

RF Test Report

For

Applicant Name:

TECNO MOBILE LIMITED

Address:

EUT Name:

Brand Name:

Model Number:

FLAT N 16/F BLOCK B UNIVERSAL INDUSTRIAL CENTRE 19-25 SHAN MEI STREET FOTAN NT HONGKONG Laptop Computer TECNO **T14AA** Series Model Number: Refer to section 2

Issued By

Company Name:

Address:

BTF Testing Lab (Shenzhen) Co., Ltd. F101, 201 and 301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Street, Bao'an District, Shenzhen, China

Report Number: Test Standards:

BTF230918R00201 47 CFR Part 15.247

Test Conclusion: FCC ID: Test Date: Date of Issue:

Pass 2ADYY-T14AA 2023-08-29 to 2023-09-19 2023-09-20

Prepared By:

Date:

Approved By:

Date:

Chris Ling Lab (Shenzhen) So
Chris Liu / Project Engine r 2023-09-20
Fran. C] * JP *
Ryan.CJ / EMC Manager

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2023-09-20

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Revision History			
Version	Issue Date	Revisions Content	
R_V0	2023-09-20	Original	

Note: Once the revision has been made, then previous versions reports are invalid.

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1 Introduction

1.1 Identification of Testing Laboratory

Company Name:	e: BTF Testing Lab (Shenzhen) Co., Ltd.	
Address: F101, 201 and 301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Street, Bao'an District, Shenzhen, China		
Phone Number:	+86-0755-23146130	
Fax Number:	+86-0755-23146130	

1.2 Identification of the Responsible Testing Location

Company Name:	BTF Testing Lab (Shenzhen) Co., Ltd.	
Address:	F101, 201 and 301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Street, Bao'an District, Shenzhen, China	
Phone Number:	+86-0755-23146130	
Fax Number:	+86-0755-23146130	
FCC Registration Number:	518915	
Designation Number:	CN1330	

1.3 Announcement

(1) The test report reference to the report template version v0.

(2) The test report is invalid if not marked with the signatures of the persons responsible for preparing, reviewing and approving the test report.

(3) The test report is invalid if there is any evidence and/or falsification.

(4) This document may not be altered or revised in any way unless done so by BTF and all revisions are duly noted in the revisions section.

(5) Content of the test report, in part or in full, cannot be used for publicity and/or promotional purposes without prior written approval from the laboratory.

(6) The laboratory is only responsible for the data released by the laboratory, except for the part provided by the applicant.

2 **Product Information**

2.1 Application Information

Company Name:	TECNO MOBILE LIMITED
Address:	FLAT N 16/F BLOCK B UNIVERSAL INDUSTRIAL CENTRE 19-25 SHAN MEI STREET FOTAN NT HONGKONG

2.2 Manufacturer Information

Company Name:	TECNO MOBILE LIMITED
Address:	FLAT N 16/F BLOCK B UNIVERSAL INDUSTRIAL CENTRE 19-25 SHAN MEI STREET FOTAN NT HONGKONG

2.3 Factory Information

Company Name:	GUANGXI SHANCHAUN TECHNOLOGY CO LTD
Address:	The Second Floor of Plant C01, Plant C02, Plant C03 and Plant D03 Guangxi Sannuo Smart Industrial Park, No.3, Gaoke Road, Beihai Industrial Park, BEIHAI, 536000 Guangxi, P.R.China

2.4 General Description of Equipment under Test (EUT)

EUT Name:	Laptop Computer		
Test Model Number:	T14AA		
Series Model Numbe	r: N/A		
Software Version:	Win 11 home		
Hardware Version:	N156EAL01_MB_V11		

2.5 Technical Information

Power Supply:	Li-ion Battery: 528252-3S1P Rated Voltage: 11.61V Rated Capacity: 6460mAh/75Wh Limited Capacity: 6550mAh/76.04Wh Limited Charge Voltage: 13.35V
Power Adaptor:	Adapter1: DS65-2 Input: 100-240V~50/60Hz 1.5A Max Output: 5.0V 3.0A 9.0V 3.0A 12.0V 3.0A 15.0V 3.0A 20.0V 3.0A 65.0W Adapter2: TCW-A61S-65W Input: 100-240V~50/60Hz 1.5A Max Output: DP: 5.0V 3A 9V 3A 12V 3A 15V 3A 20V 3.25A PPS: 3.3-11V 5A Max
Operation Frequency:	2402MHz to 2480MHz
Number of Channels:	40
Modulation Type:	GFSK
Antenna Type:	FPC Antenna
Antenna Gain [#] :	2.86 dBi

Note:

#: This report only reflects the worst-case adapter 1 data.

#: The antenna gain provided by the applicant, and the laboratory will not be responsible for the accumulated calculation results which covers the information provided by the applicant.

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3 Summary of Test Results

3.1 Test Standards

The tests were performed according to following standards: 47 CFR Part 15.247: Operation within the bands 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz

3.2 Uncertainty of Test

Item	Measurement Uncertainty	
Conducted Emission (150 kHz-30 MHz)	±2.64dB	
The following measurement uncertainty levels have been estimated for tests performed on the EUT as		
specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately		

3.3 Summary of Test Result

the 95% confidence level using a coverage factor of k=2.

Item	Standard	Requirement	Result
Antenna requirement	47 CFR Part 15.247	Part 15.203	Pass
Conducted Emission at AC power line	47 CFR Part 15.247	47 CFR 15.207(a)	Pass
Occupied Bandwidth	47 CFR Part 15.247	47 CFR 15.247(a)(2)	Pass
Maximum Conducted Output Power	47 CFR Part 15.247	47 CFR 15.247(b)(3)	Pass
Power Spectral Density	47 CFR Part 15.247	47 CFR 15.247(e)	Pass
Emissions in non-restricted frequency bands	47 CFR Part 15.247	47 CFR 15.247(d)	Pass
Band edge emissions (Radiated)	47 CFR Part 15.247	47 CFR 15.247(d)	Pass
Emissions in restricted frequency bands (below 1GHz)	47 CFR Part 15.247	47 CFR 15.247(d)	Pass
Emissions in restricted frequency bands (above 1GHz)	47 CFR Part 15.247	47 CFR 15.247(d)	Pass



Test Configuration 4

Test Equipment List 4.1

Conducted Emission at AC power line							
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date		
Pulse Limiter	SCHWARZBECK	VTSD 9561-F	00953	2022-11-24	2023-11-23		
Coaxial Switcher	SCHWARZBECK	CX210	CX210	2022-11-24	2023-11-23		
V-LISN	SCHWARZBECK	NSLK 8127	01073	2022-11-24	2023-11-23		
LISN	AFJ	LS16/110VAC	16010020076	2023-02-23	2024-02-22		
EMI Receiver	ROHDE&SCHWA RZ	ESCI3	101422	2022-11-24	2023-11-23		

Occupied Bandwidth						
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date	
RFTest software	/	V1.00	/	/	/	
RF Control Unit	Techy	TR1029-1	/	2022-11-24	2023-11-23	
RF Sensor Unit	Techy	TR1029-2	/	2022-11-24	2023-11-23	
Programmable constant temperature and humidity box	ZZCKONG	ZZ-K02A	20210928007	2022-11-24	2023-11-23	
Adjustable Direct Current Regulated Power Supply	Dongguan Tongmen Electronic Technology Co., LTD	etm-6050c	20211026123	2022-11-24	2023-11-23	
WIDEBAND RADIO COMMNUNICATION TESTER	Rohde & Schwarz	CMW500	161997	2022-11-24	2023-11-23	
MXA Signal Analyzer	KEYSIGHT	N9020A	MY50410020	2022-11-24	2023-11-23	

Maximum Conducted Output Power							
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date		
RFTest software	/	V1.00	/	/	/		
RF Control Unit	Techy	TR1029-1	/	2022-11-24	2023-11-23		
RF Sensor Unit	Techy	TR1029-2	/	2022-11-24	2023-11-23		
Programmable constant temperature and humidity box	ZZCKONG	ZZ-K02A	20210928007	2022-11-24	2023-11-23		
Adjustable Direct Current Regulated Power Supply	Dongguan Tongmen Electronic Technology Co., LTD	etm-6050c	20211026123	2022-11-24	2023-11-23		
WIDEBAND RADIO COMMNUNICATION TESTER	Rohde & Schwarz	CMW500	161997	2022-11-24	2023-11-23		
MXA Signal Analyzer	KEYSIGHT	N9020A	MY50410020	2022-11-24	2023-11-23		

Power Spectral Density							
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date		
RFTest software	/	V1.00	/	/	/		

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RF Control Unit	Techy	TR1029-1	/	2022-11-24	2023-11-23
RF Sensor Unit	Techy	TR1029-2	/	2022-11-24	2023-11-23
Programmable constant temperature and humidity box	ZZCKONG	ZZ-K02A	20210928007	2022-11-24	2023-11-23
Adjustable Direct Current Regulated Power Supply	Dongguan Tongmen Electronic Technology Co., LTD	etm-6050c	20211026123	2022-11-24	2023-11-23
WIDEBAND RADIO COMMNUNICATION TESTER	Rohde & Schwarz	CMW500	161997	2022-11-24	2023-11-23
MXA Signal Analyzer	KEYSIGHT	N9020A	MY50410020	2022-11-24	2023-11-23

Emissions in non-restricted frequency bands							
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date		
RFTest software	/	V1.00	/	/	/		
RF Control Unit	Techy	TR1029-1	/	2022-11-24	2023-11-23		
RF Sensor Unit	Techy	TR1029-2	/	2022-11-24	2023-11-23		
Programmable constant temperature and humidity box	ZZCKONG	ZZ-K02A	20210928007	2022-11-24	2023-11-23		
Adjustable Direct Current Regulated Power Supply	Dongguan Tongmen Electronic Technology Co., LTD	etm-6050c	20211026123	2022-11-24	2023-11-23		
WIDEBAND RADIO COMMNUNICATION TESTER	Rohde & Schwarz	CMW500	161997	2022-11-24	2023-11-23		
MXA Signal Analyzer	KEYSIGHT	N9020A	MY50410020	2022-11-24	2023-11-23		

Band edge emissions (Radiated)							
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date		
Coaxial cable Multiflex 141	Schwarzbeck	N/SMA 0.5m	517386	2023-03-24	2024-03-23		
Preamplifier	SCHWARZBECK	BBV9744	00246	2022-11-24	2023-11-23		
RE Cable	REBES Talent	UF1-SMASMAM-1 0m	21101566	2022-11-24	2023-11-23		
RE Cable	REBES Talent	UF2-NMNM-10m	21101570	2022-11-24	2023-11-23		
RE Cable	REBES Talent	UF1-SMASMAM-1 m	21101568	2022-11-24	2023-11-23		
RE Cable	REBES Talent	UF2-NMNM-1m	21101576	2022-11-24	2023-11-23		
RE Cable	REBES Talent	UF2-NMNM-2.5m	21101573	2022-11-24	2023-11-23		
POSITIONAL CONTROLLER	SKET	PCI-GPIB	/	/	/		
Horn Antenna	SCHWARZBECK	BBHA9170	01157	2021-11-28	2023-11-27		
EMI TEST RECEIVER	ROHDE&SCHWA RZ	ESCI7	101032	2022-11-24	2023-11-23		
SIGNAL ANALYZER	ROHDE&SCHWA RZ	FSQ40	100010	2022-11-24	2023-11-23		

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POSITIONAL CONTROLLER	SKET	PCI-GPIB	/	/	/
Broadband Preamplilifier	SCHWARZBECK	BBV9718D	00008	2023-03-24	2024-03-23
Horn Antenna	SCHWARZBECK	BBHA9120D	2597	2022-05-22	2024-05-21
EZ_EMC	Frad	FA-03A2 RE+	/	/	/
POSITIONAL CONTROLLER	SKET	PCI-GPIB	/	/	/
Log periodic antenna	SCHWARZBECK	VULB 9168	01328	2021-11-28	2023-11-27

