



Test Report No.: W7L-P22110001RF02



# FCC TEST REPORT (Part 15, Subpart C)

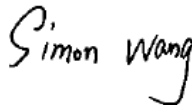

Applicant:	Power Idea Technology (Shenzhen) Co., Ltd.
Address:	4th Floor, A Section ,Languang Science&technology Building, No. 7 Xinxi RD,Hi-Tech Industrial Park North, Nanshan District Shenzhen, China.

Manufacturer or Supplier:	Power Idea Technology (Shenzhen) Co., Ltd.
Address:	4th Floor, A Section ,Languang Science&technology Building, No. 7 Xinxi RD,Hi-Tech Industrial Park North, Nanshan District Shenzhen, China.
Product:	Smart Phone
Brand Name:	RugGear
Model Name:	PSM02G
Marketing Name:	RG750
FCC ID:	ZLE-RG750
Date of tests:	Nov. 02, 2022 ~ Nov. 23, 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
 Date: Nov. 23, 2022	 Date: Nov. 23, 2022

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**BUREAU  
VERITAS**

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## RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
W7L-P22110001RF02	Original release	Nov. 23, 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 1 (for WIFI-2.4G) and Appendix 2 (for BLE).  
 2. Only the worse data were report.



### 1.1 MEASUREMENT UNCERTAINTY

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

MEASUREMENT	UNCERTAINTY
AC Power Conducted emissions	±2.70dB
Radiated emissions (9KHz~30MHz)	±2.68dB
Radiated emissions (30MHz~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

<b>PRODUCT</b>	Smart Phone
<b>BRAND NAME</b>	RugGear
<b>MODEL NAME</b>	PSM02G
<b>MARKETING NAME</b>	RG750
<b>NOMINAL VOLTAGE</b>	5.0Vdc(adapter or host equipment) 3.8Vdc (Li-ion, battery)
<b>MODULATION</b>	DSSS, OFDM, GFSK
<b>TRANSMISSION RATE</b>	802.11b: 11/ 5.5/ 2.0 / 1.0 Mbps 802.11g: 54/ 48/ 36 / 24 / 18 / 9/ 6 Mbps 802.11n20: up to 72.2 Mbps 802.11n40: up to 150 Mbps BT_LE: 1 Mbps
<b>OPERATING FREQUENCY</b>	2412-2462MHz for 11b/g/n(HT20/40) 2402-2480MHz for BT-LE(GFSK)
<b>MAX. OUTPUT POWER</b>	WLAN: 64.86mW (Maximum) BT-LE: 4.15mW (Maximum)
<b>ANTENNA TYPE</b>	PIFA Antenna with -2.2dBi gain
<b>HW VERSION</b>	LA5C25_MB_V1.00
<b>SW VERSION</b>	LA5C25(RG750)_RG750_EEA_00.00_0_20221103_MultiDownl oad_20221103131135
<b>I/O PORTS</b>	Refer to user's manual
<b>CABLE SUPPLIED</b>	USB cable: non-shielded cable, with w/o ferrite core, 1.0 meter Earphone: non-shielded cable, with w/o ferrite core, 1.0 meter



**NOTE:**

1. For a more detailed features description, please refer to the manufacturer’s specifications or the user’s manual.
2. The EUT incorporates a SISO function. Physically, the EUT provides one transmitter and one receiver.

MODULATION MODE	TX/RX FUNCTION
802.11b	1TX /1RX
802.11g	1TX /1RX
802.11n (20MHz)	1TX /1RX
802.11n (40MHz)	1TX /1RX
BT_LE(1MHz)	1TX /1RX

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

**List of Accessory:**

ACCESSORIES	BRAND	MANUFACTURER	MODEL	SPECIFICATION
Battery	N/A	SHENZHEN YJC TECHNOLOGY CO. LTD.	BL500IP	Capacity : 3.8Vdc, 5000mAh
AC Adapter 1	Huntkey	Shenzhen Huntkey Electric Co., Ltd.	HKC0115021-2D	I/P: 100-240Vac, 0.5A, O/P: 5.0Vdc, 2A
AC Adapter 2	FULL POWER	Shenzhen Shi Ying Yuan Electronics Co., Ltd.	ICP12-050-2000B	I/P: 100-240Vac, 0.3A, O/P: 5.0Vdc, 2A
Earphone	N/A	CXD SCIENCE TECHNOLOGY	AC-4035-M6	Rated : 10mW, Max:20mW Signal Line,1.0meter
USB Cable	N/A	ShenZhen zhigaoda electronics Co., LTD	USB2.0	Signal Line,1.0meter





## 2.2 DESCRIPTION OF TEST MODES

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

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

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

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



### 2.2.1 CONFIGURATION OF SYSTEM UNDER TEST

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

### 2.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

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

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

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

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

### RADIATED EMISSION TEST (BELOW 1GHz):

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)
802.11n HT40	3 to 9	3	OFDM	MCS0
BT-LE	0 to 39	39	GFSK	1.0



**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	1

**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, 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	1



**ANTENNA PORT CONDUCTED MEASUREMENT:**

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

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

**TEST CONDITION:**

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	TEST VOLTAGE	TESTED BY
RE<1G	23deg. C, 70%RH	DC 5V By Adapter	Carl Xie
RE≥1G	23deg. C, 70%RH	DC 5V By Adapter	Carl Xie
PLC	25deg. C, 52%RH	DC 5V By Adapter	Lily Zhao
APCM	25deg. C, 60%RH	DC 3.6V/3.8V/4.35V By DC Supply	Lily Zhao



### 2.3 Duty Cycle of Test Signal

Please Refer to Appendix1/2 Of this test report.

