



Test Report No.: PSU-NQN2504150110RF04



Certificate #6613.01

# FCC TEST REPORT (PART 27)

Applicant:	SHARP CORPORATION
Address:	1 Takumi-cho, Sakai-ku, Sakai City, Osaka 590-8522, Japan

Manufacturer or Supplier:	SHARP CORPORATION
Address:	1 Takumi-cho, Sakai-ku, Sakai City, Osaka 590-8522, Japan
Product:	Smart Phone
Brand Name:	SHARP
FCC ID:	APYHRO00336
Date of tests:	Mar. 19, 2025 ~ Apr.28, 2025

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

- FCC Part 27     ANSI/TIA/EIA-603-D
- FCC Part 2     ANSI/TIA/EIA-603-E     ANSI C63.26-2015

CONCLUSION: The submitted sample was found to COMPLY with the test requirement

Prepared by Hanwen Xu Engineer / Mobile Department	Approved by Peibo Sun Manager / Mobile Department
 Date: Apr.28, 2025	 Date: Apr.28, 2025

This report is governed by, and incorporates by reference, the Conditions of Testing as posted at the date of issuance of this report at <http://www.bureauveritas.com/home/about-us/our-business/cps/about-us/terms-conditions/> and is intended for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. Measurement uncertainty is only provided upon request for accredited tests. Statements of conformity are based on simple acceptance criteria without taking measurement uncertainty into account, unless otherwise requested in writing. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence or if you require measurement uncertainty; provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents.



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## RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
PSU-NQN2504150110RF04	Original release	Apr.28, 2025

# 1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 27 & PART 2			
STANDARD SECTION	TEST TYPE AND LIMIT	RESULT	TEST LAB*
§2.1046	Conducted Output Power	Compliance	A
§27.50(b)(10) §27.50(c)(10)	Effective Radiated Power (Band 12) (Band 13) (Band 17)	Compliance	A
§27.50(d)(4) §27.50(h)(2) §27.50(a)(3)	Equivalent Isotropically Radiated Power (Band 7)	Compliance	A
§2.1055 §27.54	Frequency Stability	Compliance	A
§2.1049	Occupied Bandwidth	Compliance	A
§2.1051 §27.53(c)(2)(4) §27.53(g) §27.53(h) §27.53(m)(4)(6) §27.53(a)(4)	Conducted Band Edge Measurements (Band 7) (Band 12) (Band 13) (Band 17)	Compliance	A
§2.1051 §27.53(c)(2)(4) §27.53(g) §27.53(h) §27.53(m)(4)(6) §27.53(a)(4)	Conducted Spurious Emissions (Band 7) (Band 12) (Band 13) (Band 17)	Compliance	A
§2.1053 §27.53(c)(2)(4) §27.53(f) §27.53(g) §27.53(h) §27.53(m)(4)(6) §27.53(a)(4)	Radiated Spurious Emissions (Band 7) (Band 12) (Band 13) (Band 17)	Compliance	A
NA	Peak to average ratio	Compliance	A



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**\*Test Lab Information Reference**

**Lab A:**

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

**Lab Address:**

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

**Accredited Test Lab Cert 6613.01**

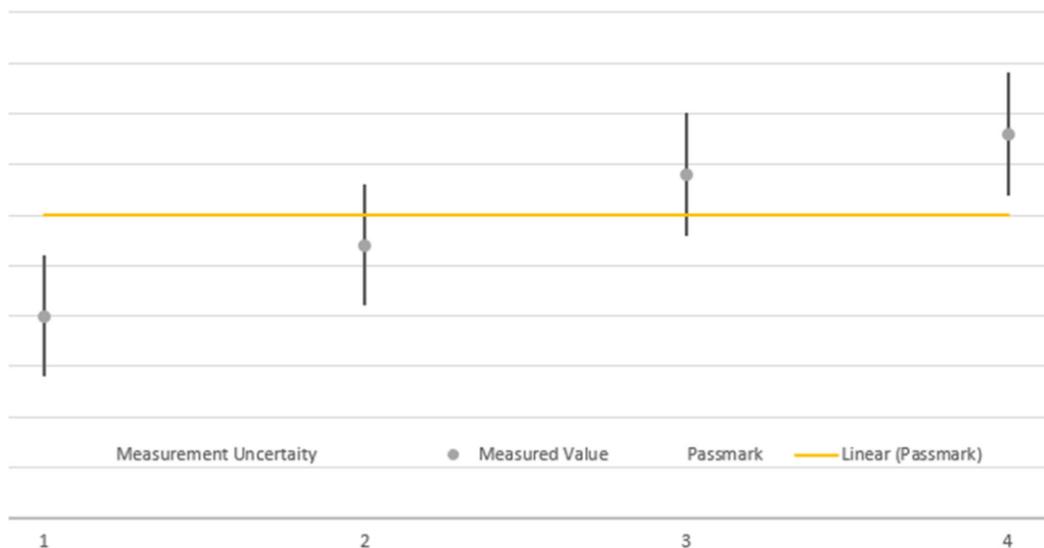
The FCC Site Registration No. is 434559; The Designation No. is CN1325.

## 1.1 MEASUREMENT UNCERTAINTY

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

MEASUREMENT	UNCERTAINTY
Frequency Stability	±76.97Hz
Radiated emissions (9KHz~30MHz)	±2.68dB
Radiated emissions & Radiated Power (30MHz~1GHz)	±4.98dB
Radiated emissions & Radiated Power (1GHz ~6GHz)	±4.70dB
Radiated emissions (6GHz ~18GHz)	±4.60dB
Radiated emissions (18GHz ~40GHz)	±4.12dB
Conducted emissions	±4.01dB
Occupied Channel Bandwidth	±43.58KHz
Conducted Output power	±2.06dB
Band Edge Measurements	±4.70dB

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



The verdicts in this test report are given according the above diagram:

Case	Measured Value	Uncertainty Range	Verdict
1	below pass mark	below pass mark	Passed
2	below pass mark	within pass mark	Passed
3	above pass mark	within pass mark	Failed
4	above pass mark	above pass mark	Failed

That means, the laboratory applies, as decision rule (see ISO/IEC 17025:2017), the so-called shared risk principle.



### 1.2 TEST SITE AND INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Pre-Amplifier	R&S	SCU18F1	100815	Aug.30,23	Aug.29,25
Pre-Amplifier	R&S	SCU08F1	101028	Jan.22,24	Jan.21,26
Vector Signal Generator	R&S	SMBV100B	102176	Mar.29,24	Mar.28,26
Signal Generator	R&S	SMB100A	182185	Mar.29,24	Mar.28,26
3m Fully-anechoic Chamber	TDK	9m*6m*6m	HRSW-SZ-EMC-01Chamber	Nov.25,22	Nov.24,25
3m Semi-anechoic Chamber	TDK	9m*6m*6m	HRSW-SZ-EMC-02Chamber	Nov.25,22	Nov.24,25
EMI TEST Receiver	R&S	ESR26	101734	Mar.28,24	Mar.27,26
EMI TEST Receiver	R&S	ESW44	101973	Mar.28,24	Mar.27,26
Bilog Antenna	SCHWARZBECK	VULB 9163	1264	Dec.26,23	Dec.25,25
Horn Antenna	ETS-LINDGREN	3117	227836	Aug.22,23	Aug.21,25
Horn Antenna (18GHz-40GHz)	Steatite Q-par Antennas	QMS 00880	23486	Jul.15,24	Jul.14,26
Horn Antenna	Steatite Q-par Antennas	QMS 00208	23485	Aug.22,23	Aug.21,25
Loop Antenna	SCHWARZ	HFH2-Z2/Z2E	100976	Feb.23,25	Feb.22,27
WIDEBANDRADIO COMMUNICATION TESTER	R&S	CMW500	169399	Jun.19,24	Jun.18,26
Test Software	EMC32	EMC32	N/A	N/A	N/A
6DB attenuator	Tonscend Technology Co., Ltd	N/A	23062787	N/A	N/A
Test Software	ELEKTRA	ELEKTRA4.32	N/A	N/A	N/A
Open Switch and Control Unit	R&S	OSP220	101964	N/A	N/A
DC Source	HYELEC	HY3010B	551016	Aug.31,23	Aug.30,25
Hygrothermograph	DELI	20210528	SZ014	Sep.06,23	Sep.05,25
PC	LENOVO	E14	HRSW0024	N/A	N/A
TMC-AMI18843A(CABLE)	R&S	HF290-NMNM-7.00M	N/A	N/A	N/A
TMC-AMI18843A(CABLE)	R&S	HF290-NMNM-4.00M	N/A	N/A	N/A
CABLE	R&S	W13.02	N/A	Apr.27,25	Apr.26,26
CABLE	R&S	W12.14	N/A	Apr.27,25	Apr.26,26
CABLE	R&S	J12J103539-00-1	SEP-03-20-069	Apr.27,25	Apr.26,26
CABLE	R&S	J12J103539-00-1	SEP-03-20-070	Apr.27,25	Apr.26,26
Temperature Chamber	votsch	VT4002	58566078100050	May.30,24	May.29,26



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- NOTE:**
1. The calibration interval of the above test instruments is 12 / 24/ 36 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.
  2. The test was performed in 3m Semi-anechoic Chamber and RF Oven Room.
  3. The horn antenna is used only for the measurement of emission frequency above 1GHz if tested.
  4. The FCC Site Registration No. is 434559; The Designation No. is CN1325.

## 2 GENERAL INFORMATION

### 2.1 GENERAL DESCRIPTION OF EUT

<b>PRODUCT*</b>	Smart Phone	
<b>BRAND NAME**</b>	SHARP	
<b>NOMINAL VOLTAGE*</b>	4.0Vdc(adapter or host equipment) 3.89Vdc (Li-ion, battery)	
<b>MODULATION TECHNOLOGY*</b>	LTE	QPSK, 16QAM, 64QAM
<b>FREQUENCY RANGE</b>	LTE Band 7 Channel Bandwidth: 5MHz	2502.5MHz ~ 2567.5MHz
	LTE Band 7 Channel Bandwidth: 10MHz	2505MHz ~ 2565MHz
	LTE Band 7 Channel Bandwidth: 15MHz	2507.5MHz ~ 2562.5MHz
	LTE Band 7 Channel Bandwidth: 20MHz	2510MHz ~ 2560MHz
	LTE Band 12 Channel Bandwidth: 1.4MHz	699.7MHz ~ 715.3MHz
	LTE Band 12 Channel Bandwidth: 3MHz	700.5MHz ~ 714.5MHz
	LTE Band 12 Channel Bandwidth: 5MHz	701.5MHz ~ 713.5MHz
	LTE Band 12 Channel Bandwidth: 10MHz	704MHz ~ 711MHz
	LTE Band 13 Channel Bandwidth: 5MHz	779.5MHz ~ 784.5MHz
	LTE Band 13 Channel Bandwidth: 10MHz	782MHz
	LTE Band 17 Channel Bandwidth: 5MHz	706.5MHz ~ 713.5MHz
	LTE Band 17 Channel Bandwidth: 10MHz	709MHz ~ 711 MHz
	<b>MAX. EIRP POWER</b>	LTE Band 7 Channel Bandwidth: 5MHz
LTE Band 7 Channel Bandwidth: 10MHz		111mW
LTE Band 7 Channel Bandwidth: 15MHz		120mW
LTE Band 7 Channel Bandwidth: 20MHz		117mW
LTE Band 12 Channel Bandwidth: 1.4MHz		154mW
LTE Band 12 Channel Bandwidth: 3MHz		158mW



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<b>MAX. EIRP POWER</b>	<b>LTE Band 12 Channel Bandwidth: 5MHz</b>	158mW
	<b>LTE Band 12 Channel Bandwidth: 10MHz</b>	151mW
	<b>LTE Band 13 Channel Bandwidth: 5MHz</b>	143mW
	<b>LTE Band 13 Channel Bandwidth: 10MHz</b>	136mW
	<b>LTE Band 17 Channel Bandwidth: 5MHz</b>	163mW
	<b>LTE Band 17 Channel Bandwidth: 10MHz</b>	158mW
<b>EMISSION DESIGNATOR</b>	<b>LTE Band 7 Channel Bandwidth: 5MHz</b>	QPSK:4M53G7D
		16QAM:4M54W7D
		64QAM:4M54W7D
	<b>LTE Band 7 Channel Bandwidth: 10MHz</b>	QPSK:8M99G7D
		16QAM:9M03W7D
		64QAM:9M03W7D
	<b>LTE Band 7 Channel Bandwidth: 15MHz</b>	QPSK:13M5G7D
		16QAM:13M5W7D
		64QAM:13M5W7D
	<b>LTE Band 7 Channel Bandwidth: 20MHz</b>	QPSK:18M0G7D
		16QAM:18M0W7D
		64QAM:18M0W7D
	<b>LTE Band 12 Channel Bandwidth: 1.4MHz</b>	QPSK:1M10G7D
		16QAM:1M11W7D
		64QAM:1M11W7D
	<b>LTE Band 12 Channel Bandwidth: 3MHz</b>	QPSK:2M75G7D
		16QAM:2M75W7D
		64QAM:2M75W7D
	<b>LTE Band 12 Channel Bandwidth: 5MHz</b>	QPSK:4M53G7D
		16QAM:4M53W7D
		64QAM:4M53W7D



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<b>EMISSION DESIGNATOR</b>	<b>LTE Band 12 Channel Bandwidth: 10MHz</b>	QPSK:9M03G7D
		16QAM:9M05W7D
		64QAM:9M05W7D
	<b>LTE Band 13 Channel Bandwidth: 5MHz</b>	QPSK:4M53G7D
		16QAM:4M53W7D
		64QAM:4M53W7D
	<b>LTE Band 13 Channel Bandwidth: 10MHz</b>	QPSK:8M97G7D
		16QAM:8M98W7D
		64QAM:8M98W7D
	<b>LTE Band 17 Channel Bandwidth: 5MHz</b>	QPSK:4M54G7D
		16QAM:4M53W7D
		64QAM:4M53W7D
<b>LTE Band 17 Channel Bandwidth: 10MHz</b>	QPSK:9M04G7D	
	16QAM:9M07W7D	
	64QAM:9M07W7D	
<b>ANTENNA TYPE*</b>	PIFA Antenna with -1.7dBi gain for LTE B7 PIFA Antenna with -3.1dBi gain for LTE B12/LTE B17 PIFA Antenna with -2.5dBi gain for LTE B13	
<b>HW VERSION</b>	DVT	
<b>SW VERSION**</b>	A2270	
<b>I/O PORTS*</b>	Refer to user's manual	
<b>EXTREME TEMPERATURE*</b>	5~35°C	
<b>EXTREME VOLTAGE*</b>	3.7V~4V	



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**NOTE:**

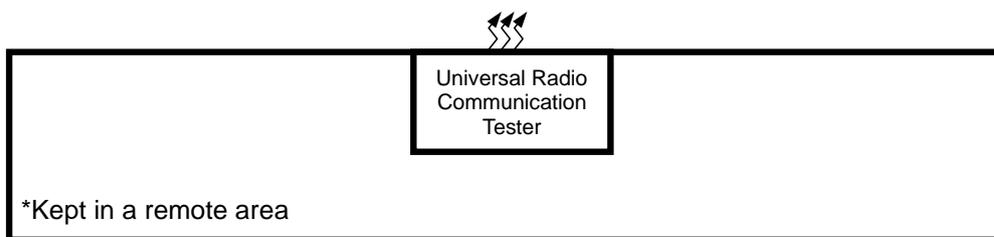
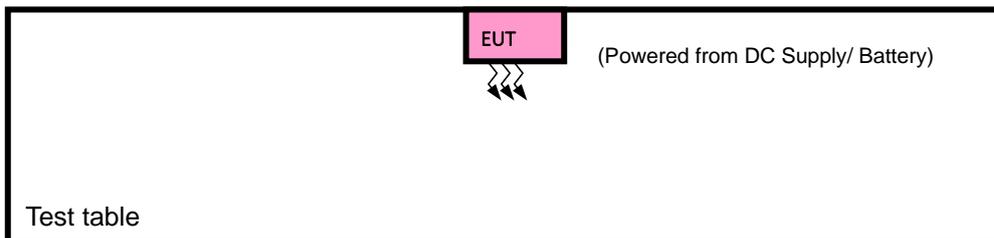
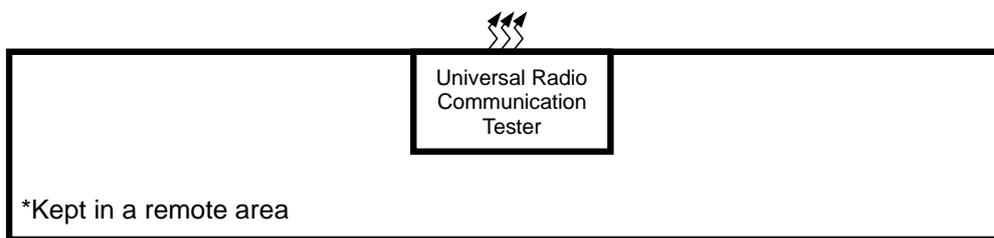
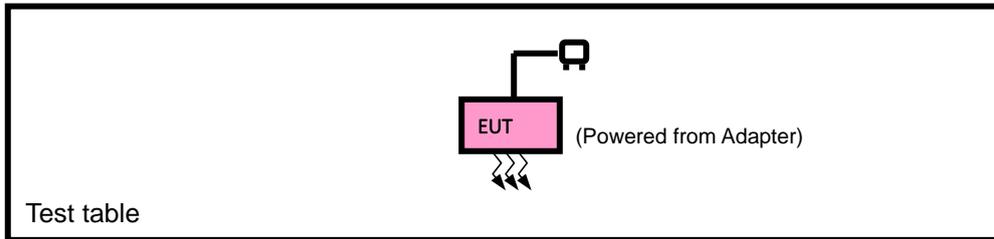
1. \*Since the above data and/or information is provided by the client relevant results or conclusions of this report are only made for these data and/or information, Test Lab is not responsible for the authenticity, integrity and results of the data and information and/or the validity of the conclusion.
2. For a more detailed features description, please refer to the manufacturer’s specifications or the user’s manual.
3. The EUT incorporates a SISO function. Physically, the EUT provides one completed transmitter and one receiver.

<b>MODULATION MODE</b>	<b>TX FUNCTION</b>
<b>WCDMA</b>	1TX/2RX
<b>LTE</b>	1TX/2RX

4. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.
5. Antenna gain and EUT conducted cable loss are provided by the customer, and the laboratory will record the results based on these items that involve these two parameters.
6. List of Accessory:

<b>Battery Information</b>	<b>Battery Type</b>	Li-Lon
	<b>Manufacturer</b>	Ningde Amperex Technology Limited
	<b>Model Number</b>	UBATIA319AFN2
	<b>Capacity</b>	4880 mAh
	<b>Nominal Voltage</b>	3.89V

## 2.2 CONFIGURATION OF SYSTEM UNDER TEST FOR RADIATION EMISSION TEST



### 2.3 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	DC Source	HYELEC	HY3010B	551016	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	DC Line: Unshielded, Detachable 1.8m

### 2.4 TEST ITEM AND TEST CONFIGURATION

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis and antenna ports. The worst case was found when positioned on Y-plane for EIRP and X-axis for radiated emission. Following channel(s) was (were) selected for the final test as listed below:

EUT CONFIGURE MODE	DESCRIPTION
A	EUT + Adapter + USB Cable with LTE link
B	EUT + DC Supply with LTE link

**LTE BAND 7 MODE**

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION
A	EIRP	20775 to 21425	20775, 21100, 21425	5MHz	QPSK, 16QAM, 64QAM
		20800 to 21400	20800, 21100, 21400	10MHz	QPSK, 16QAM, 64QAM
		20825 to 21375	20825, 21100, 21375	15MHz	QPSK, 16QAM, 64QAM
		20850 to 21350	20850, 21100, 21350	20MHz	QPSK, 16QAM, 64QAM
B	FREQUENCY STABILITY	20775 to 21425	20775, 21100, 21425	5MHz	QPSK, 16QAM, 64QAM
		20800 to 21400	20800, 21100, 21400	10MHz	QPSK, 16QAM, 64QAM
		20825 to 21375	20825, 21100, 21375	15MHz	QPSK, 16QAM, 64QAM
		20850 to 21350	20850, 21100, 21350	20MHz	QPSK, 16QAM, 64QAM
A	OCCUPIED BANDWIDTH	20775 to 21425	20775, 21100, 21425	5MHz	QPSK, 16QAM, 64QAM
		20800 to 21400	20800, 21100, 21400	10MHz	QPSK, 16QAM, 64QAM
		20825 to 21375	20825, 21100, 21375	15MHz	QPSK, 16QAM, 64QAM
		20850 to 21350	20850, 21100, 21350	20MHz	QPSK, 16QAM, 64QAM
A	PEAK TO AVERAGE RATIO	20775 to 21425	20775, 21100, 21425	5MHz	QPSK, 16QAM, 64QAM
		20800 to 21400	20800, 21100, 21400	10MHz	QPSK, 16QAM, 64QAM
		20825 to 21375	20825, 21100, 21375	15MHz	QPSK, 16QAM, 64QAM
		20850 to 21350	20850, 21100, 21350	20MHz	QPSK, 16QAM, 64QAM
A	BAND EDGE	20775 to 21425	20775, 21425	5MHz	QPSK, 16QAM, 64QAM
		20800 to 21400	20800, 21400	10MHz	QPSK, 16QAM, 64QAM
		20825 to 21375	20825, 21375	15MHz	QPSK, 16QAM, 64QAM
		20850 to 21350	20850, 21350	20MHz	QPSK, 16QAM, 64QAM
A	CONDUCTED EMISSION	20775 to 21425	20775, 21100, 21425	5MHz	QPSK, 16QAM, 64QAM
		20800 to 21400	20800, 21100, 21400	10MHz	QPSK, 16QAM, 64QAM
		20825 to 21375	20825, 21100, 21375	15MHz	QPSK, 16QAM, 64QAM
		20850 to 21350	20850, 21100, 21350	20MHz	QPSK, 16QAM, 64QAM
A	RADIATED EMISSION	20775 to 21425	21100	5MHz	QPSK
		20800 to 21400	21100	10MHz	QPSK
		20825 to 21375	21100	15MHz	QPSK
		20850 to 21350	21100	20MHz	QPSK

**Note:** This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.



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**LTE BAND 12 MODE**

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION
A	ERP	23017 to 23173	23017, 23095 , 23173	1.4MHz	QPSK, 16QAM, 64QAM
		23025 to 23165	23025, 23095 ,23165	3MHz	QPSK, 16QAM, 64QAM
		23035 to 23155	23035, 23095 ,23155	5MHz	QPSK, 16QAM, 64QAM
		23060 to 23130	23060, 23095 ,23130	10MHz	QPSK, 16QAM, 64QAM
B	FREQUENCY STABILITY	23017 to 23173	23017, 23095 , 23173	1.4MHz	QPSK, 16QAM, 64QAM
		23025 to 23165	23025, 23095 ,23165	3MHz	QPSK, 16QAM, 64QAM
		23035 to 23155	23035, 23095 ,23155	5MHz	QPSK, 16QAM, 64QAM
		23060 to 23130	23060, 23095 ,23130	10MHz	QPSK, 16QAM, 64QAM
A	OCCUPIED BANDWIDTH	23017 to 23173	23017, 23095 , 23173	1.4MHz	QPSK, 16QAM, 64QAM
		23025 to 23165	23025, 23095 ,23165	3MHz	QPSK, 16QAM, 64QAM
		23035 to 23155	23035, 23095 ,23155	5MHz	QPSK, 16QAM, 64QAM
		23060 to 23130	23060, 23095 ,23130	10MHz	QPSK, 16QAM, 64QAM
A	PEAK TO AVERAGE RATIO	23017 to 23173	23017, 23095 , 23173	1.4MHz	QPSK, 16QAM, 64QAM
		23025 to 23165	23025, 23095 ,23165	3MHz	QPSK, 16QAM, 64QAM
		23035 to 23155	23035, 23095 ,23155	5MHz	QPSK, 16QAM, 64QAM
		23060 to 23130	23060, 23095 ,23130	10MHz	QPSK, 16QAM, 64QAM
A	BAND EDGE	23017 to 23173	23017 , 23173	1.4MHz	QPSK, 16QAM, 64QAM
		23025 to 23165	23025 ,23165	3MHz	QPSK, 16QAM, 64QAM
		23035 to 23155	23035 ,23155	5MHz	QPSK, 16QAM, 64QAM
		23060 to 23130	23060 ,23130	10MHz	QPSK, 16QAM, 64QAM
A	CONDUCTED EMISSION	23017 to 23173	23017, 23095 , 23173	1.4MHz	QPSK, 16QAM, 64QAM
		23025 to 23165	23025, 23095 ,23165	3MHz	QPSK, 16QAM, 64QAM
		23035 to 23155	23035, 23095 ,23155	5MHz	QPSK, 16QAM, 64QAM
		23060 to 23130	23060, 23095 ,23130	10MHz	QPSK, 16QAM, 64QAM
A	RADIATED EMISSION	23017 to 23173	23095	1.4MHz	QPSK
		23025 to 23165	23095	3MHz	QPSK
		23035 to 23155	23095	5MHz	QPSK
		23060 to 23130	23095	10MHz	QPSK

**Note:** This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.

**LTE BAND 13 MODE**

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION
A	ERP	23205 to 23255	23205, 23230, 23255	5MHz	QPSK,16QAM,64QAM
		23230	23230	10MHz	QPSK,16QAM,64QAM
B	FREQUENCY STABILITY	23205 to 23255	23205, 23230, 23255	5MHz	
		23230	23230	10MHz	QPSK,16QAM,64QAM
A	OCCUPIED BANDWIDTH	23205 to 23255	23205, 23230, 23255	5MHz	QPSK,16QAM,64QAM
		23230	23230	10MHz	QPSK,16QAM,64QAM
A	PEAK TO AVERAGE RATIO	23205 to 23255	23205, 23230, 23255	5MHz	QPSK,16QAM,64QAM
		23230	23230	10MHz	QPSK,16QAM,64QAM
A	BAND EDGE	23205 to 23255	23205, 23255	5MHz	QPSK,16QAM,64QAM
		23230	23230	10MHz	QPSK,16QAM,64QAM
A	CONDUCTED EMISSION	23205 to 23255	23205, 23230, 23255	5MHz	QPSK,16QAM,64QAM
		23230	23230	10MHz	QPSK,16QAM,64QAM
A	RADIATED EMISSION	23205 to 23255	23230	5MHz	QPSK
		23230	23230	10MHz	QPSK

**Note:** This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.

**LTE BAND 17 MODE**

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION
A	ERP	23755 to 23825	23755, 23790, 23825	5MHz	QPSK,16QAM,64QAM
		23780 to 23800	23780, 23790, 23800	10MHz	QPSK,16QAM,64QAM
B	FREQUENCY STABILITY	23755 to 23825	23755, 23790, 23825	5MHz	QPSK,16QAM,64QAM
		23780 to 23800	23780, 23790, 23800	10MHz	QPSK,16QAM,64QAM
A	OCCUPIED BANDWIDTH	23755 to 23825	23755, 23790, 23825	5MHz	QPSK,16QAM,64QAM
		23780 to 23800	23780, 23790, 23800	10MHz	QPSK,16QAM,64QAM
A	PEAK TO AVERAGE RATIO	23755 to 23825	23755, 23790, 23825	5MHz	QPSK,16QAM,64QAM
		23780 to 23800	23780, 23790, 23800	10MHz	QPSK,16QAM,64QAM
A	BAND EDGE	23755 to 23825	23755, 23825	5MHz	QPSK,16QAM,64QAM
		23780 to 23800	23780, 23800	10MHz	QPSK,16QAM,64QAM
A	CONDUCTED EMISSION	23755 to 23825	23755, 23790, 23825	5MHz	QPSK,16QAM,64QAM
		23780 to 23800	23780, 23790, 23800	10MHz	QPSK,16QAM,64QAM
A	RADIATED EMISSION	23755 to 23825	23790	5MHz	QPSK
		23780 to 23800	23790	10MHz	QPSK

**Note:** 1.This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.



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**TEST CONDITION:**

TEST ITEM	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
ERP&EIRP	23deg. C, 70%RH	DC 4V By DC Supply	Hanwen Xu
FREQUENCY STABILITY	23deg. C, 70%RH	DC 3.7V/4V/4V By DC Supply	Hanwen Xu
OCCUPIED BANDWIDTH	23deg. C, 70%RH	DC4V By DC Supply	Hanwen Xu
BAND EDGE	23deg. C, 70%RH	DC 4V By DC Supply	Hanwen Xu
CONDUCTED EMISSION	23deg. C, 70%RH	DC4V By DC Supply	Hanwen Xu
RADIATED EMISSION	23deg. C, 70%RH	DC4V By DC Supply	Hanwen Xu
PEAK TO AVERAGE RATIO	23deg. C, 70%RH	DC4V By DC Supply	Hanwen Xu

## 2.5 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

**FCC 47 CFR Part 2**

**FCC 47 CFR Part 27**

**KDB 971168 D01 Power Meas License Digital Systems v03r01**

**ANSI/TIA/EIA-603-D**

**ANSI/TIA/EIA-603-E**

**ANSI C63.26-2015**

**NOTE:** All test items have been performed and recorded as per the above standards.

### 3 TEST TYPES AND RESULTS

#### 3.1 OUTPUT POWER MEASUREMENT

##### 3.1.1 LIMITS OF OUTPUT POWER MEASUREMENT

The radiated peak output power shall be according to the specific rule Part 27.50(h)(2) that “User stations are limited to 2 watts” and 27.50(i) specific that “Peak transmit power must be measure over any interval of continuous transmission using instrumentation calibration in terms of rms-equivalent voltage.”

According to the specific rule Part 27.50(b)(10) and 27.50(c)(10) Fixed, mobile, and Portable stations (hand-held devices) transmitting in the 698-746 MHz, 746-757 MHz, 776-788 MHz, and 805-806 MHz bands are limited to 3 watts ERP.

For mobile and portable stations transmitting in the 2305-2315 MHz band or the 2350-2360 MHz band, the average EIRP must not exceed 50 milliwatts within any 1 megahertz of authorized bandwidth, except that for mobile and portable stations compliant with 3GPP LTE standards or another advanced mobile broadband protocol that avoids concentrating energy at the edge of the operating band the average EIRP must not exceed 250 milliwatts within any 5 megahertz of authorized bandwidth but may exceed 50 milliwatts within any 1 megahertz of authorized bandwidth. For mobile and portable stations using time division duplexing (TDD) technology, the duty cycle must not exceed 38 percent in the 2305-2315 MHz and 2350-2360 MHz bands. Mobile and portable stations using FDD technology are restricted to transmitting in the 2305-2315 MHz band. Power averaging shall not include intervals in which the transmitter is off.

##### 3.1.2 TEST PROCEDURES

###### EIRP MEASUREMENT:

Per KDB 971168 D01 Power Meas License Digital Systems v03r01 or subclause 5.2.5.5 of ANSI C63.26-2015, the relevant equation for determining the ERP or EIRP from the conducted RF output power measured using the guidance provided above is:

$$\text{ERP or EIRP} = P_{\text{Meas}} + G_{\text{T}} - L_{\text{c}}$$

Where:

ERP or EIRP = effective radiated power or equivalent isotropically radiated power, respectively  
(expressed in the same units as  $P_{\text{Meas}}$ , typically dBW or dBm);

$P_{\text{Meas}}$  = measured transmitter output power or PSD, in dBm or dBW;

$G_{\text{T}}$  = gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP);

$L_{\text{c}}$  = signal attenuation in the connecting cable between the transmitter and antenna, in dB.

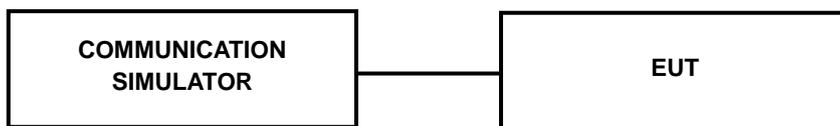


**CONDUCTED POWER MEASUREMENT:**

- a. The EUT was set up for the maximum power with LTE link data modulation and link up with simulator.
- b. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

**3.1.3 TEST SETUP**

**CONDUCTED POWER MEASUREMENT:**



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

### 3.1.4 TEST RESULTS

#### CONDUCTED OUTPUT POWER (dBm)

LTE Band 7

BW	Modulation	RB Size	RB Offset	Conducted power(dBm)		
				20775	21100	21425
				2502.5	2535	2567.5
7/5	QPSK	1	0	22.05	22.10	21.93
		1	12	22.28	22.23	22.07
		1	24	22.13	22.05	22.26
		12	0	21.09	21.07	20.91
		12	7	21.23	21.08	21.00
		12	13	21.15	21.16	21.00
		25	0	21.12	21.04	20.87
	16QAM	1	0	21.31	21.30	21.10
		1	12	21.08	21.47	21.49
		1	24	21.28	21.15	21.36
		12	0	20.17	20.05	20.13
		12	7	20.13	20.10	20.07
		12	13	20.17	20.09	20.02
		25	0	20.06	20.01	19.92
	64QAM	1	0	20.42	20.36	20.57
		1	12	20.38	20.29	20.30
		1	24	20.52	20.63	20.64
		12	0	19.22	19.13	18.91
		12	7	19.13	19.30	19.02
		12	13	19.13	19.21	19.09
		25	0	19.10	19.06	18.90



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BW	Modulation	RB Size	RB Offset	Conducted power(dBm)		
				20800	21100	21400
				2505	2535	2565
7/10	QPSK	1	0	22.10	22.03	22.04
		1	25	22.06	21.96	21.76
		1	49	22.07	22.17	21.90
		25	0	21.11	21.07	20.94
		25	12	21.18	21.05	20.95
		25	25	21.22	20.98	20.90
		50	0	21.09	20.97	20.94
	16QAM	1	0	21.37	21.15	21.13
		1	25	21.11	21.51	21.06
		1	49	21.33	21.09	21.15
		25	0	20.15	20.06	20.00
		25	12	20.15	20.03	19.99
		25	25	20.10	19.96	20.03
		50	0	20.18	19.97	19.96
	64QAM	1	0	20.08	20.38	20.07
		1	25	20.22	20.03	20.09
		1	49	20.42	20.06	20.50
		25	0	19.29	19.15	19.03
		25	12	19.21	19.16	19.01
		25	25	19.27	19.10	18.99
		50	0	19.19	19.03	19.04



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BW	Modulation	RB Size	RB Offset	Conducted power(dBm)		
				20825	21100	21375
				2507.5	2535	2562.5
7/15	QPSK	1	0	21.97	22.00	22.08
		1	37	21.78	21.93	22.49
		1	74	21.99	21.98	21.88
		36	0	21.10	21.01	20.97
		36	29	21.03	20.98	20.85
		36	30	20.99	20.93	20.87
		75	0	21.01	20.92	20.84
	16QAM	1	0	21.05	21.15	21.16
		1	37	21.37	21.19	21.22
		1	74	21.32	21.25	20.74
		36	0	20.12	20.06	19.92
		36	29	19.99	19.95	19.91
		36	30	20.06	19.92	19.86
		75	0	19.98	19.93	19.96
	64QAM	1	0	20.11	20.11	20.33
		1	37	20.30	20.19	20.21
		1	74	20.07	19.98	20.37
		36	0	19.14	19.09	18.95
		36	29	19.06	19.06	19.04
		36	30	19.00	19.02	18.86
		75	0	19.09	19.00	18.98



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**Test Report No.: PSU-NQN2504150110RF04**

BW	Modulation	RB Size	RB Offset	Conducted power(dBm)		
				20850	21100	21350
				2510	2535	2560
7/20	QPSK	1	0	21.93	21.98	21.88
		1	49	22.29	21.84	21.86
		1	99	22.38	21.91	21.90
		50	0	21.06	21.08	20.96
		50	24	21.10	20.97	21.00
		50	50	21.06	21.00	20.98
		100	0	21.07	20.93	20.92
	16QAM	1	0	21.18	21.31	21.04
		1	49	21.21	20.86	21.15
		1	99	21.45	21.34	20.96
		50	0	20.18	20.07	19.99
		50	24	20.10	20.05	20.00
		50	50	20.09	20.01	19.93
		100	0	20.08	20.03	20.05
	64QAM	1	0	20.40	20.46	20.24
		1	49	20.24	20.11	19.99
		1	99	20.57	20.46	19.82
		50	0	19.10	19.10	19.04
		50	24	19.13	19.05	19.00
		50	50	19.11	18.99	19.04
		100	0	19.03	18.86	18.86



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LTE Band 12

BW	Modulation	RB Size	RB Offset	Conducted power(dBm)		
				23017	23095	23173
12/1.4	QPSK	1	0	699.7	707.5	715.3
		1	3	23.46	23.38	23.42
		1	5	23.43	23.48	23.46
		3	0	23.28	23.57	23.28
		3	1	23.42	23.37	23.46
		3	3	23.45	23.44	23.44
		6	0	23.28	23.40	23.38
	16QAM	1	0	22.40	22.37	22.47
		1	3	22.54	22.59	22.54
		1	5	22.74	22.33	22.60
		3	0	22.51	22.80	22.61
		3	1	22.43	22.37	22.41
		3	3	22.50	22.55	22.32
		6	0	22.30	22.51	22.58
	64QAM	1	0	21.56	21.44	21.51
		1	3	21.78	21.81	21.46
		1	5	21.64	21.75	21.98
		3	0	21.60	21.71	21.63
		3	1	21.48	21.61	21.67
		3	3	21.61	21.44	21.39
		6	0	21.50	21.50	21.71
		6	0	20.57	20.51	20.55



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BW	Modulation	RB Size	RB Offset	Conducted power(dBm)		
				23025	23095	23165
				700.5	707.5	714.5
12/3	QPSK	1	0	23.36	23.41	23.40
		1	8	23.54	23.47	23.68
		1	14	23.24	23.34	23.41
		8	0	22.42	22.44	22.43
		8	4	22.46	22.40	22.37
		8	7	22.42	22.47	22.46
		15	0	22.41	22.39	22.34
	16QAM	1	0	22.48	22.33	22.77
		1	8	22.54	22.74	22.78
		1	14	22.72	22.80	22.50
		8	0	21.45	21.51	21.38
		8	4	21.48	21.47	21.34
		8	7	21.45	21.63	21.59
		15	0	21.42	21.49	21.36
	64QAM	1	0	21.75	21.57	21.81
		1	8	21.69	21.62	21.59
		1	14	21.53	21.72	21.41
		8	0	20.69	20.43	20.47
		8	4	20.48	20.61	20.44
		8	7	20.43	20.50	20.53
		15	0	20.59	20.37	20.47



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BW	Modulation	RB Size	RB Offset	Conducted power(dBm)		
				23035	23095	23155
12/5	QPSK	1	0	701.5	707.5	713.5
		1	12	23.39	23.46	23.48
		1	24	23.46	23.70	23.65
		12	0	23.47	23.53	23.54
		12	7	22.40	22.46	22.44
		12	13	22.43	22.44	22.56
		25	0	22.47	22.46	22.52
	16QAM	1	0	22.69	22.64	22.59
		1	12	22.64	22.83	22.80
		1	24	22.63	22.74	22.63
		12	0	21.51	21.51	21.48
		12	7	21.62	21.46	21.64
		12	13	21.53	21.45	21.47
		25	0	21.45	21.36	21.47
	64QAM	1	0	21.53	21.89	21.75
		1	12	21.84	21.86	21.77
		1	24	21.59	21.73	21.61
		12	0	20.30	20.35	20.36
		12	7	20.52	20.51	20.59
		12	13	20.46	20.59	20.38
		25	0	20.47	20.48	20.51



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BW	Modulation	RB Size	RB Offset	Conducted power(dBm)		
				23060	23095	23130
				704	707.5	711
12/10	QPSK	1	0	23.43	23.39	23.42
		1	25	23.38	23.43	23.48
		1	49	23.45	23.43	23.40
		25	0	22.43	22.39	22.36
		25	12	22.54	22.43	22.46
		25	25	22.55	22.52	22.51
		50	0	22.49	22.46	22.43
	16QAM	1	0	22.87	22.33	22.64
		1	25	22.49	22.78	22.73
		1	49	22.79	22.34	22.57
		25	0	21.38	21.35	21.40
		25	12	21.52	21.43	21.47
		25	25	21.54	21.48	21.48
		50	0	21.48	21.47	21.43
	64QAM	1	0	21.72	21.43	21.79
		1	25	21.71	21.88	21.73
		1	49	21.68	21.49	21.78
		25	0	20.36	20.29	20.46
		25	12	20.60	20.56	20.44
		25	25	20.57	20.57	20.45
		50	0	20.45	20.39	20.36



**BUREAU  
VERITAS**

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**LTE Band 13**

BW	Modulation	RB Size	RB Offset	Conducted power(dBm)		
				23205	23230	23255
				779.5	782	784.5
13/5	QPSK	1	0	23.17	23.05	23.09
		1	12	23.06	22.96	23.25
		1	24	23.04	23.01	22.99
		12	0	21.96	22.04	22.04
		12	7	22.04	21.96	21.96
		12	13	21.99	21.87	22.02
		25	0	22.09	21.96	22.00
	16QAM	1	0	22.06	22.04	22.19
		1	12	21.75	22.46	22.17
		1	24	22.29	22.22	22.47
		12	0	20.99	21.15	21.00
		12	7	21.16	21.00	21.04
		12	13	20.87	20.78	21.06
		25	0	21.10	20.97	20.96
	64QAM	1	0	21.44	21.22	21.64
		1	12	21.16	21.39	21.25
		1	24	21.40	21.19	21.20
		12	0	19.95	20.05	20.03
		12	7	20.17	20.04	20.02
		12	13	20.09	19.91	20.00
		25	0	20.16	19.88	20.11



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BW	Modulation	RB Size	RB Offset	Conducted power(dBm)		
				23230		
				782		
13/10	QPSK	1	0	22.96	22.89	22.88
		1	25	22.90	23.00	23.00
		1	49	22.94	23.04	22.94
		25	0	22.05	22.07	22.06
		25	12	22.08	21.99	22.09
		25	25	21.98	21.94	21.95
		50	0	22.00	22.07	21.98
	16QAM	1	0	22.43	22.12	22.27
		1	25	22.15	22.46	22.21
		1	49	22.40	22.05	22.38
		25	0	20.94	21.01	20.96
		25	12	21.08	21.00	21.09
		25	25	20.95	20.99	20.90
		50	0	20.98	20.97	20.93
	64QAM	1	0	21.25	21.03	21.29
		1	25	21.36	21.43	21.13
		1	49	21.29	21.06	21.14
		25	0	20.03	19.98	20.01
		25	12	19.97	20.05	20.02
		25	25	20.08	19.96	20.01
		50	0	20.02	19.95	20.03



