



# FCC TEST REPORT

# (Part 15, Subpart C)

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HMD Global Oy
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Mobile phone
ΝΟΚΙΑ
TA-1541
2AJOTTA-1541
Jan. 16, 2023 ~ Feb. 23, 2023
-

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

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

ANSI C63.10-2013

CONCLUSION: The submitted sample was found to <u>COMPLY</u> with the test requirement

Prepared by Chao Wu Engineer / Mobile Department Approved by Peibo Sun Manager / Mobile Department

Chao Wu

Date: Feb. 23, 2023

Date: Feb. 23, 2023

mpeibo

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

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## **RELEASE CONTROL RECORD**

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
W7L-P23010004-2RF06	Original release	Feb. 23, 2023



## **1 SUMMARY OF TEST RESULTS**

The EUT has been tested according to the following specifications:

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

#### Note:

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

2. Only the worse data were report

3.This report refers to the data of W7L-P23010004-1RF04(model:TA-1536, FCC ID: 2AJOTTA-1536), the difference of TA-1536 and TA-1541 is TA-1541 change model name, TA-1536 is dual card, TA-1541 is single card, and functions are realized through softwareIn. This report verify CE worse case and replaces CE test data, other test data of this report is copied from the report W7L-P23010004-1RF04(model:TA-1536, FCC ID: 2AJOTTA-1536).

\*Test Lab Information Reference Lab A: Huarui 7Layers High Technology (Suzhou) Co., Ltd. Lab Address: Tower N, Innovation Center, 88 Zhuyi Road, High-tech District, Suzhou City, Anhui Province Accredited Test Lab Cert 6613.01

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



## 1.1 MEASUREMENT UNCERTAINTY

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

MEASUREMENT	UNCERTAINTY
AC Power Conducted emissions	±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	Mobile phone
BRAND NAME	NOKIA
MODEL NAME	TA-1541
NOMINAL VOLTAGE	5.0Vdc(adapter) 3.85Vdc (Li-ion, battery)
MODULATION	DSSS, OFDM, GFSK
	802.11b: 11/ 5.5/ 2.0 / 1.0 Mbps
	802.11g: 54/ 48/ 36 / 24 / 18 / 9/ 6 Mbps
TRANSMISSION RATE	802.11n20: up to 72.2 Mbps
	BT_LE: 1 Mbps
OPERATING	2412-2462MHz for 11b/g/n(HT20)
FREQUENCY	2402-2480MHz for BT-LE(GFSK)
MAX. OUTPUT POWER	WLAN: 333.43mW (Maximum) BT-LE: 1.22mW (Maximum)
ANTENNA TYPE	PIFA Antenna with 1.2dBi gain
HW VERSION	SPR_S63Q0
SW VERSION	00WW_0_090
I/O PORTS	Refer to user's manual
	USB cable1: non-shielded cable, with w/o ferrite core, 1 meter
CABLE SUPPLIED	USB cable2: non-shielded cable, with w/o ferrite core, 1 meter
	USB cable3: non-shielded cable, with w/o ferrite core, 1 meter
	Earphone: 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	<b>TX/RX FUNCTION</b>
802.11b	1TX /1RX
802.11g	1TX /1RX
802.11n (20MHz)	1TX /1RX
BT_LE(1MHz)	1TX /1RX

- 3. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.
- 4. The product of TA-1541(FCC ID: 2AJOTTA-1541) have version and components manufacturer from a second supplier. The first version is 090, the second one is 103, only the version changes, and the RF parameters do not change, components manufacturer with following changes as below:

NO.	Change Description		specificatons	first supplier	specificatons	second supplie r
1		64GB EMMC	FEMDNN064G-A3 A56 BWCTARV11X64G	Longsys	FEMDNN064G-A3 A56 BWCTARV11X64G	Biwin
2		2GB LPDDR	FLXC2002G-N2 BWMZEX32H2A-1 6G-X	Longsys	FLXC2002G-N2 BWMZEX32H2A-16 G-X	Biwin
3	РСВА	3GB LPDDR	FLXC4003G-50 BWMEXX32H2A-2 4Gb-X	Longsys	FLXC4003G-50 BWMEXX32H2A-2 4Gb-X	Biwin
4	-	4GB LPDDR	FLXC2004G-30 BWMZCX32H2A-3 2G-X	Longsys	FLXC2004G-30 BWMZCX32H2A-3 2G-X	Biwin
5		РСВ	1	KINGSHINE	1	WUZH U
6	LCM	LCD	6.517 HKC, 360min,400typ, 2.5D	TCL	6.517 BOE (B8), 360min,400typ, 2.5D	Lian Chuan g
7	Front camera	Camera	8M FF COM	Lian Heyingxiang	8M FF COM	Shijia
8	Rear camera	Camera	13M-AF COB	Lian Heyingxiang	13M-AF COB	Ruiche ng



9	Macro CAM	Camera	2M FF	Shijia	2M FF	Lian Heying
						xiang
10	fingerprint	module	Back fingerprint	Hedayuan	Back fingerprint	Sanyin
						gxin
						Xin
11	Speaker		1712 1W	Dong Sheng	1712 1W	Rongd
						а
12			Vibrator 1027 FPC	Keilenn	1027 FPC	Chao
12	VIDIAIOI		1027 FFC	Kai Long	1027 FPC	Yin
						Xin
13	Receiver		0809	Dong Sheng	0809	Rongd
						а
14	ED0		1	Lonto	1	Kaihon
14	FPC		1	Lante		gxing
45	Dettem		FOOMALL	Cooliner	FOODMALL	Feng
15	Battery		5000MAH	Gaoyuan	5000MAH	Hua
16	Data cable		2A typeC	Yuwei	2A typeC	Juwei



ACCESSORIES	BRAND	MANUFACTURER	MODEL	SPECIFICATION
LCD Panel 1	нкс	MianYang HKC Optoelectronics Technology Co., Ltd.	QM065HS03-1	6.517
LCD Panel 2	BOE	BOE	BV065WBQ-L1B	6.517
Battery 1	Nokia	Guangdong Fenghua New Energy Co.,Ltd.	WT510	Capacity:3.85 Vdc, 4900mAh
Battery 2	Nokia	HUNAN GAOYUAN BATTERY Co., Ltd.	WT510	Capacity:3.85 Vdc, 4900mAh
AC Adapter	Nokia	SHENZHEN BAIJUNDA ELECTRONICS.,LTD	AD-010U	I/P: 100-240Vac, 0.35A, O/P: 5.0Vdc, 2.0A
Earphone	Juwei Electronics Co., LTD	Juwei Electronics Co., LTD	JWEP1252-H21H	Signal Line, 1.2meter
USB Cable 1	Juwei Electronics Co., LTD	Juwei Electronics Co., LTD	JWUB1536-H21H	Signal Line, 1.0meter
USB Cable 2	Yu Wei	Dongguan Yuwei Electronic Technology Co., Ltd.	CH2212TC	Signal Line, 1.0meter
USB Cable 3	Sai bao	Saibao (Jiangxi) Industrial Co., Ltd	SHM1-A003A	Signal Line, 1.0meter

#### List of Accessory:



## 2.2 DESCRIPTION OF TEST MODES

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

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

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

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



## 2.2.1 CONFIGURATION OF SYSTEM UNDER TEST

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

## 2.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

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

	,				
EUT CONFIGURE	APPLICABLE TO				MODE
MODE	RE<1G	IG RE≥1G PLC APCM	MODE		

Where

PLC: Power Line Conducted Emission

RE<1G: Radiated Emission below 1GHz

**RE**≥**1G:** Radiated Emission above 1GHz **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)
802.11b	1 to 11	6	OFDM	MCS0
BT-LE	0 to 39	19	GFSK	1.0



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

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

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

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

#### 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).
- Sollowing channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)
802.11n HT20	1 to 11	6	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).

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

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



#### ANTENNA PORT CONDUCTED MEASUREMENT:

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

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

#### **TEST CONDITION:**

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	TEST VOLTAGE	TESTED BY
RE<1G	23deg. C, 70%RH	DC 5V By Adapter	Chao Wu
RE≥1G	23deg. C, 70%RH	DC 5V By Adapter	Chao Wu
PLC	25deg. C, 52%RH	DC 5V By Adapter	Chao Wu
APCM	25deg. C, 60%RH	DC 3.85V By Battery	Chao Wu



## 2.3 Duty Cycle of Test Signal

Please Refer to Appendix1/2 Of this test report.

#### WORST-CASE DATA:

Measured Duty Cycle			
Mode	Duty Cycle [%]		
Mode	ANT0+1		
	11B	99.52	
WIFI 2.4GHz	11G	97.49	
	11N20	96.59	
BT LE	BT4.0	86.98	

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	N/A	N/A	N/A	N/A	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	N/A



## **3 TEST TYPES AND RESULTS**

## 3.1 CONDUCTED EMISSION MEASUREMENT

## 3.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

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

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

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

## 3.1.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.	
EMI Test Receiver	Rohde&Schwarz	ESR3	102749	Feb.25,22	Feb.24,24	
ELEKTRA test	Rohde&Schwarz					
software	RondeaSchwarz	ELEKTRA		N/A	N/A	
LISN network	Rohde&Schwarz	ENV216	102640	Feb.17,22	Feb.16,24	
CABLE	Rohde&Schwarz	W61.01	N/A	Oct.31,22	Apr.29,23	
CABLE	Rohde&Schwarz	W601	N/A	Oct.31,22	Apr.29,23	

#### NOTE:

- 1. The test was performed in CE shielded room.
- 2. The calibration interval of the above test instruments is 6 months or 24 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.



## 3.1.3 TEST PROCEDURES

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

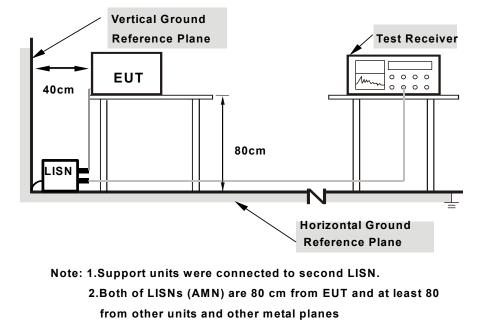
NOTE: All modes of operation were investigated and the worst-case emissions are reported.

#### 3.1.4 DEVIATION FROM TEST STANDARD

No deviation.



## 3.1.5 TEST SETUP



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

## 3.1.6 EUT OPERATING CONDITIONS

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



## 3.1.7 TEST RESULTS

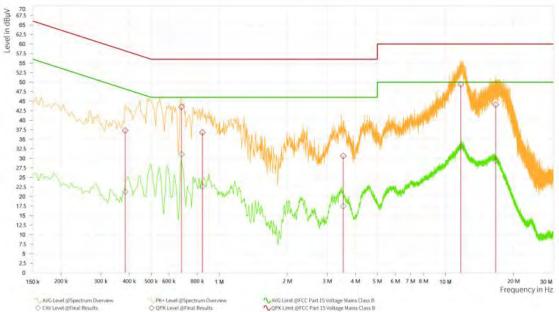
#### CONDUCTED WORST-CASE DATA:

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

Rg	Frequency [MHz]	QPK Level [dBµV]	QPK Limit [dBµV]	QPK Margin [dB]	CAV Level [dBµV]	CAV: AVG Limit [dBµV]	CAV Margin [dB]	Correction [dB]	Line	Meas. BW [kHz]
1	0.384	37.31	58.19	20.88	21.21	48.19	26.98	10.01	L1	9.000
1	0.681	43.51	56.00	12.49	31.10	46.00	14.90	9.99	L1	9.000
1	0.843	36.81	56.00	19.19	22.65	46.00	23.35	9.92	L1	9.000
1	3.534	30.59	56.00	25.41	17.45	46.00	28.55	9.79	L1	9.000
1	11.702	49.40	60.00	10.60	32.90	50.00	17.10	9.98	L1	9.000
1	16.692	44.05	60.00	15.95	29.33	50.00	20.67	10.08	L1	9.000

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

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





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

Rg	Frequency [MHz]	QPK Level [dBµV]	QPK Limit [dBµV]	QPK Margin [dB]	CAV Level [dBµV]	CAV: AVG Limit [dBµV]	CAV Margin [dB]	Correction [dB]	Line	Meas. BW [kHz]
1	0.677	46.04	56.00	9.96	34.60	46.00	11.40	10.00	Ν	9.000
1	0.888	39.19	56.00	16.81	28.99	46.00	17.01	9.91	N	9.000
1	2.274	35.76	56.00	20.24	25.13	46.00	20.87	9.78	Ν	9.000
1	4.3 <mark>1</mark> 3	35.86	56.00	20.14	24.56	46.00	21.44	9.81	N	9.000
1	11.360	48.95	60.00	11.05	36.70	50.00	13.30	10.00	N	9.000
1	16.935	40.05	60.00	19.95	29.93	50.00	20.07	10.14	N	9.000

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

- 2. "-": The Quasi-peak reading value also meets average limit and
- measurement with the average detector is unnecessary.
- 3. The emission levels of other frequencies were very low against the limit.
- 4. Margin value = Limit value -Emission level
- 5. Correction factor = Insertion loss + Cable loss6. Emission Level = Correction Factor + Reading Value.





## 3.2 RADIATED EMISSION MEASUREMENT

## 3.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

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

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

#### NOTE:

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



## 3.2.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Pre-Amplifier	R&S	SCU18F1	100815	Aug.30,22	Aug.29,23
Pre-Amplifier	R&S	SCU08F1	101028	Sep.16,22	Sep.15,23
Signal Generator	R&S	SMB100A	182185	Feb.16,22	Fed.15,23
Signal Generator	R&S	SMB100A	182185	Feb.15,23	Fed.14,24
3m Fully-anechoic Chamber	ток	9m*6m*6m	HRSW-SZ-EMC- 01Chamber	Nov.12,22	Nov.11,24
3m Semi-anechoic Chamber	ток	9m*6m*6m	HRSW-SZ-EMC- 02Chamber	Nov.12,22	Nov.11,24
EMI TEST Receiver	R&S	ESW44	101973	Feb.25,22	Feb.24,23
Bilog Antenna	SCHWARZBEC K	VULB 9163	1264	Feb.28,22	Feb.27,23
Horn Antenna	ETS-LINDGREN	3117	227836	Aug.22,22	Aug.21,23
Horn Antenna (18GHz-40GHz)	Steatite Q-par Antennas	QMS 00880	23486	Feb.23,22	Feb.22,23
Horn Antenna (18GHz-40GHz)	Steatite Q-par Antennas	QMS 00880	23486	Feb.22,23	Feb.21,24
Horn Antenna	Steatite Q-par Antennas	QMS 00208	23485	Aug.22,22	Aug.21,23
Loop Antenna	SCHWARZ	HFH2-Z2/Z2E	100976	Feb.23,22	Feb.22,23
Loop Antenna	SCHWARZ	HFH2-Z2/Z2E	100976	Feb.22,23	Feb.21,24
WIDEBANDRADIO					
COMMUNICATION	R&S	CMW500	169399	Jun.27,22	Jun.26,23
TESTER					
Test Software	ELEKTRA	ELEKTRA4.32	N/A	N/A	N/A
Open Switch and Control Unit	R&S	OSP220	101964	N/A	N/A
DC Source	HYELEC	HY3010B	551016	Aug.31,22	Aug.30,23
Hygrothermograph	DELI	20210528	SZ014	Sep.06,22	Sep.05,23
PC	LENOVO	E14	HRSW0024	N/A	N/A
TMC-AMI18843A(CA BLE)	R&S	HF290-NMNM- 7.00M	N/A	N/A	N/A
TMC-AMI18843A(CA BLE)	R&S	HF290-NMNM- 4.00M	N/A	N/A	N/A
CABLE	R&S	W13.02	N/A	Oct.31,22	Apr.29,23
CABLE	R&S	W12.14	N/A	Oct.31,22	Apr.29,23

**NOTE:** 1. The calibration interval of the above test instruments is 6 months or 24 months or 36 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

2. The test was performed in 3m Chamber.

3. The FCC Site Registration No. is 525120; The Designation No. is CN1171.

Huarui 7layers High Technology (Suzhou) Co., Ltd. Tower N, Innovation Center, 88 Zhuyi Road, High-tech District, Suzhou City, Anhui Province



## 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/duty cycle)).
- 4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz (Duty cycle ≥ 98%) for Average detection (AV) at frequency above 1GHz.
- 5. All modes of operation were investigated and the worst-case emissions are reported.

