VARIANT FCC TEST REPORT

(Part 15, Subpart C)

Applicant:	HMD Global Oy
Address:	Bertel Jungin aukio 9, 02600 Espoo, Finland

Manufacturer or Supplier:	HMD Global Oy
Address:	Bertel Jungin aukio 9, 02600 Espoo, Finland
Product:	Multi-band GSM/WCDMA/LTE phone with Bluetooth&WLAN
Brand Name:	NOKIA
Model Name:	TA-1401
FCC ID:	2AJOTTA-1401
Date of tests:	Nov. 25, 2021 ~ Oct. 10, 2022

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: Oct. 10, 2022	Luke Lu Date: Oct. 10, 2022

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
W7L-P21100018-4RF02	Original release	Dec. 17, 2021
W7L-P22090015-1RF02	Based on the original product changing the packaging factory of the chip and software version, removed Aohai_A829US adapter, BRL_ CB - 36A USB cable, Saibao_ CB - 12A USB cable, LEADER_ HS-34 earphone, added Saibao_AC-2A USB cable. The new sample verify CE, Power(Only verify) and RSE worst case (802.11n (40MHz) CH3), other test data is copied from the original test report W7L-P21100018-4RF02.	Oct. 10, 2022

1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

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

Note：1.Except RSE，other data please refer to Appendix .

2.The power table are not updated,Because the same as for original case power in Verified power.

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 (30MHz~1GMHz)	±4.98dB
Radiated emissions (1GMHz ~6GMHz)	±4.70dB
Radiated emissions (6GMHz ~18GMHz)	±4.60dB
Radiated emissions (18GMHz ~40GMHz)	±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	Multi-band GSM/WCDMA/LTE phone with Bluetooth&WLAN
BRAND NAME	NOKIA
MODEL NAME	TA-1401
NOMINAL VOLTAGE	5.0Vdc(adapter or host equipment) 3.85Vdc (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 802.11n20: up to 65 Mbps 802.11n40: up to 135 Mbps BT_LE: 0.125 Mbps /0.5 Mbps /1 Mbps/2 Mbps
OPERATING FREQUENCY	2412-2462MHz for 11b/g/n(HT20/ HT40) 2402-2480MHz for BT-LE(GFSK)
MAX. OUTPUT POWER	WLAN: 186.21mW (Maximum) BT-LE: 1.58mW (Maximum)
ANTENNA TYPE	Fixed Internal Antenna with 1.19dBi gain
HW VERSION	19655-1-11M12
SW VERSION	00WW_1_520
I/O PORTS	Refer to user's manual
CABLE SUPPLIED	USB1 cable: unshielded without ferrite, 1.0meter USB2 cable: unshielded without ferrite, 1.0meter Earphone1: non-shielded cable, with w/o ferrite core, 1.2 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
802.11n (40MHz)	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.

List of Accessory:

ACCESSORIES	BRAND	MANUFACTURER	MODEL	SPECIFICATION
Battery	Nokia	Hunan Gaoyuan Battery Co., Ltd.	WT341	Capacity：3.85 Vdc, 4900mAh
AC Adapter 1	Nokia	ShenZhenBaiJunDa ElectronicCO.,LTD.	AD-010U	I/P: 100-240Vac, 0.35A, O/P: 5.0Vdc, 2.0A
AC Adapter 2	Nokia	SHENZHEN TIANYIN ELECTRONICS CO., LTD.	CH-21U	I/P: 100-240Vac, 0.3A, O/P: 5.0Vdc, 2.0A
AC Adapter 3	Nokia	YuTong Electronics(HuiZhou) Co.,Ltd	PA-US5V2A-03 6	I/P: 100-240Vac, 0.5A, O/P: 5.0Vdc, 2.0A
Earphone 1	Nokia	Guangdong Wivtak Technology Co., Ltd.	HS-34	Signal Line, 1.2meter
USB Cable 1	Nokia	HUIZHOU WASHIN ELECTRONICS CO.,LTD	CB-36A	Signal Line, 1.0meter
USB Cable 2	Nokia	Saibao(Jiangi) Communication Industial Co.,Ltd	AC-2A	Signal Line, 1.0meter

NOTE：

1. In the finger plate, dial the code for entering Engineer mode: *#*#83781#*#*
2. EngineerMode->CONNECTIVITY->Wifi->Tx

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		

7 channels are provided for 802.11n (HT40):

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

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

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

2.2.1 CONFIGURATION OF SYSTEM UNDER TEST

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

2.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

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

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

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

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

RADIATED EMISSION TEST (BELOW 1GHz):

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

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)
802.11n HT40	3 to 9	3	OFDM	MCS0
BT-LE	0 to 39	39	GFSK	2.0

RADIATED EMISSION TEST (ABOVE 1GHz):

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

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

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

POWER LINE CONDUCTED EMISSION TEST

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

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)
802.11n HT40	3 to 9	3	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).

☒ 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, 11	DSSS	1.0
802.11g	1 to 11	1, 11	OFDM	6.0
802.11n HT20	1 to 11	1, 11	OFDM	MCS0
802.11n HT40	3 to 9	3, 6, 9	OFDM	MCS0
BT-LE	0 to 39	0, 39	GFSK	0.125&0.5&1&2

ANTENNA PORT CONDUCTED MEASUREMENT:

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

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

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	TEST VOLTAGE	TESTED BY
RE<1G	23deg. C, 70%RH	DC 5V By Adapter	Star Le
RE≥1G	23deg. C, 70%RH	DC5V By Adapter	Star Le
PLC	25deg. C, 52%RH	DC5V By Adapter	Carl xie
APCM	25deg. C, 60%RH	DC 3.85V By Battery	Carl xie

2.3 Duty Cycle of Test Signal

Please Refer to Appendix G/N Of this test report.

WORST-CASE DATA:

Measured Duty Cycle		
Mode		Duty Cycle [%]
		ANT1
WIFI 2.4GHz	11B	99.06
	11G	94.56
	11N20	93.65
	11N40	88.06
BT LE	BT4.0	87.23
	BT5.0	66.40
	BTS2	81.28
	BTS8	94.91

Note:

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

2.4 GENERAL DESCRIPTION OF APPLIED STANDARDS

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

FCC Part 15, Subpart C, Section 15.247

KDB 558074 D01 DTS Meas Guidance v05r02

ANSI C63.10-2013

Note：

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

2.5 DESCRIPTION OF SUPPORT UNITS

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

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	Desktop	Lenovo	M73 SFF	PC04GRQV	N/A
2	Desktop	Lenovo	M73 SFF	PC06CS27	N/A
3	Laptop	Lenovo	Thnikpad 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	Mar. 03,21	Mar. 02,22
EMI Test Receiver	Rohde&Schwarz	ESR3	101900	Mar. 02,22	Mar. 01,23
EMC32 test software	Rohde&Schwarz	EMC32	NA	NA	NA
LISN network	Rohde&Schwarz	ENV216	101922	Feb. 25,21	Feb. 24,22
LISN network	Rohde&Schwarz	ENV216	101922	Feb. 24,22	Feb. 23,23

NOTE:

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

3.1.3 TEST PROCEDURES

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

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

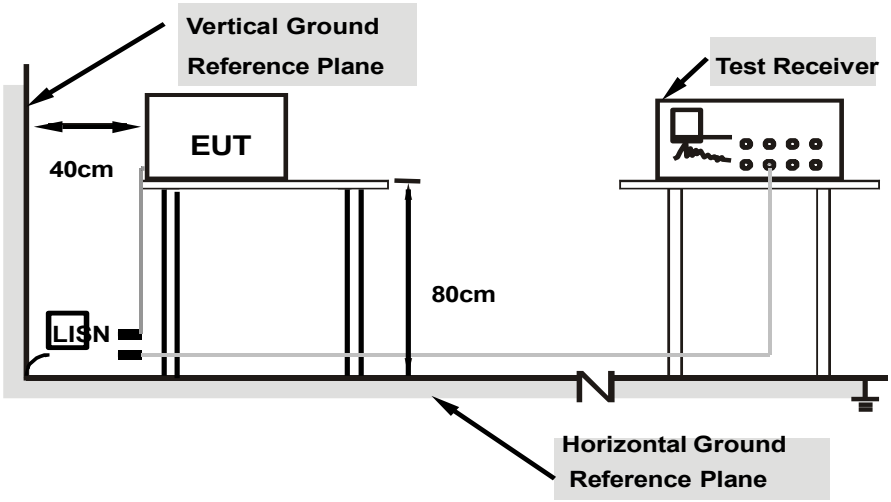
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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

3.1.4 DEVIATION FROM TEST STANDARD

No deviation.