**BUREAU  
VERITAS**

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LTE Band 17

BW	Modulation	RB Size	RB Offset	Conducted power(dBm)		
				23755	23790	23825
				706.5	710	713.5
17/5	QPSK	1	0	23.60	23.81	23.38
		1	12	23.40	23.56	23.60
		1	24	23.32	23.41	23.41
		12	0	22.45	22.48	22.43
		12	7	22.45	22.47	22.45
		12	13	22.45	22.46	22.42
		25	0	22.43	22.45	22.47
	16QAM	1	0	22.37	22.63	22.46
		1	12	22.64	22.37	22.68
		1	24	22.60	22.56	22.75
		12	0	21.56	21.51	21.37
		12	7	21.53	21.44	21.54
		12	13	21.44	21.47	21.58
		25	0	21.43	21.35	21.42
	64QAM	1	0	21.79	21.74	21.88
		1	12	21.69	21.86	21.80
		1	24	21.66	21.78	21.95
		12	0	20.51	20.44	20.53
		12	7	20.50	20.48	20.60
		12	13	20.43	20.52	20.57
		25	0	20.46	20.43	20.50



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BW	Modulation	RB Size	RB Offset	Conducted power(dBm)		
				23780	23790	23800
				709	710	711
17/10	QPSK	1	0	23.39	23.45	23.43
		1	25	23.39	23.68	23.49
		1	49	23.37	23.26	23.50
		25	0	22.41	22.44	22.43
		25	12	22.48	22.45	22.41
		25	25	22.44	22.44	22.49
		50	0	22.42	22.39	22.39
	16QAM	1	0	22.77	22.86	22.67
		1	25	22.75	22.87	22.64
		1	49	22.77	22.62	22.41
		25	0	21.32	21.37	21.45
		25	12	21.46	21.40	21.45
		25	25	21.47	21.50	21.51
		50	0	21.46	21.40	21.42
	64QAM	1	0	21.54	21.52	21.40
		1	25	21.56	21.75	21.79
		1	49	21.51	21.50	21.45
		25	0	20.42	20.45	20.47
		25	12	20.61	20.41	20.55
		25	25	20.53	20.50	20.52
		50	0	20.51	20.40	20.46



**BUREAU  
VERITAS**

**Test Report No.: PSU-NQN2504150110RF04**

**EIRP**

**LTE BAND 7**

BW	Modulation	RB Size	RB Offset	Conducted power(dBm)			ERP/EIRP (dBm)			ERP/EIRP (W)		
				20775	21100	21425	20775	21100	21425	20775	21100	21425
				2502.5	2535	2567.5	2502.5	2535	2567.5	2502.5	2535	2567.5
5	QPSK	1	0	22.05	22.10	21.93	20.35	20.40	20.23	0.108	0.110	0.105
		1	12	22.28	22.23	22.07	20.58	20.53	20.37	0.114	0.113	0.109
		1	24	22.13	22.05	22.26	20.43	20.35	20.56	0.110	0.108	0.114
		12	0	21.09	21.07	20.91	19.39	19.37	19.21	0.087	0.086	0.083
		12	7	21.23	21.08	21.00	19.53	19.38	19.30	0.090	0.087	0.085
		12	13	21.15	21.16	21.00	19.45	19.46	19.30	0.088	0.088	0.085
		25	0	21.12	21.04	20.87	19.42	19.34	19.17	0.087	0.086	0.083
	16QAM	1	0	21.31	21.30	21.10	19.61	19.60	19.40	0.091	0.091	0.087
		1	12	21.08	21.47	21.49	19.38	19.77	19.79	0.087	0.095	0.095
		1	24	21.28	21.15	21.36	19.58	19.45	19.66	0.091	0.088	0.092
		12	0	20.17	20.05	20.13	18.47	18.35	18.43	0.070	0.068	0.070
		12	7	20.13	20.10	20.07	18.43	18.40	18.37	0.070	0.069	0.069
		12	13	20.17	20.09	20.02	18.47	18.39	18.32	0.070	0.069	0.068
		25	0	20.06	20.01	19.92	18.36	18.31	18.22	0.069	0.068	0.066
	64QAM	1	0	20.42	20.36	20.57	18.72	18.66	18.87	0.074	0.073	0.077
		1	12	20.38	20.29	20.30	18.68	18.59	18.60	0.074	0.072	0.072
		1	24	20.52	20.63	20.64	18.82	18.93	18.94	0.076	0.078	0.078
		12	0	19.22	19.13	18.91	17.52	17.43	17.21	0.056	0.055	0.053
		12	7	19.13	19.30	19.02	17.43	17.60	17.32	0.055	0.058	0.054
		12	13	19.13	19.21	19.09	17.43	17.51	17.39	0.055	0.056	0.055
		25	0	19.10	19.06	18.90	17.40	17.36	17.20	0.055	0.054	0.052



**BUREAU  
VERITAS**

**Test Report No.: PSU-NQN2504150110RF04**

BW	Modulation	RB Size	RB Offset	Conducted power(dBm)			ERP/EIRP (dBm)			ERP/EIRP (W)		
				20800	21100	21400	20800	21100	21400	20800	21100	21400
				2505	2535	2565	2505	2535	2565	2505	2535	2565
10	QPSK	1	0	22.10	22.03	22.04	20.40	20.33	20.34	0.110	0.108	0.108
		1	25	22.06	21.96	21.76	20.36	20.26	20.06	0.109	0.106	0.101
		1	49	22.07	22.17	21.90	20.37	20.47	20.20	0.109	0.111	0.105
		25	0	21.11	21.07	20.94	19.41	19.37	19.24	0.087	0.086	0.084
		25	12	21.18	21.05	20.95	19.48	19.35	19.25	0.089	0.086	0.084
		25	25	21.22	20.98	20.90	19.52	19.28	19.20	0.090	0.085	0.083
		50	0	21.09	20.97	20.94	19.39	19.27	19.24	0.087	0.085	0.084
	16QAM	1	0	21.37	21.15	21.13	19.67	19.45	19.43	0.093	0.088	0.088
		1	25	21.11	21.51	21.06	19.41	19.81	19.36	0.087	0.096	0.086
		1	49	21.33	21.09	21.15	19.63	19.39	19.45	0.092	0.087	0.088
		25	0	20.15	20.06	20.00	18.45	18.36	18.30	0.070	0.069	0.068
		25	12	20.15	20.03	19.99	18.45	18.33	18.29	0.070	0.068	0.067
		25	25	20.10	19.96	20.03	18.40	18.26	18.33	0.069	0.067	0.068
		50	0	20.18	19.97	19.96	18.48	18.27	18.26	0.070	0.067	0.067
	64QAM	1	0	20.08	20.38	20.07	18.38	18.68	18.37	0.069	0.074	0.069
		1	25	20.22	20.03	20.09	18.52	18.33	18.39	0.071	0.068	0.069
		1	49	20.42	20.06	20.50	18.72	18.36	18.80	0.074	0.069	0.076
		25	0	19.29	19.15	19.03	17.59	17.45	17.33	0.057	0.056	0.054
		25	12	19.21	19.16	19.01	17.51	17.46	17.31	0.056	0.056	0.054
		25	25	19.27	19.10	18.99	17.57	17.40	17.29	0.057	0.055	0.054
		50	0	19.19	19.03	19.04	17.49	17.33	17.34	0.056	0.054	0.054



**BUREAU  
VERITAS**

**Test Report No.: PSU-NQN2504150110RF04**

BW	Modulation	RB Size	RB Offset	Conducted power(dBm)			ERP/EIRP (dBm)			ERP/EIRP (W)		
				20825	21100	21375	20825	21100	21375	20825	21100	21375
				2507.5	2535	2562.5	2507.5	2535	2562.5	2507.5	2535	2562.5
15	QPSK	1	0	21.97	22.00	22.08	20.27	20.30	20.38	0.106	0.107	0.109
		1	37	21.78	21.93	22.49	20.08	20.23	20.79	0.102	0.105	0.120
		1	74	21.99	21.98	21.88	20.29	20.28	20.18	0.107	0.107	0.104
		36	0	21.10	21.01	20.97	19.40	19.31	19.27	0.087	0.085	0.085
		36	29	21.03	20.98	20.85	19.33	19.28	19.15	0.086	0.085	0.082
		36	30	20.99	20.93	20.87	19.29	19.23	19.17	0.085	0.084	0.083
		75	0	21.01	20.92	20.84	19.31	19.22	19.14	0.085	0.084	0.082
	16QAM	1	0	21.05	21.15	21.16	19.35	19.45	19.46	0.086	0.088	0.088
		1	37	21.37	21.19	21.22	19.67	19.49	19.52	0.093	0.089	0.090
		1	74	21.32	21.25	20.74	19.62	19.55	19.04	0.092	0.090	0.080
		36	0	20.12	20.06	19.92	18.42	18.36	18.22	0.070	0.069	0.066
		36	29	19.99	19.95	19.91	18.29	18.25	18.21	0.067	0.067	0.066
		36	30	20.06	19.92	19.86	18.36	18.22	18.16	0.069	0.066	0.065
		75	0	19.98	19.93	19.96	18.28	18.23	18.26	0.067	0.067	0.067
	64QAM	1	0	20.11	20.11	20.33	18.41	18.41	18.63	0.069	0.069	0.073
		1	37	20.30	20.19	20.21	18.60	18.49	18.51	0.072	0.071	0.071
		1	74	20.07	19.98	20.37	18.37	18.28	18.67	0.069	0.067	0.074
		36	0	19.14	19.09	18.95	17.44	17.39	17.25	0.055	0.055	0.053
		36	29	19.06	19.06	19.04	17.36	17.36	17.34	0.054	0.054	0.054
		36	30	19.00	19.02	18.86	17.30	17.32	17.16	0.054	0.054	0.052
		75	0	19.09	19.00	18.98	17.39	17.30	17.28	0.055	0.054	0.053



**BUREAU  
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**Test Report No.: PSU-NQN2504150110RF04**

BW	Modulation	RB Size	RB Offset	Conducted power(dBm)			ERP/EIRP (dBm)			ERP/EIRP (W)		
				20850	21100	21350	20850	21100	21350	20850	21100	21350
				2510	2535	2560	2510	2535	2560	2510	2535	2560
20	QPSK	1	0	21.93	21.98	21.88	20.23	20.28	20.18	0.105	0.107	0.104
		1	49	22.29	21.84	21.86	20.59	20.14	20.16	0.115	0.103	0.104
		1	99	22.38	21.91	21.90	20.68	20.21	20.20	0.117	0.105	0.105
		50	0	21.06	21.08	20.96	19.36	19.38	19.26	0.086	0.087	0.084
		50	24	21.10	20.97	21.00	19.40	19.27	19.30	0.087	0.085	0.085
		50	50	21.06	21.00	20.98	19.36	19.30	19.28	0.086	0.085	0.085
		100	0	21.07	20.93	20.92	19.37	19.23	19.22	0.086	0.084	0.084
	16QAM	1	0	21.18	21.31	21.04	19.48	19.61	19.34	0.089	0.091	0.086
		1	49	21.21	20.86	21.15	19.51	19.16	19.45	0.089	0.082	0.088
		1	99	21.45	21.34	20.96	19.75	19.64	19.26	0.094	0.092	0.084
		50	0	20.18	20.07	19.99	18.48	18.37	18.29	0.070	0.069	0.067
		50	24	20.10	20.05	20.00	18.40	18.35	18.30	0.069	0.068	0.068
		50	50	20.09	20.01	19.93	18.39	18.31	18.23	0.069	0.068	0.067
		100	0	20.08	20.03	20.05	18.38	18.33	18.35	0.069	0.068	0.068
	64QAM	1	0	20.40	20.46	20.24	18.70	18.76	18.54	0.074	0.075	0.071
		1	49	20.24	20.11	19.99	18.54	18.41	18.29	0.071	0.069	0.067
		1	99	20.57	20.46	19.82	18.87	18.76	18.12	0.077	0.075	0.065
		50	0	19.10	19.10	19.04	17.40	17.40	17.34	0.055	0.055	0.054
		50	24	19.13	19.05	19.00	17.43	17.35	17.30	0.055	0.054	0.054
		50	50	19.11	18.99	19.04	17.41	17.29	17.34	0.055	0.054	0.054
		100	0	19.03	18.86	18.86	17.33	17.16	17.16	0.054	0.052	0.052



**BUREAU  
VERITAS**

**Test Report No.: PSU-NQN2504150110RF04**

LTE BAND 12

BW	Modulation	RB Size	RB Offset	Conducted power(dBm)			ERP/EIRP (dBm)			ERP/EIRP (W)		
				23017	23095	23173	23017	23095	23173	23017	23095	23173
				699.7	707.5	715.3	699.7	707.5	715.3	699.7	707.5	715.3
1.4	QPSK	1	0	23.46	23.38	23.42	21.76	21.68	21.72	0.150	0.147	0.149
		1	3	23.43	23.48	23.46	21.73	21.78	21.76	0.149	0.151	0.150
		1	5	23.28	23.57	23.28	21.58	21.87	21.58	0.144	0.154	0.144
		3	0	23.42	23.37	23.46	21.72	21.67	21.76	0.149	0.147	0.150
		3	1	23.45	23.44	23.44	21.75	21.74	21.74	0.150	0.149	0.149
		3	3	23.28	23.40	23.38	21.58	21.70	21.68	0.144	0.148	0.147
		6	0	22.40	22.37	22.47	20.70	20.67	20.77	0.117	0.117	0.119
	16QAM	1	0	22.54	22.59	22.54	20.84	20.89	20.84	0.121	0.123	0.121
		1	3	22.74	22.33	22.60	21.04	20.63	20.90	0.127	0.116	0.123
		1	5	22.51	22.80	22.61	20.81	21.10	20.91	0.121	0.129	0.123
		3	0	22.43	22.37	22.41	20.73	20.67	20.71	0.118	0.117	0.118
		3	1	22.50	22.55	22.32	20.80	20.85	20.62	0.120	0.122	0.115
		3	3	22.30	22.51	22.58	20.60	20.81	20.88	0.115	0.121	0.122
		6	0	21.56	21.44	21.51	19.86	19.74	19.81	0.097	0.094	0.096
	64QAM	1	0	21.78	21.81	21.46	20.08	20.11	19.76	0.102	0.103	0.095
		1	3	21.64	21.75	21.98	19.94	20.05	20.28	0.099	0.101	0.107
		1	5	21.60	21.71	21.63	19.90	20.01	19.93	0.098	0.100	0.098
		3	0	21.48	21.61	21.67	19.78	19.91	19.97	0.095	0.098	0.099
		3	1	21.61	21.44	21.39	19.91	19.74	19.69	0.098	0.094	0.093
		3	3	21.50	21.50	21.71	19.80	19.80	20.01	0.095	0.095	0.100
		6	0	20.57	20.51	20.55	18.87	18.81	18.85	0.077	0.076	0.077



**BUREAU  
VERITAS**

**Test Report No.: PSU-NQN2504150110RF04**

BW	Modulation	RB Size	RB Offset	Conducted power(dBm)			ERP/EIRP (dBm)			ERP/EIRP (W)		
				23025	23095	23165	23025	23095	23165	23025	23095	23165
				700.5	707.5	714.5	700.5	707.5	714.5	700.5	707.5	714.5
3	QPSK	1	0	23.36	23.41	23.40	21.66	21.71	21.70	0.147	0.148	0.148
		1	8	23.54	23.47	23.68	21.84	21.77	21.98	0.153	0.150	0.158
		1	14	23.24	23.34	23.41	21.54	21.64	21.71	0.143	0.146	0.148
		8	0	22.42	22.44	22.43	20.72	20.74	20.73	0.118	0.119	0.118
		8	4	22.46	22.40	22.37	20.76	20.70	20.67	0.119	0.117	0.117
		8	7	22.42	22.47	22.46	20.72	20.77	20.76	0.118	0.119	0.119
		15	0	22.41	22.39	22.34	20.71	20.69	20.64	0.118	0.117	0.116
	16QAM	1	0	22.48	22.33	22.77	20.78	20.63	21.07	0.120	0.116	0.128
		1	8	22.54	22.74	22.78	20.84	21.04	21.08	0.121	0.127	0.128
		1	14	22.72	22.80	22.50	21.02	21.10	20.80	0.126	0.129	0.120
		8	0	21.45	21.51	21.38	19.75	19.81	19.68	0.094	0.096	0.093
		8	4	21.48	21.47	21.34	19.78	19.77	19.64	0.095	0.095	0.092
		8	7	21.45	21.63	21.59	19.75	19.93	19.89	0.094	0.098	0.097
		15	0	21.42	21.49	21.36	19.72	19.79	19.66	0.094	0.095	0.092
	64QAM	1	0	21.75	21.57	21.81	20.05	19.87	20.11	0.101	0.097	0.103
		1	8	21.69	21.62	21.59	19.99	19.92	19.89	0.100	0.098	0.097
		1	14	21.53	21.72	21.41	19.83	20.02	19.71	0.096	0.100	0.094
		8	0	20.69	20.43	20.47	18.99	18.73	18.77	0.079	0.075	0.075
		8	4	20.48	20.61	20.44	18.78	18.91	18.74	0.076	0.078	0.075
		8	7	20.43	20.50	20.53	18.73	18.80	18.83	0.075	0.076	0.076
		15	0	20.59	20.37	20.47	18.89	18.67	18.77	0.077	0.074	0.075



**BUREAU  
VERITAS**

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BW	Modulation	RB Size	RB Offset	Conducted power(dBm)			ERP/EIRP (dBm)			ERP/EIRP (W)		
				23035	23095	23155	23035	23095	23155	23035	23095	23155
				701.5	707.5	713.5	701.5	707.5	713.5	701.5	707.5	713.5
5	QPSK	1	0	23.39	23.46	23.48	21.69	21.76	21.78	0.148	0.150	0.151
		1	12	23.46	23.70	23.65	21.76	22.00	21.95	0.150	0.158	0.157
		1	24	23.47	23.53	23.54	21.77	21.83	21.84	0.150	0.152	0.153
		12	0	22.40	22.46	22.44	20.70	20.76	20.74	0.117	0.119	0.119
		12	7	22.43	22.44	22.56	20.73	20.74	20.86	0.118	0.119	0.122
		12	13	22.47	22.46	22.52	20.77	20.76	20.82	0.119	0.119	0.121
		25	0	22.49	22.43	22.45	20.79	20.73	20.75	0.120	0.118	0.119
	16QAM	1	0	22.69	22.64	22.59	20.99	20.94	20.89	0.126	0.124	0.123
		1	12	22.64	22.83	22.80	20.94	21.13	21.10	0.124	0.130	0.129
		1	24	22.63	22.74	22.63	20.93	21.04	20.93	0.124	0.127	0.124
		12	0	21.51	21.51	21.48	19.81	19.81	19.78	0.096	0.096	0.095
		12	7	21.62	21.46	21.64	19.92	19.76	19.94	0.098	0.095	0.099
		12	13	21.53	21.45	21.47	19.83	19.75	19.77	0.096	0.094	0.095
		25	0	21.45	21.36	21.47	19.75	19.66	19.77	0.094	0.092	0.095
	64QAM	1	0	21.53	21.89	21.75	19.83	20.19	20.05	0.096	0.104	0.101
		1	12	21.84	21.86	21.77	20.14	20.16	20.07	0.103	0.104	0.102
		1	24	21.59	21.73	21.61	19.89	20.03	19.91	0.097	0.101	0.098
		12	0	20.30	20.35	20.36	18.60	18.65	18.66	0.072	0.073	0.073
		12	7	20.52	20.51	20.59	18.82	18.81	18.89	0.076	0.076	0.077
		12	13	20.46	20.59	20.38	18.76	18.89	18.68	0.075	0.077	0.074
		25	0	20.47	20.48	20.51	18.77	18.78	18.81	0.075	0.076	0.076



**BUREAU  
VERITAS**

**Test Report No.: PSU-NQN2504150110RF04**

BW	Modulation	RB Size	RB Offset	Conducted power(dBm)			ERP/EIRP (dBm)			ERP/EIRP (W)		
				23060	23095	23130	23060	23095	23130	23060	23095	23130
				704	707.5	711	704	707.5	711	704	707.5	711
10	QPSK	1	0	23.43	23.39	23.42	21.73	21.69	21.72	0.149	0.148	0.149
		1	25	23.38	23.43	23.48	21.68	21.73	21.78	0.147	0.149	0.151
		1	49	23.45	23.43	23.40	21.75	21.73	21.70	0.150	0.149	0.148
		25	0	22.43	22.39	22.36	20.73	20.69	20.66	0.118	0.117	0.116
		25	12	22.54	22.43	22.46	20.84	20.73	20.76	0.121	0.118	0.119
		25	25	22.55	22.52	22.51	20.85	20.82	20.81	0.122	0.121	0.121
		50	0	22.49	22.46	22.43	20.79	20.76	20.73	0.120	0.119	0.118
	16QAM	1	0	22.87	22.33	22.64	21.17	20.63	20.94	0.131	0.116	0.124
		1	25	22.49	22.78	22.73	20.79	21.08	21.03	0.120	0.128	0.127
		1	49	22.79	22.34	22.57	21.09	20.64	20.87	0.129	0.116	0.122
		25	0	21.38	21.35	21.40	19.68	19.65	19.70	0.093	0.092	0.093
		25	12	21.52	21.43	21.47	19.82	19.73	19.77	0.096	0.094	0.095
		25	25	21.54	21.48	21.48	19.84	19.78	19.78	0.096	0.095	0.095
		50	0	21.48	21.47	21.43	19.78	19.77	19.73	0.095	0.095	0.094
	64QAM	1	0	21.72	21.43	21.79	20.02	19.73	20.09	0.100	0.094	0.102
		1	25	21.71	21.88	21.73	20.01	20.18	20.03	0.100	0.104	0.101
		1	49	21.68	21.49	21.78	19.98	19.79	20.08	0.100	0.095	0.102
		25	0	20.36	20.29	20.46	18.66	18.59	18.76	0.073	0.072	0.075
		25	12	20.60	20.56	20.44	18.90	18.86	18.74	0.078	0.077	0.075
		25	25	20.57	20.57	20.45	18.87	18.87	18.75	0.077	0.077	0.075
		50	0	20.45	20.39	20.36	18.75	18.69	18.66	0.075	0.074	0.073



**BUREAU  
VERITAS**

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LTE BAND 13

BW	Modulation	RB Size	RB Offset	Conducted power(dBm)			ERP/EIRP (dBm)			ERP/EIRP (W)		
				23205	23230	23255	23205	23230	23255	23205	23230	23255
				779.5	782	784.5	779.5	782	784.5	779.5	782	784.5
5	QPSK	1	0	23.17	23.05	23.09	21.47	21.35	21.39	0.140	0.136	0.138
		1	12	23.06	22.96	23.25	21.36	21.26	21.55	0.137	0.134	0.143
		1	24	23.04	23.01	22.99	21.34	21.31	21.29	0.136	0.135	0.135
		12	0	21.96	22.04	22.04	20.26	20.34	20.34	0.106	0.108	0.108
		12	7	22.04	21.96	21.96	20.34	20.26	20.26	0.108	0.106	0.106
		12	13	21.99	21.87	22.02	20.29	20.17	20.32	0.107	0.104	0.108
		25	0	22.09	21.96	22.00	20.39	20.26	20.30	0.109	0.106	0.107
	16QAM	1	0	22.06	22.04	22.19	20.36	20.34	20.49	0.109	0.108	0.112
		1	12	21.75	22.46	22.17	20.05	20.76	20.47	0.101	0.119	0.111
		1	24	22.29	22.22	22.47	20.59	20.52	20.77	0.115	0.113	0.119
		12	0	20.99	21.15	21.00	19.29	19.45	19.30	0.085	0.088	0.085
		12	7	21.16	21.00	21.04	19.46	19.30	19.34	0.088	0.085	0.086
		12	13	20.87	20.78	21.06	19.17	19.08	19.36	0.083	0.081	0.086
		25	0	21.10	20.97	20.96	19.40	19.27	19.26	0.087	0.085	0.084
	64QAM	1	0	21.44	21.22	21.64	19.74	19.52	19.94	0.094	0.090	0.099
		1	12	21.16	21.39	21.25	19.46	19.69	19.55	0.088	0.093	0.090
		1	24	21.40	21.19	21.20	19.70	19.49	19.50	0.093	0.089	0.089
		12	0	19.95	20.05	20.03	18.25	18.35	18.33	0.067	0.068	0.068
		12	7	20.17	20.04	20.02	18.47	18.34	18.32	0.070	0.068	0.068
		12	13	20.09	19.91	20.00	18.39	18.21	18.30	0.069	0.066	0.068
		25	0	20.16	19.88	20.11	18.46	18.18	18.41	0.070	0.066	0.069



**BUREAU  
VERITAS**

**Test Report No.: PSU-NQN2504150110RF04**

BW	Modulation	RB Size	RB Offset	Conducted power(dBm)			ERP/EIRP (dBm)			ERP/EIRP (W)		
				23230			23230			23230		
				782			782			782		
10	QPSK	1	0	22.96	22.89	22.88	21.26	21.19	21.18	0.134	0.132	0.131
		1	25	22.90	23.00	23.00	21.20	21.30	21.30	0.132	0.135	0.135
		1	49	22.94	23.04	22.94	21.24	21.34	21.24	0.133	0.136	0.133
		25	0	22.05	22.07	22.06	20.35	20.37	20.36	0.108	0.109	0.109
		25	12	22.08	21.99	22.09	20.38	20.29	20.39	0.109	0.107	0.109
		25	25	21.98	21.94	21.95	20.28	20.24	20.25	0.107	0.106	0.106
		50	0	22.00	22.07	21.98	20.30	20.37	20.28	0.107	0.109	0.107
	16QAM	1	0	22.43	22.12	22.27	20.73	20.42	20.57	0.118	0.110	0.114
		1	25	22.15	22.46	22.21	20.45	20.76	20.51	0.111	0.119	0.112
		1	49	22.40	22.05	22.38	20.70	20.35	20.68	0.117	0.108	0.117
		25	0	20.94	21.01	20.96	19.24	19.31	19.26	0.084	0.085	0.084
		25	12	21.08	21.00	21.09	19.38	19.30	19.39	0.087	0.085	0.087
		25	25	20.95	20.99	20.90	19.25	19.29	19.20	0.084	0.085	0.083
		50	0	20.98	20.97	20.93	19.28	19.27	19.23	0.085	0.085	0.084
	64QAM	1	0	21.25	21.03	21.29	19.55	19.33	19.59	0.090	0.086	0.091
		1	25	21.36	21.43	21.13	19.66	19.73	19.43	0.092	0.094	0.088
		1	49	21.29	21.06	21.14	19.59	19.36	19.44	0.091	0.086	0.088
		25	0	20.03	19.98	20.01	18.33	18.28	18.31	0.068	0.067	0.068
		25	12	19.97	20.05	20.02	18.27	18.35	18.32	0.067	0.068	0.068
		25	25	20.08	19.96	20.01	18.38	18.26	18.31	0.069	0.067	0.068
		50	0	20.02	19.95	20.03	18.32	18.25	18.33	0.068	0.067	0.068



**BUREAU  
VERITAS**

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LTE BAND 17

BW	Modulation	RB Size	RB Offset	Conducted power(dBm)			ERP/EIRP (dBm)			ERP/EIRP (W)		
				23755	23790	23825	23755	23790	23825	23755	23790	23825
				706.5	710	713.5	706.5	710	713.5	706.5	710	713.5
5	QPSK	1	0	23.60	23.81	23.38	21.90	22.11	21.68	0.155	0.163	0.147
		1	12	23.40	23.56	23.60	21.70	21.86	21.90	0.148	0.153	0.155
		1	24	23.32	23.41	23.41	21.62	21.71	21.71	0.145	0.148	0.148
		12	0	22.45	22.48	22.43	20.75	20.78	20.73	0.119	0.120	0.118
		12	7	22.45	22.47	22.45	20.75	20.77	20.75	0.119	0.119	0.119
		12	13	22.45	22.46	22.42	20.75	20.76	20.72	0.119	0.119	0.118
		25	0	22.43	22.45	22.47	20.73	20.75	20.77	0.118	0.119	0.119
	16QAM	1	0	22.37	22.63	22.46	20.67	20.93	20.76	0.117	0.124	0.119
		1	12	22.64	22.37	22.68	20.94	20.67	20.98	0.124	0.117	0.125
		1	24	22.60	22.56	22.75	20.90	20.86	21.05	0.123	0.122	0.127
		12	0	21.56	21.51	21.37	19.86	19.81	19.67	0.097	0.096	0.093
		12	7	21.53	21.44	21.54	19.83	19.74	19.84	0.096	0.094	0.096
		12	13	21.44	21.47	21.58	19.74	19.77	19.88	0.094	0.095	0.097
		25	0	21.43	21.35	21.42	19.73	19.65	19.72	0.094	0.092	0.094
	64QAM	1	0	21.79	21.74	21.88	20.09	20.04	20.18	0.102	0.101	0.104
		1	12	21.69	21.86	21.80	19.99	20.16	20.10	0.100	0.104	0.102
		1	24	21.66	21.78	21.95	19.96	20.08	20.25	0.099	0.102	0.106
		12	0	20.51	20.44	20.53	18.81	18.74	18.83	0.076	0.075	0.076
		12	7	20.50	20.48	20.60	18.80	18.78	18.90	0.076	0.076	0.078
		12	13	20.43	20.52	20.57	18.73	18.82	18.87	0.075	0.076	0.077
		25	0	20.46	20.43	20.50	18.76	18.73	18.80	0.075	0.075	0.076



**BUREAU  
VERITAS**

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BW	Modulation	RB Size	RB Offset	Conducted power(dBm)			ERP/EIRP (dBm)			ERP/EIRP (W)		
				23780	23790	23800	23780	23790	23800	23780	23790	23800
				709	710	711	709	710	711	709	710	711
10	QPSK	1	0	23.39	23.45	23.43	21.69	21.75	21.73	0.148	0.150	0.149
		1	25	23.39	23.68	23.49	21.69	21.98	21.79	0.148	0.158	0.151
		1	49	23.37	23.26	23.50	21.67	21.56	21.80	0.147	0.143	0.151
		25	0	22.41	22.44	22.43	20.71	20.74	20.73	0.118	0.119	0.118
		25	12	22.48	22.45	22.41	20.78	20.75	20.71	0.120	0.119	0.118
		25	25	22.44	22.44	22.49	20.74	20.74	20.79	0.119	0.119	0.120
		50	0	22.42	22.39	22.39	20.72	20.69	20.69	0.118	0.117	0.117
	16QAM	1	0	22.77	22.86	22.67	21.07	21.16	20.97	0.128	0.131	0.125
		1	25	22.75	22.87	22.64	21.05	21.17	20.94	0.127	0.131	0.124
		1	49	22.77	22.62	22.41	21.07	20.92	20.71	0.128	0.124	0.118
		25	0	21.32	21.37	21.45	19.62	19.67	19.75	0.092	0.093	0.094
		25	12	21.46	21.40	21.45	19.76	19.70	19.75	0.095	0.093	0.094
		25	25	21.47	21.50	21.51	19.77	19.80	19.81	0.095	0.095	0.096
		50	0	21.46	21.40	21.42	19.76	19.70	19.72	0.095	0.093	0.094
	64QAM	1	0	21.54	21.52	21.40	19.84	19.82	19.70	0.096	0.096	0.093
		1	25	21.56	21.75	21.79	19.86	20.05	20.09	0.097	0.101	0.102
		1	49	21.51	21.50	21.45	19.81	19.80	19.75	0.096	0.095	0.094
		25	0	20.42	20.45	20.47	18.72	18.75	18.77	0.074	0.075	0.075
		25	12	20.61	20.41	20.55	18.91	18.71	18.85	0.078	0.074	0.077
		25	25	20.53	20.50	20.52	18.83	18.80	18.82	0.076	0.076	0.076
		50	0	20.51	20.40	20.46	18.81	18.70	18.76	0.076	0.074	0.075

## 3.2 FREQUENCY STABILITY MEASUREMENT

### 3.2.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

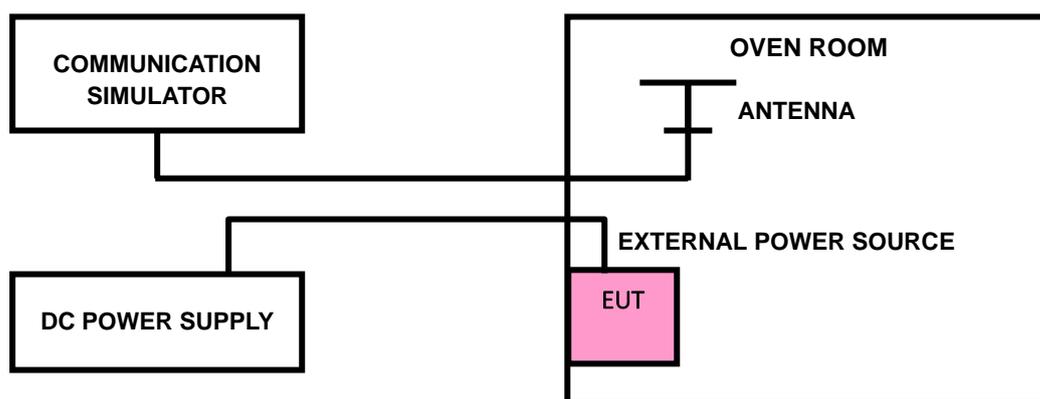
The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

### 3.2.2 TEST PROCEDURE

- Device is placed at the oven room. The oven room could control the temperatures and humidity. Power warm up is at least 15 min and power applied should perform before recording frequency error.
- EUT is connected the external power supply to control the DC input power. The test voltage range is from minimum to maximum working voltage. Each step shall be record the frequency error rate.
- The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the  $\pm 0.5^{\circ}\text{C}$  during the measurement testing. The each temperature step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.

**NOTE:** The frequency error was recorded frequency error from the communication simulator.

### 3.2.3 TEST SETUP



### 3.2.4 TEST RESULTS

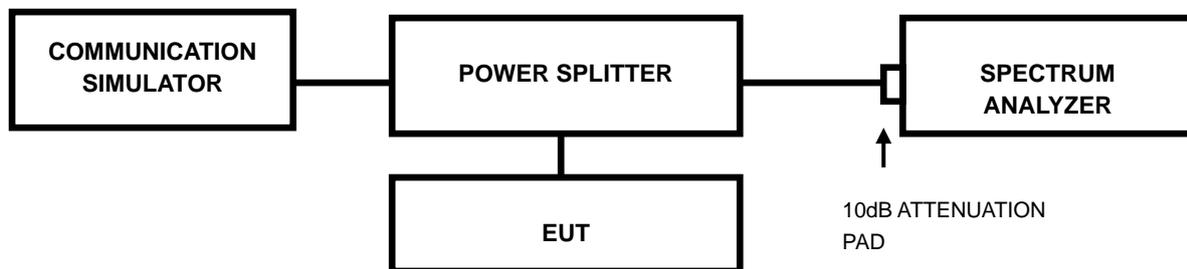
Please Refer to Appendix Of this test report.

### 3.3 OCCUPIED BANDWIDTH MEASUREMENT

#### 3.3.1 LIMITS OF OCCUPIED BANDWIDTH MEASUREMENT

The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5 %of the total mean power of a given emission.

#### 3.3.2 TEST SETUP



#### 3.3.3 TEST PROCEDURES

- The conducted occupied bandwidth used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.
- Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth.

#### 3.3.4 TEST RESULTS

Please Refer to Appendix Of this test report.

### 3.4 BAND EDGE MEASUREMENT

#### 3.4.1 LIMITS OF BAND EDGE MEASUREMENT

According to FCC 27.53(c) specified that For operations in the 746-758 MHz band and the 776-788 MHz band , the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least  $43 + 10 \log (P)$  dB. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed. In addition, the power of any unwanted emission in an 6.25kHz bandwidth for all frequencies between 763-775 MHz and 793-806 MHz shall be attenuated below the transmitter power, P(dBW), by at least  $65 + 10 \log 10p(P)$ , dB, for mobile and portable equipment.

According to FCC 27.53(g) specified that For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least  $43 + 10 \log (P)$  dB. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

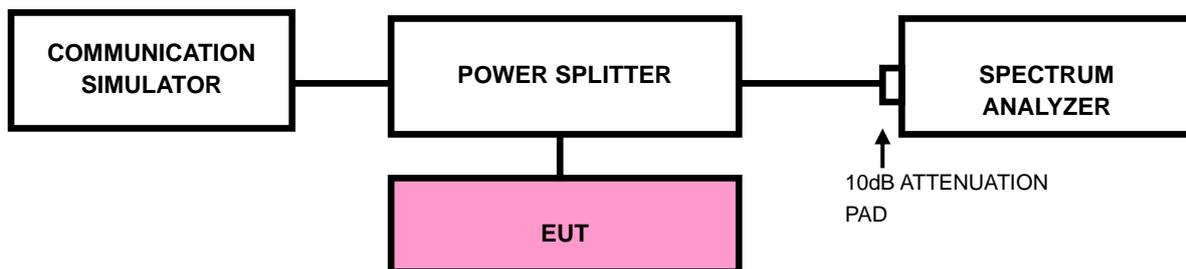
According to FCC 27.53(h) specified that For operations in the 1710-1755 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least  $43 + 10 \log (P)$  dB. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

According to FCC 27.53(m)(4) specified that For mobile digital stations, the attenuation factor shall be not less than  $40 + 10 \log (P)$  dB on all frequencies between the channel edge and 5 megahertz from the channel edge,  $43 + 10 \log (P)$  dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and  $55 + 10 \log (P)$  dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that  $43 + 10 \log (P)$  dB on all frequencies between 2490.5 MHz and 2496 MHz and  $55 + 10 \log (P)$  dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees. For mobile digital stations, in the 1 megahertz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least two percent may be employed.

According to FCC 27.53(a)(4) specified that For mobile and portable stations operating in the 2305-2315 MHz and 2350-2360 MHz bands:

- (i) By a factor of not less than:  $43 + 10 \log (P)$  dB on all frequencies between 2305 and 2320 MHz and on all frequencies between 2345 and 2360 MHz that are outside the licensed band(s) of operation, not less than  $55 + 10 \log (P)$  dB on all frequencies between 2320 and 2324 MHz and on all frequencies between 2341 and 2345 MHz, not less than  $61 + 10 \log (P)$  dB on all frequencies between 2324 and 2328 MHz and on all frequencies between 2337 and 2341 MHz, and not less than  $67 + 10 \log (P)$  dB on all frequencies between 2328 and 2337 MHz;
- (ii) By a factor of not less than  $43 + 10 \log (P)$  dB on all frequencies between 2300 and 2305 MHz,  $55 + 10 \log (P)$  dB on all frequencies between 2296 and 2300 MHz,  $61 + 10 \log (P)$  dB on all frequencies between 2292 and 2296 MHz,  $67 + 10 \log (P)$  dB on all frequencies between 2288 and 2292 MHz, and  $70 + 10 \log (P)$  dB below 2288 MHz;
- (iii) By a factor of not less than  $43 + 10 \log (P)$  dB on all frequencies between 2360 and 2365 MHz, and not less than  $70 + 10 \log (P)$  dB above 2365 MHz.

### 3.4.2 TEST SETUP





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### 3.4.3 TEST PROCEDURES

- a) All measurements were done at low and high operational frequency range
- b) Connect the transmitter to the spectrum analyzer via coaxial cable while ensuring proper impedance matching.
- c) Tune the analyzer to the nominal center frequency of the emission bandwidth  
(EBW)
- d) .Set the resolution bandwidth (RBW)  $\geq 1\%$  EBW in the 1MHz band immediately outside and adjacent to the band edge.
- e) Beyond the 1MHz band from the band edge, RBW=1MHz was used.
- f) Set the video bandwidth (VBW) to  $\geq 3 \times$  RBW.
- g) Select the average power (RMS) display detector.
- h) Set the number of measurement points to  $\geq 1001$ .
- i) Use auto-coupled sweep time.
- j) Perform the measurement over an interval of time when the transmission is continuous and at its maximum power level.
- k) The RF fundamental frequency should be excluded against the limit line in the operating frequency band and use RBW is 10KHz or 100KHz.
- l) Record the max trace plot into the test report.

### 3.4.4 TEST RESULTS

Please Refer to Appendix Of this test report.

### 3.5 CONDUCTED SPURIOUS EMISSIONS

#### 3.5.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB. The emission limit equal to  $-13\text{dBm}$ .

For: LTE Band7

The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least  $55 + 10 \log_{10}(P)$  dB. The limit of emission is equal to  $-25\text{dBm}$ .

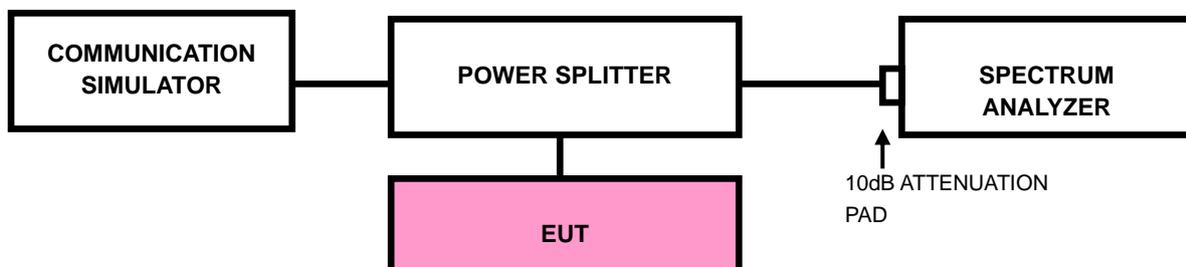
For: LTE Band30

The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least  $70 + 10 \log_{10}(P)$  dB. The limit of emission is equal to  $-40\text{dBm}$ .

#### 3.5.2 TEST PROCEDURE

- a. The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range.
- b. Measuring frequency range is from 9kHz up to a frequency including its 10<sup>th</sup> harmonic. 10dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz is used for conducted emission measurement.

#### 3.5.3 TEST SETUP





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### 3.5.4 TEST RESULTS

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

Please Refer to Appendix Of this test report.

## 3.6 RADIATED EMISSION MEASUREMENT

### 3.6.1 LIMITS OF RADIATED EMISSION MEASUREMENT

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB. The emission limit equal to  $-13\text{dBm}$ .

For: LTE Band7/ Band41

The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least  $55 + 10 \log_{10}(P)$  dB. The limit of emission is equal to  $-25\text{dBm}$ .

### 3.6.2 TEST PROCEDURES

- a. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- b. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to "Read Value " of step a. Record the power level of S.G.
- c.  $\text{EIRP} = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn}$ .
- d. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole,  $\text{E.R.P power} = \text{E.I.P.R power} - 2.15\text{dBi}$ .