**WORST-CASE DATA:**

Measured Duty Cycle		
Mode		Duty Cycle [%]
		ANT1
WIFI 2.4GHz	11B	98.96
	11G	98.57
	11N20	98.47
	11N40	95.00
BT LE	BT4.0	62.90

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	Feb. 15,22	Feb. 14,23
EMC32 test software	Rohde&Schwarz	EMC32	NA	NA	NA
LISN network	Rohde&Schwarz	ENV216	101922	Mar. 04,22	Mar. 03,23

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





### 3.1.3 TEST PROCEDURES

- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

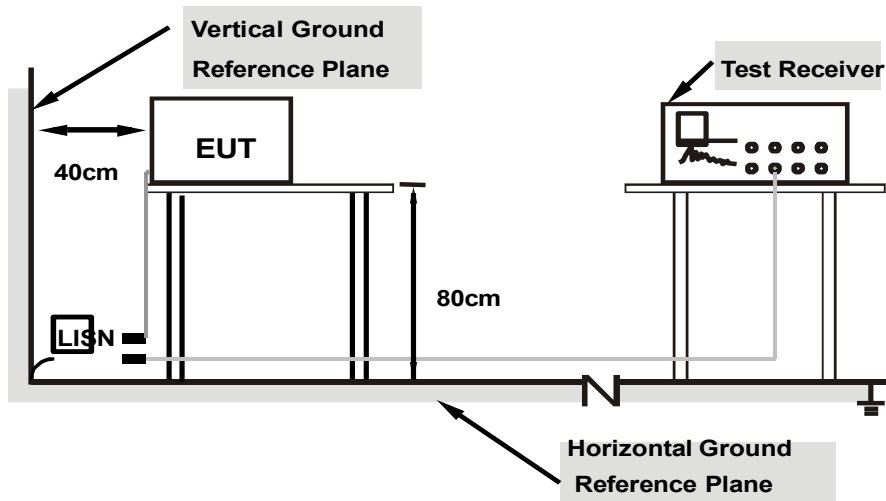
**NOTE:** All modes of operation were investigated and the worst-case emissions are reported.

### 3.1.4 DEVIATION FROM TEST STANDARD

No deviation.



### 3.1.5 TEST SETUP



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

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

### 3.1.6 EUT OPERATING CONDITIONS

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



### 3.1.7 TEST RESULTS

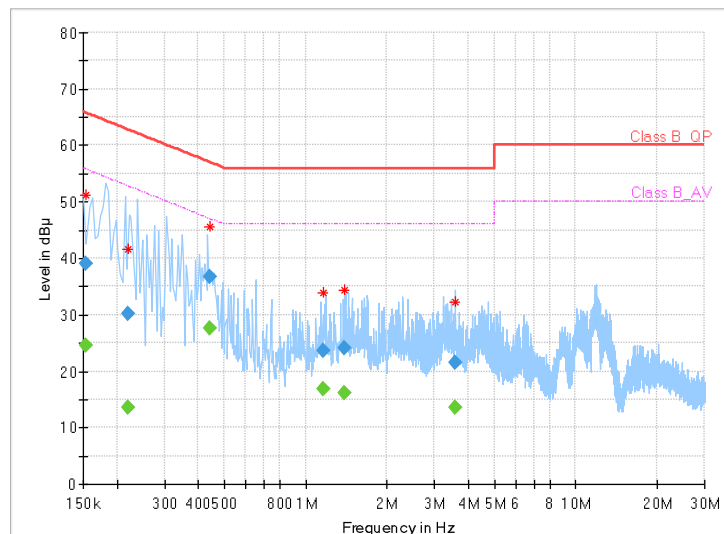
#### CONDUCTED WORST-CASE DATA:

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

Frequency (MHz)	QuasiPeak (dBUV)	CAverage (dBUV)	Limit (dBUV)	Margin (dB)	Line	Filter	Corr. (dB)
0.154000	---	24.64	55.78	31.14	L1	ON	9.7
0.154000	39.13	---	65.78	26.65	L1	ON	9.7
0.220000	---	13.46	52.82	39.36	L1	ON	9.7
0.220000	30.07	---	62.82	32.75	L1	ON	9.7
0.440000	---	27.51	47.06	19.55	L1	ON	9.7
0.440000	36.67	---	57.06	20.39	L1	ON	9.7
1.164000	---	16.76	46.00	29.24	L1	ON	9.7
1.164000	23.70	---	56.00	32.30	L1	ON	9.7
1.396000	---	16.23	46.00	29.77	L1	ON	9.7
1.396000	24.09	---	56.00	31.91	L1	ON	9.7
3.592000	---	13.57	46.00	32.43	L1	ON	9.7
3.592000	21.44	---	56.00	34.56	L1	ON	9.7

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

Full Spectrum



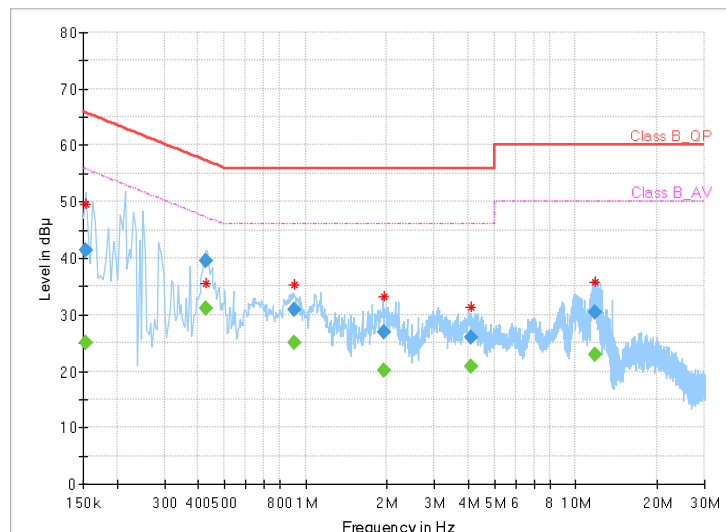


<b>Frequency Range</b>	150KHz ~ 30MHz	<b>Detector Function &amp; Resolution Bandwidth</b>	Quasi-Peak (QP) / Average (AV), 9 kHz
<b>Input Power</b>	120Vac, 60Hz	<b>Environmental Conditions</b>	26deg. C, 51%RH
<b>Tested By</b>	Carl Xie		

Frequency (MHz)	QuasiPeak (dBUV)	CAverage (dBUV)	Limit (dBUV)	Margin (dB)	Line	Filter	Corr. (dB)
0.154000	---	24.97	55.78	30.81	N	ON	9.7
0.154000	41.51	---	65.78	24.27	N	ON	9.7
0.428000	---	31.00	47.29	16.29	N	ON	9.7
0.428000	39.50	---	57.29	17.79	N	ON	9.7
0.908000	---	24.92	46.00	21.08	N	ON	9.7
0.908000	30.87	---	56.00	25.13	N	ON	9.7
1.960000	---	20.16	46.00	25.84	N	ON	9.8
1.960000	26.90	---	56.00	29.10	N	ON	9.8
4.092000	---	20.76	46.00	25.24	N	ON	9.8
4.092000	25.98	---	56.00	30.02	N	ON	9.8
11.824000	---	22.95	50.00	27.05	N	ON	9.8
11.824000	30.33	---	60.00	29.67	N	ON	9.8

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

Full Spectrum





### 3.2 RADIATED EMISSION MEASUREMENT

#### 3.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

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

FREQUENCIES (MHz)	FIELD STRENGTH (microvolts/meter)	MEASUREMENT DISTANCE (meters)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

**NOTE:**

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

**3.2.2 TEST INSTRUMENTS**

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

- NOTE:**
1. The calibration interval of the above test instruments is 12 months or 36 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.
  2. The test was performed in 3m Chamber.
  3. The FCC Site Registration No. is 525120; The Designation No. is CN1171.



