



BUREAU
VERITAS

Test Report No.: W7L-P22090035RF02



FCC TEST REPORT (Part 15, Subpart C)

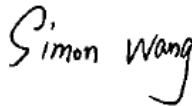
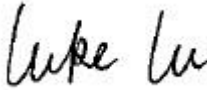
Applicant:	PAX Technology Limited
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Manufacturer or Supplier:	PAX Computer Technology (Shenzhen) Co., Ltd.
Address:	401 and 402, Building 3, Shenzhen Software Park, Nanshan District, Shenzhen City, Guangdong Province, P.R.C
Product:	Data Service Terminal
Brand Name:	PAX
Model Name:	T3300
FCC ID:	V5PT3300
Date of tests:	Oct. 08, 2022 ~ Oct. 26, 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: Oct. 26, 2022	 Date: Oct. 26, 2022

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

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**BUREAU
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Test Report No.: W7L-P22090035RF02

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
W7L-P22090035RF02	Original release	Oct. 26, 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 (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	Data Service Terminal
BRAND NAME	PAX
MODEL NAME	T3300
NOMINAL VOLTAGE	5.0Vdc(adapter or host equipment) 3.8Vdc (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 72.2 Mbps BT_LE: 1 Mbps/2 Mbps
OPERATING FREQUENCY	2412-2462MHz for 11b/g/n(HT20) 2402-2480MHz for BT-LE(GFSK)
MAX. OUTPUT POWER	WLAN: 216.77mW (Maximum) BT-LE: 2.99mW (Maximum)
ANTENNA TYPE	Monopole Antenna with 2dBi gain
HW VERSION	T3300
SW VERSION	V0.0.0.1
I/O PORTS	Refer to user's manual
CABLE SUPPLIED	USB cable: unshielded without ferrite, 1.5meter



NOTE:

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

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

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	IES	ICON ENERGY SYSTEM (SHEN ZHEN) CO., LTD	IDS128NA	Capacity : 3.8 Vdc, 1400mAh



2.2 DESCRIPTION OF TEST MODES

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

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

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

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



2.2.1 CONFIGURATION OF SYSTEM UNDER TEST

Please see section 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)
802.11g	1 to 11	11	OFDM	6.0
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
BT-LE	0 to 39	0,19, 39	GFSK	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)
802.11g	1 to 11	11	OFDM	6.0



BANDEDGE MEASUREMENT:

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

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

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 3.8V By Battery	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 [%]
WIFI 2.4GHz	11B	98.94
	11G	93.33
	11N20	62.96
BT LE	BT4.0	61.90
	BT5.0	35.48

Note:

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



2.4 GENERAL DESCRIPTION OF APPLIED STANDARDS

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

FCC Part 15, Subpart C, Section 15.247

KDB 558074 D01 DTS Meas Guidance v05r02

ANSI C63.10-2013

Note :

1. All test items have been performed and recorded as per the above standards.
2. The EUT is also considered as a kind of computer peripheral, because the connection to 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.

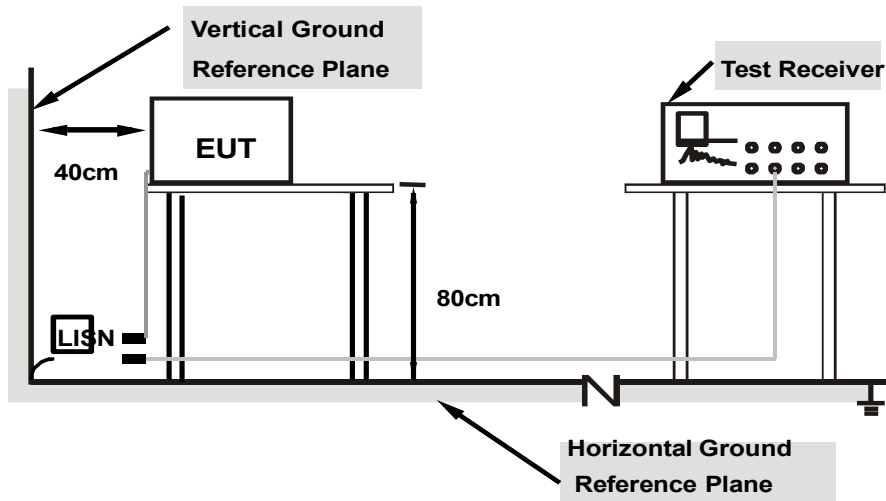
NOTE: All modes of operation were investigated and the worst-case emissions are reported.

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

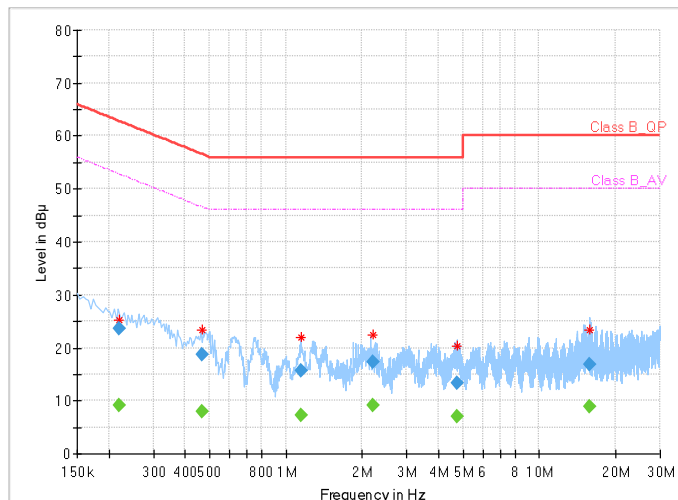
CONDUCTED WORST-CASE DATA:

Frequency Range	150KHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25deg. C, 55%RH
Tested By	Carl Xie		

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.220000	---	9.23	52.82	43.59	L1	ON	9.7
0.220000	23.73	---	62.82	39.09	L1	ON	9.7
0.468000	---	8.03	46.55	38.52	L1	ON	9.7
0.468000	18.74	---	56.55	37.81	L1	ON	9.7
1.148000	---	7.28	46.00	38.72	L1	ON	9.7
1.148000	15.76	---	56.00	40.24	L1	ON	9.7
2.200000	---	9.04	46.00	36.96	L1	ON	9.7
2.200000	17.22	---	56.00	38.78	L1	ON	9.7
4.764000	---	7.00	46.00	39.00	L1	ON	9.7
4.764000	13.44	---	56.00	42.56	L1	ON	9.7
15.864000	---	8.87	50.00	41.13	L1	ON	9.8
15.864000	16.92	---	60.00	43.08	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



