-11.39	≤8.00	PASS
	Ant2	2437	-10.35	≤8.00	PASS
	total	2437	-7.83	≤8.00	PASS
	Ant1	2462	-10.44	≤8.00	PASS
	Ant2	2462	-10.06	≤8.00	PASS

	total	2462	-7.24	≤8.00	PASS
11N20MIMO	Ant1	2412	-12.39	≤8.00	PASS
	Ant2	2412	-9.98	≤8.00	PASS
	total	2412	-8.01	≤8.00	PASS
	Ant1	2437	-13.08	≤8.00	PASS
	Ant2	2437	-11.59	≤8.00	PASS
	total	2437	-9.26	≤8.00	PASS
	Ant1	2462	-12.49	≤8.00	PASS
	Ant2	2462	-11.46	≤8.00	PASS
	total	2462	-8.93	≤8.00	PASS
11N40MIMO	Ant1	2422	-14.66	≤8.00	PASS
	Ant2	2422	-13.54	≤8.00	PASS
	total	2422	-11.05	≤8.00	PASS
	Ant1	2437	-15.15	≤8.00	PASS
	Ant2	2437	-14.22	≤8.00	PASS
	total	2437	-11.65	≤8.00	PASS
	Ant1	2452	-14.32	≤8.00	PASS
	Ant2	2452	-15.01	≤8.00	PASS
	total	2452	-11.64	≤8.00	PASS
11AX20MIMO	Ant1	2412	-15.16	≤8.00	PASS
	Ant2	2412	-14.68	≤8.00	PASS

	total	2412	-11.90	≤8.00	PASS
	Ant1	2437	-16.47	≤8.00	PASS
	Ant2	2437	-15.26	≤8.00	PASS
	total	2437	-12.81	≤8.00	PASS
	Ant1	2462	-15.27	≤8.00	PASS
	Ant2	2462	-14	≤8.00	PASS
	total	2462	-11.58	≤8.00	PASS
11AX40MIMO	Ant1	2422	-16.79	≤8.00	PASS
	Ant2	2422	-15.67	≤8.00	PASS
	total	2422	-13.18	≤8.00	PASS
	Ant1	2437	-18.1	≤8.00	PASS
	Ant2	2437	-17.46	≤8.00	PASS
	total	2437	-14.76	≤8.00	PASS
	Ant1	2452	-18.35	≤8.00	PASS
	Ant2	2452	-17.44	≤8.00	PASS
	total	2452	-14.86	≤8.00	PASS

TEST GRAPHS

11B-CDD_Ant1_2412

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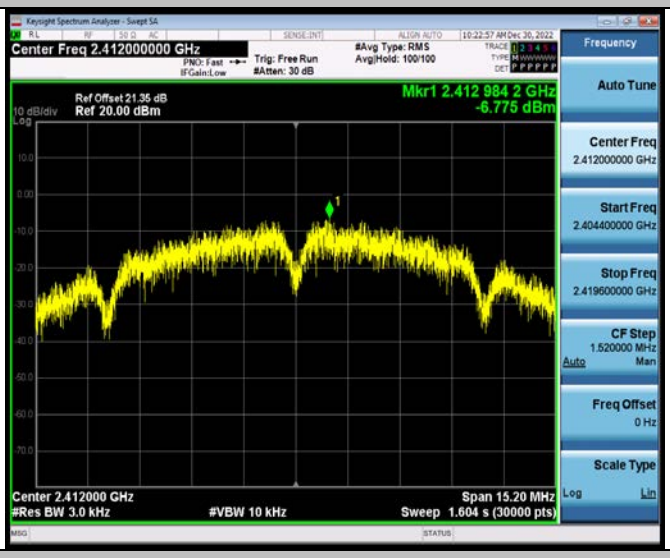
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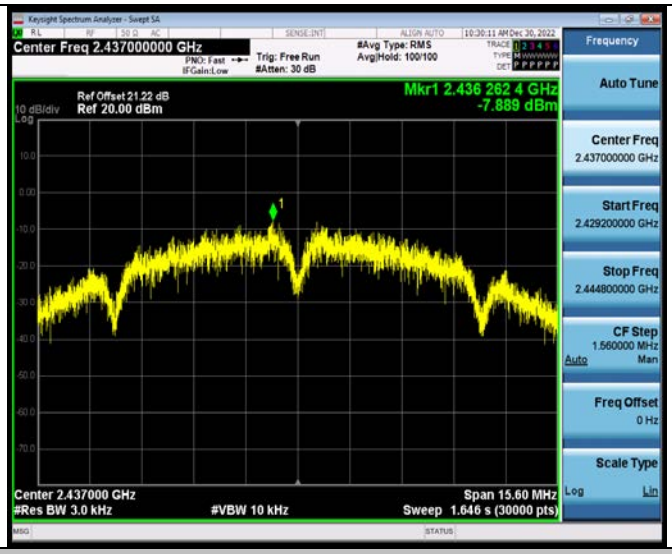