### 3.2.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters (for below 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, For battery operated equipment, the equipment tests shall be perform using fresh batteries. The turntable was rotated to maximize the emission level.

#### **Note:**

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

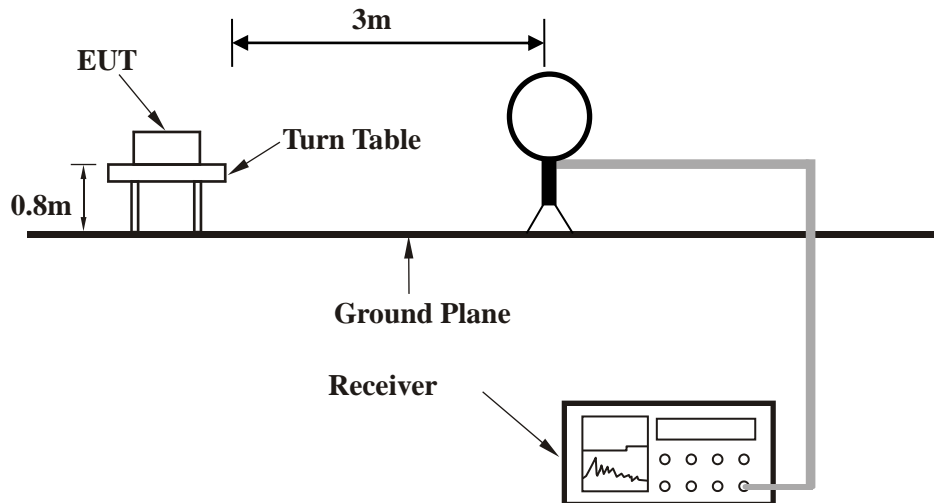
### 3.2.4 DEVIATION FROM TEST STANDARD

No deviation

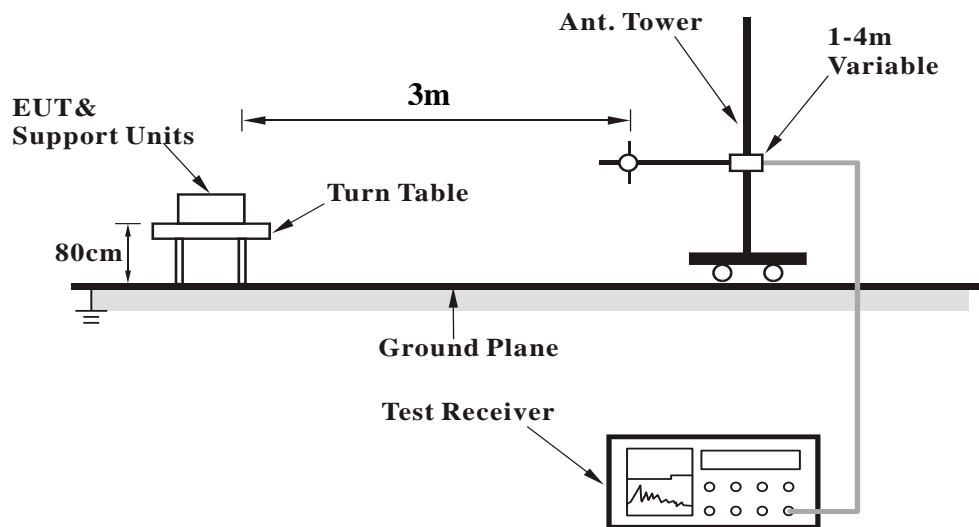


### 3.2.5 TEST SETUP

#### <Frequency Range 9KHz~30MHz >



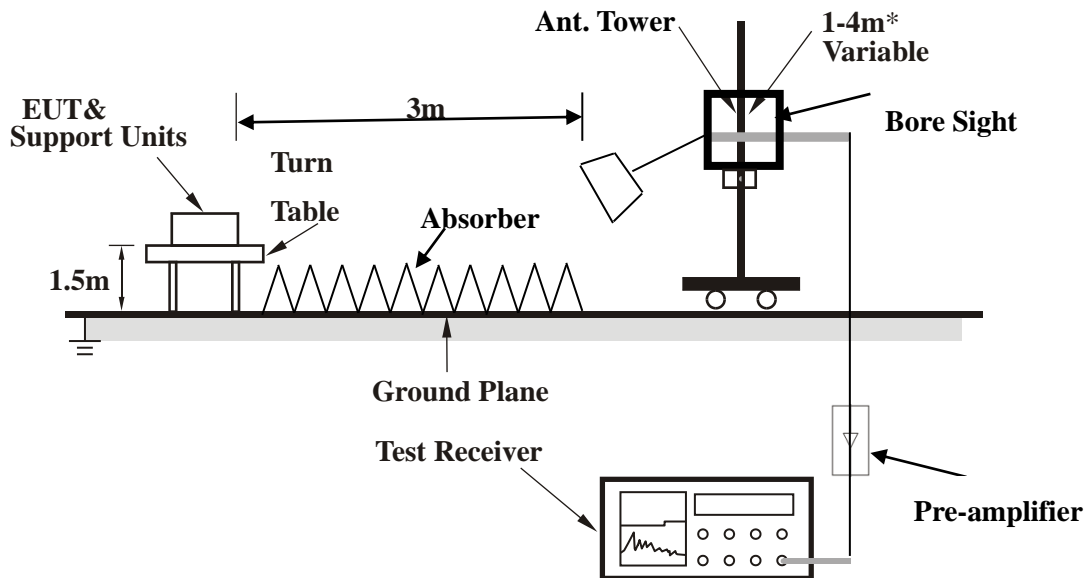
#### < Frequency Range 30MHz~1GHz >







### <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

- Set the EUT under full load condition and placed them on a testing table.
- Set the transmitter part of EUT under transmission condition continuously at specific channel frequency.
- 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:**