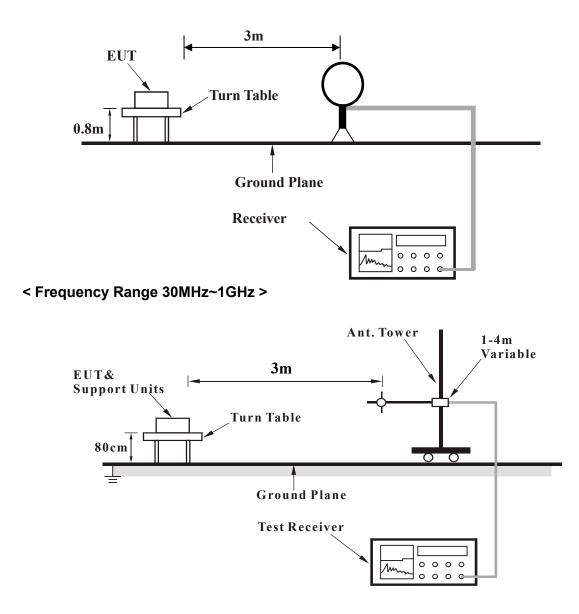
## 3.2.4 DEVIATION FROM TEST STANDARD

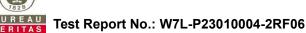
#### No deviation



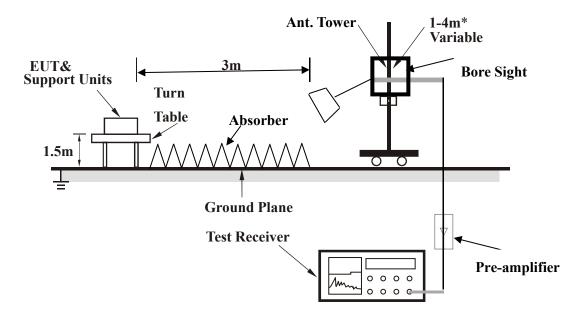
### 3.2.5 TEST SETUP

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





### <Frequency Range 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

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



## 3.2.7 TEST RESULTS

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

## BELOW 1GHz WORST-CASE DATA:

#### 30 MHz – 1GHz data:

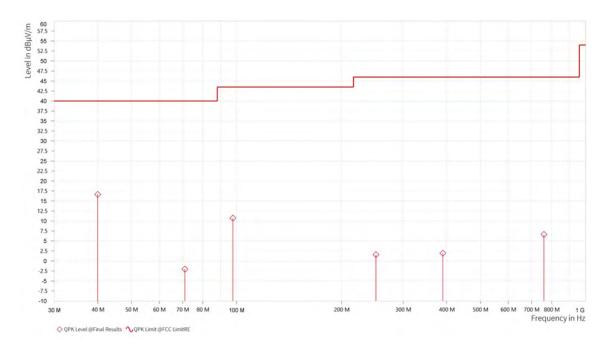
802.11b

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi Book (QP)
FREQUENCY RANGE		DETECTOR FUNCTION	Quasi-reak (Qr)

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M									
Rg	Frequency [MHz]	QPK Level [dBµV/m]	QPK Limit [dBµV/m]	Margin	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]	
1	39.94 <mark>3</mark>	16.65	40.00	23.35	-18.43	Н	8.9	1	120.000	
1	71.031	-2.07	40.00	42.07	-24.25	H	251.6	2	120.000	
1	97.561	10.71	43.50	32.79	-21.46	H	355	2	120.000	
1	250.772	1.58	46.00	44.42	-23.18	Н	251.6	2	120.000	
1	389.919	1.93	46.00	44.07	-20.05	Н	144.2	2	120.000	
1	759.392	6.63	46.00	39.37	-14.37	Н	359.1	1	120.000	

#### **REMARKS**:

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



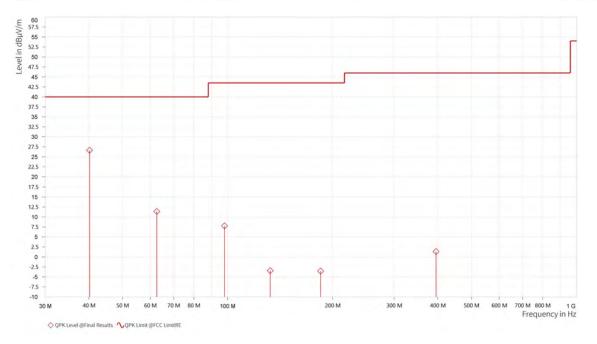
Huarui 7layers High Technology (Suzhou) Co., Ltd. Tower N, Innovation Center, 88 Zhuyi Road, High-tech District, Suzhou City, Anhui Province

Tel: +86 (0557) 368 1008



CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi Bask (QD)
FREQUENCY RANGE		DETECTOR FUNCTION	Quasi-reak (Qr)

	ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M											
Rg	Frequency [MHz]	QPK Level [dBµV/m]	QPK Limit [dBµV/m]	QPK Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]			
1	40.185	26.63	40.00	13.37	-18.29	V	217.6	1	120.000			
1	62.641	11.39	40.00	28.61	-19.72	V	217.6	1	120.000			
1	97.900	7.76	43.50	35.74	-21.37	V	0.9	2	120.000			
1	132.384	-3.46	43.50	46.96	-25.32	V	217.6	1	120.000			
1	184.667	-3.54	43.50	47.04	-24.76	V	250.7	2	120.000			
1	395.690	1.33	46.00	44.67	-20.50	V	5	1	120.000			



#### **REMARKS**:

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



#### ABOVE 1GHz WORST-CASE DATA:

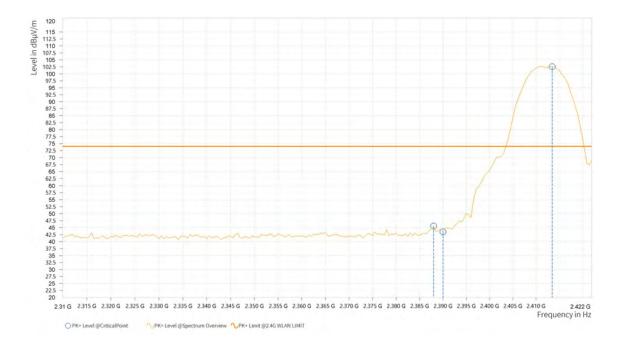
**Note:** 1. For radiated emissions testing  $\cdot$  the full testing range of different modes have been scanned  $\cdot$  only the worst case harmonic data is reported in the sheet.

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

#### 802.11b:

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

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M												
Rg	Ra		PK+ Limit [dBµV/m] PK+ Margin [dB]		Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]					
1	2,388.000	45.54	74.00	28.46	9.82	H	1	1					
1	2,390.000	43.51	74.00	<u>30.49</u>	9.84	Н	203.9	2					
1	2,413.500	102.54			9.87	Н	250.4	2					





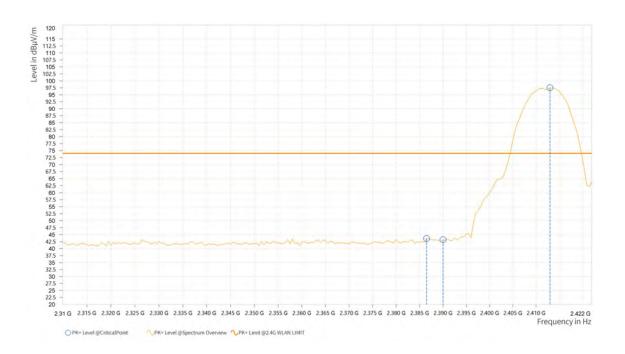
Rg	Frequency [MHz]	the second s	AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	2,387.500	29.70	54.00	24.30	9.82	Н	7.3	1
1	2,390.000	29.91	54.00	24.09	9.84	Н	7.3	1
1	2,413.500	95.57			9.87	Н	7.3	1





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

	ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M											
Rg	Rg Frequency PK+ Level I [MHz] [dBµV/m] [		Mardin		Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]				
1	2,386.500	43.61	74.00	30.39	9.81	V	87.9	1				
1	2,390.000	43.16	74.00	30.84	9.84	V	178.7	2				
1	2,413.000	97.52			9.87	V	181.1	1				





Rg	Frequency [MHz]	A DESCRIPTION OF A DESC	AVG Limit [dBµV/m]	Mardin	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	2,387.500	29.64	54.00	24.36	9.82	V	0.9	2
1	2,390.000	29.84	54.00	24.16	9.84	V	5.1	1
1	2,411.000	86.58			9.87	V	0.9	2



#### **REMARKS**:

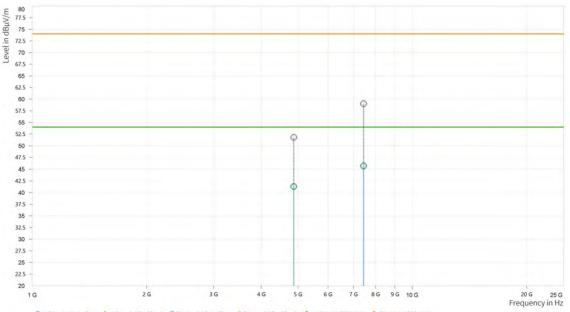
- 1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor Margin value = Limit value – Emission level..
- 2. 2412MHz: Fundamental frequency.



CHANNEL	TX Channel 6		Peak (PK)
FREQUENCY RANGE		DETECTOR FUNCTION	Average (AV)

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

Rg	Frequency [MHz]		PK+ Limit [dBµV/m]	Margun	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	Margin	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
3	4,873.721	51.81	74.00	22.19	41.30	54.00	12.70	15.94	Н	1	1
4	7,441.125	59.02	74.00	14.98	45.68	54.00	8.32	23.91	н	359.1	1



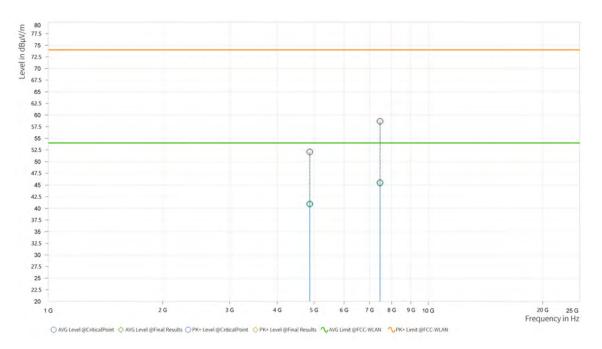
○ AVG Level @CriticalPoint ◇ AVG Level @Final Results ○ PK+ Level @CriticalPoint ◇ PK+ Level @Final Results △ AVG Limit @FCC-WLAN △ PK+ Limit @FCC-WLAN



CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE		DETECTOR FUNCTION	Average (AV)

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

Rg	Frequency [MHz]		PK+ Limit [dBµV/m]	Margin		AVG Limit [dBµV/m]	Margin	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
3	4,874.206	52.07	74.00	21.93	40.95	54.00	13.05	15.94	V	125	2
4	7,461.525	58.64	74.00	15.36	45.46	54.00	8.54	23.82	V	1	2



#### **REMARKS**:

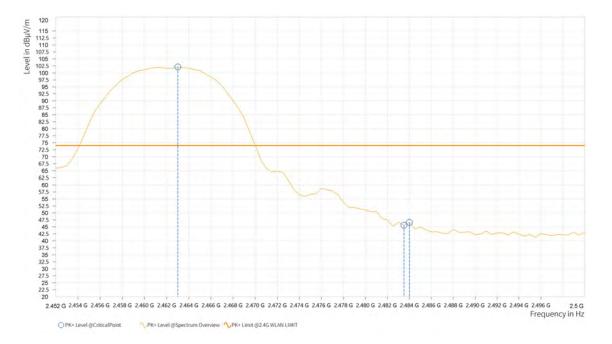
- 1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor Margin value = Limit value – Emission level.
  - 2. 2437MHz: Fundamental frequency.



CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE		DETECTOR FUNCTION	Average (AV)

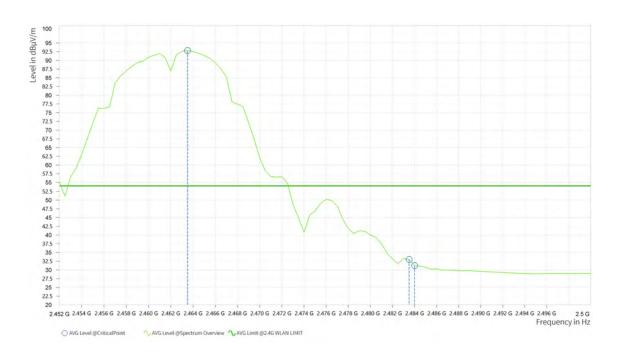
#### ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]		PK+ Limit [dBµV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	2,463.000	102.11			9.96	H	225.4	2
1	2,483.500	45.60	74.00	28.40	9.88	H	225.4	2
1	2,484.000	46.61	74.00	27.39	9.88	H	249.3	2





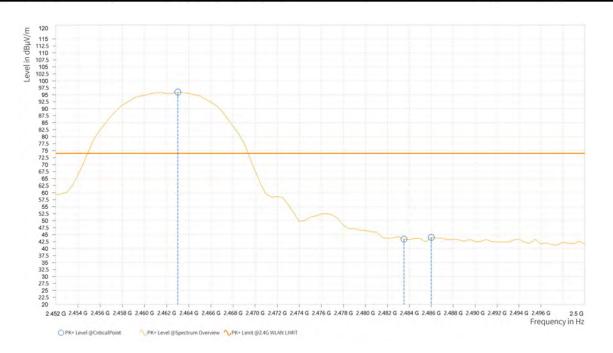
Rg	Frequency [MHz]		AVG Limit [dBµV/m]	Mardin	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	2,463.500	92.82			9.96	Н	4.5	1
1	2,483.500	32.99	54.00	21.01	9.88	Н	4.5	1
1	2,484.000	31.25	54.00	22.75	9.88	Н	4.5	1





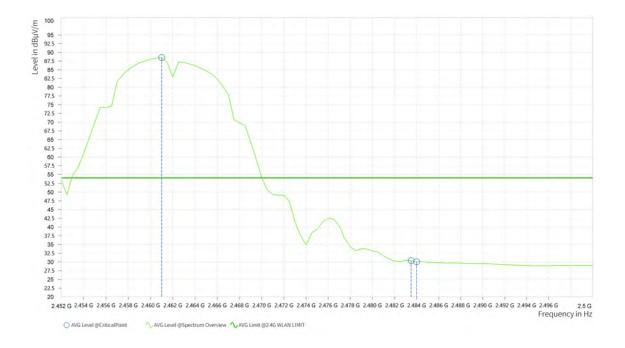
CHANNEL	TX Channel 11		Peak (PK)
FREQUENCY RANGE		DETECTOR FUNCTION	Average (AV)

	ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M												
Rg	Frequency [MHz]		PK+ Limit [dBµV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]					
1	2,463.000	95.94			9.96	V	205.1	1					
1	2,483.500	43.42	74.00	30.58	9.88	V	317.3	2					
1	2,486.000	44.00	74.00	30.00	9.87	V	152.3	2					





Rg	Frequency [MHz]		AVG Limit [dBµV/m]	Margin	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	2,461.000	88.50			9.97	V	4.6	1
1	2,483.500	30.38	54.00	23.62	9.88	V	355.4	2
1	2,484.000	30.03	54.00	23.97	9.88	V	355.4	2



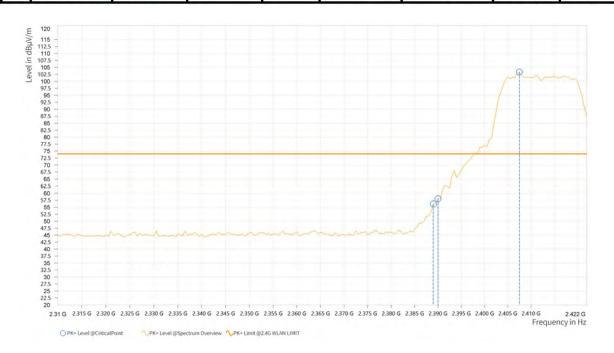
- 1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor Margin value = Limit value – Emission level.
- 2. 2462MHz: Fundamental frequency.



#### 802.11g

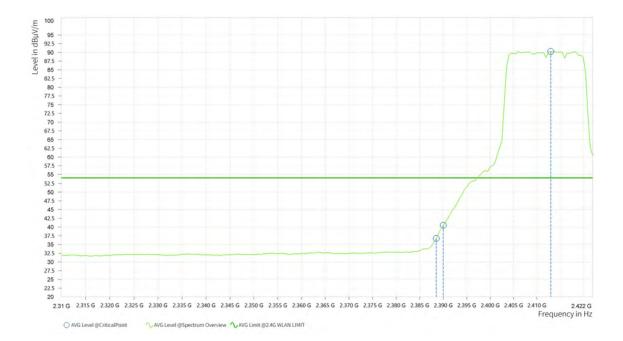
CHANNEL	TX Channel 1	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE		DETECTOR FUNCTION	Average (AV)

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M												
Rg	Frequency [MHz]		PK+ Limit [dBµV/m]	Mardin	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]					
1	2,389.000	56.19	74.00	17.81	9.83	Н	158. <mark>4</mark>	1					
1	2,390.000	58.07	74.00	15.93	9.84	Н	200.3	2					
1	2,407.500	103.34			9.86	Н	200.3	2					





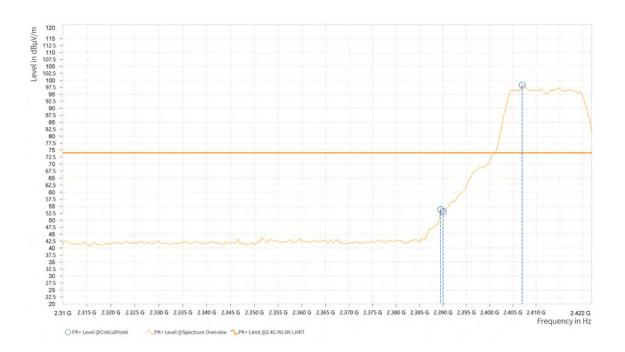
Rg	Frequency [MHz]	And the second se	AVG Limit [dBµV/m]	Margin	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	2,388.500	36.74	54.00	17.26	9.83	Н	254	2
1	2,390.000	40.52	54.00	13.48	9.84	Н	254	2
1	2,413.000	90.26			9.87	Н	254	2





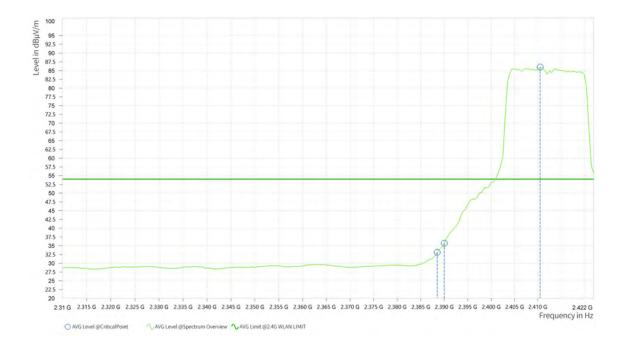
CHANNEL	TX Channel 1	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE		DETECTOR FUNCTION	Average (AV)

	ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M												
Rg	Frequency [MHz]	and the second se	PK+ Limit [dBµV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]					
1	2,389.500	53.79	74.00	20.21	9.83	V	137	1					
1	2,390.000	53.05	74.00	20.95	9.84	V	137	1					
1	2,407.000	98.30			9.86	V	159.6	1					





Rg	Frequency [MHz]		AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	2,388.500	33.12	54.00	20.88	9.83	V	140.6	1
1	2,390.000	35.72	54.00	18.28	9.84	V	140.6	1
1	2,410.500	86.02			9.86	V	140.6	1



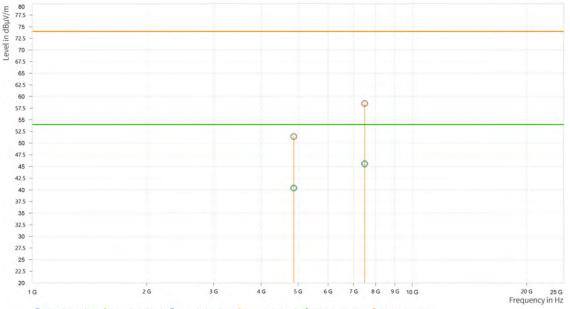
- 1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor Margin value = Limit value – Emission level.
- 2. 2412MHz: Fundamental frequency.



CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE			Average (AV)

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

Rg	Frequency [MHz]		PK+ Limit [dBµV/m]	PK+ Margin [dB]	AVG Level [dBµV/m]		Margin	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
3	4,874.206	51.40	74.00	22.60	40.39	54.00	13.61	15.94	Н	359	2
4	7,488.725	58.50	74.00	15.50	45.54	54.00	8.46	23.87	Н	12.6	2



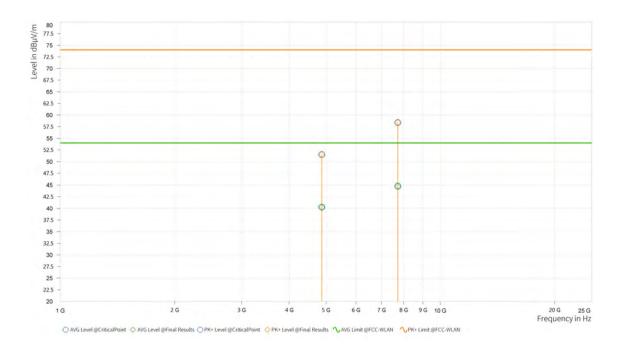
🔿 AVG Level @CriticalPoint 💠 AVG Level @Final Results 🔿 PK+ Level @CriticalPoint 💠 PK+ Level @Final Results 🔨 AVG Limit @FCC-WLAN 🔨 PK+ Limit @FCC-WLAN



CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE		DETECTOR FUNCTION	Average (AV)

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

Rg	Frequency [MHz]	in the second second second	PK+ Limit [dBµV/m]	PK+ Margin [dB]		AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
3	4,874.206	51.50	74.00	22.50	40.27	54.00	13.73	15.94	V	0.9	2
4	7,726.725	58.37	74.00	15.63	44.76	54.00	9.24	24.24	V	0.9	2

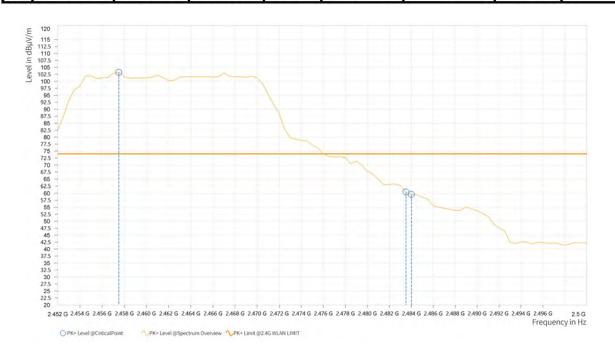


- 1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
- Margin value = Limit value Emission level.
  - 2. 2437MHz: Fundamental frequency.



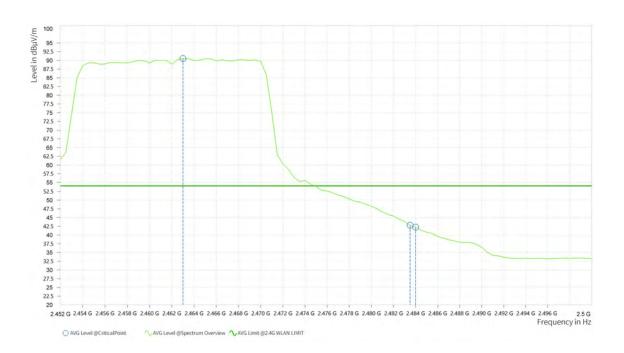
CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE		DETECTOR FUNCTION	Average (AV)

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
Rg	Frequency [MHz]		PK+ Limit [dBµV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]			
1	2,457.500	103.26			9.97	Н	221.7	2			
1	2,483.500	60.49	74.00	13.51	9.88	Н	221.7	2			
1	2,484.000	59.61	74.00	14.39	9.88	Н	221.7	2			





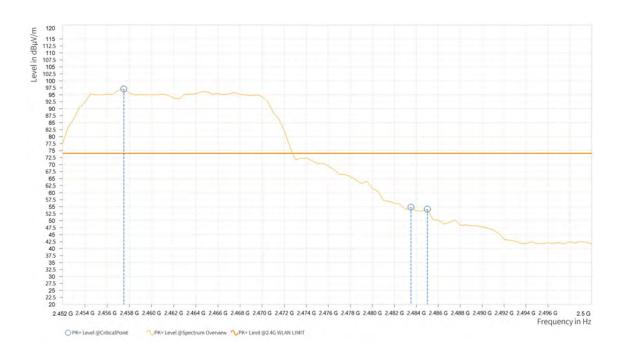
Rg	Frequency [MHz]		AVG Limit [dBµV/m]	Mardin	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	2,463.000	90.52			9.96	Н	143	1
1	2,483.500	42.79	54.00	11.21	9.88	Н	143	1
1	2,484.000	42.27	54.00	11.73	9.88	Н	143	1





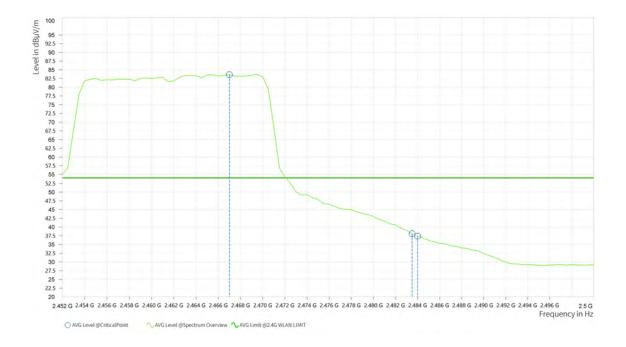
CHANNEL	TX Channel 11		Peak (PK)
FREQUENCY RANGE		DETECTOR FUNCTION	Average (AV)

	ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
Rg	Frequency [MHz]		PK+ Limit [dBµV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]			
1	2,457.500	97.07			9.97	V	137	1			
1	2,483.500	54.81	74.00	19.19	9.88	V	160.8	1			
1	2,485.000	54.14	74.00	19.86	9.88	V	160.8	1			





Rg	Frequency [MHz]		AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	2,467.000	83.63			9.95	V	141.8	1
1	2,483.500	38.08	54.00	15.92	9.88	V	141.8	1
1	2,484.000	37.38	54.00	16.62	9.88	V	141.8	1



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

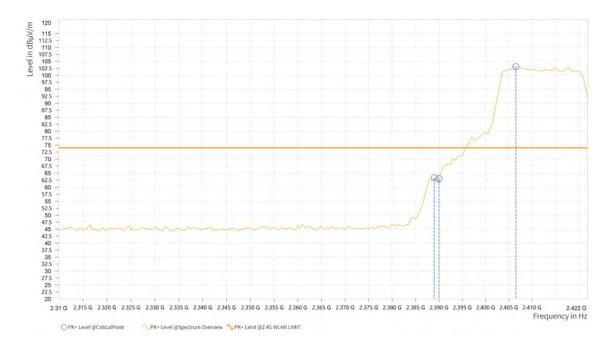


#### 802.11n (20MHz)

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

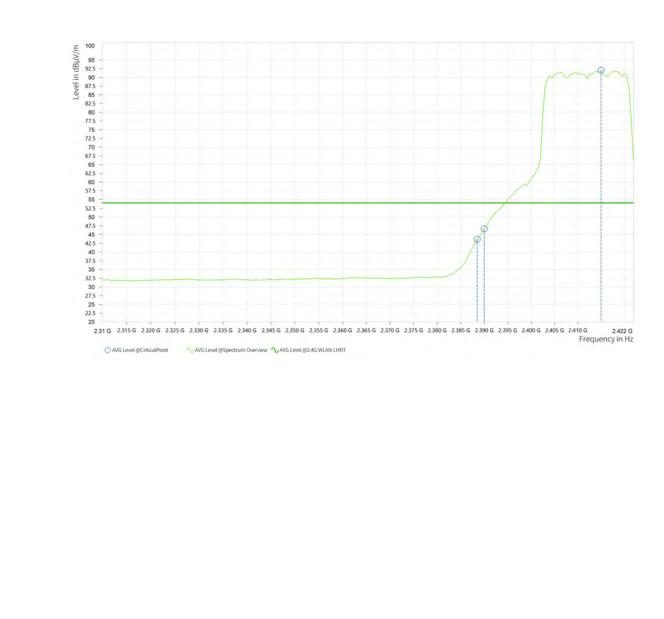
# ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]		PK+ Limit [dBµV/m]	Margin	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	2,389.000	63.33	74.00	10.67	9.83	Н	220.6	2
1	2,390.000	62.99	74.00	11.01	9.84	Н	220.6	2
1	2,406.500	103.15			9.86	Н	165.7	1





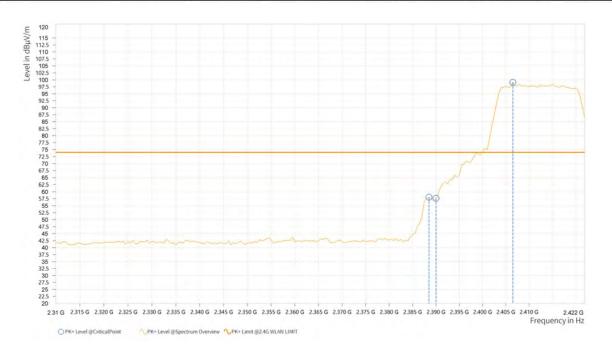
Rg	Frequency [MHz]		AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	2,388.500	43.66	54.00	10.34	9.83	Н	252.8	2
1	2,390.000	46.65	54.00	7.35	9.84	Н	252.8	2
1	2,415.000	92.03			9.87	Н	252.8	2





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

	ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M									
Rg	Frequency [MHz]		PK+ Limit [dBµV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]		
1	2,388.500	58.07	74.00	15.93	9.83	V	169.3	1		
1	2,390.000	57.70	74.00	16.30	9.84	V	169.3	1		
1	2,406.500	99.11			9.86	V	169.3	1		





Rg	Frequency [MHz]		AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	2,388.500	36.51	54.00	17.49	9.83	V	141.8	1
1	2,390.000	39.54	54.00	14.46	9.84	V	141.8	1
1	2,406.500	85.28			9.86	V	141.8	1



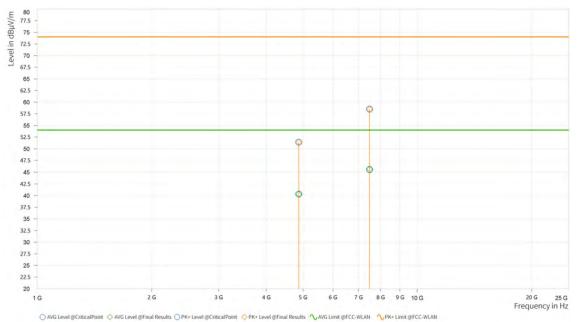
- 1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor Margin value = Limit value – Emission level.
- 2. 2412MHz: Fundamental frequency.



CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE		DETECTOR FUNCTION	Average (AV)

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

Rg	Frequency [MHz]		PK+ Limit [dBµV/m]	Margin		AVG Limit [dBµV/m]	Margin	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
3	4,874.206	51.39	74.00	22.61	40.33	54.00	13.67	15.94	Н	359	2
4	7,484.475	58.51	74.00	15.49	45.56	54.00	8.44	23.86	Н	359	2

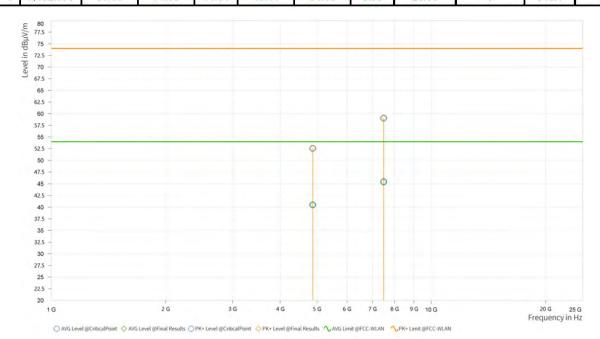




CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE			Average (AV)

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

Rg	Frequency [MHz]	A CARL STREET, MAN	PK+ Limit [dBµV/m]	PK+ Margin [dB]		AVG Limit [dBµV/m]	Margin	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
3	4,874.206	52.57	74.00	21.43	40.49	54.00	13.51	15.94	V	122.6	2
4	7.492.975	59.06	74.00	14.94	45.41	54.00	8.59	23.88	V	348.1	1

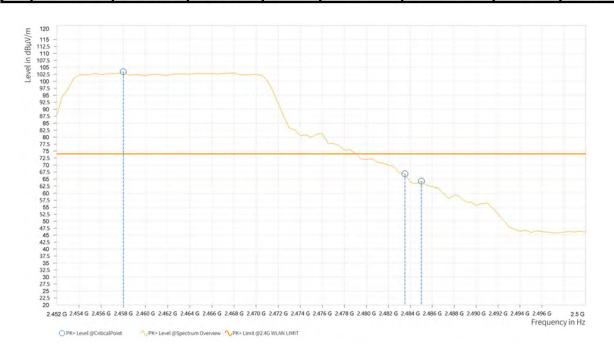


- 1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor Margin value = Limit value – Emission level.
  - 2. 2437MHz: Fundamental frequency.



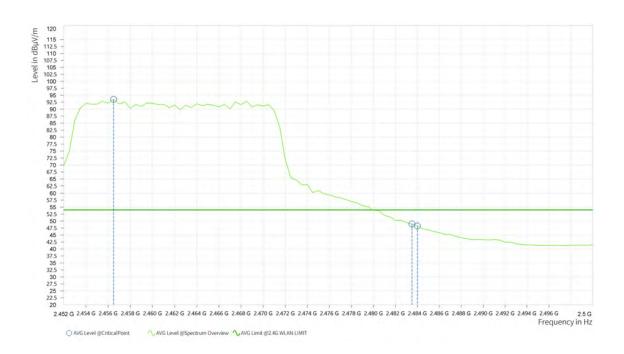
CHANNEL	TX Channel 11		Peak (PK)
FREQUENCY RANGE	DETECTOR FUNCTION           1GHz ~ 25GHz		Average (AV)

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
Rg	Frequency [MHz]		PK+ Limit [dBµV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]			
1	2,458.000	103.43			9.97	Н	218.2	2			
1	2,483.500	66.88	74.00	7.12	9.88	H	218.2	2			
1	2,485.000	64.25	74.00	9.75	9.88	H	166.8	1			





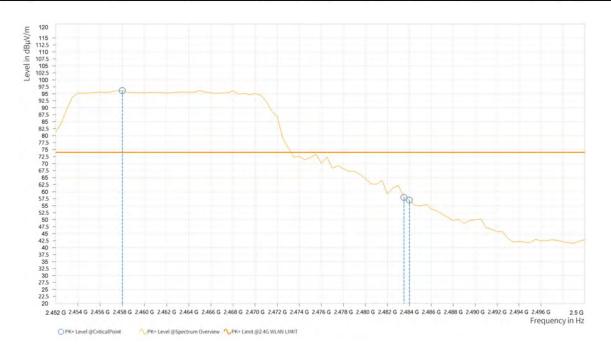
Rg	Frequency [MHz]		AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	2,456.500	93.52			9.97	Н	222.9	2
1	2,483.500	48.96	54.00	5.04	9.88	Н	222.9	2
1	2,484.000	48.25	54.00	5.75	9.88	Н	222.9	2





CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE		DETECTOR FUNCTION	Average (AV)

	ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
Rg [MHz] [dBuV/m] [dB							Antenna Height [m]		
1	2,458.000	96.14			9.97	V	139.4	1	
1	2,483.500	57.98	74.00	16.02	9.88	V	139.4	1	
1	2,484.000	57.00	74.00	17.00	9.88	V	139.4	1	





Rg	Frequency [MHz]	AVG Level [dBµV/m]		Mardin	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	2,456.500	85.63			9.97	V	132.3	1
1	2,483.500	40.28	54.00	13.72	9.88	V	132.3	1
1	2,484.000	39.85	54.00	14.15	9.88	V	132.3	1



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



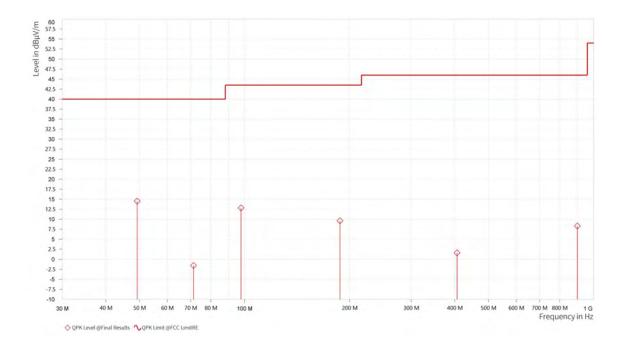
#### **BELOW 1GHz WORST-CASE DATA:**

#### 30 MHz – 1GHz data:

BT-LE\_1M

CHANNEL	TX Channel 19	0DETECTOR	Quasi Dook (QD)
FREQUENCY RANGE	30MHz ~ 1GHz	FUNCTION	Quasi-Peak (QP)

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M									
Rg	Frequency [MHz]	QPK Level [dBµV/m]	QPK Limit [dBµV/m]	QPK Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]	
1	49.158	14.51	40.00	25.49	-17.57	Н	36.6	2	120.000	
1	71.322	-1.56	40.00	41.56	-24.41	Н	250.6	2	120.000	
1	97.609	12.81	43.50	30.69	-21.44	H	355	2	120.000	
1	187.528	9.61	43.50	33.89	-24.17	H	252.6	1	120.000	
1	406.215	1.61	46.00	44.39	-19.70	H	355	2	120.000	
1	898.393	8.29	46.00	37.71	-12.70	H	353.8	1	120.000	



#### **REMARKS**:

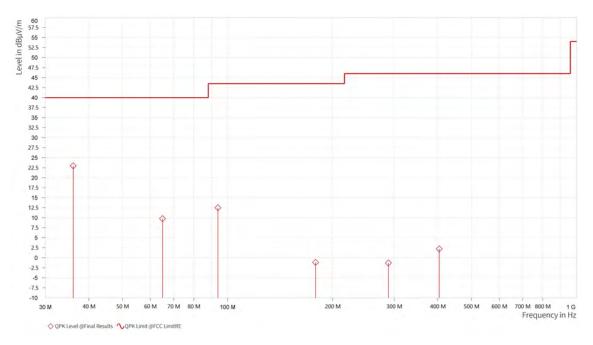
- 1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
- 2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) Pre-Amplifier Factor(dB)
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Limit value Emission level.