Emissions in restricted frequency bands (below 1GHz)						
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date	
Coaxial cable Multiflex 141	Schwarzbeck	N/SMA 0.5m	517386	2023-03-24	2024-03-23	
Preamplifier	SCHWARZBECK	BBV9744	00246	2022-11-24	2023-11-23	
RE Cable	REBES Talent	UF1-SMASMAM-1 0m	21101566	2022-11-24	2023-11-23	
RE Cable	REBES Talent	UF2-NMNM-10m	21101570	2022-11-24	2023-11-23	
RE Cable	REBES Talent	UF1-SMASMAM-1 m	21101568	2022-11-24	2023-11-23	
RE Cable	REBES Talent	UF2-NMNM-1m	21101576	2022-11-24	2023-11-23	
RE Cable	REBES Talent	UF2-NMNM-2.5m	21101573	2022-11-24	2023-11-23	
POSITIONAL CONTROLLER	SKET	PCI-GPIB	/	/	/	
Horn Antenna	SCHWARZBECK	BBHA9170	01157	2021-11-28	2023-11-27	
EMI TEST RECEIVER	ROHDE&SCHWA RZ	ESCI7	101032	2022-11-24	2023-11-23	
SIGNAL ANALYZER	ROHDE&SCHWA RZ	FSQ40	100010	2022-11-24	2023-11-23	
POSITIONAL CONTROLLER	SKET	PCI-GPIB	/	1	/	
Broadband Preamplilifier	SCHWARZBECK	BBV9718D	00008	2023-03-24	2024-03-23	
Horn Antenna	SCHWARZBECK	BBHA9120D	2597	2022-05-22	2024-05-21	
EZ_EMC	Frad	FA-03A2 RE+	/	/	/	
POSITIONAL CONTROLLER	SKET	PCI-GPIB	/	/	/	
Log periodic antenna	SCHWARZBECK	VULB 9168	01328	2021-11-28	2023-11-27	

Emissions in restricted frequency bands (above 1GHz)							
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date		
Coaxial cable Multiflex 141	Schwarzbeck	N/SMA 0.5m	517386	2023-03-24	2024-03-23		
Preamplifier	SCHWARZBECK	BBV9744	00246	2022-11-24	2023-11-23		
RE Cable	REBES Talent	UF1-SMASMAM-1 0m	21101566	2022-11-24	2023-11-23		
RE Cable	REBES Talent	UF2-NMNM-10m	21101570	2022-11-24	2023-11-23		
RE Cable	REBES Talent	UF1-SMASMAM-1 m	21101568	2022-11-24	2023-11-23		
RE Cable	REBES Talent	UF2-NMNM-1m	21101576	2022-11-24	2023-11-23		
RE Cable	REBES Talent	UF2-NMNM-2.5m	21101573	2022-11-24	2023-11-23		

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POSITIONAL CONTROLLER	SKET	PCI-GPIB	/	/	/
Horn Antenna	SCHWARZBECK	BBHA9170	01157	2021-11-28	2023-11-27
EMI TEST RECEIVER	ROHDE&SCHWA RZ	ESCI7	101032	2022-11-24	2023-11-23
SIGNAL ANALYZER	ROHDE&SCHWA RZ	FSQ40	100010	2022-11-24	2023-11-23
POSITIONAL CONTROLLER	SKET	PCI-GPIB	/	/	/
Broadband Preamplilifier	SCHWARZBECK	BBV9718D	00008	2023-03-24	2024-03-23
Horn Antenna	SCHWARZBECK	BBHA9120D	2597	2022-05-22	2024-05-21
EZ_EMC	Frad	FA-03A2 RE+	/	/	/
POSITIONAL CONTROLLER	SKET	PCI-GPIB	/	/	/
Log periodic antenna	SCHWARZBECK	VULB 9168	01328	2021-11-28	2023-11-27



4.2 Test Auxiliary Equipment

The EUT was tested as an independent device.

4.3 Test Modes

Temperature:	25.0 °C
Humidity:	56 % RH
Atmospheric Pressure:	1010 mbar
est Mode:	
Engineering mode:	Keep the EUT in continuous transmitting by select channel and modulations(The value of duty cycle is 90.56%) with Fully-charged battery.

plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. 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, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages.



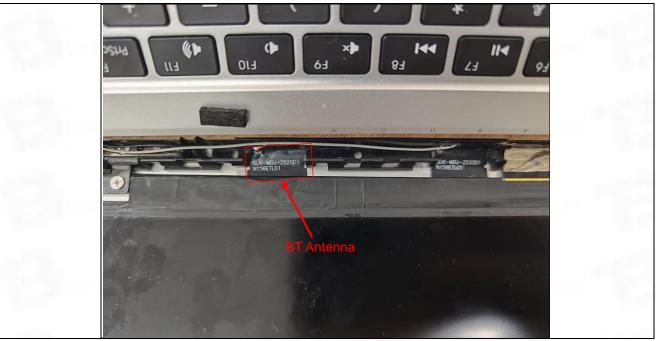
5 Evaluation Results (Evaluation)

5.1 Antenna requirement

Test Requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

5.1.1 Conclusion:





Radio Spectrum Matter Test Results (RF) 6

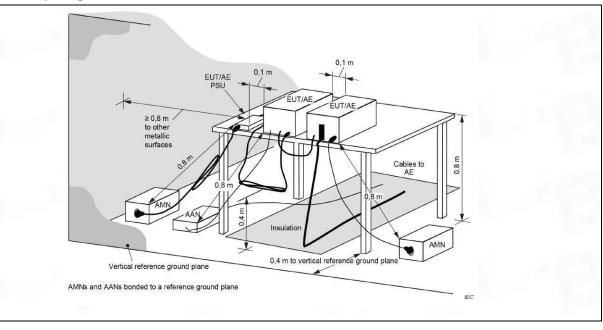
Conducted Emission at AC power line 6.1

Test Requirement:	Except as shown in paragraphs (b that is designed to be connected t frequency voltage that is conducte or frequencies, within the band 15	o the public utility (AC) ed back onto the AC po	power line, the radio wer line on any frequency		
	the following table, as measured ustabilization network (LISN).				
Test Method:	Refer to ANSI C63.10-2013 section 6.2, standard test method for ac power-line				
Test Method.	conducted emissions from unlicensed wireless devices				
	Frequency of emission (MHz)	Conducted limit (dE	3μV)		
		Quasi-peak	Average		
Test Limit:	0.15-0.5	66 to 56*	56 to 46*		
Test Limit.	0.5-5	56	46		
	5-30	60	50		
	*Decreases with the logarithm of t	he frequency.			

6.1.1 E.U.T. Operation:

Operating Environment:		
Temperature:	25.2 °C	
Humidity:	50.5 %	
Atmospheric Pressure:	1010 mbar	

6.1.2 Test Setup Diagram:



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4AVG

30.000

6.1.3 Test Data:

0.0 0.150

Line: Line / Band: 2.4G / BW: 1 / CH: M 80.0 dBuV Limit: AVG: 40 . Mulh<mark>a</mark>tudud Малия ¥¥

0.5

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1	*	0.1740	45.60	10.45	56.05	64.76	-8.71	QP
2		0.1980	29.21	10.45	39.66	53.69	-14.03	AVG
3		0.2900	17.62	10.47	28.09	50.52	-22.43	AVG
4		0.6060	28.25	10.53	38.78	56.00	-17.22	QP
5		0.8100	26.34	10.54	36.88	46.00	-9.12	AVG
6		0.8220	30.66	10.54	41.20	56.00	-14.80	QP
7		1.6220	16.77	10.65	27.42	46.00	-18.58	AVG
8		1.9380	27.26	10.70	37.96	56.00	-18.04	QP
9		3.2460	17.79	10.72	28.51	46.00	-17.49	AVG
10		3.5580	23.32	10.73	34.05	56.00	-21.95	QP
11		12.5180	7.71	11.02	18.73	50.00	-31.27	AVG
12		13.6900	19.38	11.10	30.48	60.00	-29.52	QP

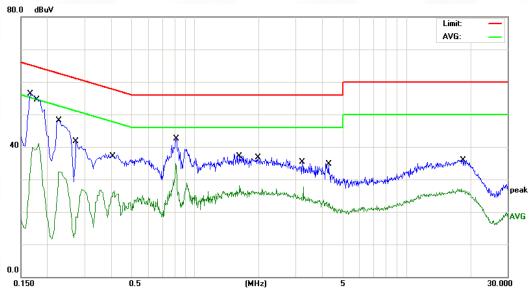
(MHz)

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Line: Neutral / Band: 2.4G / BW: 1 / CH: M



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1	*	0.1660	45.93	10.45	56.38	65.15	-8.77	QP
2		0.1819	30.60	10.45	41.05	54.39	-13.34	AVG
3		0.2300	21.81	10.46	32.27	52.45	-20.18	AVG
4		0.2740	31.20	10.47	41.67	60.99	-19.32	QP
5		0.4140	15.92	10.50	26.42	47.57	-21.15	AVG
6		0.8100	24.34	10.54	34.88	46.00	-11.12	AVG
7		0.8139	32.01	10.54	42.55	56.00	-13.45	QP
8		1.6220	17.39	10.65	28.04	46.00	-17.96	AVG
9		1.9820	25.99	10.71	36.70	56.00	-19.30	QP
10		3.2460	17.00	10.72	27.72	46.00	-18.28	AVG
11		4.2819	23.94	10.73	34.67	56.00	-21.33	QP
12		18.4740	24.84	11.10	35.94	60.00	-24.06	QP

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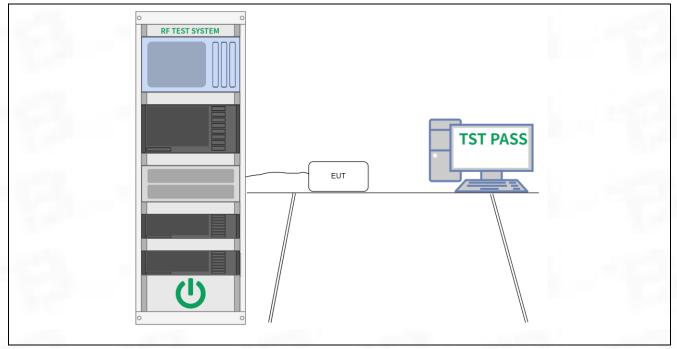
6.2 Occupied Bandwidth

Test Requirement:	Systems using digital modulation techniques may operate in the 902-928 MHz, and 2400-2483.5 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.	
Test Method: DTS bandwidth		
Test Limit:	Section (a)(2), Systems using digital modulation techniques may operate in the 902-928 MHz, and 2400-2483.5 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.	
Procedure:	 a) Set RBW = 100 kHz. b) Set the VBW >= [3 x RBW]. c) Detector = peak. d) Trace mode = max hold. e) Sweep = auto couple. f) Allow the trace to stabilize. g) 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. 	

6.2.1 E.U.T. Operation:

Operating Environment:	
Temperature:	25.8 °C
Humidity:	49.9 %
Atmospheric Pressure:	1010 mbar

6.2.2 Test Setup Diagram:



6.2.3 Test Data:

Please Refer to Appendix for Details.



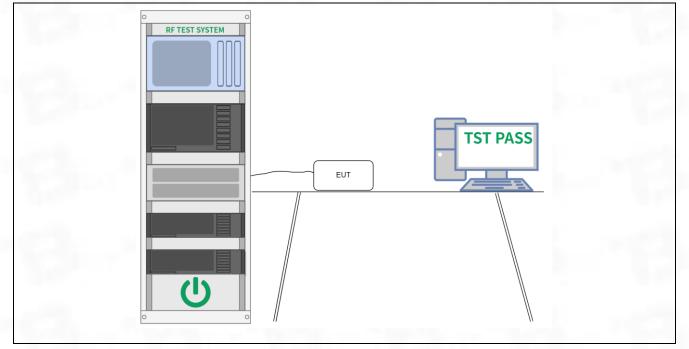
6.3 Maximum Conducted Output Power

Test Requirement:	For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.
Test Method:	Maximum peak conducted output power
Test Limit:	For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.
Procedure:	ANSI C63.10-2013, section 11.9.1 Maximum peak conducted output power
6.3.1 E.U.T. Operation:	

Operating Environment:	
Temperature:	25.8 °C
Humidity:	49.9 %
Atmospheric Pressure:	1010 mbar



6.3.2 Test Setup Diagram:



6.3.3 Test Data:

Please Refer to Appendix for Details.



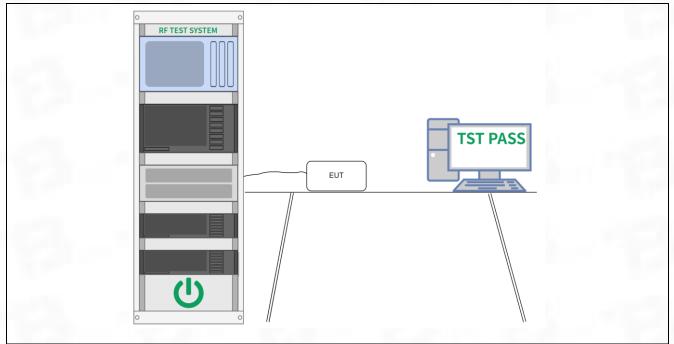
6.4 Power Spectral Density

Test Requirement:	For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.
Test Method:	Maximum power spectral density level in the fundamental emission
Test Limit:	For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

6.4.1 E.U.T. Operation:

Operating Environment:	
Temperature:	25.8 °C
Humidity:	49.9 %
Atmospheric Pressure:	1010 mbar

6.4.2 Test Setup Diagram:



6.4.3 Test Data:

Please Refer to Appendix for Details.



