

# RADIO TEST REPORT FCC ID: 2A3PH-XR-C8-8

Certificate #4298.01

Product:	multifunctional audio
Trade Mark:	Axcel
Model No.:	XR-C8-8
	XR-C8-X,XR-C8-1,XR-C8-2,
Family Model:	XR-C8-3,XR-C8-4,XR-C8-5,
-	XR-C8-6,XR-C8-7,XR-C8-9,XR-C8-10
Report No.:	S23080203201001
Issue Date:	Aug 23, 2023

# **Prepared for**

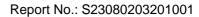
Axcel (Huizhou) Technology Co., Ltd.

Xinsongyaoyu Industrial Park, Dongming Village,516269 Shatian Town, Huiyang District, Huizhou, Guangdong, China

# Prepared by

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ACCREDITED Certificate #4298.01

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# **1 TEST RESULT CERTIFICATION**

Applicant's name:	Axcel (Huizhou) Technology Co., Ltd.
Address:	Xinsongyaoyu Industrial Park, Dongming Village,516269 Shatian Town, Huiyang District, Huizhou, Guangdong, China
Manufacturer's Name::	Axcel (Huizhou) Technology Co., Ltd.
Address:	Xinsongyaoyu Industrial Park, Dongming Village,516269 Shatian Town, Huiyang District, Huizhou, Guangdong, China
Product description	
Product name:	multifunctional audio
Model and/or type reference :	XR-C8-8
Family Model:	XR-C8-X,XR-C8-1,XR-C8-2,XR-C8-3,XR-C8-4,XR-C8-5, XR-C8-6,XR-C8-7,XR-C8-9,XR-C8-10
TestSample Number	S230802032001

Measurement Procedure Used:

## APPLICABLE STANDARDS

STANDARD/ TEST PROCEDURE	TEST RESULT
FCC 47 CFR Part 2, Subpart J FCC 47 CFR Part 15, Subpart C ANSI C63.10-2013	Complied

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.

Date of Test	: Aug 02, 2023 ~ Aug 23, 2023
Testing Engineer	Gavan Zhang
0 0	(Gavan Zhang)
Authorized Signatory	Alex
	(Alex Li)





# 2 SUMMARY OF TEST RESULTS

FCC Part15 (15.247), Subpart C			
Standard Section	Test Item	Verdict	Remark
15.207	Conducted Emission	PASS	
15.209 (a) 15.205 (a)	Radiated Spurious Emission	PASS	
15.247(a)(1)	Hopping Channel Separation	PASS	
15.247(b)(1)	Peak Output Power	PASS	
15.247(a)(iii)	Number of Hopping Frequency	PASS	
15.247(a)(iii)	Dwell Time	PASS	
15.247(a)(1)	Bandwidth	PASS	
15.247 (d)	Band Edge Emission	PASS	
15.247 (d)	Spurious RF Conducted Emission	PASS	
15.203	Antenna Requirement	PASS	

Remark:

1. "N/A" denotes test is not applicable in this Test Report.

2. 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 1&5/F, Building C, 1&2/F, Building E, Fenda Science Park, Sanwei Community, Hangcheng Street, Baoan District, Shenzhen ,Guangdong, 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
Name of Firm	:	Shenzhen NTEK Testing Technology Co., Ltd.
Site Location	:	1&5/F, Building C, 1&2/F, Building E, Fenda Science Park, Sanwei
		Community, Hangcheng Street, Baoan District, Shenzhen, Guangdong,
		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, PSD	±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
10	Occupied bandwidth	±4.7%





# 4 GENERAL DESCRIPTION OF EUT

Product Feature and Specification		
Equipment	multifunctional audio	
Trade Mark	Axcel	
FCC ID	2A3PH-XR-C8-8	
Model No.	XR-C8-8	
Family Model	XR-C8-X,XR-C8-1,XR-C8-2,XR-C8-3,XR-C8-4,XR-C8-5, XR-C8-6,XR-C8-7,XR-C8-9,XR-C8-10	
Model Difference	All models are the same circuit and RF module, except the appearance and colors are different.	
Operating Frequency	2402MHz~2480MHz	
Modulation	GFSK, π/4-DQPSK, 8-DPSK	
Number of Channels	79 Channels	
Antenna Type	PCB Antenna	
Antenna Gain	-0.58 dBi	
Adapter	MODEL: FJ-SW126G0902000U INPUT:100-240V~50/60Hz 0.6A Max OUTPUT: 9V 2A, 18W	
Battery	7.4V 5000mAh 37Wh	
Power supply	DC 7.4V from battery or DC 9V from adapter AC 120V/60Hz	
Hardware version:	N/A	
Firmware version:	N/A	
Software 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.





#### **Revision History**

Report No.	Version	Description	Issued Date
S23080203201001	Rev.01	Initial issue of report	Aug 23, 2023





# 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 for GFSK modulation; 2Mbps for  $\pi$ /4-DQPSK modulation; 3Mbps for 8-DPSK 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:

Channel	Frequency(MHz)
0	2402
1	2403
39	2441
40	2442
77	2479
78	2480

Note: fc=2402MHz+k×1MHz k=0 to 78

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

	For AC Conducted Emission
Final Test Mode	Description
Mode 1	normal link mode
	and study Englands and that and an english start of the transmission

Note: AC power line Conducted Emission was tested under maximum output power.

For Radiated Test Cases				
Final Test Mode	Description			
Mode 1	normal link mode			
Mode 2	CH00(2402MHz)			
Mode 3	CH39(2441MHz)			
Mode 4	CH78(2480MHz)			

Note: For radiated test cases, the worst mode data rate 3Mbps 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.

For Conducted Test Cases						
Final Test Mode Description						
Mode 2	CH00(2402MHz)					
Mode 3	CH39(2441MHz)					
Mode 4	CH78(2480MHz)					
Mode 5	Hopping mode					
Note: The engineering	Note: The engineering test program was provided and the EUT was programmed to be in continuously					

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





EUT	C-1	AE-1 Adapter	AC PLUG	
or Radiated Test C	ases			
	EUT			
or Conducted Test	Cases			
Measurement Instrument	C-2	IT		





#### 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.

Item	Equipment	Model/Type No.	Series No.	Note
AE-1	Adapter	FJ-SW126G0902000U	N/A	Peripherals

Item	Cable Type	Shielded Type	Ferrite Core	Length
C-1	Power Cable	NO	NO	1.0m
C-2	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

Item	Kind of Equipment			Serial No.	Last calibration	Calibrated until	Calibrati on period
1	Spectrum Analyzer	Aglient	E4440A	MY41000130	2023.03.27	2024.03.26	1 year
2	Spectrum Analyzer	Agilent	N9020A	MY49100060	2023.05.29	2024.05.28	1 year
3	Spectrum Analyzer	R&S	FSV40	101417	2023.03.27	2024.03.26	1 year
4	Test Receiver	R&S	ESPI7	101318	2023.03.27	2024.03.26	1 year
5	Bilog Antenna	TESEQ	CBL6111D	31216	2023.03.27	2024.03.26	1 year
6	50Ω Coaxial Switch	Anritsu	MP59B	6200983705	2023.05.06	2026.05.05	3 year
7	Horn Antenna	EM	EM-AH-1018 0	2011071402	2023.03.27	2024.03.26	1 year
8	Broadband Horn Antenna	SCHWARZBE CK	BBHA 9170	803	2022.11.08	2023.11.07	1 year
9	Amplifier	EMC	EMC051835 SE	980246	2023.05.29	2024.05.28	1 year
10	Active Loop Antenna	SCHWARZBE CK	FMZB 1519 B	055	2022.11.08	2023.11.07	1 year
11	Power Meter	DARE	RPR3006W	15I00041SN 084	2022.11.08	2023.11.07	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	2022.11.08	2023.11.07	1 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



Z)



period

1 year

1 year

1 year

3 year

#### AC Conduction Test equipment Kind of Calibrated Calibration Last Manufacturer Item Type No. Serial No. Equipment calibration until **Test Receiver** R&S ESCI 101160 2023.03.27 2024.03.26 1 LISN 2 R&S ENV216 101313 2023.03.27 2024.03.26 SCHWARZBE 3 LISN **NNLK 8129** 8129245 2023.03.27 2024.03.26 CK 50Ω Coaxial ANRITSU MP59B 4 6200983704 2023.05.06 2026.05.05 3 year Switch CORP **Test Cable** N/A C01 N/A 5 (9KHz-30MH 2023.05.06 2026.05.05 Z) Test Cable (9KHz-30MH C02 6 N/A N/A 2023.05.06 2026.05.05 3 year Z) Test Cable 7 (9KHz-30MH N/A C03 N/A 2023.05.06 2026.05.05 3 year

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.

#### Version.1.3

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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

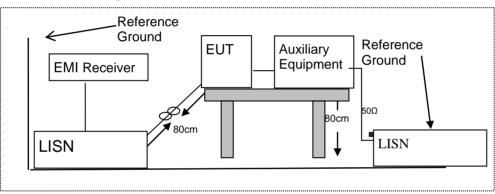
Frequency (MHz)	Conducted Emission Limit			
Frequency(MHz)	Quasi-peak	Average		
0.15-0.5	66-56*	56-46*		
0.5-5.0	56	46		
5.0-30.0	60	50		

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 Test Configuration



#### 7.1.4 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.

#### 7.1.5 Test Results

Pass





#### 7.1.6 Test Results

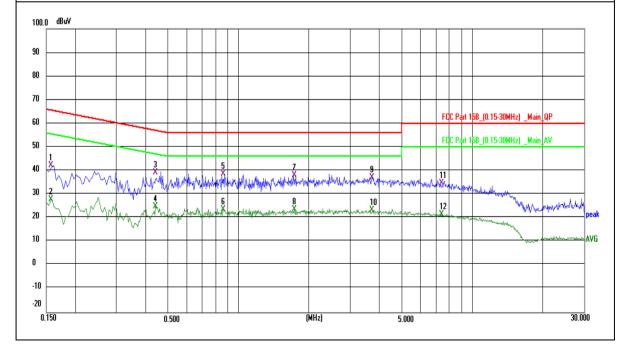
EUT:	multifunctional audio	Model Name :	XR-C8-8
Temperature:	<b>22.1</b> ℃	Relative Humidity:	53%
Pressure:	1010hPa	Phase :	L
Test Voltage :	DC 9V from Adapter AC 120V/60Hz	Test Mode:	Mode 1

·						1
Frequency	Reading Level	Correct Factor	Measure-ment	Limits	Margin	Remark
(MHz)	(dBµV)	(dB)	(dBµV)	(dBµV)	(dB)	Remark
0.1580	32.41	9.95	42.36	65.57	-23.21	QP
0.1580	18.04	9.95	27.99	55.57	-27.58	AVG
0.4420	28.87	10.53	39.40	57.02	-17.62	QP
0.4420	14.40	10.53	24.93	47.02	-22.09	AVG
0.8580	27.13	11.38	38.51	56.00	-17.49	QP
0.8580	12.35	11.38	23.73	46.00	-22.27	AVG
1.7300	24.84	13.12	37.96	56.00	-18.04	QP
1.7300	10.50	13.12	23.62	46.00	-22.38	AVG
3.7060	27.38	9.67	37.05	56.00	-18.95	QP
3.7060	13.76	9.67	23.43	46.00	-22.57	AVG
7.3700	25.10	9.68	34.78	60.00	-25.22	QP
7.3700	12.01	9.68	21.69	50.00	-28.31	AVG

#### Remark:

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

2. Factor = Insertion Loss + Cable Loss.



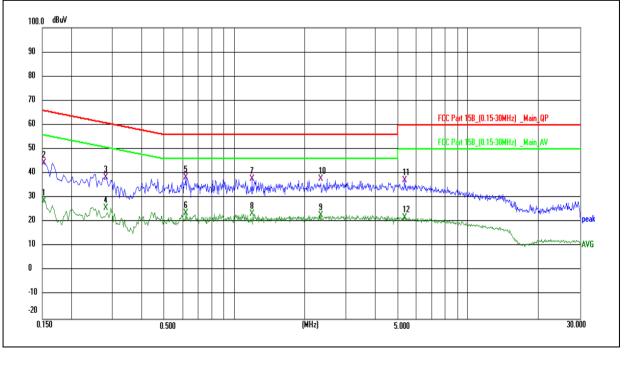




EUT:	multifund	tional audio		Model Name :		XR-C8	-8
Temperature:22.1°CRelative Humidity:53%			53%				
Pressure:	essure: 1010hPa Phase : N			Ν			
Test Voltage :	DC 9V fr	om Adapter AC	120V/60Hz	Test Mode:		Mode	1
Frequency	Reading Leve	Correct Factor	Measure-ment	t Limits	Ma	rgin	Remark
(MHz)	(dBµV)	(dB)	(dBµV)	(dBµV)	(C	IB)	Remark
0.1539	18.85	9.93	28.78	55.79	-27	7.01	AVG
0.1539	34.41	9.93	44.34	65.79	-21	1.45	QP
0.2819	28.29	10.20	38.49	60.76	-22	2.27	QP
0.2819	15.59	10.20	25.79	50.76	-24	1.97	AVG
0.6180	27.58	10.89	38.47	56.00	-17	7.53	QP
0.6180	12.76	10.89	23.65	46.00	-22	2.35	AVG
1.1860	25.76	12.04	37.80	56.00	-18	3.20	QP
1.1860	11.32	12.04	23.36	46.00	-22	2.64	AVG
2.3420	13.04	9.66	22.70	46.00	-23	3.30	AVG
2.3420	27.97	9.66	37.63	56.00	-18	3.37	QP
5.3380	27.59	9.67	37.26	60.00	-22	2.74	QP
5.3380	12.29	9.67	21.96	50.00	-28	3.04	AVG

Remark:

All readings are Quasi-Peak and Average values.
 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

According to FOC Fait 15.205, Restricted bands								
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)

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

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

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



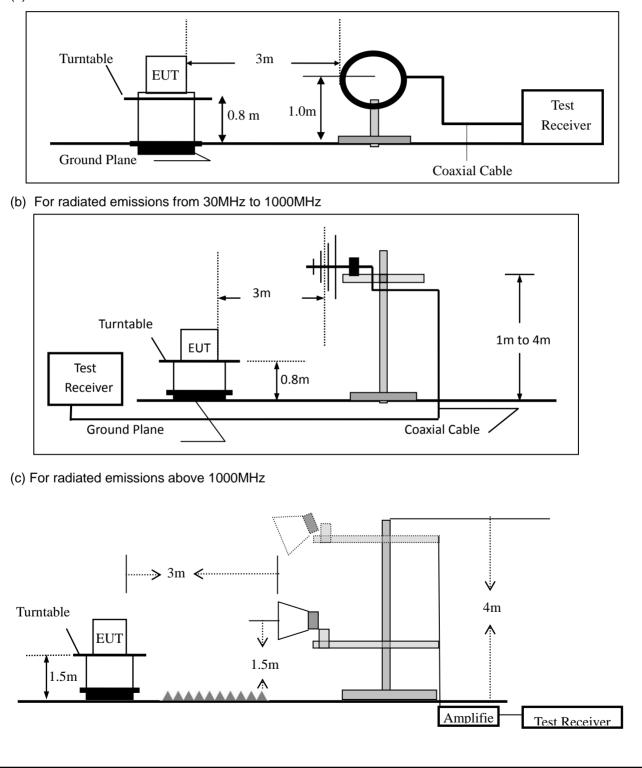


## 7.2.3 Measuring Instruments

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

#### 7.2.4 Test Configuration

(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.

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:

ele ale felle wing opeen an analyzer bearing	5.
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 / 1 MHz 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:

Frequency Band (MHz)	Function	Resolution bandwidth	Video Bandwidth		
30 to 1000	QP	120 kHz	300 kHz		
Above 1000	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.

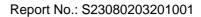
#### 7.2.6 Test Results

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

EUT:	multifunctional audio	Model No.:	XR-C8-8
Temperature:	<b>20</b> ℃	Relative Humidity:	48%
Test Mode:	Mode2/Mode3/Mode4	Test By:	Gavan Zhang

Freq.	Ant.Pol.	Emission L	Emission Level(dBuV/m) Limit 3m(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.





