



BUREAU  
VERITAS

Test Report No.: W7L-P22090011RF02



# VARIANT FCC TEST REPORT

## (Part 15, Subpart C)

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

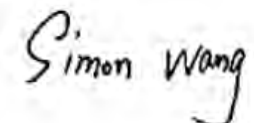

Manufacturer or Supplier:	HMD Global Oy
Address:	Bertel Jungin aukio 9,02600 Espoo,Finland
Product:	Tablet PC
Brand Name:	NOKIA
Model Name:	TA-1462
FCC ID:	2AJOTTA-1462
Date of tests:	May. 15, 2022 ~ Oct. 11, 2022

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

**FCC Part 15, Subpart C, Section 15.247**

**ANSI C63.10-2013**

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

Prepared by Simon Wang Engineer / Mobile Department	Approved by Luke Lu Manager / Mobile Department
 Date: Oct. 11, 2022	 Date: Oct. 11, 2022

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**BUREAU  
VERITAS**

Test Report No.: W7L-P22090011RF02

## RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
W7L-P22050002RF02	Original release	May. 31, 2022
W7L-P22090011RF02	Base on the original product changing BT/WIFI/GPS antenna and decreasing antenna gain. This report verify power, CE and re-test RSE, other test data is copied from the original report W7L-P22050002RF02.	Oct. 11, 2022



# 1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

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

- Note :
- 1.Except RSE , other data please refer to Appendix 1 (for WIFI-2.4G) and Appendix 2 (for BLE).
  2. Only the worse data were report.
  3. The power table are not updated,Because the same as for original case power in Verified power (excpet 11G CH11&11N20 CH11&11N40 CH09).



## 1.1 MEASUREMENT UNCERTAINTY

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

MEASUREMENT	UNCERTAINTY
AC Power Conducted emissions	±2.70dB
Radiated emissions (30MHz~1GMHz)	±4.98dB
Radiated emissions (1GMHz ~6GMHz)	±4.70dB
Radiated emissions (6GMHz ~18GMHz)	±4.60dB
Radiated emissions (18GMHz ~40GMHz)	±4.12dB
Conducted emissions	±4.01dB
Occupied Channel Bandwidth	±43.58KHz
Conducted Output power	±2.06dB
Power Spectral Density	±0.85 dB

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



## 2 GENERAL INFORMATION

### 2.1 GENERAL DESCRIPTION OF EUT

<b>PRODUCT</b>	Tablet PC
<b>BRAND NAME</b>	NOKIA
<b>MODEL NAME</b>	TA-1462
<b>NOMINAL VOLTAGE</b>	3.8Vdc (Li-ion, battery) 5Vdc (adapter)
<b>MODULATION</b>	DSSS, OFDM, GFSK
<b>TRANSMISSION RATE</b>	802.11b: 11/ 5.5/ 2.0 / 1.0 Mbps 802.11g: 54/ 48/ 36 / 24 / 18 / 9/ 6 Mbps 802.11n20: up to 72.2 Mbps 802.11n40: up to 150 Mbps BT_LE: 0.125 Mbps /0.5 Mbps /1 Mbps/2 Mbps
<b>OPERATING FREQUENCY</b>	2412-2462MHz for 11b/g/n(HT20/40) 2402-2480MHz for BT-LE(GFSK)
<b>MAX. OUTPUT POWER</b>	WLAN: 304.09mW (Maximum) BT-LE: 2.75mW (Maximum)
<b>ANTENNA TYPE</b>	MONOPOLE Antenna with -0.55dBi gain
<b>HW VERSION</b>	V0.2
<b>SW VERSION</b>	00WW_0_190
<b>I/O PORTS</b>	Refer to user's manual
<b>CABLE SUPPLIED</b>	USB cable: non-shielded cable, with w/o ferrite core, 1 meter Earphone: non-shielded cable, with w/o ferrite core, 1.5 meter



**NOTE:**

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

<b>MODULATION MODE</b>	<b>TX/RX FUNCTION</b>
<b>802.11b</b>	1TX /1RX
<b>802.11g</b>	1TX /1RX
<b>802.11n (20MHz)</b>	1TX /1RX
<b>802.11n (40MHz)</b>	1TX /1RX
<b>BT_LE(1MHz)</b>	1TX /1RX
<b>BT_LE(2MHz)</b>	1TX /1RX
<b>BT_LE(S2)</b>	1TX /1RX
<b>BT_LE(S8)</b>	1TX /1RX

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



**List of Accessory:**

<b>ACCESSORIES</b>	<b>BRAND</b>	<b>MANUFACTURER</b>	<b>MODEL</b>	<b>SPECIFICATION</b>
Battery	NOKIA	HUNAN GAOYUAN BATTERY CO.,LTD	WWT50	Capacity : 3.8 Vdc, 5100mAh
AC Adapter	NOKIA	ShenZhenBaiJunD aElectronic CO., LTD.	AD-010U	I/P: 110-240Vac, 0.35A, O/P: 5.0Vdc, 2.0A
Earphone	NOKIA	HUIZHOU JUWEI ELECTRONICS CO.,LTD	JWEP1237-W27H	Signal Line, 1.5meter
USB Cable	Saibao	Saibao(Jiangxi) Communication Industrial Co.,Ltd	SWT-A116A	Signal Line, 1.0meter
LCD Panel 1	HUAXIAN	China display Optoelectronics Technology (Huizhou) Company Limited	8019-3	LCD, 8",800 * 1280, Add-on, $\alpha$ - Si, Non-airgap, A3
LCD Panel 2	COE	CHONG QIAN COE DISPLAY TECHNOLOGY CO., LTD.	T080ET011-HD1- QT	LCD, 8",800 * 1280,
Front Camera 1	C&T	SHENZHEN C&T TECHNOLOGY CO.,LTD	BC12715 V0	2M
Rear Camera 1	C&T	SHENZHEN C&T TECHNOLOGY CO.,LTD	BB18716 V0	8M



## 2.2 DESCRIPTION OF TEST MODES

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

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

7 channels are provided for 802.11n (HT40):

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

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

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



### 2.2.1 CONFIGURATION OF SYSTEM UNDER TEST

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

### 2.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

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

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

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

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

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

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

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

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

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

**POWER LINE CONDUCTED EMISSION TEST**

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

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)
802.11n HT40	3 to 9	9	OFDM	MCS0



**BANDEDGE MEASUREMENT:**

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

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



**ANTENNA PORT CONDUCTED MEASUREMENT:**

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

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

**TEST CONDITION:**

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



### 2.3 Duty Cycle of Test Signal

Please Refer to Appendix1/2 Of this test report.

**WORST-CASE DATA:**

Measured Duty Cycle		
Mode		Duty Cycle [%]
		ANT0+1
WIFI 2.4GHz	11B	99.04
	11G	95.14
	11N20	93.50
	11N40	89.23
BT LE	BT4.0	87.23
	BT5.0	65.60
	BTS2	81.28
	BTS8	94.76

**Note:**

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



## 2.4 GENERAL DESCRIPTION OF APPLIED STANDARDS

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

**FCC Part 15, Subpart C, Section 15.247**

**KDB 558074 D01 DTS Meas Guidance v05r02**

**ANSI C63.10-2013**

Note :

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

## 2.5 DESCRIPTION OF SUPPORT UNITS

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

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

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





### 3 TEST TYPES AND RESULTS

#### 3.1 CONDUCTED EMISSION MEASUREMENT

##### 3.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

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

- NOTE:**
1. The lower limit shall apply at the transition frequencies.
  2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.
  3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

##### 3.1.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESR3	101900	Feb. 15,22	Feb. 14,23
EMC32 test software	Rohde&Schwarz	EMC32	NA	NA	NA
LISN network	Rohde&Schwarz	ENV216	101922	Mar. 04,22	Mar. 03,23

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



### 3.1.3 TEST PROCEDURES

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

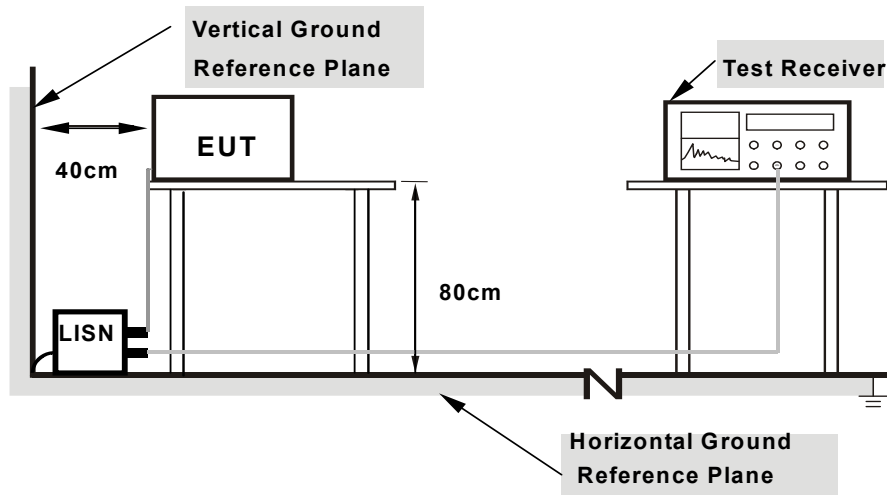
**NOTE:** All modes of operation were investigated and the worst-case emissions are reported.

### 3.1.4 DEVIATION FROM TEST STANDARD

No deviation.



### 3.1.5 TEST SETUP



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

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

### 3.1.6 EUT OPERATING CONDITIONS

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



**3.1.7 TEST RESULTS**

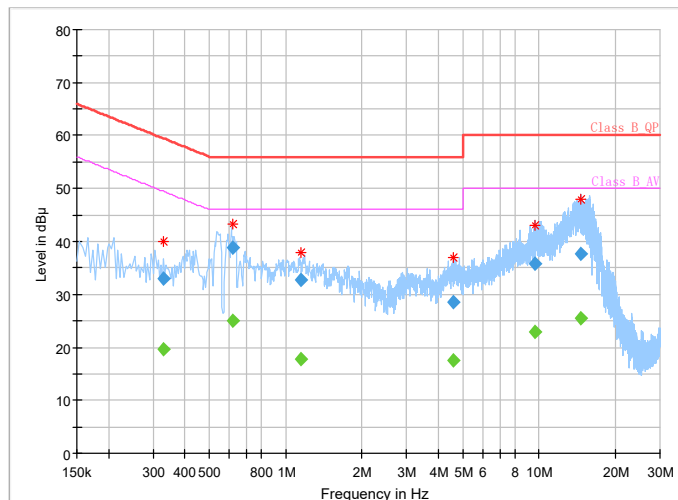
**CONDUCTED WORST-CASE DATA:**

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

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.328000	---	19.74	49.50	29.76	L1	ON	9.7
0.328000	32.99	---	59.50	26.51	L1	ON	9.7
0.616000	---	25.02	46.00	20.98	L1	ON	9.7
0.616000	38.78	---	56.00	17.22	L1	ON	9.7
1.148000	---	17.88	46.00	28.12	L1	ON	9.7
1.148000	32.65	---	56.00	23.35	L1	ON	9.7
4.576000	---	17.50	46.00	28.50	L1	ON	9.7
4.576000	28.50	---	56.00	27.50	L1	ON	9.7
9.664000	---	22.92	50.00	27.08	L1	ON	9.7
9.664000	35.76	---	60.00	24.24	L1	ON	9.7
14.612000	---	25.52	50.00	24.48	L1	ON	9.8
14.612000	37.57	---	60.00	22.43	L1	ON	9.8

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

Full Spectrum



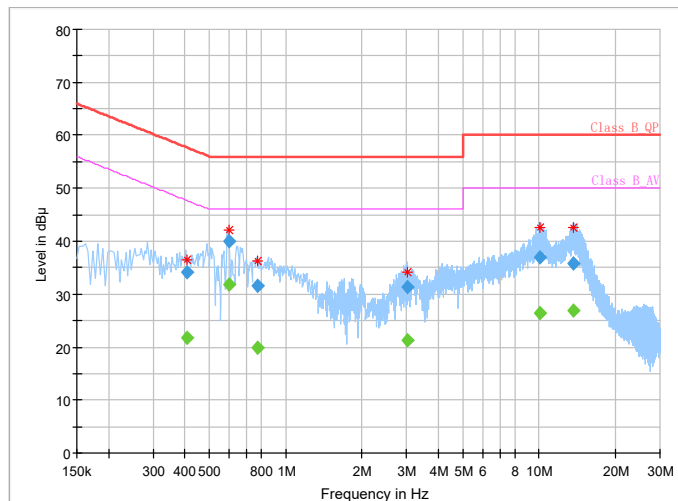


<b>Frequency Range</b>	150KHz ~ 30MHz	<b>Detector Function &amp; Resolution Bandwidth</b>	Quasi-Peak (QP) / Average (AV), 9 kHz
<b>Input Power</b>	120Vac, 60Hz	<b>Environmental Conditions</b>	25deg. C, 55%RH
<b>Tested By</b>	Carl Xie		

Frequency (MHz)	QuasiPeak (dBUV)	CAverage (dBUV)	Limit (dBUV)	Margin (dB)	Line	Filter	Corr. (dB)
0.408000	---	21.70	47.69	25.99	N	ON	9.7
0.408000	34.05	---	57.69	23.64	N	ON	9.7
0.600000	---	31.86	46.00	14.14	N	ON	9.7
0.600000	39.96	---	56.00	16.04	N	ON	9.7
0.776000	---	19.84	46.00	26.16	N	ON	9.7
0.776000	31.65	---	56.00	24.35	N	ON	9.7
3.030000	---	21.27	46.00	24.73	N	ON	9.8
3.030000	31.30	---	56.00	24.70	N	ON	9.8
10.040000	---	26.35	50.00	23.65	N	ON	9.8
10.040000	36.92	---	60.00	23.08	N	ON	9.8
13.580000	---	26.91	50.00	23.09	N	ON	9.8
13.580000	35.84	---	60.00	24.16	N	ON	9.8

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

Full Spectrum





### 3.2 RADIATED EMISSION MEASUREMENT

#### 3.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

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

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

**NOTE:**

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

**3.2.2 TEST INSTRUMENTS**

<b>Equipment</b>	<b>Manufacturer</b>	<b>Model No.</b>	<b>Serial No.</b>	<b>Last Cal.</b>	<b>Next Cal.</b>
3m Semi-anechoic Chamber	ETS-LINDGREN	9m*6m*6m	Euroshieldpn-CT0001143-1216	May. 19,20	May. 18,23
Bilog Antenna	ETS-LINDGREN	3143B	00161965	Mar. 06,22	Mar. 05,23
Horn Antenna	ETS-LINDGREN	3117	00168692	Mar. 06,22	Mar. 05,23
Horn Antenna (18GHz-40GHz)	N/A	QWH-SL-18-40-K-SG/QMS-00361	15433	Aug. 25, 21	Aug. 24, 22
Horn Antenna (18GHz-40GHz)	N/A	QWH-SL-18-40-K-SG/QMS-00361	15433	Aug. 24, 22	Aug. 24, 23
Test Software	E3	V 9.160323	N/A	N/A	N/A
Test Software	JS1120-3	3.2.06	N/A	N/A	N/A
10dB Attenuator	JFW/USA	50HF-010-SMA	1505	Jun. 03,21	Jun. 02,22
10dB Attenuator	JFW/USA	50HF-010-SMA	1505	Jun. 02,22	Jun. 03,23
MXE EMI Receiver	KEYSIGHT	N9038A-544	MY54450026	Feb. 18,22	Feb. 17,23
Signal Pre-Amplifier	EMSI	EMC 9135	980249	May.12,22	May.11,23
Signal Pre-Amplifier	EMSI	EMC 012645B	980257	May.12,22	May.11,23
Signal Pre-Amplifier	EMSI	EMC 184045B	980259	Feb. 21,22	Feb.20,23
DC Source	Kikusui/JP	PMX18-5A	0000001	Aug. 25,21	Aug. 24,22
DC Source	Kikusui/JP	PMX18-5A	0000001	Aug. 24,22	Aug. 25,23
Power Meter	Anritsu	ML2495A	1506002	Feb. 22,22	Feb. 21,23
Power Sensor	Anritsu	MA2411B	1339352	May. 06,22	May. 05,23
Loop Antenna	Schwarzbeck	FMZB 1519B	00173	Sep.05,21	Sep. 04,22
Loop Antenna	Schwarzbeck	FMZB 1519B	00173	Sep.04,22	Sep. 05,23

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



### 3.2.3 TEST PROCEDURES

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

#### **Note:**

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

### 3.2.4 DEVIATION FROM TEST STANDARD

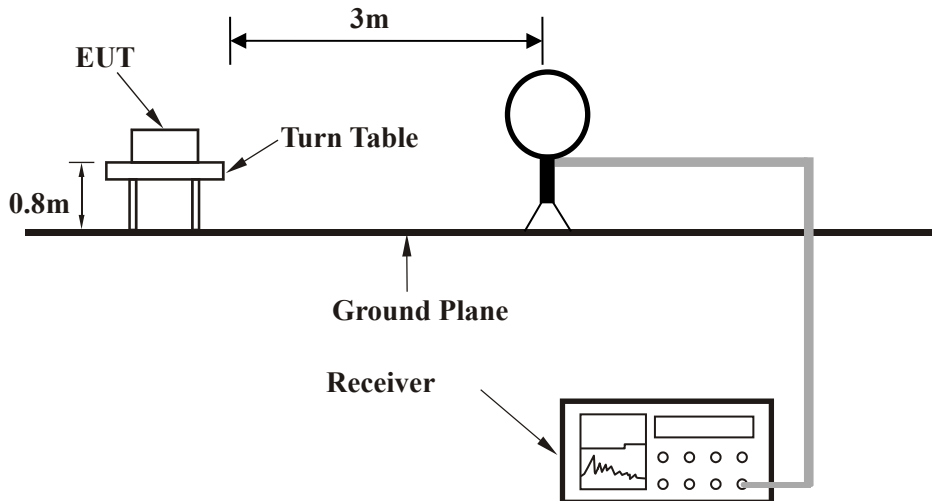
No deviation



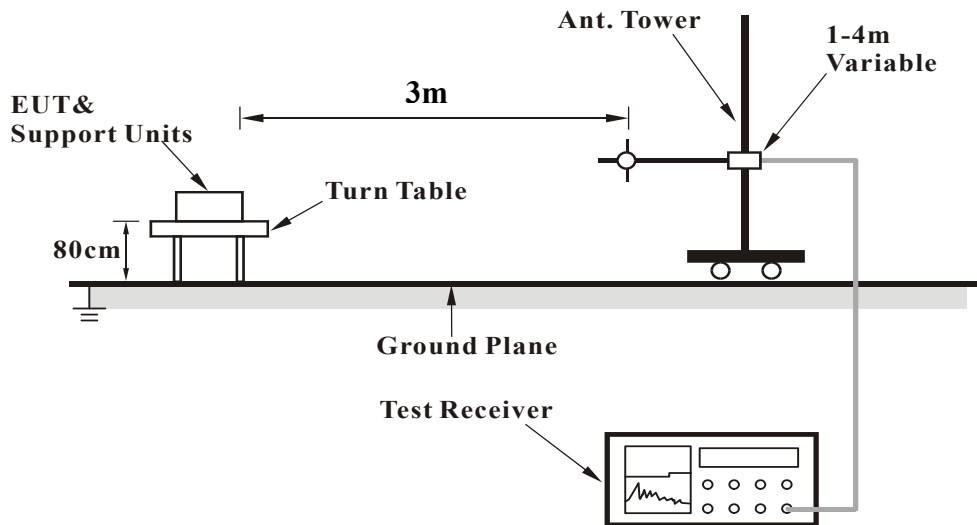


### 3.2.5 TEST SETUP

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

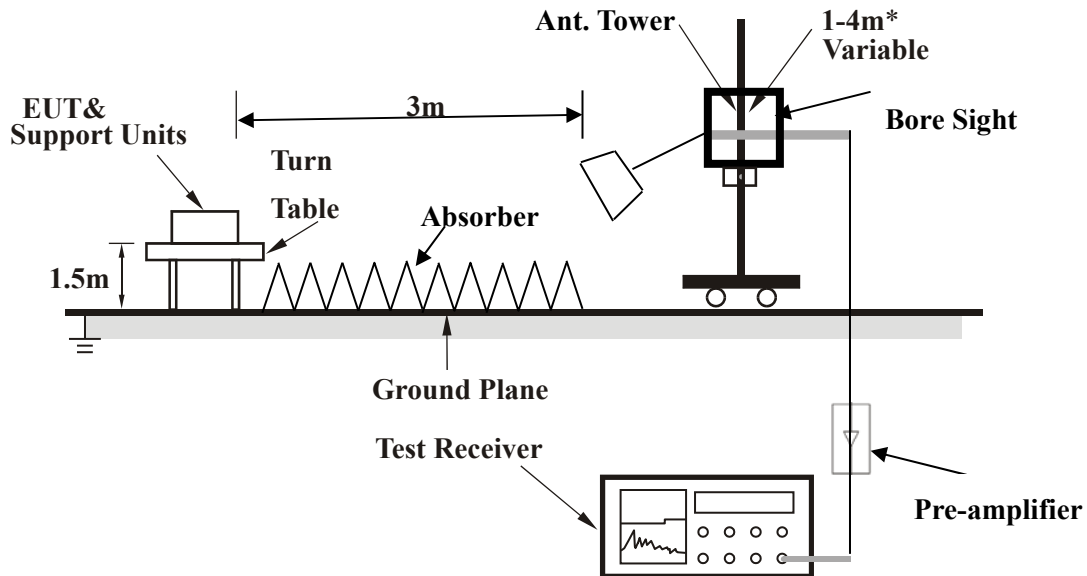


#### < Frequency Range 30MHz~1GHz >





<Frequency Range above 1GHz>



**Note:** Above 1G is a directional antenna

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

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

### 3.2.6 EUT OPERATING CONDITIONS

- Set the EUT under full load condition and placed them on a testing table.
- Set the transmitter part of EUT under transmission condition continuously at specific channel frequency.
- The necessary accessories enable the EUT in full functions.



**3.2.7 TEST RESULTS**

NOTE : The 9K~30MHz amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required in the report.

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

**30 MHz – 1GHz data:**

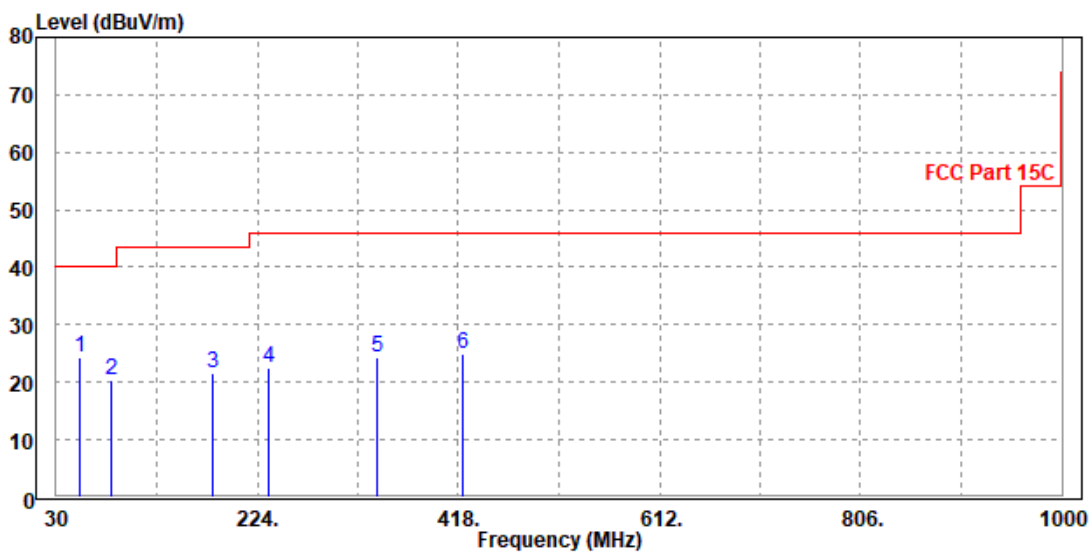
**802.11n (20MHz)**

<b>CHANNEL</b>	TX Channel 11	<b>DETECTOR FUNCTION</b>	Quasi-Peak (QP)
<b>FREQUENCY RANGE</b>	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	24.32	50.93	40	-15.68	9.97	0.41	36.99	200	0	QP
82.38	20.25	48.73	40	-19.75	7.99	0.5	36.97	200	0	QP
181.32	21.56	45.85	43.5	-21.94	11.39	0.71	36.39	200	0	QP
235.64	22.37	44.97	46	-23.63	12.87	0.81	36.28	200	0	QP
340.4	24.31	44.76	46	-21.69	14.89	0.98	36.32	200	0	QP
422.85	25.05	43.78	46	-20.95	16.63	1.11	36.47	200	0	QP

**REMARKS:**

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



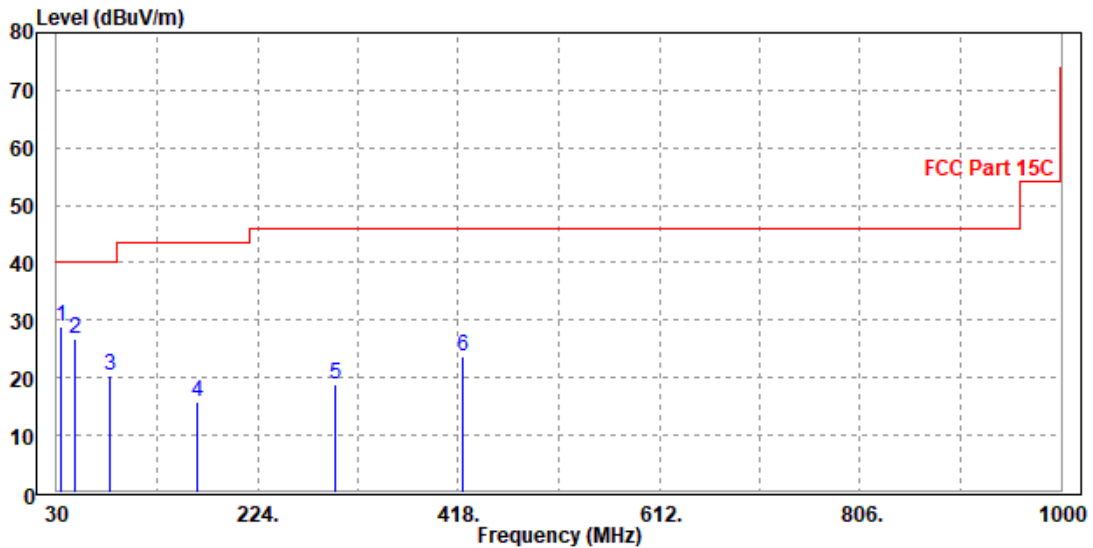


<b>CHANNEL</b>	TX Channel 11	<b>DETECTOR FUNCTION</b>	Quasi-Peak (QP)
<b>FREQUENCY RANGE</b>	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
33.88	29.04	47.73	40	-10.96	18.36	0.33	37.38	100	0	QP
48.43	26.8	53.17	40	-13.2	10.27	0.39	37.03	100	0	QP
81.41	20.33	49.07	40	-19.67	7.74	0.49	36.97	100	0	QP
165.8	15.92	40.72	43.5	-27.58	10.99	0.68	36.47	100	0	QP
299.66	19.01	40.37	46	-26.99	13.99	0.91	36.26	100	0	QP
421.88	23.71	42.48	46	-22.29	16.58	1.11	36.46	100	0	QP