**NOTE:** The resolution bandwidth of spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz.

### 3.6.3 DEVIATION FROM TEST STANDARD

No deviation

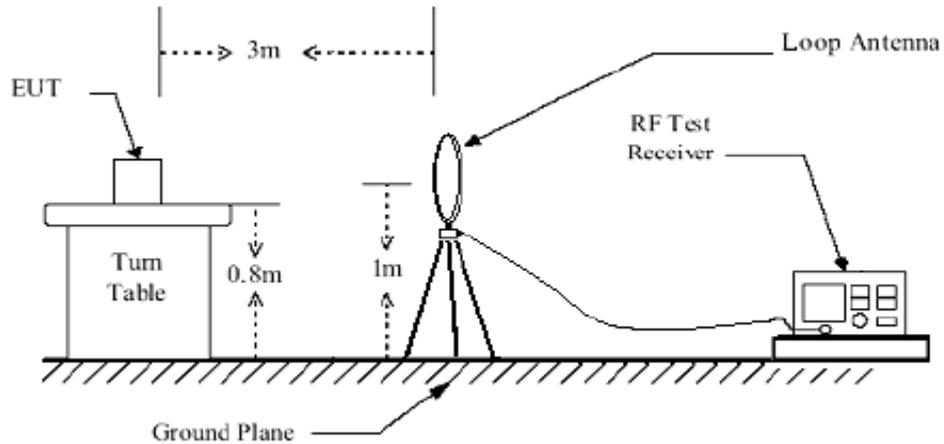
Huarui 7layers High Technology  
(Suzhou) Co., Ltd.

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

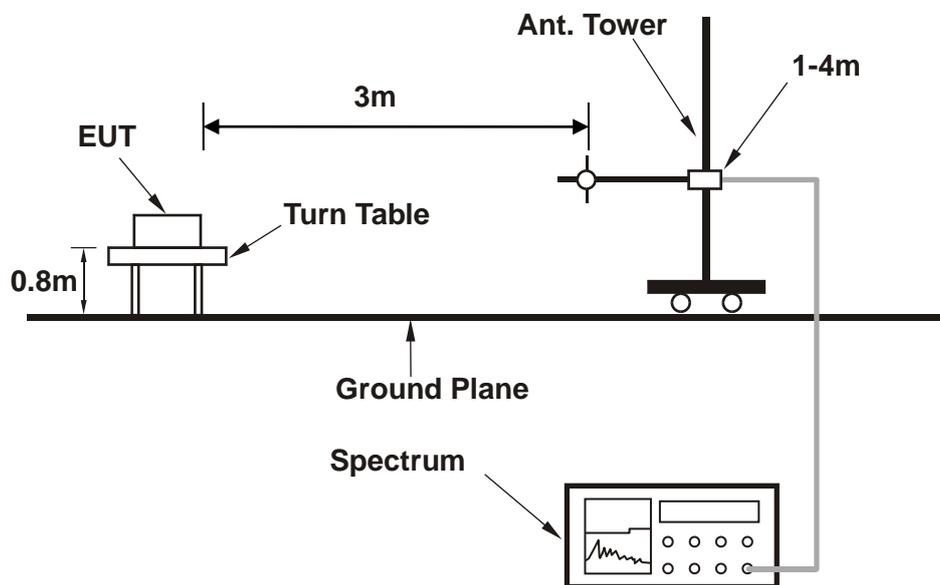
Tel: +86 (0557) 368 1008

### 3.6.4 TEST SETUP

#### < Frequency Range below 30MHz >



#### < Frequency Range 30MHz~1GHz >

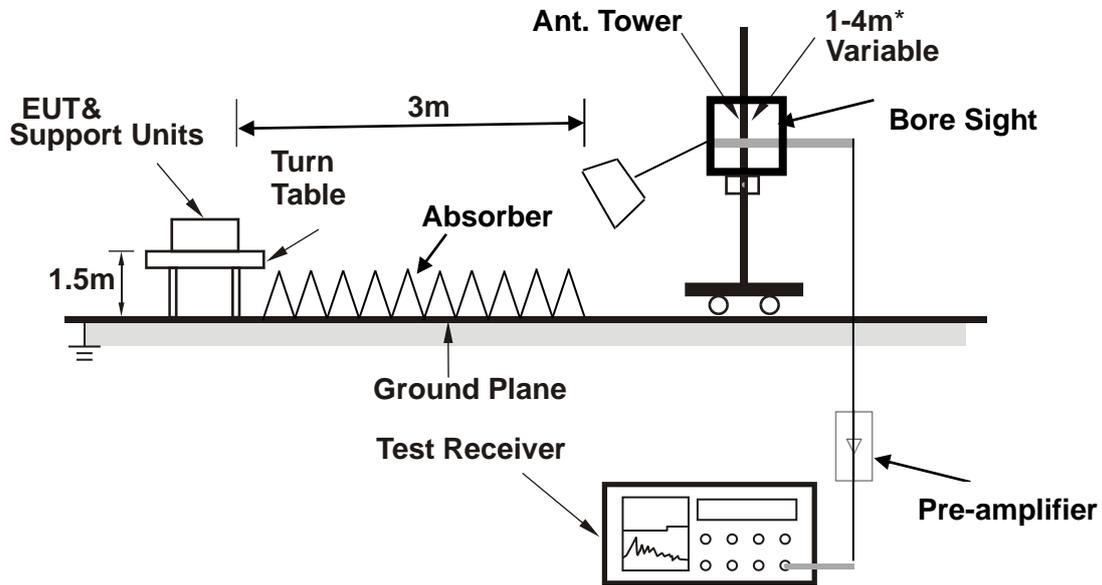




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Test Report No.: PSU-NQN2504150110RF04

<Frequency Range above 1GHz>



**Note:** Above 1G is a directional antenna depends on the EUT height and the antenna 3dB beamwidth both, refer to section 7.3 of CISPR 16-2-3.

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

### 3.6.5 TEST RESULTS

NOTE1 : The 9K~30MHz amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required in the report.

NOTE2 : The measurement range is 30M to the tenth harmonic of the highest fundamental frequency, For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report



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Test Report No.: PSU-NQN2504150110RF04

LTE band 7

Test result:

ANT2 Channel 21100

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
1175.00	-80.55	-25.00	Vertical
1469.00	-77.26	-25.00	Vertical
1700.00	-81.00	-25.00	Vertical
3084.00	-82.91	-25.00	Vertical
3588.00	-80.83	-25.00	Vertical
4686.00	-87.33	-25.00	Vertical

LTE band 12

Test result:

ANT3 Channel 23095

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
1149.80	-80.42	-13.00	Vertical
1487.20	-77.03	-13.00	Vertical
2397.20	-78.42	-13.00	Vertical
3099.00	-82.69	-13.00	Vertical
3549.00	-80.89	-13.00	Vertical
4650.00	-87.55	-13.00	Vertical

LTE band 13

Test result:

ANT3 Channel 23230

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
1162.40	-80.43	-13.00	Vertical
1513.80	-76.81	-13.00	Vertical
2356.60	-79.00	-13.00	Vertical
3099.00	-82.69	-13.00	Vertical
3597.00	-80.96	-13.00	Vertical
4713.00	-87.83	-13.00	Vertical

LTE band 17

Test result:

ANT3 Channel 23790

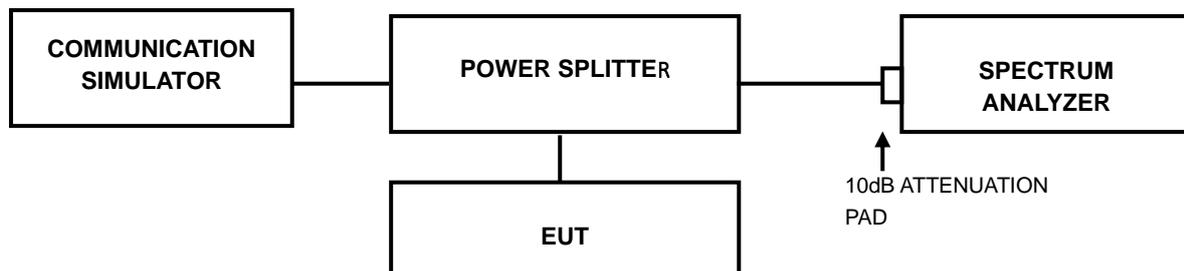
Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
1148.40	-80.59	-13.00	Vertical
1532.00	-77.30	-13.00	Vertical
2442.33	-78.20	-13.00	Vertical
3123.00	-82.70	-13.00	Vertical
3516.00	-80.86	-13.00	Vertical
4653.00	-87.79	-13.00	Vertical

### 3.7 PEAK TO AVERAGE RATIO

#### 3.7.1 LIMITS OF PEAK TO AVERAGE RATIO MEASUREMENT

In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13 dB

#### 3.7.2 TEST SETUP



#### 3.7.3 TEST PROCEDURES

1. Set resolution/measurement bandwidth  $\geq$  signal's occupied bandwidth;
2. Set the number of counts to a value that stabilizes the measured CCDF curve;
3. Record the maximum PAPR level associated with a probability of 0.1%.

#### 3.7.4 TEST RESULTS

Please Refer to Appendix Of this test report.



Test Report No.: PSU-NQN2504150110RF04

## 4 INFORMATION ON THE TESTING LABORATORIES

We, Huarui 7layers High Technology (Suzhou) Co., Ltd. ,were founded in 2020 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

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

Lab Address:

Tower N, Innovation Center, 88 Zuyi Road, High-tech District, Suzhou City, Anhui Province  
Accredited Test Lab Cert 6613.01

If you have any comments, please feel free to contact us at the following:

**Suzhou EMC/RF Lab:**

Tel: +86 (0557) 368 1008

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

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

## 6 APPENDIX

### LTE BAND7

### PEAK-TO-AVERAGE RATIO (CCDF)

#### Test Result

B7\_5MHz

Band: 7 / Bandwidth: 5MHz / NTN						
Modulation	Frequency (MHz)	RB Allocation		Peak-Average Ratio (dB)		Verdict
		Size	Offset	Result	Limit	
QPSK	2502.5	25	0	4.46	<=13	Pass
	2535	25	0	4.40	<=13	Pass
	2567.5	25	0	4.38	<=13	Pass
16QAM	2502.5	25	0	5.38	<=13	Pass
	2535	25	0	5.40	<=13	Pass
	2567.5	25	0	5.36	<=13	Pass
64QAM	2502.5	25	0	5.42	<=13	Pass
	2535	25	0	5.40	<=13	Pass
	2567.5	25	0	5.36	<=13	Pass

B7\_10MHz

Band: 7 / Bandwidth: 10MHz / NTN						
Modulation	Frequency (MHz)	RB Allocation		Peak-Average Ratio (dB)		Verdict
		Size	Offset	Result	Limit	
QPSK	2505	50	0	4.40	<=13	Pass
	2535	50	0	4.42	<=13	Pass
	2565	50	0	4.40	<=13	Pass
16QAM	2505	50	0	5.34	<=13	Pass
	2535	50	0	5.38	<=13	Pass
	2565	50	0	5.36	<=13	Pass
64QAM	2505	50	0	5.42	<=13	Pass
	2535	50	0	5.38	<=13	Pass
	2565	50	0	5.40	<=13	Pass

B7\_15MHz

Band: 7 / Bandwidth: 15MHz / NTN						
Modulation	Frequency (MHz)	RB Allocation		Peak-Average Ratio (dB)		Verdict
		Size	Offset	Result	Limit	
QPSK	2507.5	75	0	4.44	<=13	Pass
	2535	75	0	4.38	<=13	Pass
	2562.5	75	0	4.42	<=13	Pass
16QAM	2507.5	75	0	5.24	<=13	Pass
	2535	75	0	5.28	<=13	Pass
	2562.5	75	0	5.34	<=13	Pass
64QAM	2507.5	75	0	5.24	<=13	Pass
	2535	75	0	5.32	<=13	Pass
	2562.5	75	0	5.30	<=13	Pass



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B7\_20MHz

Band: 7 / Bandwidth: 20MHz / NTN						
Modulation	Frequency (MHz)	RB Allocation		Peak-Average Ratio (dB)		Verdict
		Size	Offset	Result	Limit	
QPSK	2510	100	0	4.34	<=13	Pass
	2535	100	0	4.36	<=13	Pass
	2560	100	0	4.30	<=13	Pass
16QAM	2510	100	0	5.34	<=13	Pass
	2535	100	0	5.34	<=13	Pass
	2560	100	0	5.30	<=13	Pass
64QAM	2510	100	0	5.34	<=13	Pass
	2535	100	0	5.32	<=13	Pass
	2560	100	0	5.28	<=13	Pass

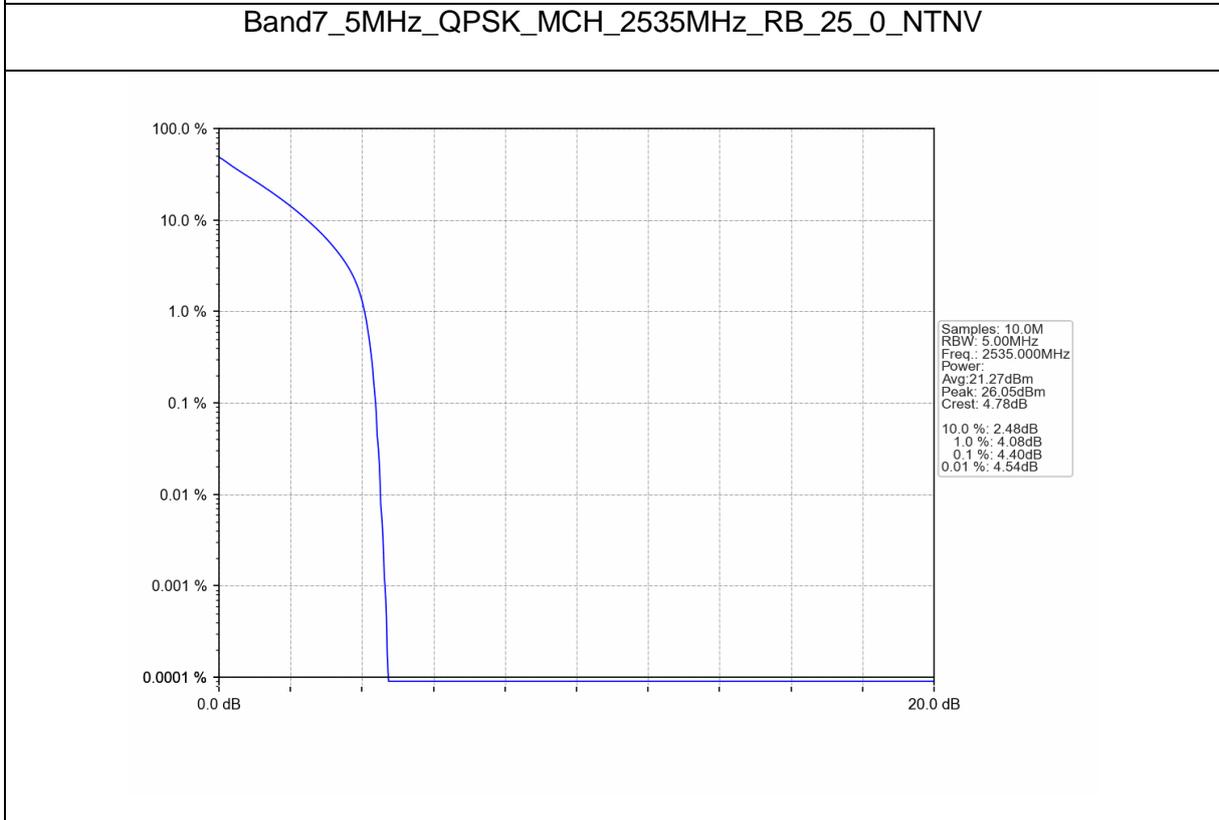
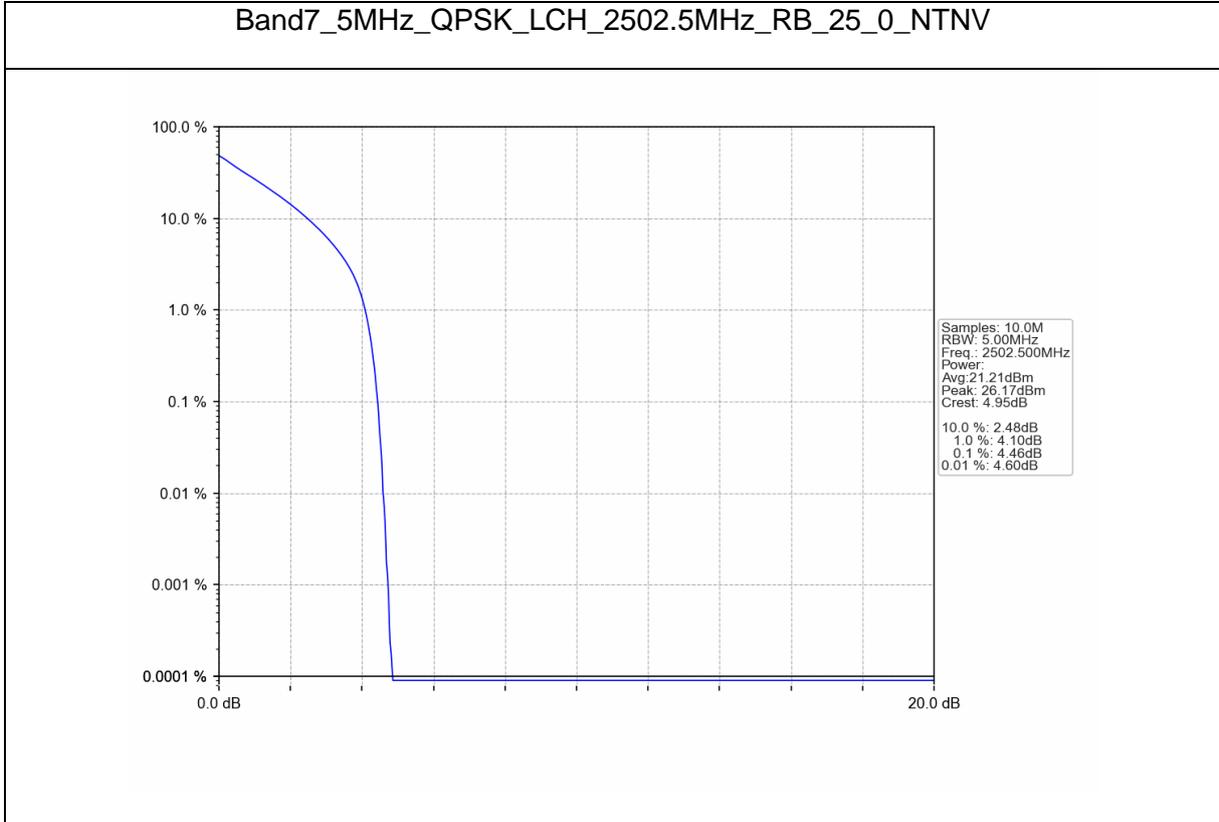


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Test Report No.: PSU-NQN2504150110RF04

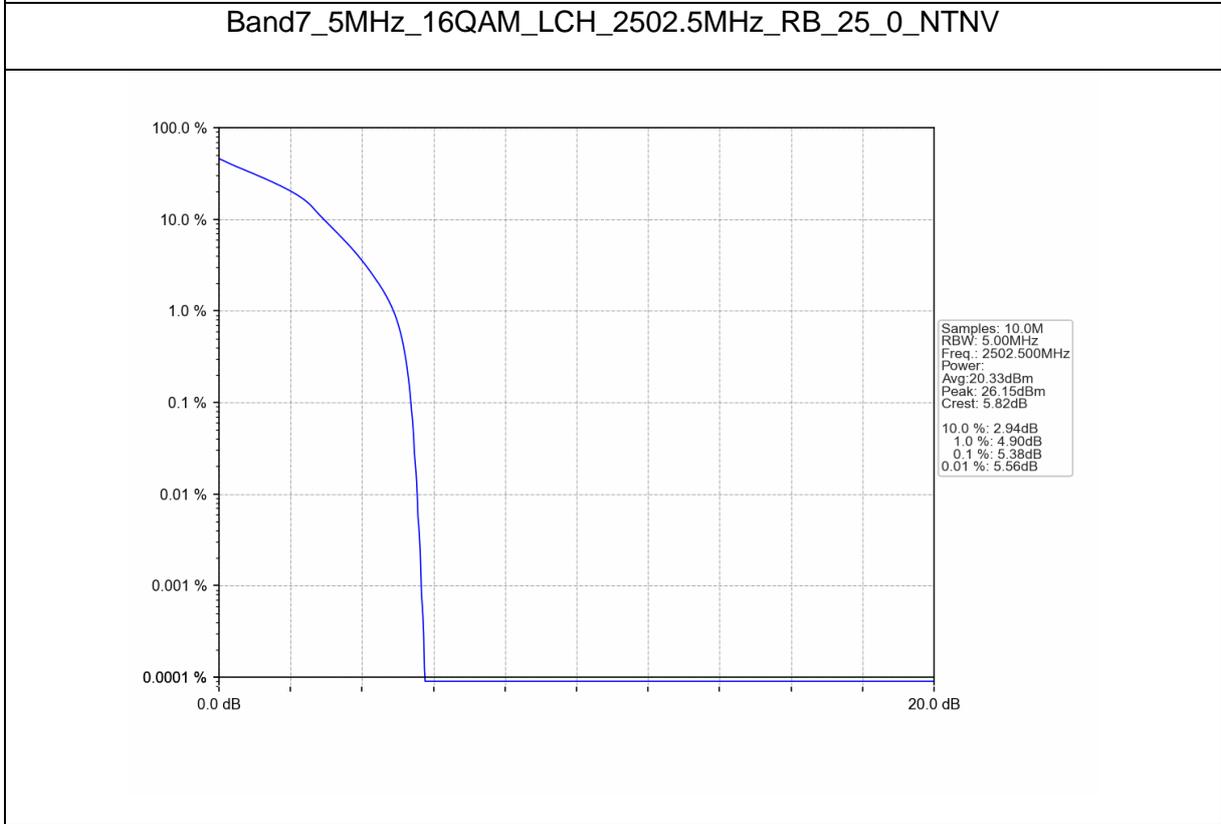
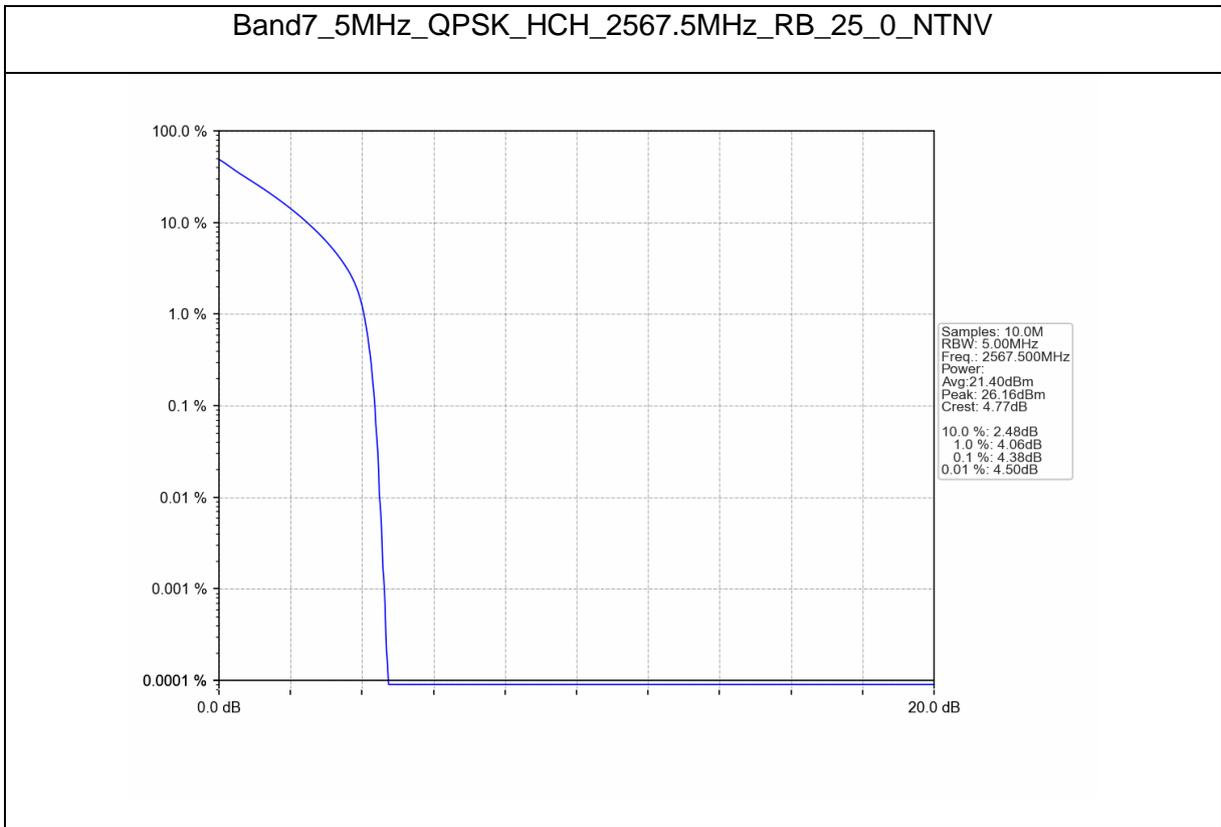
### Test Graphs

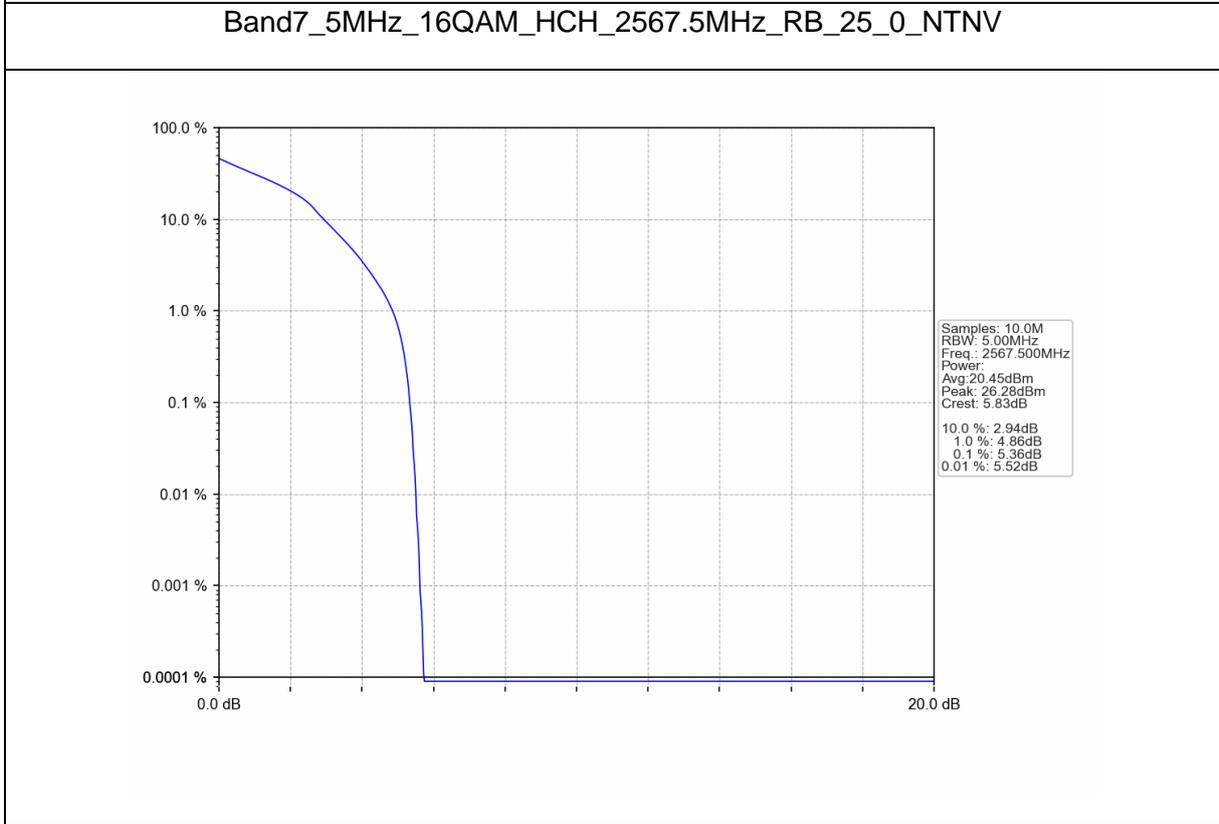
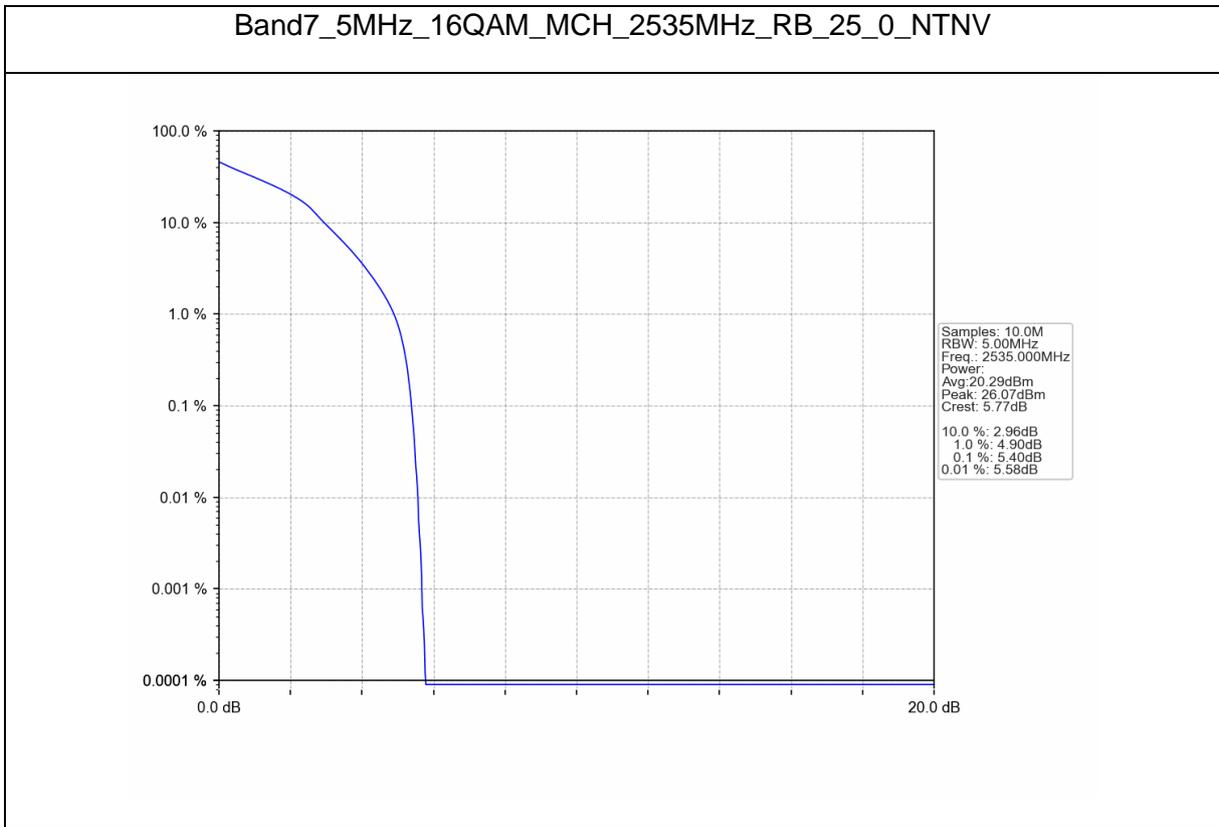
B7\_5MHz

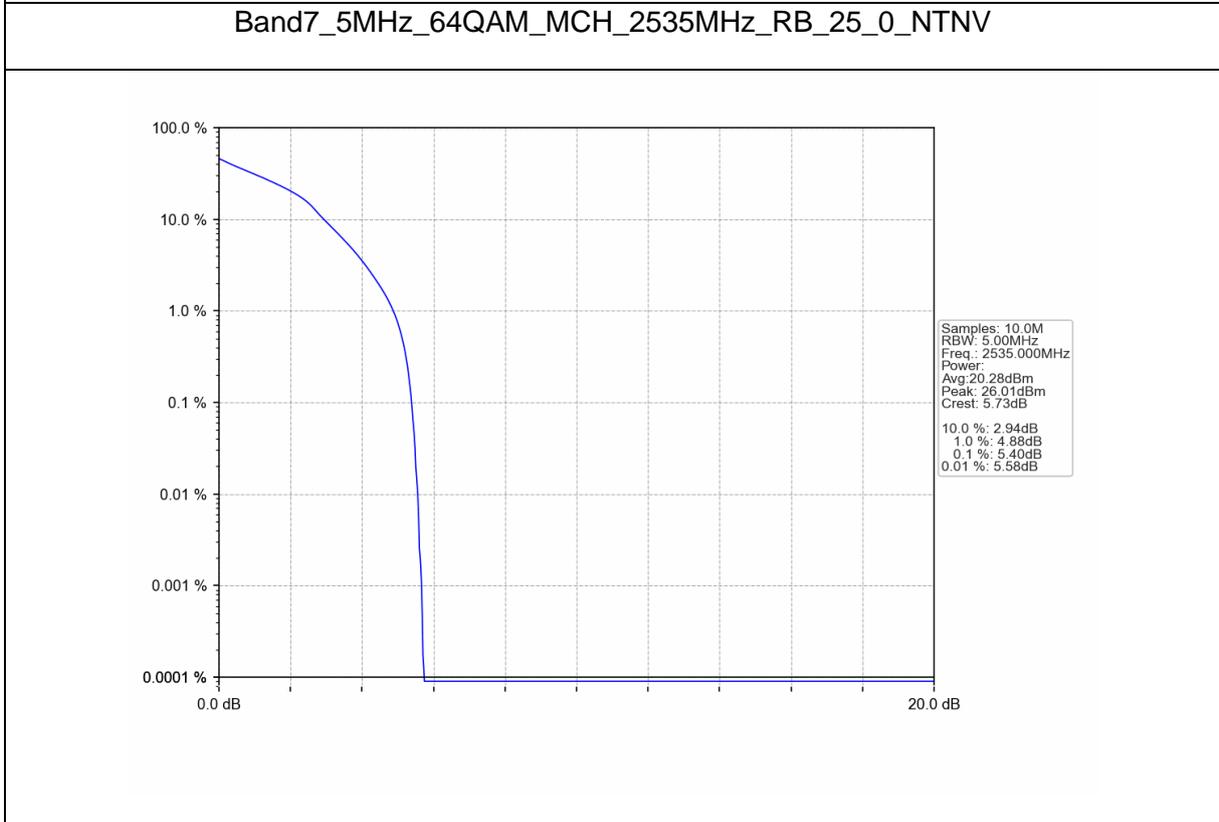
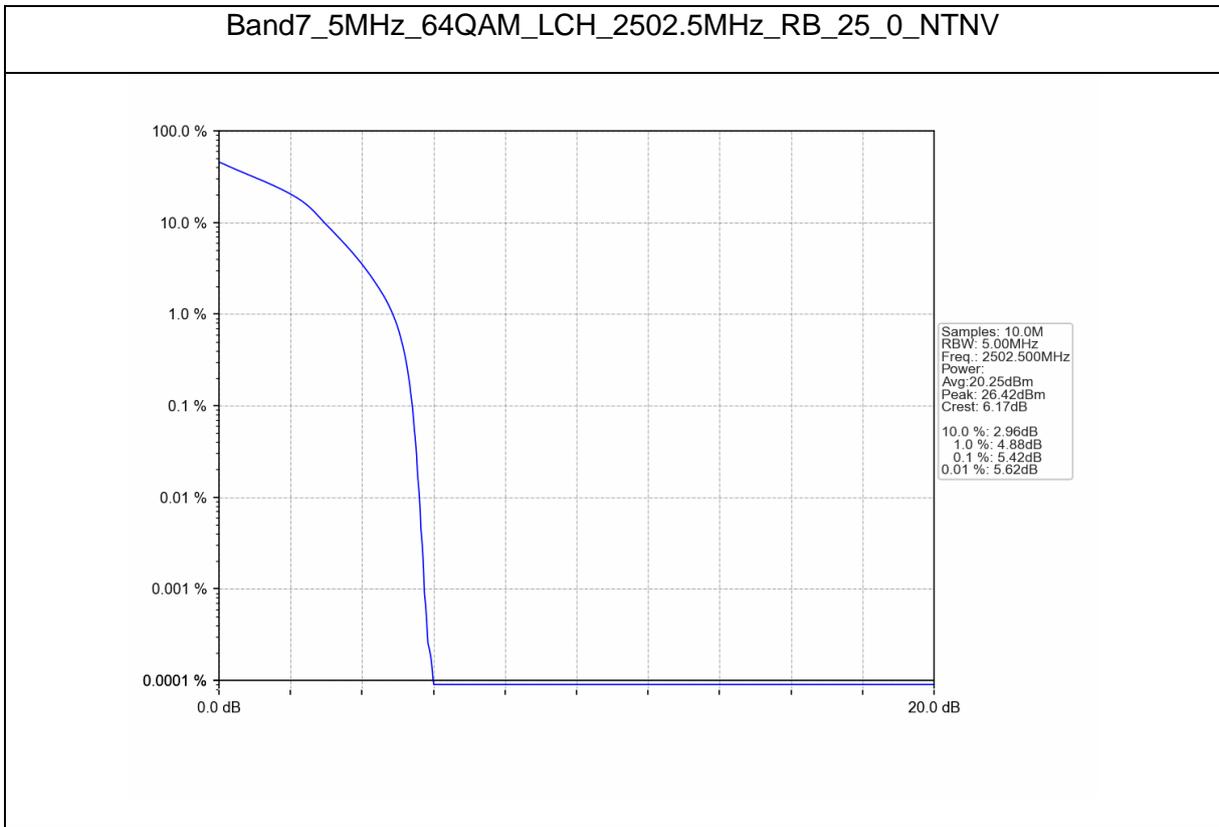


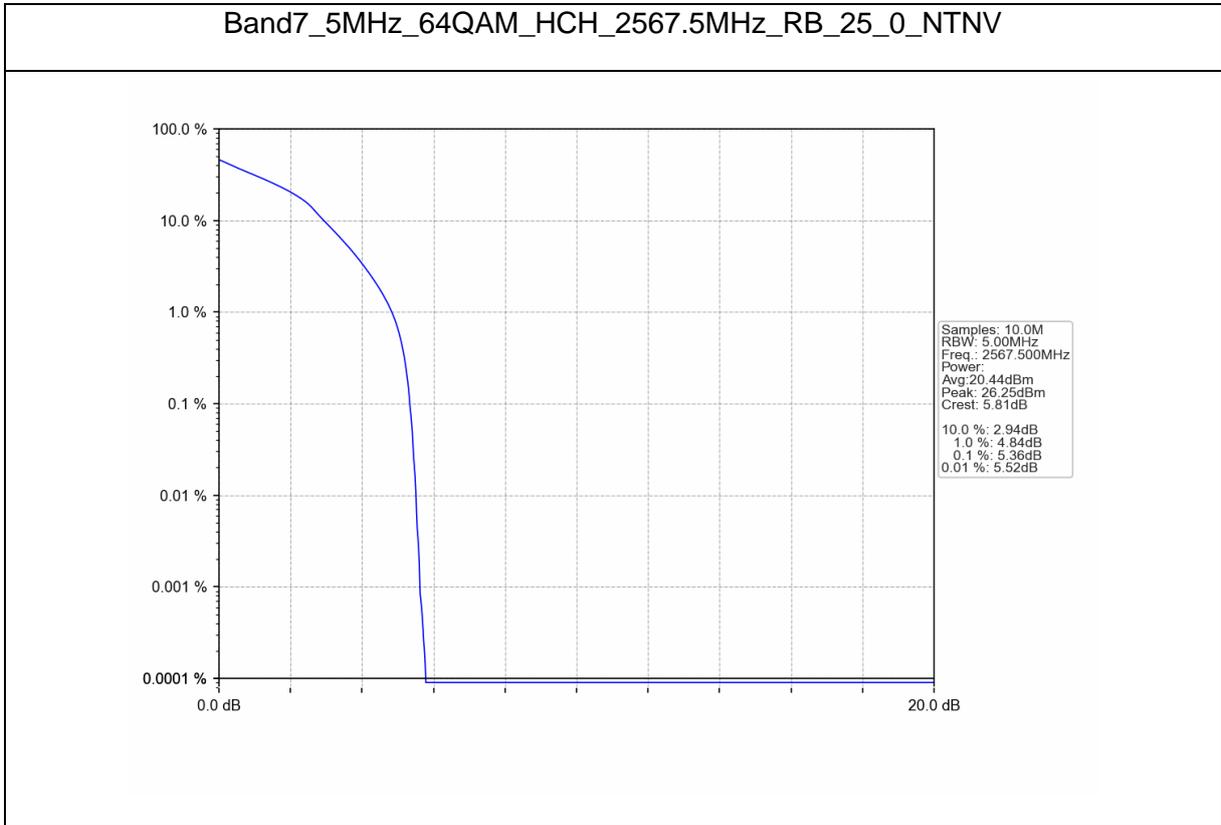


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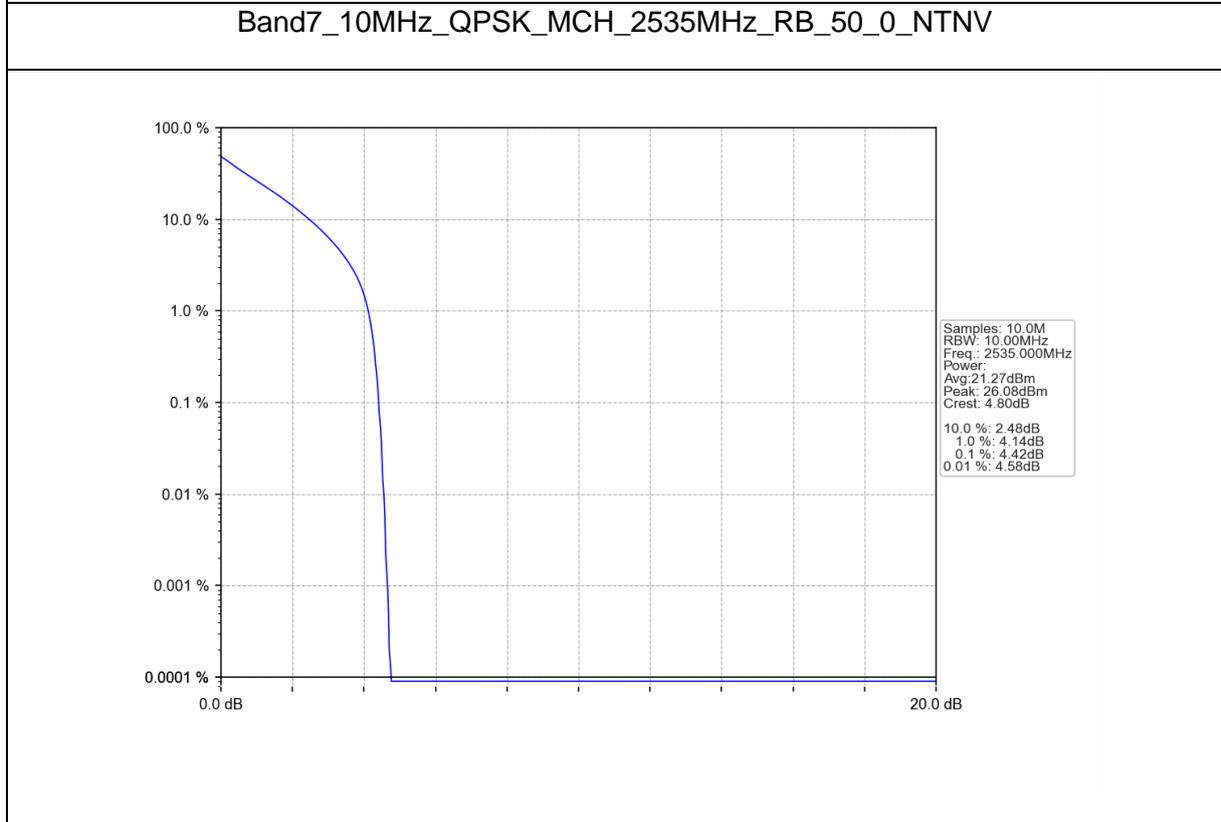
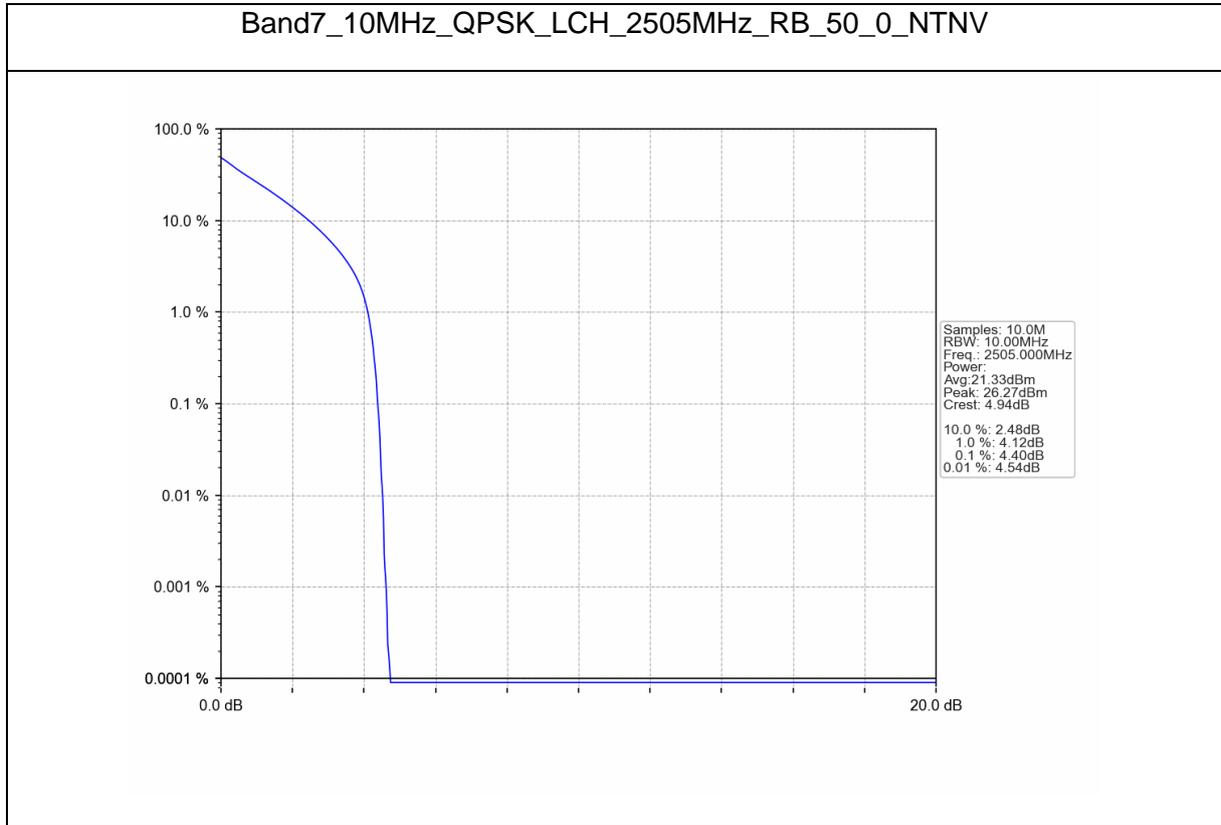