3.1.5 TEST SETUP



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

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

3.1.6 EUT OPERATING CONDITIONS

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

3.1.7 TEST RESULTS

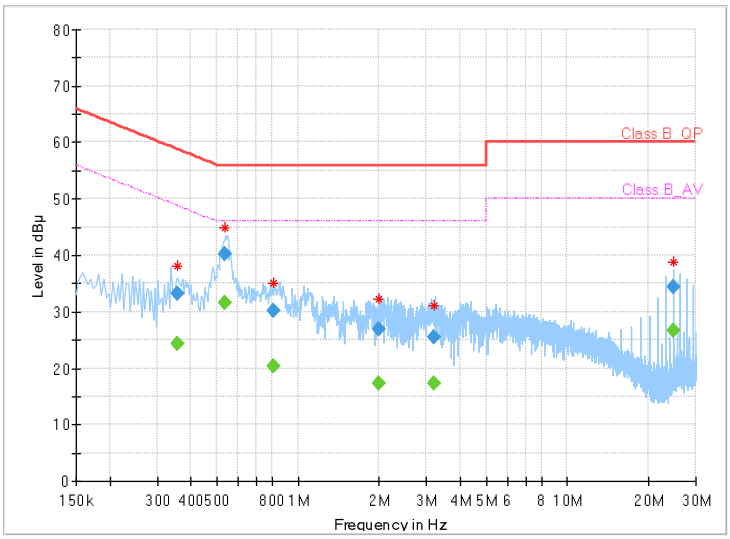
CONDUCTED WORST-CASE DATA: 2.4G WIFI

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)
0.356000	---	24.24	48.82	24.58	L1	ON	9.7
0.356000	33.12	---	58.82	25.70	L1	ON	9.7
0.536000	---	31.61	46.00	14.39	L1	ON	9.7
0.536000	40.29	---	56.00	15.71	L1	ON	9.7
0.808000	---	20.39	46.00	25.61	L1	ON	9.7
0.808000	30.26	---	56.00	25.74	L1	ON	9.7
2.004000	---	17.21	46.00	28.79	L1	ON	9.7
2.004000	26.93	---	56.00	29.07	L1	ON	9.7
3.192000	---	17.26	46.00	28.74	L1	ON	9.7
3.192000	25.53	---	56.00	30.47	L1	ON	9.7
24.748000	---	26.63	50.00	23.37	L1	ON	9.8
24.748000	34.34	---	60.00	25.66	L1	ON	9.8

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

Full Spectrum

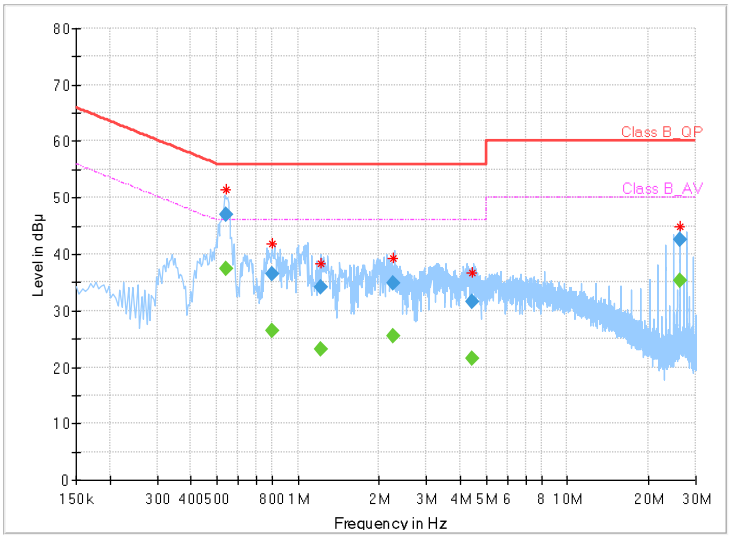


Frequency Range	150KHz ~ 30MHz	**Detector Function & Resolution Bandwidth**	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120Vac, 60Hz	**Environmental Conditions**	26deg. C, 51%RH
Tested By	Carl xie		

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.540000	---	37.31	46.00	8.69	N	ON	9.7
0.540000	47.09	---	56.00	8.91	N	ON	9.7
0.800000	---	26.44	46.00	19.56	N	ON	9.7
0.800000	36.38	---	56.00	19.62	N	ON	9.7
1.220000	---	23.10	46.00	22.90	N	ON	9.8
1.220000	34.21	---	56.00	21.79	N	ON	9.8
2.248000	---	25.58	46.00	20.42	N	ON	9.8
2.248000	34.78	---	56.00	21.22	N	ON	9.8
4.408000	---	21.44	46.00	24.56	N	ON	9.8
4.408000	31.54	---	56.00	24.46	N	ON	9.8
26.248000	---	35.21	50.00	14.79	N	ON	9.9
26.248000	42.63	---	60.00	17.37	N	ON	9.9

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



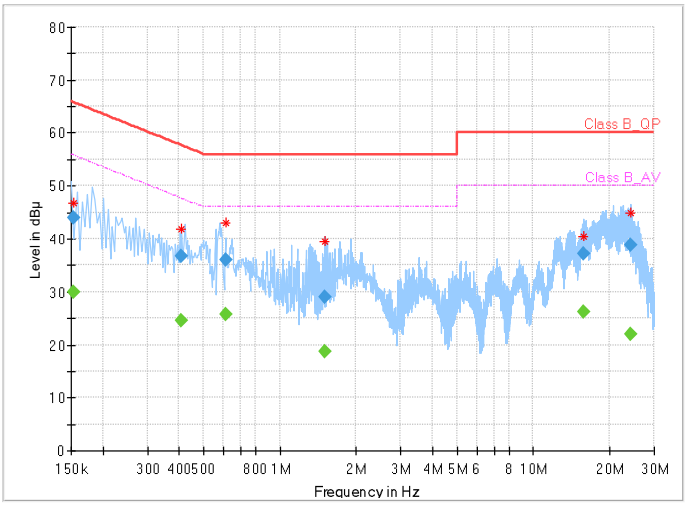
B-LE:

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	---	30.00	55.78	25.78	L1	ON	9.7
0.154000	43.89	---	65.78	21.89	L1	ON	9.7
0.408000	---	24.63	47.69	23.06	L1	ON	9.7
0.408000	36.70	---	57.69	20.99	L1	ON	9.7
0.612000	---	25.76	46.00	20.24	L1	ON	9.7
0.612000	36.09	---	56.00	19.91	L1	ON	9.7
1.512000	---	18.76	46.00	27.24	L1	ON	9.7
1.512000	28.99	---	56.00	27.01	L1	ON	9.7
15.744000	---	26.20	50.00	23.80	L1	ON	9.8
15.744000	37.19	---	60.00	22.81	L1	ON	9.8
24.224000	---	22.09	50.00	27.91	L1	ON	9.8
24.224000	38.78	---	60.00	21.22	L1	ON	9.8

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

Full Spectrum

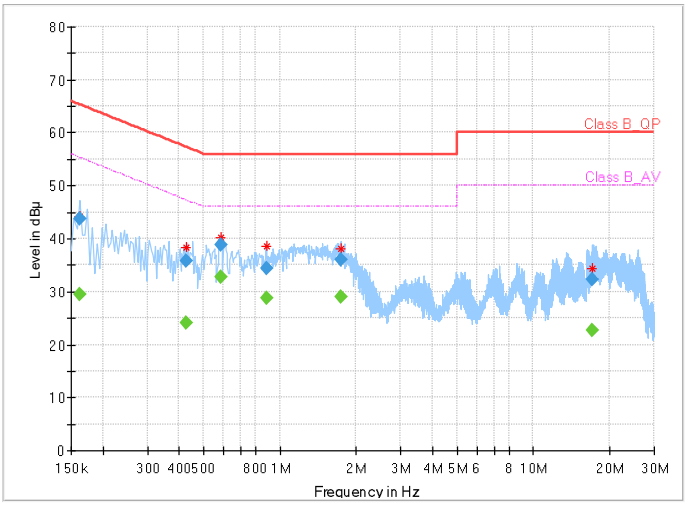


Frequency Range	150KHz ~ 30MHz	**Detector Function & Resolution Bandwidth**	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120Vac, 60Hz	**Environmental Conditions**	26deg. C, 51%RH
Tested By	Carl xie		

