Test Report No.: W7L-P23080017RF02

FCC TEST REPORT

(Part 15, Subpart C)

Applicant:	Xiaomi Communications Co., Ltd.
Address:	#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085

Manufacturer or Supplier:	Xiaomi Communications Co., Ltd.
Address:	#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085
Product:	Mobile Phone
Brand Name:	POCO
Model Name:	2310FPCA4G
FCC ID:	2AFZZCA4G
Date of tests:	Aug. 07, 2023 ~ Sep. 18, 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 Engineer / Mobile Department	Approved by Luke Lu Manager / Mobile Department
Simon Wang Date: Sep. 18, 2023	Luke Lu Date: Sep. 18, 2023

This report is governed by, and incorporates by reference, the Conditions of Testing as posted at the date of issuance of this report at http://www.bureauveritas.com/home/about-us/our-business/cps/about-us/terms-conditions/ and is intended for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. Measurement uncertainty is only provided upon request for accredited tests. Statements of conformity are based on simple acceptance criteria without taking measurement uncertainty into account, unless otherwise requested in writing. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence or if you require measurement uncertainty; provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents.

TABLE OF CONTENTS

RELEASE CONTROL RECORD **4**
1 SUMMARY OF TEST RESULTS **5**
1.1 MEASUREMENT UNCERTAINTY 6
2 GENERAL INFORMATION **7**
2.1 GENERAL DESCRIPTION OF EUT 7
2.2 DESCRIPTION OF TEST MODES 9
2.2.1 CONFIGURATION OF SYSTEM UNDER TEST 10
2.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL 10
2.3 DUTY CYCLE OF TEST SIGNAL 14
2.4 GENERAL DESCRIPTION OF APPLIED STANDARDS 15
2.5 DESCRIPTION OF SUPPORT UNITS 15
3 TEST TYPES AND RESULTS **16**
3.1 CONDUCTED EMISSION MEASUREMENT 16
3.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT 16
3.1.2 TEST INSTRUMENTS 16
3.1.3 TEST PROCEDURES 17
3.1.4 DEVIATION FROM TEST STANDARD 17
3.1.5 TEST SETUP 18
3.1.6 EUT OPERATING CONDITIONS 18
3.1.7 TEST RESULTS 19
3.2 RADIATED EMISSION MEASUREMENT 21
3.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT 21
3.2.2 TEST INSTRUMENTS 22
3.2.3 TEST PROCEDURES 24
3.2.4 DEVIATION FROM TEST STANDARD 24
3.2.5 TEST SETUP 25
3.2.6 EUT OPERATING CONDITIONS 26
3.2.7 TEST RESULTS 27
3.3 6 DB BANDWIDTH MEASUREMENT 62
3.3.1 LIMITS OF 6DB BANDWIDTH MEASUREMENT 62
3.3.2 TEST INSTRUMENTS 62
3.3.3 TEST PROCEDURE 62
3.3.4 DEVIATION FROM TEST STANDARD 63
3.3.5 TEST SETUP 63

3.3.6 EUT OPERATING CONDITIONS 63
3.3.7 TEST RESULTS 64
3.4 CONDUCTED OUTPUT POWER 65
3.4.1 LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT 65
3.4.2 TEST SETUP 65
3.4.3 TEST INSTRUMENTS 65
3.4.4 TEST PROCEDURES 65
3.4.5 DEVIATION FROM TEST STANDARD 65
3.4.6 EUT OPERATING CONDITIONS 65
3.4.7 TEST RESULTS 66
3.4.7.1 MAXIMUM PEAK OUTPUT POWER 66
3.4.7.2 AVERAGE OUTPUT POWER (FOR REFERENCE) 67
3.5 POWER SPECTRAL DENSITY MEASUREMENT 68
3.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT 68
3.5.2 TEST SETUP 68
3.5.3 TEST INSTRUMENTS 68
3.5.4 TEST PROCEDURE 68
3.5.5 DEVIATION FROM TEST STANDARD 68
3.5.6 EUT OPERATING CONDITION 68
3.5.7 TEST RESULTS 69
3.6 OUT OF BAND EMISSION MEASUREMENT 70
3.6.1 LIMITS OF OUT OF BAND EMISSION MEASUREMENT 70
3.6.2 TEST SETUP 70
3.6.3 TEST INSTRUMENTS 70
3.6.4 TEST PROCEDURE 70
3.6.5 DEVIATION FROM TEST STANDARD 71
3.6.6 EUT OPERATING CONDITION 71
3.6.7 TEST RESULTS 71
3.7 ANTENNA REQUIREMENTS 72
3.7.1 STANDARD APPLICABLE 72
3.7.2 ANTENNA CONNECTED CONSTRUCTION 72
3.7.3 ANTENNA GAIN 72
4 PHOTOGRAPHS OF THE TEST CONFIGURATION 72
5 MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB73
6 APPENDIX 1 :WLAN 2.4G 74
7 APPENDIX 2 :BLE 118

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
W7L-P23080017RF02	Original release	Sep. 18, 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**	**LAB**
15.207	AC Power Conducted Emission	Compliance	A
15.205 15.209	Radiated Emissions	Compliance	A/B
15.247(d)	Out of band Emission Measurement	Compliance	A
15.247(a)(2)	6dB bandwidth	Compliance	A
15.247(b)	Conducted Output power	Compliance	A
15.247(e)	Power Spectral Density	Compliance	A
15.203	Antenna Requirement	Compliance	A

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

2. This report refers to the data of W7L-P23080006RF02 (model: 23100RN82L), the difference of 23100RN82L and 2310FPCA4G is model and FCC-ID, 2310FPCA4G remove some components and LTE B13&26, add NFC function. This report verifies power and RSE worse case. The result of power is similar and lower. So this report only updates RSE worse case（11g CH11）and add the power of Spot-Check worst case.

Test Lab Information Reference:
Lab A

BV 7Layers Communications Technology (Shenzhen) Co., Ltd

Lab Address:

No.B102, Dazu Chuangxin Mansion, North of Beihuan Avenue, North Area, Hi-Tech Industrial Park, Nanshan District, Shenzhen, Guangdong, China

Accredited Test Lab Cert 3939.01
The FCC Site Registration No. is 525120; The Designation No. is CN1171.

Lab B:

Huarui 7Layers High Technology (Suzhou) Co., Ltd.

Lab Address:

Tower N, Innovation Center, 88 Zhuyi Road, High-tech District, Suzhou City, Anhui Province

Accredited Test Lab Cert 6613.01
The FCC Site Registration No. is 434559; The Designation No. is CN1325.

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	Mobile Phone
BRAND NAME	POCO
MODEL NAME	2310FPCA4G
MODULATION	DSSS, OFDM, GFSK
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 72.2 Mbps BT_LE: 0.125 Mbps /0.5 Mbps /1 Mbps/2 Mbps
OPERATING FREQUENCY	2412-2462MHz for 11b/g/n(HT20) 2402-2480MHz for BT-LE(GFSK)
MAX. OUTPUT POWER	WLAN: 292.42mW (Maximum) BT-LE: 1.56mW (Maximum)
ANTENNA TYPE	PIFA Antenna with -1dBi gain
HW VERSION	LLDM572
SW VERSION	MIUI 14
IMEI	863772060014123
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 SISO function. Physically, the EUT provides one transmitter and one receiver.

MODULATION MODE	TX/RX FUNCTION
802.11b	1TX /1RX
802.11g	1TX /1RX
802.11n (20MHz)	1TX /1RX
BT_LE(1MHz)	1TX /1RX
BT_LE(2MHz)	1TX /1RX
BT_LE(S2)	1TX /1RX
BT_LE(S8)	1TX /1RX

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

2.2 DESCRIPTION OF TEST MODES

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

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		

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 4photographs 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).
☒ The following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)
802.11g	1 to 11	11	OFDM	6.0
BT-LE	0 to 39	39	GFSK	0.5

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).

☒The 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
BT-LE	0 to 39	0,19, 39	GFSK	0.125&0.5&1.0
BT-LE	1 to 38	1, 19, 38	GFSK	2.0

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).

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)
802.11g	1 to 11	11	OFDM	6.0

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).

☒ The 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
BT-LE	0 to 39	0,19, 39	GFSK	0.125&0.5&1.0
BT-LE	1 to 38	1, 19, 38	GFSK	2.0

ANTENNA PORT CONDUCTED MEASUREMENT:

☒ This item includes all test values 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).
☒ The 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
BT-LE	0 to 39	0,19, 39	GFSK	0.125&0.5&1.0
BT-LE	1 to 38	1, 19, 38	GFSK	2.0

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 3.84 By Battery	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 [%]
WIFI 2.4GHz	11B	99.53
	11G	97.22
	11N20	96.30
BT LE	BT4.0	85.20
	BT5.0	57.45
	BTS2	91.00
	BTS8	97.48

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 a 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. 14,23	Feb. 13,24
EMC32 test software	Rohde&Schwarz	EMC32	NA	NA	NA
LISN network	Rohde&Schwarz	ENV216	101922	Mar. 03,23	Mar. 02,24

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.

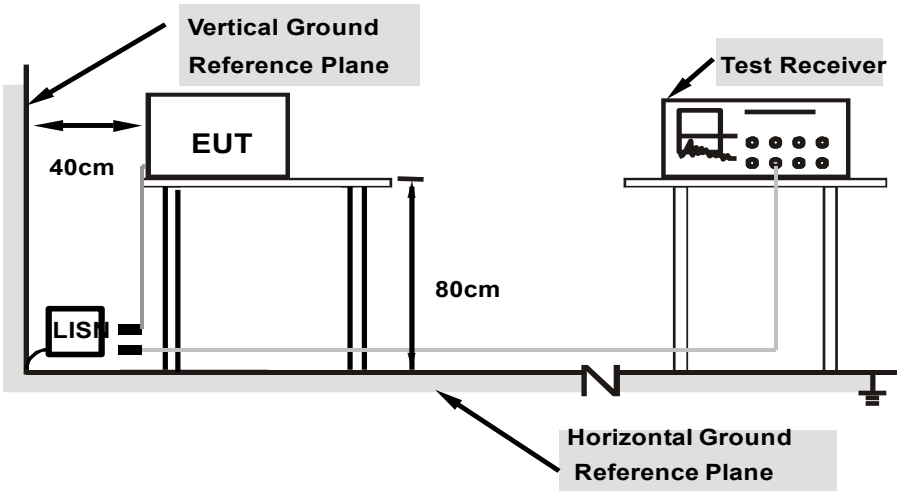
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) were not recorded.

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 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

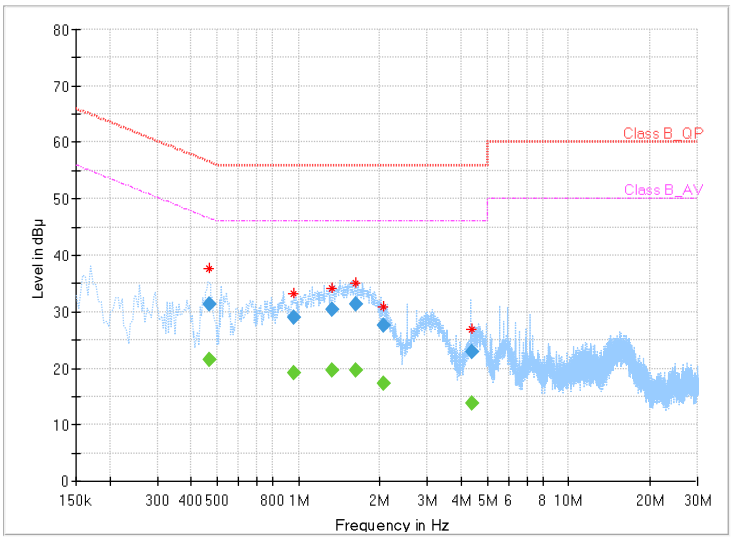
CONDUCTED WORST-CASE DATA:

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)
0.468000	---	21.54	46.55	25.01	L1	ON	9.7
0.468000	31.39	---	56.55	25.16	L1	ON	9.7
0.956000	---	19.22	46.00	26.78	L1	ON	9.7
0.956000	29.11	---	56.00	26.89	L1	ON	9.7
1.328000	---	19.61	46.00	26.39	L1	ON	9.7
1.328000	30.51	---	56.00	25.49	L1	ON	9.7
1.624000	---	19.73	46.00	26.27	L1	ON	9.7
1.624000	31.29	---	56.00	24.71	L1	ON	9.7
2.056000	---	17.20	46.00	28.80	L1	ON	9.7
2.056000	27.62	---	56.00	28.38	L1	ON	9.7
4.384000	---	13.71	46.00	32.29	L1	ON	9.7
4.384000	22.93	---	56.00	33.07	L1	ON	9.7

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

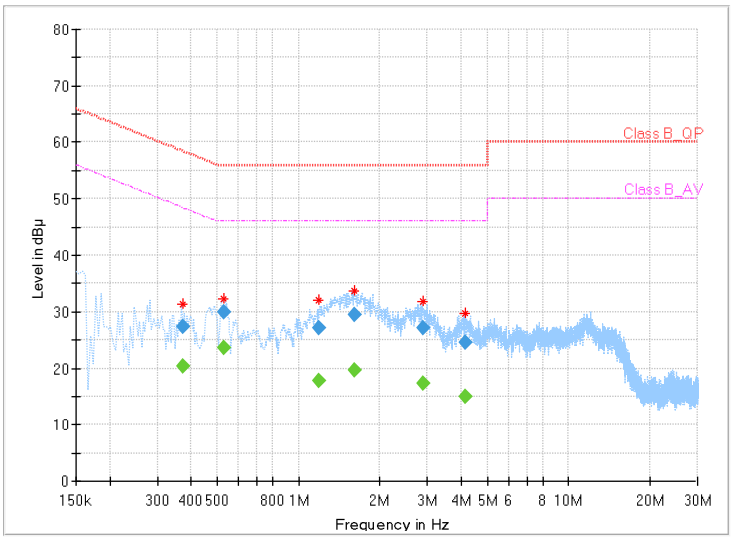


Frequency Range	150KHz ~ 30MHz	**Detector Function & Resolution Bandwidth**	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120Vac, 60Hz	**Environmental Conditions**	26deg. C, 51%RH
Tested By	Carl Xie		

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.372000	---	20.31	48.46	28.15	N	ON	9.7
0.372000	27.26	---	58.46	31.20	N	ON	9.7
0.528000	---	23.70	46.00	22.30	N	ON	9.7
0.528000	29.93	---	56.00	26.07	N	ON	9.7
1.192000	---	17.77	46.00	28.23	N	ON	9.8
1.192000	27.13	---	56.00	28.87	N	ON	9.8
1.604000	---	19.73	46.00	26.27	N	ON	9.8
1.604000	29.53	---	56.00	26.47	N	ON	9.8
2.906000	---	17.31	46.00	28.69	N	ON	9.8
2.906000	27.05	---	56.00	28.95	N	ON	9.8
4.124000	---	15.09	46.00	30.91	N	ON	9.8
4.124000	24.59	---	56.00	31.41	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.

