

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:	2312CRNCCL
FCC ID:	2AFZZNCCL
Date of tests:	Oct. 16, 2023 ~ Nov. 22, 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 Chao Wu Engineer / Mobile Department	Approved by Peibo Sun Manager / Mobile Department
 Date: Nov. 22, 2023	 Date: Nov. 22, 2023

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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Test Report No.: W7L-P23100008RF02

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
W7L-P23100008RF02	Original release	Nov. 22, 2023



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Test Report No.: W7L-P23100008RF02

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	LAB
15.207	AC Power Conducted Emission	Compliance	A
15.205 15.209	Radiated Emissions	Compliance	A
15.247(d)	Out of band Emission Measurement	Compliance	A
15.247(a)(2)	6dB bandwidth	Compliance	A
15.247(b)	Conducted Output power	Compliance	A
15.247(e)	Power Spectral Density	Compliance	A
15.203	Antenna Requirement	Compliance	A

Note : Except RSE, other data please refer to Appendix 1 (for WIFI-2.4G) and Appendix 2 (for BLE).

Test Lab Information Reference:

Lab A:

Huarui 7Layers High Technology (Suzhou) Co., Ltd.

Lab Address:

Tower N, Innovation Center, 88 Zhuyi Road, High-tech District, Suzhou City, Anhui Province

Accredited Test Lab Cert 6613.01

The FCC Site Registration No. is 434559; The Designation No. is CN1325.



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	2312CRNCCL
NOMINAL VOLTAGE	5Vdc (adapter or host equipment) 3.82Vdc (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: 289.07mW (Maximum) BT-LE: 2.04mW (Maximum)
ANTENNA TYPE	PIFA Antenna with 0.13dBi gain
HW VERSION	13510C3Y
SW VERSION	Android 14
IMEI	864532070015786/94 864532070015406/14 864532070023426/34 864532070023566/74 864532070033300/18
I/O PORTS	Refer to user's manual
CABLE SUPPLIED	USB cable: 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 test report.
4. Antenna gain and EUT conducted cable loss are provided by the customer, and the laboratory will record the results based on these items that involve these two parameters.



2.2 DESCRIPTION OF TEST MODES

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

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

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

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



2.2.1 CONFIGURATION OF SYSTEM UNDER TEST

Please see section 4 photographs of the test configuration for reference.

2.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis and antenna ports.

The worst case was found when positioned on Y axis for radiated emission. Following test modes were selected for the final test, and the final worst case is marked in boldface and recorded in the report:

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

Where **RE<1G**: Radiated Emission below 1GHz

RE≥1G: Radiated Emission above 1GHz

PLC: Power Line Conducted Emission

APCM: Antenna Port Conducted Measurement

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

RADIATED EMISSION TEST (BELOW 1GHz):

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)
802.11b	1 to 11	6	DSSS	1.0
BT-LE	0 to 39	19	GFSK	2.0

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

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

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

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

POWER LINE CONDUCTED EMISSION TEST

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

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)
802.11g	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).
- ☒ 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, 11	DSSS	1.0
802.11g	1 to 11	1, 11	OFDM	6.0
802.11n HT20	1 to 11	1, 11	OFDM	MCS0
BT-LE	0 to 39	0, 39	GFSK	0.125&0.5&1.0
BT-LE	1 to 38	1, 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	1, 19, 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 3.82 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 [%]
		ANT
WIFI 2.4GHz	11B	99.53
	11G	97.20
	11N20	97.01
BT LE	BT4.0	85.20
	BT5.0	57.45
	BTS2	97.26
	BTS8	91.20

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	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	102749	Feb.25,22	Feb.24,24
ELEKTRA test software	Rohde&Schwarz	ELEKTRA	NA	N/A	N/A
LISN network	Rohde&Schwarz	ENV216	102640	Feb.17,22	Feb.16,24
CABLE	Rohde&Schwarz	W61.01	N/A	Apr.28,23	Oct.27,23
CABLE	Rohde&Schwarz	W61.01	N/A	Oct.27,23	Apr.26,24
CABLE	Rohde&Schwarz	W601	N/A	Apr.28,23	Oct.27,23
CABLE	Rohde&Schwarz	W601	N/A	Oct.27,23	Apr.26,24

NOTE:

1. The test was performed in CE shielded room.

2. The calibration interval of the above test instruments is 6 months or 24 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.



3.1.3 TEST PROCEDURES

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

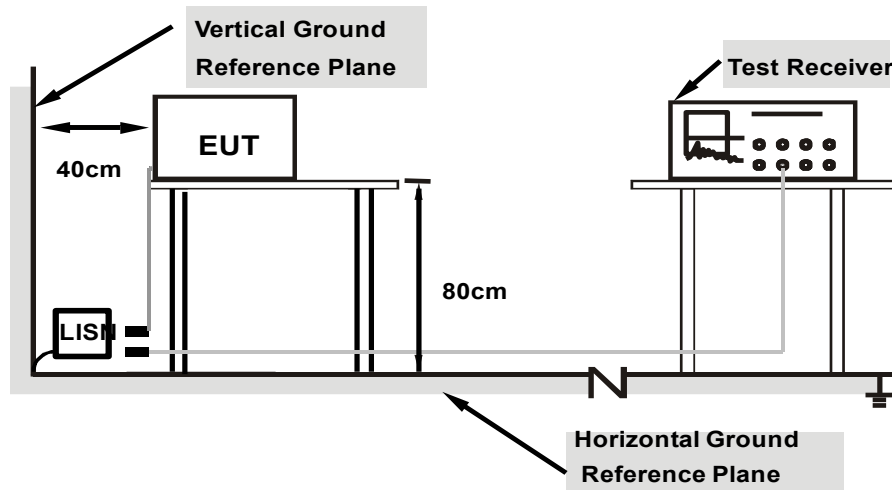
NOTE: All modes of operation were investigated and the worst-case emissions are reported.

3.1.4 DEVIATION FROM TEST STANDARD

No deviation.



3.1.5 TEST SETUP



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

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

3.1.6 EUT OPERATING CONDITIONS

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



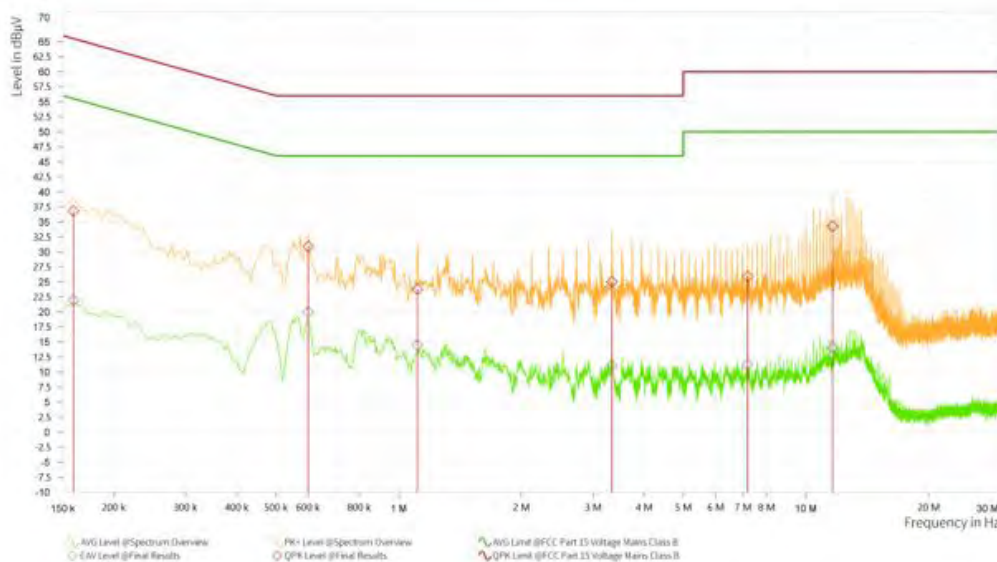
3.1.7 TEST RESULTS

CONDUCTED WORST-CASE DATA:

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

Ref	Frequency [MHz]	QPK Level [dBuV]	QPK Limit [dBuV]	QPK Margin [dB]	CAV Level [dBuV]	CAV: AVG Limit [dBuV]	CAV Margin [dB]	Correction [dB]	Line	Meas. BW [kHz]
1	0.159	36.77	65.52	28.75	21.93	55.52	33.59	12.46	L1	9,000
1	0.600	30.88	56.00	25.12	19.92	46.00	26.08	11.75	L1	9,000
1	1.113	23.76	56.00	32.24	14.45	46.00	31.55	11.75	L1	9,000
1	3.341	25.01	56.00	30.99	11.06	46.00	34.94	11.78	L1	9,000
1	7.193	25.91	60.00	34.09	11.28	50.00	38.72	11.81	L1	9,000
1	11.639	34.25	60.00	25.75	14.09	50.00	35.91	11.84	L1	9,000

- 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.