# ilac-M Certificate #4298.01

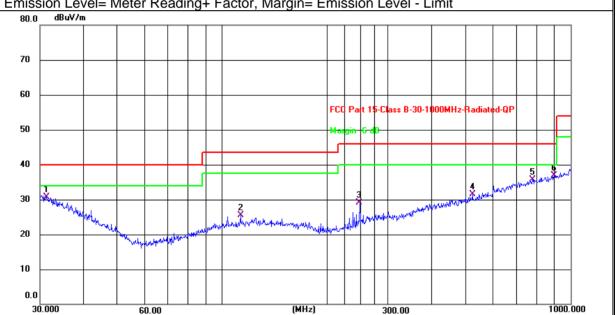
Spurious Emission below 1GHz (30MHz to 1GHz) All the modulation modes have been tested, and the worst result was report as below:

EUT:	multifunctional audio	Model Name :	XR-C8-8
Temperature:	<b>25.4</b> ℃	Relative Humidity:	54%
Pressure:	1010hPa	Test Mode:	Mode 2
Test Voltage :	DC 7.4V from battery		

Polar	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
(H/V)	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
V	31.3992	4.92	25.70	30.62	40.00	-9.38	QP
V	112.9196	7.09	18.50	25.59	43.50	-17.91	QP
V	248.5519	10.24	18.82	29.06	46.00	-16.94	QP
V	522.7180	6.20	25.23	31.43	46.00	-14.57	QP
V	776.8778	6.52	29.26	35.78	46.00	-10.22	QP
V	896.9965	6.11	30.76	36.87	46.00	-9.13	QP

#### **Remark:**

Emission Level= Meter Reading+ Factor, Margin= Emission Level - Limit







Polar	Frequency		F	Me Rea			Factor		issi eve		I	Lim	its	Ma	argi	in	R	emark	
(H/V)	(	(MHz)	)		(dB	uV	')	(dB)	(dE	(dBuV/m)		)	(dBuV/m)		(	dB)	)		
Н	33	3.211	2		6.2	25		24.69	3	0.9	4		40.	00	-9	-9.06			QP
Н	23	236.6447			10	.99	)	17.84	2	8.8	3		46.	00	-1	7.1	7		QP
Н	29	299.3158			11.	.09	)	20.19	3	1.2	8		46.	00	-1	4.7	2		QP
Н	66	668.1423			6.	74		27.48	3	4.2	2		46.	00	-1	1.7	8		QP
Н	75	8.04	3.0408		6.	13		28.96	3	5.0	9		46.	00	-1	0.9	1		QP
Н	83	0.40	02		7.4	44		29.99	3	7.4	3		46.	00	-8	8.57	7		QP
<u>Ernissic</u> 80.0	DN LEV dBuV/m					ig+	- ra	ctor, Margi											7
70																			_
60 -											_						_	_	-
50 -										HCU H Margi		15-C	lass B-30-11	JUUMHZ-K	adiated	1-ųP			
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										+	_	+						_	-
10 -																			





TUE	:	multif	unctional	audio	Model	No.:	XR	-C8-8		
Гem	perature:	<b>20</b> ℃			Relativ	e Humidit	y: 489	6		
Test	t Mode:	Mode	2/Mode3	/Mode4	Test B	y:	Ga	van Zhang	J	
All th	ne modulati	ion modes	have be	en tested,		•	lt was rep	ort as belo	SW:	
	Frequency	Read Level	Cable loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Margin	Remark	Comment
Ī	(MHz)	(dBµV)	(dB)	dB/m	(dB)	(dBµV/m)	(dBµV/m)	(dB)		
Ī			Lo	w Channel (	2402 MHz)	3Mbps(8-DP	SK)Above	1G		
Ī	4804	68.55	5.21	35.59	44.30	65.05	74.00	-8.95	Pk	Vertical
	4804	49.05	5.21	35.59	44.30	45.55	54.00	-8.45	AV	Vertical
Ī	7206	70.88	6.48	36.27	44.60	69.03	74.00	-4.97	Pk	Vertical
Ī	7206	50.7	6.48	36.27	44.60	48.85	54.00	-5.15	AV	Vertical
Ī	4804	68.6	5.21	35.55	44.30	65.06	74.00	-8.94	Pk	Horizontal
Ī	4804	49.15	5.21	35.55	44.30	45.61	54.00	-8.39	AV	Horizontal
Ī	7206	69.44	6.48	36.27	44.52	67.67	74.00	-6.33	Pk	Horizontal
Ī	7206	47.34	6.48	36.27	44.52	45.57	54.00	-8.43	AV	Horizontal
Ī			Mi	d Channel (	2441 MHz)	3Mbps(8-DP	SK)Above	1G		
Ī	4882	68.4	5.21	35.66	44.20	65.07	74.00	-8.93	Pk	Vertical
	4882	45.8	5.21	35.66	44.20	42.47	54.00	-11.53	AV	Vertical
Ī	7323	68.7	7.10	36.50	44.43	67.87	74.00	-6.13	Pk	Vertical
	7323	50.72	7.10	36.50	44.43	49.89	54.00	-4.11	AV	Vertical
	4882	69.87	5.21	35.66	44.20	66.54	74.00	-7.46	Pk	Horizontal
	4882	49.24	5.21	35.66	44.20	45.91	54.00	-8.09	AV	Horizontal
	7323	69.01	7.10	36.50	44.43	68.18	74.00	-5.82	Pk	Horizontal
	7323	45.25	7.10	36.50	44.43	44.42	54.00	-9.58	AV	Horizontal
			Hiç	gh Channel (	2480 MHz)	3Mbps(8-DP	SK)- Above	e 1G		
	4960	68.44	5.21	35.52	44.21	64.96	74.00	-9.04	Pk	Vertical
	4960	48.03	5.21	35.52	44.21	44.55	54.00	-9.45	AV	Vertical
	7440	70.27	7.10	36.53	44.60	69.30	74.00	-4.70	Pk	Vertical
	7440	45.96	7.10	36.53	44.60	44.99	54.00	-9.01	AV	Vertical
Ī	4960	69.76	5.21	35.52	44.21	66.28	74.00	-7.72	Pk	Horizontal
ĺ	4960	46.98	5.21	35.52	44.21	43.50	54.00	-10.50	AV	Horizontal
Ī	7440	68.09	7.10	36.53	44.60	67.12	74.00	-6.88	Pk	Horizontal
	7440	46.04	7.10	36.53	44.60	45.07	54.00	-8.93	AV	Horizontal

Note:

(1) Emission Level= Antenna Factor + Cable Loss + Read Level - Preamp Factor (2)All other emissions more than 20dB below the limit.

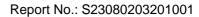




Report No.: S23080203201001

UT	:	multifunction	onal audi	0	Model	No.:	>	(R-C8-8			
em	perature:	<b>20</b> °C			Relativ	e Humidit	y: 4	48%			
est	Mode:	Mode2/ Mo	ode4		Test B	y:	C	Gavan Zhang	q		
All t	he modul	ation mode	s have b	een testeo	d, and the	worst resi	ult was	report as be	elow:		
1	Frequency	Meter Reading	Cable Loss	Antenna Factor	Preamp Factor	Emission Level	Limit	s Margin	Detector	Comment	
	(MHz)	(dBµV)	(dB)	dB/m	(dB)	(dBµV/m)	(dBµV/	/m) (dB)	Туре		
				ЗN	lbps(8-DPS	K)-Non-hopp	ing				
	2310.00	69.45	2.97	27.80	43.80	56.42	74	-17.58	Pk	Horizontal	
	2310.00	45.91	2.97	27.80	43.80	32.88	54	-21.12	AV	Horizontal	
	2310.00	70.35	2.97	27.80	43.80	57.32	74	-16.68	Pk	Vertical	
	2310.00	45.17	2.97	27.80	43.80	32.14	54	-21.86	AV	Vertical	
	2390.00	68.55	3.14	27.21	43.80	55.10	74	-18.90	Pk	Vertical	
	2390.00	45.57	3.14	27.21	43.80	32.12	54	-21.88	AV	Vertical	
	2390.00	70.79	3.14	27.21	43.80	57.34	74	-16.66	Pk	Horizontal	
	2390.00	45.26	3.14	27.21	43.80	31.81	54	-22.19	AV	Horizontal	
	2483.50	68.40	3.58	27.70	44.00	55.68	74	-18.32	Pk	Vertical	
	2483.50	47.96	3.58	27.70	44.00	35.24	54	-18.76	AV	Vertical	
	2483.50	70.75	3.58	27.70	44.00	58.03	74	-15.97	Pk	Horizontal	
	2483.50	45.66	3.58	27.70	44.00	32.94	54	-21.06	AV	Horizontal	
				;	3Mbps(8-DI	PSK)-hopping	3				
	2310.00	70.56	2.97	27.80	43.80	57.53	74	-16.47	Pk	Horizontal	
Γ	2310.00	50.86	2.97	27.80	43.80	37.83	54	-16.17	AV	Horizontal	
	2310.00	70.41	2.97	27.80	43.80	57.38	74	-16.62	Pk	Vertical	
	2310.00	50.49	2.97	27.80	43.80	37.46	54	-16.54	AV	Vertical	
Γ	2390.00	69.03	3.14	27.21	43.80	55.58	74	-18.42	Pk	Vertical	
Γ	2390.00	46.89	3.14	27.21	43.80	33.44	54	-20.56	AV	Vertical	
Γ	2390.00	68.81	3.14	27.21	43.80	55.36	74	-18.64	Pk	Horizontal	
	2390.00	46.79	3.14	27.21	43.80	33.34	54	-20.66	AV	Horizontal	
Γ	2483.50	70.46	3.58	27.70	44.00	57.74	74	-16.26	Pk	Vertical	
	2483.50	50.22	3.58	27.70	44.00	37.50	54	-16.50	AV	Vertical	
	2483.50	69.24	3.58	27.70	44.00	56.52	74	-17.48	Pk	Horizontal	
	2483.50	45.80	3.58	27.70	44.00	33.08	54	-20.92	AV	Horizontal	

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



EUT:	UT: multifunctional audio				Model	Model No.:		XR-C8-8			
emperature: 20 °C			Relativ	Relative Humidity:			48%				
Test Mode: Mode2 / Mo			2 / Mode	3 / Mode4	Test By:			Gavan Zhang			
All the modul	ation m	nodes	s have be	een tested	, and the	worst res	ult wa	is rep	ort as be	low:	
Frequency	Frequency Reading Level		Cable Loss	Antenna Factor	Preamp Factor	Emission Level	Lin	nits	Margin	Detector	Comment
(MHz)	(dBµ	ıV)	(dB)	dB/m	(dB)	(dBµV/m)	(dBµ	V/m)	(dB)	Туре	
3260	68.22		4.04	29.57	44.70	57.13	7	4	-16.87	Pk	Vertical
3260	45.0	01	4.04	29.57	44.70	33.92	54		-20.08	AV	Vertical
3260	68.27		4.04	29.57	44.70	57.18	7	4	-16.82	Pk	Horizonta
3260	45.0	)7	4.04	29.57	44.70	33.98	5	4	-20.02	AV	Horizonta
3332	70.4	47	4.26	29.87	44.40	60.20	7	4	-13.80	Pk	Vertical
3332	49.7	77	4.26	29.87	44.40	39.50	5	4	-14.50	AV	Vertical
3332	69.3	31	4.26	29.87	44.40	59.04	7	4	-14.96	Pk	Horizonta
3332	47.8	35	4.26	29.87	44.40	37.58	5	4	-16.42	AV	Horizonta
17797	51.6	66	10.99	43.95	43.50	63.10	7	4	-10.90	Pk	Vertical
17797	37.3	39	10.99	43.95	43.50	48.83	5	4	-5.17	AV	Vertical
17788	54.0	03	11.81	43.69	44.60	64.93	7	4	-9.07	Pk	Horizonta
17788	35.0	)2	11.81	43.69	44.60	45.92	5	4	-8.08	AV	Horizonta

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

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#### 7.3 NUMBER OF HOPPING CHANNEL

#### 7.3.1 Applicable Standard

According to FCC Part 15.247(a)(1) (iii)and ANSI C63.10-2013

#### 7.3.2 Conformance Limit

Frequency hopping systems in the 2400-2483.5MHz band shall use at least 15 channels.

#### 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 ANSI C63.10-2013 clause 7.8.3

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 must have its hopping function enabled.

Use the following spectrum analyzer settings:

Span = the frequency band of operation

RBW : To identify clearly the individual channels, set the RBW to less than 30% of the channel spacing or the 20 dB bandwidth, whichever is smaller.

VBW ≥ RBW

Sweep = auto

Detector function = peak Trace = max hold

#### 7.3.6 Test Results

EUT:	multifunctional audio	Model No.:	XR-C8-8
Temperature:	<b>20</b> ℃	Relative Humidity:	48%
Test Mode:	Mode2/Mode3/Mode4	Test By:	Gavan Zhang





#### 7.4 HOPPING CHANNEL SEPARATION MEASUREMENT

#### 7.4.1 Applicable Standard

According to FCC Part 15.247(a)(1) and ANSI C63.10-2013

#### 7.4.2 Conformance Limit

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5MHz band shall have hopping channel carrier frequencies that are separated by 25kHz or two-thirds of the 20dB bandwidth of the hopping channel, whichever is greater.

#### 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 testing follows ANSI C63.10-2013 clause 7.8.2

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 = Measurement Bandwidth or Channel Separation

RBW: Start with the RBW set to approximately 3% of the channel spacing; adjust as necessary to best identify the center of each individual channel.

VBW ≥ RBW

Sweep = auto

Detector function = peak

Trace = max hold

#### 7.4.6 Test Results

EUT:	multifunctional audio	Model No.:	XR-C8-8
Temperature:	<b>20</b> ℃	Relative Humidity:	48%
Test Mode:	Mode2/Mode3/Mode4	Test By:	Gavan Zhang



#### 7.5 AVERAGE TIME OF OCCUPANCY (DWELL TIME)

#### 7.5.1 Applicable Standard

According to FCC Part 15.247(a)(1)(iii) and ANSI C63.10-2013

#### 7.5.2 Conformance Limit

The average time of occupancy on any channel shall not be greater than 0.4s within a period of 0.4s multiplied by the number of hopping channels employed.

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#### 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 ANSI C63.10-2013 clause 7.8.4 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 must have its hopping function enabled. Use the following spectrum analyzer settings: Span = zero span, centered on a hopping channel RBW  $\geq$  1MHz VBW  $\geq$  RBW Sweep = as necessary to capture the entire dwell time per hopping channel Detector function = peak Trace = max hold Measure the maximum time duration of one single pulse. Set the EUT for DH5, DH3 and DH1 packet transmitting. Measure the maximum time duration of one single pulse.





#### 7.5.6 Test Results

EUT:	multifunctional audio	Model No.:	XR-C8-8
Temperature:	<b>20</b> ℃	Relative Humidity:	48%
Test Mode:	Mode2/Mode3/Mode4	Test By:	Gavan Zhang

Test data reference attachment.

Note:

A Period Time = (channel number)\*0.4

DH1 Dwell time: Reading \* (1600/2)\*31.6/(channel number) DH3 Dwell time: Reading \* (1600/4)\*31.6/(channel number) DH5 Dwell time: Reading \* (1600/6)\*31.6/(channel number)

For Example:

- 1. In normal mode, hopping rate is 1600 hops/s with 6 slots in 79 hopping channels. With channel hopping rate (1600 / 6 / 79) in Occupancy Time Limit  $(0.4 \times 79)$  (s), Hops Over Occupancy Time comes to  $(1600 / 6 / 79) \times (0.4 \times 79) = 106.67$  hops.
- In AFH mode, hopping rate is 800 hops/s with 6 slots in 20 hopping channels. With channel hopping rate (800 / 6 / 20) in Occupancy Time Limit (0.4 x 20) (s), Hops Over Occupancy Time comes to (800 / 6 / 20) x (0.4 x 20) = 53.33 hops.
- 3. Dwell Time(s) = Hops Over Occupancy Time (hops) x Package Transfer Time





#### 7.6 20DB BANDWIDTH TEST

#### 7.6.1 Applicable Standard

According to FCC Part 15.247(a)(1) and ANSI C63.10-2013

#### 7.6.2 Conformance Limit

No limit requirement.

#### 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 ANSI C63.10-2013 clause 6.9.2 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 = approximately 2 to 3 times the 20 dB bandwidth, centered on a hopping channel RBW  $\geq$  1% of the 20 dB bandwidth VBW  $\geq$  RBW Sweep = auto Detector function = peak Trace = max hold

#### 7.6.6 Test Results

EUT:	multifunctional audio	Model No.:	XR-C8-8
Temperature:	<b>20</b> ℃	Relative Humidity:	48%
Test Mode:	Mode2/Mode3/Mode4	Test By:	Gavan Zhang





#### 7.7 PEAK OUTPUT POWER

#### 7.7.1 Applicable Standard

According to FCC Part 15.247(b)(1) and ANSI C63.10-2013

#### 7.7.2 Conformance Limit

The maximum peak conducted output power of the intentional radiator shall not exceed the following: (1) For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band 0.125 watts.