**REMARKS:**

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





ABOVE 1GHz WORST-CASE DATA:

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

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

802.11b:

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	51.57	60.33	74	-22.43	31.75	5.86	46.37	175	270	Peak
2390	43.3	52.06	54	-10.7	31.75	5.86	46.37	175	270	Average
2412	103.22	111.88	/	/	31.82	5.89	46.37	175	270	Peak
2412	102.05	110.71	/	/	31.82	5.89	46.37	175	270	Average
2483.5	50.99	59.32	74	-23.01	32.05	5.99	46.37	175	270	Peak
2483.5	43.06	51.39	54	-10.94	32.05	5.99	46.37	175	270	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	50.89	59.26	74	-23.11	32.14	5.86	46.37	100	190	Peak
2390	42.97	51.34	54	-11.03	32.14	5.86	46.37	100	190	Average
2412	98.27	106.56	/	/	32.19	5.89	46.37	100	190	Peak
2412	97.16	105.45	/	/	32.19	5.89	46.37	100	190	Average
2483.5	52.24	60.26	74	-21.76	32.36	5.99	46.37	100	190	Peak
2483.5	42.98	51	54	-11.02	32.36	5.99	46.37	100	190	Average

REMARKS:

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



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

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

FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	50.49	59.25	74	-23.51	31.75	5.86	46.37	140	270	Peak
2390	42.76	51.52	54	-11.24	31.75	5.86	46.37	140	270	Average
2437	101.41	109.95	/	/	31.9	5.93	46.37	140	270	Peak
2437	100.22	108.76	/	/	31.9	5.93	46.37	140	270	Average
2483.5	50.11	58.44	74	-23.89	32.05	5.99	46.37	140	270	Peak
2483.5	43.34	51.67	54	-10.66	32.05	5.99	46.37	140	270	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	49.83	58.2	74	-24.17	32.14	5.86	46.37	100	190	Peak
2390	43.93	52.3	54	-10.07	32.14	5.86	46.37	100	190	Average
2437	95.5	103.69	/	/	32.25	5.93	46.37	100	190	Peak
2437	94.35	102.54	/	/	32.25	5.93	46.37	100	190	Average
2483.5	51.14	59.16	74	-22.86	32.36	5.99	46.37	100	190	Peak
2483.5	43	51.02	54	-11	32.36	5.99	46.37	100	190	Average

**REMARKS:**

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



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

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

FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	49.13	57.89	74	-24.87	31.75	5.86	46.37	100	270	Peak
2390	42.87	51.63	54	-11.13	31.75	5.86	46.37	100	270	Average
2462	103.52	111.95	/	/	31.98	5.96	46.37	100	270	Peak
2462	102.4	110.83	/	/	31.98	5.96	46.37	100	270	Average
2483.5	50.99	59.32	74	-23.01	32.05	5.99	46.37	100	270	Peak
2483.5	43.39	51.72	54	-10.61	32.05	5.99	46.37	100	270	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	50.71	59.08	74	-23.29	32.14	5.86	46.37	100	190	Peak
2390	43.59	51.96	54	-10.41	32.14	5.86	46.37	100	190	Average
2462	98.98	107.08	/	/	32.31	5.96	46.37	100	190	Peak
2462	97.78	105.88	/	/	32.31	5.96	46.37	100	190	Average
2483.5	51.65	59.67	74	-22.35	32.36	5.99	46.37	100	190	Peak
2483.5	43.44	51.46	54	-10.56	32.36	5.99	46.37	100	190	Average

**REMARKS:**

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



802.11g

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	59.38	68.14	74	-14.62	31.75	5.86	46.37	100	270	Peak
2390	47.46	56.22	54	-6.54	31.75	5.86	46.37	100	270	Average
2412	103.06	111.72	/	/	31.82	5.89	46.37	100	270	Peak
2412	96.48	105.14	/	/	31.82	5.89	46.37	100	270	Average
2483.5	51.02	59.35	74	-22.98	32.05	5.99	46.37	100	270	Peak
2483.5	42.53	50.86	54	-11.47	32.05	5.99	46.37	100	270	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	54.25	62.62	74	-19.75	32.14	5.86	46.37	100	190	Peak
2390	44.74	53.11	54	-9.26	32.14	5.86	46.37	100	190	Average
2412	98.51	106.8	/	/	32.19	5.89	46.37	100	190	Peak
2412	91.01	99.3	/	/	32.19	5.89	46.37	100	190	Average
2483.5	50.72	58.74	74	-23.28	32.36	5.99	46.37	100	190	Peak
2483.5	43.86	51.88	54	-10.14	32.36	5.99	46.37	100	190	Average

REMARKS:

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





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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	50.75	59.51	74	-23.25	31.75	5.86	46.37	100	270	Peak
2390	43.14	51.9	54	-10.86	31.75	5.86	46.37	100	270	Average
2437	101.49	110.03	/	/	31.9	5.93	46.37	100	270	Peak
2437	93.88	102.42	/	/	31.9	5.93	46.37	100	270	Average
2483.5	52.23	60.56	74	-21.77	32.05	5.99	46.37	100	270	Peak
2483.5	43.26	51.59	54	-10.74	32.05	5.99	46.37	100	270	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	50.61	58.98	74	-23.39	32.14	5.86	46.37	100	190	Peak
2390	43.72	52.09	54	-10.28	32.14	5.86	46.37	100	190	Average
2437	96.79	104.98	/	/	32.25	5.93	46.37	100	190	Peak
2437	89.5	97.69	/	/	32.25	5.93	46.37	100	190	Average
2483.5	51.29	59.31	74	-22.71	32.36	5.99	46.37	100	190	Peak
2483.5	44	52.02	54	-10	32.36	5.99	46.37	100	190	Average

**REMARKS:**

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



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	49.72	58.48	74	-24.28	31.75	5.86	46.37	100	270	Peak
2390	41.68	50.44	54	-12.32	31.75	5.86	46.37	100	270	Average
2462	102.69	111.12	/	/	31.98	5.96	46.37	100	270	Peak
2462	94.66	103.09	/	/	31.98	5.96	46.37	100	270	Average
2483.5	63.06	71.39	74	-10.94	32.05	5.99	46.37	100	270	Peak
2483.5	50.77	59.1	54	-3.23	32.05	5.99	46.37	100	270	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	50.38	58.75	74	-23.62	32.14	5.86	46.37	100	200	Peak
2390	42.76	51.13	54	-11.24	32.14	5.86	46.37	100	200	Average
2462	99.87	107.97	/	/	32.31	5.96	46.37	100	200	Peak
2462	92.13	100.23	/	/	32.31	5.96	46.37	100	200	Average
2483.5	58.72	66.74	74	-15.28	32.36	5.99	46.37	100	200	Peak
2483.5	47.3	55.32	54	-6.7	32.36	5.99	46.37	100	200	Average

**REMARKS:**

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



**802.11n (20MHz)**

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

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

FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	62.25	71.01	74	-11.75	31.75	5.86	46.37	100	270	Peak
2390	48.06	56.82	54	-5.94	31.75	5.86	46.37	100	270	Average
2412	103.26	111.92	/	/	31.82	5.89	46.37	100	270	Peak
2412	94.42	103.08	/	/	31.82	5.89	46.37	100	270	Average
2483.5	51.22	59.55	74	-22.78	32.05	5.99	46.37	100	270	Peak
2483.5	41.91	50.24	54	-12.09	32.05	5.99	46.37	100	270	Average

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

FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	57.25	65.62	74	-16.75	32.14	5.86	46.37	100	200	Peak
2390	45	53.37	54	-9	32.14	5.86	46.37	100	200	Average
2412	98.69	106.98	/	/	32.19	5.89	46.37	100	200	Peak
2412	89.29	97.58	/	/	32.19	5.89	46.37	100	200	Average
2483.5	51.88	59.9	74	-22.12	32.36	5.99	46.37	100	200	Peak
2483.5	42.4	50.42	54	-11.6	32.36	5.99	46.37	100	200	Average

**REMARKS:**

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



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

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

FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	50.8	59.56	74	-23.2	31.75	5.86	46.37	170	270	Peak
2390	41.94	50.7	54	-12.06	31.75	5.86	46.37	170	270	Average
2437	101.88	110.42	/	/	31.9	5.93	46.37	170	270	Peak
2437	92.78	101.32	/	/	31.9	5.93	46.37	170	270	Average
2483.5	50.9	59.23	74	-23.1	32.05	5.99	46.37	170	270	Peak
2483.5	42.26	50.59	54	-11.74	32.05	5.99	46.37	170	270	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	50.27	58.64	74	-23.73	32.14	5.86	46.37	200	200	Peak
2390	42.03	50.4	54	-11.97	32.14	5.86	46.37	200	200	Average
2437	97.01	105.2	/	/	32.25	5.93	46.37	200	200	Peak
2437	87.59	95.78	/	/	32.25	5.93	46.37	200	200	Average
2483.5	50.65	58.67	74	-23.35	32.36	5.99	46.37	200	200	Peak
2483.5	42.24	50.26	54	-11.76	32.36	5.99	46.37	200	200	Average

**REMARKS:**

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



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	50.91	59.67	74	-23.09	31.75	5.86	46.37	100	270	Peak
2390	41.67	50.43	54	-12.33	31.75	5.86	46.37	100	270	Average
2462	103.04	111.47	/	/	31.98	5.96	46.37	100	270	Peak
2462	93.9	102.33	/	/	31.98	5.96	46.37	100	270	Average
2483.5	63.42	71.75	74	-10.58	32.05	5.99	46.37	100	270	Peak
2483.5	50.8	59.13	54	-3.2	32.05	5.99	46.37	100	270	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	50.53	58.9	74	-23.47	32.14	5.86	46.37	100	200	Peak
2390	42.15	50.52	54	-11.85	32.14	5.86	46.37	100	200	Average
2462	99.63	107.73	/	/	32.31	5.96	46.37	100	200	Peak
2462	90.67	98.77	/	/	32.31	5.96	46.37	100	200	Average
2483.5	61.55	69.57	74	-12.45	32.36	5.99	46.37	100	200	Peak
2483.5	48.15	56.17	54	-5.85	32.36	5.99	46.37	100	200	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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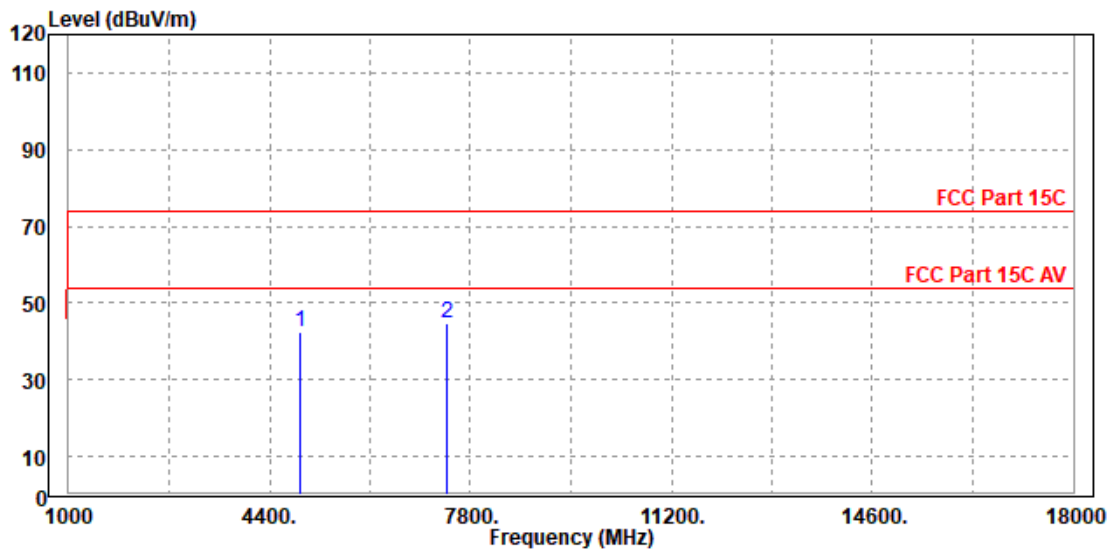
**Test Report No.: W7L-P22090011RF02**

**Worst case harmonic:**

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

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

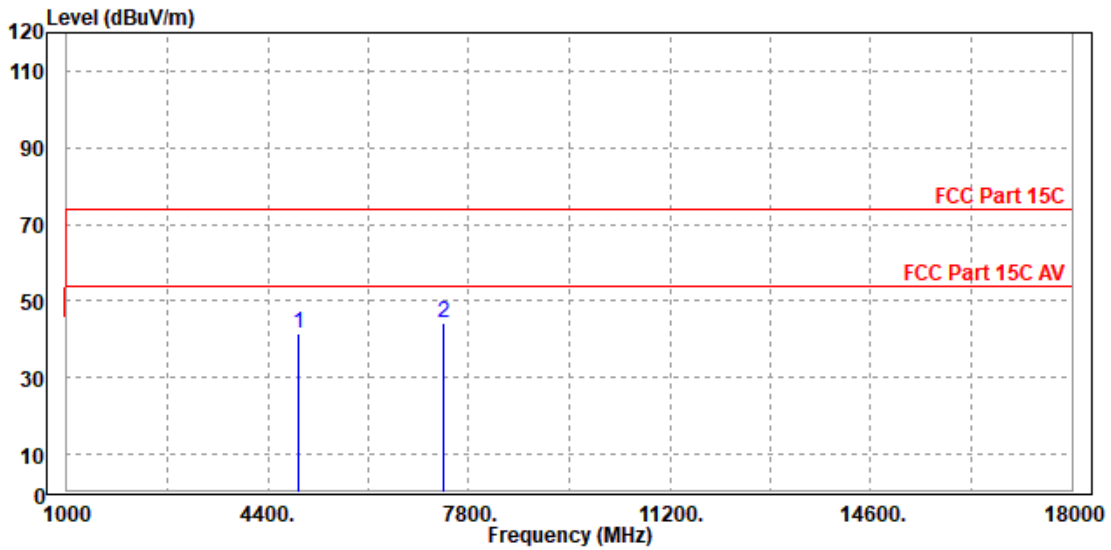
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m		
1	4924.000	42.35	45.37	74.00	-31.65	-3.02	Peak	Horizontal
2 PP	7392.000	44.63	42.51	74.00	-29.37	2.12	Peak	Horizontal





ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m		
1	4927.000	41.53	44.35	74.00	-32.47	-2.82	Peak	Vertical
2 PP	7386.000	44.48	42.31	74.00	-29.52	2.17	Peak	Vertical



REMARKS:

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



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Test Report No.: W7L-P22090011RF02

802.11n (40MHz)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	58.41	67.17	74	-15.59	31.75	5.86	46.37	100	270	Peak
2390	47.47	56.23	54	-6.53	31.75	5.86	46.37	100	270	Average
2422	99.17	107.78	/	/	31.85	5.91	46.37	100	270	Peak
2422	90.79	99.4	/	/	31.85	5.91	46.37	100	270	Average
2483.5	50.65	58.98	74	-23.35	32.05	5.99	46.37	100	270	Peak
2483.5	42.67	51	54	-11.33	32.05	5.99	46.37	100	270	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	53.81	62.18	74	-20.19	32.14	5.86	46.37	100	215	Peak
2390	43.83	52.2	54	-10.17	32.14	5.86	46.37	100	215	Average
2422	94.68	102.93	/	/	32.21	5.91	46.37	100	215	Peak
2422	86.03	94.28	/	/	32.21	5.91	46.37	100	215	Average
2483.5	51.13	59.15	74	-22.87	32.36	5.99	46.37	100	215	Peak
2483.5	42.28	50.3	54	-11.72	32.36	5.99	46.37	100	215	Average

**REMARKS:**

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





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

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

FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	53.33	62.09	74	-20.67	31.75	5.86	46.37	100	160	Peak
2390	43.07	51.83	54	-10.93	31.75	5.86	46.37	100	160	Average
2437	99.17	107.71	/	/	31.9	5.93	46.37	100	160	Peak
2437	89.85	98.39	/	/	31.9	5.93	46.37	100	160	Average
2483.5	53.37	61.7	74	-20.63	32.05	5.99	46.37	100	160	Peak
2483.5	44.23	52.56	54	-9.77	32.05	5.99	46.37	100	160	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	50.5	58.87	74	-23.5	32.14	5.86	46.37	100	200	Peak
2390	42.21	50.58	54	-11.79	32.14	5.86	46.37	100	200	Average
2437	95.58	103.77	/	/	32.25	5.93	46.37	100	200	Peak
2437	89.6	97.79	/	/	32.25	5.93	46.37	100	200	Average
2483.5	52.02	60.04	74	-21.98	32.36	5.99	46.37	100	200	Peak
2483.5	42.63	50.65	54	-11.37	32.36	5.99	46.37	100	200	Average

**REMARKS:**

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



<b>CHANNEL</b>	TX Channel 9	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	1GHz ~ 25GHz		Average (AV)

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

FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	50.57	59.33	74	-23.43	31.75	5.86	46.37	100	270	Peak
2390	41.88	50.64	54	-12.12	31.75	5.86	46.37	100	270	Average
2452	99.04	107.51	/	/	31.95	5.95	46.37	100	270	Peak
2452	90.05	98.52	/	/	31.95	5.95	46.37	100	270	Average
2483.5	64.08	72.41	74	-9.92	32.05	5.99	46.37	100	270	Peak
2483.5	50.76	59.09	54	-3.24	32.05	5.99	46.37	100	270	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	50.8	59.17	74	-23.2	32.14	5.86	46.37	100	200	Peak
2390	42.35	50.72	54	-11.65	32.14	5.86	46.37	100	200	Average
2452	94.2	102.34	/	/	32.28	5.95	46.37	100	200	Peak
2452	85.1	93.24	/	/	32.28	5.95	46.37	100	200	Average
2483.5	58.44	66.46	74	-15.56	32.36	5.99	46.37	100	200	Peak
2483.5	46.94	54.96	54	-7.06	32.36	5.99	46.37	100	200	Average

**REMARKS:**

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



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**Test Report No.: W7L-P22090011RF02**

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

**30 MHz – 1GHz data:**

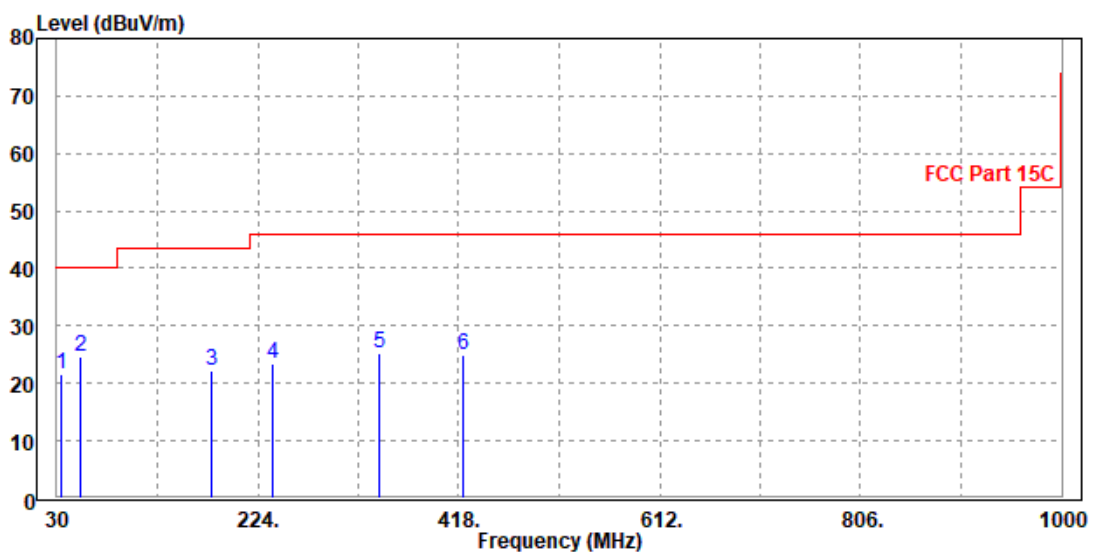
**BT-LE\_1M**

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

<b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b>										
<b>FREQ. (MHz)</b>	<b>EMISSION LEVEL (dBuV/m)</b>	<b>READ LEVEL (dBuV)</b>	<b>LIMIT (dBuV/m)</b>	<b>MARGIN (dB)</b>	<b>ANTENNA FACTOR (dB /m)</b>	<b>CABLE LOSS (dB)</b>	<b>PREAMP FACTOR (dB)</b>	<b>ANTENNA HEIGHT (cm)</b>	<b>TABLE ANGLE (Degree)</b>	<b>REMARK</b>
33.88	21.55	39.53	40	-18.45	19.07	0.33	37.38	200	0	QP
52.31	24.57	51.18	40	-15.43	9.97	0.41	36.99	200	0	QP
179.38	22.12	46.44	43.5	-21.38	11.38	0.7	36.4	200	0	QP
237.58	23.39	45.91	46	-22.61	12.95	0.81	36.28	200	0	QP
341.37	25.24	45.68	46	-20.76	14.91	0.98	36.33	200	0	QP
422.85	25.06	43.79	46	-20.94	16.63	1.11	36.47	200	0	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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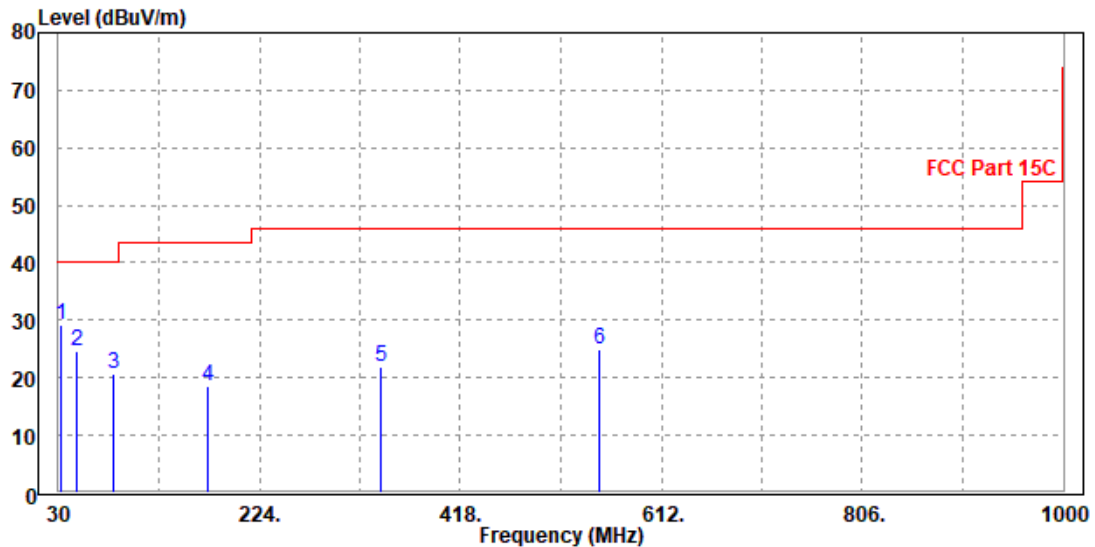
**Test Report No.: W7L-P22090011RF02**

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

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
32.91	29.24	47.48	40	-10.76	18.84	0.32	37.4	100	0	QP
48.43	24.54	50.91	40	-15.46	10.27	0.39	37.03	100	0	QP
83.35	20.54	49.07	40	-19.46	7.93	0.5	36.96	100	0	QP
174.53	18.42	43.03	43.5	-25.08	11.12	0.7	36.43	100	0	QP
341.37	21.76	42.16	46	-24.24	14.95	0.98	36.33	100	0	QP
551.86	24.92	41.73	46	-21.08	18.64	1.29	36.74	100	0	QP

**REMARKS:**

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





ABOVE 1GHz TEST DATA

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

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

BT-LE\_1M

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	49.95	58.71	74	-24.05	31.75	5.86	46.37	190	15	Peak
2390	43.3	52.06	54	-10.7	31.75	5.86	46.37	190	15	Average
2402	90.3	99	/	/	31.79	5.88	46.37	190	15	Peak
2402	90	98.7	/	/	31.79	5.88	46.37	190	15	Average
2483.5	50.33	58.66	74	-23.67	32.05	5.99	46.37	190	15	Peak
2483.5	43.85	52.18	54	-10.15	32.05	5.99	46.37	190	15	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	50.82	59.19	74	-23.18	32.14	5.86	46.37	100	255	Peak
2390	43.57	51.94	54	-10.43	32.14	5.86	46.37	100	255	Average
2402	88.81	97.14	/	/	32.16	5.88	46.37	100	255	Peak
2402	88.44	96.77	/	/	32.16	5.88	46.37	100	255	Average
2483.5	51.72	59.74	74	-22.28	32.36	5.99	46.37	100	255	Peak
2483.5	43.9	51.92	54	-10.1	32.36	5.99	46.37	100	255	Average

REMARKS:

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



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

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

FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	50.53	59.29	74	-23.47	31.75	5.86	46.37	100	310	Peak
2390	44.12	52.88	54	-9.88	31.75	5.86	46.37	100	310	Average
2440	92.2	100.73	/	/	31.91	5.93	46.37	100	310	Peak
2440	92.39	100.92	/	/	31.91	5.93	46.37	100	310	Average
2483.5	50.1	58.43	74	-23.9	32.05	5.99	46.37	100	310	Peak
2483.5	43.26	51.59	54	-10.74	32.05	5.99	46.37	100	310	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	51.98	60.35	74	-22.02	32.14	5.86	46.37	100	180	Peak
2390	43.71	52.08	54	-10.29	32.14	5.86	46.37	100	180	Average
2440	89.98	98.16	/	/	32.26	5.93	46.37	100	180	Peak
2440	89.59	97.77	/	/	32.26	5.93	46.37	100	180	Average
2483.5	50.67	58.69	74	-23.33	32.36	5.99	46.37	100	180	Peak
2483.5	43.59	51.61	54	-10.41	32.36	5.99	46.37	100	180	Average

**REMARKS:**

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



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	50.48	59.24	74	-23.52	31.75	5.86	46.37	100	310	Peak
2390	42.31	51.07	54	-11.69	31.75	5.86	46.37	100	310	Average
2480	93.93	102.28	/	/	32.04	5.98	46.37	100	310	Peak
2480	93.47	101.82	/	/	32.04	5.98	46.37	100	310	Average
2483.5	53.42	61.75	74	-20.58	32.05	5.99	46.37	100	310	Peak
2483.5	44.42	52.75	54	-9.58	32.05	5.99	46.37	100	310	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	50.18	58.55	74	-23.82	32.14	5.86	46.37	100	180	Peak
2390	42.31	50.68	54	-11.69	32.14	5.86	46.37	100	180	Average
2480	90.37	98.41	/	/	32.35	5.98	46.37	100	180	Peak
2480	89.65	97.69	/	/	32.35	5.98	46.37	100	180	Average
2483.5	54.62	62.64	74	-19.38	32.36	5.99	46.37	100	180	Peak
2483.5	43.73	51.75	54	-10.27	32.36	5.99	46.37	100	180	Average