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.162000	---	29.37	55.36	25.99	N	ON	9.7
0.162000	43.69	---	65.36	21.67	N	ON	9.7
0.428000	---	24.01	47.29	23.28	N	ON	9.7
0.428000	35.75	---	57.29	21.54	N	ON	9.7
0.584000	---	32.80	46.00	13.20	N	ON	9.7
0.584000	38.92	---	56.00	17.08	N	ON	9.7
0.884000	---	28.88	46.00	17.12	N	ON	9.7
0.884000	34.36	---	56.00	21.64	N	ON	9.7
1.748000	---	28.95	46.00	17.05	N	ON	9.8
1.748000	36.12	---	56.00	19.88	N	ON	9.8
17.128000	---	22.66	50.00	27.34	N	ON	9.9
17.128000	32.17	---	60.00	27.83	N	ON	9.9

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. 19,20	May. 18,23
Bilog Antenna	ETS-LINDGREN	3143B	00161965	Mar. 05,21	Mar. 04,22
Bilog Antenna	ETS-LINDGREN	3143B	00161965	Mar. 04,22	Mar. 03,23
Horn Antenna	ETS-LINDGREN	3117	00168728	Apr. 02, 21	Apr. 01, 22
Horn Antenna	ETS-LINDGREN	3117	00168728	Apr. 01, 22	Mar. 31, 23
Horn Antenna (18GHz-40GHz)	N/A	QWH-SL-18-40-K-SG/QMS-00361	15433	Aug. 25, 21	Aug. 24, 22
Horn Antenna (18GHz-40GHz)	N/A	QWH-SL-18-40-K-SG/QMS-00361	15433	Aug. 24, 22	Aug. 23, 23
Test Software	E3	V 9.160323	N/A	N/A	N/A
Test Software	ADT	ADT_Radiated_V7.6.15.9.2	N/A	N/A	N/A
10dB Attenuator	JFW/USA	50HF-010-SMA	1505	Jun. 03,21	Jun. 02,22
10dB Attenuator	JFW/USA	50HF-010-SMA	1505	Jun. 02,22	Jun. 01,23
MXE EMI Receiver	KEYSIGHT	N9038A-544	MY54450026	Apr. 27,21	Apr. 26,22
MXE EMI Receiver	KEYSIGHT	N9038A-544	MY54450026	Apr. 26,22	Apr. 25,23
Signal Pre-Amplifier	EMSI	EMC 9135	980249	Jun. 02,21	Jun. 01,22
Signal Pre-Amplifier	EMSI	EMC 9135	980249	Jun. 01,22	May. 31,23
Signal Pre-Amplifier	EMSI	EMC 012645B	980257	Jun. 02,21	Jun. 01,22
Signal Pre-Amplifier	EMSI	EMC 012645B	980257	Jun. 01,22	May. 31,23
Signal Pre-Amplifier	EMSI	EMC 184045B	980259	Apr. 30,21	Apr. 29,22
Signal Pre-Amplifier	EMSI	EMC 184045B	980259	Apr. 29,22	Apr. 28,23
DC Source	Kikusui/JP	PMX18-5A	0000001	Aug. 25,21	Aug. 24,22
DC Source	Kikusui/JP	PMX18-5A	0000001	Aug. 24,22	Aug. 23,23
Power Meter	Anritsu	ML2495A	1506002	Feb. 25,21	Feb. 24,22
Power Meter	Anritsu	ML2495A	1506002	Feb. 24,22	Feb. 23,23
Power Sensor	Anritsu	MA2411B	1339352	Feb. 25,21	Feb. 24,22
Power Sensor	Anritsu	MA2411B	1339352	Feb. 24,22	Feb. 23,23
Loop Antenna	Schwarzbeck	FMZB 1519B	1519B-051	Feb 14,20	Feb. 13,23

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

2. The test was performed in 3m Chamber.

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

3.2.3 TEST PROCEDURES

a. The EUT was placed on the top of a rotating table 0.8 meters (for below 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

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

Note:

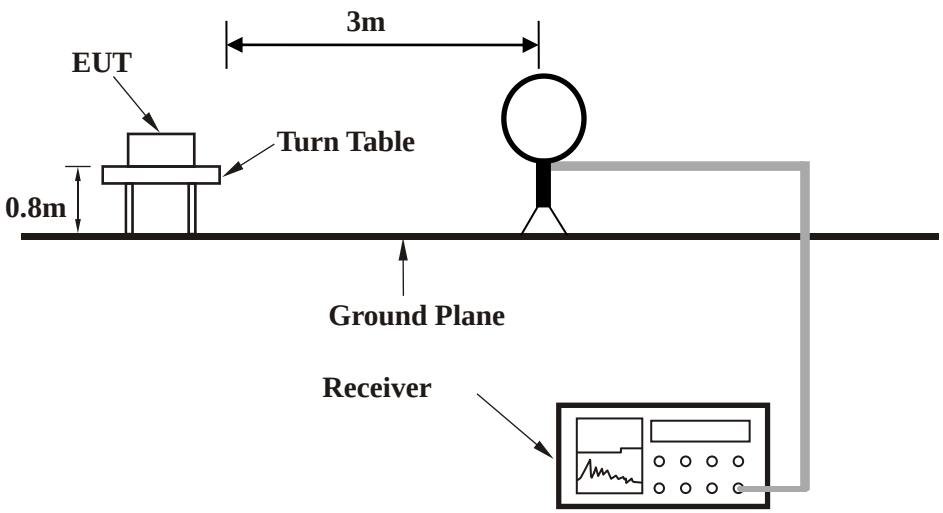
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.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

3.2.4 DEVIATION FROM TEST STANDARD

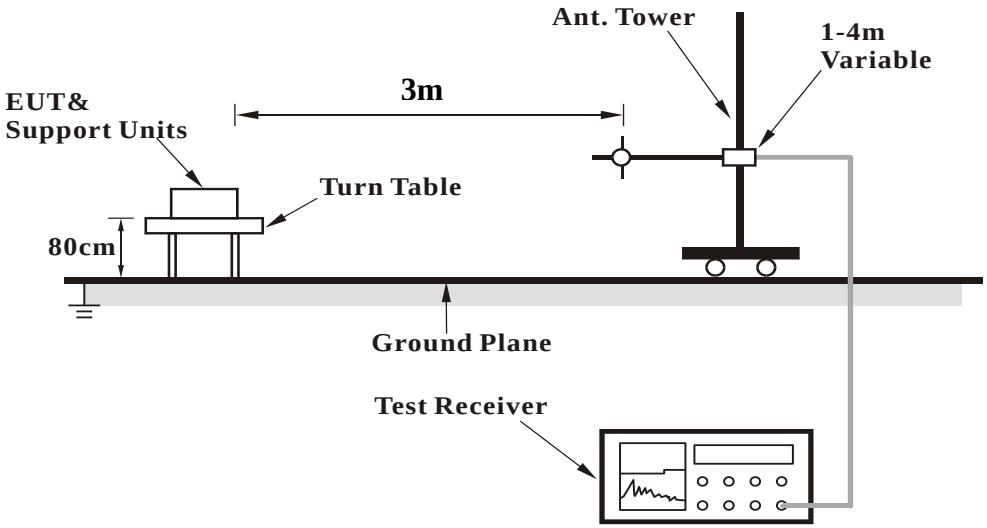
No deviation

3.2.5 TEST SETUP

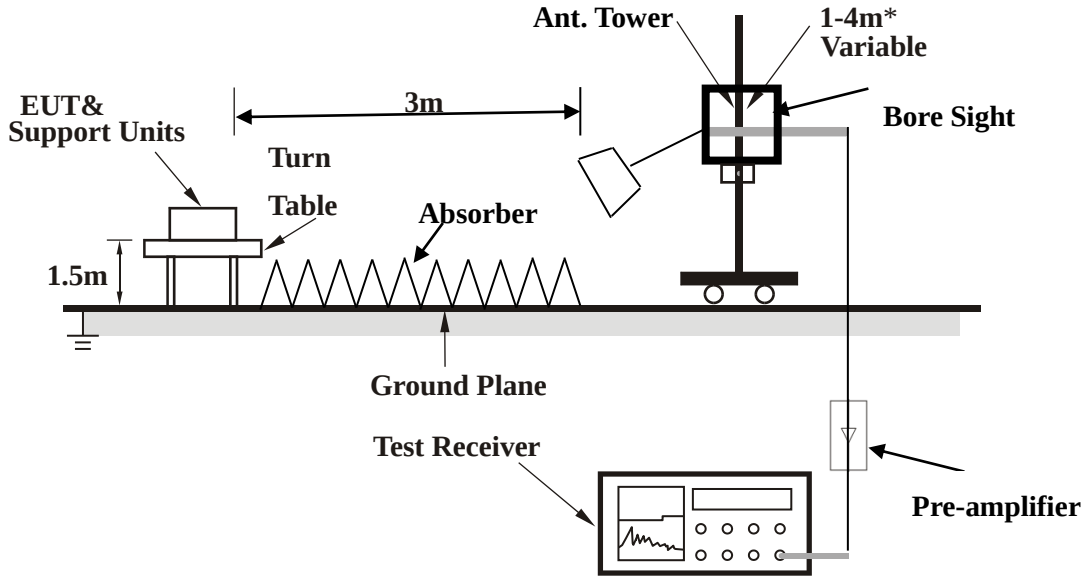
<Frequency Range 9KHz~30MHz >



< Frequency Range 30MHz~1GHz >



<Frequency Range above 1GHz>



Note: Above 1G is a directional antenna

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

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

3.2.6 EUT OPERATING CONDITIONS

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

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

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

3.2.7 TEST RESULTS

Note: For frequency below 30MHz, 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:

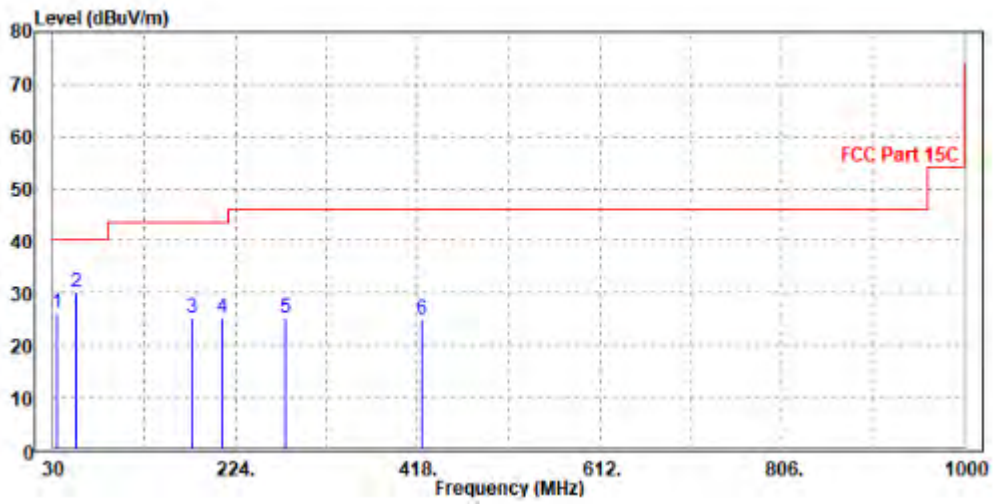
802.11n (40MHz)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
34.85	26.09	44.45	40	-13.91	18.66	0.33	37.35	148	358	QP
55.22	30.18	57.04	40	-9.82	9.68	0.43	36.97	183	80	QP
177.44	25.15	49.52	43.5	-18.35	11.34	0.7	36.41	163	15	QP
210.42	25.39	49.17	43.5	-18.11	11.76	0.75	36.29	118	344	QP
276.38	25.3	46.94	46	-20.7	13.76	0.87	36.27	134	146	QP
422.85	24.94	43.67	46	-21.06	16.63	1.11	36.47	187	307	QP

REMARKS:

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

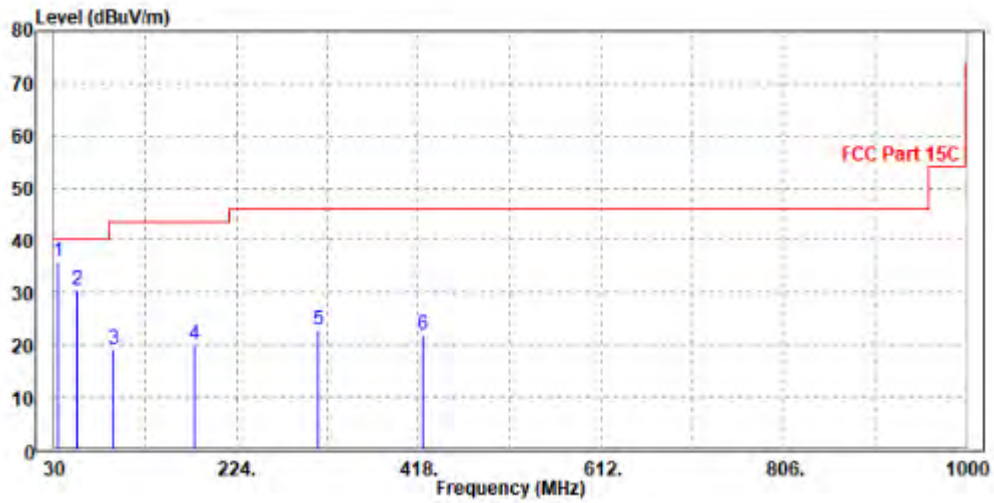


CHANNEL	TX Channel 3	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
34.85	35.88	55.02	40	-4.12	17.88	0.33	37.35	128	329	QP
55.22	30.47	57.88	40	-9.53	9.13	0.43	36.97	137	158	QP
94.02	19.06	46.62	43.5	-24.44	8.8	0.52	36.88	107	68	QP
179.38	20.05	44.56	43.5	-23.45	11.19	0.7	36.4	162	144	QP
311.3	22.9	43.99	46	-23.1	14.26	0.93	36.28	101	108	QP
422.85	21.93	40.69	46	-24.07	16.6	1.11	36.47	124	211	QP

REMARKS:

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



ABOVE 1GHz WORST-CASE DATA:

Note: For higher frequency, the emission is too low to be detected.