#### 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 ANSI C63.10-2013 clause 7.8.5.

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 = approximately 5 times the 20 dB bandwidth, centered on a hopping channel

RBW  $\geq$  the 20 dB bandwidth of the emission being measured

 $\mathsf{VBW} \geq \mathsf{RBW}$ 

Sweep = auto

Detector function = peak Trace = max hold

#### 7.7.6 Test Results

EUT:	multifunctional audio	Model No.:	XR-C8-8
Temperature:	<b>20</b> ℃	Relative Humidity:	48%
Test Mode:	Mode2/Mode3/Mode4	Test By:	Gavan Zhang





#### 7.8 CONDUCTED BAND EDGE MEASUREMENT

#### 7.8.1 Applicable Standard

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

#### 7.8.2 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. Attenuation below the general limits specified in §15.209(a) is not required. 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)).

#### 7.8.3 Measuring Instruments

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

#### 7.8.4 Test Setup

Please refer to Section 6.1 of this test report.

#### 7.8.5 Test Procedure

The testing follows ANSI C63.10-2013 clause 7.8.6.

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 must have its hopping function enabled.

Use the following spectrum analyzer settings:

Span = approximately 5 times the 20 dB bandwidth, centered on a hopping channel

RBW = 100KHz

VBW = 300KHz

Band edge emissions must be at least 20 dB down from the highest emission level within the authorized band as measured with a 100kHz RBW. The attenuation shall be 30 dB instead of 20 dB when RMS conducted output power procedure is used.

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.

#### 7.8.6 Test Results

EUT:	multifunctional audio	Model No.:	XR-C8-8
Temperature:	<b>20</b> ℃	Relative Humidity:	48%
Test Mode:	Mode2 /Mode4/ Mode 5	Test By:	Gavan Zhang





#### 7.9 SPURIOUS RF CONDUCTED EMISSION

#### 7.9.1 Applicable Standard

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

#### 7.9.2 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. Attenuation below the general limits specified in §15.209(a) is not required. 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)).

#### 7.9.3 Measuring Instruments

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

#### 7.9.4 Test Setup

Please refer to Section 6.1 of this test report.

#### 7.9.5 Test Procedure

Establish an emission level by using the following procedure:

- a) Set the center frequency and span to encompass frequency range to be measured.
- b) Set the RBW = 100 kHz.
- c) Set the VBW  $\geq$  [3 × RBW].
- d) Detector = peak.
- e) Sweep time = auto couple.
- f) Trace mode = max hold.
- g) Allow trace to fully stabilize.

h) Use the peak marker function to determine the maximum amplitude level. Then the limit shall be attenuated by at least 20 dB relative to the maximum amplitude level in 100 kHz.

#### 7.9.6 Test Results

Remark: The measurement frequency range is from 30MHzHz 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.





#### 7.10 ANTENNA APPLICATION

#### 7.10.1 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.

#### 7.10.2 Result

The EUT antenna is permanent attached PCB antenna (Gain: -0.58 dBi). It comply with the standard requirement.

# NTEK 北测



#### 7.11 FREQUENCY HOPPING SYSTEM (FHSS) EQUIPMENT REQUIREMENTS 7.11.1 Standard Applicable

According to FCC Part 15.247(a)(1), The system shall hop to channel frequencies that are selected at the system hopping rate from a pseudo randomly ordered list of hopping frequencies. Each frequency must be used equally on the average by each transmitter. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals. (g) Frequency hopping spread spectrum systems are not required to employ all available hopping channels during each transmission. However, the system, consisting of both the transmitter and the receiver, must be designed to comply with all of the regulations in this section should the transmission bursts must comply with the definition of a frequency hopping system and must distribute its transmissions over the minimum number of hopping channels specified in this section. (h) The incorporation of intelligence within a frequency hopping spread spectrum system that permits the system to recognize other users within the spectrum band so that it individually and independently chooses and adapts its hopsets to avoid hopping on occupied channels is permitted. The coordination of frequency hopping systems in any other manner for the express purpose of avoiding the simultaneous occupancy of individual hopping frequencies by multiple transmitters is not permitted.

### 7.11.2 Frequency Hopping System

This transmitter device is frequency hopping device, and complies with FCC part 15.247 rule. This device uses Bluetooth radio which operates in 2400-2483.5 MHz band. Bluetooth uses a radio technology called frequency-hopping spread spectrum, which chops up the data being sent and transmits chunks of it on up to 79 bands (1 MHz each: centred from 2402 to 2480 MHz) in the range 2,400-2,483.5 MHz. The transmitter switches hop frequencies 1,600 times per second to assure a high degree of data security. All Bluetooth devices participating in a given piconet are synchronized to the frequency-hopping channel for the piconet. The frequency hopping sequence is determined by the master's device address and the phase of the hopping sequence (the frequency to hop at a specific time) is determined by the master's internal clock. Therefore, all slaves in a piconet must know the master's device address and must synchronize their clocks with the master's clock. Adaptive Frequency Hopping (AFH) was introduced in the Bluetooth specification to provide an effective way for a Bluetooth radio to counteract normal interference. AFH identifies "bad" channels, where either other wireless devices are interfering with the Bluetooth signal or the Bluetooth signal is interfering with another device. The AFH-enabled Bluetooth device will then communicate with other devices within its piconet to share details of any identified bad channels. The devices will then switch to alternative available "good" channels, away from the areas of interference, thus having no impact on the bandwidth used.

This device was tested with an bluetooth system receiver to check that the device maintained hopping synchronization, and the device complied with these requirements for FCC Part 15.247 rule.

### 7.11.3 EUT Pseudorandom Frequency Hopping Sequence

Pseudorandom Frequency Hopping Sequence Table as below: Channel: 08, 24, 40, 56, 40, 56, 72, 09, 01, 09, 33, 41, 33, 41, 65, 73, 53, 69, 06, 22, 04, 20, 36, 52, 38, 46, 70, 78, 68, 76, 21, 29, 10, 26, 42, 58, 44, 60, 76, 13, 03, 11, 35, 43, 37, 45, 69, 77, 55, 71, 08, 24, 08, 24, 40, 56, 40, 48, 72, 01, 72, 01, 25, 33, 12, 28, 44, 60, 42, 58, 74, 11, 05, 13, 37, 45 etc.

The system receiver have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shift frequencies in synchronization with the transmitted signals.





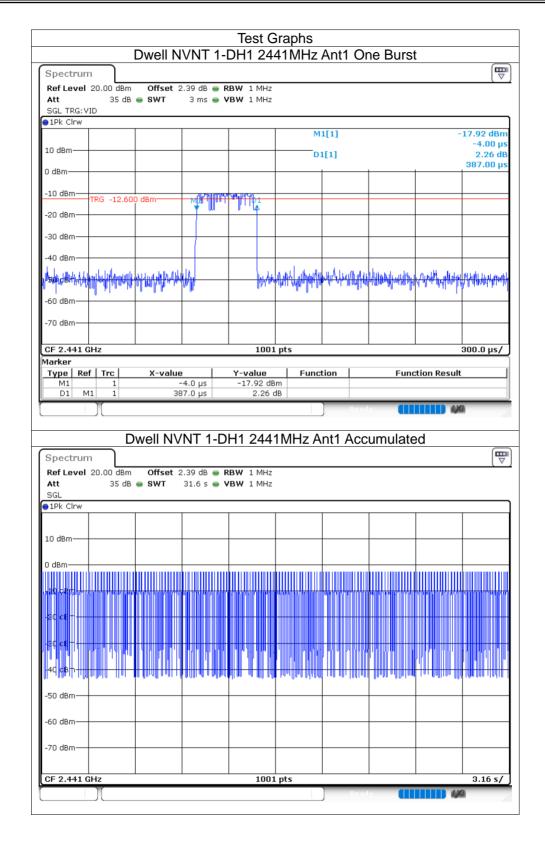
# 8 TEST RESULTS

#### 8.1 Dwell Time

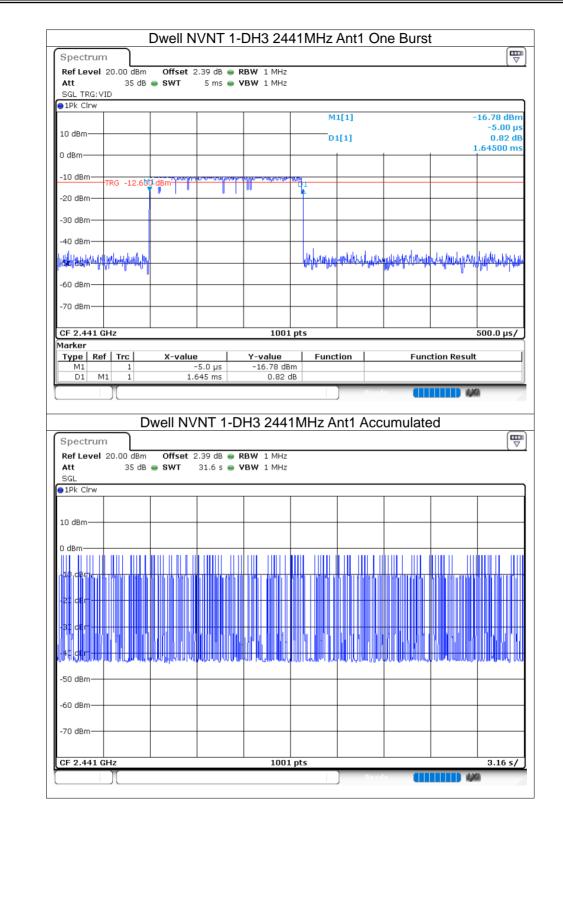
Condition	Mode	Frequency (MHz)	Antenna	Pulse Time (ms)	Total Dwell Time (ms)	Burst Count	Period Time (ms)	Limit (ms)	Verdict
NVNT	1-DH1	2441	Ant1	0.387	85.14	220	31600	400	Pass
NVNT	1-DH3	2441	Ant1	1.645	203.98	124	31600	400	Pass
NVNT	1-DH5	2441	Ant1	2.896	280.912	97	31600	400	Pass
NVNT	2-DH1	2441	Ant1	0.393	81.744	208	31600	400	Pass
NVNT	2-DH3	2441	Ant1	1.645	227.01	138	31600	400	Pass
NVNT	2-DH5	2441	Ant1	2.896	260.64	90	31600	400	Pass
NVNT	3-DH1	2441	Ant1	0.396	83.556	211	31600	400	Pass
NVNT	3-DH3	2441	Ant1	1.645	207.27	126	31600	400	Pass
NVNT	3-DH5	2441	Ant1	2.904	275.88	95	31600	400	Pass