**REMARKS:**

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

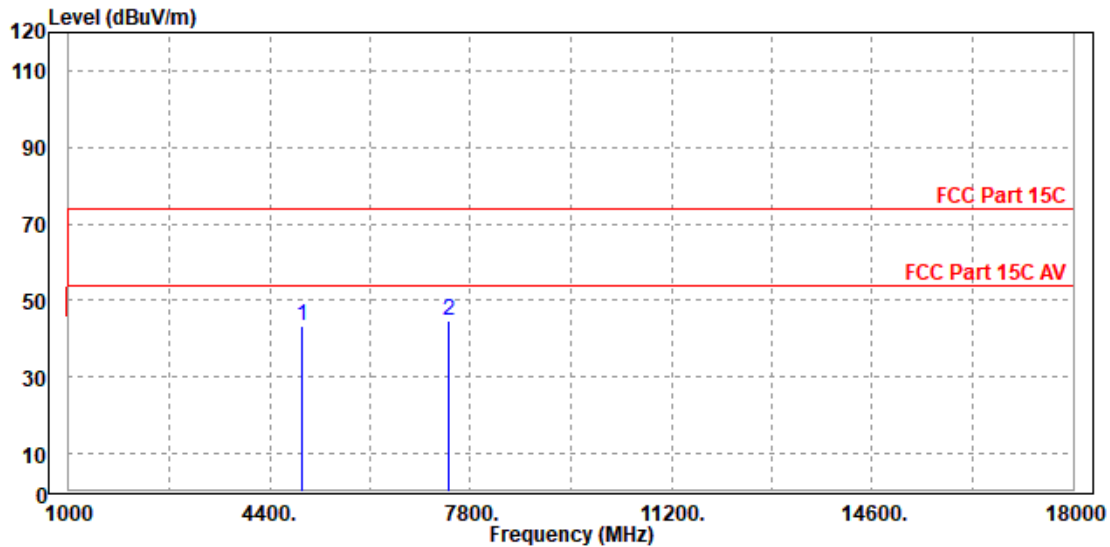


Worst case harmonic:

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m		
1	4961.000	43.31	46.22	74.00	-30.69	-2.91	Peak	Horizontal
2 PP	7440.000	44.63	42.48	74.00	-29.37	2.15	Peak	Horizontal

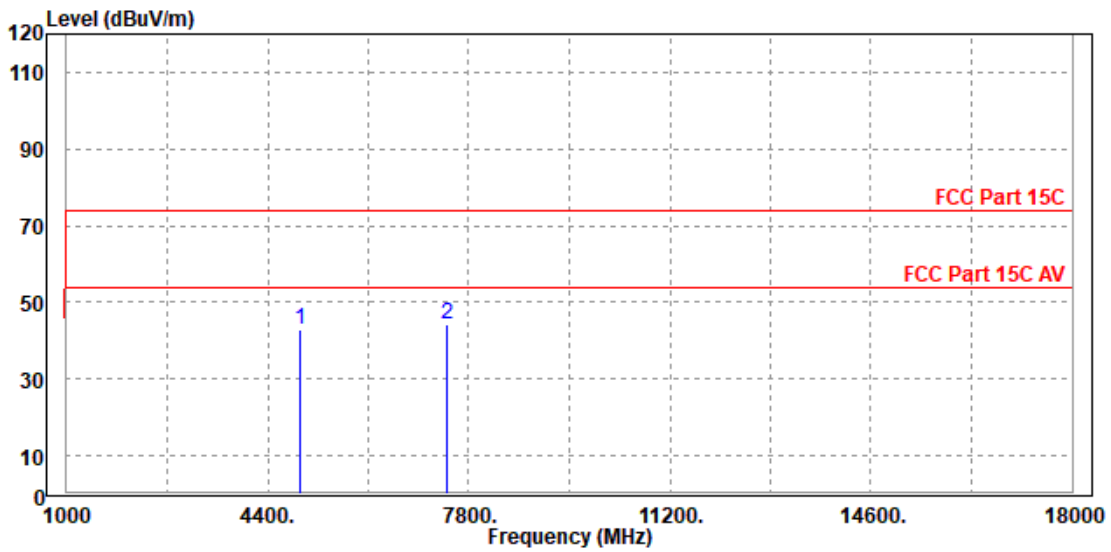






ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m		
1	4961.000	43.08	45.79	74.00	-30.92	-2.71	Peak	Vertical
2	PP 7440.000	44.22	42.04	74.00	-29.78	2.18	Peak	Vertical



REMARKS:

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

**BT-LE\_2M**

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

<b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b>										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	50.33	59.09	74	-23.67	31.75	5.86	46.37	150	155	Peak
2390	43.21	51.97	54	-10.79	31.75	5.86	46.37	150	155	Average
2402	91.97	100.67	/	/	31.79	5.88	46.37	150	155	Peak
2402	91.5	100.2	/	/	31.79	5.88	46.37	150	155	Average
2483.5	50.21	58.54	74	-23.79	32.05	5.99	46.37	150	155	Peak
2483.5	43.45	51.78	54	-10.55	32.05	5.99	46.37	150	155	Average
<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	50.79	59.16	74	-23.21	32.14	5.86	46.37	200	230	Peak
2390	43.72	52.09	54	-10.28	32.14	5.86	46.37	200	230	Average
2402	88.53	96.86	/	/	32.16	5.88	46.37	200	230	Peak
2402	88.2	96.53	/	/	32.16	5.88	46.37	200	230	Average
2483.5	50.77	58.79	74	-23.23	32.36	5.99	46.37	200	230	Peak
2483.5	43.8	51.82	54	-10.2	32.36	5.99	46.37	200	230	Average

**REMARKS:**

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



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

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

FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	49.2	57.96	74	-24.8	31.75	5.86	46.37	150	155	Peak
2390	43.1	51.86	54	-10.9	31.75	5.86	46.37	150	155	Average
2441	94.19	102.72	/	/	31.91	5.93	46.37	150	155	Peak
2441	93.32	101.85	/	/	31.91	5.93	46.37	150	155	Average
2483.5	50.34	58.67	74	-23.66	32.05	5.99	46.37	150	155	Peak
2483.5	43.29	51.62	54	-10.71	32.05	5.99	46.37	150	155	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	50.89	59.26	74	-23.11	32.14	5.86	46.37	200	230	Peak
2390	43.46	51.83	54	-10.54	32.14	5.86	46.37	200	230	Average
2441	89.16	97.34	/	/	32.26	5.93	46.37	200	230	Peak
2441	88.72	96.9	/	/	32.26	5.93	46.37	200	230	Average
2483.5	51.33	59.35	74	-22.67	32.36	5.99	46.37	200	230	Peak
2483.5	43.19	51.21	54	-10.81	32.36	5.99	46.37	200	230	Average

**REMARKS:**

- Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor  
Margin value = Emission level – Limit value.
- 2441MHz: Fundamental frequency.



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	49.75	58.51	74	-24.25	31.75	5.86	46.37	150	155	Peak
2390	43.29	52.05	54	-10.71	31.75	5.86	46.37	150	155	Average
2480	94.27	102.62	/	/	32.04	5.98	46.37	150	155	Peak
2480	93.48	101.83	/	/	32.04	5.98	46.37	150	155	Average
2483.5	56.21	64.54	74	-17.79	32.05	5.99	46.37	150	155	Peak
2483.5	43.73	52.06	54	-10.27	32.05	5.99	46.37	150	155	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	50.47	58.84	74	-23.53	32.14	5.86	46.37	200	230	Peak
2390	43.41	51.78	54	-10.59	32.14	5.86	46.37	200	230	Average
2480	89.07	97.11	/	/	32.35	5.98	46.37	200	230	Peak
2480	88.66	96.7	/	/	32.35	5.98	46.37	200	230	Average
2483.5	50.56	58.58	74	-23.44	32.36	5.99	46.37	200	230	Peak
2483.5	44.5	52.52	54	-9.5	32.36	5.99	46.37	200	230	Average

**REMARKS:**

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

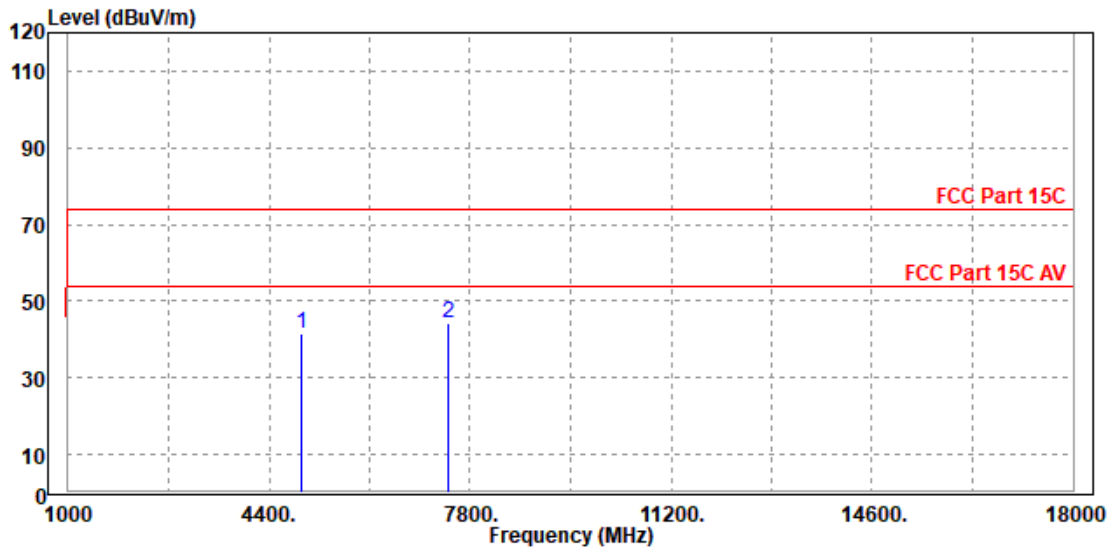


**Worst case harmonic:**

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

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

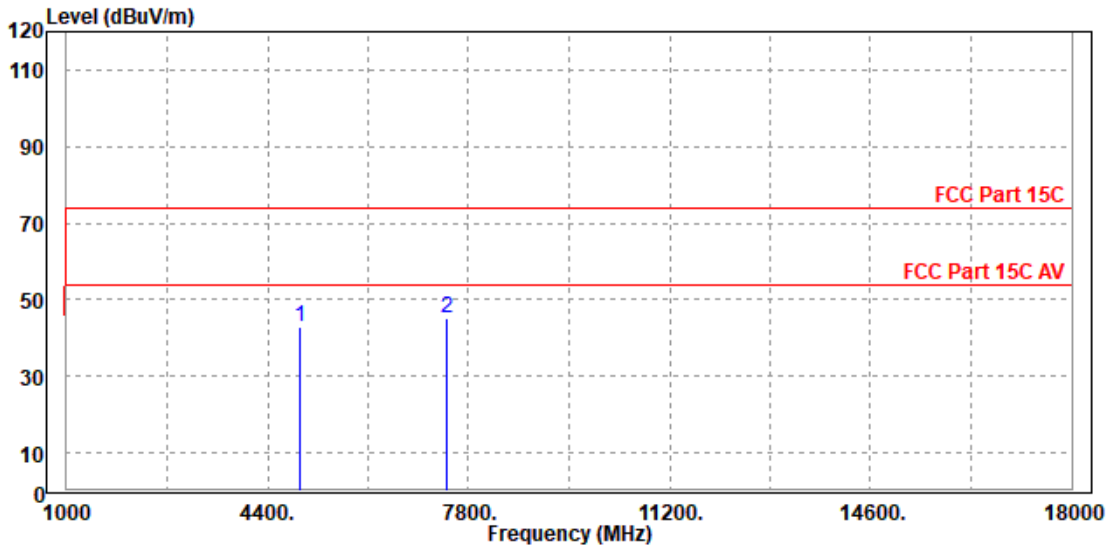
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m		
1	4960.000	41.41	44.32	74.00	-32.59	-2.91	Peak	Horizontal
2 PP	7443.000	44.13	41.98	74.00	-29.87	2.15	Peak	Horizontal





ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m		
1	4961.000	43.02	45.73	74.00	-30.98	-2.71	Peak	Vertical
2 PP	7440.000	45.21	43.03	74.00	-28.79	2.18	Peak	Vertical



REMARKS:

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



**BT-LE\_S2**

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	50.6	59.36	74	-23.4	31.75	5.86	46.37	150	155	Peak
2390	42.88	51.64	54	-11.12	31.75	5.86	46.37	150	155	Average
2402	91.73	100.43	/	/	31.79	5.88	46.37	150	155	Peak
2402	91.37	100.07	/	/	31.79	5.88	46.37	150	155	Average
2483.5	51.08	59.41	74	-22.92	32.05	5.99	46.37	150	155	Peak
2483.5	43.24	51.57	54	-10.76	32.05	5.99	46.37	150	155	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	51.24	59.61	74	-22.76	32.14	5.86	46.37	200	230	Peak
2390	43.05	51.42	54	-10.95	32.14	5.86	46.37	200	230	Average
2402	88.58	96.91	/	/	32.16	5.88	46.37	200	230	Peak
2402	88.06	96.39	/	/	32.16	5.88	46.37	200	230	Average
2483.5	51.63	59.65	74	-22.37	32.36	5.99	46.37	200	230	Peak
2483.5	43.78	51.8	54	-10.22	32.36	5.99	46.37	200	230	Average

**REMARKS:**

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



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

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

FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	50.61	59.37	74	-23.39	31.75	5.86	46.37	150	155	Peak
2390	42.89	51.65	54	-11.11	31.75	5.86	46.37	150	155	Average
2440	93.79	102.32	/	/	31.91	5.93	46.37	150	155	Peak
2440	93.26	101.79	/	/	31.91	5.93	46.37	150	155	Average
2483.5	51.18	59.51	74	-22.82	32.05	5.99	46.37	150	155	Peak
2483.5	43.78	52.11	54	-10.22	32.05	5.99	46.37	150	155	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	51.46	59.83	74	-22.54	32.14	5.86	46.37	200	230	Peak
2390	43.69	52.06	54	-10.31	32.14	5.86	46.37	200	230	Average
2440	89.13	97.31	/	/	32.26	5.93	46.37	200	230	Peak
2440	88.59	96.77	/	/	32.26	5.93	46.37	200	230	Average
2483.5	50.82	58.84	74	-23.18	32.36	5.99	46.37	200	230	Peak
2483.5	43.91	51.93	54	-10.09	32.36	5.99	46.37	200	230	Average

**REMARKS:**

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





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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	51.68	60.44	74	-22.32	31.75	5.86	46.37	150	155	Peak
2390	43.23	51.99	54	-10.77	31.75	5.86	46.37	150	155	Average
2480	93.75	102.1	/	/	32.04	5.98	46.37	150	155	Peak
2480	93.25	101.6	/	/	32.04	5.98	46.37	150	155	Average
2483.5	50.3	58.63	74	-23.7	32.05	5.99	46.37	150	155	Peak
2483.5	43.89	52.22	54	-10.11	32.05	5.99	46.37	150	155	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	51.94	60.31	74	-22.06	32.14	5.86	46.37	200	230	Peak
2390	43.52	51.89	54	-10.48	32.14	5.86	46.37	200	230	Average
2480	88.96	97	/	/	32.35	5.98	46.37	200	230	Peak
2480	88.48	96.52	/	/	32.35	5.98	46.37	200	230	Average
2483.5	52.8	60.82	74	-21.2	32.36	5.99	46.37	200	230	Peak
2483.5	43.4	51.42	54	-10.6	32.36	5.99	46.37	200	230	Average

**REMARKS:**

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



**BUREAU  
VERITAS**

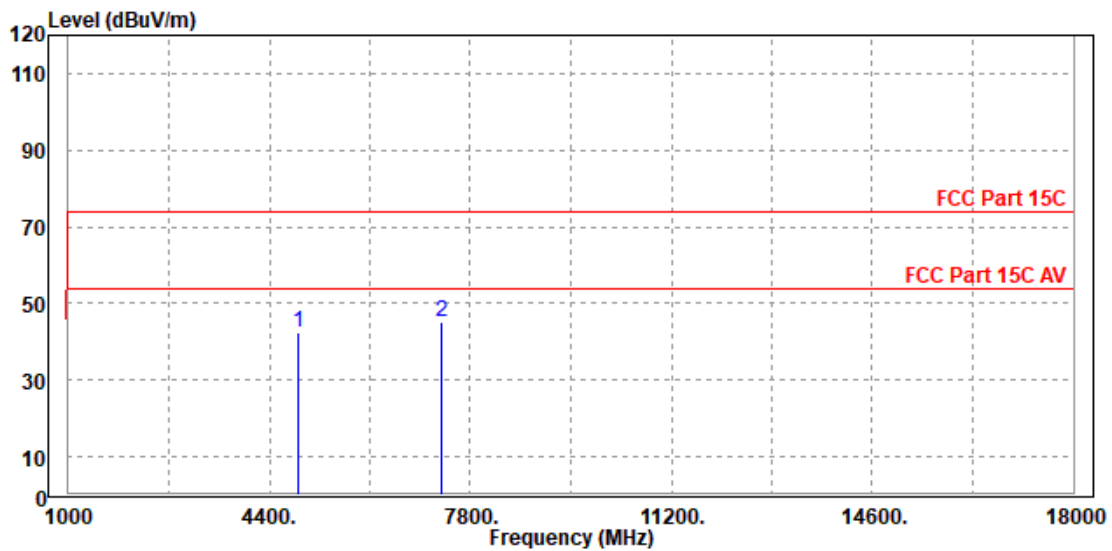
**Test Report No.: W7L-P22090011RF02**

**Worst case harmonic:**

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

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

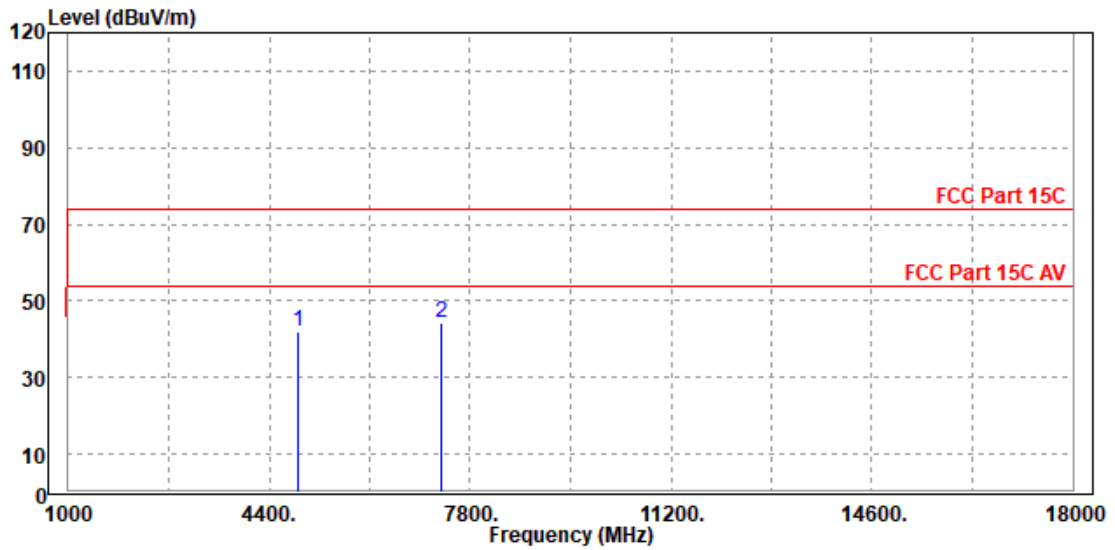
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m		
1	4880.000	42.22	45.37	74.00	-31.78	-3.15	Peak	Horizontal
2 PP	7324.000	45.09	43.01	74.00	-28.91	2.08	Peak	Horizontal





ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m		
1	4876.000	41.93	44.90	74.00	-32.07	-2.97	Peak	Vertical
2 PP	7320.000	44.31	42.16	74.00	-29.69	2.15	Peak	Vertical



REMARKS:

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



**BT-LE\_S8**

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

<b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b>										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	51.3	59.34	74	-22.7	31.75	6.18	45.97	150	155	Peak
2390	43.73	51.77	54	-10.27	31.75	6.18	45.97	150	155	Average
2402	92.48	100.47	/	/	31.79	6.19	45.97	150	155	Peak
2402	91.73	99.72	/	/	31.79	6.19	45.97	150	155	Average
2483.5	51.08	58.65	74	-22.92	32.05	6.31	45.93	150	155	Peak
2483.5	44.33	51.9	54	-9.67	32.05	6.31	45.93	150	155	Average
<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	51.25	58.9	74	-22.75	32.14	6.18	45.97	200	230	Peak
2390	44.15	51.8	54	-9.85	32.14	6.18	45.97	200	230	Average
2402	89.18	96.8	/	/	32.16	6.19	45.97	200	230	Peak
2402	88.44	96.06	/	/	32.16	6.19	45.97	200	230	Average
2483.5	51.61	58.87	74	-22.39	32.36	6.31	45.93	200	230	Peak
2483.5	45.06	52.32	54	-8.94	32.36	6.31	45.93	200	230	Average

**REMARKS:**

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



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

<b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b>										
<b>FREQ. (MHz)</b>	<b>EMISSION LEVEL (dBuV/m)</b>	<b>READ LEVEL (dBuV)</b>	<b>LIMIT (dBuV/m)</b>	<b>MARGIN (dB)</b>	<b>ANTENNA FACTOR (dB /m)</b>	<b>CABLE LOSS (dB)</b>	<b>PREAMP FACTOR (dB)</b>	<b>ANTENNA HEIGHT (cm)</b>	<b>TABLE ANGLE (Degree)</b>	<b>REMARK</b>
2390	50.56	58.6	74	-23.44	31.75	6.18	45.97	150	155	Peak
2390	43.76	51.8	54	-10.24	31.75	6.18	45.97	150	155	Average
2440	94.39	102.18	/	/	31.91	6.25	45.95	150	155	Peak
2440	93.64	101.43	/	/	31.91	6.25	45.95	150	155	Average
2483.5	52.83	60.4	74	-21.17	32.05	6.31	45.93	150	155	Peak
2483.5	44.42	51.99	54	-9.58	32.05	6.31	45.93	150	155	Average
<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>										
<b>FREQ. (MHz)</b>	<b>EMISSION LEVEL (dBuV/m)</b>	<b>READ LEVEL (dBuV)</b>	<b>LIMIT (dBuV/m)</b>	<b>MARGIN (dB)</b>	<b>ANTENNA FACTOR (dB /m)</b>	<b>CABLE LOSS (dB)</b>	<b>PREAMP FACTOR (dB)</b>	<b>ANTENNA HEIGHT (cm)</b>	<b>TABLE ANGLE (Degree)</b>	<b>REMARK</b>
2390	53.4	61.05	74	-20.6	32.14	6.18	45.97	200	230	Peak
2390	44.01	51.66	54	-9.99	32.14	6.18	45.97	200	230	Average
2440	89.68	97.12	/	/	32.26	6.25	45.95	200	230	Peak
2440	88.91	96.35	/	/	32.26	6.25	45.95	200	230	Average
2483.5	51.91	59.17	74	-22.09	32.36	6.31	45.93	200	230	Peak
2483.5	44.55	51.81	54	-9.45	32.36	6.31	45.93	200	230	Average

**REMARKS:**

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



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	51.41	59.45	74	-22.59	31.75	6.18	45.97	150	155	Peak
2390	43.59	51.63	54	-10.41	31.75	6.18	45.97	150	155	Average
2480	94.66	102.25	/	/	32.04	6.3	45.93	150	155	Peak
2480	93.95	101.54	/	/	32.04	6.3	45.93	150	155	Average
2483.5	51.76	59.33	74	-22.24	32.05	6.31	45.93	150	155	Peak
2483.5	44.7	52.27	54	-9.3	32.05	6.31	45.93	150	155	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	51.1	58.75	74	-22.9	32.14	6.18	45.97	200	230	Peak
2390	44.35	52	54	-9.65	32.14	6.18	45.97	200	230	Average
2480	89.66	96.94	/	/	32.35	6.3	45.93	200	230	Peak
2480	88.86	96.14	/	/	32.35	6.3	45.93	200	230	Average
2483.5	52.44	59.7	74	-21.56	32.36	6.31	45.93	200	230	Peak
2483.5	44.75	52.01	54	-9.25	32.36	6.31	45.93	200	230	Average

**REMARKS:**

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



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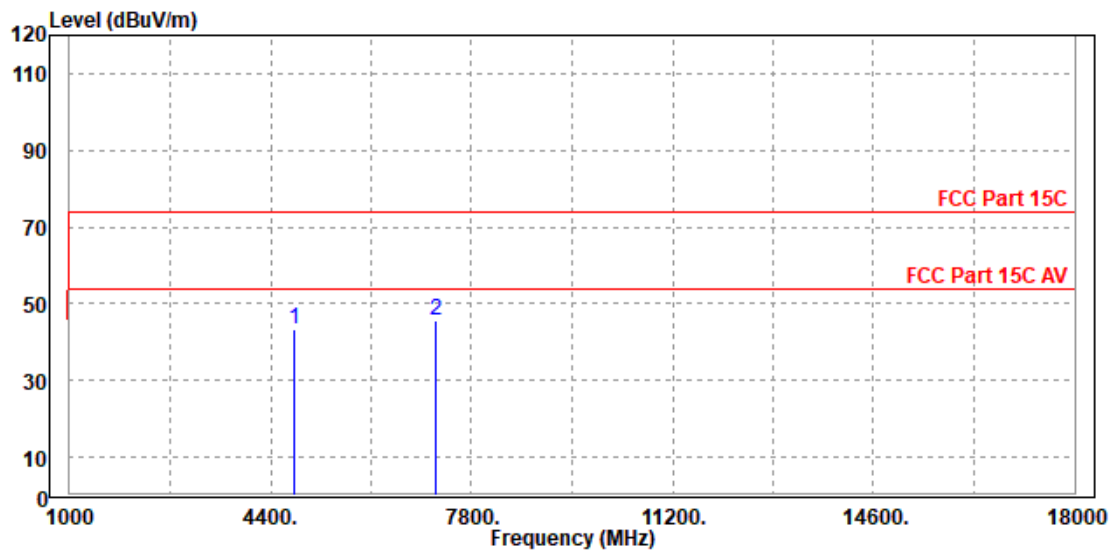
Test Report No.: W7L-P22090011RF02

Worst case harmonic:

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

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

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m		
1	4808.000	43.35	44.79	74.00	-30.65	-1.44	Peak	Horizontal
2	PP 7206.000	45.50	43.76	74.00	-28.50	1.74	Peak	Horizontal



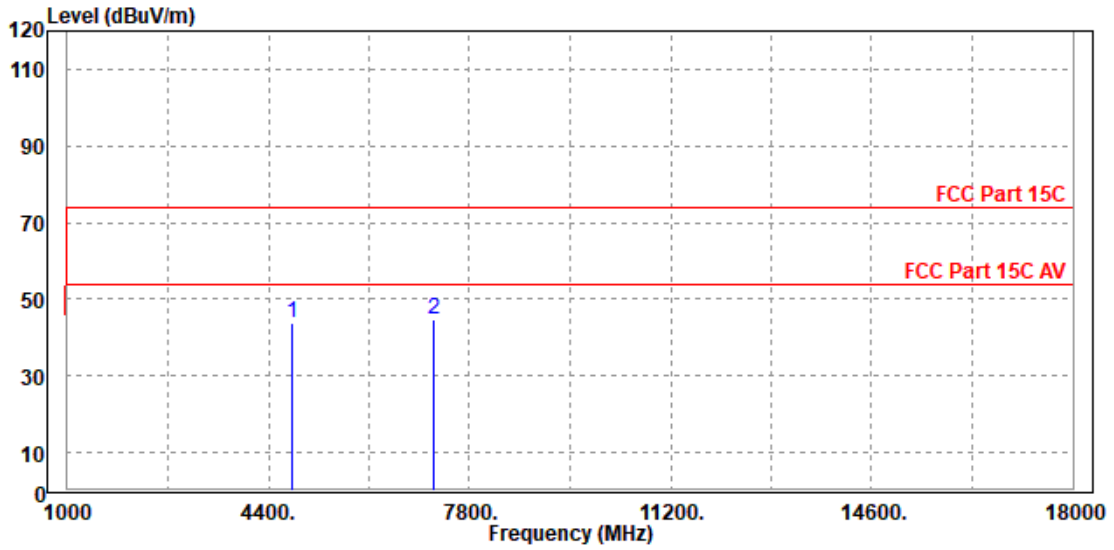


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Test Report No.: W7L-P22090011RF02

**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	4804.000	43.66	44.90	74.00	-30.34	-1.24	Peak	Vertical
2 PP	7205.000	44.87	43.01	74.00	-29.13	1.86	Peak	Vertical



**REMARKS:**

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





### 3.3 6 dB BANDWIDTH MEASUREMENT

#### 3.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

#### 3.3.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Power Meter	ANRITSU	ML2495A	1506002	Feb. 22,22	Feb. 21,23
EXA Signal Analyzer	KEYSIGHT	N9010A-526	MY54510322	Feb. 18,22	Feb. 17,23
EXA Signal Analyzer	KEYSIGHT	N9010A-544	MY54510355	May.15,22	May.14,23
Power Sensor	ANRITSU	MA2411B	1339352	May. 06,22	May. 05,23

**NOTE:**

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

#### 3.3.3 TEST PROCEDURE

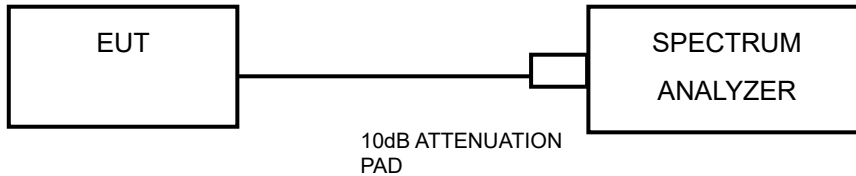
1. Set RBW = 100 kHz.
2. Set the video bandwidth (VBW) ≥ 3 RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points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



### 3.3.4 DEVIATION FROM TEST STANDARD

No deviation.

