

# NTEK 北测<sup>®</sup>

# RADIO TEST REPORT FCC ID:2AT6G-TERACUBE2S

Product: Smartphone Trade Mark: Teracube Model No.: Teracube 2s Family Model: N/A Report No.: S24111807306002 Issue Date: Jan. 07, 2025

# Prepared for

Teracube Inc

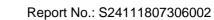
16625 Redmond Way, Ste M-175 Redmond, WA 98052 USA

# Prepared by

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### **1 TEST RESULT CERTIFICATION**

Applicant's name:	Teracube Inc
Address:	16625 Redmond Way, Ste M-175 Redmond, WA 98052 USA
Manufacturer's Name:	Teracube Inc
Address	16625 Redmond Way, Ste M-175 Redmond, WA 98052 USA
Product description	
Product name:	Smartphone
Trade Mark:	Teracube
Model and/or type reference:	Teracube 2s
Family Model	N/A
Test Sample number:	S241118073006
Date of Test	Nov. 20, 2024 ~ Jan. 07, 2025

Measurement Procedure Used:

APPLICABLE STANDARDS		
APPLICABLE STANDARD/ TEST PROCEDURE TEST RESULT		
FCC 47 CFR Part 2, Subpart J		
FCC 47 CFR Part 15, Subpart C	Complied	
ANSI C63.10-2013		
KDB 558074 D01 15.247 Meas Guidance v05r02		

This device described above has been tested by Shenzhen NTEK Testing Technology Co., Ltd., and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

This report shall not be reproduced except in full, without the written approval of Shenzhen NTEK Testing Technology Co., Ltd., this document may be altered or revised by Shenzhen NTEK Testing Technology Co., Ltd., personnel only, and shall be noted in the revision of the document.

The test results of this report relate only to the tested sample identified in this report.

100. Prepared Approved By By Joe Yan Alex Li (Supervisor) (Project Engineer) (Manager)

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#### 2 SUMMARY OF TEST RESULTS

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FCC Part15 (15.247), Subpart C					
Standard Section Test Item Verdict Remark					
15.207	Conducted Emission	PASS			
15.247 (a)(2)	6dB Bandwidth PASS				
15.247 (b)	Peak Output Power	PASS			
15.209 (a) 15.205 (a)	Radiated Spurious Emission	PASS			
15.247 (e)	Power Spectral Density	PASS			
15.247 (d) Band Edge Emission		PASS			
15.247 (d) Spurious RF Conducted Emission PASS		PASS			
15.203	Antenna Requirement	PASS			

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#### Remark:

 "N/A" denotes test is not applicable in this Test Report.
 All test items were verified and recorded according to the standards and without any deviation during the test.





### **3 FACILITIES AND ACCREDITATIONS**

#### 3.1 FACILITIES

All measurement facilities used to collect the measurement data are located at

No. 24 Xinfa East Road, Xiangshan Community, Xinqiao Street, Baoan District, Shenzhen, Guangdong, People's Republic of China.

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.10 and CISPR Publication 22.

#### 3.2 LABORATORY ACCREDITATIONS AND LISTINGS

Site Description	
CNAS-Lab.	: The Certificate Registration Number is L5516.
IC-Registration	The Certificate Registration Number is 9270A.
-	CAB identifier:CN0074
FCC- Accredited	Test Firm Registration Number: 463705.
	Designation Number: CN1184
A2LA-Lab.	The Certificate Registration Number is 4298.01
	This laboratory is accredited in accordance with the recognized
	International Standard ISO/IEC 17025:2005 General requirements for
	the competence of testing and calibration laboratories.
	This accreditation demonstrates technical competence for a defined
	scope and the operation of a laboratory quality management system
	(refer to joint ISO-ILAC-IAF Communiqué dated 8 January 2009).
Name of Firm	: Shenzhen NTEK Testing Technology Co., Ltd.
Site Location	: No. 24 Xinfa East Road, Xiangshan Community, Xinqiao Street, Baoan
	District, Shenzhen, Guangdong, People's Republic of China.

#### 3.3 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement  $y\pm U$ , where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

No.	Item	Uncertainty
1	Conducted Emission Test	±2.80dB
2	RF power, conducted	±0.16dB
3	Spurious emissions, conducted	±0.21dB
4	All emissions, radiated(30MHz~1GHz)	±2.64dB
5	All emissions, radiated(1GHz~6GHz)	±2.40dB
6	All emissions, radiated(>6GHz)	±2.52dB
7	Temperature	±0.5°C
8	Humidity	±2%
9	All emissions, radiated(9KHz~30MHz)	±6dB

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### 4 GENERAL DESCRIPTION OF EUT

Product Feature and Specification				
Equipment Smartphone				
Trade Mark Teracube				
FCC ID	2AT6G-TERACUBE2S			
Model No.	Teracube 2s			
Family Model	N/A			
Model Difference	N/A			
Operating Frequency	BLE 1M: 2402~2480 MHz BLE 2M: 2404~2478 MHz			
Modulation	GFSK			
Number of Channels	Please refer channel list			
Antenna Type	PIFA Antenna			
Antenna Gain	1.2 dBi			
Adapter	N/A			
Battery	DC 3.85V, 4000mAh, 15.40Wh			
Power supply DC 3.85V from battery or DC 5V from USB port				
HW Version	YK673-MB-V6.0 2020.06.17			
SW Version	SW Version N/A			

Note 1: Based on the application, features, or specification exhibited in User's Manual, the EUT is considered as an ITE/Computing Device. More details of EUT technical specification, please refer to the User's Manual.

Note 2: The engineering test program was provided and the EUT was programmed to be in continuously transmitting mode.





### **Revision History**

Revision history					
Report No.	Version	Description	Issued Date		
S24111807306002	Rev.01	Initial issue of report	Jan. 07, 2025		





### 5 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

The Transmitter was operated in the normal operating mode. The TX frequency was fixed which was for the purpose of the measurements.

Test of channel included the lowest and middle and highest frequency to perform the test, then record on this report.

Those data rates (1Mbps/2Mbps for GFSK modulation) were used for all test.

The EUT was pretested with 3 orientations placed on the table for the radiated emission measurement -X, Y, and Z-plane. The X-plane results were found as the worst case and were shown in this report.

Carrier Frequency and Channel list:

BLE(1M)		BLE(2M)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
00	2402		
01	2404	01	2404
19	2440	19	2440
38	2478	38	2478
39	2480		

Note: fc=2402MHz+k×2MHz k=0 to 39

The following summary table is showing all test modes to demonstrate in compliance with the standard.

Test Cases				
Test Item	Data Rate/ Modulation			
AC Conducted Emission	Mode 1: normal link mode			
	Mode 1: normal link mode			
	Mode 2: GFSK Tx Ch00_2402MHz_1Mbps/			
Radiated Test	GFSK Tx Ch01_2404MHz_2Mbps			
Cases	Mode 3: GFSK Tx Ch19_2440MHz_1Mbps/2Mbps			
	Mode 4: GFSK Tx Ch39_2480MHz_1Mbps/			
	GFSK Tx Ch38_2478MHz_2Mbps			
	Mode 2: GFSK Tx Ch00_2402MHz_1Mbps/			
Conducted Test	GFSK Tx Ch01_2404MHz_2Mbps			
Conducted Test	Mode 3: GFSK Tx Ch19_2440MHz_1Mbps/2Mbps			
Cases	Mode 4: GFSK Tx Ch39_2480MHz_1Mbps/			
	GFSK Tx Ch38_2478MHz_2Mbps			



#### Note:

1. The engineering test program was provided and the EUT was programmed to be in continuously transmitting mode.

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2. AC power line Conducted Emission was tested under maximum output power.

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- 3. For radiated test cases, the worst mode data rate 2Mbps was reported only, because this data rate has the highest RF output power at preliminary tests, and no other significantly frequencies found in conducted spurious emission.
- 4. EUT built-in battery-powered, the battery is fully-charged.

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# SETUP OF EQUIPMENT UNDER TEST 6 **BLOCK DIAGRAM CONFIGURATION OF TEST SYSTEM** 6.1 For AC Conducted Emission Mode AC PLUG C-1 AE-2 AE-1 Adapter EUT C-2 AE-3 Earphone For Radiated Test Cases AE-1 EUT For Conducted Test Cases C-3 Measurement AE-1 Instrument EUT Note: The temporary antenna connector is soldered on the PCB board in order to perform conducted tests and this temporary antenna connector is listed in the equipment list.





#### 6.2 SUPPORT EQUIPMENT

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.

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Item	Equipment	Model/Type No.	Series No.	Note
AE-1	Smartphone	Teracube 2s	N/A	EUT
AE-2	Adapter	N/A	N/A	Peripherals
AE-3 Earphone		N/A	N/A	Peripherals

Item	Cable Type	Shielded Type	Ferrite Core	Length
C-1	USB Cable	YES	NO	1.0m
C-2	Earphone Cable	NO	NO	1.2m
C-3	RF Cable	YES	NO	0.1m

#### Notes:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in [Length] column.
- (3) "YES" is means "shielded" "with core"; "NO" is means "unshielded" "without core".

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#### 6.3 EQUIPMENTS LIST FOR ALL TEST ITEMS

Radiation& Conducted Test equipment

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Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibrati on period
1	Spectrum Analyzer	Agilent	E4440A	MY41000130	2024.04.26	2025.04.25	1 year
2	Spectrum Analyzer	Agilent	N9020A	MY49100060	2024.04.25	2025.04.24	1 year
3	Spectrum Analyzer	R&S	FSV40	101417	2024.04.25	2025.04.24	1 year
4	Test Receiver	R&S	ESPI7	101318	2024.04.26	2025.04.25	1 year
5	Bilog Antenna	TESEQ	CBL6111D	31216	2024.05.12	2025.05.11	1 year
6	50Ω Coaxial Switch	Anritsu	MP59B	6200983705	2024.04.26	2027.04.25	3 year
7	Horn Antenna	EM	EM-AH-1018 0	2011071402	2024.05.12	2027.05.11	3 year
8	Broadband Horn Antenna	SCHWARZBE CK	BBHA 9170	803	2024.05.12	2027.05.11	3 year
9	Amplifier	EMC	EMC051835 SE	980246	2024.04.25	2025.04.24	1 year
10	Active Loop Antenna	SCHWARZBE CK	FMZB 1519 B	055	2024.05.17	2027.05.16	3 year
11	Power Meter	DARE	RPR3006W	15I00041SN 084	2024.04.25	2025.04.24	1 year
12	Test Cable (9KHz-30MHz)	N/A	R-01	N/A	2023.05.06	2026.05.05	3 year
13	Test Cable (30MHz-1GHz)	N/A	R-02	N/A	2023.05.06	2026.05.05	3 year
14	High Test Cable(1G-40G Hz)	N/A	R-03	N/A	2022.06.17	2025.06.16	3 year
15	Filter	TRILTHIC	2400MHz	29	2024.04.26	2027.04.25	3 year
16	temporary antenna connector (Note)	NTS	R001	N/A	N/A	N/A	N/A

Note:

We will use the temporary antenna connector (soldered on the PCB board) When conducted test And this temporary antenna connector is listed within the instrument list



AC Co	AC Conduction Test equipment						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	Test Receiver	R&S	ESCI	101160	2024.04.26	2025.04.25	1 year
2	LISN	R&S	ENV216	101313	2024.04.25	2025.04.24	1 year
3	LISN	SCHWARZBE CK	NNLK 8129	8129245	2024.04.25	2025.04.24	1 year
4	50Ω Coaxial Switch	ANRITSU CORP	MP59B	6200983704	2024.04.26	2027.04.25	3 year
5	Test Cable (9KHz-30MH z)	N/A	C01	N/A	2023.05.06	2026.05.05	3 year
6	Test Cable (9KHz-30MH z)	N/A	C02	N/A	2023.05.06	2026.05.05	3 year
7	Test Cable (9KHz-30MH z)	N/A	C03	N/A	2023.05.06	2026.05.05	3 year

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Note: Each piece of equipment is scheduled for calibration once a year except the Aux Equipment & Test Cable which is scheduled for calibration every 2 or 3 years.

Measurement Software

Item	Manufacturer	Software Name	Software Version	Description
1	MWRFtest	MTS 8310 2.4GHz/5GHz	2.0	RF Conducted Test
2	Farad	EZ-EMC_RE	AIT-03A	RadiatedTest
3	raditeq	RadiMation	2023.1.3	RadiatedTest
4	Farad	EZ-EMC_CE	AIT-03A	AC Conducted Test

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## 7 TEST REQUIREMENTS

#### 7.1 CONDUCTED EMISSIONS TEST

#### 7.1.1 Applicable Standard

According to FCC Part 15.207(a)

#### 7.1.2 **Conformance Limit**

Frequency(MHz)	Conducted Emission Limit		
Frequency(MI12)	Quasi-peak	Average	
0.15-0.5	66-56*	56-46*	
0.5-5.0	56	46	
5.0-30.0	60	50	

Note: 1. \*Decreases with the logarithm of the frequency

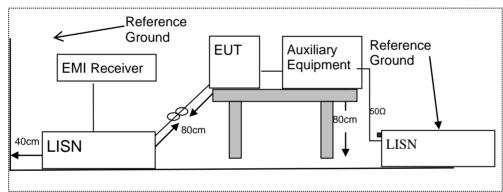
2. The lower limit shall apply at the transition frequencies

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

#### 7.1.3 Measuring Instruments

The Measuring equipment is listed in the section 6.3 of this test report.

#### 7.1.4 **Test Configuration**



#### 7.1.5 **Test Procedure**

According to the requirements in Section 13.1.4.1 of ANSI C63.10-2013 Conducted emissions the EUT measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-Peak and average detector mode.

- 1. The EUT was placed 0.4 meter from the conducting wall of the shielding room.
- 2. The EUT was placed on a table which is 0.8m above ground plane.
- 3. Connect EUT to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- 4. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40cm long.
- 5. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- 6. LISN at least 80 cm from nearest part of EUT chassis.
- 7. The frequency range from 150KHz to 30MHz was searched.
- 8. Set the test-receiver system to Peak Detect Function and specified bandwidth(IF bandwidth=9KHz) with Maximum Hold Mode
- 9. For the actual test configuration, please refer to the related Item -EUT Test Photos.