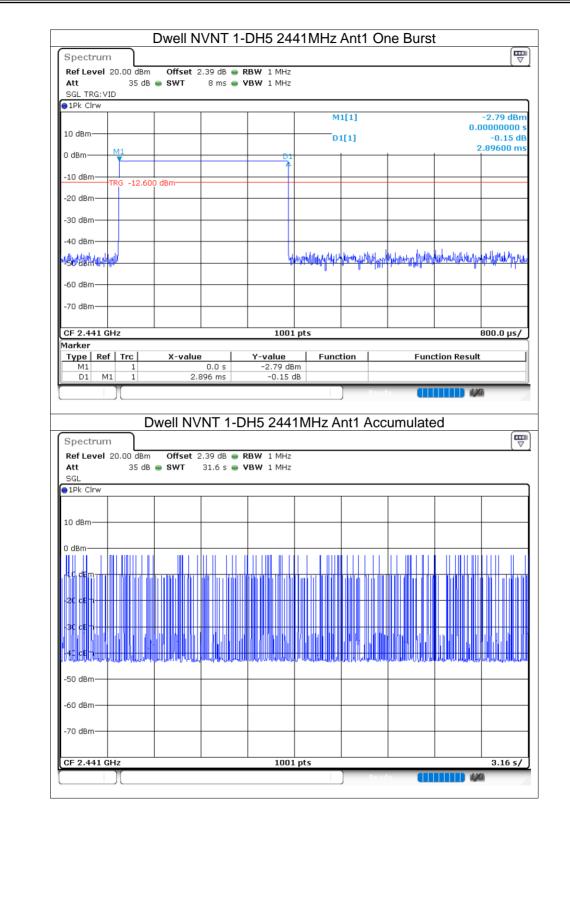
# ACCREDITED Certificate #4298.01



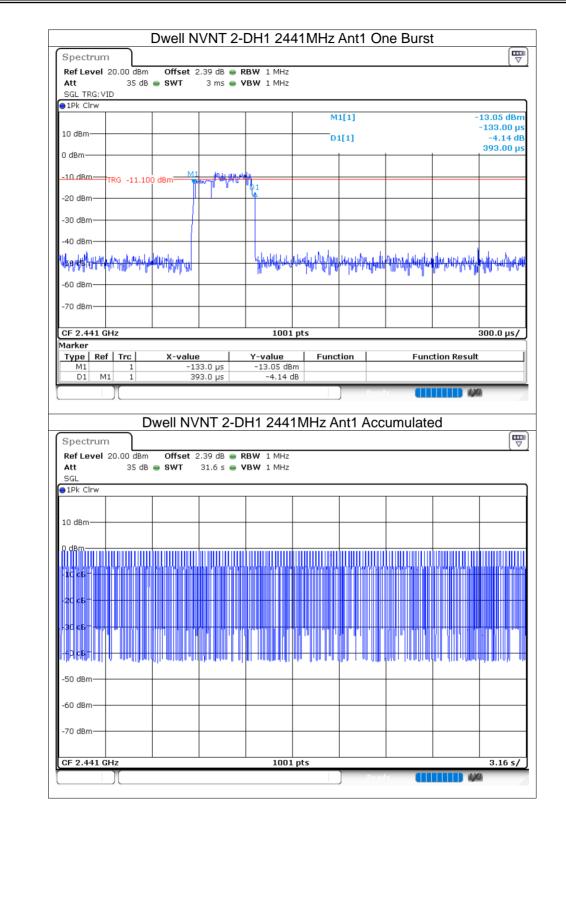




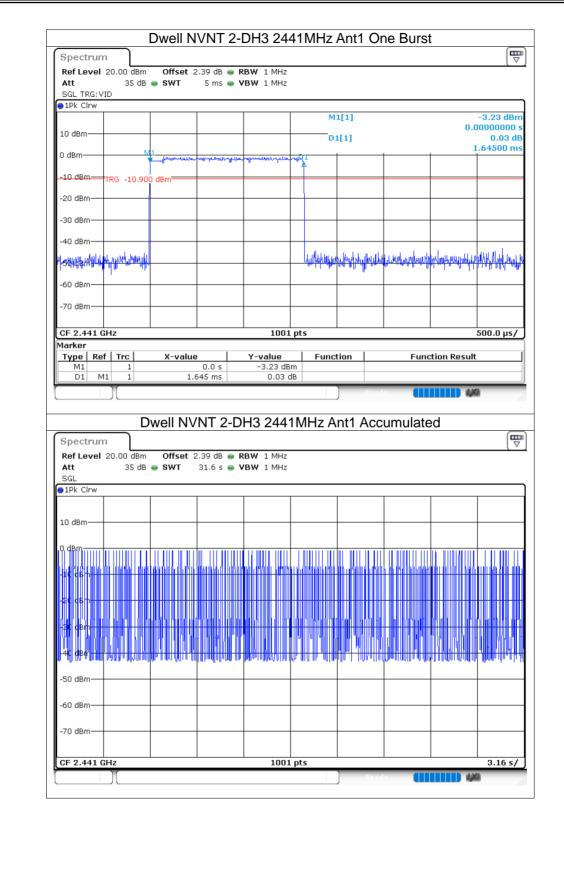




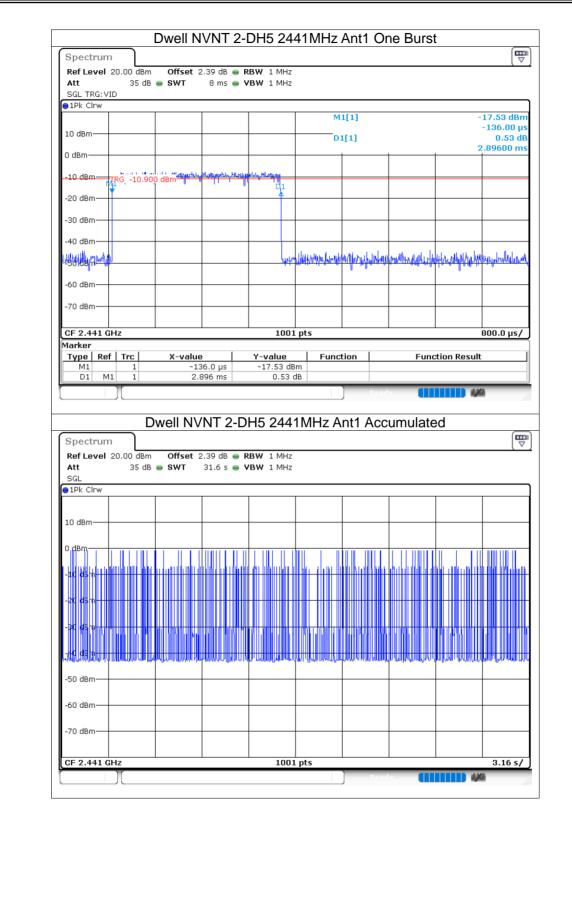




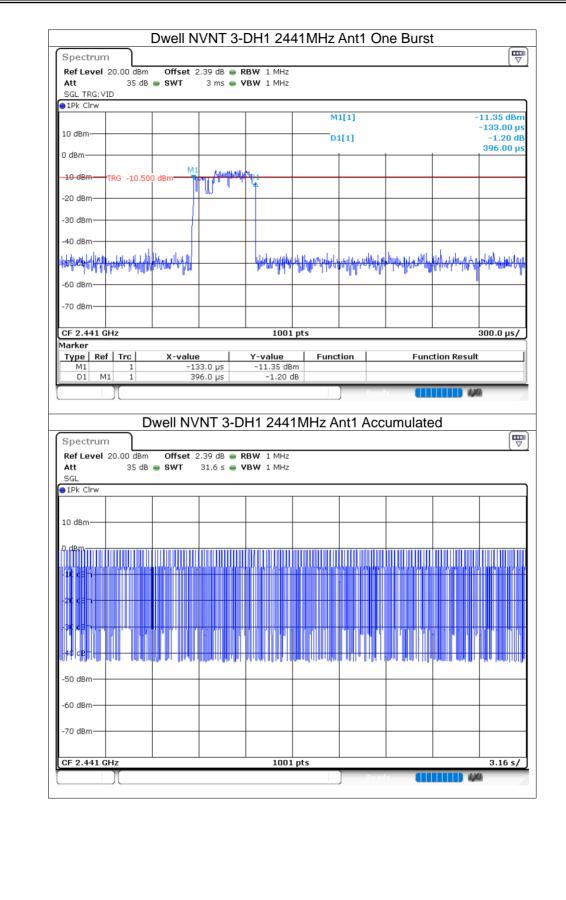




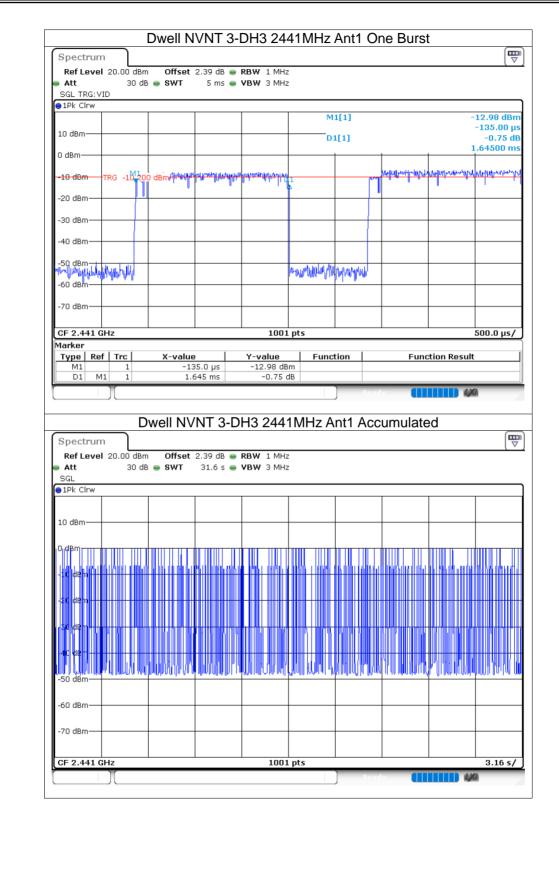




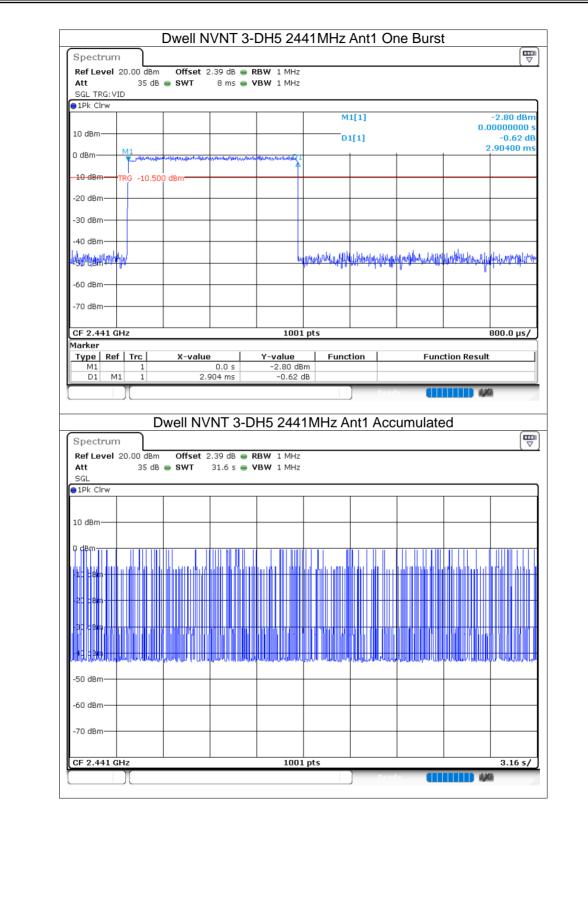












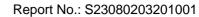


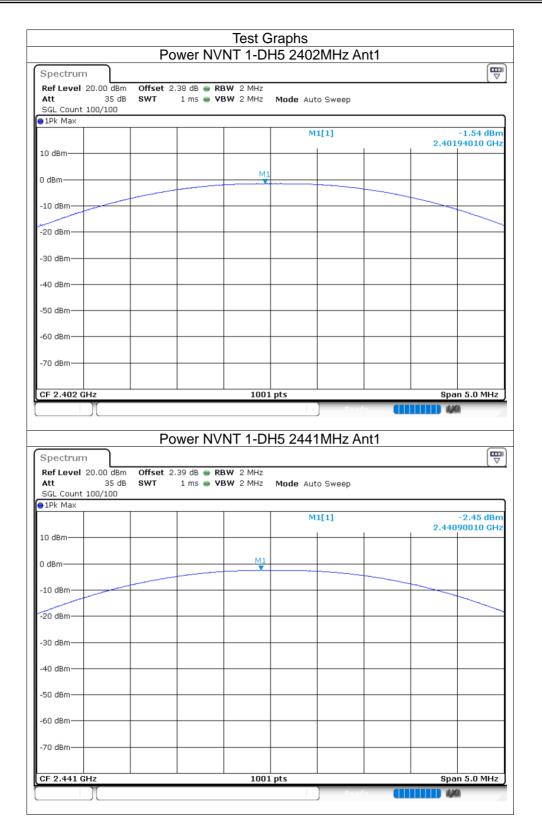


### 8.2 Maximum Conducted Output Power

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH5	2402	Ant1	-1.54	21	Pass
NVNT	1-DH5	2441	Ant1	-2.45	21	Pass
NVNT	1-DH5	2480	Ant1	-3.48	21	Pass
NVNT	2-DH5	2402	Ant1	0.66	21	Pass
NVNT	2-DH5	2441	Ant1	-0.16	21	Pass
NVNT	2-DH5	2480	Ant1	-1.24	21	Pass
NVNT	3-DH5	2402	Ant1	0.95	21	Pass
NVNT	3-DH5	2441	Ant1	0.35	21	Pass
NVNT	3-DH5	2480	Ant1	-0.73	21	Pass







ilac-MR



Ref Level 20.00 c Att 35 SGL Count 100/10	dB SWT	.42 dB 👄 RI 1 ms 👄 V		Mode Au	ito Sweep			<b>[[]</b>
				1	M1[1]		2.480	-3.48 dBi 014490 GH
10 dBm								
0 dBm				M1	+			
-10 dBm								
-20 dBm-								
-30 dBm								
-40 dBm								
-50 dBm								
-60 dBm								
-70 dBm								
CF 2.48 GHz			100:	L pts			Spa	n 5.0 MHz
	iBm Offset 2 dB SWT	.38 dB 😑 RI	<b>NT 2-D</b> <b>BW</b> 2 MHz <b>BW</b> 2 MHz			nt1		
Ref Level         20.00           Att         35           SGL Count         100/10	iBm Offset 2 dB SWT	.38 dB 😑 RI	BW 2 MHz	Mode Au	ito Sweep	Int1		7
Ref Level 20.00 C Att 35 SGL Count 100/10 PIPk Max	iBm Offset 2 dB SWT	.38 dB 😑 RI	BW 2 MHz	Mode Au		.nt1	2.40	0.66 dBi
Ref Level 20.00 C Att 35 SGL Count 100/10 1Pk Max 10 dBm	iBm Offset 2 dB SWT	.38 dB 😑 RI	BW 2 MHz	Mode Au	ito Sweep	.nt1	2.40	0.66 dBr
Ref Level         20.00 C           Att         35           SGL         Count         100/10           IPk         Max           10 dBm         0	iBm Offset 2 dB SWT	.38 dB 😑 RI	BW 2 MHz BW 2 MHz	Mode Au	ito Sweep	nt1	2.40	0.66 dBr
Ref Level 20.00 C Att 35 SGL Count 100/10 1Pk Max 10 dBm	iBm Offset 2 dB SWT	.38 dB 😑 RI	BW 2 MHz BW 2 MHz	Mode Au	ito Sweep	nt1	2.40	0.66 dBr
Ref Level         20.00 C           Att         35           SGL         Count         100/10           IPk         Max           10 dBm         0	iBm Offset 2 dB SWT	.38 dB 😑 RI	BW 2 MHz BW 2 MHz	Mode Au	ito Sweep	nt1	2.403	0.66 dBr
Ref Level         20.00 €           Att         35           SGL         Count         100/10           ● 1Pk Max         10 dBm         0           0 dBm         -10 dBm         -10 dBm	iBm Offset 2 dB SWT	.38 dB 😑 RI	BW 2 MHz BW 2 MHz	Mode Au	ito Sweep	nt1	2.40	0.66 dBr
Ref Level         20.00 €           Att         35           SGL         Count         100/10           ● 1Pk Max         10         dBm           10 dBm         0         dBm           -10 dBm         -0         dBm	iBm Offset 2 dB SWT	.38 dB 😑 RI	BW 2 MHz BW 2 MHz	Mode Au	ito Sweep	nt1	2.40	0.66 dBr
Ref Level         20.00 €           Att         35           SGL         Count         100/10           ● 1Pk Max         10         dBm           10 dBm         0         dBm           -10 dBm         -0         dBm           -20 dBm         -30 dBm         -30 dBm	iBm Offset 2 dB SWT	.38 dB 😑 RI	BW 2 MHz BW 2 MHz	Mode Au	ito Sweep	nt1	2.40	0.66 dBr
Ref Level         20.00 €           Att         35           SGL         Count         100/10           ● 1Pk Max         10         dBm           10 dBm         0         dBm           -10 dBm         -0         dBm           -20 dBm         -30 dBm         -40 dBm	iBm Offset 2 dB SWT	.38 dB 😑 RI	BW 2 MHz BW 2 MHz	Mode Au	ito Sweep	nt1	2.40	0.66 dBr
Ref Level         20.00 c           Att         35           SGL         Count         100/10           ● 1Pk Max         10         dBm           10 dBm         0         dBm           -10 dBm         -0         dBm           -20 dBm         -30 dBm	iBm Offset 2 dB SWT	.38 dB 😑 RI	BW 2 MHz BW 2 MHz	Mode Au	ito Sweep	nt1	2.40	0.66 dBr
Ref Level         20.00 c           Att         35           SGL         Count         100/10           ● 1Pk Max         10         dBm           10 dBm         0         dBm         0           -10 dBm         -0         dBm         -0           -20 dBm	iBm Offset 2 dB SWT	.38 dB 😑 RI	BW 2 MHz BW 2 MHz	Mode Au	ito Sweep	nt1	2.40	0.66 dBi
Ref Level         20.00 c           Att         35           SGL         Count         100/10           ● 1Pk Max         10         dBm           10 dBm         0         dBm           -10 dBm         -0         dBm           -20 dBm         -30 dBm	iBm Offset 2 dB SWT	.38 dB 😑 RI	BW 2 MHz BW 2 MHz	Mode Au	ito Sweep	nt1		0.66 dBr



Ref Level         20.00 dBm           Att         35 dB           SGL Count         100/100		8 <b>e RBW</b> 2 MHz 5 <b>e VBW</b> 2 MHz	Mode Auto S	weep		
●1Pk Max			M1[1]			-0.16 dB
10 dBm					2.4408	37660 GI
		М1				
0 dBm						
-10 dBm						
-20 dBm						and the second s
and the second states						and a series
-30 dBm						
-40 dBm						
-50 dBm						
-60 dBm						
-70 dBm						
CF 2.441 GHz		100:	1 pts		Span	6.5 MH
Spectrum Ref Level 20.00 dBm Att 35 dB	Offset 2.42 dE	NVNT 2-D				ļ
Ref Level 20.00 dBm	Offset 2.42 dE	8 🖷 RBW 2 MHz	Mode Auto St	weep		
Ref Level         20.00         dBm           Att         35 dB         SGL Count 100/100           IPk Max         100         100	Offset 2.42 dE	8 🖷 RBW 2 MHz		weep		-1.24 dB
Ref Level         20.00 dBm           Att         35 dB           SGL Count         100/100	Offset 2.42 dE	8 • RBW 2 MHz 5 • VBW 2 MHz	Mode Auto St	weep		-1.24 dB 92210 Gł
Ref Level         20.00         dBm           Att         35 dB         SGL Count 100/100           IPk Max         100         100	Offset 2.42 dE	8 🖷 RBW 2 MHz	Mode Auto St	weep		-1.24 dB
Ref Level         20.00 dBm           Att         35 dB           SGL Count         100/100           1Pk Max         10 dBm	Offset 2.42 dE	8 • RBW 2 MHz 5 • VBW 2 MHz	Mode Auto St	weep		-1.24 dB
Ref Level         20.00 dBm           Att         35 dB           SGL Count         100/100           1Pk Max         100 dBm           10 dBm         -10 dBm	Offset 2.42 dE	8 • RBW 2 MHz 5 • VBW 2 MHz	Mode Auto St	weep		-1.24 dB
Ref Level         20.00 dBm           Att         35 dB           SGL Count         100/100           1Pk Max         100 dBm           10 dBm         -0 dBm           -10 dBm         -20 dBm	Offset 2.42 dE	8 • RBW 2 MHz 5 • VBW 2 MHz	Mode Auto St	weep		-1.24 dB 22210 Gł
Ref Level         20.00 dBm           Att         35 dB           SGL Count         100/100           1Pk Max         100 dBm           10 dBm         -10 dBm	Offset 2.42 dE	8 • RBW 2 MHz 5 • VBW 2 MHz	Mode Auto St	weep		-1.24 dB
Ref Level         20.00 dBm           Att         35 dB           SGL Count         100/100           1Pk Max         100 dBm           10 dBm         0 dBm           -10 dBm	Offset 2.42 dE	8 • RBW 2 MHz 5 • VBW 2 MHz	Mode Auto St	weep		-1.24 dB 22210 Gł
Ref Level         20.00 dBm           Att         35 dB           SGL Count         100/100           1Pk Max         100 dBm           10 dBm         0 dBm           -10 dBm         -00 dBm           -20 dBm         -00 dBm           -30 dBm         -00 dBm	Offset 2.42 dE	8 • RBW 2 MHz 5 • VBW 2 MHz	Mode Auto St	weep		-1.24 dB 22210 Gł
Ref Level         20.00 dBm           Att         35 dB           SGL Count         100/100           1Pk Max         100 dBm           10 dBm         0 dBm           -10 dBm	Offset 2.42 dE	8 • RBW 2 MHz 5 • VBW 2 MHz	Mode Auto St	weep		-1.24 dB 22210 Gł
Ref Level         20.00 dBm           Att         35 dB           SGL Count         100/100           1Pk Max         100 dBm           10 dBm         0 dBm           -10 dBm         -00 dBm           -20 dBm         -00 dBm           -30 dBm         -00 dBm	Offset 2.42 dE	8 • RBW 2 MHz 5 • VBW 2 MHz	Mode Auto St	weep		-1.24 dB 22210 Gł
Ref Level         20.00 dBm           Att         35 dB           SGL Count         100/100           I IPk Max         100 dBm           0 dBm         -00 dBm           -10 dBm         -00 dBm           -20 dBm         -00 dBm           -30 dBm         -00 dBm           -40 dBm         -00 dBm	Offset 2.42 dE	8 • RBW 2 MHz 5 • VBW 2 MHz	Mode Auto St	weep		-1.24 dB 22210 Gł
Ref Level         20.00 dBm           Att         35 dB           SGL Count         100/100           1Pk Max         100 dBm           10 dBm         -00 dBm           -10 dBm         -00 dBm           -20 dBm         -00 dBm           -30 dBm         -00 dBm           -60 dBm         -00 dBm	Offset 2.42 dE	8 • RBW 2 MHz 5 • VBW 2 MHz	Mode Auto St	weep		-1.24 dB 22210 Gł
Ref Level         20.00 dBm           Att         35 dB           SGL Count         100/100           1Pk Max         100 dBm           10 dBm         -00 dBm           -10 dBm         -00 dBm           -20 dBm         -00 dBm           -30 dBm         -00 dBm           -60 dBm         -00 dBm	Offset 2.42 dE	8 • RBW 2 MHz 5 • VBW 2 MHz	Mode Auto St	weep	2.4799	•1.24 dB 2210 G