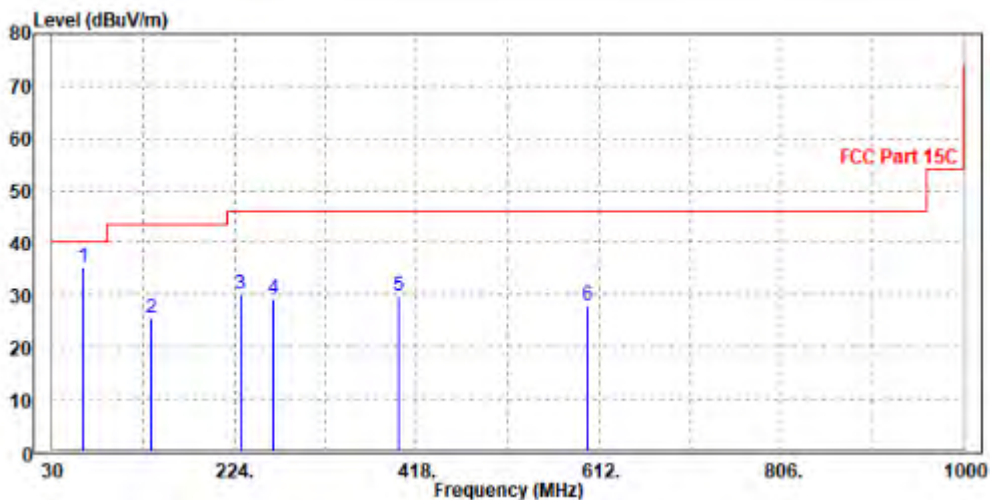
**802.11n (40MHz)**

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

<b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b>											
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	
62.98	35.24	62.99	40	-4.76	8.75	0.45	36.95	129	69	QP	
134.76	25.63	52.81	43.5	-17.87	8.84	0.62	36.64	111	3	QP	
230.79	30.02	52.85	46	-15.98	12.65	0.8	36.28	194	217	QP	
265.71	29.28	51.03	46	-16.72	13.66	0.86	36.27	124	66	QP	
398.6	29.88	49.06	46	-16.12	16.17	1.07	36.42	141	103	QP	
599.39	27.87	43.67	46	-18.13	19.69	1.36	36.85	130	195	QP	

**REMARKS:**

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





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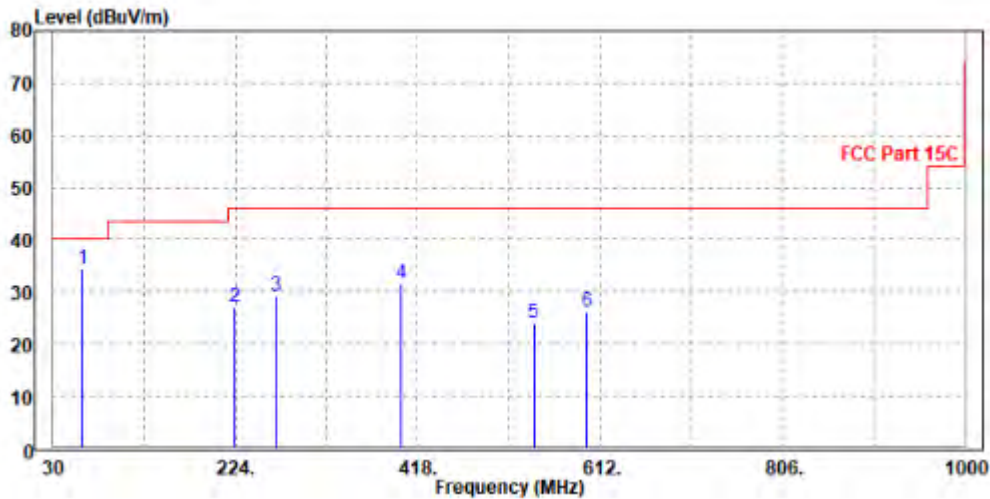
**Test Report No.: W7L-P22110001RF02**

<b>CHANNEL</b>	TX Channel 3	<b>DETECTOR FUNCTION</b>	Quasi-Peak (QP)
<b>FREQUENCY RANGE</b>	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
62.01	34.51	62.5	40	-5.49	8.5	0.45	36.94	178	55	QP
224	27.2	50.67	46	-18.8	12.03	0.78	36.28	164	272	QP
266.68	29.11	51.45	46	-16.89	13.07	0.86	36.27	144	344	QP
399.57	31.66	50.72	46	-14.34	16.29	1.07	36.42	141	203	QP
541.19	24.01	41.02	46	-21.99	18.42	1.28	36.71	190	229	QP
597.45	26.09	42.02	46	-19.91	19.55	1.36	36.84	198	339	QP

**REMARKS:**

- 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:**

<b>CHANNEL</b>	TX Channel 1	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	50.48	58.52	74	-23.52	31.75	6.18	45.97	115	286	Peak
2390	43.65	51.69	54	-10.35	31.75	6.18	45.97	115	286	Average
2412	101.61	109.54	/	/	31.82	6.21	45.96	146	308	Peak
2412	100.29	108.22	/	/	31.82	6.21	45.96	146	308	Average
2483.5	52.04	59.61	74	-21.96	32.05	6.31	45.93	114	0	Peak
2483.5	43.96	51.53	54	-10.04	32.05	6.31	45.93	114	0	Average

**ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M**

FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	51.56	59.21	74	-22.44	32.14	6.18	45.97	145	187	Peak
2390	44.08	51.73	54	-9.92	32.14	6.18	45.97	145	187	Average
2412	91.43	98.99	/	/	32.19	6.21	45.96	140	113	Peak
2412	90.72	98.28	/	/	32.19	6.21	45.96	140	113	Average
2483.5	51.93	59.19	74	-22.07	32.36	6.31	45.93	150	129	Peak
2483.5	43.97	51.23	54	-10.03	32.36	6.31	45.93	150	129	Average

**REMARKS:**

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



<b>CHANNEL</b>	TX Channel 6	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	51.05	59.09	74	-22.95	31.75	6.18	45.97	163	165	Peak
2390	43.84	51.88	54	-10.16	31.75	6.18	45.97	163	165	Average
2437	100.94	108.75	/	/	31.9	6.24	45.95	112	139	Peak
2437	99.94	107.75	/	/	31.9	6.24	45.95	112	139	Average
2483.5	51.93	59.5	74	-22.07	32.05	6.31	45.93	178	66	Peak
2483.5	43.19	50.76	54	-10.81	32.05	6.31	45.93	178	66	Average

**ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M**

FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	50.81	58.46	74	-23.19	32.14	6.18	45.97	168	344	Peak
2390	44.18	51.83	54	-9.82	32.14	6.18	45.97	168	344	Average
2437	92.03	99.49	/	/	32.25	6.24	45.95	122	284	Peak
2437	91.45	98.91	/	/	32.25	6.24	45.95	122	284	Average
2483.5	52.36	59.62	74	-21.64	32.36	6.31	45.93	167	172	Peak
2483.5	44.16	51.42	54	-9.84	32.36	6.31	45.93	167	172	Average

**REMARKS:**

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



<b>CHANNEL</b>	TX Channel 11	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	52.44	60.48	74	-21.56	31.75	6.18	45.97	127	239	Peak
2390	43.72	51.76	54	-10.28	31.75	6.18	45.97	127	239	Average
2462	101.52	109.2	/	/	31.98	6.28	45.94	148	235	Peak
2462	100.58	108.26	/	/	31.98	6.28	45.94	148	235	Average
2483.5	51.87	59.44	74	-22.13	32.05	6.31	45.93	119	263	Peak
2483.5	44.93	52.5	54	-9.07	32.05	6.31	45.93	119	263	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	51.82	59.47	74	-22.18	32.14	6.18	45.97	128	220	Peak
2390	44.31	51.96	54	-9.69	32.14	6.18	45.97	128	220	Average
2462	91.57	98.92	/	/	32.31	6.28	45.94	110	323	Peak
2462	91.27	98.62	/	/	32.31	6.28	45.94	110	323	Average
2483.5	52.48	59.74	74	-21.52	32.36	6.31	45.93	129	299	Peak
2483.5	44.55	51.81	54	-9.45	32.36	6.31	45.93	129	299	Average

**REMARKS:**

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



802.11g

<b>CHANNEL</b>	TX Channel 1	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	54.34	62.38	74	-19.66	31.75	6.18	45.97	147	43	Peak
2390	44.67	52.71	54	-9.33	31.75	6.18	45.97	147	43	Average
2412	102.08	110.01	/	/	31.82	6.21	45.96	129	27	Peak
2412	92.85	100.78	/	/	31.82	6.21	45.96	129	27	Average
2483.5	51.85	59.42	74	-22.15	32.05	6.31	45.93	138	190	Peak
2483.5	43.9	51.47	54	-10.1	32.05	6.31	45.93	138	190	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	50.59	58.24	74	-23.41	32.14	6.18	45.97	135	264	Peak
2390	44.3	51.95	54	-9.7	32.14	6.18	45.97	135	264	Average
2412	96.33	103.89	/	/	32.19	6.21	45.96	145	16	Peak
2412	90.29	97.85	/	/	32.19	6.21	45.96	145	16	Average
2483.5	50.49	57.75	74	-23.51	32.36	6.31	45.93	118	249	Peak
2483.5	44.46	51.72	54	-9.54	32.36	6.31	45.93	118	249	Average

REMARKS:

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



<b>CHANNEL</b>	TX Channel 6	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	51.66	59.7	74	-22.34	31.75	6.18	45.97	181	185	Peak
2390	43.98	52.02	54	-10.02	31.75	6.18	45.97	181	185	Average
2437	101.22	109.03	/	/	31.9	6.24	45.95	131	121	Peak
2437	94.41	102.22	/	/	31.9	6.24	45.95	131	121	Average
2483.5	52.23	59.8	74	-21.77	32.05	6.31	45.93	181	220	Peak
2483.5	45.38	52.95	54	-8.62	32.05	6.31	45.93	181	220	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	51.48	59.13	74	-22.52	32.14	6.18	45.97	166	274	Peak
2390	44.61	52.26	54	-9.39	32.14	6.18	45.97	166	274	Average
2437	97.06	104.52	/	/	32.25	6.24	45.95	136	124	Peak
2437	90.63	98.09	/	/	32.25	6.24	45.95	136	124	Average
2483.5	52.97	60.23	74	-21.03	32.36	6.31	45.93	158	345	Peak
2483.5	44.74	52	54	-9.26	32.36	6.31	45.93	158	345	Average

**REMARKS:**

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





<b>CHANNEL</b>	TX Channel 11	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	51.84	59.88	74	-22.16	31.75	6.18	45.97	164	138	Peak
2390	44.49	52.53	54	-9.51	31.75	6.18	45.97	164	138	Average
2462	102.21	109.89	/	/	31.98	6.28	45.94	111	354	Peak
2462	95.7	103.38	/	/	31.98	6.28	45.94	111	354	Average
2483.5	53.08	60.65	74	-20.92	32.05	6.31	45.93	163	225	Peak
2483.5	46.46	54.03	54	-7.54	32.05	6.31	45.93	163	225	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	51.23	58.88	74	-22.77	32.14	6.18	45.97	160	75	Peak
2390	44.45	52.1	54	-9.55	32.14	6.18	45.97	160	75	Average
2462	95.52	102.87	/	/	32.31	6.28	45.94	159	189	Peak
2462	88.81	96.16	/	/	32.31	6.28	45.94	159	189	Average
2483.5	54.04	61.3	74	-19.96	32.36	6.31	45.93	151	338	Peak
2483.5	44.77	52.03	54	-9.23	32.36	6.31	45.93	151	338	Average

**REMARKS:**

- Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor  
Margin value = Emission level – Limit value.
- 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	55.03	63.07	74	-18.97	31.75	6.18	45.97	147	290	Peak
2390	46.21	54.25	54	-7.79	31.75	6.18	45.97	147	290	Average
2412	100.4	108.33	/	/	31.82	6.21	45.96	166	161	Peak
2412	93.94	101.87	/	/	31.82	6.21	45.96	166	161	Average
2483.5	51.86	59.43	74	-22.14	32.05	6.31	45.93	145	285	Peak
2483.5	44.94	52.51	54	-9.06	32.05	6.31	45.93	145	285	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	51.35	59	74	-22.65	32.14	6.18	45.97	135	109	Peak
2390	44.71	52.36	54	-9.29	32.14	6.18	45.97	135	109	Average
2412	92.98	100.54	/	/	32.19	6.21	45.96	178	283	Peak
2412	86.66	94.22	/	/	32.19	6.21	45.96	178	283	Average
2483.5	52.05	59.31	74	-21.95	32.36	6.31	45.93	124	316	Peak
2483.5	45.17	52.43	54	-8.83	32.36	6.31	45.93	124	316	Average

