

FCC TEST REPORT

(Part 15, Subpart C)

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

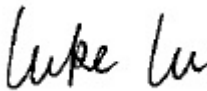
Manufacturer or Supplier:	HMD Global Oy
Address:	Bertel Jungin aukio 9, 02600 Espoo, Finland
Product:	Multi-band GSM/WCDMA/LTE phone with Bluetooth&WLAN
Brand Name:	NOKIA
Model Name:	TA-1401
FCC ID:	2AJOTTA-1401
Date of tests:	Nov. 25, 2021 ~ Dec. 17, 2021

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: Dec. 17, 2021	Date: Dec. 17, 2021

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
W7L-P21100018-4RF02	Original release	Dec. 17, 2021



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 : Except RSE , other data please refer to Appendix .

1.1 MEASUREMENT UNCERTAINTY

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

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

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



2 GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Multi-band GSM/WCDMA/LTE phone with Bluetooth&WLAN
BRAND NAME	NOKIA
MODEL NAME	TA-1401
NOMINAL VOLTAGE	5.0Vdc(adapter or host equipment) 3.85Vdc (Li-ion, battery)
MODULATION	DSSS, OFDM, GFSK
TRANSMISSION RATE	802.11b: 11/ 5.5/ 2.0 / 1.0 Mbps 802.11g: 54/ 48/ 36 / 24 / 18 / 9/ 6 Mbps 802.11n20: up to 65 Mbps 802.11n40: up to 135 Mbps BT_LE: 0.125 Mbps /0.5 Mbps /1 Mbps/2 Mbps
OPERATING FREQUENCY	2412-2462MHz for 11b/g/n(HT20/ HT40) 2402-2480MHz for BT-LE(GFSK)
MAX. OUTPUT POWER	WLAN: 186.21mW (Maximum) BT-LE: 1.58mW (Maximum)
ANTENNA TYPE	Fixed Internal Antenna with 1.19dBi gain
HW VERSION	19655-1-11M12
SW VERSION	00WW_0_010
I/O PORTS	Refer to user's manual
CABLE SUPPLIED	USB1 cable: unshielded without ferrite, 1.0meter USB2 cable: unshielded without ferrite, 1.0meter USB3 cable: unshielded without ferrite, 1.0meter Earphone1: non-shielded cable, with w/o ferrite core, 1.2 meter Earphone2: non-shielded cable, with w/o ferrite core, 1.2 meter

NOTE:

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.



2. The EUT incorporates a SISO function. Physically, the EUT provides one transmitter and one receiver.

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

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

List of Accessory:

ACCESSORIES	BRAND	MANUFACTURER	MODEL	SPECIFICATION
Battery	Nokia	Hunan Gaoyuan Battery Co., Ltd.	WT341	Capacity : 3.85 Vdc, 4900mAh
AC Adapter 1	Nokia	ShenZhenBaiJunDa ElectronicCO.,LTD.	AD-010U	I/P: 100-240Vac, 0.35A, O/P: 5.0Vdc, 2.0A
AC Adapter 2	Nokia	SHENZHEN TIANYIN ELECTRONICS CO., LTD.	CH-21U	I/P: 100-240Vac, 0.3A, O/P: 5.0Vdc, 2.0A
AC Adapter 3	Nokia	YuTong Electronics(HuiZhou) Co.,Ltd	PA-US5V2A-03 6	I/P: 100-240Vac, 0.5A, O/P: 5.0Vdc, 2.0A
AC Adapter 4	Nokia	Dongguan Aohai Technology Co., Ltd.	A829US	I/P: 100 - 240Vac, 0.5A, O/P:5.0 Vdc,3A/9.0 Vdc, 2.2 3A/12.0 Vdc,1.67A
Earphone 1	Nokia	NEW LEADER INDUSTRY CO.,LTD	HS-34	Signal Line, 1.2meter
Earphone 2	Nokia	Guangdong Wivtak Technology Co., Ltd.	HS-34	Signal Line, 1.2meter



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USB Cable 1	Nokia	HUIZHOU WASHIN ELECTRONICS CO.,LTD	CB-36A	Signal Line, 1.0meter
USB Cable 2	Nokia	Shenzhen BRL Technology Co.,Ltd.	CB-36A	Signal Line, 1.0meter
USB Cable 3	Nokia	Saibao(Jiangi) Communication Industrial Co.,Ltd	CB-12A	Signal Line, 1.0meter

NOTE:

1. In the finger plate, dial the code for entering Engineer mode: *##83781#*##
2. EngineerMode->CONNECTIVITY->Wifi->Tx



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

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

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



2.2.1 CONFIGURATION OF SYSTEM UNDER TEST

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

2.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

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

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

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

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

RE≥1G: Radiated Emission above 1GHz

PLC: Power Line Conducted Emission

APCM: Antenna Port Conducted Measurement

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

RADIATED EMISSION TEST (BELOW 1GHz):

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

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

BANDEDGE MEASUREMENT:

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

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)
802.11b	1 to 11	1, 11	DSSS	1.0
802.11g	1 to 11	1, 11	OFDM	6.0
802.11n HT20	1 to 11	1, 11	OFDM	MCS0
802.11n HT40	3 to 9	3, 6, 9	OFDM	MCS0
BT-LE	0 to 39	0, 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	CCK	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	Star Le
RE≥1G	23deg. C, 70%RH	DC5V By Adapter	Star Le
PLC	25deg. C, 52%RH	DC5V By Adapter	Carl xie
APCM	25deg. C, 60%RH	DC 3.85V By Battery	Carl xie



2.3 Duty Cycle of Test Signal

Please Refer to Appendix G/N Of this test report.

WORST-CASE DATA:

Measured Duty Cycle		
Mode		Duty Cycle [%]
		ANT1
WIFI 2.4GHz	11B	99.06
	11G	94.56
	11N20	93.65
	11N40	88.06
BT LE	BT4.0	87.23
	BT5.0	66.40
	BTS2	81.28
	BTS8	94.91

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 (dB μ V)	
	Quasi-peak	Average
0.15 ~ 0.5	66 to 56	56 to 46
0.5 ~ 5	56	46
5 ~ 30	60	50

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

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

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

3.1.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESR3	101900	Mar. 03,21	Mar. 02,22
EMC32 test software	Rohde&Schwarz	EMC32	NA	NA	NA
LISN network	Rohde&Schwarz	ENV216	101922	Feb. 25,21	Feb. 24,22

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.



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3.1.3 TEST PROCEDURES

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

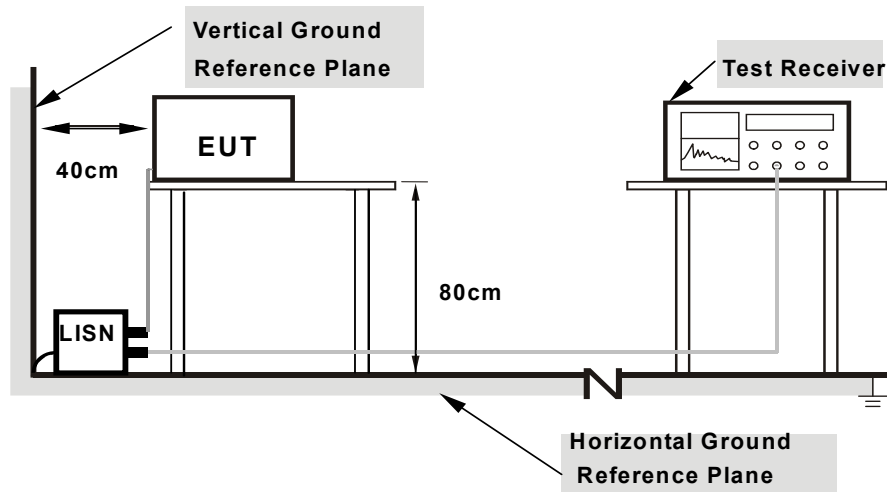
NOTE: All modes of operation were investigated and the worst-case emissions are reported.

3.1.4 DEVIATION FROM TEST STANDARD

No deviation.



3.1.5 TEST SETUP



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

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

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

3.1.6 EUT OPERATING CONDITIONS

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



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3.1.7 TEST RESULTS

CONDUCTED WORST-CASE DATA:

2.4G WIFI

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

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.234000	---	25.38	52.31	26.93	L1	ON	9.7
0.234000	39.22	---	62.31	23.09	L1	ON	9.7
0.304000	---	34.76	50.13	15.37	L1	ON	9.7
0.304000	41.98	---	60.13	18.15	L1	ON	9.7
0.492000	---	29.25	46.13	16.88	L1	ON	9.7
0.492000	39.63	---	56.13	16.50	L1	ON	9.7
0.916000	---	31.58	46.00	14.42	L1	ON	9.7
0.916000	38.83	---	56.00	17.17	L1	ON	9.7
1.284000	---	27.42	46.00	18.58	L1	ON	9.7
1.284000	37.14	---	56.00	18.86	L1	ON	9.7
2.376000	---	22.07	46.00	23.93	L1	ON	9.7
2.376000	32.15	---	56.00	23.85	L1	ON	9.7

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

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

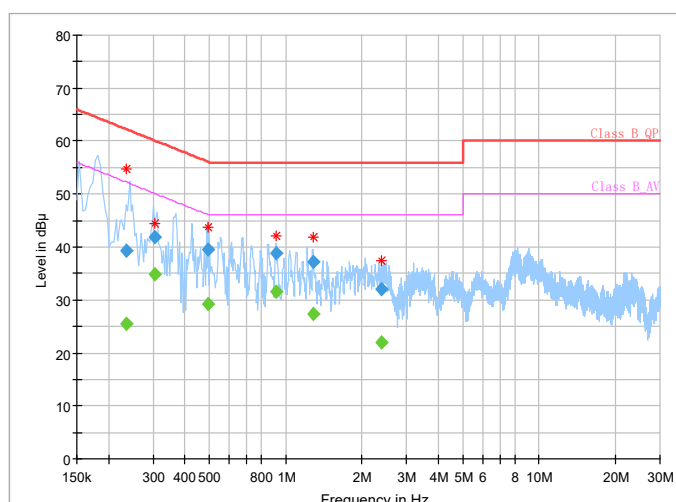
3. The emission levels of other frequencies were very low against the limit.

4. Margin value = Limit value - Emission level

5. Correction factor = Insertion loss + Cable loss

6. Emission Level = Correction Factor + Reading Value.

Full Spectrum





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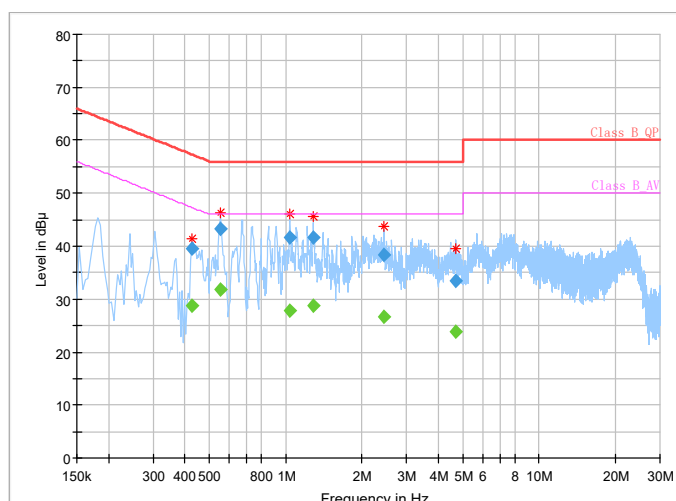
Test Report No.: W7L-P21100018-4RF02

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

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.428000	---	28.81	47.29	18.48	N	ON	9.7
0.428000	39.48	---	57.29	17.81	N	ON	9.7
0.552000	---	31.89	46.00	14.11	N	ON	9.7
0.552000	43.37	---	56.00	12.63	N	ON	9.7
1.036000	---	27.93	46.00	18.07	N	ON	9.8
1.036000	41.62	---	56.00	14.38	N	ON	9.8
1.284000	---	28.80	46.00	17.20	N	ON	9.8
1.284000	41.69	---	56.00	14.31	N	ON	9.8
2.444000	---	26.60	46.00	19.40	N	ON	9.8
2.444000	38.30	---	56.00	17.70	N	ON	9.8
4.676000	---	23.75	46.00	22.25	N	ON	9.8
4.676000	33.48	---	56.00	22.52	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





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Test Report No.: W7L-P21100018-4RF02

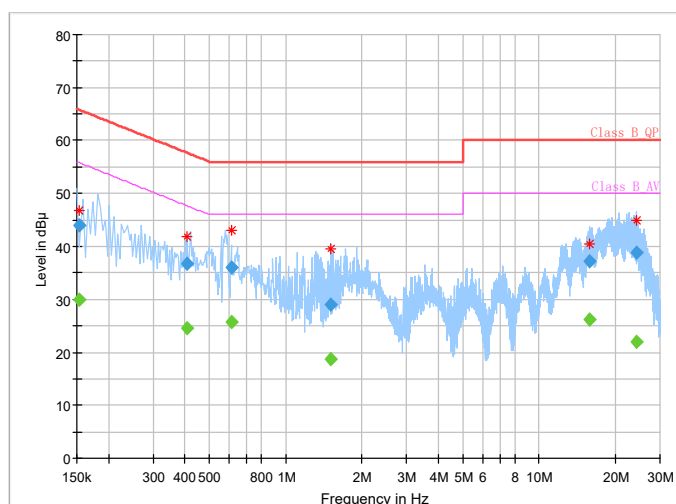
B-LE:

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

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.154000	---	30.00	55.78	25.78	L1	ON	9.7
0.154000	43.89	---	65.78	21.89	L1	ON	9.7
0.408000	---	24.63	47.69	23.06	L1	ON	9.7
0.408000	36.70	---	57.69	20.99	L1	ON	9.7
0.612000	---	25.76	46.00	20.24	L1	ON	9.7
0.612000	36.09	---	56.00	19.91	L1	ON	9.7
1.512000	---	18.76	46.00	27.24	L1	ON	9.7
1.512000	28.99	---	56.00	27.01	L1	ON	9.7
15.744000	---	26.20	50.00	23.80	L1	ON	9.8
15.744000	37.19	---	60.00	22.81	L1	ON	9.8
24.224000	---	22.09	50.00	27.91	L1	ON	9.8
24.224000	38.78	---	60.00	21.22	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





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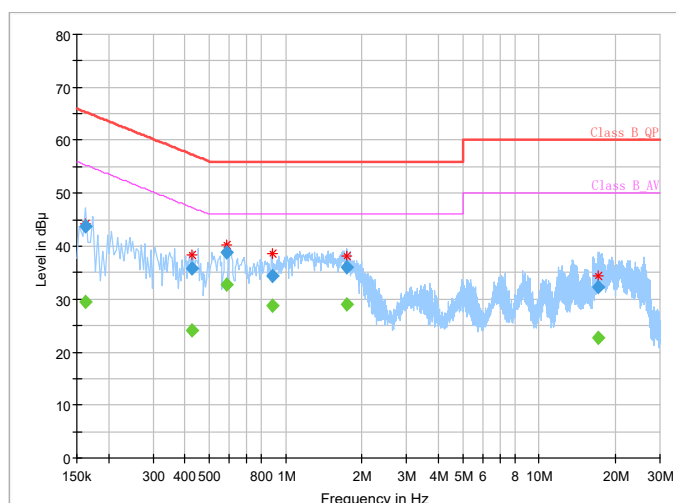
Test Report No.: W7L-P21100018-4RF02

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

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.162000	---	29.37	55.36	25.99	N	ON	9.7
0.162000	43.69	---	65.36	21.67	N	ON	9.7
0.428000	---	24.01	47.29	23.28	N	ON	9.7
0.428000	35.75	---	57.29	21.54	N	ON	9.7
0.584000	---	32.80	46.00	13.20	N	ON	9.7
0.584000	38.92	---	56.00	17.08	N	ON	9.7
0.884000	---	28.88	46.00	17.12	N	ON	9.7
0.884000	34.36	---	56.00	21.64	N	ON	9.7
1.748000	---	28.95	46.00	17.05	N	ON	9.8
1.748000	36.12	---	56.00	19.88	N	ON	9.8
17.128000	---	22.66	50.00	27.34	N	ON	9.9
17.128000	32.17	---	60.00	27.83	N	ON	9.9