Ref Level         20.00         dBr           Att         35 d           SGL Count         100/100		RBW 2 MHz VBW 2 MHz Mod	e Auto Sweep		
●1Pk Max			M1[1]		0.95 dB
10 dBm					2.40203250 GH
		N11			
0 dBm		And the second s	and the and the and the and the local distances of the local distanc	u.eme	
-10 dBm					
-20 dBm					
and the second se					
-30 dBm					
-40 dBm					
-50 dBm					
-60 dBm					
-70 dBm					
Spectrum Ref Level 20.00 dBi Att 35 d	m Offset 2.39 dB 👄	1001 pts IVNT 3-DH5 2 RBW 2 MHz VBW 2 MHz Mod		<b>1111</b>	Span 6.5 MH:
	m Offset 2.39 dB 👄	IVNT 3-DH5 2 RBW 2 MHz	e Auto Sweep	t1	
Spectrum Ref Level 20.00 dBr Att 35 d SGL Count 100/100 1Pk Max	m Offset 2.39 dB 👄	IVNT 3-DH5 2 RBW 2 MHz		t1	
Spectrum Ref Level 20.00 dBr Att 35 d SGL Count 100/100	m Offset 2.39 dB 👄	RBW 2 MHZ VBW 2 MHZ Mod	e Auto Sweep	t1	(Q 0.35 dB
Spectrum Ref Level 20.00 dBr Att 35 d SGL Count 100/100 1Pk Max	m Offset 2.39 dB 👄	IVNT 3-DH5 2 RBW 2 MHz	e Auto Sweep	t1	(Q 0.35 dB
Spectrum Ref Level 20.00 dBr Att 35 d SGL Count 100/100 1Pk Max 10 dBm	m Offset 2.39 dB 👄	RBW 2 MHZ VBW 2 MHZ Mod	e Auto Sweep	t1	(Q 0.35 dB
Spectrum Ref Level 20.00 dBr Att 35 d SGL Count 100/100 1Pk Max 10 dBm -10 dBm	m Offset 2.39 dB 👄	RBW 2 MHZ VBW 2 MHZ Mod	e Auto Sweep	t1	(Q 0.35 dB
Spectrum Ref Level 20.00 dBr Att 35 d SGL Count 100/100 1Pk Max 10 dBm 0 dBm	m Offset 2.39 dB 👄	RBW 2 MHZ VBW 2 MHZ Mod	e Auto Sweep	t1	(Q 0.35 dB
Spectrum Ref Level 20.00 dBr Att 35 d SGL Count 100/100 1Pk Max 10 dBm -10 dBm	m Offset 2.39 dB 👄	RBW 2 MHZ VBW 2 MHZ Mod	e Auto Sweep	t1	(Q 0.35 dB
Spectrum Ref Level 20.00 dBr Att 35 d SGL Count 100/100 1Pk Max 10 dBm -10 dBm -20 dBm	m Offset 2.39 dB 👄	RBW 2 MHZ VBW 2 MHZ Mod	e Auto Sweep	t1	(Q 0.35 dB
Spectrum Ref Level 20.00 dBr Att 35 d SGL Count 100/100 IPk Max 10 dBm -10 dBm -20 dBm -30 dBm -40 dBm	m Offset 2.39 dB 👄	RBW 2 MHZ VBW 2 MHZ Mod	e Auto Sweep	t1	(Q 0.35 dB
Spectrum Ref Level 20.00 dBr Att 35 d SGL Count 100/100 1Pk Max 10 dBm -10 dBm -20 dBm -30 dBm	m Offset 2.39 dB 👄	RBW 2 MHZ VBW 2 MHZ Mod	e Auto Sweep	t1	(Q 0.35 dB
Spectrum Ref Level 20.00 dBr Att 35 d SGL Count 100/100 IPk Max 10 dBm -10 dBm -20 dBm -30 dBm -40 dBm	m Offset 2.39 dB 👄	RBW 2 MHZ VBW 2 MHZ Mod	e Auto Sweep		(Q 0.35 dB
Spectrum Ref Level 20.00 dBr Att 35 d SGL Count 100/100 1Pk Max 10 dBm -10 dBm -20 dBm -30 dBm -30 dBm -50 dBm	m Offset 2.39 dB 👄	RBW 2 MHZ VBW 2 MHZ Mod	e Auto Sweep	t1	(Q 0.35 dB
Spectrum Ref Level 20.00 dBa Att 35 d SGL Count 100/100 IPk Max 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -50 dBm -50 dBm -60 dBm	m Offset 2.39 dB 👄	RBW 2 MHZ VBW 2 MHZ Mod	e Auto Sweep	t1	(Q 0.35 dB
Spectrum Ref Level 20.00 dBa Att 35 d SGL Count 100/100 IPk Max 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -50 dBm -50 dBm -60 dBm	m Offset 2.39 dB 👄	RBW 2 MHZ VBW 2 MHZ Mod	e Auto Sweep		(Q 0.35 dB



Spectrum					
Ref Level 20.00 dBm Att 35 dB SGL Count 100/100	Offset 2.42 dB ● SWT 1 ms ●	RBW 2 MHz VBW 2 MHz	Mode Auto Sweep		
)1Pk Max			M1[1]		-0.73 dBn 07140 GH:
10 dBm					
) dBm	(Property and a second s		M1		
-10 dBm				~	
20 dBm					hand
-30 dBm					
-40 dBm					
50 dBm					
60 dBm					
70 dBm					
CF 2.48 GHz		1001	nts	Spar	1 6.5 MHz





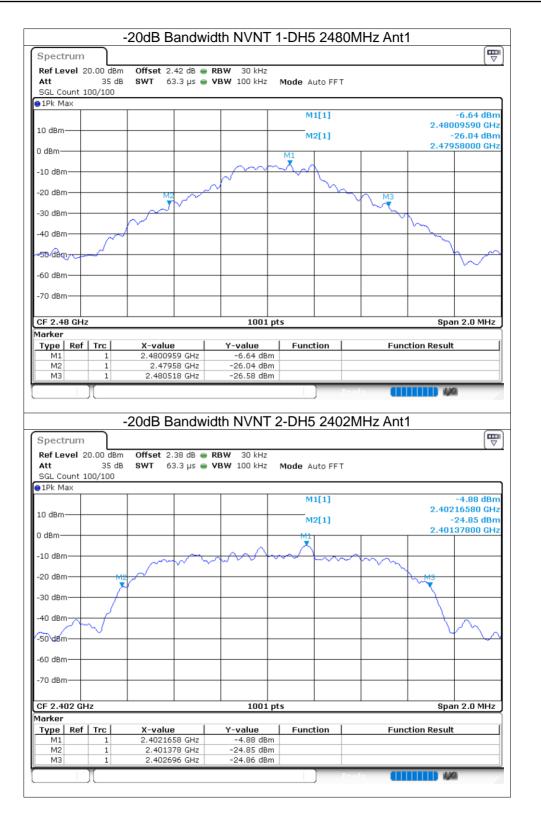
#### 8.3 -20dB Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	-20 dB Bandwidth (MHz)	Limit -20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH5	2402	Ant1	0.946	0	Pass
NVNT	1-DH5	2441	Ant1	0.942	0	Pass
NVNT	1-DH5	2480	Ant1	0.938	0	Pass
NVNT	2-DH5	2402	Ant1	1.318	0	Pass
NVNT	2-DH5	2441	Ant1	1.328	0	Pass
NVNT	2-DH5	2480	Ant1	1.328	0	Pass
NVNT	3-DH5	2402	Ant1	1.292	0	Pass
NVNT	3-DH5	2441	Ant1	1.264	0	Pass
NVNT	3-DH5	2480	Ant1	1.324	0	Pass

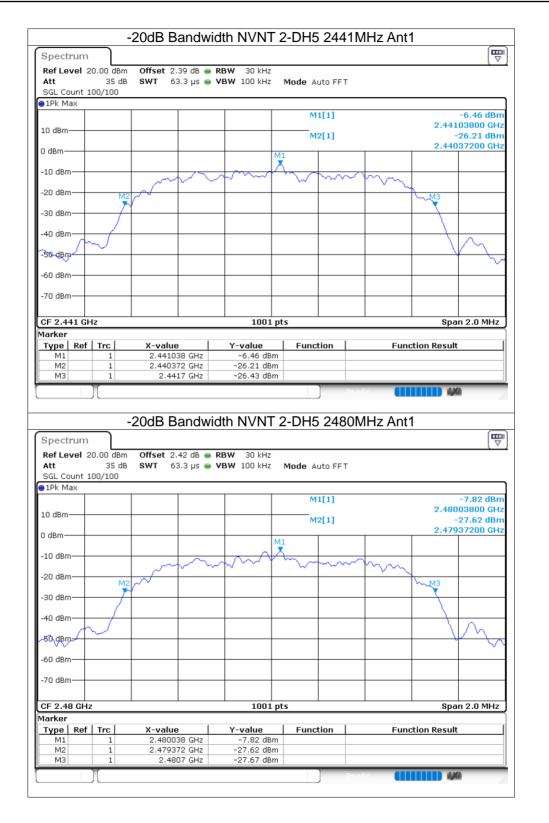






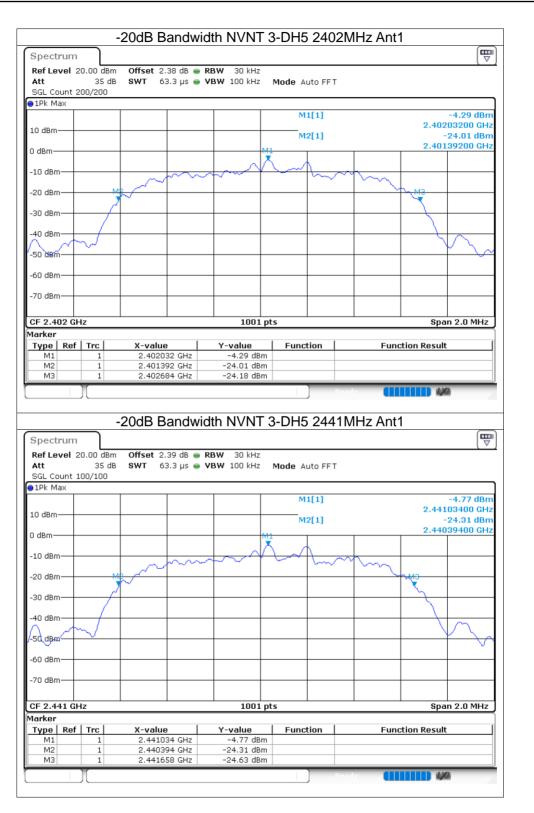






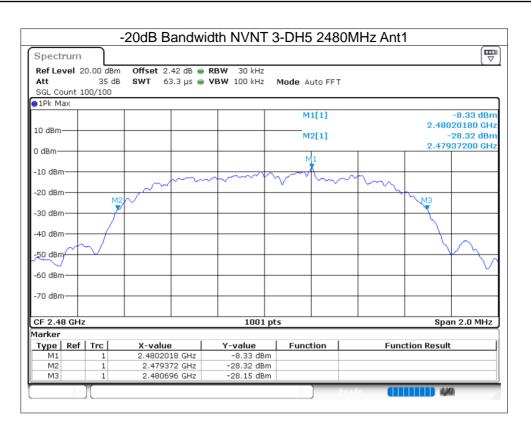
Hac-MR





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#### 8.4 Occupied Channel Bandwidth

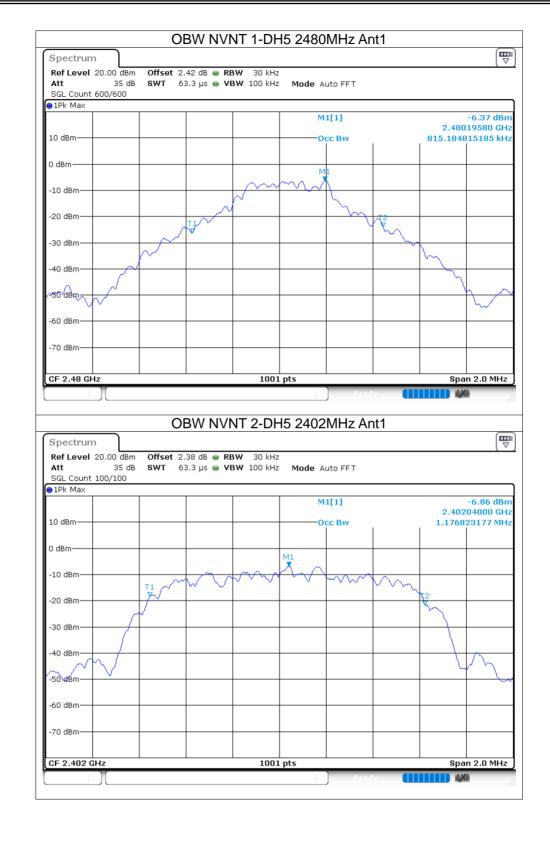
Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	1-DH5	2402	Ant1	0.833
NVNT	1-DH5	2441	Ant1	0.813
NVNT	1-DH5	2480	Ant1	0.815
NVNT	2-DH5	2402	Ant1	1.177
NVNT	2-DH5	2441	Ant1	1.187
NVNT	2-DH5	2480	Ant1	1.171
NVNT	3-DH5	2402	Ant1	1.179
NVNT	3-DH5	2441	Ant1	1.179
NVNT	3-DH5	2480	Ant1	1.177