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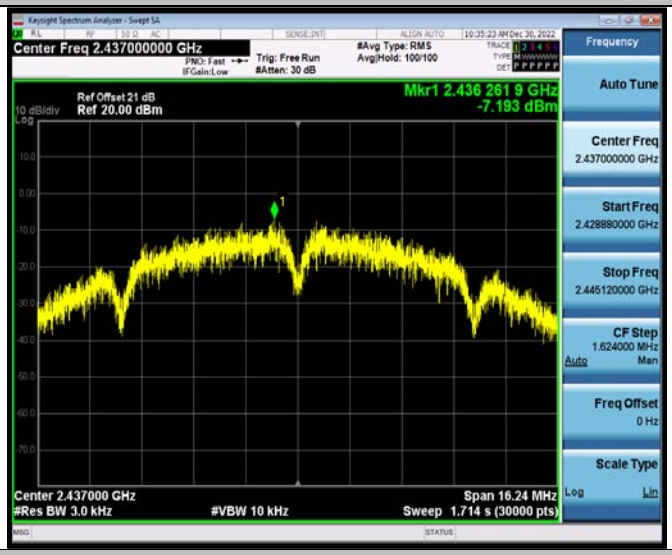

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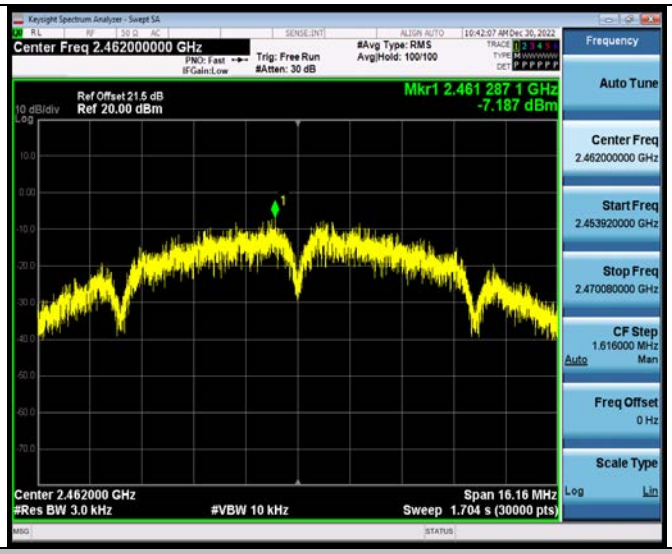

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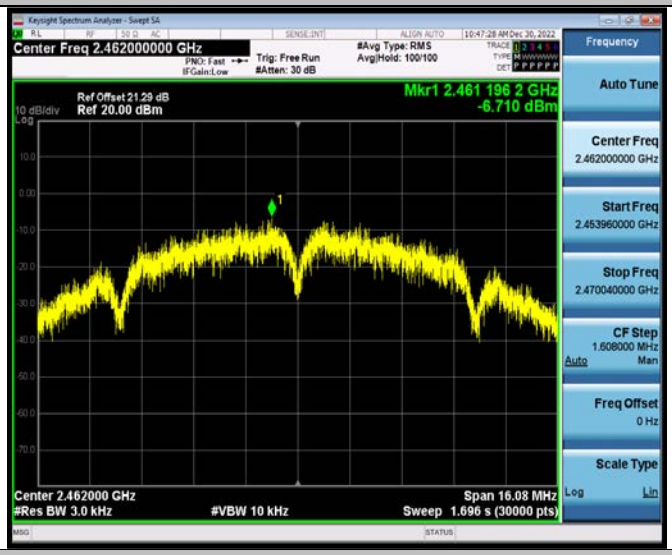

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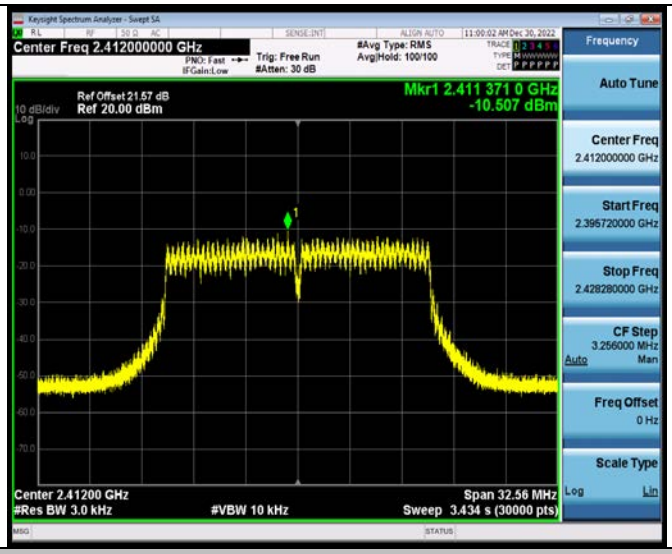