REMARKS:

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



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

<b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b>										
<b>FREQ. (MHz)</b>	<b>EMISSION LEVEL (dBuV/m)</b>	<b>READ LEVEL (dBuV)</b>	<b>LIMIT (dBuV/m)</b>	<b>MARGIN (dB)</b>	<b>ANTENNA FACTOR (dB /m)</b>	<b>CABLE LOSS (dB)</b>	<b>PREAMP FACTOR (dB)</b>	<b>ANTENNA HEIGHT (cm)</b>	<b>TABLE ANGLE (Degree)</b>	<b>REMARK</b>
2390	51.57	59.61	74	-22.43	31.75	6.18	45.97	105	249	Peak
2390	44.25	52.29	54	-9.75	31.75	6.18	45.97	105	249	Average
2437	99.89	107.7	/	/	31.9	6.24	45.95	114	288	Peak
2437	93.42	101.23	/	/	31.9	6.24	45.95	114	288	Average
2483.5	52.09	59.66	74	-21.91	32.05	6.31	45.93	91	160	Peak
2483.5	44.99	52.56	54	-9.01	32.05	6.31	45.93	91	160	Average
<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>										
<b>FREQ. (MHz)</b>	<b>EMISSION LEVEL (dBuV/m)</b>	<b>READ LEVEL (dBuV)</b>	<b>LIMIT (dBuV/m)</b>	<b>MARGIN (dB)</b>	<b>ANTENNA FACTOR (dB /m)</b>	<b>CABLE LOSS (dB)</b>	<b>PREAMP FACTOR (dB)</b>	<b>ANTENNA HEIGHT (cm)</b>	<b>TABLE ANGLE (Degree)</b>	<b>REMARK</b>
2390	52.22	59.87	74	-21.78	32.14	6.18	45.97	182	111	Peak
2390	44.52	52.17	54	-9.48	32.14	6.18	45.97	182	111	Average
2437	93.54	101	/	/	32.25	6.24	45.95	174	18	Peak
2437	86.93	94.39	/	/	32.25	6.24	45.95	174	18	Average
2483.5	52.49	59.75	74	-21.51	32.36	6.31	45.93	192	235	Peak
2483.5	44.74	52	54	-9.26	32.36	6.31	45.93	192	235	Average

**REMARKS:**

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



<b>CHANNEL</b>	TX Channel 11	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	51.56	59.6	74	-22.44	31.75	6.18	45.97	179	293	Peak
2390	43.95	51.99	54	-10.05	31.75	6.18	45.97	179	293	Average
2462	100.91	108.59	/	/	31.98	6.28	45.94	192	161	Peak
2462	94.75	102.43	/	/	31.98	6.28	45.94	192	161	Average
2483.5	53.5	61.07	74	-20.5	32.05	6.31	45.93	168	230	Peak
2483.5	46.1	53.67	54	-7.9	32.05	6.31	45.93	168	230	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	52.17	59.82	74	-21.83	32.14	6.18	45.97	190	56	Peak
2390	44.52	52.17	54	-9.48	32.14	6.18	45.97	190	56	Average
2462	94.3	101.65	/	/	32.31	6.28	45.94	171	240	Peak
2462	87.6	94.95	/	/	32.31	6.28	45.94	171	240	Average
2483.5	53.58	60.84	74	-20.42	32.36	6.31	45.93	188	243	Peak
2483.5	44.77	52.03	54	-9.23	32.36	6.31	45.93	188	243	Average

**REMARKS:**

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



**802.11n (40MHz)**

<b>CHANNEL</b>	TX Channel 3	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	55.08	63.12	74	-18.92	31.75	6.18	45.97	180	94	Peak
2390	47.3	55.34	54	-6.7	31.75	6.18	45.97	180	94	Average
2422	98.01	105.9	/	/	31.85	6.22	45.96	155	175	Peak
2422	91.25	99.14	/	/	31.85	6.22	45.96	155	175	Average
2483.5	51.83	59.4	74	-22.17	32.05	6.31	45.93	195	68	Peak
2483.5	44.92	52.49	54	-9.08	32.05	6.31	45.93	195	68	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	51.93	59.58	74	-22.07	32.14	6.18	45.97	124	15	Peak
2390	44.6	52.25	54	-9.4	32.14	6.18	45.97	124	15	Average
2422	90.72	98.25	/	/	32.21	6.22	45.96	157	233	Peak
2422	83.76	91.29	/	/	32.21	6.22	45.96	157	233	Average
2483.5	51.93	59.19	74	-22.07	32.36	6.31	45.93	133	61	Peak
2483.5	44.66	51.92	54	-9.34	32.36	6.31	45.93	133	61	Average

**REMARKS:**

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



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

<b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b>										
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	51.19	59.23	74	-22.81	31.75	6.18	45.97	133	187	Peak
2390	44.21	52.25	54	-9.79	31.75	6.18	45.97	133	187	Average
2437	97.43	105.24	/	/	31.9	6.24	45.95	149	220	Peak
2437	91.15	98.96	/	/	31.9	6.24	45.95	149	220	Average
2483.5	53.05	60.62	74	-20.95	32.05	6.31	45.93	123	288	Peak
2483.5	44.88	52.45	54	-9.12	32.05	6.31	45.93	123	288	Average
<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>										
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	52.74	60.39	74	-21.26	32.14	6.18	45.97	142	342	Peak
2390	44.28	51.93	54	-9.72	32.14	6.18	45.97	142	342	Average
2437	91.81	99.27	/	/	32.25	6.24	45.95	164	257	Peak
2437	85.73	93.19	/	/	32.25	6.24	45.95	164	257	Average
2483.5	52.22	59.48	74	-21.78	32.36	6.31	45.93	149	55	Peak
2483.5	44.84	52.1	54	-9.16	32.36	6.31	45.93	149	55	Average

**REMARKS:**

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



<b>CHANNEL</b>	TX Channel 9	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	52.32	60.36	74	-21.68	31.75	6.18	45.97	132	73	Peak
2390	43.88	51.92	54	-10.12	31.75	6.18	45.97	132	73	Average
2452	97.65	105.39	/	/	31.95	6.26	45.95	123	360	Peak
2452	90.68	98.42	/	/	31.95	6.26	45.95	123	360	Average
2483.5	54.46	62.03	74	-19.54	32.05	6.31	45.93	124	243	Peak
2483.5	46.44	54.01	54	-7.56	32.05	6.31	45.93	124	243	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	52.1	59.75	74	-21.9	32.14	6.18	45.97	115	135	Peak
2390	44.57	52.22	54	-9.43	32.14	6.18	45.97	115	135	Average
2452	91.18	98.59	/	/	32.28	6.26	45.95	162	322	Peak
2452	84.84	92.25	/	/	32.28	6.26	45.95	162	322	Average
2483.5	53.24	60.5	74	-20.76	32.36	6.31	45.93	123	294	Peak
2483.5	44.81	52.07	54	-9.19	32.36	6.31	45.93	123	294	Average