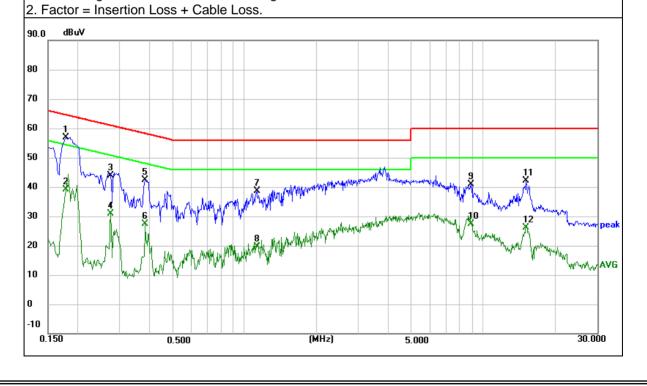
#### 7.1.6 Test Results

EUT:	Smartphone	Model Name :	Teracube 2s
Temperature:	<b>23</b> °C	Relative Humidity:	59%
Pressure:	1010hPa	Phase :	L
LAST VAIDAA .	DC 5V from Adapter AC 120V/60Hz	Test Mode:	Mode 1

Frequency	Reading Level	Correct Factor	Measure-ment	Limits	Margin	Remark
(MHz)	(dBµV)	(dB)	(dBµV)	(dBµV)	(dB)	Remark
0.1780	35.97	20.82	56.79	64.58	-7.79	peak
0.1780	18.33	20.82	39.15	54.58	-15.43	AVG
0.2740	22.99	20.91	43.90	61.00	-17.10	peak
0.2740	10.07	20.91	30.98	51.00	-20.02	AVG
0.3820	21.71	20.75	42.46	58.24	-15.78	peak
0.3820	6.63	20.75	27.38	48.24	-20.86	AVG
1.1260	17.78	20.88	38.66	56.00	-17.34	peak
1.1260	-1.13	20.88	19.75	46.00	-26.25	AVG
8.9060	20.07	20.88	40.95	60.00	-19.05	peak
8.9060	6.40	20.88	27.28	50.00	-22.72	AVG
15.1260	21.35	20.76	42.11	60.00	-17.89	peak
15.1260	5.25	20.76	26.01	50.00	-23.99	AVG

Remark:

1. All readings are Quasi-Peak and Average values.







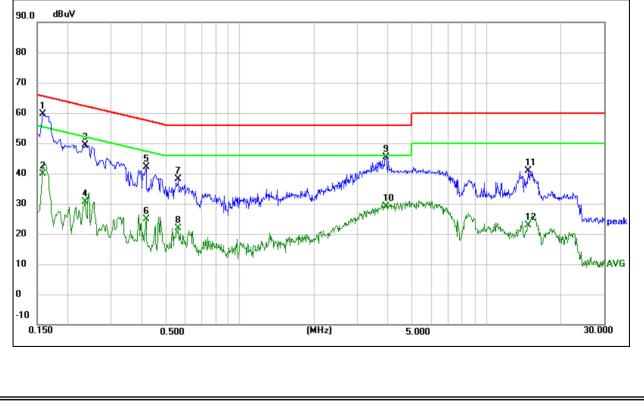
EUT:	Smartphone	Model Name :	Teracube 2s
Temperature:	<b>23</b> ℃	Relative Humidity:	59%
Pressure:	1010hPa	Phase :	Ν
lest voltage .	DC 5V from Adapter AC 120V/60Hz	Test Mode:	Mode 1

Frequency	Reading Level	Correct Factor	Measure-ment	Limits	Margin	Demeril
(MHz)	(dBµV)	(dB)	(dBµV)	(dBµV)	(dB)	Remark
0.1580	38.94	20.78	59.72	65.57	-5.85	peak
0.1580	19.09	20.78	39.87	55.57	-15.70	AVG
0.2340	28.66	20.82	49.48	62.31	-12.83	peak
0.2340	9.86	20.82	30.68	52.31	-21.63	AVG
0.4140	21.01	21.10	42.11	57.57	-15.46	peak
0.4140	3.74	21.10	24.84	47.57	-22.73	AVG
0.5620	17.33	20.89	38.22	56.00	-17.78	peak
0.5620	1.03	20.89	21.92	46.00	-24.08	AVG
3.9100	24.53	20.79	45.32	56.00	-10.68	peak
3.9100	8.42	20.79	29.21	46.00	-16.79	AVG
14.7820	19.68	21.08	40.76	60.00	-19.24	peak
14.7820	1.88	21.08	22.96	50.00	-27.04	AVG

Remark:

1. All readings are Quasi-Peak and Average values.

2. Factor = Insertion Loss + Cable Loss.







#### 7.2 **RADIATED SPURIOUS EMISSION**

#### 7.2.1 Applicable Standard

#### According to FCC Part 15.247(d) and 15.209 and ANSI C63.10-2013

#### 7.2.2 Conformance Limit

According to FCC Part 15.247(d): 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)). According to FCC Part15.205, Restricted bands

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MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	(2)
13.36-13.41			

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Restricted Frequency(MHz)	Field Strength (µV/m)	Field Strength (dBµV/m)	Measurement Distance
0.009~0.490	2400/F(KHz)	20 log (uV/m)	300
0.490~1.705	24000/F(KHz)	20 log (uV/m)	30
1.705~30.0	30	29.5	30
30-88	100	40	3
88-216	150	43.5	3
216-960	200	46	3
Above 960	500	54	3

Limits of Radiated Emission Measurement(Above 1000MHz)

Eroguopov(MHz)	Class B (dBuV/m) (at 3M)		
Frequency(MHz)	PEAK	AVERAGE	
Above 1000	74	54	

Remark :1. Emission level in dBuV/m=20 log (uV/m)

2. Measurement was performed at an antenna to the closed point of EUT distance of meters.

3. For Frequency 9kHz~30MHz: Distance extrapolation factor =40log(Specific distance/ test distance)(dB); Limit line=Specific limits(dBuV) + distance extrapolation factor.

For Frequency above 30MHz: Distance extrapolation factor =20log(Specific distance/ test distance)(dB);





Limit line=Specific limits(dBuV) + distance extrapolation factor.

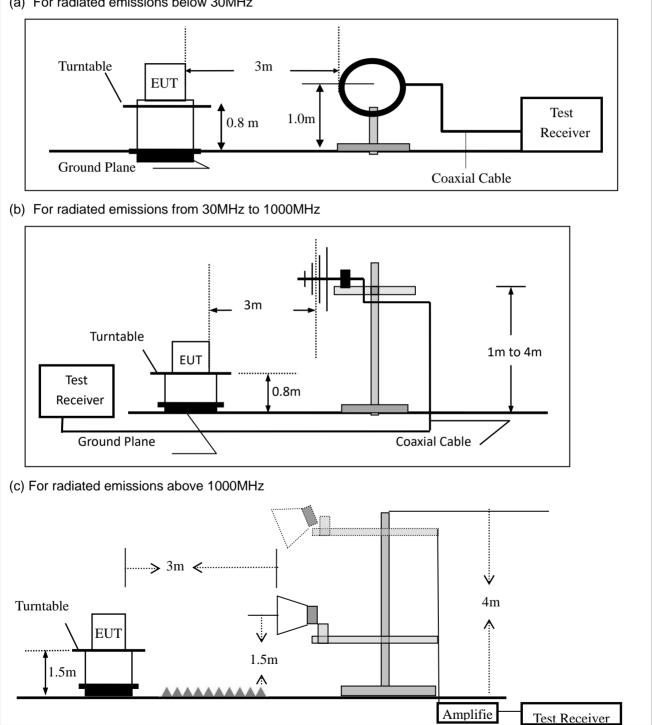
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#### 7.2.3 **Measuring Instruments**

The Measuring equipment is listed in the section 6.3 of this test report.

#### **Test Configuration** 7.2.4

(a) For radiated emissions below 30MHz





#### 7.2.5 **Test Procedure**

The test site semi-anechoic chamber has met the requirement of NSA tolerance 4 dB according to the standards: ANSI C63.10-2013. The test distance is 3m. The setup is according to the requirements in Section 13.1.4.1 of ANSI C63.10-2013 and CAN/CSA-CEI/IEC CISPR 22.

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This test is required for any spurious emission that falls in a Restricted Band, as defined in Section 15.205. It must be performed with the highest gain of each type of antenna proposed for use with the EUT. Use the following spectrum analyzer settings:

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (emission in restricted band)	1 MHz / 1 MHz for Peak, 1 MHz / 1MHz for Average

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

- a. The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
- b. The EUT was placed on the top of a rotating table 0.8 m for below 1GHz and 1.5m for above 1GHz the ground at a 3 meter. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The height of the equipment or of the substitution antenna shall be 0.8 m for below 1GHz and 1.5m for above 1GHz; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For the radiated emission test above 1GHz: Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.
- e. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- f. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
- g. For the actual test configuration, please refer to the related Item –EUT Test Photos.
   Note:

Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported



During the radiated emission test, the Spectrum Analyzer was set with the following configurations:

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Frequency Band (MHz)	Function	Resolution bandwidth	Video Bandwidth		
30 to 1000	QP	120 kHz	300 kHz		
Above 4000	Peak	1 MHz	1 MHz		
Above 1000	Average	1 MHz	1 MHz		

Note: for the frequency ranges below 30 MHz, a narrower RBW is used for these ranges but the measured value should add a RBW correction factor (RBWCF) where RBWCF [dB] =10\*lg(100 [kHz]/narrower RBW [kHz]). , the narrower RBW is 1 kHz and RBWCF is 20 dB for the frequency 9 kHz to 150 kHz, and the narrower RBW is 10 kHz and RBWCF is 10 dB for the frequency 150 kHz to 30 MHz.

#### 7.2.6 Test Results

	Spurious	Emission	below	30MHz	(9KHz to 30MHz)
--	----------	----------	-------	-------	-----------------

EUT:	Smartphone	Model No.:	Teracube 2s
Temperature:	<b>20</b> ℃	Relative Humidity:	48%
Test Mode:	Mode1/Mode2/Mode3/ Mode4	Test By:	Joe Yan

Freq.	Ant.Pol.	Emission L	.evel(dBuV/m)	Limit 3	m(dBuV/m)	Over(dB)		
(MHz)	H/V	PK AV		PK	AV	PK	AV	

Note: the amplitude of spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be reported.



#### Spurious Emission below 1GHz (30MHz to 1GHz) All the modulation modes have been tested, and the worst result was report as below:

EUT:	Smartphone	Model Name :	Teracube 2s
Temperature:	<b>25</b> ℃	Relative Humidity:	55%
Pressure:	1010hPa	Test Mode:	Mode 3 (2Mbps)
Test Voltage :	DC 3.85V		

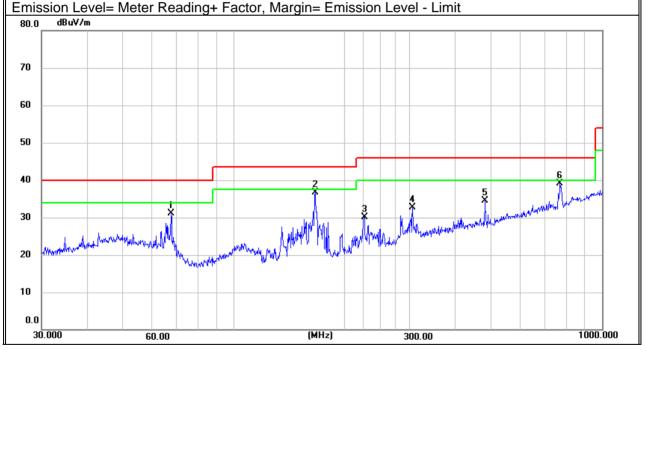
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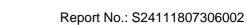
Polar	Frequency	Meter Reading	Factor	Emission Level	Limits Margin		Remark
(H/V)	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
V	67.4381	14.39	16.72	31.11	40.00	-8.89	peak
V	166.0680	21.62	1.62 15.12 36.74		43.50	-6.76	peak
V	226.0994	12.23	17.92	30.15	46.00	-15.85	peak
V	305.6800	12.42	20.32	32.74	46.00	-13.26	peak
V	480.5276	10.66	23.84	34.50	46.00	-11.50	peak
V	768.7481	10.45	28.56	39.01	46.00	-6.99	peak

#### Remark:









Polar	Freque	ncy		eter ading	Factor	Emis: Lev		Limit	s	Margin		Remark
(H/V)	(MHz	)	(dE	BuV)	(dB)	(dBu	V/m)	(dBuV/	(dBuV/m)			
Н	67.438	31	15	5.87	16.72	32.	59	40.00	)	-7.41		peak
Н	166.06	80	16	6.88	15.12	32.	00	43.50	)	-11.50	1	peak
Н	285.97	77	18	3.28	19.90	38.	18	46.00	)	-7.82		peak
Н	383.93	18	8	.91	22.28	31.	19	46.00	)	-14.81		peak
Н	480.52	76	14	1.92	23.84	38.	76	46.00	)	-7.24		peak
Н	768.74	81	11	1.07	28.56	39.	63	46.00	)	-6.37		peak
	n Level= N Bu¥/m	1eter R	teadir	<u>ıg+ Fac</u>	ctor, Margin	n= Emiss	sion Le	evel - Limit	<u>:</u>			
70												
60												
50						ſ						
40			1 X			z		3 X 4	5 X		6 Martin	and the
30	warman about the alter him	why have a	Å			Interne	NW I	Hurwila	ANYMEN	- windy day		
20 10.00	W/WW I W	WW	LA WA	runanaah	www.du.lumphu	······································	<u> </u>					
10 0.0												
30.000		60.0				(MHz)		300.00			1	000.000

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EUT:		Smartphon	e		Model No.:		Teracube	2s	
Temperature	e:	<b>20</b> °C			Relative Hu	midity:	48%		
Fest Mode:		Mode2/Mo	de3/Mode	4	Test By:		Joe Yan		
Frequency	Read Level		Antenna Factor	Pream Facto		Limits	Margin	Remark	Comment
(MHz)	(dBµV	′) (dB)	dB/m	(dB)	(dBµV/m)	(dBµV/m	) (dB)		
			Low (	Channel	(2404 MHz)(G	FSK)Above	e 1G		
4802.35	67.59	9 5.21	35.59	44.30	64.09	74.00	-9.91	Pk	Vertical
4802.35	47.01	I 5.21	35.59	44.30	43.51	54.00	-10.49	AV	Vertical
7206.30	64.65	5 6.48	36.27	44.60	62.80	74.00	-11.20	Pk	Vertical
7206.30	45.71	l 6.48	36.27	44.60	43.86	54.00	-10.14	AV	Vertical
4804.94	65.77	7 5.21	35.55	44.30	) 62.23	74.00	-11.77	Pk	Horizonta
4804.94	46.27	7 5.21	35.55	44.30	) 42.73	54.00	-11.27	AV	Horizonta
7206.77	66.57	6.48	36.27	44.52	2 64.80	74.00	-9.20	Pk	Horizonta
7206.77	45.90	0 6.48	36.27	44.52	2 44.13	54.00	-9.87	AV	Horizonta
		·	Mid C	Channel	(2440 MHz)(GI	SK)Above	e 1G		
4880.90	62.45	5 5.21	35.66	44.20	59.12	74.00	-14.88	Pk	Vertical
4880.90	45.98	3 5.21	35.66	44.20	) 42.65	54.00	-11.35	AV	Vertical
7320.07	67.22	2 7.10	36.50	44.43	3 66.39	74.00	-7.61	Pk	Vertical
7320.07	46.19	7.10	36.50	44.43	3 45.36	54.00	-8.64	AV	Vertical
4880.20	66.52	2 5.21	35.66	44.20	63.19	74.00	-10.81	Pk	Horizonta
4880.20	45.88	3 5.21	35.66	44.20	) 42.55	54.00	-11.45	AV	Horizonta
7320.50	64.84	1 7.10	36.50	44.43	3 64.01	74.00	-9.99	Pk	Horizonta
7320.50	44.81	I 7.10	36.50	44.43	3 43.98	54.00	-10.02	AV	Horizonta
	•		High (	Channel	(2478 MHz)(G	FSK) Abov	e 1G		·
4960.38	66.73	3 5.21	35.52	44.2	1 63.25	74.00	-10.75	Pk	Vertical
4960.38	46.47	7 5.21	35.52	44.2 <sup>-</sup>	1 42.99	54.00	-11.01	AV	Vertical
7440.43	65.51	I 7.10	36.53	44.60	0 64.54	74.00	-9.46	Pk	Vertical
7440.43	47.31	I 7.10	36.53	44.60	46.34	54.00	-7.66	AV	Vertical
4960.51	67.59	9 5.21	35.52	44.2 <sup>-</sup>	1 64.11	74.00	-9.89	Pk	Horizonta
4960.51	45.41	5.21	35.52	44.2 <sup>-</sup>	1 41.93	54.00	-12.07	AV	Horizonta
7440.49	66.69	7.10	36.53	44.60	65.72	74.00	-8.28	Pk	Horizonta
7440.49	46.72	2 7.10	36.53	44.60	) 45.75	54.00	-8.25	AV	Horizonta

## Spurious Emission Above 1GHz (1GHz to 25GHz)

Note:

(1) Emission Level= Antenna Factor + Cable Loss + Read Level - Preamp Factor

(2)All other emissions more than 20dB below the limit.