### 3.3.5 TEST SETUP



### 3.3.6 EUT OPERATING CONDITIONS

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



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### 3.3.7 TEST RESULTS

Please Refer to Appendix1/2 Of this test report.

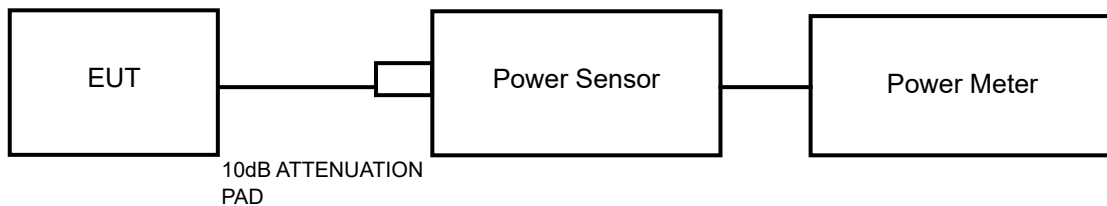


### 3.4 CONDUCTED OUTPUT POWER

#### 3.4.1 LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT

For systems using digital modulation in the 2400–2483.5 MHz band: 1 Watt (30dBm)

#### 3.4.2 TEST SETUP



#### 3.4.3 TEST INSTRUMENTS

Refer to section 3.3.2 to get information of above instrument.

#### 3.4.4 TEST PROCEDURES

A peak power sensor was used on the output port of the EUT. A power meter was used to read the response of the peak power sensor. Record the power level.

#### 3.4.5 DEVIATION FROM TEST STANDARD

No deviation.

#### 3.4.6 EUT OPERATING CONDITIONS

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



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### 3.4.7 TEST RESULTS

#### 3.4.7.1 MAXIMUM PEAK OUTPUT POWER

Please Refer to Appendix1/2 Of this test report.



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### 3.4.7.2 AVERAGE OUTPUT POWER (FOR REFERENCE)

The average power sensor was used on the output port of the EUT. A power meter was used to read the response of the power sensor. Record the power level.

Please Refer to Appendix1/2 Of this test report.

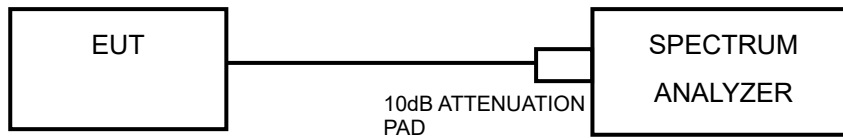


### 3.5 POWER SPECTRAL DENSITY MEASUREMENT

#### 3.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm/3KHz.

#### 3.5.2 TEST SETUP



#### 3.5.3 TEST INSTRUMENTS

Refer to section 3.3.2 to get information of above instrument.

#### 3.5.4 TEST PROCEDURE

1. Set the span to 1.5 times the DTS bandwidth
2. Set the RBW = 3 kHz, VBW  $\geq$  3 x RBW, Detector = peak.
3. Sweep time = auto couple, Trace mode = max hold, allow trace to fully stabilize.
4. Use the peak marker function to determine the maximum amplitude level.

#### 3.5.5 DEVIATION FROM TEST STANDARD

No deviation.

#### 3.5.6 EUT OPERATING CONDITION

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



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### 3.5.7 TEST RESULTS

Please Refer to Appendix1/2 Of this test report.



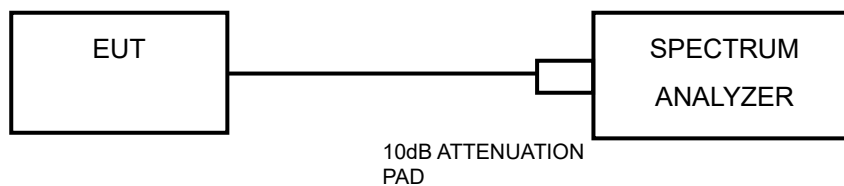


### 3.6 OUT OF BAND EMISSION MEASUREMENT

#### 3.6.1 LIMITS OF OUT OF BAND EMISSION MEASUREMENT

Below  $-20\text{dB}$  of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

#### 3.6.2 TEST SETUP



#### 3.6.3 TEST INSTRUMENTS

Refer to section 3.3.2 to get information of above instrument.

#### 3.6.4 TEST PROCEDURE

##### MEASUREMENT PROCEDURE REF

1. Set the RBW = 100 kHz.
2. Set the VBW  $\geq$  300 kHz.
3. Detector = peak.
4. Sweep time = auto couple.
5. Trace mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.



## MEASUREMENT PROCEDURE OOB

1. Set RBW = 100 kHz.
2. Set VBW  $\geq$  300 kHz.
3. Set span to encompass the spectrum to be examined
4. Detector = peak.
5. Trace Mode = max hold.
6. Sweep = auto couple.

### 3.6.5 DEVIATION FROM TEST STANDARD

No deviation.

### 3.6.6 EUT OPERATING CONDITION

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

### 3.6.7 TEST RESULTS

The spectrum plots are attached on the following images. D1 line indicates the highest level. D2 line indicates the 20dB offset below D1. It shows compliance to the requirement.

Please Refer to Appendix1/2 Of this test report.



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## 4 PHOTOGRAPHS OF THE TEST CONFIGURATION

Please refer to the attached file (Test Setup Photo).



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## **5 MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB**

No any modifications are made to the EUT by the lab during the test.



## 6 Appendix 1 WLAN 2.4G

### DTS BANDWIDTH

#### TEST RESULT

TestMode	Antenna	Freq(MHz)	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	8.520	2408.000	2416.520	0.5	PASS
		2437	8.560	2432.480	2441.040	0.5	PASS
		2462	8.520	2457.960	2466.480	0.5	PASS
11G	Ant1	2412	16.080	2404.080	2420.160	0.5	PASS
		2437	16.080	2428.840	2444.920	0.5	PASS
		2462	15.520	2454.640	2470.160	0.5	PASS
11N20SISO	Ant1	2412	16.880	2403.480	2420.360	0.5	PASS
		2437	17.280	2428.480	2445.760	0.5	PASS
		2462	16.800	2453.440	2470.240	0.5	PASS
11N40SISO	Ant1	2422	35.360	2404.240	2439.600	0.5	PASS
		2437	35.680	2419.400	2455.080	0.5	PASS
		2452	36.080	2434.080	2470.160	0.5	PASS



BUREAU VERITAS

Test Report No.: W7L-P22090011RF02

### TEST GRAPHS

11B\_Ant1\_2412



11B\_Ant1\_2437



11B\_Ant1\_2462

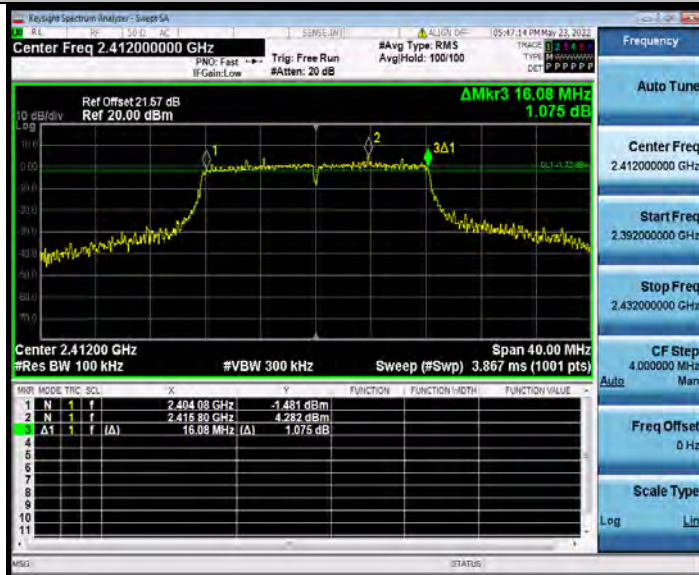


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Test Report No.: W7L-P22090011RF02



11G\_Ant1\_2412

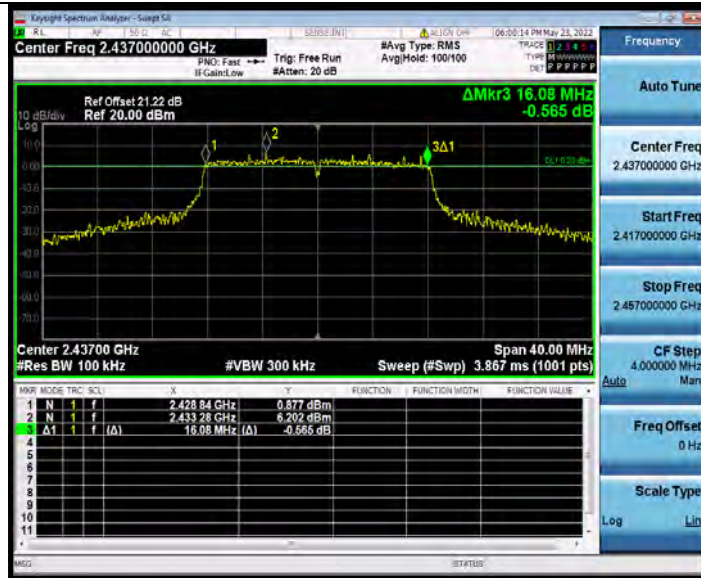


11G\_Ant1\_2437

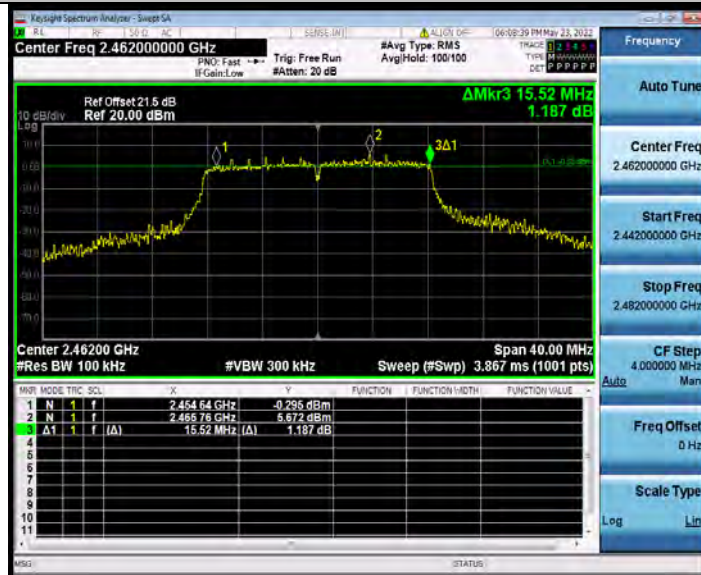


BUREAU VERITAS

Test Report No.: W7L-P22090011RF02



11G\_Ant1\_2462



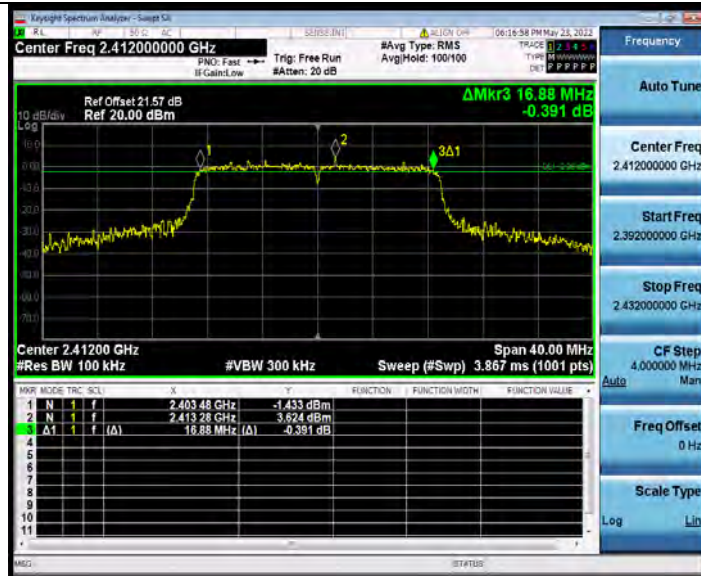
11N20SISO\_Ant1\_2412



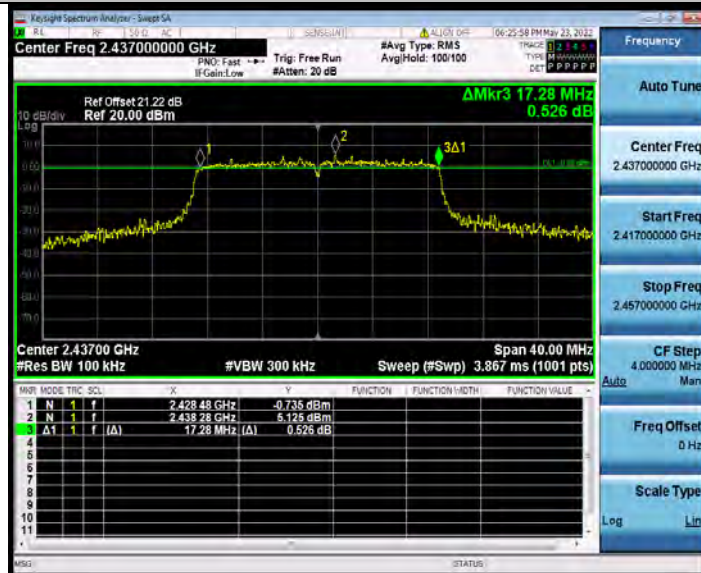


BUREAU VERITAS

Test Report No.: W7L-P22090011RF02



11N20SISO\_Ant1\_2437

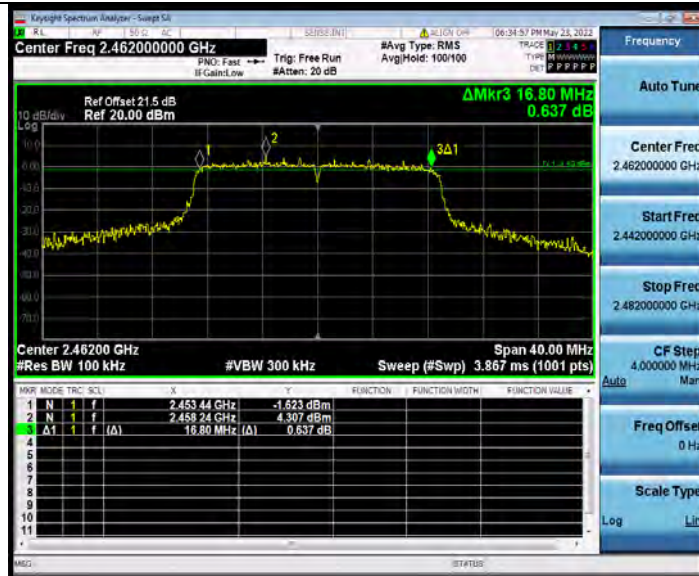


11N20SISO\_Ant1\_2462



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Test Report No.: W7L-P22090011RF02



11N40SISO\_Ant1\_2422

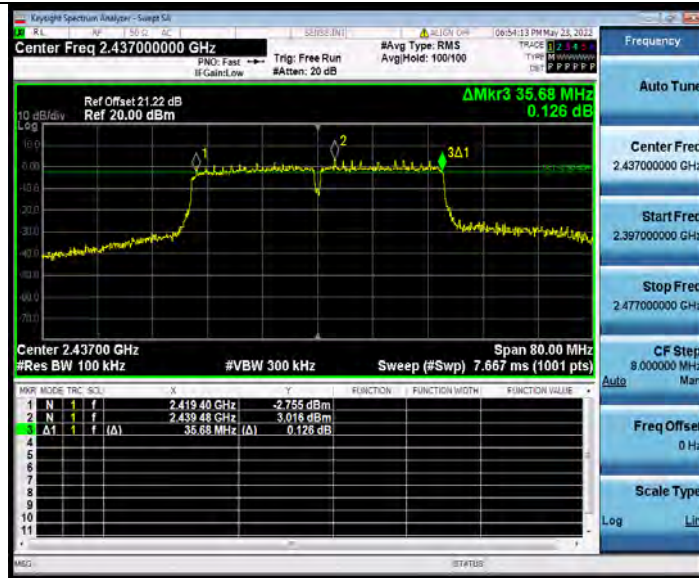


11N40SISO\_Ant1\_2437



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Test Report No.: W7L-P22090011RF02



11N40SISO\_Ant1\_2452





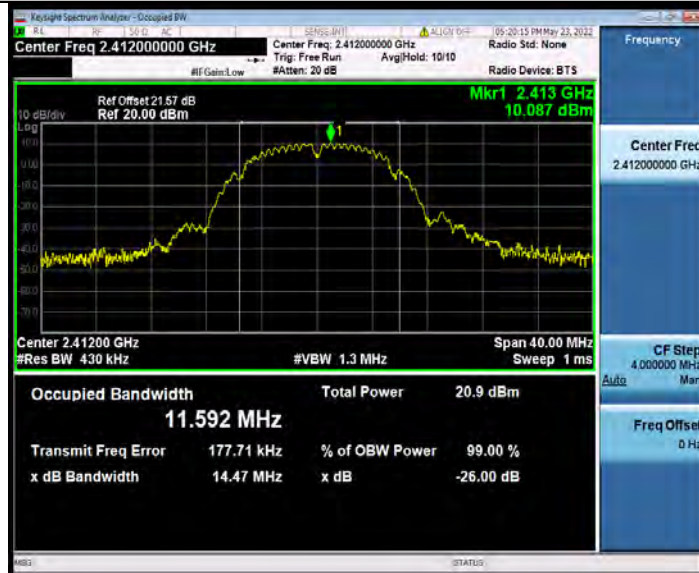
## OCCUPIED CHANNEL BANDWIDTH TEST RESULT

TestMode	Antenna	Freq(MHz)	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	11.592	2406.382	2417.974	---	---
		2437	11.923	2430.993	2442.916	---	---
		2462	11.691	2456.347	2468.038	---	---
11G	Ant1	2412	16.502	2403.805	2420.307	---	---
		2437	16.556	2428.685	2445.241	---	---
		2462	16.568	2453.832	2470.400	---	---
11N20SISO	Ant1	2412	17.513	2403.236	2420.749	---	---
		2437	17.656	2428.229	2445.885	---	---
		2462	17.574	2453.152	2470.726	---	---
11N40SISO	Ant1	2422	36.018	2403.979	2439.997	---	---
		2437	36.157	2419.071	2455.228	---	---
		2452	36.263	2433.921	2470.184	---	---



### TEST GRAPHS

11B\_Ant1\_2412



11B\_Ant1\_2437



11B\_Ant1\_2462

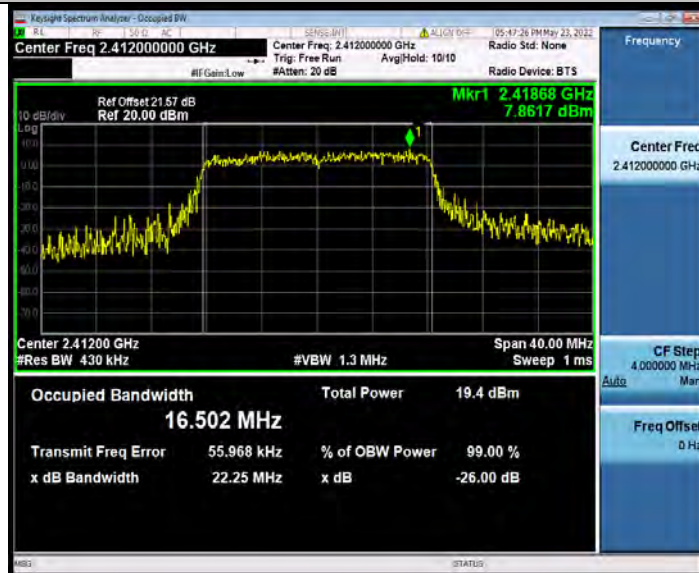


**BUREAU  
VERITAS**

**Test Report No.: W7L-P22090011RF02**



11G\_Ant1\_2412



11G\_Ant1\_2437



**BUREAU  
VERITAS**

**Test Report No.: W7L-P22090011RF02**



11G\_Ant1\_2462

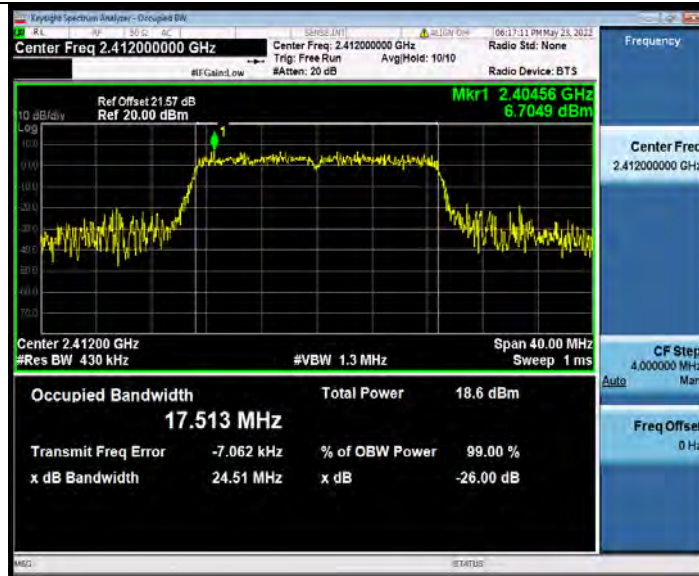


11N20SISO\_Ant1\_2412

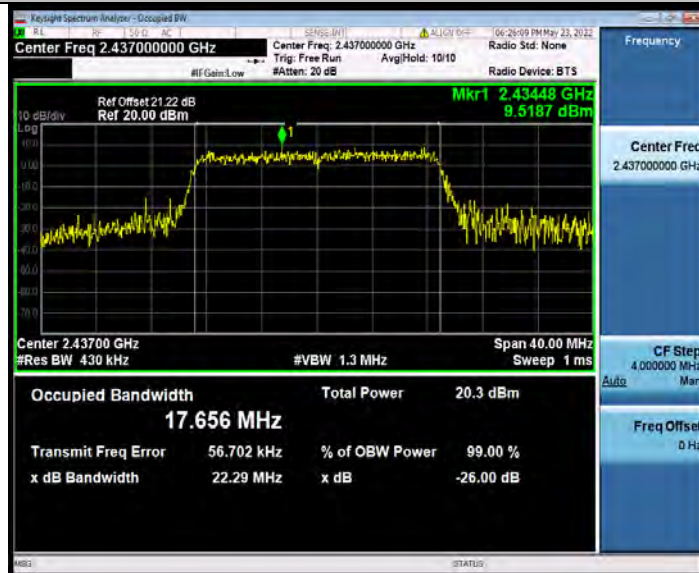


**BUREAU  
VERITAS**

**Test Report No.: W7L-P22090011RF02**



11N20SISO\_Ant1\_2437



11N20SISO\_Ant1\_2462



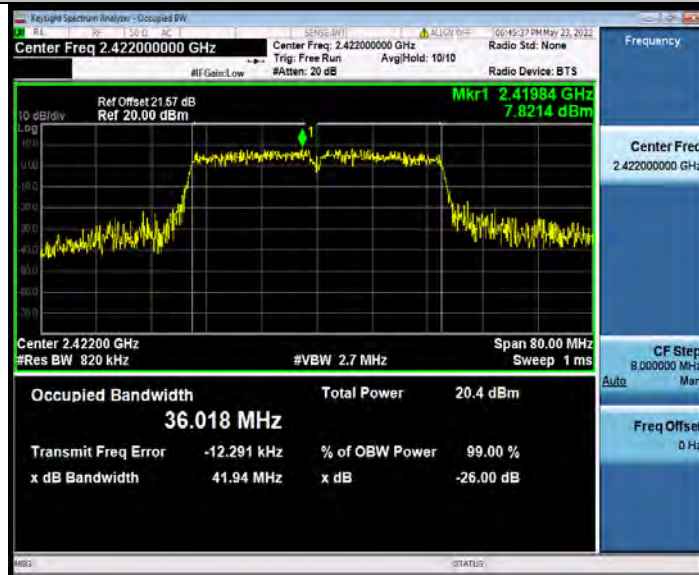


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**Test Report No.: W7L-P22090011RF02**