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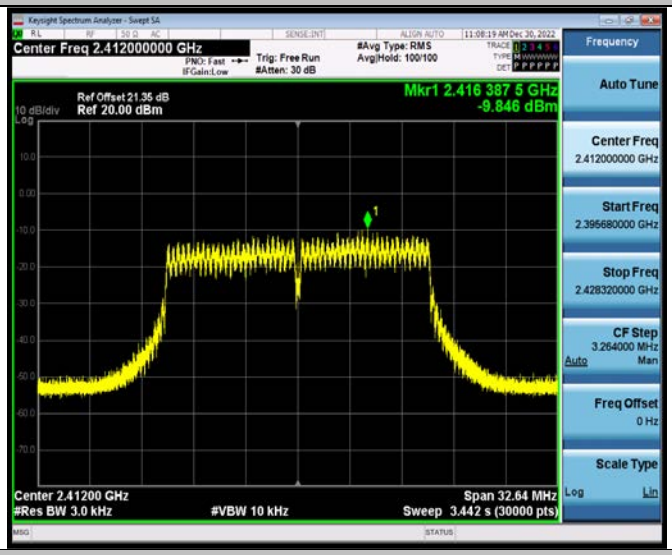

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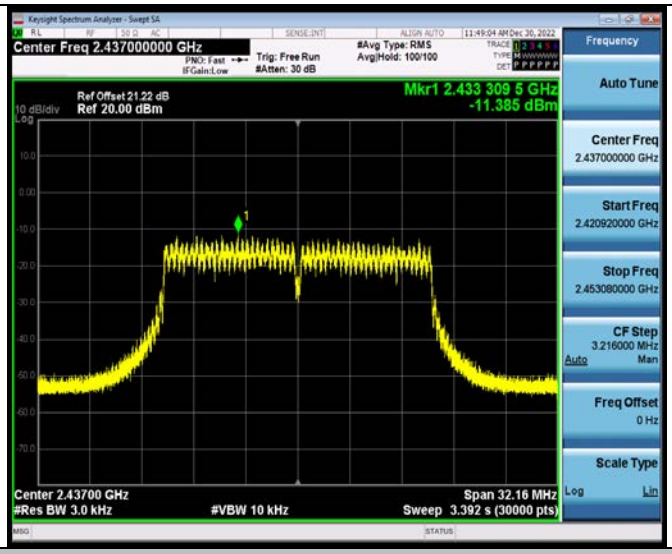

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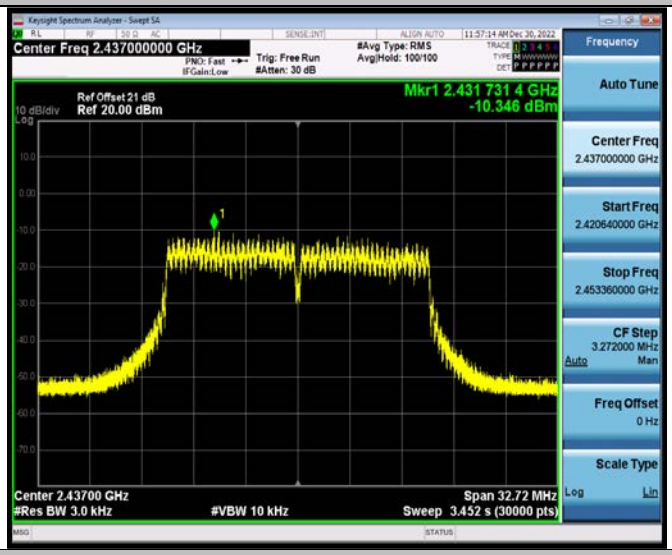

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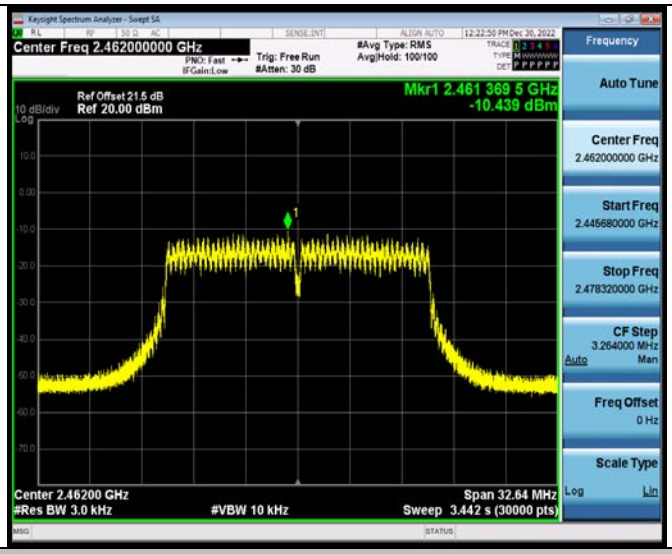

