

FCC TEST REPORT

(Part 15, Subpart C)

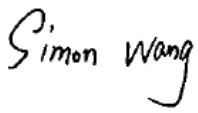
Applicant:	Xiaomi Communications Co., Ltd.
Address:	#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085

Manufacturer or Supplier:	Xiaomi Communications Co., Ltd.
Address:	#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085
Product:	Mobile Phone
Brand Name:	Redmi
Model Name:	23100RN82L
FCC ID:	2AFZZN82L
Date of tests:	Aug. 07, 2023 ~ Sep. 12, 2023

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

- ☒ **FCC Part 15, Subpart C, Section 15.247**
- ☒ **ANSI C63.10-2013**

CONCLUSION: The submitted sample was found to COMPLY with the test requirement

Prepared by Simon Wang Engineer / Mobile Department	Approved by Luke Lu Manager / Mobile Department
 Date: Sep. 12, 2023	 Date: Sep. 12, 2023

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Test Report No.: W7L-P23080006RF02

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
W7L-P23080006RF02	Original release	Sep. 12, 2023



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Test Report No.: W7L-P23080006RF02

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).



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	$\pm 2.70\text{dB}$
Radiated emissions (9KHz~30MHz)	$\pm 2.68\text{dB}$
Radiated emissions (30MHz~1GHz)	$\pm 4.98\text{dB}$
Radiated emissions (1GHz ~6GHz)	$\pm 4.70\text{dB}$
Radiated emissions (6GHz ~18GHz)	$\pm 4.60\text{dB}$
Radiated emissions (18GHz ~40GHz)	$\pm 4.12\text{dB}$
Conducted emissions	$\pm 4.01\text{dB}$
Occupied Channel Bandwidth	$\pm 43.58\text{KHz}$
Conducted Output power	$\pm 2.06\text{dB}$
Power Spectral Density	$\pm 0.85\text{ dB}$

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k = 2$.



2 GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Mobile Phone
BRAND NAME	Redmi
MODEL NAME	23100RN82L
NOMINAL VOLTAGE	5Vdc(adapter or host equipment) 3.84Vdc (Li-ion, battery)
MODULATION	DSSS, OFDM, GFSK
TRANSMISSION RATE	802.11b: 11/ 5.5/ 2.0 / 1.0 Mbps 802.11g: 54/ 48/ 36 / 24 / 18 / 9/ 6 Mbps 802.11n20: up to 72.2 Mbps BT_LE: 0.125 Mbps /0.5 Mbps /1 Mbps/2 Mbps
OPERATING FREQUENCY	2412-2462MHz for 11b/g/n(HT20) 2402-2480MHz for BT-LE(GFSK)
MAX. OUTPUT POWER	WLAN: 292.42mW (Maximum) BT-LE: 1.56mW (Maximum)
ANTENNA TYPE	PIFA Antenna with -1dBi gain
HW VERSION	LLDM572
SW VERSION	MIUI 14
IMEI	861440060049166 861440060064348 861440060081649
I/O PORTS	Refer to user's manual
CABLE SUPPLIED	USB cable1: non-shielded cable, with w/o ferrite core, 1.0 meter USB cable2: non-shielded cable, with w/o ferrite core, 1.0 meter



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NOTE:

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

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

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



2.2 DESCRIPTION OF TEST MODES

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

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

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

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



2.2.1 CONFIGURATION OF SYSTEM UNDER TEST

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

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

**RADIATED EMISSION TEST (ABOVE 1GHz):**

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

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	1.0
802.11g	1 to 11	1, 6, 11	OFDM	6.0
802.11n HT20	1 to 11	1, 6, 11	OFDM	MCS0
BT-LE	0 to 39	0,19, 39	GFSK	0.125&0.5&1.0
BT-LE	1 to 38	38	GFSK	2.0

POWER LINE CONDUCTED EMISSION TEST

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

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

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



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BANDEDGE MEASUREMENT:

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	1.0
802.11g	1 to 11	1, 6, 11	OFDM	6.0
802.11n HT20	1 to 11	1, 6, 11	OFDM	MCS0
BT-LE	0 to 39	0,19, 39	GFSK	0.125&0.5&1.0
BT-LE	1 to 38	38	GFSK	2.0



ANTENNA PORT CONDUCTED MEASUREMENT:

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	1.0
802.11g	1 to 11	1, 6, 11	OFDM	6.0
802.11n HT20	1 to 11	1, 6, 11	OFDM	MCS0
BT-LE	0 to 39	0,19, 39	GFSK	0.125&0.5&1.0
BT-LE	1 to 38	38	GFSK	2.0

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	TEST VOLTAGE	TESTED BY
RE<1G	23deg. C, 70%RH	DC 5V By Adapter	Jace Hu
RE≥1G	23deg. C, 70%RH	DC 5V By Adapter	Jace Hu
PLC	25deg. C, 52%RH	DC 5V By Adapter	Carl Xie
APCM	25deg. C, 60%RH	DC 3.84 By Battery	James Fu



2.3 DUTY CYCLE OF TEST SIGNAL

Please Refer to Appendix1/2 Of this test report.

WORST-CASE DATA:

Measured Duty Cycle		
Mode		Duty Cycle [%]
WIFI 2.4GHz	11B	99.53
	11G	97.22
	11N20	96.30
BT LE	BT4.0	85.20
	BT5.0	57.45
	BTS2	91.00
	BTS8	97.48

Note:

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

2.4 GENERAL DESCRIPTION OF APPLIED STANDARDS

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

FCC Part 15, Subpart C, Section 15.247

KDB 558074 D01 DTS Meas Guidance v05r02

ANSI C63.10-2013

Note :

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

2.5 DESCRIPTION OF SUPPORT UNITS

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

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	Desktop	Lenovo	M73 SFF	PC04GRQV	N/A
2	Desktop	Lenovo	M73 SFF	PC06CS27	N/A
3	Laptop	Lenovo	Thinkpad T450	PC-049PT1	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	AC Line: Unshielded, Detachable 1.5m
2	AC Line: Unshielded, Detachable 1.5m
3	AC Line: Unshielded, Detachable 1.5m



3 TEST TYPES AND RESULTS

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dB μ V)	
	Quasi-peak	Average
0.15 ~ 0.5	66 to 56	56 to 46
0.5 ~ 5	56	46
5 ~ 30	60	50

NOTE: 1. The lower limit shall apply at the transition frequencies.