(3)Only the worst data is recorded in the report, the data rates (2Mbps for GFSK modulation) test result is the worst





	Spurious E	mission i	n Restrict	ted Band 2	2310-239	0MHz and	2483.	5-25	500MHz			
ΕU	T:	Smartph	none		Mode	l No.:		Tera	acube 2s			
Ter	nperature:	<b>20</b> ℃			Relat	ive Humidi	ty:	48%	, 0			
Tes	st Mode:	Mode2/	Mode4		Test I	Test By: Jo			Joe Yan			
	Frequency	Meter Reading	Cable Loss	Antenna Factor	Preamp Factor	Emission Level	Lim	its	Margin	Detector	Comment	
	(MHz)	(dBµV)	(dB)	dB/m	(dB)	(dBµV/m)	(dBµ∖	//m)	(dB)	Туре		
	2Mbps(GFSK)											
	2310.00	64.70	2.97	27.80	43.80	51.67	74	1	-22.33	Pk	Horizontal	
	2310.00	41.58	2.97	27.80	43.80	28.55	54	1	-25.45	AV	Horizontal	
	2310.00	61.34	2.97	27.80	43.80	48.31	74	1	-25.69	Pk	Vertical	
	2310.00	45.32	2.97	27.80	43.80	32.29	54	1	-21.71	AV	Vertical	
	2390.00	67.51	3.14	27.21	43.80	54.06	74	1	-19.94	Pk	Vertical	
	2390.00	46.61	3.14	27.21	43.80	33.16	54	1	-20.84	AV	Vertical	
	2390.00	64.30	3.14	27.21	43.80	50.85	74	1	-23.15	Pk	Horizontal	
	2390.00	45.63	3.14	27.21	43.80	32.18	54	1	-21.82	AV	Horizontal	
	2483.50	62.44	3.58	27.70	44.00	49.72	74	1	-24.28	Pk	Vertical	
	2483.50	46.64	3.58	27.70	44.00	33.92	54	1	-20.08	AV	Vertical	
	2483.50	67.55	3.58	27.70	44.00	54.83	74	1	-19.17	Pk	Horizontal	
	2483.50	45.85	3.58	27.70	44.00	33.13	54	1	-20.87	AV	Horizontal	

### rioted Rend 2210 2200MUz and 2482 E 2500MUz

Note: (1) All other emissions more than 20dB below the limit.

(2)Only the worst data is recorded in the report, the data rates (2Mbps for GFSK modulation) test result is the worst

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EUT:	Smar	tphone		Model	No.:	-	Teracube 2s			
Temperature	e: 20 ℃			Relativ	e Humidity	': 4	48%			
Fest Mode: Mode2/ Mode4			Test By	/:		Joe Y	'an			
Frequency	Reading Level	Cable Loss	Antenna Factor	Preamp Factor	Emission Level	Lin	nits	Margin	Detector	Comment
(MHz)	(dBµV)	(dB)	dB/m	(dB)	(dBµV/m)	(dBµ	ıV/m)	(dB)	Туре	
3260	66.53	4.04	29.57	44.70	55.44	7	'4	-18.56	Pk	Vertical
3260	46.11	4.04	29.57	44.70	35.02	5	64	-18.98	AV	Vertical
3260	68.08	4.04	29.57	44.70	56.99	7	'4	-17.01	Pk	Horizontal
3260	46.67	4.04	29.57	44.70	35.58	5	54	-18.42	AV	Horizontal
3332	65.50	4.26	29.87	44.40	55.23	7	'4	-18.77	Pk	Vertical
3332	47.12	4.26	29.87	44.40	36.85	5	64	-17.15	AV	Vertical
3332	63.48	4.26	29.87	44.40	53.21	7	'4	-20.79	Pk	Horizontal
3332	46.98	4.26	29.87	44.40	36.71	5	64	-17.29	AV	Horizontal
17797	49.74	10.99	43.95	43.50	61.18	7	'4	-12.82	Pk	Vertical
17797	36.85	10.99	43.95	43.50	48.29	5	64	-5.71	AV	Vertical
17788	47.12	11.81	43.69	44.60	58.02	7	'4	-15.98	Pk	Horizontal
17788	36.86	11.81	43.69	44.60	47.76	5	4	-6.24	AV	Horizontal

Note: (1) All other emissions more than 20dB below the limit.

(2)Only the worst data is recorded in the report, the data rates (2Mbps for GFSK modulation) test result is the worst



#### 7.3 6DB BANDWIDTH

#### 7.3.1 Applicable Standard

According to FCC Part 15.247(a)(2) and KDB 558074 D01 15.247 Meas Guidance v05r02 Section 8.2.

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#### 7.3.2 Conformance Limit

The minimum permissible 6dB bandwidth is 500 kHz.

#### 7.3.3 Measuring Instruments

The Measuring equipment is listed in the section 6.3 of this test report.

#### 7.3.4 Test Setup

Please refer to Section 6.1 of this test report.

#### 7.3.5 **Test Procedure**

The testing follows Subclause 11.8 of ANSI C63.10

The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator.

The path loss was compensated to the results for each measurement.

Set to the maximum power setting and enable the EUT transmit continuously.

The EUT was operating in controlled its channel.

Use the following spectrum analyzer settings:

- a) Set RBW = 100 kHz.
- b) Set the video bandwidth (VBW)  $\geq$  3\*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.

#### 7.3.6 Test Results

EUT:	Smartphone	Model No.:	Teracube 2s
Temperature:	<b>20</b> ℃	Relative Humidity:	48%
Test Mode:	Mode2/Mode3/Mode4	Test By:	Joe Yan





#### 7.4 DUTY CYCLE

#### 7.4.1 Applicable Standard

According to KDB 558074 D01 15.247 Meas Guidance v05r02s Section 6.

#### 7.4.2 **Conformance Limit**

No limit requirement.

#### 7.4.3 Measuring Instruments

The Measuring equipment is listed in the section 6.3 of this test report.

#### 7.4.4 Test Setup

Please refer to Section 6.1 of this test report.

#### 7.4.5 **Test Procedure**

The zero-span mode on a spectrum analyzer or EMI receiver if the response time and spacing between bins on the sweep are sufficient to permit accurate measurements of the on and off times of the transmitted signal. Set the center frequency of the instrument to the center frequency of the transmission. Set RBW  $\geq$  OBW if possible; otherwise, set RBW to the largest available value. Set VBW  $\geq$  RBW. Set detector = peak or average. The zero-span measurement method shall not be used unless both RBW and VBW are > 50/T and the number of sweep points across duration T exceeds 100. (For example, if VBW and/or RBW are limited to 3 MHz, then the zero-span method of measuring duty cycle shall not be used if T  $\leq$  16.7 microseconds.)

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The transmitter output is connected to the Spectrum Analyzer. We tested accroding to the zero-span measurement method, 6.0)b) in KDB 558074

The largest available value of RBW is 8 MHz and VBW is 50 MHz. The zero-span method of measuring duty cycle shall not be used if  $T \le 6.25$  microseconds. (50/6.25 = 8)

The zero-span method was used because all measured T data are > 6.25 microseconds and both RBW and VBW are > 50/T.

The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement. Set to the maximum power setting and enable the EUT transmit continuously. The EUT was operating in controlled its channel. Use the following spectrum analyzer settings: Span = Zero Span RBW = 8MHz(the largest available value) VBW = 8MHz ( $\geq$  RBW) Number of points in Sweep >100 Detector function = peak Trace = Clear write Measure T<sub>total</sub> and T<sub>on</sub> Calculate Duty Cycle = T<sub>on</sub> / T<sub>total</sub>





#### 7.4.6 Test Results

EUT:	Smartphone	Model No.:	Teracube 2s
Temperature:	<b>20</b> ℃	Relative Humidity:	48%
Test Mode:	Mode2/Mode3/Mode4	Test By:	Joe Yan

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#### 7.5 PEAK OUTPUT POWER

#### 7.5.1 Applicable Standard

According to FCC Part 15.247(b)(3) and KDB 558074 D01 15.247 Meas Guidance v05r02 Section 8.3.1.

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#### 7.5.2 **Conformance Limit**

The maximum peak conducted output power of the intentional radiator for systems using digital modulation in the 2400 - 2483.5 MHz bands shall not exceed: 1 Watt (30dBm). If transmitting antenna of directional gain greater than 6dBi is used, the peak output power from the intentional radiator shall be reduced below the above stated value by the amount in dB that the directional gain of the antenna exceeds 6 dBi. In case of point-to-point operation, the limit has to be reduced by 1dB for every 3dB that the directional gain of the antenna exceeds 6dBi.

#### 7.5.3 Measuring Instruments

The Measuring equipment is listed in the section 6.3 of this test report.

#### 7.5.4 Test Setup

Please refer to Section 6.1 of this test report.

#### 7.5.5 **Test Procedure**

The testing follows Subclause 11.9.1.1 of ANSI C63.10 The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement. Set to the maximum power setting and enable the EUT transmit continuously. The EUT was operating in controlled its channel. Use the following spectrum analyzer settings: Set the RBW  $\geq$  DTS bandwidth. Set VBW =3\*RBW. Set the span  $\geq$  3\*RBW Set Sweep time = auto couple. Set Detector = peak. Set Trace mode = max hold. Allow trace to fully stabilize. Use peak marker function to determine the peak amplitude level.

#### 7.5.6 **Test Results**

EUT:	Smartphone	Model No.:	Teracube 2s
Temperature:	<b>20</b> ℃	Relative Humidity:	48%
Test Mode:	Mode2/Mode3/Mode4	Test By:	Joe Yan



#### 7.6 **POWER SPECTRAL DENSITY**

#### 7.6.1 Applicable Standard

According to FCC Part 15.247(e) and KDB 558074 D01 15.247 Meas Guidance v05r02 Section 8.4.

#### 7.6.2 **Conformance Limit**

The transmitter power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

#### 7.6.3 Measuring Instruments

The Measuring equipment is listed in the section 6.3 of this test report.

#### 7.6.4 Test Setup

Please refer to Section 6.1 of this test report.

#### 7.6.5 **Test Procedure**

The testing follows Measurement Procedure Subclause 11.10.2 of ANSI C63.10 This procedure shall be used if maximum peak conducted output power was used to demonstrate compliance, and is optional if the maximum conducted (average) output power was used to demonstrate compliance.

The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator.

The path loss was compensated to the results for each measurement.

Set to the maximum power setting and enable the EUT transmit continuously.

The EUT was operating in controlled its channel.

- a) Set analyzer center frequency to DTS channel center frequency.
- b) Set the span to 1.5\*DTS bandwidth.
- c) Set the RBW to:  $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$ .
- d) Set the VBW  $\geq$  3 RBW.
- e) Detector = peak.
- f) Sweep time = auto couple.
- g) Trace mode = max hold.
- h) Allow trace to fully stabilize.
- i) Use the peak marker function to determine the maximum amplitude level within the RBW.
- j) If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.





#### 7.6.6 Test Results

EUT:	Smartphone	Model No.:	Teracube 2s
Temperature:	<b>20</b> ℃	Relative Humidity:	48%
Test Mode:	Mode2/Mode3/Mode4	Test By:	Joe Yan



#### 7.7 CONDUCTED BAND EDGE MEASUREMENT

#### 7.7.1 Applicable Standard

According to FCC Part 15.247(d) and KDB 558074 D01 15.247 Meas Guidance v05r02 Section 8.7.

#### 7.7.2 **Conformance 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.

#### 7.7.3 Measuring Instruments

The Measuring equipment is listed in the section 6.3 of this test report.

#### 7.7.4 Test Setup

Please refer to Section 6.1 of this test report.

#### 7.7.5 **Test Procedure**

The testing follows FCC KDB 558074 D01 15.247 Meas Guidance v05r02 Section 8.7.

The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator.

The path loss was compensated to the results for each measurement.

Set to the maximum power setting and enable the EUT transmit continuously.

The EUT was operating in controlled its channel.

Set RBW to 100 kHz and VBW of spectrum analyzer to 300 kHz with a convenient frequency span including 100 kHz bandwidth from band edge.

Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.

Repeat above procedures until all measured frequencies were complete.

#### 7.7.6 Test Results

EUT:	Smartphone	Model No.:	Teracube 2s
Temperature:	<b>20</b> ℃	Relative Humidity:	48%
Test Mode:	Mode2/Mode4	Test By:	Joe Yan





#### 7.8 SPURIOUS RF CONDUCTED EMISSIONS

#### 7.8.1 Conformance Limit

1. Below -20dB of the highest emission level in operating band.

2. Fall in the restricted bands listed in section 15.205. The maximum permitted average field strength is listed in section 15.209.

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#### 7.8.2 Measuring Instruments

The Measuring equipment is listed in the section 6.3 of this test report.

#### 7.8.3 Test Setup

Please refer to Section 6.1 of this test report.

#### 7.8.4 **Test Procedure**

The Spurious RF conducted emissions compliance of RF radiated emission should be measured by following the guidance in ANSI C63.10-2013 with respect to maximizing the emission by rotating the EUT, measuring the emission while the EUT is situated in three orthogonal planes (if appropriate), adjusting the measurement antenna height and polarization etc. Set RBW=100kHz and VBW= 300KHz to measure the peak field strength , and measure frequency range from 30MHz to 26.5GHz.

#### 7.8.5 **Test Results**

Remark: The measurement frequency range is from 30MHz to the 10th harmonic of the fundamental frequency. The lowest, middle and highest channels are tested to verify the spurious emissions and bandege measurement data.





#### 7.9 ANTENNA APPLICATION

#### 7.9.1 Antenna Requirement

15.203 requirement: For intentional device, according to 15.203: 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.

#### 7.9.2 **Result**

The EUT antenna is permanent attached PIFA Antenna (Gain: 1.2 dBi). It comply with the standard requirement.