11N40SISO\_Ant1\_2422



11N40SISO\_Ant1\_2437

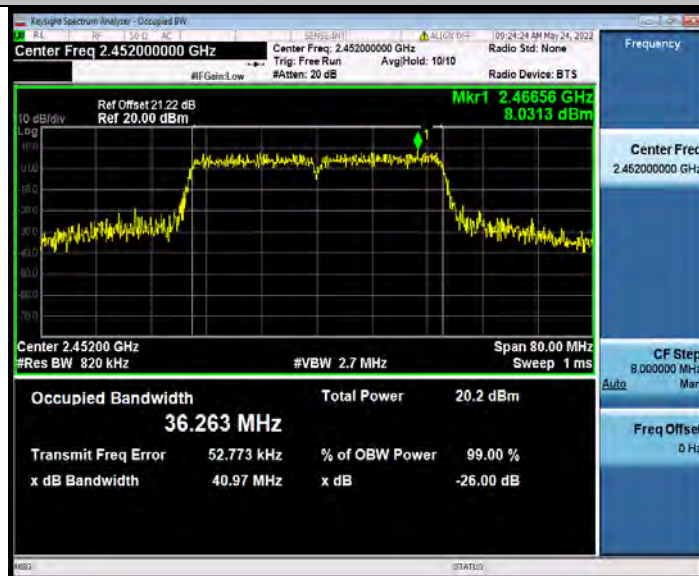


**BUREAU  
VERITAS**

**Test Report No.: W7L-P22090011RF02**



11N40SISO\_Ant1\_2452





### MAXIMUM CONDUCTED OUTPUT POWER

### TEST RESULT

TestMode	Antenna	Freq. (MHz)	Average Power[dBm]	Peak Power[dBm]	Peak Power[mw]	Limit [dBm]	Verdict	Power setting
11B	Ant1	2412	18.42	21.67	146.89	≤30	PASS	17
		2437	21.22	24.18	261.82	≤30	PASS	17
		2462	19.53	22.73	187.50	≤30	PASS	17
11G	Ant1	2412	15.83	23.15	206.54	≤30	PASS	15
		2437	18.40	24.83	<b>304.09</b>	≤30	PASS	15
		2462	15.39	23.08	203.24	≤30	PASS	14
11N20 SISO	Ant1	2412	15.05	22.65	184.08	≤30	PASS	14
		2437	17.95	24.54	284.45	≤30	PASS	14
		2462	15.37	23.12	205.12	≤30	PASS	13
11N40 SISO	Ant1	2422	16.18	23.35	216.27	≤30	PASS	14
		2437	17.76	24.71	295.80	≤30	PASS	14
		2452	14.57	22.36	172.19	≤30	PASS	12



## MAXIMUM POWER SPECTRAL DENSITY TEST RESULT

TestMode	Antenna	Freq(MHz)	Result [dBm/3kHz]	Limit [dBm/3kHz]	Verdict
11B	Ant1	2412	-0.98	≤8.00	PASS
		2437	0.82	≤8.00	PASS
		2462	-0.42	≤8.00	PASS
11G	Ant1	2412	-8.93	≤8.00	PASS
		2437	-7.97	≤8.00	PASS
		2462	-8.50	≤8.00	PASS
11N20SISO	Ant1	2412	-9.73	≤8.00	PASS
		2437	-8.15	≤8.00	PASS
		2462	-8.97	≤8.00	PASS
11N40SISO	Ant1	2422	-11.60	≤8.00	PASS
		2437	-10.95	≤8.00	PASS
		2452	-11.02	≤8.00	PASS



### TEST GRAPHS

11B\_Ant1\_2412



11B\_Ant1\_2437



11B\_Ant1\_2462

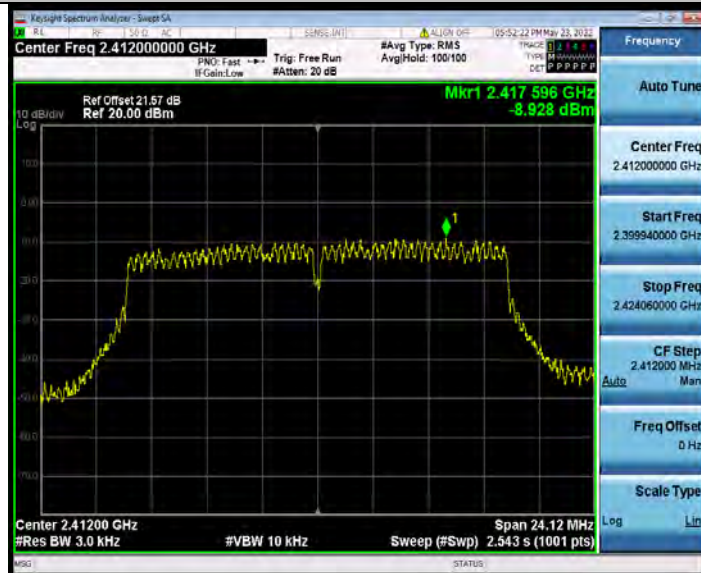


**BUREAU  
VERITAS**

**Test Report No.: W7L-P22090011RF02**



11G\_Ant1\_2412



11G\_Ant1\_2437



**BUREAU  
VERITAS**

Test Report No.: W7L-P22090011RF02



11G\_Ant1\_2462



11N20SISO\_Ant1\_2412

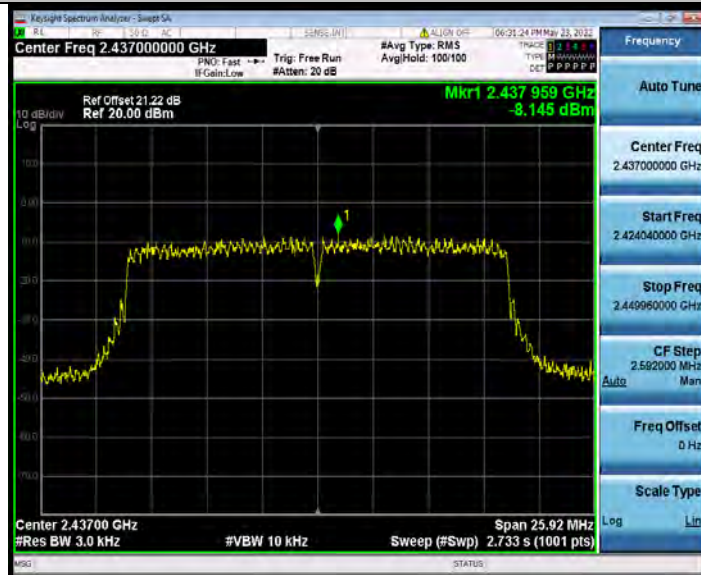


BUREAU VERITAS

Test Report No.: W7L-P22090011RF02



11N20SISO\_Ant1\_2437



11N20SISO\_Ant1\_2462



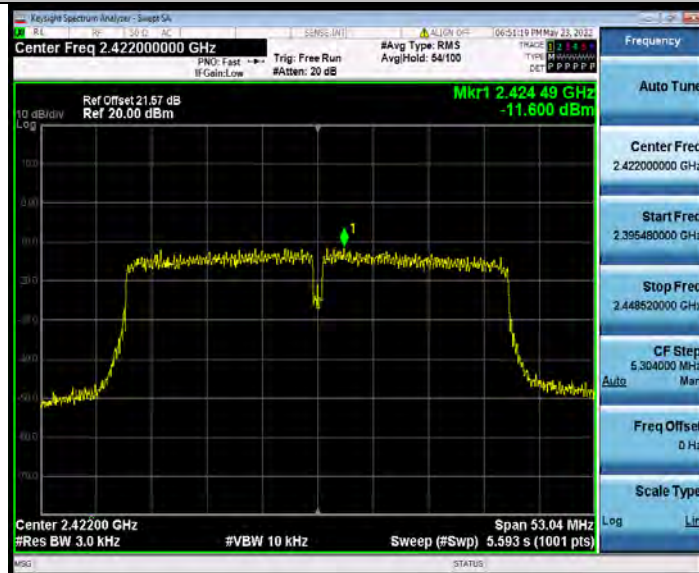


**BUREAU  
VERITAS**

Test Report No.: W7L-P22090011RF02



11N40SISO\_Ant1\_2422



11N40SISO\_Ant1\_2437

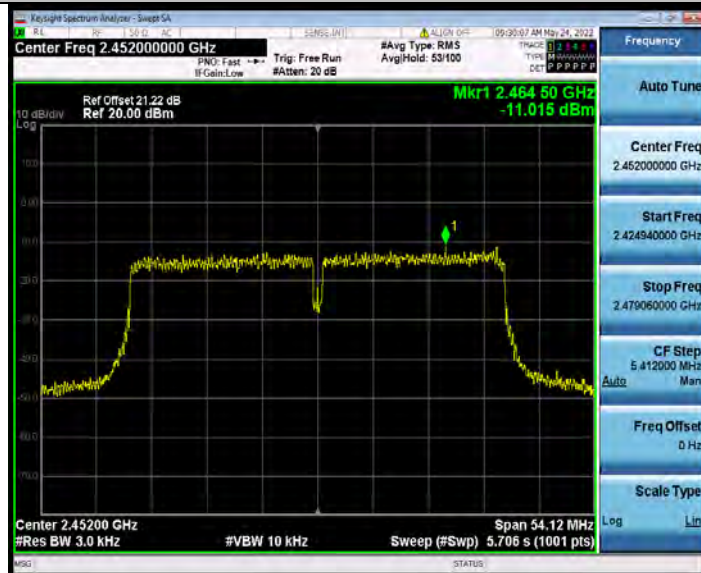


**BUREAU  
VERITAS**

Test Report No.: W7L-P22090011RF02



11N40SISO\_Ant1\_2452





## REFERENCE LEVEL MEASUREMENT

### TEST RESULT

TestMode	Antenna	Freq(MHz)	Max.Point[MHz]	Result[dBm]
11B	Ant1	2412	2413.01	9.68
		2437	2438.00	11.49
		2462	2461.00	10.02
11G	Ant1	2412	2409.52	3.85
		2437	2438.28	6.55
		2462	2464.47	4.94
11N20SISO	Ant1	2412	2413.27	3.87
		2437	2438.27	5.31
		2462	2454.54	4.17
11N40SISO	Ant1	2422	2415.74	2.16
		2437	2440.75	2.84
		2452	2464.50	1.81



### TEST GRAPHS

11B\_Ant1\_2412



11B\_Ant1\_2437



11B\_Ant1\_2462



**BUREAU  
VERITAS**

**Test Report No.: W7L-P22090011RF02**



11G\_Ant1\_2412



11G\_Ant1\_2437



**BUREAU  
VERITAS**

Test Report No.: W7L-P22090011RF02



11G\_Ant1\_2462



11N20SISO\_Ant1\_2412



**BUREAU  
VERITAS**

Test Report No.: W7L-P22090011RF02



11N20SISO\_Ant1\_2437



11N20SISO\_Ant1\_2462



**BUREAU  
VERITAS**

Test Report No.: W7L-P22090011RF02



11N40SISO\_Ant1\_2422



11N40SISO\_Ant1\_2437



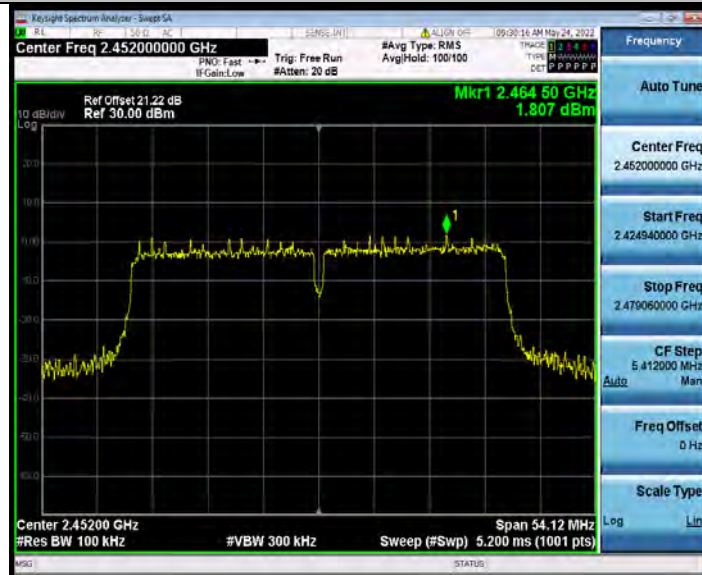


**BUREAU  
VERITAS**

**Test Report No.: W7L-P22090011RF02**



11N40SISO\_Ant1\_2452





## BAND EDGE MEASUREMENTS

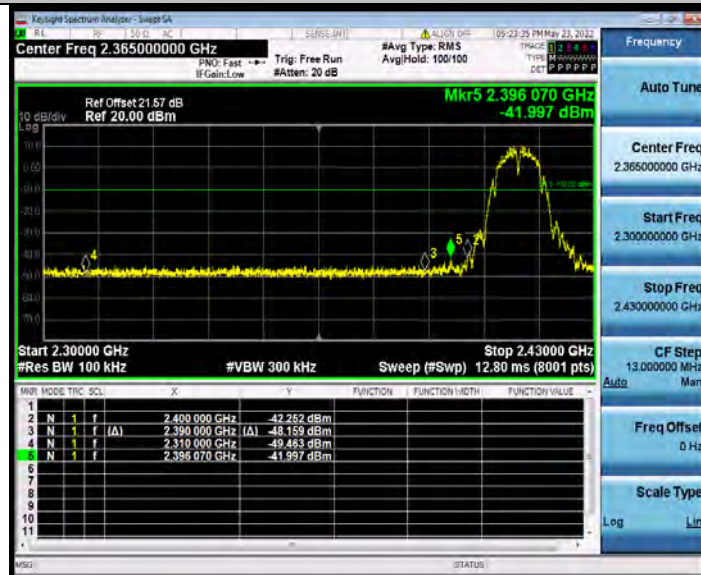
### TEST RESULT

TestMode	Antenna	ChName	Freq(MHz)	RefLevel [dBm]	Result [dBm]	Limit[dBm]	Verdict
11B	Ant1	Low	2412	9.68	-42.00	≤-10.32	PASS
		High	2462	10.02	-44.29	≤-9.98	PASS
11G	Ant1	Low	2412	3.85	-28.38	≤-16.15	PASS
		High	2462	4.94	-38.34	≤-15.06	PASS
11N20SISO	Ant1	Low	2412	3.87	-27.90	≤-16.13	PASS
		High	2462	4.17	-41.29	≤-15.83	PASS
11N40SISO	Ant1	Low	2422	2.16	-29.31	≤-17.84	PASS
		High	2452	1.81	-35.12	≤-18.19	PASS



### TEST GRAPHS

11B\_Ant1\_Low\_2412



11B\_Ant1\_High\_2462



11G\_Ant1\_Low\_2412



BUREAU VERITAS

Test Report No.: W7L-P22090011RF02



11G\_Ant1\_High\_2462



11N20SISO\_Ant1\_Low\_2412

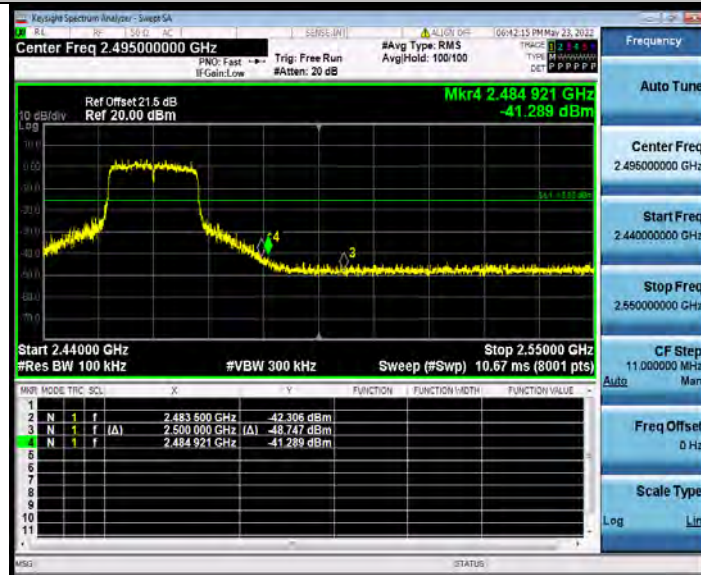


**BUREAU  
VERITAS**

**Test Report No.: W7L-P22090011RF02**



11N20SISO\_Ant1\_High\_2462



11N40SISO\_Ant1\_Low\_2422



BUREAU VERITAS

Test Report No.: W7L-P22090011RF02



11N40SISO\_Ant1\_High\_2452





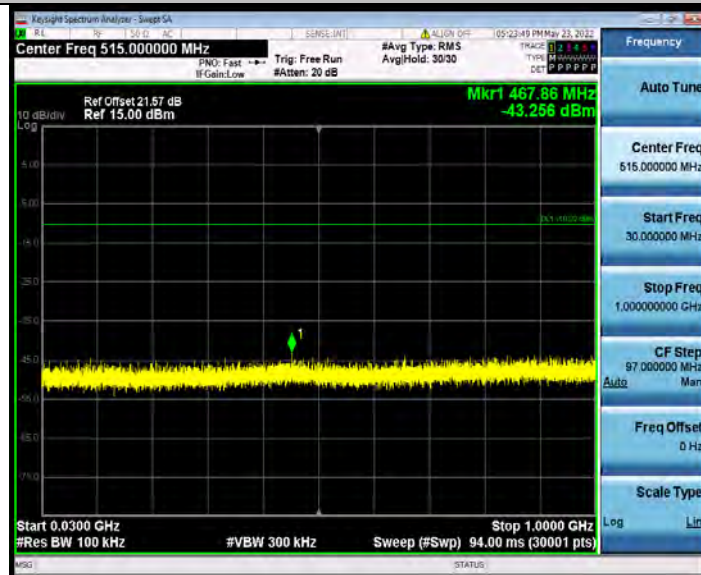
### CONDUCTED SPURIOUS EMISSION TEST RESULT

TestMode	Antenna	Freq(MHz)	FreqRange [Mhz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
11B	Ant1	2412	30~1000	9.68	-43.26	≤-10.32	PASS
			1000~26500	9.68	-26.91	≤-10.32	PASS
		2437	30~1000	11.49	-42.91	≤-8.51	PASS
			1000~26500	11.49	-27.51	≤-8.51	PASS
		2462	30~1000	10.02	-43.49	≤-9.98	PASS
			1000~26500	10.02	-27.52	≤-9.98	PASS
11G	Ant1	2412	30~1000	3.85	-43.27	≤-16.15	PASS
			1000~26500	3.85	-27.04	≤-16.15	PASS
		2437	30~1000	6.55	-43.18	≤-13.45	PASS
			1000~26500	6.55	-27.91	≤-13.45	PASS
		2462	30~1000	4.94	-43.07	≤-15.06	PASS
			1000~26500	4.94	-26.86	≤-15.06	PASS
11N20SISO	Ant1	2412	30~1000	3.87	-43.22	≤-16.13	PASS
			1000~26500	3.87	-27.39	≤-16.13	PASS
		2437	30~1000	5.31	-43.76	≤-14.69	PASS
			1000~26500	5.31	-28.06	≤-14.69	PASS
		2462	30~1000	4.17	-43.49	≤-15.83	PASS
			1000~26500	4.17	-27.91	≤-15.83	PASS
11N40SISO	Ant1	2422	30~1000	2.16	-42.01	≤-17.84	PASS
			1000~26500	2.16	-26.42	≤-17.84	PASS
		2437	30~1000	2.84	-43.82	≤-17.16	PASS
			1000~26500	2.84	-27.38	≤-17.16	PASS
		2452	30~1000	1.81	-43.37	≤-18.19	PASS
			1000~26500	1.81	-27.57	≤-18.19	PASS