6.5 Emissions in non-restricted frequency bands

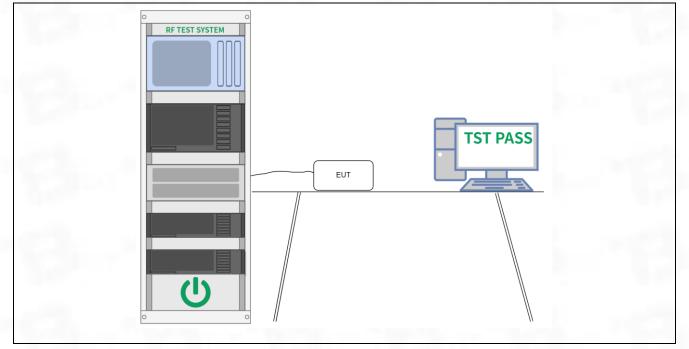
Test Requirement:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in § 15.209(a) is not required.
Test Method:	Emissions in nonrestricted frequency bands
Test Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in § 15.209(a) is not required.
Procedure:	ANSI C63.10-2013 Section 11.11.1, Section 11.11.2, Section 11.11.3

6.5.1 E.U.T. Operation:

Operating Environment:			
Temperature:	25.8 °C		
Humidity:	49.9 %		
Atmospheric Pressure:	1010 mbar		



6.5.2 Test Setup Diagram:



6.5.3 Test Data:

Please Refer to Appendix for Details.



6.6 Band edge emissions (Radiated)

Test Requirement:	In addition, radiated emissions which fall in the restricted bands, as defined in § $15.205(a)$, must also comply with the radiated emission limits specified in § $15.209(a)(see \ 15.205(c))$.				
Test Method:	Radiated emissions test	S			
	Frequency (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		
Test Limit:	88-216	150 **	3		
	216-960	200 **	3		
	Above 960	500	3		
	** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.				
Procedure:	ANSI C63.10-2013 sect	ion 6.6.4	and the second sec		
6.6.1 E.U.T. Operation					
-					

Operating Environment:					
Temperature:	22.1 °C				
Humidity:	46.3 %				
Atmospheric Pressure:	1010 mbar				



6.6.2 Test Data:

Test result for GFSK Mode (the worst case)

Frequency	Reading	Correct Factor	Emission Level	Limit	Margin	Polar	Detector
(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	H/V	
			Low Cha	nnel			
2390	60.00	-8.76	51.24	74	22.76	Н	PK
2390	53.13	-8.76	44.37	54	9.63	Н	AV
2390	63.22	-8.73	54.49	74	19.51	V	PK
2390	56.38	-8.73	47.65	54	6.35	V	AV
			High Cha	innel			
2483.5	61.88	-8.76	53.12	74	20.88	Η	PK
2483.5	56.58	-8.76	47.82	54	6.18	Η	AV
2483.5	63.53	-8.73	54.80	74	19.20	V	PK
2483.5	56.40	-8.73	47.67	54	6.33	V	AV



6.7 Emissions in restricted frequency bands (below 1GHz)

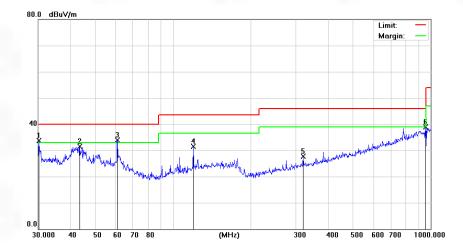
Test Requirement:	15.205(a), must also co	In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a)(see § 15.205(c)).					
Test Method:	Radiated emissions test	S					
	Frequency (MHz)	Field 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				
Test Limit:	88-216	150 **	3				
	216-960	200 **	3				
	Above 960	500	3				
	radiators operating unde 54-72 MHz, 76-88 MHz,	** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.					
Procedure:	ANSI C63.10-2013 sect	ion 6.6.4					
6.7.1 E.U.T. Operation	n:	1 - C - C - C - C - C - C - C - C - C -					

Operating Environment:	
Temperature:	22.1 °C
Humidity:	46.3 %
Atmospheric Pressure:	1010 mbar



6.7.2 Test Data:

Note: All the mode have been tested, and only the worst case of 1M mode are in the report Polarization: Horizontal / Band: 2.4G / BW: 1 / CH: H

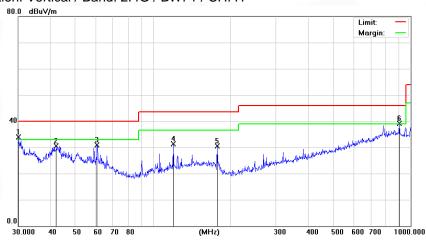


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	İ	30.2111	31.48	2.19	33.67	40.00	-6.33	QP
2		43.5057	28.35	3.08	31.43	40.00	-8.57	QP
3	*	60.9176	32.20	1.73	33.93	40.00	-6.07	QP
4		119.8556	30.36	1.16	31.52	43.50	-11.98	QP
5		319.9370	24.97	2.81	27.78	46.00	-18.22	QP
6		955.4381	23.91	15.08	38.99	46.00	-7.01	QP

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Polarization: Vertical / Band: 2.4G / BW: 1 / CH: H

	No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
			MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
-	1	*	30.0000	50.60	-16.61	33.99	40.00	-6.01	QP
1	2		42.1542	47.06	-16.52	30.54	40.00	-9.46	QP
	3		60.7044	47.65	-16.70	30.95	40.00	-9.05	QP
-	4		119.8556	48.06	-16.83	31.23	43.50	-12.27	QP
	5		177.5092	47.31	-16.81	30.50	43.50	-13.00	QP
	6	İ	903.3094	53.85	-14.66	39.19	46.00	-6.81	QP



6.8 Emissions in restricted frequency bands (above 1GHz)

Test Requirement:		ssions which fall in the restricted mply with the radiated emission (c)).			
Test Method:	Radiated emissions test	S			
	Frequency (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		
Test Limit:	88-216	150 **	3		
	216-960	200 **	3		
	Above 960	500	3		
	** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.				
Procedure:	ANSI C63.10-2013 sect	ion 6.6.4			
6.8.1 E.U.T. Operation	n:	The second second			

Operating Environment:	
Temperature:	22.1 °C
Humidity:	46.3 %
Atmospheric Pressure:	1010 mbar



6.8.2 Test Data:

	F ace a			Low cha	annel: 2402 1	MHz		
	Freq. (MHz)	Ant.Pol	Emission Level(dBuV)		Limit 3m(dBuV/m)		Over(dB)	
		H/V	PK	AV	PK	AV	PK	AV
	4804	V	60.62	39.82	74	54	-13.38	-14.18
	7206	V	59.08	39.19	74	54	-14.92	-14.81
	4804	Н	58.50	40.89	74	54	-15.50	-13.11
	7206	Н	59.28	40.28	74	54	-14.72	-13.72

_	Middle channel: 2440MHz								
Freq.	Ant.Pol	Emission l	_evel(dBuV)	Limit 3m	(dBuV/m)	Ove	r(dB)		
(MHz)	H/V	PK	AV	PK	AV	PK	AV		
4880	V	59.29	41.57	74	54	-14.71	-12.43		
7320	V	58.08	40.09	74	54	-15.92	-13.91		
4880	Н	59.66	40.91	74	54	-14.34	-13.09		
7320	Н	59.21	40.21	74	54	-14.79	-13.79		

E	High channel: 2480 MHz							
Freq.	Ant.Pol	Emission L	_evel(dBuV)	Limit 3m	(dBuV/m)	Ove	r(dB)	
(MHz)	H/V	PK	AV	PK	AV	PK	AV	
4960	V	60.49	41.78	74	54	-13.51	-12.22	
7440	V	58.01	39.08	74	54	-15.99	-14.92	
4960	Н	59.66	39.29	74	54	-14.34	-14.71	
7440	Н	59.20	40.20	74	54	-14.80	-13.80	

Note:

1. All emissions not reported were more than 20dB below the specified limit or in the noise floor.

2. Emission Level= Reading Level+Probe Factor +Cable Loss.

Data of measurement within this frequency range shown "--" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.



Appendix

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1. Bandwidth

1.1 BW

1.1.1 Test Result

BLE 1M

Test channel	6dB Emission Bandwidth (kHz)				
Test channel	BT LE mode	Limit	Result		
Lowest	0.629	>500k			
Middle	0.634	>500k	PASS		
Highest	0.633	>500k			

BLE 2M

Test shapped	6dB Emission Bandwidth (kHz)				
Test channel	BT LE mode	Limit	Result		
Lowest	1.11	>500k			
Middle	1.12	>500k	PASS		
Highest	1.125	>500k			