Huarui 7layers High Technology (Suzhou) Co., Ltd. Tower N, Innovation Center, 88 Zhuyi Road, High-tech District, Suzhou City, Anhui Province



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

	ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M									
Rg	Frequency [MHz]	QPK Level [dBµV/m]	QPK Limit [dBµV/m]	QPK Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]	
1	36.063	22.97	40.00	17.03	-19.89	V	227.5	1	120.000	
1	65.017	9.78	40.00	30.22	-20.43	V	335.9	1	120.000	
1	93.729	12.51	43.50	30.99	-22.79	V	227.5	1	120.000	
1	178.653	-1.15	43.50	44.65	-25.78	V	227.5	1	120.000	
1	288.796	-1.29	46.00	47.29	-22.60	V	120.9	1	120.000	
1	403.935	2.22	46.00	43.78	-19.73	V	355	2	120.000	



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



#### ABOVE 1GHz TEST DATA

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

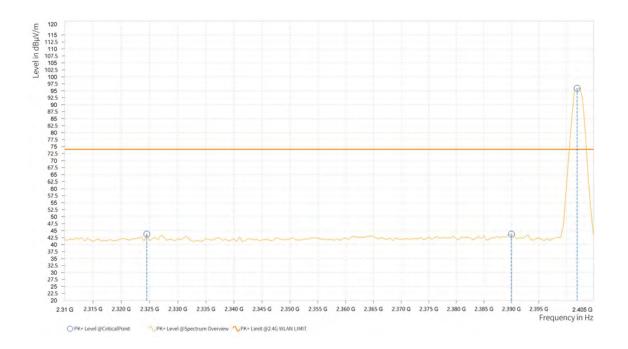
2. All other emissions were greater than 20dB below the limit was not recorded

<b>BT-LE</b>	1M
	_

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

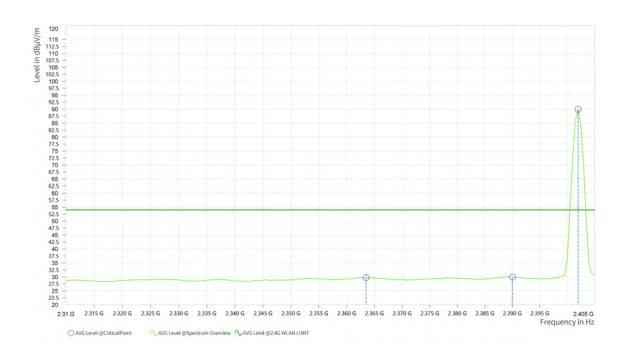
#### ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]		PK+ Limit [dBµV/m]	Mardin	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	2,324.500	43.76	74.00	30.24	9.45	H	1	2
1	2,390.000	43.75	74.00	30.25	9.84	Н	243.3	2
1	2,402.000	95.86			9.85	Н	219.4	2





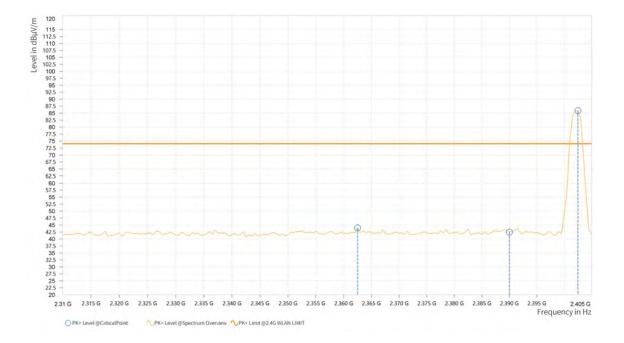
Rg	Frequency [MHz]		AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	2,363.500	29.71	54.00	24.29	9.64	Н	355.4	2
1	2,390.000	29.93	54.00	24.07	9.84	Н	291.1	2
1	2,402.000	89.96			9.85	Н	215.8	2





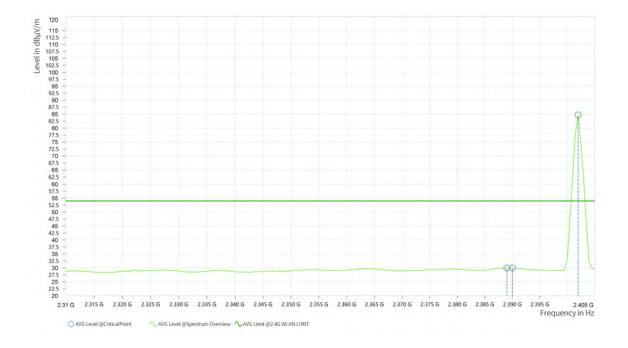
CHANNEL	TX Channel 0	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz	FUNCTION	Average (AV)

	ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
Rg	Frequency [MHz]		PK+ Limit [dBµV/m]		Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]	
1	2,362.500	44.00	74.00	30.00	9.63	V	341.4	2	
1	2,390.000	42.45	74.00	31.55	9.84	V	229	1	
1	2,402.500	85.87			9.85	V	150.2	1	





Rg	Frequency [MHz]	and the second	AVG Limit [dBµV/m]	Margin	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	2,389.000	29.93	54.00	24.07	9.83	V	108.2	1
1	2,390.000	29.96	54.00	24.04	9.84	V	359	2
1	2,402.000	84.72			9.85	V	146.6	1



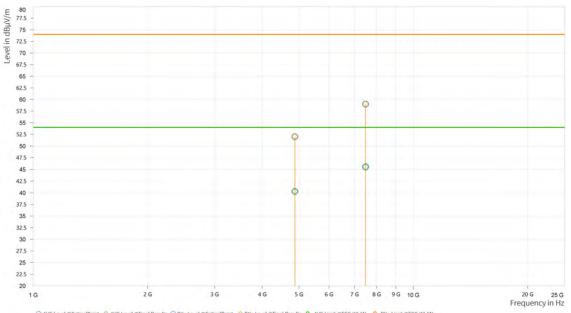
- 1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor Margin value = Limit value – Emission level.
- 2. 2402MHz: Fundamental frequency.



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

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

Rg	Frequency [MHz]		PK+ Limit [dBµV/m]	Margin	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	Margin	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
3	4,880.029	52.00	74.00	22.00	40.30	54.00	13.70	15.95	Н	359	1
4	7,486.175	59.00	74.00	15.01	45.52	54.00	8.48	23.87	Н	11.2	2



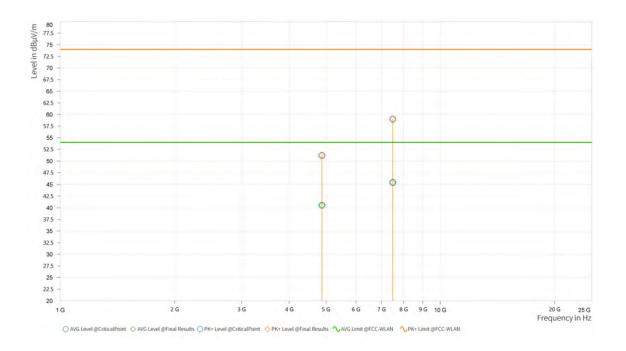
🔿 AVG Level @CriticalPoint 💠 AVG Level @Final Results 🔿 PK+ Level @CriticalPoint 💠 PK+ Level @Final Results 🔨 AVG Limit @FCC-WLAN 🔥 PK+ Limit @FCC-WLAN



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

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

Rg	Frequency [MHz]		PK+ Limit [dBµV/m]	PK+ Margin [dB]		AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
3	4,879.544	51.19	74.00	22.81	40.54	54.00	13.46	15.95	V	359.1	1
4	7,498.500	59.00	74.00	15.00	45.39	54.00	8.61	23.89	V	10.6	2

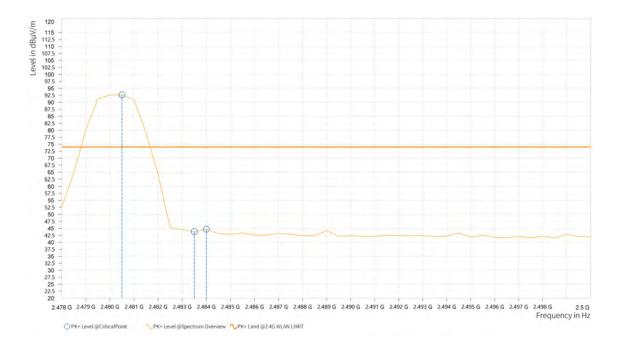


- 1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor Margin value = Limit value – Emission level.
- 2. 2440MHz: Fundamental frequency.



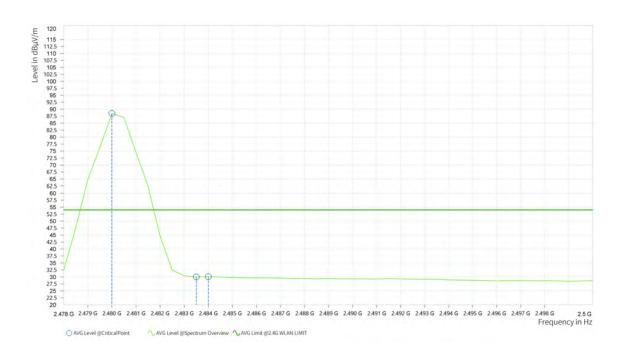
CHANNEL	TX Channel 39 DETECTO		Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz	FUNCTION	Average (AV)

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+ Limit [dBµV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]			
1	2,480.500	92.66			9.89	Н	242.1	2			
1	2,483.500	43.82	74.00	30.18	9.88	Н	359	2			
1	2,484.000	44.71	74.00	29.29	9.88	Н	242.1	2			





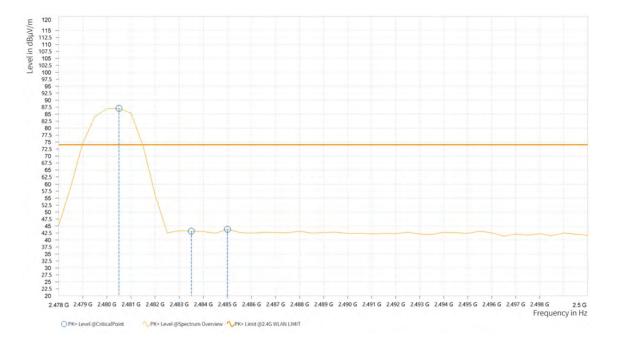
Rg	Frequency [MHz]	A CONTRACTOR OF	AVG Limit [dBµV/m]	Mardin	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	2,480.000	88.48			9.89	Н	160.8	1
1	2,483.500	29.97	54.00	24.03	9.88	Н	160.8	1
1	2,484.000	30.08	54.00	23.92	9.88	Н	160.8	1





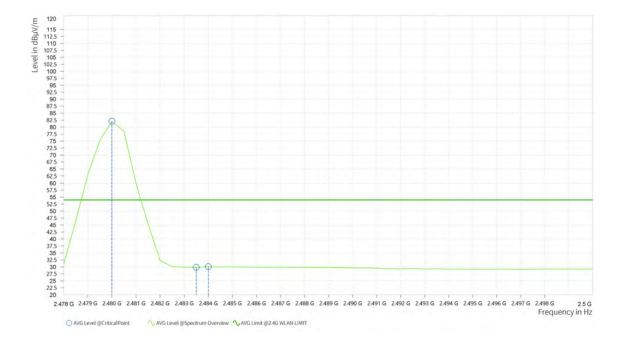
CHANNEL	TX Channel 39	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz	FUNCTION	Average (AV)

	ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
Rg	Frequency [MHz]		PK+ Limit [dBµV/m]		Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]			
1	2,480.500	87.08			9.89	V	145.4	1			
1	2,483.500	43.16	74.00	30.84	9.88	V	358.2	1			
1	2,485.000	43.84	74.00	30.16	9.88	V	1	2			





Rg	Frequency [MHz]		AVG Limit [dBµV/m]	Margin	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	2,480.000	82.12			9.89	V	145.4	1
1	2,483.500	29.84	54.00	24.16	9.88	V	70.1	1
1	2,484.000	30.12	54.00	23.88	9.88	V	256.6	1



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



Test Report No.: W7L-P23010004-2RF06

## 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.
EMI Test	R&S	ESW 44	101973	Lab 05 00	Eab 24 24
Receiver	Γαο	E3W 44	101973	Feb.25,22	Feb.24,24
Open Switch and	R&S	OSP-B157W	100836	N/A	N/A
Control Unit	Γαο	8	100630	IN/A	IN/A
Vector Signal	R&S	SMBV100B	102176	Eab 16 22	Eab 15 24
Generator	κασ		102176	Feb.16,22	Feb.15,24
Signal Generator	R&S	SMB100A03	182185	Feb.16,22	Feb.15,24
Wideband Radio	R&S	CMW500	169399	lup 26.00	lup 05 04
Communication	rao	CIVIV 500	109399	Jun.26,22	Jun.25,24
Hygrothermograph	DELI	20210528	SZ015	Sep.06,22	Sep.05,24
PC	LENOVO	E14	HRSW0024	N/A	N/A
CABLE	R&S	J12J103539-	SEP-03-20-069	Oct 21 22	Apr 20.22
CABLE	Γαο	00-1	SEF-03-20-009	Oct.31,22	Apr.29,23
CABLE	R&S	J12J103539-	SEP-03-20-070	Oct 21 22	Apr 20.22
CADLE	κασ	00-1	SEP-03-20-070	Oct.31,22	Apr.29,23
Test Software	EMC32	EMC32	N/A	N/A	N/A
Temperature	votsch	VT4002	58566078100050	May 21.00	May 20.04
Chamber	VUISCII	V 1400Z	5650007610050	iviay.31,22	May.30,24

### NOTE:

- 1. The calibration interval of the above test instruments is 6 months or 24 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.
- 2. The test was performed in RF Oven room.



REAU Test Report No.: W7L-P23010004-2RF06

## 3.3.3 TEST PROCEDURE

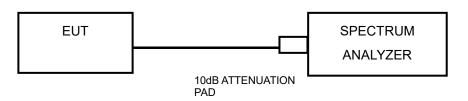
- 1. Set RBW = 100 kHz.
- 2. Set the video bandwidth (VBW)  $\geq$  3 RBW.
- 3. Detector = Peak.
- 4. Trace mode = max hold.
- 5. Sweep = auto couple.
- 6. Allow the trace to stabilize.
- 7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost 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.



3.3.7 TEST RESULTS

Please Refer to Appendix1/2 Of this test report.



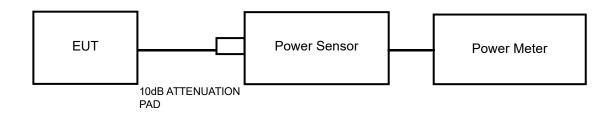
Test Report No.: W7L-P23010004-2RF06

## 3.4 CONDUCTED OUTPUT POWER

## 3.4.1 LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT

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

## 3.4.2 TEST SETUP



## 3.4.3 TEST INSTRUMENTS

Refer to section 3.3.2 to get information of above instrument.

## 3.4.4 TEST PROCEDURES

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

## 3.4.5 DEVIATION FROM TEST STANDARD

No deviation.

## 3.4.6 EUT OPERATING CONDITIONS

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



- 3.4.7 TEST RESULTS
  - 3.4.7.1 MAXIMUM PEAK OUTPUT POWER

Please Refer to Appendix1/2 Of this test report.



## 3.4.7.2 AVERAGE OUTPUT POWER (FOR REFERENCE)

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

Please Refer to Appendix1/2 Of this test report.



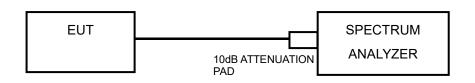
Test Report No.: W7L-P23010004-2RF06

## 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  $\ge$  3 x RBW, Detector = peak.
- 3. Sweep time = auto couple, Trace mode = max hold, allow trace to fully stabilize.
- 4. Use the peak marker function to determine the maximum amplitude level.

## 3.5.5 DEVIATION FROM TEST STANDARD

No deviation.

## 3.5.6 EUT OPERATING CONDITION

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



## 3.5.7 TEST RESULTS

Please Refer to Appendix1/2 Of this test report.



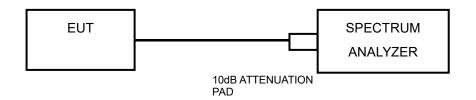
Test Report No.: W7L-P23010004-2RF06

## 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  $\ge$  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.



Test Report No.: W7L-P23010004-2RF06

## MEASUREMENT PROCEDURE OOBE

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

## 3.6.5 DEVIATION FROM TEST STANDARD

No deviation.

## 3.6.6 EUT OPERATING CONDITION

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

## 3.6.7 TEST RESULTS

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

Please Refer to Appendix1/2 Of this test report.