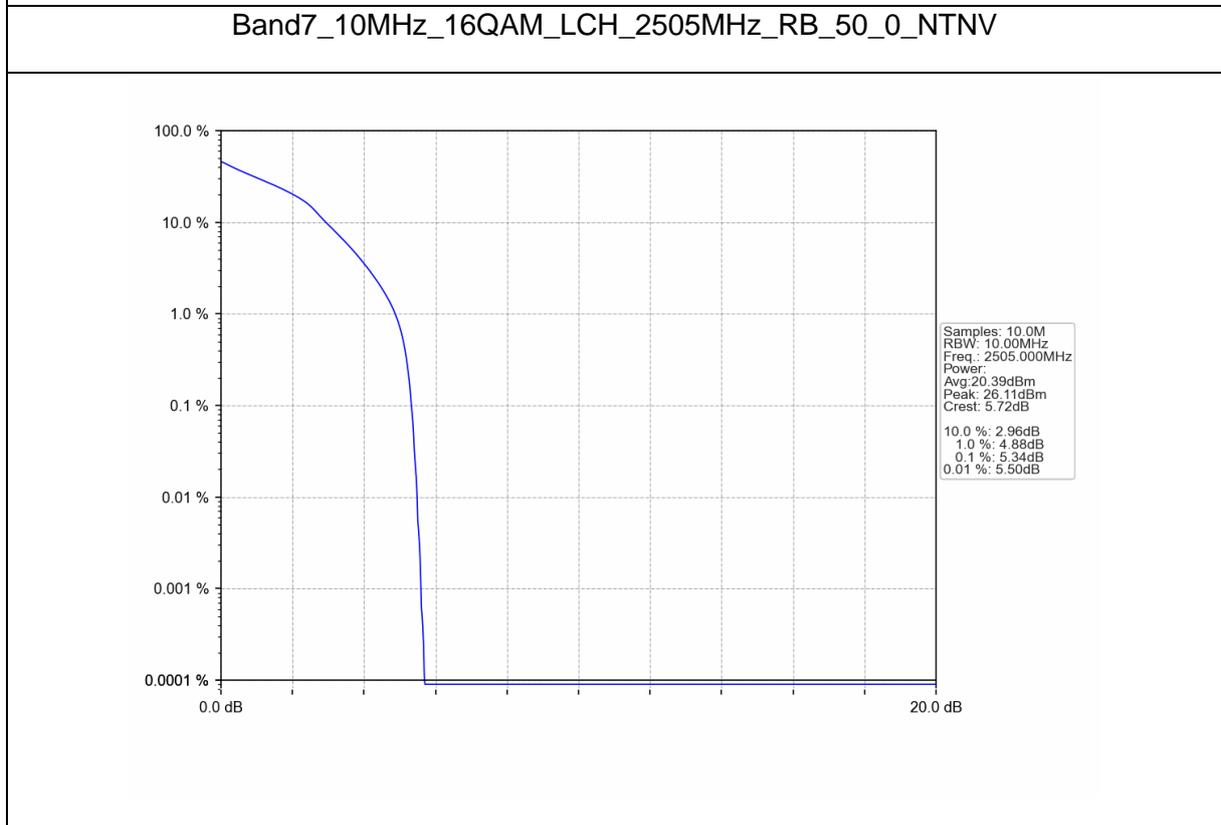
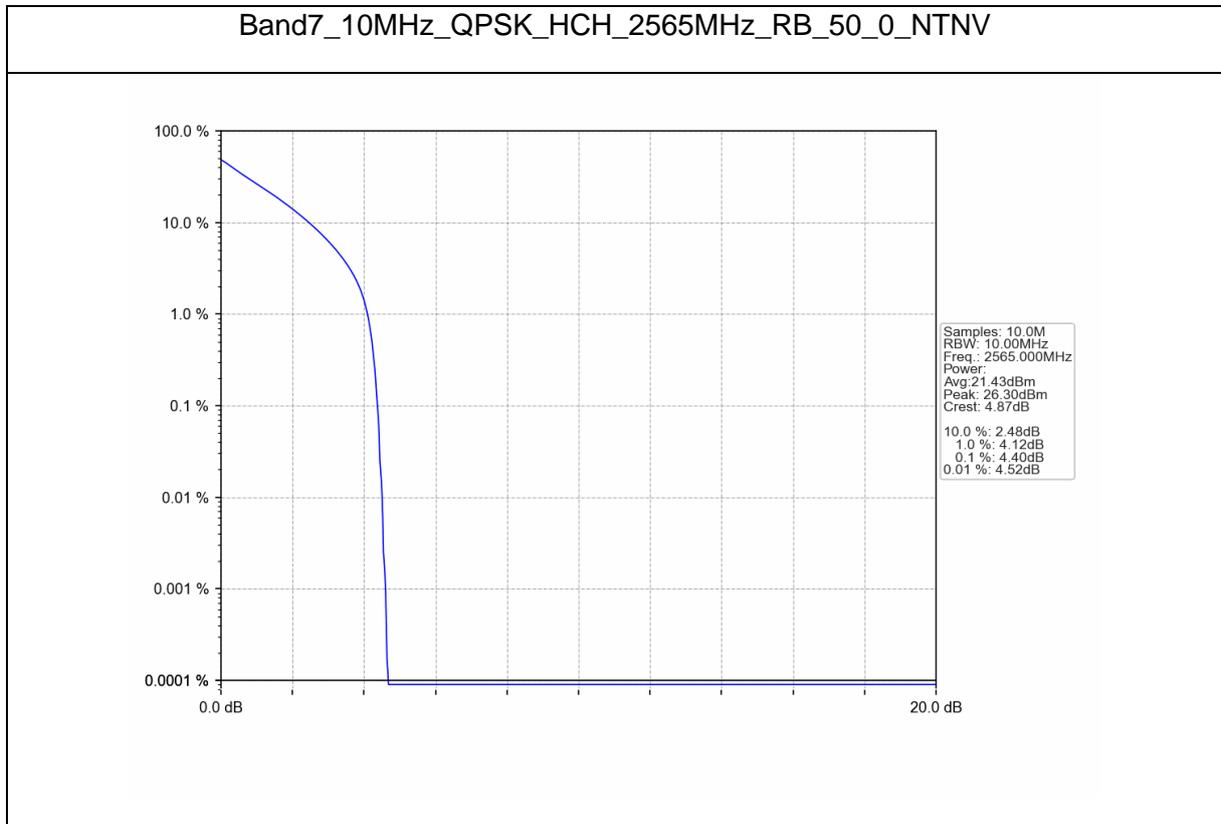


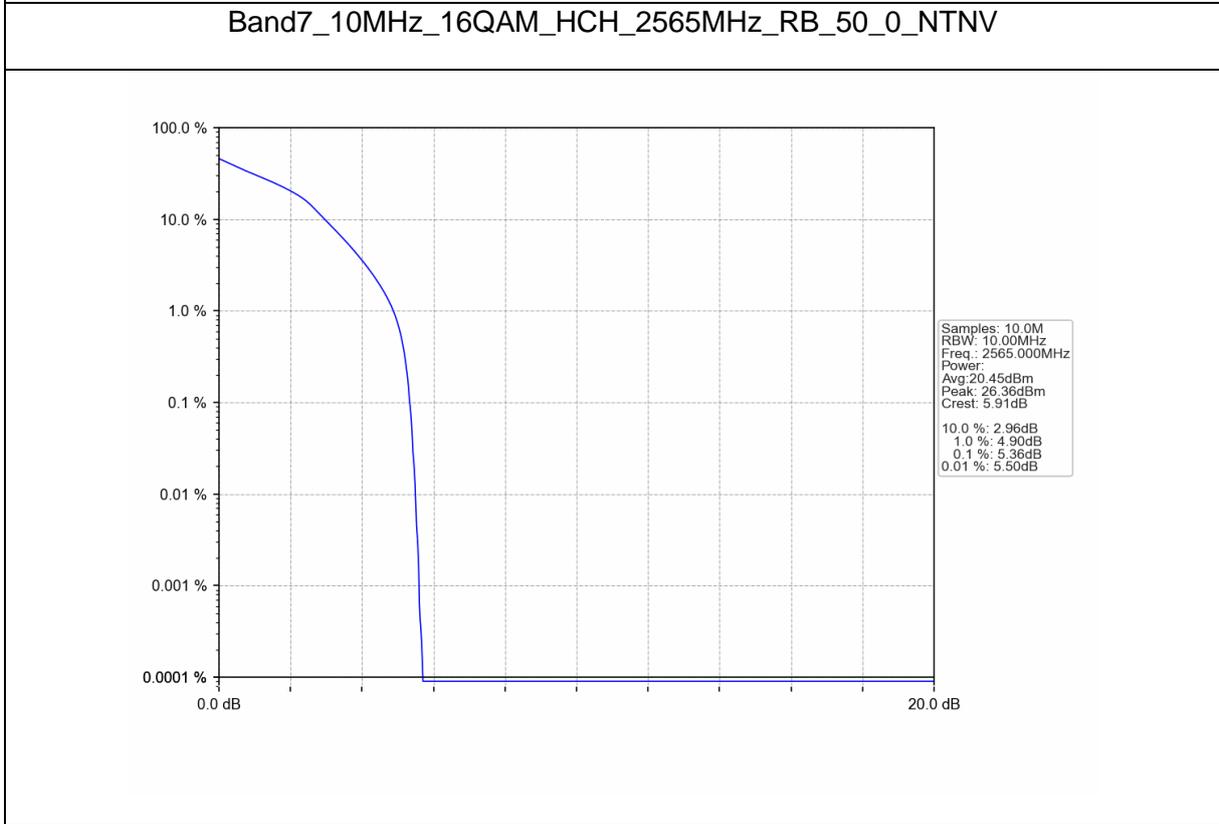
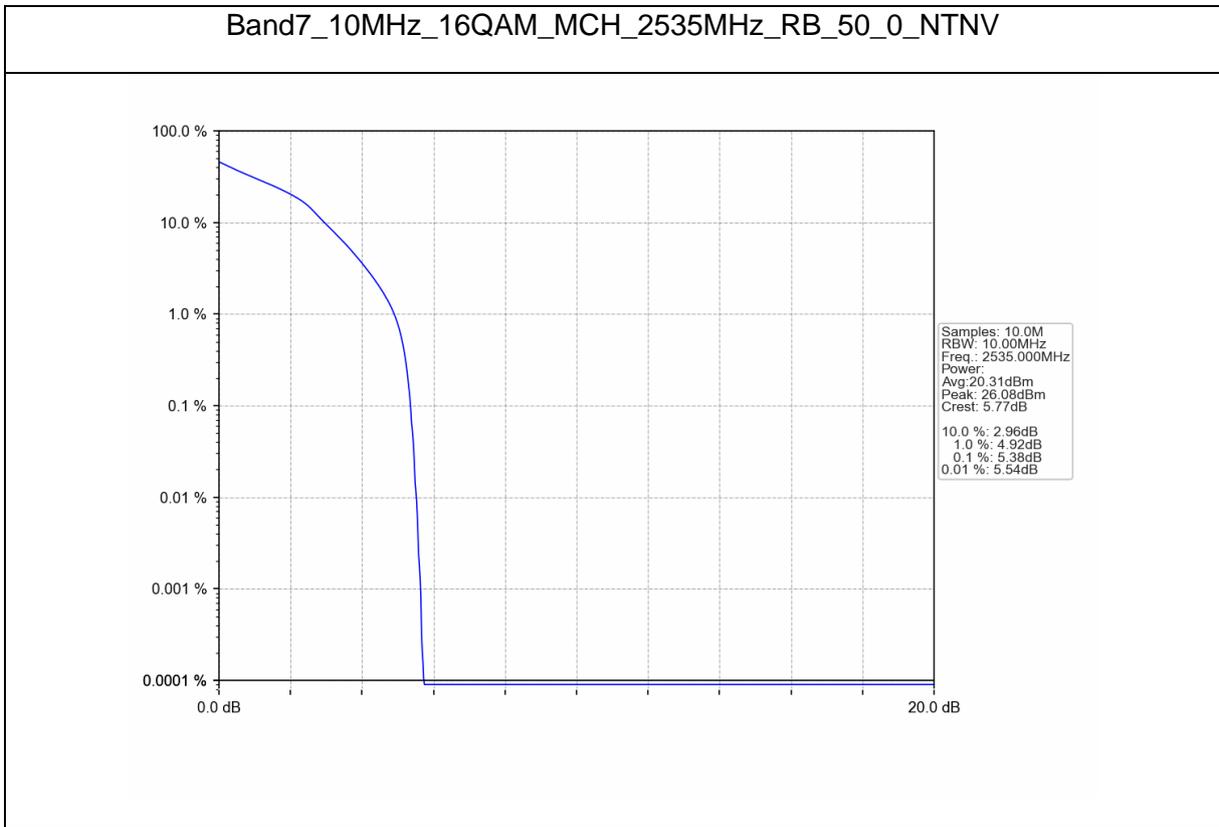
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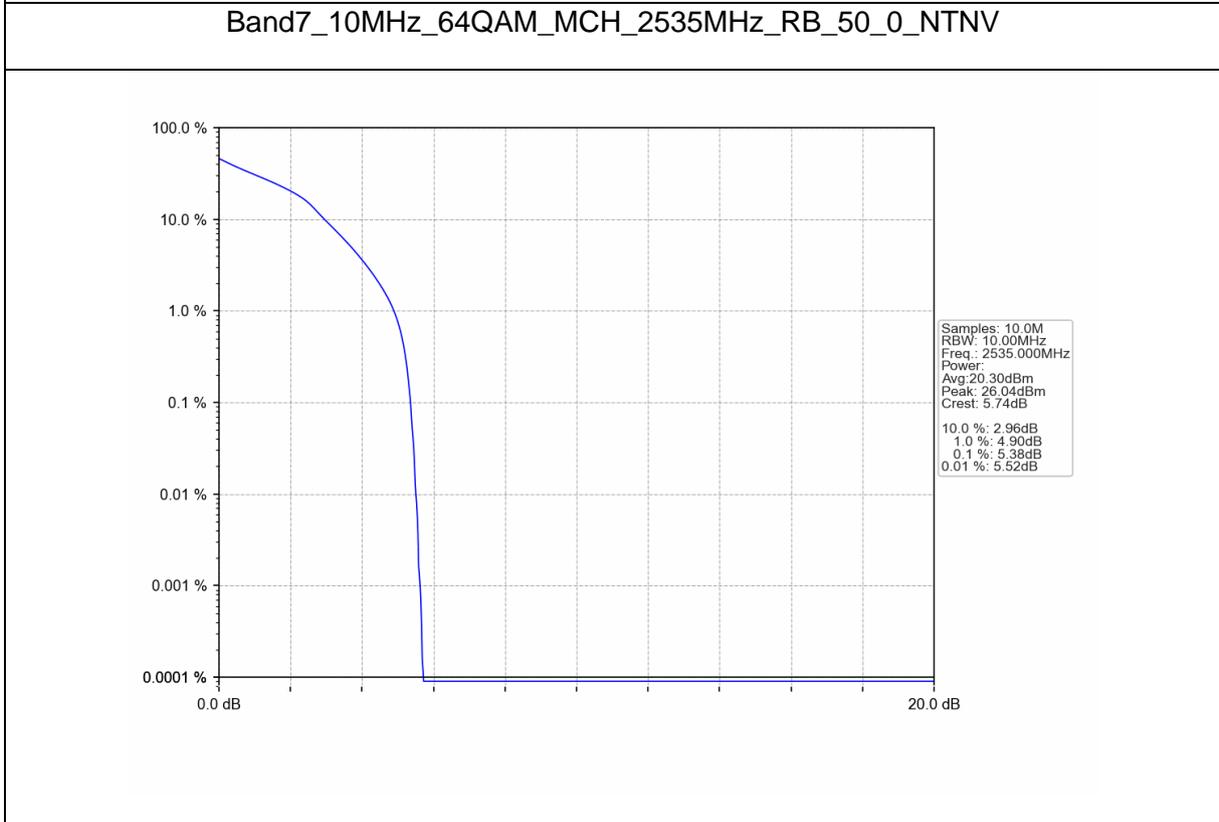
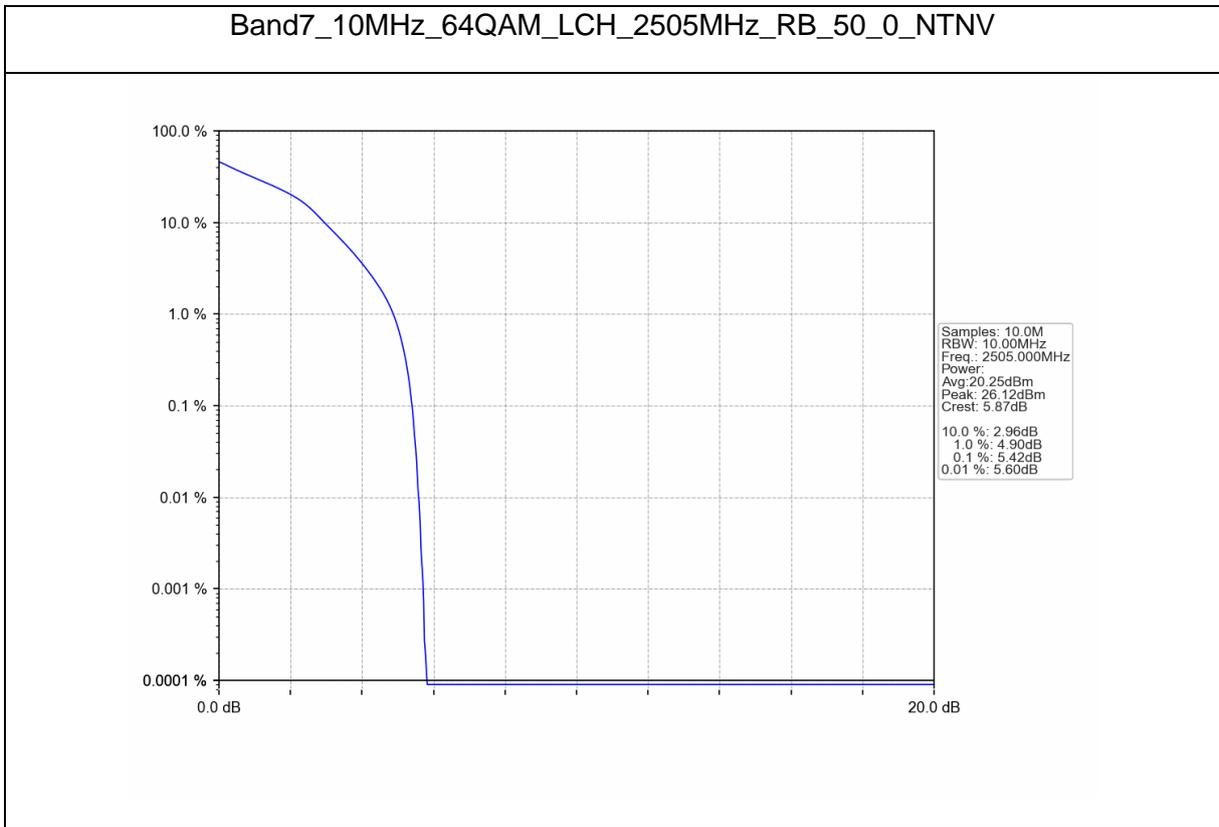
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B7\_10MHz



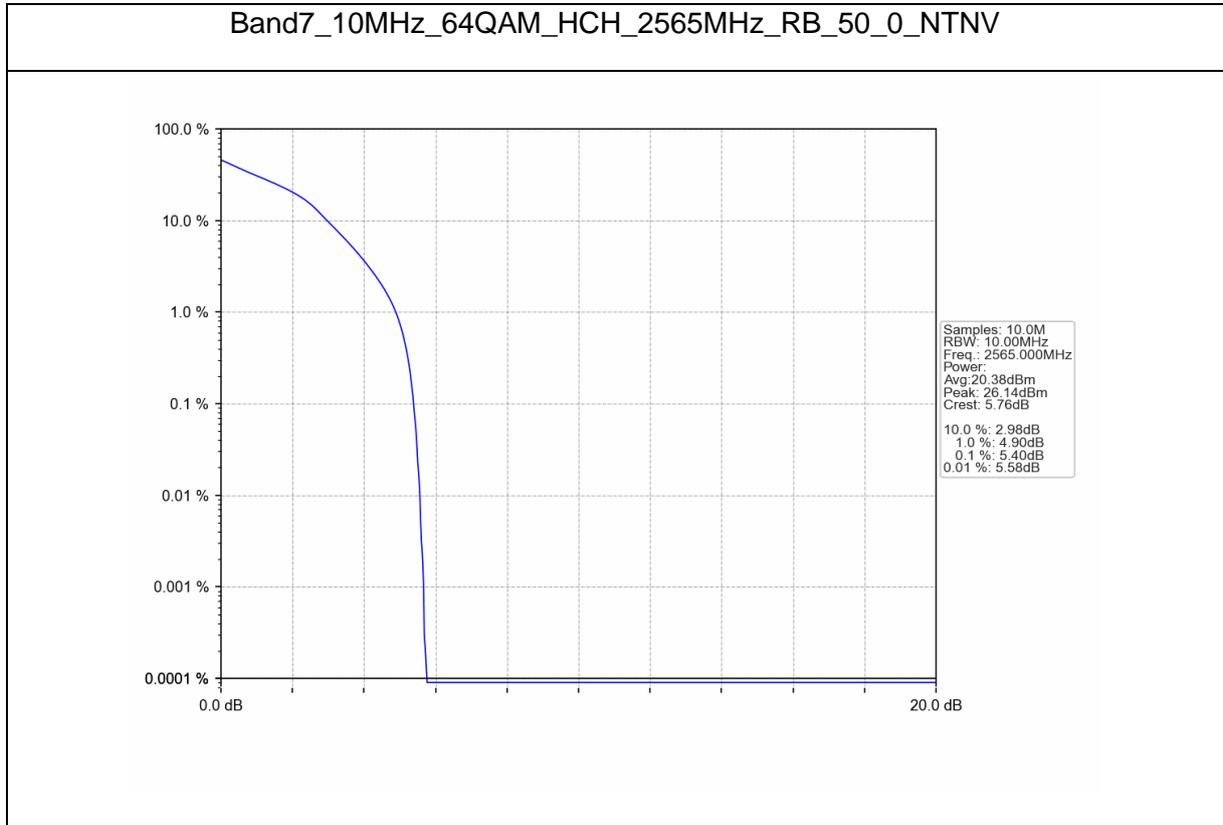








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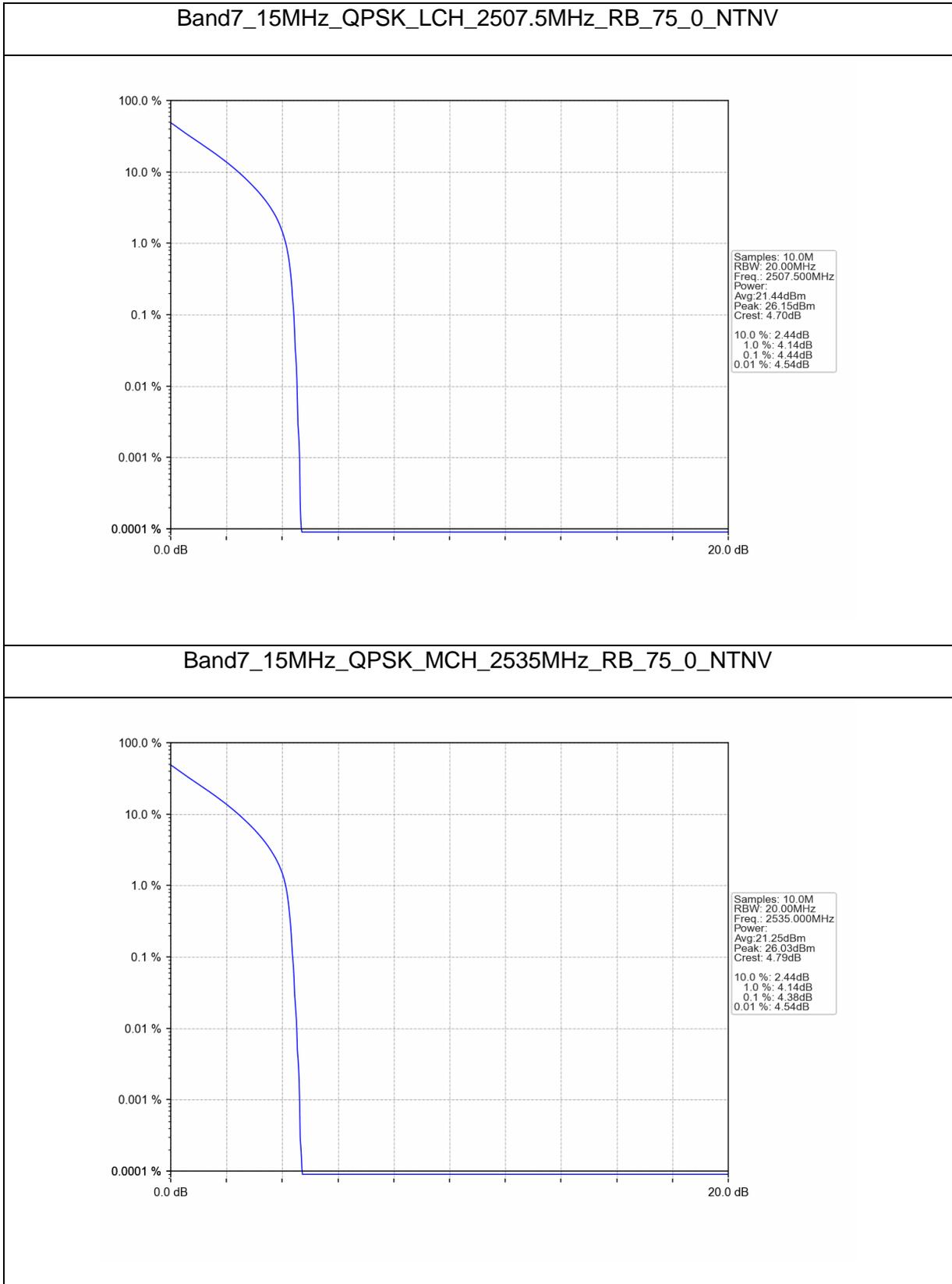




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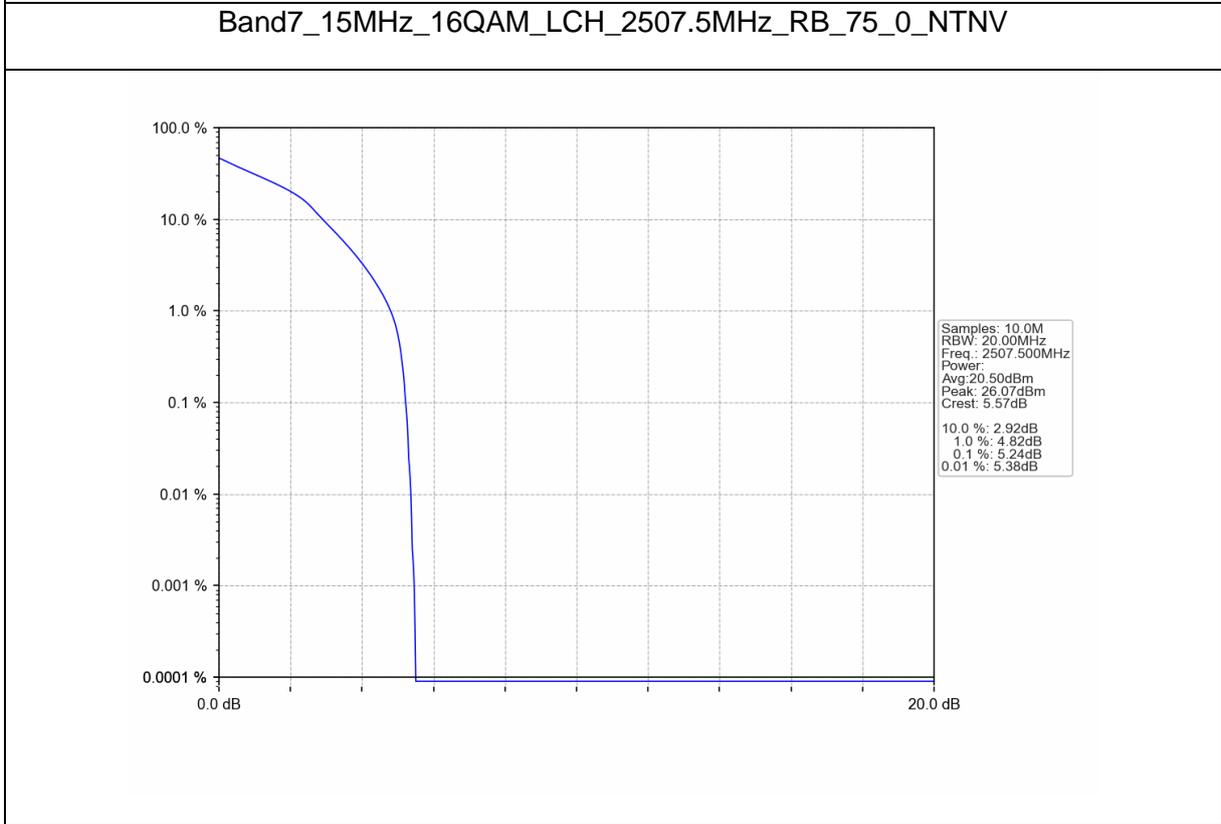
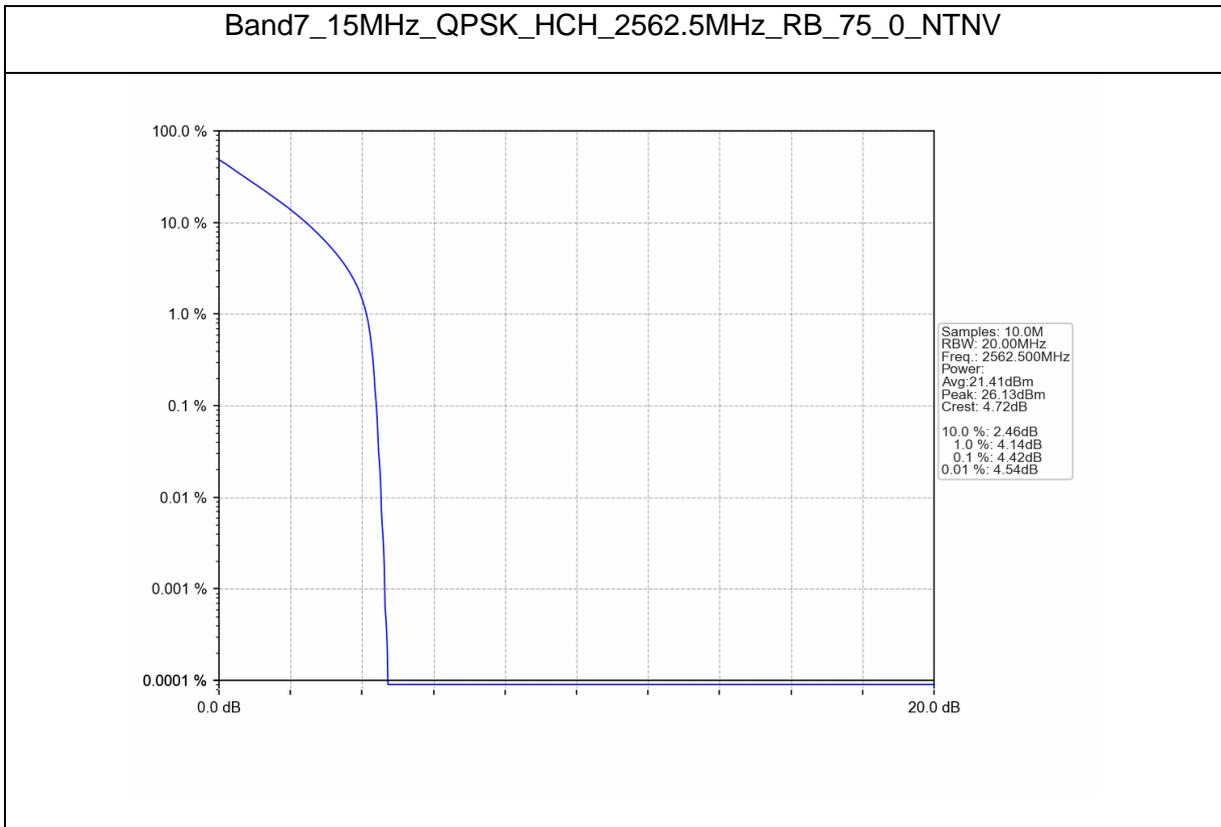
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B7\_15MHz



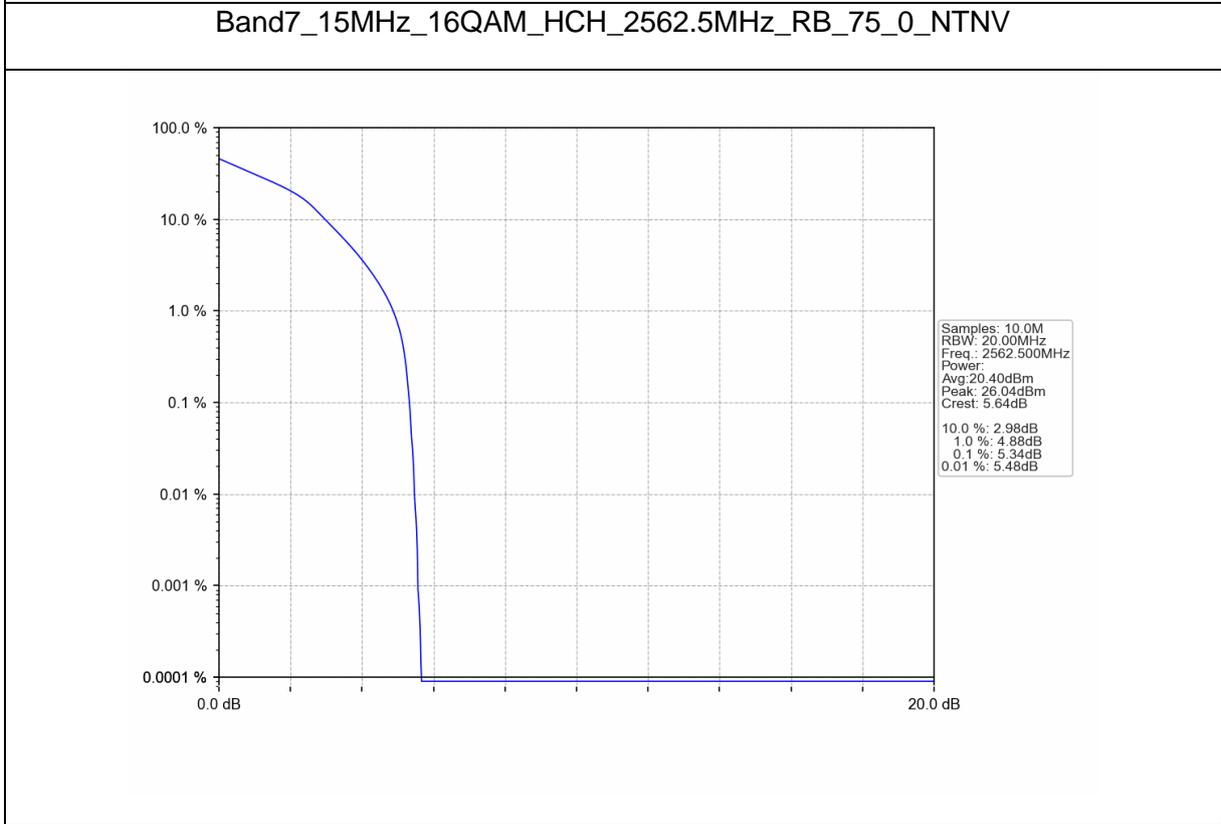
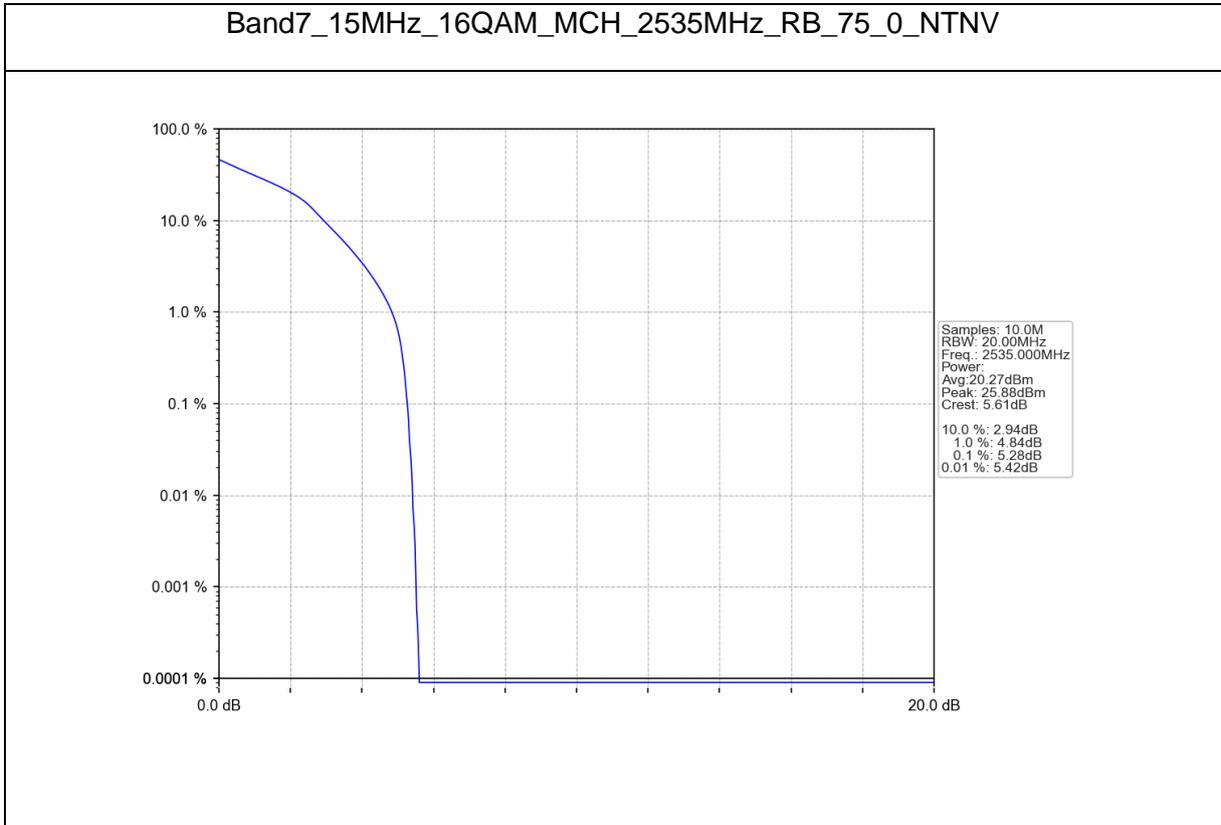