1.1.2 Test Graph



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	zer 1	• +							
EYSIGHT	Input: RF Coupling: DC Align: Auto	Input Z: 50 Ω Corr CCorr Freq Ref: Int (S)	Atten: 30 dB	Trig: Free Run Gate: Off #IF Gain: Low	Center Fre Avg Hold: Radio Std				
Graph				Ref LvI Offset 4			M	(r3 2.4803	
ale/Div 10.0	dB			Ref Value 24.29					-0.43 dB
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5.7 		~~ ·						مردداري مي مردر مردر مردر	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
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es BW 100.0 1etrics	0 kHz v							Sweep 1.33	ms (10001 p
ieules									
	Occupied Ba	andwidth				Measure Trace	Trace 1		
	- o ooupica Da	1.0462 MHz				Total Power		12.0 dBm	
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									j 🗔 📈
		-6		dth NVNT BLE	E 2M 240)2MHz Ant1			j oc 🗡
ectrum Analy. cupied BW	zer 1	-6 • +	dB Bandwid						
ectrum Analy. cupied BW EYSIGHT	zer 1 Input: RF Coupling: DC	-6 • + Input Z: 50 Ω Corr CCorr		Trig: Free Run Gate: Off	Center Fre	eq: 2.402000000 GHz 100/100			
ectrum Analy. cupied BW EYSIGHT	zer 1 Input: RF	-6 • + Input Z: 50 Ω	dB Bandwid	Trig: Free Run	Center Fre	eq: 2.402000000 GHz 100/100			
ectrum Analy, cupied BW EYSIGHT - +-	zer 1 Input: RF Coupling: DC Align: Auto	-6 • + Input Z: 50 Ω Corr CCorr	dB Bandwid	Trig: Free Run Gate: Off	Center Fre Avg Hold: Radio Std	eq: 2.402000000 GHz 100/100	Mł	r3 2.4025	
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ectrum Analy; cupied BW EYSIGHT - + - Graph ale/Div 10.0	zer 1 Input: RF Coupling: DC Align: Auto	-6 Input Z: 50 Ω Corr Corr Freq Ref: Int (S)	Atten: 30 dB	Trig: Free Run Gate: Off #IF Gain: Low Ref LvI Offset 4	Center Fre Avg Hold: Radio Std 19 dB dBm	aq 2.402000000 GHz 100/100 : None	3		
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ectrum Analy; cupied BW EYSIGHT 	zer 1 Input: RF (Coupling: DC Align: Auto	-6 Input Z: 50 Ω Corr Corr Freq Ref: Int (S)	Atten: 30 dB	Trig: Free Run Gate: Off #IF Gain: Low Ref LvI Offset 4 Ref Value 24.19	Center Fre Avg Hold: Radio Std 19 dB dBm	aq 2.402000000 GHz 100/100 : None	3		0.40 dB
ectrum Analyticupied BW EYSIGHT EYSIGHT araph sale/Div 10.0 9 42 19 81 5.8	zer 1 Input: RF (Coupling: DC Align: Auto	-6 Input Z: 50 Ω Corr Corr Freq Ref: Int (S)	Atten: 30 dB	Trig: Free Run Gate: Off #IF Gain: Low Ref LvI Offset 4 Ref Value 24.19	Center Fre Avg Hold: Radio Std 19 dB dBm	aq 2.402000000 GHz 100/100 : None	3		0.40 dB
ectrum Analy; cupied BW EYSIGHT L Graph ale/Div 10.0 9 4 2 19 81 5.8 5.8 5.8 5.8 5.8	zer 1 Input: RF (Coupling: DC Align: Auto	-6 Input Z: 50 Ω Corr Corr Freq Ref: Int (S)	Atten: 30 dB	Trig: Free Run Gate: Off #IF Gain: Low Ref LvI Offset 4 Ref Value 24.19	Center Fre Avg Hold: Radio Std 19 dB dBm	aq 2.402000000 GHz 100/100 : None	3		0.40 dB
ectrum Analy; cupied BW EYSIGHT L Graph ale/Div 10.0 09 42 19 81 42 58 58 58 58 58 58 58 58 58 58	zer 1 Coupling: DC Align: Auto dB	-6 Input Z: 50 Ω Corr Corr Freq Ref: Int (S)	Atten: 30 dB	Trig: Free Run Gate: Off #IF Gain: Low Ref Lvl Offset 4 Ref Value 24.19	Center Frr Avg Hold: Radio Sld 19 dB dBm	aq 2.402000000 GHz 100/100 : None	3		0.40 dB
ectrum Analyzi cupied BW EYSIGHT 	zer 1 Input: RF Coupling DC Align: Auto dB dB 0 GHz	-6 Input Z: 50 Ω Corr Corr Freq Ref: Int (S)	Atten: 30 dB	Trig: Free Run Gate: Off #IF Gain: Low Ref LvI Offset 4 Ref Value 24.19	Center Frr Avg Hold: Radio Sld 19 dB dBm	aq 2.402000000 GHz 100/100 : None	3	xr3 2.4025	0.40 dB
ectrum Analy; cupied BW EYSIGHT L Graph ale/Div 10.0 9 4 2 19 81 5.8 5.8 5.8 5.8 5.8	zer 1 Input: RF Coupling DC Align: Auto dB dB 0 GHz	-6 Input Z: 50 Ω Corr Corr Freq Ref: Int (S)	Atten: 30 dB	Trig: Free Run Gate: Off #IF Gain: Low Ref Lvl Offset 4 Ref Value 24.19	Center Frr Avg Hold: Radio Sld 19 dB dBm	aq 2.402000000 GHz 100/100 : None	3	xr3 2.4025	0.40 dB
ectrum Analyzicupied BW EYSIGHT L ++ sale/Div 10.0 9 42 42 42 42 42 5.8 5.8 5.8 5.8 5.8 5.8 5.8 5.8 5.8 5.8	zer 1 Input: RF Coupling: DC Align: Auto dB dB 0 GHz 0 KHz V	-6 Input Z: 50 Ω Corr Corr Freq Ref: Int (S)	Atten: 30 dB	Trig: Free Run Gate: Off #IF Gain: Low Ref Lvl Offset 4 Ref Value 24.19	Center Frr Avg Hold: Radio Sld 19 dB dBm	aq 2.402000000 GHz 100/100 : None	3	xr3 2.4025	0.40 dB
ectrum Analy cupied BW EYSIGHT - - - - - - - - - - - - -	zer 1 Input: RF Coupling: DC Align: Auto dB 0 GHz 0 GHz 0 Hz	-6 Input Z: 50 Ω Corr Corr Freq Ref: Int (S)	Atten: 30 dB	Trig: Free Run Gate: Off #IF Gain: Low Ref Lvl Offset 4 Ref Value 24.19	Center Frr Avg Hold: Radio Sld 19 dB dBm	sq 2.402000000 GHz 100/100 : None	3	xr3 2.4025	0.40 dB
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ectrum Analy cupied BW EYSIGHT - - - - - - - - - - - - -	zer 1 Input: RF Coupling: DC Align: Auto dB dB 0 GHz 0 GHz 0 KHz	-6 Input Z: 50 Ω Corr Corr Freq Ref: Int (S)	Atten: 30 dB	Trig: Free Run Gate: Off #IF Gain: Low Ref Lvl Offset 4 Ref Value 24.19	Center Frr Avg Hold: Radio Sld 19 dB dBm	eq 2.402000000 GHz 100/100 : None	3	xr3 2.4025	0.40 dB

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ectrum Analy	yzer 1	• +				10MHz Ant1			
CUPIED BW	Input: RF	Input Z: 50 Ω	Atten: 30 dB	Trig: Free Run	Center Fre	eq: 2.440000000 GHz			
. + > -	Coupling: DC Align: Auto	Corr CCorr Freq Ref: Int (S)		Gate: Off #IF Gain: Low	Avg Hold: Radio Std:	200/200			
Graph				Ref LvI Offset 4			Mk	r3 2.44054	
ale/Div 10.0) dB			Ref Value 24.22	2 dBm				0.13 dB
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	Occupied Ba	andwidth				Measure Trace	Trace 1		
		1.8676 MHz				Total Power		13.0 dBm	
	Transmit Fre x dB Bandwi		-12.301 kHz 1.120 MHz			% of OBW Power x dB		99.00 % -6.00 dB	
5		Sep 11, 2023	\frown						
15	C []	7:29:15 PM			E 2M 249	20MHz Apt1			
ectrum Analy		-6		ḋth NVNT BL	E 2M 248	30MHz Ant1			
ectrum Analy cupied BW	yzer 1	-6 • +	dB Bandwic						
ectrum Analy cupied BW	yzer 1 Input: RF Coupling: DC	-6 • + Input Z: 50 Ω Corr CCorr		Trig: Free Run Gate: Off	Center Fre Avg Hold:	eq: 2.48000000 GHz 100/100			
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ectrum Analy cupied BW SYSIGHT +>+	yzer 1 Input: RF Coupling: DC Align: Auto	-6 • + Input Z: 50 Ω Corr CCorr	dB Bandwic	Trig: Free Run Gate: Off #IF Gain: Low Ref LvI Offset 4	Center Fre Avg Hold: Radio Std: 1.29 dB	eq: 2.48000000 GHz 100/100	Mk	r3 2.4805	
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Errum Analy supied BW EYSIGHT Fraph ale/Div 10.0 9 3 29 11 7 7	yzer 1 Input: RF Coupling: DC Align: Auto	Input Z: 50 Ω Corr CCorr Freq Ref: Int (S)	dB Bandwic	Trig: Free Run Gate: Off #IF Gain: Low Ref LvI Offset 4 Ref Value 24.25	Center Fre Avg Hold: Radio Std: 4.29 dB 0 dBm	aq: 2 480000000 GHz 100/100 None	3	r3 2.4805	
sraph	yzer 1 Input: RF Coupling: DC Align: Auto	Input Z: 50 Ω Corr CCorr Freq Ref: Int (S)	dB Bandwic	Trig: Free Run Gate: Off #IF Gain: Low Ref LvI Offset 4 Ref Value 24.25	Center Fre Avg Hold: Radio Std: 4.29 dB 0 dBm	aq: 2 480000000 GHz 100/100 None	3	r3 2.4805	
ectrum Analy cupied BW EYSIGHT ale/Div 10.0 99 3 	yzer 1 Input: RF Coupling: DC Align: Auto	Input Z: 50 Ω Corr CCorr Freq Ref: Int (S)	dB Bandwic	Trig: Free Run Gate: Off #IF Gain: Low Ref LvI Offset 4 Ref Value 24.25	Center Fre Avg Hold: Radio Std: 4.29 dB 0 dBm	aq: 2 480000000 GHz 100/100 None	3	r3 2.4805	
sctrum Analy supied BW EYSIGHT ale/Div 10.0 9 3 3 4 7 7 7 7 7 7 7 7 7 7	yzer 1 Input RF Coupling DC Align: Auto	Input Z: 50 Ω Corr CCorr Freq Ref: Int (S)	dB Bandwic	Trig: Free Run Gate: Off #IF Gain: Low Ref LvI Offset 4 Ref Value 24.25	Center Fre Avgittold: Radio Std 1.29 dB 9 dBm 1	aq: 2 480000000 GHz 100/100 None	3	r3 2.4805	
sctrum Analy supied BW EYSIGHT ale/Div 10.0 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	yzer 1 Input: RF Coupling: DC Align: Auto	Input Z: 50 Ω Corr CCorr Freq Ref: Int (S)	dB Bandwic	Trig: Free Run Gate: Off #IF Gain: Low Ref Lvl Offset 4 Ref Value 24.25	Center Fre Avgittold: Radio Std 1.29 dB 9 dBm 1	aq: 2 480000000 GHz 100/100 None	3	r3 2.4805	-1.06 dB
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sctrum Analy supied BW EYSIGHT ale/Div 10.0 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	yzer 1 Input: RF Coupling: DC Align: Auto 0 dB	-6 Input Z: 50 Q Corr Corr Freq Ref: Int (S)	dB Bandwic	Trig: Free Run Gate: Off #IF Gain: Low Ref Lvl Offset 4 Ref Value 24.25	Center Fre Avgittold: Radio Std 1.29 dB 9 dBm 1	aq: 2 480000000 GHz 100/100 None	3	r3 2.48055	-1.06 dB
sctrum Analy supied BW EYSIGHT ale/Div 10.0 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	yzer 1 Input: RF Coupling: DC Align: Auto	-6 Input Z: 50 Q Corr Corr Freq Ref: Int (S)	dB Bandwic	Trig: Free Run Gate: Off #IF Gain: Low Ref Lvl Offset 4 Ref Value 24.25	Center Fre Avgittold: Radio Std 1.29 dB 9 dBm 1	2,480000000 GHz 100/100 None	3	r3 2.48055	-1.06 dB
ectrum Analy cupied BW	yzer 1 Input RF Couping DC Align: Auto 0 dB 0 dB 00 GHz 00 GHz 00 kHz V Cocupied Ba Transmit Fre	-6 Input Z: 50 Ω Corr Corr Freq Ref: Int (S)	Atten: 30 dB	Trig: Free Run Gate: Off #IF Gain: Low Ref Lvl Offset 4 Ref Value 24.25	Center Fre Avgittold: Radio Std 1.29 dB 9 dBm 1	A 2 480000000 GHz 100/100 None	3	r3 2.48055	-1.06 dB
sctrum Analy supied BW EYSIGHT ale/Div 10.0 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	yzer 1 Input RF Coupling DC Align: Auto	-6 Input Z: 50 Ω Corr Corr Freq Ref: Int (S)	Atten: 30 dB	Trig: Free Run Gate: Off #IF Gain: Low Ref Lvl Offset 4 Ref Value 24.25	Center Fre Avgittold: Radio Std 1.29 dB 9 dBm 1	eq: 2.480000000 GHz 100/100 None	3	r3 2.48055	-1.06 dB

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2. Maximum Conducted Output Power

2.1 Power

2.1.1 Test Result

	BLE 1M		
Test channel	Maximum Conducted Output Power (dBm)	Limit (dBm)	Result
Lowest	3.59	30.00	PASS
Middle	3.27	30.00	PASS
Highest	2.76	30.00	PASS

BLE 2M					
Test channel	Maximum Conducted Output Power (dBm)	Limit (dBm)	Result		
Lowest	6.5	30.00	PASS		
Middle	6.08	30.00	PASS		
Highest	5.53	30.00	PASS		