### TEST GRAPHS

11B\_Ant1\_2412\_30~1000



11B\_Ant1\_2412\_1000~26500



11B\_Ant1\_2437\_30~1000





**BUREAU  
VERITAS**

**Test Report No.: W7L-P22090011RF02**



11B\_Ant1\_2437\_1000~26500

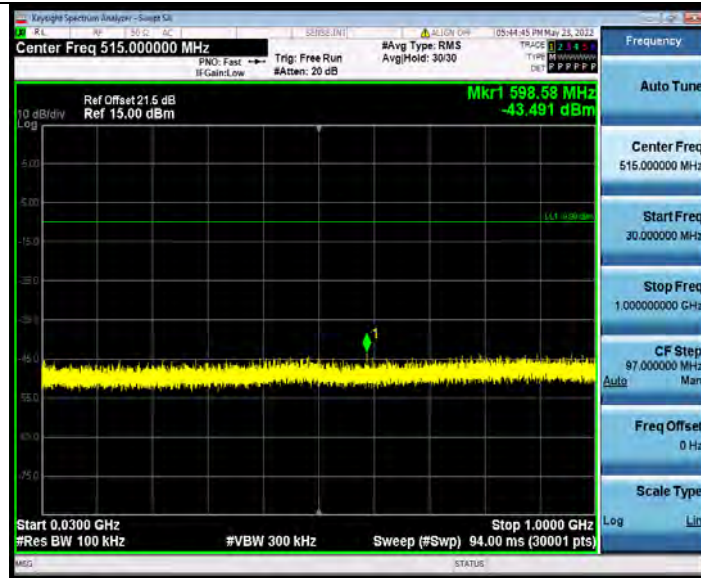


11B\_Ant1\_2462\_30~1000



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VERITAS**

**Test Report No.: W7L-P22090011RF02**



11B\_Ant1\_2462\_1000~26500



11G\_Ant1\_2412\_30~1000



**BUREAU  
VERITAS**

**Test Report No.: W7L-P22090011RF02**



11G\_Ant1\_2412\_1000~26500

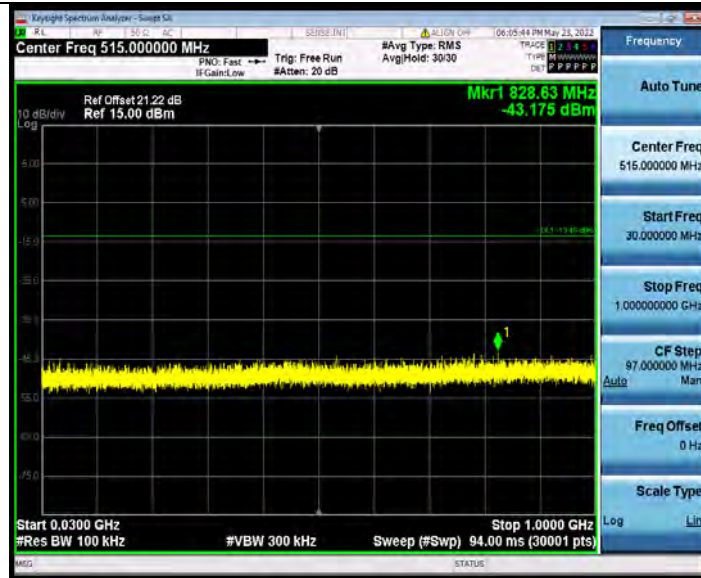


11G\_Ant1\_2437\_30~1000



BUREAU VERITAS

Test Report No.: W7L-P22090011RF02



11G\_Ant1\_2437\_1000~26500

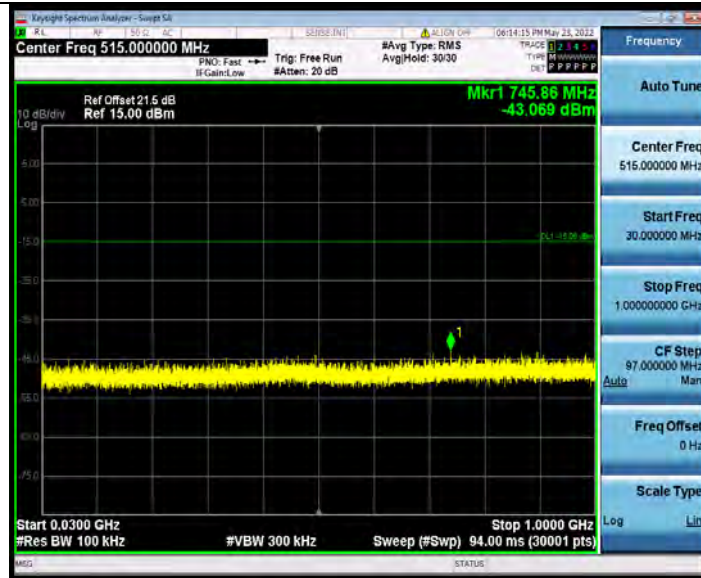


11G\_Ant1\_2462\_30~1000



**BUREAU  
VERITAS**

**Test Report No.: W7L-P22090011RF02**



11G\_Ant1\_2462\_1000~26500

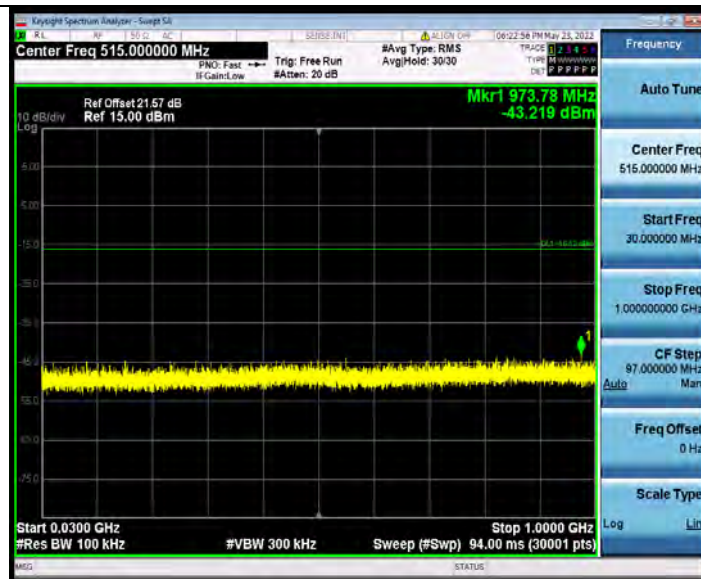


11N20SISO\_Ant1\_2412\_30~1000



**BUREAU  
VERITAS**

**Test Report No.: W7L-P22090011RF02**



11N20SISO\_Ant1\_2412\_1000~26500



11N20SISO\_Ant1\_2437\_30~1000



**BUREAU  
VERITAS**

**Test Report No.: W7L-P22090011RF02**



11N20SISO\_Ant1\_2437\_1000~26500

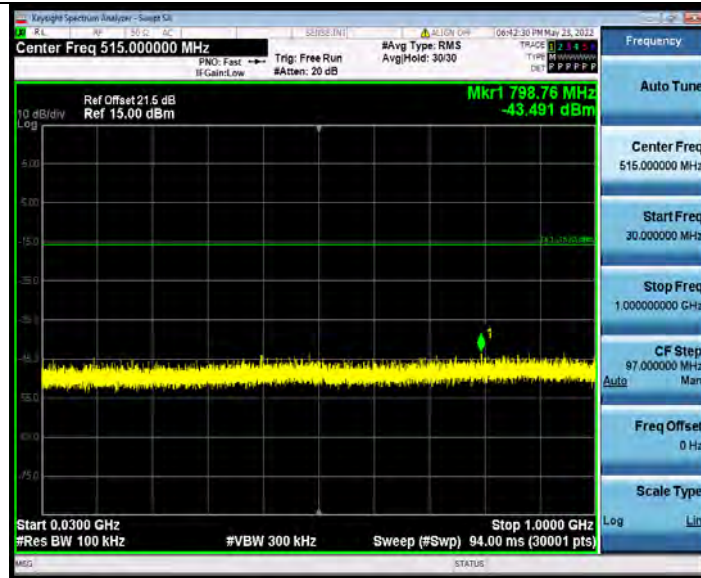


11N20SISO\_Ant1\_2462\_30~1000



**BUREAU  
VERITAS**

**Test Report No.: W7L-P22090011RF02**



11N20SISO\_Ant1\_2462\_1000~26500



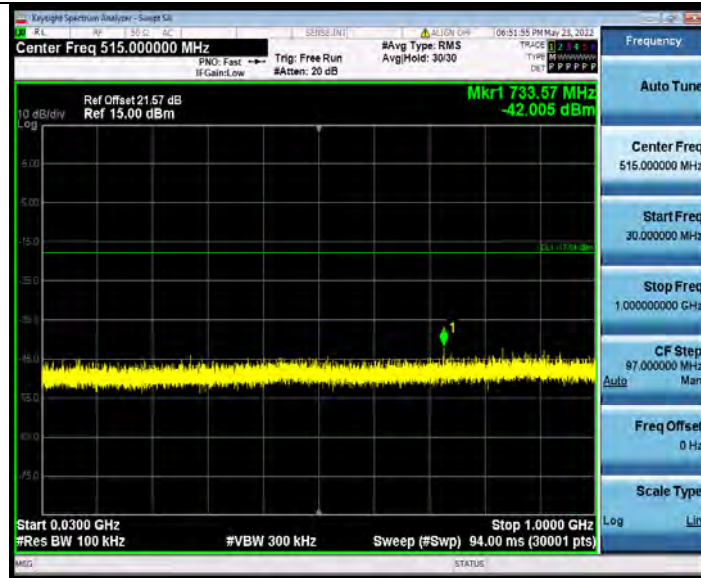
11N40SISO\_Ant1\_2422\_30~1000





**BUREAU  
VERITAS**

**Test Report No.: W7L-P22090011RF02**



11N40SISO\_Ant1\_2422\_1000~26500



11N40SISO\_Ant1\_2437\_30~1000



BUREAU VERITAS

Test Report No.: W7L-P22090011RF02



11N40SISO\_Ant1\_2437\_1000~26500

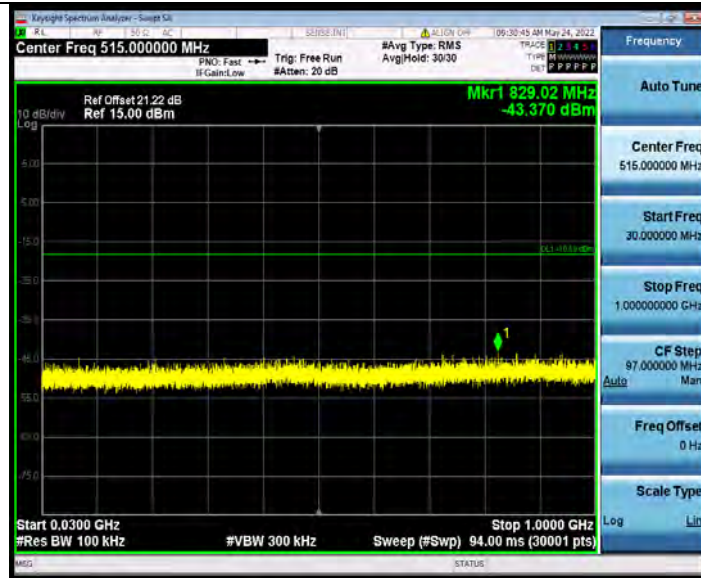


11N40SISO\_Ant1\_2452\_30~1000



**BUREAU  
VERITAS**

**Test Report No.: W7L-P22090011RF02**



11N40SISO\_Ant1\_2452\_1000~26500





## DUTY CYCLE

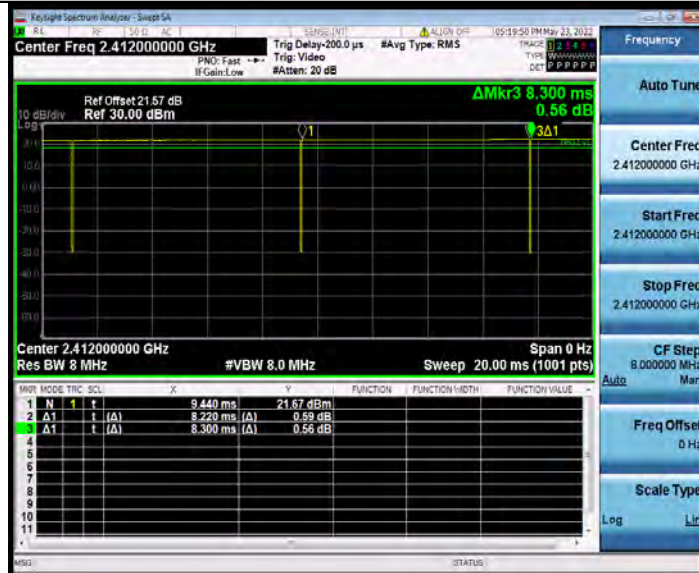
### TEST RESULT

TestMode	Antenna	Freq(MHz)	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	Verdict
11B	Ant1	2412	8.22	8.30	99.04	---
		2437	8.22	8.30	99.04	---
		2462	8.22	8.30	99.04	---
11G	Ant1	2412	1.36	1.43	95.10	---
		2437	1.37	1.44	95.14	---
		2462	1.36	1.43	95.10	---
11N20SISO	Ant1	2412	1.15	1.23	93.50	---
		2437	1.15	1.27	90.55	---
		2462	1.15	1.24	92.74	---
11N40SISO	Ant1	2422	0.58	0.65	89.23	---
		2437	0.57	0.65	87.69	---
		2452	0.58	0.67	86.57	---

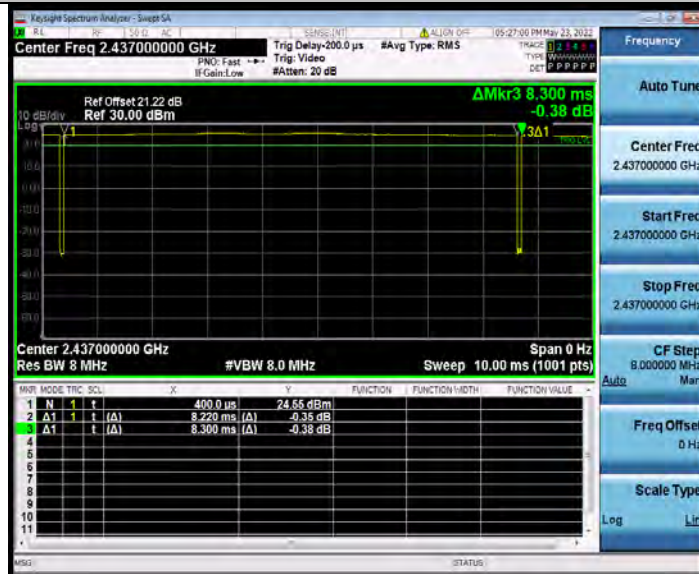


### TEST GRAPHS

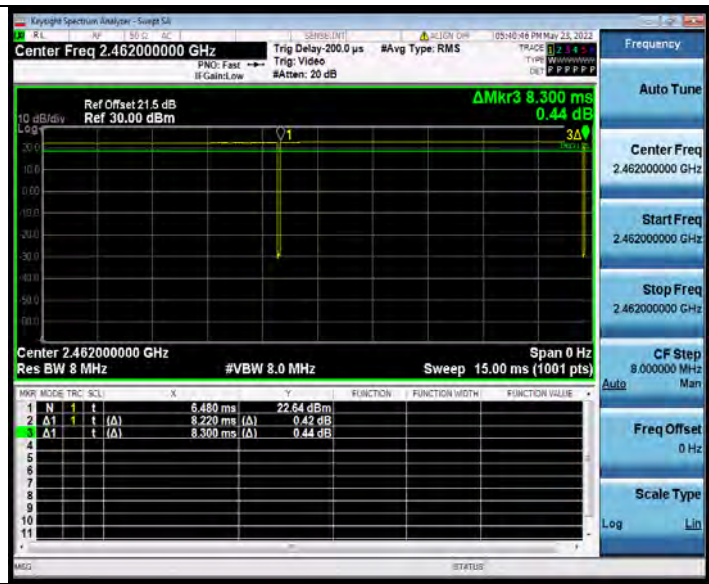
11B\_Ant1\_2412



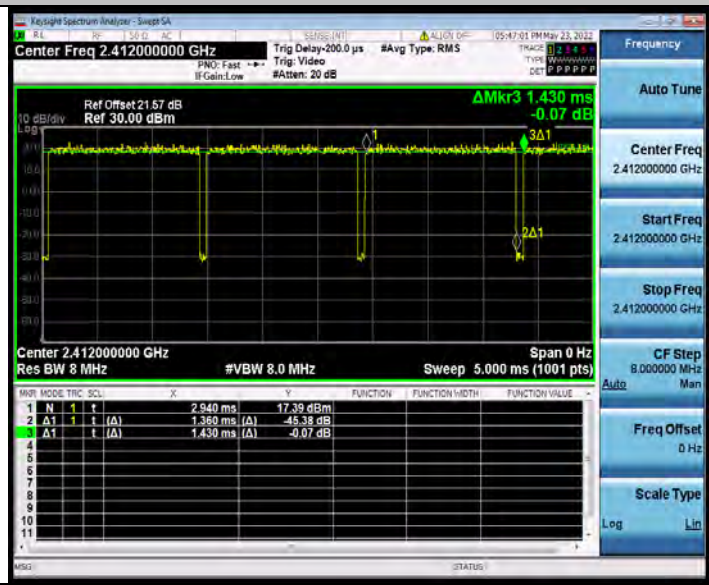
11B\_Ant1\_2437



11B\_Ant1\_2462



11G\_Ant1\_2412

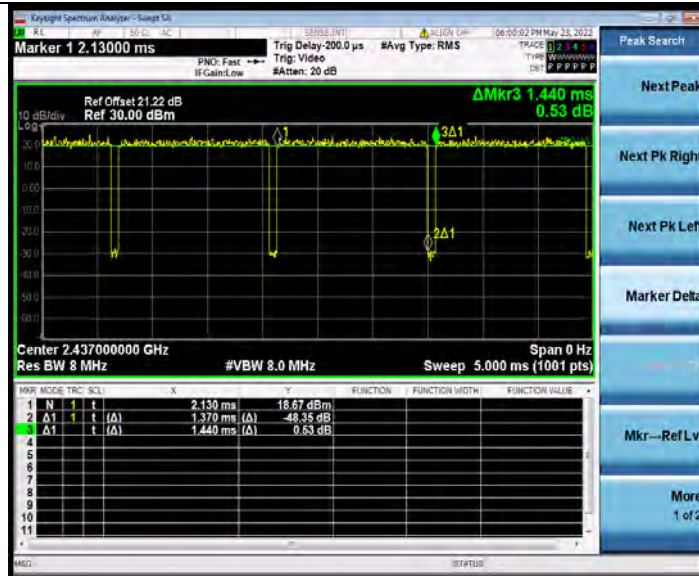


11G\_Ant1\_2437

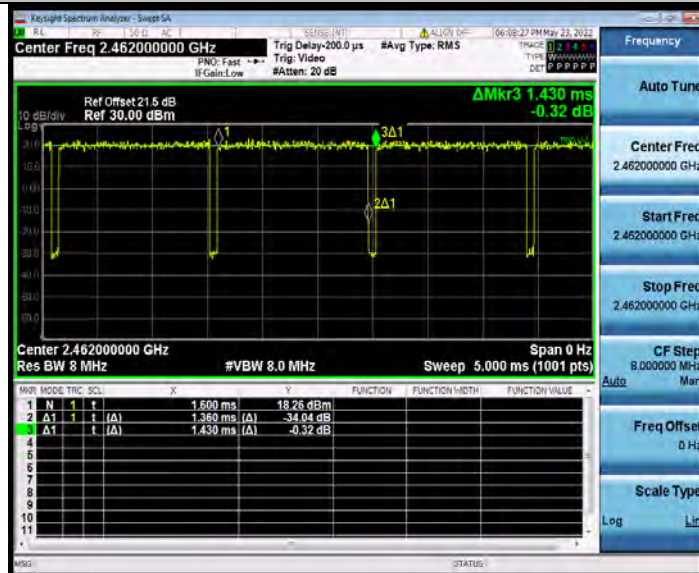


**BUREAU  
VERITAS**

Test Report No.: W7L-P22090011RF02



11G\_Ant1\_2462

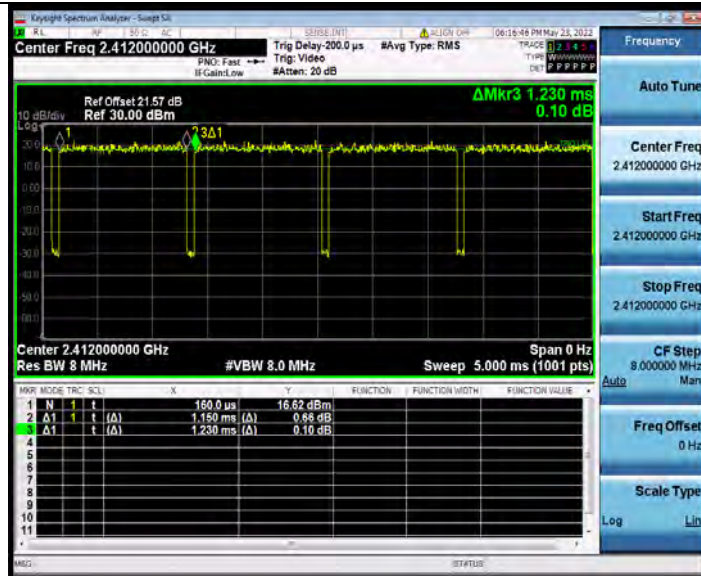


11N20SISO\_Ant1\_2412

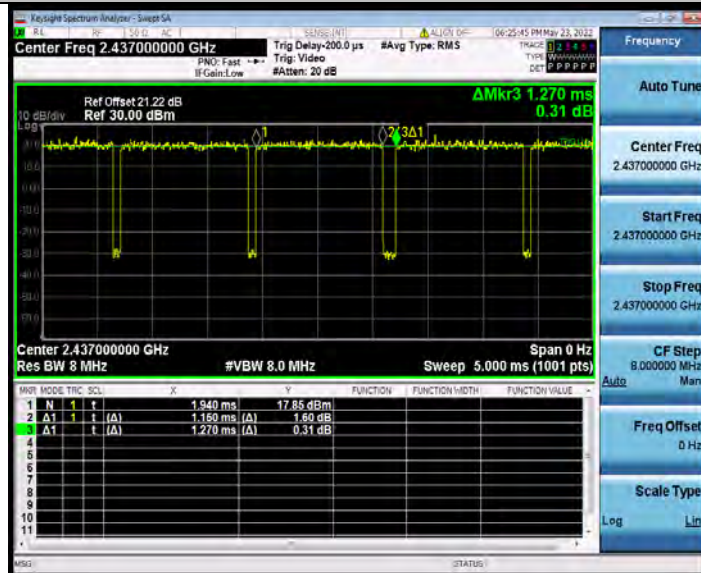


BUREAU VERITAS

Test Report No.: W7L-P22090011RF02



11N20SISO\_Ant1\_2437



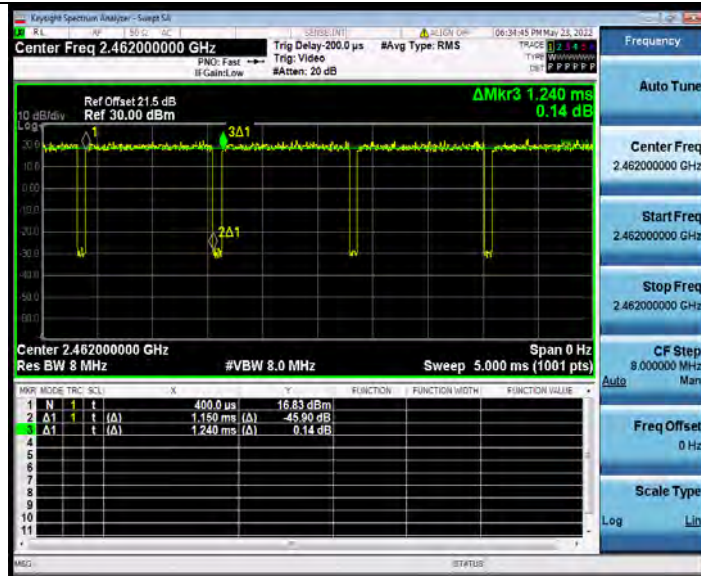
11N20SISO\_Ant1\_2462



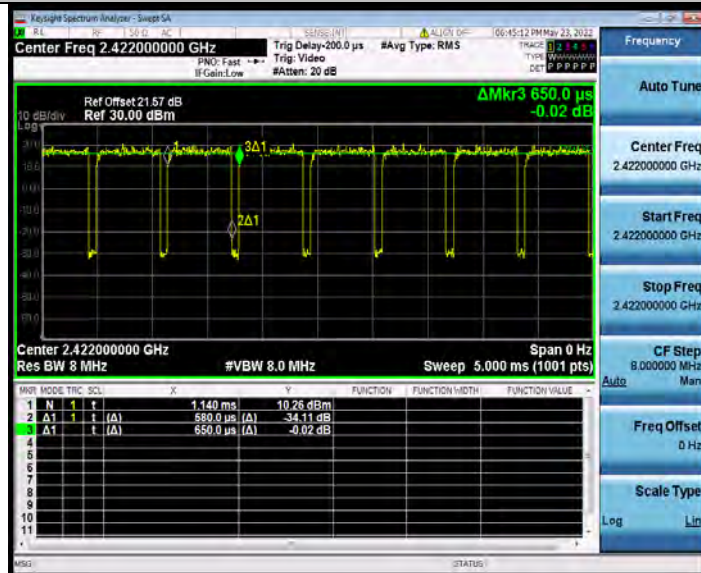


BUREAU VERITAS

Test Report No.: W7L-P22090011RF02



11N40SISO\_Ant1\_2422

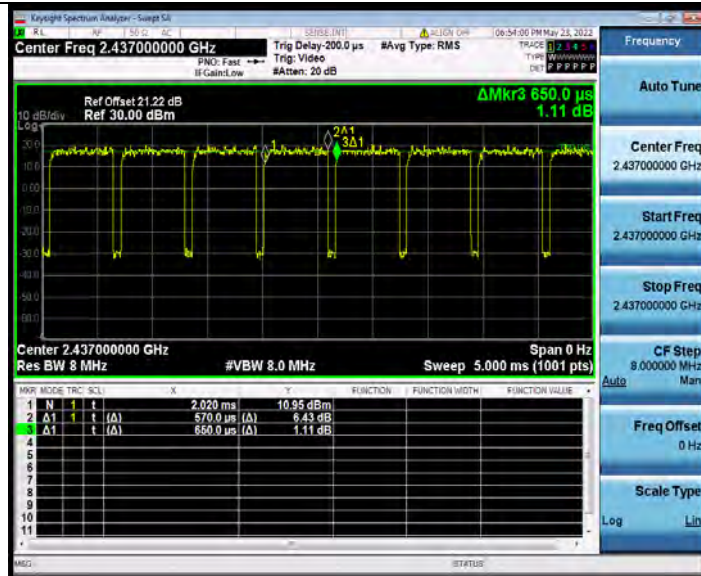


11N40SISO\_Ant1\_2437

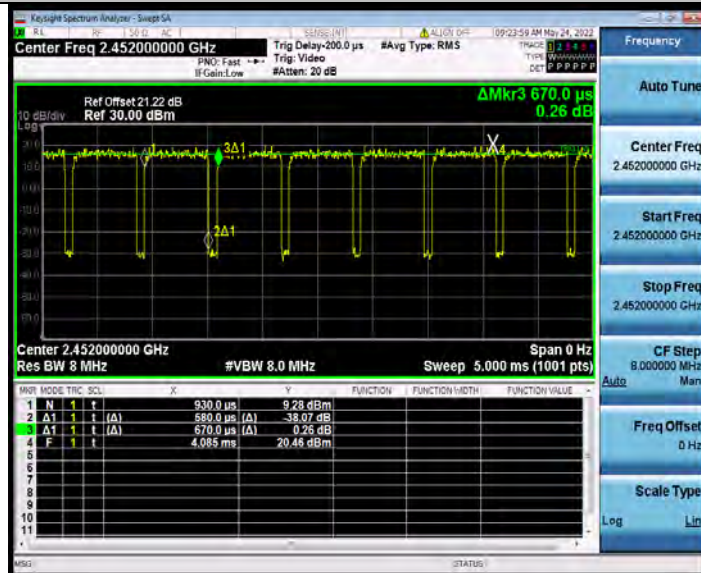


**BUREAU  
VERITAS**

Test Report No.: W7L-P22090011RF02



11N40SISO\_Ant1\_2452





## 7 Appendix 2 BLE

### DTS BANDWIDTH TEST RESULT

TestMode	Antenna	Frequency[MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_125K	Ant1	2402	0.680	2401.660	2402.340	0.5	PASS
		2440	0.680	2439.656	2440.336	0.5	PASS
		2480	0.680	2479.656	2480.336	0.5	PASS
BLE_1M	Ant1	2402	0.640	2401.676	2402.316	0.5	PASS
		2440	0.656	2439.672	2440.328	0.5	PASS
		2480	0.720	2479.636	2480.356	0.5	PASS
BLE_2M	Ant1	2402	1.120	2401.424	2402.544	0.5	PASS
		2440	1.232	2439.360	2440.592	0.5	PASS
		2480	1.228	2479.352	2480.580	0.5	PASS
BLE_500K	Ant1	2402	0.660	2401.676	2402.336	0.5	PASS
		2440	0.644	2439.676	2440.320	0.5	PASS
		2480	0.648	2479.676	2480.324	0.5	PASS

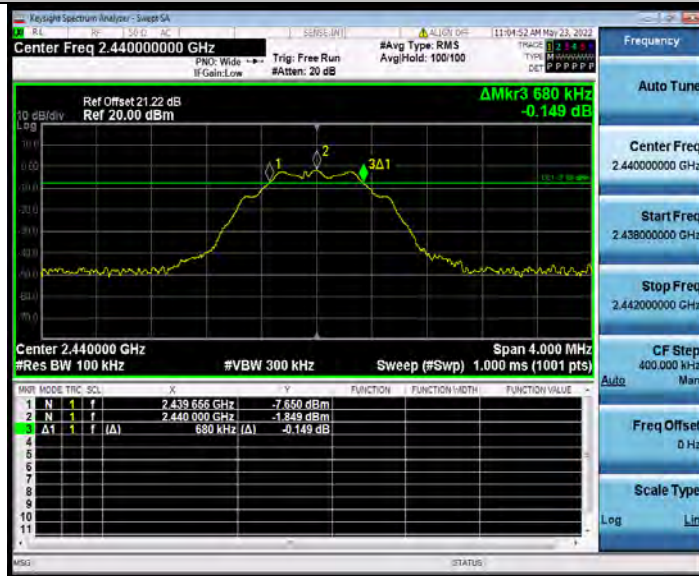


### TEST GRAPHS

BLE\_125K\_Ant1\_2402



BLE\_125K\_Ant1\_2440



BLE\_125K\_Ant1\_2480



**BUREAU VERITAS** Test Report No.: W7L-P22090011RF02



BLE\_1M\_Ant1\_2402



BLE\_1M\_Ant1\_2440



**BUREAU  
VERITAS**

**Test Report No.: W7L-P22090011RF02**



BLE\_1M\_Ant1\_2480



BLE\_2M\_Ant1\_2402



BLE\_2M\_Ant1\_2440



BLE\_2M\_Ant1\_2480



BUREAU VERITAS

Test Report No.: W7L-P22090011RF02



BLE\_500K\_Ant1\_2402



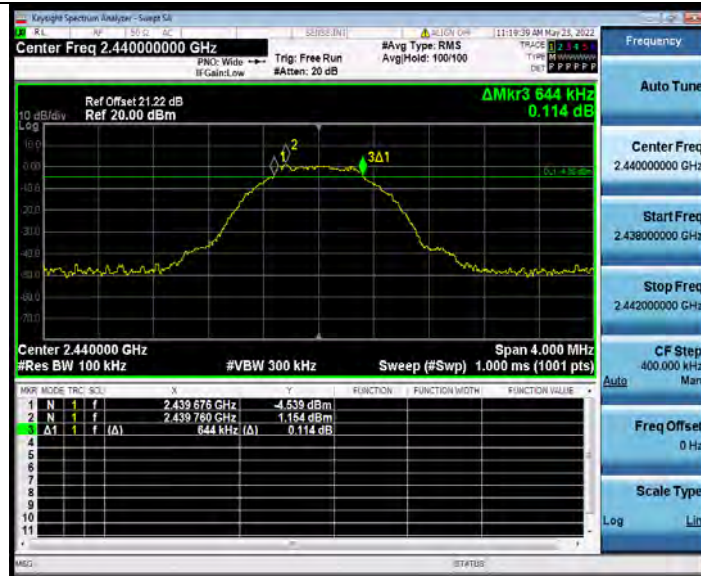
BLE\_500K\_Ant1\_2440





**BUREAU  
VERITAS**

**Test Report No.: W7L-P22090011RF02**



BLE\_500K\_Ant1\_2480





## OCCUPIED CHANNEL BANDWIDTH

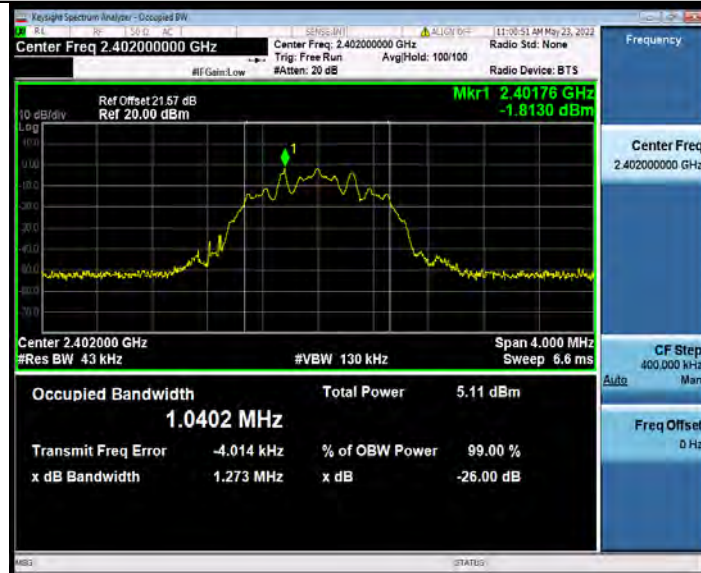
### TEST RESULT

TestMode	Antenna	Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_125K	Ant1	2402	1.0402	2401.476	2402.516	---	---
		2440	1.0415	2439.475	2440.517	---	---
		2480	1.0418	2479.474	2480.516	---	---
BLE_1M	Ant1	2402	1.0122	2401.496	2402.508	---	---
		2440	1.0089	2439.495	2440.504	---	---
		2480	1.0089	2479.496	2480.505	---	---
BLE_2M	Ant1	2402	2.0216	2401.004	2403.026	---	---
		2440	2.0192	2439.004	2441.023	---	---
		2480	2.0254	2479.000	2481.025	---	---
BLE_500K	Ant1	2402	1.0148	2401.488	2402.503	---	---
		2440	1.0146	2439.489	2440.504	---	---
		2480	1.0082	2479.492	2480.501	---	---