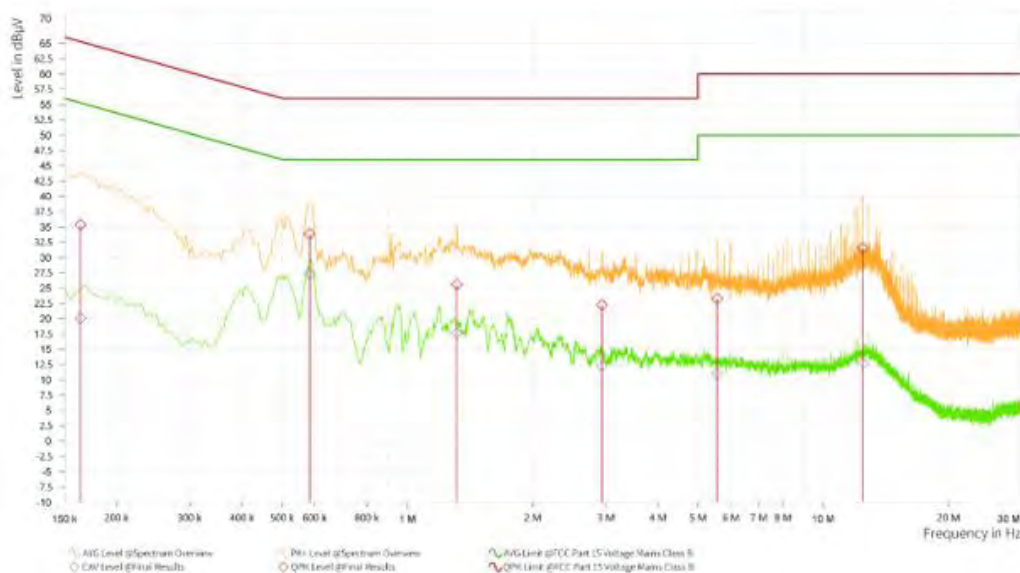
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Test Report No.: W7L-P23100008RF02

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		

Re	Frequency [MHz]	QPK Level [dBuV]	QPK Limit [dBuV]	QPK Margin [dB]	CAV Level [dBuV]	CAV: AVG Limit [dBuV]	CAV Margin [dB]	Correction [dB]	Line	Meas. BW [kHz]
1	0.164	35.37	65.28	29.91	20.06	55.28	35.22	12.17	N	9.000
1	0.582	33.86	56.00	22.14	27.32	46.00	18.68	12.77	N	9.000
1	1.316	25.62	56.00	30.38	17.64	46.00	28.36	12.74	N	9.000
1	2.940	22.21	56.00	33.79	12.28	46.00	33.72	12.75	N	9.000
1	5.568	23.26	60.00	36.74	11.02	50.00	38.98	12.77	N	9.000
1	12.453	31.52	60.00	28.48	12.71	50.00	37.29	12.81	N	9.000

- 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.





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.
Pre-Amplifier	R&S	SCU18F1	100815	Aug.30,22	Aug.29,24
Pre-Amplifier	R&S	SCU08F1	101028	Sep.16,22	Sep.15,24
Signal Generator	R&S	SMB100A	182185	Feb.16,22	Feb.15,24
3m Fully-anechoic Chamber	TDK	9m*6m*6m	HRSW-SZ-EMC-01Chamber	Nov.25,22	Nov.24,25
3m Semi-anechoic Chamber	TDK	9m*6m*6m	HRSW-SZ-EMC-02Chamber	Nov.25,22	Nov.24,25
EMI TEST Receiver	R&S	ESW44	101973	Feb.25,22	Feb.24,24
Bilog Antenna	SCHWARZBECK	VULB 9163	1264	Feb.28,22	Feb.27,24
Horn Antenna	ETS-LINDGREN	3117	227836	Aug.22,22	Aug.21,24
Horn Antenna (18GHz-40GHz)	Steatite Q-par Antennas	QMS 00880	23486	Feb.23,22	Feb.22,24
Horn Antenna	Steatite Q-par Antennas	QMS 00208	23485	Aug.22,22	Aug.21,24
Loop Antenna	SCHWARZ	HFH2-Z2/Z2E	100976	Feb.23,22	Feb.22,24
WIDEBANDRADIO COMMUNICATION TESTER	R&S	CMW500	169399	Jun.27,22	Jun.26,24
Test Software	ELEKTRA	ELEKTRA4.32	N/A	N/A	N/A
Open Switch and Control Unit	R&S	OSP220	101964	N/A	N/A
DC Source	HYELEC	HY3010B	551016	Aug.31,22	Aug.30,24
Hygrothermograph	DELI	20210528	SZ014	Sep.06,22	Sep.05,24
6DB attenuator	Tonscend Technology Co., Ltd	N/A	23062787	N/A	N/A
PC	LENOVO	E14	HRSW0024	N/A	N/A
TMC-AMI18843A(CABLE)	R&S	HF290-NMNM-7.00M	N/A	N/A	N/A
TMC-AMI18843A(CABLE)	R&S	HF290-NMNM-4.00M	N/A	N/A	N/A
CABLE	R&S	W13.02	N/A	Apr.28,23	Oct.27,23
CABLE	R&S	W13.02	N/A	Oct.27,23	Apr.26,24
CABLE	R&S	W12.14	N/A	Apr.28,23	Oct.27,23
CABLE	R&S	W12.14	N/A	Oct.27,23	Apr.26,24

NOTE: 1. The calibration interval of the above test instruments is 6 months or 24 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 434559; The Designation No. is CN1325.



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.