REMARKS:

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



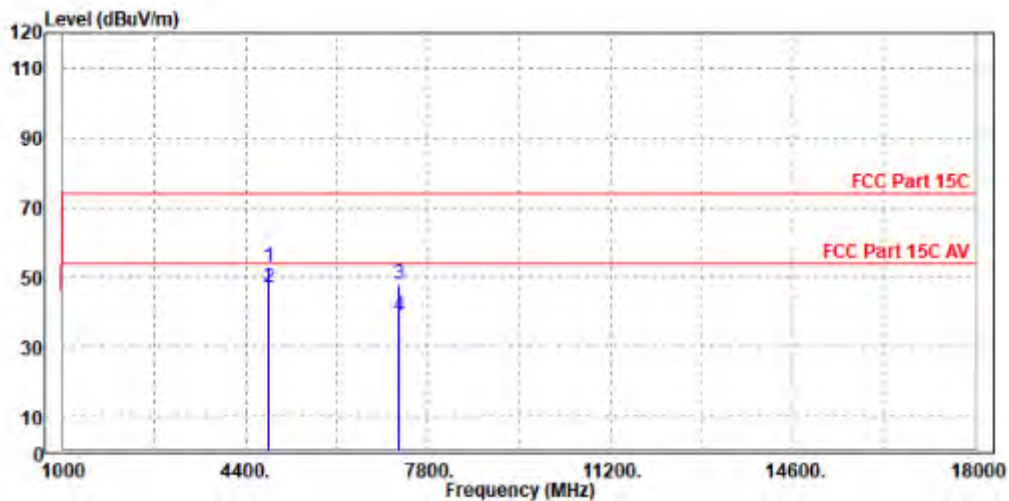
Worst case harmonic:

802.11n (40MHz)

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

**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	PK 4842.000	52.81	51.57	74.00	-21.19	1.24	Peak	Horizontal
2	PP 4842.000	47.06	45.82	54.00	-6.94	1.24	Average	Horizontal
3	7266.000	47.85	43.55	74.00	-26.15	4.30	Peak	Horizontal
4	7266.000	38.82	34.52	54.00	-15.18	4.30	Average	Horizontal

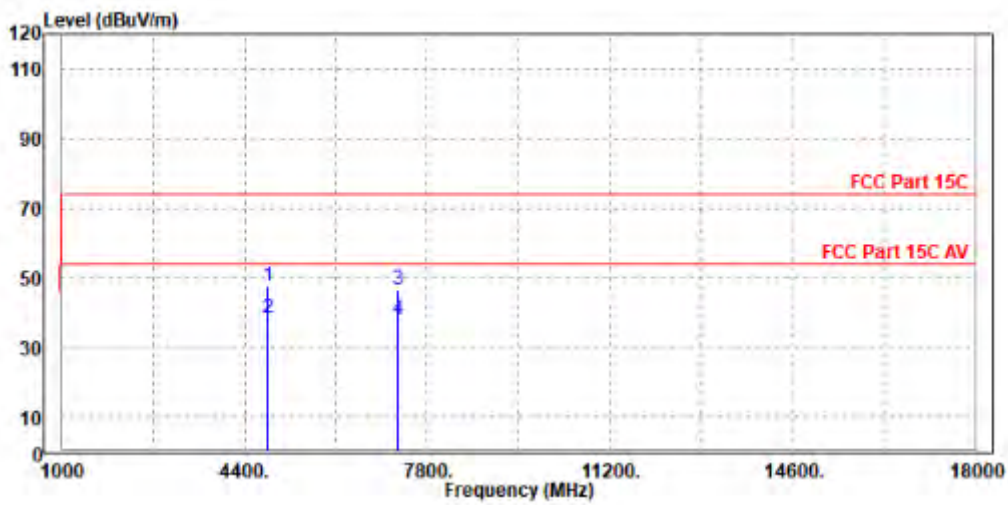






**ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M**

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m		
1	PK 4842.000	47.54	47.90	74.00	-26.46	-0.36	Peak	Vertical
2	PP 4842.000	38.45	38.81	54.00	-15.55	-0.36	Average	Vertical
3	7266.000	46.36	43.15	74.00	-27.64	3.21	Peak	Vertical
4	7266.000	38.03	34.82	54.00	-15.97	3.21	Average	Vertical



**REMARKS:**

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



**BELOW 1GHz WORST-CASE DATA:**

**30 MHz – 1GHz data:**

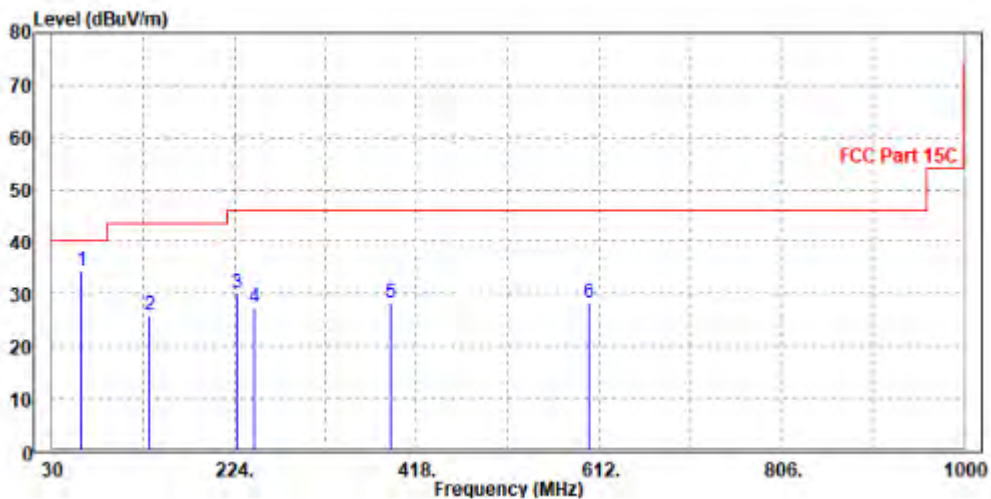
**BT-LE\_1M**

<b>CHANNEL</b>	TX Channel 39	<b>ODETECTOR FUNCTION</b>	Quasi-Peak (QP)
<b>FREQUENCY RANGE</b>	30MHz ~ 1GHz		