2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

3.1.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESR3	101900	Feb. 14,23	Feb. 13,24
EMC32 test software	Rohde&Schwarz	EMC32	NA	NA	NA
LISN network	Rohde&Schwarz	ENV216	101922	Mar. 03,23	Mar. 02,24

NOTE:

1. The test was performed in CE shielded room.

2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.



3.1.3 TEST PROCEDURES

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

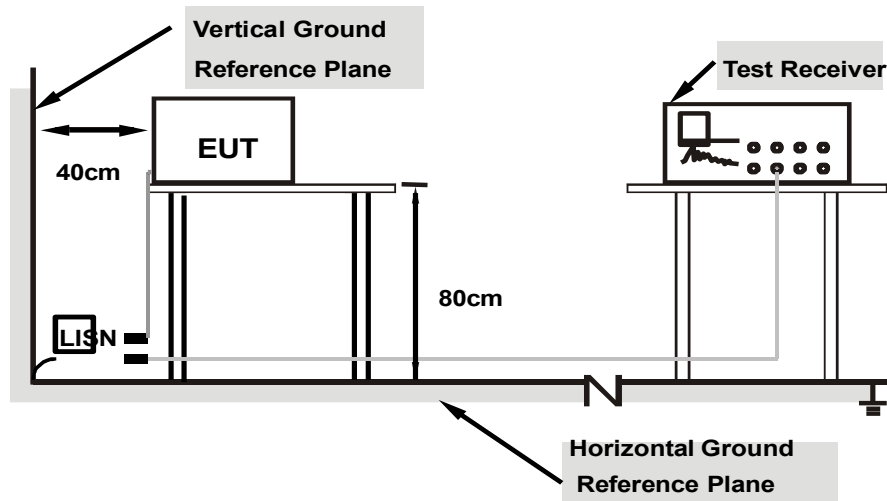
NOTE: All modes of operation were investigated, and the worst-case emissions are reported.

3.1.4 DEVIATION FROM TEST STANDARD

No deviation.



3.1.5 TEST SETUP



Note: 1.Support units were connected to second LISN.

2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

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

3.1.6 EUT OPERATING CONDITIONS

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



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3.1.7 TEST RESULTS

CONDUCTED WORST-CASE DATA:

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

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.468000	---	21.54	46.55	25.01	L1	ON	9.7
0.468000	31.39	---	56.55	25.16	L1	ON	9.7
0.956000	---	19.22	46.00	26.78	L1	ON	9.7
0.956000	29.11	---	56.00	26.89	L1	ON	9.7
1.328000	---	19.61	46.00	26.39	L1	ON	9.7
1.328000	30.51	---	56.00	25.49	L1	ON	9.7
1.624000	---	19.73	46.00	26.27	L1	ON	9.7
1.624000	31.29	---	56.00	24.71	L1	ON	9.7
2.056000	---	17.20	46.00	28.80	L1	ON	9.7
2.056000	27.62	---	56.00	28.38	L1	ON	9.7
4.384000	---	13.71	46.00	32.29	L1	ON	9.7
4.384000	22.93	---	56.00	33.07	L1	ON	9.7

REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.

2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.

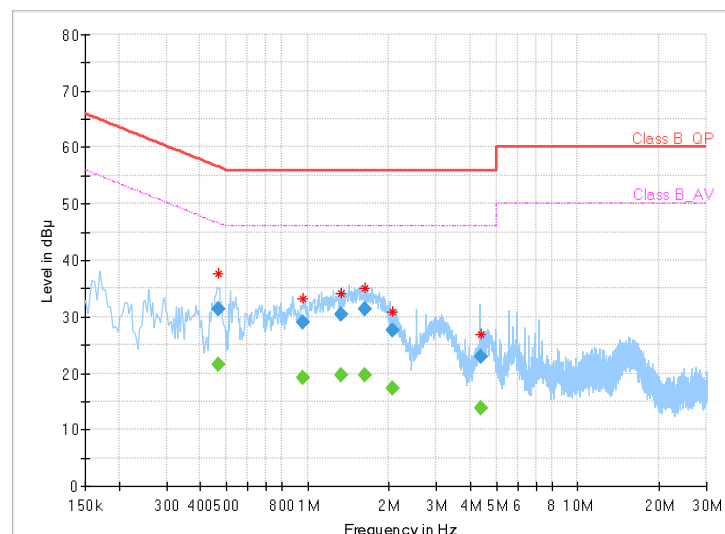
3. The emission levels of other frequencies were very low against the limit.