## 8 TEST RESULTS

#### 8.1 **1M**

#### 8.1.1 Duty Cycle

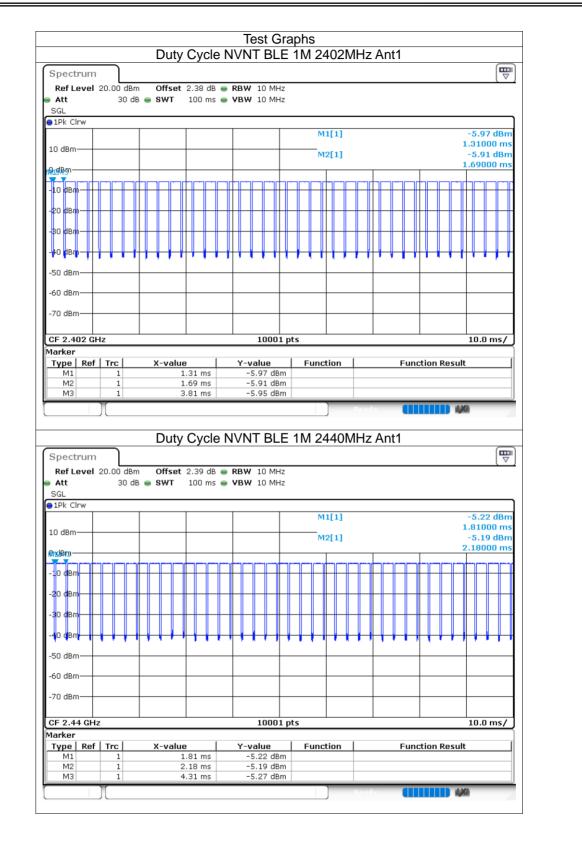
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	BLE 1M	2402	Ant1	85.2	0.7	0.47
NVNT	BLE 1M	2440	Ant1	85.6	0.68	0.47
NVNT	BLE 1M	2480	Ant1	85.6	0.68	0.47

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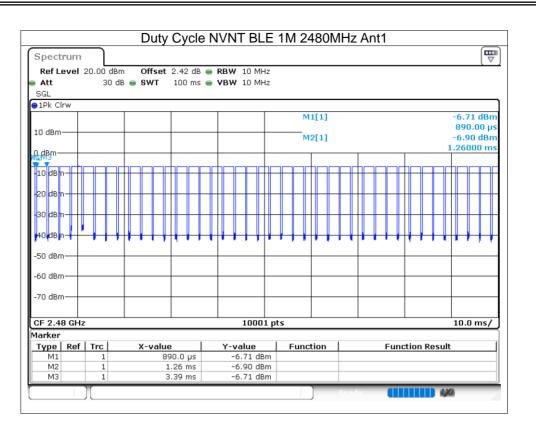
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# 8.1.2 Maximum Conducted Output Power

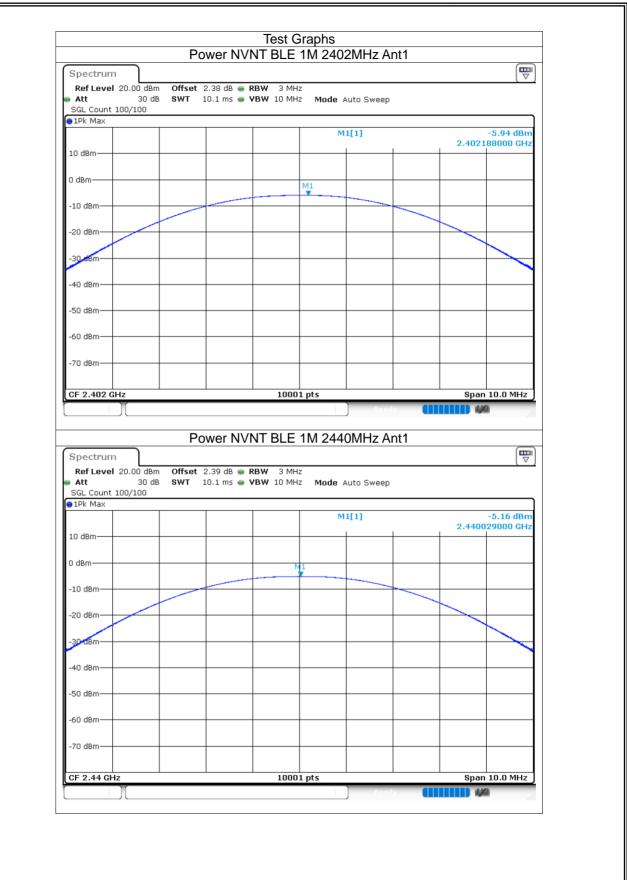
Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	BLE 1M	2402	Ant1	-5.94	30	Pass
NVNT	BLE 1M	2440	Ant1	-5.16	30	Pass
NVNT	BLE 1M	2480	Ant1	-6.71	30	Pass

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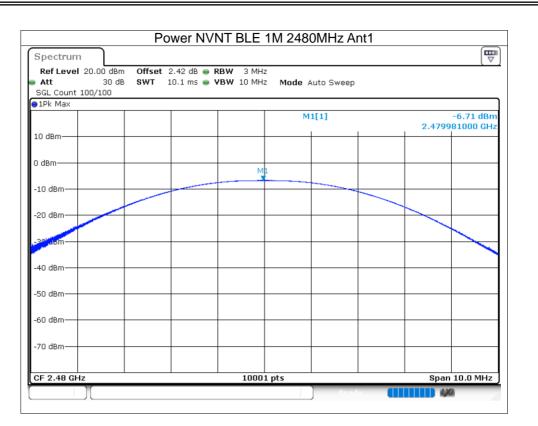
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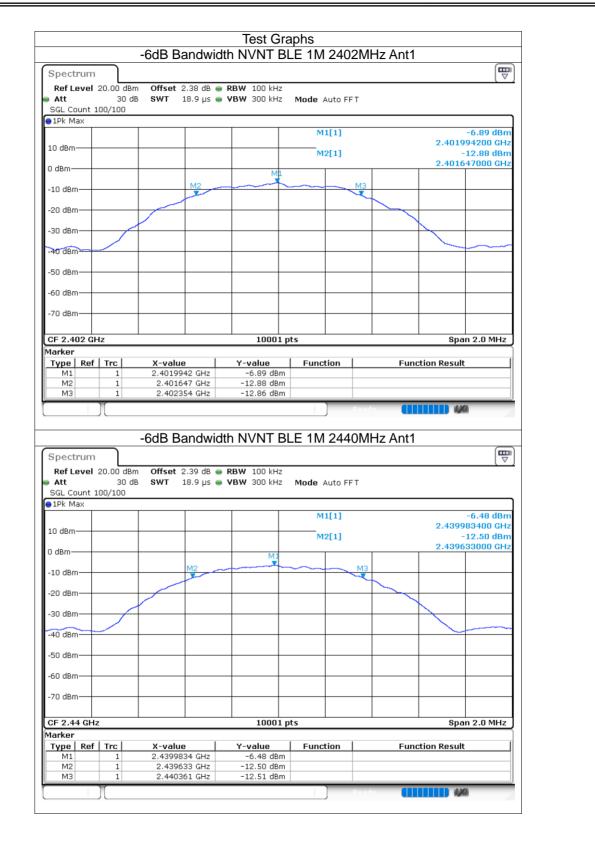


## 8.1.3 -6dB Bandwidth

C	5.1.3 <b>-00B</b>	Danuwiu					
	Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
	NVNT	BLE 1M	2402	Ant1	0.708	0.5	Pass
	NVNT	BLE 1M	2440	Ant1	0.727	0.5	Pass
	NVNT	BLE 1M	2480	Ant1	0.653	0.5	Pass

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			dth NVNT BL				(FF
pectrum							[₩
Ref Level 20	).00 dBm	Offset 2.42 dB	🔵 RBW 100 kHz				
Att	30 dB	<b>SWT</b> 18.9 μs	🔵 <b>VBW</b> 300 kHz	Mode Auto FFT			
GL Count 10	0/100						
1Pk Max							
				M1[1]			.02 dBm
0 dBm						2.480249	
o abiii				M2[1]			.06 dBm
dBm						2.479670	000 GH2
				M1			
LO dBm		M2	~~~~	<u> </u>			
				•			
20 dBm							
30 dBm —							
10 dBm-	/						
						$\smile$	
50 dBm —							
i0 dBm							
70 dBm —							
F 2.48 GHz			10001 pt	s	1	Span 3	2.0 MHz
arker						-Fair	
Type   Ref   1	Tre	X-value	Y-value	Function	Func	tion Result	
M1	1	2.48024978 GHz	-7.02 dBm	ranocion	- T unc	aton Kasut	
M2	1	2.47967 GHz	-13.06 dBm				
M3	1	2.480323 GHz	-13.01 dBm				

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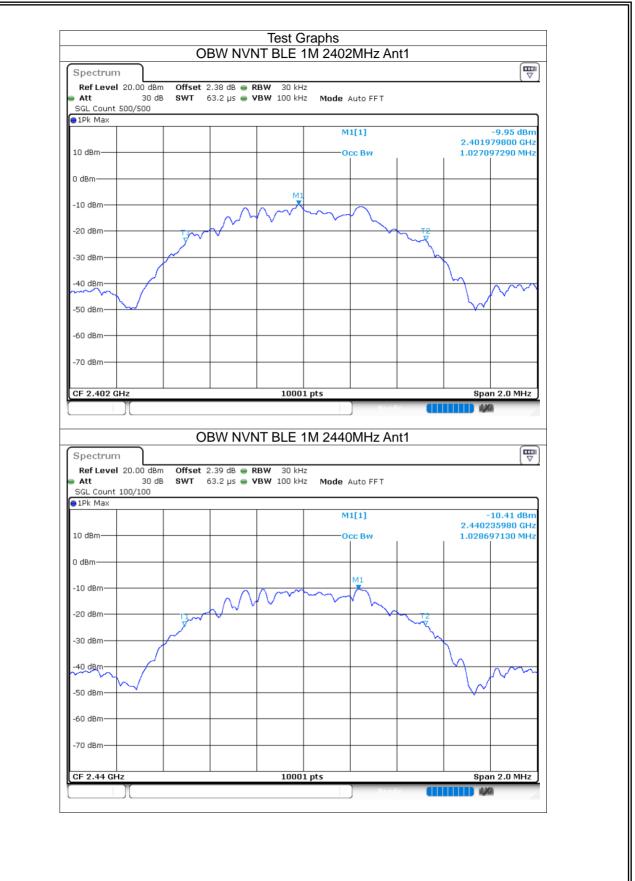




# 8.1.4 Occupied Channel Bandwidth

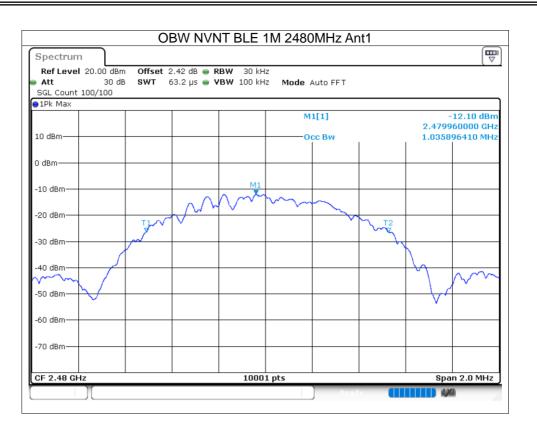
Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	BLE 1M	2402	Ant1	1.027
NVNT	BLE 1M	2440	Ant1	1.029
NVNT	BLE 1M	2480	Ant1	1.036





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# 8.1.5 Maximum Power Spectral Density Level

Conditio	n Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm)	Limit (dBm)	Verdict
NVNT	BLE 1M	2402	Ant1	-22.78	8	Pass
NVNT	BLE 1M	2440	Ant1	-22.03	8	Pass
NVNT	BLE 1M	2480	Ant1	-23.61	8	Pass

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Spectrum Ref Level 20.00	dim Offerst	0 20 dp	nu okus					
Att :: SGL Count 1000/:	30 dB <b>SWT</b>	2.38 dB 👄 R 632 µs 👄 V			uto FFT			
●1Pk Max		1		м	1[1]			-22.78 dBm
10 dBm								183130 GHz
0 dBm								
-10 dBm								
-20 dBm		мі						
	Mannam	Manne	manyor	Mummulua	www.	Moushin		
-30 dBm							and	home who
-50 dBm								
-60 dBm								<b> </b>
-70 dBm								
CF 2.402 GHz			1001	pts			Span	1.062 MHz
					Read	x III		ź
Cu a atravas	P	SD NVN	II BLE 1	M 2440	MHZ AN	t1		
Spectrum Ref Level 20.00	dBm Offset	2.39 dB 👄 R	BW 3 kHz					[   ]
Att :: SGL Count 1000/:	30 dB <b>SWT</b> 1000	632 µs 👄 🎙	BW 10 kHz	Mode A	uto FFT			
●1Pk Max				M	1[1]			-22.03 dBm
● 1Pk Max 10 dBm				м	1[1]			-22.03 dBm 983115 GHz
10 dBm				м	1[1]			
				M	1[1]			
10 dBm							2.439	983115 GHz
0 dBm		M1					2.439	983115 GHz
10 dBm	mart Maring M	M1 MWMMW	- Mary Marila			Winplang	2.439	983115 GHz
10 dBm 0 dBm -10 dBm -20 dBm -30 dBm	www.howwaltu	M1 Arwww.arw	- Mary Marila			Wwwhow	2.439	983115 GHz
10 dBm		MI	- Marala			Wingth	2.439	
10 dBm 0 dBm -10 dBm -20 dBm -30 dBm	man Marina Ma Marina Marina M	M1 MMMMM	- Martin Januar			Wwwhowy	2.439	983115 GHz
10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -30 dBm -40 dBm		MI	- Malaparala			Wwpthing	2.439	983115 GHz
10 dBm 0 dBm -10 dBm -20 dBm -20 dBm -30 dBm -30 dBm -50 dBm -60 dBm	mal Maring Marin	M1 MMMMMM	- Mahapatanaka			Wwwhowy	2.439	983115 GHz
10 dBm 0 dBm -10 dBm -20 dBm -20 dBm -30 dBm -30 dBm -50 dBm		MI MMMMM M	- Malaparala			Wwpthing	2.439	983115 GHz
10 dBm 0 dBm -10 dBm -20 dBm -20 dBm -30 dBm -30 dBm -50 dBm -60 dBm							2.439	0905 MHz

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	Р	SD NVN	T BLE 1	M 2480	MHz An	it1		
Spectrum								
SGL Count 1000/1	30 dB <b>SWT</b>	2.42 dB ● F 632.1 µs ● V		-	uto FFT			
1Pk Max				M	1[1]			23.61 dBm
								31690 GHz
10 dBm								
D dBm								
-10 dBm								
-20 dBm		M1						
-30 dBm	her month	Munm	wywww	mannah	hannan	man	March	
mp www.	000 4 Y						" Jone Way	WWWWWW
-40 dBm								
-50 dBm								
-60 dBm								
-70 dBm								
CF 2.48 GHz		· ·	1001	pts			Span	979.5 kHz
					Read	y (11		1

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ſ

Condition	Edge Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdic
NVNT	BLE 1M	2402	Ant1	-53.59	-20	Pass
NVNT	BLE 1M	2480	Ant1	-54.39	-20	Pass