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

Full Spectrum





3.2 RADIATED EMISSION MEASUREMENT

3.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

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

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

NOTE:

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



3.2.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
3m Semi-anechoic Chamber	ETS-LINDGREN	9m*6m*6m	Euroshieldpn-CT0001143-1216	May. 19,20	May. 18,23
Bilog Antenna	ETS-LINDGREN	3143B	00161965	Mar. 05,21	Mar. 04,22
Horn Antenna	ETS-LINDGREN	3117	00168728	Apr. 02, 21	Apr. 01, 22
Horn Antenna (18GHz-40GHz)	N/A	QWH-SL-18-40-K-SG/QMS-00361	15433	Aug. 25, 21	Aug. 24, 22
Test Software	E3	V 9.160323	N/A	N/A	N/A
Test Software	ADT	ADT_Radiated_V7.6.15.9.2	N/A	N/A	N/A
10dB Attenuator	JFW/USA	50HF-010-SMA	1505	Jun. 03,21	Jun. 02,22
MXE EMI Receiver	KEYSIGHT	N9038A-544	MY54450026	Apr. 27,21	Apr. 26,22
Signal Pre-Amplifier	EMSI	EMC 9135	980249	Jun. 02,21	Jun. 01,22
Signal Pre-Amplifier	EMSI	EMC 012645B	980257	Jun. 02,21	Jun. 01,22
Signal Pre-Amplifier	EMSI	EMC 184045B	980259	Apr. 30,21	Apr. 29,22
DC Source	Kikusui/JP	PMX18-5A	0000001	Aug. 25,21	Aug. 24,22
Power Meter	Anritsu	ML2495A	1506002	Feb. 25,21	Feb. 24,22
Power Sensor	Anritsu	MA2411B	1339352	Feb. 25,21	Feb. 24,22
Loop Antenna	Schwarzbeck	FMZB 1519B	1519B-051	Feb 14,20	Feb. 13,23

- 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

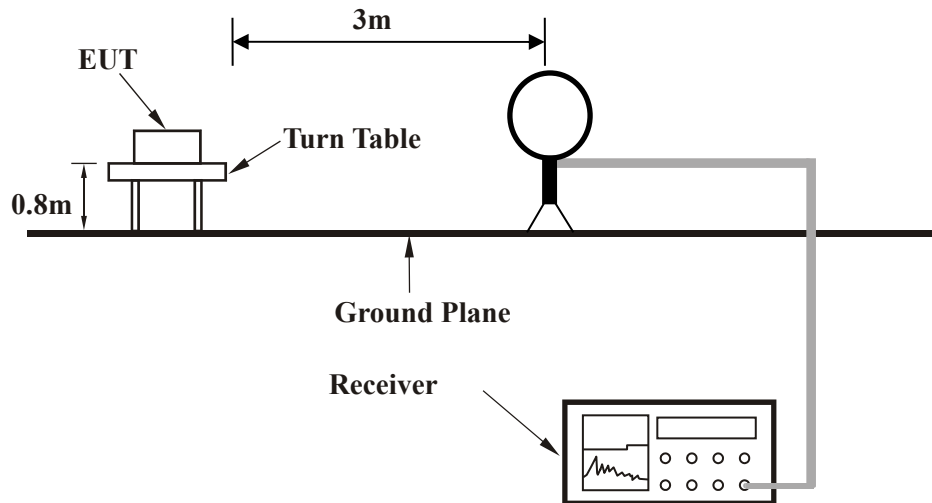


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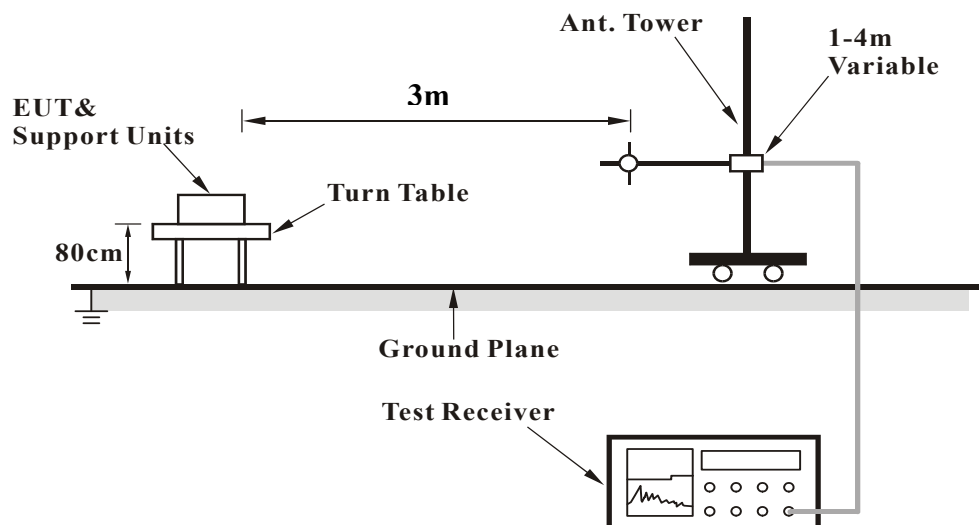
Test Report No.: W7L-P21100018-4RF02

3.2.5 TEST SETUP

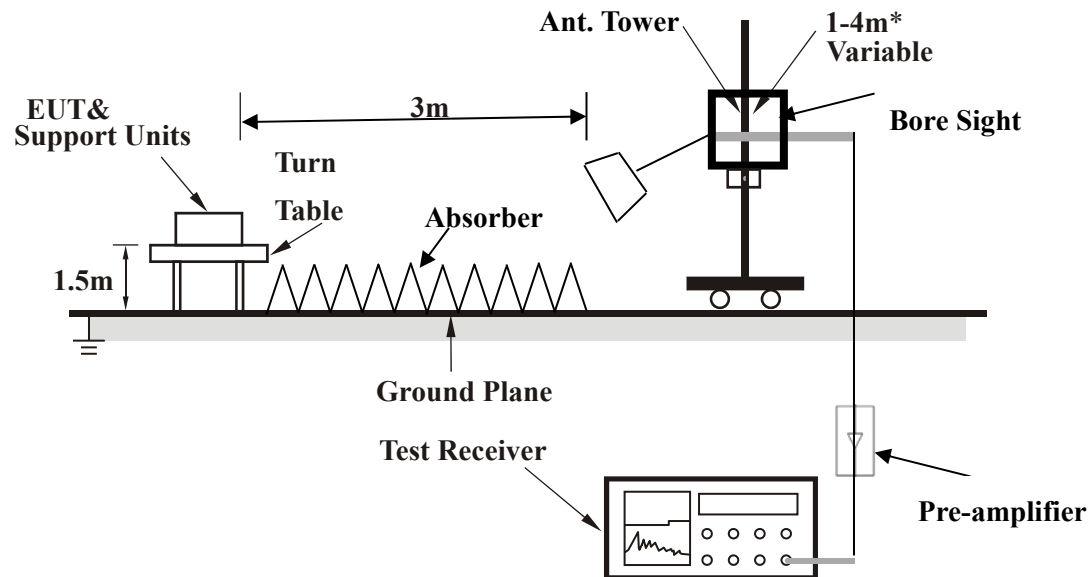
<Frequency Range 9KHz~30MHz >



< Frequency Range 30MHz~1GHz >



<Frequency Range above 1GHz>



Note: Above 1G is a directional antenna

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

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

3.2.6 EUT OPERATING CONDITIONS

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



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Test Report No.: W7L-P21100018-4RF02

3.2.7 TEST RESULTS

BELOW 1GHz WORST-CASE DATA :

30 MHz – 1GHz data:

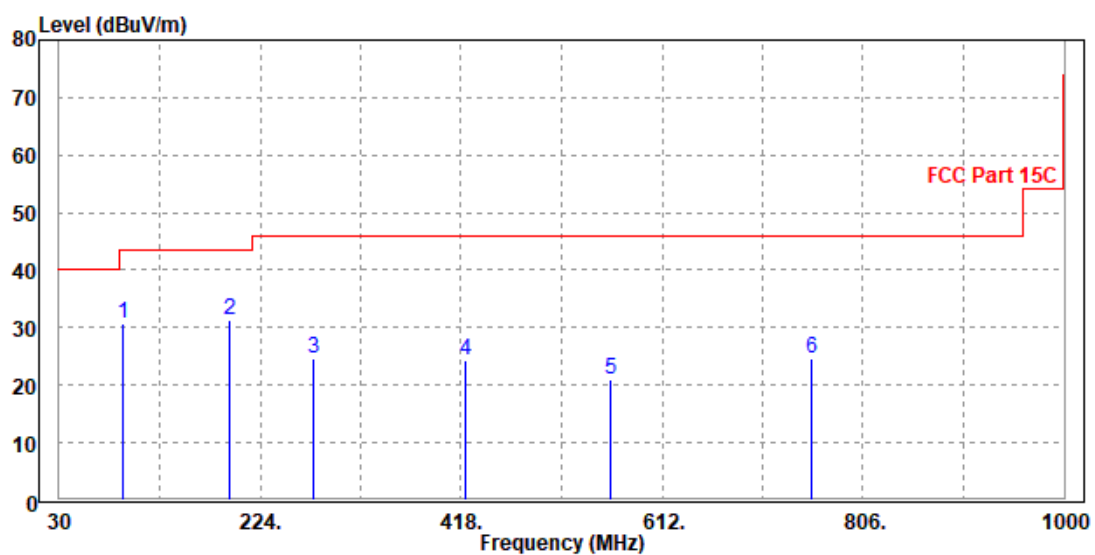
802.11n (40MHz)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
92.08	30.69	59.52	43.5	-12.81	7.88	0.52	37.23	300	0	Peak
194.9	31.31	56.35	43.5	-12.19	10.8	0.73	36.57	300	0	Peak
275.41	24.7	46.92	46	-21.3	13.61	0.87	36.7	300	0	Peak
422.85	24.48	42.93	46	-21.52	17.31	1.11	36.87	300	0	Peak
562.53	21.03	37	46	-24.97	19.95	1.31	37.23	300	0	Peak
756.53	24.49	37.48	46	-21.51	23.1	1.54	37.63	300	0	Peak

REMARKS:

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





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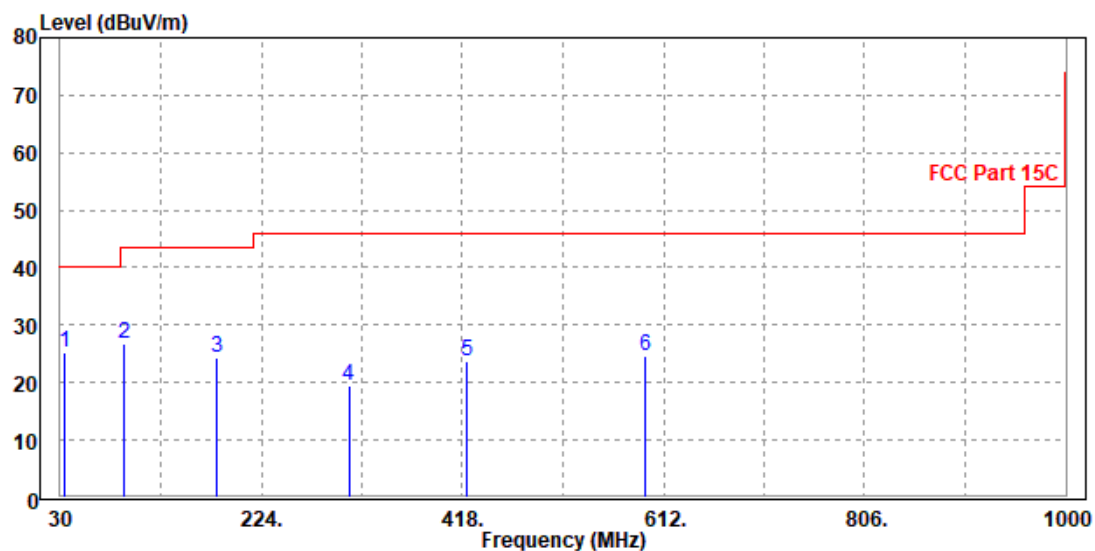
Test Report No.: W7L-P21100018-4RF02

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

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
34.85	25.27	44.46	40	-14.73	18.07	0.33	37.59	200	0	Peak
92.08	26.9	55.13	43.5	-16.6	8.48	0.52	37.23	200	0	Peak
180.35	24.31	49.92	43.5	-19.19	10.32	0.71	36.64	200	0	Peak
308.39	19.45	40.11	46	-26.55	15.18	0.92	36.76	200	0	Peak
422.85	23.85	41.98	46	-22.15	17.63	1.11	36.87	200	0	Peak
594.54	24.73	39.93	46	-21.27	20.8	1.35	37.35	200	0	Peak

REMARKS:

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





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Test Report No.: W7L-P21100018-4RF02

ABOVE 1GHz WORST-CASE DATA:

Note: For higher frequency, the emission is too low to be detected.

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	52.91	61.67	74	-21.09	31.75	5.86	46.37	110	188	Peak
2390	45.86	54.62	54	-8.14	31.75	5.86	46.37	110	188	Average
2412	108.07	116.73	/	/	31.82	5.89	46.37	110	188	Peak
2412	107.18	115.84	/	/	31.82	5.89	46.37	110	188	Average
2483.5	51.88	60.21	74	-22.12	32.05	5.99	46.37	110	188	Peak
2483.5	44.45	52.78	54	-9.55	32.05	5.99	46.37	110	188	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	52.81	61.18	74	-21.19	32.14	5.86	46.37	102	170	Peak
2390	45.35	53.72	54	-8.65	32.14	5.86	46.37	102	170	Average
2412	107.18	115.47	/	/	32.19	5.89	46.37	102	170	Peak
2412	106.31	114.6	/	/	32.19	5.89	46.37	102	170	Average
2483.5	51.75	59.77	74	-22.25	32.36	5.99	46.37	102	170	Peak
2483.5	44.43	52.45	54	-9.57	32.36	5.99	46.37	102	170	Average

REMARKS:

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



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Test Report No.: W7L-P21100018-4RF02

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	51.88	60.64	74	-22.12	31.75	5.86	46.37	110	188	Peak
2390	44.38	53.14	54	-9.62	31.75	5.86	46.37	110	188	Average
2437	105.8	114.34	/	/	31.9	5.93	46.37	110	188	Peak
2437	104.6	113.14	/	/	31.9	5.93	46.37	110	188	Average
2483.5	51.81	60.14	74	-22.19	32.05	5.99	46.37	110	188	Peak
2483.5	44.19	52.52	54	-9.81	32.05	5.99	46.37	110	188	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	51.85	60.22	74	-22.15	32.14	5.86	46.37	102	170	Peak
2390	44.66	53.03	54	-9.34	32.14	5.86	46.37	102	170	Average
2437	103.74	111.93	/	/	32.25	5.93	46.37	102	170	Peak
2437	102.56	110.75	/	/	32.25	5.93	46.37	102	170	Average
2483.5	52.4	60.42	74	-21.6	32.36	5.99	46.37	102	170	Peak
2483.5	45.48	53.5	54	-8.52	32.36	5.99	46.37	102	170	Average

REMARKS:

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



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Test Report No.: W7L-P21100018-4RF02

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	51.82	60.58	74	-22.18	31.75	5.86	46.37	108	185	Peak
2390	44.92	53.68	54	-9.08	31.75	5.86	46.37	108	185	Average
2462	105.77	114.2	/	/	31.98	5.96	46.37	108	185	Peak
2462	104.86	113.29	/	/	31.98	5.96	46.37	108	185	Average
2483.5	53.02	61.35	74	-20.98	32.05	5.99	46.37	108	185	Peak
2483.5	45.55	53.88	54	-8.45	32.05	5.99	46.37	108	185	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	52.9	61.27	74	-21.1	32.14	5.86	46.37	102	170	Peak
2390	44.52	52.89	54	-9.48	32.14	5.86	46.37	102	170	Average
2462	104.6	112.7	/	/	32.31	5.96	46.37	102	170	Peak
2462	103.7	111.8	/	/	32.31	5.96	46.37	102	170	Average
2483.5	53.73	61.75	74	-20.27	32.36	5.99	46.37	102	170	Peak
2483.5	45.35	53.37	54	-8.65	32.36	5.99	46.37	102	170	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-P21100018-4RF02