### TEST GRAPHS

BLE\_125K\_Ant1\_2402



BLE\_125K\_Ant1\_2440



BLE\_125K\_Ant1\_2480



**BUREAU  
VERITAS**

**Test Report No.: W7L-P22090011RF02**



BLE\_1M\_Ant1\_2402



BLE\_1M\_Ant1\_2440



**BUREAU VERITAS** Test Report No.: W7L-P22090011RF02



BLE\_1M\_Ant1\_2480



BLE\_2M\_Ant1\_2402



**BUREAU  
VERITAS**

**Test Report No.: W7L-P22090011RF02**



BLE\_2M\_Ant1\_2440



BLE\_2M\_Ant1\_2480



**BUREAU  
VERITAS**

**Test Report No.: W7L-P22090011RF02**



BLE\_500K\_Ant1\_2402



BLE\_500K\_Ant1\_2440



**BUREAU  
VERITAS**

**Test Report No.: W7L-P22090011RF02**



BLE\_500K\_Ant1\_2480







**MAXIMUM CONDUCTED OUTPUT POWER  
TEST RESULT PEAK**

TestMode	Antenna	Freq. [MHz]	Average Power [dBm]	Peak Power [dBm]	Peak Power [mW]	Limit [dBm]	Verdict	Power setting
BLE_125K	Ant1	2402	3.34	3.82	2.41	≤30	PASS	Default
		2440	3.84	4.31	2.70	≤30	PASS	Default
		2480	2.88	3.52	2.25	≤30	PASS	Default
BLE_1M	Ant1	2402	2.57	3.72	2.36	≤30	PASS	Default
		2440	3.04	4.25	2.66	≤30	PASS	Default
		2480	2.13	3.33	2.15	≤30	PASS	Default
BLE_2M	Ant1	2402	1.26	3.76	2.38	≤30	PASS	Default
		2440	1.72	4.23	2.65	≤30	PASS	Default
		2480	0.87	3.29	2.13	≤30	PASS	Default
BLE_500K	Ant1	2402	2.48	3.90	2.45	≤30	PASS	Default
		2440	2.98	<b>4.40</b>	<b>2.75</b>	≤30	PASS	Default
		2480	2.02	3.49	2.23	≤30	PASS	Default



## MAXIMUM POWER SPECTRAL DENSITY

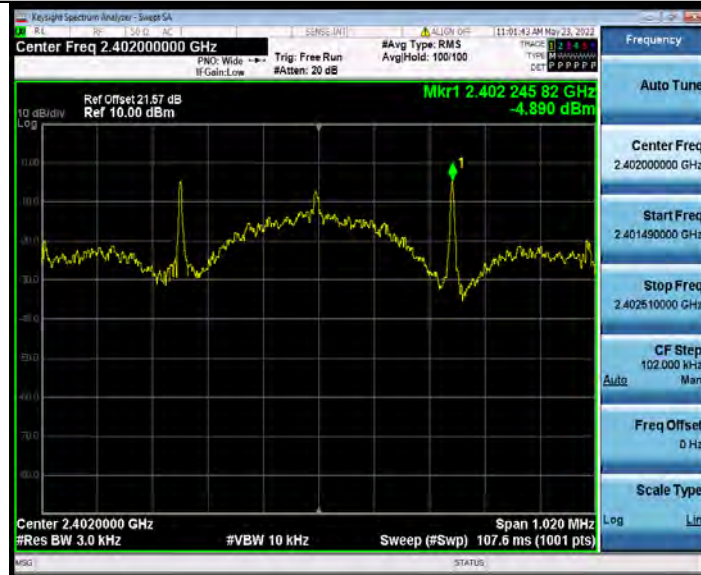
### TEST RESULT

TestMode	Antenna	Frequency[MHz]	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_125K	Ant1	2402	-4.89	≤8.00	PASS
		2440	-4.95	≤8.00	PASS
		2480	-5.69	≤8.00	PASS
BLE_1M	Ant1	2402	-14.80	≤8.00	PASS
		2440	-14.70	≤8.00	PASS
		2480	-15.54	≤8.00	PASS
BLE_2M	Ant1	2402	-17.96	≤8.00	PASS
		2440	-18.02	≤8.00	PASS
		2480	-18.85	≤8.00	PASS
BLE_500K	Ant1	2402	-4.88	≤8.00	PASS
		2440	-4.90	≤8.00	PASS
		2480	-5.66	≤8.00	PASS



### TEST GRAPHS

BLE\_125K\_Ant1\_2402



BLE\_125K\_Ant1\_2440

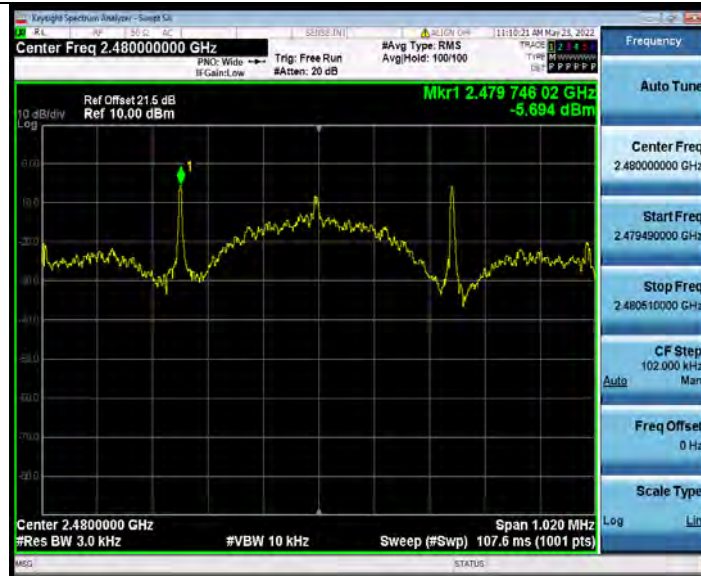


BLE\_125K\_Ant1\_2480



**BUREAU  
VERITAS**

Test Report No.: W7L-P22090011RF02



BLE\_1M\_Ant1\_2402



BLE\_1M\_Ant1\_2440



**BUREAU  
VERITAS**

**Test Report No.: W7L-P22090011RF02**



BLE\_1M\_Ant1\_2480



BLE\_2M\_Ant1\_2402



**BUREAU  
VERITAS**

Test Report No.: W7L-P22090011RF02



BLE\_2M\_Ant1\_2440

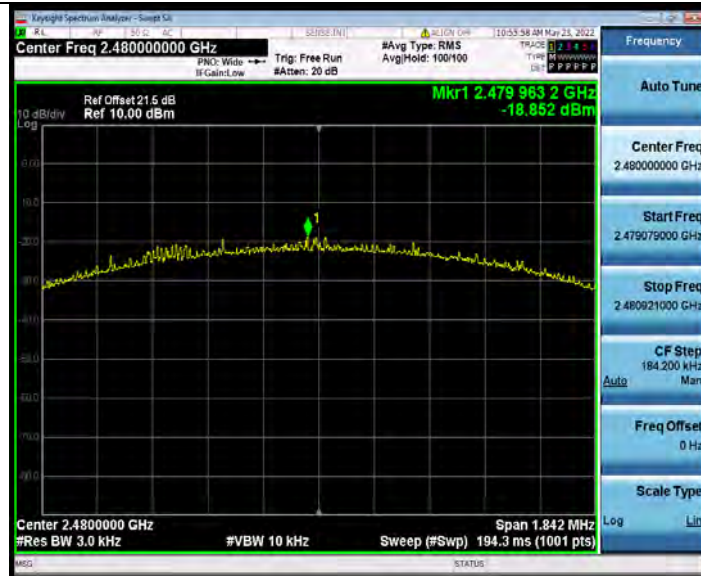


BLE\_2M\_Ant1\_2480

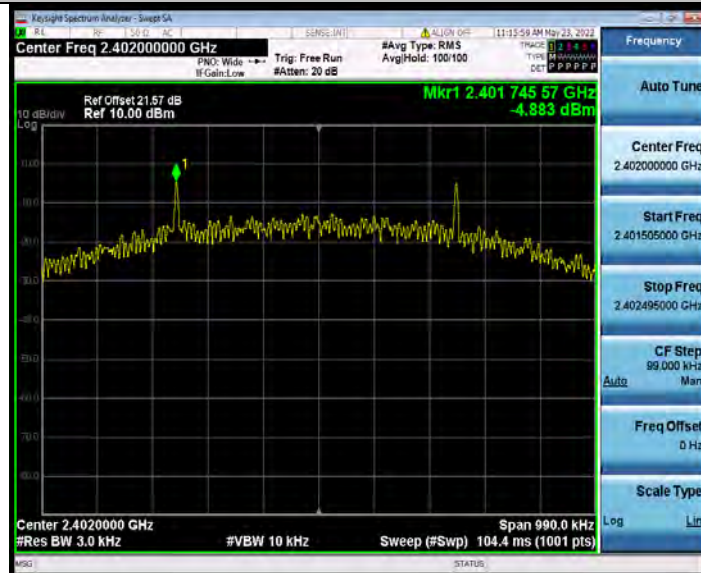


**BUREAU  
VERITAS**

Test Report No.: W7L-P22090011RF02



BLE\_500K\_Ant1\_2402



BLE\_500K\_Ant1\_2440

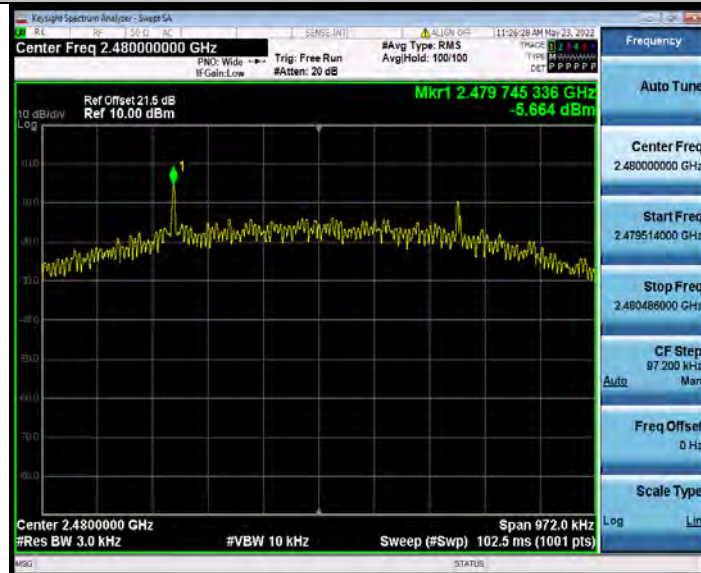


**BUREAU  
VERITAS**

**Test Report No.: W7L-P22090011RF02**



BLE\_500K\_Ant1\_2480







## REFERENCE LEVEL MEASUREMENT

### TEST RESULT

TestMode	Antenna	Freq(MHz)	Max.Point[MHz]	Result[dBm]
BLE_125K	Ant1	2402	2401.79	-0.52
		2440	2439.77	0.34
		2480	2480.00	-2.58
BLE_1M	Ant1	2402	2401.75	1.35
		2440	2439.75	1.36
		2480	2479.74	0.60
BLE_2M	Ant1	2402	2401.50	1.11
		2440	2439.49	1.01
		2480	2479.49	0.36
BLE_500K	Ant1	2402	2401.75	1.37
		2440	2439.74	1.37
		2480	2479.75	0.59



### TEST GRAPHS

BLE\_125K\_Ant1\_2402



BLE\_125K\_Ant1\_2440



BLE\_125K\_Ant1\_2480



BUREAU VERITAS

Test Report No.: W7L-P22090011RF02



BLE\_1M\_Ant1\_2402



BLE\_1M\_Ant1\_2440



**BUREAU  
VERITAS**

Test Report No.: W7L-P22090011RF02



BLE\_1M\_Ant1\_2480



BLE\_2M\_Ant1\_2402



**BUREAU  
VERITAS**

Test Report No.: W7L-P22090011RF02



BLE\_2M\_Ant1\_2440



BLE\_2M\_Ant1\_2480



**BUREAU  
VERITAS**

Test Report No.: W7L-P22090011RF02



BLE\_500K\_Ant1\_2402



BLE\_500K\_Ant1\_2440



**BUREAU  
VERITAS**

Test Report No.: W7L-P22090011RF02



BLE\_500K\_Ant1\_2480





## **BAND EDGE MEASUREMENTS**

### **TEST RESULT**

TestMode	Antenna	ChName	Frequency [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
BLE_125K	Ant1	Low	2402	-0.52	-44.63	≤-20.52	PASS
		High	2480	-2.58	-42.95	≤-22.58	PASS
BLE_1M	Ant1	Low	2402	1.35	-45.00	≤-18.65	PASS
		High	2480	0.60	-44.04	≤-19.4	PASS
BLE_2M	Ant1	Low	2402	1.11	-42.46	≤-18.89	PASS
		High	2480	0.36	-44.02	≤-19.64	PASS
BLE_500K	Ant1	Low	2402	1.37	-43.61	≤-18.63	PASS
		High	2480	0.59	-44.04	≤-19.41	PASS



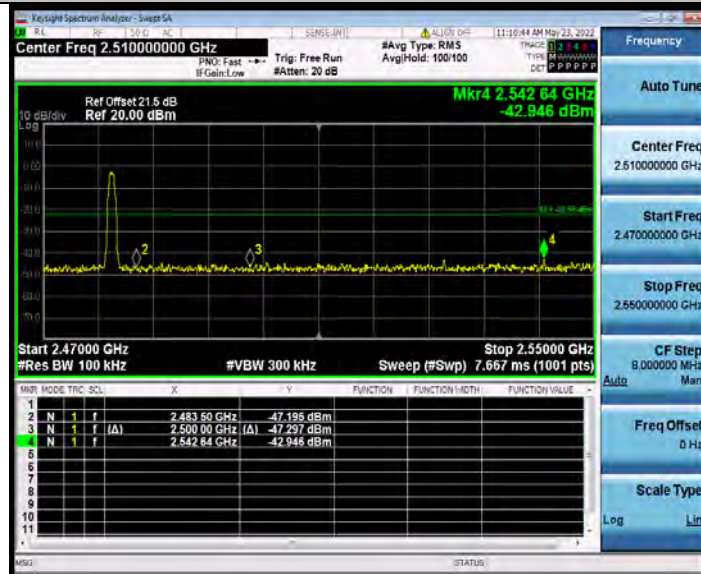


### TEST GRAPHS

BLE\_125K\_Ant1\_Low\_2402



BLE\_125K\_Ant1\_High\_2480

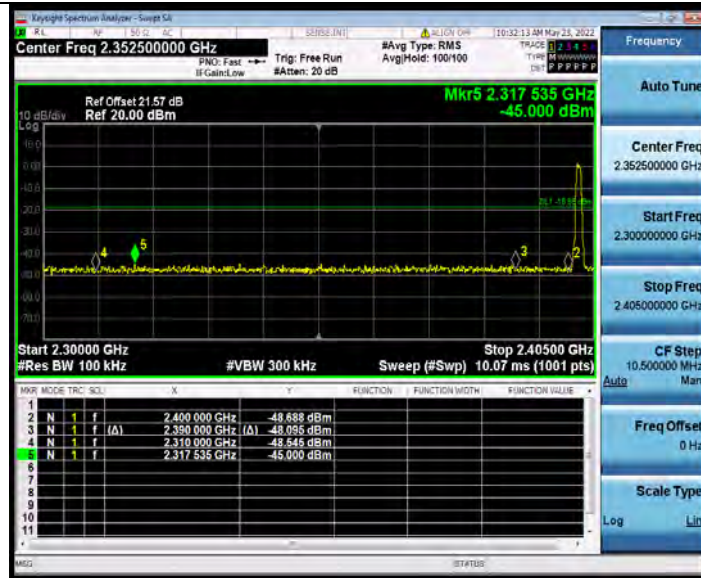


BLE\_1M\_Ant1\_Low\_2402

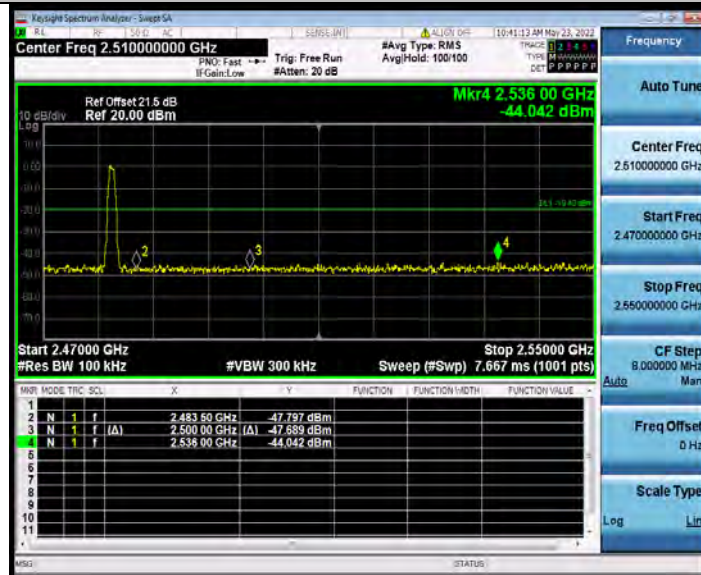


BUREAU VERITAS

Test Report No.: W7L-P22090011RF02



BLE\_1M\_Ant1\_High\_2480

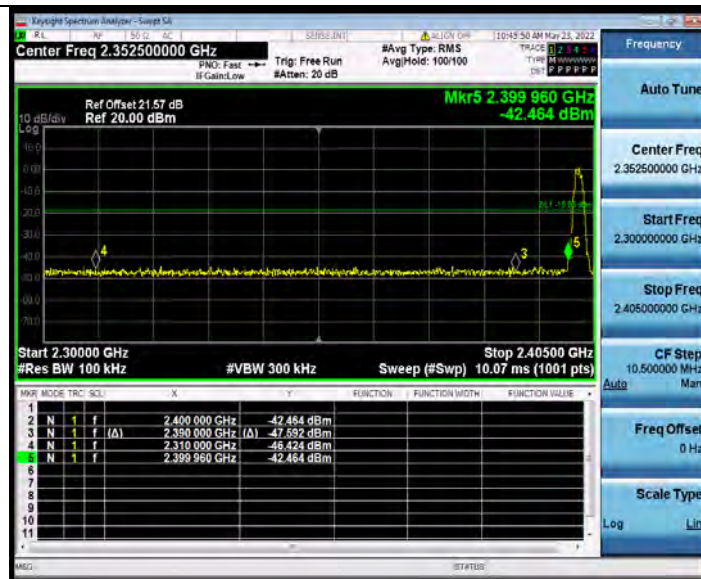


BLE\_2M\_Ant1\_Low\_2402

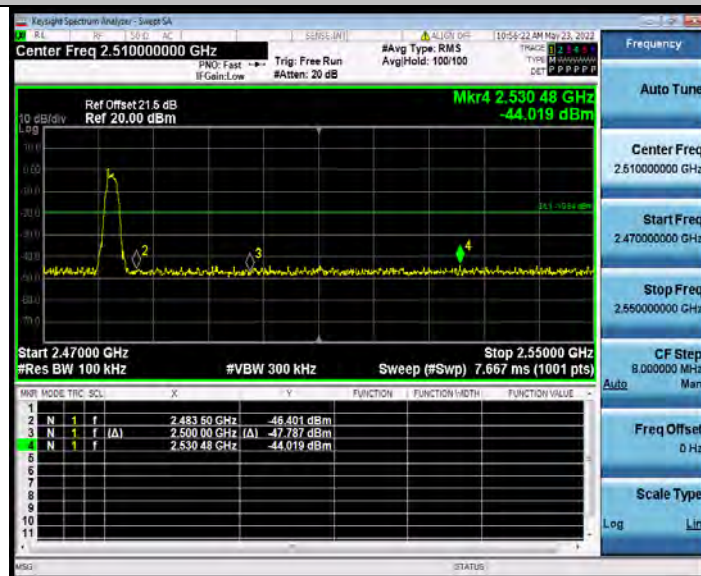


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VERITAS**

**Test Report No.: W7L-P22090011RF02**



BLE\_2M\_Ant1\_High\_2480

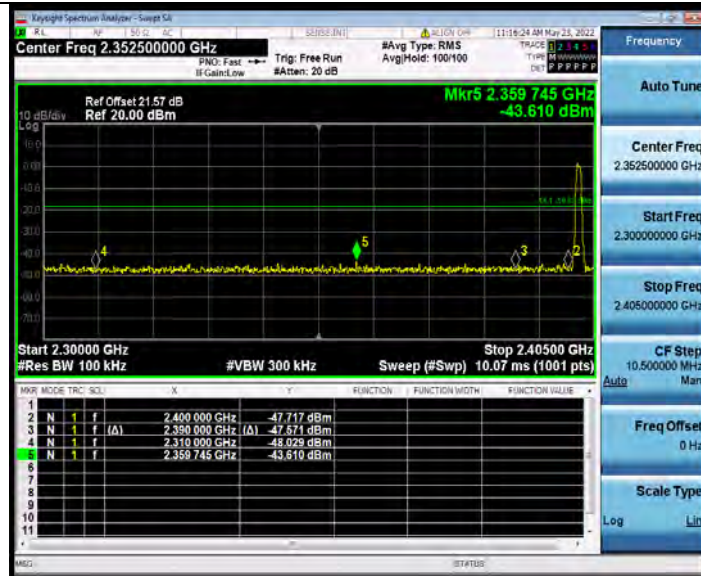


BLE\_500K\_Ant1\_Low\_2402

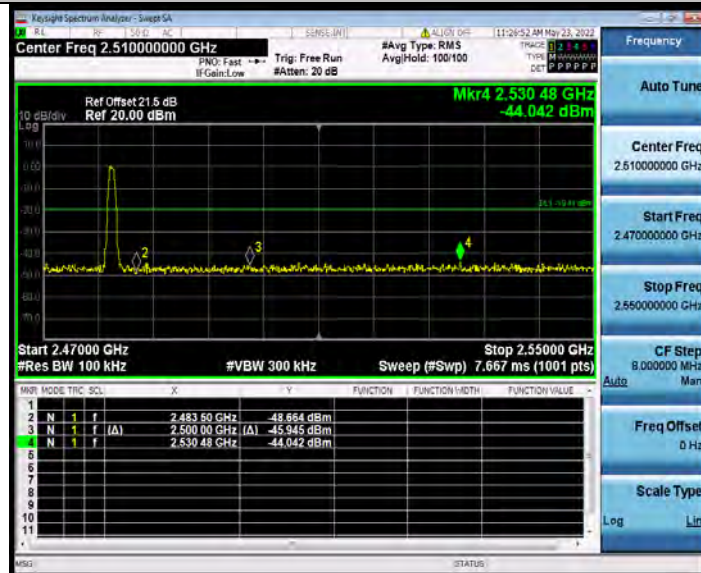


**BUREAU  
VERITAS**

**Test Report No.: W7L-P22090011RF02**



BLE\_500K\_Ant1\_High\_2480





### CONDUCTED SPURIOUS EMISSION

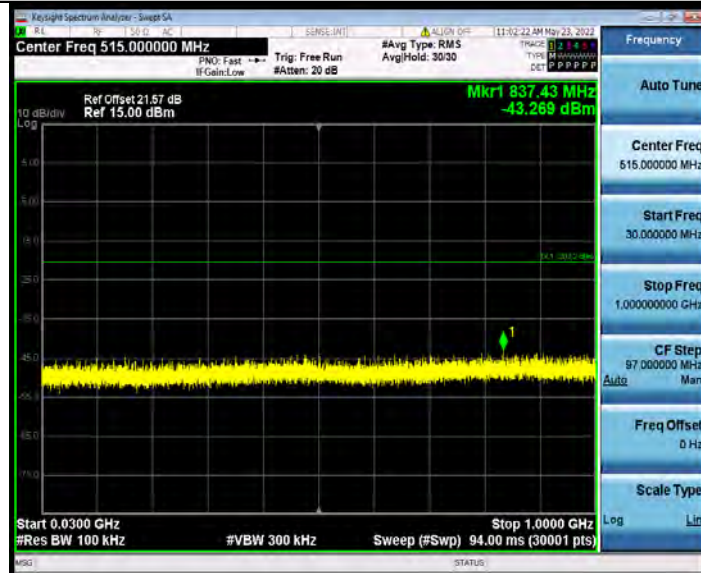
### TEST RESULT

TestMode	Antenna	Frequency [MHz]	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_125K	Ant1	2402	30~1000	-0.52	-43.27	≤-20.52	PASS
			1000~26500	-0.52	-28.08	≤-20.52	PASS
		2440	30~1000	0.34	-43.73	≤-19.66	PASS
			1000~26500	0.34	-27.79	≤-19.66	PASS
		2480	30~1000	-2.58	-42.86	≤-22.58	PASS
			1000~26500	-2.58	-27.61	≤-22.58	PASS
BLE_1M	Ant1	2402	30~1000	1.35	-43.37	≤-18.65	PASS
			1000~26500	1.35	-27.67	≤-18.65	PASS
		2440	30~1000	1.36	-43.15	≤-18.64	PASS
			1000~26500	1.36	-27.48	≤-18.64	PASS
		2480	30~1000	0.60	-42.95	≤-19.4	PASS
			1000~26500	0.60	-27.09	≤-19.4	PASS
BLE_2M	Ant1	2402	30~1000	1.11	-43.27	≤-18.89	PASS
			1000~26500	1.11	-26.68	≤-18.89	PASS
		2440	30~1000	1.01	-42.91	≤-18.99	PASS
			1000~26500	1.01	-27.87	≤-18.99	PASS
		2480	30~1000	0.36	-43.23	≤-19.64	PASS
			1000~26500	0.36	-27.46	≤-19.64	PASS
BLE_500K	Ant1	2402	30~1000	1.37	-43.15	≤-18.63	PASS
			1000~26500	1.37	-27.48	≤-18.63	PASS
		2440	30~1000	1.37	-43.43	≤-18.63	PASS
			1000~26500	1.37	-28.02	≤-18.63	PASS
		2480	30~1000	0.59	-43.06	≤-19.41	PASS
			1000~26500	0.59	-27.04	≤-19.41	PASS