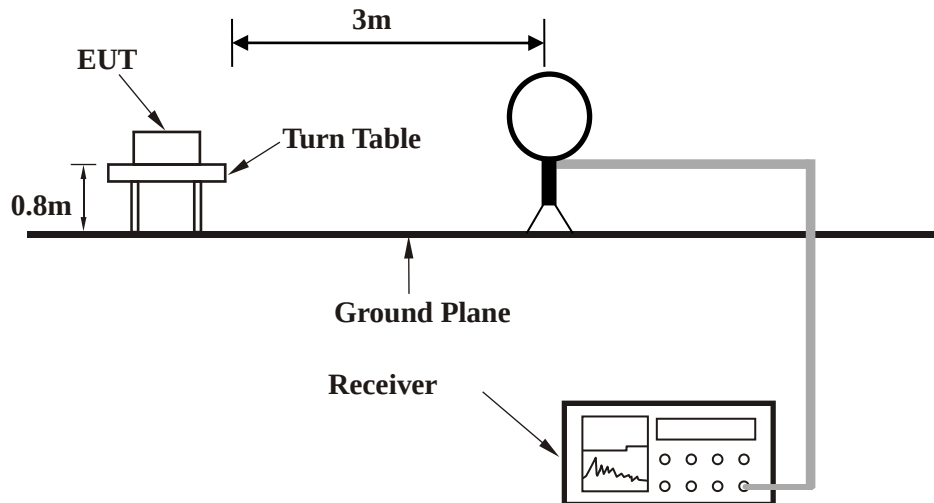
3.2.4 DEVIATION FROM TEST STANDARD

No deviation

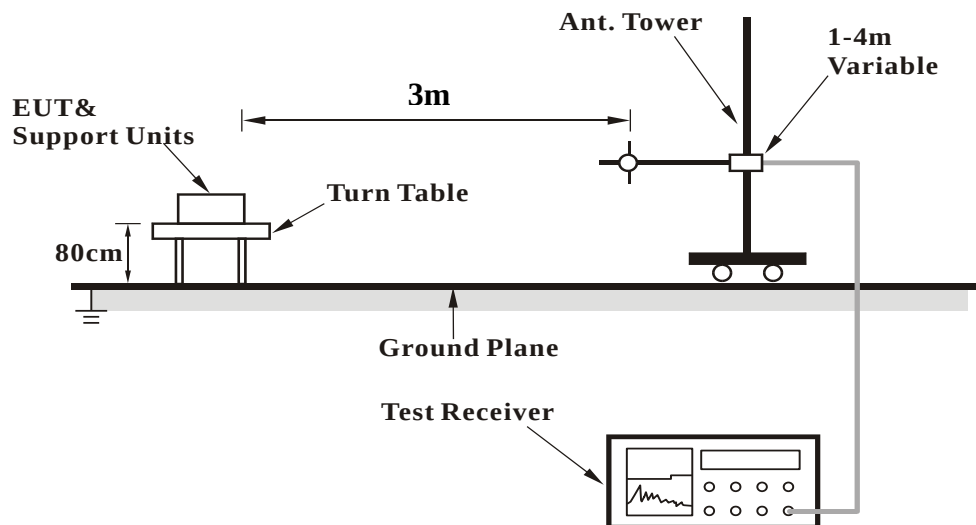


3.2.5 TEST SETUP

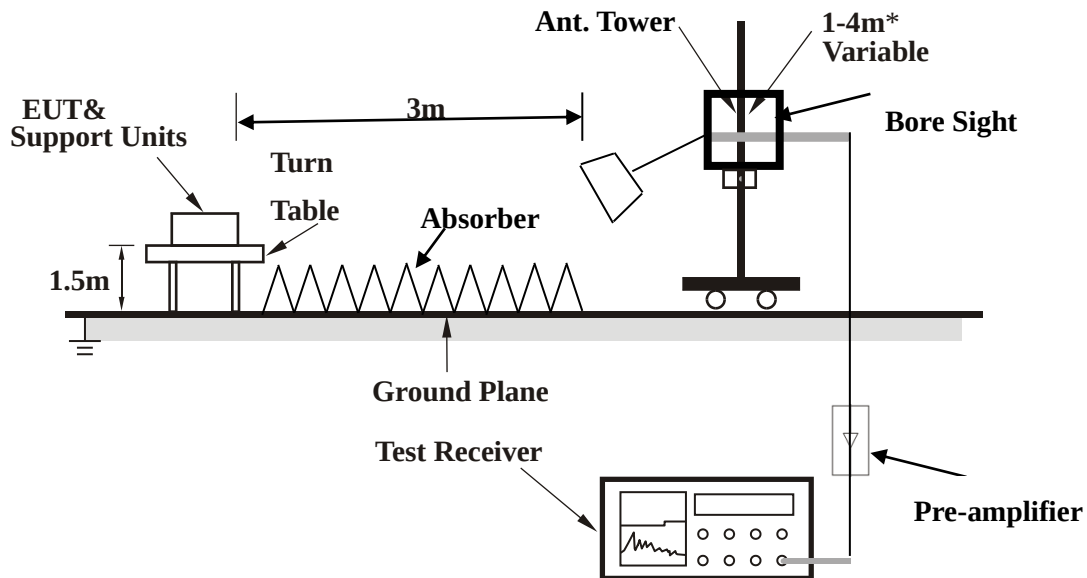
<Frequency Range 9KHz~30MHz >



< 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.



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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:

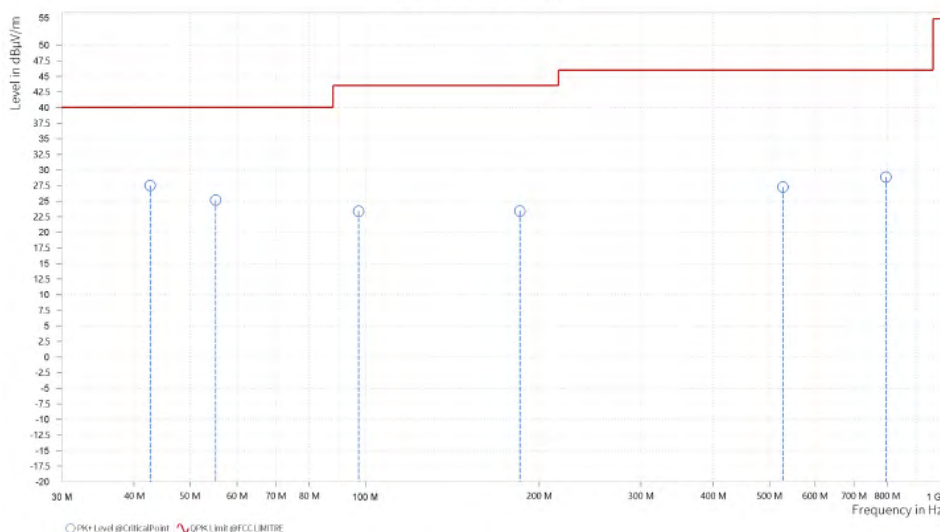
30 MHz – 1GHz data:

802.11b:

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+: QPK Limit [dBμV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	42.659	27.49	40.00	12.51	-10.45	H	359	1
1	55.123	25.15	40.00	14.85	-10.76	H	5	1
1	97.367	23.38	43.50	20.12	-12.73	H	236	1
1	185.103	23.43	43.50	20.07	-12.69	H	357.8	1
1	528.047	27.25	46.00	18.75	-4.35	H	1	1
1	795.718	28.86	46.00	17.14	-0.46	H	236	1

Spectrum Overview



REMARKS:

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



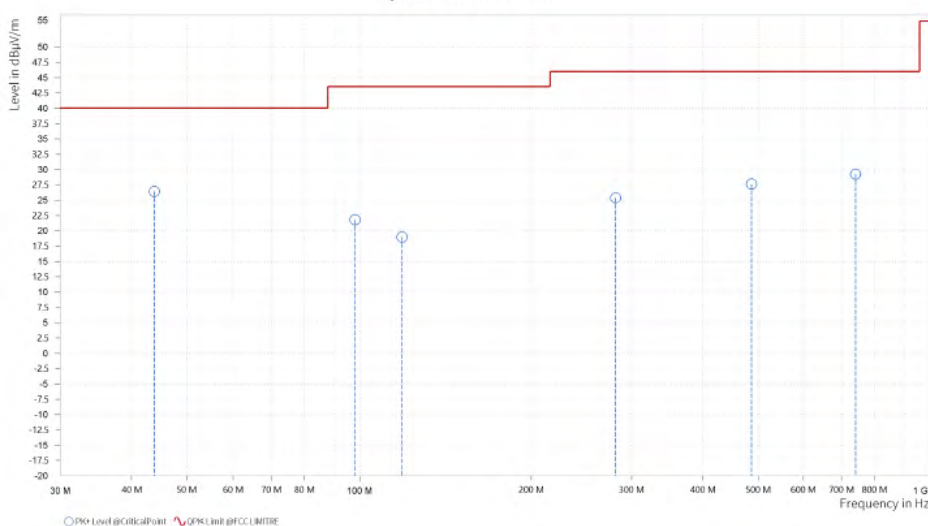
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Test Report No.: W7L-P23100008RF02

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+: QPK Limit [dBμV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	43.871	26.42	40.00	13.58	-10.38	V	295.8	1
1	98.240	21.81	43.50	21.69	-12.59	V	295.8	1
1	118.707	18.98	43.50	24.52	-13.68	V	295.8	1
1	281.182	25.36	46.00	20.64	-7.90	V	359.1	1
1	486.725	27.64	46.00	18.36	-4.60	V	147.6	1
1	741.544	29.24	46.00	16.76	-1.17	V	1	1

Spectrum Overview



REMARKS:

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



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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)

Rg	Frequency [MHz]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	2,387.560	33.87	54.00	20.13	7.08	H	290.2	2
1	2,390.000	33.74	54.00	20.26	7.08	H	290.2	2
1	2,411.360	97.57			7.17	H	74.6	1

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	2,387.840	34.17	74.00	39.83	7.08	H	355.1	2
1	2,390.000	33.63	74.00	40.37	7.08	H	355.1	2
1	2,411.360	101.09			7.17	H	285.4	2

Rg	Frequency [MHz]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	2,387.840	32.67	54.00	21.33	7.08	V	214.9	2
1	2,390.000	32.41	54.00	21.59	7.08	V	214.9	2
1	2,411.360	97.64			7.17	V	355	2

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	2,387.280	33.12	74.00	40.88	7.08	V	212.5	2
1	2,390.000	32.88	74.00	41.12	7.08	V	212.5	2
1	2,411.360	98.20			7.17	V	355.1	2

REMARKS:

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

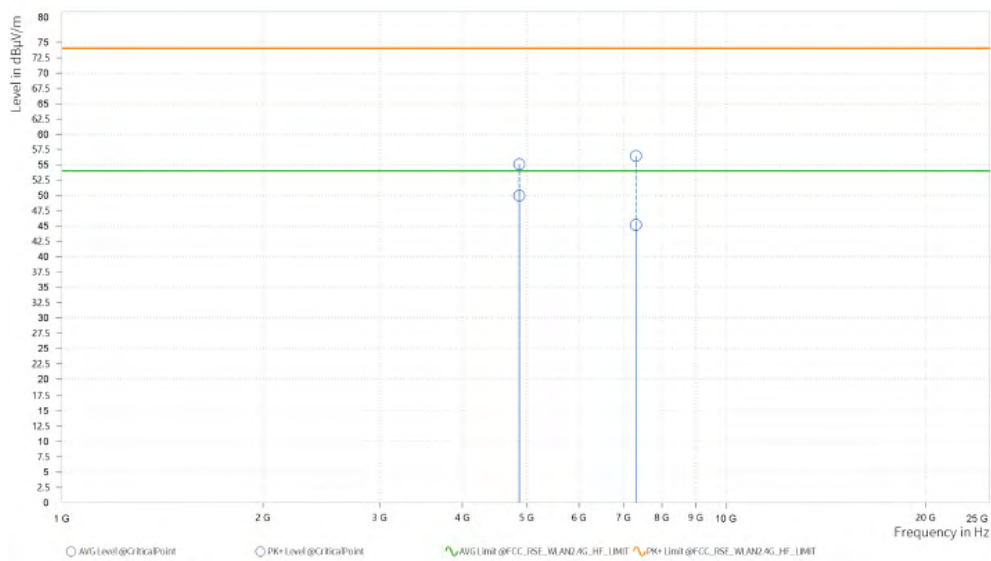


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Test Report No.: W7L-P23100008RF02