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	61.39	70.15	74	-12.61	31.75	5.86	46.37	108	185	Peak
2390	50.69	59.45	54	-3.31	31.75	5.86	46.37	108	185	Average
2412	108.52	117.18	/	/	31.82	5.89	46.37	108	185	Peak
2412	101.14	109.8	/	/	31.82	5.89	46.37	108	185	Average
2483.5	52.54	60.87	74	-21.46	32.05	5.99	46.37	108	185	Peak
2483.5	44.55	52.88	54	-9.45	32.05	5.99	46.37	108	185	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	62.4	70.77	74	-11.6	32.14	5.86	46.37	102	170	Peak
2390	50.97	59.34	54	-3.03	32.14	5.86	46.37	102	170	Average
2412	108.91	117.2	/	/	32.19	5.89	46.37	102	170	Peak
2412	101.45	109.74	/	/	32.19	5.89	46.37	102	170	Average
2483.5	52.33	60.35	74	-21.67	32.36	5.99	46.37	102	170	Peak
2483.5	44.54	52.56	54	-9.46	32.36	5.99	46.37	102	170	Average

REMARKS:

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



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VERITAS**

Test Report No.: W7L-P21100018-4RF02

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	51.46	60.22	74	-22.54	31.75	5.86	46.37	110	190	Peak
2390	44.22	52.98	54	-9.78	31.75	5.86	46.37	110	190	Average
2437	106.67	115.21	/	/	31.9	5.93	46.37	110	190	Peak
2437	99.2	107.74	/	/	31.9	5.93	46.37	110	190	Average
2483.5	52.35	60.68	74	-21.65	32.05	5.99	46.37	110	190	Peak
2483.5	45.26	53.59	54	-8.74	32.05	5.99	46.37	110	190	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	52.97	61.34	74	-21.03	32.14	5.86	46.37	102	170	Peak
2390	44.63	53	54	-9.37	32.14	5.86	46.37	102	170	Average
2437	104.98	113.17	/	/	32.25	5.93	46.37	102	170	Peak
2437	97.47	105.66	/	/	32.25	5.93	46.37	102	170	Average
2483.5	52.82	60.84	74	-21.18	32.36	5.99	46.37	102	170	Peak
2483.5	44.55	52.57	54	-9.45	32.36	5.99	46.37	102	170	Average

REMARKS:

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



**BUREAU
VERITAS**

Test Report No.: W7L-P21100018-4RF02

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	51.64	60.4	74	-22.36	31.75	5.86	46.37	100	190	Peak
2390	43.72	52.48	54	-10.28	31.75	5.86	46.37	100	190	Average
2462	103.75	112.18	/	/	31.98	5.96	46.37	100	190	Peak
2462	96.64	105.07	/	/	31.98	5.96	46.37	100	190	Average
2483.5	63.43	71.76	74	-10.57	32.05	5.99	46.37	100	190	Peak
2483.5	51.88	60.21	54	-2.12	32.05	5.99	46.37	100	190	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	53.64	62.01	74	-20.36	32.14	5.86	46.37	100	180	Peak
2390	45.12	53.49	54	-8.88	32.14	5.86	46.37	100	180	Average
2462	100.7	108.8	/	/	32.31	5.96	46.37	100	180	Peak
2462	93.26	101.36	/	/	32.31	5.96	46.37	100	180	Average
2483.5	58.36	66.38	74	-15.64	32.36	5.99	46.37	100	180	Peak
2483.5	48.08	56.1	54	-5.92	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. 2462MHz: Fundamental frequency.



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Test Report No.: W7L-P21100018-4RF02

802.11n (20MHz)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	64.65	73.41	74	-9.35	31.75	5.86	46.37	145	200	Peak
2390	50.36	59.12	54	-3.64	31.75	5.86	46.37	145	200	Average
2412	104.3	112.96	/	/	31.82	5.89	46.37	145	200	Peak
2412	95.94	104.6	/	/	31.82	5.89	46.37	145	200	Average
2483.5	51.83	60.16	74	-22.17	32.05	5.99	46.37	145	200	Peak
2483.5	44.46	52.79	54	-9.54	32.05	5.99	46.37	145	200	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	60.27	68.64	74	-13.73	32.14	5.86	46.37	100	180	Peak
2390	47.75	56.12	54	-6.25	32.14	5.86	46.37	100	180	Average
2412	101.77	110.06	/	/	32.19	5.89	46.37	100	180	Peak
2412	93.6	101.89	/	/	32.19	5.89	46.37	100	180	Average
2483.5	54.36	62.38	74	-19.64	32.36	5.99	46.37	100	180	Peak
2483.5	44.85	52.87	54	-9.15	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. 2412MHz: Fundamental frequency.



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Test Report No.: W7L-P21100018-4RF02

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	51.44	60.2	74	-22.56	31.75	5.86	46.37	110	190	Peak
2390	44.54	53.3	54	-9.46	31.75	5.86	46.37	110	190	Average
2437	97.88	106.42	/	/	31.9	5.93	46.37	110	190	Peak
2437	99.55	108.09	/	/	31.9	5.93	46.37	110	190	Average
2483.5	52.14	60.47	74	-21.86	32.05	5.99	46.37	110	190	Peak
2483.5	44.8	53.13	54	-9.2	32.05	5.99	46.37	110	190	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	52.56	60.93	74	-21.44	32.14	5.86	46.37	102	185	Peak
2390	44.89	53.26	54	-9.11	32.14	5.86	46.37	102	185	Average
2437	103.75	111.94	/	/	32.25	5.93	46.37	102	185	Peak
2437	95.83	104.02	/	/	32.25	5.93	46.37	102	185	Average
2483.5	52.39	60.41	74	-21.61	32.36	5.99	46.37	102	185	Peak
2483.5	45.19	53.21	54	-8.81	32.36	5.99	46.37	102	185	Average

REMARKS:

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



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Test Report No.: W7L-P21100018-4RF02

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	52.27	61.03	74	-21.73	31.75	5.86	46.37	100	190	Peak
2390	44.09	52.85	54	-9.91	31.75	5.86	46.37	100	190	Average
2462	105.03	113.46	/	/	31.98	5.96	46.37	100	190	Peak
2462	96.17	104.6	/	/	31.98	5.96	46.37	100	190	Average
2483.5	64.2	72.53	74	-9.8	32.05	5.99	46.37	100	190	Peak
2483.5	51.18	59.51	54	-2.82	32.05	5.99	46.37	100	190	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	52.24	60.61	74	-21.76	32.14	5.86	46.37	100	180	Peak
2390	44.51	52.88	54	-9.49	32.14	5.86	46.37	100	180	Average
2462	100.77	108.87	/	/	32.31	5.96	46.37	100	180	Peak
2462	92.43	100.53	/	/	32.31	5.96	46.37	100	180	Average
2483.5	59.89	67.91	74	-14.11	32.36	5.99	46.37	100	180	Peak
2483.5	47.64	55.66	54	-6.36	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. 2462MHz: Fundamental frequency.



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Test Report No.: W7L-P21100018-4RF02

802.11n (40MHz)

CHANNEL	TX Channel 3	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	66.83	75.59	74	-7.17	31.75	5.86	46.37	135	190	Peak
2390	52.93	61.69	54	-1.07	31.75	5.86	46.37	135	190	Average
2422	101.97	110.58	/	/	31.85	5.91	46.37	135	190	Peak
2422	93.66	102.27	/	/	31.85	5.91	46.37	135	190	Average
2483.5	52.38	60.71	74	-21.62	32.05	5.99	46.37	135	190	Peak
2483.5	44.97	53.3	54	-9.03	32.05	5.99	46.37	135	190	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	60.65	69.02	74	-13.35	32.14	5.86	46.37	100	165	Peak
2390	48.86	57.23	54	-5.14	32.14	5.86	46.37	100	165	Average
2422	97.99	106.24	/	/	32.21	5.91	46.37	100	165	Peak
2422	89.96	98.21	/	/	32.21	5.91	46.37	100	165	Average
2483.5	52.05	60.07	74	-21.95	32.36	5.99	46.37	100	165	Peak
2483.5	44.99	53.01	54	-9.01	32.36	5.99	46.37	100	165	Average

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-P21100018-4RF02

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	53.04	61.8	74	-20.96	31.75	5.86	46.37	190	190	Peak
2390	45.17	53.93	54	-8.83	31.75	5.86	46.37	190	190	Average
2437	101.83	110.37	/	/	31.9	5.93	46.37	190	190	Peak
2437	93.75	102.29	/	/	31.9	5.93	46.37	190	190	Average
2483.5	59.16	67.49	74	-14.84	32.05	5.99	46.37	190	190	Peak
2483.5	49.45	57.78	54	-4.55	32.05	5.99	46.37	190	190	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	52.32	60.69	74	-21.68	32.14	5.86	46.37	100	180	Peak
2390	44.44	52.81	54	-9.56	32.14	5.86	46.37	100	180	Average
2437	96.07	104.26	/	/	32.25	5.93	46.37	100	180	Peak
2437	88.06	96.25	/	/	32.25	5.93	46.37	100	180	Average
2483.5	54.82	62.84	74	-19.18	32.36	5.99	46.37	100	180	Peak
2483.5	45.64	53.66	54	-8.36	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. 2437MHz: Fundamental frequency.



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Test Report No.: W7L-P21100018-4RF02

CHANNEL	TX Channel 9	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	52.01	60.77	74	-21.99	31.75	5.86	46.37	190	190	Peak
2390	44.17	52.93	54	-9.83	31.75	5.86	46.37	190	190	Average
2452	100.52	108.99	/	/	31.95	5.95	46.37	190	190	Peak
2452	92.3	100.77	/	/	31.95	5.95	46.37	190	190	Average
2483.5	63.49	71.82	74	-10.51	32.05	5.99	46.37	190	190	Peak
2483.5	52.81	61.14	54	-1.19	32.05	5.99	46.37	190	190	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	52.15	60.52	74	-21.85	32.14	5.86	46.37	100	180	Peak
2390	44.18	52.55	54	-9.82	32.14	5.86	46.37	100	180	Average
2452	94.56	102.7	/	/	32.28	5.95	46.37	100	180	Peak
2452	86.47	94.61	/	/	32.28	5.95	46.37	100	180	Average
2483.5	58.25	66.27	74	-15.75	32.36	5.99	46.37	100	180	Peak
2483.5	47.51	55.53	54	-6.49	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.
- 2452MHz: Fundamental frequency.



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Test Report No.: W7L-P21100018-4RF02

BELOW 1GHz WORST-CASE DATA:

30 MHz – 1GHz data:

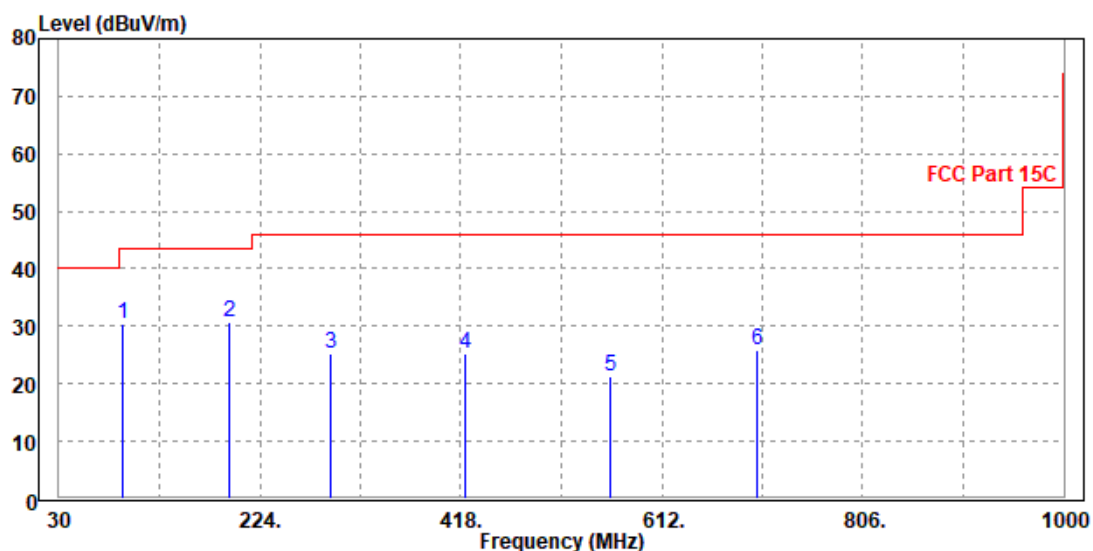
BT-LE_1M

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

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
91.11	30.39	59.28	43.5	-13.11	7.84	0.51	37.24	300	0	Peak
193.93	30.71	55.8	43.5	-12.79	10.76	0.73	36.58	300	0	Peak
291.9	25.2	47.16	46	-20.8	13.87	0.9	36.73	300	0	Peak
422.85	25.39	43.84	46	-20.61	17.31	1.11	36.87	300	0	Peak
562.53	21.3	37.27	46	-24.7	19.95	1.31	37.23	300	0	Peak
703.18	25.95	39.29	46	-20.05	22.72	1.48	37.54	300	0	Peak

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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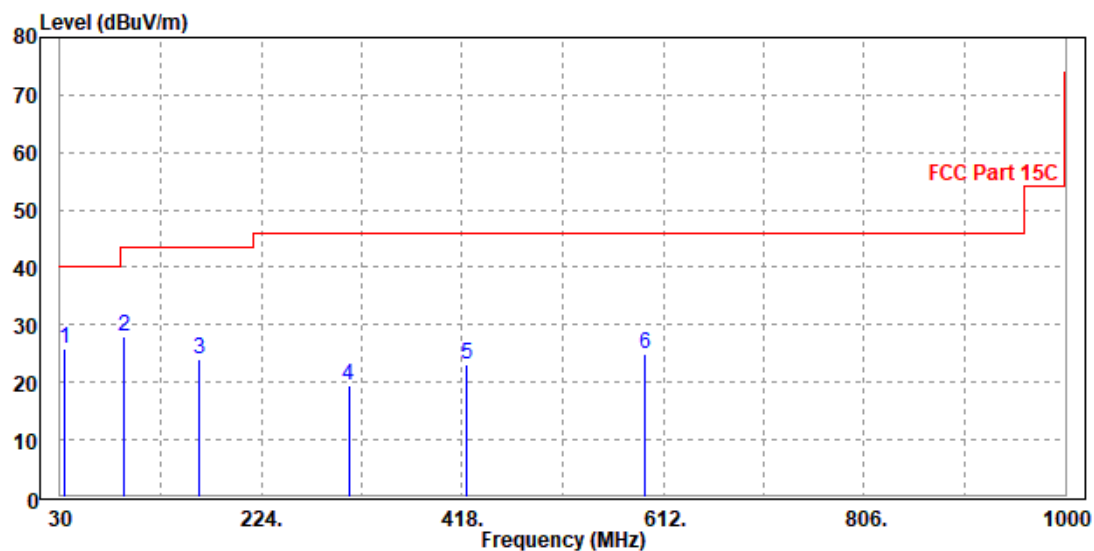
Test Report No.: W7L-P21100018-4RF02

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

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
34.85	25.88	45.07	40	-14.12	18.07	0.33	37.59	200	0	Peak
92.08	28.07	56.3	43.5	-15.43	8.48	0.52	37.23	200	0	Peak
163.86	23.93	48.69	43.5	-19.57	11.27	0.68	36.71	200	0	Peak
308.39	19.4	40.06	46	-26.6	15.18	0.92	36.76	200	0	Peak
422.85	23.11	41.24	46	-22.89	17.63	1.11	36.87	200	0	Peak
594.54	24.87	40.07	46	-21.13	20.8	1.35	37.35	200	0	Peak

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-P21100018-4RF02

ABOVE 1GHz TEST DATA

Note: For higher frequency, the emission is too low to be detected.