## 4 PHOTOGRAPHS OF THE TEST CONFIGURATION

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



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

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



# 6 Appendix 1 WLAN 2.4G DTS BANDWIDTH

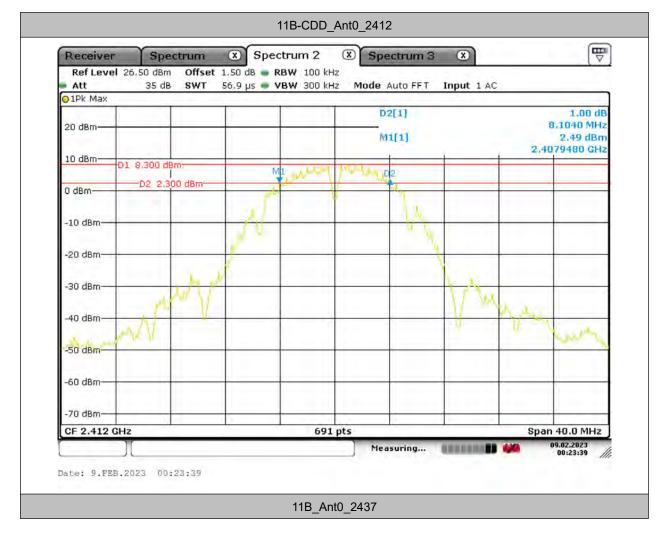
## **TEST RESULT**

TestMode	Antenna	Frequency[MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
	Ant0	2412	8.1040	2407.948	2416.052	0.5	PASS
11B	Ant0	2437	8.1040	2432.948	2441.052	0.5	PASS
	Ant0	2462	8.5090	2457.485	2465.994	0.5	PASS
	Ant0	2412	16.035	2404.127	2420.162	0.5	PASS
11G	Ant0	2437	16.151	2429.012	2445.163	0.5	PASS
	Ant0	2462	15.687	2453.838	2469.525	0.5	PASS
	Ant0	2412	16.035	2404.417	2420.452	0.5	PASS
11N20	Ant0	2437	17.250	2428.491	2445.741	0.5	PASS
	Ant0	2462	16.331	2453.201	2469.532	0.5	PASS

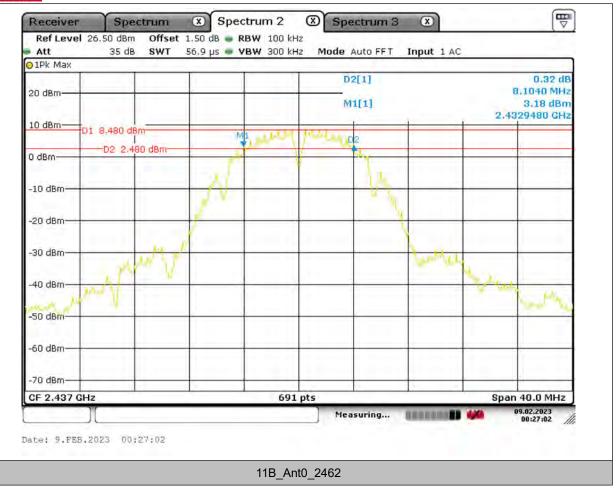


Test Report No.: W7L-P23010004-2RF06

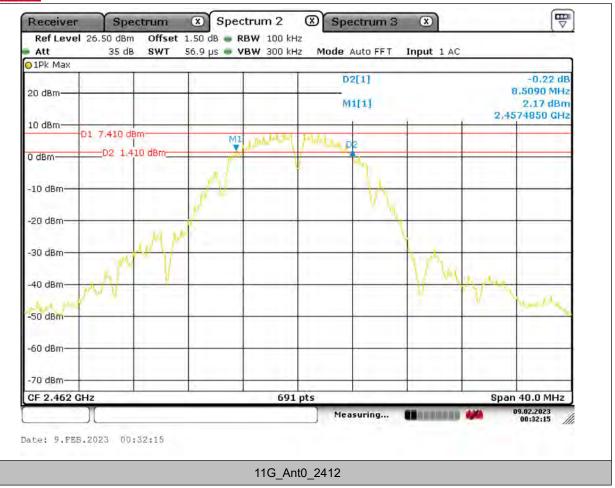
## **TEST GRAPHS**











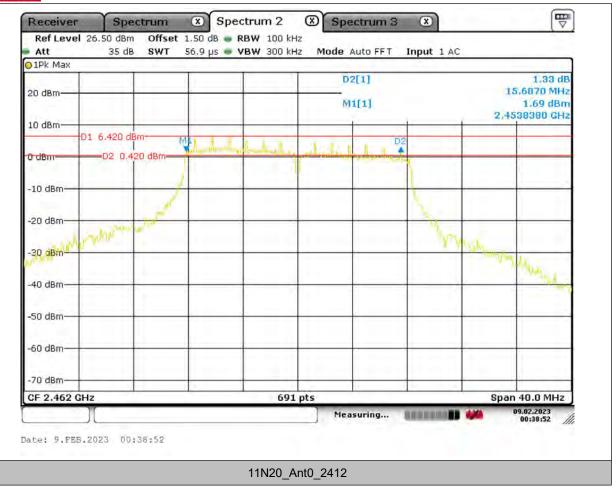


Ref Level 26 Att	35 dB			RBW 100 kH		Auto FFT	Input 1 AC		
)1Pk Max									
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-10 dBm		-		-					
-20 dBm		NS		-			Mary		
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40 dBm									- and there
TO GBII									
-50 dBm		_		-					
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-70 dBm									
CF 2.412 GHz				691	pts	_			40.0 MHz
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ate: 9.FEB.20	23 00:4	18:42							



Ref Level 2	And a state of the local division of the loc	offset	and the second se	RBW 100 kH		ectrum 3	X		(₩)
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1Pk Max									
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-30 aBm	M.M.		-	-					TIM
USA									
40 dBm		-				-			
-50 dBm		-		-					
-60 dBm								-	
-70 dBm					1.0				
CF 2.437 GHz	:	-	1.	691	pts			Span	40.0 MHz
1	r					suring			09.02.2023
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te: 9.FEB.2	023 00;	44:49							







Att	el 26.50 dBm 35 dB	SWT		RBW 100 kH VBW 300 kH		Auto FFT	Input 1 AC		
1Pk Max									
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10 dBm				-	-	-	1	2.70	11110 GHZ
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Andrandal							1	1.1	
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CF 2.412	GHz	-		691	pts			Span	40.0 MHz
	1				Mea	suring		-	09.02.2023 00:51:15
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te: 9.FE	B.2023 00:	51:15							



Ref Level 2 Att	6.50 dBm 35 dB			RBW 100 kH VBW 300 kH		uto FET	Input 1 AC	6. The second	
1Pk Max	35 UB	5111	50.9 µs 🖷	YOW SUUKH	2 Moue A	AULOFFI	Input I AC		
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	5 dB SWT	56.9 µs 🖷 V	BW 300 kH	z Mode A	Auto FFT	Input 1 AC		
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-70 dBm							1	
CF 2.462 GHz			691	ots			Span	40.0 MHz
GF 2.462 GH2			091		suring			9.02.2023 00:55:21



## MAXIMUM CONDUCTED OUTPUT POWER

## TEST RESULT PEAK

TestMode	Antenna	Frequency [MHz]	Peak power [dBm]	Peak power [mw]	Limit [dBm]	Verdict	Power Setting
	Ant0	2412	20.11	102.57	≤30.00	PASS	18
11B	Ant0	2437	22.24	167.49	≤30.00	PASS	18
	Ant0	2462	20.20	104.71	≤30.00	PASS	18
	Ant0	2412	23.66	232.27	≤30.00	PASS	17
11G	Ant0	2437	25.23	333.43	≤30.00	PASS	17
	Ant0	2462	23.80	239.88	≤30.00	PASS	17
	Ant0	2412	23.34	215.77	≤30.00	PASS	16
11N20-	Ant0	2437	24.90	309.03	≤30.00	PASS	16
	Ant0	2462	23.33	215.28	≤30.00	PASS	16

## **TEST RESULT AVERAGE**

Test Mode	Antenna	Frequency [MHz]	Average power [dBm]	Limit [dBm]	Verdict	Power Setting
11B	Ant0	2412	15.89	/	PASS	18
-SISO	Ant0	2437	18.31	/	PASS	18
-0100	Ant0	2462	16.22	/	PASS	18
11G	Ant0	2412	15.28	/	PASS	17
-SISO	Ant0	2437	17.16	/	PASS	17
-0100	Ant0	2462	15.34	/	PASS	17
11N20	Ant0	2412	15.72	/	PASS	16
-SISO	Ant0	2437	17.60	/	PASS	16
-0100	Ant0	2462	15.80	/	PASS	16

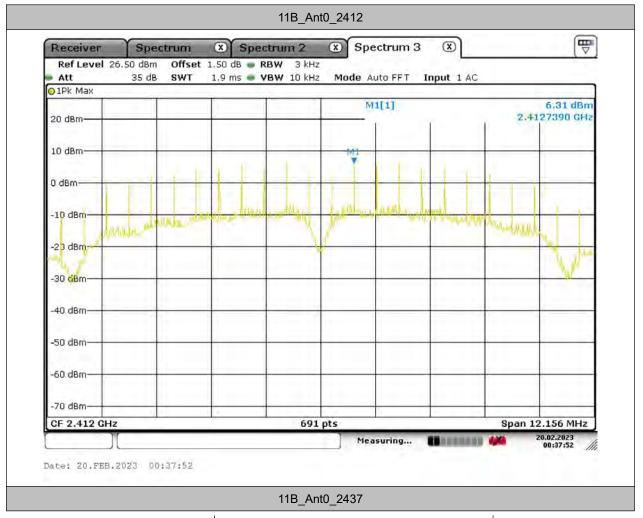


## MAXIMUM POWER SPECTRAL DENSITY

## **TEST RESULT**

TestMode	Antonno	Frequency	Result	Limit	Verdict
restinode	Antenna	[MHz]	[dBm/3kHz]	[dBm/3kHz]	Verdict
	Ant0	2412	6.31	≤8.00	PASS
11B	Ant0	2437	4.83	≤8.00	PASS
	Ant0	2462	6.78	≤8.00	PASS
	Ant0	2412	-7.52	≤8.00	PASS
11G	Ant0	2437	-7.70	≤8.00	PASS
	Ant0	2462	-9.39	≤8.00	PASS
	Ant0	2412	-7.41	≤8.00	PASS
11N20	Ant0	2437	-6.62	≤8.00	PASS
	Ant0	2462	-8.41	≤8.00	PASS

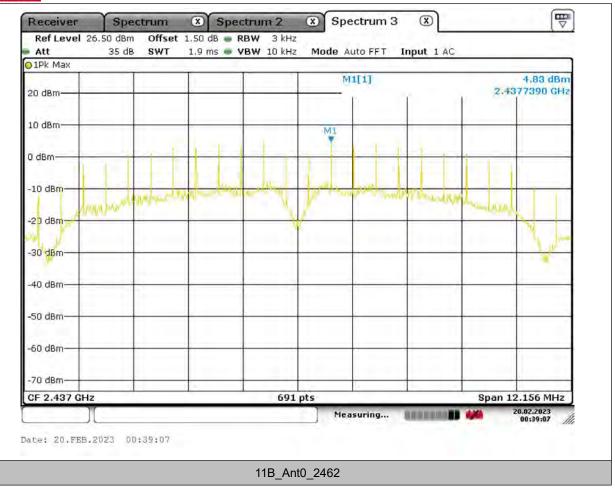
### **TEST GRAPHS**



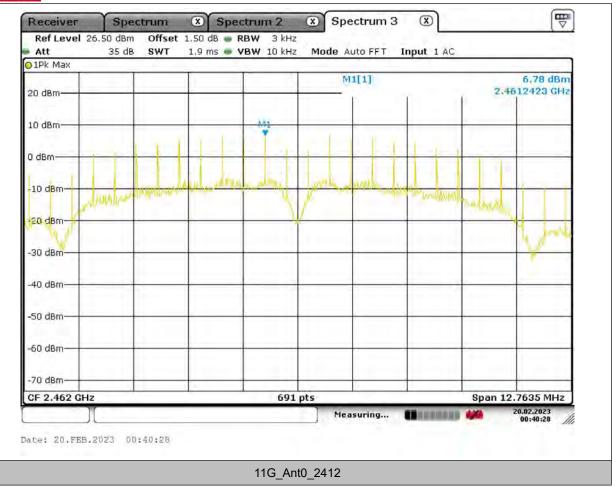
Huarui 7layers High Technology (Suzhou) Co., Ltd.

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

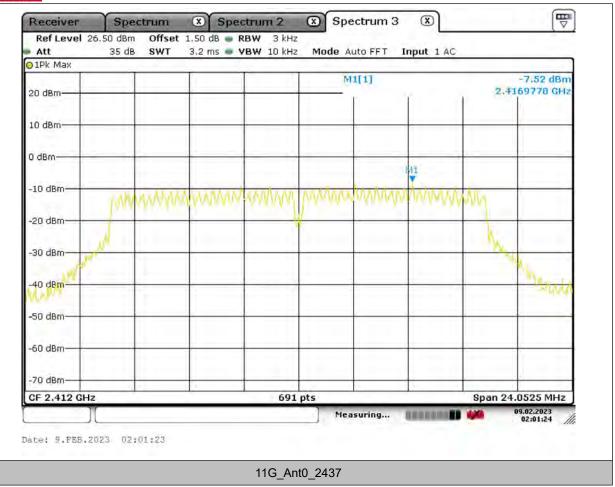








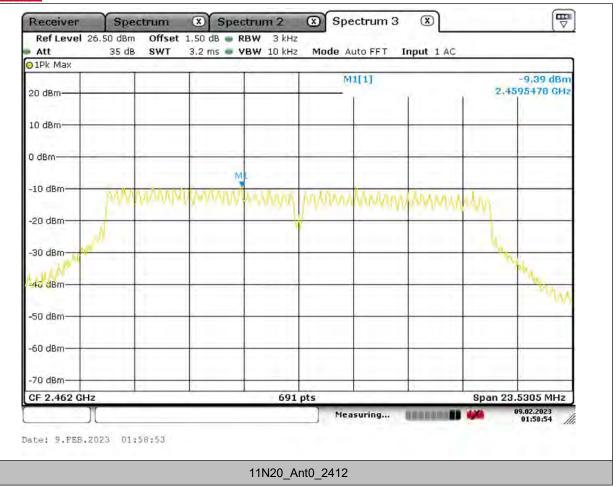






Receiver	Spec	trum	Spec	trum 2	(X) SI	pectrum 3	×			
Ref Level 26	.50 dBm 35 dB		1.50 dB 🖷 R			LAN FFT				
Att	35 GB	SWT	3.2 ms 🔳 V	BW IU KHZ	Mode	Auto FFT	Input 1 AC			
20 dBm			1			M1[1]	-7,70 c 2,4394898			
10 dBm	_		-		_	-	-			
0 dBm	_					MI				
-10 dBm	TAN	MMM	MMMM	MMM	MMM	nonyn	WANNAAN	day		
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Ref Level 26		Offset	1.50 dB 🔳 F	RBW 3 kHz	1000				
Att	35 dB	SWT	3,2 ms 🔳 🕅	/BW 10 kHz	Mode A	uto FFT	Input 1 AC		
01Pk Max	- 1		T			inia			
20 dBm	_				M	1[1]	n - 2	2.41	-7.41 dBm 69778 GHz
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-20 dBm	out No AA	v-1-1-	anow.		L teste				
-30 dBm								N.	
40 dBm									MUNAN
-50 dBm									
-60 dBm									
-70 dBm		-			()-		-	-	-
CF 2.412 GHz				691	pts			Span 24.	0525 MHz
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20 dBm		-6,62 dBm 2,4394715 GHz
10 dBm	M1[1]	-6,62 dBm 2,4394715 GHz
0 dBm	M	2.4394715 GHz
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and the second sec		With banks a
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-60 dBm		
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CF 2.437 GHz	691 pts	Span 25.875 MHz
l	Measuring	09.02.2023 02:06:06



	5 dB SWT	3.2 ms 🖝 VBW	10 kHz Mode Auto FFT	Input 1 AC
O1Pk Max				
20 dBm-			M1[1]	-8.41 dBr 2.4557248 GH
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0 dBm				
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-20 dBm	2004004000	ADMAKAAAAAAA	and have and a north	MANANAMANA
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minde				the the state of t
-40 dBm-				
-40 dBm				



## BAND EDGE MEASUREMENTS

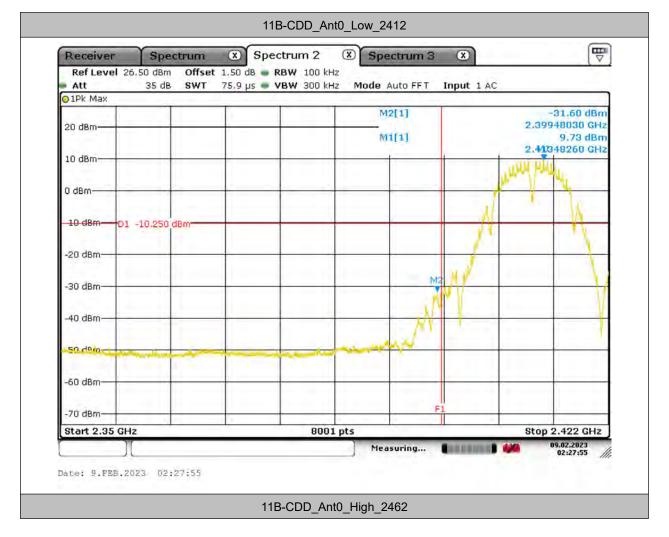
## **TEST RESULT**

TestMode	Antenna	ChName	Frequency	RefLevel	Result	Limit	Verdict
			[MHz]	[dBm]	[dBm]	[dBm]	
44.5	Ant0	Low	2412	9.75	-31.60	≤-10.25	PASS
	11B Ant0	High	2462	7.88	-49.26	≤-12.12	PASS
11G —	Ant0	Low	2412	5.98	-25.13	≤-14.02	PASS
	Ant0	High	2462	6.35	-43.23	≤-13.65	PASS
11N20 -	Ant0	Low	2412	6.65	-22.80	≤-13.35	PASS
	Ant0	High	2462	6.92	-37.97	≤-13.08	PASS