Full Spectrum



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. 22, 23	May. 21,26
Bilog Antenna	ETS-LINDGREN	3143B	00161965	Feb. 18,23	Feb. 17,24
Horn Antenna	ETS-LINDGREN	3117	00168692	Feb. 18,23	Feb. 17,24
Horn Antenna (18GHz-40GHz)	N/A	QWH-SL-18-40-K-SG/QMS-00361	15433	Sep.04, 22	Sep.03, 23
Horn Antenna (18GHz-40GHz)	N/A	QWH-SL-18-40-K-SG/QMS-00361	15433	Sep.03, 23	Sep.02, 24
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	N/A	May. 06,23	May. 05,24
MXE EMI Receiver	KEYSIGHT	N9038A-544	MY54450026	Mar. 28,23	Mar. 27,24
Signal Pre-Amplifier	EMSI	EMC 9135	980249	May. 06,23	May. 05,24
Signal Pre-Amplifier	EMSI	EMC 012645B	980257	May.10,23	May.09,24
Signal Pre-Amplifier	EMSI	EMC 184045B	980259	Feb. 17,23	Feb. 16,24
DC Source	Kikusui/JP	PMX18-5A	0000001	Aug. 12,22	Aug. 11,23
DC Source	Kikusui/JP	PMX18-5A	0000001	Aug. 11,23	Aug. 10,24
Power Meter	Anritsu	ML2495A	1506002	Feb. 14,23	Feb. 13,24
Power Sensor	Anritsu	MA2411B	1339352	Feb. 14,23	Feb. 13,24
Loop Antenna	Schwarzbeck	FMZB 1519B	00173	Sep.03,22	Sep.02,23
Loop Antenna	Schwarzbeck	FMZB 1519B	00173	Sep.02,23	Sep.01,24

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 the 3m Chamber.

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

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Pre-Amplifier	R&S	SCU18F1	100815	Aug.30,22	Aug.29,24
Pre-Amplifier	R&S	SCU08F1	101028	Sep.16,22	Sep.15,24
Signal Generator	R&S	SMB100A	182185	Feb.16,22	Feb.15,24
3m Fully-anechoic Chamber	TDK	9m*6m*6m	HRSW-SZ-EMC-01Chamber	Nov.25,22	Nov.24,25
3m Semi-anechoic Chamber	TDK	9m*6m*6m	HRSW-SZ-EMC-02Chamber	Nov.25,22	Nov.24,25
EMI TEST Receiver	R&S	ESW44	101973	Feb.25,22	Feb.24,24
Bilog Antenna	SCHWARZBECK	VULB 9163	1264	Feb.28,22	Feb.27,24
Horn Antenna	ETS-LINDGREN	3117	227836	Aug.22,22	Aug.21,24
Horn Antenna (18GHz-40GHz)	Steatite Q-par Antennas	QMS 00880	23486	Feb.23,22	Feb.22,24
Horn Antenna	Steatite Q-par Antennas	QMS 00208	23485	Aug.22,22	Aug.21,24
Loop Antenna	SCHWARZ	HFH2-Z2/Z2E	100976	Feb.23,22	Feb.22,24
WIDEBANDRADIO COMMUNICATION TESTER	R&S	CMW500	169399	Jun.27,22	Jun.26,24
Test Software	ELEKTRA	ELEKTRA4.32	N/A	N/A	N/A
Open Switch and Control Unit	R&S	OSP220	101964	N/A	N/A
DC Source	HYELEC	HY3010B	551016	Aug.31,22	Aug.30,24
Hygrothermograph	DELI	20210528	SZ014	Sep.06,22	Sep.05,24
6DB attenuator	Tonscend Technology Co., Ltd	N/A	23062787	N/A	N/A
PC	LENOVO	E14	HRSW0024	N/A	N/A
TMC-AMI18843A(CABLE)	R&S	HF290-NMNM-7.00M	N/A	N/A	N/A
TMC-AMI18843A(CABLE)	R&S	HF290-NMNM-4.00M	N/A	N/A	N/A
CABLE	R&S	W13.02	N/A	Apr.28,23	Oct.27,23
CABLE	R&S	W12.14	N/A	Apr.28,23	Oct.27,23

NOTE: 1. The calibration interval of the above test instruments is 6 months or 12 months or 36 months, and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

2. The test was performed in the 3m Chamber.

3. The FCC Site Registration No. is 434559; The Designation No. is CN1325.

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 varies 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:

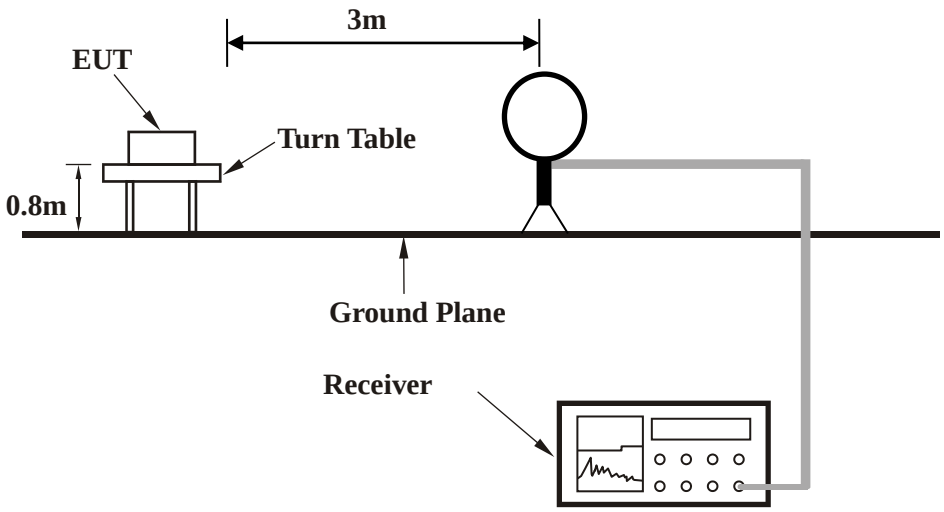
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz, and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
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

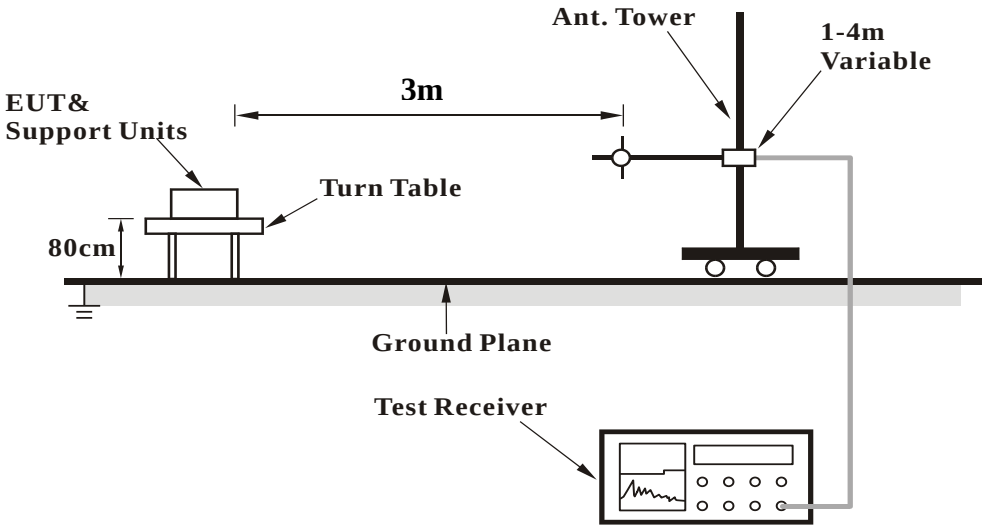
No deviation

3.2.5 TEST SETUP

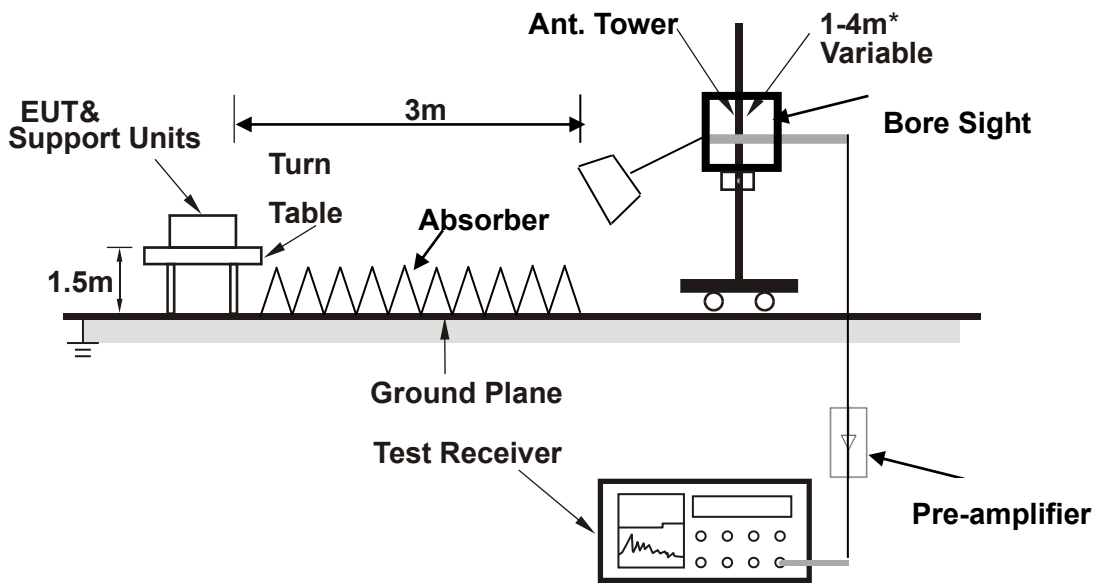
<Frequency Range 9KHz~30MHz >



< Frequency Range 30MHz~1GHz >



<Frequency Range above 1GHz>



Note: Above 1G is a directional antenna

Depending 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 it 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:

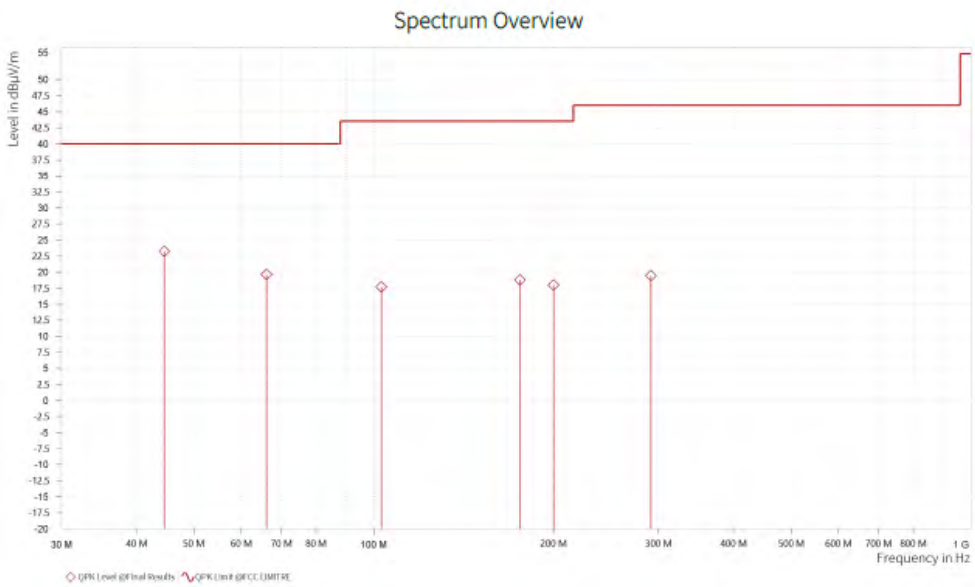
802.11g:

CHANNEL	TX Channel 11	**DETECTOR FUNCTION**	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

Rg	Frequency [MHz]	QPK Level [dBμV/m]	QPK Limit [dBμV/m]	QPK Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]
1	44.599	23.26	40.00	16.74	-10.34	H	24.5	1	120.000
1	66.084	19.64	40.00	20.36	-12.91	H	220.8	2	120.000
1	102.944	17.73	43.50	25.77	-12.10	H	1	1	120.000
1	175.646	18.80	43.50	24.70	-13.65	H	24.5	1	120.000
1	199.993	18.02	43.50	25.48	-10.96	H	359	1	120.000
1	291.318	19.45	46.00	26.55	-7.39	H	76.2	2	120.000

REMARKS:

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

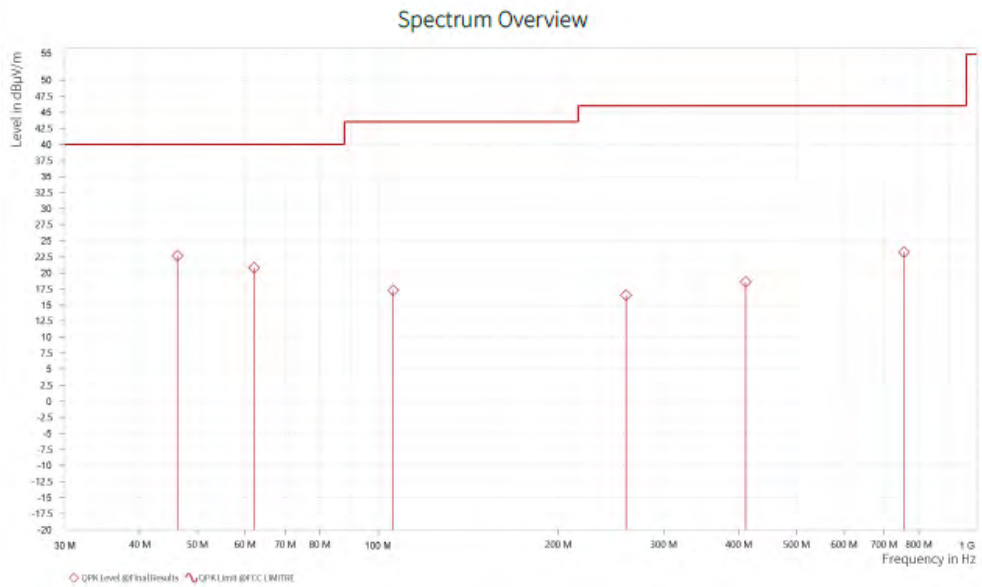


CHANNEL	TX Channel 11	**DETECTOR FUNCTION**	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

Rg	Frequency [MHz]	QPK Level [dBμV/m]	QPK Limit [dBμV/m]	QPK Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]
1	46.248	22.64	40.00	17.36	-10.28	V	0.9	2	120.000
1	62.107	20.79	40.00	19.21	-12.22	V	220.9	2	120.000
1	106.097	17.29	43.50	26.21	-12.00	V	0.9	2	120.000
1	259.648	16.52	46.00	29.48	-8.66	V	282.6	1	120.000
1	411.453	18.60	46.00	27.40	-4.79	V	220.9	2	120.000
1	755.754	23.22	46.00	22.78	-0.73	V	0.9	2	120.000

REMARKS:

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



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	48.69	56.73	74	-25.31	31.75	6.18	45.97	103	43	Peak
2390	41.96	50	54	-12.04	31.75	6.18	45.97	103	43	Average
2412	101.07	109	/	/	31.82	6.21	45.96	103	43	Peak
2412	99.97	107.9	/	/	31.82	6.21	45.96	103	43	Average
2483.5	50.79	58.36	74	-23.21	32.05	6.31	45.93	103	43	Peak
2483.5	43.01	50.58	54	-10.99	32.05	6.31	45.93	103	43	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	49.22	56.87	74	-24.78	32.14	6.18	45.97	100	155	Peak
2390	42.98	50.63	54	-11.02	32.14	6.18	45.97	100	155	Average
2412	97.58	105.14	/	/	32.19	6.21	45.96	100	155	Peak
2412	96.44	104	/	/	32.19	6.21	45.96	100	155	Average
2483.5	50.68	57.94	74	-23.32	32.36	6.31	45.93	100	155	Peak
2483.5	43.02	50.28	54	-10.98	32.36	6.31	45.93	100	155	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) 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	50.37	58.41	74	-23.63	31.75	6.18	45.97	132	180	Peak
2390	42.08	50.12	54	-11.92	31.75	6.18	45.97	132	180	Average
2437	101.61	109.42	/	/	31.9	6.24	45.95	132	180	Peak
2437	100.36	108.17	/	/	31.9	6.24	45.95	132	180	Average
2483.5	49.95	57.52	74	-24.05	32.05	6.31	45.93	132	180	Peak
2483.5	42.92	50.49	54	-11.08	32.05	6.31	45.93	132	180	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	49.84	57.49	74	-24.16	32.14	6.18	45.97	123	102	Peak
2390	42.82	50.47	54	-11.18	32.14	6.18	45.97	123	102	Average
2437	97.16	104.62	/	/	32.25	6.24	45.95	123	102	Peak
2437	96.16	103.62	/	/	32.25	6.24	45.95	123	102	Average
2483.5	50.57	57.83	74	-23.43	32.36	6.31	45.93	123	102	Peak
2483.5	42.75	50.01	54	-11.25	32.36	6.31	45.93	123	102	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	50.04	58.08	74	-23.96	31.75	6.18	45.97	102	195	Peak
2390	41.53	49.57	54	-12.47	31.75	6.18	45.97	102	195	Average
2462	102.33	110.01	/	/	31.98	6.28	45.94	102	195	Peak
2462	101.35	109.03	/	/	31.98	6.28	45.94	102	195	Average
2483.5	50.32	57.89	74	-23.68	32.05	6.31	45.93	102	195	Peak
2483.5	42.98	50.55	54	-11.02	32.05	6.31	45.93	102	195	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	50.42	58.07	74	-23.58	32.14	6.18	45.97	135	102	Peak
2390	42.67	50.32	54	-11.33	32.14	6.18	45.97	135	102	Average
2462	97.48	104.83	/	/	32.31	6.28	45.94	135	102	Peak
2462	96.36	103.71	/	/	32.31	6.28	45.94	135	102	Average
2483.5	50.33	57.59	74	-23.67	32.36	6.31	45.93	135	102	Peak
2483.5	42.74	50	54	-11.26	32.36	6.31	45.93	135	102	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	57.93	65.97	74	-16.07	31.75	6.18	45.97	102	195	Peak
2390	47.37	55.41	54	-6.63	31.75	6.18	45.97	102	195	Average
2412	104.21	112.14	/	/	31.82	6.21	45.96	102	195	Peak
2412	96.94	104.87	/	/	31.82	6.21	45.96	102	195	Average
2483.5	50.56	58.13	74	-23.44	32.05	6.31	45.93	102	195	Peak
2483.5	42.63	50.2	54	-11.37	32.05	6.31	45.93	102	195	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	53.38	61.03	74	-20.62	32.14	6.18	45.97	100	155	Peak
2390	44.37	52.02	54	-9.63	32.14	6.18	45.97	100	155	Average
2412	100.57	108.13	/	/	32.19	6.21	45.96	100	155	Peak
2412	93.73	101.29	/	/	32.19	6.21	45.96	100	155	Average
2483.5	50.34	57.6	74	-23.66	32.36	6.31	45.93	100	155	Peak
2483.5	43.6	50.86	54	-10.4	32.36	6.31	45.93	100	155	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) 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	49.12	57.16	74	-24.88	31.75	6.18	45.97	132	180	Peak
2390	42.65	50.69	54	-11.35	31.75	6.18	45.97	132	180	Average
2437	103.83	111.64	/	/	31.9	6.24	45.95	132	180	Peak
2437	97.02	104.83	/	/	31.9	6.24	45.95	132	180	Average
2483.5	51.1	58.67	74	-22.9	32.05	6.31	45.93	132	180	Peak
2483.5	44.34	51.91	54	-9.66	32.05	6.31	45.93	132	180	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	49.49	57.14	74	-24.51	32.14	6.18	45.97	123	102	Peak
2390	43.01	50.66	54	-10.99	32.14	6.18	45.97	123	102	Average
2437	100.11	107.57	/	/	32.25	6.24	45.95	123	102	Peak
2437	92.67	100.13	/	/	32.25	6.24	45.95	123	102	Average
2483.5	50.96	58.22	74	-23.04	32.36	6.31	45.93	123	102	Peak
2483.5	43.16	50.42	54	-10.84	32.36	6.31	45.93	123	102	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		

Rg	Frequency [MHz]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	2,460.500	93.51			7.40	H	210.5	2
2	2,483.500	46.50	54.00	7.50	7.36	H	5	1
2	2,483.600	46.50	54.00	7.50	7.36	H	5	1

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	2,457.000	106.35			7.41	H	187.1	1
2	2,483.500	68.96	74.00	5.04	7.36	H	5	1
2	2,484.500	68.81	74.00	5.19	7.36	H	5	1

Rg	Frequency [MHz]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	2,460.500	87.72			7.40	V	247.2	2
2	2,483.500	40.41	54.00	13.59	7.36	V	111.8	1
2	2,483.600	40.41	54.00	13.59	7.36	V	111.8	1

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	2,461.500	100.59			7.40	V	114.5	1
2	2,483.500	63.11	74.00	10.89	7.36	V	114.5	1
2	2,484.000	64.09	74.00	9.91	7.36	V	114.5	1

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Limit value - Emission level.
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	58.6	66.64	74	-15.4	31.75	6.18	45.97	100	195	Peak
2390	47.92	55.96	54	-6.08	31.75	6.18	45.97	100	195	Average
2412	104	111.93	/	/	31.82	6.21	45.96	100	195	Peak
2412	96.62	104.55	/	/	31.82	6.21	45.96	100	195	Average
2483.5	50.07	57.64	74	-23.93	32.05	6.31	45.93	100	195	Peak
2483.5	43.22	50.79	54	-10.78	32.05	6.31	45.93	100	195	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	53.67	61.32	74	-20.33	32.14	6.18	45.97	100	155	Peak
2390	44.79	52.44	54	-9.21	32.14	6.18	45.97	100	155	Average
2412	100.79	108.35	/	/	32.19	6.21	45.96	100	155	Peak
2412	93.05	100.61	/	/	32.19	6.21	45.96	100	155	Average
2483.5	50.56	57.82	74	-23.44	32.36	6.31	45.93	100	155	Peak
2483.5	42.97	50.23	54	-11.03	32.36	6.31	45.93	100	155	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) 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	49.17	57.21	74	-24.83	31.75	6.18	45.97	132	180	Peak
2390	42.04	50.08	54	-11.96	31.75	6.18	45.97	132	180	Average
2437	102.94	110.75	/	/	31.9	6.24	45.95	132	180	Peak
2437	95.61	103.42	/	/	31.9	6.24	45.95	132	180	Average
2483.5	51.4	58.97	74	-22.6	32.05	6.31	45.93	132	180	Peak
2483.5	43.28	50.85	54	-10.72	32.05	6.31	45.93	132	180	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	49.56	57.21	74	-24.44	32.14	6.18	45.97	123	102	Peak
2390	42.82	50.47	54	-11.18	32.14	6.18	45.97	123	102	Average
2437	98.57	106.03	/	/	32.25	6.24	45.95	123	102	Peak
2437	91.37	98.83	/	/	32.25	6.24	45.95	123	102	Average
2483.5	50.47	57.73	74	-23.53	32.36	6.31	45.93	123	102	Peak
2483.5	43.53	50.79	54	-10.47	32.36	6.31	45.93	123	102	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	49.56	57.6	74	-24.44	31.75	6.18	45.97	100	195	Peak
2390	42.18	50.22	54	-11.82	31.75	6.18	45.97	100	195	Average
2462	104.55	112.23	/	/	31.98	6.28	45.94	100	195	Peak
2462	97	104.68	/	/	31.98	6.28	45.94	100	195	Average
2483.5	61.59	69.16	74	-12.41	32.05	6.31	45.93	100	195	Peak
2483.5	50.3	57.87	54	-3.7	32.05	6.31	45.93	100	195	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	49.59	57.24	74	-24.41	32.14	6.18	45.97	118	135	Peak
2390	42.21	49.86	54	-11.79	32.14	6.18	45.97	118	135	Average
2462	99.39	106.74	/	/	32.31	6.28	45.94	118	135	Peak
2462	92.37	99.72	/	/	32.31	6.28	45.94	118	135	Average
2483.5	54.41	61.67	74	-19.59	32.36	6.31	45.93	118	135	Peak
2483.5	45.29	52.55	54	-8.71	32.36	6.31	45.93	118	135	Average

REMARKS:

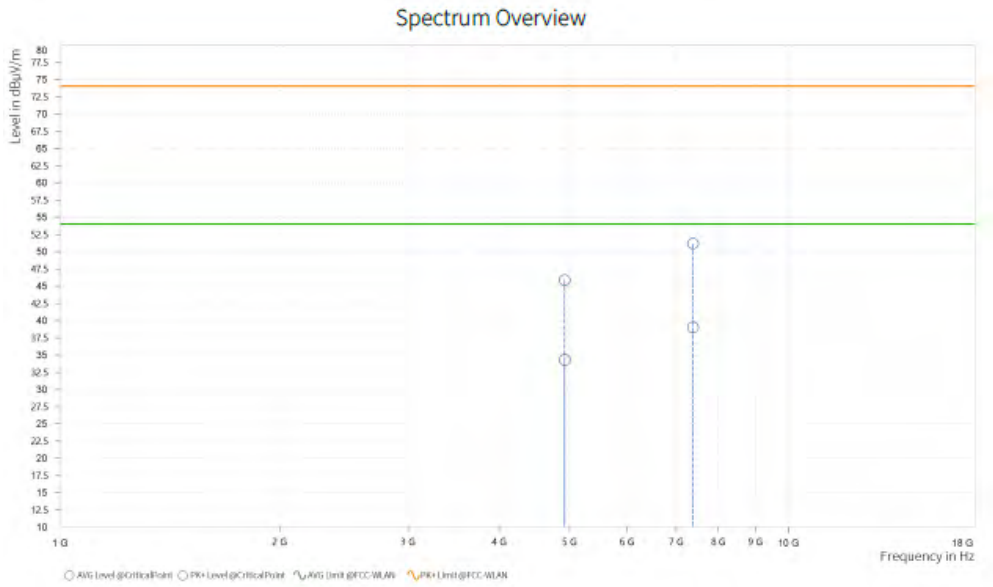
1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2462MHz: Fundamental frequency.

Worst case harmonic:

802.11g

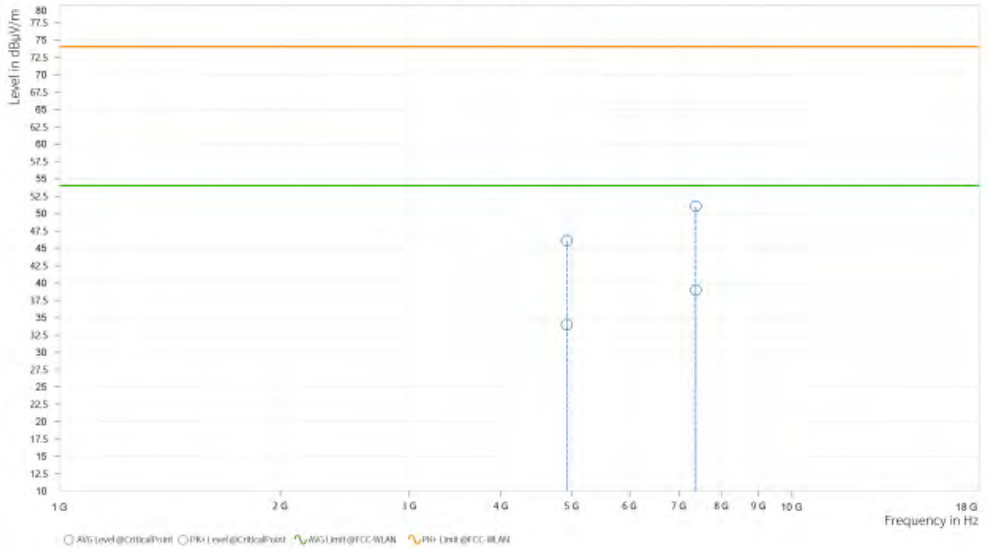
CHANNEL	TX Channel 11	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+ Limit [dBµV/m]	PK+ Margin [dB]	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
3	4,923.500	45.90	74.00	28.10	34.28	54.00	19.72	15.27	H	356.7	2
4	7,386.000	51.17	74.00	22.83	39.00	54.00	15.00	20.34	H	359.1	2



Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+ Limit [dBµV/m]	PK+ Margin [dB]	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
3	4,925.000	46.11	74.00	27.89	34.01	54.00	19.99	15.28	V	359	2
4	7,385.500	51.05	74.00	22.95	38.97	54.00	15.03	20.34	V	359.1	1

Spectrum Overview



REMARKS:

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

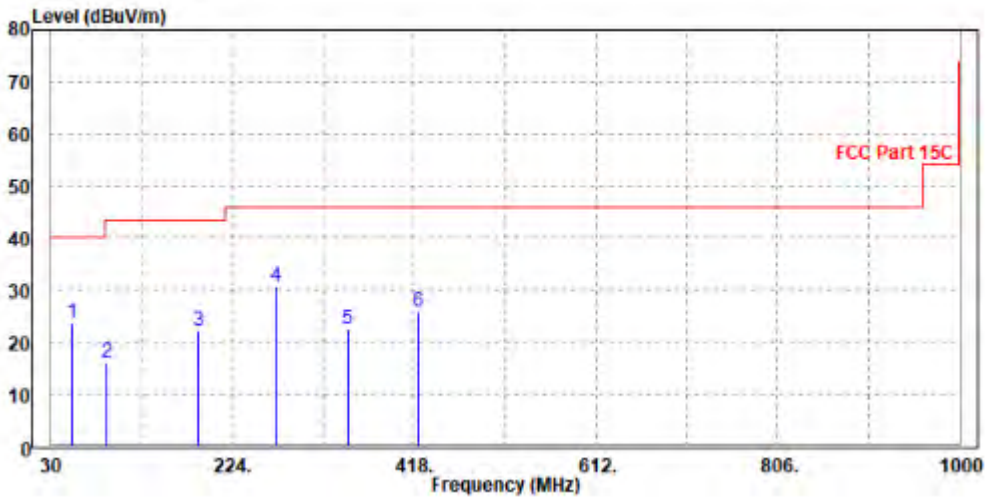
BT-LE _S2

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
52.31	23.6	50.21	40	-16.4	9.97	0.41	36.99	114	273	QP
89.17	16.22	43.83	43.5	-27.28	8.8	0.51	36.92	186	199	QP
187.14	22.19	46.47	43.5	-21.31	11.36	0.72	36.36	156	355	QP
270.56	30.77	52.47	46	-15.23	13.71	0.86	36.27	156	93	QP
347.19	22.6	42.91	46	-23.4	15.04	0.99	36.34	110	112	QP
422.85	25.98	44.71	46	-20.02	16.63	1.11	36.47	193	311	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