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	52.06	60.82	74	-21.94	31.75	5.86	46.37	200	190	Peak
2390	44.52	53.28	54	-9.48	31.75	5.86	46.37	200	190	Average
2402	96.79	105.49	/	/	31.79	5.88	46.37	200	190	Peak
2402	96.01	104.71	/	/	31.79	5.88	46.37	200	190	Average
2483.5	51.67	60	74	-22.33	32.05	5.99	46.37	200	190	Peak
2483.5	44.43	52.76	54	-9.57	32.05	5.99	46.37	200	190	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	51.76	60.13	74	-22.24	32.14	5.86	46.37	100	155	Peak
2390	44.53	52.9	54	-9.47	32.14	5.86	46.37	100	155	Average
2402	96.21	104.54	/	/	32.16	5.88	46.37	100	155	Peak
2402	94.74	103.07	/	/	32.16	5.88	46.37	100	155	Average
2483.5	52.38	60.4	74	-21.62	32.36	5.99	46.37	100	155	Peak
2483.5	45.1	53.12	54	-8.9	32.36	5.99	46.37	100	155	Average

REMARKS:

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



**BUREAU
VERITAS**

Test Report No.: W7L-P21100018-4RF02

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	51.57	60.33	74	-22.43	31.75	5.86	46.37	138	125	Peak
2390	44.27	53.03	54	-9.73	31.75	5.86	46.37	138	125	Average
2440	94.46	102.99	/	/	31.91	5.93	46.37	138	125	Peak
2440	93.73	102.26	/	/	31.91	5.93	46.37	138	125	Average
2483.5	52.42	60.75	74	-21.58	32.05	5.99	46.37	138	125	Peak
2483.5	45.1	53.43	54	-8.9	32.05	5.99	46.37	138	125	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	51.91	60.28	74	-22.09	32.14	5.86	46.37	100	168	Peak
2390	44.55	52.92	54	-9.45	32.14	5.86	46.37	100	168	Average
2440	95.78	103.96	/	/	32.26	5.93	46.37	100	168	Peak
2440	95.15	103.33	/	/	32.26	5.93	46.37	100	168	Average
2483.5	52.74	60.76	74	-21.26	32.36	5.99	46.37	100	168	Peak
2483.5	45.8	53.82	54	-8.2	32.36	5.99	46.37	100	168	Average

REMARKS:

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



**BUREAU
VERITAS**

Test Report No.: W7L-P21100018-4RF02

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	51.27	60.03	74	-22.73	31.75	5.86	46.37	135	128	Peak
2390	44.31	53.07	54	-9.69	31.75	5.86	46.37	135	128	Average
2480	93.26	101.61	/	/	32.04	5.98	46.37	135	128	Peak
2480	91.9	100.25	/	/	32.04	5.98	46.37	135	128	Average
2483.5	52.05	60.38	74	-21.95	32.05	5.99	46.37	135	128	Peak
2483.5	44.18	52.51	54	-9.82	32.05	5.99	46.37	135	128	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	52.67	61.04	74	-21.33	32.14	5.86	46.37	100	168	Peak
2390	45.31	53.68	54	-8.69	32.14	5.86	46.37	100	168	Average
2480	93.2	101.24	/	/	32.35	5.98	46.37	100	168	Peak
2480	91.76	99.8	/	/	32.35	5.98	46.37	100	168	Average
2483.5	51.99	60.01	74	-22.01	32.36	5.99	46.37	100	168	Peak
2483.5	45.27	53.29	54	-8.73	32.36	5.99	46.37	100	168	Average

REMARKS:

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



**BUREAU
VERITAS**

Test Report No.: W7L-P21100018-4RF02

BT-LE_2M

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	51.96	60.72	74	-22.04	31.75	5.86	46.37	138	125	Peak
2390	44.95	53.71	54	-9.05	31.75	5.86	46.37	138	125	Average
2402	95.01	103.71	/	/	31.79	5.88	46.37	138	125	Peak
2402	93.09	101.79	/	/	31.79	5.88	46.37	138	125	Average
2483.5	52.47	60.8	74	-21.53	32.05	5.99	46.37	138	125	Peak
2483.5	44.96	53.29	54	-9.04	32.05	5.99	46.37	138	125	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	52.12	60.49	74	-21.88	32.14	5.86	46.37	100	168	Peak
2390	45.08	53.45	54	-8.92	32.14	5.86	46.37	100	168	Average
2402	94.96	103.29	74	20.96	32.16	5.88	46.37	100	168	Peak
2402	92.78	101.11	54	38.78	32.16	5.88	46.37	100	168	Average
2483.5	53.04	61.06	74	-20.96	32.36	5.99	46.37	100	168	Peak
2483.5	45.24	53.26	54	-8.76	32.36	5.99	46.37	100	168	Average

REMARKS:

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



**BUREAU
VERITAS**

Test Report No.: W7L-P21100018-4RF02

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	52.38	61.14	74	-21.62	31.75	5.86	46.37	138	125	Peak
2390	44.25	53.01	54	-9.75	31.75	5.86	46.37	138	125	Average
2440	93.5	102.03	/	/	31.91	5.93	46.37	138	125	Peak
2440	91.18	99.71	/	/	31.91	5.93	46.37	138	125	Average
2483.5	51.71	60.04	74	-22.29	32.05	5.99	46.37	138	125	Peak
2483.5	44.44	52.77	54	-9.56	32.05	5.99	46.37	138	125	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	52.8	61.17	74	-21.2	32.14	5.86	46.37	100	168	Peak
2390	45.42	53.79	54	-8.58	32.14	5.86	46.37	100	168	Average
2440	94.3	102.48	/	/	32.26	5.93	46.37	100	168	Peak
2440	91.98	100.16	/	/	32.26	5.93	46.37	100	168	Average
2483.5	52.02	60.04	74	-21.98	32.36	5.99	46.37	100	168	Peak
2483.5	44.46	52.48	54	-9.54	32.36	5.99	46.37	100	168	Average

REMARKS:

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



**BUREAU
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Test Report No.: W7L-P21100018-4RF02

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	52.1	60.86	74	-21.9	31.75	5.86	46.37	118	128	Peak
2390	44.25	53.01	54	-9.75	31.75	5.86	46.37	118	128	Average
2480	92.47	100.82	/	/	32.04	5.98	46.37	118	128	Peak
2480	90.13	98.48	/	/	32.04	5.98	46.37	118	128	Average
2483.5	52.11	60.44	74	-21.89	32.05	5.99	46.37	118	128	Peak
2483.5	44.43	52.76	54	-9.57	32.05	5.99	46.37	118	128	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	51.83	60.2	74	-22.17	32.14	5.86	46.37	100	168	Peak
2390	44.62	52.99	54	-9.38	32.14	5.86	46.37	100	168	Average
2480	93.34	101.38	/	/	32.35	5.98	46.37	100	168	Peak
2480	90.59	98.63	/	/	32.35	5.98	46.37	100	168	Average
2483.5	53.52	61.54	74	-20.48	32.36	5.99	46.37	100	168	Peak
2483.5	44.91	52.93	54	-9.09	32.36	5.99	46.37	100	168	Average

REMARKS:

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



**BUREAU
VERITAS**

Test Report No.: W7L-P21100018-4RF02

BT-LE _S2

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	52.13	60.89	74	-21.87	31.75	5.86	46.37	122	125	Peak
2390	44.45	53.21	54	-9.55	31.75	5.86	46.37	122	125	Average
2402	95.13	103.83	/	/	31.79	5.88	46.37	122	125	Peak
2402	94.22	102.92	/	/	31.79	5.88	46.37	122	125	Average
2483.5	52.3	60.63	74	-21.7	32.05	5.99	46.37	122	125	Peak
2483.5	44.57	52.9	54	-9.43	32.05	5.99	46.37	122	125	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	52.37	60.74	74	-21.63	32.14	5.86	46.37	102	168	Peak
2390	45.31	53.68	54	-8.69	32.14	5.86	46.37	102	168	Average
2402	96	104.33	/	/	32.16	5.88	46.37	102	168	Peak
2402	95.45	103.78	/	/	32.16	5.88	46.37	102	168	Average
2483.5	52.17	60.19	74	-21.83	32.36	5.99	46.37	102	168	Peak
2483.5	44.85	52.87	54	-9.15	32.36	5.99	46.37	102	168	Average

REMARKS:

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



**BUREAU
VERITAS**

Test Report No.: W7L-P21100018-4RF02

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	52.36	61.12	74	-21.64	31.75	5.86	46.37	118	125	Peak
2390	44.82	53.58	54	-9.18	31.75	5.86	46.37	118	125	Average
2440	94.04	102.57	/	/	31.91	5.93	46.37	118	125	Peak
2440	93.18	101.71	/	/	31.91	5.93	46.37	118	125	Average
2483.5	52.38	60.71	74	-21.62	32.05	5.99	46.37	118	125	Peak
2483.5	44.57	52.9	54	-9.43	32.05	5.99	46.37	118	125	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	53.17	61.54	74	-20.83	32.14	5.86	46.37	102	168	Peak
2390	44.28	52.65	54	-9.72	32.14	5.86	46.37	102	168	Average
2440	94.17	102.35	/	/	32.26	5.93	46.37	102	168	Peak
2440	93.55	101.73	/	/	32.26	5.93	46.37	102	168	Average
2483.5	53.78	61.8	74	-20.22	32.36	5.99	46.37	102	168	Peak
2483.5	44.88	52.9	54	-9.12	32.36	5.99	46.37	102	168	Average

REMARKS:

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



**BUREAU
VERITAS**

Test Report No.: W7L-P21100018-4RF02

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	52	60.76	74	-22	31.75	5.86	46.37	118	130	Peak
2390	44.79	53.55	54	-9.21	31.75	5.86	46.37	118	130	Average
2480	91.84	100.19	/	/	32.04	5.98	46.37	118	130	Peak
2480	91.04	99.39	/	/	32.04	5.98	46.37	118	130	Average
2483.5	52.64	60.97	74	-21.36	32.05	5.99	46.37	118	130	Peak
2483.5	44.78	53.11	54	-9.22	32.05	5.99	46.37	118	130	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	51.88	60.25	74	-22.12	32.14	5.86	46.37	100	168	Peak
2390	44.17	52.54	54	-9.83	32.14	5.86	46.37	100	168	Average
2480	92.78	100.82	/	/	32.35	5.98	46.37	100	168	Peak
2480	91.95	99.99	/	/	32.35	5.98	46.37	100	168	Average
2483.5	52.39	60.41	74	-21.61	32.36	5.99	46.37	100	168	Peak
2483.5	44.78	52.8	54	-9.22	32.36	5.99	46.37	100	168	Average

REMARKS:

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



**BUREAU
VERITAS**

Test Report No.: W7L-P21100018-4RF02

BT-LE_S8

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	52.47	61.23	74	-21.53	31.75	5.86	46.37	120	125	Peak
2390	44.66	53.42	54	-9.34	31.75	5.86	46.37	120	125	Average
2402	94.04	102.74	/	/	31.79	5.88	46.37	120	125	Peak
2402	92.49	101.19	/	/	31.79	5.88	46.37	120	125	Average
2483.5	51.69	60.02	74	-22.31	32.05	5.99	46.37	120	125	Peak
2483.5	44.65	52.98	54	-9.35	32.05	5.99	46.37	120	125	Average

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	52.94	61.31	74	-21.06	32.14	5.86	46.37	102	168	Peak
2390	44.94	53.31	54	-9.06	32.14	5.86	46.37	102	168	Average
2402	95.87	104.2	/	/	32.16	5.88	46.37	102	168	Peak
2402	94.34	102.67	/	/	32.16	5.88	46.37	102	168	Average
2483.5	52.09	60.11	74	-21.91	32.36	5.99	46.37	102	168	Peak
2483.5	44.89	52.91	54	-9.11	32.36	5.99	46.37	102	168	Average

REMARKS:

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



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VERITAS**

Test Report No.: W7L-P21100018-4RF02

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	51.88	60.64	74	-22.12	31.75	5.86	46.37	118	125	Peak
2390	43.97	52.73	54	-10.03	31.75	5.86	46.37	118	125	Average
2440	93.96	102.49	/	/	31.91	5.93	46.37	118	125	Peak
2440	92.61	101.14	/	/	31.91	5.93	46.37	118	125	Average
2483.5	52.46	60.79	74	-21.54	32.05	5.99	46.37	118	125	Peak
2483.5	44.97	53.3	54	-9.03	32.05	5.99	46.37	118	125	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	42.2	50.57	74	-31.8	32.14	5.86	46.37	102	168	Peak
2390	44.46	52.83	54	-9.54	32.14	5.86	46.37	102	168	Average
2440	94.05	102.23	/	/	32.26	5.93	46.37	102	168	Peak
2440	92.66	100.84	/	/	32.26	5.93	46.37	102	168	Average
2483.5	52.46	60.48	74	-21.54	32.36	5.99	46.37	102	168	Peak
2483.5	45.29	53.31	54	-8.71	32.36	5.99	46.37	102	168	Average

REMARKS:

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



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Test Report No.: W7L-P21100018-4RF02

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	52.81	61.57	74	-21.19	31.75	5.86	46.37	118	125	Peak
2390	44.45	53.21	54	-9.55	31.75	5.86	46.37	118	125	Average
2480	91.56	99.91	/	/	32.04	5.98	46.37	118	125	Peak
2480	90.01	98.36	/	/	32.04	5.98	46.37	118	125	Average
2483.5	52.11	60.44	74	-21.89	32.05	5.99	46.37	118	125	Peak
2483.5	44.45	52.78	54	-9.55	32.05	5.99	46.37	118	125	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	52.98	61.35	74	-21.02	32.14	5.86	46.37	100	168	Peak
2390	45.08	53.45	54	-8.92	32.14	5.86	46.37	100	168	Average
2480	93.62	101.66	/	/	32.35	5.98	46.37	100	168	Peak
2480	91.92	99.96	/	/	32.35	5.98	46.37	100	168	Average
2483.5	52.47	60.49	74	-21.53	32.36	5.99	46.37	100	168	Peak
2483.5	44.93	52.95	54	-9.07	32.36	5.99	46.37	100	168	Average

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
Margin value = Emission level – Limit value.
2. 2480MHz: 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. 25,21	Feb. 24,22
EXA Signal Analyzer	KEYSIGHT	N9010A-526	MY54510322	Feb. 25,21	Feb. 24,22
EXA Signal Analyzer	KEYSIGHT	N9010A-544	MY54510355	Apr. 26,21	Apr. 25,22
Power Sensor	ANRITSU	MA2411B	1339352	Feb. 25,21	Feb. 24,22

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

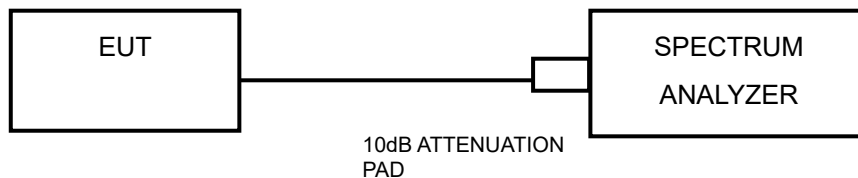
1. Set RBW = 100 kHz.
2. Set the video bandwidth (VBW) ≥ 3 RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (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 Appendix A/H Of this test report.



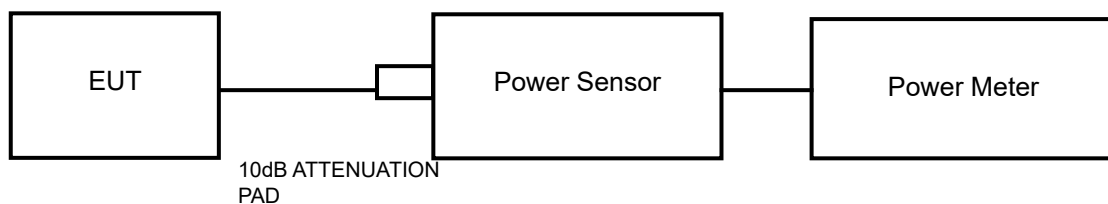
3.4 CONDUCTED OUTPUT POWER

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

BT:



3.4.3 TEST INSTRUMENTS

Refer to section 3.2.2 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.



Test Report No.: W7L-P21100018-4RF02

3.4.7 TEST RESULTS

3.4.7.1 MAXIMUM PEAK OUTPUT POWER

Please Refer to Appendix C/J 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.

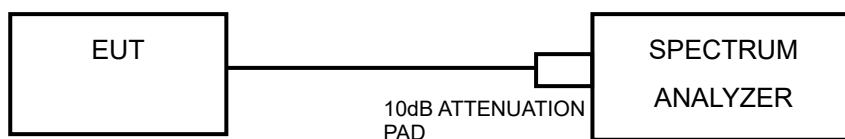
Please Refer to Appendix C/J Of this test report.