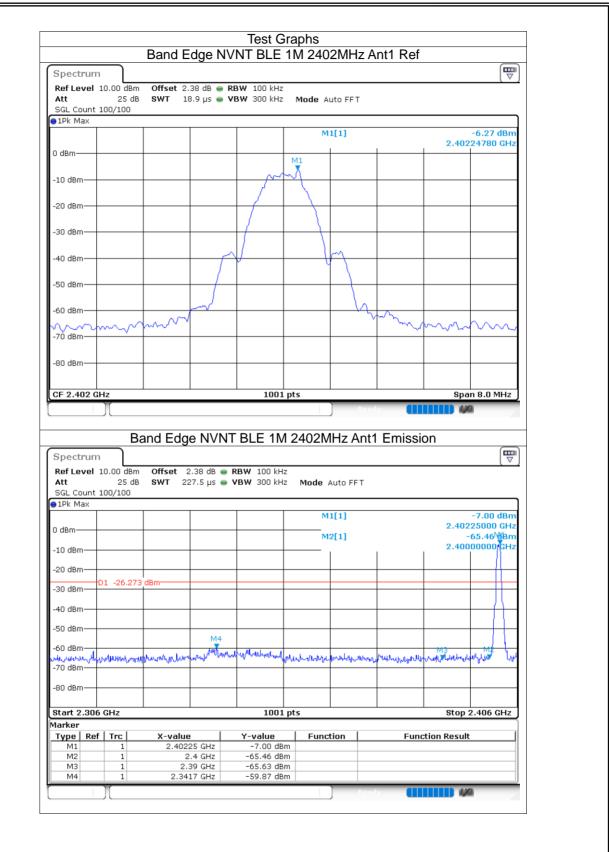


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Spect	ter rec				VNT BLE					
-			. Offeret (	0 40 d0 - 0 I	RBW 100 kHz					[   ]
Att		25 c 100/100			<b>VBW</b> 300 kHz	Mode A	uto FFT			
1Pk M		100/100								
						М	1[1]			-8.06 dBm
0 dBm-							I	1	2.480	24780 GHz
ubiii-						M1				
-10 dBr	n-+		_		$+ \wedge$	×				
-20 dBr	n				-/	$\rightarrow$				
-30 dBr	n					$ \rightarrow $				
-40 dBr						t	$\square$			
-50 dBr	n									
-60 dBr			h		+ +			m	h.	man
-70 dBr	n	• ~~			+					
-80 dBr	n									<b>  </b>
05.0					1001	nte			Sna	n 8.0 MHz
UF 2.4	8 GH:	][	Band Edg	ge NVN	T BLE 1M		) Rea IHz Anti	1 Emissi		
Spect	trum				T BLE 1M	2480N	) Peo IHz Ant	te 🚺 1 Emissi		
Spect Ref Le Att	trum		m Offset	2.42 dB 🖷		2480N	) Rea IHz Ant Auto FFT	1 Emissi		
Att	trum evel 1	10.00 dB 25 c	m Offset	2.42 dB 🖷	T BLE 1M	2480N Mode	Auto FFT	1 Emissi		
Spect Ref Le Att SGL Ci JPk M	trum evel 1	10.00 dB 25 c	m Offset	2.42 dB 🖷	T BLE 1M	2480N Mode		1 Emissi	on	(₩) -8.64 dBm
Spect RefLe Att SGL Cr ) 1Pk M 0 dBm- M1	trum evel 1 ount 1 lax	10.00 dB 25 c	m Offset	2.42 dB 🖷	T BLE 1M	2480W	Auto FFT	1 Emissi	on 2.480	-8.64 dBm 15000 GHz 64.11 dBm
Spect RefLe SGL Co 1Pk M	trum evel 1 ount 1 lax	10.00 dB 25 c	m Offset	2.42 dB 🖷	T BLE 1M	2480W	Auto FFT 1[1]	1 Emissi	on 2.480	-8.64 dBm
Spect RefLe Att SGL Ci 1Pk M D dBm- M1 -10 dBr	trum evel 1 lax	10.00 dB 25 c	m Offset	2.42 dB 🖷	T BLE 1M	2480W	Auto FFT 1[1]	1 Emissi	on 2.480	-8.64 dBm 15000 GHz 64.11 dBm
Spect Ref Le SGL Co 1Pk M 0 dBm- M1 -10 dBr -20 dBr	trum evel 1 lax	IC.00 dB 25 c 100/100	m Offset B SWT 2	2.42 dB 🖷	T BLE 1M	2480W	Auto FFT 1[1]	1 Emissi	on 2.480	-8.64 dBm 15000 GHz 64.11 dBm
Spect RefLe Att SGL Ci 1Pk M D dBm- M1 -10 dBr	trum evel 1 lax	10.00 dB 25 c	m Offset B SWT 2	2.42 dB 🖷	T BLE 1M	2480W	Auto FFT 1[1]	1 Emissi	on 2.480	-8.64 dBm 15000 GHz 64.11 dBm
Spect Ref Le SGL Co 1Pk M 0 dBm- M1 -10 dBr -20 dBr	trum evel 1 lax	IC.00 dB 25 c 100/100	m Offset B SWT 2	2.42 dB 🖷	T BLE 1M RBW 100 kHz	2480W	Auto FFT 1[1]	1 Emissi	on 2.480	-8.64 dBm 15000 GHz 64.11 dBm
Spect Ref Le SGL Co 1Pk M 1Pk M -10 dBm- M1 -20 dBr -30 dBr -40 dBr	n n n	IC.00 dB 25 c 100/100	m Offset B SWT 2	2.42 dB 🖷	T BLE 1M RBW 100 kHz	2480W	Auto FFT 1[1]	1 Emissi	on 2.480	-8.64 dBm 15000 GHz 64.11 dBm
Spect Ref Le Att SGL C: 1Pk M 1 dBm- M1 -10 dBr -20 dBr -30 dBr -30 dBr -50 dBr	trum evel 3 lax n n n	IC.00 dB 25 c 100/100	m Offset B SWT 2	2.42 dB 🖷	T BLE 1M RBW 100 kHz	2480W	Auto FFT 1[1]	1 Emissi	on 2.480	-8.64 dBm 15000 GHz 64.11 dBm
Spect Ref Le SGL Cr J IPk M J IPk M J dBm -10 dBm -20 dBm -30 dBr -30 dBr -50 dBr	n n n n	IC.00 dB 25 c 100/100	m Offset B SWT 2	2.42 dB ● 227.5 µs ●	T BLE 1M RBW 100 kHz	2480M	Auto FFT 1[1] 2[1]		0n 2.480 2.483	-8.64 dBm 15000 GHz 64.11 dBm
Spect Ref Le Att SGL C: 1Pk M 1 dBm- M1 -10 dBr -20 dBr -30 dBr -30 dBr -50 dBr	n n n n n	10.00 dB 25 c 100/100	m Offset B SWT 2	2.42 dB ● 227.5 µs ●	T BLE 1M	2480M	Auto FFT 1[1] 2[1]		0n 2.480 2.483	-8.64 dBm 15000 GHz 64.11 dBm 50000 GHz
Spect Ref Le Att SGL Cr 1Pk M 0 dBm- M1 -10 dBr -20 dBr -20 dBr -30 dBr -40 dBr -70 dBr -70 dBr	n n n n n n n n n n n n n n n n n n n	10.00 dB 25 c 100/100	m Offset B SWT 2	2.42 dB ● 227.5 µs ●	T BLE 1M	2480M	Auto FFT 1[1] 2[1]		2.483	-8.64 dBm 15000 GHz 64.11 dBm 50000 GHz
Spect Ref Le SGL C. SGL C. SGL C. SGL C. M1 -10 dBr -20 dBr -30 dBr -30 dBr -50 dBr -70 dBr -70 dBr -80 dBr -80 dBr	n n n n n n n n n n n 2.476	10.00 dB 25 c 100/100	m Offset B SWT 2	2.42 dB ● 227.5 µs ●	T BLE 1M	2480N Mode / M	Auto FFT 1[1] 2[1]		2.483	-8.64 dBm 15000 GHz 64.11 dBm 50000 GHz
Spect Ref Le SGL C: Att SGL C: At	n n n n 2.476	E 10.00 dB 25 c 100/100	m Offset B SWT 2	2.42 dB • 227.5 μs •	T BLE 1M	2480N Mode M m	Auto FFT 1[1] 2[1]		On 2.480 2.483	-8.64 dBm 15000 GHz 64.11 dBm 50000 GHz
Spect Ref Le SGL C. SGL C. SGL C. SGL C. M1 -10 dBr -20 dBr -30 dBr -30 dBr -50 dBr -70 dBr -70 dBr -80 dBr -80 dBr	n n n n 2.476	CHz	m Offset B SWT 2 56 dBm 56 dBm 1 56 dBm 1 56 dBm 1 56 dBm	2.42 dB • 227.5 μs •	T BLE 1M	2480N Mode / M M m pts Func	Auto FFT 1[1] 2[1]		2.483	-8.64 dBm 15000 GHz 64.11 dBm 50000 GHz
Spect Ref Le SGL C. SGL C. SGL C. SGL C. M1 -10 dBr -20 dBr -30 dBr -30 dBr -40 dBr -50 dBr -70 dBr -7	n n n n 2.476	E 10.00 dB 25 c 100/100 01 -28.0 01 -28.0 01 -28.0 01 -28.0 01 -1 01 -1 01 -28.0 01 -	m Offset B SWT 2 56 dBm 56 dBm 57 dB 56 dBm 58 dBm 58 dB 58 dBm 58 dB 58 dBm 58 dBm 58 dB 58 dBm 58 dB 58 dBm 58 dB 58 dBm 58 dB 58 dBm 58 dBm 50 dBm	2.42 dB 227.5 μs 227.5 μs	T BLE 1M	2480W Mode / M M m m m pts Func n n	Auto FFT 1[1] 2[1]		On 2.480 2.483	-8.64 dBm 15000 GHz 64.11 dBm 50000 GHz
Spect Att SGL C. PIPk M PIPk M PIPk M SGL C. SGL C.	n n n 2.476 Ref	CHz	m Offset B SWT 2 56 dBm 56 dBm 56 dBm 2.481 2.481 2.481	2.42 dB 227.5 μs 227.5 μs	T BLE 1M	2480N Mode / M M m m m pts Func n n	Auto FFT 1[1] 2[1]		On 2.480 2.483	-8.64 dBm 15000 GHz 64.11 dBm 50000 GHz
Spect Ref Le SGL C. SGL C. SGL C. SGL C. M1 -10 dBr -20 dBr -30 dBr -30 dBr -40 dBr -50 dBr -70 dBr -7	n n n 2.476 Ref	E 10.00 dB 25 c 100/100 01 -28.0 01 -28.0	m Offset B SWT 2 56 dBm 56 dBm 56 dBm 2.481 2.481 2.481	2.42 dB 227.5 μs 227.5 μs	T BLE 1M	2480N Mode / M M m m m pts Func n n	Auto FFT 1[1] 2[1]		On 2.480 2.483	-8.64 dBm 15000 GHz 64.11 dBm 50000 GHz

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# 8.1.7 Conducted RF Spurious Emission

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	BLE 1M	2402	Ant1	-43.87	-20	Pass
NVNT	BLE 1M	2440	Ant1	-44.78	-20	Pass
NVNT	BLE 1M	2480	Ant1	-42.8	-20	Pass

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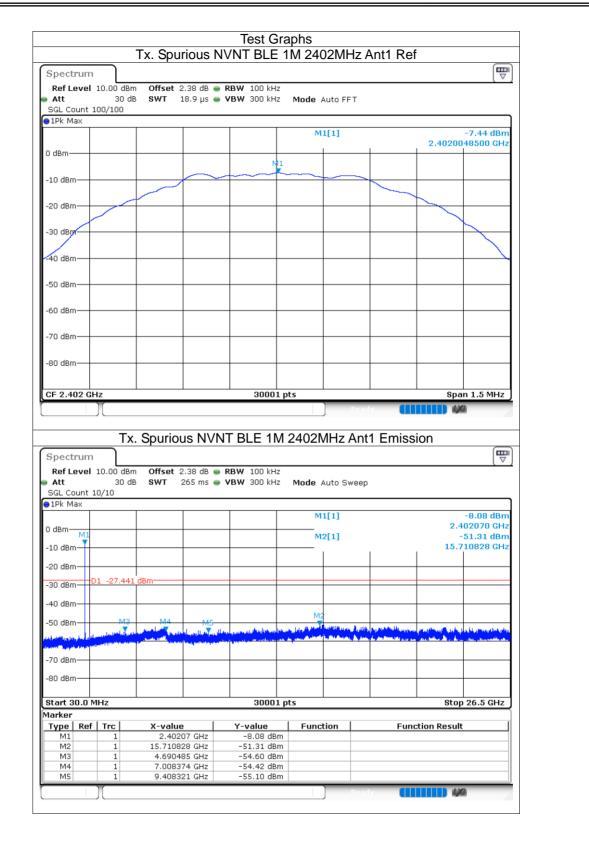