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

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	4,874.000	55.11	74.00	18.89	49.98	54.00	4.02	15.25	H	359.2	1
2	7,311.000	56.46	74.00	17.54	45.19	54.00	8.81	21.10	H	20.6	2



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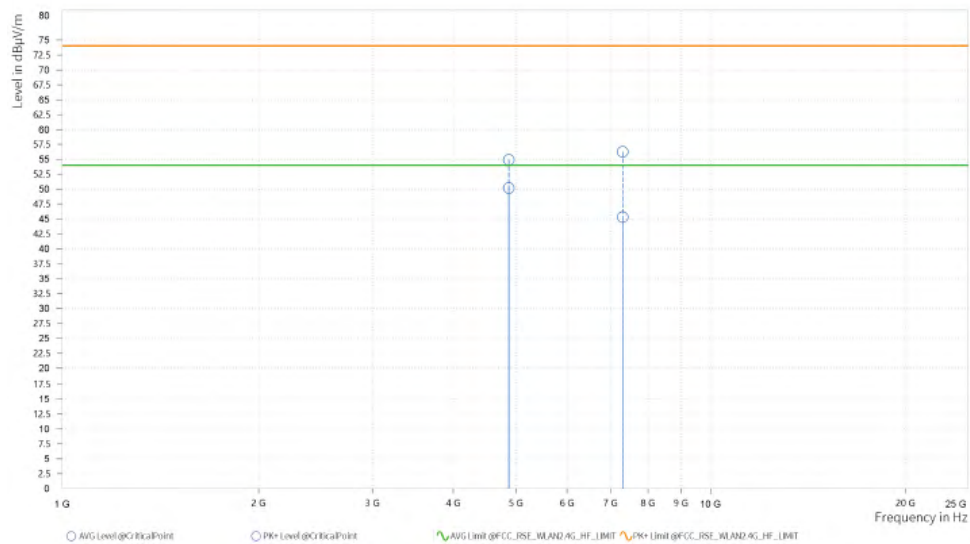
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Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	4,874.000	54.93	74.00	19.07	50.17	54.00	3.83	15.25	V	359	2
2	7,311.000	56.28	74.00	17.72	45.33	54.00	8.67	21.10	V	339.5	1



REMARKS:

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



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

Rg	Frequency [MHz]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	2,461.120	99.33			7.40	H	283	2
2	2,483.500	38.05	54.00	15.95	7.36	H	206.5	2
2	2,488.000	38.74	54.00	15.26	7.36	H	283	2

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	2,460.640	109.86			7.40	H	72.2	1
2	2,483.500	50.38	74.00	23.62	7.36	H	355.7	2
2	2,486.080	49.72	74.00	24.28	7.36	H	355.7	2

Rg	Frequency [MHz]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	2,462.560	95.16			7.39	V	210	2
2	2,483.500	34.92	54.00	19.08	7.36	V	210	2
2	2,486.560	34.54	54.00	19.46	7.36	V	210	2

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	2,463.520	98.35			7.39	V	72.2	1
2	2,483.500	47.53	74.00	26.47	7.36	V	214.8	2
2	2,488.000	49.15	74.00	24.85	7.36	V	214.8	2

REMARKS:

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



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Test Report No.: W7L-P23100008RF02

802.11g

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

Rg	Frequency [MHz]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	2,389.520	42.20	54.00	11.80	7.08	H	147.6	1
1	2,390.000	43.00	54.00	11.00	7.08	H	147.6	1
1	2,411.080	93.46			7.17	H	147.6	1

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	2,387.840	56.46	74.00	17.54	7.08	H	345.9	1
1	2,390.000	56.67	74.00	17.33	7.08	H	6.6	2
1	2,410.800	103.32			7.17	H	290.2	2

Rg	Frequency [MHz]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	2,388.960	36.07	54.00	17.93	7.08	V	216.1	2
1	2,390.000	37.25	54.00	16.75	7.08	V	216.1	2
1	2,411.080	87.53			7.17	V	359	2

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	2,387.840	54.85	74.00	19.15	7.08	V	145.2	1
1	2,390.000	55.62	74.00	18.38	7.08	V	145.2	1
1	2,413.320	100.69			7.19	V	5	1

REMARKS:

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

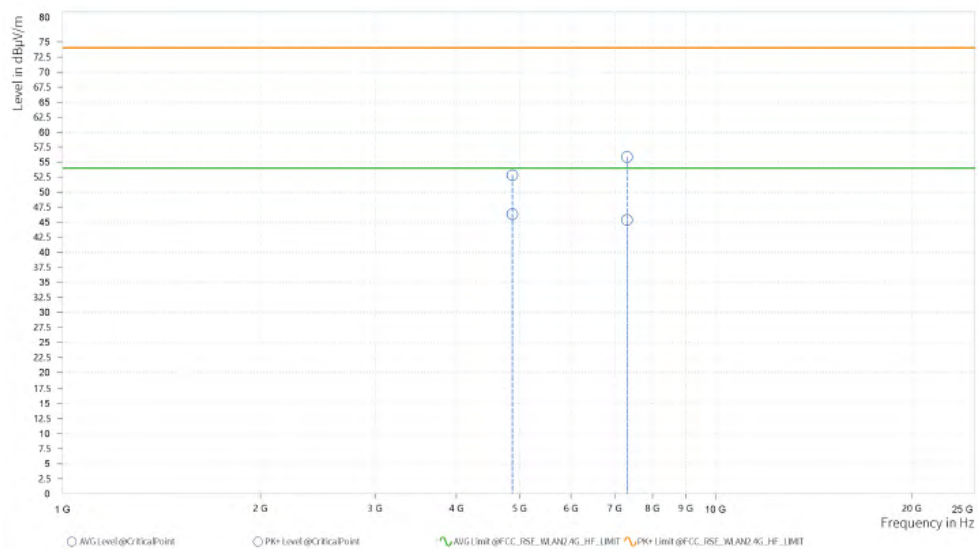


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CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	4,874.000	52.83	74.00	21.17	46.37	54.00	7.63	15.25	H	91.3	1
2	7,311.000	55.89	74.00	18.11	45.35	54.00	8.65	21.10	H	91.3	1



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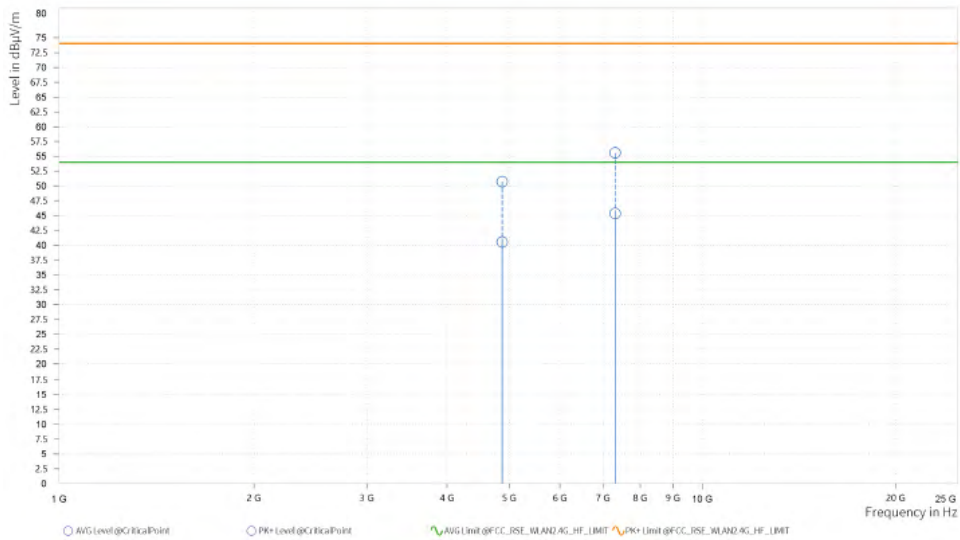
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Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	4,874.000	50.73	74.00	23.27	40.54	54.00	13.46	15.25	V	0.9	2
2	7,311.000	55.59	74.00	18.41	45.36	54.00	8.64	21.10	V	0.9	2



REMARKS:

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



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

Rg	Frequency [MHz]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	2,455.360	94.36			7.42	H	212.5	2
2	2,483.500	43.02	54.00	10.98	7.36	H	142.7	1
2	2,484.640	42.23	54.00	11.77	7.36	H	142.7	1

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	2,458.720	110.09			7.41	H	218.5	2
2	2,483.500	63.89	74.00	10.11	7.36	H	355.7	2
2	2,483.680	63.89	74.00	10.11	7.36	H	355.7	2