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 $\geq 3 \times$ 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.



Test Report No.: W7L-P21100018-4RF02

3.5.7 TEST RESULTS

Please Refer to Appendix D/K Of this test report.

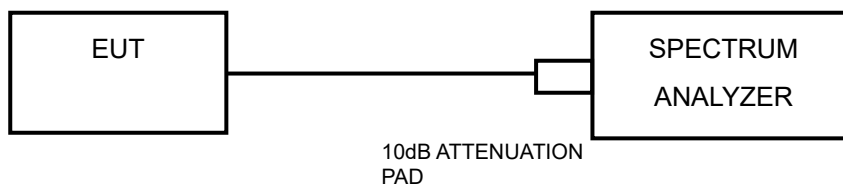


3.6 OUT OF BAND EMISSION MEASUREMENT

3.6.1 LIMITS OF OUT OF BAND EMISSION MEASUREMENT

Below -20dB 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 OOBE

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 Appendix E/F/L/M Of this test report.



Test Report No.: W7L-P21100018-4RF02

4 PHOTOGRAPHS OF THE TEST CONFIGURATION

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



Test Report No.: W7L-P21100018-4RF02

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

APPENDIX A: DTS BANDWIDTH

TEST RESULT

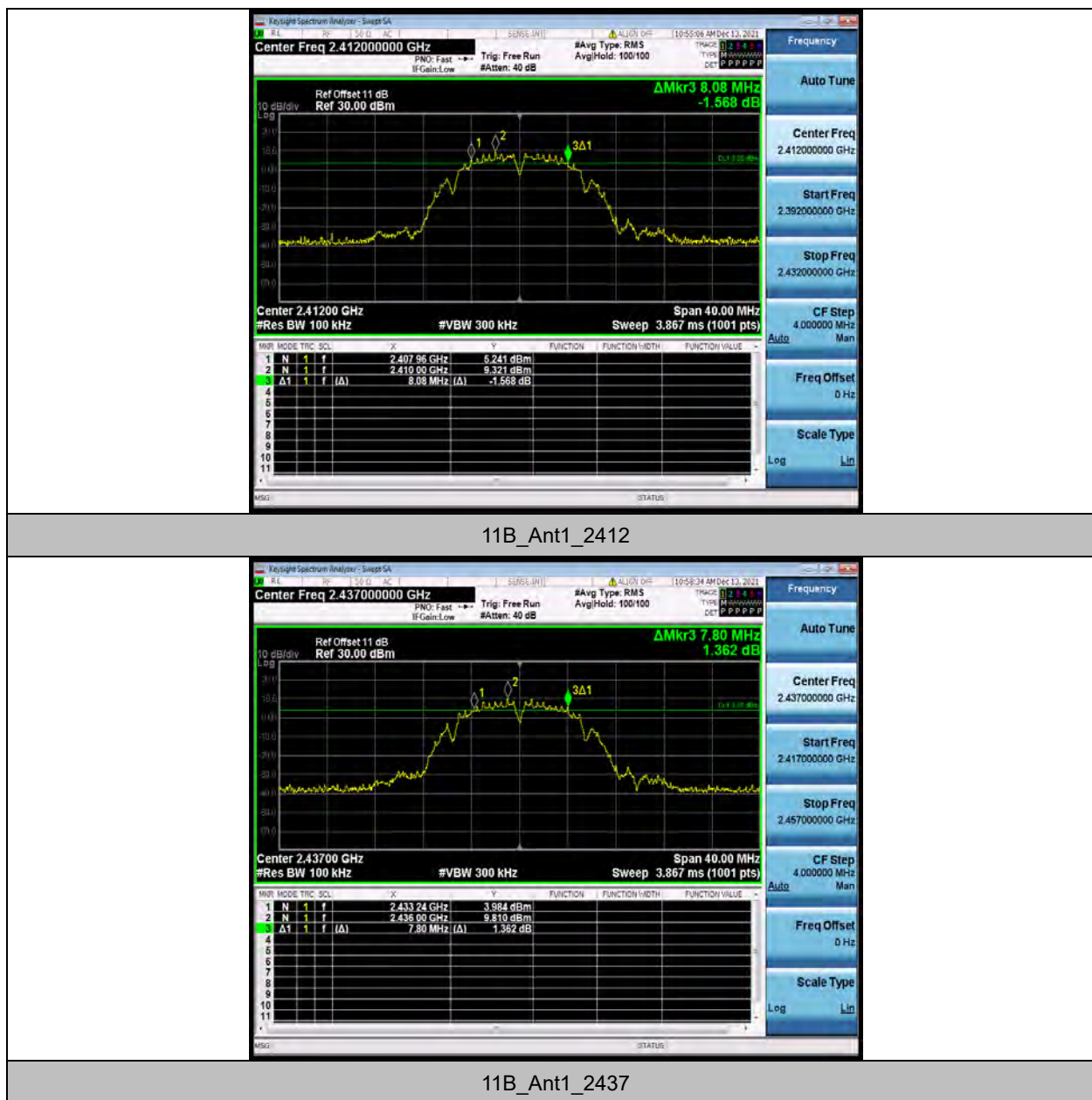
TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	8.080	2407.960	2416.040	0.5	PASS
		2437	7.800	2433.240	2441.040	0.5	PASS
		2462	8.080	2457.960	2466.040	0.5	PASS
11G	Ant1	2412	16.080	2404.080	2420.160	0.5	PASS
		2437	16.040	2429.120	2445.160	0.5	PASS
		2462	16.080	2454.080	2470.160	0.5	PASS
11N20SISO	Ant1	2412	16.840	2403.640	2420.480	0.5	PASS
		2437	15.720	2428.960	2444.680	0.5	PASS
		2462	16.520	2453.680	2470.200	0.5	PASS
11N40SISO	Ant1	2422	35.440	2404.480	2439.920	0.5	PASS
		2437	34.720	2419.400	2454.120	0.5	PASS
		2452	35.840	2434.000	2469.840	0.5	PASS



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Test Report No.: W7L-P21100018-4RF02

TEST GRAPHS





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11B_Ant1_2462



11G_Ant1_2412



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11G_Ant1_2437



11G_Ant1_2462

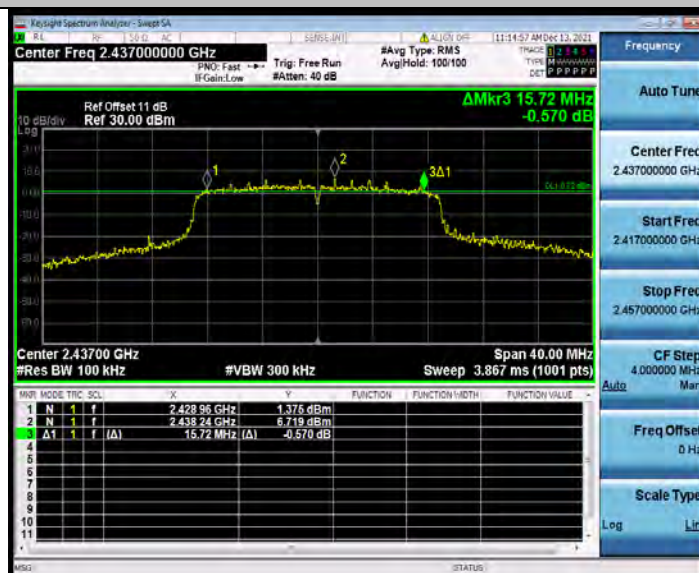


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11N20SISO_Ant1_2412



11N20SISO_Ant1_2437



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Test Report No.: W7L-P21100018-4RF02



11N20SISO_Ant1_2462



11N40SISO_Ant1_2422

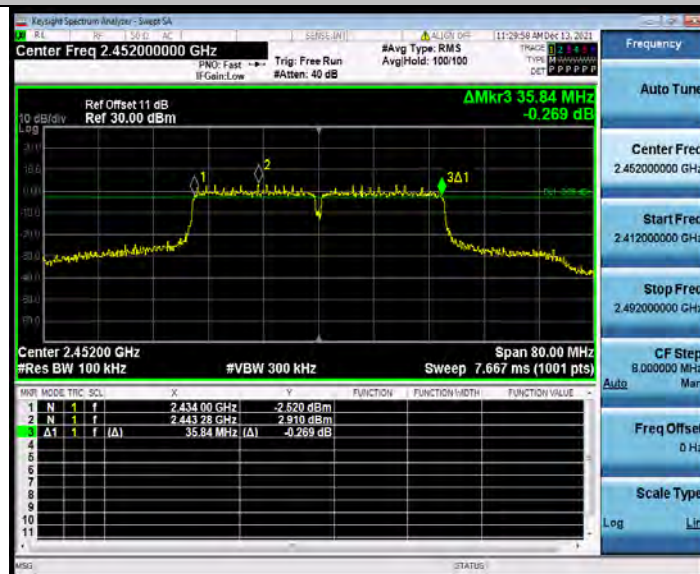


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11N40SISO_Ant1_2437



11N40SISO_Ant1_2452

**APPENDIX B: OCCUPIED CHANNEL BANDWIDTH****TEST RESULT**

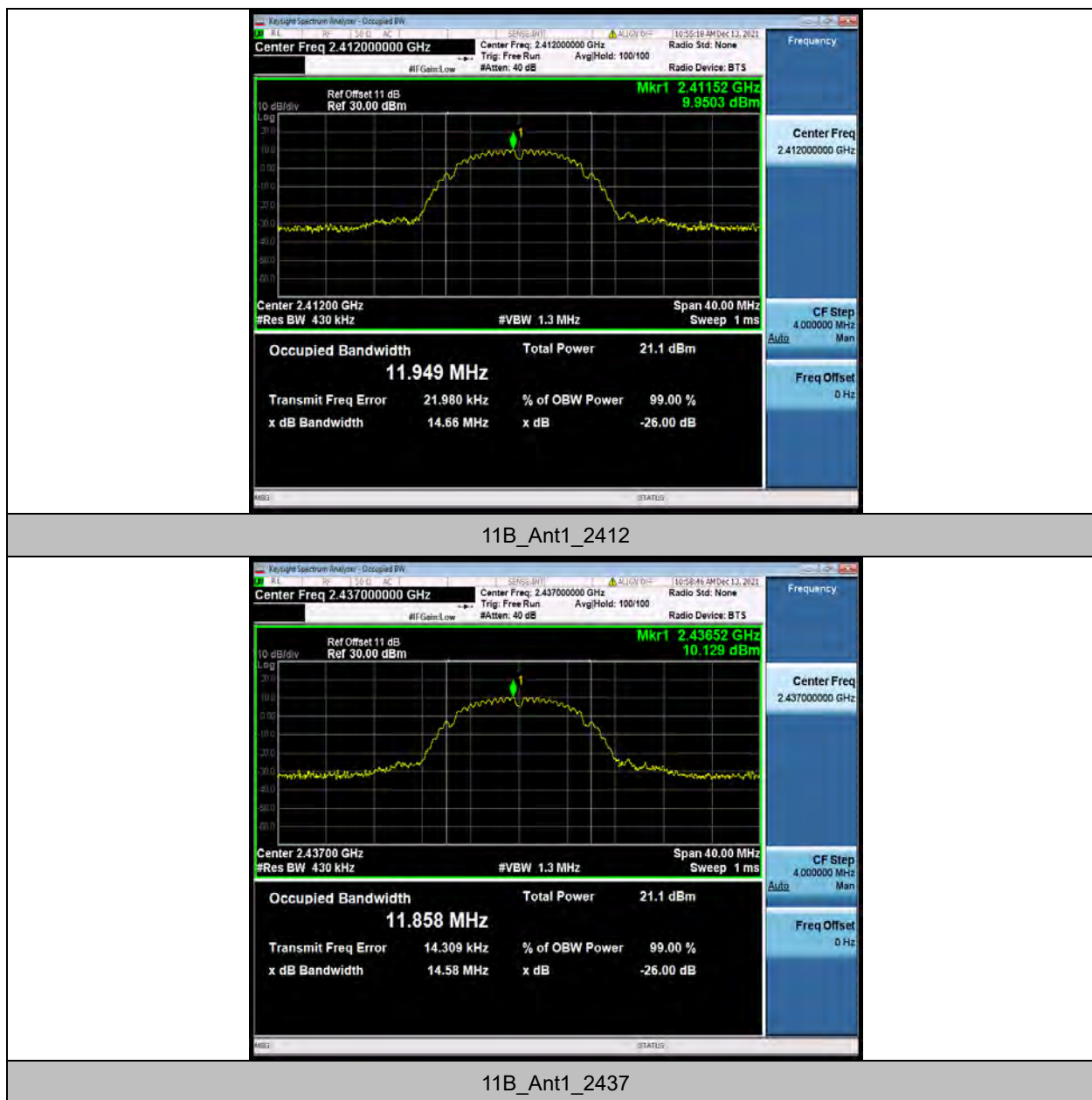
TestMode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	11.949	2406.047	2417.996	---	PASS
		2437	11.858	2431.085	2442.943	---	PASS
		2462	11.813	2456.172	2467.985	---	PASS
11G	Ant1	2412	16.993	2403.614	2420.607	---	PASS
		2437	17.046	2428.577	2445.623	---	PASS
		2462	16.909	2453.649	2470.558	---	PASS
11N20SISO	Ant1	2412	17.752	2403.176	2420.928	---	PASS
		2437	17.768	2428.181	2445.949	---	PASS
		2462	17.628	2453.230	2470.858	---	PASS
11N40SISO	Ant1	2422	36.665	2404.020	2440.685	---	PASS
		2437	36.321	2418.963	2455.284	---	PASS
		2452	36.439	2433.754	2470.193	---	PASS



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Test Report No.: W7L-P21100018-4RF02

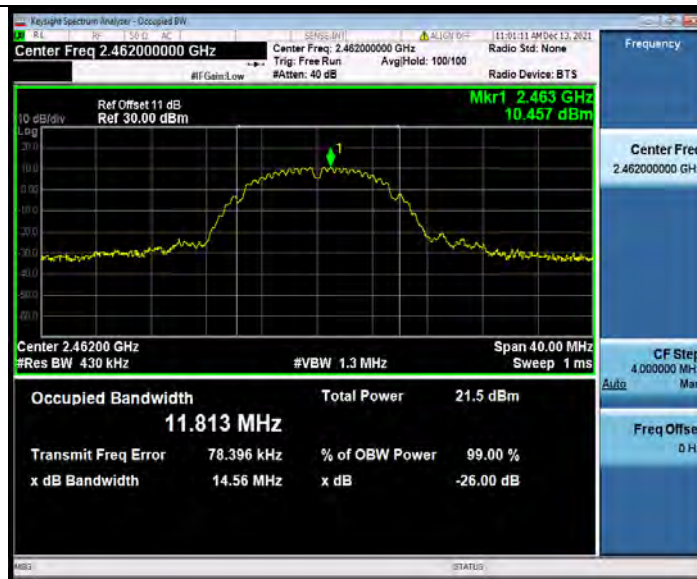
TEST GRAPHS





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VERITAS

Test Report No.: W7L-P21100018-4RF02



11B_Ant1_2462



11G_Ant1_2412

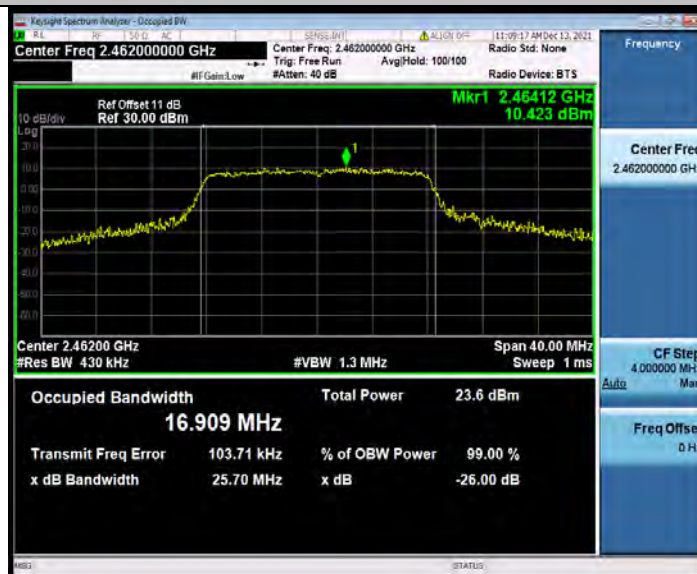


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Test Report No.: W7L-P21100018-4RF02