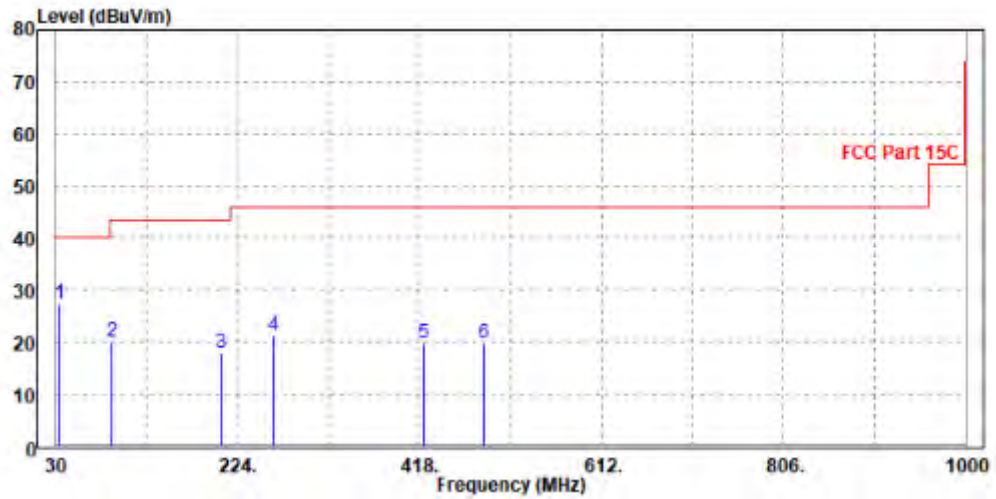


CHANNEL	TX Channel 39	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

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
33.88	27.42	46.11	40	-12.58	18.36	0.33	37.38	199	39	QP
89.17	20.18	48.07	43.5	-23.32	8.52	0.51	36.92	163	208	QP
205.57	17.94	41.86	43.5	-25.56	11.62	0.75	36.29	195	151	QP
262.8	21.25	43.71	46	-24.75	12.96	0.85	36.27	129	109	QP
422.85	19.77	38.53	46	-26.23	16.6	1.11	36.47	112	241	QP
486.87	19.85	37.81	46	-26.15	17.43	1.2	36.59	168	289	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	49	57.04	74	-25	31.75	6.18	45.97	135	190	Peak
2390	41.44	49.48	54	-12.56	31.75	6.18	45.97	135	190	Average
2402	92.88	100.87	/	/	31.79	6.19	45.97	135	190	Peak
2402	92.3	100.29	/	/	31.79	6.19	45.97	135	190	Average
2483.5	50.03	57.6	74	-23.97	32.05	6.31	45.93	135	190	Peak
2483.5	42.3	49.87	54	-11.7	32.05	6.31	45.93	135	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	50.24	57.89	74	-23.76	32.14	6.18	45.97	110	157	Peak
2390	42.18	49.83	54	-11.82	32.14	6.18	45.97	110	157	Average
2402	88.95	96.57	/	/	32.16	6.19	45.97	110	157	Peak
2402	88.52	96.14	/	/	32.16	6.19	45.97	110	157	Average
2483.5	50.1	57.36	74	-23.9	32.36	6.31	45.93	110	157	Peak
2483.5	42.24	49.5	54	-11.76	32.36	6.31	45.93	110	157	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	48.08	56.12	74	-25.92	31.75	6.18	45.97	135	190	Peak
2390	41.47	49.51	54	-12.53	31.75	6.18	45.97	135	190	Average
2440	95.67	103.46	/	/	31.91	6.25	45.95	135	190	Peak
2440	95.15	102.94	/	/	31.91	6.25	45.95	135	190	Average
2483.5	49.83	57.4	74	-24.17	32.05	6.31	45.93	135	190	Peak
2483.5	42.54	50.11	54	-11.46	32.05	6.31	45.93	135	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	51.08	58.73	74	-22.92	32.14	6.18	45.97	110	157	Peak
2390	42.55	50.2	54	-11.45	32.14	6.18	45.97	110	157	Average
2440	88.8	96.24	/	/	32.26	6.25	45.95	110	157	Peak
2440	88.46	95.9	/	/	32.26	6.25	45.95	110	157	Average
2483.5	51.14	58.4	74	-22.86	32.36	6.31	45.93	110	157	Peak
2483.5	42.87	50.13	54	-11.13	32.36	6.31	45.93	110	157	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	49.37	57.41	74	-24.63	31.75	6.18	45.97	135	190	Peak
2390	41.58	49.62	54	-12.42	31.75	6.18	45.97	135	190	Average
2480	95.35	102.94	/	/	32.04	6.3	45.93	135	190	Peak
2480	94.02	101.61	/	/	32.04	6.3	45.93	135	190	Average
2483.5	50.05	57.62	74	-23.95	32.05	6.31	45.93	135	190	Peak
2483.5	42.98	50.55	54	-11.02	32.05	6.31	45.93	135	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	49.95	57.6	74	-24.05	32.14	6.18	45.97	110	157	Peak
2390	42.52	50.17	54	-11.48	32.14	6.18	45.97	110	157	Average
2480	89.34	96.62	/	/	32.35	6.3	45.93	110	157	Peak
2480	88.88	96.16	/	/	32.35	6.3	45.93	110	157	Average
2483.5	50.73	57.99	74	-23.27	32.36	6.31	45.93	110	157	Peak
2483.5	42.99	50.25	54	-11.01	32.36	6.31	45.93	110	157	Average

REMARKS:

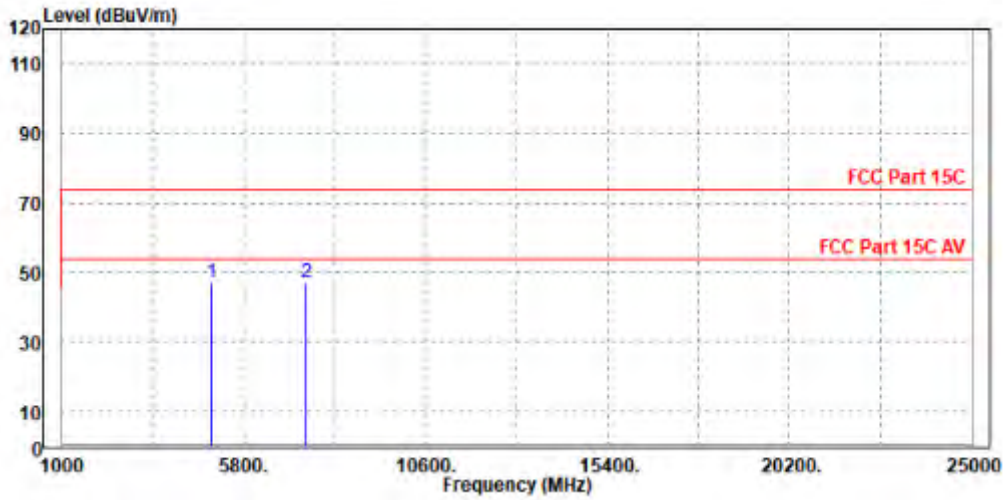
1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2480MHz: Fundamental frequency.

Worst case harmonic:

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

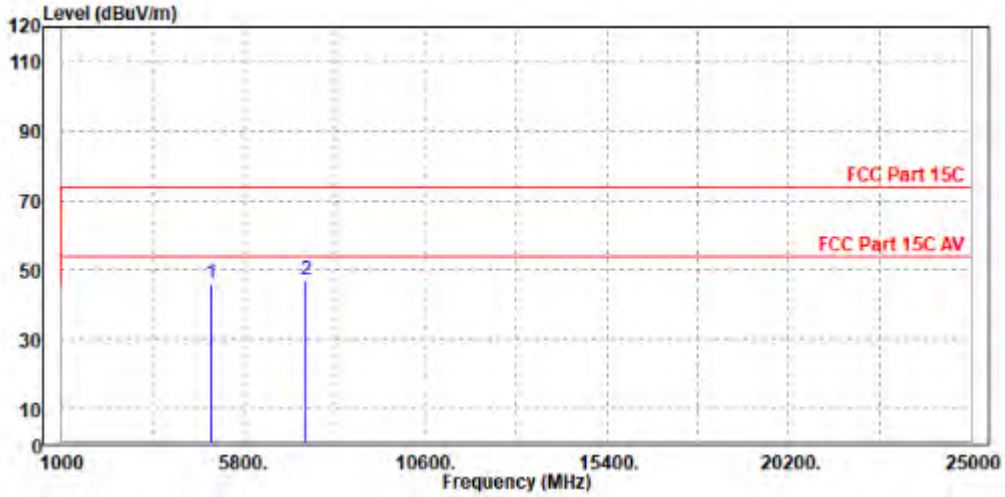
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

		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	47.10	48.29	74.00	-26.90	-1.19	Peak	Horizontal
2		7432.000	47.02	45.05	74.00	-26.98	1.97	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	46.23	47.22	74.00	-27.77	-0.99	Peak	Vertical
2	PP	7440.000	46.84	44.83	74.00	-27.16	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 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	49.04	57.08	74	-24.96	31.75	6.18	45.97	135	190	Peak
2390	41.45	49.49	54	-12.55	31.75	6.18	45.97	135	190	Average
2404	93.1	101.08	/	/	31.79	6.2	45.97	135	190	Peak
2404	91.1	99.08	/	/	31.79	6.2	45.97	135	190	Average
2483.5	50.39	57.96	74	-23.61	32.05	6.31	45.93	135	190	Peak
2483.5	42.57	50.14	54	-11.43	32.05	6.31	45.93	135	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	49.78	57.43	74	-24.22	32.14	6.18	45.97	110	157	Peak
2390	42.17	49.82	54	-11.83	32.14	6.18	45.97	110	157	Average
2404	88.82	96.42	/	/	32.17	6.2	45.97	110	157	Peak
2404	87.81	95.41	/	/	32.17	6.2	45.97	110	157	Average
2483.5	51.04	58.3	74	-22.96	32.36	6.31	45.93	110	157	Peak
2483.5	42.69	49.95	54	-11.31	32.36	6.31	45.93	110	157	Average

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2404MHz: 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	49.49	57.53	74	-24.51	31.75	6.18	45.97	135	190	Peak
2390	41.42	49.46	54	-12.58	31.75	6.18	45.97	135	190	Average
2440	95.21	103	/	/	31.91	6.25	45.95	135	190	Peak
2440	93.43	101.22	/	/	31.91	6.25	45.95	135	190	Average
2483.5	50.58	58.15	74	-23.42	32.05	6.31	45.93	135	190	Peak
2483.5	42.74	50.31	54	-11.26	32.05	6.31	45.93	135	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	49.66	57.31	74	-24.34	32.14	6.18	45.97	110	157	Peak
2390	42.19	49.84	54	-11.81	32.14	6.18	45.97	110	157	Average
2440	88.91	96.35	/	/	32.26	6.25	45.95	110	157	Peak
2440	86.86	94.3	/	/	32.26	6.25	45.95	110	157	Average
2483.5	51.26	58.52	74	-22.74	32.36	6.31	45.93	110	157	Peak
2483.5	42.26	49.52	54	-11.74	32.36	6.31	45.93	110	157	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 38	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	48.98	57.02	74	-25.02	31.75	6.18	45.97	135	190	Peak
2390	41.63	49.67	54	-12.37	31.75	6.18	45.97	135	190	Average
2478	94.04	101.64	/	/	32.03	6.3	45.93	135	190	Peak
2478	92.28	99.88	/	/	32.03	6.3	45.93	135	190	Average
2483.5	50.71	58.28	74	-23.29	32.05	6.31	45.93	135	190	Peak
2483.5	42.64	50.21	54	-11.36	32.05	6.31	45.93	135	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	49.5	57.15	74	-24.5	32.14	6.18	45.97	110	157	Peak
2390	42.23	49.88	54	-11.77	32.14	6.18	45.97	110	157	Average
2478	88.99	96.27	/	/	32.35	6.3	45.93	110	157	Peak
2478	88.03	95.31	/	/	32.35	6.3	45.93	110	157	Average
2483.5	51.65	58.91	74	-22.35	32.36	6.31	45.93	110	157	Peak
2483.5	42.78	50.04	54	-11.22	32.36	6.31	45.93	110	157	Average

REMARKS:

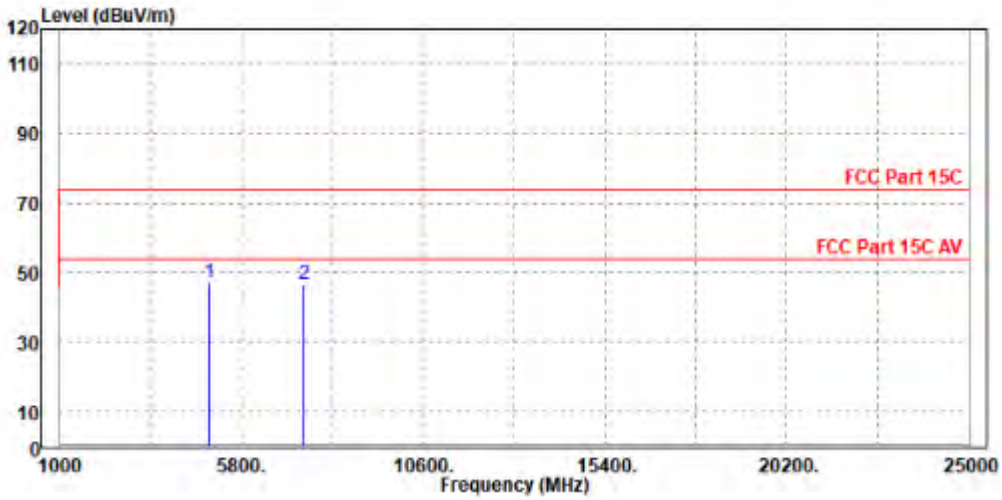
1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2478MHz: Fundamental frequency.