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	52.91	61.67	74	-21.09	31.75	5.86	46.37	110	188	Peak
2390	45.86	54.62	54	-8.14	31.75	5.86	46.37	110	188	Average
2412	108.07	116.73	/	/	31.82	5.89	46.37	110	188	Peak
2412	107.18	115.84	/	/	31.82	5.89	46.37	110	188	Average
2483.5	51.88	60.21	74	-22.12	32.05	5.99	46.37	110	188	Peak
2483.5	44.45	52.78	54	-9.55	32.05	5.99	46.37	110	188	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	52.81	61.18	74	-21.19	32.14	5.86	46.37	102	170	Peak
2390	45.35	53.72	54	-8.65	32.14	5.86	46.37	102	170	Average
2412	107.18	115.47	/	/	32.19	5.89	46.37	102	170	Peak
2412	106.31	114.6	/	/	32.19	5.89	46.37	102	170	Average
2483.5	51.75	59.77	74	-22.25	32.36	5.99	46.37	102	170	Peak
2483.5	44.43	52.45	54	-9.57	32.36	5.99	46.37	102	170	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	51.88	60.64	74	-22.12	31.75	5.86	46.37	110	188	Peak
2390	44.38	53.14	54	-9.62	31.75	5.86	46.37	110	188	Average
2437	105.8	114.34	/	/	31.9	5.93	46.37	110	188	Peak
2437	104.6	113.14	/	/	31.9	5.93	46.37	110	188	Average
2483.5	51.81	60.14	74	-22.19	32.05	5.99	46.37	110	188	Peak
2483.5	44.19	52.52	54	-9.81	32.05	5.99	46.37	110	188	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	51.85	60.22	74	-22.15	32.14	5.86	46.37	102	170	Peak
2390	44.66	53.03	54	-9.34	32.14	5.86	46.37	102	170	Average
2437	103.74	111.93	/	/	32.25	5.93	46.37	102	170	Peak
2437	102.56	110.75	/	/	32.25	5.93	46.37	102	170	Average
2483.5	52.4	60.42	74	-21.6	32.36	5.99	46.37	102	170	Peak
2483.5	45.48	53.5	54	-8.52	32.36	5.99	46.37	102	170	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	51.82	60.58	74	-22.18	31.75	5.86	46.37	108	185	Peak
2390	44.92	53.68	54	-9.08	31.75	5.86	46.37	108	185	Average
2462	105.77	114.2	/	/	31.98	5.96	46.37	108	185	Peak
2462	104.86	113.29	/	/	31.98	5.96	46.37	108	185	Average
2483.5	53.02	61.35	74	-20.98	32.05	5.99	46.37	108	185	Peak
2483.5	45.55	53.88	54	-8.45	32.05	5.99	46.37	108	185	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	52.9	61.27	74	-21.1	32.14	5.86	46.37	102	170	Peak
2390	44.52	52.89	54	-9.48	32.14	5.86	46.37	102	170	Average
2462	104.6	112.7	/	/	32.31	5.96	46.37	102	170	Peak
2462	103.7	111.8	/	/	32.31	5.96	46.37	102	170	Average
2483.5	53.73	61.75	74	-20.27	32.36	5.99	46.37	102	170	Peak
2483.5	45.35	53.37	54	-8.65	32.36	5.99	46.37	102	170	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)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	61.39	70.15	74	-12.61	31.75	5.86	46.37	108	185	Peak
2390	50.69	59.45	54	-3.31	31.75	5.86	46.37	108	185	Average
2412	108.52	117.18	/	/	31.82	5.89	46.37	108	185	Peak
2412	101.14	109.8	/	/	31.82	5.89	46.37	108	185	Average
2483.5	52.54	60.87	74	-21.46	32.05	5.99	46.37	108	185	Peak
2483.5	44.55	52.88	54	-9.45	32.05	5.99	46.37	108	185	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	62.4	70.77	74	-11.6	32.14	5.86	46.37	102	170	Peak
2390	50.97	59.34	54	-3.03	32.14	5.86	46.37	102	170	Average
2412	108.91	117.2	/	/	32.19	5.89	46.37	102	170	Peak
2412	101.45	109.74	/	/	32.19	5.89	46.37	102	170	Average
2483.5	52.33	60.35	74	-21.67	32.36	5.99	46.37	102	170	Peak
2483.5	44.54	52.56	54	-9.46	32.36	5.99	46.37	102	170	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	51.46	60.22	74	-22.54	31.75	5.86	46.37	110	190	Peak
2390	44.22	52.98	54	-9.78	31.75	5.86	46.37	110	190	Average
2437	106.67	115.21	/	/	31.9	5.93	46.37	110	190	Peak
2437	99.2	107.74	/	/	31.9	5.93	46.37	110	190	Average
2483.5	52.35	60.68	74	-21.65	32.05	5.99	46.37	110	190	Peak
2483.5	45.26	53.59	54	-8.74	32.05	5.99	46.37	110	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	52.97	61.34	74	-21.03	32.14	5.86	46.37	102	170	Peak
2390	44.63	53	54	-9.37	32.14	5.86	46.37	102	170	Average
2437	104.98	113.17	/	/	32.25	5.93	46.37	102	170	Peak
2437	97.47	105.66	/	/	32.25	5.93	46.37	102	170	Average
2483.5	52.82	60.84	74	-21.18	32.36	5.99	46.37	102	170	Peak
2483.5	44.55	52.57	54	-9.45	32.36	5.99	46.37	102	170	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	51.64	60.4	74	-22.36	31.75	5.86	46.37	100	190	Peak
2390	43.72	52.48	54	-10.28	31.75	5.86	46.37	100	190	Average
2462	103.75	112.18	/	/	31.98	5.96	46.37	100	190	Peak
2462	96.64	105.07	/	/	31.98	5.96	46.37	100	190	Average
2483.5	63.43	71.76	74	-10.57	32.05	5.99	46.37	100	190	Peak
2483.5	51.88	60.21	54	-2.12	32.05	5.99	46.37	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	53.64	62.01	74	-20.36	32.14	5.86	46.37	100	180	Peak
2390	45.12	53.49	54	-8.88	32.14	5.86	46.37	100	180	Average
2462	100.7	108.8	/	/	32.31	5.96	46.37	100	180	Peak
2462	93.26	101.36	/	/	32.31	5.96	46.37	100	180	Average
2483.5	58.36	66.38	74	-15.64	32.36	5.99	46.37	100	180	Peak
2483.5	48.08	56.1	54	-5.92	32.36	5.99	46.37	100	180	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)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	64.65	73.41	74	-9.35	31.75	5.86	46.37	145	200	Peak
2390	50.36	59.12	54	-3.64	31.75	5.86	46.37	145	200	Average
2412	104.3	112.96	/	/	31.82	5.89	46.37	145	200	Peak
2412	95.94	104.6	/	/	31.82	5.89	46.37	145	200	Average
2483.5	51.83	60.16	74	-22.17	32.05	5.99	46.37	145	200	Peak
2483.5	44.46	52.79	54	-9.54	32.05	5.99	46.37	145	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	60.27	68.64	74	-13.73	32.14	5.86	46.37	100	180	Peak
2390	47.75	56.12	54	-6.25	32.14	5.86	46.37	100	180	Average
2412	101.77	110.06	/	/	32.19	5.89	46.37	100	180	Peak
2412	93.6	101.89	/	/	32.19	5.89	46.37	100	180	Average
2483.5	54.36	62.38	74	-19.64	32.36	5.99	46.37	100	180	Peak
2483.5	44.85	52.87	54	-9.15	32.36	5.99	46.37	100	180	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	51.44	60.2	74	-22.56	31.75	5.86	46.37	110	190	Peak
2390	44.54	53.3	54	-9.46	31.75	5.86	46.37	110	190	Average
2437	97.88	106.42	/	/	31.9	5.93	46.37	110	190	Peak
2437	99.55	108.09	/	/	31.9	5.93	46.37	110	190	Average
2483.5	52.14	60.47	74	-21.86	32.05	5.99	46.37	110	190	Peak
2483.5	44.8	53.13	54	-9.2	32.05	5.99	46.37	110	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	52.56	60.93	74	-21.44	32.14	5.86	46.37	102	185	Peak
2390	44.89	53.26	54	-9.11	32.14	5.86	46.37	102	185	Average
2437	103.75	111.94	/	/	32.25	5.93	46.37	102	185	Peak
2437	95.83	104.02	/	/	32.25	5.93	46.37	102	185	Average
2483.5	52.39	60.41	74	-21.61	32.36	5.99	46.37	102	185	Peak
2483.5	45.19	53.21	54	-8.81	32.36	5.99	46.37	102	185	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	52.27	61.03	74	-21.73	31.75	5.86	46.37	100	190	Peak
2390	44.09	52.85	54	-9.91	31.75	5.86	46.37	100	190	Average
2462	105.03	113.46	/	/	31.98	5.96	46.37	100	190	Peak
2462	96.17	104.6	/	/	31.98	5.96	46.37	100	190	Average
2483.5	64.2	72.53	74	-9.8	32.05	5.99	46.37	100	190	Peak
2483.5	51.18	59.51	54	-2.82	32.05	5.99	46.37	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	52.24	60.61	74	-21.76	32.14	5.86	46.37	100	180	Peak
2390	44.51	52.88	54	-9.49	32.14	5.86	46.37	100	180	Average
2462	100.77	108.87	/	/	32.31	5.96	46.37	100	180	Peak
2462	92.43	100.53	/	/	32.31	5.96	46.37	100	180	Average
2483.5	59.89	67.91	74	-14.11	32.36	5.99	46.37	100	180	Peak
2483.5	47.64	55.66	54	-6.36	32.36	5.99	46.37	100	180	Average

REMARKS:

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

802.11n (40MHz)

CHANNEL	TX Channel 3	**DETECTOR FUNCTION**	Peak (PK) 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	56.88	65.64	74	-17.12	31.75	5.86	46.37	100	195	Peak
2390	48.64	57.4	54	-5.36	31.75	5.86	46.37	100	195	Average
2422	101.28	109.89	/	/	31.85	5.91	46.37	100	195	Peak
2422	93.13	101.74	/	/	31.85	5.91	46.37	100	195	Average
2483.5	51.3	59.63	74	-22.7	32.05	5.99	46.37	100	195	Peak
2483.5	43.99	52.32	54	-10.01	32.05	5.99	46.37	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	52.84	61.21	74	-21.16	32.14	5.86	46.37	100	160	Peak
2390	45.28	53.65	54	-8.72	32.14	5.86	46.37	100	160	Average
2422	97.58	105.83	/	/	32.21	5.91	46.37	100	160	Peak
2422	89.41	97.66	/	/	32.21	5.91	46.37	100	160	Average
2483.5	52.14	60.16	74	-21.86	32.36	5.99	46.37	100	160	Peak
2483.5	44.09	52.11	54	-9.91	32.36	5.99	46.37	100	160	Average

REMARKS:

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

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK) 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	53.04	61.8	74	-20.96	31.75	5.86	46.37	190	190	Peak
2390	45.17	53.93	54	-8.83	31.75	5.86	46.37	190	190	Average
2437	101.83	110.37	/	/	31.9	5.93	46.37	190	190	Peak
2437	93.75	102.29	/	/	31.9	5.93	46.37	190	190	Average
2483.5	59.16	67.49	74	-14.84	32.05	5.99	46.37	190	190	Peak
2483.5	49.45	57.78	54	-4.55	32.05	5.99	46.37	190	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	52.32	60.69	74	-21.68	32.14	5.86	46.37	100	180	Peak
2390	44.44	52.81	54	-9.56	32.14	5.86	46.37	100	180	Average
2437	96.07	104.26	/	/	32.25	5.93	46.37	100	180	Peak
2437	88.06	96.25	/	/	32.25	5.93	46.37	100	180	Average
2483.5	54.82	62.84	74	-19.18	32.36	5.99	46.37	100	180	Peak
2483.5	45.64	53.66	54	-8.36	32.36	5.99	46.37	100	180	Average

REMARKS:

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

CHANNEL	TX Channel 9	DETECTOR FUNCTION	Peak (PK) 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	52.01	60.77	74	-21.99	31.75	5.86	46.37	190	190	Peak
2390	44.17	52.93	54	-9.83	31.75	5.86	46.37	190	190	Average
2452	100.52	108.99	/	/	31.95	5.95	46.37	190	190	Peak
2452	92.3	100.77	/	/	31.95	5.95	46.37	190	190	Average
2483.5	63.49	71.82	74	-10.51	32.05	5.99	46.37	190	190	Peak
2483.5	52.81	61.14	54	-1.19	32.05	5.99	46.37	190	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	52.15	60.52	74	-21.85	32.14	5.86	46.37	100	180	Peak
2390	44.18	52.55	54	-9.82	32.14	5.86	46.37	100	180	Average
2452	94.56	102.7	/	/	32.28	5.95	46.37	100	180	Peak
2452	86.47	94.61	/	/	32.28	5.95	46.37	100	180	Average
2483.5	58.25	66.27	74	-15.75	32.36	5.99	46.37	100	180	Peak
2483.5	47.51	55.53	54	-6.49	32.36	5.99	46.37	100	180	Average

REMARKS:

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

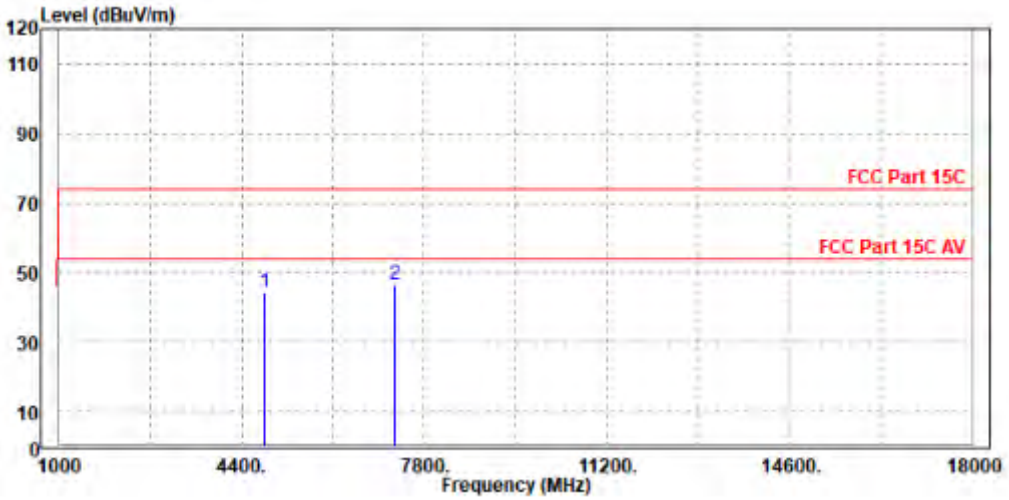
Worst case harmonic:

802.11n (40MHz)

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

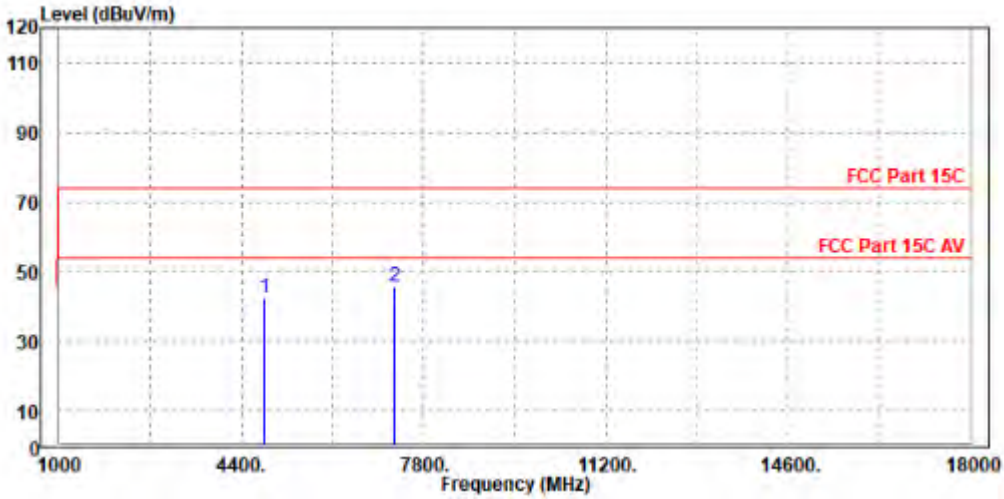
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

		Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
		MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m		
1		4842.000	44.06	47.32	74.00	-29.94	-3.26	Peak	Horizontal
2	PP	7266.000	46.38	44.34	74.00	-27.62	2.04	Peak	Horizontal



ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

		Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
		MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m		
1		4842.000	42.52	45.58	74.00	-31.48	-3.06	Peak	Vertical
2	PP	7266.000	45.54	43.41	74.00	-28.46	2.13	Peak	Vertical



REMARKS:

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

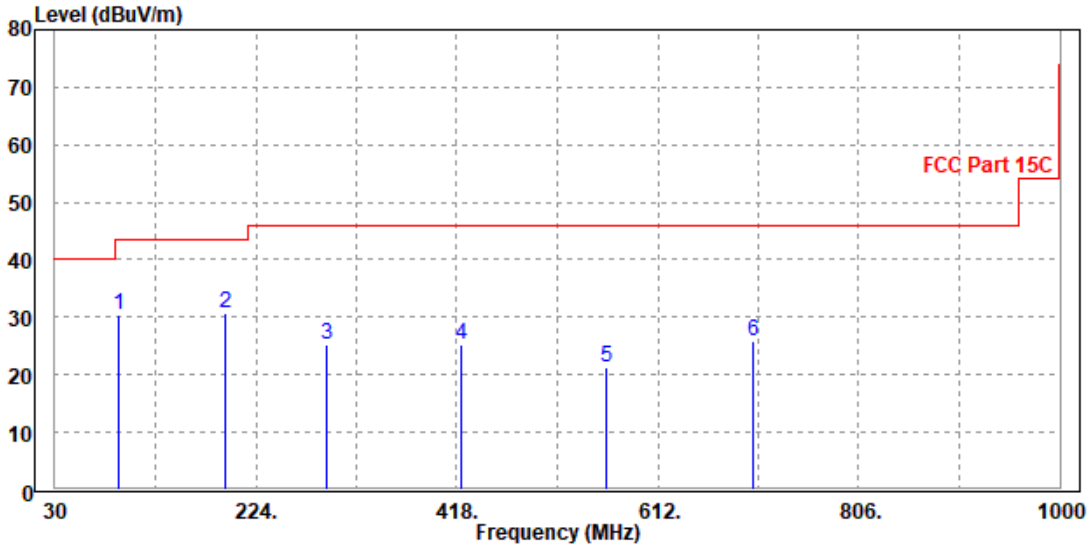
BT-LE _1M

CHANNEL	TX Channel 19	**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
91.11	30.39	59.28	43.5	-13.11	7.84	0.51	37.24	300	0	Peak
193.93	30.71	55.8	43.5	-12.79	10.76	0.73	36.58	300	0	Peak
291.9	25.2	47.16	46	-20.8	13.87	0.9	36.73	300	0	Peak
422.85	25.39	43.84	46	-20.61	17.31	1.11	36.87	300	0	Peak
562.53	21.3	37.27	46	-24.7	19.95	1.31	37.23	300	0	Peak
703.18	25.95	39.29	46	-20.05	22.72	1.48	37.54	300	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