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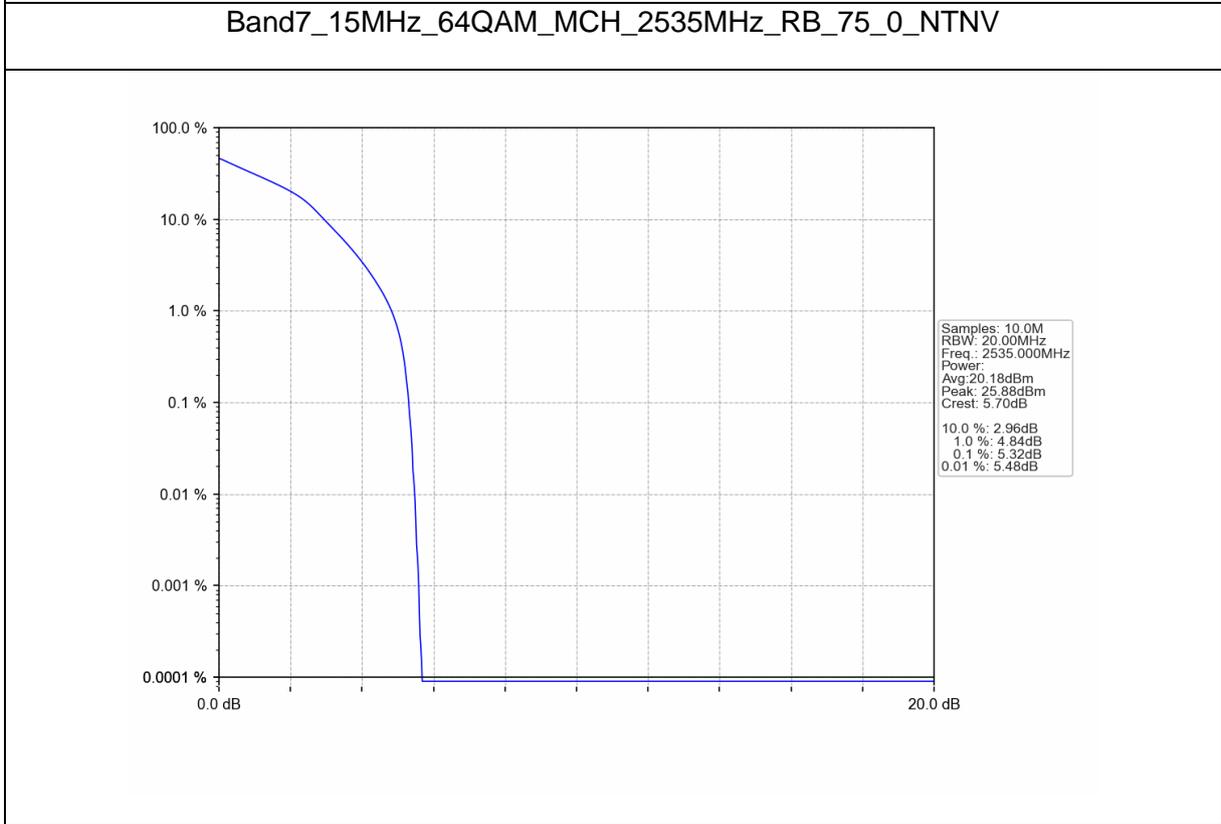
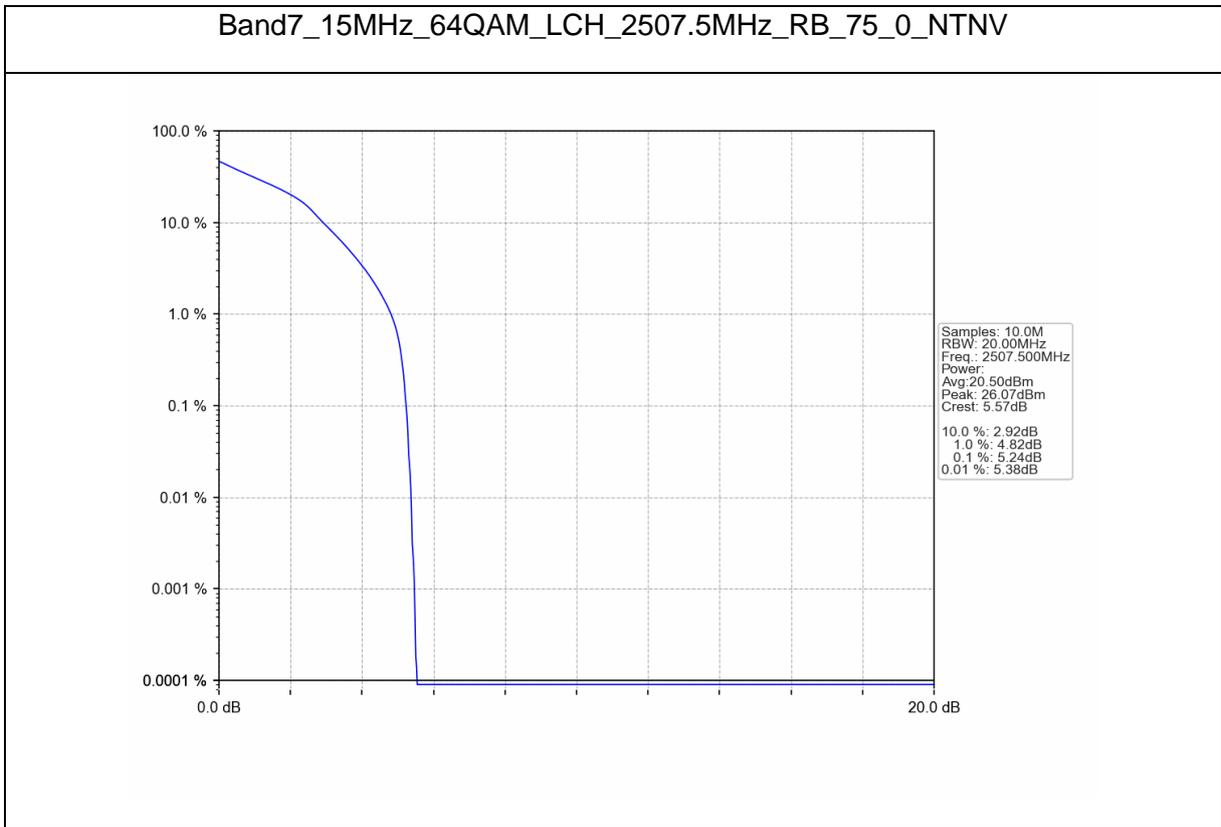


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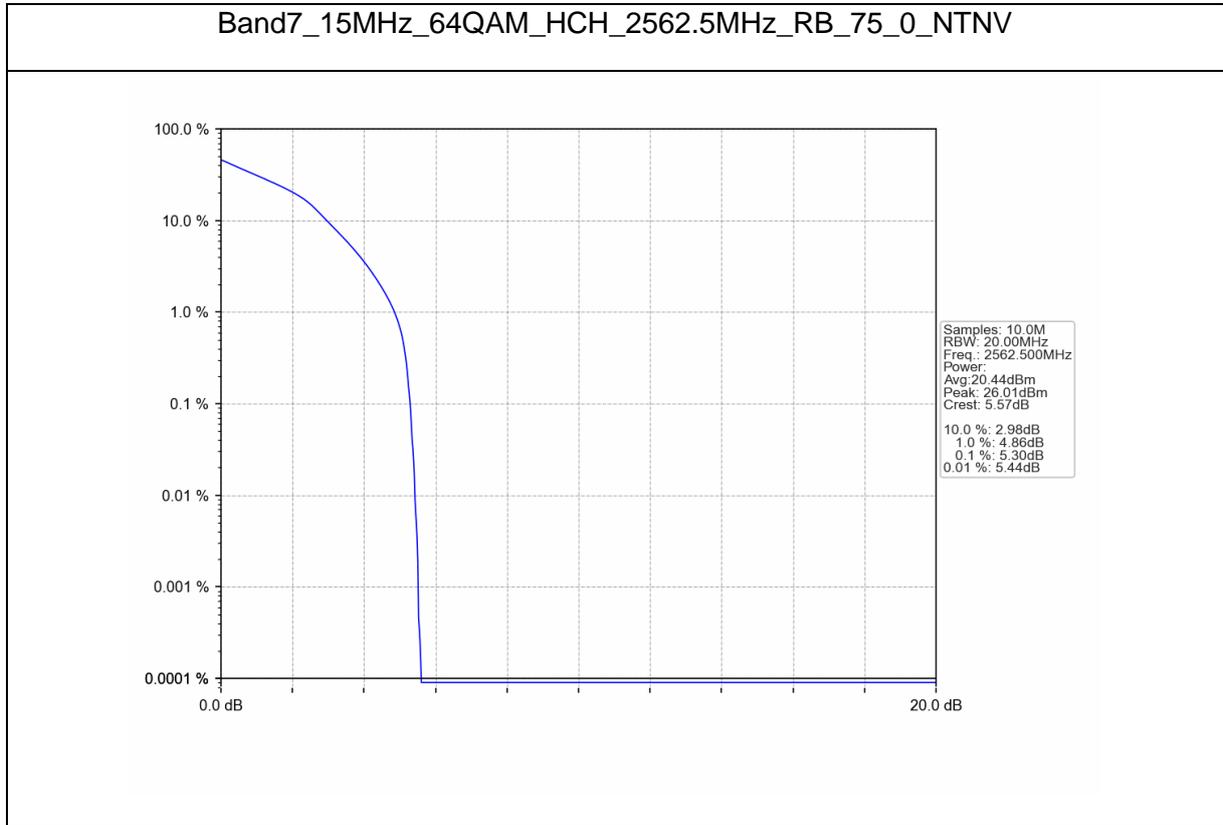


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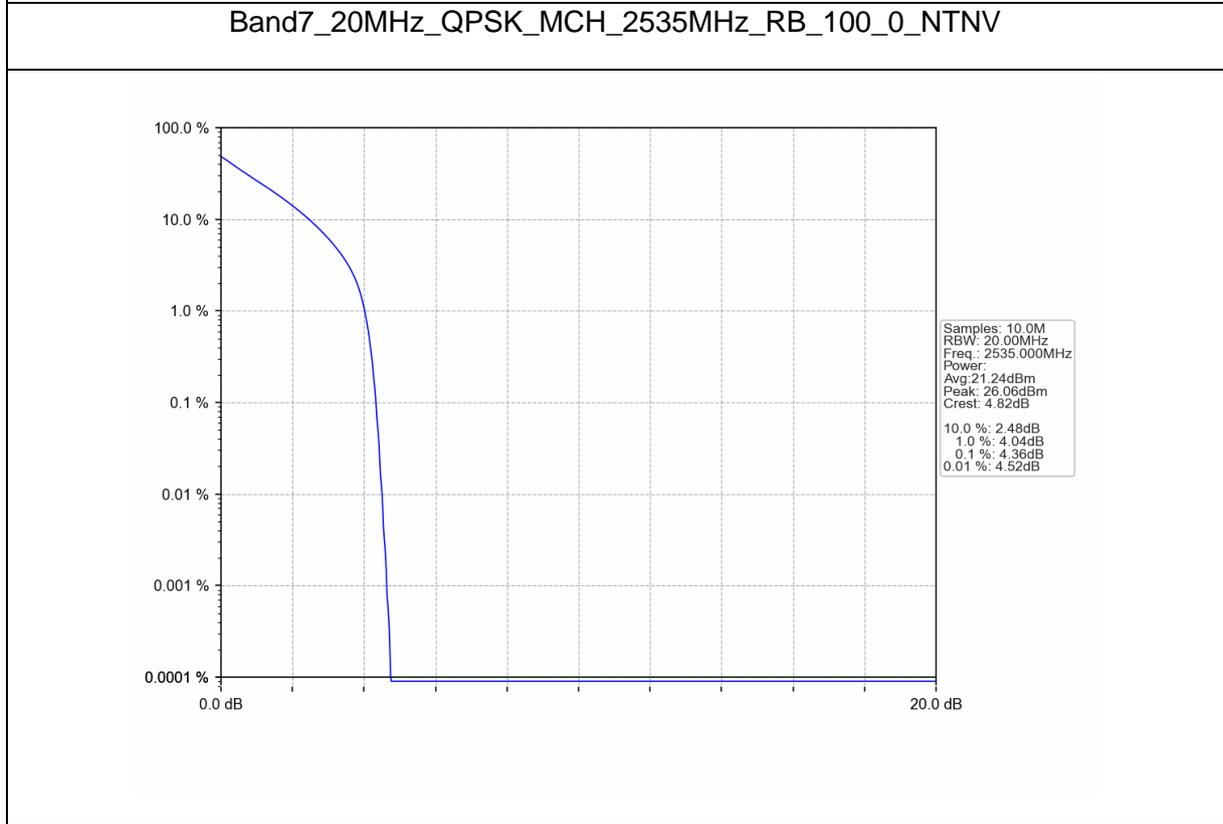
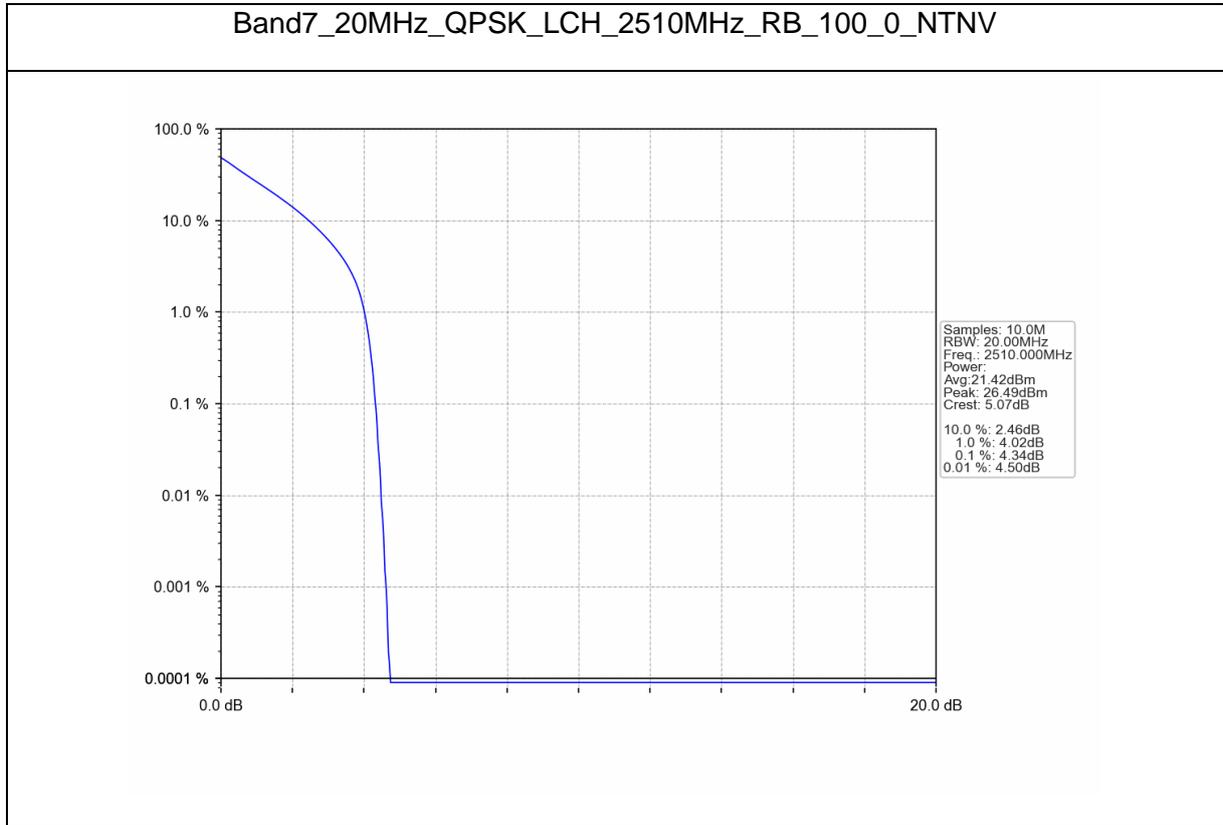


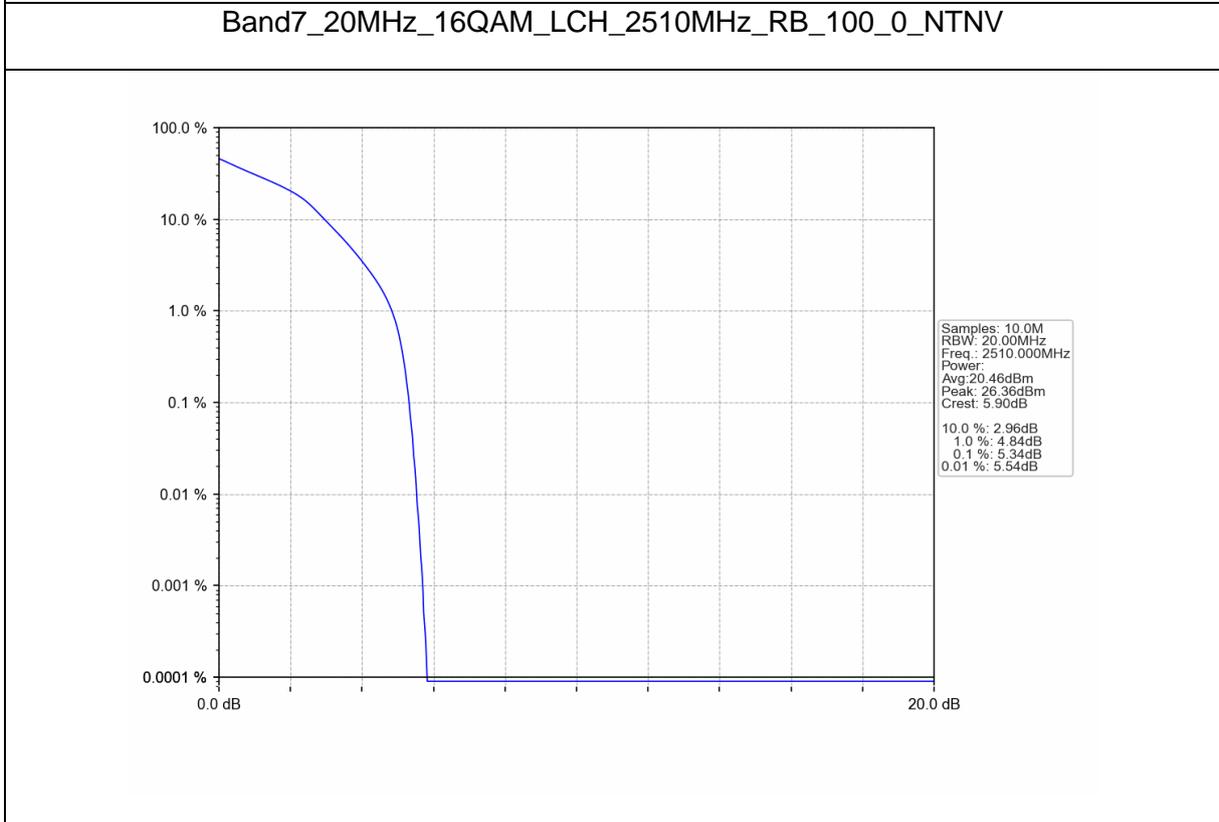
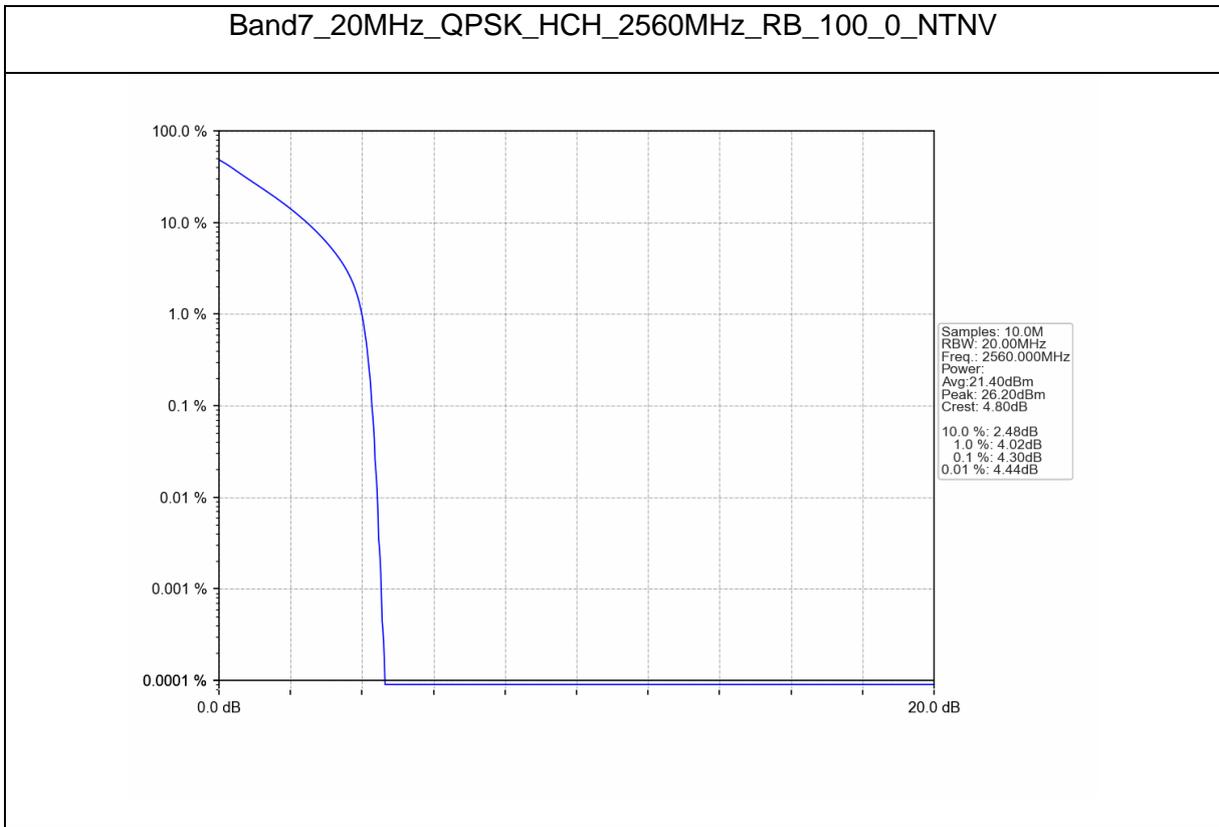


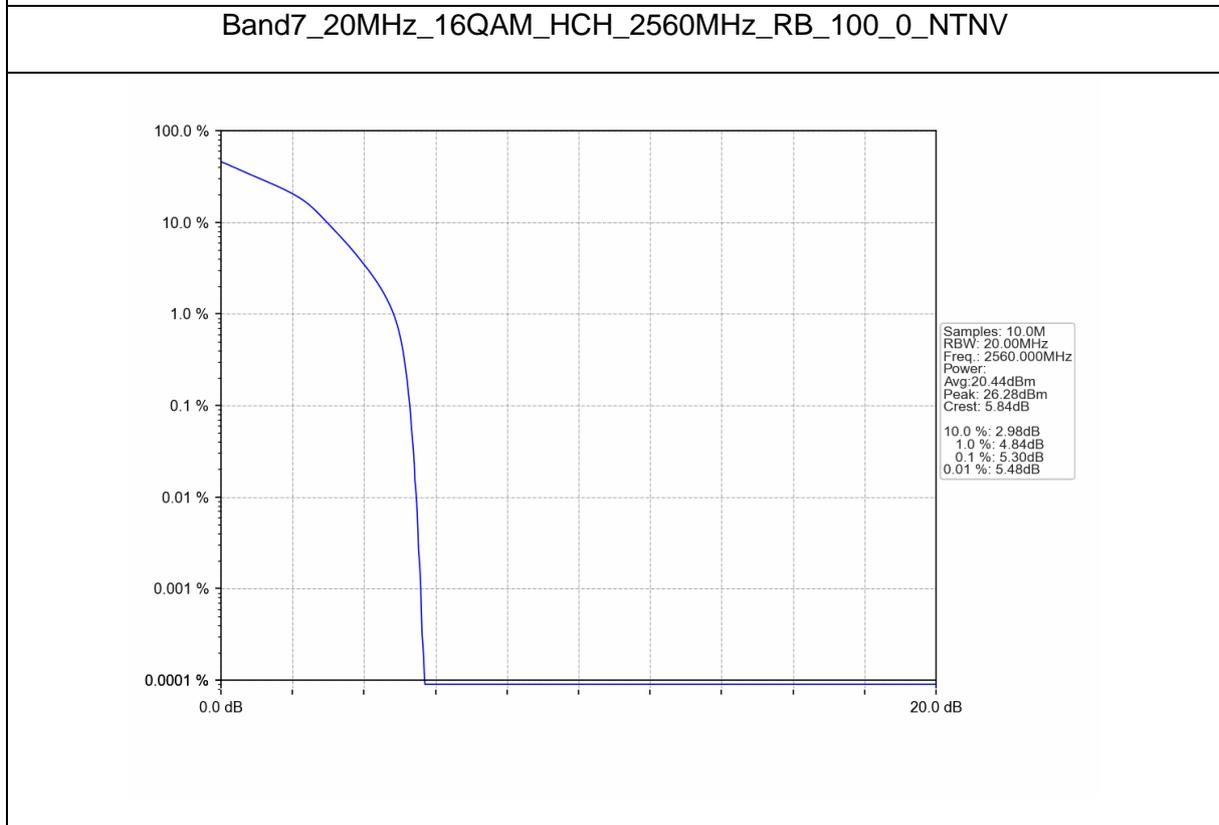
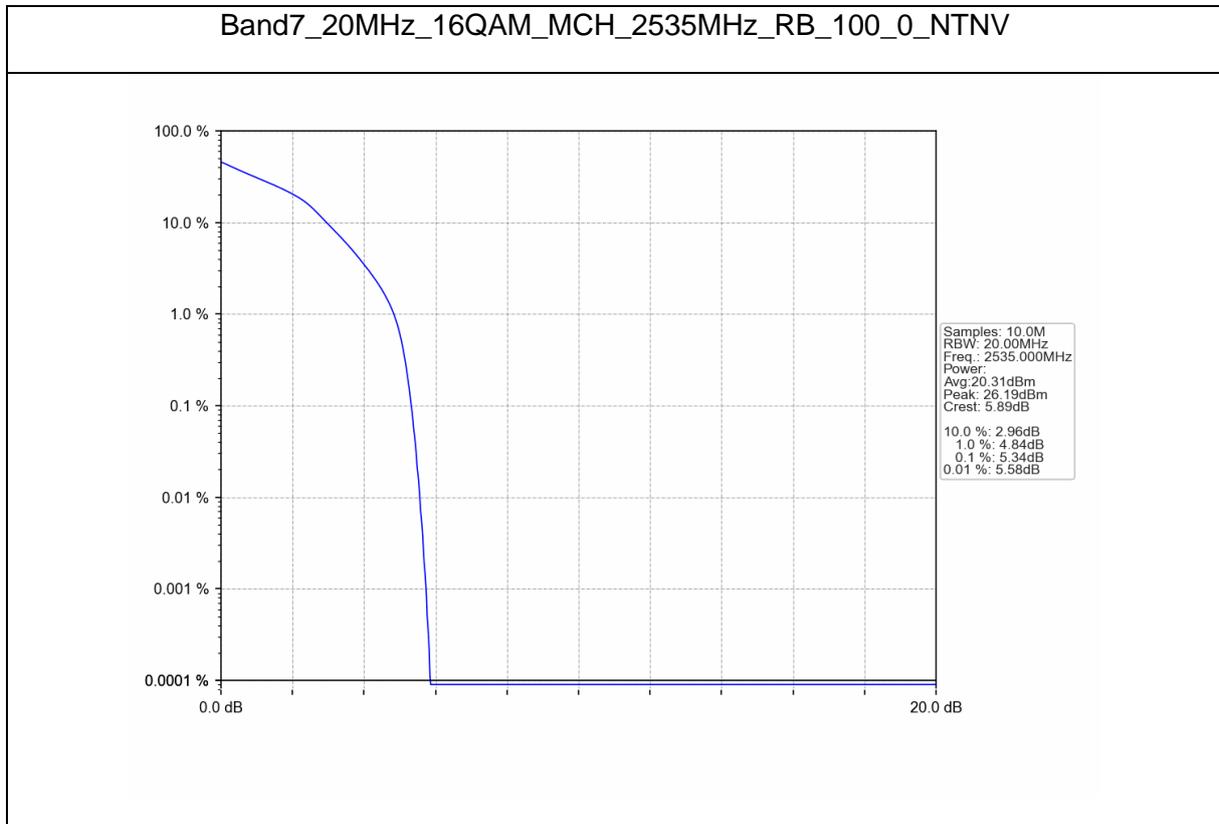
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Test Report No.: PSU-NQN2504150110RF04

B7\_20MHz

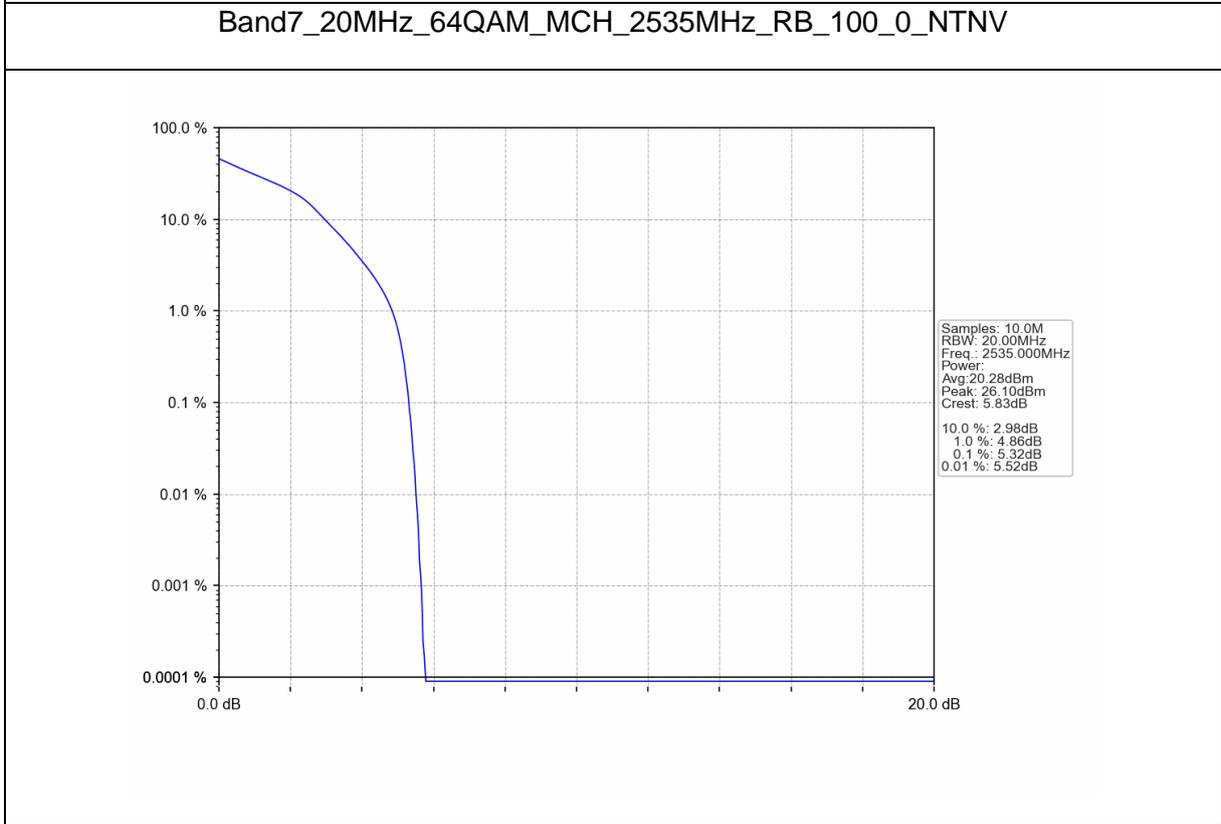
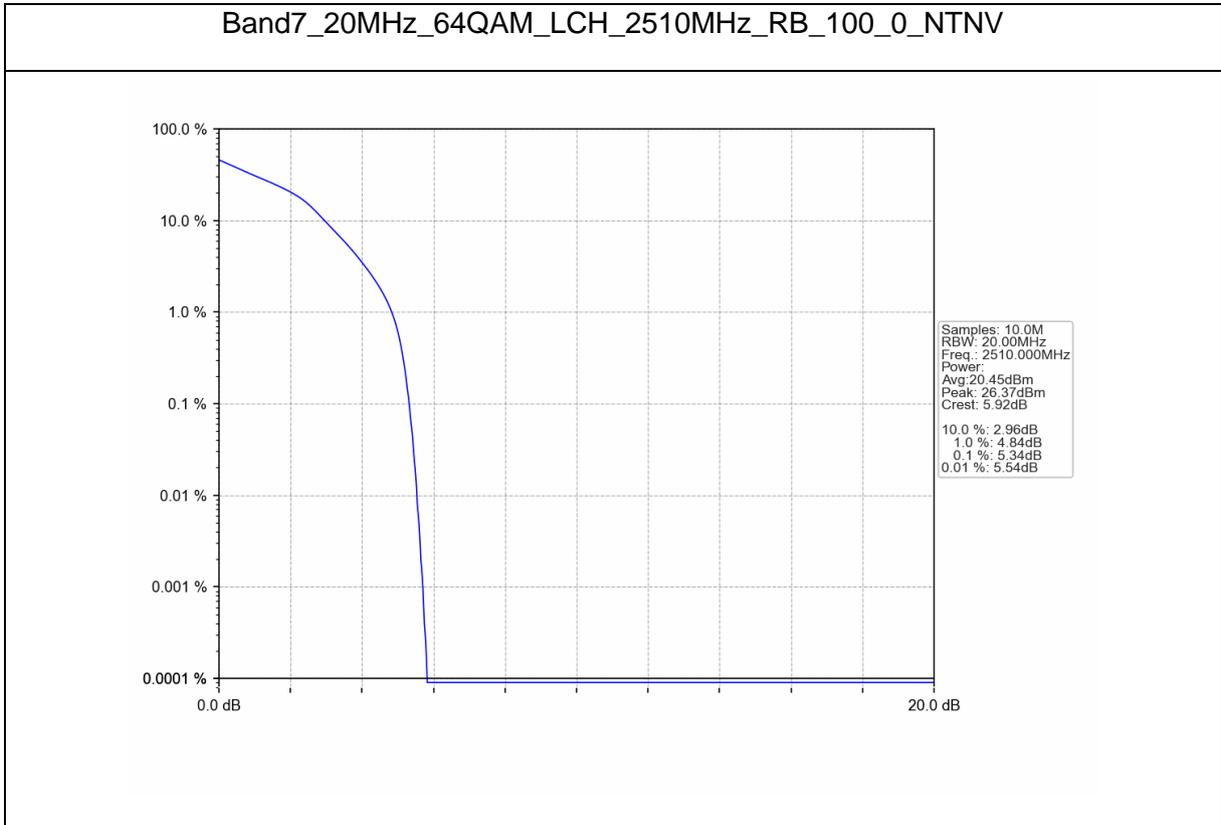






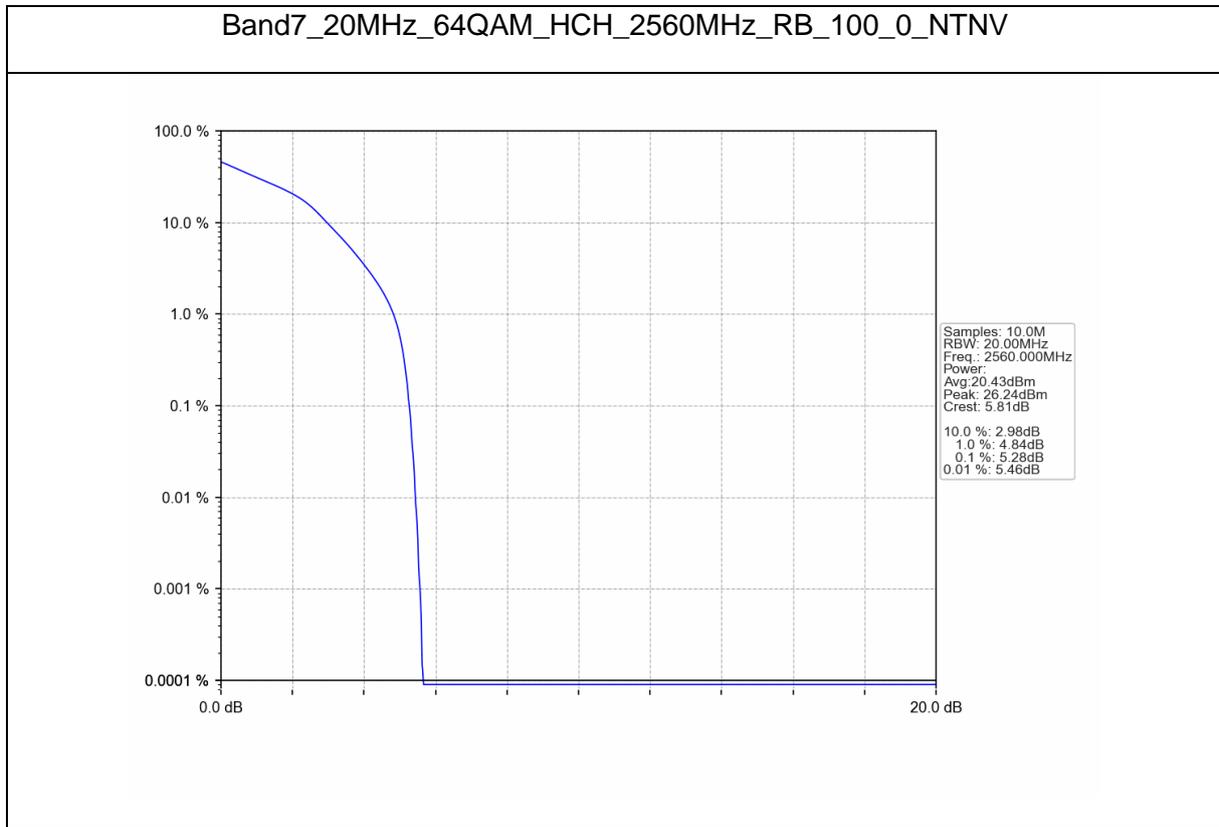


Test Report No.: PSU-NQN2504150110RF04





Test Report No.: PSU-NQN2504150110RF04



## 26DB BANDWIDTH AND OCCUPIED BANDWIDTH

### Test Result

Band: 7 / NTN							
Bandwidth (MHz)	Modulation	Frequency (MHz)	RB Allocation		99% Occupied Bandwidth (MHz)		Verdict
			Size	Offset	Result	Limit	
5	QPSK	2502.5	25	0	4.509	/	Pass
		2535	25	0	4.527	/	Pass
		2567.5	25	0	4.509	/	Pass
	16QAM	2502.5	25	0	4.518	/	Pass
		2535	25	0	4.535	/	Pass
		2567.5	25	0	4.521	/	Pass
	64QAM	2502.5	25	0	4.513	/	Pass
		2535	25	0	4.516	/	Pass
		2567.5	25	0	4.520	/	Pass
10	QPSK	2505	50	0	8.989	/	Pass
		2535	50	0	8.975	/	Pass
		2565	50	0	8.982	/	Pass
	16QAM	2505	50	0	8.987	/	Pass
		2535	50	0	8.993	/	Pass
		2565	50	0	9.029	/	Pass
	64QAM	2505	50	0	9.014	/	Pass
		2535	50	0	8.997	/	Pass
		2565	50	0	8.999	/	Pass
15	QPSK	2507.5	75	0	13.478	/	Pass
		2535	75	0	13.463	/	Pass
		2562.5	75	0	13.454	/	Pass
	16QAM	2507.5	75	0	13.484	/	Pass
		2535	75	0	13.500	/	Pass
		2562.5	75	0	13.488	/	Pass
	64QAM	2507.5	75	0	13.472	/	Pass
		2535	75	0	13.452	/	Pass
		2562.5	75	0	13.488	/	Pass
20	QPSK	2510	100	0	18.021	/	Pass
		2535	100	0	18.007	/	Pass
		2560	100	0	18.002	/	Pass
	16QAM	2510	100	0	17.978	/	Pass
		2535	100	0	17.988	/	Pass
		2560	100	0	18.019	/	Pass
	64QAM	2510	100	0	18.020	/	Pass
		2535	100	0	18.045	/	Pass
		2560	100	0	18.005	/	Pass