Rg	Frequency [MHz]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	2,456.800	86.39			7.42	V	142.8	1
2	2,483.500	36.30	54.00	17.70	7.36	V	142.8	1
2	2,484.160	36.04	54.00	17.96	7.36	V	69.8	1

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	2,458.240	99.79			7.41	V	145.5	2
2	2,483.500	58.12	74.00	15.88	7.36	V	218.4	2
2	2,484.640	55.33	74.00	18.67	7.36	V	218.4	2

REMARKS:

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



802.11n (20MHz)

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

Rg	Frequency [MHz]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	2,389.240	40.60	54.00	13.40	7.08	H	266.2	2
1	2,390.000	41.95	54.00	12.05	7.08	H	266.2	2
1	2,411.080	93.64			7.17	H	266.2	2

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	2,389.520	60.68	74.00	13.32	7.08	H	316.1	1
1	2,390.000	60.61	74.00	13.39	7.08	H	316.1	1
1	2,414.720	101.96			7.20	H	211.2	2

Rg	Frequency [MHz]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	2,389.520	34.25	54.00	19.75	7.08	V	109.6	2
1	2,390.000	34.84	54.00	19.16	7.08	V	109.6	2
1	2,410.800	86.80			7.17	V	275.8	2

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	2,389.240	59.86	74.00	14.14	7.08	V	205.3	2
1	2,390.000	60.13	74.00	13.87	7.08	V	205.3	2
1	2,411.920	99.70			7.18	V	72.2	1

REMARKS:

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

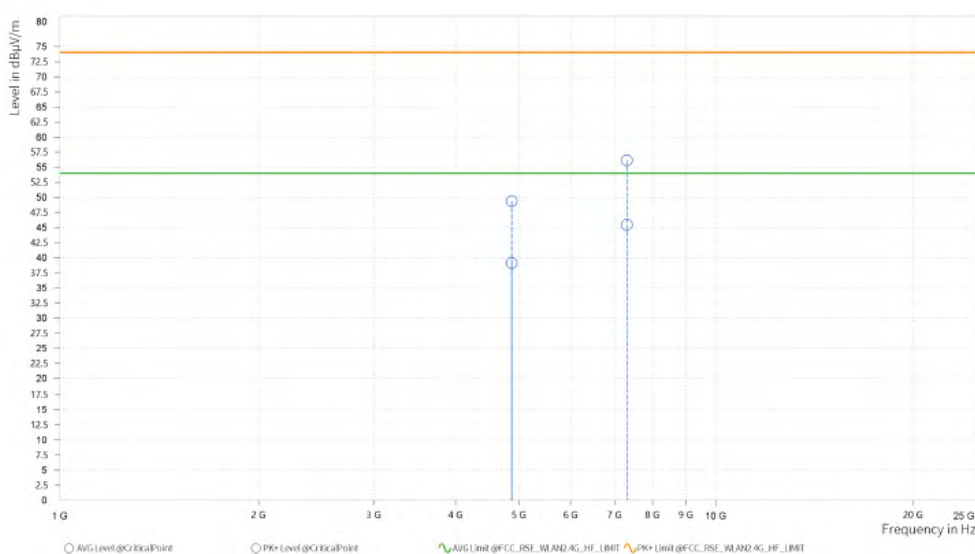


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Test Report No.: W7L-P23100008RF02

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

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	4,874.000	49.38	74.00	24.62	39.11	54.00	14.89	15.25	H	359	1
2	7,311.000	56.15	74.00	17.85	45.46	54.00	8.54	21.10	H	267.4	2



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Technology (Suzhou) Co., Ltd

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Suzhou City, Anhui Province

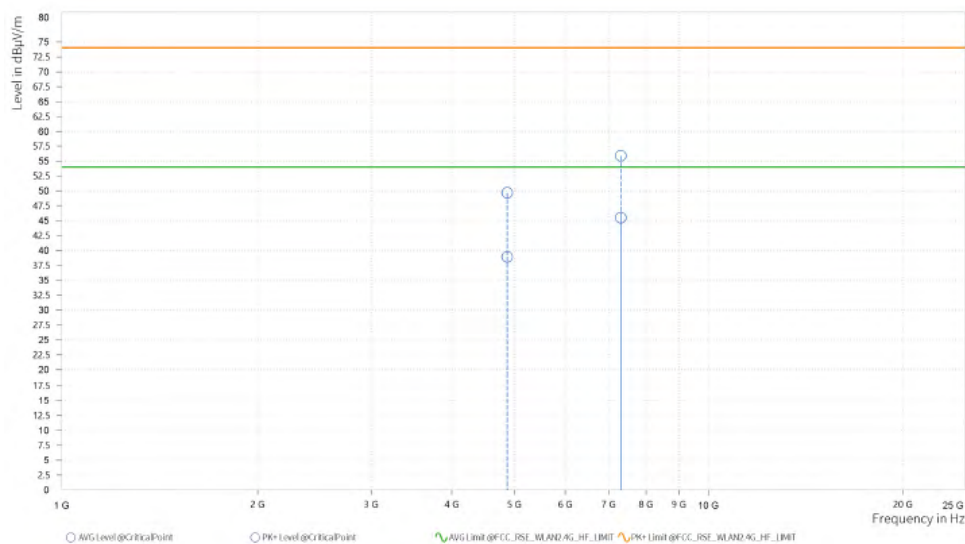
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**BUREAU
VERITAS**

Test Report No.: W7L-P23100008RF02

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	4,874.000	49.68	74.00	24.32	38.94	54.00	15.06	15.25	V	1	1
2	7,311.000	55.89	74.00	18.11	45.50	54.00	8.50	21.10	V	359.1	1



REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
2. Margin value = Limit value - Emission Level .
3. 2437MHz: Fundamental frequency.

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**BUREAU
VERITAS**

Test Report No.: W7L-P23100008RF02

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

Rg	Frequency [MHz]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	2,459.200	94.90			7.41	H	148.7	1
2	2,483.500	44.32	54.00	9.68	7.36	H	61.8	2
2	2,484.160	43.77	54.00	10.23	7.36	H	61.8	2

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	2,455.360	108.51			7.42	H	6.3	1
2	2,483.500	67.61	74.00	6.39	7.36	H	127.5	2
2	2,484.160	67.75	74.00	6.25	7.36	H	127.5	2

Rg	Frequency [MHz]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	2,459.200	87.63			7.41	V	61.8	2
2	2,483.500	40.11	54.00	13.89	7.36	V	211.2	2
2	2,484.160	39.78	54.00	14.22	7.36	V	211.2	2

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	2,464.000	101.32			7.39	V	212.4	2
2	2,483.500	61.98	74.00	12.02	7.36	V	212.4	2
2	2,484.160	63.78	74.00	10.22	7.36	V	212.4	2

REMARKS:

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



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VERITAS**

Test Report No.: W7L-P23100008RF02

BELOW 1GHz WORST-CASE DATA:

30 MHz – 1GHz data:

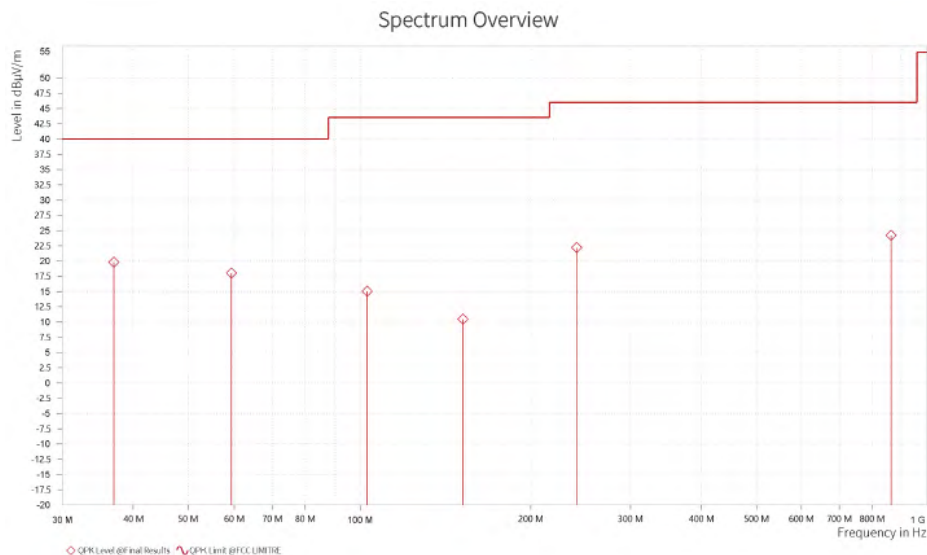
BT-LE _1M

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

Rg	Frequency [MHz]	QPK Level [dBμV/m]	QPK Limit [dBμV/m]	QPK Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]
1	36.984	19.82	40.00	20.18	-11.98	H	217.2	2	120.000
1	59.294	18.00	40.00	22.00	-11.80	H	1	1	120.000
1	102.847	15.03	43.50	28.47	-12.10	H	71.4	2	120.000
1	151.881	10.45	43.50	33.05	-15.22	H	5	1	120.000
1	240.927	22.18	46.00	23.82	-9.26	H	359	2	120.000
1	864.394	24.21	46.00	21.79	0.86	H	71.4	2	120.000