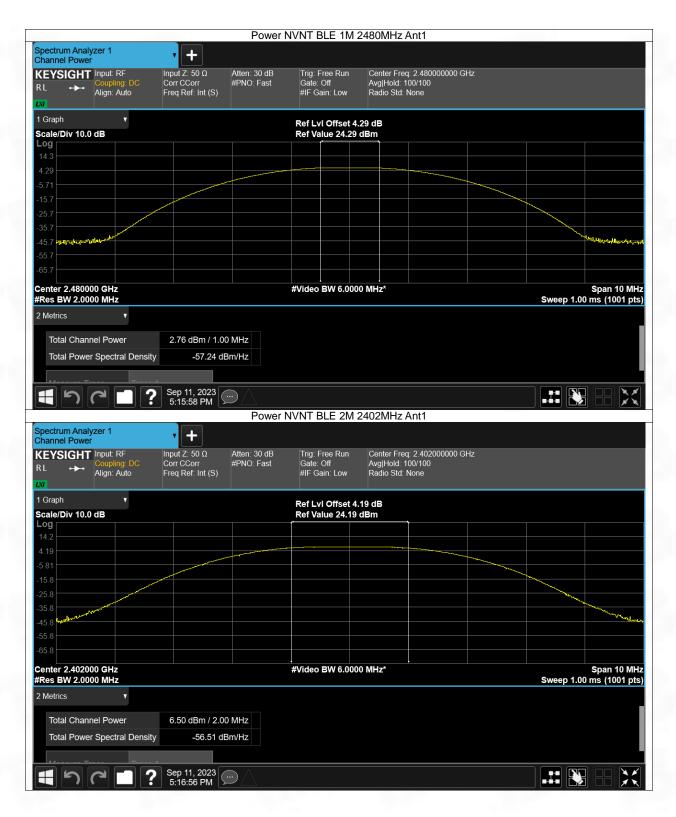
2.1.2 Test Graph



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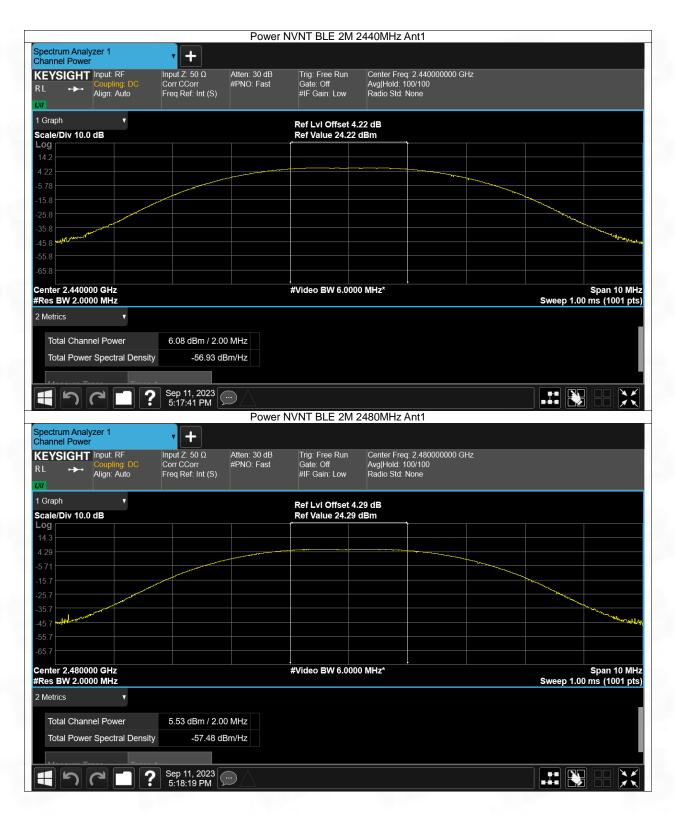
F101, 201 and 301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Street, Bao'an District, Shenzhen, China





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3. Maximum Power Spectral Density

3.1 PSD

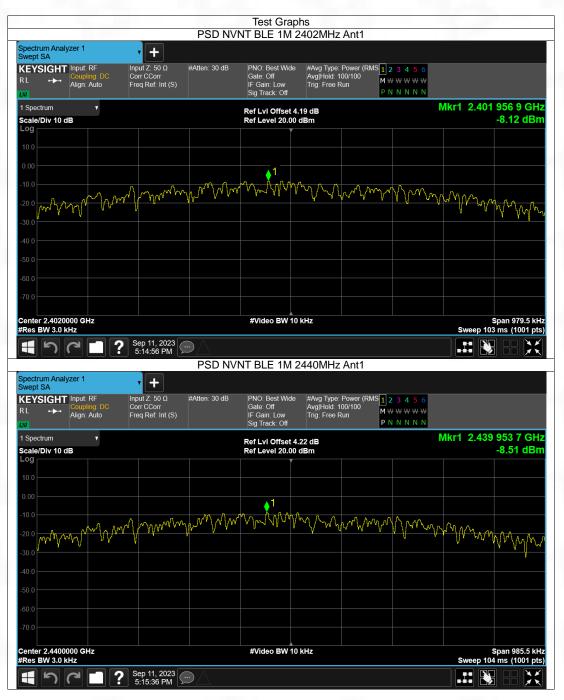
3.1.1 Test Result

Test channel	Power Spectral D	ensity (dBm/3kHz)	
rest channel	BLE 1M	Limit	Result
Lowest	-8.12	8 dBm/3kHz	
Middle	-8.51	8 dBm/3kHz	PASS
Highest	-8.8	8 dBm/3kHz	

Test channel	Power Spectral D	ensity (dBm/3kHz)	
Test channel	BLE 2M	Limit	Result
Lowest	-11	8 dBm/3kHz	
Middle	-11.61	8 dBm/3kHz	PASS
Highest	-11.86	8 dBm/3kHz	



3.1.2 Test Graph



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			PSD NV	NT BLE 1M 2	480MHz Ant1			
Spectrum Analyzer 1 Swept SA		• +						
KEYSIGHT Input:	ing: DC 🛛 🕻	nput Z: 50 Ω Corr CCorr Freq Ref: Int (S)	#Atten: 30 dB	PNO: Best Wide Gate: Off IF Gain: Low Sig Track: Off	#Avg Type: Power (R Avg Hold: 100/100 Trig: Free Run	MS <mark>1</mark> 23456 M₩₩₩₩₩₩ PNNNNN		
Spectrum	•			Ref LvI Offset 4.2	29 dB		Mkr1 2.479 95	
Scale/Div 10 dB				Ref Level 20.00 c	dBm		-8.	79 dBr
10.0 20.0 70.0	r~^r/	1 mar	www.Wa		\sim	wyhwy	MM MM	MM
40.0								
70.0 Senter 2.4800000 GH	łz			#Video BW 10	kHz		Span	1.022 MF
	2	Sep 11, 2023 5:16:15 PM			402MHz Ant1		Sweep 108 ms	(1001 pt
Pectrum Analyzer 1 wept SA (EYSIGHT Input: kL	RF I ing: DC 0	Sep 11, 2023 5:16:15 PM		NT BLE 2M 2 PNO: Best Wide Gate: Off IF Gain: Low	402MHz Ant1 #Avg Type: Power (R Avg Hold: 100/100 Trig: Free Run	$M \leftrightsquigarrow \Cup \Downarrow \Downarrow \Downarrow $		(1001 pt
Pectrum Analyzer 1 wept SA EFYSIGHT IL ++ V	RF I ing: DC 0	The second seco	PSD NV	NT BLE 2M 2 PNO: Best Wide Gate: Off	#Avg Type: Power (R Avg Hold: 100/100 Trig: Free Run		Mkr1 2.401 96	1 9 GH
Spectrum Analyzer 1 wept SA KEYSIGHT Align: X Spectrum Scale/Div 10 dB	RF I ing: DC C Auto F	The second seco	PSD NV	NT BLE 2M 2 PNO: Best Wide Gate: Off IF Gain: Low Sig Track: Off	#Avg Type: Power (R Avg Hold: 100/100 Trig: Free Run 19 dB	$M \leftrightsquigarrow \Cup \Downarrow \Downarrow \Downarrow $	Mkr1 2.401 96	1 9 GH
Spectrum Analyzer 1 Spectrum Analyzer 1 Align: X X X X Spectrum Spectru	RF I ing: DC C Auto F	The second seco	PSD NV	NT BLE 2M 2 PNO: Best Wide Gate: Off IF Gain: Low Sig Track: Off Ref Lvi Offset 4.	#Avg Type: Power (R Avg Hold: 100/100 Trig: Free Run 19 dB	$M \leftrightsquigarrow \Cup \Downarrow \Downarrow \Downarrow $	Mkr1 2.401 96	1 9 GH
Spectrum Analyzer 1 wept SA KEYSIGHT Input KEYSIGHT Aign: v Spectrum Scale/Div 10 dB 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	RF I Ing DC 0 Auto F	nput Z: 50 Ω Jorr CCorr req Ref: Int (S)	#Atten: 30 dB	NT BLE 2M 2 PNO: Best Wide Gate: Off IF Gain: Low Sig Track: Off Ref LvI Offset 4. Ref Level 20.00 of 1	#Avg Type: Power (R Avg Hold: 100/100 Trig: Free Run 19 dB	$M \leftrightsquigarrow \Cup \Downarrow \Downarrow \Downarrow $	Mkr1 2.401 96	1 9 GH
spectrum Analyzer 1 wept SA Coupl KL ···· Align: vi Spectrum cale/Div 10 dB 	RF I Ing DC 0 Auto F	The second seco	#Atten: 30 dB	NT BLE 2M 2 PNO: Best Wide Gate: Off IF Gain: Low Sig Track: Off Ref LvI Offset 4. Ref Level 20.00 of 1	#Avg Type: Power (R Avg Hold: 100/100 Trig: Free Run 19 dB	$M \leftrightsquigarrow \Cup \Downarrow \Downarrow \Downarrow $	Mkr1 2.401 96	1 9 GH
Res BW 3.0 kHz Image: Sectrum Analyzer 1	RF I Ing DC 0 Auto F	nput Z: 50 Ω Jorr CCorr req Ref: Int (S)	#Atten: 30 dB	NT BLE 2M 2 PNO: Best Wide Gate: Off IF Gain: Low Sig Track: Off Ref LvI Offset 4. Ref Level 20.00 of 1	#Avg Type: Power (R Avg Hold: 100/100 Trig: Free Run 19 dB	$M \leftrightsquigarrow \Cup \Downarrow \Downarrow \Downarrow $	Mkr1 2.401 96	1 9 GH
	RF I Ing DC 0 Auto F	nput Z: 50 Ω Jorr CCorr req Ref: Int (S)	#Atten: 30 dB	NT BLE 2M 2 PNO: Best Wide Gate: Off IF Gain: Low Sig Track: Off Ref LvI Offset 4. Ref Level 20.00 of 1	#Avg Type: Power (R Avg Hold: 100/100 Trig: Free Run 19 dB	$M \leftrightsquigarrow \Cup \Downarrow \Downarrow \Downarrow $	Mkr1 2.401 96	1 9 GH
Coupling Coupling	RF ing DC Auto	nput Z: 50 Ω Jorr CCorr req Ref: Int (S)	#Atten: 30 dB	NT BLE 2M 2 PNO: Best Wide Gate: Off IF Gain: Low Sig Track: Off Ref LvI Offset 4. Ref Level 20.00 of 1	#Avg Type: Power (R Avg Hold 100/100 Trig: Free Run 19 dB 18m	$M \leftrightsquigarrow \Cup \Downarrow \Downarrow \Downarrow $	Mkr1 2.401 96 -11.	1 9 GH 00 dBr

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EEYSIGHT mod. RF Appr. Aub mod. 2.50 å med. Ref. Int (S)				PSD NVI	NT BLE 2M 2	440MHz /	Ant1	
tit ••• Marken Aub Card Card and the set of the s	Swept SA							
Leaker VI 10 dB Ref Level 20.00 dBm -11.61 dBm -11.		Coupling: DC	Corr CCorr	#Atten: 30 dB	Gate: Off IF Gain: Low	Avg Hold: 10	n M₩₩₩₩₩	
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000 0	Scale/Div 10 dB				Ref Level 20.00 (dBm		-11.61 dBff
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Res BW 3.0 kHz Sweep 175 ms (1001 pts 5:18:05 PM Image: Constraint of the system of the sy								
PSD NVNT BLE 2M 2480MHz Ant1 pectrum Analyzer 1 wept SA EYSIGHT Input RF Chughne DC Align Auto DC Align A					#Video BW 10	KHZ		Span 1.659 MH Sweep 175 ms (1001 pts
PSD NVNT BLE 2M 2480MHz Ant1 pectrum Analyzer 1 wept SA EYSIGHT Input RF Chughne DC Align Auto DC Align A	1 50		Sep 11, 2023 5:18:05 PM	$\Box \triangle$				
Weept SA Imput Z 50 ar CEY_SIGHT Input Z 50 ar Align Auto Imput Z 50 ar Spectrum Ref Lvi Offset 4.29 dB Ref Lvi Offset 4.29 dB Mkr1 2.480 000 0 GHz Spectrum Ref Lvi Offset 4.29 dB Company Sector Ref Lvi Offset 4.29 dB Ref Lvi Offset 4.29 dB Mkr1 2.480 000 0 GHz Spectrum Imput Sector Company Sector Ref Lvi Offset 4.29 dB Ref Lvi Offset 4.29 dB Mkr1 2.480 000 0 GHz Spectrum Imput Sector Company Sector Imput Sector Company Sector Ref Lvi Offset 4.29 dB Ref Lvi Offset 4.29 dB Imput Sector Company Sector Imput Sector Company Sector Imput Sector Company Sector Imput Sector Company Sector Ref Lvi Offset 4.29 dB Market Sector Imput Sector Company Sector Imput Sector Company Sector Imput Sector Company Sector Imput Sector Company Sector Imput Sector Sector Imput Sector Sector <	_			PSD NV	NT BLE 2M 2	480MHz /	Ant1	
RL Image: Control of	Spectrum Analyz Swept SA	er 1						
Cale/Div 10 dB Ref Level 20.00 dBm -11.86 dBm -11.86 dBm -1.86	Coupling: DC	Corr CCorr	#Atten: 30 dB	Gate: Off IF Gain: Low	Avg Hold: 10	n M₩₩₩₩₩₩		
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0.00 10 20 30 40 40 50 60 60 60 70 60 60 60 60 60 60 60 60 60 6	Log				Ĭ			
100 200 200 200 200 200 200 200								
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50 0 60 0 70 0 Eenter 2.4800000 GHz Res BW 3.0 kHz Sweep 175 ms (1001 pts Sweep 175 ms (1001 pts Sweep 175 ms (1001 pts Sweep 175 ms (1001 pts) Sweep 175 ms (1001	-30.0							
60 0 70 0 Renter 2.4800000 GHz Res BW 3.0 kHz Sweep 175 ms (1001 pts Sweep 175 ms (1001 pts Sweep 175 ms (1001 pts								
70 0 Fenter 2.4800000 GHz Res BW 3.0 kHz Sweep 175 ms (1001 pts Sweep 11, 2023								
Renter 2.4800000 GHz #Video BW 10 kHz Span 1.659 MH Res BW 3.0 kHz Sweep 175 ms (1001 pts Sep 11, 2023								
Res BW 3.0 kHz Sweep 175 ms (1001 pts								
- Sep 11. 2023								
	.50.0 .60.0 .70.0 Center 2.480000	10 GHz			#Video BW 10	kHz		Span 1.659 MH