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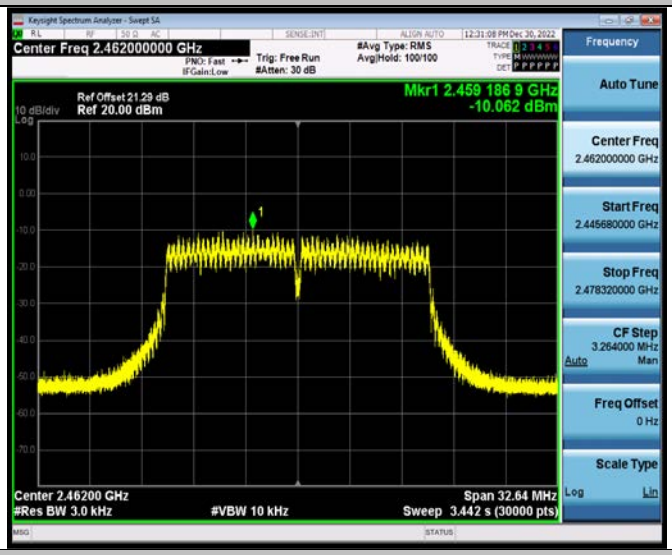

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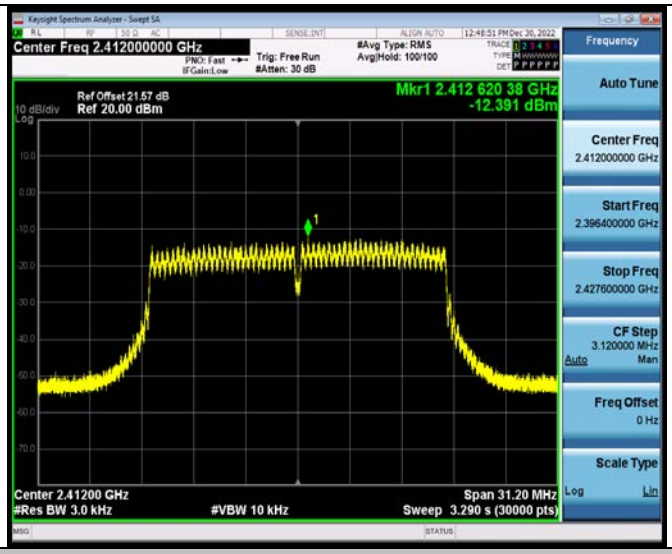

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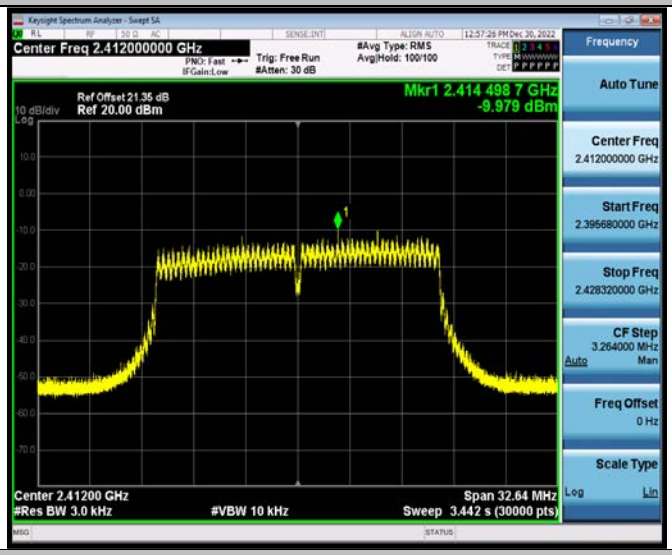

