ACCREDITED
Certificate # 3939.01

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:	Redmi
Model Name:	2409BRN2CL
FCC ID:	2AFZZRN2CL
Date of tests:	May. 11, 2024 ~ Jul. 05, 2024

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

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

☒ **ANSI C63.10-2020**

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: Jul. 05, 2024	Luke Lu Date: Jul. 05, 2024

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.

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
W7L-P24050014RF02	Original release	Jul. 05, 2024

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: Except RSE, other data please refer to Appendix.

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	Redmi
MODEL NAME	2409BRN2CL
NOMINAL VOLTAGE	5/3.6~11Vdc(adapter or host equipment) 3.84Vdc (Li-ion, battery)
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 802.11n(HT20): 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: 267.30mW (Maximum) BT-LE: 1.73mW (Maximum)
ANTENNA TYPE	PIFA Antenna with 0.4dBi gain for WIFI/ BT_LE
HW VERSION	135100C3N
SW VERSION	Xiaomi HyperOS 1.0
IMEI	867957070066520
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 USB cable3: non-shielded cable, with w/o ferrite core, 1.0 meter USB cable4: non-shielded cable, with w/o ferrite core, 1.0 meter USB cable5: non-shielded cable, with w/o ferrite core, 1.0 meter USB cable6: non-shielded cable, with w/o ferrite core, 1.0 meter USB cable7: non-shielded cable, with w/o ferrite core, 1.0 meter USB cable8: 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(HT20)	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 test report.
4. Antenna gain and EUT conducted cable loss are provided by the customer, and the laboratory will record the results based on these items that involve these two parameters.

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)
802.11n HT20	1 to 11	11	OFDM	MCS0
BT-LE	0 to 39	19	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)
802.11n HT20	1 to 11	11	OFDM	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).

☒ 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 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).
☒ 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 5/3.6~11V By Adapter	Jace Hu
RE≥1G	23deg. C, 70%RH	DC 5/3.6~11V By Adapter	Jace Hu
PLC	25deg. C, 52%RH	DC 5/3.6~11V By Adapter	Carl Xie
APCM	25deg. C, 60%RH	DC 3.84V By DC Supply	James Fu

2.3 DUTY CYCLE OF TEST SIGNAL

Please Refer to Appendix Of this test report.

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 C63.10-2020

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. 14,24	Feb. 13,25
EMC32 test software	Rohde&Schwarz	EMC32	NA	NA	NA
LISN network	Rohde&Schwarz	ENV216	101922	Mar. 10,24	Mar. 09,25

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.

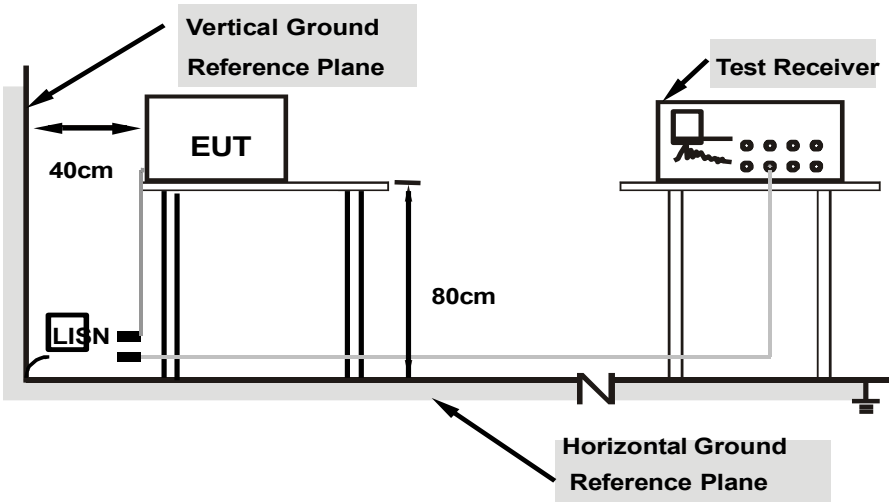
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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

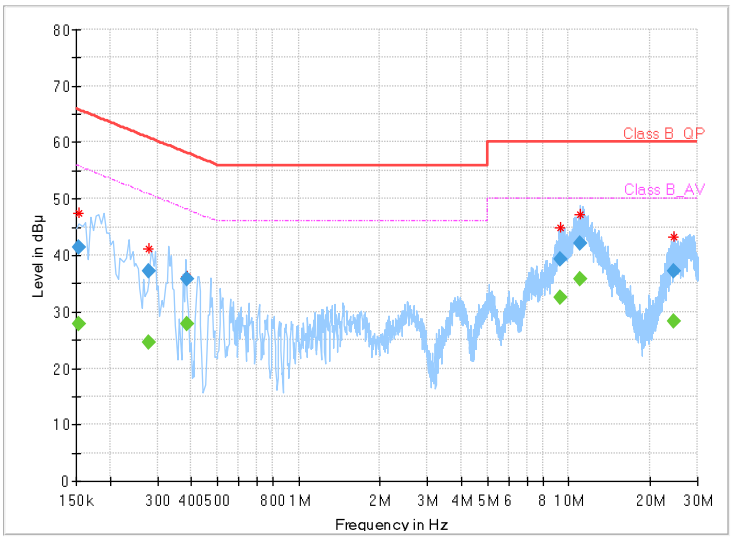
CONDUCTED WORST-CASE DATA:

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)
0.154000	---	27.85	55.78	27.93	L1	ON	9.8
0.154000	41.52	---	65.78	24.26	L1	ON	9.8
0.280000	---	24.54	50.82	26.28	L1	ON	9.8
0.280000	37.15	---	60.82	23.67	L1	ON	9.8
0.384000	---	27.76	48.19	20.43	L1	ON	9.8
0.384000	35.76	---	58.19	22.43	L1	ON	9.8
9.284000	---	32.41	50.00	17.59	L1	ON	10.4
9.284000	39.39	---	60.00	20.61	L1	ON	10.4
11.064000	---	35.71	50.00	14.29	L1	ON	10.5
11.064000	42.20	---	60.00	17.80	L1	ON	10.5
24.436000	---	28.32	50.00	21.68	L1	ON	11.3
24.436000	37.31	---	60.00	22.69	L1	ON	11.3

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

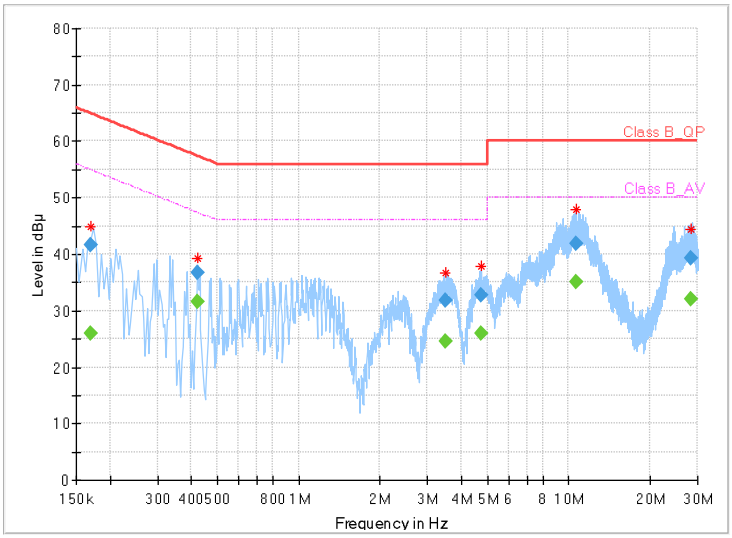


Frequency Range	150KHz ~ 30MHz	**Detector Function & Resolution Bandwidth**	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120Vac, 60Hz	**Environmental Conditions**	26deg. C, 51%RH
Tested By	Carl Xie		

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.170000	---	25.87	54.96	29.09	N	ON	9.7
0.170000	41.59	---	64.96	23.37	N	ON	9.7
0.424000	---	31.47	47.37	15.90	N	ON	9.6
0.424000	36.72	---	57.37	20.65	N	ON	9.6
3.480000	---	24.63	46.00	21.37	N	ON	9.7
3.480000	31.76	---	56.00	24.24	N	ON	9.7
4.720000	---	25.97	46.00	20.03	N	ON	9.7
4.720000	32.82	---	56.00	23.18	N	ON	9.7
10.664000	---	35.17	50.00	14.83	N	ON	10.5
10.664000	41.85	---	60.00	18.15	N	ON	10.5
28.512000	---	31.99	50.00	18.01	N	ON	11.4
28.512000	39.21	---	60.00	20.79	N	ON	11.4

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	Nov. 14,23	Nov. 13,26
Bilog Antenna	ETS-LINDGREN	3143B	00161965	Feb. 18,24	Feb. 17,25
Horn Antenna	ETS-LINDGREN	3117	00168692	Feb. 18,24	Feb. 17,25
Horn Antenna (18GHz-40GHz)	N/A	QWH-SL-18-40-K-SG/QMS-00361	15433	Sep.04, 23	Sep.03, 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. 06,24	May. 05,25
MXE EMI Receiver	KEYSIGHT	N9038A-544	MY54450026	Mar. 28,24	Mar. 27,25
Signal Pre-Amplifier	EMSI	EMC 9135	980249	May. 06,24	May. 05,25
Signal Pre-Amplifier	EMSI	EMC 012645B	980257	May.10,24	May.09,25
Signal Pre-Amplifier	EMSI	EMC 184045B	980259	Feb. 17,24	Feb. 16,25
DC Source	Kikusui/JP	PMX18-5A	0000001	Aug. 12,23	Aug. 11,24
Power Meter	Anritsu	ML2495A	1506002	Feb. 14,24	Feb. 13,25
Power Sensor	Anritsu	MA2411B	1339352	Feb. 14,24	Feb. 13,25
Loop Antenna	Schwarzbeck	FMZB 1519B	00173	Sep.03,23	Sep.02,24