Test Report No.: W7L-P23010004-2RF06

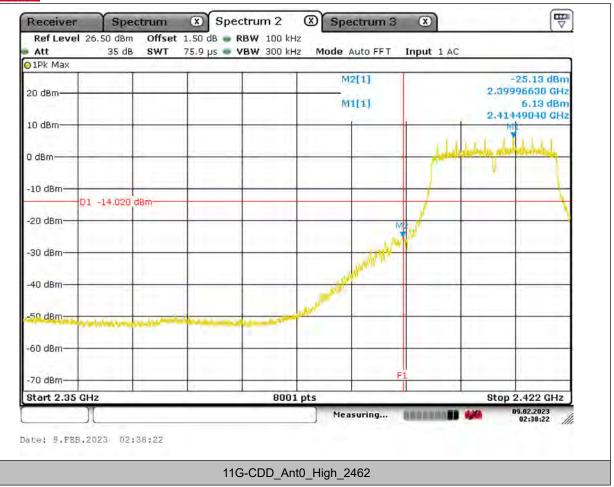
## **TEST GRAPHS**



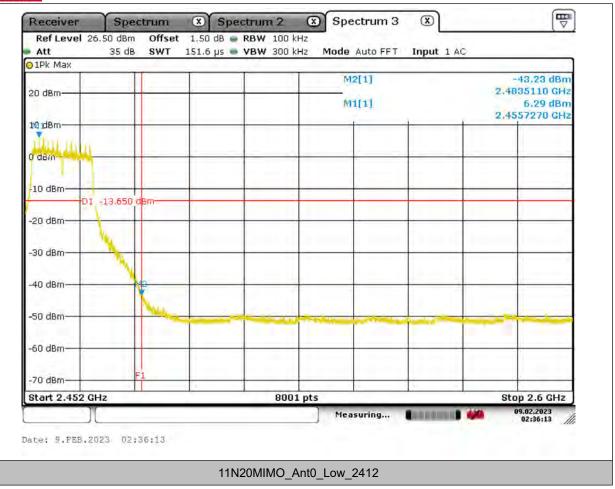














01Pk Max	-	_				-					
20 dBm						2[1] 1[1]		-22,80 dBm 2.39982230 GHz 7.01 dBm 2.41449940 GHz			
10 dBm		-							in		
0 dBm							palade	deberdaarloog parities	ACTUAL VIEW NO.		
-10 dBm—	D1 -13.350	dBm									
-20 dBm—						M	w/				
-30 dBm—						and the second	-				
-40 dBm—					Marker						
-50 dBm	and	Inder March	-	-							
-60 dBm—											
-70 dBm—						F					
Start 2.35	GHz			8001	pts				2.422 GHz		
					Mea	suring		440	09.02.2023 20:11:52		



Ref Level 26.		set 1.50 dB 👄					(₩)
Att 1Pk Max	35 dB SW	Τ 151.6 μs 🖷	VBW 300 KHz	Mode Auto	FFT Input 1 AC		
20 dBm-				M2[1]		-37.9 2.483511 7.0 2,455727	0 GHz 0 dBm
10 dBm							
J dBm							
	13.650 dBm-						
-30 dBm							
-40 dBm							
-50 dBm	~	-		-			
-60 dBm							
-70 dBm	F1						-
Start 2.452 GH	z		8001 pt	s		Stop 2.6	GHz
)[				Measuring		09.02.20 02:51	123 128 ///



### CONDUCTED SPURIOUS EMISSION

# TEST RESULT

TestMode	Antenna	Frequency[MHz]	FreqRange [Mhz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
			30~3000	9.75	-48.49	≤-10.25	PASS
	Ant0	2412	2000~26500	9.75	-41.72	≤-10.25	PASS
445	A 10	0.407	30~3000	9.18	-48.31	≤-10.82	PASS
11B	Ant0	2437	2000~26500	9.18	-42.87	≤-10.82	PASS
	Ant0	2462	30~3000	7.88	-49.39	≤-12.12	PASS
	Anto	2402	2000~26500	7.88	-41.55	≤-12.12	PASS
	Ant0	2412	30~3000	5.98	-49.19	≤-14.02	PASS
	Anto	2412	2000~26500	5.98	-41.87	≤-14.02	PASS
11G	Ant0	2437	30~3000	6.62	-48.79	≤-13.38	PASS
IIG	Anto	2437	2000~26500	6.62	-42.23	≤-13.38	PASS
	Ant0	2462	30~3000	6.35	-49.20	≤-13.65	PASS
	Anto	2402	2000~26500	6.35	-42.21	≤-13.65	PASS
	Ant0	2412	30~3000	6.65	-48.36	≤-13.35	PASS
	Anto	2412	2000~26500	6.65	-41.94	≤-13.35	PASS
11N20	Ant0	2437	30~3000	7.21	-48.81	≤-12.79	PASS
TINZU	Anto	2437	2000~26500	7.21	-41.74	≤-12.79	PASS
	Ant0	2462	30~3000	6.92	-48.12	≤-13.08	PASS
	Anto	2402	2000~26500	6.92	-41.79	≤-13.08	PASS



# **TEST GRAPHS**

Ref Level 26 Att		Offset 1.50 c WT 29.7 n	ns <b>e VBW</b>		Mode	Auto Sweep	Input 1	AC	
⊙1Pk Max 20 dBm			-		_	2[1] 1[1]			-48.49 dBm 2.54230 GHz 9.15 dBm
10 dBm			_			1	N	1 1	2.41330 GH2
0 dBm		-			_				
10 dBm D1	-10,250 dBm				_				
-20 dBm		-			_			-	-
-30 dBm					_				
-40 dBm		_						M2	-
-50 dBm	_	and in such as		-	141.00		. Landar managed	M2	and the start
-60 dBm	and the part of the second	Auto and a second		(Promographic operation)	int steers			-	
-70 dBm							1.4	_	
Start 30.0 MH	2			691 pts					op 3.0 GHz
][					Mea	suring		444	09.02.2023 03:19:53



Receiver	and the second division of the second divisio	trum	and the second se	ectrum 2	and the second se	ectrum 3	× _		
Ref Level 26 Att	.50 dBm 35 dB	Offset SWT		RBW 100 kH		Auto Sweep	Input 1	AC	
1Pk Max	55 45	5111	245 115	1011 500 KI	noue	Auto Sweep	input 1	AC	
20 dBm						-41.72 dBm 15.7040 GHz 9.05 dBm			
10 dBm	_		-	-		1	-	1	2.4430 GHz
1.1.1.1					1.1	1.1.1.5		1.5	
0 dBm	-			-		1			
10 dBm D1	-10.250 c	IBm		-		( )			
-20 dBm	_			-					
-30 dBm				-					
O dBm		_			MZ				
50,d6m-	Jonuna	a free parts	in the	man	rent rom	( the second s	h san dhadh h san d	port and provide and	الباغ الشرل ويعل مرد
-60 dBm									
-70 dBm									
Start 2.0 GHz				691	pts				26.5 GHz
)( ate: 9.FEB.20	23 03+	18-50			Mea	suring		-	09.02.2023 03:18:59
100. 01100.20	EG. 001.	10.33							



D1Pk Max	26.45			/BW 300 kH		Auto Sweep	p Input 1				
20 dBm						2[1] 1[1]		-48,31 dBm 2,52510 GHz 9,49 dBm			
10 dBm				_		-	1	M1	2,43910 GHz		
0 dBm											
-10 dBm-0	1 -10.820	dBm	-						-		
-20 dBm		_	_								
-30 dBm		-							-		
-40 dBm							-	M2			
-50 dBm		and house wat		concernant to the Po	Aling Ground	مەربەيلىلىلەت م	and the second second		Topana (V & robot)		
-60 dBm											
-70 dBm							1 4 4 4 4 4	-			
Start 30.0 M	Hz		·~ · · · ·	691	pts		· · · · · ·	S	top 3.0 GHz		
	2023 03				Mea	suring			09.02.2023 03:21:57		



Receiver Ref Level 26	Spectr		and the second division of the second divisio	ctrum 2 RBW 100 kH		ctrum 3	×		
Att				VBW 300 kH		Auto Sweep	Input 1	AC	
1Pk Max						-			
20 dBm			2- 			2[1] 1[1]			-42.87 dBm 19.8170 GHz 9.36 dBm
M1 10 dBm			-			-		1	2,4430 GHz
dBm					-				
0.dBm-01	-10.820 dBr	ń <del></del>	-						
20 dBm			-						
30 dBm —	-				-				
40 dBm						Contración	M2	anim men	C. L. Hole Commission
50 d8m	many	holessel	and house and	and the second	And a second	The second second	Jurger, Jushing		and the second sec
-60 dBm	_		_						
-70 dBm									
Start 2.0 GHz		_		691	pts			Sto	p 26.5 GHz
)( ite: 9.FEB.20	23 03;20	58			Mea	suring		-	09.02.2023 03:20:58



Receiver	26.50 dBm	offset		RBW 100 kH		ectrum 3	8		
Att		SWT		VBW 300 kH		Auto Sweep	Input 1	AC	
1Pk Max									
20 dBm-						-49.39 dBm 2.54650 GHz			
					PA IN	1[1]			7.76 dBm
LO dBm		-	-			-	1	MI	2,46490 GHz
) dBm		-							
10 dBm		-				/			
L. L	1 -12.120	dBm	1	-					-
20 dBm						-			-
30 dBm						-			
40 dBm		_							
	_							M2	
50 dBm	1	Lan	and the second second	Man Manakala	and was shown	Symmetry	all montanthe	-	ne manther
60 dBm-	-J. Carling Street								
70 dBm-									
Start 30.0 M	4Hz		1	691	pts		1	S	top 3.0 GHz
	1			071		suring	CI		09.02.2023
						a su ingin	and the second s	-	03:24:33
te: 9.FEB	.2023 03;	24:32							

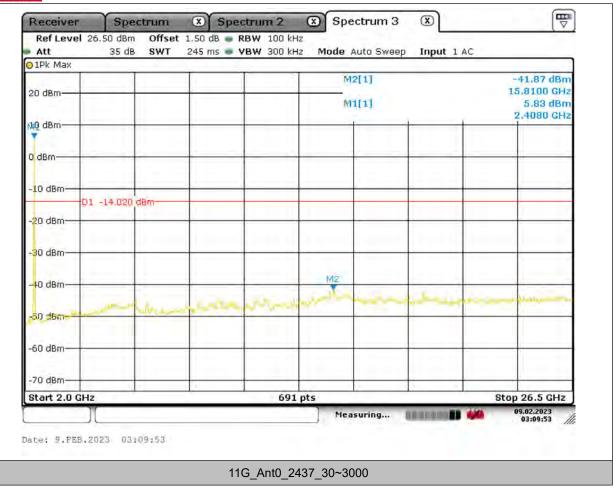


Receiver	And in case of the local division of the loc	trum	and the second se	ectrum 2		ectrum 3	×		
Ref Level 26	35 dB	SWT		RBW 100 kH VBW 300 kH		Auto Sweep	Input 1	AC	
1Pk Max									
20 dBm						-41.55 dBm 15,6680 GHz 8.22 dBm 2.4430 GHz			
19 dBm				1			1	1	
0 dBm			-						
-10 dBm	-12.120 d	Bm	-						
-20 dBm				-					
-30 dBm	_			-		-			
			and a	anonen	M2	In in James	and the second	المر مر مع	ليسترين الرئيس
SQ,dBm	J. Landy	Malleyant	1	and the sector s					
-60 dBm									
-70 dBm				-			-	-	-
Start 2.0 GHz				691	pts	1		Ste	op 26.5 GHz
)[ ate: 9.FEB.20	23 0313	23:40			Mea	suring		440	09.02.2023 03:23:40



Att	el 26.50 dBr 35 dl			RBW 100 kHz VBW 300 kHz		uto Swee	p Input 1	AC		
)1Pk Max										
20 dBm					M		-49.19 dBm 2,46920 GHz 6.40 dBm 2,41330 GHz			
10 dBm					-		1	1		
) dBm		-	-				-			
10 dBm—	-D1 -14.020	I dBm								
-20 dBm—									_	
-30 dBm									-	
40 dBm—		-						MØ	-	
50 dBm-				a categorie		diameters.	and and and	M2	Pid and a second	
and make the	مالا المرامي ومعادله	Part in such	Carlos and a second	as the optically drive a statistical t	All a start of the	Manufacture of the second				
-60 dBm—										
70 dBm—						-		_		
Start 30.0	MHz			691 p	ots		_		Stop 3.0 GHz	
	1				Meas	uring		444	09.02.2023 03:08:58	
ite: 9.FE	B.2023 03	:08:57								







Att	35 (	dB SWT	29.7 ms 🖷	VBW 300 kH	z Mode	Auto Swee	p Input 1	L AC	
1Pk Max	-								
20 dBm						2[1] 1[1]		2	-48.79 dBm 61530 GHz 6.82 dBm 43910 GHz
LO dBm	1	-	-			-	1	M1	1
) dBm			-						
10 dBm—	D1 -13.38	0,dBm	_						-
20 dBm—									
30 dBm—		-	-			-			
40 dBm—						-		M2	
50 dBm-	Achecanon	himile	Run Marmanhada	M. H	magnal dy area	e Marganet armente	Juran and	1 Late	A. D. D. C.
60 dBm—		-							
70 dBm—							-	-	
Start 30.0	MHz	-	- C	691	pts			Ste	p 3.0 GHz
	)[				Mea	suring		-	09.02.2023 03:11:01
te: 9.FE	B.2023 0	3;11:01							



Att	26.50 dBm 35 dB		1.50 dB 🖷 F 245 ms 🖷 🕅			Auto Swee	p Input 1	AC		
1Pk Max						_				
20 dBm					M2[1] -42,2 15,77 M1[1] 6,0 2,44					
10 dBm		-				-	1	1		
0 dBm			-			-				
-10 dBm	01 -13.380	dBm				í				
-20 dBm										
-30 dBm	_									
					Mi2	in a second	a data a d		and the second second	
-50 d8m	and a state of the	hardburger	marting	allen	Minan	and we found	int where	and an and the second		
-60 dBm										
-70 dBm	8 4 						A			
Start 2.0 GI	Hz			691	pts				p 26.5 GHz	
	.2023 03				Mea	isuring		440	09.02.2023 03:11:42	



	l 26.50 dBn 35 dB		1.50 dB 👄 29.7 ms 👄			1. 4. C.		10	
Att 1Pk Max	35 U	5 511	29.7 ms 🖷	<b>VBW</b> 300 K	nz Moue	AULU SWEE	p Input 1	AC	
20 dBm					-	12[1] 11[1]			-49.20 dBm 2.25860 GHz 6.32 dBm 2.45630 GHz
10 dBm						1		1011	
) dBm		-	-						
10 dBm	D1 -13.650	dBm							
20 dBm									
-30 dBm									-
40 dBm							M2		-
-50 dBm						1	T	and when	-
An real and	and the second second	اللبابين	and the second	a - Line	and a second construction of	and the state of the			
-60 dBm								-	
70 dBm							-	-	
Start 30.0	MHz		Į.,	691	pts		1	1	Stop 3.0 GHz
	)[				Me	asuring		444	09.02.2023 03:12:50
te: 9.FEE	8.2023 03	;12;50							

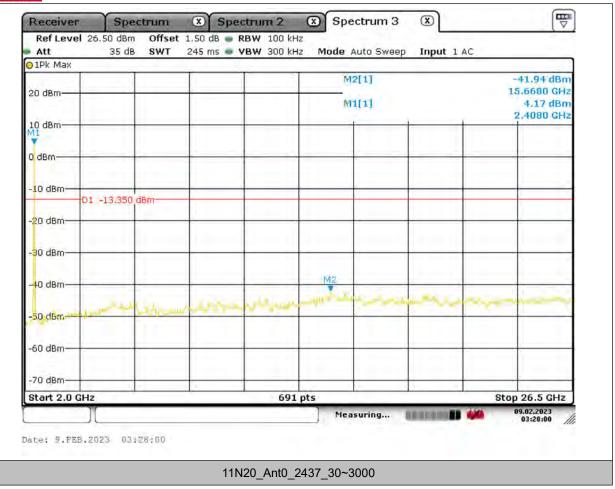


Ref Level 26				RBW 100 kH					
Att	35 dB	SWT	245 ms 🖷	VBW 300 kH	Hz Mode	Auto Swee	p Input 1	AC	
1Pk Max	- 1	-	T	1	1 1	1110			10.01.10.1
20 dBm						2[1] 1[1]			-42.21 dBm 15.6680 GHz 6.26 dBm 2.4430 GHz
10 dBm						t	1		2.7750 012
0 dBm		-				4			
-10 dBm	-13.650 0	dBm		_					
-20 dBm									-
-30 dBm	_								+
-40 dBm	-	-			M2		الم المسرية		a subsection of the
SQ,dBm	- and a start of the	urso kan	re particle me	ng that have a			in the		
-60 dBm									
-70 dBm		_							
Start 2.0 GHz	-		_	691	pts			Sto	p 26.5 GHz
ate: 9.FEB.20	023 03:	13:37			Mea	suring		-	09.02.2023 03:13:38
		21916							



Ref Leve	l 26.50 d 35			RBW 100 kHz VBW 300 kHz		uto Europe	Innut 1	10	
1Pk Max	35		29,7 115 🖤	YDYY SUU KH2	moue	auto sweet	Input 1	AC	
20 dBm						[1] 2[1]			7.11 dBm .41330 GHz -48.36 dBm .58950 GHz
10 dBm	1							-	
0 dBm									
-10 dBm—	D1 -13.3	50,d8m							
-20 dBm—									
-30 dBm									
-40 dBm—	-			-				M2	
-50 dBm	mande	وسيستهم	and the second strong	an in course	و د اور دو در این است	Park Byrndyn A. P.	more	- Ing	an and the start
-60 dBm—	-								
-70 dBm—						_			
Start 30.0	MHz	4		691 p	ots				op 3.0 GHz
	Л				Mea	suring		440	09.02.2023 03:06:52
ate: 9.FE	B.2023	03:06:52							