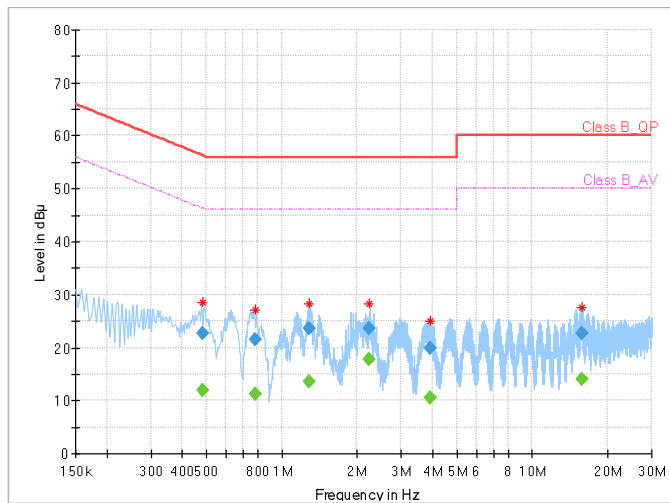


Frequency Range	150KHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25deg. C, 55%RH
Tested By	Carl Xie		

Frequency (MHz)	QuasiPeak (dBUV)	CAverage (dBUV)	Limit (dBUV)	Margin (dB)	Line	Filter	Corr. (dB)
0.484000	---	11.86	46.27	34.41	N	ON	9.7
0.484000	22.78	---	56.27	33.49	N	ON	9.7
0.788000	---	11.11	46.00	34.89	N	ON	9.7
0.788000	21.49	---	56.00	34.51	N	ON	9.7
1.280000	---	13.47	46.00	32.53	N	ON	9.8
1.280000	23.52	---	56.00	32.48	N	ON	9.8
2.244000	---	17.81	46.00	28.19	N	ON	9.8
2.244000	23.74	---	56.00	32.26	N	ON	9.8
3.908000	---	10.47	46.00	35.53	N	ON	9.8
3.908000	19.99	---	56.00	36.01	N	ON	9.8
15.768000	---	13.97	50.00	36.03	N	ON	9.8
15.768000	22.76	---	60.00	37.24	N	ON	9.8

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

Full Spectrum





3.2 RADIATED EMISSION MEASUREMENT

3.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

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

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

NOTE:

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

**3.2.2 TEST INSTRUMENTS**

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
3m Semi-anechoic Chamber	ETS-LINDGREN	9m*6m*6m	Euroshieldpn-CT0001143-1216	May. 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. 24, 22	Aug. 23, 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. 18,22	Feb. 17,23
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. 06,22	May. 05,23
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.