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 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:

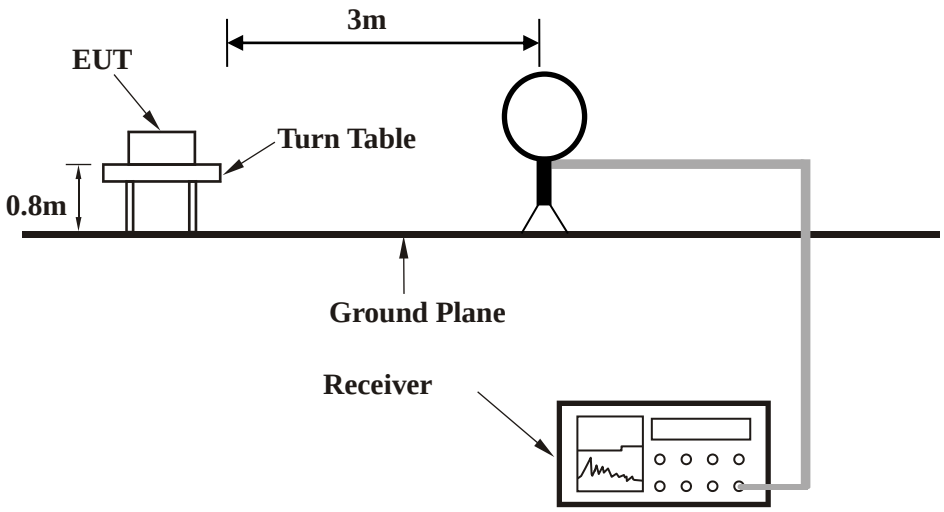
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz, and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.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

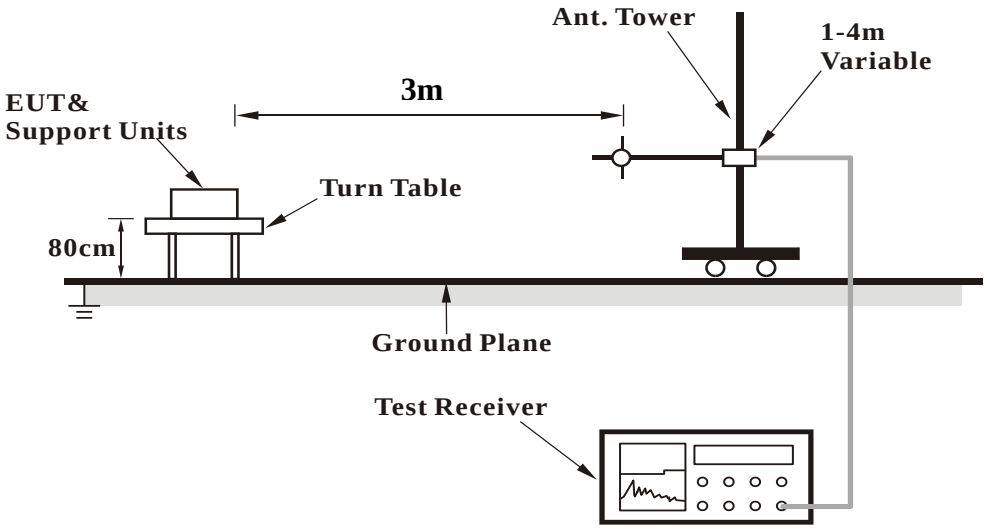
No deviation

3.2.5 TEST SETUP

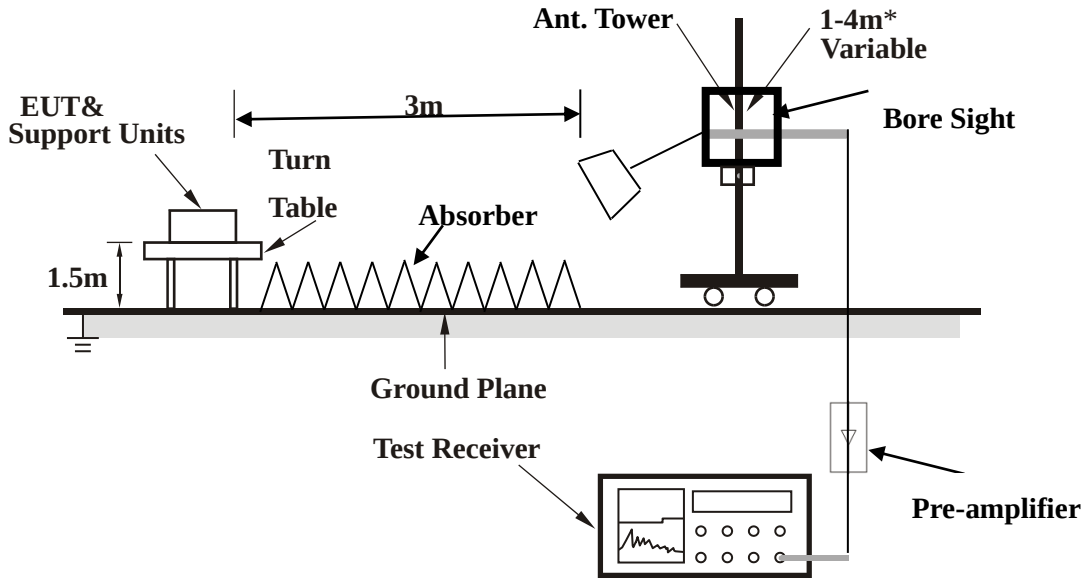
<Frequency Range 9KHz~30MHz >



< 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:

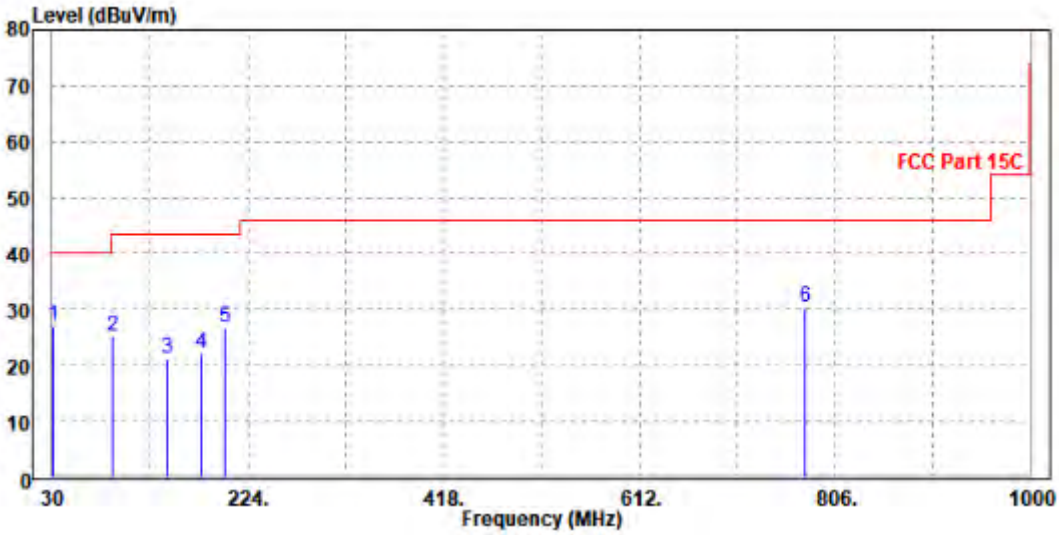
802.11n (20MHz)

CHANNEL	TX Channel 11	**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
30.970	26.96	33.64	40.00	-13.04	24.61	6.14	37.43	100	0	Peak
90.140	25.32	42.88	43.50	-18.18	13.00	6.50	37.06	100	0	Peak
144.460	21.39	36.99	43.50	-22.11	14.39	6.75	36.74	100	0	Peak
177.440	22.35	36.24	43.50	-21.15	15.90	6.84	36.63	100	0	Peak
201.690	26.69	39.87	43.50	-16.81	16.37	7.01	36.56	100	0	Peak
775.930	30.45	30.59	46.00	-15.55	28.82	8.55	37.51	100	0	Peak

REMARKS:

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

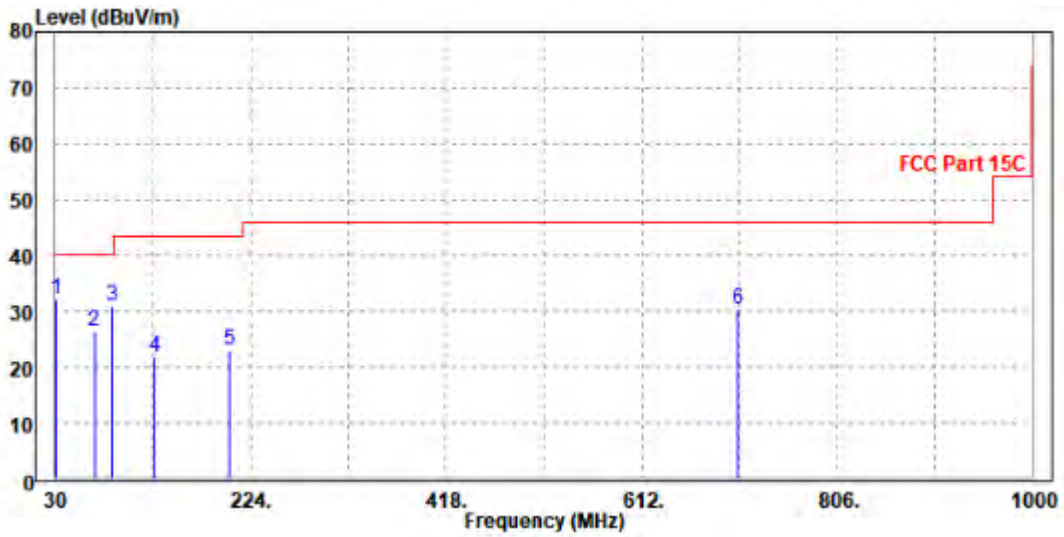


CHANNEL	TX Channel 11	**DETECTOR FUNCTION**	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