4. Margin value = Limit value - Emission level

5. Correction factor = Insertion loss + Cable loss

6. Emission Level = Correction Factor + Reading Value.

Full Spectrum





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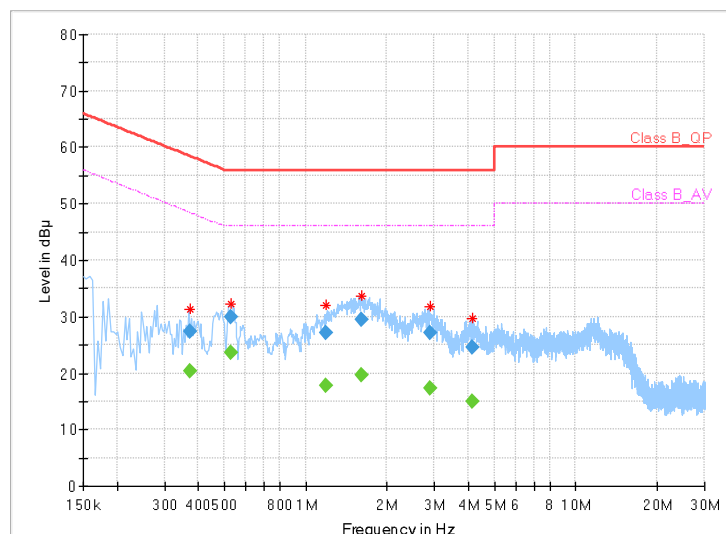
Test Report No.: W7L-P23080006RF02

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

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

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

Full Spectrum





3.2 RADIATED EMISSION MEASUREMENT

3.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

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

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

NOTE:

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



3.2.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
3m Semi-anechoic Chamber	ETS-LINDGREN	9m*6m*6m	Euroshieldpn-CT0001143-1216	May. 22, 23	May. 21,26
Bilog Antenna	ETS-LINDGREN	3143B	00161965	Feb. 18,23	Feb. 17,24
Horn Antenna	ETS-LINDGREN	3117	00168692	Feb. 18,23	Feb. 17,24
Horn Antenna (18GHz-40GHz)	N/A	QWH-SL-18-40-K-SG/QMS-00361	15433	Sep.04, 22	Sep.03, 23
Horn Antenna (18GHz-40GHz)	N/A	QWH-SL-18-40-K-SG/QMS-00361	15433	Sep.03, 23	Sep.02, 24
Test Software	E3	V 9.160323	N/A	N/A	N/A
Test Software	JS1120-3	3.2.06	N/A	N/A	N/A
10dB Attenuator	JFW/USA	50HF-010-SMA	N/A	May. 06,23	May. 05,24
MXE EMI Receiver	KEYSIGHT	N9038A-544	MY54450026	Mar. 28,23	Mar. 27,24
Signal Pre-Amplifier	EMSI	EMC 9135	980249	May. 06,23	May. 05,24
Signal Pre-Amplifier	EMSI	EMC 012645B	980257	May.10,23	May.09,24
Signal Pre-Amplifier	EMSI	EMC 184045B	980259	Feb. 17,23	Feb. 16,24
DC Source	Kikusui/JP	PMX18-5A	0000001	Aug. 12,22	Aug. 11,23
DC Source	Kikusui/JP	PMX18-5A	0000001	Aug. 11,23	Aug. 10,24
Power Meter	Anritsu	ML2495A	1506002	Feb. 14,23	Feb. 13,24
Power Sensor	Anritsu	MA2411B	1339352	Feb. 14,23	Feb. 13,24
Loop Antenna	Schwarzbeck	FMZB 1519B	00173	Sep.03,22	Sep.02,23
Loop Antenna	Schwarzbeck	FMZB 1519B	00173	Sep.02,23	Sep.01,24

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



3.2.3 TEST PROCEDURES

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

Note:

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

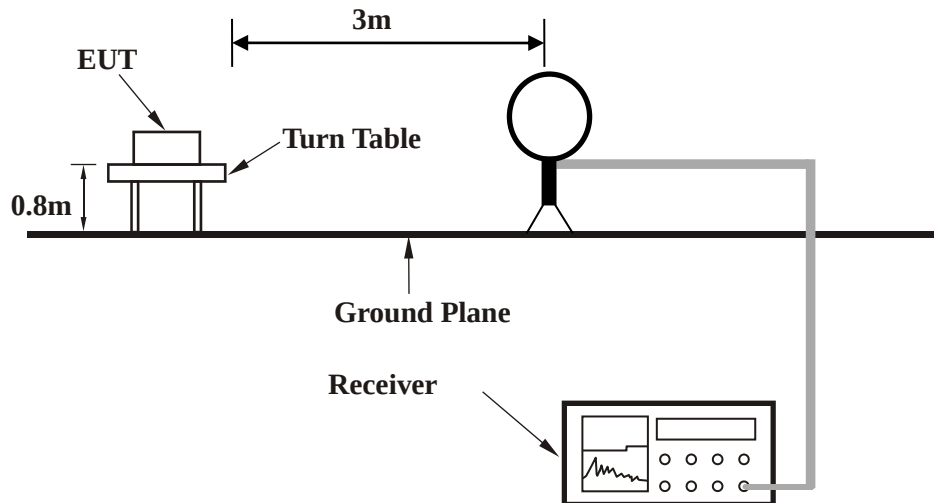


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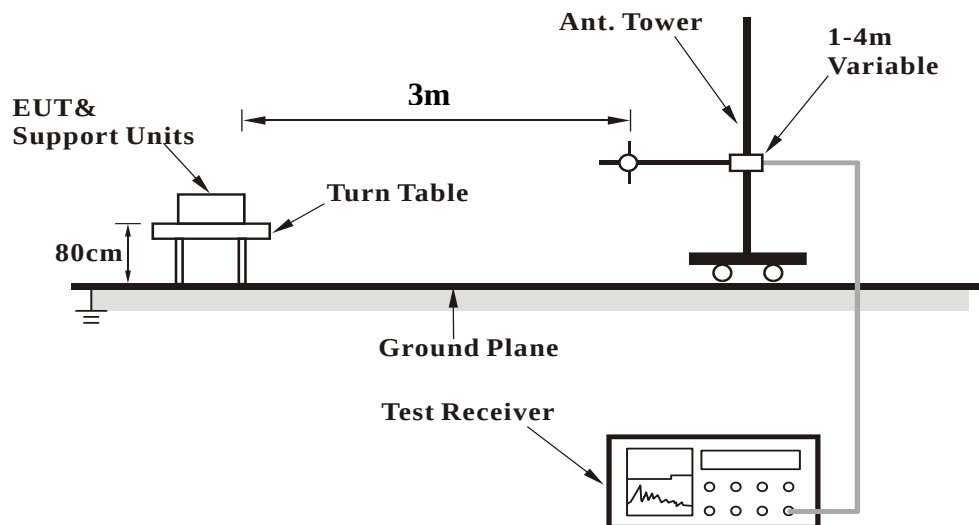
Test Report No.: W7L-P23080006RF02