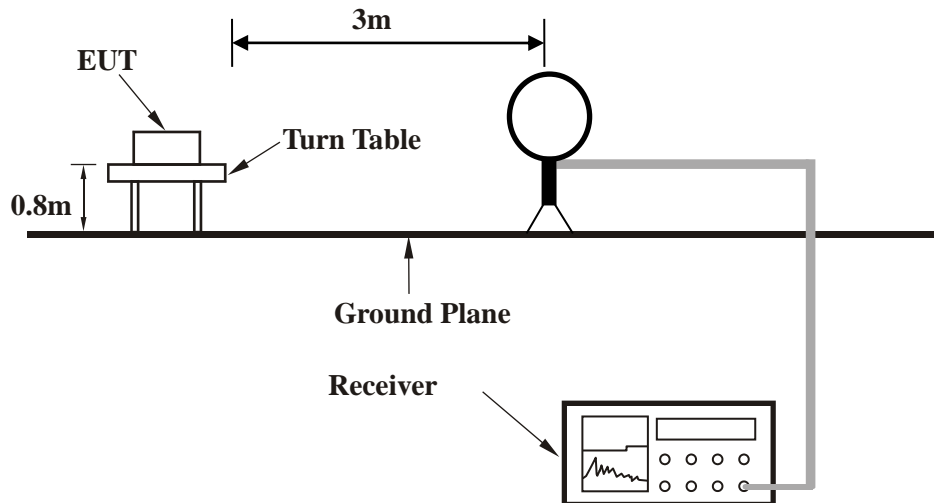
3.2.4 DEVIATION FROM TEST STANDARD

No deviation

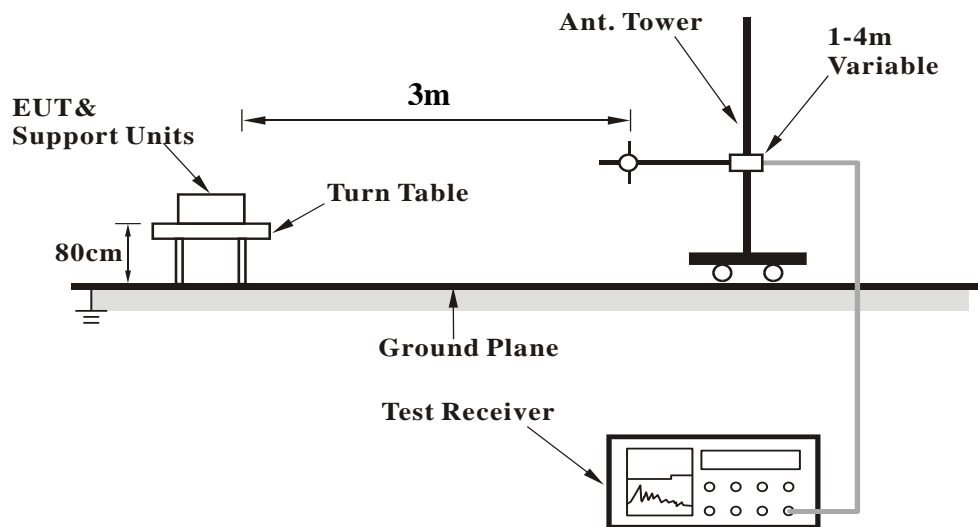


3.2.5 TEST SETUP

<Frequency Range 9KHz~30MHz >

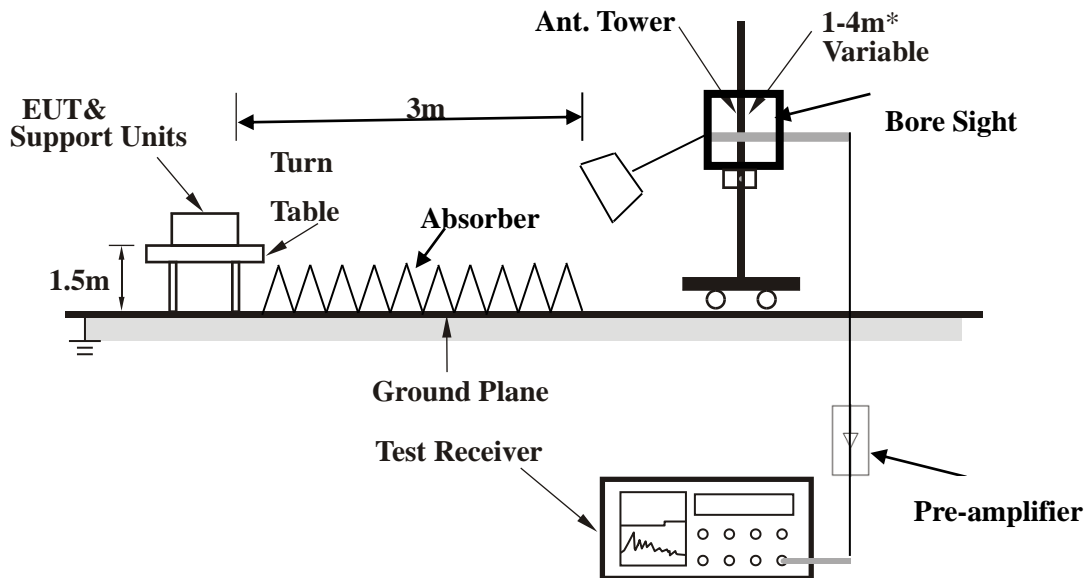


< Frequency Range 30MHz~1GHz >





<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:

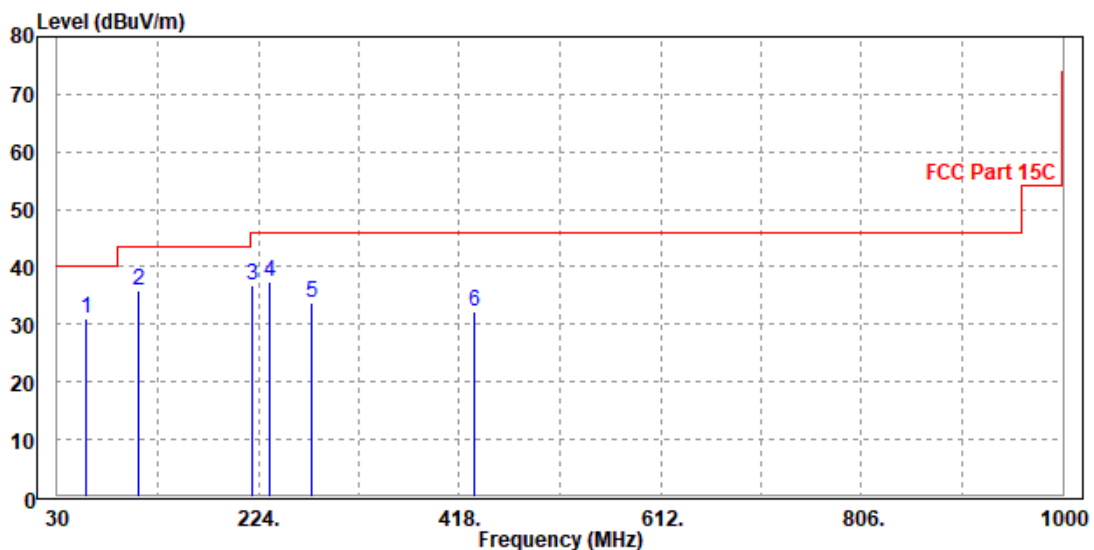
802.11g

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
57.16	31.05	58.1	40	-8.95	9.48	0.43	36.96	194	40	QP
108.57	35.88	62.08	43.5	-7.62	10.03	0.55	36.78	192	293	QP
218.18	36.87	60.28	46	-9.13	12.1	0.77	36.28	195	159	QP
235.64	37.49	60.09	46	-8.51	12.87	0.81	36.28	139	79	QP
275.41	33.67	55.32	46	-12.33	13.75	0.87	36.27	150	167	QP
431.58	32.35	50.91	46	-13.65	16.8	1.12	36.48	126	33	QP

REMARKS:

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





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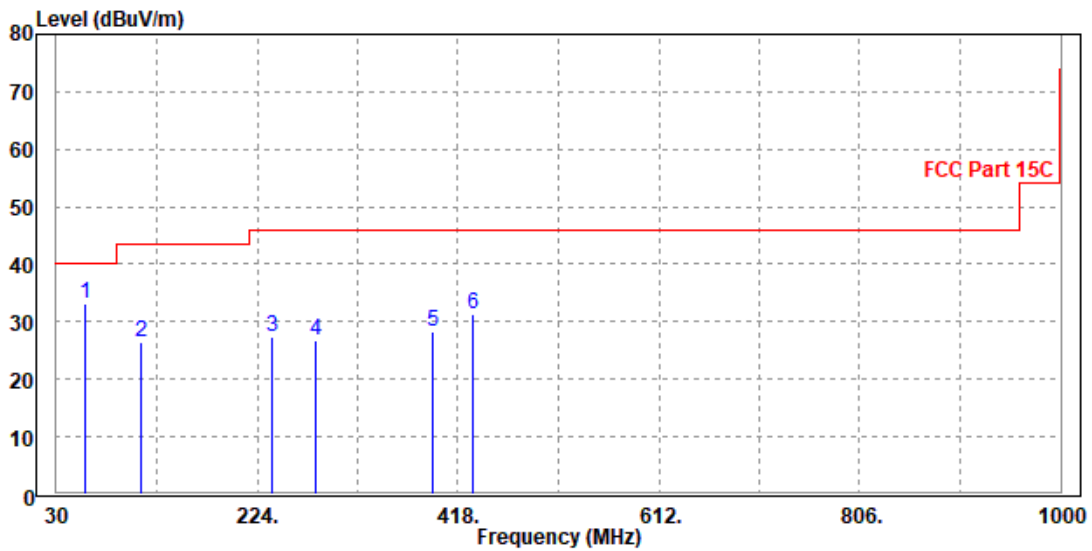
Test Report No.: W7L-P22090035RF02