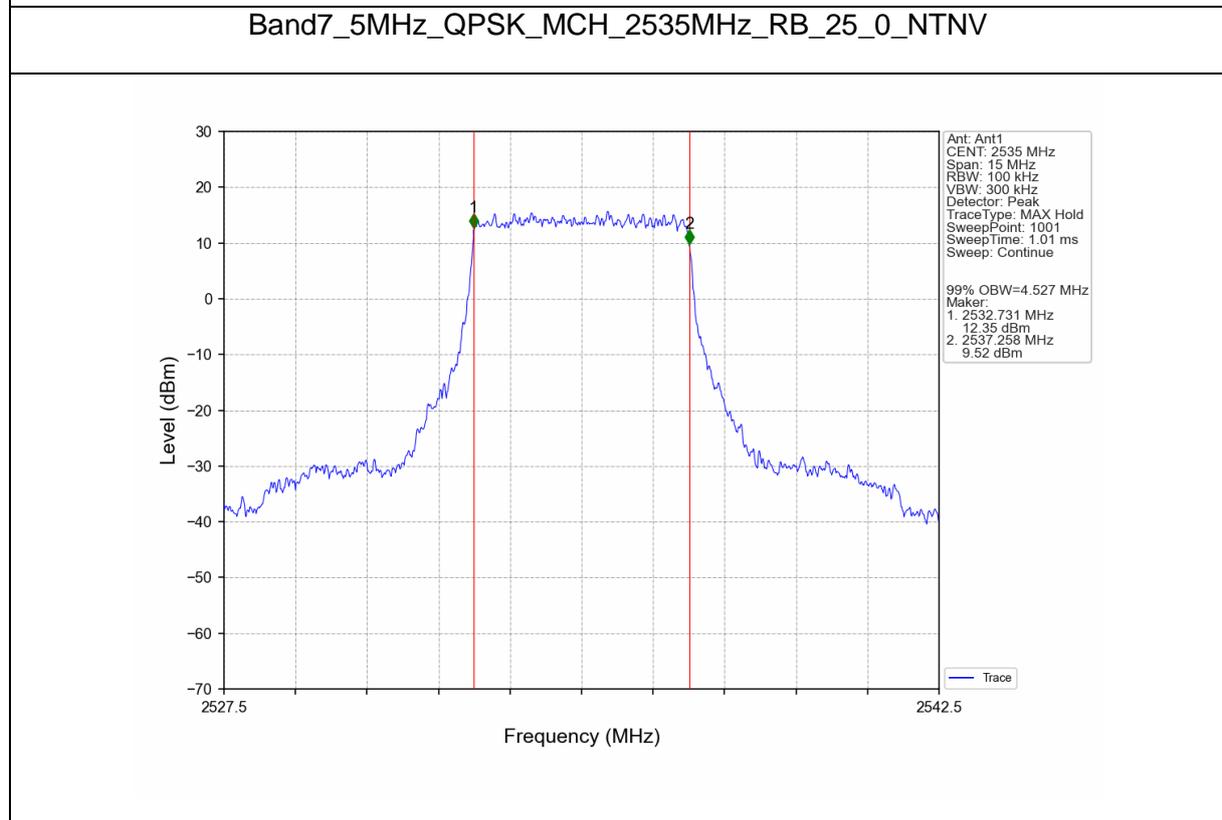
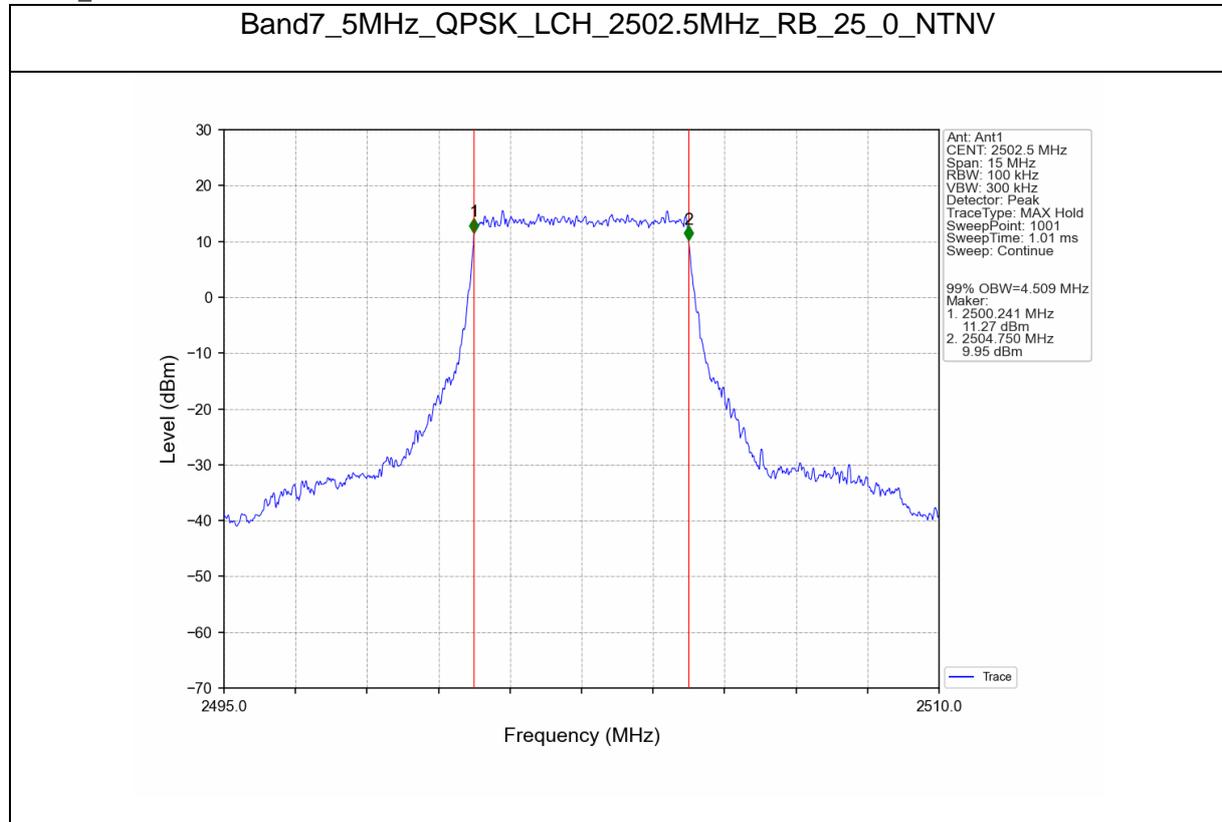


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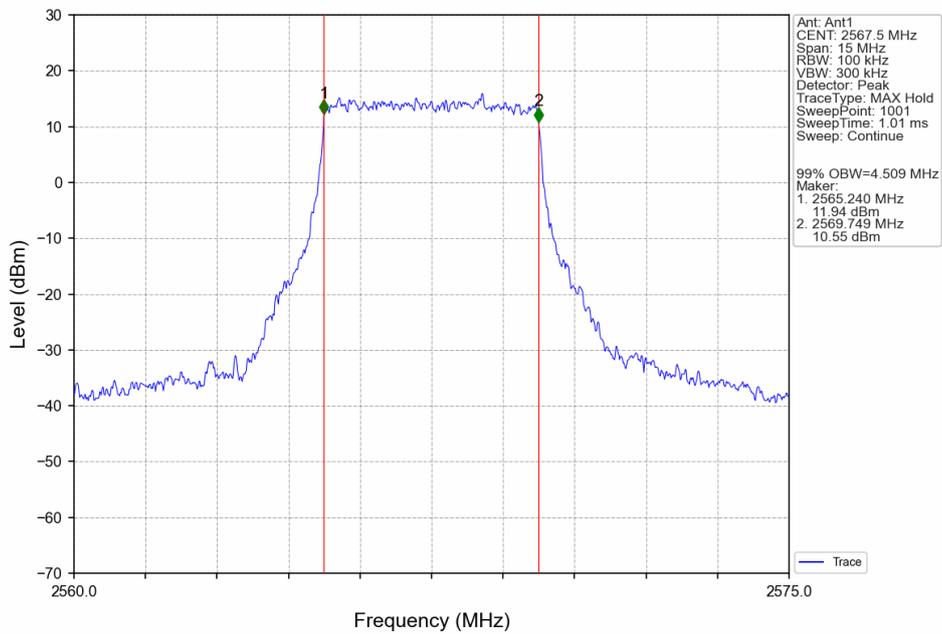
Band: 7 / NTN							
Bandwidth (MHz)	Modulation	Frequency (MHz)	RB Allocation		26dB Bandwidth (MHz)		Verdict
			Size	Offset	Result	Limit	
5	QPSK	2502.5	25	0	5.151	/	Pass
		2535	25	0	5.201	/	Pass
		2567.5	25	0	5.121	/	Pass
	16QAM	2502.5	25	0	5.151	/	Pass
		2535	25	0	5.218	/	Pass
		2567.5	25	0	5.236	/	Pass
	64QAM	2502.5	25	0	5.136	/	Pass
		2535	25	0	5.155	/	Pass
		2567.5	25	0	5.199	/	Pass
10	QPSK	2505	50	0	9.970	/	Pass
		2535	50	0	9.933	/	Pass
		2565	50	0	10.099	/	Pass
	16QAM	2505	50	0	10.103	/	Pass
		2535	50	0	9.936	/	Pass
		2565	50	0	9.911	/	Pass
	64QAM	2505	50	0	9.917	/	Pass
		2535	50	0	9.964	/	Pass
		2565	50	0	9.918	/	Pass
15	QPSK	2507.5	75	0	14.829	/	Pass
		2535	75	0	14.602	/	Pass
		2562.5	75	0	14.866	/	Pass
	16QAM	2507.5	75	0	14.961	/	Pass
		2535	75	0	14.629	/	Pass
		2562.5	75	0	14.837	/	Pass
	64QAM	2507.5	75	0	14.718	/	Pass
		2535	75	0	14.575	/	Pass
		2562.5	75	0	14.743	/	Pass
20	QPSK	2510	100	0	19.914	/	Pass
		2535	100	0	20.128	/	Pass
		2560	100	0	19.620	/	Pass
	16QAM	2510	100	0	19.783	/	Pass
		2535	100	0	19.682	/	Pass
		2560	100	0	19.715	/	Pass
	64QAM	2510	100	0	19.794	/	Pass
		2535	100	0	19.818	/	Pass
		2560	100	0	19.739	/	Pass

## Test Graphs

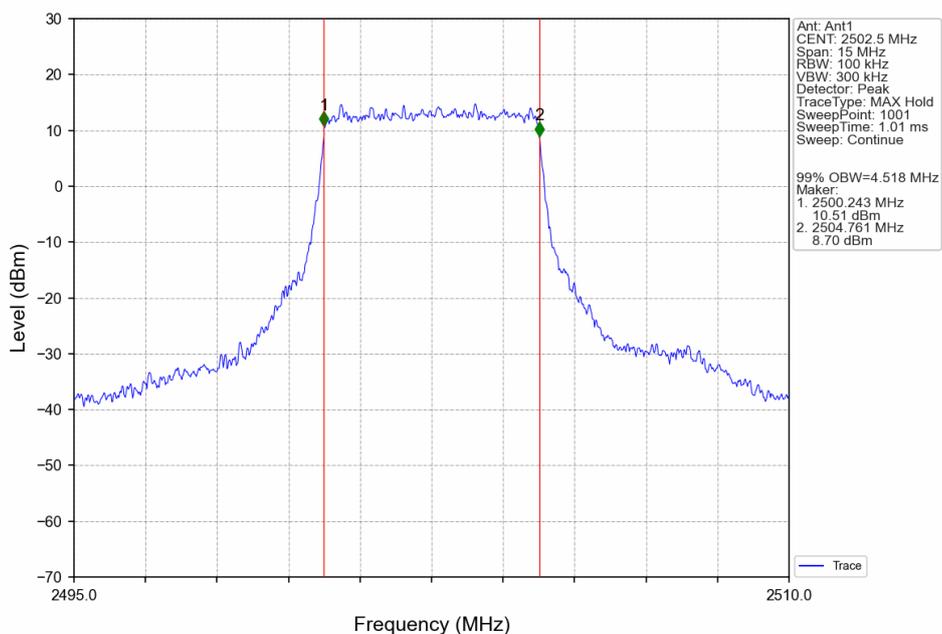
Band7\_OBW



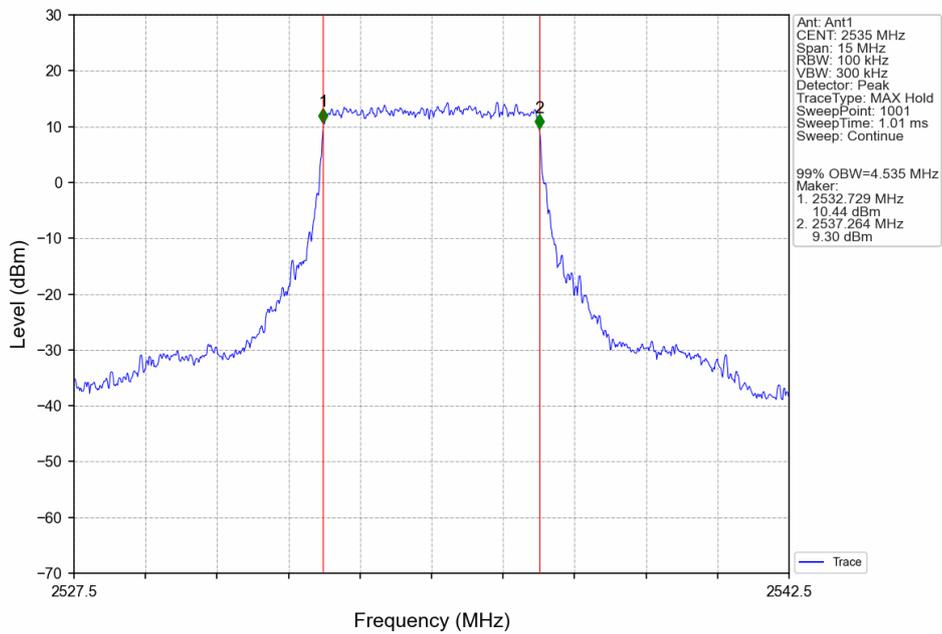
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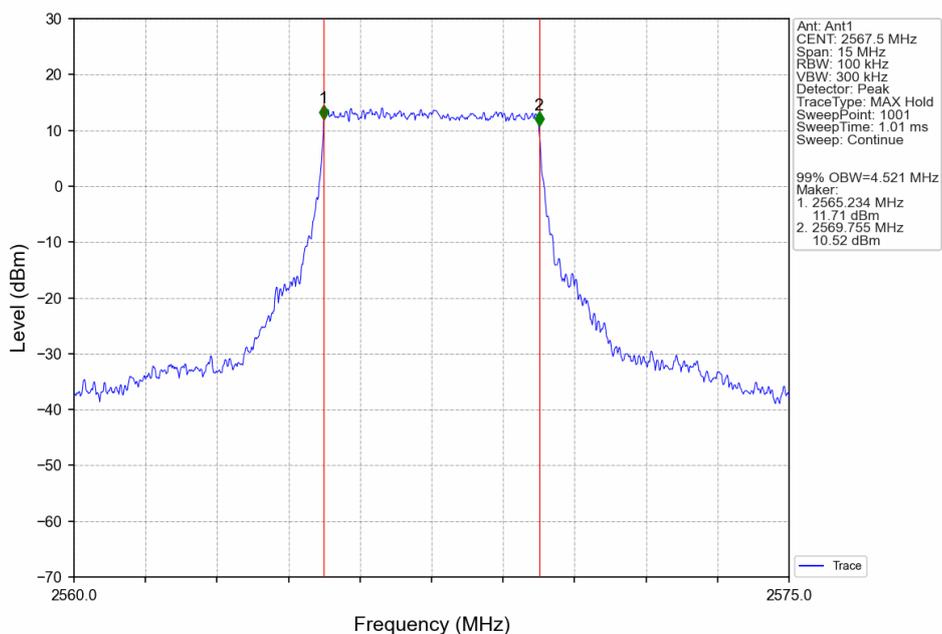
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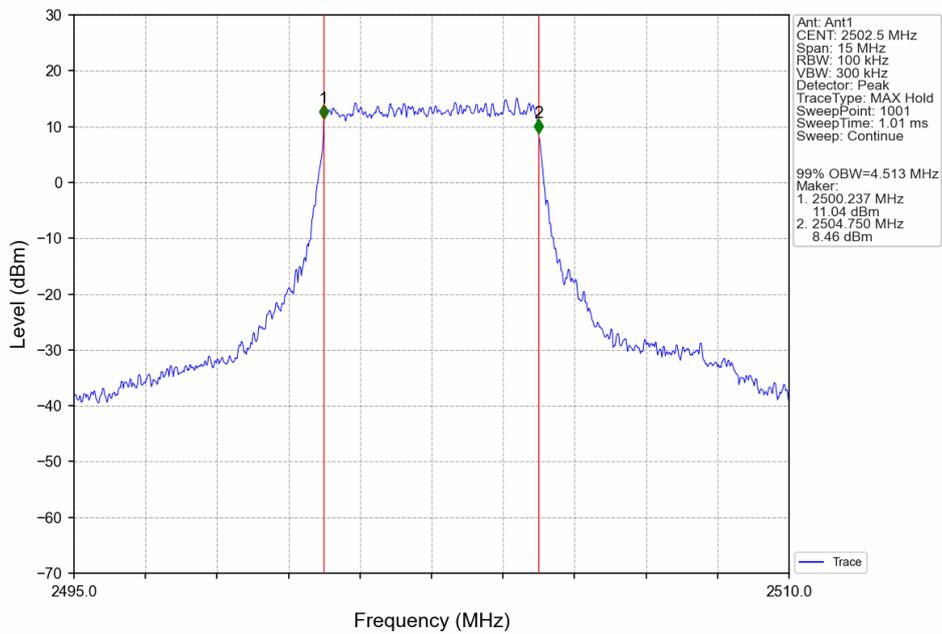
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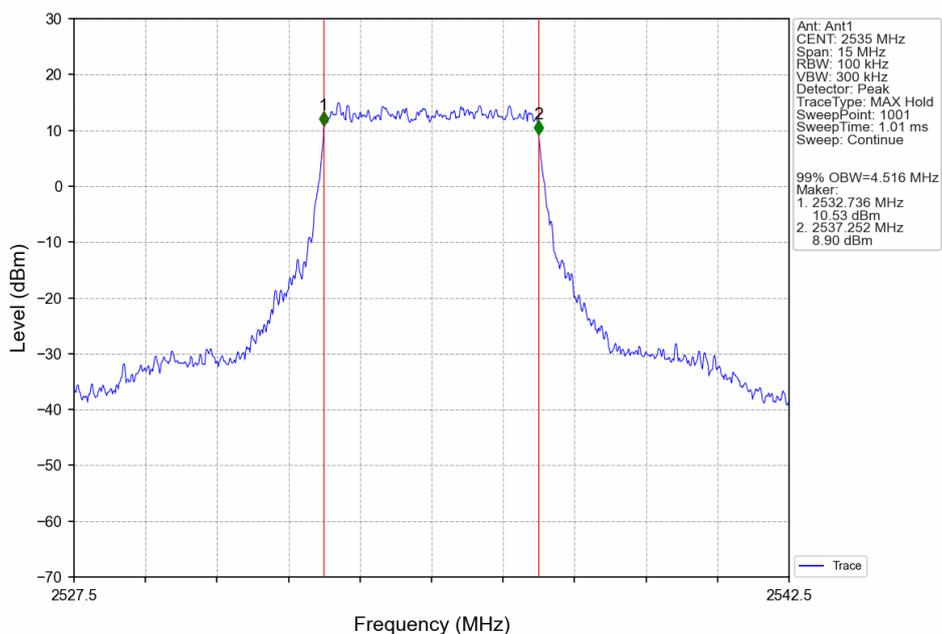
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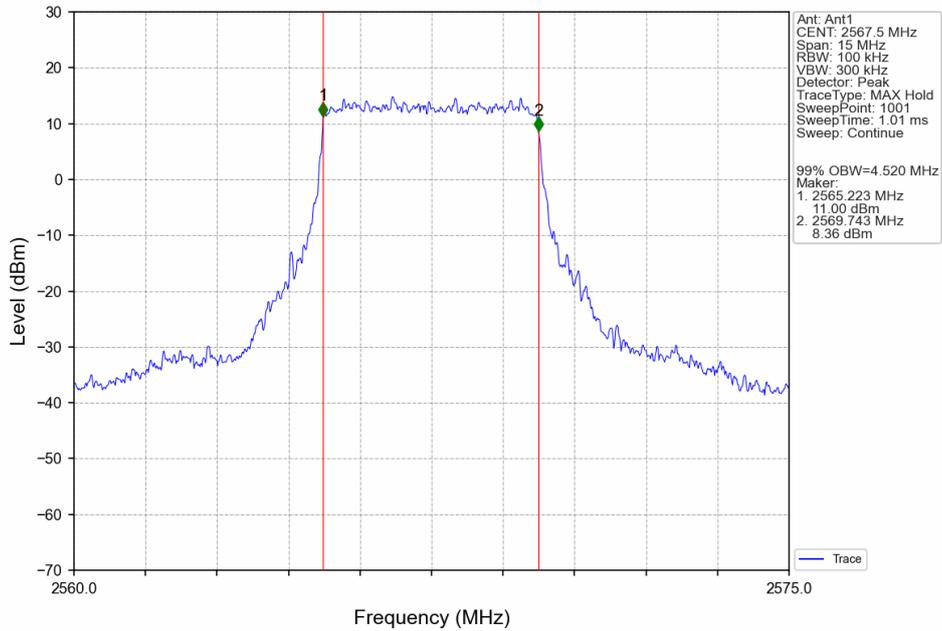
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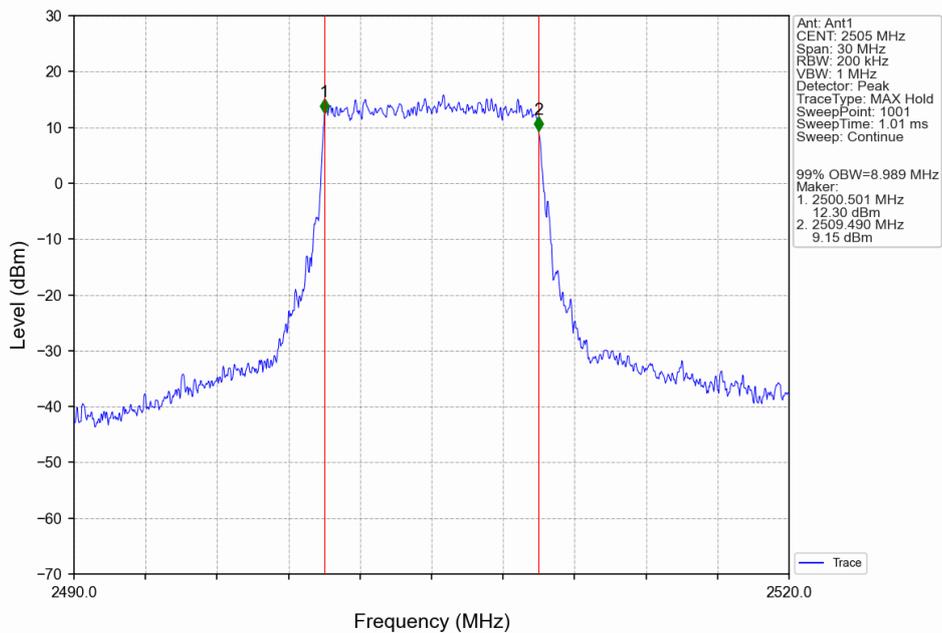
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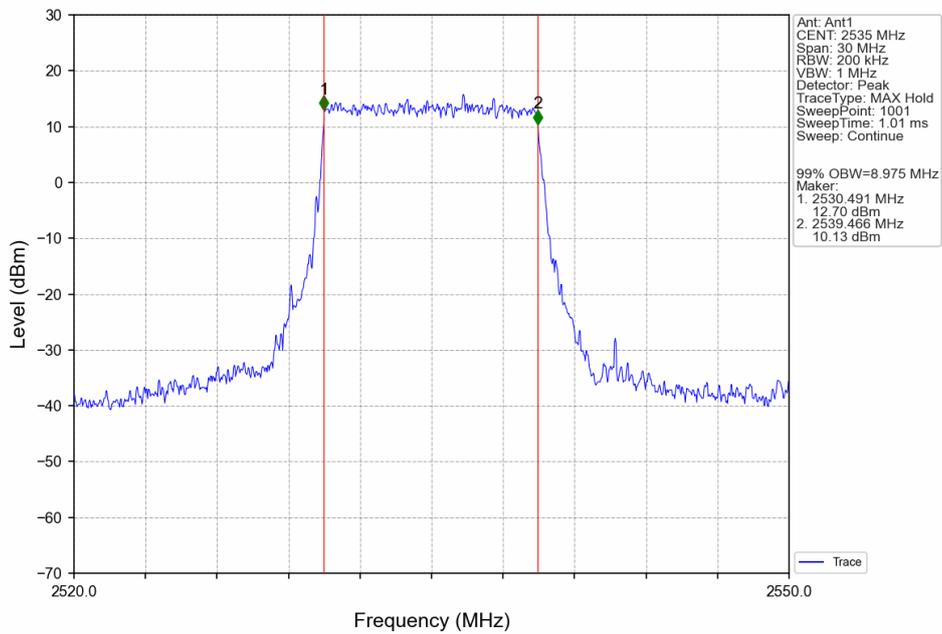
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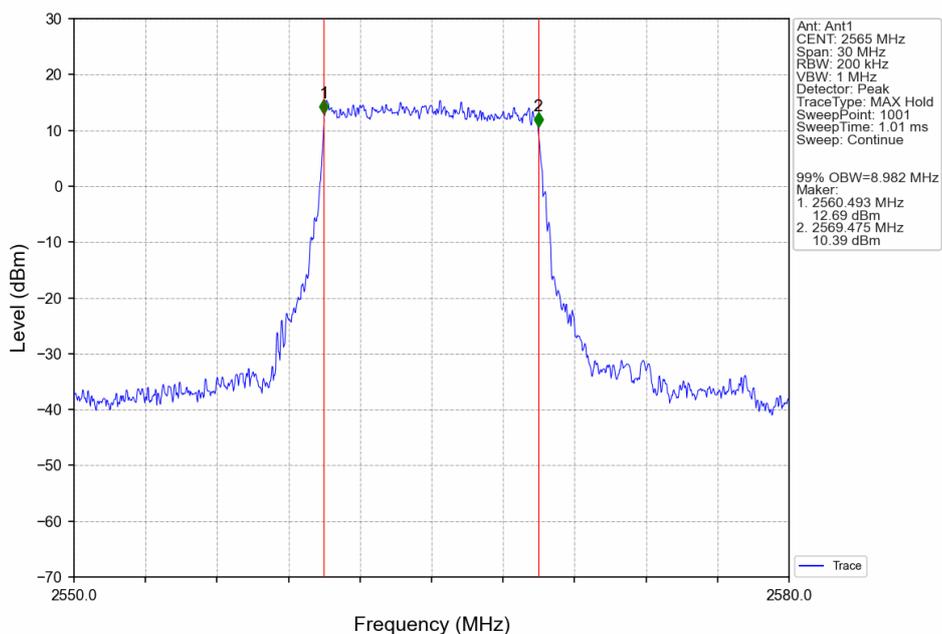
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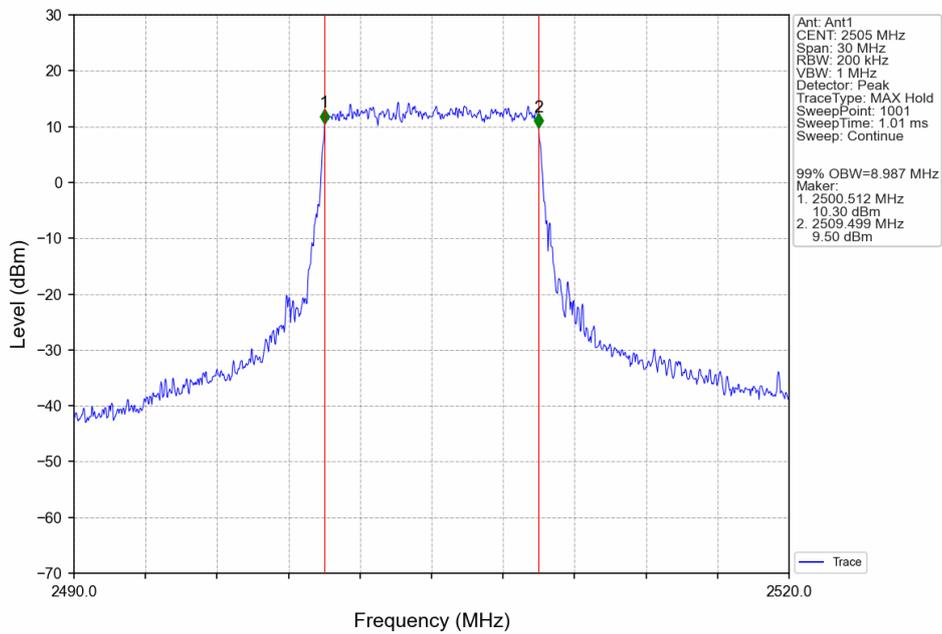
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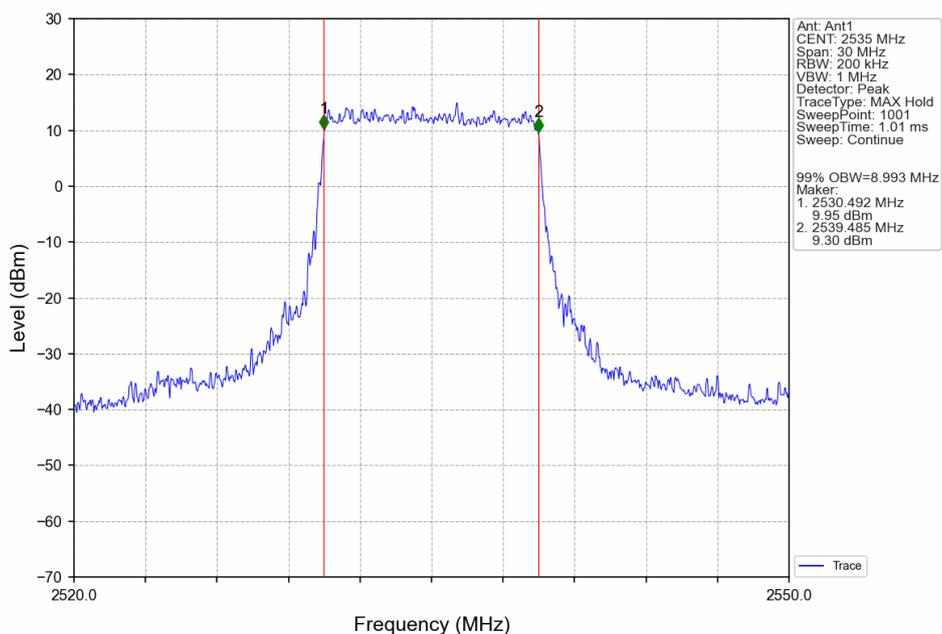
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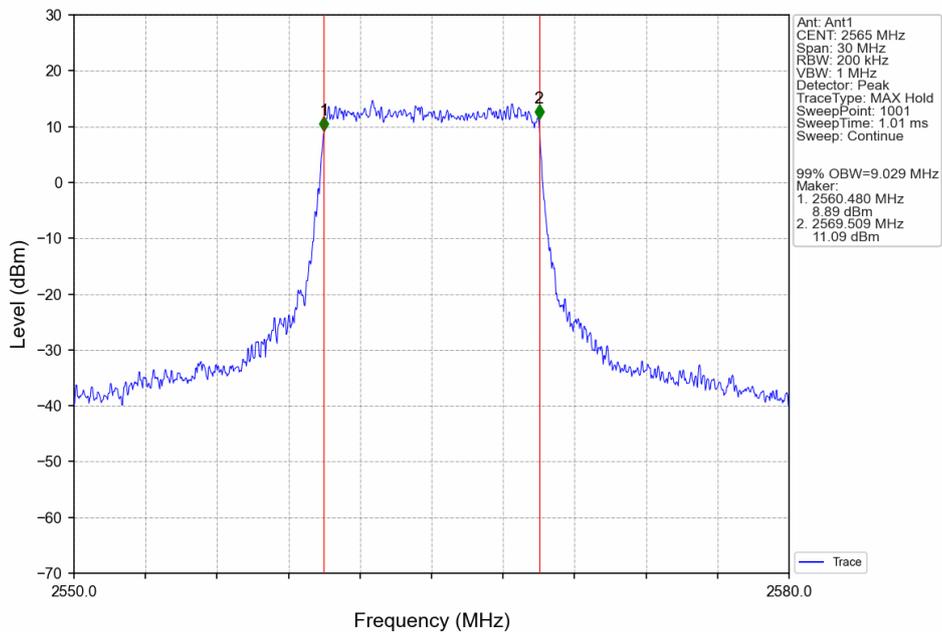
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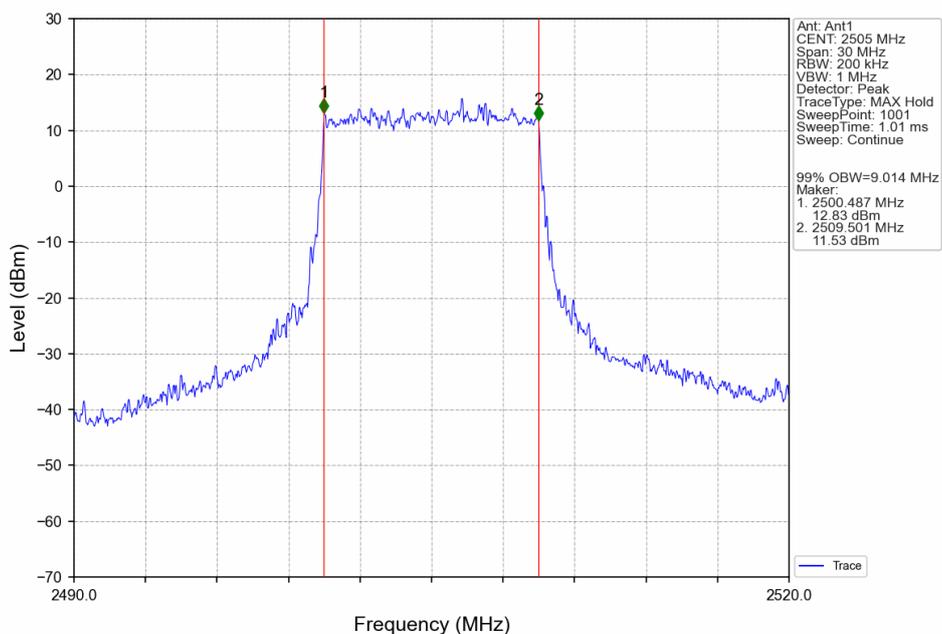
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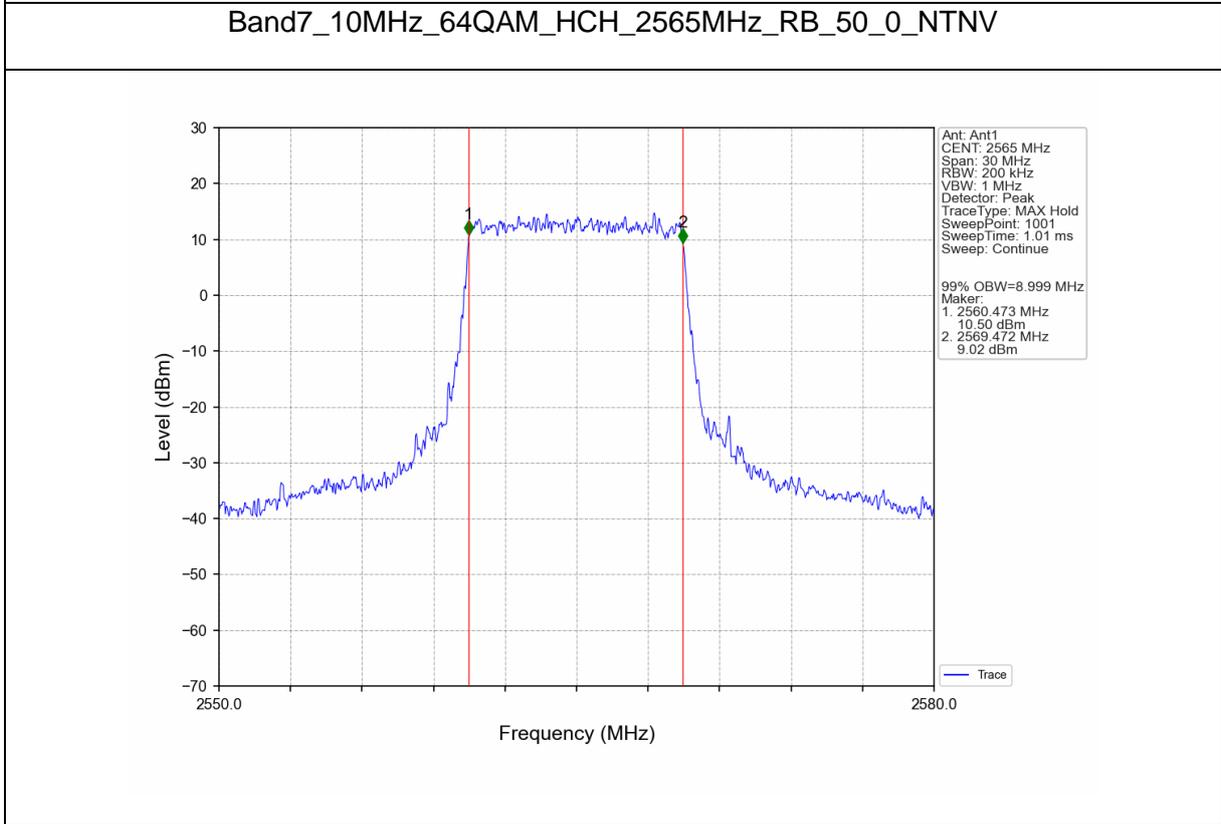
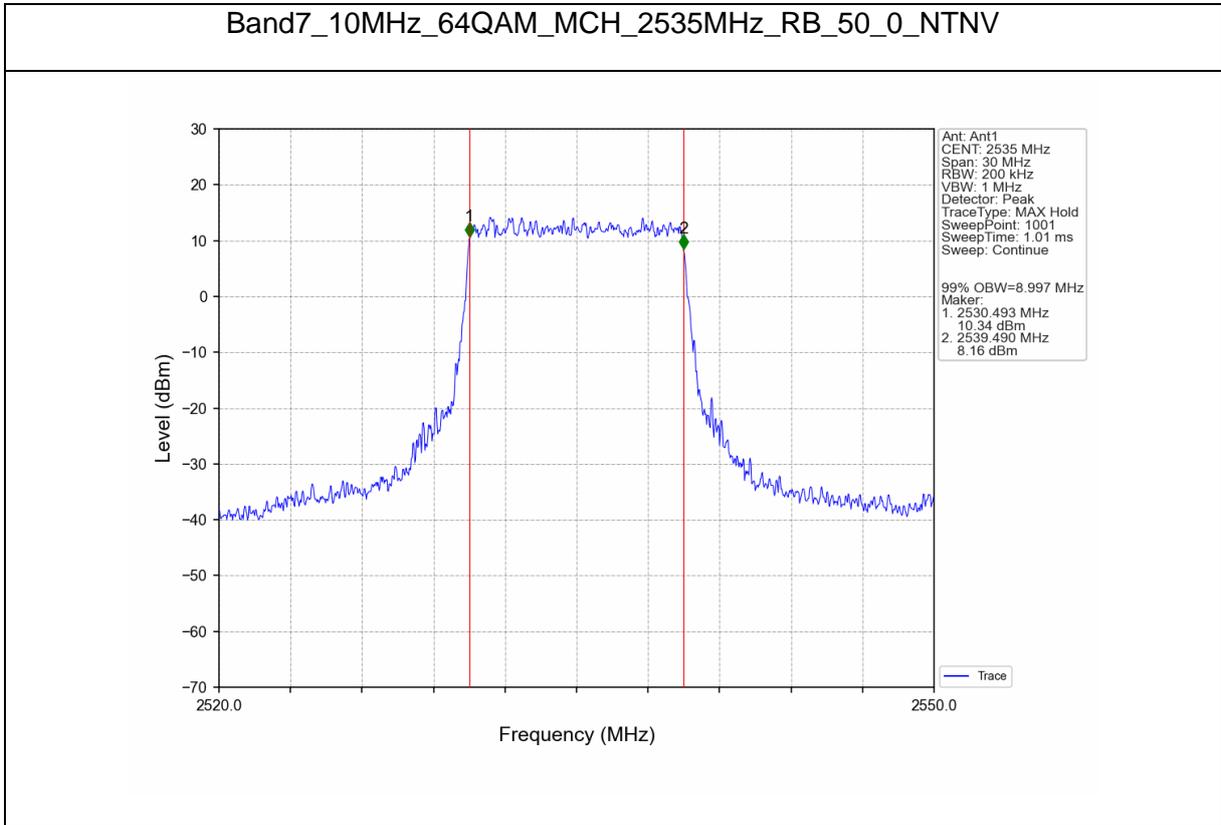


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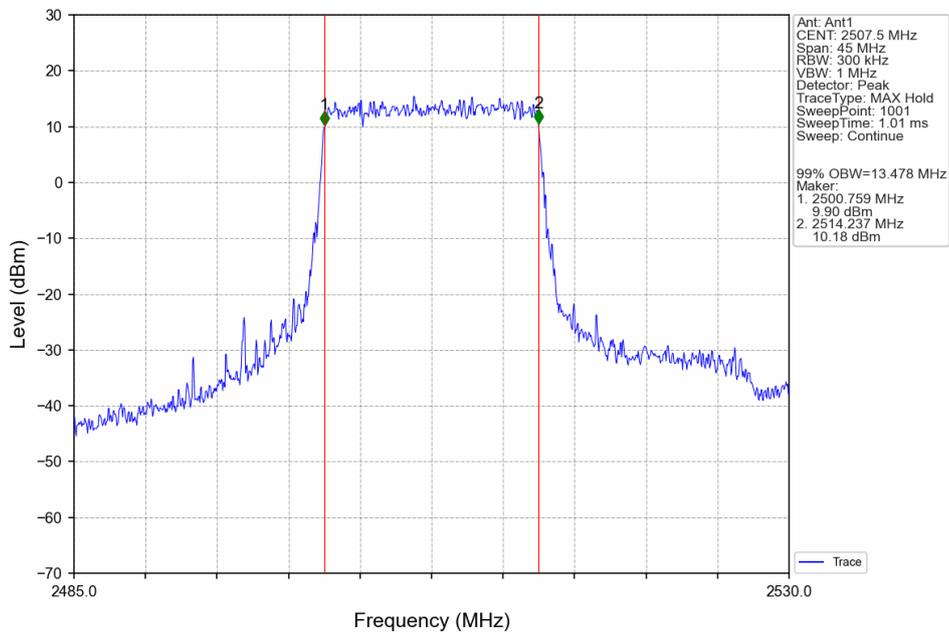


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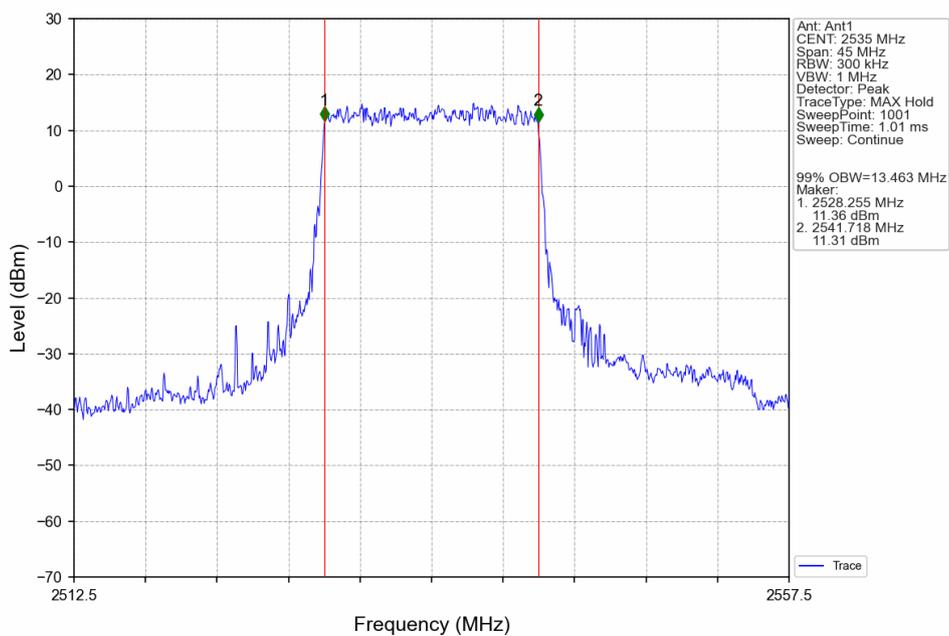