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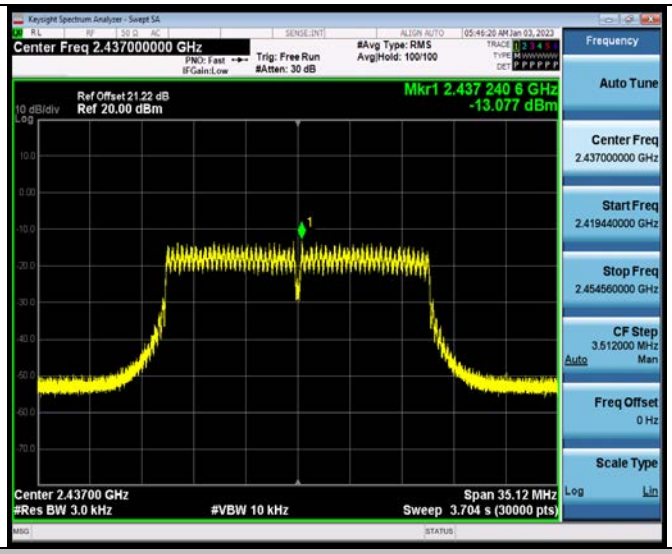

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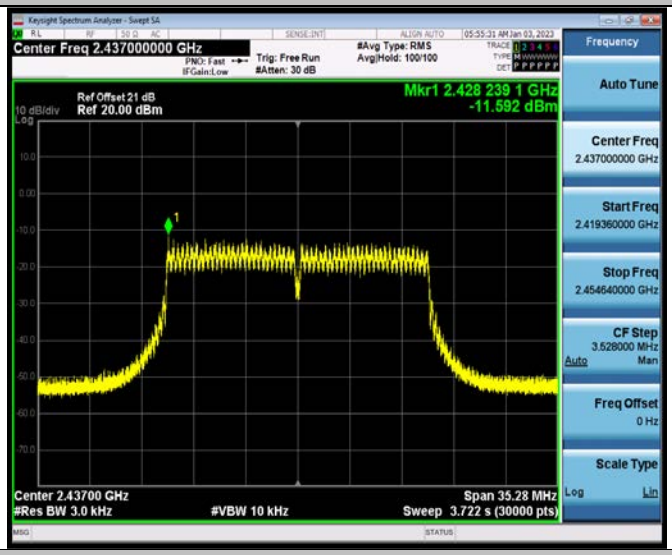

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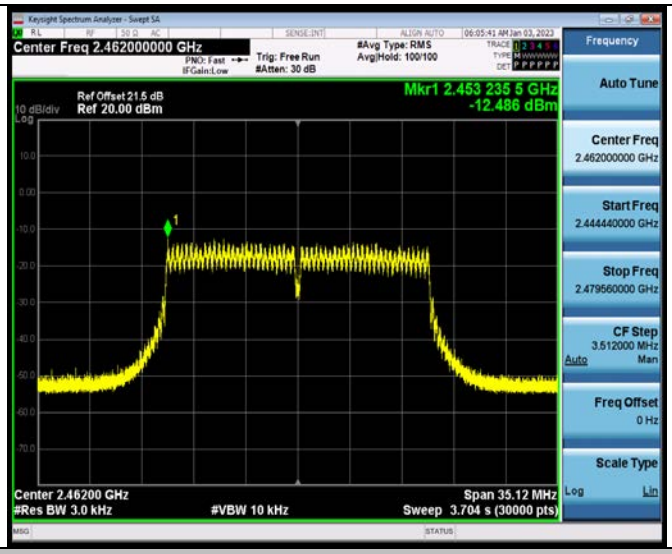

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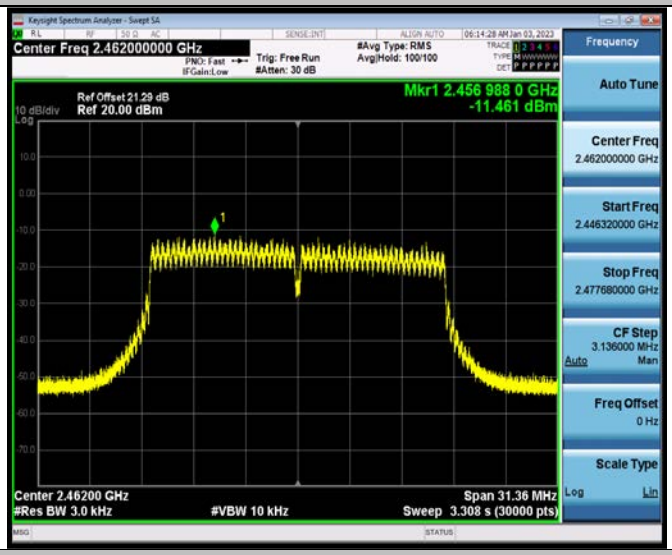