3.2.5 TEST SETUP

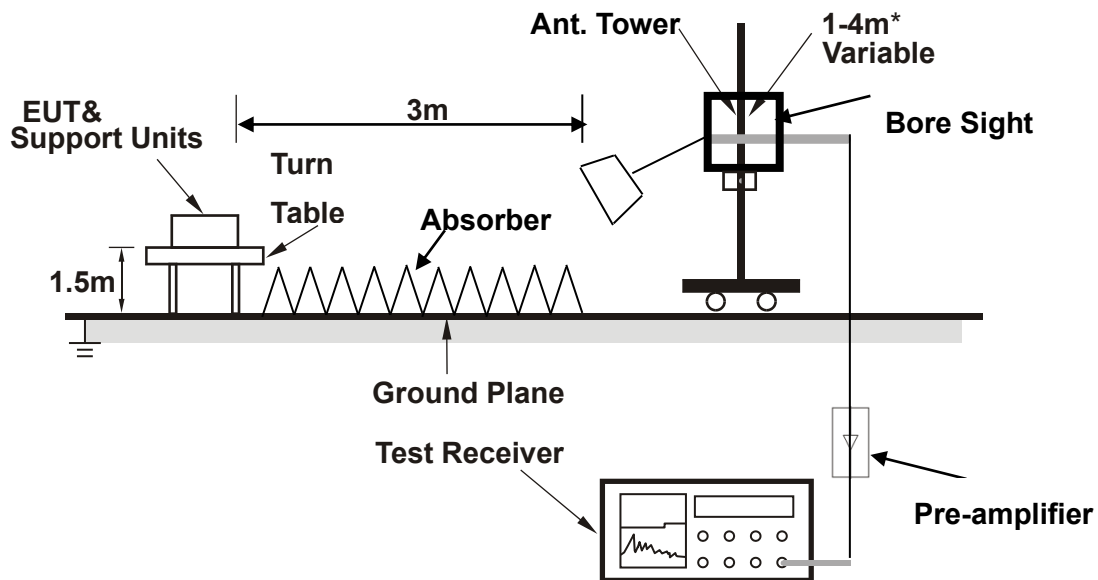
<Frequency Range 9KHz~30MHz >



< Frequency Range 30MHz~1GHz >



<Frequency Range above 1GHz>



Note: Above 1G is a directional antenna

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

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

3.2.6 EUT OPERATING CONDITIONS

- Set the EUT under full load condition and placed it 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.



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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:

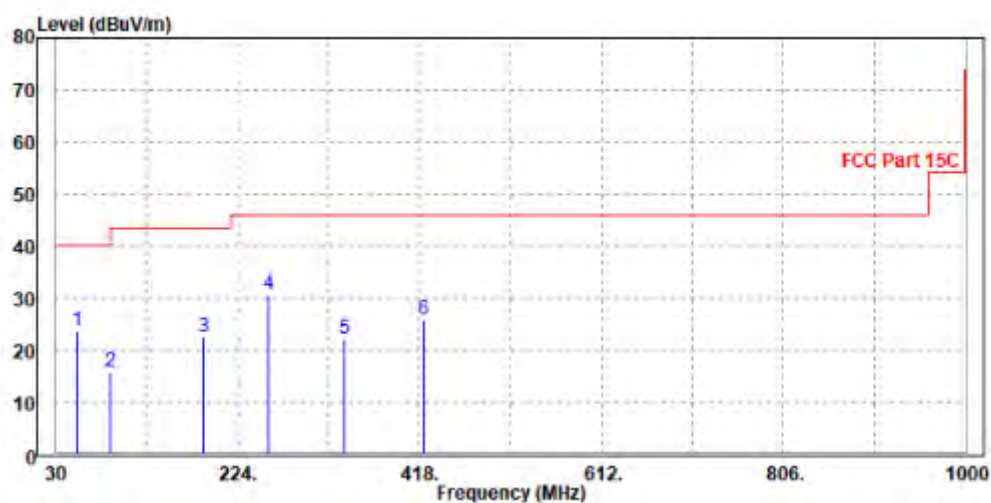
802.11g:

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
52.31	23.82	50.43	40	-16.18	9.97	0.41	36.99	153	175	QP
88.2	15.79	43.53	43.5	-27.71	8.68	0.51	36.93	180	305	QP
188.11	22.44	46.71	43.5	-21.06	11.36	0.72	36.35	106	55	QP
256.98	30.71	52.57	46	-15.29	13.57	0.84	36.27	128	191	QP
338.46	22.17	42.67	46	-23.83	14.85	0.97	36.32	158	64	QP
422.85	25.72	44.45	46	-20.28	16.63	1.11	36.47	126	111	QP

REMARKS:

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





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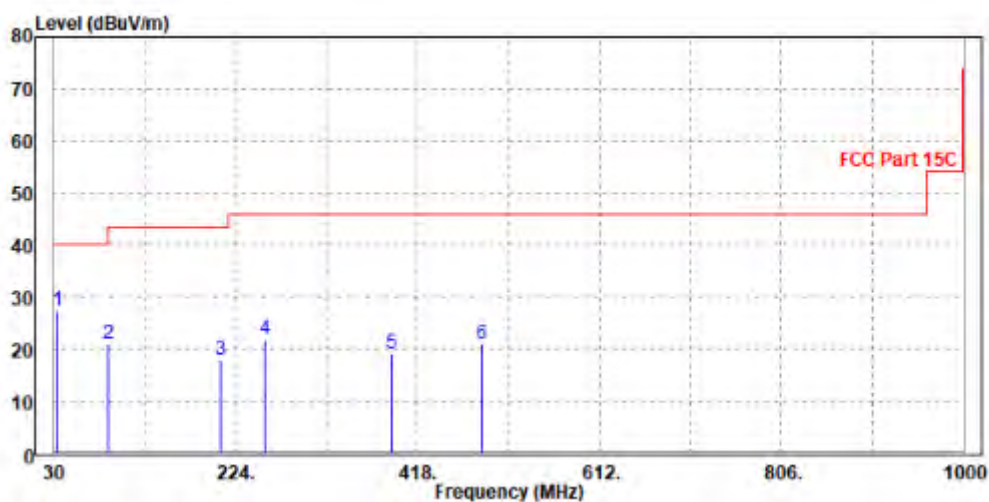
Test Report No.: W7L-P23080006RF02

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
33.88	27.29	45.98	40	-12.71	18.36	0.33	37.38	176	284	QP
88.2	20.88	48.88	43.5	-22.62	8.42	0.51	36.93	191	89	QP
207.51	17.82	41.69	43.5	-25.68	11.67	0.75	36.29	104	91	QP
256.01	21.82	44.48	46	-24.18	12.77	0.84	36.27	141	228	QP
390.84	19.13	38.39	46	-26.87	16.09	1.06	36.41	135	198	QP
486.87	20.88	38.84	46	-25.12	17.43	1.2	36.59	126	337	QP

REMARKS:

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





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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	48.69	56.73	74	-25.31	31.75	6.18	45.97	103	43	Peak
2390	41.96	50	54	-12.04	31.75	6.18	45.97	103	43	Average
2412	101.07	109	/	/	31.82	6.21	45.96	103	43	Peak
2412	99.97	107.9	/	/	31.82	6.21	45.96	103	43	Average
2483.5	50.79	58.36	74	-23.21	32.05	6.31	45.93	103	43	Peak
2483.5	43.01	50.58	54	-10.99	32.05	6.31	45.93	103	43	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	49.22	56.87	74	-24.78	32.14	6.18	45.97	100	155	Peak
2390	42.98	50.63	54	-11.02	32.14	6.18	45.97	100	155	Average
2412	97.58	105.14	/	/	32.19	6.21	45.96	100	155	Peak
2412	96.44	104	/	/	32.19	6.21	45.96	100	155	Average
2483.5	50.68	57.94	74	-23.32	32.36	6.31	45.93	100	155	Peak
2483.5	43.02	50.28	54	-10.98	32.36	6.31	45.93	100	155	Average

REMARKS:

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



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Test Report No.: W7L-P23080006RF02

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	50.37	58.41	74	-23.63	31.75	6.18	45.97	132	180	Peak
2390	42.08	50.12	54	-11.92	31.75	6.18	45.97	132	180	Average
2437	101.61	109.42	/	/	31.9	6.24	45.95	132	180	Peak
2437	100.36	108.17	/	/	31.9	6.24	45.95	132	180	Average
2483.5	49.95	57.52	74	-24.05	32.05	6.31	45.93	132	180	Peak
2483.5	42.92	50.49	54	-11.08	32.05	6.31	45.93	132	180	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	49.84	57.49	74	-24.16	32.14	6.18	45.97	123	102	Peak
2390	42.82	50.47	54	-11.18	32.14	6.18	45.97	123	102	Average
2437	97.16	104.62	/	/	32.25	6.24	45.95	123	102	Peak
2437	96.16	103.62	/	/	32.25	6.24	45.95	123	102	Average
2483.5	50.57	57.83	74	-23.43	32.36	6.31	45.93	123	102	Peak
2483.5	42.75	50.01	54	-11.25	32.36	6.31	45.93	123	102	Average

REMARKS:

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



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Test Report No.: W7L-P23080006RF02

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	50.04	58.08	74	-23.96	31.75	6.18	45.97	102	195	Peak
2390	41.53	49.57	54	-12.47	31.75	6.18	45.97	102	195	Average
2462	102.33	110.01	/	/	31.98	6.28	45.94	102	195	Peak
2462	101.35	109.03	/	/	31.98	6.28	45.94	102	195	Average
2483.5	50.32	57.89	74	-23.68	32.05	6.31	45.93	102	195	Peak
2483.5	42.98	50.55	54	-11.02	32.05	6.31	45.93	102	195	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	50.42	58.07	74	-23.58	32.14	6.18	45.97	135	102	Peak
2390	42.67	50.32	54	-11.33	32.14	6.18	45.97	135	102	Average
2462	97.48	104.83	/	/	32.31	6.28	45.94	135	102	Peak
2462	96.36	103.71	/	/	32.31	6.28	45.94	135	102	Average
2483.5	50.33	57.59	74	-23.67	32.36	6.31	45.93	135	102	Peak
2483.5	42.74	50	54	-11.26	32.36	6.31	45.93	135	102	Average

REMARKS:

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



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Test Report No.: W7L-P23080006RF02

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	57.93	65.97	74	-16.07	31.75	6.18	45.97	102	195	Peak
2390	47.37	55.41	54	-6.63	31.75	6.18	45.97	102	195	Average
2412	104.21	112.14	/	/	31.82	6.21	45.96	102	195	Peak
2412	96.94	104.87	/	/	31.82	6.21	45.96	102	195	Average
2483.5	50.56	58.13	74	-23.44	32.05	6.31	45.93	102	195	Peak
2483.5	42.63	50.2	54	-11.37	32.05	6.31	45.93	102	195	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	53.38	61.03	74	-20.62	32.14	6.18	45.97	100	155	Peak
2390	44.37	52.02	54	-9.63	32.14	6.18	45.97	100	155	Average
2412	100.57	108.13	/	/	32.19	6.21	45.96	100	155	Peak
2412	93.73	101.29	/	/	32.19	6.21	45.96	100	155	Average
2483.5	50.34	57.6	74	-23.66	32.36	6.31	45.93	100	155	Peak
2483.5	43.6	50.86	54	-10.4	32.36	6.31	45.93	100	155	Average