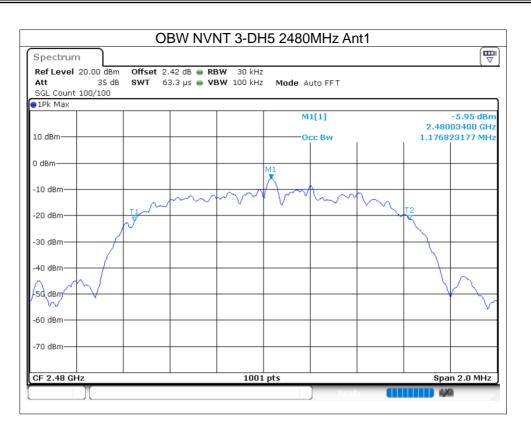














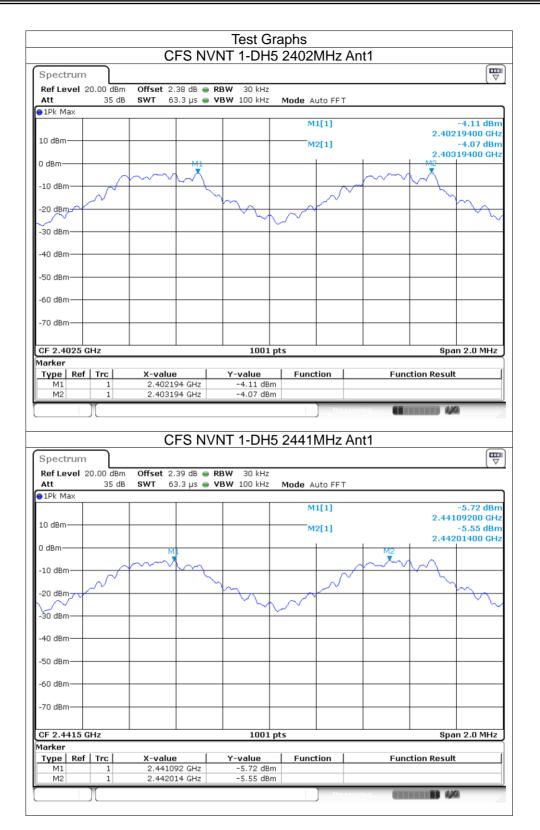


#### 8.5 Carrier Frequencies Separation

dame.							
Condition	Mode	Antenna	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH5	Ant1	2402.194	2403.194	1	0.629	Pass
NVNT	1-DH5	Ant1	2441.092	2442.014	0.922	0.628	Pass
NVNT	1-DH5	Ant1	2479.094	2480.096	1.002	0.625	Pass
NVNT	2-DH5	Ant1	2401.97	2403.038	1.068	0.881	Pass
NVNT	2-DH5	Ant1	2440.976	2442.038	1.062	0.885	Pass
NVNT	2-DH5	Ant1	2479.174	2480.174	1	0.899	Pass
NVNT	3-DH5	Ant1	2402.032	2403.032	1	0.868	Pass
NVNT	3-DH5	Ant1	2441.013	2441.982	0.969	0.843	Pass
NVNT	3-DH5	Ant1	2479.198	2480.2	1.002	0.848	Pass





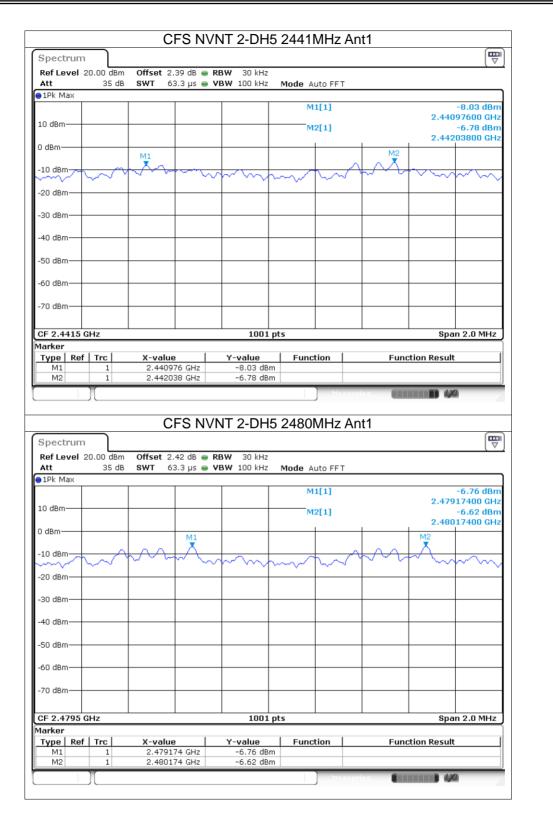




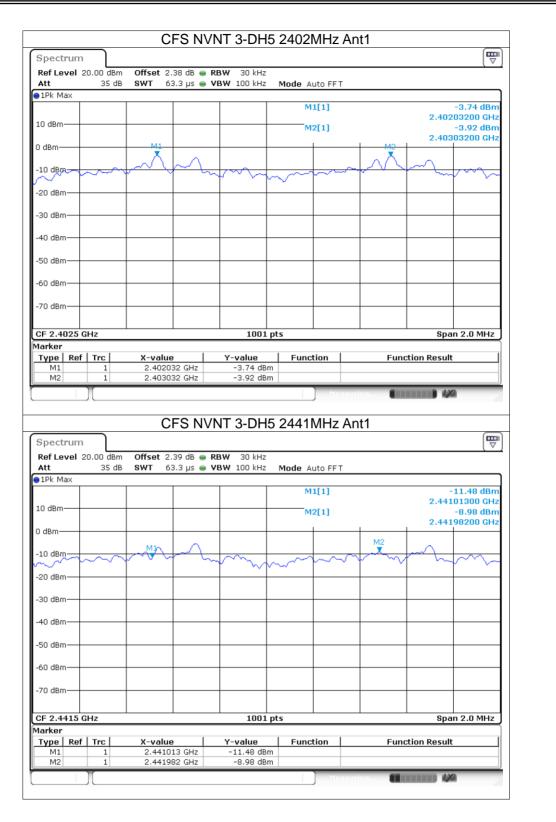




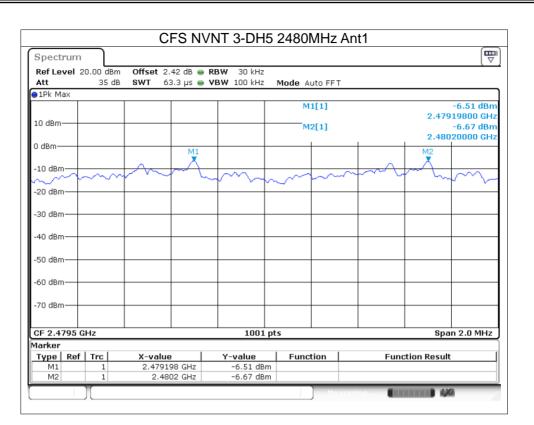












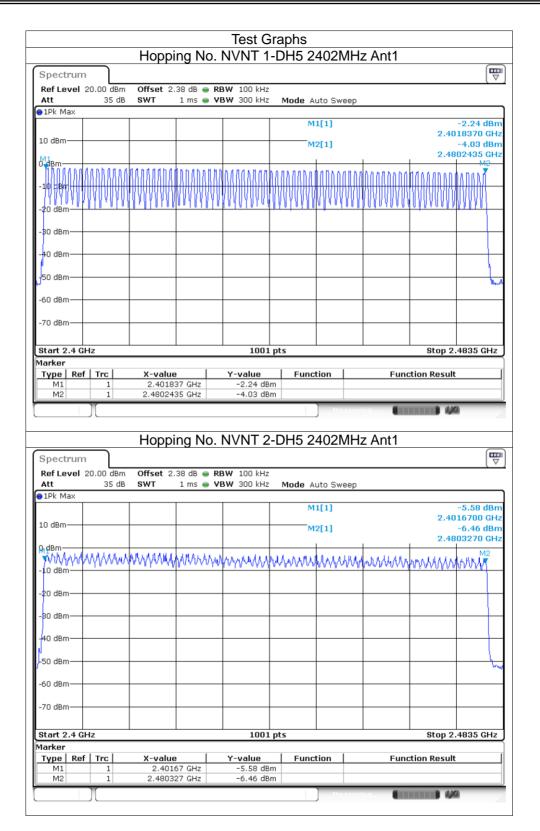




#### 8.6 Number of Hopping Channel

Condition	Mode	Antenna	Hopping Number	Limit	Verdict
NVNT	1-DH5	Ant1	79	15	Pass
NVNT	2-DH5	Ant1	79	15	Pass
NVNT	3-DH5	Ant1	79	15	Pass







Spectr	um									E
		.00 dBm	Officiat 0	20 db — D	<b>BW</b> 100 kHz					( v
ker Lev Att	<b>ei</b> 20	35 dB	SWT	_	BW 100 kHz BW 300 kHz	Mode A	uto Sweep			
1Pk Ma	×	55 GD	oni	1 110 - 1	BH SOO KHZ	HOUE A	ato Sweep			
						M	1[1]			-4.82 dBm
									2.40	15865 GHz
0 dBm—						M	2[1]			-7.56 dBm
dBm—									2.48	05775 GHz
JUB	Lark	AALAAA	NARA AND	Алаллал	144.41.44	a a a se a a a a a a a a a a a a a a a a		ا بيد الألالي		M2
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20 dBm-										
30 dBm-										
40 dBm-	-									
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50 dBm-										
70 dBm-										
tart 2.	4 GHz				1001	pts			Stop 2	.4835 GHz
arker										
	Ref	Trc	X-value		Y-value	Funct	ion	Fund	tion Result	
M1 M2		1	2,40158		-4.82 dB -7.56 dB					

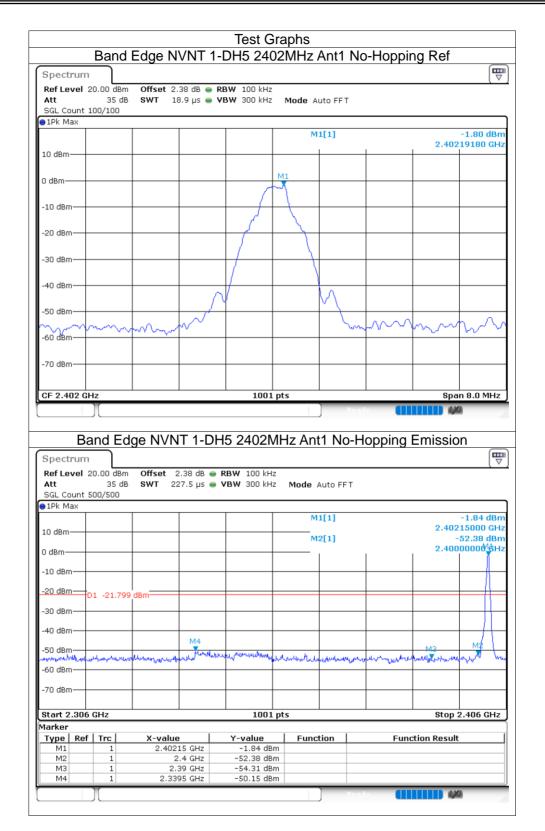




#### 8.7 Band Edge

ugu						
Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
1-DH5	2402	Ant1	No-Hopping	-48.34	-20	Pass
1-DH5	2480	Ant1	No-Hopping	-48.89	-20	Pass
2-DH5	2402	Ant1	No-Hopping	-48.48	-20	Pass
2-DH5	2480	Ant1	No-Hopping	-48.39	-20	Pass
3-DH5	2402	Ant1	No-Hopping	-49.02	-20	Pass
3-DH5	2480	Ant1	No-Hopping	-58.22	-20	Pass
	Mode           1-DH5           1-DH5           2-DH5           2-DH5           3-DH5	Mode         Frequency (MHz)           1-DH5         2402           1-DH5         2480           2-DH5         2402           2-DH5         2480           3-DH5         2402	Mode         Frequency (MHz)         Antenna           1-DH5         2402         Ant1           1-DH5         2480         Ant1           2-DH5         2402         Ant1           2-DH5         2480         Ant1           3-DH5         2402         Ant1	ModeFrequency (MHz)AntennaHopping Mode1-DH52402Ant1No-Hopping1-DH52480Ant1No-Hopping2-DH52402Ant1No-Hopping2-DH52480Ant1No-Hopping3-DH52402Ant1No-Hopping	ModeFrequency (MHz)AntennaHopping ModeMax Value (dBc)1-DH52402Ant1No-Hopping-48.341-DH52480Ant1No-Hopping-48.892-DH52402Ant1No-Hopping-48.482-DH52480Ant1No-Hopping-48.393-DH52402Ant1No-Hopping-48.39	Mode         Frequency (MHz)         Antenna         Hopping Mode         Max Value (dBc)         Limit (dBc)           1-DH5         2402         Ant1         No-Hopping         -48.34         -20           1-DH5         2480         Ant1         No-Hopping         -48.89         -20           2-DH5         2402         Ant1         No-Hopping         -48.48         -20           2-DH5         2402         Ant1         No-Hopping         -48.48         -20           2-DH5         2480         Ant1         No-Hopping         -48.39         -20           3-DH5         2402         Ant1         No-Hopping         -48.39         -20







Spectrun	n						-Hoppir	9	
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<b>Att</b> SGL Count	35 dB	SWT 1	.8.9 µs 👄 <b>V</b>	<b>BW</b> 300 kHz	Mode A	uto FFT			
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70 dBm—									
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B Spectrun Ref Level Att	and Ed	Offset	2.42 dB 👄 I	5 2480N	/Hz Ant <sup>z</sup> Mode /	Auto FFT	opping		a on ŢŢ
B Spectrum Ref Level Att SGL Count	and Ed	Offset	2.42 dB 👄 I	5 2480N	/Hz Ant <sup>z</sup> Mode /	Auto FFT 1[1]	opping	Emissic	0 0 1 -3.86 dBn 015000 GH:
B Spectrum Ref Level Att SGL Count 1Pk Max 0 dBm-	and Ed	Offset	2.42 dB 👄 I	5 2480N	/Hz Ant <sup>z</sup> Mode /	Auto FFT	opping	Emissic	-3.86 dBn 115000 GH3 -55.17 dBn
B Spectrum Ref Level Att SGL Count 1Pk Max	and Ed	Offset	2.42 dB 👄 I	5 2480N	/Hz Ant <sup>z</sup> Mode /	Auto FFT 1[1]	opping	Emissic	-3.86 dBn -3.86 dBn 15500 GH: 55.17 dBn 55000 GH: 
B Spectrum Ref Level Att SGL Count 1Pk Max 0 dBm-	and Ed	Offset	2.42 dB 👄 I	5 2480N	/Hz Ant <sup>z</sup> Mode /	Auto FFT 1[1]	opping	Emissic	-3.86 dBn 115000 GH3 -55.17 dBn
B Spectrun Ref Level Att SGL Count 1PK Max 0 dBm 0 dBm	Sand Ed n 20.00 dBm 35 dB 100/100	Offset SWT 2	2.42 dB 👄 I	5 2480N	/Hz Ant <sup>z</sup> Mode /	Auto FFT 1[1]	opping	Emissic	-3.86 dBn 115000 GH3 -55.17 dBn
B Spectrum Ref Level Att SGL Count IPK Max 0 dBm dBm 10 dBm 20 dBm 20 dBm	and Ed	Offset SWT 2	2.42 dB 👄 I	5 2480N	/Hz Ant <sup>z</sup> Mode /	Auto FFT 1[1]	opping	Emissic	-3.86 dBn 115000 GH2 -55.17 dBn
B Spectrun Ref Level Att SGL Count 1Pk Max 0 dBm	Sand Ed n 20.00 dBm 35 dB 100/100	Offset SWT 2	2.42 dB 👄 I	5 2480N	/Hz Ant <sup>z</sup> Mode /	Auto FFT 1[1]	opping	Emissic	-3.86 dBn 115000 GH2 -55.17 dBn
B Spectrum Ref Level Att SGL Count 1Pk Max 0 dBm 0 dBm 10 dBm 20 dBm 30 cBm 40 dBm	Sand Ed n 20.00 dBm 35 dB 100/100	Offset SWT 2	2.42 dB 👄 I	5 2480N	/Hz Ant <sup>z</sup> Mode /	Auto FFT 1[1]	opping	Emissic	-3.86 dBn 115000 GH2 -55.17 dBn
B Spectrun Ref Level Att SGL Count 1Pk Max 0 dBm	Sand Ed n 20.00 dBm 35 dB 100/100	Offset SWT 2	2.42 dB • 1 27.5 µs • 1	15 2480N	/Hz Ant <sup>z</sup> Mode /	Auto FFT 1[1]	opping	2.480	-3.86 dBm 115000 GH: 555.17 dBm
B Spectrum Ref Level Att SGL Count 1Pk Max 0 dBm 0 dBm 10 dBm 20 dBm 30 cBm 40 dBm	Sand Ed n 20.00 dBm 35 dB 100/100	Offset SWT 2	2.42 dB 👄 I	15 2480N	/Hz Ant <sup>z</sup> Mode /	Auto FFT 1[1]		2.480	-3.86 dBn 115000 GH3 -55.17 dBn
B Spectrum Ref Level Att SGL Count 1Pk Max 0 dBm 20 dBm 20 dBm 30 dBm 40 dBm 40 dBm 50 dBm 50 dBm 50 dBm	Sand Ed n 20.00 dBm 35 dB 100/100	Offset SWT 2	2.42 dB • 1 27.5 µs • 1	15 2480N	/Hz Ant <sup>z</sup> Mode /	Auto FFT 1[1]		2.480	-3.86 dBn 115000 GH: -55.17 dBn 55000 GH:
B pectrum Ref Level Att SGL Count 1Pk Max 0 dBm 0 dBm 10 dBm 20 dBm 30 dBm 30 dBm 50 dBm 50 dBm 50 dBm 30 dBm	Sand Ed n 20.00 dBm 35 dB 100/100	Offset SWT 2	2.42 dB • 1 27.5 µs • 1	15 2480N	/Hz Ant <sup>z</sup> Mode /	Auto FFT 1[1]		2.480	-3.86 dBn 115000 GH: -55.17 dBn 55000 GH:
B Spectrum Ref Level Att SGL Count 1Pk Max 0 dBm 20 dBm 20 dBm 30 dBm 40 dBm 40 dBm 50 dBm 50 dBm 50 dBm	5and Ed n 20.00 dBm 35 dB 100/100 	Offset SWT 2	2.42 dB • 1 27.5 µs • 1	15 2480N	/Hz Ant z Mode / M M	Auto FFT 1[1]		2.480 2.480	-3.86 dBn 115000 GH 555.17 dBn 50000 GH
B Spectrum Ref Level Att SGL Count IPK Max 0 dBm 0 dBm 10 dBm 20 dBm 20 dBm 20 dBm 50 dBm 50 dBm 50 dBm 70 dBm 70 dBm 70 dBm	Band Ed n 20.00 dBm 35 dB 100/100 	Offset SWT 2	2.42 dB • 1 27.5 μs • 1	15 2480N	MHz Ani	Auto FFT  1[1] 2[1]	escolt aposessing	Emissic 2.480 2.480	-3.86 dBn 15000 GH 55.17 dBn 55.17 dBn
B Spectrum Ref Level Att SGL Count IPK Max 0 dBm 0 dBm 10 dBm 20 dBm 20 dBm 20 dBm 50 dBm 50 dBm 50 dBm 70 dBm 70 dBm 70 dBm	5and Ed n 20.00 dBm 35 dB 100/100 	Offset SWT 2	2.42 dB • 1 27.5 μs • 1	15 2480N	AHz Ant مراکب مراجع مراکب مراجع مراکب مراجع مراکب مراجع مراکب مراجع مراکب مراجع مراحع مراجع مراحع مراجع مراحع مراجع مراحع مراجع مراحع مراجع مراحع مراحع مراحع مراحع مراحع مراحع مراحع مراجع مراحع مراجع مراحم مراحم مراحع مراحم مراحم مراحم مراحم مراحم مراحم مراحم مراحم مراحم مراحم مراحم مراحم مراحم مراحم مراحم مراحم مراحم م م م م م م م م م م م م م م م م م م	Auto FFT  1[1] 2[1]	escolt aposessing	2.480 2.480	-3.86 dBn 15000 GH: -55.17 dBn 
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B Spectrum Ref Level Att SGL Count 1Pk Max 0 dBm 20 dBm 20 dBm 30 dBm 40 dBm 40 dBm 50 dBm 50 dBm 50 dBm 70 dBm 70 dBm 70 dBm 70 dBm	Band Ed n 20.00 dBm 35 dB 100/100 	Offset SWT 2 dBm dBm <u>x-valu</u> 2.480 2.480	2.42 dB • 1 27.5 μs • 1 27.5 μs • 1	15 2480N	/Hz Ani	Auto FFT  1[1] 2[1]	escolt aposessing	Emissic 2.480 2.480	-3.86 dBn 15000 GH: -55.17 dBn 