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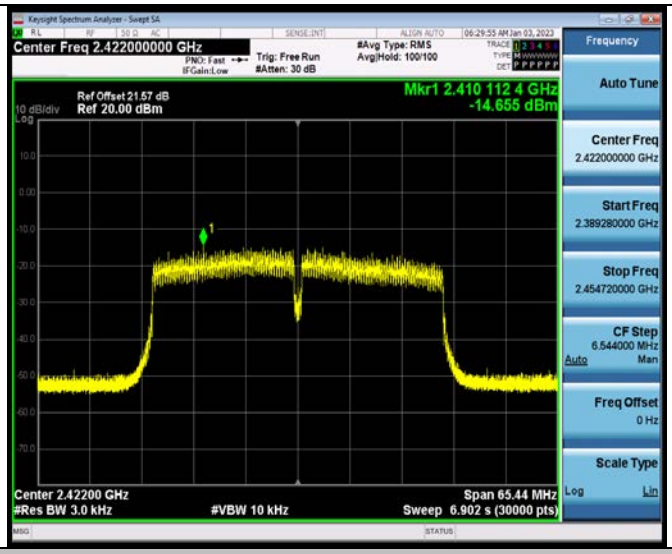

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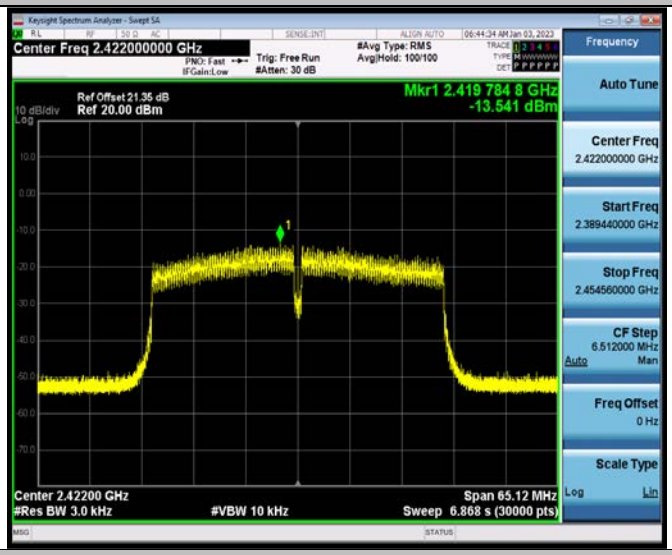

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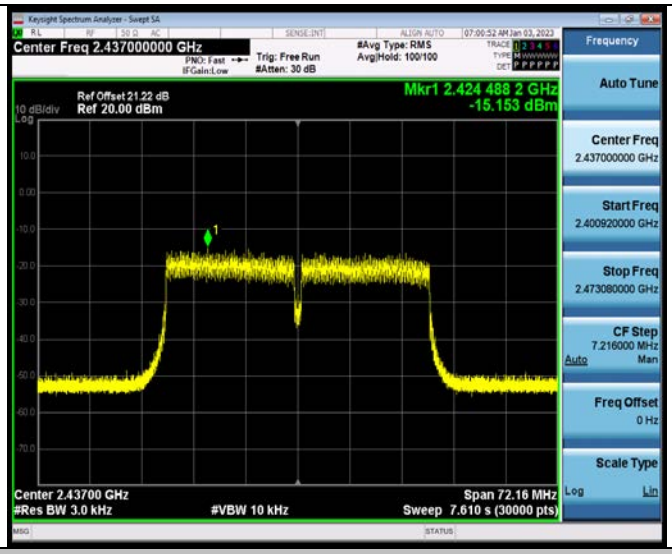

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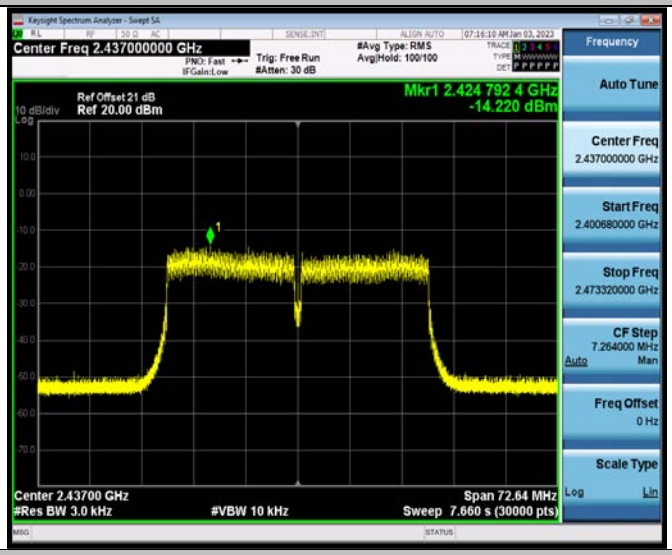