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4. Unwanted Emissions In Non-restricted Frequency Bands

4.1.1Test Result(PASS)

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4.1.2 Test Graph



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Spectrum Anal		Ba	and Edge N	VNT BLE 1M	2480MHZ	Ant1 Ref			
Swept SA	lyzer 1	• +							
KEYSIGHT	Input: RF Coupling: DC Align: Auto	Input Ζ: 50 Ω Corr CCorr Freq Ref: Int (S)	#Atten: 30 dB	PNO: Best Wide Gate: Off IF Gain: Low Sig Track: Off	#Avg Type: Po Avg Hold: 100 Trig: Free Rur	ower (RMS <mark>1</mark> 23 /100 M ₩ ₩	456 ₩₩₩ NNN		
Spectrum	•			Ref LvI Offset 4.	20 dB			Mkr1 2.4	79 768 GH
Scale/Div 10 o	dB			Ref Level 20.00					5.25 dBr
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					~~~				
					hy h				
				+/-+	$\rightarrow$				
					$\longrightarrow$				
30.0			^	- A	4	~~~			
40.0									
			harr			Manna.	<u>ر</u>		
50.0 100 mm	mmm	when				¥.	munt	month	man
60.0									
enter 2.4800	000 GHz			#Video BW 300	kHz				Span 8.000 MH
Res BW 100	kHz	Sep 11, 2023 7:26:37 PM						Sweep 1.0	0 ms (1001 pt
Spectrum Anal	iyzer i	<b>v</b> +							
KEYSIGHT	Coupling: DC	Input Z: 50 Ω Corr CCorr Freq Ref: Int (S)	#Atten: 30 dB	PNO: Fast Gate: Off JE Gain: Low	Avg Hold: 100	ower (RMS <mark>1</mark> 23 √100 M ₩ ₩	456 ₩₩₩₩		
KEYSIGHT	Input: RF Coupling: DC Align: Auto		#Atten: 30 dB	Gate: Off IF Gain: Low Sig Track: Off	Avg Hold: 100 Trig: Free Rur	/100 M ₩ ₩		Mkr1 2	2.480 0 GH
KEYSIGHT	Coupling: DC Align: Auto	Corr CCorr	#Atten: 30 dB	Gate: Off IF Gain: Low	Avg Hold: 100 Trig: Free Rur 29 dB	/100 M ₩ ₩	₩₩₩	Mkr1 2	
KEYSIGHT	Coupling: DC Align: Auto	Corr CCorr	#Atten: 30 dB	Gate: Off IF Gain: Low Sig Track: Off Ref Lvl Offset 4.	Avg Hold: 100 Trig: Free Rur 29 dB	/100 M ₩ ₩	₩₩₩	Mkr1 2	
KEYSIGHT           RL           N0           I Spectrum           Scale/Div 10 of           0.00	Coupling: DC Align: Auto	Corr CCorr	#Atten: 30 dB	Gate: Off IF Gain: Low Sig Track: Off Ref Lvl Offset 4.	Avg Hold: 100 Trig: Free Rur 29 dB	/100 M ₩ ₩	₩₩₩	Mkr1 2	
XEYSIGHT           RL           JU           1 Spectrum           Scale/Div 10 c           00           10.0           10.0           10.0           10.0           10.0           10.0           10.0           10.0	Coupling: DC Align: Auto	Corr CCorr	#Atten: 30 dB	Gate: Off IF Gain: Low Sig Track: Off Ref Lvl Offset 4.	Avg Hold: 100 Trig: Free Rur 29 dB	/100 M ₩ ₩	₩₩₩	Mkr1 2	2.480 0 GH 6.10 dBr
XI         →→           XI         →→           Scale/Div 10 c         -           0.00         -           10.0         -           0.00         -           0.00         -           0.00         -           0.00         -           0.00         -           0.00         -           0.00         -           0.00         -           0.00         -           0.00         -           0.00         -           0.00         -           0.00         -           0.00         -	dB	Corr CCorr Freq Ref: Int (S)	#Atten: 30 dB	Gate: Off IF Gain: Low Sig Track: Off Ref Lvl Offset 4.	Avg Hold: 100 Trig: Free Rur 29 dB	/100 M ₩ ₩	₩₩₩	Mkr1 2	6.10 dBr
Swept SA           CEYSIGHT           RL	Coupling: DC Align: Auto	Corr CCorr	#Atten: 30 dB	Gate: Off IF Gain: Low Sig Track: Off Ref Lvl Offset 4.	Avgirioid: 100 Trig: Free Rur 29 dB dBm	/100 M ₩ ₩	₩₩₩	Mkr1 2	6.10 dBn
XV           I Spectrum           Scale/Div 10 c           00           10.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0 <td>Couping DC Align: Auto</td> <td>Corr CCorr Freq Ref: Int (S)</td> <td>#Atten: 30 dB</td> <td>Gate: Off IF Gain: Low Sig Track: Off Ref LvI Offset 4. Ref Level 20.00</td> <td>Avgirioid: 100 Trig: Free Rur 29 dB dBm</td> <td></td> <td>₩₩₩</td> <td>Acceltanyhi</td> <td>6.10 dBr</td>	Couping DC Align: Auto	Corr CCorr Freq Ref: Int (S)	#Atten: 30 dB	Gate: Off IF Gain: Low Sig Track: Off Ref LvI Offset 4. Ref Level 20.00	Avgirioid: 100 Trig: Free Rur 29 dB dBm		₩₩₩	Acceltanyhi	6.10 dBr
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CEYSIGHT           RL           I Spectrum           Scale/Div 10 c           000           000           000           000           000           000           000           000           000           000           000           000           000           000           000           000           000           000           000           000           000           000           000           000           000           000           000           000           000           000           000           000           000           000           000           000           000           000           000           000           000           000           000           000           000           000           0	Coupling DC Align: Auto	Corr CCorr Freq Ref: int (S)	180 0 GHz	Ref LvI Offset 4. Ref LvI Offset 4. Ref Level 20.00 #Video BW 300	Avgirioid: 100 Trig: Free Rur 29 dB dBm		W W W N N N	,h	6.10 dBr
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	ling: DC	Input Ζ: 50 Ω Corr CCorr Freq Ref: Int (S)	#Atten: 30 dB	PNO: Best Wide Gate: Off IF Gain: Low Sig Track: Off	#Avg Type: Pov Avg Hold: 100/ Trig: Free Run		3 4 5 6 ∀₩₩₩₩ N N N N		
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Spectrum Analyzer 1		<b>•</b> +		NVNT BLE 2M				
wept SA	DE	Input Z: 50 Ω	#Atten: 30 dB	PNO: Best Wide	#Ava Type: Pow	er (RMS 1 2 3 4 5 6		
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476	2?	Sep 11, 2023 7:30:21 PM Ban	💬 📐 d Edge NV	NT BLE 2M 24	180MHz Ant	I Emission	Sweep 1.00	ms (1001 pt
Pectrum Analyzer 1 wept SA (EYSIGHT Input Coup	: RF ling: DC	Ban • + Input Z: 50 Ω Corr CCorr	d Edge NV #Atten: 30 dB	NT BLE 2M 24 PNO: Fast Gate: Off	#Avg Type: Pow Avg Hold: 100/1	er (RMS <mark>1)2 3 4 5 6</mark> ⁰⁰ M ₩ ₩ ₩ ₩ ₩		ms (1001 pt
Pectrum Analyzer 1 wept SA KEYSIGHT Input RL + Align	: RF ling: DC : Auto	Ban • • • • • • • • • • • • • • • • • • •	d Edge NV #Atten: 30 dB	NT BLE 2M 24 PNO: Fast Gate Off IF Gain: Low Sig Track: Off	#Avg Type: Pow Avg Hold: 100/1 Trig: Free Run	er (RMS <mark>1 2 3 4 5 6</mark>		
pectrum Analyzer 1 wept SA KEYSIGHT Input KL → Align vi Spectrum scale/Div 10 dB	: RF ling: DC	Ban • + Input Z: 50 Ω Corr CCorr	d Edge NV #Atten: 30 dB	NT BLE 2M 24 PNO Fast Gate: Off IF Gain: Low	#Avg Type: Pow Avg Hold: 100/1 Trig: Free Run	er (RMS <mark>1)2 3 4 5 6</mark> ⁰⁰ M ₩ ₩ ₩ ₩ ₩		480 0 GH
Poctrum Analyzer 1 wept SA Coup Align X Y Spectrum Spectrum Scale/Div 10 dB 00 0 0 0 0 0 0	: RF ling: DC : Auto	Ban • + Input Z: 50 Ω Corr CCorr	d Edge NV #Atten: 30 dB	NT BLE 2M 24 PNO: Fast Gate: Off IF Gan: Low Sig Track: Off Ref Lvl Offset 4	#Avg Type: Pow Avg Hold: 100/1 Trig: Free Run	er (RMS <mark>1)2 3 4 5 6</mark> ⁰⁰ M ₩ ₩ ₩ ₩ ₩		480 0 GH
Align Align Scale/Div 10 dB -09 10.0 0.00	: RF ling: DC : Auto	Ban • + Input Z: 50 Ω Corr CCorr	d Edge NV #Atten: 30 dB	NT BLE 2M 24 PNO: Fast Gate: Off IF Gan: Low Sig Track: Off Ref Lvl Offset 4	#Avg Type: Pow Avg Hold: 100/1 Trig: Free Run	er (RMS <mark>1)2 3 4 5 6</mark> ⁰⁰ M ₩ ₩ ₩ ₩ ₩		480 0 GH 5.21 dBr
ipectrum Analyzer 1 wept SA KEYSIGHT Input RL Align Spectrum Scale/Div 10 dB 	: RF ling: DC : Auto	Ban • + Input Z: 50 Ω Corr CCorr	d Edge NV #Atten: 30 dB	NT BLE 2M 24 PNO: Fast Gate: Off IF Gan: Low Sig Track: Off Ref Lvl Offset 4	#Avg Type: Pow Avg Hold: 100/1 Trig: Free Run	er (RMS <mark>1)2 3 4 5 6</mark> ⁰⁰ M ₩ ₩ ₩ ₩ ₩		480 0 GH
Spectrum Analyzer 1 wept SA Coup Align X Spectrum Spectrum Spectrum Spectrum Sole/Div 10 dB 00 0	: RF ling: DC : Auto	Ban	d Edge NV #Atten: 30 dB	NT BLE 2M 24 PNO: Fast Gate: Off IF Gan: Low Sig Track: Off Ref Lvl Offset 4	#Avg Type: Pow Avg Hold: 100/1 Trig: Free Run	er (RMS <mark>1)2 3 4 5 6</mark> ⁰⁰ M ₩ ₩ ₩ ₩ ₩		480 0 GH 5.21 dBr
Spectrum Analyzer 1 wept SA KEYSIGHT Input RL	: RF Ing: DC : Auto	Ban • + Input Z: 50 Ω Corr CCorr	d Edge NV #Atten: 30 dB	NT BLE 2M 24 PNO: Fast Gate: Off IF Gan: Low Sig Track: Off Ref Lvl Offset 4	#Avg Type: Pow Avg Hold: 100/1 Trig: Free Run	er (RMS <mark>1)2 3 4 5 6</mark> ⁰⁰ M ₩ ₩ ₩ ₩ ₩		480 0 GH 5.21 dBr
Spectrum Analyzer 1 Spectrum Analyzer 1 Spectrum Align X Spectrum Scale/Div 10 dB Og O	: RF Ing: DC : Auto	Ban Input Z: 50 Ω Corr Corr Freq Ref: Int (S)	d Edge NV #Atten: 30 dB	NT BLE 2M 24 PNO: Fast Gate: Off IF Gan: Low Sig Track: Off Ref Lvl Offset 4	#Avg Type: Pow Avg Hold: 100/1 Trig: Free Run	er (RMS 1 2 3 4 5 6 00 M W W W W W P N N N N N		480 0 GH 5.21 dBr
spectrum Analyzer 1 wept SA KEYSIGHT Input RESIDENT Aign aign aign biology aign biology aign biology aign biology bi	: RF Ing: DC : Auto	Ban Input Z: 50 Ω Corr Corr Freq Ref: Int (S)	d Edge NV #Atten: 30 dB	NT BLE 2M 24 PNO: Fast Gate: Off IF Gan: Low Sig Track: Off Ref Lvl Offset 4	#Avg Type: Pow Avg Hold: 100/1 Trig: Free Run .29 dB dBm	er (RMS 1 2 3 4 5 6 00 M W W W W W P N N N N N	Mkr1 2.	480 0 GH 5.21 dBr DL1-13.97 dB
spectrum Analyzer 1 weet SA KEYSIGHT Input KEYSIGHT Input Scale/Div 10 dB 00 00 00 00 00 00 00 00 00 00 00 00 00	RF Ing DC Auto	Ban Input Z: 50 Ω Corr Corr Freq Ref: Int (S)	d Edge NV #Atten: 30 dB	NT BLE 2M 24	#Avg Type: Pow Avg Hold: 100/1 Trig: Free Run .29 dB dBm	er (RMS 1 2 3 4 5 6 00 M W W W W W P N N N N N	Mkr1 2.	480 0 GH 5.21 dBr DL1-13.97 dB
spectrum Analyzer 1 spectrum Analyzer 1 KEYSIGHT Input Coup Aign Scale/Div 10 dB -09 000 000 000 000 000 000 000	RF Ing DC Auto	Ban Input Z: 50 Ω Corr Corr Freq Ref: Int (S)	d Edge NV #Atten: 30 dB	NT BLE 2M 24	#Avg Type: Pow Avg Hold: 100/1 Trig: Free Run .29 dB dBm	er (RMS 1 2 3 4 5 6 00 M W W W W W P N N N N N	Mkr1 2.	480 0 GH 5.21 dBr DL1-13.97 dB
Comparison of the sector	RF Ing DC Auto	Ban Input Z: 50 Ω Corr Corr Freq Ref. Int (S)	#Atten: 30 dB	NT BLE 2M 24	#Avg Type: Pow Avg Hold: 100/1 Trig: Free Run .29 dB dBm	er (RMS 1 2 3 4 5 6 00 M W W W W W P N N N N N	Mkr1 2.	480 0 GH 5.21 dBi - 0L1-13 97 dB 2.57600 GH ms (1001 pt
Spectrum Analyzer 1 Spectrum Analyzer 1 Spectrum Scale/Div 10 dB Og O	RF Auto	Ban Input Z: 50 Ω Corr CCorr Freq Ref: Int (S)	d Edge NV #Atten: 30 dB	NT BLE 2M 24	#Avg Type: Pow Avg Hold: 100/1 Trig: Free Run .29 dB dBm	er (RMS 1 2 3 4 5 6 M W W W W W P N N N N N 	Mkr1 2.	480 0 GH 5.21 dBi - 0L1-13 97 dB 2.57600 GH ms (1001 pt
Couper Coup	RF Ing DC Auto	Ban Input Z: 50 Ω Corr CCorr Freq Ref: Int (S)	d Edge NV #Atten: 30 dB	NT BLE 2M 24 PNO: Fast Gate Off IF Gain: Low Sig Track Off Ref Lv1 Offset 4 Ref Level 20.00 #V/deo BW 30 Y 5.214 dBm	#Avg Type: Pow Avg Hold: 100/1 Trig: Free Run .29 dB dBm	er (RMS 1 2 3 4 5 6 M W W W W W P N N N N N 	Mkr1 2.	480 0 GH 5.21 dBi - 0L1-13 97 dB 2.57600 GH ms (1001 pt
	RF Ing DC Auto	Ban Input Z: 50 Ω Corr CCorr Freq Ref: Int (S)	d Edge NV #Atten: 30 dB	NT BLE 2M 24	#Avg Type: Pow Avg Hold: 100/1 Trig: Free Run .29 dB dBm	er (RMS 1 2 3 4 5 6 M W W W W W P N N N N N 	Mkr1 2.	480 0 GH 5.21 dB - 0L1-13 97 dE 2.57600 GH ms (1001 pt