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Spectrun									
Ref Leve Att	l 10.00 dBn 30 dB			RBW 100 kHz	Mode Auto F	FT			
SGL Count									
1Pk Max									
					M1[1]			2.44025	-5.37 dBm 05420 GHz
D dBm						M1		2.44020	
						× 1			
-10 dBm—						$-\lambda$			
-20 dBm—									
-30 dBpr	ſ								
-30 dBor									
-40 dBm									
-50 dBm									
-60 dBm									
-70 dBm									
00 dB									
-80 dBm									
CF 2.44 GI	Hz			30001	pts	_		Spa	n 1.5 MHz
		<u> </u>				Ready			<b>-</b> //h
	Tx	. Spuriou	us NVN	NT BLE 1M	1 2440MHz	Ant1 I	Emiss	on	
Spectrun		. Spuriou	us NVN	NT BLE 1M	1 2440MHz	Ant1 I	Emiss	on	
Ref Leve	n   10.00 dBn	n Offset 2	2.39 dB 👄	• <b>RBW</b> 100 kHz			Emiss	on	
Ref Leve Att	n I 10.00 dBm 30 dB	n Offset 2	2.39 dB 👄	• <b>RBW</b> 100 kHz			Emiss	on	
Ref Leve	n I 10.00 dBm 30 dB	n Offset 2	2.39 dB 👄	• <b>RBW</b> 100 kHz			Emiss	on	
Ref Leve Att SGL Count	n I 10.00 dBm 30 dB	n Offset 2	2.39 dB 👄	• <b>RBW</b> 100 kHz			Emiss		-7.45 dBm
Ref Leve Att SGL Count	n 1 10.00 dBn 30 dE 20/20	n Offset 2	2.39 dB 👄	• <b>RBW</b> 100 kHz	Mode Auto S M1[1]		Emiss	2.4	-7.45 dBm 40010 GHz
Ref Leve Att SGL Count 1Pk Max	n 1 10.00 dBn 30 dE 20/20	n Offset 2	2.39 dB 👄	• <b>RBW</b> 100 kHz	Mode Auto S		Emiss	2.4	-7.45 dBm
Ref Leve Att SGL Count 1Pk Max	n 1 10.00 dBn 30 dE 20/20	n Offset 2	2.39 dB 👄	• <b>RBW</b> 100 kHz	Mode Auto S M1[1]		Emiss	2.4	-7.45 dBm 40010 GHz 50.15 dBm
Ref Leve Att SGL Count 1Pk Max 0 dBm -10 dBm -20 dBm	n 1 10.00 dBn 30 dE 20/20	Offset 2 3 SWT 2	2.39 dB 👄	• <b>RBW</b> 100 kHz	Mode Auto S M1[1]		Emiss	2.4	-7.45 dBm 40010 GHz 50.15 dBm
Ref Leve Att SGL Count 1Pk Max 0 dBm -10 dBm -20 dBm	n   10.00 dBn 30 dE 20/20	Offset 2 3 SWT 2	2.39 dB 👄	• <b>RBW</b> 100 kHz	Mode Auto S M1[1]		Emiss	2.4	-7.45 dBm 40010 GHz 50.15 dBm
Ref Leve Att SGL Count 1Pk Max 0 dBm -10 dBm -20 dBm	n   10.00 dBn 30 dE 20/20	Offset 2 3 SWT 2	2.39 dB 👄	• <b>RBW</b> 100 kHz	Mode Auto S M1[1] M2[1]	weep	Emiss	2.4	-7.45 dBm 40010 GHz 50.15 dBm
Ref Leve Att SGL Count IPk Max O dBm -10 dBm -20 dBm -30 dBm -40 dBm	n 30 dE 20/20	dBm	2.39 dB •	RBW 100 kHz     VBW 300 kHz	Mode Auto S M1[1] M2[1]		Emiss	2.4	-7.45 dBm 40010 GHz 50.15 dBm
Ref Leve Att SGL Count IPk Max 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm	n 30 dE 30 dE 20/20	dBm	2.39 dB •	RBW         100 kHz           VBW         300 kHz	Mode Auto S 	M2	Emiss	2.4 - 17.6	-7.45 dBm 40010 GHz 50.15 dBm 74902 GHz
Ref Leve Att SGL Count IPk Max O dBm -10 dBm -20 dBm -30 dBm -40 dBm	n 30 dE 30 dE 20/20	dBm	2.39 dB •	RBW         100 kHz           VBW         300 kHz	Mode Auto S M1[1] M2[1]	M2	Emiss	2.4	-7.45 dBm 40010 GHz 50.15 dBm 74902 GHz
Ref Leve Att SGL Count IPk Max 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm	n 30 dE 30 dE 20/20	dBm	2.39 dB •	RBW         100 kHz           VBW         300 kHz	Mode Auto S 	M2	Emiss	2.4 - 17.6	-7.45 dBm 40010 GHz 50.15 dBm 74902 GHz
Ref Leve           Att           SGL Count           1Pk Max           0 dBm           -10 dBm           -20 dBm           -30 dBm           -50 dBm	n 30 dE 30 dE 20/20	dBm	2.39 dB •	RBW         100 kHz           VBW         300 kHz	Mode Auto S 	M2	Emiss	2.4 - 17.6	-7.45 dBm 40010 GHz 50.15 dBm 74902 GHz
Ref Leve           Att           SGL Count           SGL Count           IPk Max           0 dBm           -10 dBm           -20 dBm           -30 dBm           -40 dBm           -50 dBm           -70 dBm	n 30 dE 30 dE 20/20	dBm	2.39 dB •	RBW         100 kHz           VBW         300 kHz	Mode Auto S 	M2	Emiss	2.4 - 17.6	-7.45 dBm 40010 GHz 50.15 dBm 74902 GHz
Ref Leve           Att           SGL Count           SGL Count           IPk Max           0 dBm           -10 dBm           -20 dBm           -30 dBm           -40 dBm           -50 dBm           -70 dBm	n 1 10.00 dBn 30 dE 20/20	dBm	2.39 dB •	RBW         100 kHz           VBW         300 kHz	Mode Auto S	M2	Emiss	2.4 - 17.6	-7.45 dBm 40010 GHz 50.15 dBm 74902 GHz
Ref Leve           Att           SGL Count           1Pk Max           0 dBm           -10 dBm           -20 dBm           -30 dBm           -40 dBm           -50 dBm           -50 dBm           -60 dBm           -70 dBm           -80 dBm           -80 dBm           -70 dBm           -80 dBm           -70 dBm	n 1 10.00 dBn 30 dE 20/20 	dBm		8 RBW 100 kHz 9 VBW 300 kHz	Mode Auto S M1[1] M2[1]	M2		2.4 	-7.45 dBm 40010 GHz 50.15 dBm 74902 GHz
Ref Leve           Att           SGL Count           1Pk Max           1Pk Max           0 dBm           -20 dBm           -20 dBm           -30 dBm           -30 dBm           -50 dBm           -50 dBm           -70 dBm           -80 dBm           -80 dBm           -70 dBm           -80 dBm           -70 dBm           -70 dBm           -70 dBm           -70 dBm           -80 dBm           -80 dBm           -70 dBm	n 1 10.00 dBn 30 dE 20/20 1 1 1 1 1 1 1 1 1 1 1 1 1	dBm		RBW         100 kHz           VBW         300 kHz	Mode Auto S M1[1] M2[1]	M2		2.4 - 17.6	-7.45 dBm 40010 GHz 50.15 dBm 74902 GHz
Ref Leve           Att           SGL Count           1Pk Max           0 dBm           10 dBm           -10 dBm           -20 dBm           -30 dBm           -30 dBm           -50 dBm           -60 dBm           -70 dBm           -80 dBm           -80 dBm           -81 dBm           -82 dBm           -83 dBm	n 30 dB 30 dB 20/20	dBm	2.39 dB 265 ms	RBW         100 kHz           VBW         300 kHz	Mode Auto S M1[1] M2[1]	M2		2.4 	-7.45 dBm 40010 GHz 50.15 dBm 74902 GHz
Ref Leve           Att           SGL Count           1Pk Max           0 dBm           -10 dBm           -20 dBm           -30 dBm           -30 dBm           -50 dBm           -50 dBm           -50 dBm           -70 dBm           -80 dBm           -70 dBm           -80 dBm           -70 dBm           -80 dBm           -70 dBm           -70 dBm           -80 dBm           -70 dBm           -7	n 30 dB 30 dE 20/20	dBm X-value 2.4400 4.73901		RBW         100 kHz           VBW         300 kHz           Image: state st	Mode Auto S M1[1] M2[1]	M2		2.4 	-7.45 dBm 40010 GHz 50.15 dBm 74902 GHz
Ref Leve           Att           SGL Count           1Pk Max           0 dBm           10 dBm           -10 dBm           -20 dBm           -30 dBm           -30 dBm           -50 dBm           -60 dBm           -70 dBm           -80 dBm           -80 dBm           -81 dBm           -82 dBm           -83 dBm	n 30 dB 30 dB 20/20	dBm	265 ms	RBW         100 kHz           VBW         300 kHz	Mode Auto S M1[1] M2[1] M2[1] pts Function n n n n	M2		2.4 	-7.45 dBm 40010 GHz 50.15 dBm 74902 GHz
Ref Leve           Att           SGL Count           1Pk Max           0 d8m	n 30 dE 30 dE	dBm X-value 2.4400 17.67490 7.26072	265 ms	RBW         100 kHz           VBW         300 kHz           Image: state st	Mode Auto S M1[1] M2[1] M2[1] pts Function n n n n	M2		2.4 	-7.45 dBm 40010 GHz 50.15 dBm 74902 GHz

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Spectru	um								
Att	עפו 10.00 d 30 nt 100/100	dB <b>SWT</b> 18		<b>RBW</b> 100 kHz <b>VBW</b> 300 kHz	Mode Auto	FFT			(.)
1Pk Max									
					M1[1]	]		0.4000	-7.96 dBm
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						Read			
	T	x. Spurious	s NVN	IT BLE 1M	2480MH	Read z Ant	I Emiss	ion	
Spectru		x. Spurious	s NVN	IT BLE 1M	2480MH	Read z Ant <sup>2</sup>	I Emiss	ion	
Ref Lev	um vel 10.00 d	IBm Offset 2.4	42 dB 😑	RBW 100 kHz			I Emiss	ion	
Ref Lev Att SGL Cou	um vel 10.00 d 30 int 10/10	IBm Offset 2.4	42 dB 😑				I Emiss	ion	
Ref Lev Att SGL Cou	um vel 10.00 d 30 int 10/10	IBm Offset 2.4	42 dB 😑	RBW 100 kHz	Mode Auto	) Sweep	I Emiss	ion	
Ref Lev Att SGL Cou 1Pk Max	um vel 10.00 d 30 int 10/10	IBm Offset 2.4	42 dB 😑	RBW 100 kHz		) Sweep			-8.53 dBm +79720 GHz
Ref Lev Att SGL Cou 1Pk Max	um vel 10.00 d 30 int 10/10	IBm Offset 2.4	42 dB 😑	RBW 100 kHz	Mode Auto	) Sweep	I Emiss	2.4	-8.53 dBm ‡79720 GHz -50.76 dBm
Ref Lev Att SGL Coul 1Pk Max 0 dBm	um vel 10.00 d 30 nt 10/10	IBm Offset 2.4	42 dB 😑	RBW 100 kHz	Mode Auto	) Sweep	I Emiss	2.4	-8.53 dBm +79720 GHz
Ref Lev Att SGL Coul 1Pk Max 0 dBm- 10 dBm- 20 dBm-	um vel 10.00 d 30 nt 10/10	IBm Offset 2.4 dB SWT 26	42 dB 😑	RBW 100 kHz	Mode Auto	) Sweep	I Emiss	2.4	-8.53 dBm ‡79720 GHz -50.76 dBm
Ref Lev Att SGL Coul 1Pk Max 0 dBm- 10 dBm- 20 dBm-	um vel 10.00 d 30 nt 10/10	IBm Offset 2.4 dB SWT 26	42 dB 😑	RBW 100 kHz	Mode Auto	) Sweep	I Emiss	2.4	-8.53 dBm ‡79720 GHz -50.76 dBm
Ref Lev Att SGL Cou 1Pk Max 0 dBm- 10 dBm- 20 dBm- 30 dBm-	um vel 10.00 d 30 nt 10/10	IBm Offset 2.4 dB SWT 26	42 dB 😑	RBW 100 kHz	Mode Auto M1[1] M2[1]	) Sweep	I Emiss	2.4	-8.53 dBm ‡79720 GHz -50.76 dBm
Att SGL Cou IPk Max dBm	Um vel 10.00 d 30 nt 10/10 ( D1 -27.9	IBm Offset 2.4 dB SWT 26	42 dB ●	RBW 100 kHz VBW 300 kHz	Mode Auto	) Sweep		2.4	-8.53 dBm 479720 GHz -50.76 dBm 552594 GHz
Ref Lev. Att SGL Cou 1Pk Max 0 dBm- 10 dBm- 20 dBm- 30 dBm- 40 dBm-	Um vel 10.00 d 30 nt 10/10 ( D1 -27.9	IBm Offset 2.4 dB SWT 26	42 dB ●	RBW 100 kHz	Mode Auto	) Sweep		2.4	-8.53 dBm 479720 GHz -50.76 dBm 552594 GHz
Ref Lev Att SGL Cou ) 1Pk Max ) dBm- 10 dBm- 20 dBm- 30 dBm- 40 dBm- 50 dBm-	Um vel 10.00 d 30 nt 10/10 < D1 -27.9	IBm Offset 2.4 dB SWT 26	42 dB ●	RBW 100 kHz VBW 300 kHz	Mode Auto	) Sweep		2.4	-8.53 dBm 479720 GHz -50.76 dBm 552594 GHz
Ref Lev Att SGL Cou 1Pk Max 1Pk Max 0 dBm- 20 dBm- 20 dBm- 30 dBm- 40 dBm- 50 dBm- 70 dBm-	Um vel 10.00 d 30 nt 10/10 < D1 -27.9	IBm Offset 2.4 dB SWT 26	42 dB ●	RBW 100 kHz VBW 300 kHz	Mode Auto	) Sweep		2.4	-8.53 dBm 479720 GHz -50.76 dBm 552594 GHz
Ref Lev Att SGL Cou 1Pk Max 0 dBm- 10 dBm- 20 dBm- 30 dBm- 40 dBm- 50 dBm- 70 dBm-	Um vel 10.00 d 30 nt 10/10 < D1 -27.9	IBm Offset 2.4 dB SWT 26	42 dB ●	RBW 100 kHz VBW 300 kHz	Mode Auto	) Sweep		2.4	-8.53 dBm 479720 GHz -50.76 dBm 552594 GHz
Ref Lev Att SGL Cou 1Pk Max 0 dBm- 10 dBm- 20 dBm- 30 dBm- 30 dBm- 50 dBm- 50 dBm- 80 dBm- 80 dBm-	Um vel 10.00 d 30 nt 10/10 D1 -27.9	IBm Offset 2.4 dB SWT 26	42 dB ●	RBW         100 kHz           VBW         300 kHz	Mode Auto	) Sweep		2.4 15.(	-8.53 dBm +79720 GHz -50.76 dBm 552594 GHz
Ref Lev           Att           SGL Cou           SGL Cou           11PK Max           0 dBm           10 dBm           20 dBm           30 dBm           40 dBm           50 dBm           50 dBm           50 dBm           50 dBm           80 dBm           80 dBm           80 dBm           80 dBm           80 dBm           81 dBm           81 dBm	Um vel 10.00 d 30 nt 10/10 M1 D1 -27.9 D1 -27.9 .0 MHz	IBm Offset 2.4 dB SWT 26	42 dB ●	RBW 100 kHz VBW 300 kHz	Mode Auto	) Sweep		2.4 15.0	-8.53 dBm 479720 GHz 50.76 dBm 552594 GHz 4 alough (11 alough) 4 aloug (11 alough) 4 aloug (11 alough)
Ref Lev           Att           SGL Coul           SGL	Um vel 10.00 d 30 nt 10/10 M3 D1 -27.9 D1 -27.9 .0 MHz Ref   Trc	IBM Offset 2.4 dB SWT 26	42 dB  55 ms	RBW 100 kHz VBW 300 kHz 	Mode Auto	) Sweep		2.4 15.(	-8.53 dBm 479720 GHz 50.76 dBm 552594 GHz 4 alough (11 alough) 4 aloug (11 alough) 4 aloug (11 alough)
Ref Lev           Att           SGL Cou           IPK Max           M1           M2	Um vel 10.00 d 30 nt 10/10 M3 D1 -27.9 D1 -27.9 .0 MHz Ref Trc 1 1	Bm Offset 2.4 dB SWT 26	42 dB  55 ms 55 ms 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	RBW         100         kHz           VBW         300         kHz           Image: state stat	Mode Auto	) Sweep		2.4 15.0	-8.53 dBm 479720 GHz 50.76 dBm 552594 GHz 4 alough (11 alough) 4 aloug (11 alough) 4 aloug (11 alough)
Ref Lev           Att           SGL Cou           SGL Cou           11PK Max           11PK Max           10 dBm           20 dBm           20 dBm           30 dBm           40 dBm           50 dBm           50 dBm           40 dBm           50 dBm           50 dBm           60 dBm           70 dBm           80 dBm           31 dBm           70 dBm           80 dBm           31 dBm           70 dBm           80 dBm           10 dBm           11 dBm           12 dBm           12 dBm           13 dBm           14 dBm           15 dBm           15 dBm           16 dBm           17 dBm           18 dBm           19 dBm           10 dBm           10 dBm           10 dBm           11 dBm           12 dBm           13 dBm	Um vel 10.00 d 30 mt 10/10 M1 D1 -27.9 D1 -27.9 M2 D1 -27.9 M4 M2 D1 -27.9 M4 M4 M4 M4 M4 M4 M4 M4 M4 M4	Bm Offset 2.4 dB SWT 26 55 dBm 43 44 Media 44 15 5 dBm 2 4 15 5 dBm 43 44 15 5 dBm 15 5 5 dBm 15 5 5 5 dBm 15 5 5 5 5 dBm 15 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	42 dB  55 ms 55 ms 42 dB  42 dB  45 ms 45 ms 46	RBW         100 kHz           VBW         300 kHz           Image: state st	Mode Auto	) Sweep		2.4 15.0	-8.53 dBm 479720 GHz 50.76 dBm 552594 GHz 4 alough (11 alough) 4 aloug (11 alough) 4 aloug (11 alough)
Ref Lev           Att           SGL Cou           SGL Cou           11Pk Max           10 dBm           10 dBm           20 dBm           30 dBm           30 dBm           40 dBm           50 dBm           50 dBm           50 dBm           80 dBm           80 dBm           80 dBm           80 dBm           81 dBm           82 dBm           81 dBm           81 dBm           82 dBm           81 dBm           82 dBm	Um vel 10.00 d 30 nt 10/10 M3 D1 -27.9 D1 -27.9 .0 MHz Ref Trc 1 1	Bm Offset 2.4 dB SWT 26	42 dB 55 ms 55 ms 42 dB 42 dB 42 dB 4 dB 5	RBW         100         kHz           VBW         300         kHz           Image: state stat	Mode Auto	) Sweep		2.4 15.0	-8.53 dBm 479720 GHz 50.76 dBm 552594 GHz 4 alough (11 alough) 4 aloug (11 alough) 4 aloug (11 alough)
Ref Lev           Att           SGL Coul           SGL	Um vel 10.00 d 30 nt 10/10 M1 D1 -27.9 D1 -27.9 .0 MHz Ref Trc 1 1 1 1	Bm Offset 2.4 dB SWT 26	42 dB 55 ms 55 ms 42 dB 42 dB 42 dB 4 dB 5	RBW         100 kHz           VBW         300 kHz           Image: state st	Mode Auto	) Sweep		2.4 15.0	-8.53 dBm 479720 GHz 50.76 dBm 552594 GHz 4 alough (11 alough) 4 aloug (11 alough) 4 aloug (11 alough)