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 = Limit value - Emission Level



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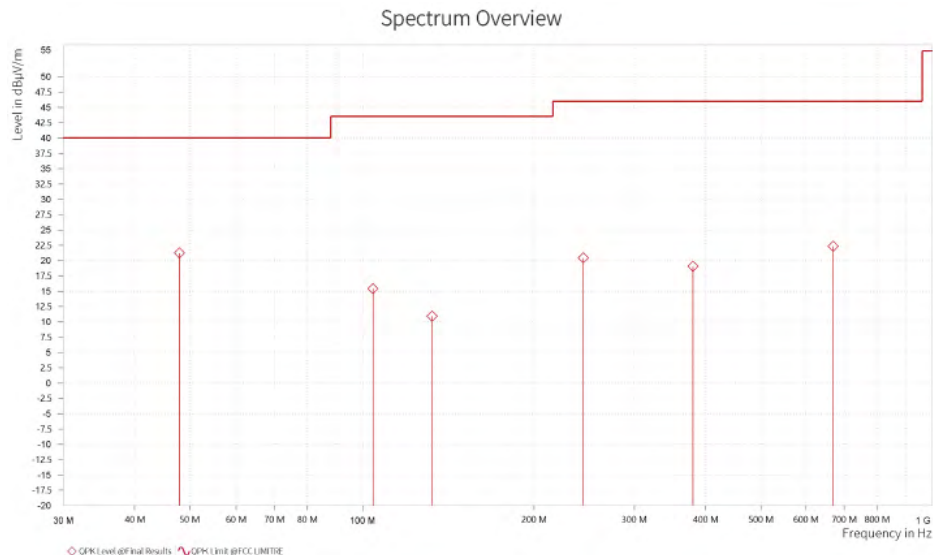
Test Report No.: W7L-P23100008RF02

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

Rg	Frequency [MHz]	QPK Level [dBμV/m]	QPK Limit [dBμV/m]	QPK Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]
1	47.945	21.21	40.00	18.79	-10.27	V	1	1	120.000
1	104.302	15.41	43.50	28.09	-11.99	V	4.9	1	120.000
1	132.481	10.93	43.50	32.57	-15.48	V	359	1	120.000
1	244.031	20.42	46.00	25.58	-9.17	V	4.9	1	120.000
1	380.170	19.04	46.00	26.96	-5.42	V	4.9	1	120.000
1	669.667	22.33	46.00	23.67	-2.54	V	359	1	120.000

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 = Limit value - Emission Level



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Test Report No.: W7L-P23100008RF02

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		

Rg	Frequency [MHz]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
5	2,382.200	31.64	54.00	22.36	7.09	H	204.9	1
5	2,390.000	31.67	54.00	22.33	7.08	H	359.1	1
5	2,402.150	91.31			7.09	H	1	1

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
5	2,355.600	47.02	74.00	26.98	7.11	H	2.2	2
5	2,389.800	46.79	74.00	27.21	7.08	H	304.5	2
5	2,402.150	96.98			7.09	H	1	1

Rg	Frequency [MHz]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
5	2,382.200	31.59	54.00	22.41	7.09	V	308.1	2
5	2,390.000	31.61	54.00	22.39	7.08	V	37.9	2
5	2,402.150	84.52			7.09	V	199.4	2

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
5	2,380.775	46.98	74.00	27.02	7.09	V	159.8	2
5	2,390.000	45.42	74.00	28.58	7.08	V	161.8	1
5	2,402.150	90.63			7.09	V	210.1	2

REMARKS:

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

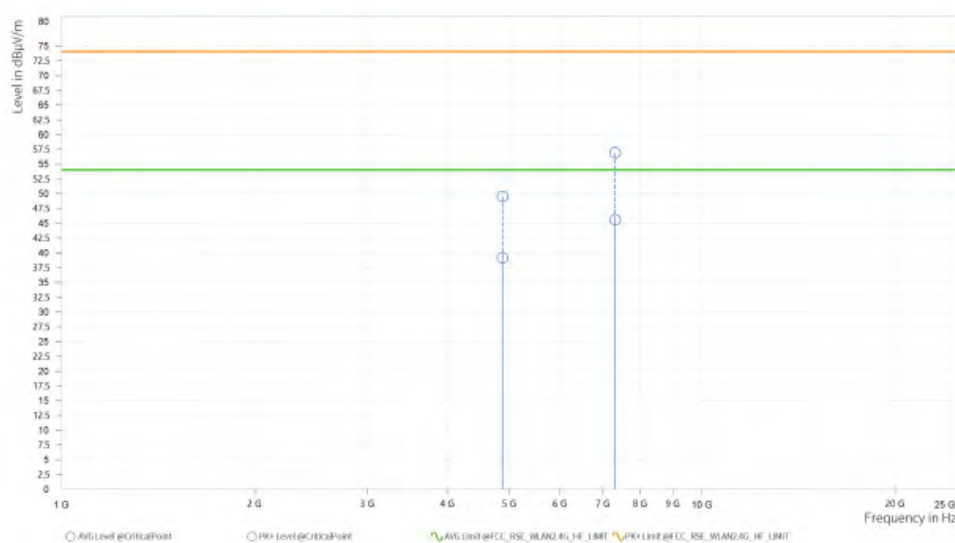


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VERITAS**

Test Report No.: W7L-P23100008RF02

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

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	4,880.000	49.50	74.00	24.50	39.15	54.00	14.85	15.30	H	0.9	2
2	7,320.000	56.92	74.00	17.08	45.60	54.00	8.40	21.10	H	0.9	2



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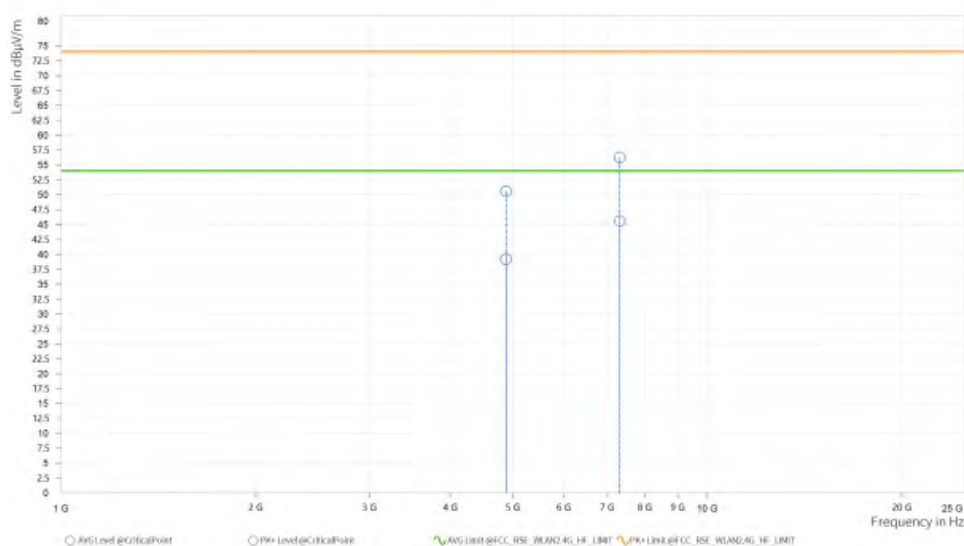
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Test Report No.: W7L-P23100008RF02

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	4,880.000	50.61	74.00	23.39	39.19	54.00	14.81	15.30	V	359	2
2	7,320.000	56.25	74.00	17.75	45.63	54.00	8.37	21.10	V	359.1	1



REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
4. Margin value = Limit value - Emission Level .
5. 2440MHz: Fundamental frequency.