Receiver Ref Level 26.	Spect		and the second se	RBW 100 kH	the second se	ectrum 3	(8)	_	
Att	35 dB			VBW 300 kH		Auto Swee	Input 1	AC	
1Pk Max									
20 dBm						1[1] 2[1]			7.60 dBm .43910 GHz -48.81 dBm .58090 GHz
10 dBm		_	-			1	1	MI	100090 0112
0 dBm	_								
-10 dBm	12.790 di	3m							
-20 dBm			-		-			1	
-30 dBm	_					2			
-40 dBm		-						M2	
-50 dBm			and the state of the	- in david	and the second second	المارية من المراجع		L.X.	-
-60 dBm	-								
-70 dBm									
Start 30.0 MHz			_	691	pts	_			op 3.0 GHz
ا					Mea	suring		444	09.02.2023 03:02:36
ate: 9.FEB.202	3 03:0	2:36							03:02:36 ////



Receiver	Spec			ectrum 2		ectrum 3	×		
Ref Level 26. Att	50 dBm 35 dB	Offset SWT		RBW 100 kH		Auto Sweep	Input 1	AC	
1Pk Max						-			
20 dBm						2[1] 1[1]			-41.74 dBm 15.5970 GHz 7.01 dBm 2.4430 GHz
tid dBm									
dBm-						÷			
10 dBm - D1 -	-12.790 di	Bm-							
20 dBm	-	-	-						-
30 dBm	_	-				· · · · · · · · · · · · · · · · · · ·			-
-0 dBm		-		Sec. 1	M2 JAN MUN	- July mark	and the state provide	-	Aline -
SQ dðm	and the second	Americand	and and a start of the	when			and the second		
-60 dBm	_								
-70 dBm		_							
Start 2.0 GHz				691					p 26.5 GHz
)( .te; 9.FEB.20)	23 03-0	7.50			Mea	isuring		440	09.02.2023 03:03:58
ice: 9.FEB.20	ca 0310	3.35							1.6.1



1Pk Max									
20 dBm					M2  M1				-48.12 dBm 2.52940 GHz 7.28 dBm 2.45630 GHz
10 dBm-	1	-	-		1			T	
) dBm		-			-				
10 dBm—	D1 -13,080	) dBm							
20 dBm—			-			_			
30 dBm—			-			-			-
40 dBm—								M2	
50 dBm—	-	aller	A Report of the second second	A water water and a star			in with the second	1 Jelyma	-
60 dBm—			1			-			
70 dBm—						_			1
Start 30.0	MHz			691 p	ts	_			stop 3.0 GHz
					Measu	uring		196	09.02.2023 02:57:38



Ref Level 26.5 Att	0 dBm Offset 35 dB SWT	1.50 dB 🗰 F	RBW 100 kHz		Auto Sweep	Input 1	AC	
D1Pk Max					inter entre p			
20 dBm		-			2[1] 1[1]			-41.79 dBm 15.7040 GHz 5.32 dBm 2.4430 GHz
19 dBm		-		-		-		LITTO STIL
T and a second s							1.1	
0 dBm								
-10 dBm		-						
D1 -1	3.080 dBm			-				-
-20 dBm		-		-				
-30 dBm						1.000		
-4-0 dBm			_	MZ				
		Land to a		IN HUNDRED	a interiment	in that we a	in the second	and in metallion
-50,dBm	- Martin	Marrie View	Ranner					
-60 dBm		-						
-70 dBm		-						
Start 2.0 GHz			691	ots			Ste	op 26.5 GHz
)T					suring		100	09.02.2023 03:00:12



### DUTY CYCLE

### **TEST RESULT**

TestMode	Antenna		Transmission	Transmission	Duty Cycle
Testiviode	Antenna	Frequency[MHz]	Duration [ms]	Period [ms]	[%]
11B	Ant0	2412	8.193	8.232	99.52
11G	Ant0	2412	1.361	1.396	97.49
11N20	Ant0	2412	1.276	1.321	96.59



## **TEST GRAPHS**

MultiView	Receiver	Speci	trum 🤞 🗐 S	pectrum 2	X				× ×
Ref Level 26.	50 dBm Offe	et 1.50 dB . RBW	10 MHz SG				1.2		
<ul> <li>Att Input</li> <li>1 Zero Span</li> </ul>	30 dB = SW 1 AC PS	I 20 ms ● VBW On Note	h Off			_	FN	equency 2.41	• 1Pk Max
20 dBm		be a second s			0	UT.		091	1] -0.01 di
20 06m						1		- 50 (1	
10 dBm									3,9889 m
0 dBm									
-10 dBm									
						1 - L. A.			11.1
-20 dBm									
-30 dBm						-			
-40 dBm									
~50 dBm									
-60 dBm						· · · · · · · · · · · · · · · · · · ·			
						1 mm			
-70 dBm				1001 pts	-		-		2.0 ms/
2 Marker Table Type   Ref		X-Value	j vu	alue		Function	-	Function Re	
M1 D2 M1	1	3.9888 ms 8.1928 ms	19.45	5 dBm 00 dB		, and on	1	r dhudon Rt	adu
D3 M1	1	8.232 ms	-0.	01 dB	Ready		<b>()0</b> 06.02.2 05:1	2023 Ref Level	RBW
	Ŷ			IG_Ant0_			_		
MultiView Ref Level 26.	Receiver	Spectset 1.50 dB = RBW	trum 🚱 🖾 S / 10 MHz SG	pectrum 2	2412				×
Ref Level 26. Att Input		et 1.50 dB = RBW	trum S 10 MHz SG	pectrum 2			Fn	equency 2.41	120000 GH
Ref Level 26. Att Input 1 Zero Span	50 dBm Offs 30 dB = SW	et 1.50 dB = RBW 5 ms = VBW	trum S 10 MHz SG	pectrum 2			Fr	equency 2.41	120000 GH
Ref Level 26. Att Input 1 Zero Span	50 dBm Offs 30 dB = SW	et 1.50 dB = RBW 5 ms = VBW	trum S 10 MHz SG	pectrum 2		an farming a	Fr	Da [	● 1Pk Max ● 1Pk Max 11 0.01 df 1.39620 m 11 16.39 dBn
Ref Level 26. Att Input 1 Zero Span	50 dBm Offe 30 dB = SW 1 AC PS	et 1.50 dB = RBW 5 ms = VBW	trum S 10 MHz SG	pectrum 2		The Second S	Fr	Da [	120000 GH
Ref Level 26. Att Input 1 Zero Span 20 dBm	50 dBm Offe 30 dB = SW 1 AC PS	et 1.50 dB = RBW 5 ms = VBW	trum S 10 MHz SG	pectrum 2		**************************************	Fr	Da [	● 1Pk Max ● 1Pk Max 11 0.01 df 1.39620 m 11 16.39 dBn
Ref Level 26. Att Input I Zero Span 20 dBm	50 dBm Offe 30 dB = SW 1 AC PS	et 1.50 dB = RBW 5 ms = VBW	trum S 10 MHz SG	pectrum 2			Fr	Da [	● 1Pk Max ● 1Pk Max 11 0.01 df 1.39620 m 11 16.39 dBn
Ref Level 26. Att Input 1 Zero Span 20 dBm 10 dBm 0 dBm	50 dBm Offe 30 dB = SW 1 AC PS	et 1.50 dB = RBW 5 ms = VBW	trum S 10 MHz SG	pectrum 2			Fr	Da [	● 1Pk Max ● 1Pk Max 11 0.01 df 1.39620 m 11 16.39 dBn
Ref Level 26.           Att           Input           1 Zero Span           20 dBm           10 dBm           0 dBm           -10 dBm           -20 dBm	50 dBm Offe 30 dB = SW 1 AC PS	et 1.50 dB = RBW 5 ms = VBW	trum S 10 MHz SG	pectrum 2			Fr	Da [	● 1Pk Max ● 1Pk Max 11 0.01 df 1.39620 m 11 16.39 dBn
Ref Level 26.           Att           Input           1 Zero Span           20 dBm           10 dBm           0 dBm           -10 dBm           -20 dBm           -30 dBm	50 dBm Offe 30 dB = SW 1 AC PS	et 1.50 dB = RBW 5 ms = VBW	trum S 10 MHz SG	pectrum 2			Fr	Da [	● 1Pk Max ● 1Pk Max 11 0.01 df 1.39620 m 11 16.39 dBn
Ref Level 26.           Att           Input           1 Zero Span           20 dBm           10 dBm           0 dBm           -10 dBm           -20 dBm	50 dBm Offe 30 dB = SW 1 AC PS	et 1.50 dB = RBW 5 ms = VBW	trum S 10 MHz SG	pectrum 2			Fr	Da [	● 1Pk Max ● 1Pk Max 11 0.01 df 1.39620 m 11 16.39 dBn
Ref Level 26.           Att           Input           1 Zero Span           20 dBm           10 dBm           0 dBm           -10 dBm           -20 dBm           -30 dBm	50 dBm Offe 30 dB = SW 1 AC PS	et 1.50 dB = RBW 5 ms = VBW	trum S 10 MHz SG	pectrum 2			Fr	Da [	● 1Pk Max ● 1Pk Max 11 0.01 df 1.39620 m 11 16.39 dBn
Ref Level 26.           Att           Input           1 Zero Span           20 dBm           0 dBm           0 dBm           -10 dBm           -20 dBm           -30 dBm           -40 dBm	50 dBm Offe 30 dB = SW 1 AC PS	et 1.50 dB = RBW 5 ms = VBW	trum S 10 MHz SG	pectrum 2			Fr	Da [	● 1Pk Max ● 1Pk Max 11 0.01 df 1.39620 m 11 16.39 dBn
Ref Level 26.           Att           Input           Izero Span           20 dBm           0 dBm           -10 dBm           -20 dBm           -30 dBm           -30 dBm           -50 dBm           -60 dBm	50 dBm Offe 30 dB = SW 1 AC PS	et 1.50 dB = RBW 5 ms = VBW	trum S 10 MHz SG	pectrum 2			Fr	Da [	● 1Pk Max ● 1Pk Max 11 0.01 df 1.39620 m 11 16.39 dBn
Ref Level 26.           Att           Input           1 Zero Span           20 dBm           10 dBm           0 dBm           -10 dBm           -20 dBm           -30 dBm           -50 dBm           -60 dBm           -70 dBm           CF 2,412 GHz	50 dBm Offs 30 dB = SW 1 AC PS	et 1.50 dB = RBW 5 ms = VBW	trum S 10 MHz SG	pectrum 2			Fr	Da [	● 1Pk Max ● 1Pk Max 11 0.01 df 1.39620 m 11 16.39 dBn
Ref Level 26.           Att           Input           1 Zero Span           20 d8m           10 d8m           -10 d8m           -20 d8m           -30 d8m           -30 d8m           -70 d8m           -70 d8m           CF 2.412 GHz           2 Marker Table           Marker Table           D2           M1           D2	50 dBm Off 30 dB = SW 1 AC PS 1 AC PS 1 AC I SW 1	tet 1.50 dB = RBW Г 5 ms = VBW On Note 0 Note	trum S 10 MHz SG 10 MHz G 10 MHz 10 MHZ 1	pectrum 2 L		Function	Fr	Da [	120000 GH 1 0.01 ai 1 39620 тр 1 15.39 двя 703.80 р 500.0 μs/
Ref Level 26.           Att           Input           1 Zero Span           20 dBm           10 dBm           -10 dBm           -20 dBm           -30 dBm           -40 dBm           -50 dBm           -60 dBm           -70 dBm           CF 2,412 GHz           2 Marker Table           Type   Ref	50 dB • Offs 30 dB • SW 1 AC • PS	x-Value	trum S 10 MHz SG 10 MHz G 10 MHz 10 MHZ 1	pectrum 2		Function		Function Re	120000 GH
Ref Level 26.           Att           Input           1 Zero Span           20 d8m           10 d8m           -10 d8m           -20 d8m           -30 d8m           -30 d8m           -70 d8m           -70 d8m           CF 2.412 GHz           2 Marker Table           Marker Table           D2           M1           D2	50 dBm Offs 30 dB = SW 1 AC PS 	tet 1.50 dB = RBW Г 5 ms = VBW On Note 0 Note	trum S 10 MHz SG 10 MHz G 10 MHz 10 MHZ 1	pectrum 2 L			Fr	Function Re	120000 GH

Huarui 7layers High Technology (Suzhou) Co., Ltd. Tower N, Innovation Center, 88 Zhuyi Road, High-tech District, Suzhou City, Anhui Province



Zero Span         • 1Pk Ma           0. dBm         0. dBm<	Att Input	30 dB = SW1 1 AC PS	T 5 m.s ■ VBN On Not					Fred	quency 2.41	20000 GHz
20 dBm       1 <th>Zero Span</th> <th></th> <th></th> <th></th> <th></th> <th>-</th> <th></th> <th></th> <th></th> <th>●1Pk Max</th>	Zero Span					-				●1Pk Max
10 dbm     10 dbm <th></th> <th></th> <th></th> <th></th> <th></th> <th>10</th> <th>1</th> <th>-</th> <th>() CC</th> <th>] 1.15 dB</th>						10	1	-	() CC	] 1.15 dB
10 dbm       1 <td>20 dBm</td> <td></td> <td>and the second second</td> <td></td> <td></td> <td>A REAL PROPERTY.</td> <td>Contraction of the second second</td> <td></td> <td>- the state</td> <td>1/32120 ms</td>	20 dBm		and the second second			A REAL PROPERTY.	Contraction of the second second		- the state	1/32120 ms
10 dbm     10 dbm <td></td> <td></td> <td></td> <td></td> <td></td> <td>11</td> <td></td> <td></td> <td>M31</td> <td></td>						11			M31	
10 dBm     10 dBm <td>LO dBm</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>_1.26380 ms.</td>	LO dBm									_1.26380 ms.
10 dBm     10 dBm <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>12 2 2 1</td> <td></td> <td></td> <td></td>							12 2 2 1			
20 dBm	0 dBm									
20 dBm	1.00									
-20 dBm	-10 dBm									
-30 dBm										
-40 dBm	-20 dBm-		4 99							
-40 dBm	1.00									
-50 dBm	-30 dBm					144				
-50 dBm										
-60 dBm	-40 dBm	-	k		/	N	1			
-60 dBm										
-60.dBm	-50 dBm-									
	-60 dBm									
-70 dBm	oo ubiii									
78 dbin	70 d8m									
CF 2,412 GHz 1001 pts 500.0 u	1.7 AME				100	1				F00.0
CF 2.412 GHz 1001 pts 500.0 μ 2 Marker Table					100	1 pts				500.0 µs/
Zimiter Table         Y-Value         Y-Value         Function         Function Result           M1         1         1.2638 ms         15.88 dBm         15.88 dBm	Type   Ref M1 D2 M1		1.2638 ms 1.2762 ms	1	15.88 dBm 3.36 dB	1	Function	Ų	Function Re	sult



# 7 Appendix 2 BLE DTS BANDWIDTH

### **TEST RESULT**

TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
		2402	0.666	2401.664	2402.330	0.5	PASS
BLE_1M	Ant1	2440	0.663	2439.664	2440.327	0.5	PASS
		2480	0.666	2479.661	2480.327	0.5	PASS



Г

BUREAU VERITAS Test Report No.: W7L-P23010004-2RF06

## **TEST GRAPHS**

20 dBm		-		DS	2[1]			-0.12 di 665.70 kH
				M	1[1]		2.401	-4.36 dBn
.0 dBm	-				_	1		
01 1,50	00 dBm	MI			02			
	-4.500 dBm-	1				~		
10 dBm	1					1		
20 dBm	-					3		
30 dBm-						_	1	
oo ubiii	0.000	11.271	2			11.22.11		
40 dBm								
50 dBm							11 22 11	
60 dBm								
70 dBm	-	-	-				-	-
CF 2.402 GHz			691 p	its		1		n 2.0 MHz
				Mea	suring	STREET, DO	440	08.02.2023 22:29:41



### Test Report No.: W7L-P23010004-2RF06

		-			DS	2[1]			0,02 dt
20 dBm					M	1[1]			662.80 kH -5.71 dBn 966430 GH
10 dBm	-						1	2110	
0 dBm-	D1 0,150 dB		MI			02			
-10 dBm—	D2 -5.8	50 dBm					~		
-20 dBm—	1								
-90 dBm—		100	1.21					-	
-40 dBm—			-						
50 dBm—				-			-		
-60 dBm									-
-70 dBm—									
CF 2,44 G	GHz			691		suring	CONTRACTOR OF STREET,	Spa	an 2.0 MHz 08.02.2023 22:40:03



BLE\_1M\_Ant1\_2480



### **OCCUPIED CHANNEL BANDWIDTH**

### **TEST RESULT**

TestMode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
		2402	1.0130	2401.496	2402.509		PASS
BLE_1M	Ant1	2440	1.0130	2439.496	2440.509		PASS
		2480	1.0130	2479.496	2480.509		PASS