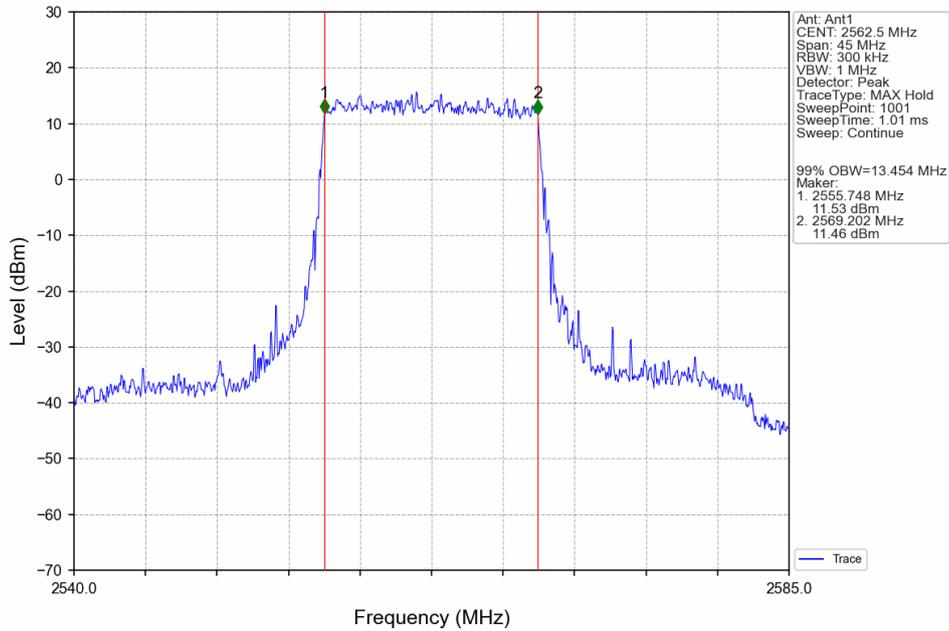
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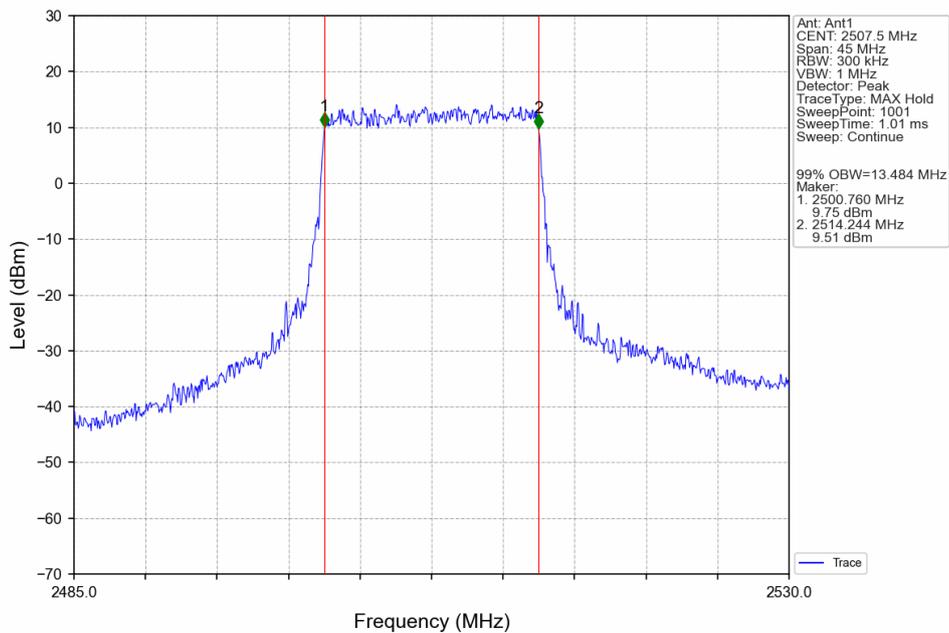
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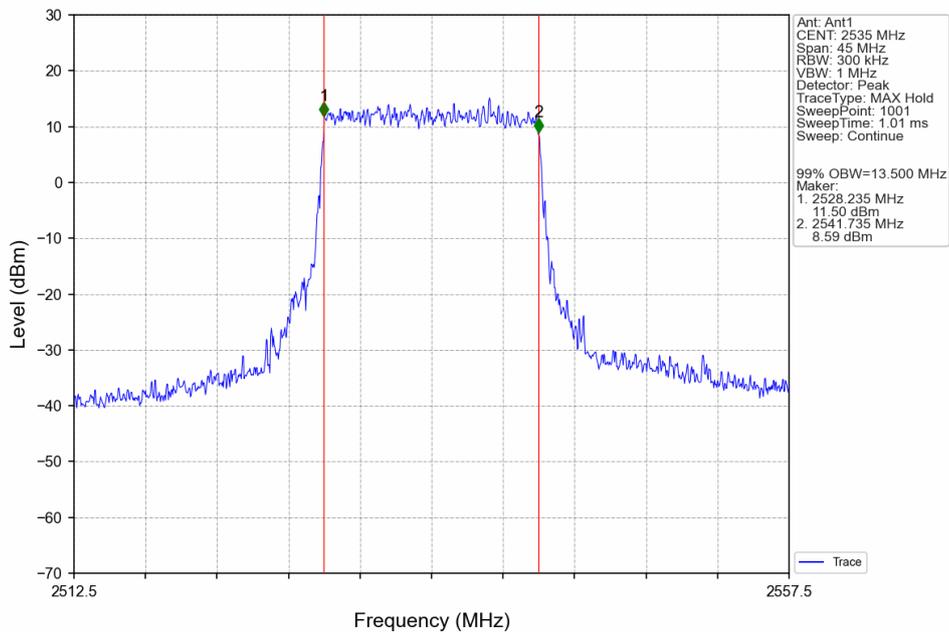
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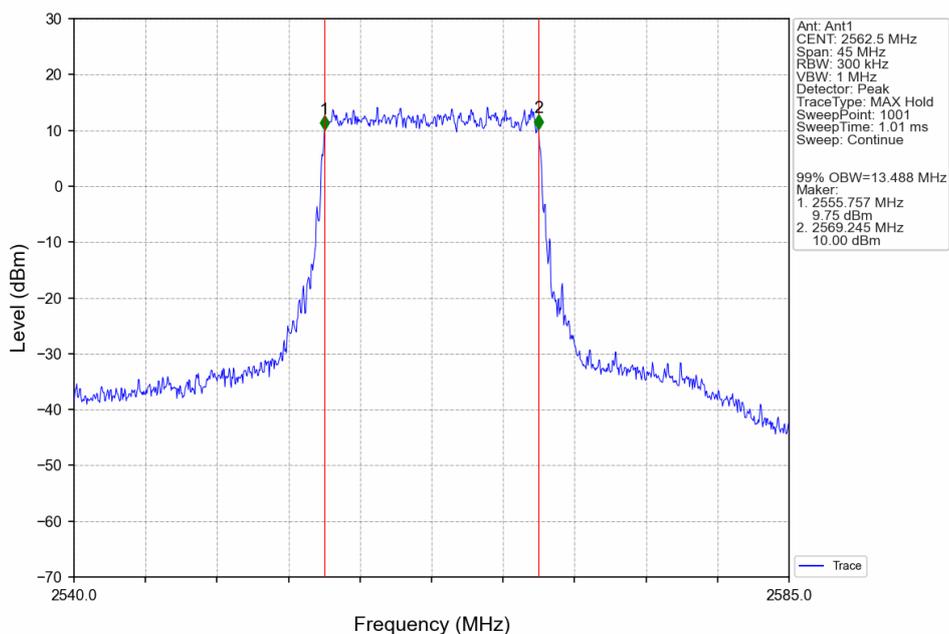
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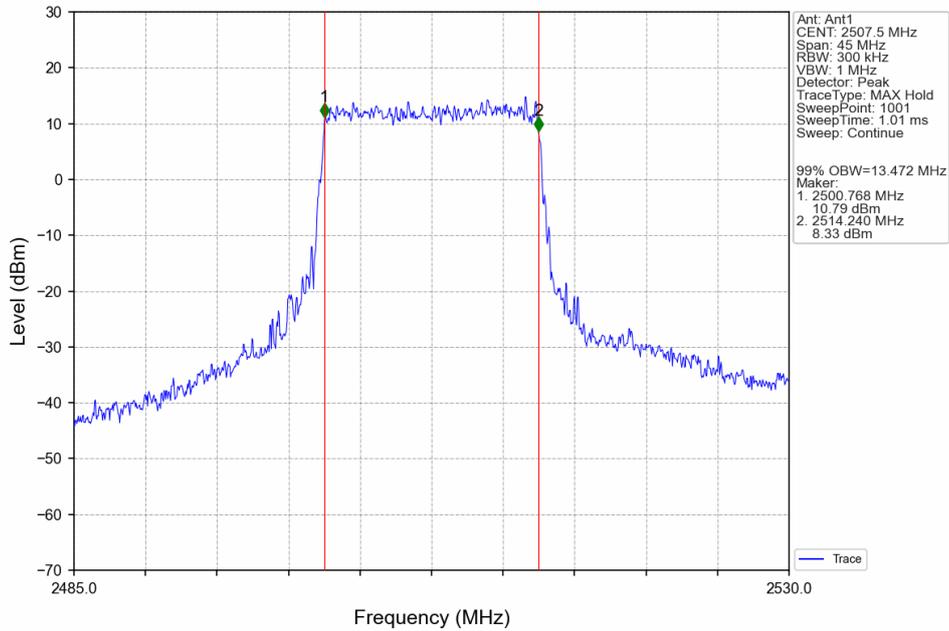
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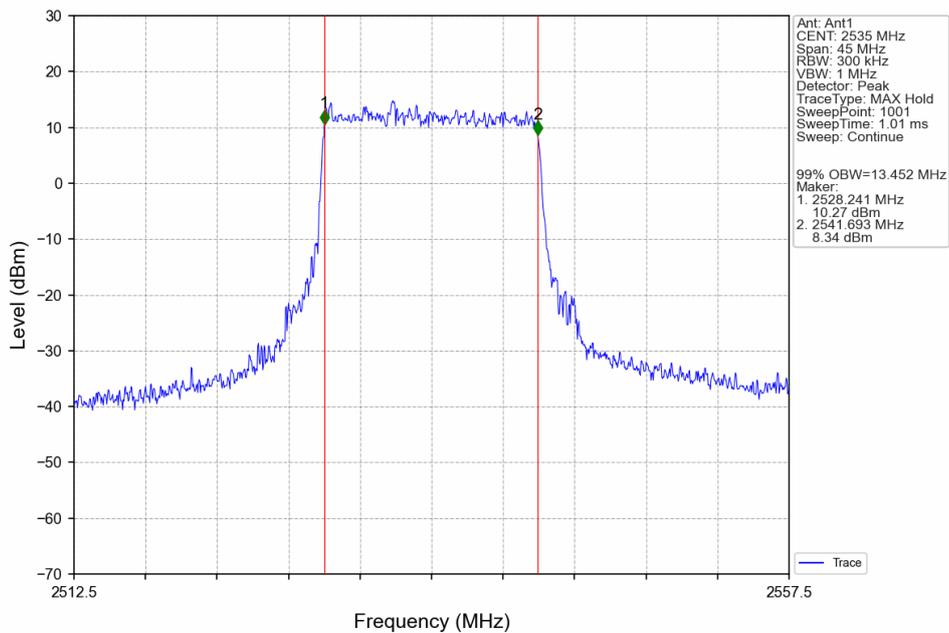
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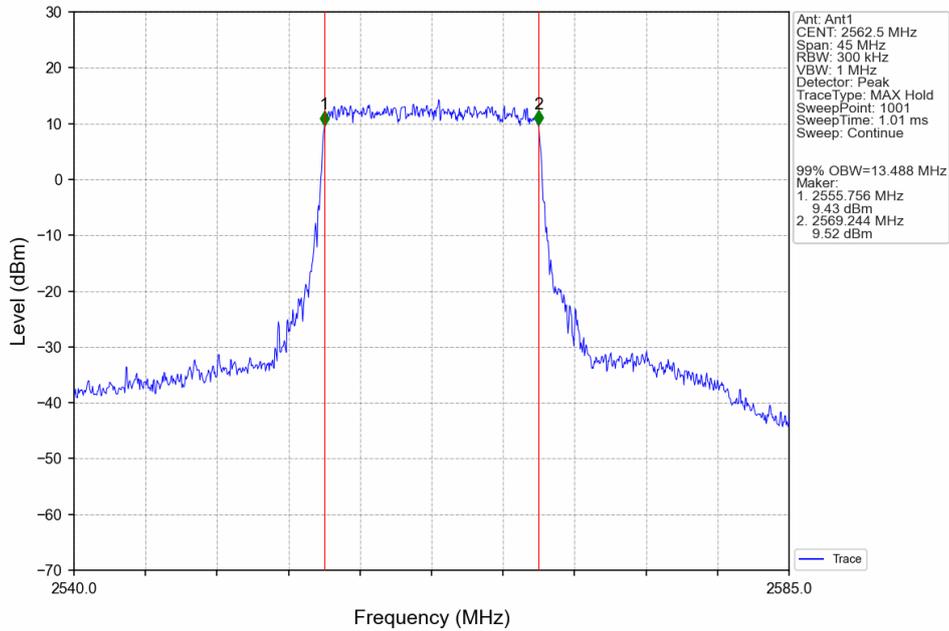
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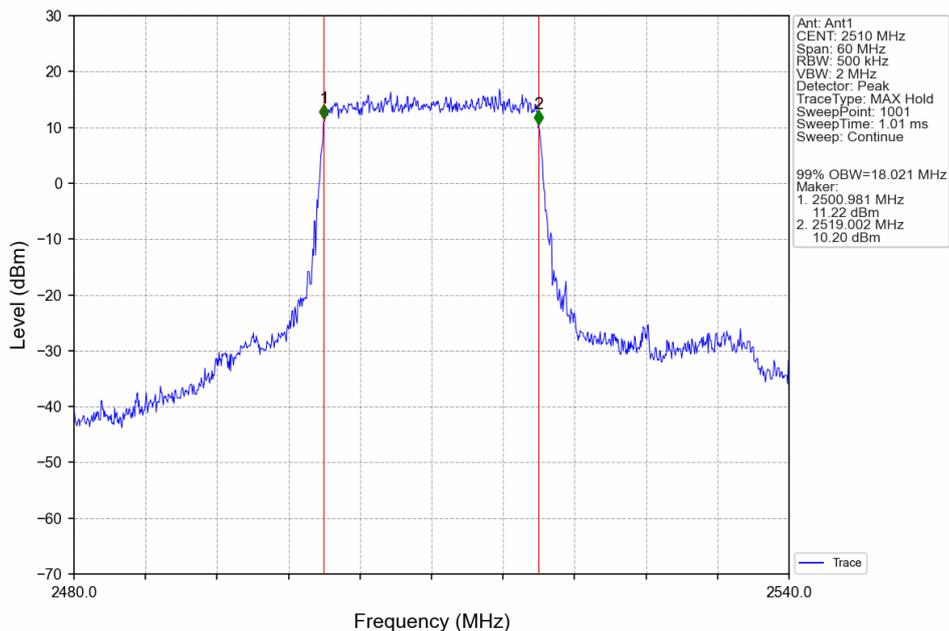
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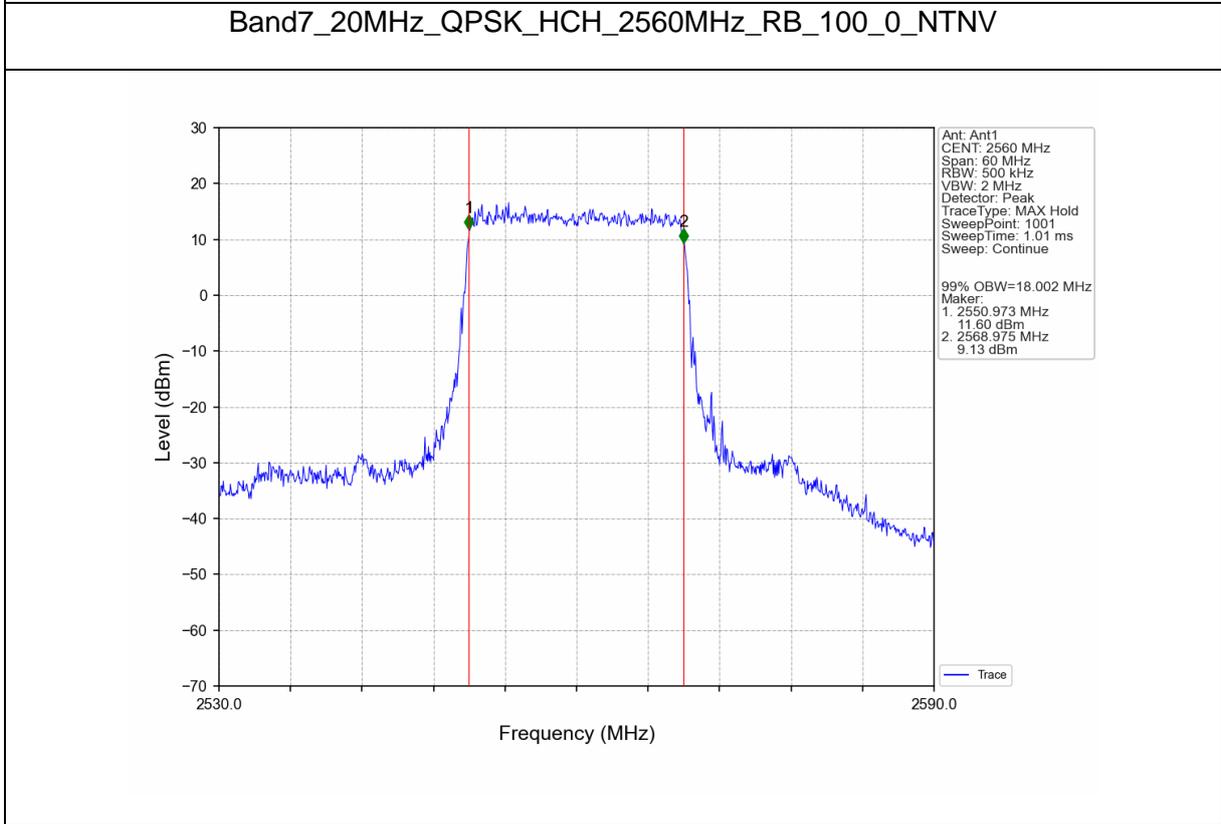
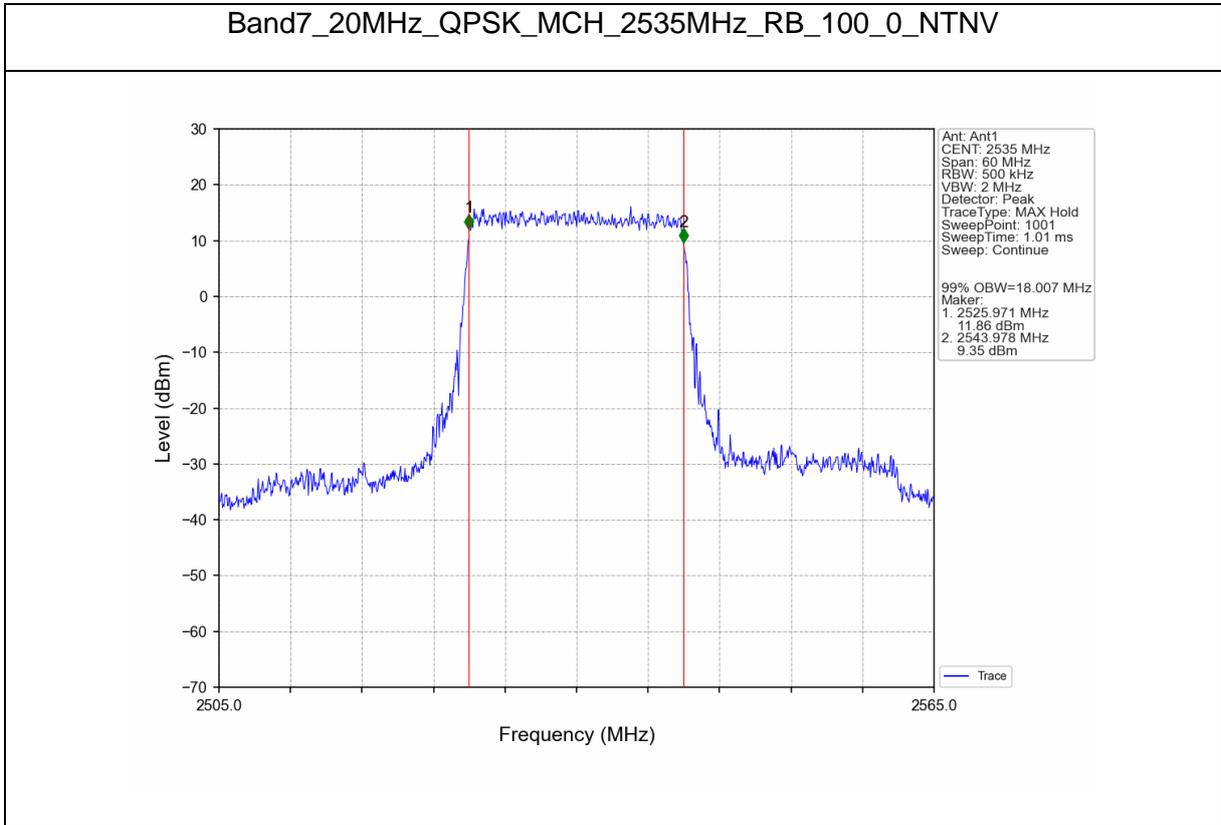


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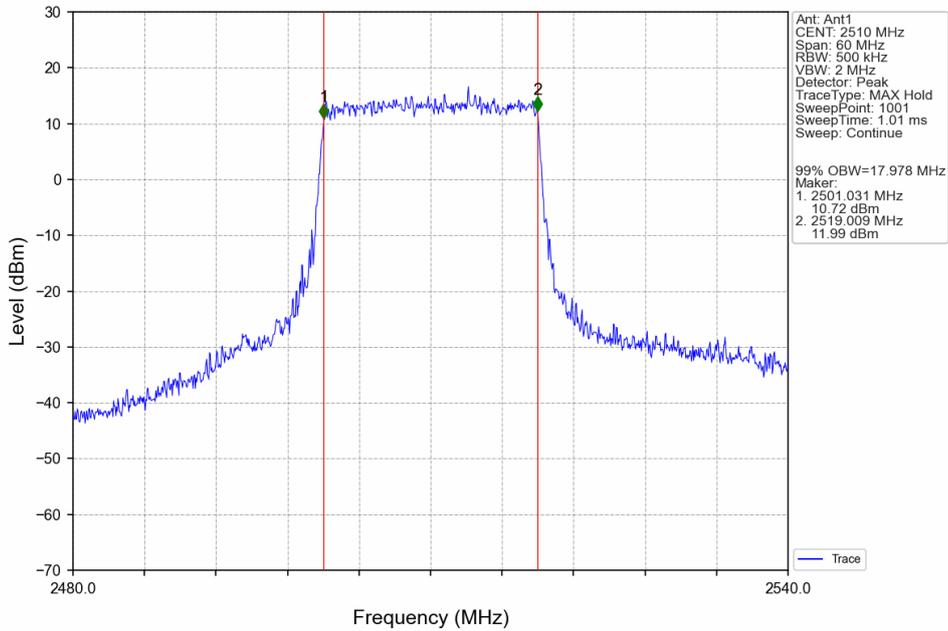




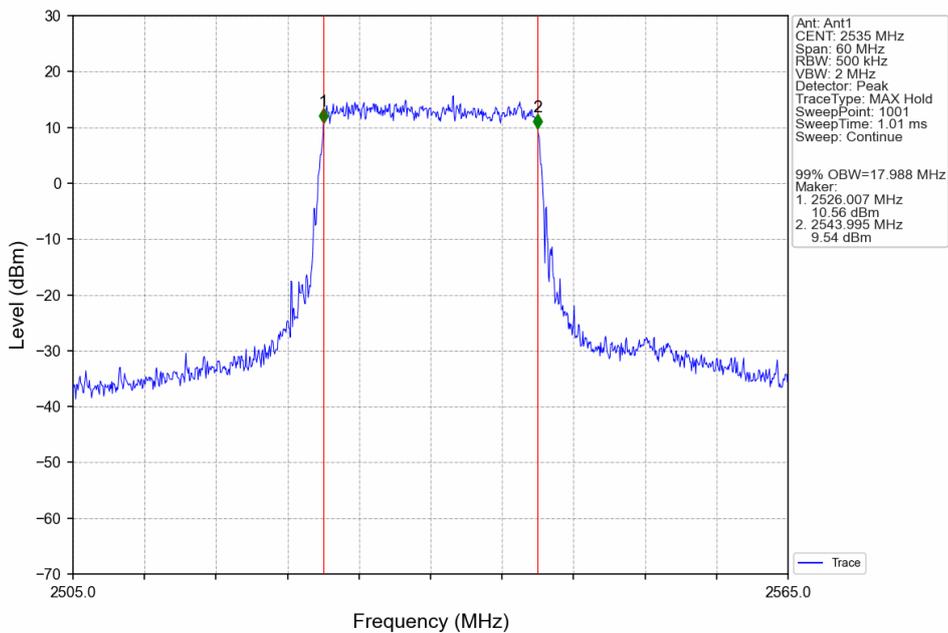
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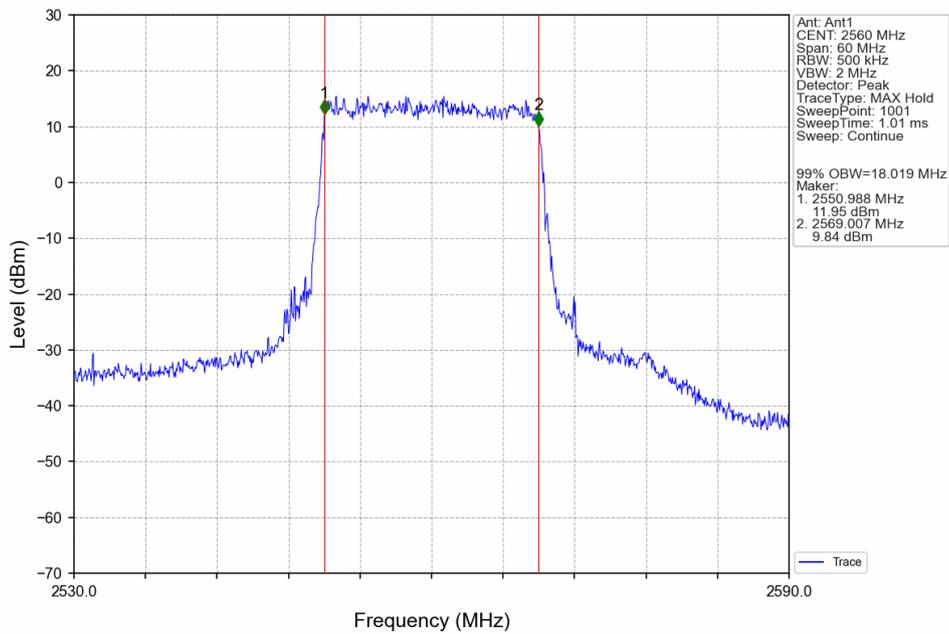
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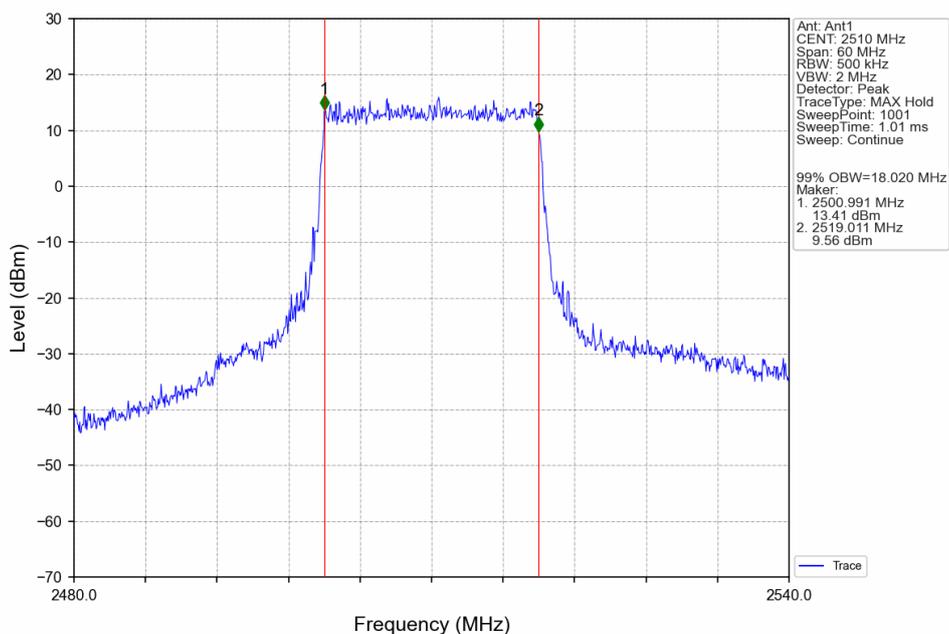
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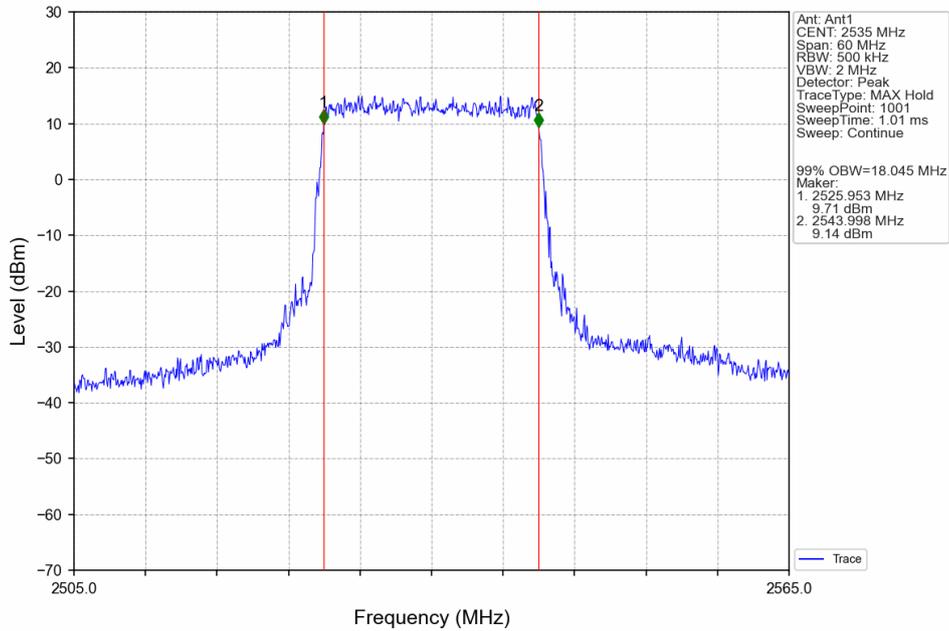
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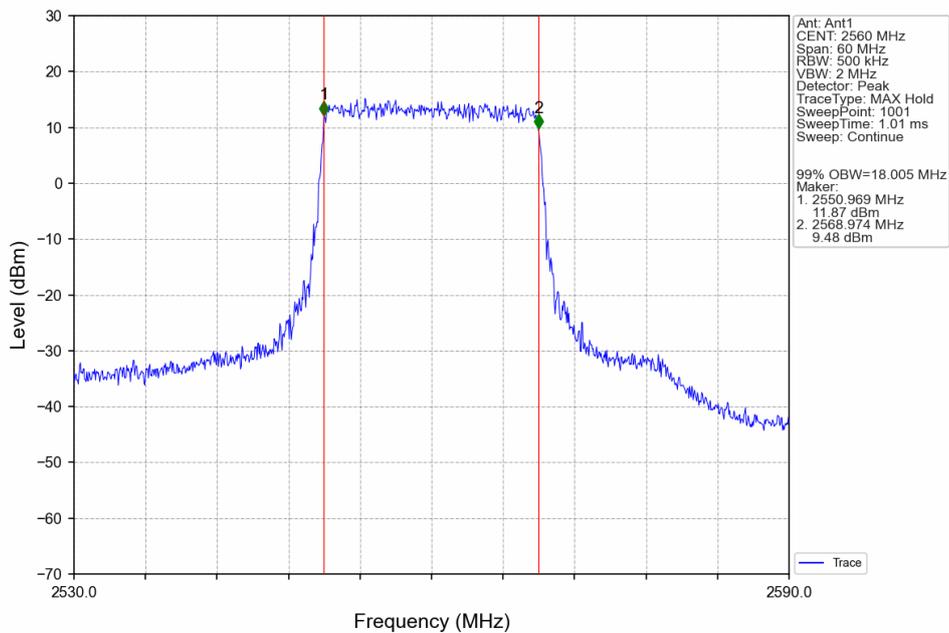
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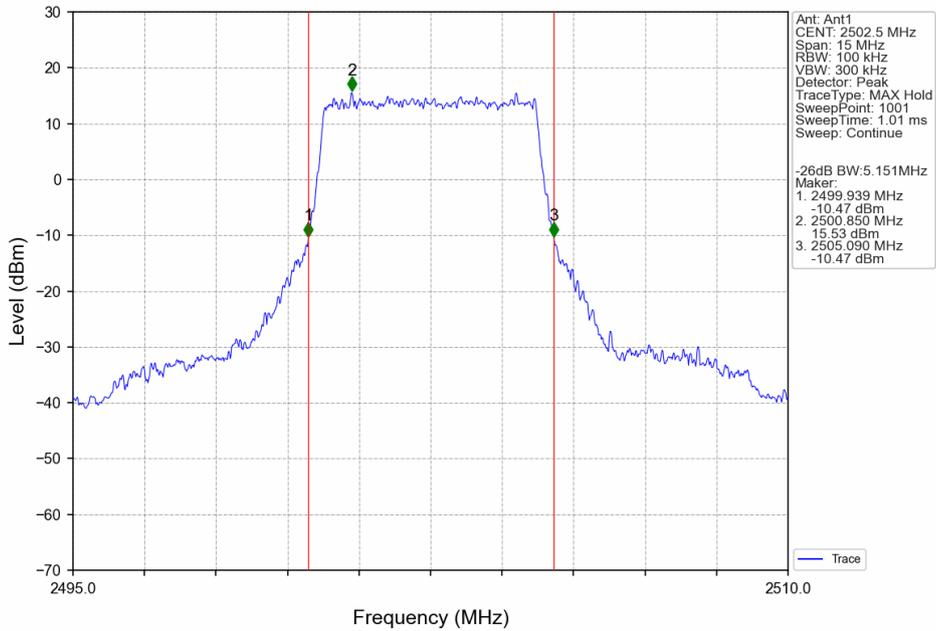


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VERITAS

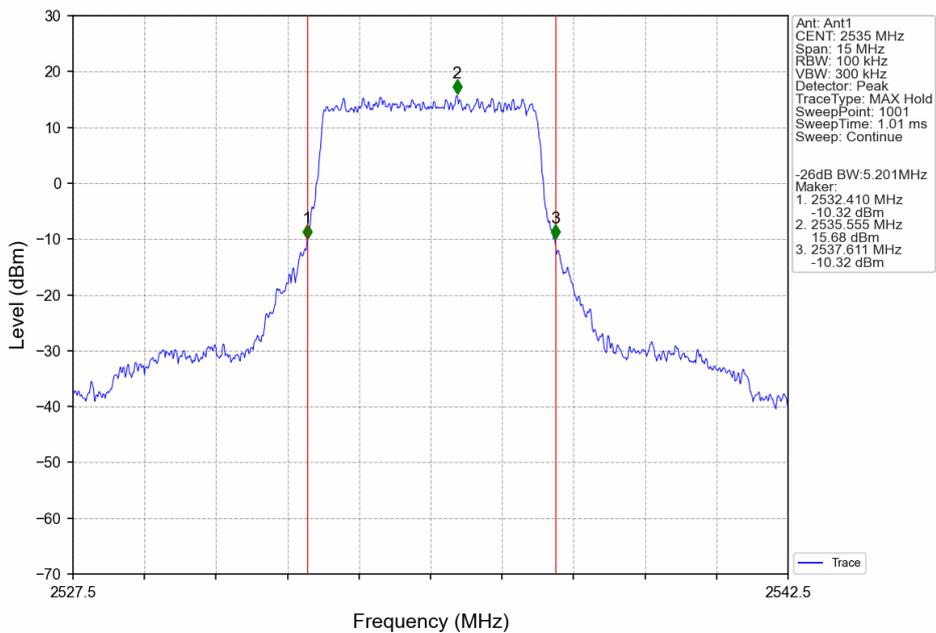
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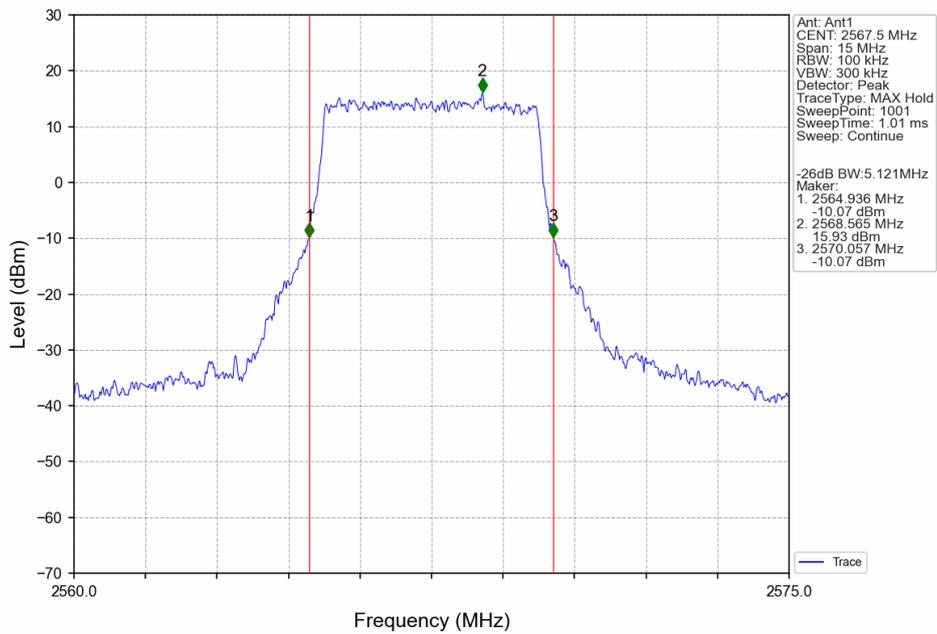
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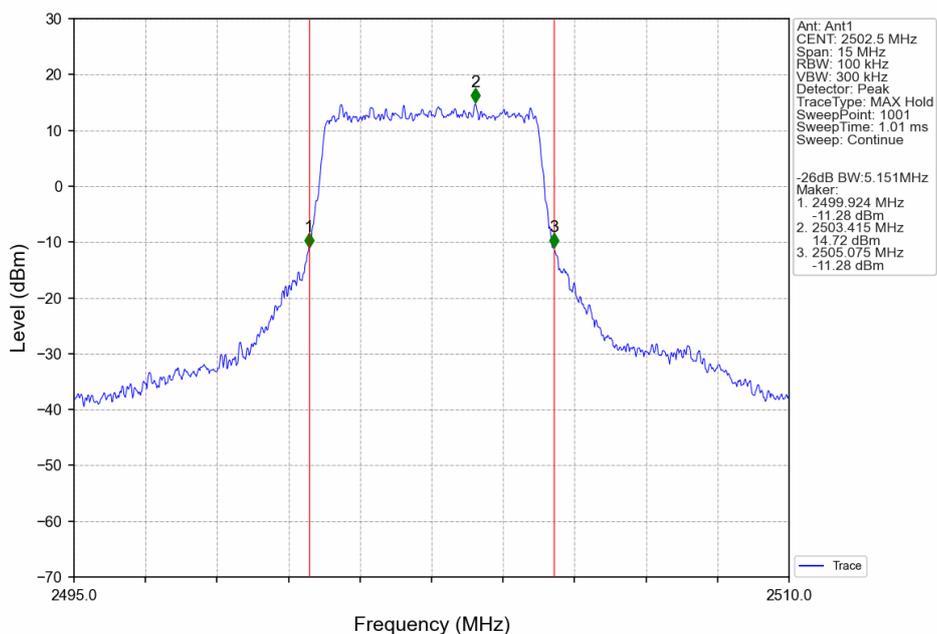
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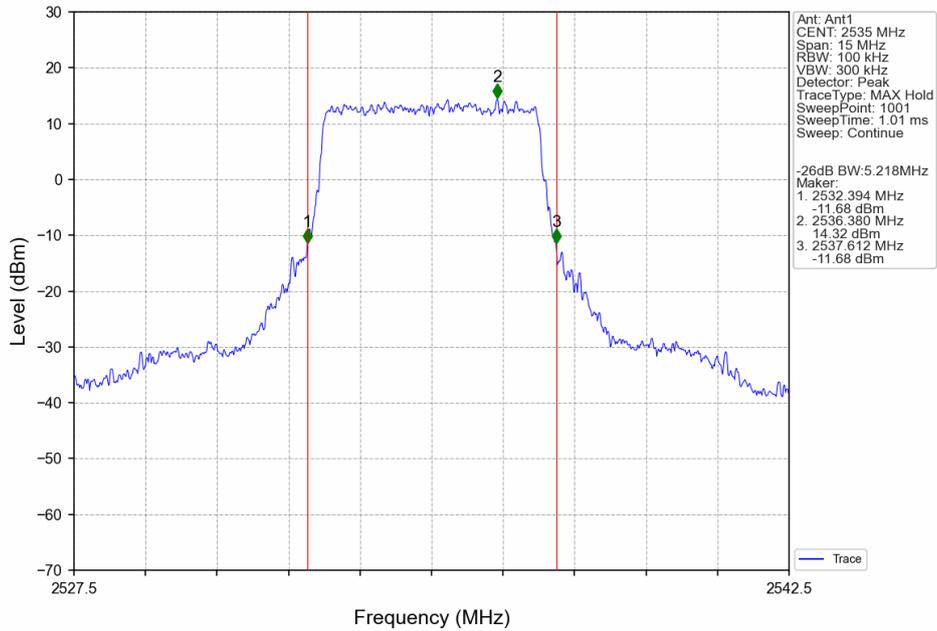
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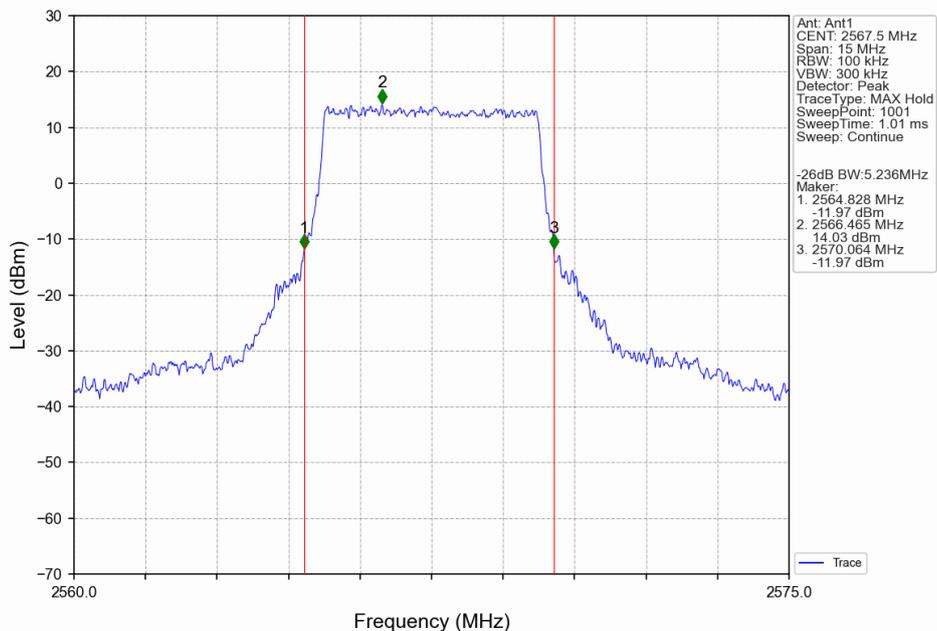
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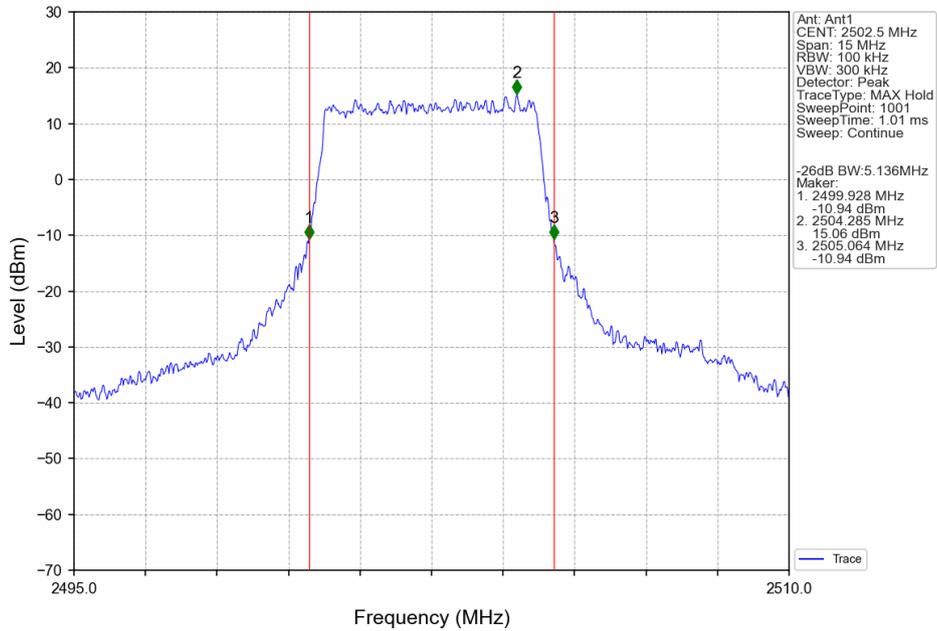
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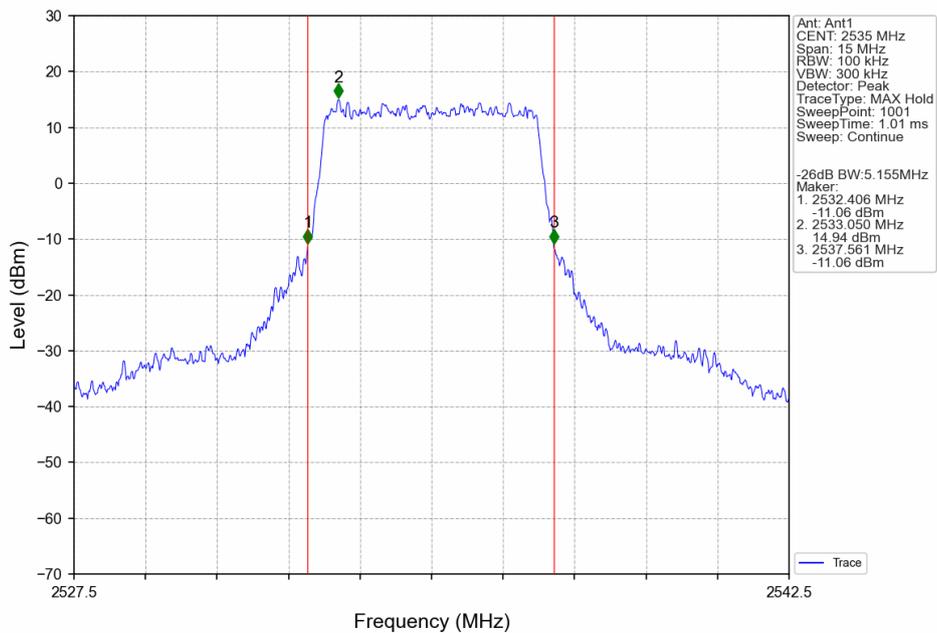