11G_Ant1_2437

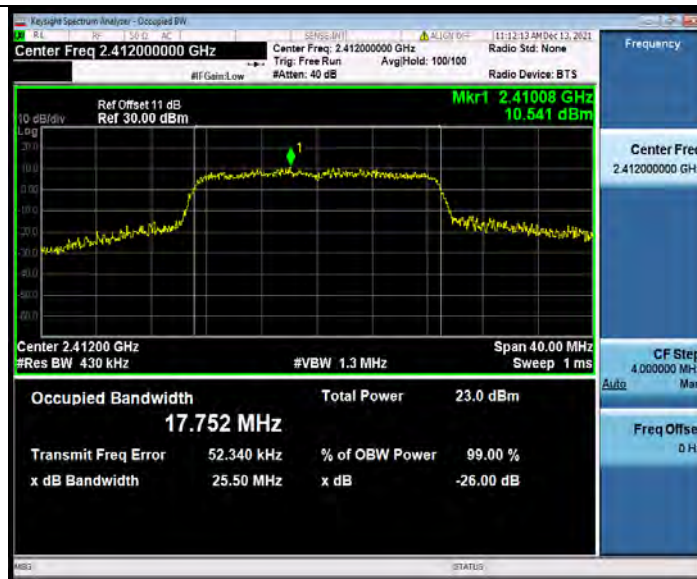


11G_Ant1_2462



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VERITAS

Test Report No.: W7L-P21100018-4RF02



11N20SISO_Ant1_2412

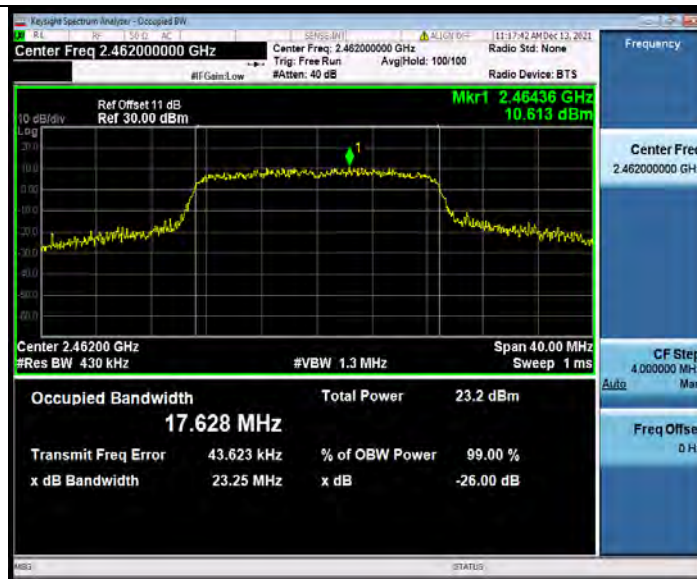


11N20SISO_Ant1_2437



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Test Report No.: W7L-P21100018-4RF02



11N20SISO_Ant1_2462



11N40SISO_Ant1_2422



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Test Report No.: W7L-P21100018-4RF02



11N40SISO_Ant1_2437



11N40SISO_Ant1_2452



APPENDIX C: MAXIMUM CONDUCTED OUTPUT POWER

PEAK POWER TEST RESULT

TestMode	Antenna	Channel	Result[dBm]	Result[mW]	Limit[dBm]	Verdict	Power Setting
11B	Ant1	2412	21.62	145.21	≤30	PASS	15
		2437	21.23	132.74	≤30	PASS	16
		2462	21.70	147.91	≤30	PASS	17
11G	Ant1	2412	22.35	171.79	≤30	PASS	13
		2437	21.69	147.57	≤30	PASS	13
		2462	21.83	152.41	≤30	PASS	14
11N20SISO	Ant1	2412	22.70	186.21	≤30	PASS	13
		2437	21.92	155.60	≤30	PASS	13
		2462	21.40	138.04	≤30	PASS	13
11N40SISO	Ant1	2422	20.97	125.03	≤30	PASS	11
		2437	20.36	108.64	≤30	PASS	12
		2452	20.40	109.65	≤30	PASS	12

AVERAGE POWER TEST RESULT

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict	Power Setting
11B	Ant1	2412	18.30	/	PASS	15
		2437	17.94	/	PASS	16
		2462	18.42	/	PASS	17
11G	Ant1	2412	14.98	/	PASS	13
		2437	14.02	/	PASS	13
		2462	14.32	/	PASS	14
11N20SISO	Ant1	2412	15.62	/	PASS	13
		2437	14.48	/	PASS	13
		2462	13.82	/	PASS	13
11N40SISO	Ant1	2422	13.30	/	PASS	11
		2437	12.81	/	PASS	12
		2452	12.97	/	PASS	12



APPENDIX D: MAXIMUM POWER SPECTRAL DENSITY TEST RESULT

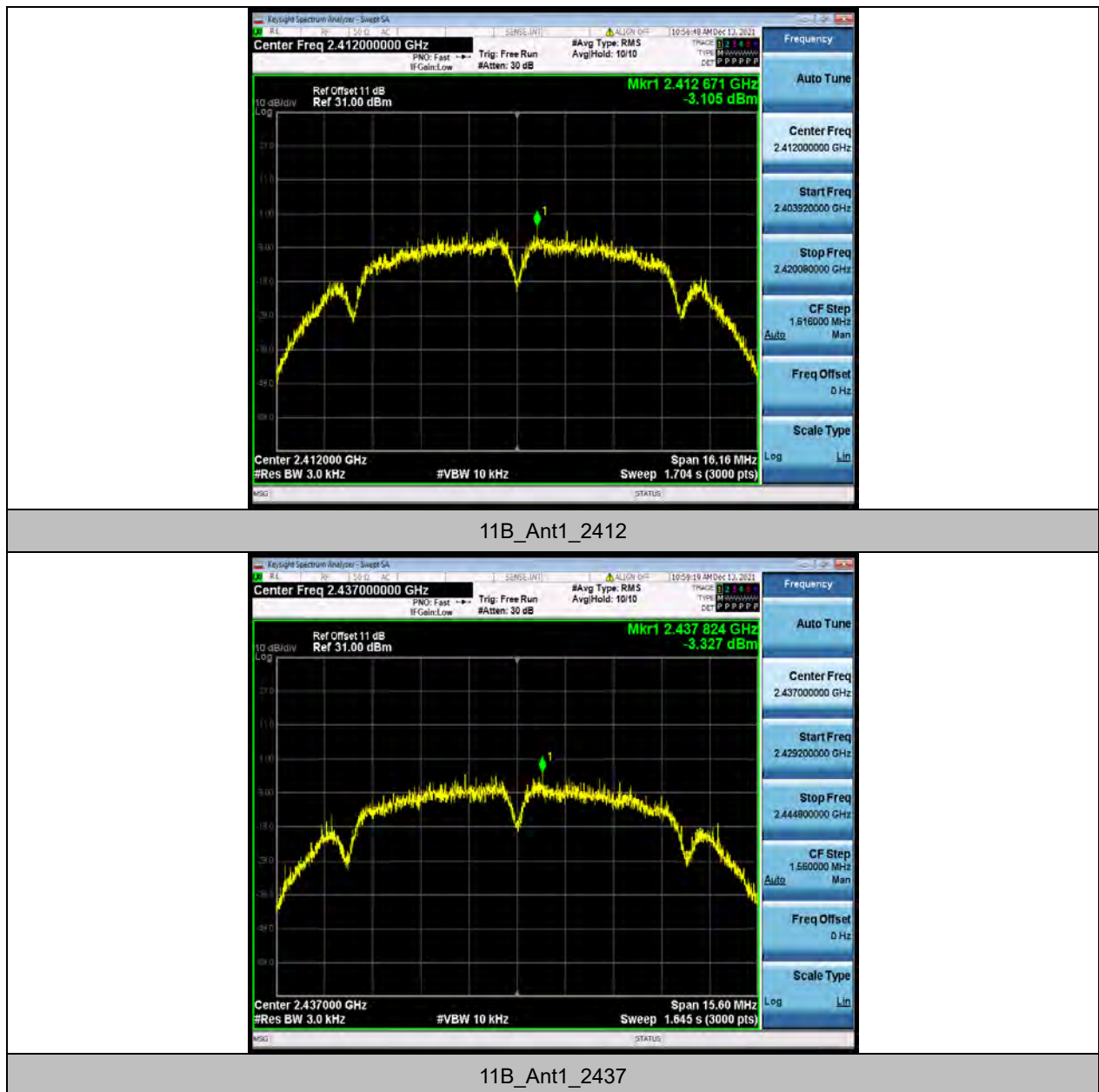
TestMode	Antenna	Channel	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
11B	Ant1	2412	-3.11	≤8	PASS
		2437	-3.33	≤8	PASS
		2462	-0.83	≤8	PASS
11G	Ant1	2412	-7.98	≤8	PASS
		2437	-7.6	≤8	PASS
		2462	-7.83	≤8	PASS
11N20SISO	Ant1	2412	-8.84	≤8	PASS
		2437	-8.21	≤8	PASS
		2462	-8.05	≤8	PASS
11N40SISO	Ant1	2422	-11.15	≤8	PASS
		2437	-9.61	≤8	PASS
		2452	-10.81	≤8	PASS



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Test Report No.: W7L-P21100018-4RF02

TEST GRAPHS



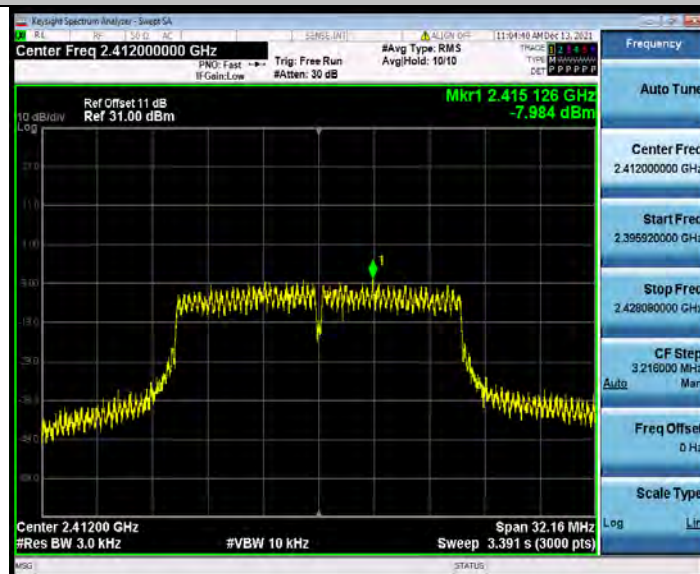


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Test Report No.: W7L-P21100018-4RF02



11B_Ant1_2462



11G_Ant1_2412

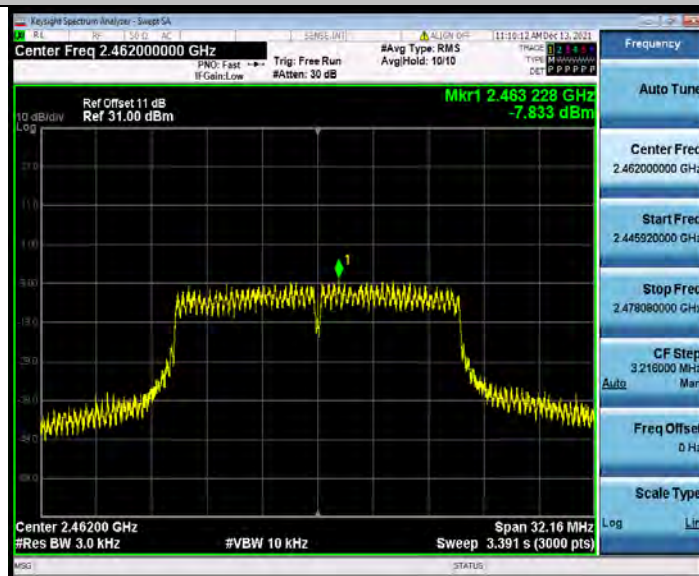


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VERITAS

Test Report No.: W7L-P21100018-4RF02



11G_Ant1_2437

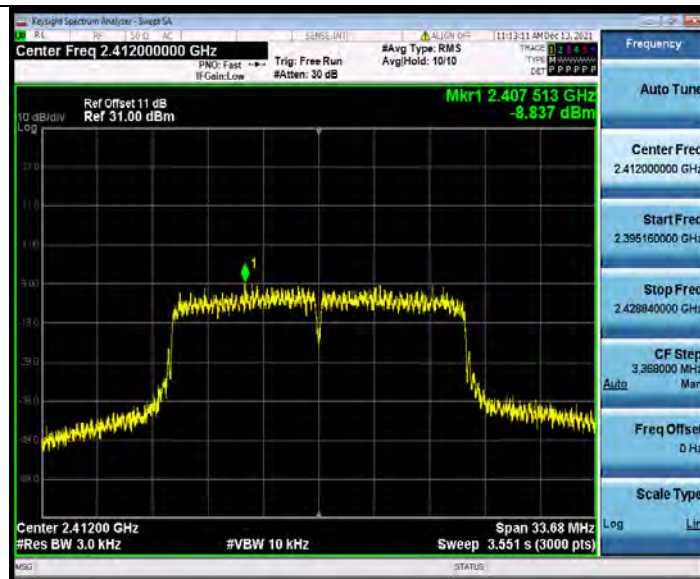


11G_Ant1_2462

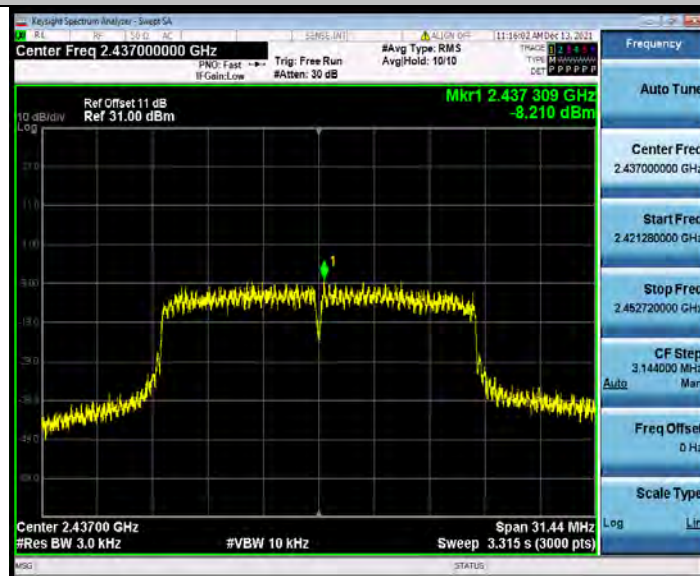


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Test Report No.: W7L-P21100018-4RF02