REMARKS:

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



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Test Report No.: W7L-P23080006RF02

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	49.12	57.16	74	-24.88	31.75	6.18	45.97	132	180	Peak
2390	42.65	50.69	54	-11.35	31.75	6.18	45.97	132	180	Average
2437	103.83	111.64	/	/	31.9	6.24	45.95	132	180	Peak
2437	97.02	104.83	/	/	31.9	6.24	45.95	132	180	Average
2483.5	51.1	58.67	74	-22.9	32.05	6.31	45.93	132	180	Peak
2483.5	44.34	51.91	54	-9.66	32.05	6.31	45.93	132	180	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	49.49	57.14	74	-24.51	32.14	6.18	45.97	123	102	Peak
2390	43.01	50.66	54	-10.99	32.14	6.18	45.97	123	102	Average
2437	100.11	107.57	/	/	32.25	6.24	45.95	123	102	Peak
2437	92.67	100.13	/	/	32.25	6.24	45.95	123	102	Average
2483.5	50.96	58.22	74	-23.04	32.36	6.31	45.93	123	102	Peak
2483.5	43.16	50.42	54	-10.84	32.36	6.31	45.93	123	102	Average

REMARKS:

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



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Test Report No.: W7L-P23080006RF02

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	51.6	59.64	74	-22.4	31.75	6.18	45.97	180	190	Peak
2390	42.79	50.83	54	-11.21	31.75	6.18	45.97	180	190	Average
2462	106.49	114.17	/	/	31.98	6.28	45.94	180	190	Peak
2462	99.02	106.7	/	/	31.98	6.28	45.94	180	190	Average
2483.5	63.82	71.39	74	-10.18	32.05	6.31	45.93	180	190	Peak
2483.5	50.41	57.98	54	-3.59	32.05	6.31	45.93	180	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	51.3	58.95	74	-22.7	32.14	6.18	45.97	110	145	Peak
2390	42.58	50.23	54	-11.42	32.14	6.18	45.97	110	145	Average
2462	99.2	106.55	/	/	32.31	6.28	45.94	110	145	Peak
2462	93.29	100.64	/	/	32.31	6.28	45.94	110	145	Average
2483.5	54.36	61.62	74	-19.64	32.36	6.31	45.93	110	145	Peak
2483.5	43.71	50.97	54	-10.29	32.36	6.31	45.93	110	145	Average

REMARKS:

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



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Test Report No.: W7L-P23080006RF02

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	58.6	66.64	74	-15.4	31.75	6.18	45.97	100	195	Peak
2390	47.92	55.96	54	-6.08	31.75	6.18	45.97	100	195	Average
2412	104	111.93	/	/	31.82	6.21	45.96	100	195	Peak
2412	96.62	104.55	/	/	31.82	6.21	45.96	100	195	Average
2483.5	50.07	57.64	74	-23.93	32.05	6.31	45.93	100	195	Peak
2483.5	43.22	50.79	54	-10.78	32.05	6.31	45.93	100	195	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	53.67	61.32	74	-20.33	32.14	6.18	45.97	100	155	Peak
2390	44.79	52.44	54	-9.21	32.14	6.18	45.97	100	155	Average
2412	100.79	108.35	/	/	32.19	6.21	45.96	100	155	Peak
2412	93.05	100.61	/	/	32.19	6.21	45.96	100	155	Average
2483.5	50.56	57.82	74	-23.44	32.36	6.31	45.93	100	155	Peak
2483.5	42.97	50.23	54	-11.03	32.36	6.31	45.93	100	155	Average

REMARKS:

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



**BUREAU
VERITAS**

Test Report No.: W7L-P23080006RF02

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	49.17	57.21	74	-24.83	31.75	6.18	45.97	132	180	Peak
2390	42.04	50.08	54	-11.96	31.75	6.18	45.97	132	180	Average
2437	102.94	110.75	/	/	31.9	6.24	45.95	132	180	Peak
2437	95.61	103.42	/	/	31.9	6.24	45.95	132	180	Average
2483.5	51.4	58.97	74	-22.6	32.05	6.31	45.93	132	180	Peak
2483.5	43.28	50.85	54	-10.72	32.05	6.31	45.93	132	180	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	49.56	57.21	74	-24.44	32.14	6.18	45.97	123	102	Peak
2390	42.82	50.47	54	-11.18	32.14	6.18	45.97	123	102	Average
2437	98.57	106.03	/	/	32.25	6.24	45.95	123	102	Peak
2437	91.37	98.83	/	/	32.25	6.24	45.95	123	102	Average
2483.5	50.47	57.73	74	-23.53	32.36	6.31	45.93	123	102	Peak
2483.5	43.53	50.79	54	-10.47	32.36	6.31	45.93	123	102	Average

REMARKS:

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



**BUREAU
VERITAS**

Test Report No.: W7L-P23080006RF02

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	49.56	57.6	74	-24.44	31.75	6.18	45.97	100	195	Peak
2390	42.18	50.22	54	-11.82	31.75	6.18	45.97	100	195	Average
2462	104.55	112.23	/	/	31.98	6.28	45.94	100	195	Peak
2462	97	104.68	/	/	31.98	6.28	45.94	100	195	Average
2483.5	61.59	69.16	74	-12.41	32.05	6.31	45.93	100	195	Peak
2483.5	50.3	57.87	54	-3.7	32.05	6.31	45.93	100	195	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	49.59	57.24	74	-24.41	32.14	6.18	45.97	118	135	Peak
2390	42.21	49.86	54	-11.79	32.14	6.18	45.97	118	135	Average
2462	99.39	106.74	/	/	32.31	6.28	45.94	118	135	Peak
2462	92.37	99.72	/	/	32.31	6.28	45.94	118	135	Average
2483.5	54.41	61.67	74	-19.59	32.36	6.31	45.93	118	135	Peak
2483.5	45.29	52.55	54	-8.71	32.36	6.31	45.93	118	135	Average