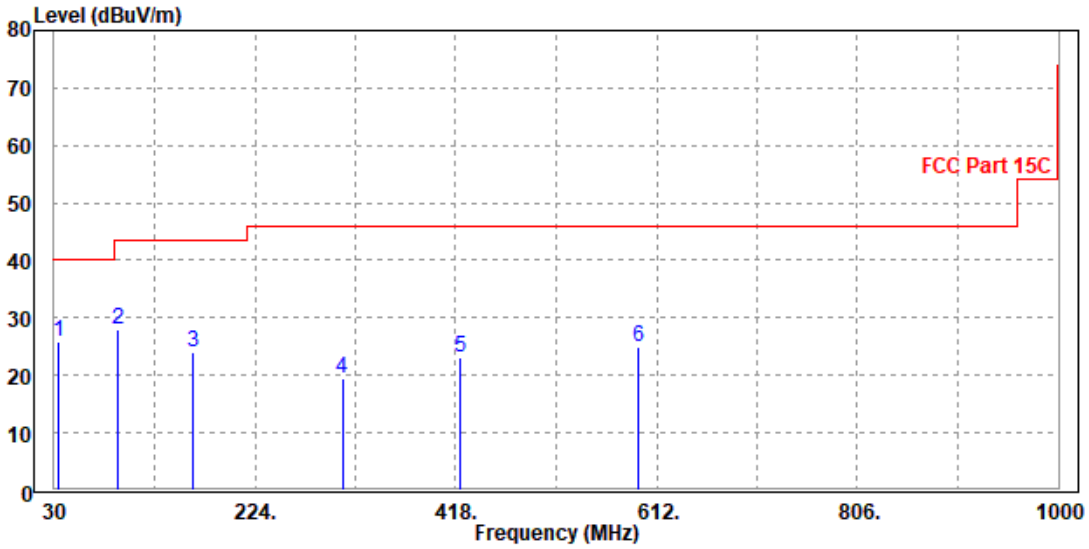


CHANNEL	TX Channel 19	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

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
34.85	25.88	45.07	40	-14.12	18.07	0.33	37.59	200	0	Peak
92.08	28.07	56.3	43.5	-15.43	8.48	0.52	37.23	200	0	Peak
163.86	23.93	48.69	43.5	-19.57	11.27	0.68	36.71	200	0	Peak
308.39	19.4	40.06	46	-26.6	15.18	0.92	36.76	200	0	Peak
422.85	23.11	41.24	46	-22.89	17.63	1.11	36.87	200	0	Peak
594.54	24.87	40.07	46	-21.13	20.8	1.35	37.35	200	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



ABOVE 1GHz TEST DATA

Note: For higher frequency, the emission is too low to be detected.

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	52.06	60.82	74	-21.94	31.75	5.86	46.37	200	190	Peak
2390	44.52	53.28	54	-9.48	31.75	5.86	46.37	200	190	Average
2402	96.79	105.49	/	/	31.79	5.88	46.37	200	190	Peak
2402	96.01	104.71	/	/	31.79	5.88	46.37	200	190	Average
2483.5	51.67	60	74	-22.33	32.05	5.99	46.37	200	190	Peak
2483.5	44.43	52.76	54	-9.57	32.05	5.99	46.37	200	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	51.76	60.13	74	-22.24	32.14	5.86	46.37	100	155	Peak
2390	44.53	52.9	54	-9.47	32.14	5.86	46.37	100	155	Average
2402	96.21	104.54	/	/	32.16	5.88	46.37	100	155	Peak
2402	94.74	103.07	/	/	32.16	5.88	46.37	100	155	Average
2483.5	52.38	60.4	74	-21.62	32.36	5.99	46.37	100	155	Peak
2483.5	45.1	53.12	54	-8.9	32.36	5.99	46.37	100	155	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	51.57	60.33	74	-22.43	31.75	5.86	46.37	138	125	Peak
2390	44.27	53.03	54	-9.73	31.75	5.86	46.37	138	125	Average
2440	94.46	102.99	/	/	31.91	5.93	46.37	138	125	Peak
2440	93.73	102.26	/	/	31.91	5.93	46.37	138	125	Average
2483.5	52.42	60.75	74	-21.58	32.05	5.99	46.37	138	125	Peak
2483.5	45.1	53.43	54	-8.9	32.05	5.99	46.37	138	125	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	51.91	60.28	74	-22.09	32.14	5.86	46.37	100	168	Peak
2390	44.55	52.92	54	-9.45	32.14	5.86	46.37	100	168	Average
2440	95.78	103.96	/	/	32.26	5.93	46.37	100	168	Peak
2440	95.15	103.33	/	/	32.26	5.93	46.37	100	168	Average
2483.5	52.74	60.76	74	-21.26	32.36	5.99	46.37	100	168	Peak
2483.5	45.8	53.82	54	-8.2	32.36	5.99	46.37	100	168	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	51.27	60.03	74	-22.73	31.75	5.86	46.37	135	128	Peak
2390	44.31	53.07	54	-9.69	31.75	5.86	46.37	135	128	Average
2480	93.26	101.61	/	/	32.04	5.98	46.37	135	128	Peak
2480	91.9	100.25	/	/	32.04	5.98	46.37	135	128	Average
2483.5	52.05	60.38	74	-21.95	32.05	5.99	46.37	135	128	Peak
2483.5	44.18	52.51	54	-9.82	32.05	5.99	46.37	135	128	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	52.67	61.04	74	-21.33	32.14	5.86	46.37	100	168	Peak
2390	45.31	53.68	54	-8.69	32.14	5.86	46.37	100	168	Average
2480	93.2	101.24	/	/	32.35	5.98	46.37	100	168	Peak
2480	91.76	99.8	/	/	32.35	5.98	46.37	100	168	Average
2483.5	51.99	60.01	74	-22.01	32.36	5.99	46.37	100	168	Peak
2483.5	45.27	53.29	54	-8.73	32.36	5.99	46.37	100	168	Average

REMARKS:

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

BT-LE _2M

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	51.96	60.72	74	-22.04	31.75	5.86	46.37	138	125	Peak
2390	44.95	53.71	54	-9.05	31.75	5.86	46.37	138	125	Average
2402	95.01	103.71	/	/	31.79	5.88	46.37	138	125	Peak
2402	93.09	101.79	/	/	31.79	5.88	46.37	138	125	Average
2483.5	52.47	60.8	74	-21.53	32.05	5.99	46.37	138	125	Peak
2483.5	44.96	53.29	54	-9.04	32.05	5.99	46.37	138	125	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	52.12	60.49	74	-21.88	32.14	5.86	46.37	100	168	Peak
2390	45.08	53.45	54	-8.92	32.14	5.86	46.37	100	168	Average
2402	94.96	103.29	74	20.96	32.16	5.88	46.37	100	168	Peak
2402	92.78	101.11	54	38.78	32.16	5.88	46.37	100	168	Average
2483.5	53.04	61.06	74	-20.96	32.36	5.99	46.37	100	168	Peak
2483.5	45.24	53.26	54	-8.76	32.36	5.99	46.37	100	168	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	52.38	61.14	74	-21.62	31.75	5.86	46.37	138	125	Peak
2390	44.25	53.01	54	-9.75	31.75	5.86	46.37	138	125	Average
2440	93.5	102.03	/	/	31.91	5.93	46.37	138	125	Peak
2440	91.18	99.71	/	/	31.91	5.93	46.37	138	125	Average
2483.5	51.71	60.04	74	-22.29	32.05	5.99	46.37	138	125	Peak
2483.5	44.44	52.77	54	-9.56	32.05	5.99	46.37	138	125	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	52.8	61.17	74	-21.2	32.14	5.86	46.37	100	168	Peak
2390	45.42	53.79	54	-8.58	32.14	5.86	46.37	100	168	Average
2440	94.3	102.48	/	/	32.26	5.93	46.37	100	168	Peak
2440	91.98	100.16	/	/	32.26	5.93	46.37	100	168	Average
2483.5	52.02	60.04	74	-21.98	32.36	5.99	46.37	100	168	Peak
2483.5	44.46	52.48	54	-9.54	32.36	5.99	46.37	100	168	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	52.1	60.86	74	-21.9	31.75	5.86	46.37	118	128	Peak
2390	44.25	53.01	54	-9.75	31.75	5.86	46.37	118	128	Average
2480	92.47	100.82	/	/	32.04	5.98	46.37	118	128	Peak
2480	90.13	98.48	/	/	32.04	5.98	46.37	118	128	Average
2483.5	52.11	60.44	74	-21.89	32.05	5.99	46.37	118	128	Peak
2483.5	44.43	52.76	54	-9.57	32.05	5.99	46.37	118	128	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	51.83	60.2	74	-22.17	32.14	5.86	46.37	100	168	Peak
2390	44.62	52.99	54	-9.38	32.14	5.86	46.37	100	168	Average
2480	93.34	101.38	/	/	32.35	5.98	46.37	100	168	Peak
2480	90.59	98.63	/	/	32.35	5.98	46.37	100	168	Average
2483.5	53.52	61.54	74	-20.48	32.36	5.99	46.37	100	168	Peak
2483.5	44.91	52.93	54	-9.09	32.36	5.99	46.37	100	168	Average