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Spectrur Ref Level	n 20.00 dBm	Offset 2	2.38 dB 👄 R	5 2402N	/IHz Ant		opping		n T
Spectrur Ref Level Att	n 20.00 dBm 35 dB	Offset 2	2.38 dB 👄 R	5 2402N	/IHz Ant	Pread	opping		
Spectrur Ref Level Att SGL Count	n 20.00 dBm 35 dB	Offset 2	2.38 dB 👄 R	5 2402N	/IHz Ant		opping l		
Spectrur Ref Level Att SGL Count	n 20.00 dBm 35 dB	Offset 2	2.38 dB 👄 R	5 2402N	/Hz Ant <sup>z</sup> Mode /		opping	Emissio	-2.78 dBr
Spectrur Ref Level Att SGL Count 1Pk Max	n 20.00 dBm 35 dB	Offset 2	2.38 dB 👄 R	5 2402N	/Hz Ant <sup>2</sup> Mode / M	Auto FFT 1[1]	opping	Emissio	-2.78 dBr 05000 GH
Spectrur Ref Level Att SGL Count 1Pk Max 10 dBm	n 20.00 dBm 35 dB	Offset 2	2.38 dB 👄 R	5 2402N	/Hz Ant <sup>2</sup> Mode / M	Auto FFT	opping	Emissio 2.402	-2.78 dBr
Spectrur Ref Level Att SGL Count 1Pk Max 10 dBm	n 20.00 dBm 35 dB	Offset 2	2.38 dB 👄 R	5 2402N	/Hz Ant <sup>2</sup> Mode / M	Auto FFT 1[1]	opping	Emissio 2.402	-2.78 dBr 05000 GH 53.05 dBr
Spectrur Ref Level Att SGL Count 1Pk Max 10 dBm	n 20.00 dBm 35 dB	Offset 2	2.38 dB 👄 R	5 2402N	/Hz Ant <sup>2</sup> Mode / M	Auto FFT 1[1]	opping	Emissio 2.402	-2.78 dBr 05000 GH 53.05 dBr
Spectrur Ref Level Att SGL Count 1Pk Max 10 dBm	n 20.00 dBm 35 dB	Offset 2 SWT 22	2.38 dB 👄 R	5 2402N	/Hz Ant <sup>2</sup> Mode / M	Auto FFT 1[1]	opping	Emissio 2.402	-2.78 dBr 05000 GH 53.05 dBr
Spectrur Ref Level Att SGL Count 1Pk Max 10 dBm	n 20.00 dBm 35 dB : 100/100	Offset 2 SWT 22	2.38 dB 👄 R	5 2402N	/Hz Ant <sup>2</sup> Mode / M	Auto FFT 1[1]	opping	Emissio 2.402	-2.78 dBr 05000 GH 53.05 dBr
Spectrur Ref Level Att SGL Count 10 dBm	n 20.00 dBm 35 dB : 100/100	Offset 2 SWT 22	2.38 dB 👄 R	5 2402N	/Hz Ant <sup>2</sup> Mode / M	Auto FFT 1[1]	opping	Emissio 2.402	-2.78 dBr 05000 GH 53.05 dBr
Spectrur Ref Level Att SGL Count 10 dBm	n 20.00 dBm 35 dB : 100/100	Offset 2 SWT 22	2.38 dB 👄 R	5 2402N BW 100 kHz BW 300 kHz	/Hz Ant <sup>2</sup> Mode / M	Auto FFT 1[1]	opping	Emissio 2.402	-2.78 dBi 05000 GH 53.05 dBi 00000/GH
Spectrur Ref Level Att SGL Count PIPk Max 10 dBm	n 20.00 dBm 35 dB 100/100	Offset 2 SWT 22	2.38 dB <b>• R</b> 27.5 μs <b>• V</b>	5 2402N	/Hz Ant	Auto FFT  1[1] 2[1]		2.400	-2.78 dBi 05000 GH 53.05 dBi 00000/GH
Spectrur           Ref Level           Att           SGL Count           PIPk Max           10 dBm           -10 dBm           -20 dBm           -30 dBm           -40 dBm           -50 dBm	n 20.00 dBm 35 dB : 100/100	Offset 2 SWT 22	2.38 dB 👄 R	5 2402N	/Hz Ant <sup>2</sup> Mode / M	Auto FFT 1[1]		2.400	-2.78 dBi 05000 GH 53.05 dBi 00000/GH
Spectrur           Ref Level           Att           SGL Count           1Pk Max           10 dBm           -10 dBm           -10 dBm           -30 dBm           -30 dBm           -50 dBm           -60 dBm	n 20.00 dBm 35 dB 100/100	Offset 2 SWT 22	2.38 dB <b>e R</b> 27.5 μs <b>e V</b>	5 2402N	/Hz Ant	Auto FFT  1[1] 2[1]		2.400	-2.78 dBi 05000 GH 53.05 dBi 00000/GH
Spectrur           Ref Level           Att           SGL Count           1Pk Max           10 dBm           -10 dBm           -10 dBm           -30 dBm           -30 dBm           -50 dBm           -60 dBm	n 20.00 dBm 35 dB 100/100	Offset 2 SWT 22	2.38 dB <b>e R</b> 27.5 μs <b>e V</b>	5 2402N	/Hz Ant	Auto FFT  1[1] 2[1]		2.400	-2.78 dBi 05000 GH 53.05 dBi 00000/GH
Spectrur Ref Level Att SGL Count 9 1Pk Max 10 dBm	n 20.00 dBm 35 dB 100/100	Offset 2 SWT 22	2.38 dB <b>e R</b> 27.5 μs <b>e V</b>	5 2402N	AHz Ant Mode / M	Auto FFT  1[1] 2[1]		2.400	-2.78 dBi 05000 GH 53.05 dBi 00000/GH
Spectrur           Ref Level           Att           SGL Count           910 dBm           10 dBm           -10 dBm           -20 dBm           -30 dBm           -40 dBm           -50 dBm           -70 dBm           -70 dBm           Start 2.30	n 20.00 dBm 35 dB 100/100 	Offset 2 SWT 22	2.38 dB <b>e R</b> 27.5 μs <b>e V</b>	5 2402N	AHz Ant	Auto FFT  1[1] 2[1]		Emissio	-2.78 dBi 05000 GH 53.05 dBi 00000 GH
Spectrur           Ref Level           Att           SGL Count           SGL Count           10 dBm           10 dBm           -10 dBm           -20 dBm           -20 dBm           -30 dBm           -40 dBm           -50 dBm           -70 dBm           Start 2.30           Marker           Type	n 20.00 dBm 35 dB 100/100 01 -22.861 04-44-44-44-44 04-44-44-44-44 04-44-44-44-44-44-44-44-44-44-44-44-44-4	Offset 2 SWT 22	2.38 dB	5 2402N	AHz Ani	Auto FFT  1[1] 2[1]		2.400	-2.78 dBi 05000 GH 53.05 dBi 00000 GH
Spectrur           Ref Level           Att           SGL Count           91Pk Max           10 dBm           0 dBm           -10 dBm           -20 dBm           -30 dBm           -30 dBm           -50 dBm           -60 dBm           -70 dBm           Start 2.30           Marker           Type         Re           M1	n 20.00 dBm 35 dB 100/100 01 -22.861 04/04/04/04/04/04/04/04/04/04/04/04/04/0	Offset 2 SWT 22 dBm dBm dBm x-value 2.402	2.38 dB	5 2402N	AHz Ant	Auto FFT  1[1] 2[1]		Emissio	-2.78 dBi 05000 GH 53.05 dBi 00000 GH
Spectrur           Ref Level           Att           SGL Count           SGL Count           10 dBm           10 dBm           -10 dBm           -20 dBm           -30 dBm           -40 dBm           -50 dBm           -70 dBm           Start 2.30           Marker           Type	n 20.00 dBm 35 dB 100/100 01 -22.861 04-44-44-44-44 04-44-44-44-44 04-44-44-44-44-44-44-44-44-44-44-44-44-4	Offset 2 SWT 22 dBm	2.38 dB	5 2402N	AHz An1	Auto FFT  1[1] 2[1]		Emissio	-2.78 dBi 05000 GH 53.05 dBi 00000 GH



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Spectrun Ref Level		Offset 2	2.42 dB 👄 R	5 2480N	/Hz Ant		opping		on
Spectrun Ref Level Att SGL Count	n 20.00 dBm 35 dB	Offset 2	2.42 dB 👄 R	5 2480N	/Hz Ant	Peac t <mark>1 No-H</mark> Auto FFT	opping		0
Spectrun Ref Level Att SGL Count	n 20.00 dBm 35 dB	Offset 2	2.42 dB 👄 R	5 2480N	/Hz Ant <sup>z</sup> Mode /	Auto FFT	opping		a on (₹
Spectrun Ref Level Att SGL Count 1Pk Max	n 20.00 dBm 35 dB	Offset 2	2.42 dB 👄 R	5 2480N	/Hz Ant <sup>z</sup> Mode /	Auto FFT 1[1]	opping	Emissic	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Spectrun Ref Level Att SGL Count 1Pk Max 10 dBm	n 20.00 dBm 35 dB	Offset 2	2.42 dB 👄 R	5 2480N	/Hz Ant <sup>z</sup> Mode /	Auto FFT	opping	Emissic	-5.58 dBr 955000 GH -54.82 dBr
Spectrun Ref Level Att SGL Count 1Pk Max 10 dBm	n 20.00 dBm 35 dB	Offset 2	2.42 dB 👄 R	5 2480N	/Hz Ant <sup>z</sup> Mode /	Auto FFT 1[1]	opping	Emissic	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Spectrun Ref Level Att SGL Count )1Pk Max 10 dBm	n 20.00 dBm 35 dB	Offset 2	2.42 dB 👄 R	5 2480N	/Hz Ant <sup>z</sup> Mode /	Auto FFT 1[1]	opping	Emissic	-5.58 dBr 955000 GH -54.82 dBr
Spectrun Ref Level Att SGL Count IPk Max IO dBm 0 dBm 10 dBm	n 20.00 dBm 35 dB 100/100	Offset 2 SWT 22	2.42 dB 👄 R	5 2480N	/Hz Ant <sup>z</sup> Mode /	Auto FFT 1[1]	opping	Emissic	-5.58 dBr 955000 GH -54.82 dBr
Spectrun Ref Level Att SGL Count 1Pk Max 1Pk Max 0 dBm 0 dBm 10 dBm 20 dBm	n 20.00 dBm 35 dB	Offset 2 SWT 22	2.42 dB 👄 R	5 2480N	/Hz Ant <sup>z</sup> Mode /	Auto FFT 1[1]	opping	Emissic	-5.58 dBr 955000 GH -54.82 dBr
Spectrun <b>Ref Level</b> <b>Att</b> SGL Count D IPK Max 10 dBm	n 20.00 dBm 35 dB 100/100	Offset 2 SWT 22	2.42 dB 👄 R	5 2480N	/Hz Ant <sup>z</sup> Mode /	Auto FFT 1[1]	opping	Emissic	-5.58 dBr 955000 GH -54.82 dBr
Spectrun Ref Level Att SGL Count 10 dBm	n 20.00 dBm 35 dB 100/100	Offset 2 SWT 22	2.42 dB 👄 R	5 2480N	/Hz Ant <sup>z</sup> Mode /	Auto FFT 1[1]	opping	Emissic	-5.58 dBr 955000 GH -54.82 dBr
Spectrun Ref Level Att SGL Count 10 dBm	n 20.00 dBm 35 dB 100/100	Offset 2 SWT 22	2.42 dB 👄 R	5 2480N BW 100 kH BW 300 kH	/Hz Ant	Auto FFT  1[1] 2[1]	opping	Emissic	-5.58 dBr 095000 GH -54.82 dBr 350000 GH
Spectrun	n 20.00 dBm 35 dB 100/100	Offset 2 SWT 22	2.42 dB 👄 R	5 2480N	/Hz Ant <sup>z</sup> Mode /	Auto FFT 1[1]		2.479 2.483	-5.58 dBr 095000 GH -54.82 dBr 350000 GH
Spectrun           Ref Level           Att           SGL Count           1Pk Max           1D dBm           20 dBm           20 dBm           30 dBm           40 dBm           50 dBm           40 dBm           50 dBm           60 dBm	n 20.00 dBm 35 dB 100/100	Offset 2 SWT 22	2.42 dB 👄 R	5 2480N BW 100 kH BW 300 kH	/Hz Ant	Auto FFT  1[1] 2[1]		2.479 2.483	-5.58 dBr 095000 GH -54.82 dBr 350000 GH
Spectrun Ref Level Att SGL Count DIR Max 10 dBm -10 dBm -20 dBm -30 dBm -30 dBm -40 dBm -50 dBm -70 dBm -70 dBm	n 20.00 dBm 35 dB 100/100 01 -24.989 M4 Ma.	Offset 2 SWT 22	2.42 dB 👄 R	5 2480N	/Hz Ant z Mode / M M	Auto FFT  1[1] 2[1]		2.479 2.483	-5.58 dBn 995000 GH -54.82 dBn 350000 GH
Spectrun Ref Level Att SGL Count ID dBm 10 dBm -10 dBm -20 cBm -30 dBm -30 dBm -50 dBm -50 dBm	n 20.00 dBm 35 dB 100/100 01 -24.989 M4 Ma.	Offset 2 SWT 22	2.42 dB 👄 R	5 2480N BW 100 kH BW 300 kH	/Hz Ant z Mode / M M	Auto FFT  1[1] 2[1]		2.479 2.483	-5.58 dBr 095000 GH -54.82 dBr 350000 GH
Spectrun           Ref Level           Att           SGL Count           10 dBm           10 dBm           -10 dBm           -20 dBm           -30 dBm           -50 dBm           -50 dBm           -70 dBm           -70 dBm           Start 2.47/           Type	n 20.00 dBm 35 dB 100/100 	Offset 2 SWT 22	2.42 dB <b>• R</b> 27.5 μs <b>• V</b>	5 2480N	/Hz An1	Auto FFT  1[1] 2[1]	typ-hanagettanetta	2.479 2.483	-5.58 dBm -5.58 dBm -54.82 dBm -
Spectrun           Ref Level           Att           SGL Count           10 dBm           10 dBm           -10 dBm           -20 dBm           -30 dBm           -30 dBm           -50 dBm           -60 dBm           -70 dBm           -70 dBm           Remotion           M1	20.00 dBm 35 dB 100/100 	Offset 2 SWT 22 dBm dBm X-value 2.4799	2.42 dB	5 2480N	AHz Ant	Auto FFT  1[1] 2[1]	typ-hanagettanetta	Emissic	-5.58 dBm -5.58 dBm -54.82 dBm -
Spectrun           Ref Level           Att           SGL Count           10 dBm           10 dBm           -10 dBm           -20 cBm           -30 dBm           -40 dBm           -50 dBm           -50 dBm           -50 dBm           -50 dBm           -70 dBm	n 20.00 dBm 35 dB 100/100 D1 -24.989 M4 M4 M4 M4 M4 M4 M4 M4 M4 M4 M4 M4 M4	Offset 2 SWT 22 dBm dBm MO MO MO MO MO MO MO 2.4799 2.44999 2.4499 2.44999 2.44	2.42 dB	5 2480N	/Hz An1	Auto FFT  1[1] 2[1]	typ-hanagettanetta	Emissic	-5.58 dBm -5.58 dBm -54.82 dBm -
Spectrun           Ref Level           Att           SGL Count           ID dBm           -10 dBm           -30 dBm           -50 dBm           -60 dBm           -70 dBm           Start 2.47           Iarker           Type         Re           M1         M2	0 20.00 dBm 35 dB 100/100 01 -24.989 M4 VQLV AVVA 6 GHz f Trc 1 1	Offset 2 SWT 22 dBm dBm MO MO MO MO MO MO MO 2.4799 2.44999 2.4499 2.44999 2.44	2.42 dB	5 2480N	/Hz An1	Auto FFT  1[1] 2[1]	typ-hanagettanetta	Emissic	-5.58 dBm -5.58 dBm -54.82 dBm -