Worst case harmonic:

CHANNEL	TX Channel 38	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

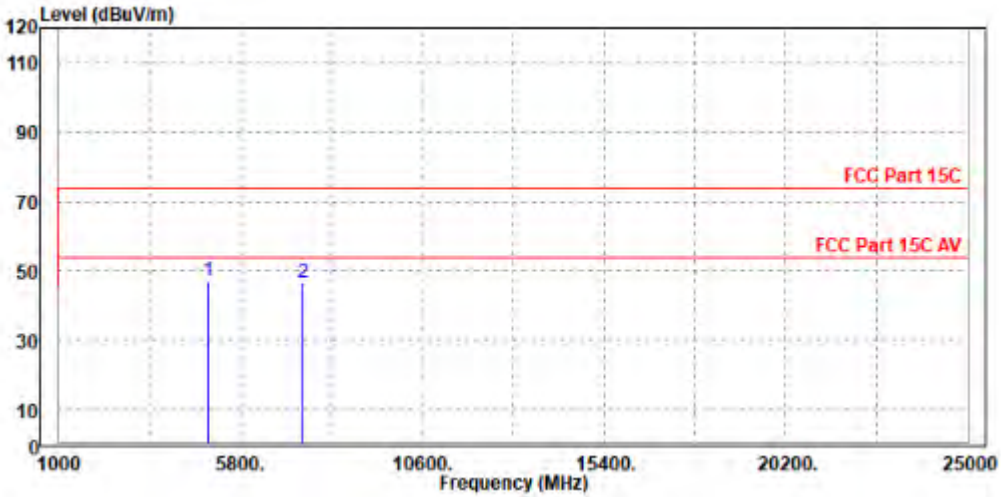
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

		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	46.91	48.10	74.00	-27.09	-1.19	Peak	Horizontal
2		7434.000	46.36	44.39	74.00	-27.64	1.97	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	4956.000	46.86	47.86	74.00	-27.14	-1.00	Peak	Vertical
2		7432.000	46.60	44.60	74.00	-27.40	2.00	Peak	Vertical



REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2478MHz: 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	49.11	57.15	74	-24.89	31.75	6.18	45.97	135	190	Peak
2390	41.75	49.79	54	-12.25	31.75	6.18	45.97	135	190	Average
2402	94.66	102.65	/	/	31.79	6.19	45.97	135	190	Peak
2402	93.46	101.45	/	/	31.79	6.19	45.97	135	190	Average
2483.5	49.41	56.98	74	-24.59	32.05	6.31	45.93	135	190	Peak
2483.5	42.42	49.99	54	-11.58	32.05	6.31	45.93	135	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	51.64	59.29	74	-22.36	32.14	6.18	45.97	110	157	Peak
2390	42.43	50.08	54	-11.57	32.14	6.18	45.97	110	157	Average
2402	88.85	96.47	/	/	32.16	6.19	45.97	110	157	Peak
2402	88.51	96.13	/	/	32.16	6.19	45.97	110	157	Average
2483.5	50.94	58.2	74	-23.06	32.36	6.31	45.93	110	157	Peak
2483.5	42.61	49.87	54	-11.39	32.36	6.31	45.93	110	157	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	49.73	57.77	74	-24.27	31.75	6.18	45.97	135	190	Peak
2390	42.33	50.37	54	-11.67	31.75	6.18	45.97	135	190	Average
2440	95.08	102.87	/	/	31.91	6.25	45.95	135	190	Peak
2440	94.87	102.66	/	/	31.91	6.25	45.95	135	190	Average
2483.5	49.27	56.84	74	-24.73	32.05	6.31	45.93	135	190	Peak
2483.5	42.51	50.08	54	-11.49	32.05	6.31	45.93	135	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	48.78	56.43	74	-25.22	32.14	6.18	45.97	110	157	Peak
2390	41.99	49.64	54	-12.01	32.14	6.18	45.97	110	157	Average
2440	88.66	96.1	/	/	32.26	6.25	45.95	110	157	Peak
2440	88.4	95.84	/	/	32.26	6.25	45.95	110	157	Average
2483.5	49.78	57.04	74	-24.22	32.36	6.31	45.93	110	157	Peak
2483.5	42.5	49.76	54	-11.5	32.36	6.31	45.93	110	157	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	49.89	57.93	74	-24.11	31.75	6.18	45.97	135	190	Peak
2390	41.67	49.71	54	-12.33	31.75	6.18	45.97	135	190	Average
2480	94.86	102.45	/	/	32.04	6.3	45.93	135	190	Peak
2480	94.45	102.04	/	/	32.04	6.3	45.93	135	190	Average
2483.5	52.04	59.61	74	-21.96	32.05	6.31	45.93	135	190	Peak
2483.5	43.51	51.08	54	-10.49	32.05	6.31	45.93	135	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	49.7	57.35	74	-24.3	32.14	6.18	45.97	110	157	Peak
2390	41.9	49.55	54	-12.1	32.14	6.18	45.97	110	157	Average
2480	89.12	96.4	/	/	32.35	6.3	45.93	110	157	Peak
2480	88.68	95.96	/	/	32.35	6.3	45.93	110	157	Average
2483.5	50.58	57.84	74	-23.42	32.36	6.31	45.93	110	157	Peak
2483.5	42.72	49.98	54	-11.28	32.36	6.31	45.93	110	157	Average

REMARKS:

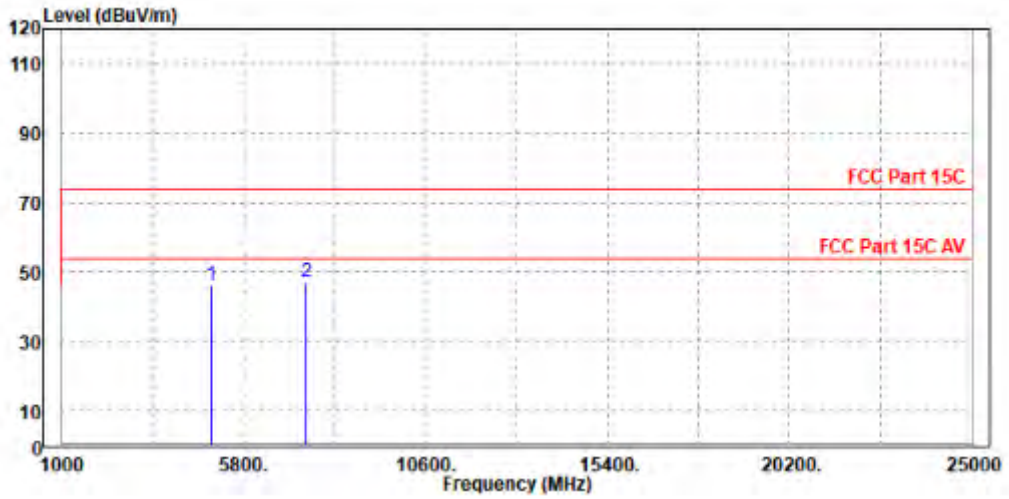
1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2480MHz: Fundamental frequency.

Worst case harmonic:

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

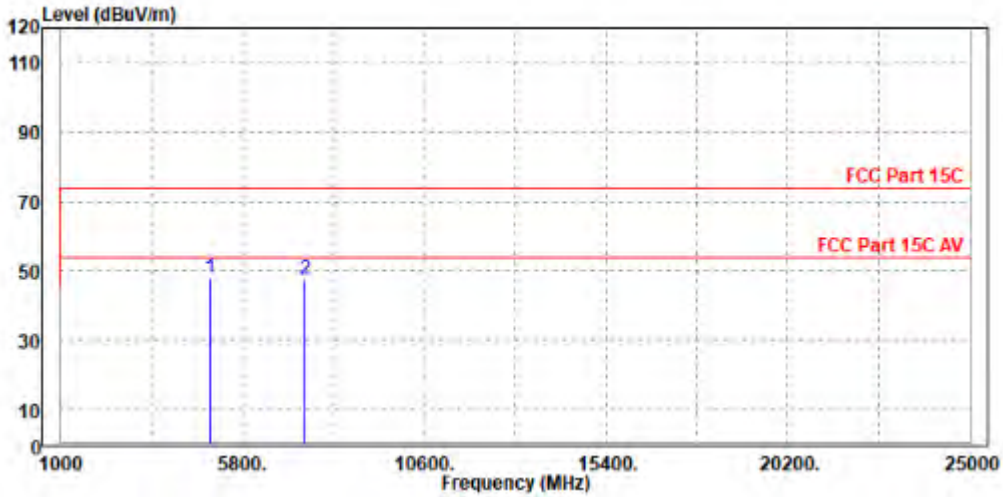
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

		Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
		MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m		
1		4960.000	46.22	47.41	74.00	-27.78	-1.19	Peak	Horizontal
2	PP	7432.000	47.07	45.10	74.00	-26.93	1.97	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	4960.000	47.76	48.75	74.00	-26.24	-0.99	Peak	Vertical
2		7440.000	47.63	45.62	74.00	-26.37	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 _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	50.08	58.12	74	-23.92	31.75	6.18	45.97	135	190	Peak
2390	41.92	49.96	54	-12.08	31.75	6.18	45.97	135	190	Average
2402	92.74	100.73	/	/	31.79	6.19	45.97	135	190	Peak
2402	91.82	99.81	/	/	31.79	6.19	45.97	135	190	Average
2483.5	49.85	57.42	74	-24.15	32.05	6.31	45.93	135	190	Peak
2483.5	41.8	49.37	54	-12.2	32.05	6.31	45.93	135	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	49.56	57.21	74	-24.44	32.14	6.18	45.97	110	157	Peak
2390	42.72	50.37	54	-11.28	32.14	6.18	45.97	110	157	Average
2402	89.25	96.87	/	/	32.16	6.19	45.97	110	157	Peak
2402	88.92	96.54	/	/	32.16	6.19	45.97	110	157	Average
2483.5	49.9	57.16	74	-24.1	32.36	6.31	45.93	110	157	Peak
2483.5	41.56	48.82	54	-12.44	32.36	6.31	45.93	110	157	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	49.13	57.17	74	-24.87	31.75	6.18	45.97	135	190	Peak
2390	41.64	49.68	54	-12.36	31.75	6.18	45.97	135	190	Average
2440	95.08	102.87	/	/	31.91	6.25	45.95	135	190	Peak
2440	94.44	102.23	/	/	31.91	6.25	45.95	135	190	Average
2483.5	49.47	57.04	74	-24.53	32.05	6.31	45.93	135	190	Peak
2483.5	42.21	49.78	54	-11.79	32.05	6.31	45.93	135	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	51.08	58.73	74	-22.92	32.14	6.18	45.97	110	157	Peak
2390	42.06	49.71	54	-11.94	32.14	6.18	45.97	110	157	Average
2440	88.95	96.39	/	/	32.26	6.25	45.95	110	157	Peak
2440	88.41	95.85	/	/	32.26	6.25	45.95	110	157	Average
2483.5	49.94	57.2	74	-24.06	32.36	6.31	45.93	110	157	Peak
2483.5	42.73	49.99	54	-11.27	32.36	6.31	45.93	110	157	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	49.6	57.64	74	-24.4	31.75	6.18	45.97	135	190	Peak
2390	41.21	49.25	54	-12.79	31.75	6.18	45.97	135	190	Average
2480	95.92	103.51	/	/	32.04	6.3	45.93	135	190	Peak
2480	94.86	102.45	/	/	32.04	6.3	45.93	135	190	Average
2483.5	51.68	59.25	74	-22.32	32.05	6.31	45.93	135	190	Peak
2483.5	42.95	50.52	54	-11.05	32.05	6.31	45.93	135	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	49.92	57.57	74	-24.08	32.14	6.18	45.97	110	157	Peak
2390	42.44	50.09	54	-11.56	32.14	6.18	45.97	110	157	Average
2480	89.92	97.2	/	/	32.35	6.3	45.93	110	157	Peak
2480	89.2	96.48	/	/	32.35	6.3	45.93	110	157	Average
2483.5	51.1	58.36	74	-22.9	32.36	6.31	45.93	110	157	Peak
2483.5	42.9	50.16	54	-11.1	32.36	6.31	45.93	110	157	Average

REMARKS:

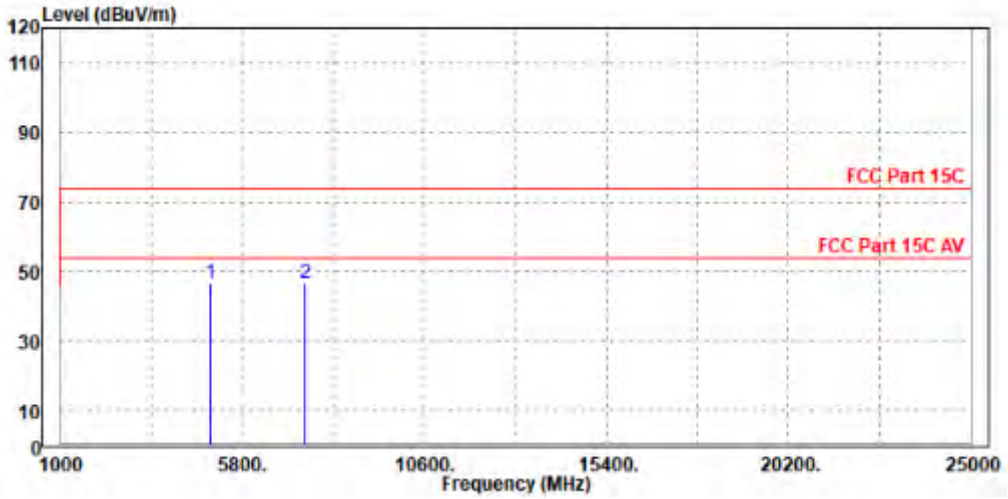
1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2480MHz: Fundamental frequency.

Worst case harmonic:

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

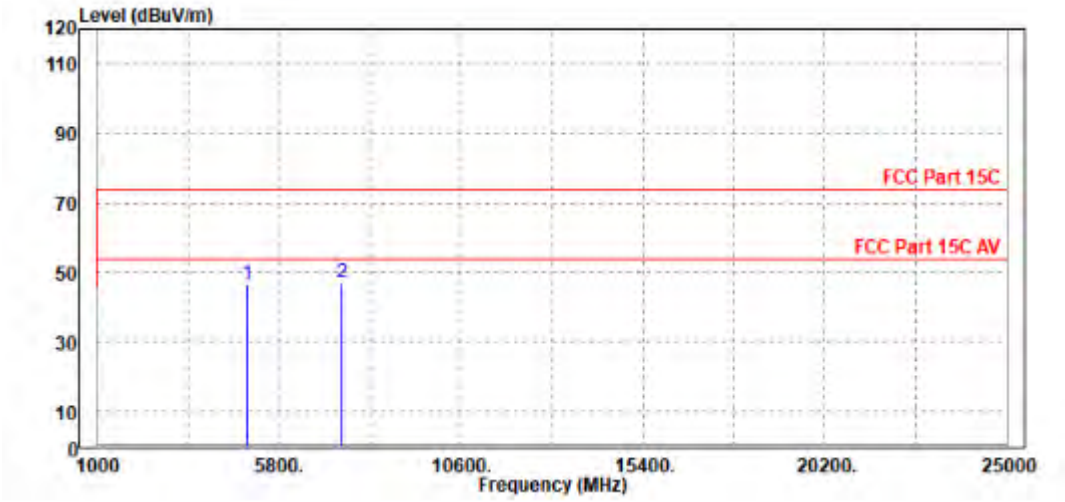
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

		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	46.49	47.68	74.00	-27.51	-1.19	Peak	Horizontal
2		7440.000	46.42	44.44	74.00	-27.58	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	46.34	47.33	74.00	-27.66	-0.99	Peak	Vertical
2	PP	7432.000	46.84	44.84	74.00	-27.16	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 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. 14,23	Feb. 13,24
EXA Signal Analyzer	KEYSIGHT	N9010A-526	MY54510523	Feb. 14,23	Feb. 13,24
EXA Signal Analyzer	KEYSIGHT	N9010A-544	MY54510355	May.10,23	May.09,24
Power Sensor	ANRITSU	MA2411B	1339352	Feb. 14,23	Feb. 13,24

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 the RF Oven room.