## **TEST GRAPHS**

20 dBm 2.4017482	Mi         Torona         2.40174820 CH2           Mi         0cc Bw         1.013024602 MH2           Mi         1         1           Ti         Ti         Ti           V         Ti         Ti           Fill         Fill         Fill	20 dBm       2.40174820 GH         10 dBm       0cc Bw       1.013024602 MH         0 dBm       M1       0       0         -10 dBm       T1       T2         -20 dBm       T1       T2         -30 dBm       T1       T2         -40 dBm       0       0         -50 dBm       0       0         -60 dBm       0       0         -70 dB
10 dBm M1 0 dBm T1 -10 dBm T2 -20 dBm	M1     T2       T1     T2       N     T2       N </th <th>10 dBm     M1     M1     M1       0 dBm     M1     M1     M1       -10 dBm     T1     T2       -20 dBm     V     V       -20 dBm     V     V       -30 dBm     V     V       -40 dBm     V     V       -50 dBm     V     V       -60 dBm     V     V       -70 dBm     V     V</th>	10 dBm     M1     M1     M1       0 dBm     M1     M1     M1       -10 dBm     T1     T2       -20 dBm     V     V       -20 dBm     V     V       -30 dBm     V     V       -40 dBm     V     V       -50 dBm     V     V       -60 dBm     V     V       -70 dBm     V     V
0 dBm -10 dBm -20 dBm -30 dBm	T1         T2           N         T2	0 dBm     T1     T2       -10 dBm     T1     T2       -20 dBm     T2       -30 dBm     T2       -40 dBm     T2       -50 dBm     T2       -60 dBm     T2       -60 dBm     T2       -70 dBm     T2       -70 dBm     T2       -70 dBm     T2       -70 dBm     Type Ref Trc       X-value     Y-value       Y-value     Function
-20 dBm	691 pts Span 2.0 MHz	-20 dBm -30 dBm -40 dBm -50 dBm -50 dBm -60 dBm -70
-20 dBm	691 pts Span 2.0 MHz	-20 dBm     -30 dBm       -30 dBm     -40 dBm       -40 dBm     -40 dBm       -50 dBm     -50 dBm       -60 dBm     -60 dBm       -70 dBm     -60 dBm       -70 dBm     -60 dBm       -70 dBm     -70 dBm
30 dBm		30 dBm     40 dBm       40 dBm     50 dBm       50 dBm     60 dBm       60 dBm     60 dBm       60 dBm     60 dBm       60 dBm     60 dBm       70 dBm     60 dBm
		40 dBm     40 dBm       50 dBm     50 dBm       60 dBm     60 dBm       70 dBm     50 dBm
40 dBm		-50 dBm -60 dBm -70
		-60 dBm -70 dBm -70 dBm CF 2.402 GHz 691 pts Span 2.0 MHz Tarker Type   Ref   Trc   X-value   Y-value   Function   Function Result
50 dBm		-70 dBm
-60 dBm		CF 2.402 GHz 691 pts Span 2.0 MHz Narker Type   Ref   Trc   X-value   Y-value   Function   Function Result
-70 dBm		CF 2.402 GHz 691 pts Span 2.0 MHz Narker Type   Ref   Trc   X-value   Y-value   Function   Function Result
		Type   Ref   Trc   X-value   Y-value   Function   Function Result
Tarker		
M1         1         2.4017482 GHz         -0.49 dBm           T1         1         2.40149638 GHz         -16.16 dBm         Occ Bw         1.013024603		
		T2 1 2.40149638 GHz -16.16 dBm OCC BW 1.013024602 MHz
T2 1 2.40250941 GHz -16.53 dBm	2.40149638 GHz -16.16 dBm Occ Bw 1.013024602 MHz 2.40250941 GHz -16.53 dBm	Measuring 📲 111111 🗰 09.02.2023 00:07:44



### Test Report No.: W7L-P23010004-2RF06

1Pk Max	-	1	1 1					
20 dBm				M1[1]		-1.87 dBn 2.43974820 GH 1.013024602 MH		
10 dBm	-			OLC DW	- F	1.013024002 001		
) dBm	-	M	1					
10 dBm-		The pl	mon					
20 dBm—		T1			T2 V			
	-	1			-			
30 dBm-	1					-		
40 dBm-						- La		
50 dBm								
60 dBm—								
			1.1.1.1			1.1.1.1		
70 dBm-	1		691 pts			Span 2.0 MHz		
larker	12		041 hrs			3pan 2.0 MH2		
Type   Re	f   Trc	X-value	Y-value	Function	Function Result			
M1	1	2.4397482 GHz	-1.87 dBm					
T1 T2	1	2.43949638 GHz 2.44050941 GHz	-17.57 dBm -17.98 dBm	Occ Bw	1.013024602 MH;			
12	1 1	2.44050941 GH2	-17.98 060	Manual and	A DECISION OF	09.02.2023		
	1			Measuring	STOLEDOR .	00:08:14		



### Test Report No.: W7L-P23010004-2RF06

1Pk Max	-		r r					
20 dBm	_			M1[1]		-4.12 dBn 2.47974820 GH 1.013024602 MH		
10 dBm				ULL UTT	1	1.01002700274		
0 dBm		<u>N4</u>	1	-	-			
-10 dBm		1 N	how	~				
-20 dBm		Ţ1 ₩			T2 g			
-30 dBm								
40 dBm	1					N amo		
-50 dBm								
60 dBm					-			
-70 dBm			1 1					
CF 2.48 GH	.48 GHz 691 pts		-	-	Span 2.0 MHz			
larker	Trc	X-value	Y-value	Function	Film	tion Brout		
Type Ret M1	1	2,4797482 GHz	-4.12 dBm	Function	Func	ction Result		
T1	1	2.47949638 GHz	-19.82 dBm	Occ Bw		1.013024602 MHz		
T2	1	2.48050941 GHz	-20.21 dBm					
	][			Measuring 09.02.202 00:08:4				



### MAXIMUM CONDUCTED OUTPUT POWER

### TEST RESULT PEAK

TestMod	Antenna	Channel	Peak	Peak	Conducted	Verdict	Power
е	Antenna	Channel	Powert[dBm]	Powert[mw]	Limit[dBm]	verdict	setting
		2402	0.86	1.22	≤30	PASS	Defult
1M Ant1	Ant1	2440	0.37	1.09	≤30	PASS	Defult
		2480	-0.94	0.81	≤30	PASS	Defult

## **TEST RESULT AVERAGE**

TestMode	Antenna	Channel	Average Power	Conducted Limit[dBm]	Verdict	Power setting
		2402	0.57	1	PASS	Defult
1M	Ant1	2440	-0.14	1	PASS	Defult
		2480	-1.21	/	PASS	Defult

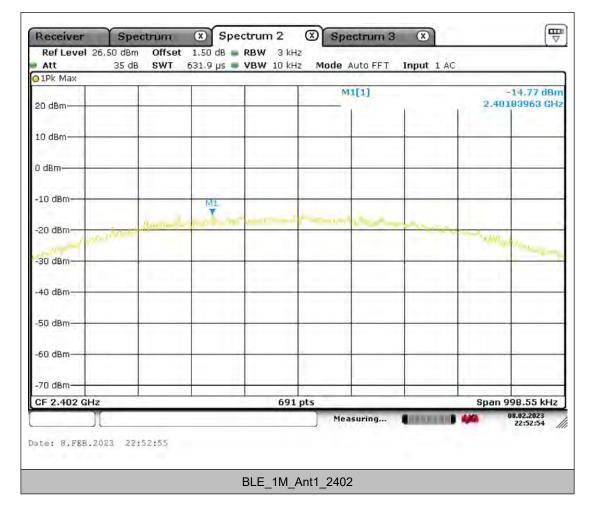


### MAXIMUM POWER SPECTRAL DENSITY

### **TEST RESULT**

TestMode	Antenna	Channel	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
		2402	-14.77	≤8	PASS
BLE_1M	Ant1	2440	-16.06	≤8	PASS
		2480	-18.42	≤8	PASS







1Pk Max	db SWT	631.9 µs 👜 V		Mode Auto FFT	Input 1 AC		
and the second				M1[1]		-16.0	
20 dBm					1 - 1	2.4398389	U GHZ
10 dBm	-				-		-
0 dBm	_						_
-10 dBm	_	Mi					-
-20 dBm	Arenand	manhan	man M	Minimi Malanation	and the second second	and applying	-
-3U dBm-						Mar Martin	dip <sub>in</sub> an
40 dBm							_
50 dBm	_						_
-60 dBm							
-70 dBm	_						
CF 2.44 GHz	2 ·		691 pt	s		Span 994.2	
][	22:51:14			Measuring	COLUMN .	08.02.20 22:51	123 :14



1Pk Max							
20 dBm		1		M1[1]			18.42 dBm 33962 GHz
10 dBm			1				-
IU dBm							
0 dBm							
-10 dBm		-					
-20 dBm	. Journal	MI	the second second second	Max man has a			
30. dBm / w/w/	Anno Stratone				and the second second	- MALAN	Antonio
Jordon	-	1000				1-21	and the other
-40 dBm							
-50 dBm							
-60 dBm							
-70 dBm							
CF 2.48 GHz		-	691 pt	s			8.55 kHz
][]				Measuring	COLUMN .		1.02.2023 22:49:33

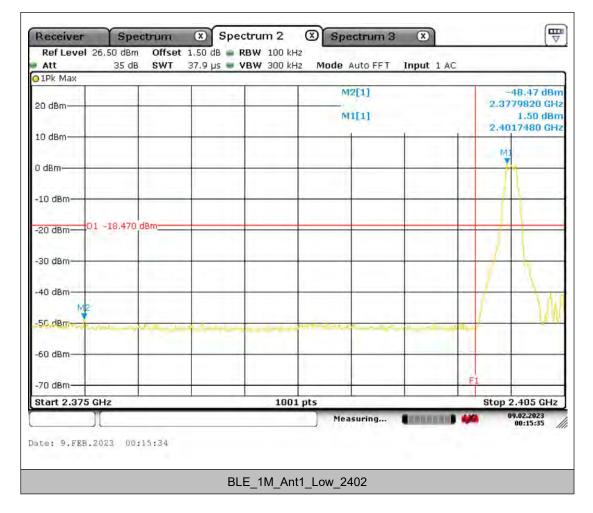


## **BAND EDGE MEASUREMENTS**

## **TEST RESULT**

TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M Ant1	Low	2402	1.53	-48.47	≤-18.47	PASS	
	Anti	High	2480	-2.10	-49.24	≤-22.10	PASS







			· · ·			
20 dBm				M2[1]		-49.24 dBm 2.4875250 GHz -2.03 dBm 2.4797580 GHz
10 dBm				1	1 1	2.1757000 011
) dBm	M4				_	
10 dBm	-/1					
-20 dBm	22.100 dBm					
-30 dBm	14					
40 dBm			M2			
50,d8m	h	a hand a hand	- market	- Alter Are-at-	n water and the	- the second produced and
-60 dBm				7		
-70 dBm		FI		-		-
Start 2.475 GH	z	- 8 -	1001 pt:	5		Stop 2.5 GHz



# CONDUCTED SPURIOUS EMISSION

## **TEST RESULT**

TeetMede	Antonna	Channel	FreqRange	RefLevel	Desult[dDma]	Lineit[dDne]	Verdict	
TestMode	Antenna	Channel	[MHz]	[dBm]	Result[dBm]	Limit[dBm]	verdict	
		2402	30~3000	1.53	-48.50	≤-18.47	PASS	
		2402	2000~26500	1.53	-41.87	≤-18.47	PASS	
BLE 1M		A == 11 2440	30~3000	0.14	-49.59	≤-19.86	PASS	
		2440	2000~26500	0.14	-42.20	≤-19.86	PASS	
		2490	30~3000	-2.10	-49.15	≤-22.10	PASS	
		2400	2000~26500	-2.10	-42.01	≤-22.10	PASS	



Receiver	Sp	ectrum	🗴 Sp	ectrum 2	X Spe	ctrum	13 (	0		
Ref Level			Contraction of the	RBW 100 kHz			10.3	1157	_	
Att	35 d	B SWT	29.7 ms 🖷	VBW 300 kHz	Mode A	uto Si	weep II	nput 1 AC		
01Pk Max	_	1	1	T T	640	[1]	_		-	48.50 dBn
20 dBm		-	1		(12	11				64110 GH
					(M)	[1]			~	1.45 dBr
10 dBm						20	1.1		2,	40040 GH
								MIL		
0 dBm						_	-			
-10 dBm		-	-			-				
		1								
-20 dBmD	1 -18,47	) dBm								
-30 dBm	_		-				-			
Sec. 1										
-40 dBm								-	MZ	
FG 10									IVIZ	
-50 dBm	and the second	Adapter & constants	and the second second	and the second s				Non-Herberton States of	and the second	-harrison and
-60 dBm					I.					
-b0 ubiti										
-70 dBm						1.1				
Start 30.0 M	Hz	1		691 p	te				Sto	p 3.0 GHz
Aarker				0510			_		Gru	p olo di le
Type   Ref	Trc	X-valu	ie I	Y-value	Funct	ion	(T	Functio	n Result	
M1	1		004 GHz	1.45 dBm						
M2	1	2.6	411 GHz	-48.50 dBm						
	n.				Meas	uring.			<b>a</b> (	9.02.2023
	n									00:03:57
ate: 9.FEB.	2023 00	1:03:57								
a service a										
			BU	E 1M Ant1 2	102 30~1	3000				



Receiver	Spectru	m 🕱 Sp	ectrum 2	X Spe	ectrum 3	×		
Ref Level 26		fset 1.50 dB 👳				S Gund 5		-
Att	35 dB SI	NT 245 ms 📟	<b>VBW</b> 300 kHz	Mode	Auto Swee	p Input 1	AC	
1Pk Max								
				M	2[1]			-41.87 dBr
20 dBm					1111			24.7090 GH
1.57				(M	1[1]			1.46 dBr 2.4080 GH
10 dBm-				_	1	1	1	2.4000 GH
M1							11	
0 dBm								-
U uBm								
1.1								
-10 dBm				_		1	-	1
	1							
-20 dBm-D1	-18,470 dBm-						-	
								1
-30 dBm								- No
-50 08m-								
								M2
- <mark>1</mark> 0 dBm			1	-			-	IVIZ.
17.1	in an	- superstille	a for the second	any making the strat	all a der tome h	and man have	Mary mark	J. Sugarnakes
-50,d8m-	and anyte	Sugar bar bar to see						_
						i		
-60 dBm								- 0
-00 0611								1.
1.								1.1.1.1
-70 dBm	- 1						-	
Start 2.0 GHz			691	pts	-		St	op 26.5 GHz
				Mea	suring	REPROPERTY	-	08.02.2023
					and and a second			23:59:16
ate: 8.FEB.20	23 23:59:1	6						
		BIE	1M Ant1 24	02 2000	26500			



1Pk Max				1000				
			1		M2[1	ŋ		-49.59 dBr
20 dBm	1.121			1 1	MIL	2.70990 GH 0.28 dBr		
10 dBm	_				2,43910 GH			
20 P							MI	
) dBm	_							
5.0.1								
10 dBm		1		-				
1000								1
-20 dBm - [	01 -19,860	) dBm						
-30 dBm								
SU UBIN								
40 dBm	_							
			1					M2
-50 dBm		1		معاد ومن المسرو الم	All and the second second		man and the second	and a substant
and the second	March Report of March	and a second second						
-60 dBm								
-70 dBm								
Start 30.0 M	IHZ			691 pt	5			Stop 3.0 GHz
larker Type   Ref	Trc	X-value		Y-value	Function	. 1	Function	n Pocult
M1	1		91 GHz	0.28 dBm	Function	u	Function	TRESUIC
M2	1	the second s	99 GHz	-49.59 dBm				
	11				Measur	na	annanar 🚧	09.02.2023 00:05:24



Receiver	Spec	trum	and the second s	ectrum 2	Contraction of the local division of the	pectrum 3	s ®		T T
Ref Level 26				RBW 100 k			S. Comet a		
Att	35 dB	SWT	245 ms 🖷	VBW 300 k	Hz Mode	Auto Swei	ep Input 1	AC	
01Pk Max				-	-				
1						M2[1]			-42.20 dBr 20.3840 GH
20 dBm						MATAT			0.44 dBr
1.11	-				1	M1[1]			2,4430 GH
10 dBm			-	-	-	1	-1	-	1
0 dBm									
U UBIII									
1.1.1									
-10 dBm-	-		-	-	-	-	-	-	1
1.77				100					
-20 dBm-D1	-19.860 c	Bm				1	-	1.	
	1			1					100
				÷					
-30 dBm				1					
100 C									
-40 dBm	-		-	-	-		M2	-	
			1 40	Barry and	and marked to and	Minut Jay	wohn pred was	human	ha an in particula
-50 dBm	Constraint and	بالسريع والمراجب	Magnus Mann	- All Can Charle	- A -	a second	and and		
STO DOM							1		1
			12.11						
-60 dBm	-		-	-	-	-	1	-	1
-70 dBm-			-	-	-			-	
Start 2.0 GHz	-			69	1 pts		-	St	op 26.5 GHz
Y							Manager and Street of Stre		08.02.2023
/(					M	easuring	CORRARM.	-	23:56:37
ate: 8.FEB.20	23 23.	56:37							
				1M Apt1	2440 200	026500			
			DLE_	1M_Ant1_	2440_200	0~20500			



1Pk Max				<b>VBW</b> 300 kHz	Mode A		eep Input		
00 10 0	1		12		M2	[1]			-49.15 dBn
20 dBm	100			1 1	MI		2.37460 GH -1.96 dBr		
10 dBm	_	-	-				1		2,47780 GH
) dBm	1.001	-	1				-	MI	-
-10 dBm						-	-		_
-20 dBm	01 -22,10	0 dBm-				_	_		
-30 dBm									
-40 dBm		-	-	-			N		
-50 dBm	Challenge	Annes ( Lange and Lange an	والمتحدث والمحادثة	and the first of the second	and the second second		_	-	Patrician - North
60 dBm-				-			_		
-70 dBm	_							_	
Start 30.0 I	MHz	-		691 pt	s			_	Stop 3.0 GHz
1arker									
Type Ref M1	Trc	X-value	78 GHz	Y-value -1.96 dBm	Functi	on	Fur	nction Re	esult
M1 M2	1		46 GHz	-1.96 dBm -49.15 dBm					
	11				Meas	uring	CAD BO BO BO	-	08.02.2023 23:50:41



1Pk Max	10				2[1]			24 44 m
20 dBm					-42.01 dBm 15.7390 GHz -3.04 dBm 2.4790 GHz			
10 dBm								
					1			
-10 dBm								-
-20 dBm-01	-22.100 dBm					-		3
-30 dBm								
-40 dBm		- 1. A.A.	and a second	M2	a capato	and the second second	مەسىرىمەر مەرەر كەر	مى مەربىرى بەلەر بەلەر بەلەر يە
50 d8m	server where	and the second straining the second straining	An a standard					1
-60 dBm		-				-		1
-70 dBm		_				-		4
Start 2.0 GHz	z		691 j	ots			Sto	p 26.5 GHz
	[			Mea	suring	CONTRACTOR OF	444	08.02.2023 23:53:39



# DUTY CYCLE

# **TEST RESULT**

TestM	lode	Antenna	Channel	ON Time [ms]	Period [ms]	х	DC [%]	xFactor	Limit	Verdict
BLE_	1M	Ant1	2440	1.636	1.88	0.8698	86.98	0.61		PASS