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Conducted RF Spurious Emission



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	Tx.	Spurious N	VNT BLE 1M	2440MHz	Ant1 Ref	
Spectrum Analyzer 1 Swept SA	• +					
KEYSIGHT Input: RF RL ↔ Align: Auto	Input Ζ: 50 Ω Corr CCorr Freq Ref: Int (S)	#Atten: 30 dB	PNO: Best Wide Gate: Off IF Gain: Low Sig Track: Off	#Avg Type: Pow Avg Hold: 100/1 Trig: Free Run	ver (RMS 1 2 3 4 5 00 M W W W W P N N N N	N
1 Spectrum V			Ref Lvi Offset 4.			Mkr1 2.439 998 10 0
Scale/Div 10 dB			Ref Level 20.00 o	dBm		6.42 d
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-10.0	and the second					and the second second second second second second second second second second second second second second second
20.0						and the second states
30.0 MMV						
40.0						
Center 2.4400000 GHz Res BW 100 kHz			#Video BW 300	kHz		Span 1.500 Sweep 2.00 ms (3000
	Sep 11, 2023 7:25:33 PM					
			T BLE 1M 24	40MHz Ant	1 Emission	
Spectrum Analyzer 1	• •			Totti i 27 dia		
Swept SA KEYSIGHT Input: RF	Input Z: 50 Ω	#Atten: 30 dB	PNO: Fast	#Avg Type: Pow	ver (RMS 1 2 3 4 5	6
RL ↔ Coupling: DC Align: Auto	Corr CCorr Freq Ref: Int (S)		Gate: Off IF Gain: Low Sig Track: Off	Avg Hold: 10/10 Trig: Free Run	M ₩ ₩ ₩ ₩ ₩ P N N N N	<mark>₩</mark>
I Spectrum v Scale/Div 10 dB			Ref LvI Offset 4. Ref Level 20.00 (Mkr1 2.439 7 0 4.47 d
10.0 1						
0.00						DL1_13.5
10.0						
-20.0						
10.0 20.0 30.0 40.0	∂ ³ ∂ ⁴	5				
20.0 30.0 40.0 50.0 60.0	_ <mark>}3</mark> 4	5				
20 0 30 0 40 0 50 0 60 0 70 0	<u>}</u> 34	5	#Video BW 300	kHz		
20 0 30 0 40 0 50 0	<u>}</u>	<u>}</u> 5	#Video BW 300	kHz		Stop 26.50 Sweep ~2.53 s (3000
20.0 30.0 40.0 50.0		<u>}</u> 5				Sweep ~2.53 s (3000
20 0 30 0 40 0 50 0 50 0 51 0 5	× 2.4	39 7 GHz	Y 4.475 dBm	kHz Function	Function Width	
20.0 30.0 40.0 50.0	x 24 262 46	39 7 GHz 113 2 GHz 93 1 GHz	Y 4.475 dBm -46.89 dBm -51.94 dBm		Function Width	Sweep ~2.53 s (3000
20.0 30.0 40.0 50.0	X 2.4 26.2 4.6 7.1	39 7 GHz 13 2 GHz	Y 4.475 dBm -46.89 dBm		Function Width	Sweep ~2.53 s (3000
20.0 30.0 40.0 50.0	X 2.4 26.2 4.6 7.1	39 7 GHz 13 2 GHz 13 2 GHz 83 1 GHz 26 6 GHz 39 2 GHz	Y 4.475 dBm -46.89 dBm -51.94 dBm -52.29 dBm		Function Width	Sweep ~2.53 s (3000

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			Tx. Spurious N	VNT BLE 1M	2480MH	z Ant1 Ref	
Spectrum Analyzer 1 Swept SA		• +					
KEYSIGHT Input:	ing: DC	Input Z: 50 Ω Corr CCorr Freq Ref: Int (#Atten: 30 dB S)	PNO: Best Wide Gate: Off IF Gain: Low Sig Track: Off	#Avg Type: F Avg Hold: 10 Trig: Free Ru	Power (RMS <mark>1</mark> 2345 0/100 m PNNNN	₩
1 Spectrum	•			Ref LvI Offset 4.	29 dB		Mkr1 2.480 007 00 GH
Scale/Div 10 dB				Ref Level 20.00	dBm		5.88 dBi
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	NW Contraction						Construction of the second
-20.0							
-30.0							
-40.0							
-50.0							
-60.0							
-70.0							
Center 2.4800000 GH	17			#Video BW 300	kHz		Span 1.500 Mł
Res BW 100 kHz							Sweep 2.00 ms (30001 pt
Spectrum Analyzer 1 Swept SA	 ?	Sep 11, 202 7:26:48 PM Tx.	Spurious NVN	IT BLE 1M 24	180MHz A	nt1 Emission	
KEYSIGHT Input:	ing: DC	Input Z: 50 Ω Corr CCorr Freq Ref: Int (#Atten: 30 dB (S)	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off	#Avg Type: F Avg Hold: 10 Trig: Free Ru	Power (RMS <mark>1</mark> 2345 /10 In M₩₩₩₩ P N N N N	₩
1 Spectrum Scale/Div 10 dB	T			Ref LvI Offset 4. Ref Level 20.00			Mkr1 2.479 4 GH 4.63 dBi
Log 10.0	1						
0.00							DL1-14.13 dE
-20.0							
-40.0		∂ 3					2
-60.0			entingen Allentingen angehanden ber				
-70.0				#Video BW 300	kHz		Stop 26.50 GI
Fres BW 100 kHz	•			#NGC0 BN 300	-1112		Sweep ~2.53 s (30001 pt
Mode Trace	Scale	x		Y	Function	Function Width	Function Value
1 N 1 2 N 1	f		2.479 4 GHz 23.949 2 GHz	4.630 dBm -46.87 dBm			
3 N 1 4 N 1	f		5.158 1 GHz 7.319 0 GHz	-51.69 dBm -53.14 dBm			
5 N 1 6	f		10.102 7 GHz	-52.54 dBm			
1 7 7	7	Sep 11, 202 7:27:20 PM					