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Test Report No.: W7L-P23100008RF02

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

Rg	Frequency [MHz]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
6	2,479.980	90.37			7.36	H	153.5	1
6	2,483.500	32.78	54.00	21.22	7.36	H	153.5	1
6	2,484.160	32.41	54.00	21.59	7.36	H	153.5	1

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
6	2,480.200	95.43			7.36	H	152.2	1
6	2,483.500	47.61	74.00	26.39	7.36	H	210.1	2
6	2,485.700	48.26	74.00	25.74	7.36	H	5.6	1

Rg	Frequency [MHz]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
6	2,479.980	83.50			7.36	V	85.4	1
6	2,483.500	32.13	54.00	21.87	7.36	V	85.4	1
6	2,483.720	32.04	54.00	21.96	7.36	V	85.4	1

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
6	2,479.760	87.34			7.36	V	155.8	1
6	2,483.500	46.65	74.00	27.35	7.36	V	359	2
6	2,486.140	47.45	74.00	26.55	7.36	V	345.9	1

REMARKS:

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



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VERITAS**

Test Report No.: W7L-P23100008RF02

BT-LE_2M

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

Rg	Frequency [MHz]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
5	2,383.500	31.63	54.00	22.37	7.08	H	359.1	1
5	2,390.000	31.60	54.00	22.40	7.08	H	359.1	1
5	2,404.000	79.12			7.10	H	161.8	1

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
5	2,370.000	46.38	74.00	27.62	7.10	H	84.6	2
5	2,390.000	45.86	74.00	28.14	7.08	H	245.9	2
5	2,405.000	95.61			7.11	H	139.2	1

Rg	Frequency [MHz]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
5	2,381.500	31.62	54.00	22.38	7.09	V	40.2	2
5	2,390.000	31.61	54.00	22.39	7.08	V	1	2
5	2,404.000	76.36			7.10	V	144.3	2

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
5	2,385.000	46.25	74.00	27.75	7.08	V	359.1	1
5	2,390.000	46.15	74.00	27.85	7.08	V	308.1	2
5	2,405.000	89.83			7.11	V	218.1	1

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
Margin value = Limit value - Emission Level .
2. 2404MHz: Fundamental frequency.

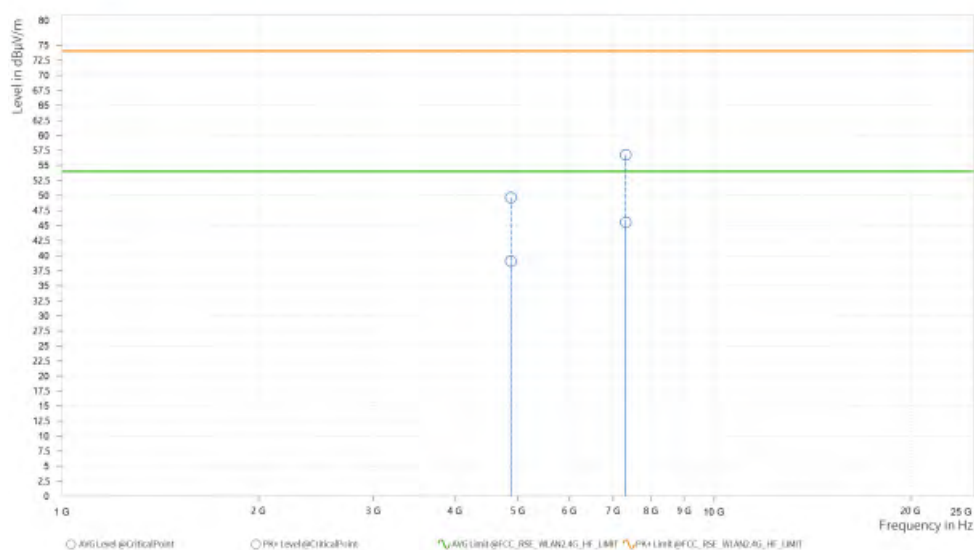


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Test Report No.: W7L-P23100008RF02

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

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	4,880.000	49.65	74.00	24.35	39.08	54.00	14.92	15.30	H	359	1
2	7,320.000	56.74	74.00	17.26	45.55	54.00	8.45	21.10	H	351.8	1



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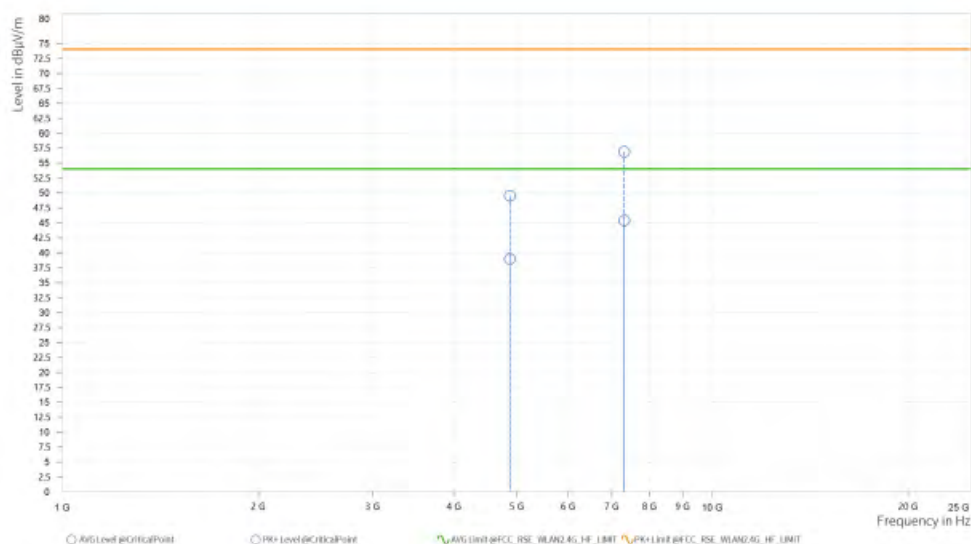
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Test Report No.: W7L-P23100008RF02

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	4,880.000	49.53	74.00	24.47	38.97	54.00	15.03	15.30	V	0.9	2
2	7,320.000	56.91	74.00	17.09	45.43	54.00	8.57	21.10	V	23.6	2



REMARKS:

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



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Test Report No.: W7L-P23100008RF02

CHANNEL	TX Channel 38	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

Rg	Frequency [MHz]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
6	2,477.860	77.15			7.35	H	355.6	2
6	2,483.500	32.01	54.00	21.99	7.36	H	1	2
6	2,484.070	31.92	54.00	22.08	7.36	H	359	2

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
6	2,478.400	92.07			7.35	H	355.7	2
6	2,483.500	46.30	74.00	27.70	7.36	H	211.3	2
6	2,489.470	46.89	74.00	27.11	7.37	H	73.4	1

Rg	Frequency [MHz]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
6	2,477.860	77.18			7.35	V	78.2	1
6	2,483.500	31.98	54.00	22.02	7.36	V	78.2	1
6	2,484.070	31.91	54.00	22.09	7.36	V	78.2	1

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
6	2,478.130	91.18			7.35	V	73.4	1
6	2,483.500	47.08	74.00	26.92	7.36	V	317.3	1
6	2,486.770	46.86	74.00	27.14	7.36	V	359	1

REMARKS:

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

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Test Report No.: W7L-P23100008RF02

BT-LE _S2

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

Rg	Frequency [MHz]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
5	2,381.250	31.61	54.00	22.39	7.09	H	305.7	2
5	2,390.000	31.68	54.00	22.32	7.08	H	3	2
5	2,402.150	90.60			7.09	H	160.7	1

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
5	2,358.925	46.86	74.00	27.14	7.10	H	249.4	2
5	2,390.000	45.65	74.00	28.35	7.08	H	214.5	1
5	2,402.625	95.77			7.09	H	89	1

Rg	Frequency [MHz]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
5	2,381.250	31.62	54.00	22.38	7.09	V	1.8	2
5	2,390.000	31.60	54.00	22.40	7.08	V	28.3	2
5	2,402.150	83.87			7.09	V	108.1	1

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
5	2,362.250	46.22	74.00	27.78	7.10	V	37.8	2
5	2,390.000	45.14	74.00	28.86	7.08	V	359	2
5	2,402.625	90.09			7.09	V	102.2	1

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
Margin value = Limit value - Emission Level .
2. 2402MHz: Fundamental frequency.

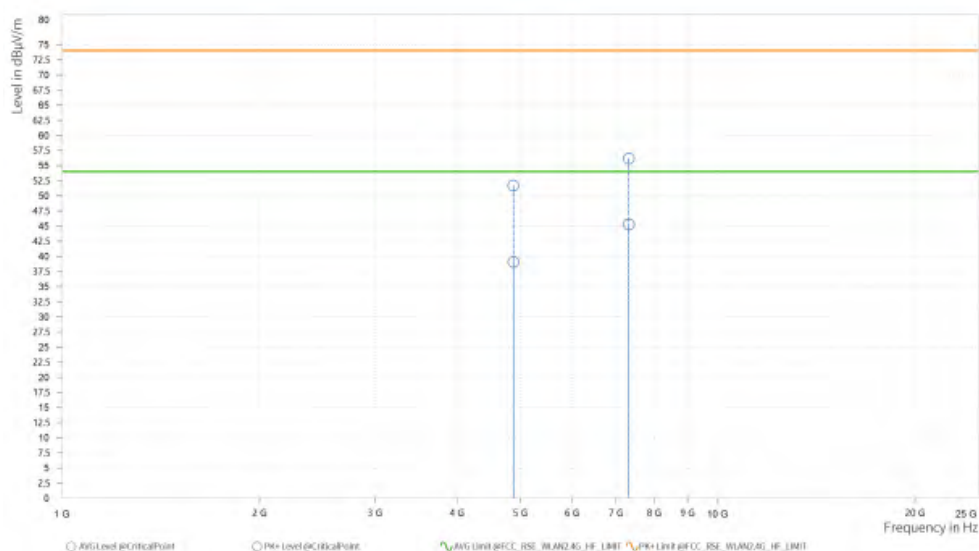


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Test Report No.: W7L-P23100008RF02