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## 8.2 **2M**

# 8.2.1 Duty Cycle

Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	BLE 2M	2404	Ant1	58.08	2.36	0.93
NVNT	BLE 2M	2440	Ant1	58.13	2.36	0.93
NVNT	BLE 2M	2478	Ant1	57.81	2.38	0.93

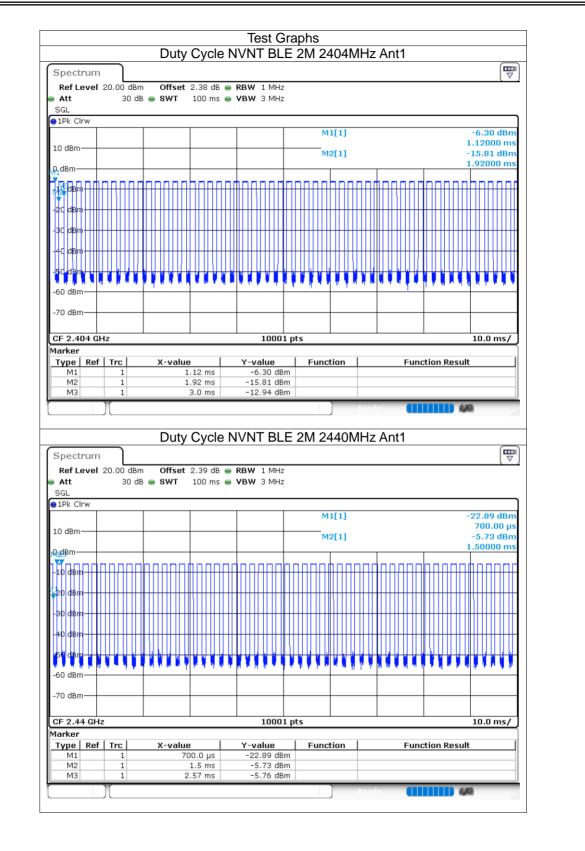


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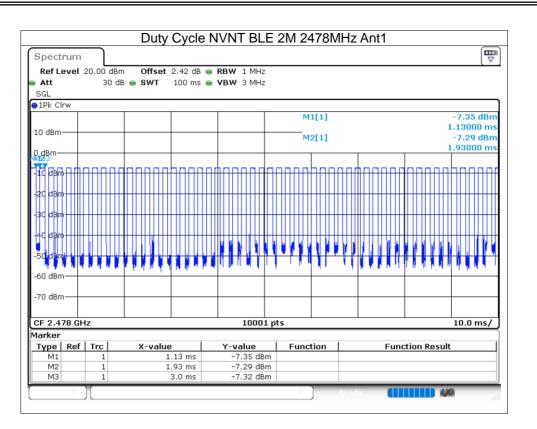
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Certificate #4298.01

## Report No.: S24111807306002







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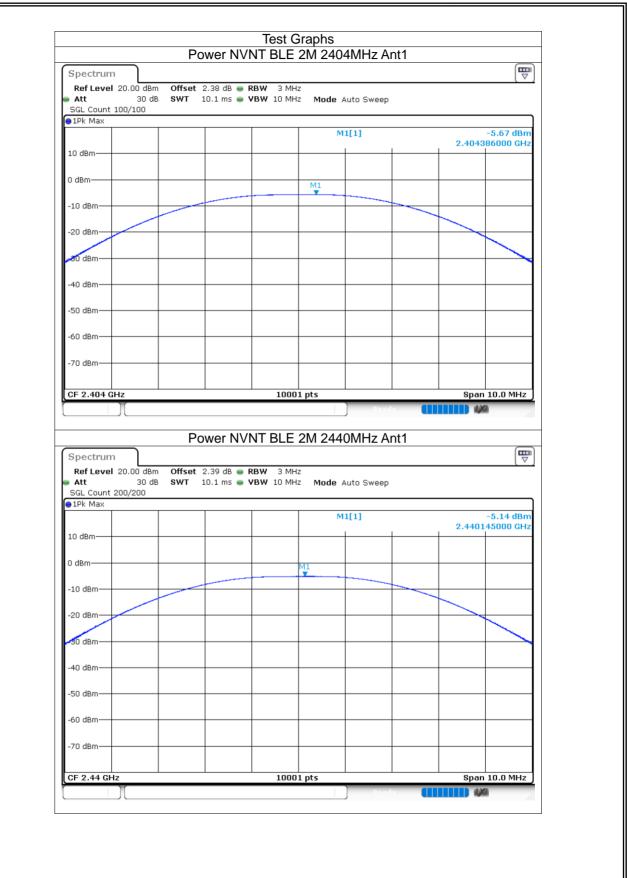




# 8.2.2 Maximum Conducted Output Power

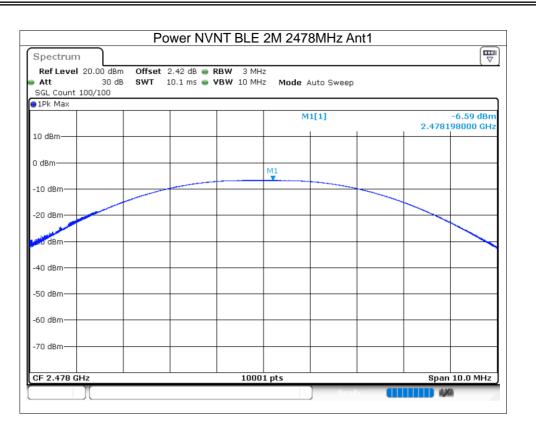
Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	BLE 2M	2404	Ant1	-5.67	30	Pass
NVNT	BLE 2M	2440	Ant1	-5.14	30	Pass
NVNT	BLE 2M	2478	Ant1	-6.59	30	Pass





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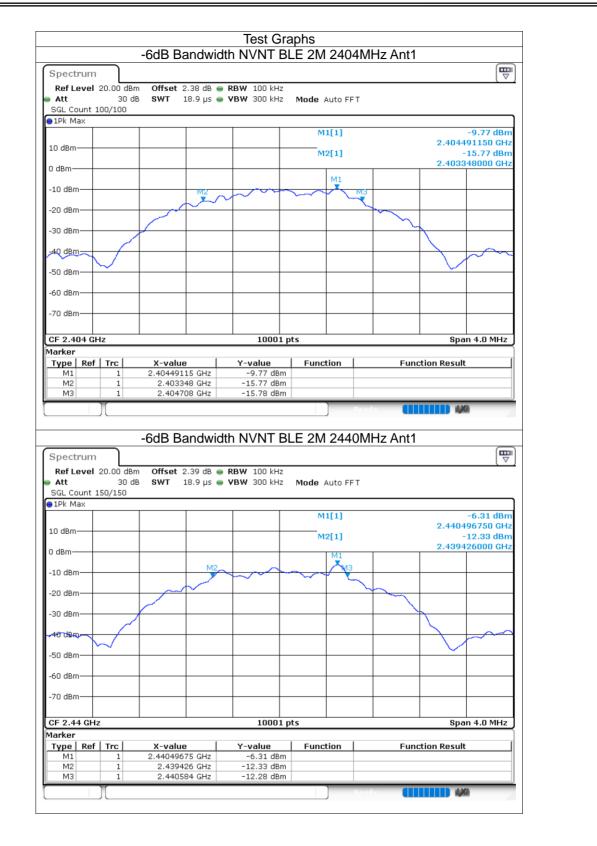


# 8.2.3 -6dB Bandwidth

Č	5.2.3 <b>-60B</b>	Bandwid	นา				
	Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
	NVNT	BLE 2M	2404	Ant1	1.36	0.5	Pass
	NVNT	BLE 2M	2440	Ant1	1.158	0.5	Pass
	NVNT	BLE 2M	2478	Ant1	1.234	0.5	Pass

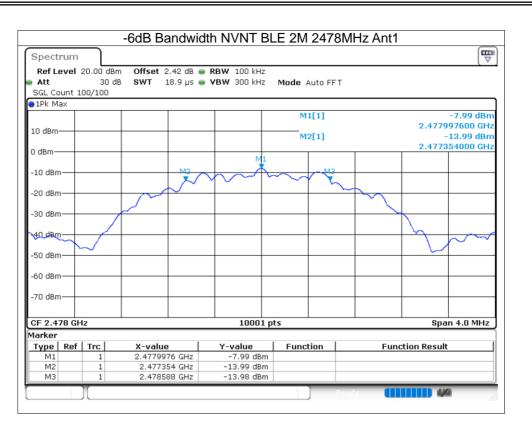
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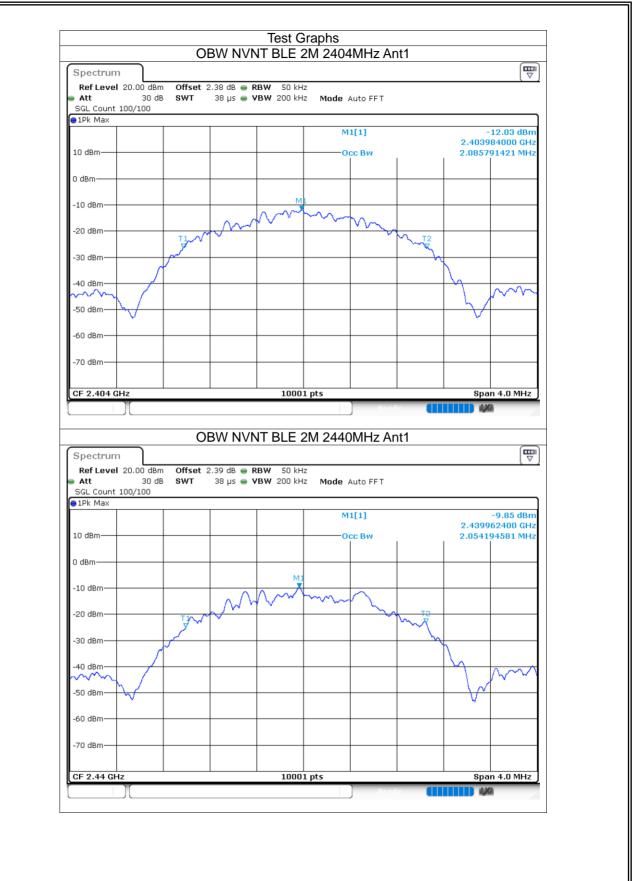




# 8.2.4 Occupied Channel Bandwidth

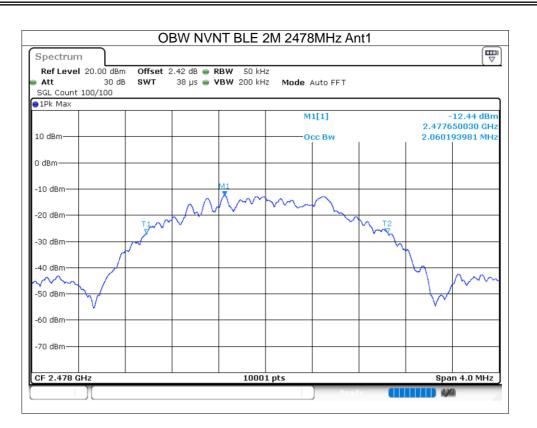
Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	BLE 2M	2404	Ant1	2.086
NVNT	BLE 2M	2440	Ant1	2.054
NVNT	BLE 2M	2478	Ant1	2.06





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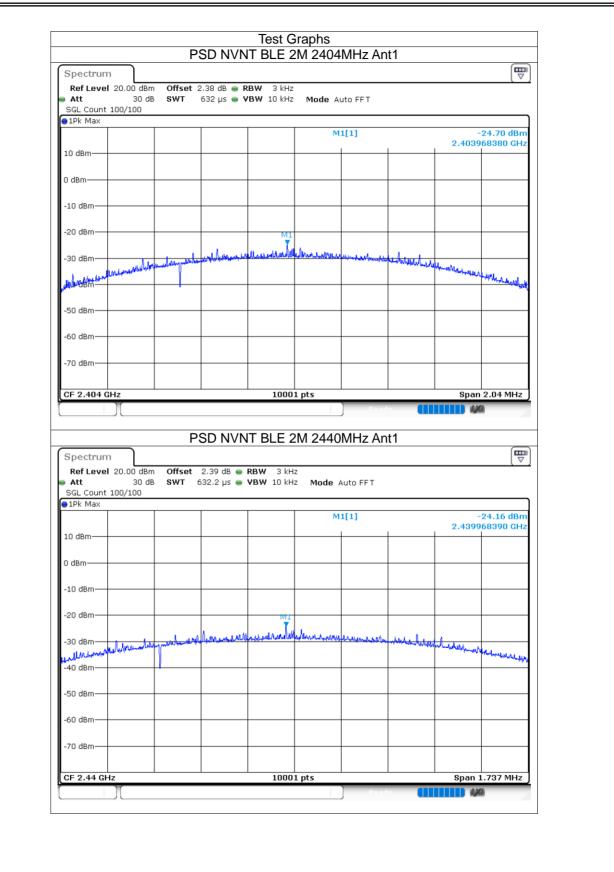


# 8.2.5 Maximum Power Spectral Density Level

Condition	Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm)	Limit (dBm)	Verdict
NVNT	BLE 2M	2404	Ant1	-24.7	8	Pass
NVNT	BLE 2M	2440	Ant1	-24.16	8	Pass
NVNT	BLE 2M	2478	Ant1	-25.72	8	Pass

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Spectrum					
Ref Level 20.00 dBm Att 30 dB SGL Count 100/100	Offset 2.42 dB ● RB SWT 632.2 µs ● VB		Auto FFT		( •
		M	1[1]	_	5.72 dBn 8540 GH:
LO dBm					
) dBm					
-10 dBm					
-20 dBm		M1			
30 dBm	mainton and the home and the for	y	hanger in the she have been been been been been been been be	-	have been a
HO dBm	ř				
50 dBm					
-60 dBm					
-70 dBm					
CF 2.478 GHz		10001 pts		Span 1.	851 MHz

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# 8.2.6 Band Edge

-	LIO Balla						
	Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
	NVNT	BLE 2M	2404	Ant1	-48.28	-20	Pass
	NVNT	BLE 2M	2478	Ant1	-47.93	-20	Pass

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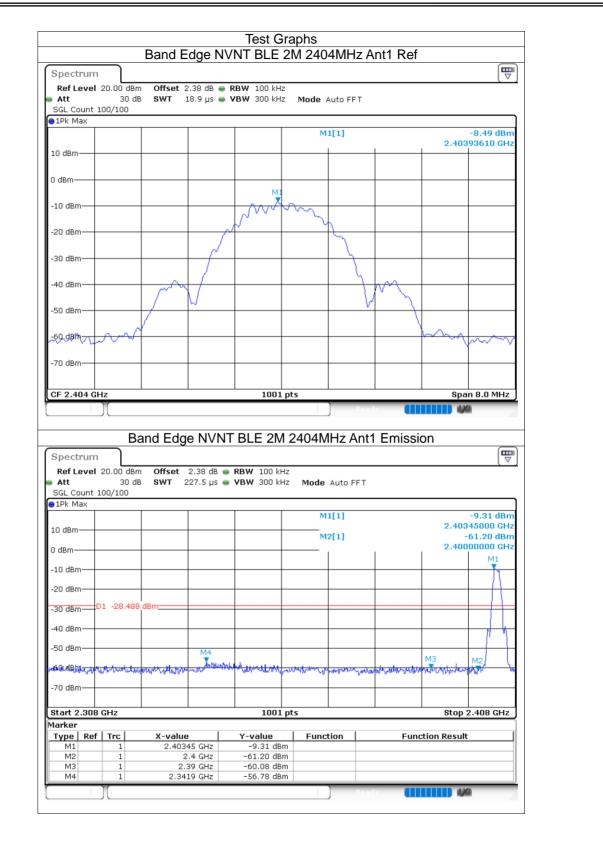