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
30.970	32.13	38.81	40.00	-7.87	24.61	6.14	37.43	100	360	Peak
68.800	26.59	44.23	40.00	-13.41	13.32	6.37	37.33	100	360	Peak
86.260	31.16	49.40	40.00	-8.84	12.40	6.48	37.12	100	360	Peak
128.940	21.88	38.69	43.50	-21.62	13.30	6.68	36.79	100	360	Peak
202.660	22.98	36.12	43.50	-20.52	16.41	7.01	36.56	100	360	Peak
708.030	30.32	30.24	46.00	-15.68	29.14	8.40	37.46	100	360	Peak

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	48.89	56.46	74.00	-25.11	30.80	7.74	46.11	100	200	Peak
2390.000	39.51	47.08	54.00	-14.49	30.80	7.74	46.11	100	200	Average
2412.000	101.65	108.61	/	/	31.38	7.77	46.11	100	200	Peak
2412.000	99.59	106.55	/	/	31.38	7.77	46.11	100	200	Average
2483.500	51.18	56.92	74.00	-22.82	32.47	7.88	46.09	100	200	Peak
2483.500	41.51	47.25	54.00	-12.49	32.47	7.88	46.09	100	200	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	51.51	57.52	74.00	-22.49	32.36	7.74	46.11	100	165	Peak
2390.000	41.05	47.06	54.00	-12.95	32.36	7.74	46.11	100	165	Average
2412.000	96.46	102.89	/	/	31.91	7.77	46.11	100	165	Peak
2412.000	94.23	100.66	/	/	31.91	7.77	46.11	100	165	Average
2483.500	50.02	56.90	74.00	-23.98	31.33	7.88	46.09	100	165	Peak
2483.500	40.21	47.09	54.00	-13.79	31.33	7.88	46.09	100	165	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
2390.000	49.48	57.05	74.00	-24.52	30.80	7.74	46.11	100	90	Peak
2390.000	39.41	46.98	54.00	-14.59	30.80	7.74	46.11	100	90	Average
2437.000	104.19	110.30	/	/	32.18	7.81	46.10	100	90	Peak
2437.000	102.17	108.28	/	/	32.18	7.81	46.10	100	90	Average
2483.500	50.95	56.69	74.00	-23.05	32.47	7.88	46.09	100	90	Peak
2483.500	41.61	47.35	54.00	-12.39	32.47	7.88	46.09	100	90	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	50.13	56.14	74.00	-23.87	32.36	7.74	46.11	100	100	Peak
2390.000	40.90	46.91	54.00	-13.10	32.36	7.74	46.11	100	100	Average
2437.000	95.79	102.77	/	/	31.31	7.81	46.10	100	100	Peak
2437.000	93.81	100.79	/	/	31.31	7.81	46.10	100	100	Average
2483.500	50.77	57.65	74.00	-23.23	31.33	7.88	46.09	100	100	Peak
2483.500	40.30	47.18	54.00	-13.70	31.33	7.88	46.09	100	100	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	48.03	55.60	74.00	-25.97	30.80	7.74	46.11	100	90	Peak
2390.000	39.25	46.82	54.00	-14.75	30.80	7.74	46.11	100	90	Average
2462.000	104.51	110.22	/	/	32.55	7.84	46.10	100	90	Peak
2462.000	102.50	108.21	/	/	32.55	7.84	46.10	100	90	Average
2483.500	41.68	47.42	54.00	-12.32	32.47	7.88	46.09	100	90	Average
2483.500	41.95	47.69	54.00	-12.05	32.47	7.88	46.09	100	90	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	56.88	74.00	-23.13	32.36	7.74	46.11	100	130	Peak
2390.000	40.83	46.84	54.00	-13.17	32.36	7.74	46.11	100	130	Average
2462.000	96.18	103.32	/	/	31.12	7.84	46.10	100	130	Peak
2462.000	93.99	101.13	/	/	31.12	7.84	46.10	100	130	Average
2483.500	49.43	56.31	74.00	-24.57	31.33	7.88	46.09	100	130	Peak
2483.500	40.34	47.22	54.00	-13.66	31.33	7.88	46.09	100	130	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	58.10	65.67	74.00	-15.90	30.80	7.74	46.11	100	200	Peak
2390.000	44.89	52.46	54.00	-9.11	30.80	7.74	46.11	100	200	Average
2412.000	105.14	112.10	/	/	31.38	7.77	46.11	100	200	Peak
2412.000	96.69	103.65	/	/	31.38	7.77	46.11	100	200	Average
2483.500	51.97	57.71	74.00	-22.03	32.47	7.88	46.09	100	200	Peak
2483.500	42.50	48.24	54.00	-11.50	32.47	7.88	46.09	100	200	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	55.53	61.54	74.00	-18.47	32.36	7.74	46.11	100	165	Peak
2390.000	43.78	49.79	54.00	-10.22	32.36	7.74	46.11	100	165	Average
2412.000	100.01	106.44	/	/	31.91	7.77	46.11	100	165	Peak
2412.000	91.52	97.95	/	/	31.91	7.77	46.11	100	165	Average
2483.500	50.77	57.65	74.00	-23.23	31.33	7.88	46.09	100	165	Peak
2483.500	40.62	47.50	54.00	-13.38	31.33	7.88	46.09	100	165	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
2390.000	50.30	57.87	74.00	-23.70	30.80	7.74	46.11	100	200	Peak
2390.000	40.69	48.26	54.00	-13.31	30.80	7.74	46.11	100	200	Average
2437.000	106.96	113.07	/	/	32.18	7.81	46.10	100	200	Peak
2437.000	98.66	104.77	/	/	32.18	7.81	46.10	100	200	Average
2483.500	53.33	59.07	74.00	-20.67	32.47	7.88	46.09	100	200	Peak
2483.500	43.58	49.32	54.00	-10.42	32.47	7.88	46.09	100	200	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	50.21	56.22	74.00	-23.79	32.36	7.74	46.11	100	100	Peak
2390.000	41.11	47.12	54.00	-12.89	32.36	7.74	46.11	100	100	Average
2437.000	99.97	106.95	/	/	31.31	7.81	46.10	100	100	Peak
2437.000	91.73	98.71	/	/	31.31	7.81	46.10	100	100	Average
2483.500	50.38	57.26	74.00	-23.62	31.33	7.88	46.09	100	100	Peak
2483.500	40.41	47.29	54.00	-13.59	31.33	7.88	46.09	100	100	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	49.89	57.46	74.00	-24.11	30.80	7.74	46.11	100	200	Peak
2390.000	40.45	48.02	54.00	-13.55	30.80	7.74	46.11	100	200	Average
2462.000	108.05	113.76	/	/	32.55	7.84	46.10	100	200	Peak
2462.000	99.77	105.48	/	/	32.55	7.84	46.10	100	200	Average
2483.500	61.54	67.28	74.00	-12.46	32.47	7.88	46.09	100	200	Peak
2483.500	50.00	55.74	54.00	-4.00	32.47	7.88	46.09	100	200	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	51.36	57.37	74.00	-22.64	32.36	7.74	46.11	100	130	Peak
2390.000	42.00	48.01	54.00	-12.00	32.36	7.74	46.11	100	130	Average
2462.000	99.01	106.15	/	/	31.12	7.84	46.10	100	130	Peak
2462.000	90.92	98.06	/	/	31.12	7.84	46.10	100	130	Average
2483.500	52.22	59.10	74.00	-21.78	31.33	7.88	46.09	100	130	Peak
2483.500	42.81	49.69	54.00	-11.19	31.33	7.88	46.09	100	130	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	58.10	65.67	74.00	-15.90	30.80	7.74	46.11	100	200	Peak
2390.000	46.08	53.65	54.00	-7.92	30.80	7.74	46.11	100	200	Average
2412.000	104.56	111.52	/	/	31.38	7.77	46.11	100	200	Peak
2412.000	95.82	102.78	/	/	31.38	7.77	46.11	100	200	Average
2483.500	52.95	58.69	74.00	-21.05	32.47	7.88	46.09	100	200	Peak
2483.500	43.05	48.79	54.00	-10.95	32.47	7.88	46.09	100	200	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	54.92	60.93	74.00	-19.08	32.36	7.74	46.11	100	165	Peak
2390.000	44.41	50.42	54.00	-9.59	32.36	7.74	46.11	100	165	Average
2412.000	99.20	105.63	/	/	31.91	7.77	46.11	100	165	Peak
2412.000	90.47	96.90	/	/	31.91	7.77	46.11	100	165	Average
2483.500	51.19	58.07	74.00	-22.81	31.33	7.88	46.09	100	165	Peak
2483.500	41.24	48.12	54.00	-12.76	31.33	7.88	46.09	100	165	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
2390.000	49.77	57.34	74.00	-24.23	30.80	7.74	46.11	100	200	Peak
2390.000	40.92	48.49	54.00	-13.08	30.80	7.74	46.11	100	200	Average
2437.000	106.32	112.43	/	/	32.18	7.81	46.10	100	200	Peak
2437.000	97.66	103.77	/	/	32.18	7.81	46.10	100	200	Average
2483.500	53.76	59.50	74.00	-20.24	32.47	7.88	46.09	100	200	Peak
2483.500	43.80	49.54	54.00	-10.20	32.47	7.88	46.09	100	200	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	52.37	58.38	74.00	-21.63	32.36	7.74	46.11	100	100	Peak
2390.000	42.19	48.20	54.00	-11.81	32.36	7.74	46.11	100	100	Average
2437.000	99.30	106.28	/	/	31.31	7.81	46.10	100	100	Peak
2437.000	90.73	97.71	/	/	31.31	7.81	46.10	100	100	Average
2483.500	51.16	58.04	74.00	-22.84	31.33	7.88	46.09	100	100	Peak
2483.500	41.37	48.25	54.00	-12.63	31.33	7.88	46.09	100	100	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	49.91	57.48	74.00	-24.09	30.80	7.74	46.11	100	200	Peak
2390.000	40.74	48.31	54.00	-13.26	30.80	7.74	46.11	100	200	Average
2462.000	107.90	113.61	/	/	32.55	7.84	46.10	100	200	Peak
2462.000	98.88	104.59	/	/	32.55	7.84	46.10	100	200	Average
2483.500	63.97	69.71	74.00	-10.03	32.47	7.88	46.09	100	200	Peak
2483.500	50.56	56.30	54.00	-3.44	32.47	7.88	46.09	100	200	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	51.87	57.88	74.00	-22.13	32.36	7.74	46.11	100	165	Peak
2390.000	42.05	48.06	54.00	-11.95	32.36	7.74	46.11	100	165	Average
2462.000	98.77	105.91	/	/	31.12	7.84	46.10	100	165	Peak
2462.000	90.32	97.46	/	/	31.12	7.84	46.10	100	165	Average
2483.500	51.22	58.10	74.00	-22.78	31.33	7.88	46.09	100	165	Peak
2483.500	42.85	49.73	54.00	-11.15	31.33	7.88	46.09	100	165	Average