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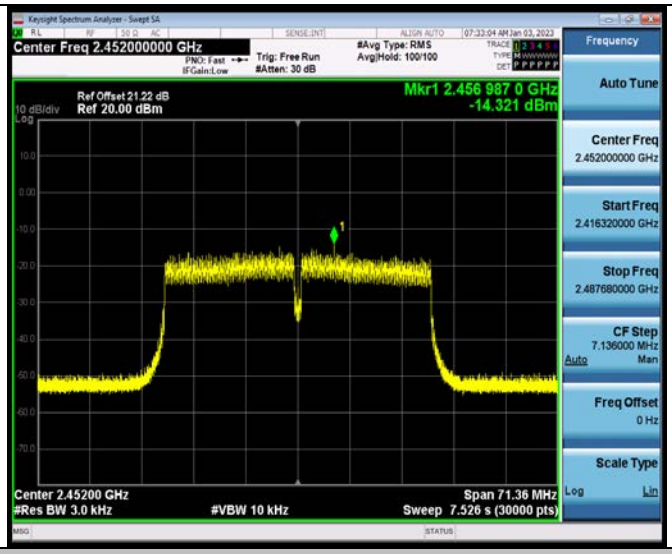

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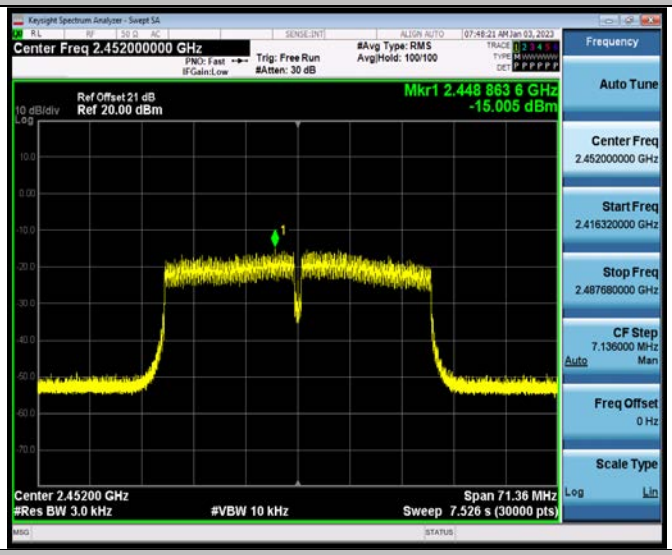

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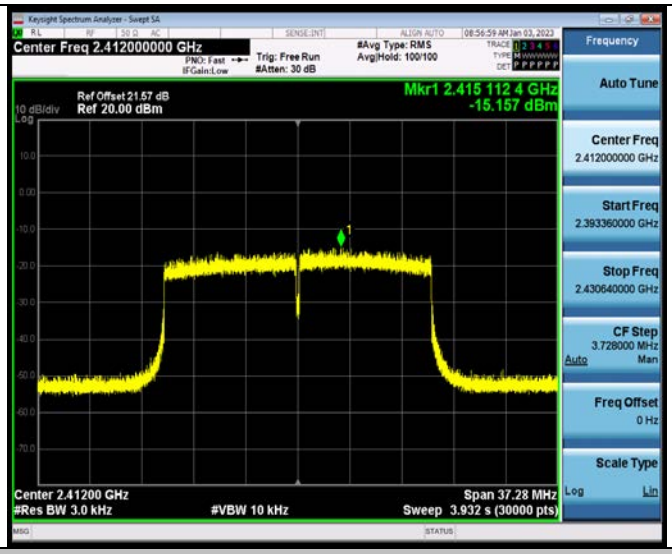

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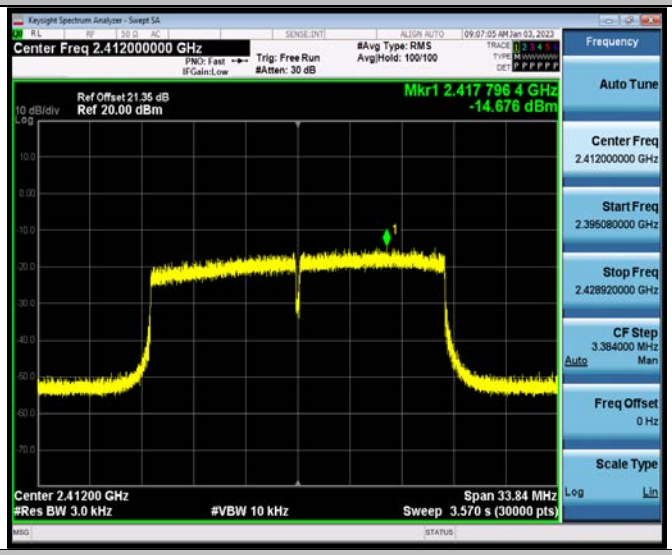