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Spectrur Ref Level Att SGL Count	m   20.00 dBm   35 dB	Offset 2	2.38 dB 👄 F	5 2402N	/Hz Ant <sup>z</sup> Mode /	Auto FFT	opping	Emissio	
Spectrur Ref Level Att SGL Count 1Pk Max	m   20.00 dBm   35 dB	Offset 2	2.38 dB 👄 F	5 2402N	/Hz Ant <sup>z</sup> Mode /	Auto FFT 1[1]	opping		-2.61 dBn
Spectrur Ref Level Att SGL Count SGL Count 1Pk Max	m   20.00 dBm   35 dB	Offset 2	2.38 dB 👄 F	5 2402N	/Hz Ant <sup>z</sup> Mode /	Auto FFT	opping	2.401	-2.61 dBn 85000 GH 55.77 dBn
Spectrur Ref Level Att SGL Count SGL Count IPk Max	m   20.00 dBm   35 dB	Offset 2	2.38 dB 👄 F	5 2402N	/Hz Ant <sup>z</sup> Mode /	Auto FFT 1[1]	opping	2.401	-2.61 dBn 85000 GH 55.77 dBn
Spectrur Ref Level Att SGL Count 1Pk Max 10 dBm	m   20.00 dBm   35 dB	Offset 2	2.38 dB 👄 F	5 2402N	/Hz Ant <sup>z</sup> Mode /	Auto FFT 1[1]	opping	2.401	-2.61 dBn 85000 GH 55.77 dBn
Spectrur Ref Level Att SGL Count 1Pk Max 10 dBm dBm 10 dBm	n 20.00 dBm 35 dB t 100/100	Offset 2 SWT 22	2.38 dB 👄 F	5 2402N	/Hz Ant <sup>z</sup> Mode /	Auto FFT 1[1]	opping	2.401	-2.61 dBn 85000 GH 55.77 dBn
Spectrur Ref Level Att SGL Count 10 dBm 0 dBm 10 dBm 20 dBm 20 dBm	m   20.00 dBm   35 dB	Offset 2 SWT 22	2.38 dB 👄 F	5 2402N	/Hz Ant <sup>z</sup> Mode /	Auto FFT 1[1]	opping	2.401	-2.61 dBn 85000 GH 55.77 dBn
Spectrur Ref Level Att SGL Count ) IPk Max ) ID dBm	n 20.00 dBm 35 dB t 100/100	Offset 2 SWT 22	2.38 dB 👄 F	5 2402N	/Hz Ant <sup>z</sup> Mode /	Auto FFT 1[1]	opping	2.401	-2.61 dBn 85000 GH 55.77 dBn
Spectrur Ref Level Att SGL Count ) IPk Max ) ID dBm	n 20.00 dBm 35 dB t 100/100	Offset 2 SWT 22	2.38 dB 👄 F	5 2402N	/Hz Ant <sup>z</sup> Mode /	Auto FFT 1[1]	opping	2.401	-2.61 dBn 85000 GH: 55.77 dBn 00000tGH:
Spectrur Ref Level Att SGL Count PIPk Max 10 dBm	n 20.00 dBm 35 dB t 100/100	Offset 2 SWT 22	2.38 dB ● F 27.5 μs ● V	5 2402N	/Hz Ant z Mode / M	Auto FFT 1[1]	opping	2.401 - 2.400	-2.61 dBn 85000 GH: 55.77 dBn 00000/GH:
Spectrur Ref Level Att SGL Count PIPk Ma× 10 dBm- 10 dBm- 10 dBm- 20 dBm- 30 dBm- 40 dBm- 50 dBm- 50 dBm-	n 20.00 dBm 35 dB t 100/100	Offset 2 SWT 22	2.38 dB 👄 F	5 2402N	/Hz Ant <sup>z</sup> Mode /	Auto FFT 1[1]	opping	2.401	-2.61 dBn 85000 GH: 55.77 dBn 00000/GH:
Spectrur Ref Level Att SGL Count PIPK Max 10 dBm 10 dBm 10 dBm 20 dBm 30 dBm 40 dBm 50 dBm	n 20.00 dBm 35 dB t 100/100	Offset 2 SWT 22	2.38 dB ● F 27.5 μs ● V	5 2402N	/Hz Ant z Mode / M	Auto FFT 1[1]		2.401 - 2.400	-2.61 dBn 85000 GH: 55.77 dBn 00000/GH:
Spectrur Ref Level Att SGL Count PIPK Max 10 dBm 10 dBm 10 dBm 20 dBm 30 dBm 40 dBm 50 dBm	n 20.00 dBm 35 dB t 100/100	Offset 2 SWT 22	2.38 dB ● F 27.5 μs ● V	5 2402N	/Hz Ant z Mode / M	Auto FFT 1[1]		2.401 - 2.400	-2.61 dBn 85000 GH: 55.77 dBn 00000/GH:
Spectrur Ref Level Att SGL Count PIPK Max 10 dBm	ո 20.00 dBm 35 dB t 100/100	Offset 2 SWT 22	2.38 dB ● F 27.5 μs ● V	5 2402N	MHz Ant z Mode / M M	Auto FFT 1[1]		2.401 - 2.400	-2.61 dBn 85000 GH: 55.77 dBn 00000/GH:
Spectrur Ref Level Att SGL Count PIPk Max 10 dBm	n 20.00 dBm 35 dB 100/100 D1 -21.977 01 -21.977 01 -21.977	Offset 2 SWT 22	2.38 dB • Γ 27.5 μs • \	5 2402N	MHz Ant	Auto FFT  1[1]  2[1]  M//M////////////////////////////////	htter franker	2.401 - 2.400 	-2.61 dBn 85000 GH: 55.77 dBn 000001GH:
Spectrur           Ref Level           Att           SGL Count           1Pk Max           10 dBm           0 dBm           -10 dBm           -20 dBm           -30 dBm           -50 dBm           -50 dBm           -70 dBm           -70 dBm           Start 2.30           Type	n 20.00 dBm 35 dB 100/100 D1 -21.977 01 -21.977 00 -21.977	Offset 2 SWT 22 dBm dBm	2.38 dB • Γ 27.5 μs • \	5 2402N	MHz Ant	Auto FFT  1[1]  2[1]  M//M////////////////////////////////	htter franker	2.401 - 2.400	-2.61 dBn 85000 GH: 55.77 dBn 000001GH:
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Spectrur Ref Level Att SGL Count PIPk Max 10 dBm 10 dBm -10 dBm -20 dBm -30 dBm -30 dBm -30 dBm -40 dBm -50 dBm -70	D1 -21.977	Offset 2 รพт 22 dBm dBm 	2.38 dB 27.5 μs	5 2402N	MHz Ani z Mode / M M M M M M M M M M M M M M M M M M M	Auto FFT  1[1]  2[1]  M//M////////////////////////////////	htter franker	2.401 - 2.400 	-2.61 dBn 85000 GH: 55.77 dBn 000001GH:
Spectrur           Ref Level           Att           SGL Count           10 dBm           10 dBm           -10 dBm           -20 dBm           -30 dBm           -30 dBm           -50 dBm           -60 dBm           -70 dBm	TOL -21.977	Offset 2 รพт 22 dBm dBm 	2.38 dB 27.5 μs	5 2402N	MHz Ani z Mode / M M M M M M M M M M M M M M M M M M M	Auto FFT  1[1]  2[1]  M//M////////////////////////////////	htter franker	2.401 - 2.400 	-2.61 dBn 85000 GH: 55.77 dBn 000001GH:



SGL Count 100/100				
Att 25 dB SWT 18.9 μs 👄 VBW 300 kHz SGL Count 100/100				[⊽
SGL Count 100/100	Mode Auto FET			
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Att 25 dB SWT 227.5 µs 👄 VBW 300 kHz	ARTICLE AND FEET			( \Box
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SGL Count 100/100	MODE AUTO FFI			[ \(\neq \)
SGL Count 100/100				
SGL Count 100/100	M0de Auto FF 1			-3.71 dBm 15000 GH2
SGL Count 100/100			<b>2.480</b>	-3.71 dBm 15000 GHz 63.52 dBm
SGL Count 100/100	M1[1]	1	<b>2.480</b>	-3.71 dBm 15000 GHz
SGL Count 100/100 1Pk Max 0 dzm 10 dzm	M1[1]		<b>2.480</b>	-3.71 dBm 15000 GHz 63.52 dBm
SGL Count 100/100 1Pk Max 0 dzin 10 dBm 20 dBm D1 -24.565 dBm	M1[1]		<b>2.480</b>	-3.71 dBm 15000 GHz 63.52 dBm
SGL Count 100/100 1Pk Max 0 d <b>ž</b> in 10 dBm 20 dBm D1 -24.565 dBm	M1[1]		<b>2.480</b>	-3.71 dBm 15000 GHz 63.52 dBm
SGL Count 100/100 1Pk Max 0 dam 10 dam 20 dam D1 -24.565 dam 30 dam	M1[1]		<b>2.480</b>	-3.71 dBm 15000 GHz 63.52 dBm
SGL Count 100/100 ●1Pk Max 0 dgm 10 dgm 20 dBm 20 dBm 01 -24.565 dBm 40 dBm 40 dBm	M1[1]		<b>2.480</b>	-3.71 dBm 15000 GHz 63.52 dBm
SGL Count 100/100 ●1Pk Max 0 dgm 10 dgm 20 dBm 20 dBm 01 -24.565 dBm 40 dBm 40 dBm	M1[1]		<b>2.480</b>	-3.71 dBm 15000 GHz 63.52 dBm
SGL Count 100/100           1Pk Max           0 džm           10 d8m           -20 d8m           -30 d8m           -50 d8m           -50 d8m           -50 d8m           -50 d8m	M1[1]		2.480	-3.71 dBm 15000 GHz 63.52 dBm
SGL Count 100/100 1Pk Max 0 dgm 10 dgm 20 dgm 20 dgm 0 -24.565 dgm 30 dgm 40 dgm 50 dgm 60 dgm 60 dgm 20 dgm 40 d	M1[1]		<b>2.480</b>	-3.71 dBm 15000 GHz 63.52 dBm
SGL Count 100/100           1Pk Max           0 d8m           10 d8m           20 d8m           20 d8m           20 d8m           50 d8m           40 d8m           50 d8m           50 d8m           60 d8m	M1[1] M2[1]	ar Marcan Card Mark	2.480	-3.71 dBn 15000 GHz 63.52 dBn 50000 GHz
SGL Count 100/100       10 dBm       10 dBm       20 dBm       20 dBm       30 dBm       50 dBm       50 dBm       50 dBm       70 dBm	M1[1] M2[1]	ar Maria an Arabah Mari	2.480	-3.71 dBn 15000 GHz 63.52 dBn 50000 GHz
SGL Count 100/100       10 dBm       10 dBm       20 dBm       20 dBm       30 dBm       50 dBm       50 dBm       50 dBm       70 dBm	M1[1] M2[1]		2.480	-3.71 dBn 15000 GHz 63.52 dBn 50000 GHz
SGL Count 100/100       1Pk Max       0 dgm       10 dgm       20 cBm       30 dBm       40 dBm       40 dBm       50 dBm       50 dBm       50 dBm       50 dBm       80 dBm	M1[1] M2[1] 		2.480  2.483	-3.71 dBn 15000 GHz 63.52 dBn 50000 GHz
SGL Count 100/100         1Pk Max         0 dBm         10 dBm         20 dBm         20 dBm         20 dBm         20 dBm         30 dBm         40 dBm         50 dBm         50 dBm         60 dBm         80 dBm         80 dBm         80 dBm         10 dBm	M1[1] M2[1] 	er Myrsenger All W	2.480  2.483	-3.71 dBn 15000 GHz 63.52 dBn 50000 GHz
SGL Count 100/100       1Pk Max       0 dzm       10 dBm	M1[1] M2[1] 		2.480  2.483  - 	-3.71 dBn 15000 GHz 63.52 dBn 50000 GHz
SGL Count 100/100           IPk Max           Diddm         Image: Count 100/100           IPk Max         Image: Count 100/100           Image: Count 100/100         Image: Count 100/100         Image: Count 100/100           Image: Count 100/100         Image: Count 100/100         Image: Count 100/100           Image: Count 100/100         Image: Count 100/100         Image: Count 100/100           Image: Count 100/100         Image: Count 100/100         Image: Count 100/100           Image: Count 100/100         Image: Count 100/100         Image: Count 100/100         Image: Count 100/100           Image: Count 100/100         Image: Count 100/100         Image: Count 100/100         Image: Count 100/100         Image: Count 100/100           Image: Count 100/100         Image: Count 100/100         Image: Count 100/100         Image: Count 100/100         Image: Count 100/100         Image: Count 100/100 <thimage: 100="" 100<="" count="" th="">         Image: Count 100</thimage:>	M1[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2		2.480  2.483	-3.71 dBn 15000 GHz 63.52 dBn 50000 GHz
SGL Count 100/100         1Pk Max         0 dBm         -10 dBm         -20 cBm         -30 dBm         -30 dBm         -40 dBm         -50 dBm         -60 dBm         -60 dBm         -70 dBm         -80 dBm         -80 dBm         -70 dBm         -80 dBm	M1[1] M2[1] 		2.480  2.483  - 	-3.71 dBn 15000 GHz 63.52 dBn 50000 GHz
SGL Count 100/100           1Pk Max           0 dam           10 dBm           -10 dBm           -20 dBm           -30 dBm           -30 dBm           -30 dBm           -50 dBm           -60 dBm           -60 dBm           -70 dBm           -80 dBm           -70 dBm           -80 dBm           -80 dBm           -80 dBm           -80 dBm           -80 dBm           -90 Ref           -90 Start 2.476 GHz	M1[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2[1] M2		2.480  2.483  - 	-3.71 dBn 15000 GHz 63.52 dBn 50000 GHz