REMARKS:

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

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	52.13	60.89	74	-21.87	31.75	5.86	46.37	122	125	Peak
2390	44.45	53.21	54	-9.55	31.75	5.86	46.37	122	125	Average
2402	95.13	103.83	/	/	31.79	5.88	46.37	122	125	Peak
2402	94.22	102.92	/	/	31.79	5.88	46.37	122	125	Average
2483.5	52.3	60.63	74	-21.7	32.05	5.99	46.37	122	125	Peak
2483.5	44.57	52.9	54	-9.43	32.05	5.99	46.37	122	125	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	52.37	60.74	74	-21.63	32.14	5.86	46.37	102	168	Peak
2390	45.31	53.68	54	-8.69	32.14	5.86	46.37	102	168	Average
2402	96	104.33	/	/	32.16	5.88	46.37	102	168	Peak
2402	95.45	103.78	/	/	32.16	5.88	46.37	102	168	Average
2483.5	52.17	60.19	74	-21.83	32.36	5.99	46.37	102	168	Peak
2483.5	44.85	52.87	54	-9.15	32.36	5.99	46.37	102	168	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	52.36	61.12	74	-21.64	31.75	5.86	46.37	118	125	Peak
2390	44.82	53.58	54	-9.18	31.75	5.86	46.37	118	125	Average
2440	94.04	102.57	/	/	31.91	5.93	46.37	118	125	Peak
2440	93.18	101.71	/	/	31.91	5.93	46.37	118	125	Average
2483.5	52.38	60.71	74	-21.62	32.05	5.99	46.37	118	125	Peak
2483.5	44.57	52.9	54	-9.43	32.05	5.99	46.37	118	125	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	53.17	61.54	74	-20.83	32.14	5.86	46.37	102	168	Peak
2390	44.28	52.65	54	-9.72	32.14	5.86	46.37	102	168	Average
2440	94.17	102.35	/	/	32.26	5.93	46.37	102	168	Peak
2440	93.55	101.73	/	/	32.26	5.93	46.37	102	168	Average
2483.5	53.78	61.8	74	-20.22	32.36	5.99	46.37	102	168	Peak
2483.5	44.88	52.9	54	-9.12	32.36	5.99	46.37	102	168	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	52	60.76	74	-22	31.75	5.86	46.37	118	130	Peak
2390	44.79	53.55	54	-9.21	31.75	5.86	46.37	118	130	Average
2480	91.84	100.19	/	/	32.04	5.98	46.37	118	130	Peak
2480	91.04	99.39	/	/	32.04	5.98	46.37	118	130	Average
2483.5	52.64	60.97	74	-21.36	32.05	5.99	46.37	118	130	Peak
2483.5	44.78	53.11	54	-9.22	32.05	5.99	46.37	118	130	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	51.88	60.25	74	-22.12	32.14	5.86	46.37	100	168	Peak
2390	44.17	52.54	54	-9.83	32.14	5.86	46.37	100	168	Average
2480	92.78	100.82	/	/	32.35	5.98	46.37	100	168	Peak
2480	91.95	99.99	/	/	32.35	5.98	46.37	100	168	Average
2483.5	52.39	60.41	74	-21.61	32.36	5.99	46.37	100	168	Peak
2483.5	44.78	52.8	54	-9.22	32.36	5.99	46.37	100	168	Average

REMARKS:

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

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	52.47	61.23	74	-21.53	31.75	5.86	46.37	120	125	Peak
2390	44.66	53.42	54	-9.34	31.75	5.86	46.37	120	125	Average
2402	94.04	102.74	/	/	31.79	5.88	46.37	120	125	Peak
2402	92.49	101.19	/	/	31.79	5.88	46.37	120	125	Average
2483.5	51.69	60.02	74	-22.31	32.05	5.99	46.37	120	125	Peak
2483.5	44.65	52.98	54	-9.35	32.05	5.99	46.37	120	125	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	52.94	61.31	74	-21.06	32.14	5.86	46.37	102	168	Peak
2390	44.94	53.31	54	-9.06	32.14	5.86	46.37	102	168	Average
2402	95.87	104.2	/	/	32.16	5.88	46.37	102	168	Peak
2402	94.34	102.67	/	/	32.16	5.88	46.37	102	168	Average
2483.5	52.09	60.11	74	-21.91	32.36	5.99	46.37	102	168	Peak
2483.5	44.89	52.91	54	-9.11	32.36	5.99	46.37	102	168	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	51.88	60.64	74	-22.12	31.75	5.86	46.37	118	125	Peak
2390	43.97	52.73	54	-10.03	31.75	5.86	46.37	118	125	Average
2440	93.96	102.49	/	/	31.91	5.93	46.37	118	125	Peak
2440	92.61	101.14	/	/	31.91	5.93	46.37	118	125	Average
2483.5	52.46	60.79	74	-21.54	32.05	5.99	46.37	118	125	Peak
2483.5	44.97	53.3	54	-9.03	32.05	5.99	46.37	118	125	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	42.2	50.57	74	-31.8	32.14	5.86	46.37	102	168	Peak
2390	44.46	52.83	54	-9.54	32.14	5.86	46.37	102	168	Average
2440	94.05	102.23	/	/	32.26	5.93	46.37	102	168	Peak
2440	92.66	100.84	/	/	32.26	5.93	46.37	102	168	Average
2483.5	52.46	60.48	74	-21.54	32.36	5.99	46.37	102	168	Peak
2483.5	45.29	53.31	54	-8.71	32.36	5.99	46.37	102	168	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	52.81	61.57	74	-21.19	31.75	5.86	46.37	118	125	Peak
2390	44.45	53.21	54	-9.55	31.75	5.86	46.37	118	125	Average
2480	91.56	99.91	/	/	32.04	5.98	46.37	118	125	Peak
2480	90.01	98.36	/	/	32.04	5.98	46.37	118	125	Average
2483.5	52.11	60.44	74	-21.89	32.05	5.99	46.37	118	125	Peak
2483.5	44.45	52.78	54	-9.55	32.05	5.99	46.37	118	125	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	52.98	61.35	74	-21.02	32.14	5.86	46.37	100	168	Peak
2390	45.08	53.45	54	-8.92	32.14	5.86	46.37	100	168	Average
2480	93.62	101.66	/	/	32.35	5.98	46.37	100	168	Peak
2480	91.92	99.96	/	/	32.35	5.98	46.37	100	168	Average
2483.5	52.47	60.49	74	-21.53	32.36	5.99	46.37	100	168	Peak
2483.5	44.93	52.95	54	-9.07	32.36	5.99	46.37	100	168	Average

REMARKS:

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

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. 25,21	Feb. 24,22
Power Meter	ANRITSU	ML2495A	1506002	Feb. 24,22	Feb. 23,23
EXA Signal Analyzer	KEYSIGHT	N9010A-526	MY54510322	Feb. 25,21	Feb. 24,22
EXA Signal Analyzer	KEYSIGHT	N9010A-526	MY54510322	Feb. 24,22	Feb. 23,23
EXA Signal Analyzer	KEYSIGHT	N9010A-544	MY54510355	Apr. 26,21	Apr. 25,22
EXA Signal Analyzer	KEYSIGHT	N9010A-544	MY54510355	Apr. 25,22	Apr. 24,23
Power Sensor	ANRITSU	MA2411B	1339352	Feb. 25,21	Feb. 24,22
Power Sensor	ANRITSU	MA2411B	1339352	Feb. 24,22	Feb. 23,23

NOTE:

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

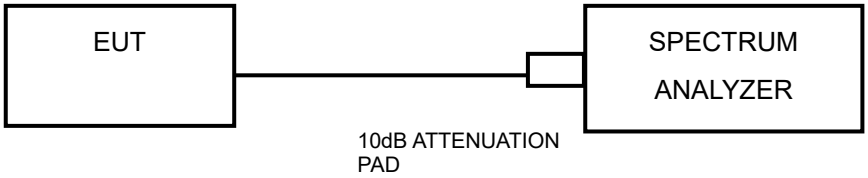
3.3.3 TEST PROCEDURE

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

3.3.4 DEVIATION FROM TEST STANDARD

No deviation.

3.3.5 TEST SETUP



3.3.6 EUT OPERATING CONDITIONS

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