REMARKS:

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



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Test Report No.: W7L-P23080006RF02

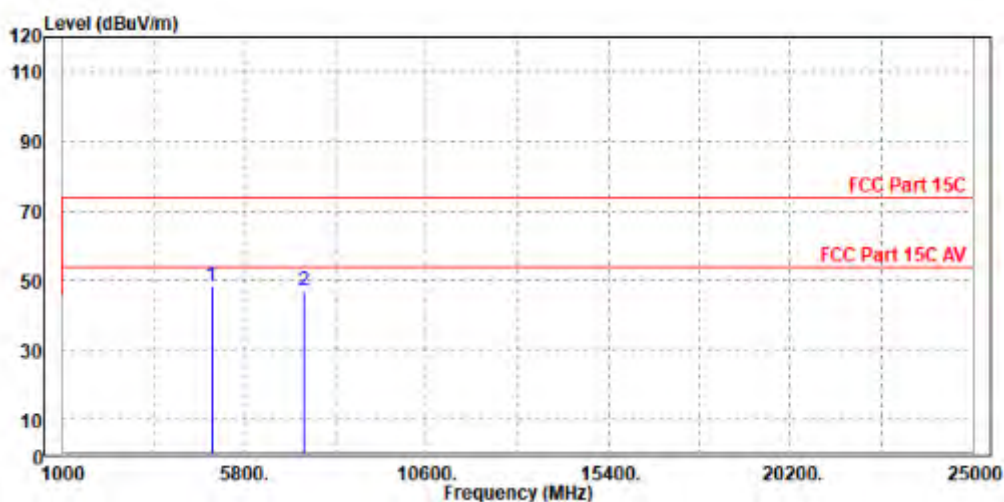
Worst case harmonic:

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	PP	4924.000	48.16	49.42	74.00	-25.84	-1.26	Peak	Horizontal
2		7384.000	47.17	45.25	74.00	-26.83	1.92	Peak	Horizontal



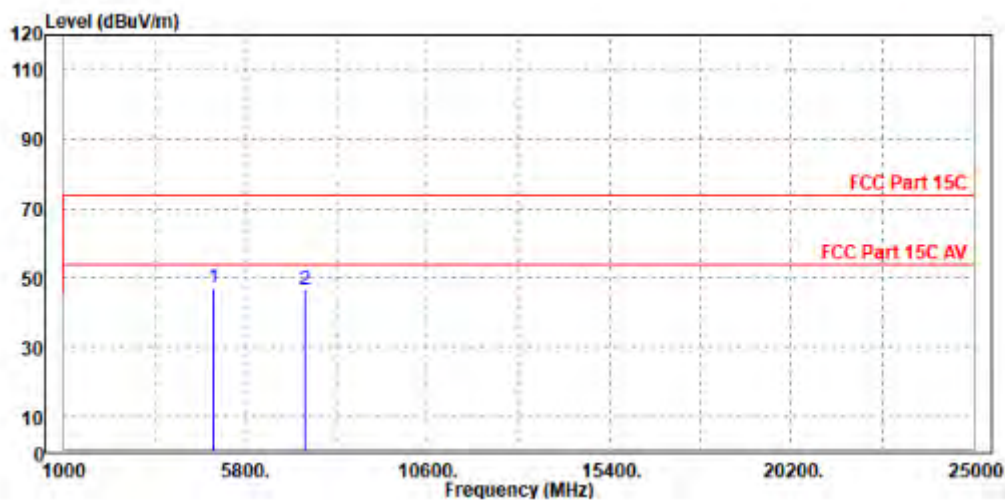


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VERITAS**

Test Report No.: W7L-P23080006RF02

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m		
1	PP 4936.000	47.08	48.12	74.00	-26.92	-1.04	Peak	Vertical
2	7386.000	46.32	44.34	74.00	-27.68	1.98	Peak	Vertical



REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
Margin value = Emission level – Limit value.
2. 2462MHz: Fundamental frequency.
3. For frequency above 18GHz, the emission was tested 20db below the limit so the data not recorded in the sheet.



**BUREAU
VERITAS**

Test Report No.: W7L-P23080006RF02

BELOW 1GHz WORST-CASE DATA:

30 MHz – 1GHz data:

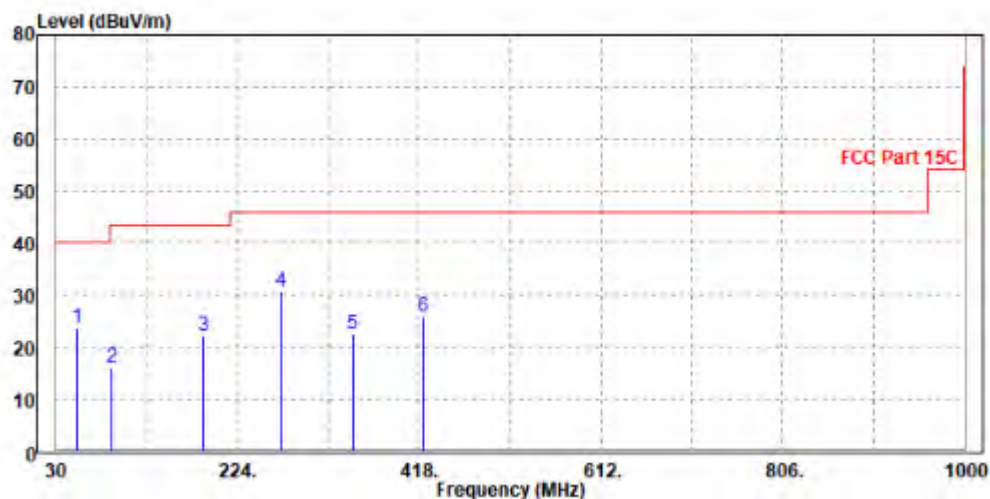
BT-LE _S2

CHANNEL	TX Channel 39	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
52.31	23.6	50.21	40	-16.4	9.97	0.41	36.99	114	273	QP
89.17	16.22	43.83	43.5	-27.28	8.8	0.51	36.92	186	199	QP
187.14	22.19	46.47	43.5	-21.31	11.36	0.72	36.36	156	355	QP
270.56	30.77	52.47	46	-15.23	13.71	0.86	36.27	156	93	QP
347.19	22.6	42.91	46	-23.4	15.04	0.99	36.34	110	112	QP
422.85	25.98	44.71	46	-20.02	16.63	1.11	36.47	193	311	QP

REMARKS:

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





**BUREAU
VERITAS**

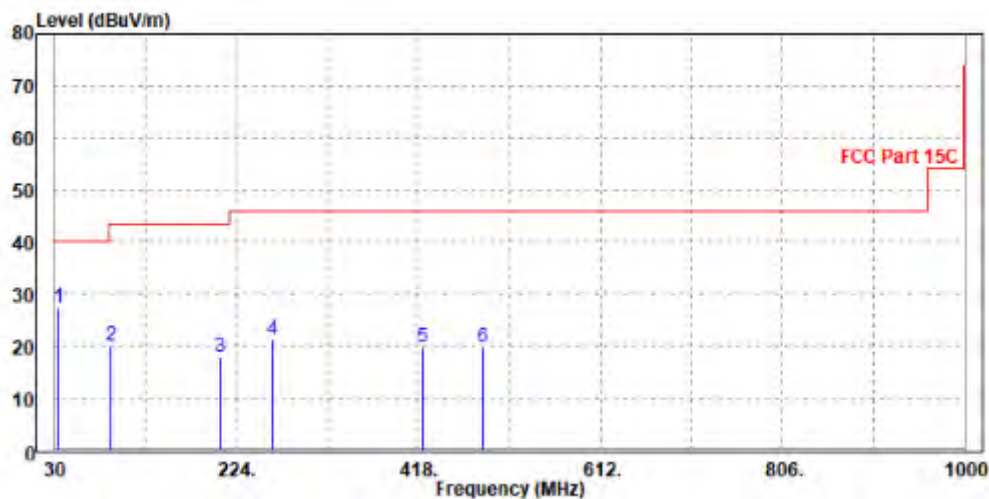
Test Report No.: W7L-P23080006RF02

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

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
33.88	27.42	46.11	40	-12.58	18.36	0.33	37.38	199	39	QP
89.17	20.18	48.07	43.5	-23.32	8.52	0.51	36.92	163	208	QP
205.57	17.94	41.86	43.5	-25.56	11.62	0.75	36.29	195	151	QP
262.8	21.25	43.71	46	-24.75	12.96	0.85	36.27	129	109	QP
422.85	19.77	38.53	46	-26.23	16.6	1.11	36.47	112	241	QP
486.87	19.85	37.81	46	-26.15	17.43	1.2	36.59	168	289	QP

REMARKS:

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





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VERITAS**

Test Report No.: W7L-P23080006RF02

ABOVE 1GHz TEST DATA

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

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

BT-LE _1M

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	49	57.04	74	-25	31.75	6.18	45.97	135	190	Peak
2390	41.44	49.48	54	-12.56	31.75	6.18	45.97	135	190	Average
2402	92.88	100.87	/	/	31.79	6.19	45.97	135	190	Peak
2402	92.3	100.29	/	/	31.79	6.19	45.97	135	190	Average
2483.5	50.03	57.6	74	-23.97	32.05	6.31	45.93	135	190	Peak
2483.5	42.3	49.87	54	-11.7	32.05	6.31	45.93	135	190	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	50.24	57.89	74	-23.76	32.14	6.18	45.97	110	157	Peak
2390	42.18	49.83	54	-11.82	32.14	6.18	45.97	110	157	Average
2402	88.95	96.57	/	/	32.16	6.19	45.97	110	157	Peak
2402	88.52	96.14	/	/	32.16	6.19	45.97	110	157	Average
2483.5	50.1	57.36	74	-23.9	32.36	6.31	45.93	110	157	Peak
2483.5	42.24	49.5	54	-11.76	32.36	6.31	45.93	110	157	Average

REMARKS:

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



**BUREAU
VERITAS**

Test Report No.: W7L-P23080006RF02

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	48.08	56.12	74	-25.92	31.75	6.18	45.97	135	190	Peak
2390	41.47	49.51	54	-12.53	31.75	6.18	45.97	135	190	Average
2440	95.67	103.46	/	/	31.91	6.25	45.95	135	190	Peak
2440	95.15	102.94	/	/	31.91	6.25	45.95	135	190	Average
2483.5	49.83	57.4	74	-24.17	32.05	6.31	45.93	135	190	Peak
2483.5	42.54	50.11	54	-11.46	32.05	6.31	45.93	135	190	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	51.08	58.73	74	-22.92	32.14	6.18	45.97	110	157	Peak
2390	42.55	50.2	54	-11.45	32.14	6.18	45.97	110	157	Average
2440	88.8	96.24	/	/	32.26	6.25	45.95	110	157	Peak
2440	88.46	95.9	/	/	32.26	6.25	45.95	110	157	Average
2483.5	51.14	58.4	74	-22.86	32.36	6.31	45.93	110	157	Peak
2483.5	42.87	50.13	54	-11.13	32.36	6.31	45.93	110	157	Average

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
Margin value = Emission level – Limit value.
2. 2440MHz: Fundamental frequency.