REMARKS:

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

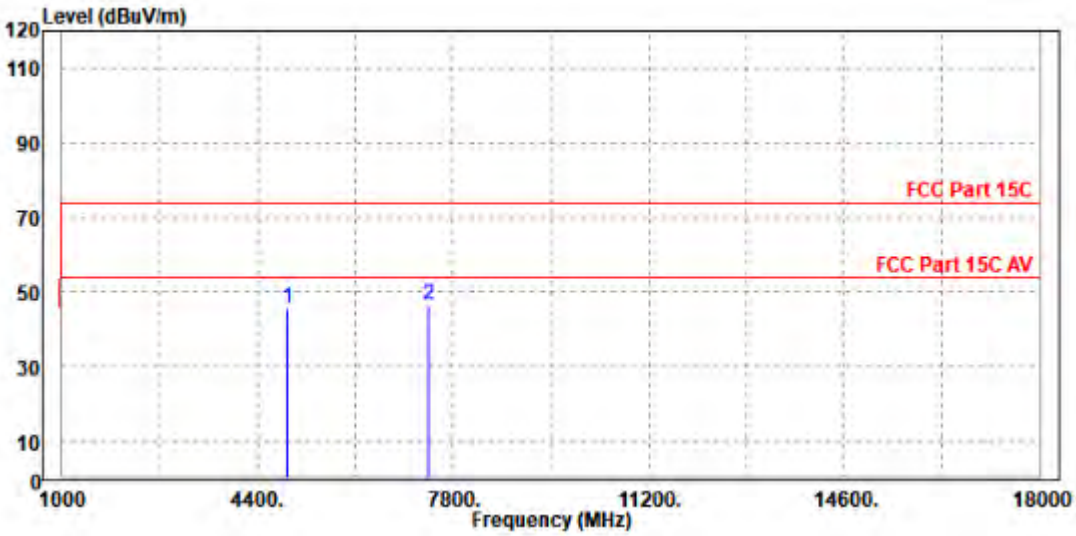
Worst case harmonic:

802.11n (20MHz)

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

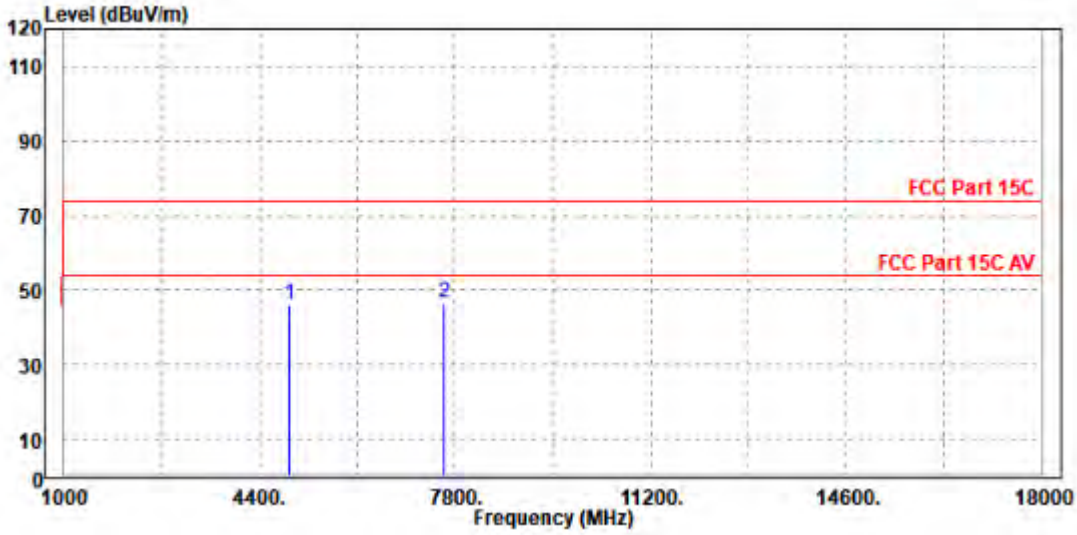
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

		Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
		MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m		
1		4927.000	45.80	47.61	74.00	-28.20	-1.81	Peak	Horizontal
2	PP	7386.000	46.60	44.29	74.00	-27.40	2.31	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		4924.000	45.94	47.81	74.00	-28.06	-1.87	Peak	Vertical
2	PP	7613.000	46.73	43.58	74.00	-27.27	3.15	Peak	Vertical



REMARKS:

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

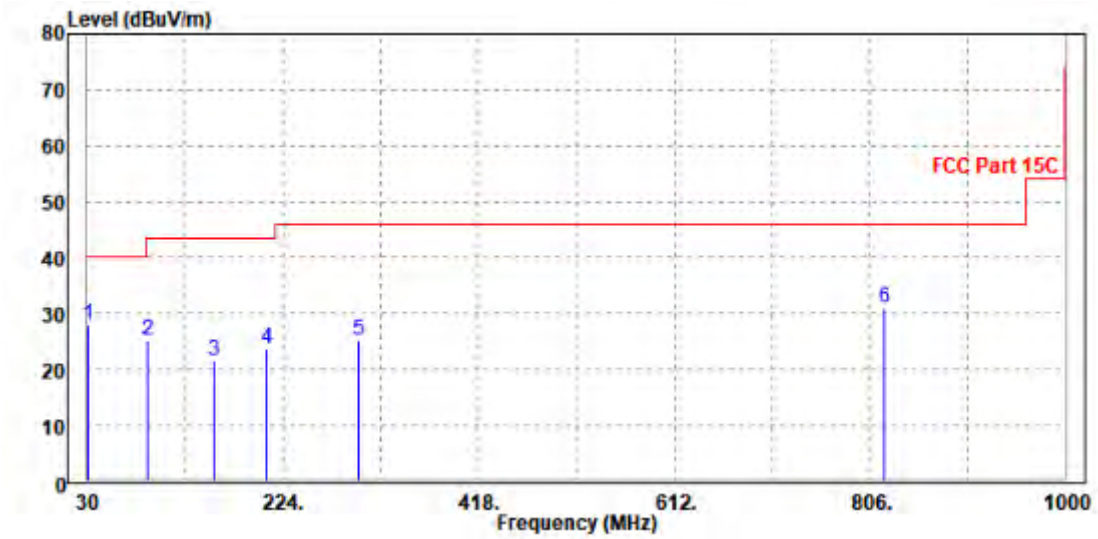
BT-LE _S2

CHANNEL	TX Channel 19	**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
30.97	28.11	34.79	40	-11.89	24.61	6.14	37.43	100	0	Peak
89.17	25.32	43.06	43.5	-18.18	12.83	6.5	37.07	100	0	Peak
155.13	21.66	34.67	43.5	-21.84	16.91	6.79	36.71	100	0	Peak
207.51	23.82	36.76	43.5	-19.68	16.6	7.02	36.56	100	0	Peak
299.66	25.11	35.51	46	-20.89	18.88	7.32	36.6	100	0	Peak
820.55	30.88	30.56	46	-15.12	29.23	8.64	37.55	100	0	Peak