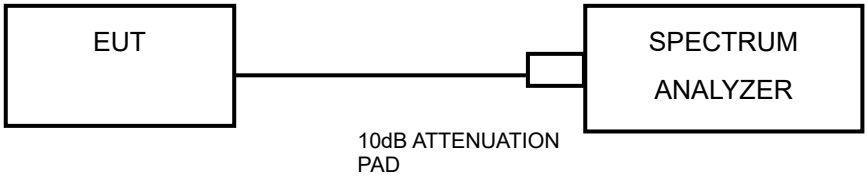
3.3.3 TEST PROCEDURE

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

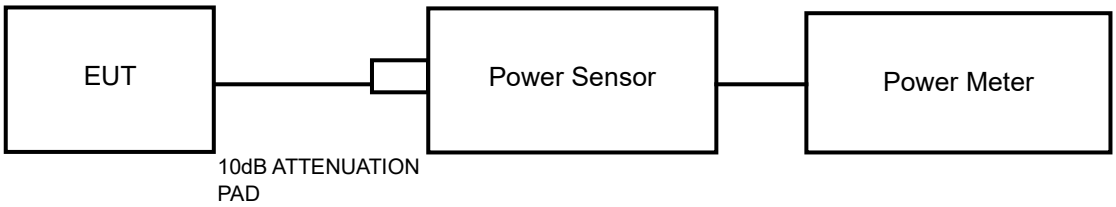
Please Refer to Appendix1/2 Of this test report.

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 about the 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.

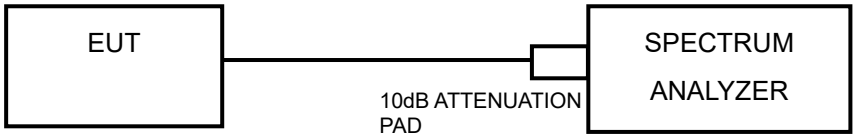
Please Refer to Appendix1/2 Of this test report.

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 about the 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

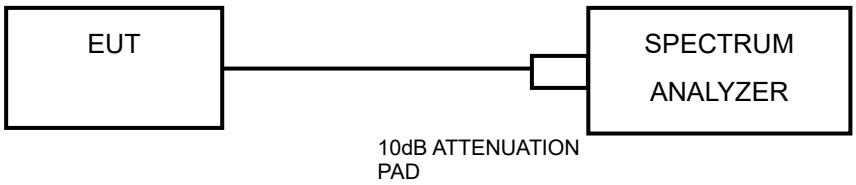
Please Refer to Appendix1/2 Of this test report.

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 about the 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

For Band Edge :The spectrum plots are attached in the Appendix. Mark1 value indicates the reference Level. DL line indicates the 20dB offset below reference Level. It shows compliance with the requirement.

For CSE :The spectrum plots are attached in the Appendix. 100KHZ PSD value indicates the reference Level. DL line indicates the 20dB offset below Mark1 value. It shows compliance with the requirement.

3.7 ANTENNA REQUIREMENTS

3.7.1 STANDARD APPLICABLE

If transmitting antenna directional gain is greater than 6 dBi, both the peak transmits 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

The antenna peak gain of EUT is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit 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

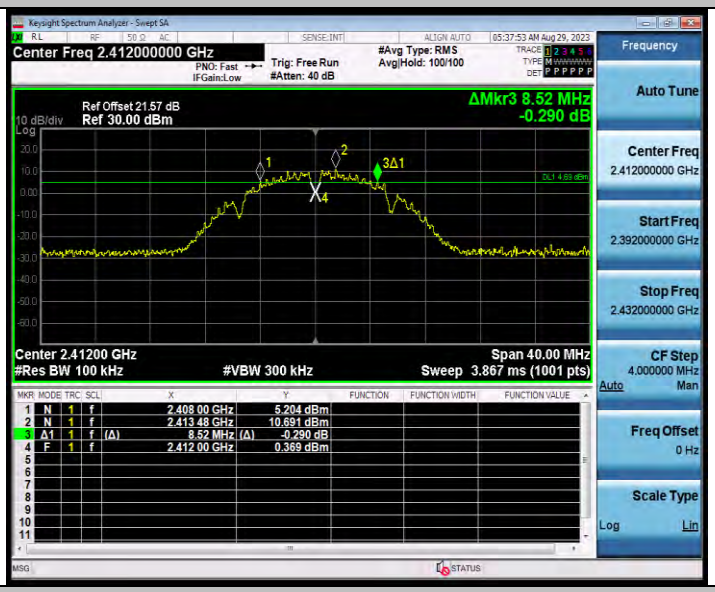
DTS BANDWIDTH

TEST RESULT

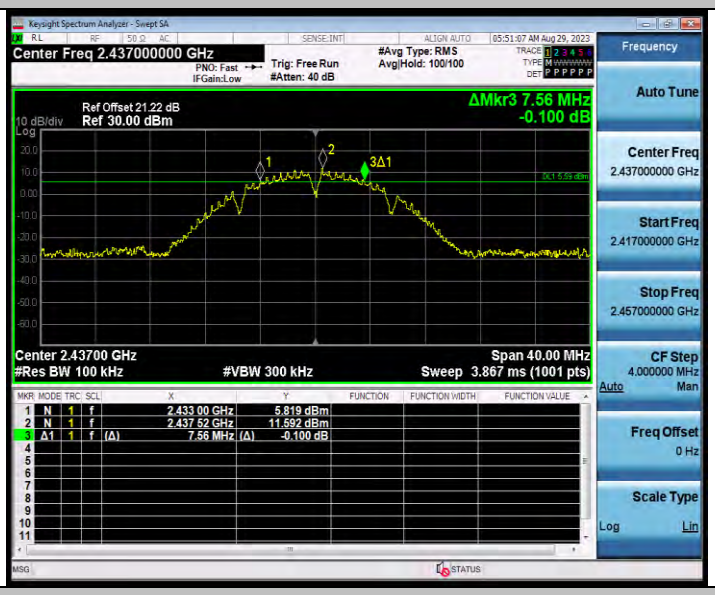
Test Mode	Antenna	Frequency[MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	8.520	2408.000	2416.520	0.5	PASS
		2437	7.560	2433.000	2440.560	0.5	PASS
		2462	9.040	2457.480	2466.520	0.5	PASS
11G	Ant1	2412	14.120	2405.680	2419.800	0.5	PASS
		2437	15.680	2428.880	2444.560	0.5	PASS
		2462	16.080	2453.840	2469.920	0.5	PASS
11N20SISO	Ant1	2412	15.640	2404.520	2420.160	0.5	PASS
		2437	15.120	2429.440	2444.560	0.5	PASS
		2462	15.720	2453.840	2469.560	0.5	PASS