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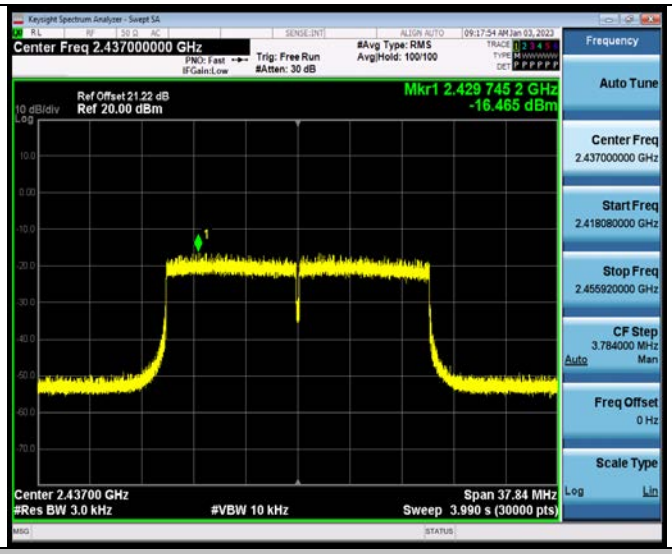

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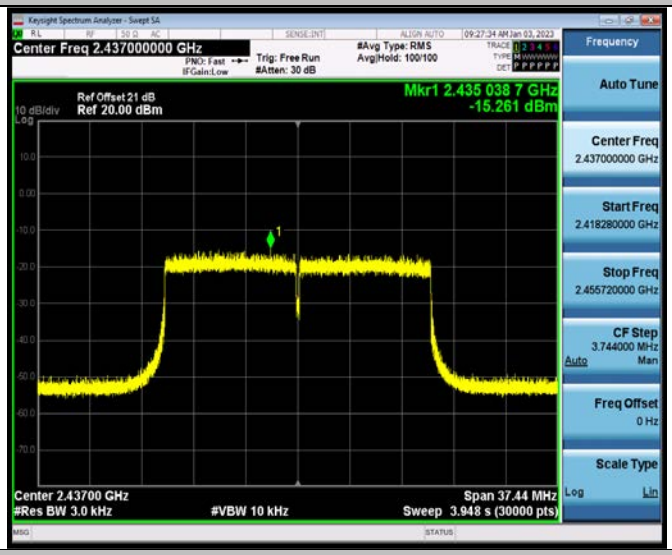

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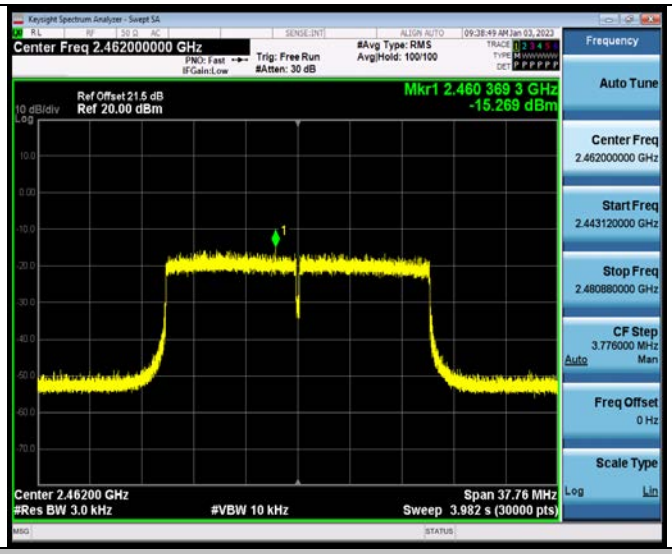

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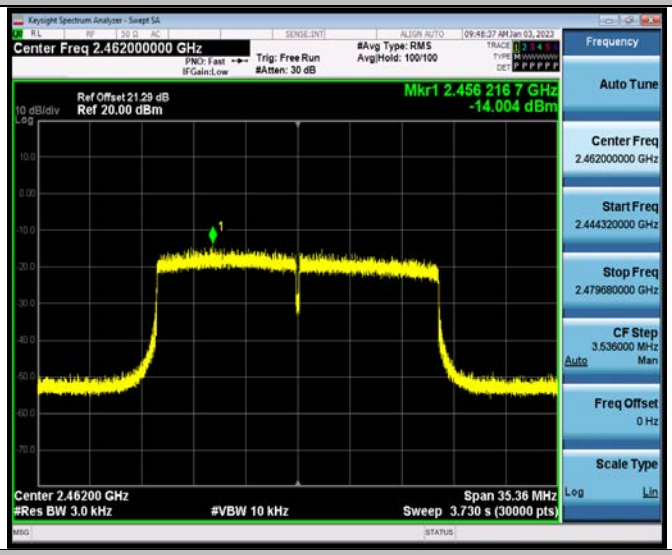

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