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

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
57.16	33.08	60.7	40	-6.92	8.91	0.43	36.96	166	203	QP
111.48	26.44	53.89	43.5	-17.06	8.76	0.56	36.77	189	306	QP
237.58	27.5	50.64	46	-18.5	12.33	0.81	36.28	103	350	QP
280.26	26.73	48.67	46	-19.27	13.45	0.88	36.27	191	207	QP
393.75	28.42	47.61	46	-17.58	16.16	1.06	36.41	151	325	QP
431.58	31.36	50.01	46	-14.64	16.71	1.12	36.48	118	97	QP

REMARKS:

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





ABOVE 1GHz WORST-CASE DATA:

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

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

802.11b:

CHANNEL	TX Channel 1	DETECTOR FUNCTION	Peak (PK)
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	51.43	59.47	74	-22.57	31.75	6.18	45.97	119	293	Peak
2390	43.79	51.83	54	-10.21	31.75	6.18	45.97	119	293	Average
2412	93.19	101.12	/	/	31.82	6.21	45.96	191	6	Peak
2412	92.09	100.02	/	/	31.82	6.21	45.96	191	6	Average
2483.5	52.68	60.25	74	-21.32	32.05	6.31	45.93	109	190	Peak
2483.5	44.63	52.2	54	-9.37	32.05	6.31	45.93	109	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	51.75	59.4	74	-22.25	32.14	6.18	45.97	141	81	Peak
2390	44.45	52.1	54	-9.55	32.14	6.18	45.97	141	81	Average
2412	98.42	105.98	/	/	32.19	6.21	45.96	193	60	Peak
2412	97.35	104.91	/	/	32.19	6.21	45.96	193	60	Average
2483.5	52.02	59.28	74	-21.98	32.36	6.31	45.93	149	264	Peak
2483.5	44.5	51.76	54	-9.5	32.36	6.31	45.93	149	264	Average

REMARKS:

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



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	51.2	59.24	74	-22.8	31.75	6.18	45.97	106	51	Peak
2390	44.22	52.26	54	-9.78	31.75	6.18	45.97	106	51	Average
2437	94.38	102.19	/	/	31.9	6.24	45.95	131	143	Peak
2437	93.16	100.97	/	/	31.9	6.24	45.95	131	143	Average
2483.5	52.31	59.88	74	-21.69	32.05	6.31	45.93	98	67	Peak
2483.5	45.26	52.83	54	-8.74	32.05	6.31	45.93	98	67	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	51.39	59.04	74	-22.61	32.14	6.18	45.97	106	350	Peak
2390	44.13	51.78	54	-9.87	32.14	6.18	45.97	106	350	Average
2437	100	107.46	/	/	32.25	6.24	45.95	134	24	Peak
2437	98.99	106.45	/	/	32.25	6.24	45.95	134	24	Average
2483.5	51.95	59.21	74	-22.05	32.36	6.31	45.93	121	88	Peak
2483.5	44.55	51.81	54	-9.45	32.36	6.31	45.93	121	88	Average

REMARKS:

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



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	50.6	58.64	74	-23.4	31.75	6.18	45.97	184	126	Peak
2390	44.43	52.47	54	-9.57	31.75	6.18	45.97	184	126	Average
2462	92.75	100.43	/	/	31.98	6.28	45.94	193	319	Peak
2462	91.62	99.3	/	/	31.98	6.28	45.94	193	319	Average
2483.5	51.95	59.52	74	-22.05	32.05	6.31	45.93	192	267	Peak
2483.5	44.46	52.03	54	-9.54	32.05	6.31	45.93	192	267	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	52.14	59.79	74	-21.86	32.14	6.18	45.97	118	54	Peak
2390	44.1	51.75	54	-9.9	32.14	6.18	45.97	118	54	Average
2462	98.87	106.22	/	/	32.31	6.28	45.94	183	58	Peak
2462	97.75	105.1	/	/	32.31	6.28	45.94	183	58	Average
2483.5	52.28	59.54	74	-21.72	32.36	6.31	45.93	114	159	Peak
2483.5	45.93	53.19	54	-8.07	32.36	6.31	45.93	114	159	Average

REMARKS:

- Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
Margin value = Emission level – Limit value.
- 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	60.16	68.2	74	-13.84	31.75	6.18	45.97	110	69	Peak
2390	47.58	55.62	54	-6.42	31.75	6.18	45.97	110	69	Average
2412	96.38	104.31	/	/	31.82	6.21	45.96	100	259	Peak
2412	89.29	97.22	/	/	31.82	6.21	45.96	100	259	Average
2483.5	51.92	59.49	74	-22.08	32.05	6.31	45.93	109	11	Peak
2483.5	43.39	50.96	54	-10.61	32.05	6.31	45.93	109	11	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	63.81	71.46	74	-10.19	32.14	6.18	45.97	106	335	Peak
2390	50.6	58.25	54	-3.4	32.14	6.18	45.97	106	335	Average
2412	101.94	109.5	/	/	32.19	6.21	45.96	122	292	Peak
2412	94.88	102.44	/	/	32.19	6.21	45.96	122	292	Average
2483.5	52.29	59.55	74	-21.71	32.36	6.31	45.93	112	239	Peak
2483.5	43.86	51.12	54	-10.14	32.36	6.31	45.93	112	239	Average

REMARKS:

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



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	51.09	59.13	74	-22.91	31.75	6.18	45.97	120	208	Peak
2390	42.84	50.88	54	-11.16	31.75	6.18	45.97	120	208	Average
2437	96.69	104.5	/	/	31.9	6.24	45.95	116	328	Peak
2437	89.6	97.41	/	/	31.9	6.24	45.95	116	328	Average
2483.5	52.11	59.68	74	-21.89	32.05	6.31	45.93	120	212	Peak
2483.5	43.72	51.29	54	-10.28	32.05	6.31	45.93	120	212	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	52.26	59.91	74	-21.74	32.14	6.18	45.97	124	117	Peak
2390	43.28	50.93	54	-10.72	32.14	6.18	45.97	124	117	Average
2437	102.43	109.89	/	/	32.25	6.24	45.95	174	317	Peak
2437	95.36	102.82	/	/	32.25	6.24	45.95	174	317	Average
2483.5	53.26	60.52	74	-20.74	32.36	6.31	45.93	124	38	Peak
2483.5	44.22	51.48	54	-9.78	32.36	6.31	45.93	124	38	Average

REMARKS:

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



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	51.03	59.07	74	-22.97	31.75	6.18	45.97	175	316	Peak
2390	42.29	50.33	54	-11.71	31.75	6.18	45.97	175	316	Average
2462	96.76	104.44	/	/	31.98	6.28	45.94	154	71	Peak
2462	89.73	97.41	/	/	31.98	6.28	45.94	154	71	Average
2483.5	51.67	59.24	74	-22.33	32.05	6.31	45.93	172	130	Peak
2483.5	46.1	53.67	54	-7.9	32.05	6.31	45.93	172	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	51.22	58.87	74	-22.78	32.14	6.18	45.97	194	223	Peak
2390	42.55	50.2	54	-11.45	32.14	6.18	45.97	194	223	Average
2462	102.39	109.74	/	/	32.31	6.28	45.94	175	137	Peak
2462	95.24	102.59	/	/	32.31	6.28	45.94	175	137	Average
2483.5	61.34	68.6	74	-12.66	32.36	6.31	45.93	180	175	Peak
2483.5	50.83	58.09	54	-3.17	32.36	6.31	45.93	180	175	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	54.23	62.27	74	-19.77	31.75	6.18	45.97	188	82	Peak
2390	44.87	52.91	54	-9.13	31.75	6.18	45.97	188	82	Average
2412	95.67	103.6	/	/	31.82	6.21	45.96	175	246	Peak
2412	88.15	96.08	/	/	31.82	6.21	45.96	175	246	Average
2483.5	51.32	58.89	74	-22.68	32.05	6.31	45.93	200	24	Peak
2483.5	43.37	50.94	54	-10.63	32.05	6.31	45.93	200	24	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	57.05	64.7	74	-16.95	32.14	6.18	45.97	163	228	Peak
2390	47.55	55.2	54	-6.45	32.14	6.18	45.97	163	228	Average
2412	101.1	108.66	/	/	32.19	6.21	45.96	196	267	Peak
2412	93.27	100.83	/	/	32.19	6.21	45.96	196	267	Average
2483.5	52.89	60.15	74	-21.11	32.36	6.31	45.93	175	285	Peak
2483.5	43.44	50.7	54	-10.56	32.36	6.31	45.93	175	285	Average

REMARKS:

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



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	51.39	59.43	74	-22.61	31.75	6.18	45.97	159	294	Peak
2390	42.45	50.49	54	-11.55	31.75	6.18	45.97	159	294	Average
2437	95.9	103.71	/	/	31.9	6.24	45.95	140	349	Peak
2437	88.56	96.37	/	/	31.9	6.24	45.95	140	349	Average
2483.5	52.65	60.22	74	-21.35	32.05	6.31	45.93	175	20	Peak
2483.5	43.17	50.74	54	-10.83	32.05	6.31	45.93	175	20	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	51.17	58.82	74	-22.83	32.14	6.18	45.97	141	53	Peak
2390	43.21	50.86	54	-10.79	32.14	6.18	45.97	141	53	Average
2437	100.98	108.44	/	/	32.25	6.24	45.95	102	7	Peak
2437	93.22	100.68	/	/	32.25	6.24	45.95	102	7	Average
2483.5	52.51	59.77	74	-21.49	32.36	6.31	45.93	140	122	Peak
2483.5	43.77	51.03	54	-10.23	32.36	6.31	45.93	140	122	Average

REMARKS:

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



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	50.62	58.66	74	-23.38	31.75	6.18	45.97	160	142	Peak
2390	42.32	50.36	54	-11.68	31.75	6.18	45.97	160	142	Average
2462	96.28	103.96	/	/	31.98	6.28	45.94	154	9	Peak
2462	88.5	96.18	/	/	31.98	6.28	45.94	154	9	Average
2483.5	52.78	60.35	74	-21.22	32.05	6.31	45.93	157	227	Peak
2483.5	44.25	51.82	54	-9.75	32.05	6.31	45.93	157	227	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	51.78	59.43	74	-22.22	32.14	6.18	45.97	150	260	Peak
2390	42.74	50.39	54	-11.26	32.14	6.18	45.97	150	260	Average
2462	101.08	108.43	/	/	32.31	6.28	45.94	189	126	Peak
2462	92.94	100.29	/	/	32.31	6.28	45.94	189	126	Average
2483.5	59.59	66.85	74	-14.41	32.36	6.31	45.93	141	255	Peak
2483.5	48.19	55.45	54	-5.81	32.36	6.31	45.93	141	255	Average

REMARKS:

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



BUREAU VERITAS Test Report No.: W7L-P22090035RF02

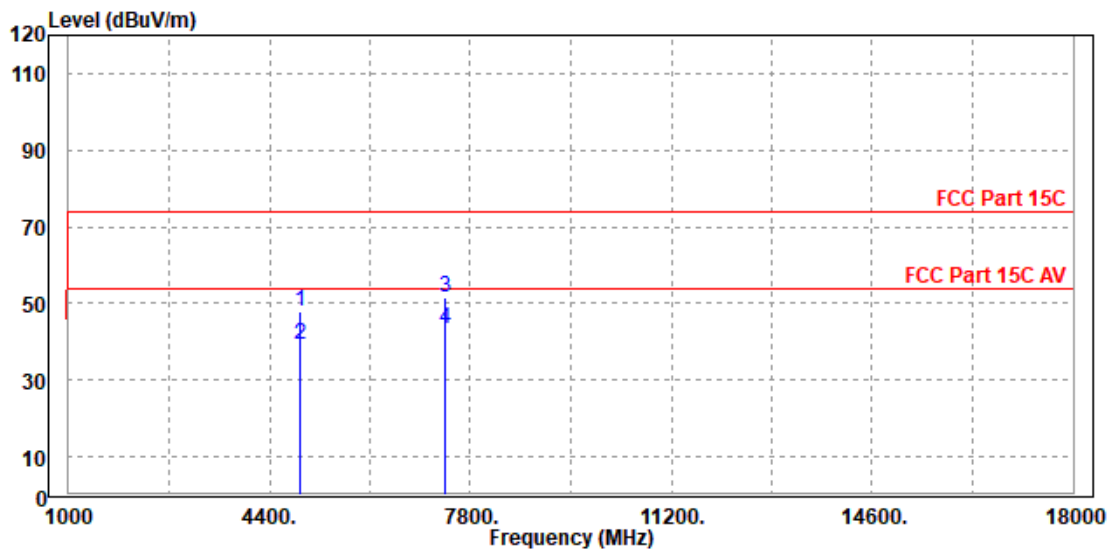
Worst case harmonic:

802.11g

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

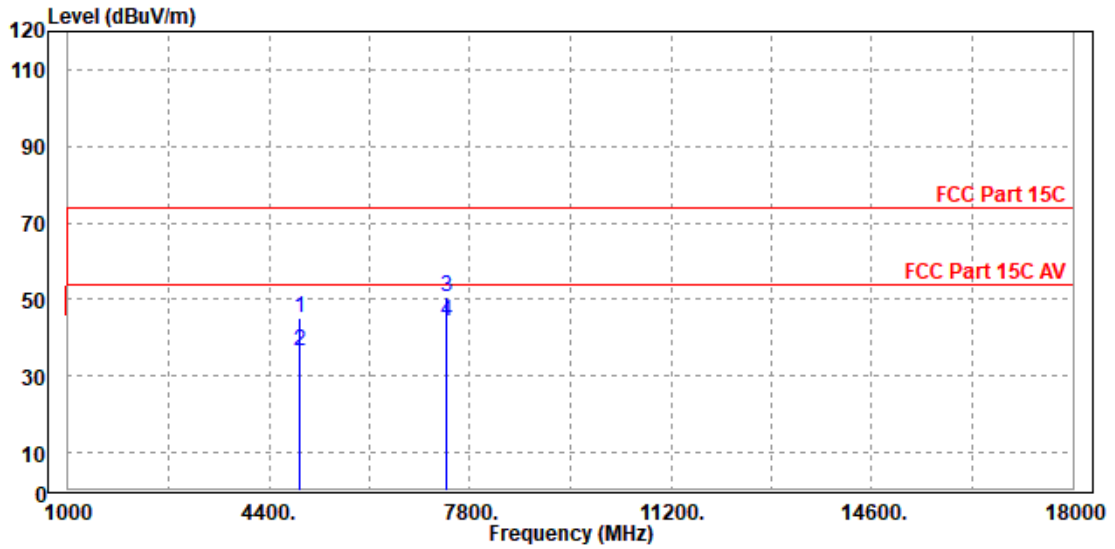
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m		
1	4927.000	47.99	46.69	74.00	-26.01	1.30	Peak	Horizontal
2	4927.000	39.13	37.83	54.00	-14.87	1.30	Average	Horizontal
3 PK	7386.000	51.46	46.97	74.00	-22.54	4.49	Peak	Horizontal
4 PP	7386.000	43.40	38.91	54.00	-10.60	4.49	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	4924.000	45.23	45.59	74.00	-28.77	-0.36	Peak	Vertical
2	4924.000	36.53	36.89	54.00	-17.47	-0.36	Average	Vertical
3	PK 7392.000	50.61	47.16	74.00	-23.39	3.45	Peak	Vertical
4	PP 7392.000	44.26	40.81	54.00	-9.74	3.45	Average	Vertical



REMARKS:

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



**BUREAU
VERITAS**

Test Report No.: W7L-P22090035RF02

BELOW 1GHz WORST-CASE DATA:

30 MHz – 1GHz data:

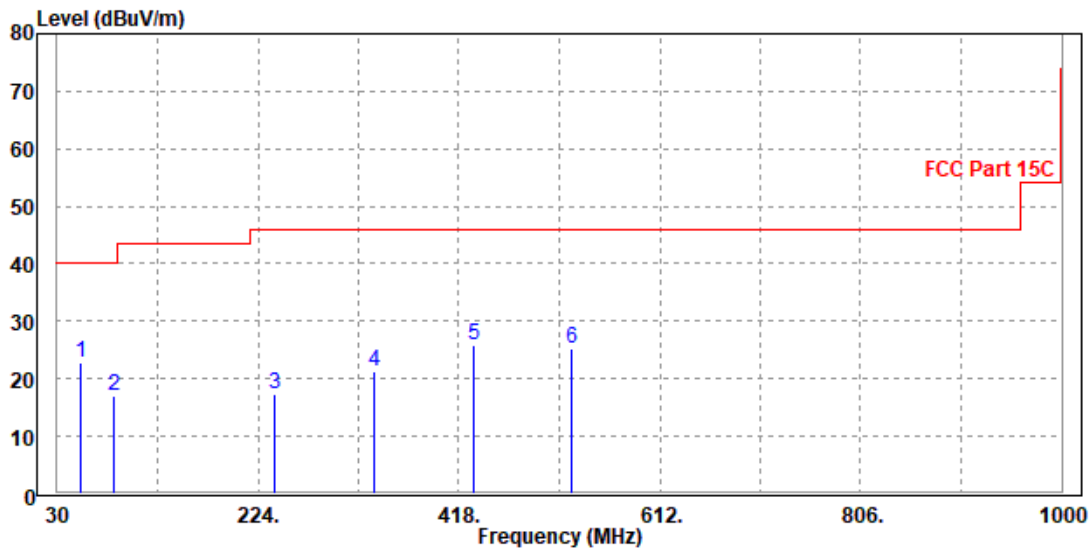
BT-LE_1M

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
52.31	22.88	49.49	40	-17.12	9.97	0.41	36.99	198	228	QP
84.32	17.18	45.41	40	-22.82	8.22	0.5	36.95	132	221	QP
239.52	17.28	39.71	46	-28.72	13.04	0.81	36.28	193	245	QP
335.55	21.33	41.9	46	-24.67	14.78	0.97	36.32	198	357	QP
431.58	25.89	44.45	46	-20.11	16.8	1.12	36.48	197	284	QP
527.61	25.18	42.06	46	-20.82	18.54	1.26	36.68	126	213	QP