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

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	4,880.000	51.73	74.00	22.27	39.07	54.00	14.93	15.30	H	359	2
2	7,320.000	56.20	74.00	17.80	45.28	54.00	8.72	21.10	H	359	1



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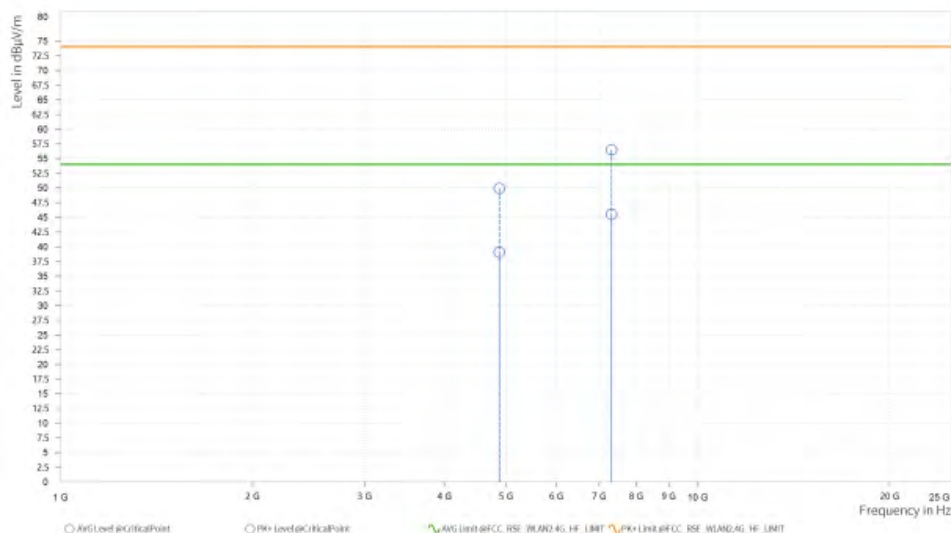
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**BUREAU
VERITAS**

Test Report No.: W7L-P23100008RF02

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	4,880.000	49.93	74.00	24.07	39.06	54.00	14.94	15.30	V	269.8	2
2	7,320.000	56.47	74.00	17.53	45.48	54.00	8.52	21.10	V	21.5	2



REMARKS:

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



**BUREAU
VERITAS**

Test Report No.: W7L-P23100008RF02

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

Rg	Frequency [MHz]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
6	2,479.980	92.72			7.36	H	167.8	1
6	2,483.500	32.98	54.00	21.02	7.36	H	167.8	1
6	2,483.940	32.72	54.00	21.28	7.36	H	167.8	1

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
6	2,479.760	94.90			7.36	H	157.1	1
6	2,483.500	51.93	74.00	22.07	7.36	H	31.9	2
6	2,484.380	51.95	74.00	22.05	7.36	H	31.9	2

Rg	Frequency [MHz]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
6	2,479.980	85.70			7.36	V	79.4	1
6	2,483.500	32.05	54.00	21.95	7.36	V	79.4	1
6	2,485.700	31.71	54.00	22.29	7.36	V	79.4	1

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
6	2,479.760	86.91			7.36	V	149.9	1
6	2,483.500	46.26	74.00	27.74	7.36	V	74.6	1
6	2,486.800	47.42	74.00	26.58	7.36	V	186.1	2

REMARKS:

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



**BUREAU
VERITAS**

Test Report No.: W7L-P23100008RF02

BT-LE _S8

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

Rg	Frequency [MHz]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
5	2,386.950	31.51	54.00	22.49	7.08	H	201.7	2
5	2,390.000	31.64	54.00	22.36	7.08	H	357	1
5	2,402.150	96.54			7.09	H	201.7	2

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
5	2,363.200	46.47	74.00	27.53	7.10	H	0.9	2
5	2,390.000	46.14	74.00	27.86	7.08	H	0.9	2
5	2,402.625	98.19			7.09	H	204.1	2

Rg	Frequency [MHz]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
5	2,386.475	31.54	54.00	22.46	7.08	V	269.4	1
5	2,390.000	31.58	54.00	22.42	7.08	V	1	2
5	2,402.150	91.03			7.09	V	105.7	1

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
5	2,383.150	46.59	74.00	27.41	7.09	V	50.7	1
5	2,390.000	46.20	74.00	27.80	7.08	V	308	2
5	2,402.625	92.08			7.09	V	103.3	1

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
Margin value = Limit value - Emission Level .
2. 2402MHz: Fundamental frequency.

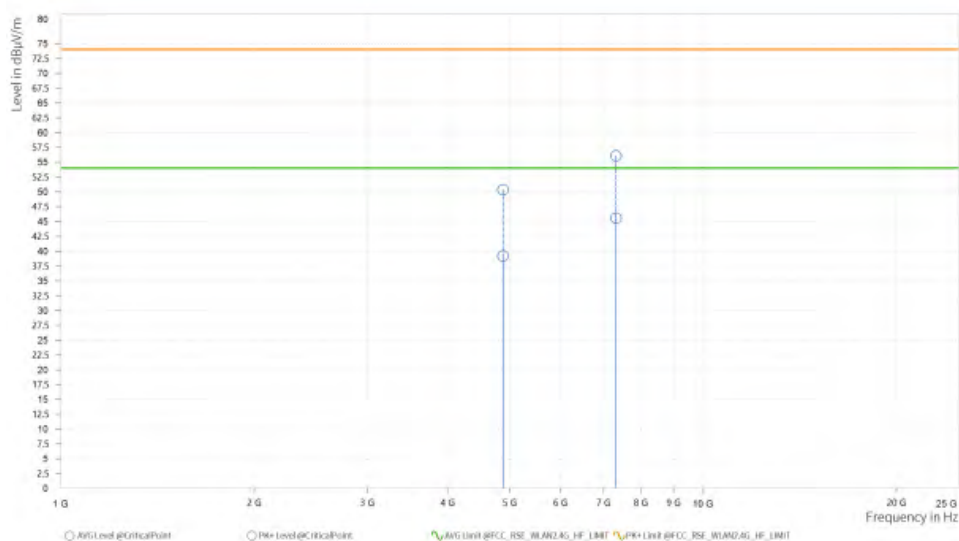


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VERITAS

Test Report No.: W7L-P23100008RF02

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

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	4,880.000	50.39	74.00	23.61	39.21	54.00	14.79	15.30	H	23.6	2
2	7,320.000	56.07	74.00	17.93	45.59	54.00	8.41	21.10	H	359	1



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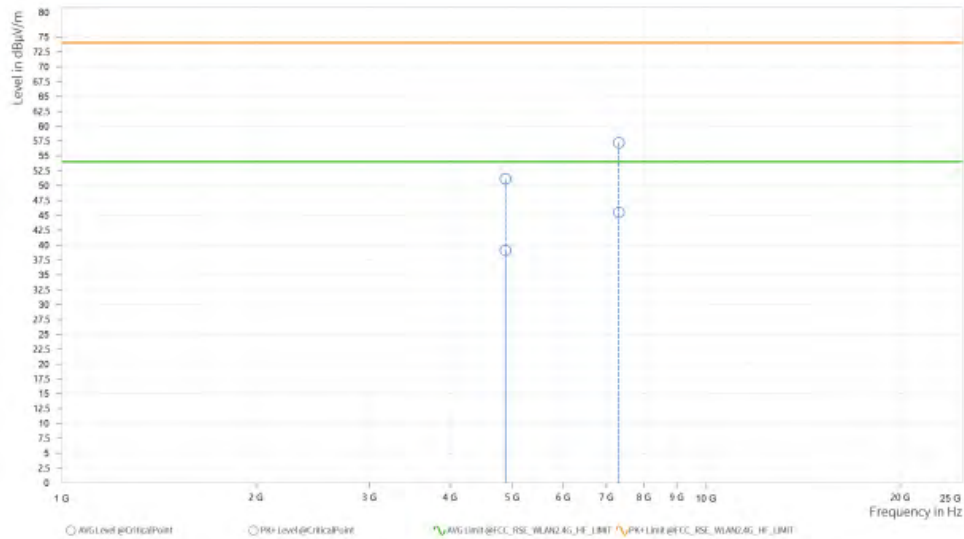
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Test Report No.: W7L-P23100008RF02

Rg	Frequency [MHz]	PK+ Level [dBμV/m]	PK+ Limit [dBμV/m]	PK+ Margin [dB]	AVG Level [dBμV/m]	AVG Limit [dBμV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	4,880.000	51.14	74.00	22.86	39.09	54.00	14.91	15.30	V	359	1
2	7,320.000	57.23	74.00	16.77	45.48	54.00	8.52	21.10	V	1	2



REMARKS:

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