TEST GRAPHS

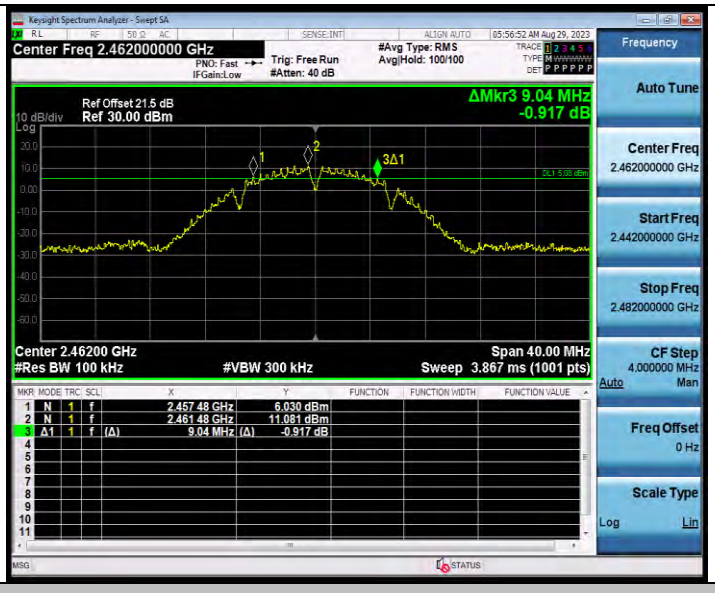
11B_Ant1_2412



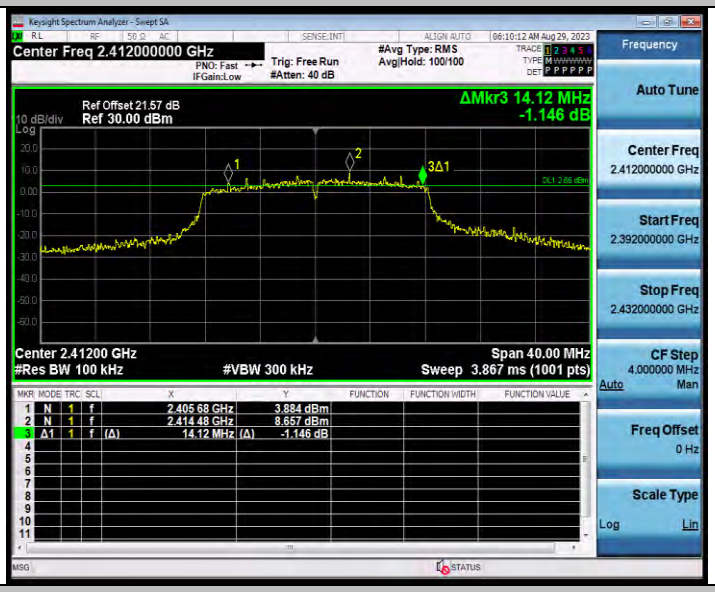
11B_Ant1_2437



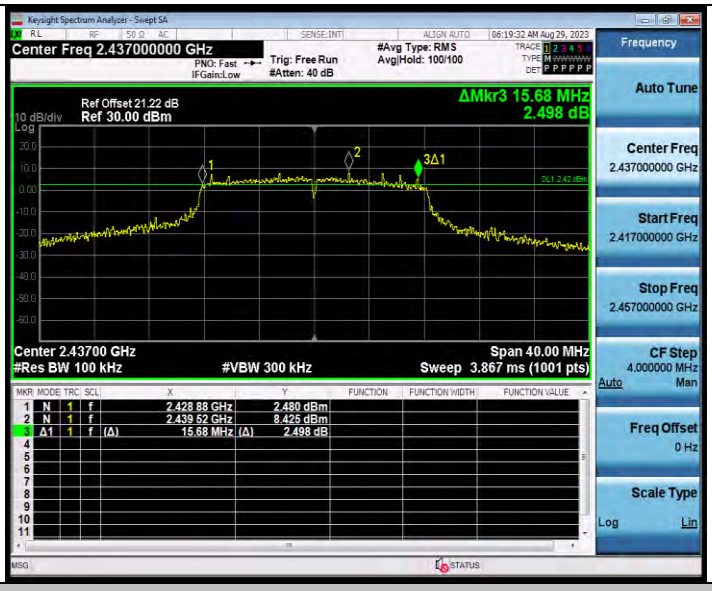
11B_Ant1_2462



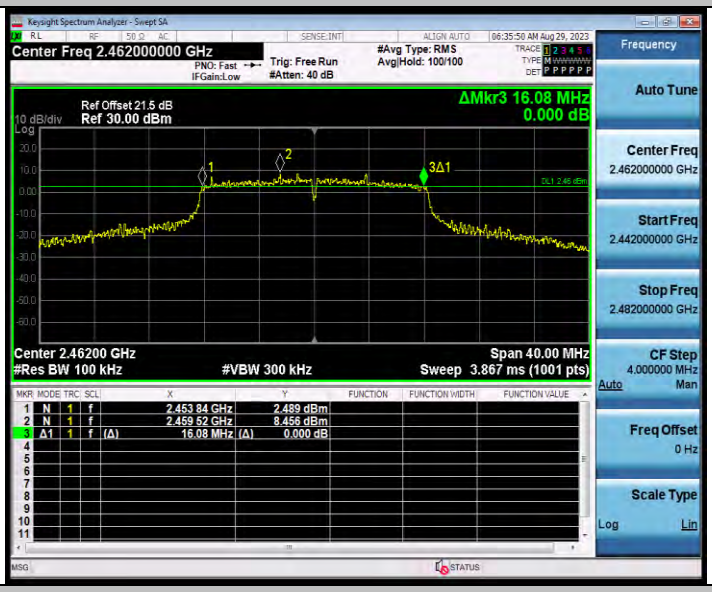
11G_Ant1_2412



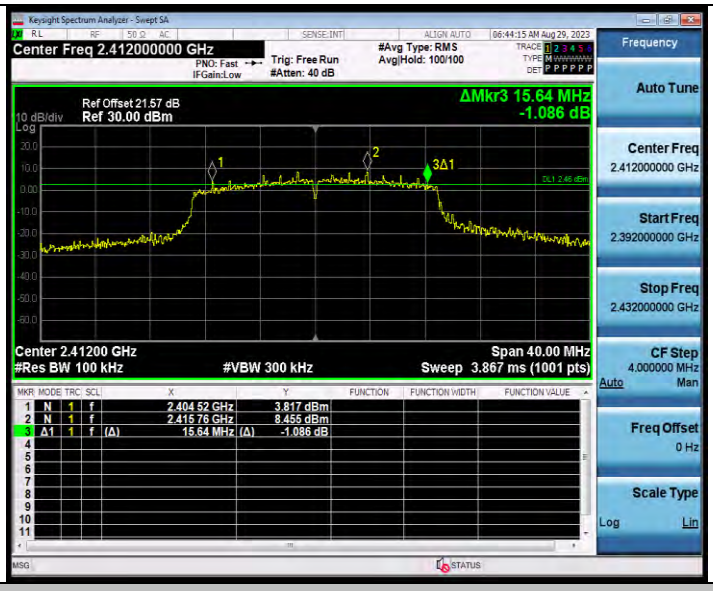
11G_Ant1_2437



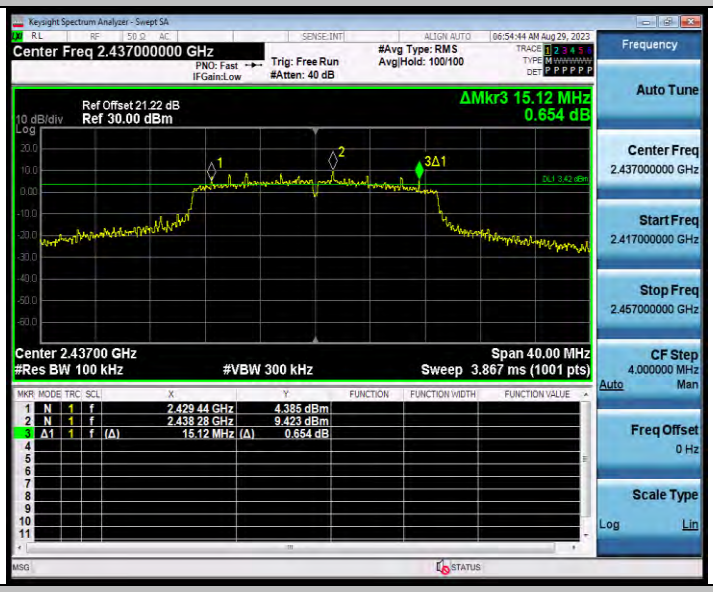
11G_Ant1_2462



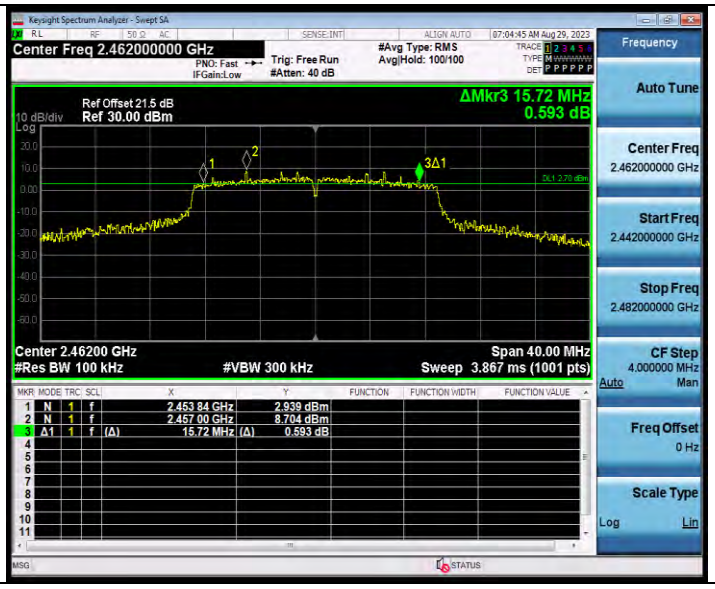
11N20SISO_Ant1_2412



11N20SISO_Ant1_2437



11N20SISO_Ant1_2462


Keysight Spectrum Analyzer - Swept SA
Center Freq 2.462000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
#Avg Type: RMS
Avg|Hold: 100/100
07:04:45 AM Aug 29, 2023
Ref Offset 21.5 dB
10 dB/div
Ref 30.00 dBm
Log
ΔMkr3 15.72 MHz
0.593 dB
Center 2.46200 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 40.00 MHz
Sweep 3.867 ms (1001 pts)
1 N 1 f 2.453 84 GHz 2.939 dBm
2 N 1 f 2.457 00 GHz 8.704 dBm
3 Δ1 1 f (Δ) 15.72 MHz (Δ) 0.593 dB
Frequency
Auto Tune
Center Freq
2.462000000 GHz
Start Freq
2.442000000 GHz
Stop Freq
2.482000000 GHz
CF Step
4.000000 MHz
Auto
Man
Freq Offset
0 Hz
Scale Type
Log
Lin

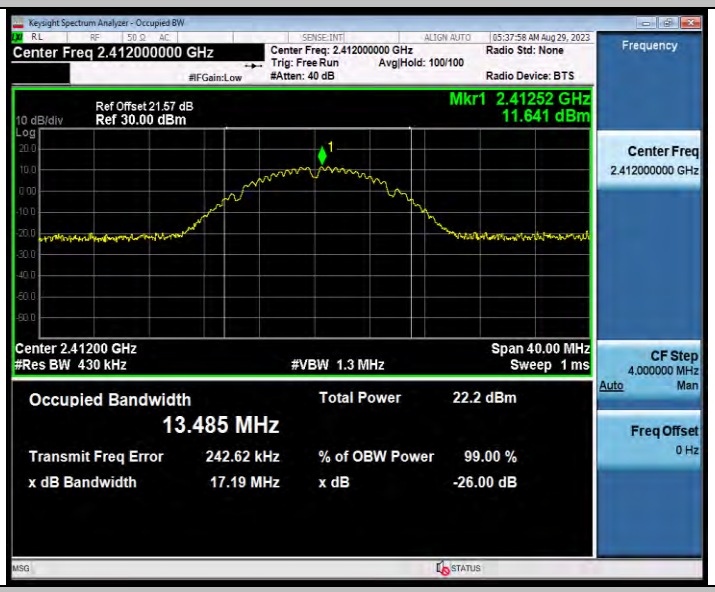
OCCUPIED CHANNEL BANDWIDTH

TEST RESULT

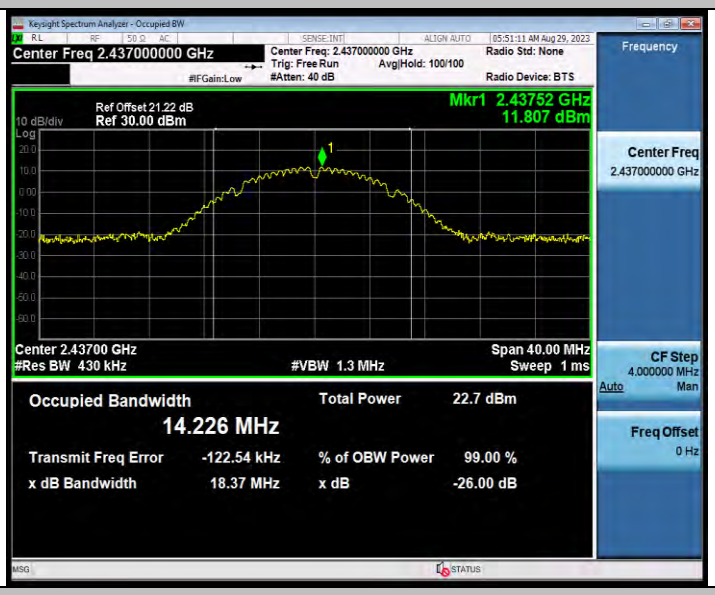
Test Mode	Antenna	Channel Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	13.485	2405.5001	2418.9851	---	---
		2437	14.226	2429.7645	2443.9905	---	---
		2462	14.388	2454.7485	2469.1365	---	---
11G	Ant1	2412	17.294	2403.6366	2420.9306	---	---
		2437	17.655	2427.8784	2445.5334	---	---
		2462	17.985	2452.8527	2470.8377	---	---
11N20SISO	Ant1	2412	18.127	2403.1855	2421.3125	---	---
		2437	18.579	2427.4512	2446.0302	---	---
		2462	20.044	2451.4441	2471.4881	---	---

TEST GRAPHS

11B_Ant1_2412

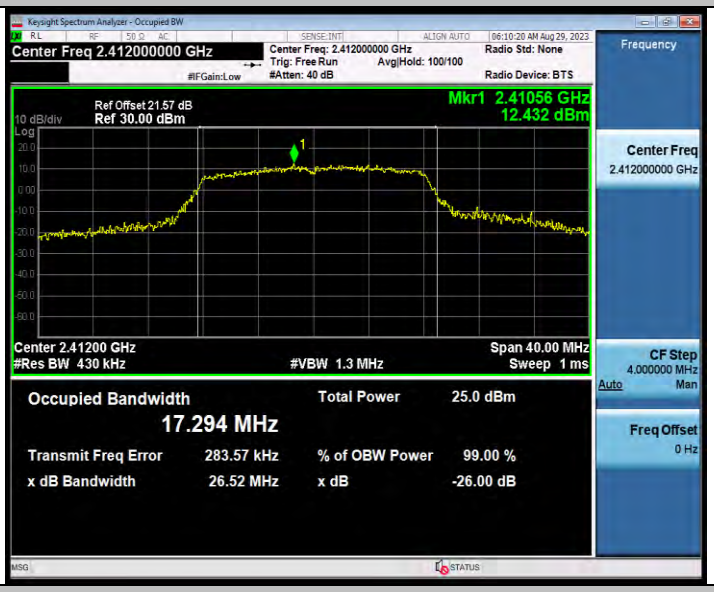


11B_Ant1_2437

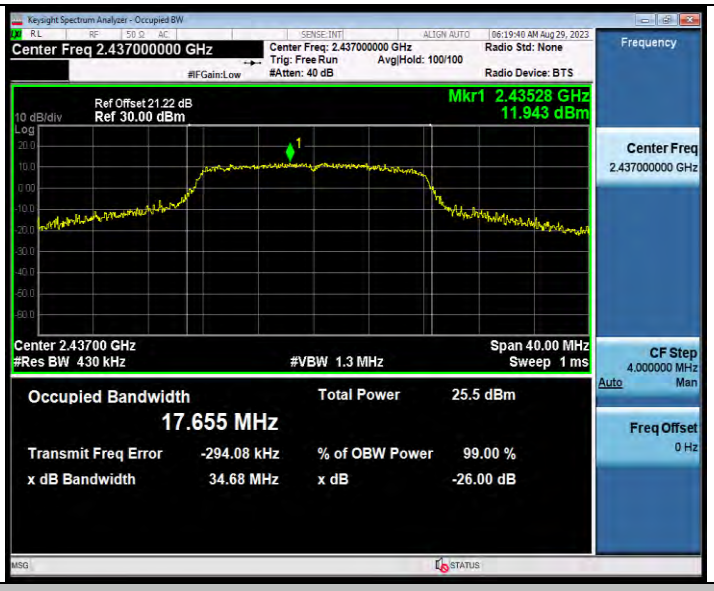


11B_Ant1_2462

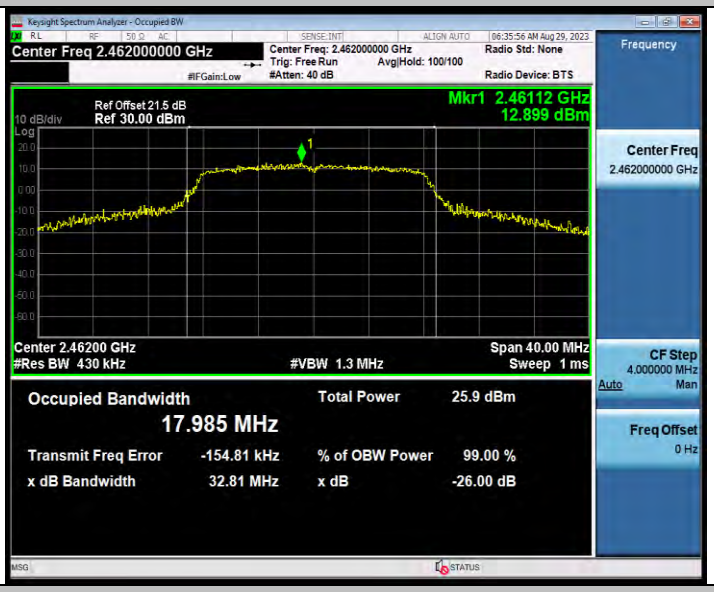
11G_Ant1_2412



11G_Ant1_2437

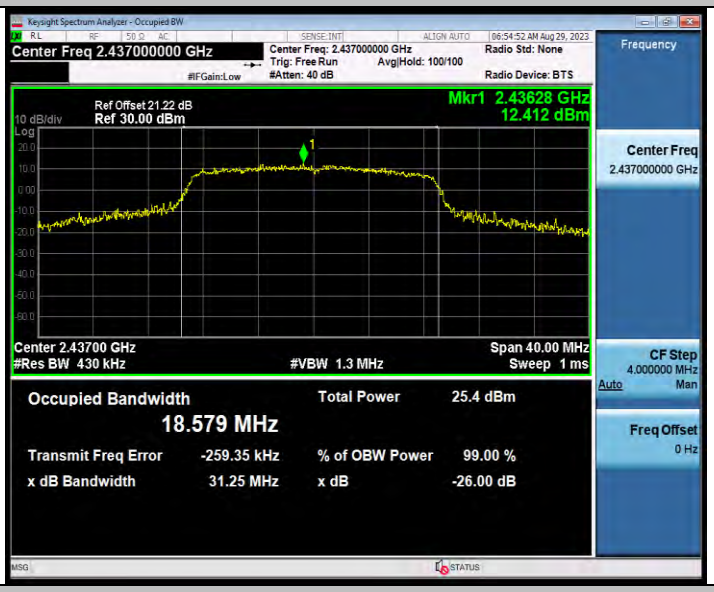


11G_Ant1_2462

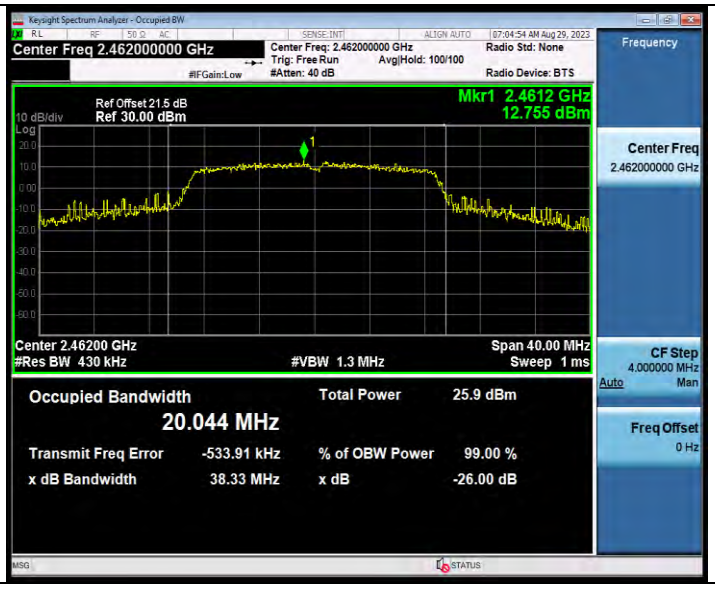


11N20SISO_Ant1_2412

11N20SISO_Ant1_2437



11N20SISO_Ant1_2462


Keysight Spectrum Analyzer - Occupied BW
Center Freq 2.462000000 GHz
Center Freq: 2.462000000 GHz
Trig: Free Run
#Atten: 40 dB
Avg|Hold: 100/100
Radio Std: None
Radio Device: BTS
07:04:54 AM Aug 29, 2023
Frequency
Ref Offset 21.5 dB
10 dB/div
Ref 30.00 dBm
Mkr1 2.4612 GHz
12.755 dBm
Center Freq
2.462000000 GHz
Center 2.46200 GHz
#Res BW 430 kHz
#VBW 1.3 MHz
Span 40.00 MHz
Sweep 1 ms
CF Step
4.000000 MHz
Auto
Man
Occupied Bandwidth
20.044 MHz
Total Power 25.9 dBm
Transmit Freq Error -533.91 kHz
% of OBW Power 99.00 %
x dB Bandwidth 38.33 MHz
x dB -26.00 dB
Freq Offset
0 Hz
MSG
STATUS