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

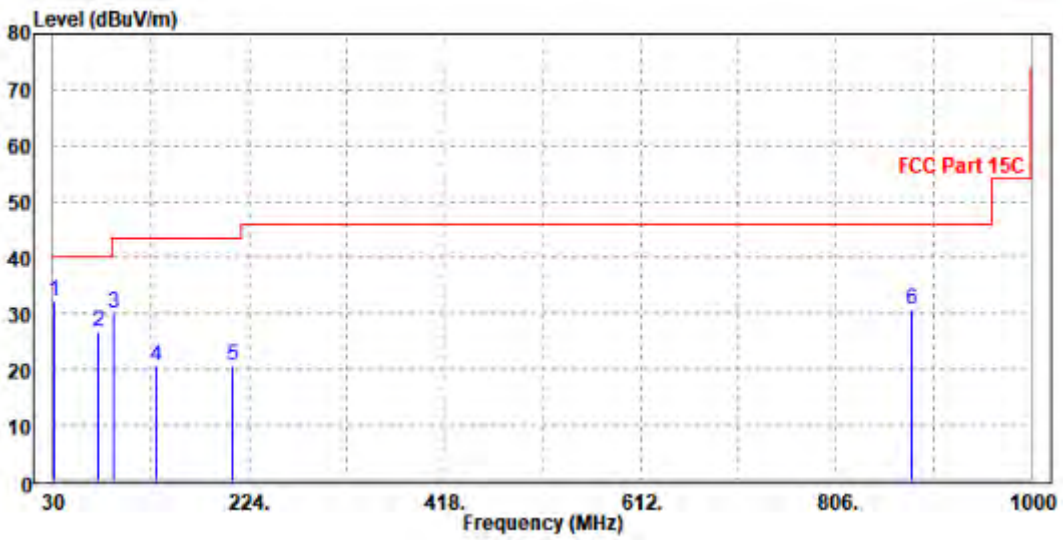


CHANNEL	TX Channel 19	**DETECTOR FUNCTION**	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

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
30.97	32.36	39.04	40	-7.64	24.61	6.14	37.43	100	360	Peak
74.62	26.92	44.78	40	-13.08	13	6.41	37.27	100	360	Peak
89.17	30.19	47.93	43.5	-13.31	12.83	6.5	37.07	100	360	Peak
131.85	20.81	37.3	43.5	-22.69	13.6	6.69	36.78	100	360	Peak
207.51	20.67	33.61	43.5	-22.83	16.6	7.02	36.56	100	360	Peak
881.66	30.73	30.44	46	-15.27	29.17	8.75	37.63	100	360	Peak

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	50.17	57.74	74.00	-23.83	30.80	7.74	46.11	100	190	Peak
2390.000	39.49	47.06	54.00	-14.51	30.80	7.74	46.11	100	190	Average
2402.000	92.84	100.14	/	/	31.06	7.75	46.11	100	190	Peak
2402.000	91.17	98.47	/	/	31.06	7.75	46.11	100	190	Average
2483.500	53.23	58.97	74.00	-20.77	32.47	7.88	46.09	100	190	Peak
2483.500	41.73	47.47	54.00	-12.27	32.47	7.88	46.09	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	49.89	55.90	74.00	-24.11	32.36	7.74	46.11	100	105	Peak
2390.000	41.14	47.15	54.00	-12.86	32.36	7.74	46.11	100	105	Average
2402.000	91.18	97.39	/	/	32.15	7.75	46.11	100	105	Peak
2402.000	89.40	95.61	/	/	32.15	7.75	46.11	100	105	Average
2483.500	50.02	56.90	74.00	-23.98	31.33	7.88	46.09	100	105	Peak
2483.500	40.39	47.27	54.00	-13.61	31.33	7.88	46.09	100	105	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	49.34	56.91	74.00	-24.66	30.80	7.74	46.11	100	190	Peak
2390.000	39.61	47.18	54.00	-14.39	30.80	7.74	46.11	100	190	Average
2440.000	95.86	101.87	/	/	32.28	7.81	46.10	100	190	Peak
2440.000	93.74	99.75	/	/	32.28	7.81	46.10	100	190	Average
2483.500	51.89	57.63	74.00	-22.11	32.47	7.88	46.09	100	190	Peak
2483.500	41.54	47.28	54.00	-12.46	32.47	7.88	46.09	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	49.40	55.41	74.00	-24.60	32.36	7.74	46.11	100	105	Peak
2390.000	40.90	46.91	54.00	-13.10	32.36	7.74	46.11	100	105	Average
2440.000	89.91	96.96	/	/	31.24	7.81	46.10	100	105	Peak
2440.000	88.93	95.98	/	/	31.24	7.81	46.10	100	105	Average
2483.500	48.59	55.47	74.00	-25.41	31.33	7.88	46.09	100	105	Peak
2483.500	40.28	47.16	54.00	-13.72	31.33	7.88	46.09	100	105	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	48.62	56.19	74.00	-25.38	30.80	7.74	46.11	100	190	Peak
2390.000	39.40	46.97	54.00	-14.60	30.80	7.74	46.11	100	190	Average
2480.000	95.63	101.37	/	/	32.48	7.87	46.09	100	190	Peak
2480.000	93.13	98.87	/	/	32.48	7.87	46.09	100	190	Average
2483.500	50.96	56.70	74.00	-23.04	32.47	7.88	46.09	100	190	Peak
2483.500	41.64	47.38	54.00	-12.36	32.47	7.88	46.09	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	51.13	57.14	74.00	-22.87	32.36	7.74	46.11	100	105	Peak
2390.000	41.05	47.06	54.00	-12.95	32.36	7.74	46.11	100	105	Average
2480.000	89.35	96.27	/	/	31.30	7.87	46.09	100	105	Peak
2480.000	88.09	95.01	/	/	31.30	7.87	46.09	100	105	Average
2483.500	49.98	56.86	74.00	-24.02	31.33	7.88	46.09	100	105	Peak
2483.500	40.38	47.26	54.00	-13.62	31.33	7.88	46.09	100	105	Average

REMARKS:

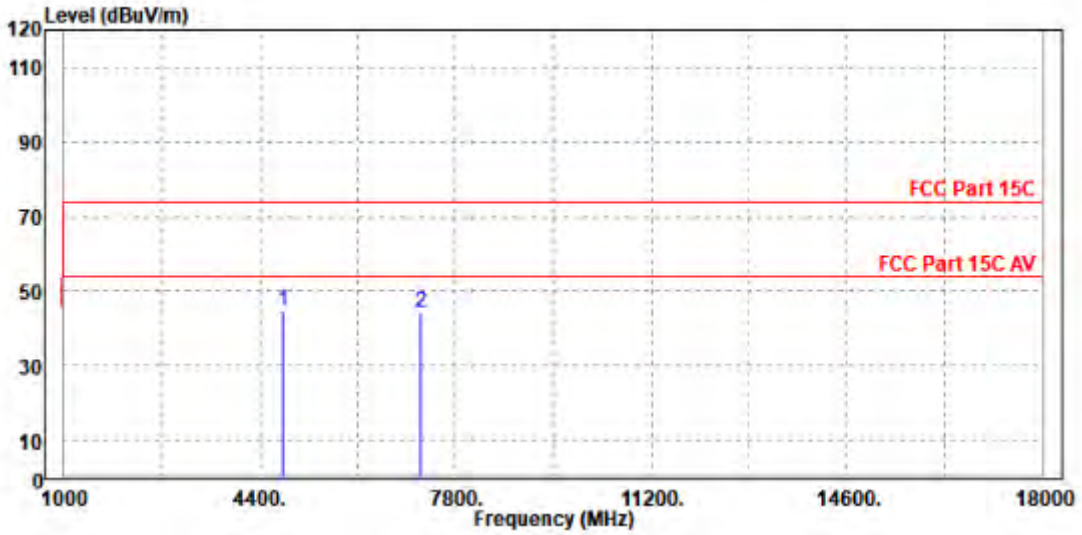
1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2480MHz: Fundamental frequency.

Worst case harmonic:

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

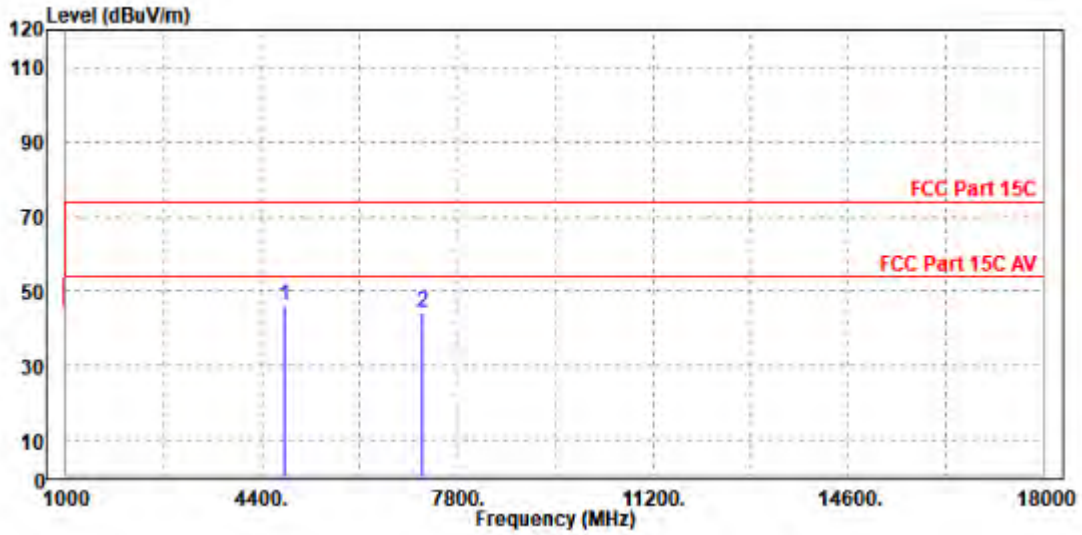
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

		Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
		MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m		
1	PP	4808.000	44.80	46.64	74.00	-29.20	-1.84	Peak	Horizontal
2		7206.000	44.26	42.51	74.00	-29.74	1.75	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	4804.000	46.12	47.34	74.00	-27.88	-1.22	Peak	Vertical
2		7205.000	44.44	42.78	74.00	-29.56	1.66	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 _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
2390.000	48.44	56.01	74.00	-25.56	30.80	7.74	46.11	100	190	Peak
2390.000	39.74	47.31	54.00	-14.26	30.80	7.74	46.11	100	190	Average
2404.000	93.74	100.96	/	/	31.13	7.76	46.11	100	190	Peak
2404.000	91.34	98.56	/	/	31.13	7.76	46.11	100	190	Average
2483.500	50.83	56.57	74.00	-23.17	32.47	7.88	46.09	100	190	Peak
2483.500	41.89	47.63	54.00	-12.11	32.47	7.88	46.09	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	49.68	55.69	74.00	-24.32	32.36	7.74	46.11	100	105	Peak
2390.000	41.10	47.11	54.00	-12.90	32.36	7.74	46.11	100	105	Average
2404.000	91.28	97.53	/	/	32.10	7.76	46.11	100	105	Peak
2404.000	89.65	95.90	/	/	32.10	7.76	46.11	100	105	Average
2483.500	51.53	58.41	74.00	-22.47	31.33	7.88	46.09	100	105	Peak
2483.500	40.57	47.45	54.00	-13.43	31.33	7.88	46.09	100	105	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
2390.000	48.56	56.13	74.00	-25.44	30.80	7.74	46.11	100	190	Peak
2390.000	39.53	47.10	54.00	-14.47	30.80	7.74	46.11	100	190	Average
2440.000	95.67	101.68	/	/	32.28	7.81	46.10	100	190	Peak
2440.000	93.12	99.13	/	/	32.28	7.81	46.10	100	190	Average
2483.500	51.23	56.97	74.00	-22.77	32.47	7.88	46.09	100	190	Peak
2483.500	41.78	47.52	54.00	-12.22	32.47	7.88	46.09	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	50.33	56.34	74.00	-23.67	32.36	7.74	46.11	100	105	Peak
2390.000	41.16	47.17	54.00	-12.84	32.36	7.74	46.11	100	105	Average
2440.000	89.86	96.91	/	/	31.24	7.81	46.10	100	105	Peak
2440.000	87.42	94.47	/	/	31.24	7.81	46.10	100	105	Average
2483.500	49.81	56.69	74.00	-24.19	31.33	7.88	46.09	100	105	Peak
2483.500	40.55	47.43	54.00	-13.45	31.33	7.88	46.09	100	105	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
2390.000	50.11	57.68	74.00	-23.89	30.80	7.74	46.11	100	190	Peak
2390.000	39.51	47.08	54.00	-14.49	30.80	7.74	46.11	100	190	Average
2478.000	95.28	101.01	/	/	32.49	7.87	46.09	100	190	Peak
2478.000	92.96	98.69	/	/	32.49	7.87	46.09	100	190	Average
2483.500	51.49	57.23	74.00	-22.51	32.47	7.88	46.09	100	190	Peak
2483.500	41.60	47.34	54.00	-12.40	32.47	7.88	46.09	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	50.17	56.18	74.00	-23.83	32.36	7.74	46.11	100	105	Peak
2390.000	41.38	47.39	54.00	-12.62	32.36	7.74	46.11	100	105	Average
2478.000	89.99	96.93	/	/	31.28	7.87	46.09	100	105	Peak
2478.000	86.86	93.80	/	/	31.28	7.87	46.09	100	105	Average
2483.500	50.33	57.21	74.00	-23.67	31.33	7.88	46.09	100	105	Peak
2483.500	40.57	47.45	54.00	-13.43	31.33	7.88	46.09	100	105	Average

REMARKS:

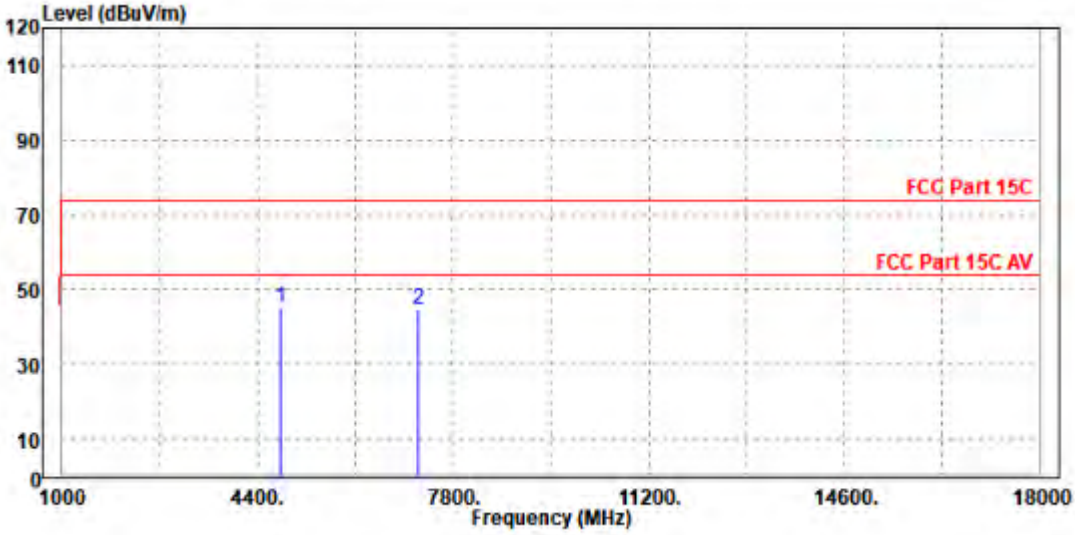
1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2478MHz: Fundamental frequency.

Worst case harmonic:

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

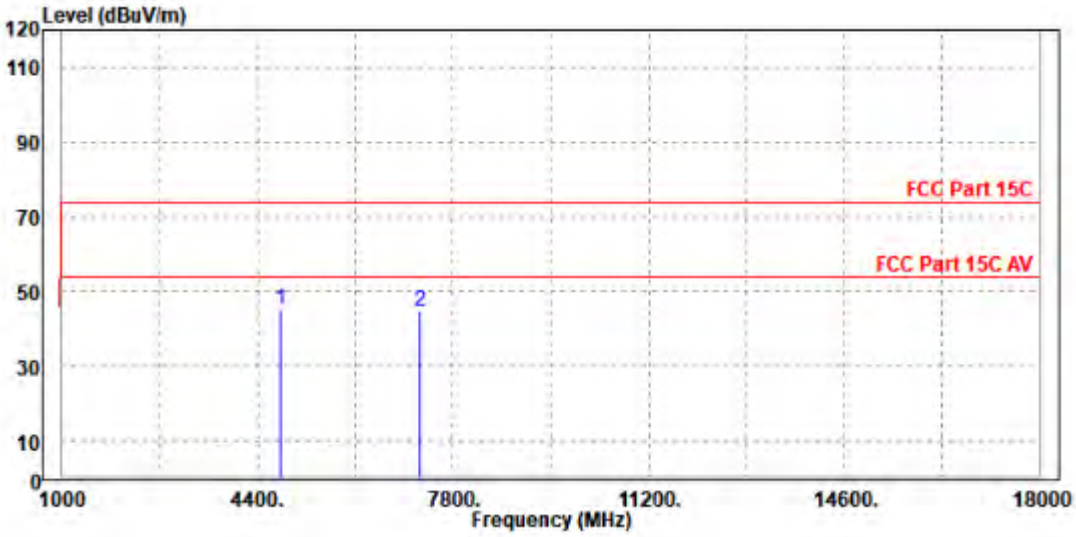
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

		Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
		MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m		
1	PP	4808.000	45.38	47.22	74.00	-28.62	-1.84	Peak	Horizontal
2		7205.000	44.52	42.78	74.00	-29.48	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	PP	4808.000	45.20	46.41	74.00	-28.80	-1.21	Peak	Vertical
2		7212.000	44.83	43.11	74.00	-29.17	1.72	Peak	Vertical



REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2404MHz: 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	49.26	56.83	74.00	-24.74	30.80	7.74	46.11	100	190	Peak
2390.000	39.15	46.72	54.00	-14.85	30.80	7.74	46.11	100	190	Average
2402.000	93.07	100.37	/	/	31.06	7.75	46.11	100	190	Peak
2402.000	91.52	98.82	/	/	31.06	7.75	46.11	100	190	Average
2483.500	51.81	57.55	74.00	-22.19	32.47	7.88	46.09	100	190	Peak
2483.500	41.27	47.01	54.00	-12.73	32.47	7.88	46.09	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	50.10	56.11	74.00	-23.90	32.36	7.74	46.11	100	105	Peak
2390.000	40.71	46.72	54.00	-13.29	32.36	7.74	46.11	100	105	Average
2402.000	91.30	97.51	/	/	32.15	7.75	46.11	100	105	Peak
2402.000	89.70	95.91	/	/	32.15	7.75	46.11	100	105	Average
2483.500	50.08	56.96	74.00	-23.92	31.33	7.88	46.09	100	105	Peak
2483.500	40.07	46.95	54.00	-13.93	31.33	7.88	46.09	100	105	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	48.62	56.19	74.00	-25.38	30.80	7.74	46.11	100	190	Peak
2390.000	39.20	46.77	54.00	-14.80	30.80	7.74	46.11	100	190	Average
2440.000	95.65	101.66	/	/	32.28	7.81	46.10	100	190	Peak
2440.000	93.95	99.96	/	/	32.28	7.81	46.10	100	190	Average
2483.500	51.29	57.03	74.00	-22.71	32.47	7.88	46.09	100	190	Peak
2483.500	41.29	47.03	54.00	-12.71	32.47	7.88	46.09	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	50.46	56.47	74.00	-23.54	32.36	7.74	46.11	100	105	Peak
2390.000	40.79	46.80	54.00	-13.21	32.36	7.74	46.11	100	105	Average
2440.000	89.94	96.99	/	/	31.24	7.81	46.10	100	105	Peak
2440.000	88.33	95.38	/	/	31.24	7.81	46.10	100	105	Average
2483.500	49.63	56.51	74.00	-24.37	31.33	7.88	46.09	100	105	Peak
2483.500	40.10	46.98	54.00	-13.90	31.33	7.88	46.09	100	105	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	50.02	57.59	74.00	-23.98	30.80	7.74	46.11	100	190	Peak
2390.000	39.12	46.69	54.00	-14.88	30.80	7.74	46.11	100	190	Average
2480.000	95.84	101.58	/	/	32.48	7.87	46.09	100	190	Peak
2480.000	93.99	99.73	/	/	32.48	7.87	46.09	100	190	Average
2483.500	50.81	56.55	74.00	-23.19	32.47	7.88	46.09	100	190	Peak
2483.500	41.26	47.00	54.00	-12.74	32.47	7.88	46.09	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	50.58	56.59	74.00	-23.42	32.36	7.74	46.11	100	105	Peak
2390.000	40.74	46.75	54.00	-13.26	32.36	7.74	46.11	100	105	Average
2480.000	89.43	96.35	/	/	31.30	7.87	46.09	100	105	Peak
2480.000	87.85	94.77	/	/	31.30	7.87	46.09	100	105	Average
2483.500	50.69	57.57	74.00	-23.31	31.33	7.88	46.09	100	105	Peak
2483.500	40.14	47.02	54.00	-13.86	31.33	7.88	46.09	100	105	Average

REMARKS:

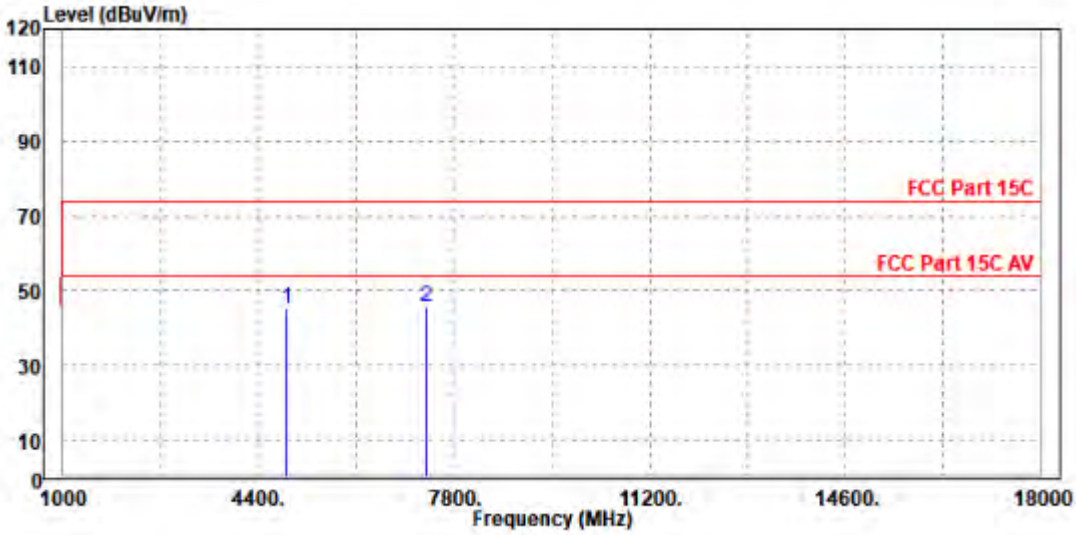
1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2480MHz: Fundamental frequency.

Worst case harmonic:

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

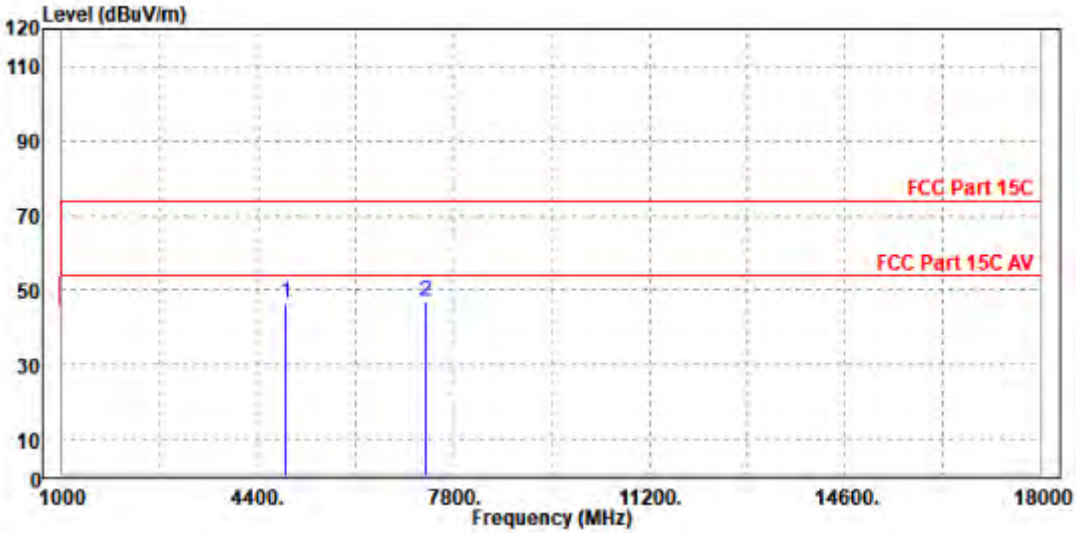
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

		Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
		MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m		
1		4876.000	45.14	47.07	74.00	-28.86	-1.93	Peak	Horizontal
2	PP	7320.000	45.82	43.65	74.00	-28.18	2.17	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		4880.000	46.72	48.26	74.00	-27.28	-1.54	Peak	Vertical
2	PP	7324.000	46.91	44.42	74.00	-27.09	2.49	Peak	Vertical



REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2440MHz: 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	48.37	55.94	74.00	-25.63	30.80	7.74	46.11	100	190	Peak
2390.000	39.07	46.64	54.00	-14.93	30.80	7.74	46.11	100	190	Average
2402.000	92.91	100.21	/	/	31.06	7.75	46.11	100	190	Peak
2402.000	91.71	99.01	/	/	31.06	7.75	46.11	100	190	Average
2483.500	51.94	57.68	74.00	-22.06	32.47	7.88	46.09	100	190	Peak
2483.500	41.12	46.86	54.00	-12.88	32.47	7.88	46.09	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	50.12	56.13	74.00	-23.88	32.36	7.74	46.11	100	105	Peak
2390.000	40.52	46.53	54.00	-13.48	32.36	7.74	46.11	100	105	Average
2402.000	91.08	97.29	/	/	32.15	7.75	46.11	100	105	Peak
2402.000	89.32	95.53	/	/	32.15	7.75	46.11	100	105	Average
2483.500	50.80	57.68	74.00	-23.20	31.33	7.88	46.09	100	105	Peak
2483.500	39.90	46.78	54.00	-14.10	31.33	7.88	46.09	100	105	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	47.61	55.18	74.00	-26.39	30.80	7.74	46.11	100	190	Peak
2390.000	39.09	46.66	54.00	-14.91	30.80	7.74	46.11	100	190	Average
2440.000	95.64	101.65	/	/	32.28	7.81	46.10	100	190	Peak
2440.000	94.44	100.45	/	/	32.28	7.81	46.10	100	190	Average
2483.500	51.92	57.66	74.00	-22.08	32.47	7.88	46.09	100	190	Peak
2483.500	41.12	46.86	54.00	-12.88	32.47	7.88	46.09	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	50.63	56.64	74.00	-23.37	32.36	7.74	46.11	100	105	Peak
2390.000	40.64	46.65	54.00	-13.36	32.36	7.74	46.11	100	105	Average
2440.000	89.68	96.73	/	/	31.24	7.81	46.10	100	105	Peak
2440.000	88.42	95.47	/	/	31.24	7.81	46.10	100	105	Average
2483.500	50.28	57.16	74.00	-23.72	31.33	7.88	46.09	100	105	Peak
2483.500	39.97	46.85	54.00	-14.03	31.33	7.88	46.09	100	105	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	49.62	57.19	74.00	-24.38	30.80	7.74	46.11	100	190	Peak
2390.000	38.99	46.56	54.00	-15.01	30.80	7.74	46.11	100	190	Average
2480.000	95.37	101.11	/	/	32.48	7.87	46.09	100	190	Peak
2480.000	93.97	99.71	/	/	32.48	7.87	46.09	100	190	Average
2483.500	51.34	57.08	74.00	-22.66	32.47	7.88	46.09	100	190	Peak
2483.500	41.19	46.93	54.00	-12.81	32.47	7.88	46.09	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	50.44	56.45	74.00	-23.56	32.36	7.74	46.11	100	105	Peak
2390.000	40.68	46.69	54.00	-13.32	32.36	7.74	46.11	100	105	Average
2480.000	89.36	96.28	/	/	31.30	7.87	46.09	100	105	Peak
2480.000	88.08	95.00	/	/	31.30	7.87	46.09	100	105	Average
2483.500	50.66	57.54	74.00	-23.34	31.33	7.88	46.09	100	105	Peak
2483.500	40.09	46.97	54.00	-13.91	31.33	7.88	46.09	100	105	Average