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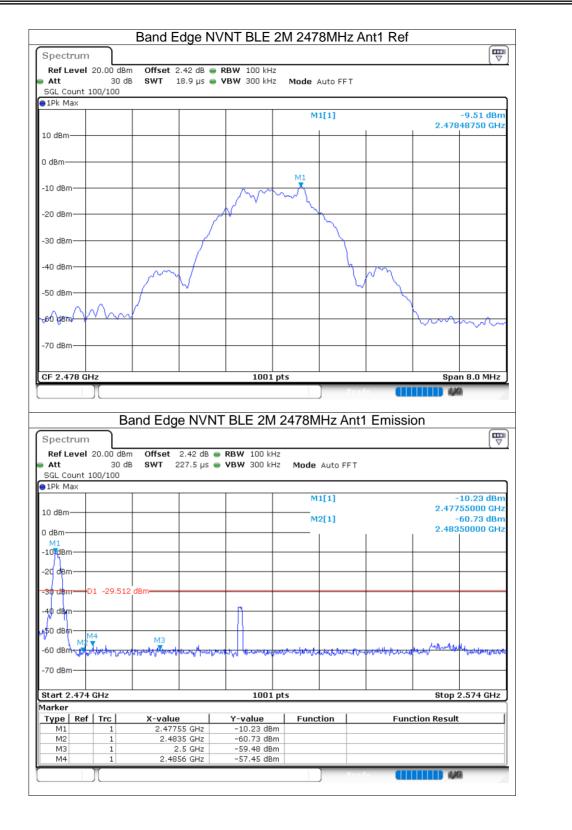
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# 8.2.7 Conducted RF Spurious Emission

_							
	Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
	NVNT	BLE 2M	2404	Ant1	-42.63	-20	Pass
	NVNT	BLE 2M	2440	Ant1	-42.6	-20	Pass
	NVNT	BLE 2M	2478	Ant1	-41.74	-20	Pass

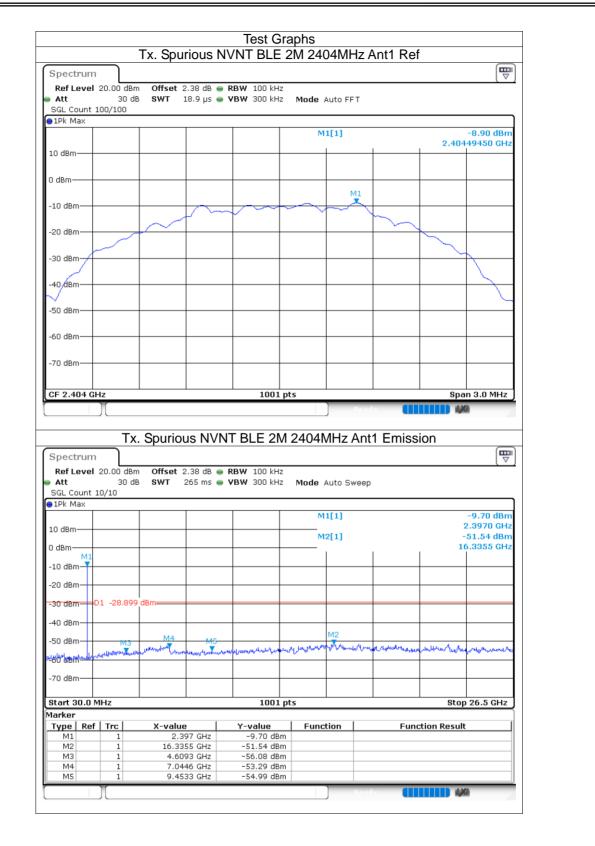


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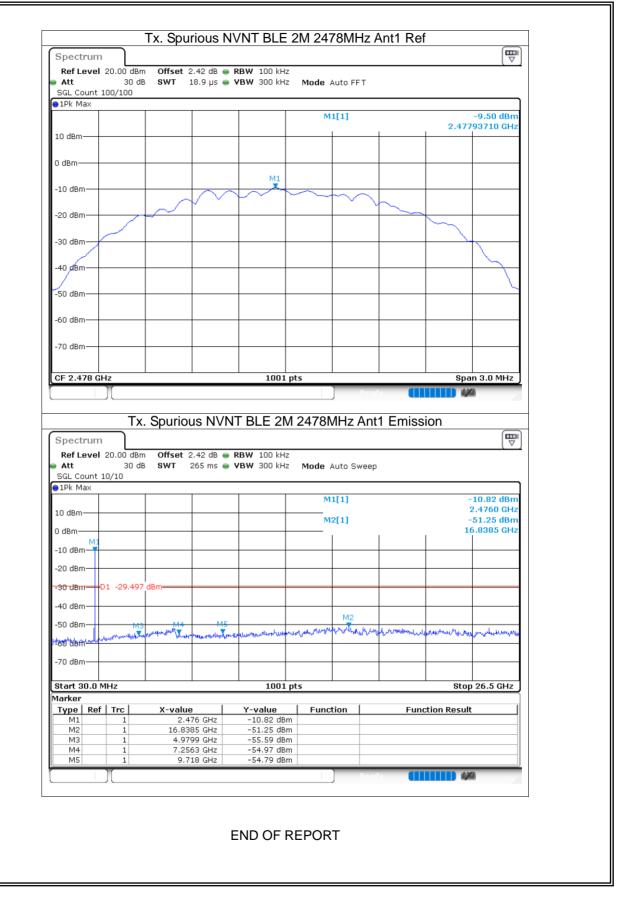




Spect	trum				IVNT BLE					
-		10.00 dE	m Offset 2	.39 dB 👄	RBW 100 kHz					( )
Att		30			<b>VBW</b> 300 kHz	Mode A	uto FFT			
		300/300								
∋1Pk M	1ax									
						M1	[1]		2 44	-8.45 dBm 016780 GHz
0 dBm-								+	2.11	010700 012
						M1				
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				~	-			$\sim$		
-20 dBr	m-+								$\sim$	
-30 dBr	┉╱┽									
1										
-40 dBr	n-+									
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Ref L Att SGL C	evel	10.00 dE 30	3m Offset 2	.39 dB 👄	NT BLE 2M	I 2440N			sion	
Ref L Att SGL C	evel	10.00 dE 30	3m Offset 2	.39 dB 👄	NT BLE 2M	1 2440N Mode A	uto Swee		sion	
Ref L Att SGL C	ount 3	10.00 dE 30	3m Offset 2	.39 dB 👄	NT BLE 2M	Mode A	uto Swee		sion	-8.81 dBm 2.4500 GHz
Ref L Att SGL C 1Pk M 0 dBm-	ount 3 lax	10.00 dE 30	3m Offset 2	.39 dB 👄	NT BLE 2M	Mode A	uto Swee			-8.81 dBm 2.4500 GHz -51.06 dBm
Att	ount 3 lax	10.00 dE 30	3m Offset 2	.39 dB 👄	NT BLE 2M	Mode A	uto Swee			-8.81 dBm 2.4500 GHz
Ref L Att SGL C 1Pk M 0 dBm-	evel	10.00 dE 30	3m Offset 2	.39 dB 👄	NT BLE 2M	Mode A	uto Swee			-8.81 dBm 2.4500 GHz -51.06 dBm
Ref L Att SGL CC 1Pk M 0 dBm- -10 dBr -20 dBr	evel	10.00 dE 30	am Offset 2 dB SWT 2	.39 dB 👄	NT BLE 2M	Mode A	uto Swee			-8.81 dBm 2.4500 GHz -51.06 dBm
Ref L Att SGL C 1Pk M 0 dBm- -10 dBr -20 dBr -30 dBr	evel	10.00 dE 30 30/30	am Offset 2 dB SWT 2	.39 dB 👄	NT BLE 2M	Mode A	uto Swee			-8.81 dBm 2.4500 GHz -51.06 dBm
Ref L Att SGL C 1Pk M 0 dBm- -10 dBr -20 dBr -30 dBr	evel	10.00 dE 30 30/30	im Offset 2 dB SWT 2	.39 dB •	NT BLE 2M	Mode A M1 M2	uto Swee [1] 2[1]	p		-8.81 dBm 2.4500 GHz -51.06 dBm 21.9207 GHz
Ref L SGL C 1Pk M 0 dBm- -10 dBr -20 dBr -30 dBr -40 dBr	n m m m	10.00 dE 30 30/30	im Offset 2 dB SWT 2	.39 dB •	NT BLE 2M	Mode A M1 M2	uto Swee [1] 2[1]	p		-8.81 dBm 2.4500 GHz -51.06 dBm 21.9207 GHz
Ref L SGL C 1Pk M 0 dBm- -10 dBr -20 dBr -30 dBr -40 dBr	n m m m	10.00 dE 30 30/30	im Offset 2 dB SWT 2	.39 dB •	NT BLE 2M	Mode A M1 M2	uto Swee [1] 2[1]	p		-8.81 dBm 2.4500 GHz -51.06 dBm 21.9207 GHz
Ref L Att SGL C 1Pk M 0 dBm- -10 dBr -20 dBr -30 dBr -30 dBr -50 dBr	evel	10.00 dE 30 30/30	im Offset 2 dB SWT 2	.39 dB •	NT BLE 2M	Mode A M1 M2	uto Swee [1] 2[1]	p		-8.81 dBm 2.4500 GHz -51.06 dBm 21.9207 GHz
Ref L Att SGL C 1Pk M 0 dBm- -10 dBr -20 dBr -20 dBr -40 dBr -50 dBr -50 dBr -70 dBr	evel	10.00 dE 30 30/30	im Offset 2 dB SWT 2	.39 dB •	NT BLE 2M	Mode A M1 M2	uto Swee [1] 2[1]	p		-8.81 dBm 2.4500 GHz -51.06 dBm 21.9207 GHz
Ref L Att SGL C 1Pk M 0 dBm- -10 dBr -20 dBr -20 dBr -40 dBr -50 dBr -50 dBr -70 dBr	evel	10.00 dE 30 30/30	im Offset 2 dB SWT 2	.39 dB •	NT BLE 2M	Mode A M1 M2	uto Swee [1] 2[1]	p		-8.81 dBm 2.4500 GHz -51.06 dBm 21.9207 GHz
Ref L Att SGL C 1Pk M 0 dBm- -10 dBr -20 dBr -30 dBr -40 dBr -50 dBr -50 dBr -60 dBr -70 dBr -80 dBr	Mil           n	10.00 dE 30 / 30/30	im Offset 2 dB SWT 2	.39 dB •	NT BLE 2M	Mode A Mode A M1 M2	uto Swee [1] 2[1]	p	M2	-8.81 dBm 2.4500 GHz -51.06 dBm 21.9207 GHz
Ref L Att SGL C J IPk M O dBm- -10 dBr -20 dBr -20 dBr -20 dBr -40 dBr -50 dBr -50 dBr -70 dBr -70 dBr -80 dBr Start 3	evel ount 3 lax M1 n n n n n n n n n n n n n n n 0 000 N	10.00 dE 30 / 30/30	im Offset 2 dB SWT 2	.39 dB •	NT BLE 2M	Mode A Mode A M1 M2	uto Swee [1] 2[1]	p	M2	-8.81 dBm 2.4500 GHz -51.06 dBm 21.9207 GHz
Ref L Att SGL C J IPk M O dBm- -10 dBr -20 dBr -20 dBr -20 dBr -40 dBr -50 dBr -50 dBr -70 dBr -70 dBr -80 dBr Start 3	evel ount 3 lax M1 n n n n n n n n n n n n n	10.00 dE 30 30/30 01 -28.45	im Offset 2 dB SWT 2	.39 dB	NT BLE 2M	Mode A Mode A M1 M2	uto Swee		M2	-8.81 dBm 2.4500 GHz -51.06 dBm 21.9207 GHz
Ref L Att SGL C D 4R -10 dBr -20 dBr -20 dBr -20 dBr -30 dBr -50 dBr -70 dBr -70 dBr -80 dBr <b>Start 3</b> <b>Warker</b> <b>Type</b> M1	evel 3000 1300 Miles 1000 Miles 10000 Miles 1000 Miles 1000 Miles 1000 Miles 1000 Miles 1000 Miles	10.00 dE 30 / 30/30 01 -28,45 01 -28	Jm         Offset 2           dB         SWT         2           J         J         J           JO         dBm         J <tr< td=""><td>.39 dB • .65 ms •</td><td>NT BLE 2M</td><td>Mode A Mode A M1 M2</td><td>uto Swee</td><td></td><td>M2 M2 M2 Sto</td><td>-8.81 dBm 2.4500 GHz -51.06 dBm 21.9207 GHz</td></tr<>	.39 dB • .65 ms •	NT BLE 2M	Mode A Mode A M1 M2	uto Swee		M2 M2 M2 Sto	-8.81 dBm 2.4500 GHz -51.06 dBm 21.9207 GHz
Ref L Att SGL C SGL	evel	10.00 dE 30/30 30/30 01 -28.45 1 1 1	Sm Offset 2 dB SWT 2 30 dBm 30	.39 dB  .65 ms .	NT BLE 2M	Mode A Mode A M1 M2 M2 M2 M2 M2 M2 M2 M2 M2 M2 M2 M2 M2	uto Swee		M2 M2 M2 Sto	-8.81 dBm 2.4500 GHz -51.06 dBm 21.9207 GHz
Ref L Att SGL C D 4R -10 dBr -20 dBr -20 dBr -20 dBr -30 dBr -50 dBr -70 dBr -70 dBr -80 dBr <b>Start 3</b> <b>Warker</b> <b>Type</b> M1	evel ount 3 lax m m m m m m c c c c c c c c c c c c c	10.00 dE 30 / 30/30 01 -28,45 01 -28	Sm Offset 2 dB SWT 2	.39 dB • .65 ms •	NT BLE 2M	Mode A Mode A M1 M2 M2 M1 M2 M2 M1 M2 M1 M2 M2 M1 M2 M2 M1 M2 M1 M2 M2 M1 M2 M2 M1 M2 M2 M1 M2 M2 M2 M2 M2 M2 M2 M2 M2 M2	uto Swee		M2 M2 M2 Sto	-8.81 dBm 2.4500 GHz -51.06 dBm 21.9207 GHz
Ref L Att SGL C SGL	evel ount 3 lax m m m m m c c c c c c c c c c c c c c	10.00 dE 30/30 30/30 01 -28.45 01 -28.45 1 1 1 1	Sim         Offset 2           dB         SWT         2           Si0         dBm         3           X-value         2         4           21.92C         4         9           X-value         3         7.494	.39 dB  .65 ms .65 ms	NT BLE 2M	Mode A Mode A M1 M2 M2 M2 M2 M2 M2 M2 M2 M2 M2	uto Swee		M2 M2 M2 Sto	-8.81 dBm 2.4500 GHz -51.06 dBm 21.9207 GHz
Ref L Att SGL C 1Pk M 0 dBm- -10 dBr -20 dBr -20 dBr -20 dBr -20 dBr -30 dBr -50 dBr -50 dBr -50 dBr -70 dBr -70 dBr -80 dBr -80 dBr -70 dBr -80 dBr -70 dBr -80 dBr -90 d	evel ount 3 lax m m m m m c c c c c c c c c c c c c c	10.00 dE 30/30 30/30 01 -28.45 10 11 11 11 11	Sim         Offset 2           dB         SWT         2           Si0         dBm         3           X-value         2         4           21.92C         4         9           X-value         3         7.494	.39 dB • .65 ms • 	NT BLE 2M	Mode A Mode A M1 M2 M2 M2 M2 M2 M2 M2 M2 M2 M2	uto Swee		M2 M2 M2 Sto	-8.81 dBm 2.4500 GHz -51.06 dBm 21.9207 GHz

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