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			<. Spurious N	IVNT BLE 2M	2402MHz /	Ant1 Ref		_
pectrum Analyzer 1 wept SA		• +						
L +++ Align:	: RF ling: DC : Auto	Input Z: 50 Ω Corr CCorr Freq Ref: Int (S)	#Atten: 30 dB	PNO: Best Wide Gate: Off IF Gain: Low Sig Track: Off	#Avg Type: Pow Avg Hold: 100/10 Trig: Free Run	rer (RMS 1 2 3 4 5 6 00 M W W W W P N N N N N		
Spectrum	•					P IN IN IN IN	Mkr1 2.402	006 3 GH
cale/Div 10 dB				Ref LvI Offset 4. Ref Level 20.00				6.84 dBi
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enter 2.402000 GH	z			#Video BW 300	kHz			pan 3.000 M
Res BW 100 kHz			/				Sweep 2.00 I	ms (30001 pi
		Sep 11, 2023 7:28:21 PM Tx. S		NT BLE 2M 24	102MHz Ant	1 Emission		
vept SA EYSIGHT Input: L ↔ Align:	: RF ling: DC : Auto	_		PNO: Fast Gate: Off IF Gain: Low		rer (RMS <mark>123456</mark> M ₩ ₩ ₩ ₩ ₩ ₩		
vept SA EYSIGHT Input: L ↔ Align: Spectrum	ling: DC	Tx. S Tx. S T Tx. S T Tx. S T Tx. S	Spurious NVN	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off Ref Lvl Offset 4.	#Avg Type: Pow Avg Hold: 10/10 Trig: Free Run 19 dB	rer (RMS <mark>1</mark> 23456	Mkr1 2.	
Vept SA EYSIGHT Input: L + Coup Align: Spectrum cale/Div 10 dB 9	ling: DC : Auto	Tx. S Tx. S T Tx. S T Tx. S T Tx. S	Spurious NVN	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off	#Avg Type: Pow Avg Hold: 10/10 Trig: Free Run 19 dB	rer (RMS <mark>123456</mark> M ₩ ₩ ₩ ₩ ₩ ₩	Mkr1 2	
Vept SA EYSIGHT Input: Coup Align: Spectrum cale/Div 10 dB 0	ling: DC : Auto	Tx. S Tx. S T Tx. S T Tx. S T Tx. S	Spurious NVN	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off Ref Lvl Offset 4.	#Avg Type: Pow Avg Hold: 10/10 Trig: Free Run 19 dB	rer (RMS <mark>123456</mark> M ₩ ₩ ₩ ₩ ₩ ₩	Mkr1 2	6.77 dB
Vept SA EYSIGHT Input L + Align: 7 Spectrum cale/Div 10 dB 9 0 0 0 0 0	ling: DC : Auto	Tx. S Tx. S T Tx. S T Tx. S T Tx. S	Spurious NVN	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off Ref Lvl Offset 4.	#Avg Type: Pow Avg Hold: 10/10 Trig: Free Run 19 dB	rer (RMS <mark>123456</mark> M ₩ ₩ ₩ ₩ ₩ ₩	Mkr1 2	6.77 dB
Align: Spectrum cate/Div 10 dB 0 0 0 0 0 0 0 0 0 0 0 0 0	ling: DC : Auto	Tx. S Tx. S T Tx. S T Tx. S T Tx. S	Spurious NVN	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off Ref Lvl Offset 4.	#Avg Type: Pow Avg Hold: 10/10 Trig: Free Run 19 dB	rer (RMS <mark>123456</mark> M ₩ ₩ ₩ ₩ ₩ ₩	Mkr1 2.	6.77 dBi
Vept SA EYSIGHT Input L Coup Alignitized Spectrum sale/Div 10 dB Og 00 00 00 00 00 00 00 00 00 0	ling: DC : Auto	Tx. S Input Z 50 Q Corr CCorr Freq Ref: Int (S)	Spurious NVN	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off Ref Lvl Offset 4.	#Avg Type: Pow Avg Hold: 10/10 Trig: Free Run 19 dB	rer (RMS <mark>123456</mark> M ₩ ₩ ₩ ₩ ₩ ₩	Mkr1 2.	6.77 dB
wept SA EYSIGHT Input: Coup Align: 7 Align: Spectrum Cale/Div 10 dB 00 0 00 0 00 0 00 0 00 0 00 0 00 0 00 0 00 0 00 0 00 0 00 0 00 0 00 0	ling: DC : Auto	Tx. S Input Z 50 Q Corr CCorr Freq Ref: Int (S)	Spurious NVN #Atten: 30 dB	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off Ref Lvl Offset 4.	#Avg Type: Pow Avg Hold: 10/10 Trig: Free Run 19 dB	rer (RMS <mark>123456</mark> M ₩ ₩ ₩ ₩ ₩ ₩	Mkr1 2.	6.77 dB
Spectrum Call	ling: DC : Auto	Tx. S Input Z 50 Q Corr CCorr Freq Ref: Int (S)	Spurious NVN #Atten: 30 dB	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off Ref LvI Offset 4. Ref Level 20.000	#Avg Type: Pow Avg Hold: 10/10 Tng: Free Run 19 dB JBm	rer (RMS <mark>123456</mark> M ₩ ₩ ₩ ₩ ₩ ₩		6.77 dBr
wept SA EYSIGHT Input L ↔ Aign Spectrum cale/Div 10 dB 0 0 0 0 0 0 0 0 0 0 0 0 0	ling: DC : Auto	Tx. S Input Z 50 Q Corr CCorr Freq Ref: Int (S)	Spurious NVN #Atten: 30 dB	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off Ref Lvl Offset 4.	#Avg Type: Pow Avg Hold: 10/10 Tng: Free Run 19 dB JBm	rer (RMS <mark>123456</mark> M ₩ ₩ ₩ ₩ ₩ ₩		6.77 dBr DL1-13.16 dE
Vept SA EYSIGHT Input Spectrum cale/Div 10 dB 0 0 0 0 0 0 0 0 0 0 0 0 0	ling: DC : Auto	Tx. S Input Z 50 Q Corr CCorr Freq Ref: Int (S)	Spurious NVN #Atten: 30 dB	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off Ref LvI Offset 4. Ref Level 20.000	#Avg Type: Pow Avg Hold: 10/10 Tng: Free Run 19 dB JBm	rer (RMS <mark>123456</mark> M ₩ ₩ ₩ ₩ ₩ ₩		6.77 dBr DL1-13.16 dE
Vept SA EYSIGHT Input Spectrum cale/Div 10 dB 0 0 0 0 0 0 0 0 0 0 0 0 0	I	Tx. S Input Z 50 Q Corr CCorr Freq Ref: Int (S)	Spurious NVN #Atten: 30 dB	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off Ref LvI Offset 4. Ref Level 20.000	#Avg Type: Pow Avg Hold: 10/10 Tng: Free Run 19 dB JBm	rer (RMS <mark>123456</mark> M ₩ ₩ ₩ ₩ ₩ ₩		6.77 dBi
wept SA EYSIGHT Input: Coup Align: spectrum Coup Align: cale/Div 10 dB 0 0 0	Ing DC Auto	Tx. S	4 01 7 GH2	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off Ref LvI Offset 4. Ref Level 20.000 #Video BW 300 #Video BW 300	#Avg Type: Pow Avg Hold: 10/10 Tng: Free Run 19 dB dBm	rer (RMS 1 2 3 4 5 6 M W W W W W P N N N N N N N N N	Sweep ~2.5	401 7 GH 6.77 dBi DL1 13 16 dE Q2 Stop 26.50 GB 3 s (30001 pt Value
Wept SA EYSIGHT Input: Coup Align: Spectrum Coup Align: case/Div 10 dB 0 0 0	I	Tx. S	4 4 4 4 4 5 4 5 4 5 5 5 5 5 5 5 5 5 5 5 5 5	PNO: Fast Gate Off IF Gain: Low Sig Track: Off Ref LvI Offset 4. Ref Level 20.00 #Video BW 300 ¥Video BW 300	#Avg Type: Pow Avg Hold: 10/10 Tng: Free Run 19 dB dBm	rer (RMS 1 2 3 4 5 6 M W W W W W P N N N N N N N N N	Sweep ~2.5	6.77 dBi
wept SA EYSIGHT Input: Coup Align: Spectrum Coup Align: cale/Div 10 dB 9 0 0	Ing DC Auto	Tx. S	Atten: 30 dB #Atten: 30 dB 4 5 2 4 2 4 5 7 13 8 GHz	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off Ref Level 20.000 #Video BW 300 ¥Video BW 300	#Avg Type: Pow Avg Hold: 10/10 Tng: Free Run 19 dB dBm	rer (RMS 1 2 3 4 5 6 M W W W W W P N N N N N N N N N	Sweep ~2.5	6.77 dBi

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		Tx.	Spurious N	VNT BLE 2M	2440MHz	Ant1 Ref	
Spectrum Analyzer 1 Swept SA		• +					
KEYSIGHT Input: R L +++ Coupl Align:	ling: DC	Input Ζ: 50 Ω Corr CCorr Freq Ref: Int (S)	#Atten: 30 dB	PNO: Best Wide Gate: Off IF Gain: Low Sig Track: Off	#Avg Type: Po Avg Hold: 100/ Trig: Free Run	wer (RMS 1 2 3 4 5 6 100 M W W W W W P N N N N N	
1 Spectrum	•			Ref Lvi Offset 4.			Mkr1 2.440 003 3 GH
Scale/Div 10 dB				Ref Level 20.00	dBm		6.42 dBr
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		10	Mar Marine Marin	MAMAAN	Marymonth	un and the second second	
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20.0	Now Marker						- In Mandau
30.0 MMM							Muny Munum
40.0							h
50.0							
enter 2.440000 GH: Res BW 100 kHz	z			#Video BW 300	kHz		Span 3.000 MI Sweep 2.00 ms (30001 pt
	-]?	Sep 11, 2023 7:29:22 PM					Sweep 2.00 ms (30001 pt
1 7 7		, <u> </u>		IT BLE 2M 24		the Emission	
pectrum Analyzer 1		· +					
Swept SA		Input Z: 50 Ω	#Atten: 30 dB	PNO: Fast	#Avg Type: Po	wer (RMS 1 2 3 4 5 6	
RL +>+ Coupl Align:		Corr CCorr Freq Ref: Int (S)		Gate: Off IF Gain: Low Sig Track: Off	Avg Hold: 10/1 Trig: Free Run		
Spectrum cale/Div 10 dB	v			Ref LvI Offset 4. Ref Level 20.00			Mkr1 2.439 7 GH 1.31 dBi
	1						
0.00							DL1-13.58-dB
20.0							
30.0 40.0			5				
30.0 40.0 50.0 60.0		<u> </u>	5 				
30.0 40.0 50.0 60.0 70.0		§ ³ §4	5	#Vidoe BW/200			
30.0 40.0 50.0 70.0 •••••••••••••••••••••••••••••••		<u> </u>		#Video BW 300	kHz		
30.0 40.0 50.0 70.0 tart 30 MHz Res BW 100 kHz	V	<u>0</u> 3 04	5	#Video BW 300	kHz		
30 0 40 0 50 0		 		Y	kHz	Function Width	
30 0 40 0 50 0 60 0 tart 30 MHz Res EW 100 KHz 5 Marker Table Mode Trace 1 N 1		× 26.3	439 7 GHz 387 1 GHz			Function Width	Stop 26.50 GF Sweep ~2.53 s (30001 pt: Function Value
30 0 40 0 50 0	e Scale f f	X 2.6. 5.0 7.1	439 7 GHz	Y 1.310 dBm -47.13 dBm		Function Width	Sweep ~2.53 s (30001 pt
300	e Scale f f f f f	X 2.6. 5.0 7.1	439 7 GHz 387 1 GHz 241 7 GHz 261 0 GHz 590 7 GHz	Y 1.310 dBm -47.13 dBm -52.08 dBm -52.84 dBm		Function Width	Sweep ~2.53 s (30001 pt:

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	Tx.	Spurious N	VNT BLE 2M	2480MHz	Ant1 Ref	
Spectrum Analyzer 1 Swept SA	• +					
KEYSIGHT Input: RF R L Coupling: DC Align: Auto	Input Z: 50 Ω Corr CCorr Freq Ref: Int (S)	#Atten: 30 dB	PNO: Best Wide Gate: Off IF Gain: Low Sig Track: Off	#Avg Type: Po Avg Hold: 100 Trig: Free Rur	ower (RMS <mark>1</mark> 23456 /100 M ₩ ₩ ₩ ₩ ₩ P N N N N N	
1 Spectrum			Ref LvI Offset 4.2			Mkr1 2.479 998 8 GHz
Scale/Div 10 dB			Ref Level 20.00 c	IBm		5.85 dBm
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and the second sec	л. ж.					warded a down we want we
-20.0						
-30.0						- And And And And And And And And And And
-40.0						
Center 2.480000 GHz			#Video BW 300			Span 3.000 MHz
#Res BW 100 kHz			#11060 844 300	KI12		Sweep 2.00 ms (30001 pts
1 2 2 1	? Sep 11, 2023 7:30:32 PM					
0	Tx. Sp	urious NVN	IT BLE 2M 24	80MHz Ai	nt1 Emission	
Spectrum Analyzer 1 Swept SA	• +					
KEYSIGHT Input: RF RL +++ Coupling: DC Align: Auto	Input Ζ: 50 Ω Corr CCorr Freq Ref: Int (S)	#Atten: 30 dB	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off	#Avg Type: Po Avg Hold: 10/ Trig: Free Rur		
1 Spectrum v Scale/Div 10 dB			Ref LvI Offset 4.2 Ref Level 20.00 c			Mkr1 2.480 2 GHz 5.20 dBm
10.0 10.0			ľ – ľ			
0.00						
-20.0						
-40.0		5				<u> </u>
-50.0	n tea tradition de la contractica de la contractica de la contractica de la contractica de la contractica de la					
Start 30 MHz #Res BW 100 kHz			#Video BW 300	kHz		Stop 26.50 GHz Sweep ~2.53 s (30001 pts
5 Marker Table 🔹 🔻						
Mode Trace Scale			Y	Function	Function Width	Function Value
1 N 1 f 2 N 1 f	25.98	30 2 GHz 37 4 GHz	5.203 dBm -46.70 dBm			
3 N 1 f 4 N 1 f	7.27	24 9 GHz 76 6 GHz	-51.68 dBm -53.00 dBm			
5 N 1 f	9.82	21 3 GHz	-52.20 dBm			
	? Sep 11, 2023					

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