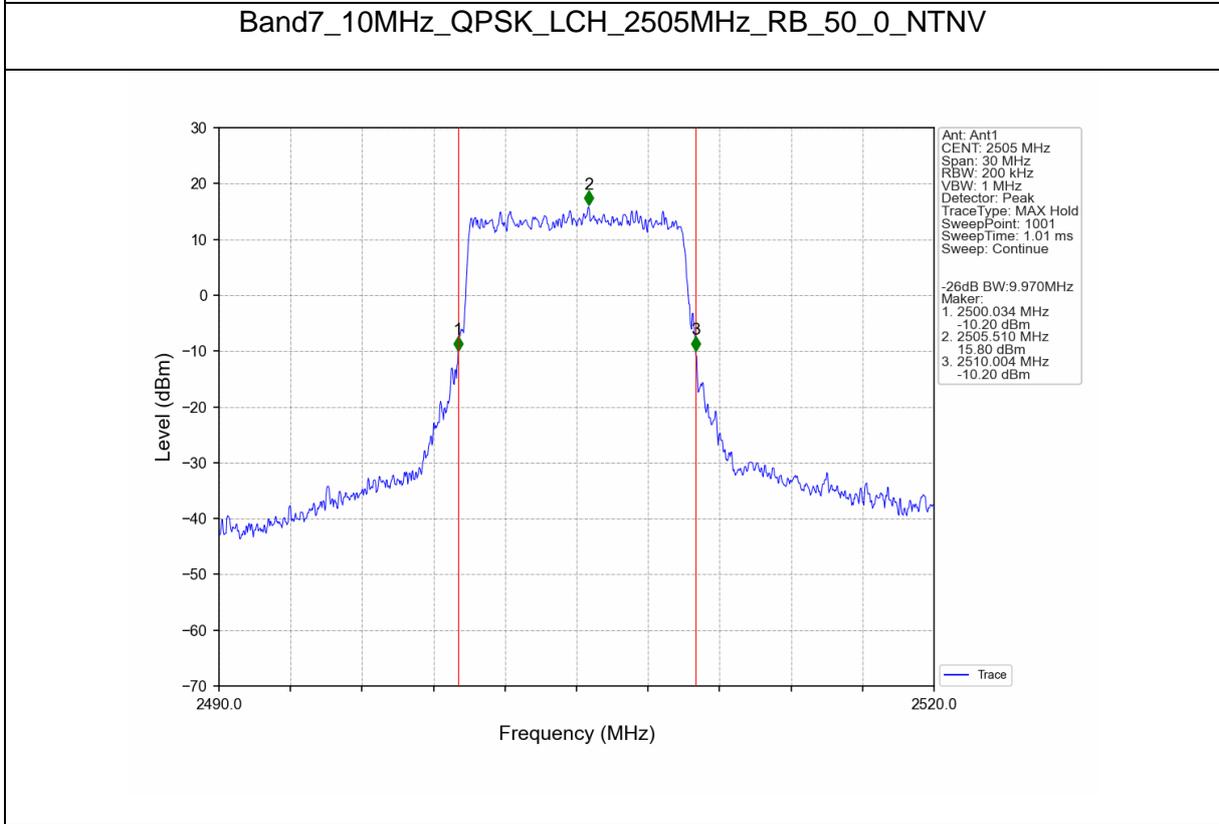
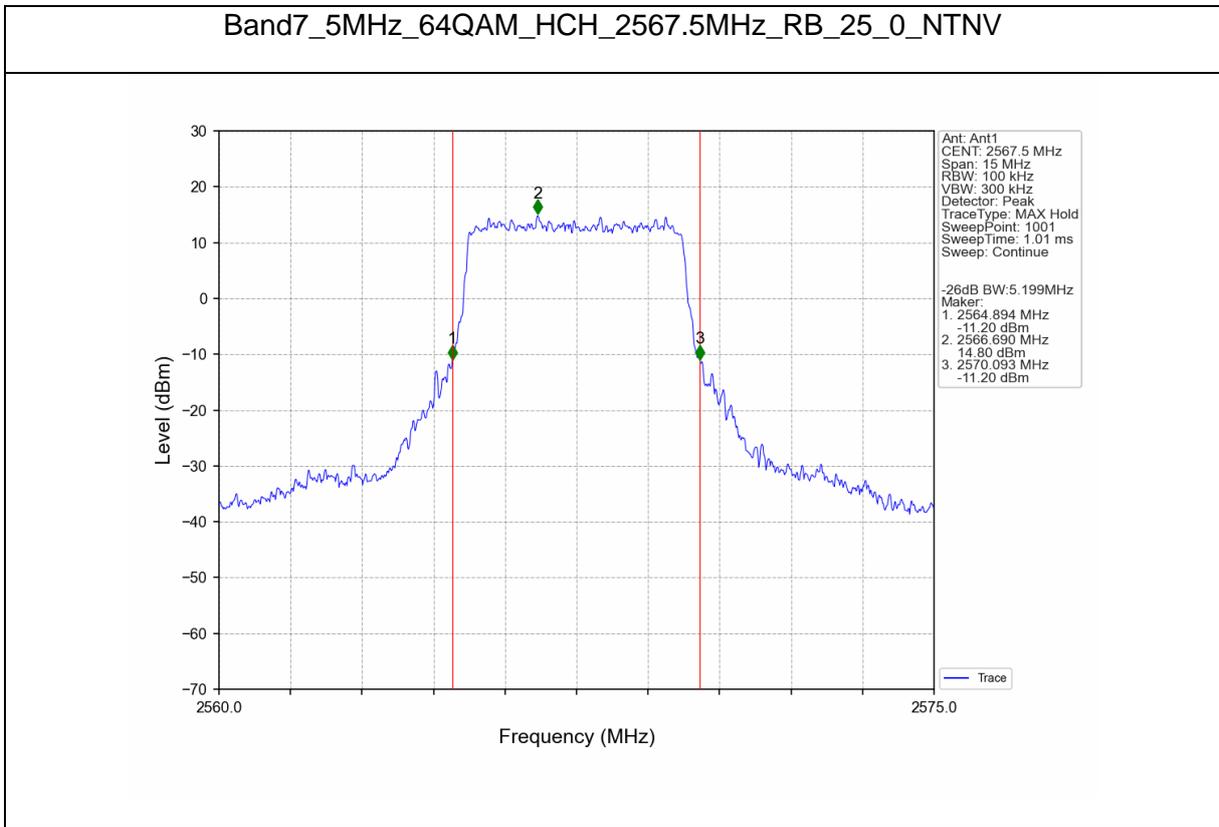
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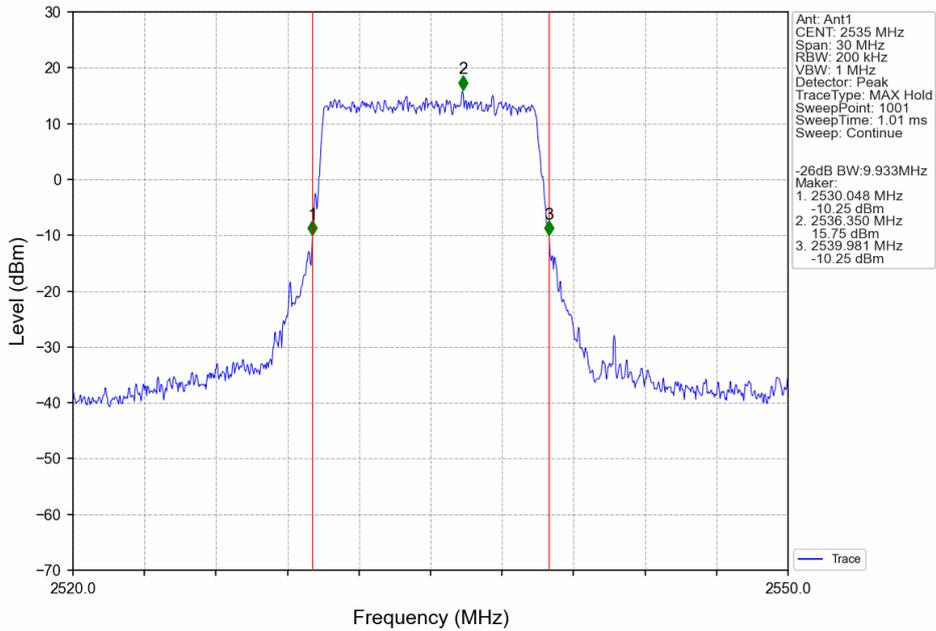


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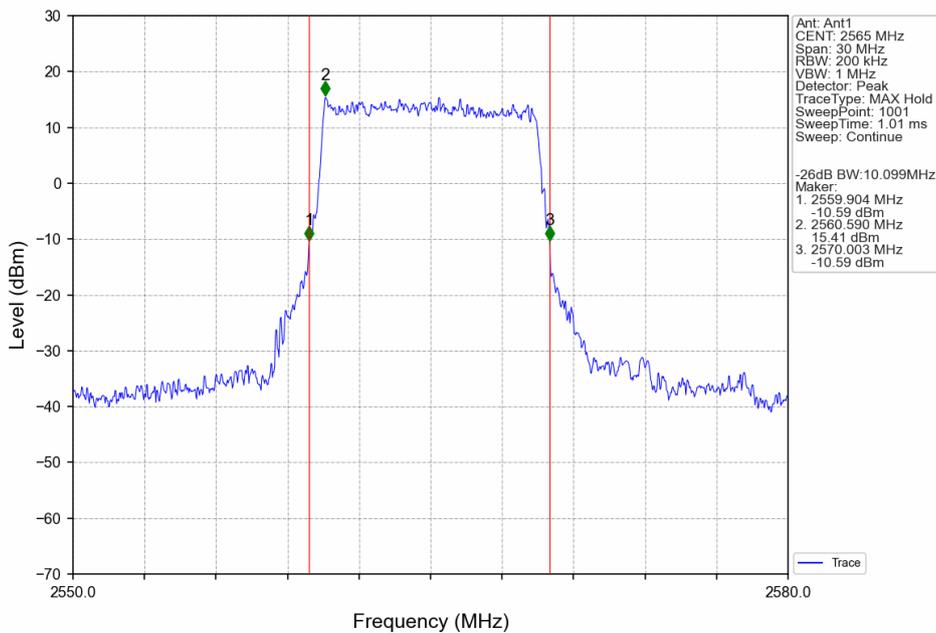




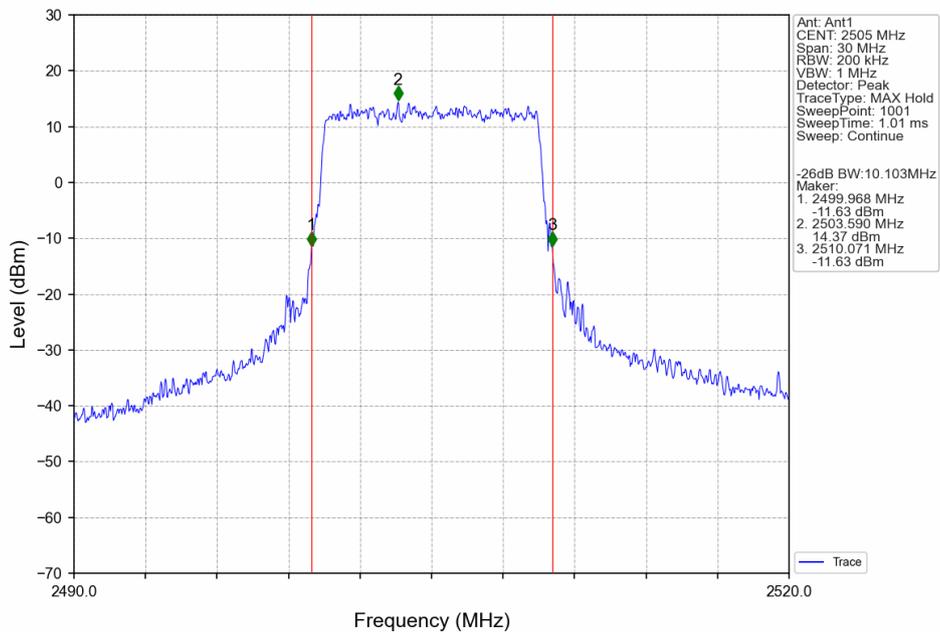
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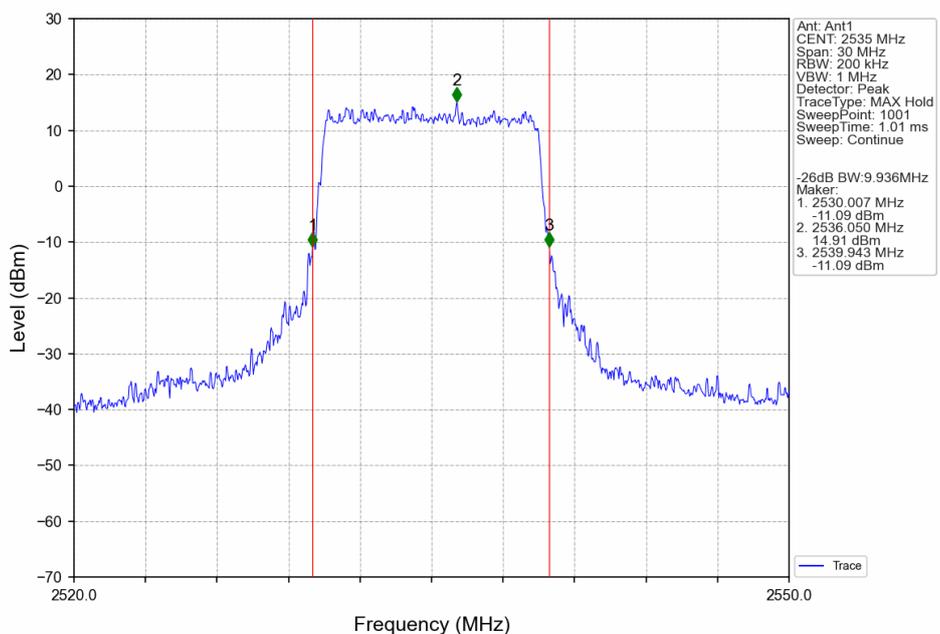
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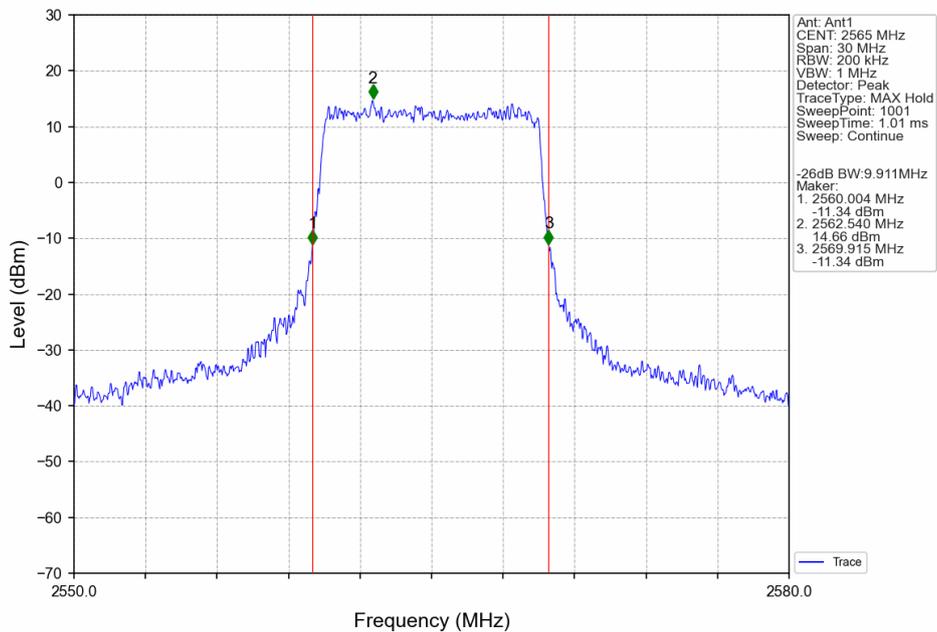
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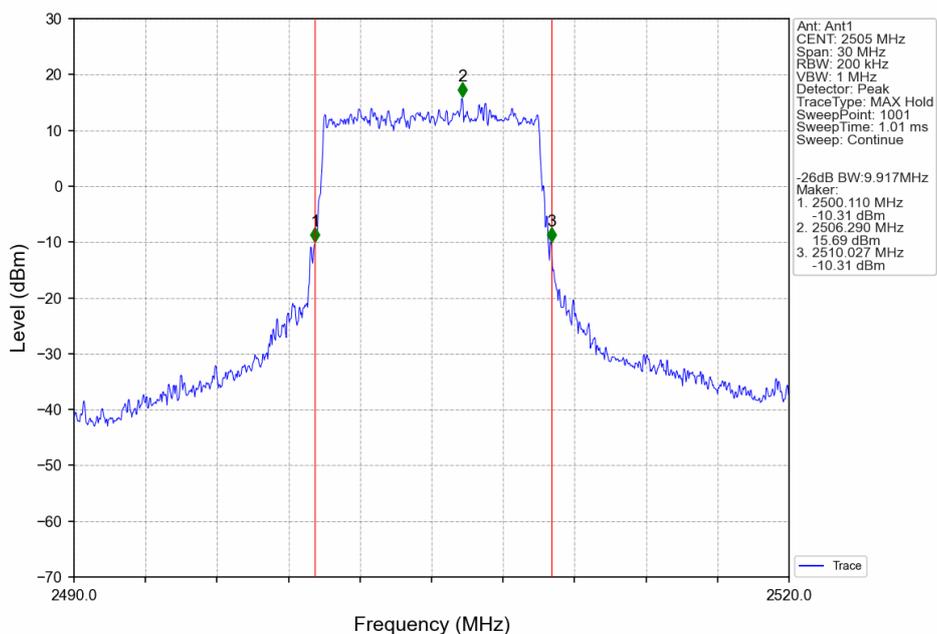
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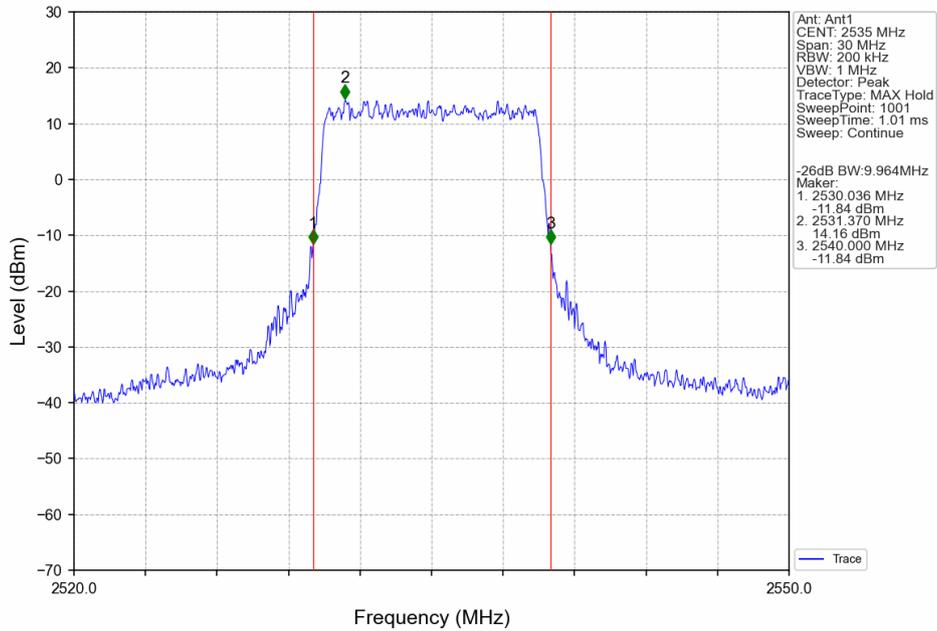
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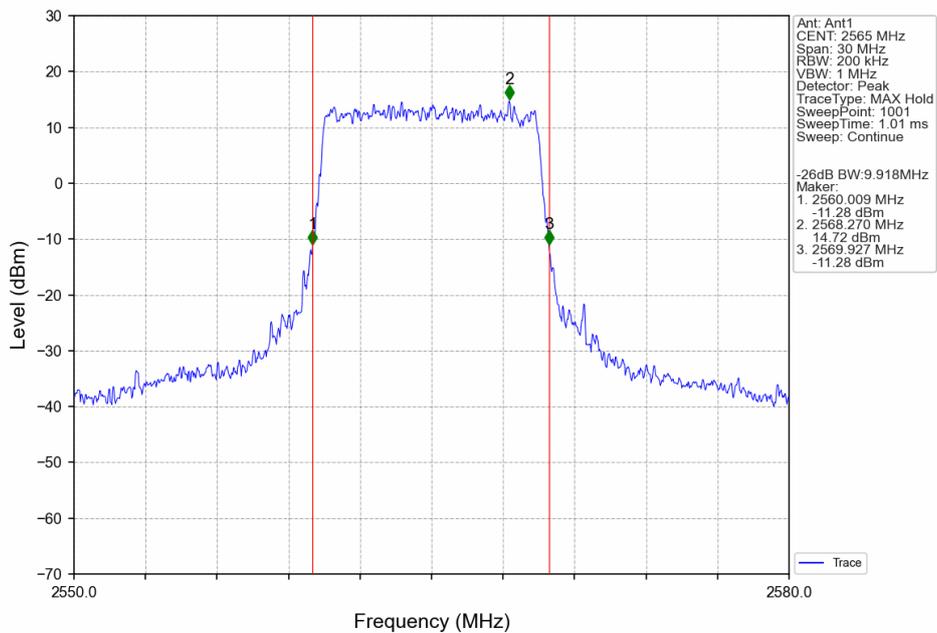
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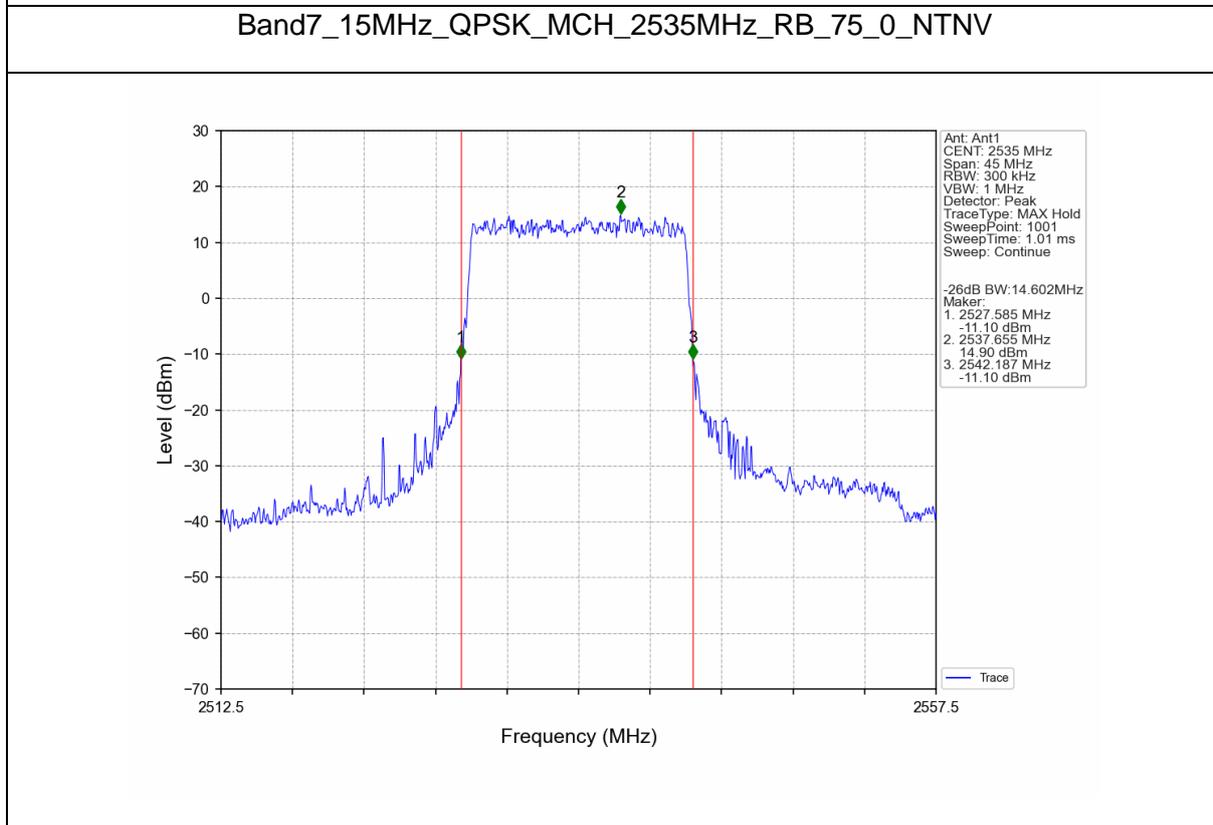
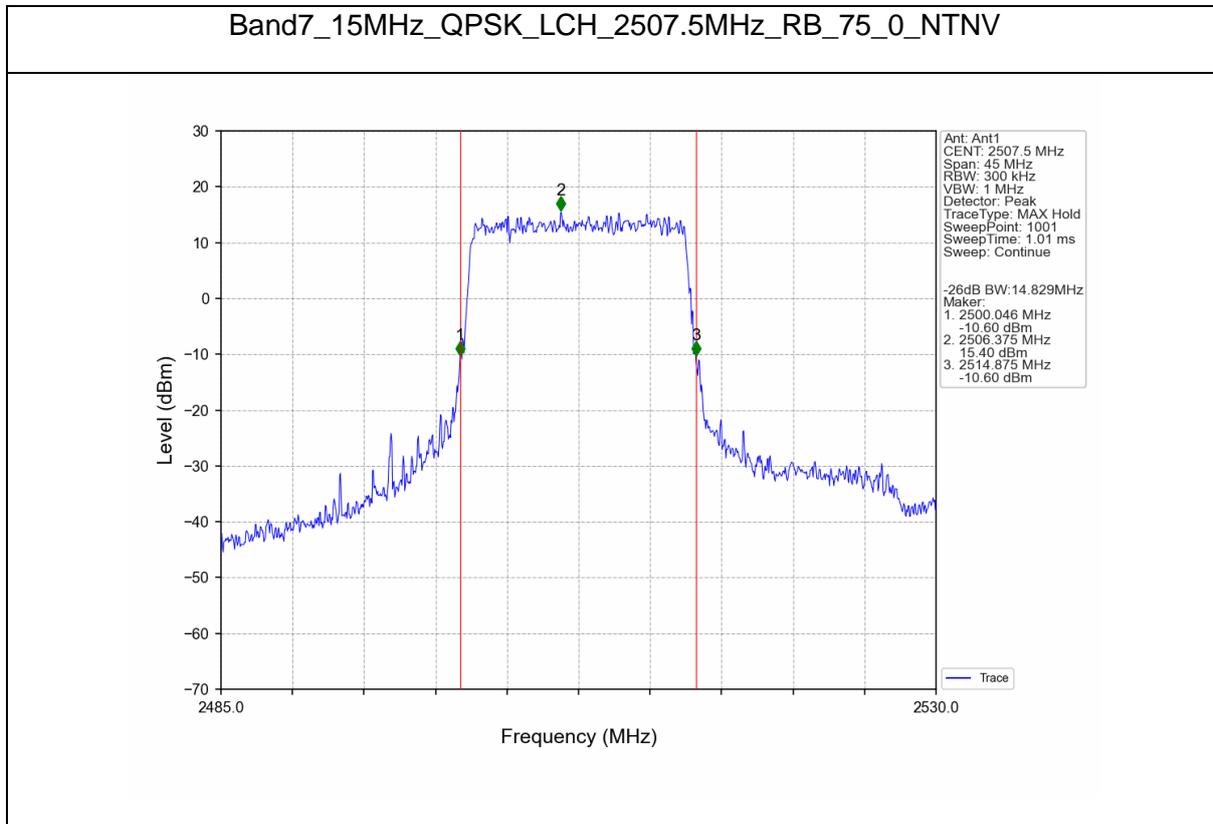


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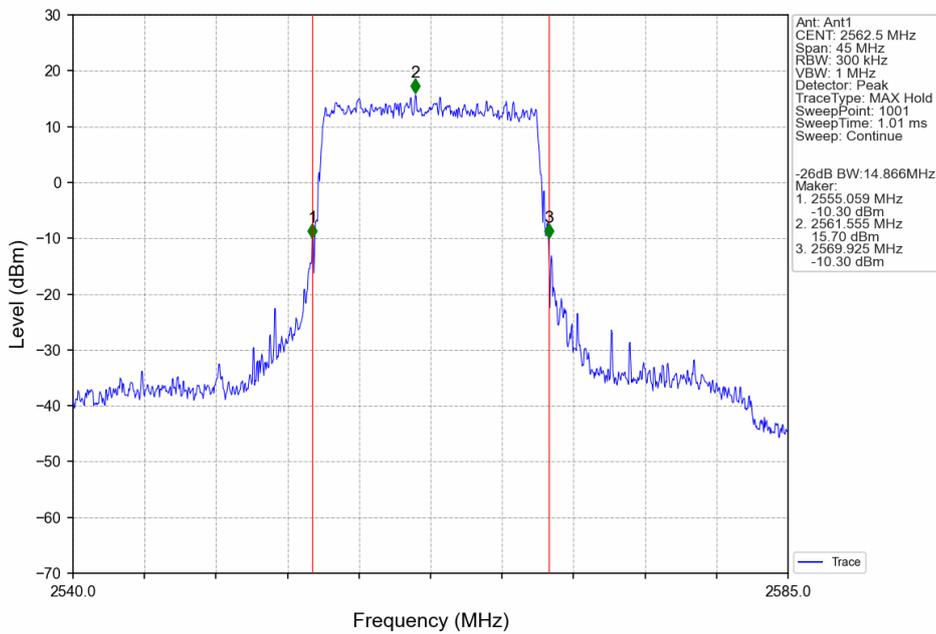


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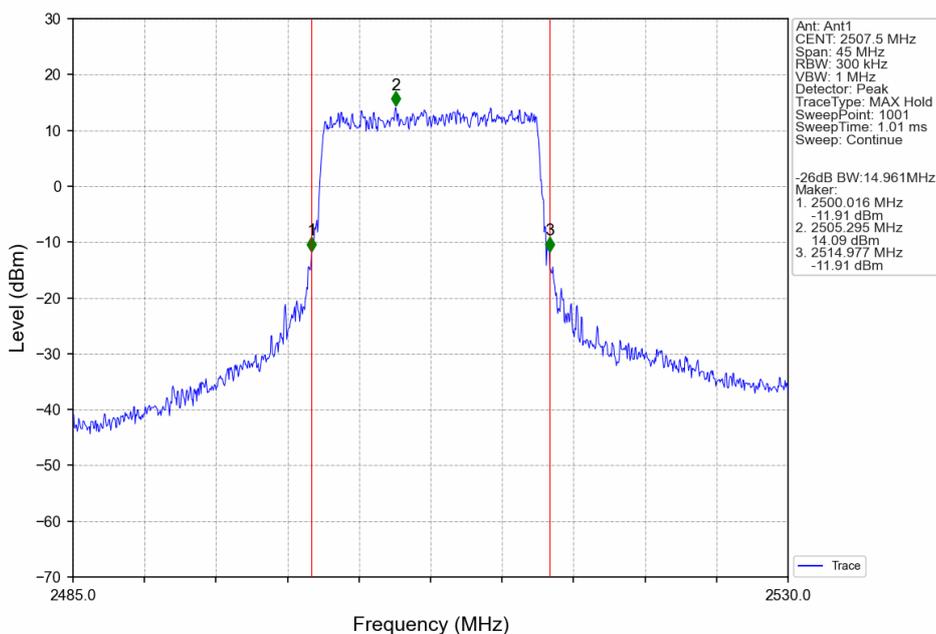




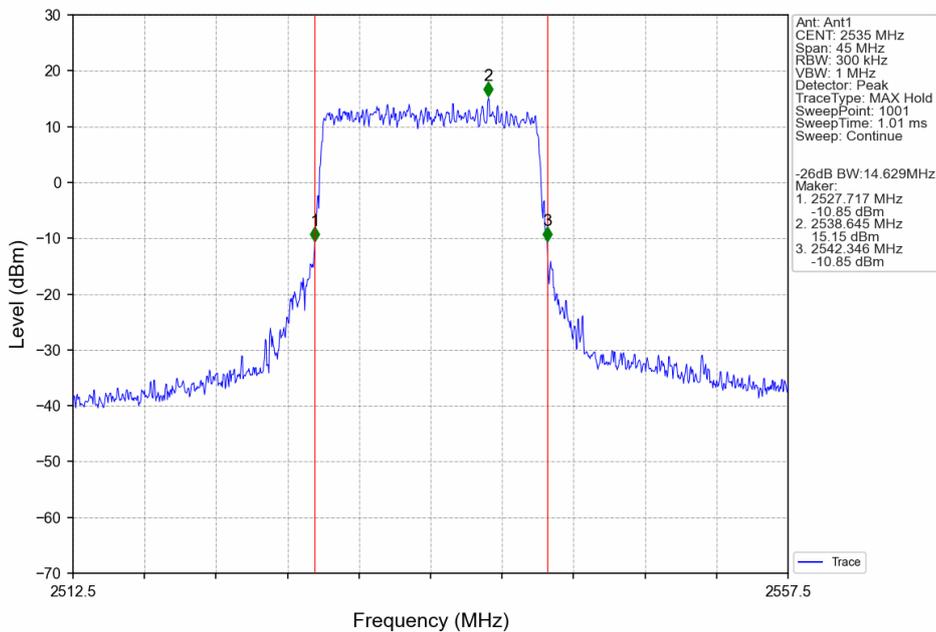
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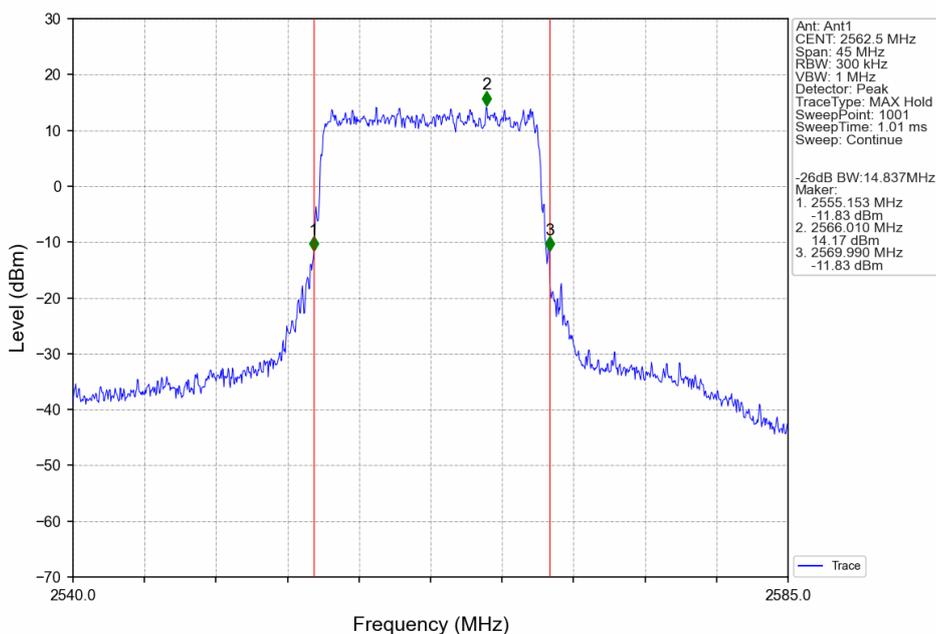
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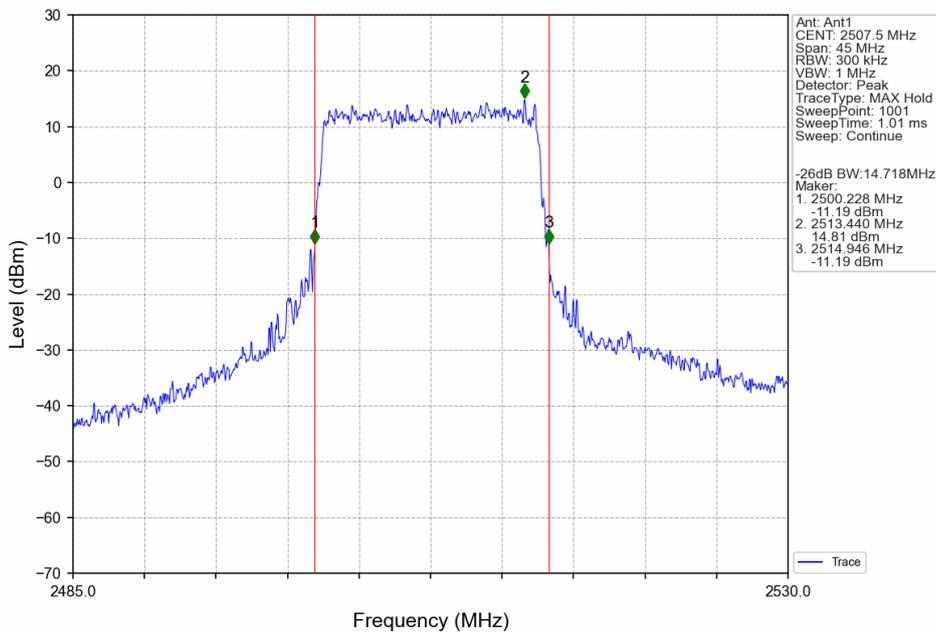
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Band7\_15MHz\_64QAM\_LCH\_2507.5MHz\_RB\_75\_0\_NTNV



Band7\_15MHz\_64QAM\_MCH\_2535MHz\_RB\_75\_0\_NTNV