MAXIMUM CONDUCTED OUTPUT POWER

TEST RESULT

Test Mode	TX Mod.	Frequency [MHz]	Avg. power [dBm]	Peak power [dBm]	MAX Peak power [mw]	Limit [dBm]	EIRP [dBm]	EIRP [mw]	Limit [dBm]	Verdict	Power Setting
11B	SISO	2412	18.17	20.52	112.72	≤30.00	19.52	89.54	≤30.00	PASS	18
		2437	19.12	21.25	133.35	≤30.00	20.25	105.93	≤30.00	PASS	18.5
		2462	19.18	21.32	135.52	≤30.00	20.32	107.65	≤30.00	PASS	18.5
11g	SISO	2412	18.28	24.56	285.76	≤30.00	23.56	226.99	≤30.00	PASS	18
		2437	17.99	23.97	249.46	≤30.00	22.97	198.15	≤30.00	PASS	18.5
		2462	17.14	23.77	238.23	≤30.00	22.77	189.23	≤30.00	PASS	16.5
11N20	SISO	2412	18.14	24.66	292.42	≤30.00	23.66	232.27	≤30.00	PASS	18
		2437	17.79	24.1	257.04	≤30.00	23.1	204.17	≤30.00	PASS	17.5
		2462	17.96	23.97	249.46	≤30.00	22.97	198.15	≤30.00	PASS	17.5

Note: EIRP = Peak Power + Gain

SPOT CHECK

Test Mode	TX Mod.	Frequency [MHz]	Avg. power [dBm]	Peak power [dBm]	MAX Peak power [mw]	Limit [dBm]	EIRP [dBm]	EIRP [mw]	Limit [dBm]	Verdict	Power Setting
11N20	SISO	2412	18.03	24.58	287.08	≤30.00	23.58	228.03	≤30.00	PASS	18
		2437	17.69	23.99	250.61	≤30.00	22.99	199.07	≤30.00	PASS	17.5
		2462	17.77	23.87	243.78	≤30.00	22.87	193.64	≤30.00	PASS	17.5

MAXIMUM POWER SPECTRAL DENSITY

TEST RESULT

Test Mode	Antenna	Frequency[MHz]	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
11B	Ant1	2412	-0.89	≤8.00	PASS
		2437	-1.81	≤8.00	PASS
		2462	-1.11	≤8.00	PASS
11G	Ant1	2412	-3.1	≤8.00	PASS
		2437	-3.3	≤8.00	PASS
		2462	-3.9	≤8.00	PASS
11N20SISO	Ant1	2412	-4.31	≤8.00	PASS
		2437	-4.75	≤8.00	PASS
		2462	-3.8	≤8.00	PASS

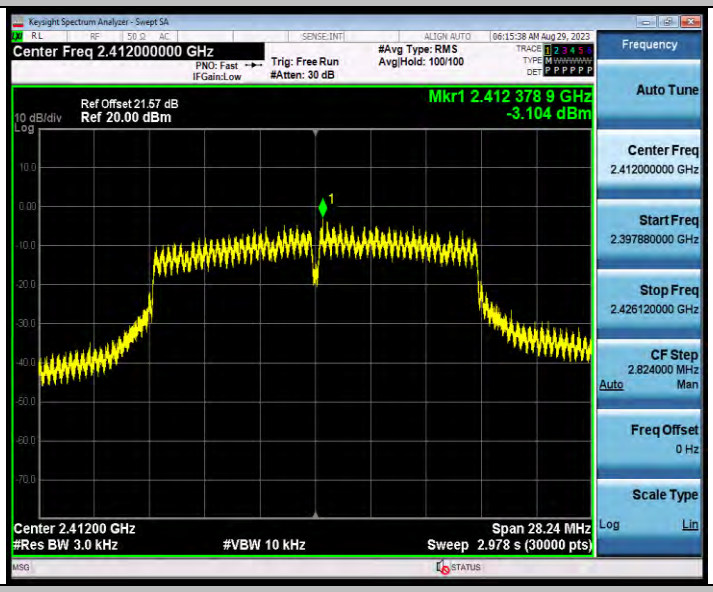
TEST GRAPHS

11B_Ant1_2412

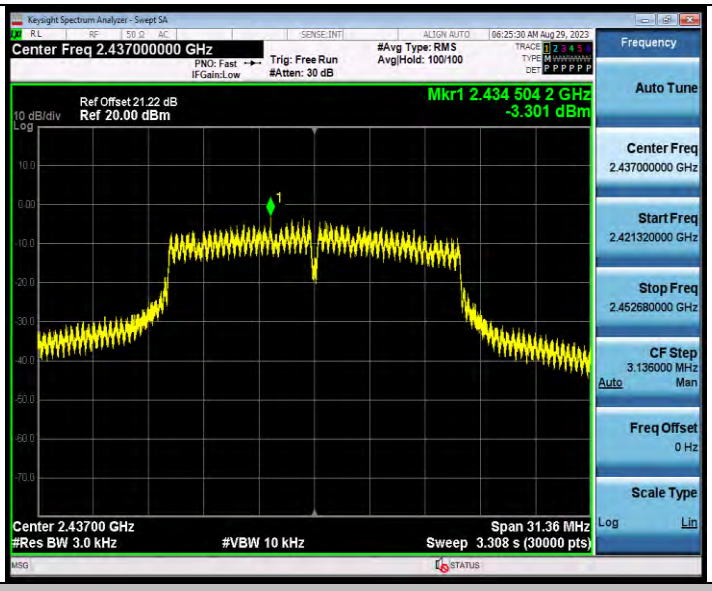
11B_Ant1_2437

11B_Ant1_2462

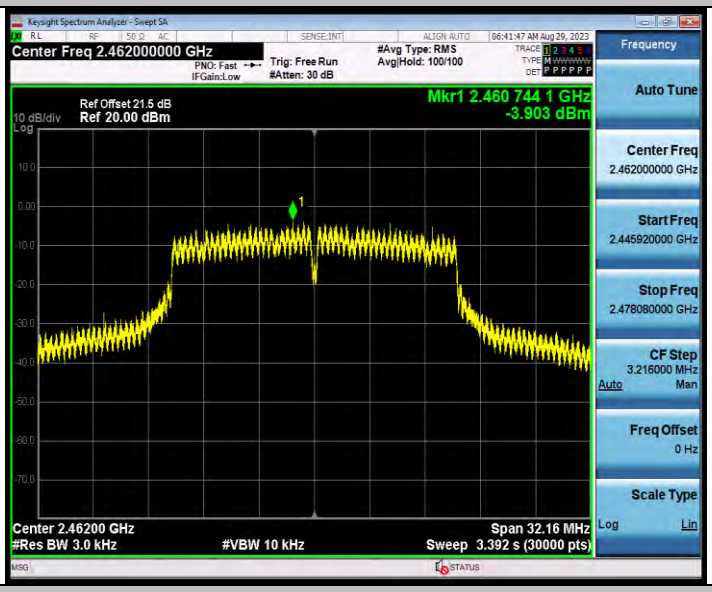
11G_Ant1_2412



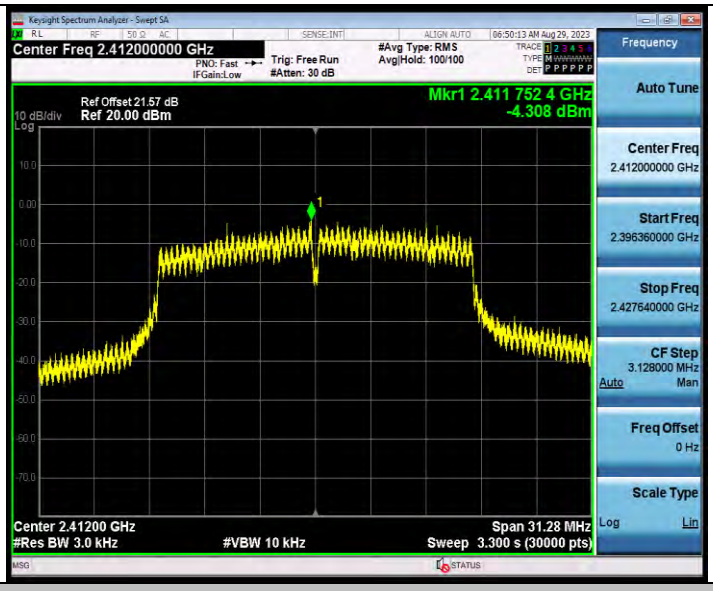
11G_Ant1_2437



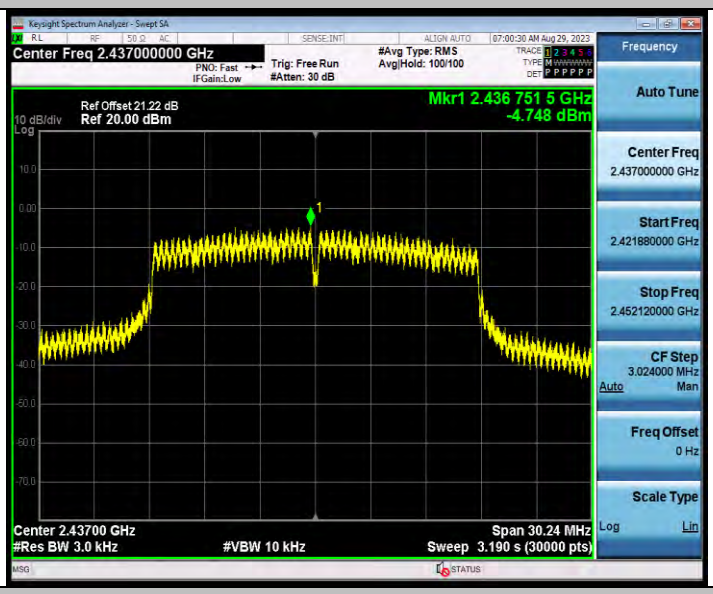
11G_Ant1_2462



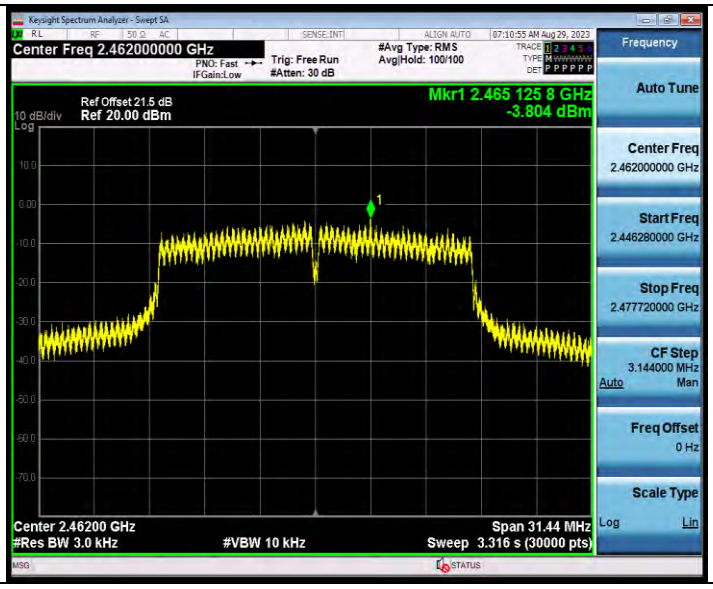
11N20SISO_Ant1_2412



11N20SISO_Ant1_2437



11N20SISO_Ant1_2462


Keysight Spectrum Analyzer - Swept SA
Center Freq 2.462000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
Avg|Hold: 100/100
07:10:55 AM Aug 29, 2023
Ref Offset 21.5 dB
10 dB/div
Ref 20.00 dBm
Log
Mkr1 2.465 125 8 GHz
-3.804 dBm
Center 2.46200 GHz
#Res BW 3.0 kHz
#VBW 10 kHz
Span 31.44 MHz
Sweep 3.316 s (30000 pts)
Frequency
Auto Tune
Center Freq
2.462000000 GHz
Start Freq
2.446280000 GHz
Stop Freq
2.477720000 GHz
CF Step
3.144000 MHz
Auto
Man
Freq Offset
0 Hz
Scale Type
Log
Lin

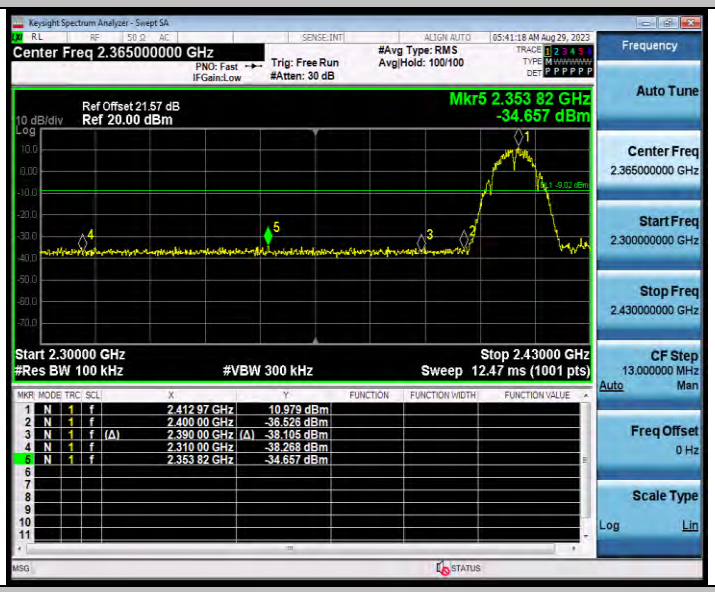
BAND EDGE MEASUREMENTS

TEST RESULT

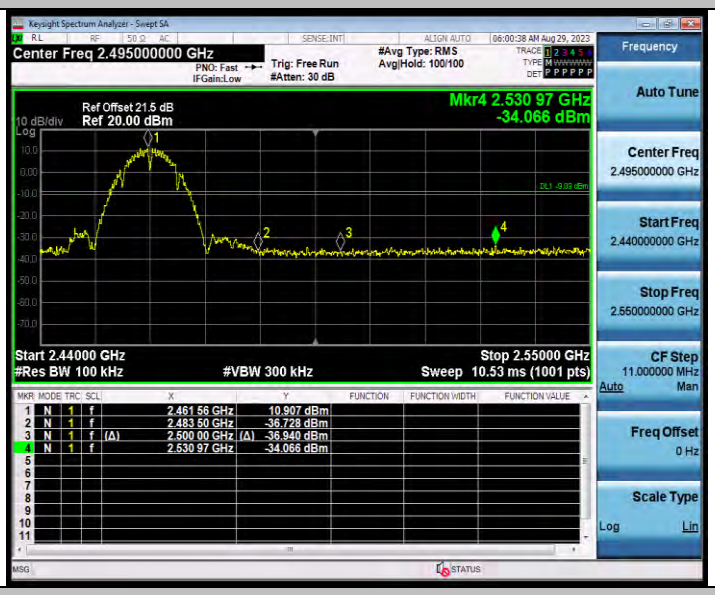
Test Mode	Antenna	ChName	Frequency[MHz]	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	Low	2412	10.98	-34.66	≤-9.02	PASS
		High	2462	10.91	-34.07	≤-9.09	PASS
11G	Ant1	Low	2412	9.37	-21.26	≤-10.63	PASS
		High	2462	9.16	-30.97	≤-10.84	PASS
11N20SISO	Ant1	Low	2412	8.80	-22.57	≤-11.2	PASS
		High	2462	8.92	-28.3	≤-11.08	PASS

TEST GRAPHS

11B_Ant1_Low_2412



11B_Ant1_High_2462



11G_Ant1_Low_2412