11N20SISO_Ant1_2412



11N20SISO_Ant1_2437



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VERITAS

Test Report No.: W7L-P21100018-4RF02



11N20SISO_Ant1_2462



11N40SISO_Ant1_2422

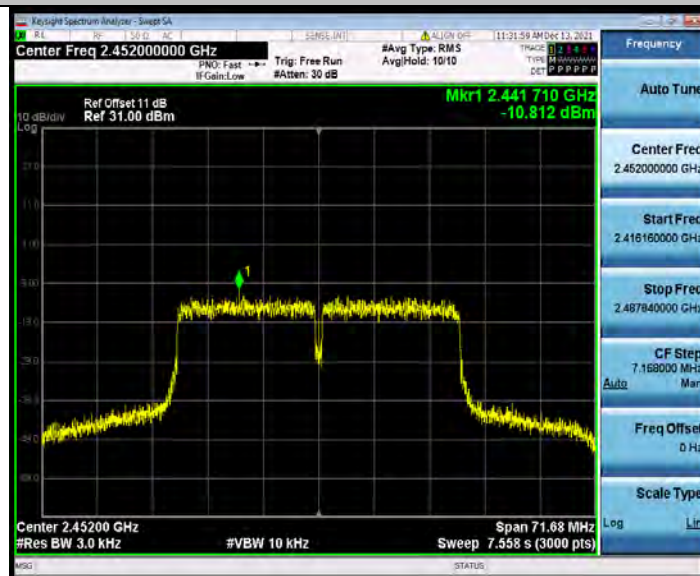


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VERITAS

Test Report No.: W7L-P21100018-4RF02



11N40SISO_Ant1_2437



11N40SISO_Ant1_2452

**APPENDIX E: BAND EDGE MEASUREMENTS****TEST RESULT**

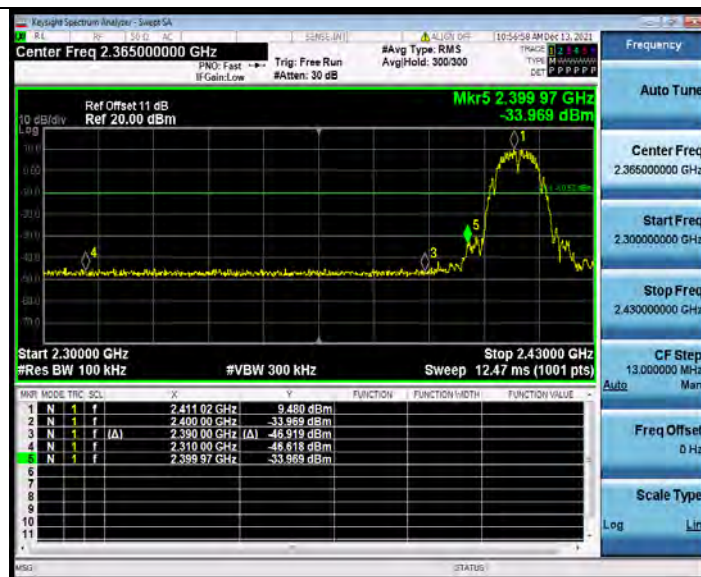
TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	Low	2412	9.48	-33.97	≤-10.52	PASS
		High	2462	10.24	-43.5	≤-9.76	PASS
11G	Ant1	Low	2412	6.53	-22.25	≤-13.47	PASS
		High	2462	6.88	-32.57	≤-13.13	PASS
11N20SISO	Ant1	Low	2412	5.27	-25.46	≤-14.73	PASS
		High	2462	6.24	-32.39	≤-13.76	PASS
11N40SISO	Ant1	Low	2422	4.12	-25.12	≤-15.88	PASS
		High	2452	3.01	-27.36	≤-17	PASS



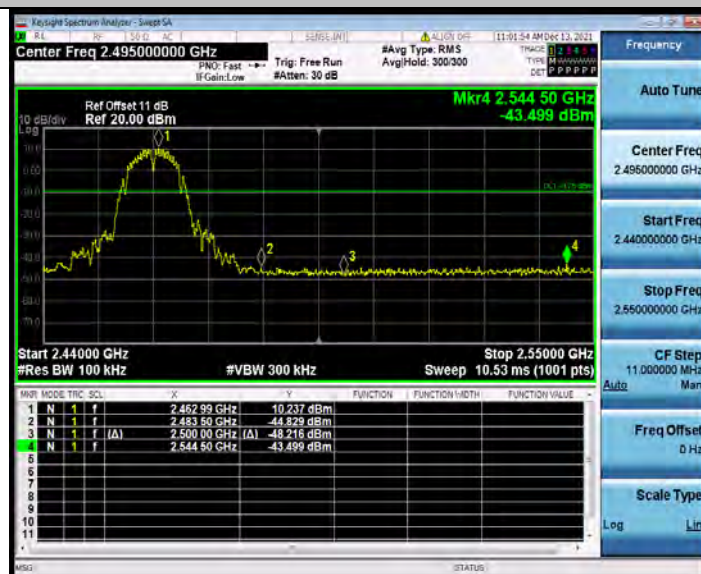
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Test Report No.: W7L-P21100018-4RF02

TEST GRAPHS



11B_Ant1_Low_2412



11B_Ant1_High_2462



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Test Report No.: W7L-P21100018-4RF02



11G_Ant1_Low_2412



11G_Ant1_High_2462



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Test Report No.: W7L-P21100018-4RF02



11N20SISO_Ant1_Low_2412



11N20SISO_Ant1_High_2462



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Test Report No.: W7L-P21100018-4RF02



11N40SISO_Ant1_Low_2422



11N40SISO_Ant1_High_2452



APPENDIX F: CONDUCTED SPURIOUS EMISSION

TEST RESULT

TestMode	Antenna	Channel	FreqRange [Mhz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
11B	Ant1	2412	Reference	8.09	8.09	---	PASS
			30~1000	8.09	-54.97	≤ -11.91	PASS
			1000~26500	8.09	-38.66	≤ -11.91	PASS
		2437	Reference	9.43	9.43	---	PASS
			30~1000	9.43	-53.58	≤ -10.57	PASS
			1000~26500	9.43	-37.72	≤ -10.57	PASS
		2462	Reference	8.44	8.44	---	PASS
			30~1000	8.44	-54.63	≤ -11.56	PASS
			1000~26500	8.44	-38.13	≤ -11.56	PASS
11G	Ant1	2412	Reference	3.18	3.18	---	PASS
			30~1000	3.18	-54.11	≤ -16.82	PASS
			1000~26500	3.18	-38.65	≤ -16.82	PASS
		2437	Reference	5.58	5.58	---	PASS
			30~1000	5.58	-54.38	≤ -14.42	PASS
			1000~26500	5.58	-38.63	≤ -14.42	PASS
		2462	Reference	6.33	6.33	---	PASS
			30~1000	6.33	-54.34	≤ -13.67	PASS
			1000~26500	6.33	-37.73	≤ -13.67	PASS
11N20SISO	Ant1	2412	Reference	2.87	2.87	---	PASS
			30~1000	2.87	-54.25	≤ -17.13	PASS
			1000~26500	2.87	-36.97	≤ -17.13	PASS
		2437	Reference	3.94	3.94	---	PASS
			30~1000	3.94	-54.72	≤ -16.06	PASS
			1000~26500	3.94	-38.74	≤ -16.06	PASS
		2462	Reference	2.59	2.59	---	PASS
			30~1000	2.59	-54.29	≤ -17.41	PASS
			1000~26500	2.59	-38.21	≤ -17.41	PASS
11N40SISO	Ant1	2422	Reference	3.73	3.73	---	PASS
			30~1000	3.73	-54.77	≤ -16.27	PASS



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			1000~26500	3.73	-37.7	≤ -16.27	PASS
		2437	Reference	2.79	2.79	---	PASS
			30~1000	2.79	-54.4	≤ -17.21	PASS
			1000~26500	2.79	-38.19	≤ -17.21	PASS
		2452	Reference	2.90	2.90	---	PASS
			30~1000	2.90	-54.68	≤ -17.1	PASS
			1000~26500	2.90	-38.61	≤ -17.1	PASS



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Test Report No.: W7L-P21100018-4RF02

TEST GRAPHS



11B_Ant1_2412_0~Reference



11B_Ant1_2412_30~1000



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11B_Ant1_2412_1000~26500



11B_Ant1_2437_0~Reference



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Test Report No.: W7L-P21100018-4RF02



11B_Ant1_2437_30~1000



11B_Ant1_2437_1000~26500



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VERITAS

Test Report No.: W7L-P21100018-4RF02



11B_Ant1_2462_0~Reference



11B_Ant1_2462_30~1000



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Test Report No.: W7L-P21100018-4RF02



11B_Ant1_2462_1000~26500



11G_Ant1_2412_0~Reference



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VERITAS

Test Report No.: W7L-P21100018-4RF02



11G_Ant1_2412_30~1000



11G_Ant1_2412_1000~26500



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VERITAS

Test Report No.: W7L-P21100018-4RF02



11G_Ant1_2437_0~Reference



11G_Ant1_2437_30~1000



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VERITAS

Test Report No.: W7L-P21100018-4RF02



11G_Ant1_2437_1000~26500



11G_Ant1_2462_0~Reference



BUREAU
VERITAS

Test Report No.: W7L-P21100018-4RF02



11G_Ant1_2462_30~1000



11G_Ant1_2462_1000~26500



BUREAU
VERITAS

Test Report No.: W7L-P21100018-4RF02



11N20SISO_Ant1_2412_0~Reference



11N20SISO_Ant1_2412_30~1000



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VERITAS

Test Report No.: W7L-P21100018-4RF02



11N20SISO_Ant1_2412_1000~26500



11N20SISO_Ant1_2437_0~Reference



BUREAU
VERITAS

Test Report No.: W7L-P21100018-4RF02



11N20SISO_Ant1_2437_30~1000



11N20SISO_Ant1_2437_1000~26500



BUREAU
VERITAS

Test Report No.: W7L-P21100018-4RF02



11N20SISO_Ant1_2462_0~Reference



11N20SISO_Ant1_2462_30~1000



BUREAU
VERITAS

Test Report No.: W7L-P21100018-4RF02



11N20SISO_Ant1_2462_1000~26500



11N40SISO_Ant1_2422_0~Reference



BUREAU
VERITAS

Test Report No.: W7L-P21100018-4RF02



11N40SISO_Ant1_2422_30~1000



11N40SISO_Ant1_2422_1000~26500



BUREAU
VERITAS

Test Report No.: W7L-P21100018-4RF02



11N40SISO_Ant1_2437_0~Reference



11N40SISO_Ant1_2437_30~1000

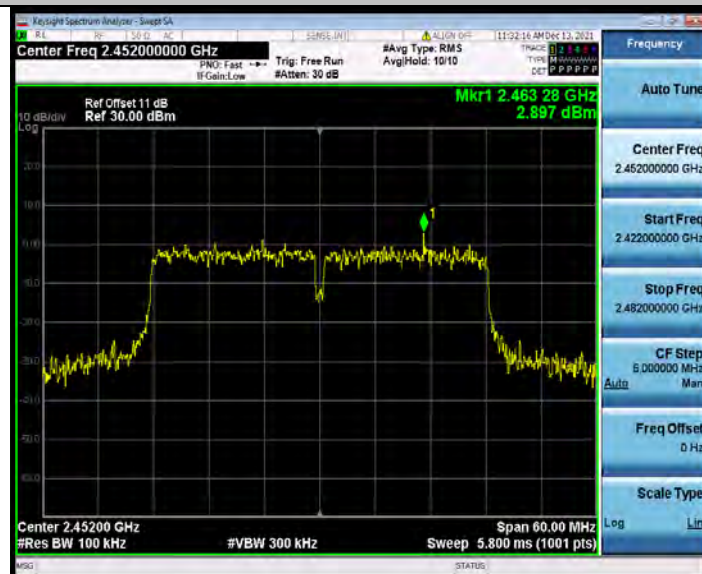


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VERITAS

Test Report No.: W7L-P21100018-4RF02



11N40SISO_Ant1_2437_1000~26500



11N40SISO_Ant1_2452_0~Reference



BUREAU
VERITAS

Test Report No.: W7L-P21100018-4RF02



11N40SISO_Ant1_2452_30~1000



11N40SISO_Ant1_2452_1000~26500



Test Report No.: W7L-P21100018-4RF02

APPENDIX G: DUTY CYCLE

TEST RESULT

TestMode	Antenna	Channel	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	Limit	Verdict
11B	Ant1	2412	8.42	8.52	98.83	---	PASS
		2437	8.42	8.50	99.06	---	PASS
		2462	8.42	8.50	99.06	---	PASS
11G	Ant1	2412	1.39	1.48	93.92	---	PASS
		2437	1.40	1.50	93.33	---	PASS
		2462	1.39	1.47	94.56	---	PASS
11N20SISO	Ant1	2412	1.18	1.27	92.91	---	PASS
		2437	1.18	1.29	91.47	---	PASS
		2462	1.18	1.26	93.65	---	PASS
11N40SISO	Ant1	2422	0.59	0.70	84.29	---	PASS
		2437	0.58	0.69	84.06	---	PASS
		2452	0.59	0.67	88.06	---	PASS



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Test Report No.: W7L-P21100018-4RF02