<b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b>										
<b>FREQ. (MHz)</b>	<b>EMISSION LEVEL (dBuV/m)</b>	<b>READ LEVEL (dBuV)</b>	<b>LIMIT (dBuV/m)</b>	<b>MARGIN (dB)</b>	<b>ANTENNA FACTOR (dB /m)</b>	<b>CABLE LOSS (dB)</b>	<b>PREAMP FACTOR (dB)</b>	<b>ANTENNA HEIGHT (cm)</b>	<b>TABLE ANGLE (Degree)</b>	<b>REMARK</b>
62.01	34.47	62.06	40	-5.53	8.9	0.45	36.94	165	23	QP
133.79	25.81	53.05	43.5	-17.69	8.79	0.62	36.65	163	104	QP
226.91	30.09	53.1	46	-15.91	12.48	0.79	36.28	159	132	QP
244.37	27.47	49.68	46	-18.53	13.25	0.82	36.28	119	152	QP
390.84	28.25	47.6	46	-17.75	16	1.06	36.41	186	63	QP
600.36	28.38	44.16	46	-17.62	19.71	1.36	36.85	169	331	QP

**REMARKS:**

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





**BUREAU  
VERITAS**

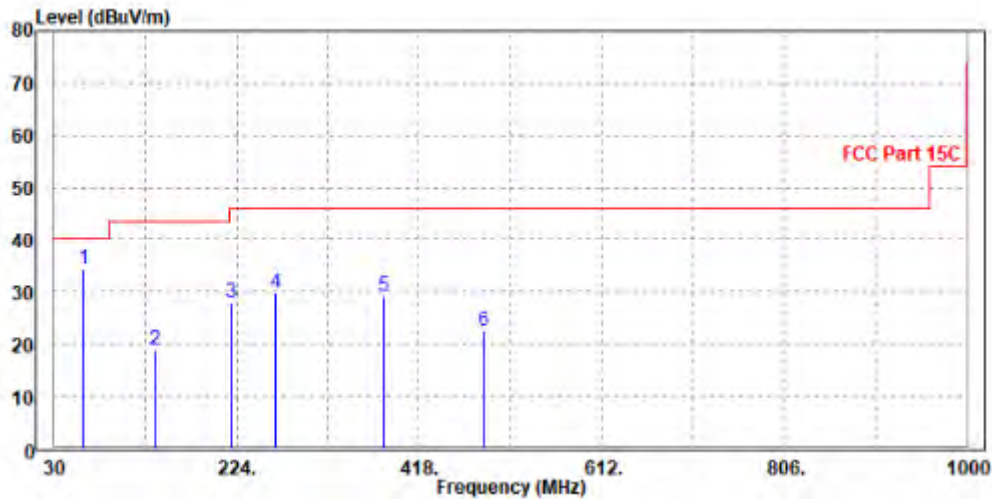
**Test Report No.: W7L-P22110001RF02**

<b>CHANNEL</b>	TX Channel 39	<b>DETECTOR FUNCTION</b>	Quasi-Peak (QP)
<b>FREQUENCY RANGE</b>	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
62.01	34.31	62.3	40	-5.69	8.5	0.45	36.94	116	101	QP
136.7	18.79	46.12	43.5	-24.71	8.67	0.63	36.63	157	240	QP
218.18	28.11	51.72	46	-17.89	11.9	0.77	36.28	192	246	QP
265.71	29.8	52.17	46	-16.2	13.04	0.86	36.27	116	7	QP
380.17	29.32	48.83	46	-16.68	15.84	1.04	36.39	162	348	QP
486.87	22.61	40.57	46	-23.39	17.43	1.2	36.59	143	269	QP

**REMARKS:**

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





ABOVE 1GHz TEST DATA

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

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

BT-LE \_1M

CHANNEL	TX Channel 0	DETECTOR FUNCTION	Peak (PK)
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	50.75	58.79	74	-23.25	31.75	6.18	45.97	200	277	Peak
2390	43.8	51.84	54	-10.2	31.75	6.18	45.97	200	277	Average
2402	98.53	106.52	/	/	31.79	6.19	45.97	145	23	Peak
2402	94.49	102.48	/	/	31.79	6.19	45.97	145	23	Average
2483.5	51.62	59.19	74	-22.38	32.05	6.31	45.93	189	143	Peak
2483.5	44.04	51.61	54	-9.96	32.05	6.31	45.93	189	143	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	52.7	60.35	74	-21.3	32.14	6.18	45.97	162	129	Peak
2390	43.77	51.42	54	-10.23	32.14	6.18	45.97	162	129	Average
2402	94.77	102.39	/	/	32.16	6.19	45.97	136	199	Peak
2402	90.86	98.48	/	/	32.16	6.19	45.97	136	199	Average
2483.5	52.45	59.71	74	-21.55	32.36	6.31	45.93	157	241	Peak
2483.5	44.4	51.66	54	-9.6	32.36	6.31	45.93	157	241	Average

REMARKS:

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



<b>CHANNEL</b>	TX Channel 19	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	51.15	59.19	74	-22.85	31.75	6.18	45.97	175	144	Peak
2390	43.16	51.2	54	-10.84	31.75	6.18	45.97	175	144	Average
2440	96.64	104.43	/	/	31.91	6.25	45.95	179	204	Peak
2440	96.2	103.99	/	/	31.91	6.25	45.95	179	204	Average
2483.5	51.2	58.77	74	-22.8	32.05	6.31	45.93	164	30	Peak
2483.5	43.56	51.13	54	-10.44	32.05	6.31	45.93	164	30	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	51.97	59.62	74	-22.03	32.14	6.18	45.97	175	297	Peak
2390	43.98	51.63	54	-10.02	32.14	6.18	45.97	175	297	Average
2440	87.61	95.05	/	/	32.26	6.25	45.95	187	79	Peak
2440	87.11	94.55	/	/	32.26	6.25	45.95	187	79	Average
2483.5	52.93	60.19	74	-21.07	32.36	6.31	45.93	190	138	Peak
2483.5	44.02	51.28	54	-9.98	32.36	6.31	45.93	190	138	Average

**REMARKS:**

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