REMARKS:

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



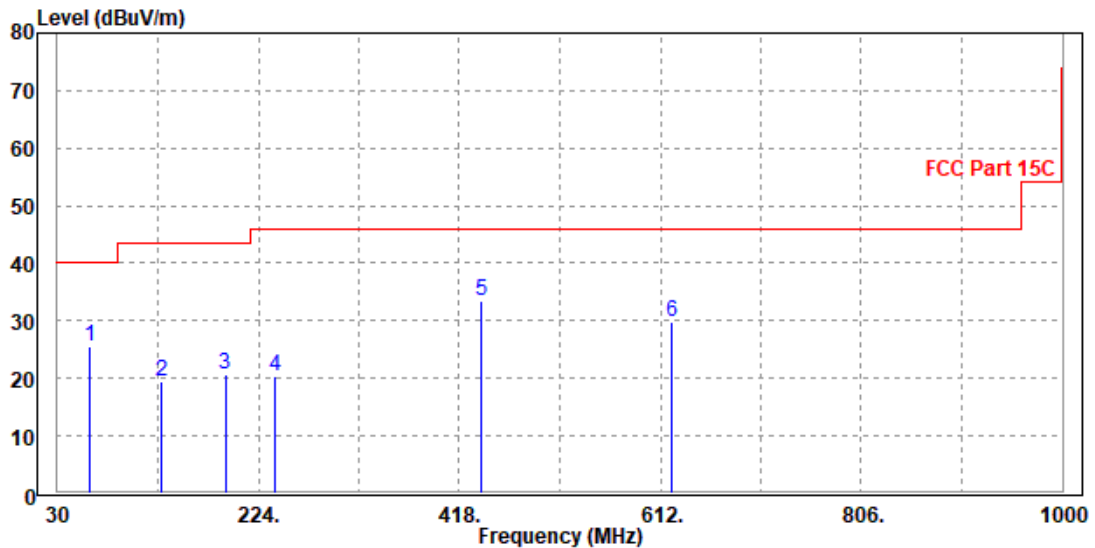


CHANNEL	TX Channel 39	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
61.04	25.57	53.51	40	-14.43	8.55	0.45	36.94	161	85	QP
130.88	19.56	47.35	43.5	-23.94	8.26	0.61	36.66	175	317	QP
191.99	20.55	44.78	43.5	-22.95	11.38	0.72	36.33	141	48	QP
239.52	20.31	43.41	46	-25.69	12.37	0.81	36.28	138	315	QP
438.37	33.39	51.96	46	-12.61	16.8	1.13	36.5	141	163	QP
623.64	29.95	45.66	46	-16.05	19.84	1.39	36.94	172	159	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	53.36	58.1	74	-20.64	35.05	6.18	45.97	168	72	Peak
2390	46.76	51.5	54	-7.24	35.05	6.18	45.97	168	72	Average
2402	90.65	95.34	/	/	35.09	6.19	45.97	167	281	Peak
2402	89.85	94.54	/	/	35.09	6.19	45.97	167	281	Average
2483.5	55.7	59.97	74	-18.3	35.35	6.31	45.93	175	250	Peak
2483.5	46.83	51.1	54	-7.17	35.35	6.31	45.93	175	250	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	52.42	59.35	74	-21.58	32.86	6.18	45.97	152	313	Peak
2390	45.24	52.17	54	-8.76	32.86	6.18	45.97	152	313	Average
2402	93.93	100.83	/	/	32.88	6.19	45.97	110	179	Peak
2402	93.39	100.29	/	/	32.88	6.19	45.97	110	179	Average
2483.5	52.19	58.75	74	-21.81	33.06	6.31	45.93	137	114	Peak
2483.5	45.09	51.65	54	-8.91	33.06	6.31	45.93	137	114	Average

REMARKS:

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



CHANNEL	TX Channel 19	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	54.62	59.36	74	-19.38	35.05	6.18	45.97	200	127	Peak
2390	47.14	51.88	54	-6.86	35.05	6.18	45.97	200	127	Average
2440	89.39	93.88	/	/	35.21	6.25	45.95	109	146	Peak
2440	88.9	93.39	/	/	35.21	6.25	45.95	109	146	Average
2483.5	56.7	60.97	74	-17.3	35.35	6.31	45.93	198	77	Peak
2483.5	47.41	51.68	54	-6.59	35.35	6.31	45.93	198	77	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	53.71	60.64	74	-20.29	32.86	6.18	45.97	100	109	Peak
2390	44.75	51.68	54	-9.25	32.86	6.18	45.97	100	109	Average
2440	93.65	100.38	/	/	32.97	6.25	45.95	107	135	Peak
2440	93.38	100.11	/	/	32.97	6.25	45.95	107	135	Average
2483.5	51.61	58.17	74	-22.39	33.06	6.31	45.93	98	227	Peak
2483.5	44.81	51.37	54	-9.19	33.06	6.31	45.93	98	227	Average

REMARKS:

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



CHANNEL	TX Channel 39	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	54.71	59.45	74	-19.29	35.05	6.18	45.97	168	244	Peak
2390	46.77	51.51	54	-7.23	35.05	6.18	45.97	168	244	Average
2480	90.55	94.84	/	/	35.34	6.3	45.93	140	64	Peak
2480	88.43	92.72	/	/	35.34	6.3	45.93	140	64	Average
2483.5	54.43	58.7	74	-19.57	35.35	6.31	45.93	173	195	Peak
2483.5	48.32	52.59	54	-5.68	35.35	6.31	45.93	173	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	52.59	59.52	74	-21.41	32.86	6.18	45.97	123	245	Peak
2390	44.84	51.77	54	-9.16	32.86	6.18	45.97	123	245	Average
2480	94.6	101.17	/	/	33.06	6.3	45.93	162	175	Peak
2480	94.07	100.64	/	/	33.06	6.3	45.93	162	175	Average
2483.5	53.44	60	74	-20.56	33.06	6.31	45.93	133	26	Peak
2483.5	44.86	51.42	54	-9.14	33.06	6.31	45.93	133	26	Average

REMARKS:

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

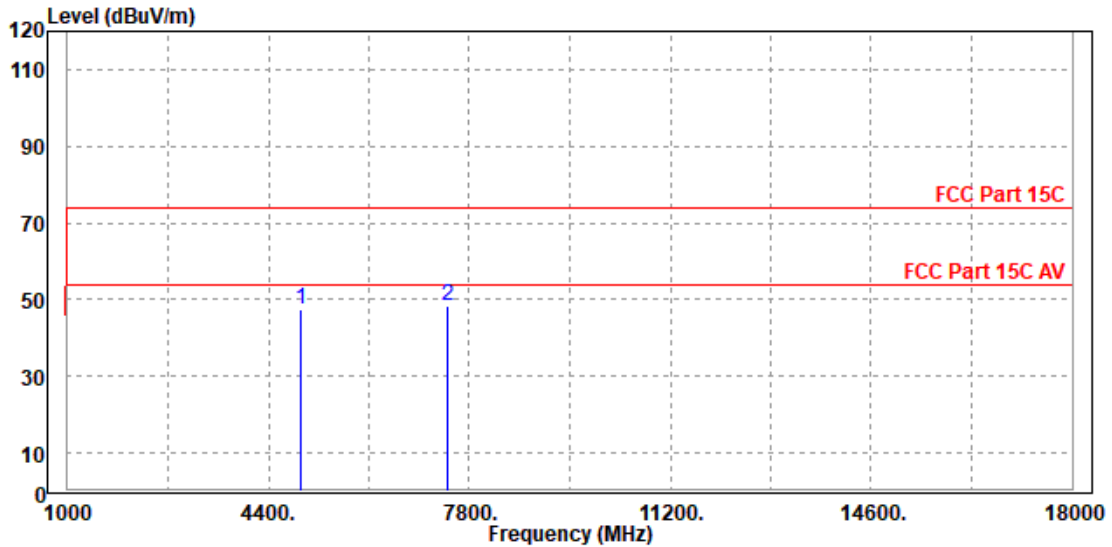


Worst case harmonic:

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

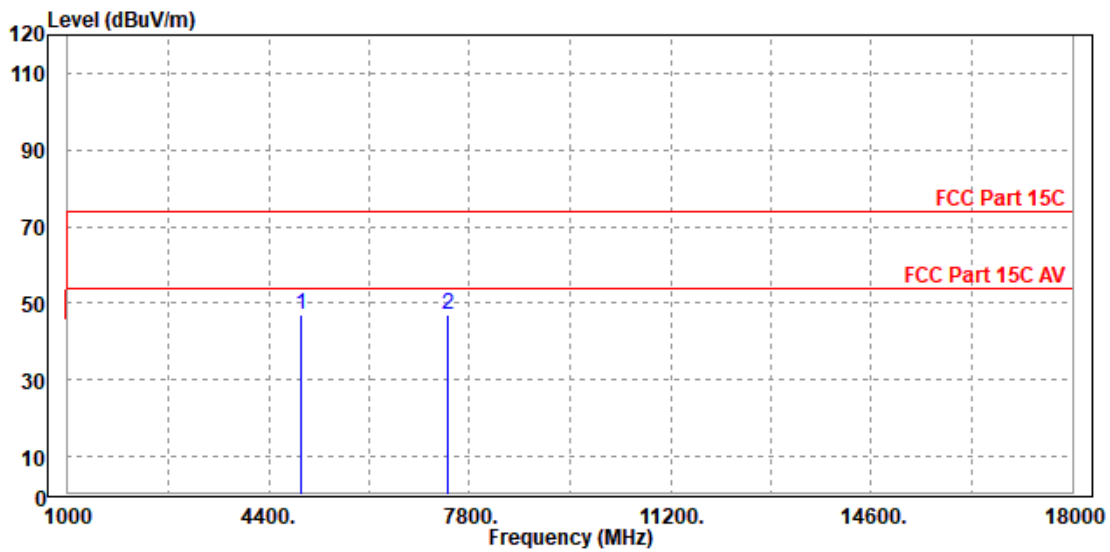
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m		
1	4960.000	47.64	46.30	74.00	-26.36	1.34	Peak	Horizontal
2 PP	7443.000	48.18	43.62	74.00	-25.82	4.56	Peak	Horizontal





ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m		
1	4961.000	46.81	47.15	74.00	-27.19	-0.34	Peak	Vertical
2 PP	7440.000	46.85	43.32	74.00	-27.15	3.53	Peak	Vertical



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)
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	55.36	60.1	74	-18.64	35.05	6.18	45.97	142	231	Peak
2390	46.8	51.54	54	-7.2	35.05	6.18	45.97	142	231	Average
2402	90.71	95.4	/	/	35.09	6.19	45.97	127	288	Peak
2402	88.42	93.11	/	/	35.09	6.19	45.97	127	288	Average
2483.5	55.02	59.29	74	-18.98	35.35	6.31	45.93	133	119	Peak
2483.5	47.54	51.81	54	-6.46	35.35	6.31	45.93	133	119	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	52.19	59.12	74	-21.81	32.86	6.18	45.97	184	265	Peak
2390	44.22	51.15	54	-9.78	32.86	6.18	45.97	184	265	Average
2402	94.63	101.53	/	/	32.88	6.19	45.97	174	47	Peak
2402	91.99	98.89	/	/	32.88	6.19	45.97	174	47	Average
2483.5	53.33	59.89	74	-20.67	33.06	6.31	45.93	193	309	Peak
2483.5	44.99	51.55	54	-9.01	33.06	6.31	45.93	193	309	Average

REMARKS:

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