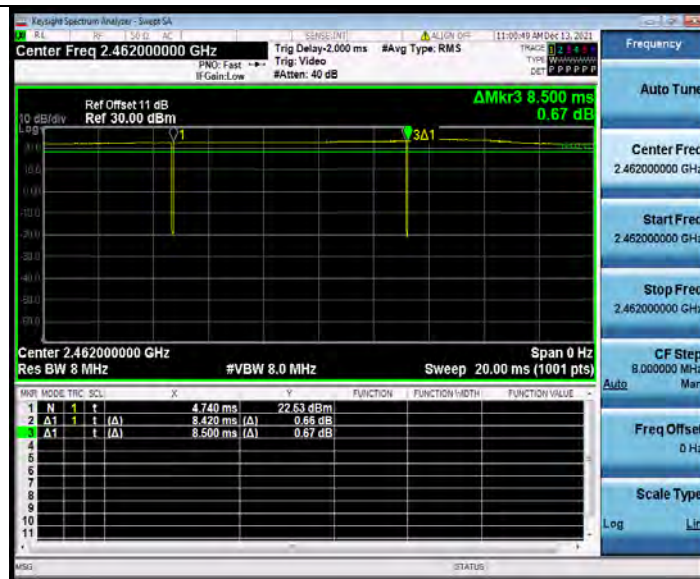
TEST GRAPHS



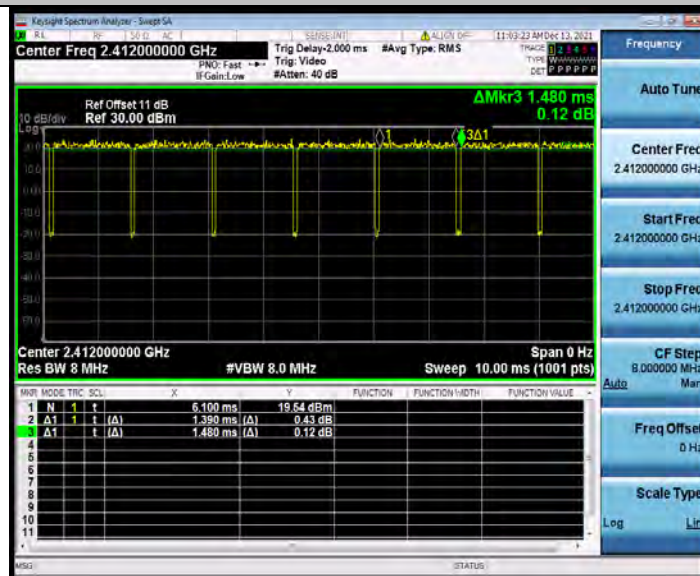


BUREAU
VERITAS

Test Report No.: W7L-P21100018-4RF02



11B_Ant1_2462

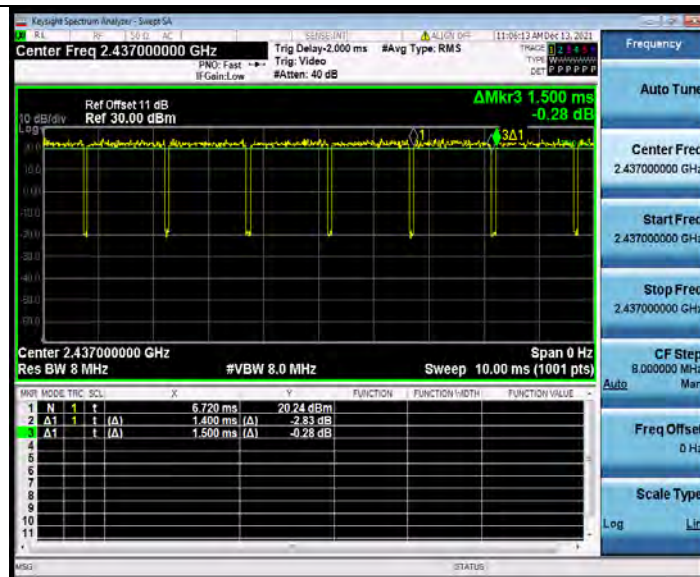


11G_Ant1_2412

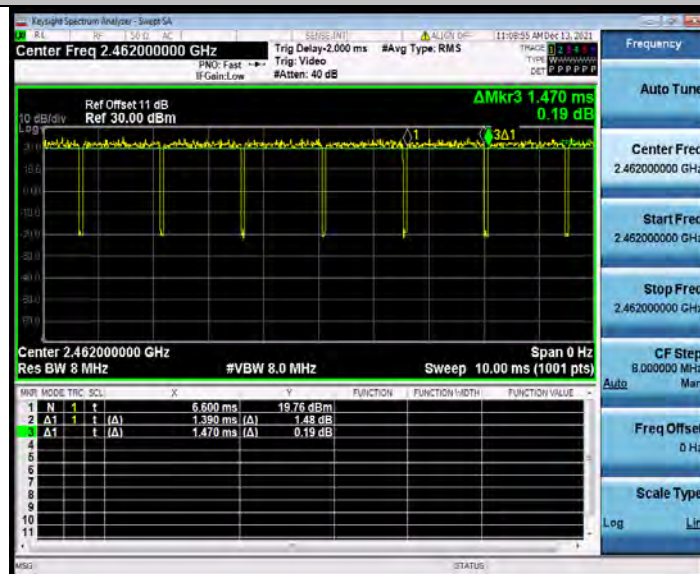


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VERITAS

Test Report No.: W7L-P21100018-4RF02



11G_Ant1_2437

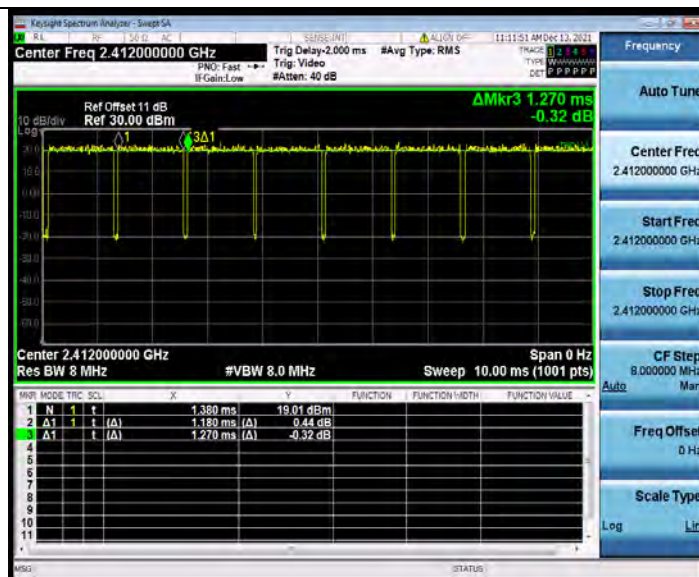


11G_Ant1_2462

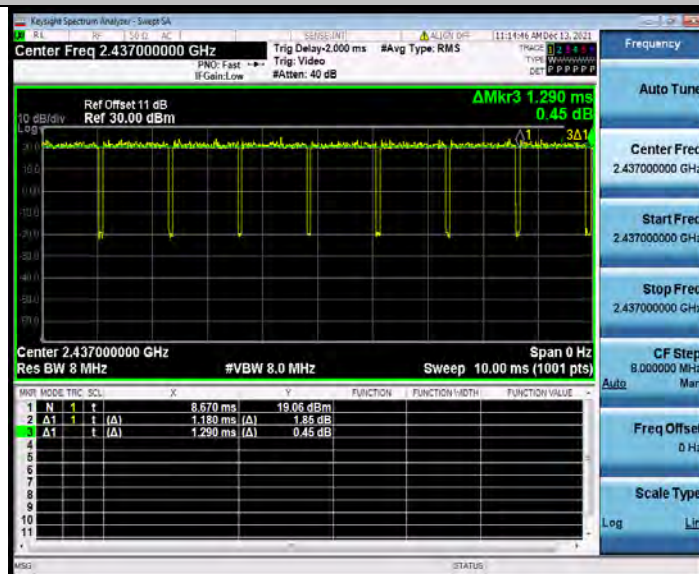


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VERITAS

Test Report No.: W7L-P21100018-4RF02



11N20SISO_Ant1_2412

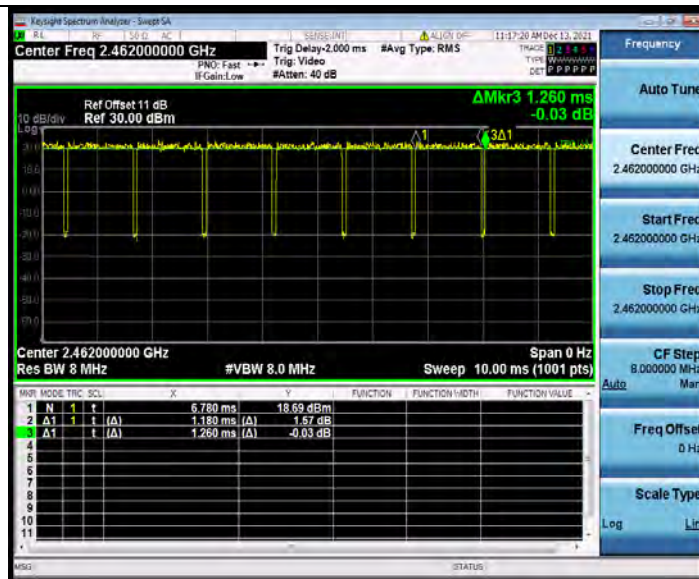


11N20SISO_Ant1_2437

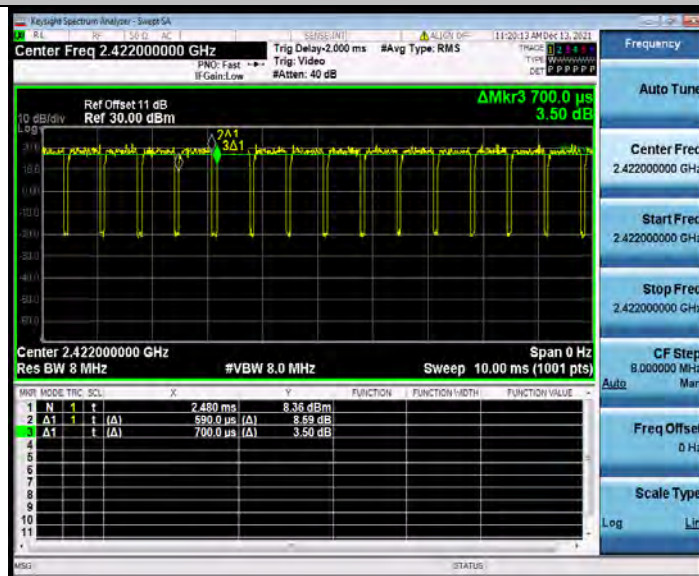


BUREAU
VERITAS

Test Report No.: W7L-P21100018-4RF02



11N20SISO_Ant1_2462

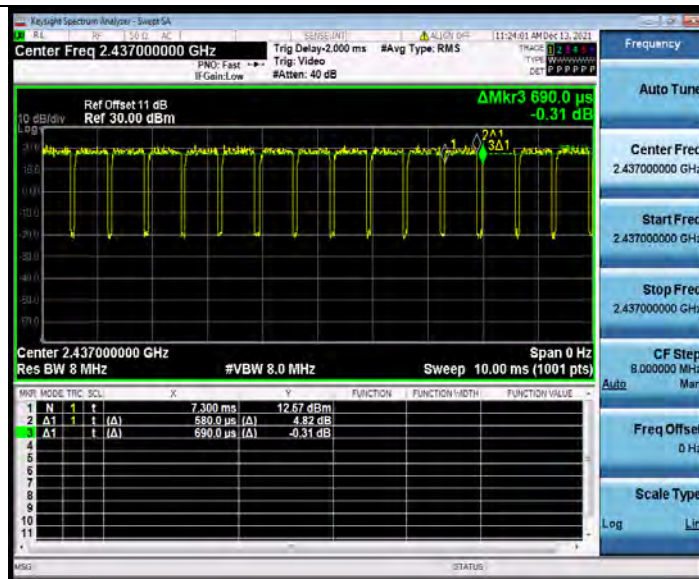


11N40SISO_Ant1_2422

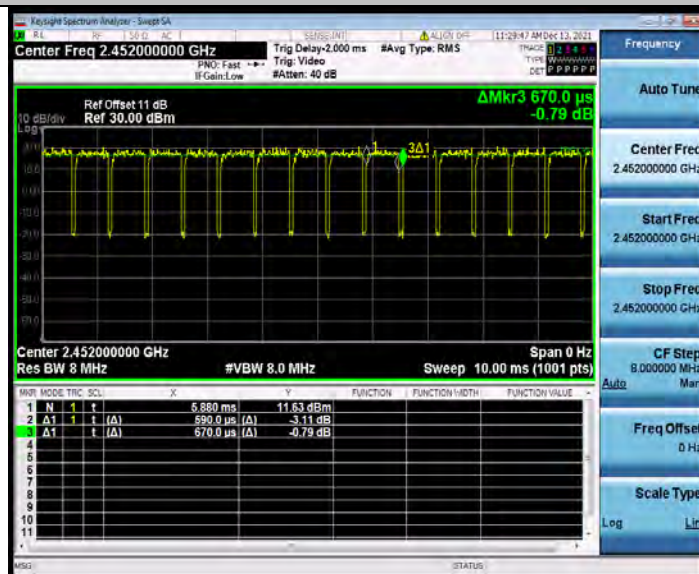


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VERITAS

Test Report No.: W7L-P21100018-4RF02



11N40SISO_Ant1_2437



11N40SISO_Ant1_2452

**APPENDIX H: DTS BANDWIDTH****TEST RESULT**

TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_125K	Ant1	2402	0.600	2401.700	2402.300	0.5	PASS
		2440	0.676	2439.660	2440.336	0.5	PASS
		2480	0.680	2479.656	2480.336	0.5	PASS
BLE_1M	Ant1	2402	0.652	2401.676	2402.328	0.5	PASS
		2440	0.668	2439.660	2440.328	0.5	PASS
		2480	0.664	2479.668	2480.332	0.5	PASS
BLE_2M	Ant1	2402	1.120	2401.436	2402.556	0.5	PASS
		2440	1.168	2439.408	2440.576	0.5	PASS
		2480	1.156	2479.424	2480.580	0.5	PASS
BLE_500K	Ant1	2402	0.668	2401.680	2402.348	0.5	PASS
		2440	0.680	2439.656	2440.336	0.5	PASS
		2480	0.676	2479.660	2480.336	0.5	PASS



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VERITAS

Test Report No.: W7L-P21100018-4RF02

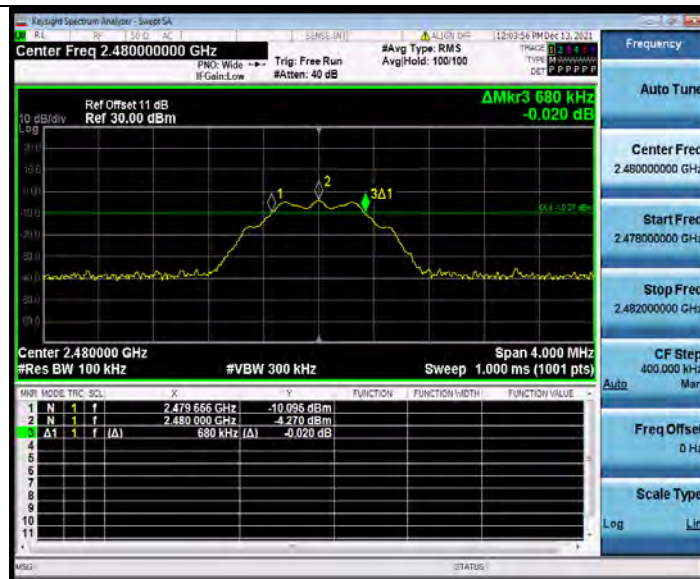
TEST GRAPHS





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VERITAS

Test Report No.: W7L-P21100018-4RF02



BLE_125K_Ant1_2480



BLE_1M_Ant1_2402



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VERITAS

Test Report No.: W7L-P21100018-4RF02



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480



BUREAU
VERITAS

Test Report No.: W7L-P21100018-4RF02



BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BUREAU
VERITAS

Test Report No.: W7L-P21100018-4RF02



BLE_2M_Ant1_2480

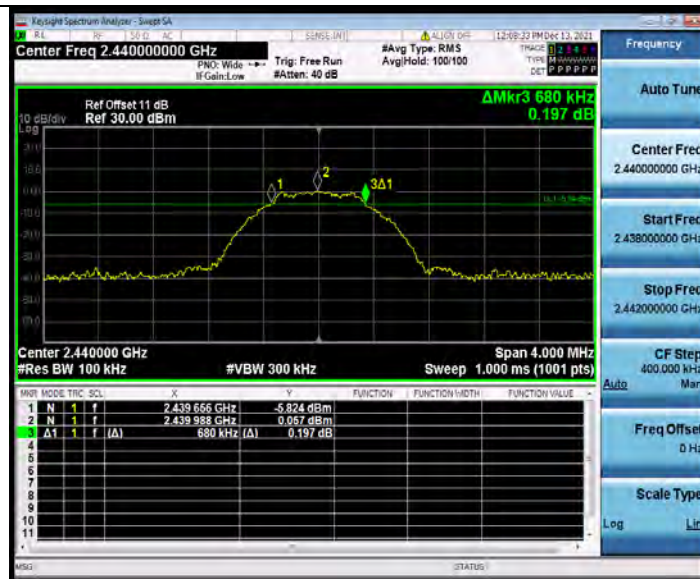


BLE_500K_Ant1_2402



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VERITAS

Test Report No.: W7L-P21100018-4RF02



BLE_500K_Ant1_2440



BLE_500K_Ant1_2480

**APPENDIX I: OCCUPIED CHANNEL BANDWIDTH****TEST RESULT**

TestMode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_125K	Ant1	2402	1.0546	2401.473	2402.527	---	PASS
		2440	1.0531	2439.473	2440.526	---	PASS
		2480	1.0573	2479.469	2480.527	---	PASS
BLE_1M	Ant1	2402	1.0192	2401.493	2402.512	---	PASS
		2440	1.0214	2439.491	2440.513	---	PASS
		2480	1.0238	2479.488	2480.512	---	PASS
BLE_2M	Ant1	2402	2.0528	2400.993	2403.046	---	PASS
		2440	2.0548	2438.991	2441.046	---	PASS
		2480	2.0509	2478.988	2481.038	---	PASS
BLE_500K	Ant1	2402	1.0222	2401.487	2402.510	---	PASS
		2440	1.0091	2439.492	2440.501	---	PASS
		2480	1.0224	2479.491	2480.513	---	PASS



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VERITAS

Test Report No.: W7L-P21100018-4RF02

TEST GRAPHS



BLE_125K_Ant1_2402



BLE_125K_Ant1_2440

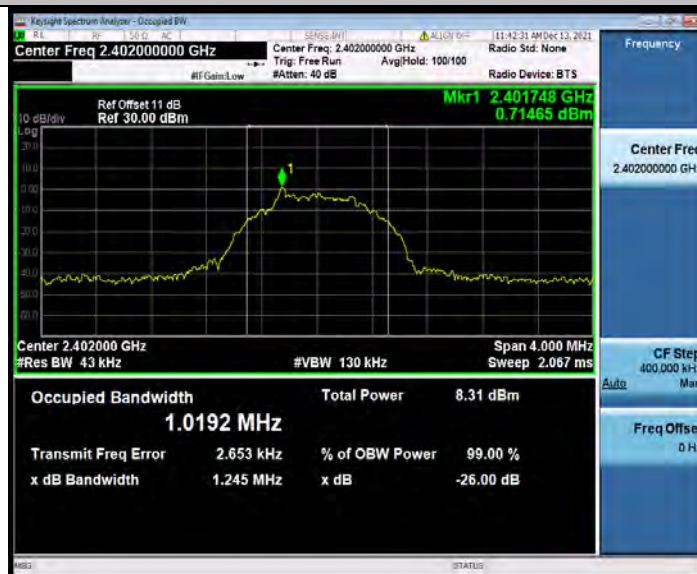


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VERITAS

Test Report No.: W7L-P21100018-4RF02



BLE_125K_Ant1_2480



BLE_1M_Ant1_2402



BUREAU
VERITAS

Test Report No.: W7L-P21100018-4RF02



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480