REMARKS:

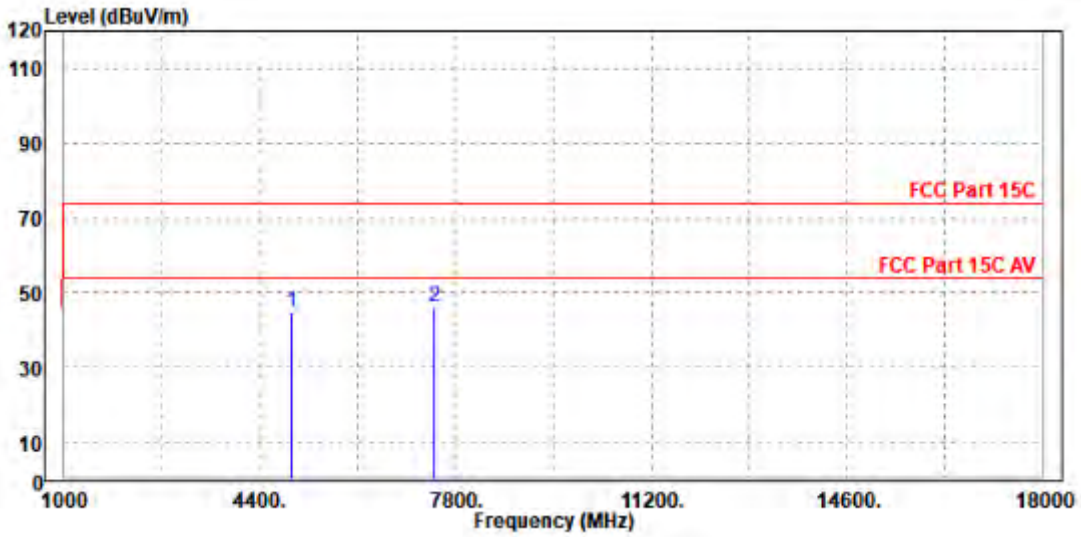
1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2480MHz: Fundamental frequency.

Worst case harmonic:

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

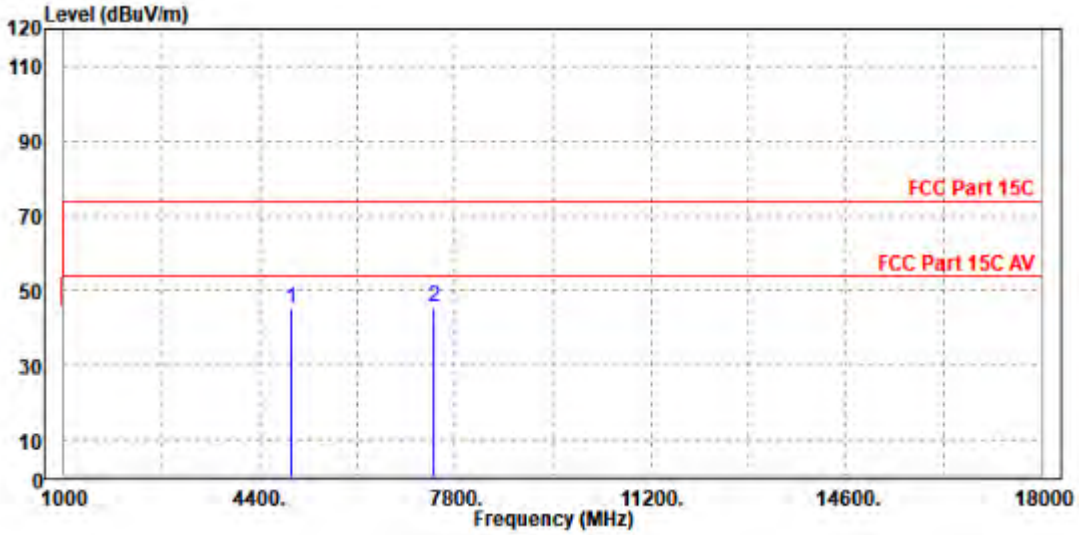
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

		Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
		MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m		
1		4960.000	44.69	46.42	74.00	-29.31	-1.73	Peak	Horizontal
2	PP	7443.000	46.29	43.86	74.00	-27.71	2.43	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		4961.000	45.18	47.15	74.00	-28.82	-1.97	Peak	Vertical
2	PP	7440.000	45.74	43.36	74.00	-28.26	2.38	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. 14,24	Feb. 13,25
EXA Signal Analyzer	KEYSIGHT	N9010A-526	MY54510523	Feb. 14,24	Feb. 13,25
EXA Signal Analyzer	KEYSIGHT	N9010A-544	MY54510355	May.10,24	May.09,25
Power Sensor	ANRITSU	MA2411B	1339352	Feb. 14,24	Feb. 13,25

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.

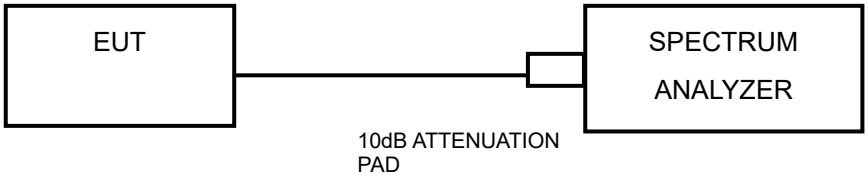
3.3.3 TEST PROCEDURE

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

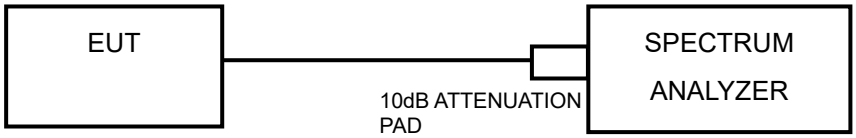
Please Refer to Appendix Of this test report.

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

For 2.4G WIFI:

a) Measure the duty cycle D of the transmitter output signal as described in 11.6.

b) Set span to >1.5 times the OBW.

c) Set RBW = 1% to 5% of the OBW, but do not exceed 1 MHz.

d) Set VBW ≥ [3 × RBW].

e) Number of points in sweep ≥ [2 × span / RBW]. (This gives bin-to-bin spacing ≤ RBW / 2, so that narrowband signals are not lost between frequency bins.)

f) Sweep time = auto.

g) Detector = Power averaging (rms), if available. Otherwise, use the sample detector mode.

h) Do not use sweep triggering. Allow the sweep to “free run.”

i) Trace average at least 100 traces in power averaging (rms) mode; however, the number of traces to be averaged shall be increased above 100 until trace is stabilized

so that the average accurately represents the true average over the ON and OFF periods of the transmitter.

j) Compute power by integrating the spectrum across the OBW of the signal using the instrument's band-power measurement function with band limits set equal to the OBW band-edges. If the instrument does not have a band-power function, then sum the spectrum levels (in power units) at intervals equal to the RBW extending across the entire OBW of the spectrum.

k) Add [10 log (1 / D)], where D is the duty cycle, to the measured power to compute the average power during the actual transmission times (because the measurement represents an average over both the ON and OFF times of the transmission). For example, add [10 log (1/0.25)] = 6 dB if the duty cycle is 25%.

For BLE：

a) Set the RBW ⩾ DTS bandwidth.
b) Set VBW ⩾ [3 × RBW].
c) Set span ⩾ [3 × RBW].
d) Sweep time = No faster than coupled (auto) time.
e) Detector = peak.
f) Trace mode = max-hold.
g) Allow trace to fully stabilize.
h) Use peak marker function to determine the peak amplitude 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

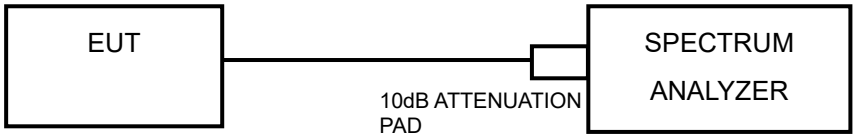
Please Refer to Appendix Of this test report.

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

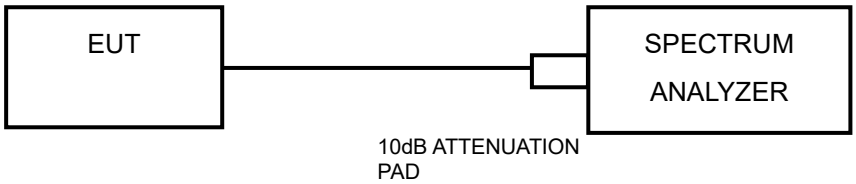
Please Refer to Appendix Of this test report.

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).(Based on peak power limits, If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required for test shall be 30 dB instead of 20 dB.)

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/30db offset below D1. It shows compliance to the requirement.

Please Refer to Appendix Of this test report.