### TEST GRAPHS

BLE\_125K\_Ant1\_2402\_30~1000



BLE\_125K\_Ant1\_2402\_1000~26500

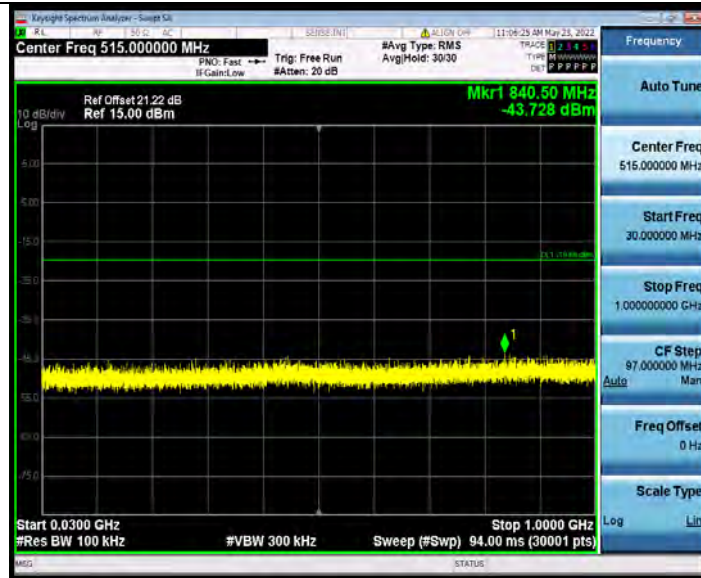


BLE\_125K\_Ant1\_2440\_30~1000



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VERITAS**

**Test Report No.: W7L-P22090011RF02**



BLE\_125K\_Ant1\_2440\_1000~26500

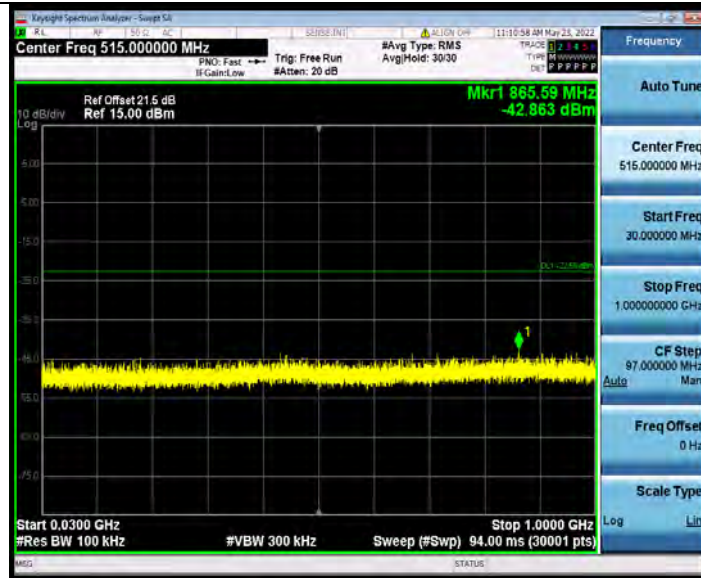


BLE\_125K\_Ant1\_2480\_30~1000



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VERITAS**

**Test Report No.: W7L-P22090011RF02**



BLE\_125K\_Ant1\_2480\_1000~26500



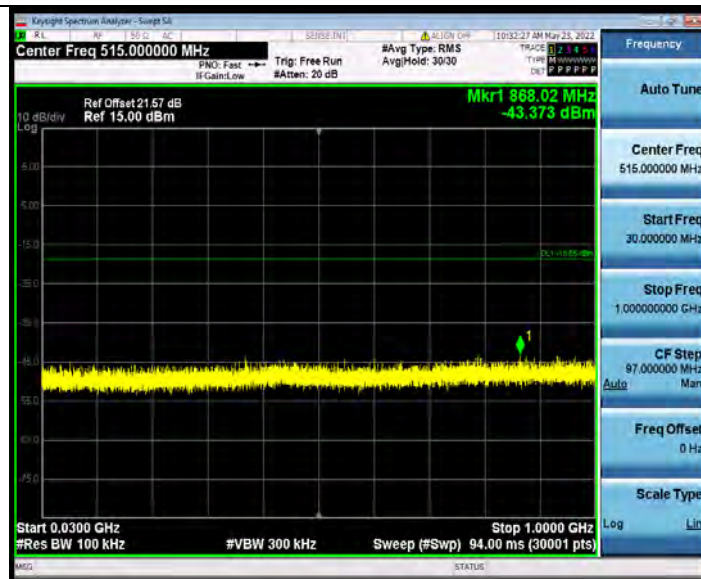
BLE\_1M\_Ant1\_2402\_30~1000





BUREAU VERITAS

Test Report No.: W7L-P22090011RF02



BLE\_1M\_Ant1\_2402\_1000~26500

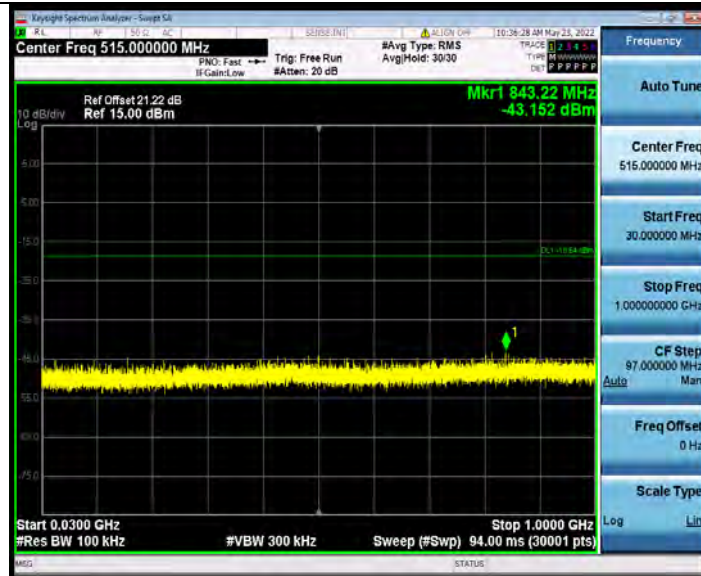


BLE\_1M\_Ant1\_2440\_30~1000



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VERITAS**

**Test Report No.: W7L-P22090011RF02**



BLE\_1M\_Ant1\_2440\_1000~26500



BLE\_1M\_Ant1\_2480\_30~1000



**BUREAU  
VERITAS**

**Test Report No.: W7L-P22090011RF02**



BLE\_1M\_Ant1\_2480\_1000~26500

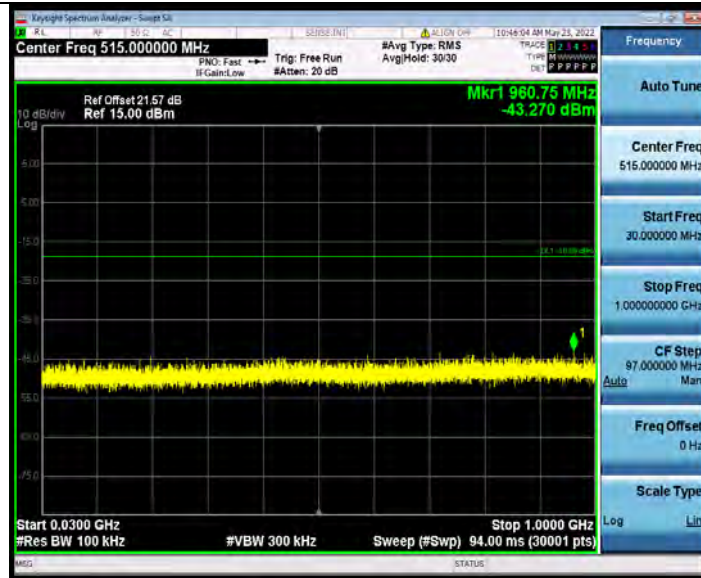


BLE\_2M\_Ant1\_2402\_30~1000



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VERITAS**

**Test Report No.: W7L-P22090011RF02**



BLE\_2M\_Ant1\_2402\_1000~26500

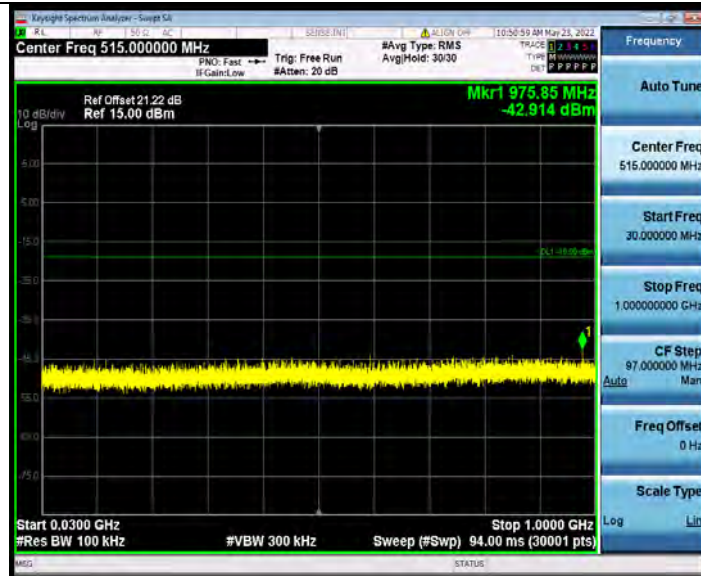


BLE\_2M\_Ant1\_2440\_30~1000



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VERITAS**

**Test Report No.: W7L-P22090011RF02**



BLE\_2M\_Ant1\_2440\_1000~26500

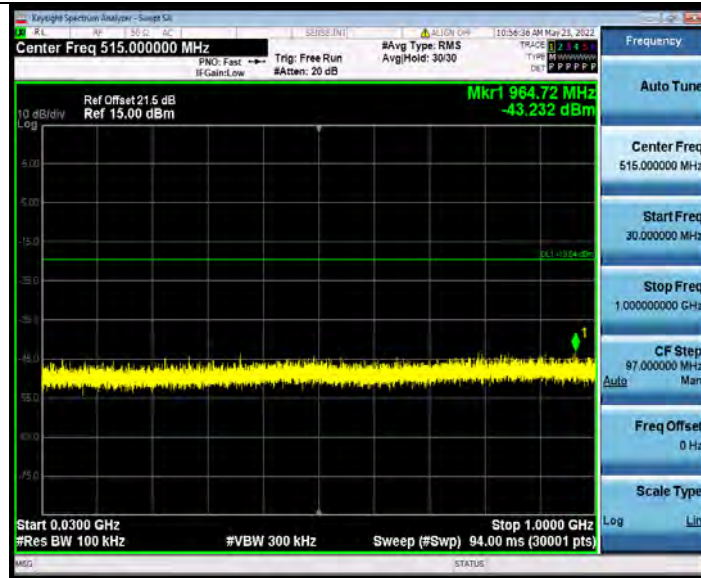


BLE\_2M\_Ant1\_2480\_30~1000



**BUREAU  
VERITAS**

**Test Report No.: W7L-P22090011RF02**



BLE\_2M\_Ant1\_2480\_1000~26500

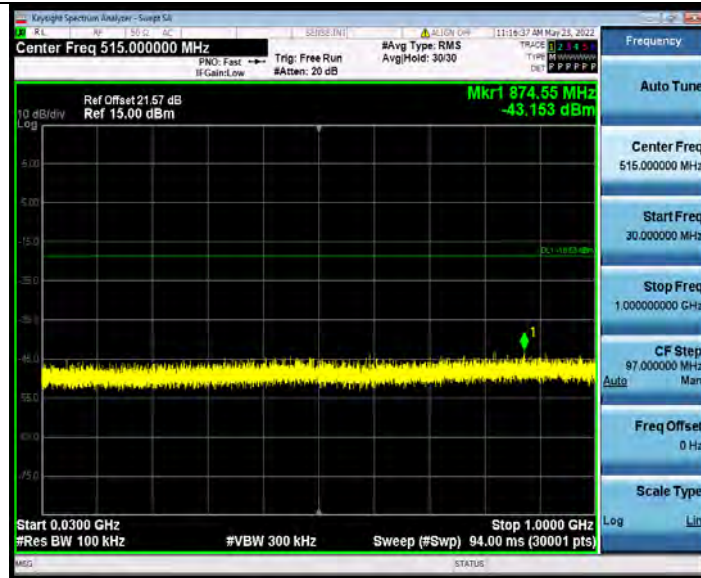


BLE\_500K\_Ant1\_2402\_30~1000



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VERITAS**

**Test Report No.: W7L-P22090011RF02**



BLE\_500K\_Ant1\_2402\_1000~26500

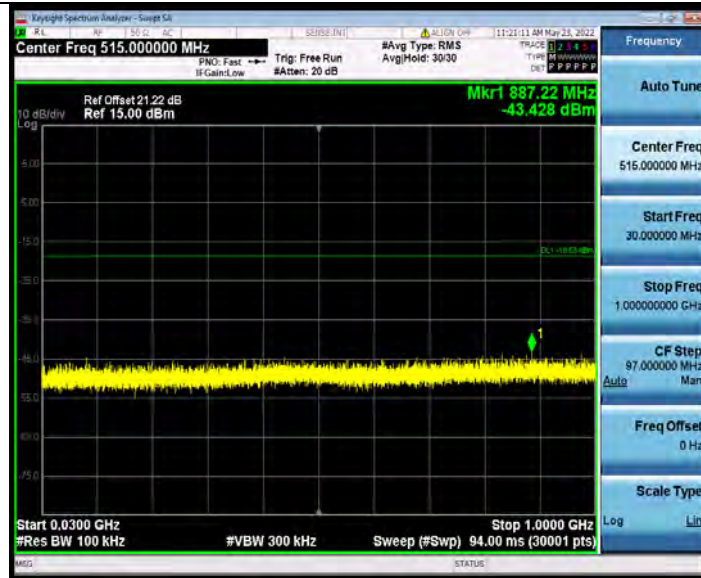


BLE\_500K\_Ant1\_2440\_30~1000



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VERITAS**

**Test Report No.: W7L-P22090011RF02**



BLE\_500K\_Ant1\_2440\_1000~26500



BLE\_500K\_Ant1\_2480\_30~1000





BUREAU VERITAS

Test Report No.: W7L-P22090011RF02



BLE\_500K\_Ant1\_2480\_1000~26500





## DUTY CYCLE

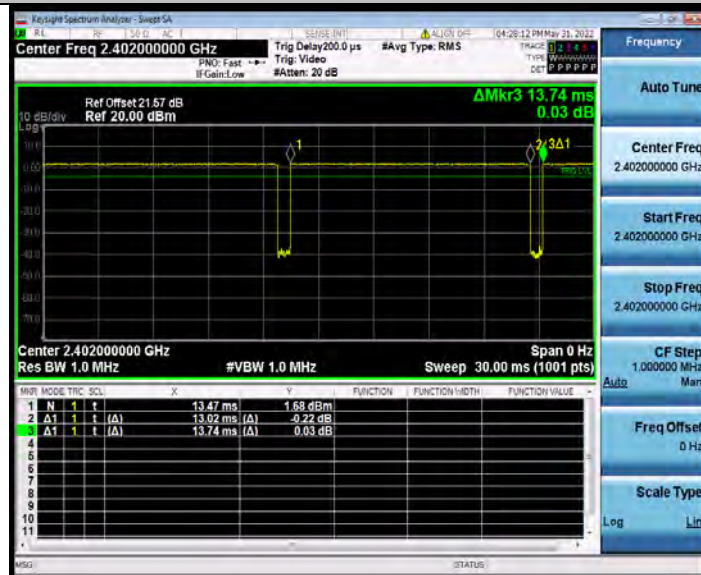
### TEST RESULT

TestMode	Antenna	Frequency[MHz]	ON Time[ms]	Period [ms]	Duty Cycle [%]
BLE_125K	Ant1	2402	13.02	13.74	94.76
		2440	13.02	13.74	94.76
		2480	13.02	13.74	94.76
BLE_1M	Ant1	2402	1.64	1.88	87.23
		2440	1.64	1.88	87.23
		2480	1.64	1.88	87.23
BLE_2M	Ant1	2402	0.82	1.25	65.60
		2440	0.82	1.25	65.60
		2480	0.82	1.25	65.60
BLE_500K	Ant1	2402	3.56	4.38	81.28
		2440	3.56	4.38	81.28
		2480	3.56	4.38	81.28

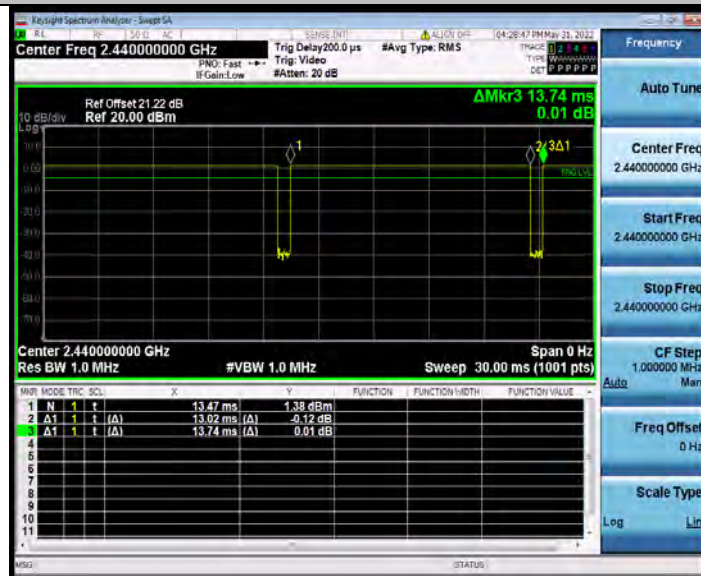


### TEST GRAPHS

BLE\_125K\_Ant1\_2402



BLE\_125K\_Ant1\_2440

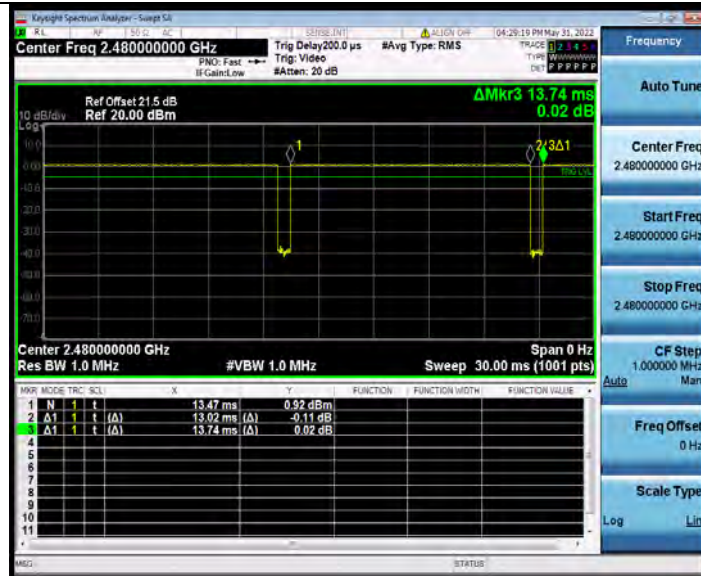


BLE\_125K\_Ant1\_2480

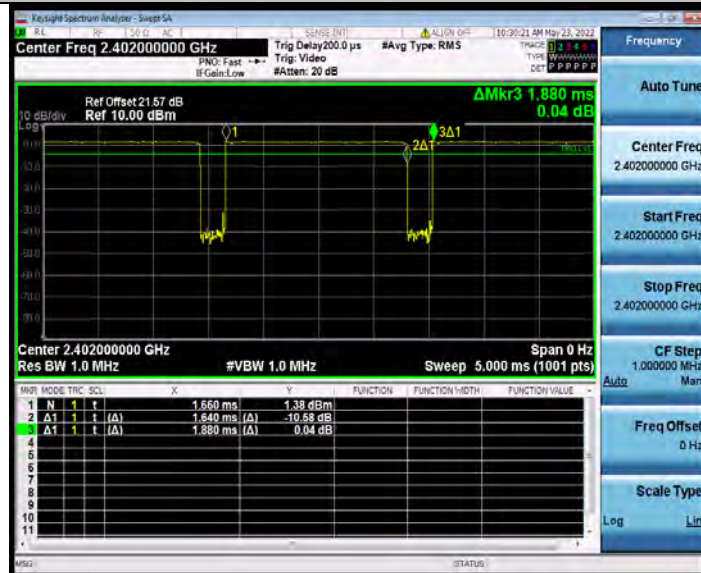


BUREAU VERITAS

Test Report No.: W7L-P22090011RF02



BLE\_1M\_Ant1\_2402

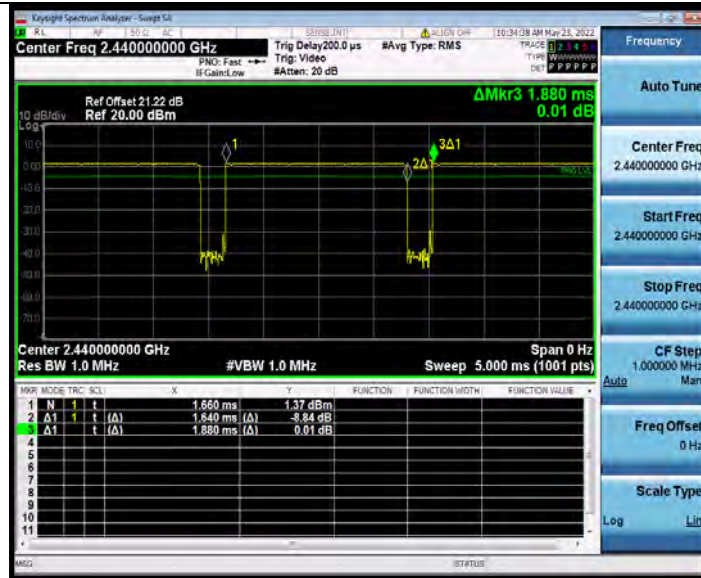


BLE\_1M\_Ant1\_2440



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VERITAS**

**Test Report No.: W7L-P22090011RF02**



BLE\_1M\_Ant1\_2480

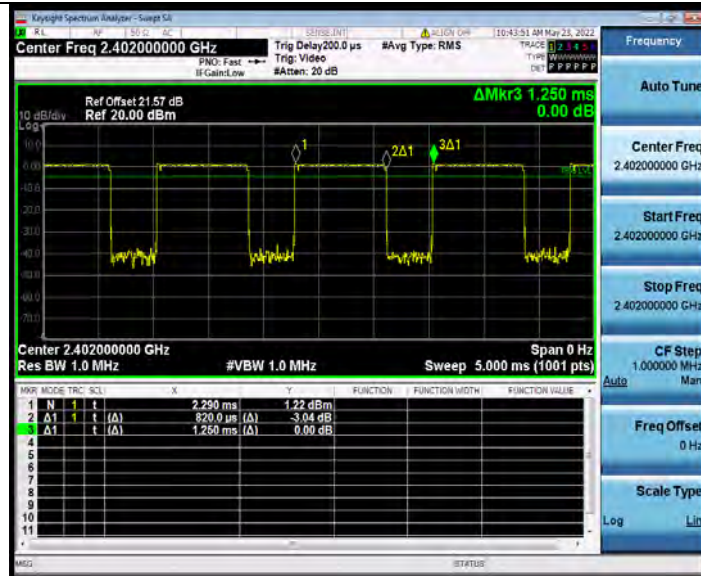


BLE\_2M\_Ant1\_2402

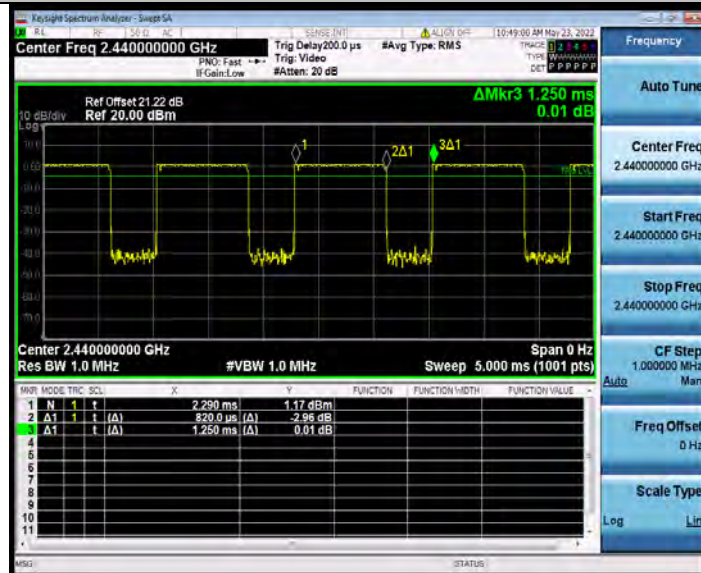


BUREAU VERITAS

Test Report No.: W7L-P22090011RF02



BLE\_2M\_Ant1\_2440

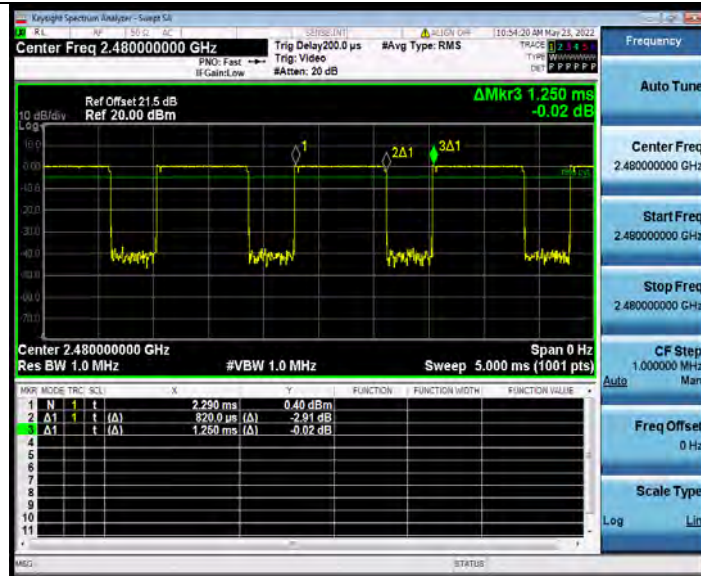


BLE\_2M\_Ant1\_2480

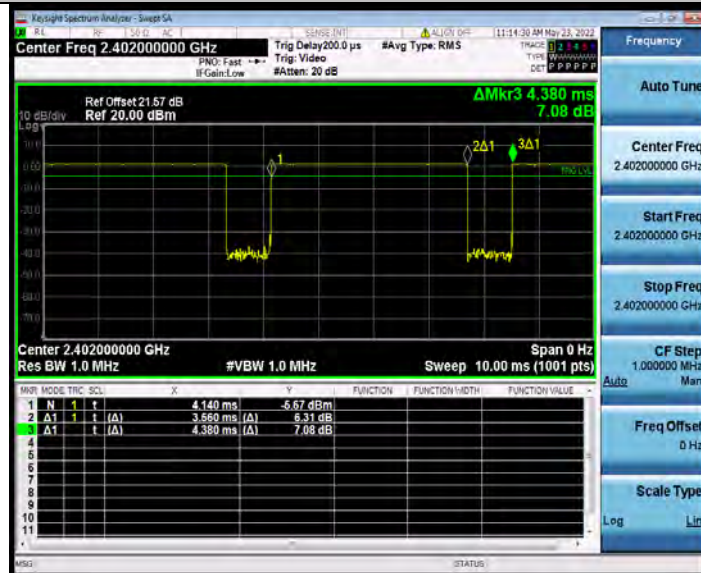


**BUREAU  
VERITAS**

### Test Report No.: W7L-P22090011RF02



BLE\_500K\_Ant1\_2402

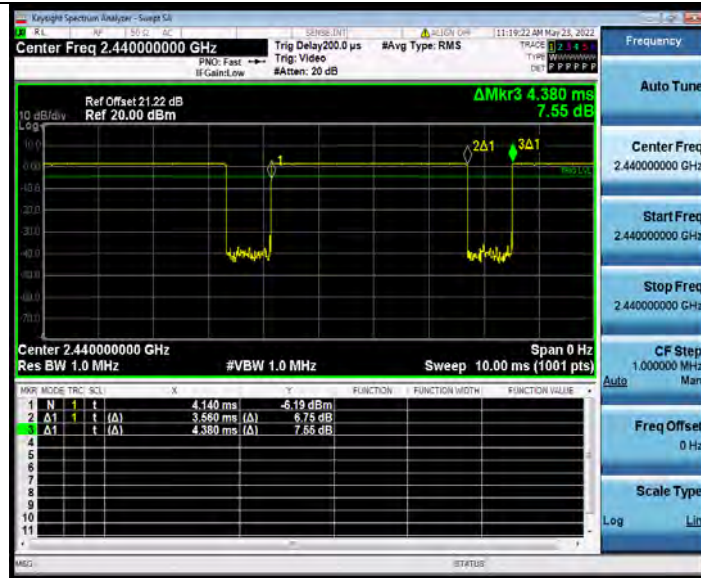


BLE\_500K\_Ant1\_2440



BUREAU VERITAS

Test Report No.: W7L-P22090011RF02



BLE\_500K\_Ant1\_2480

