ACCREDITED
Certificate # 3939.01

FCC TEST REPORT
(PART 24)

Applicant:	MUNIC
Address:	100 Avenue de Stalingrad 94800 Villejuif – France

Manufacturer or Supplier:	MUNIC
Address:	100 Avenue de Stalingrad 94800 Villejuif – France
Product:	telematics embedded system
Brand Name:	MUNIC
Model Name:	C4D-4G4USAA_V8+
FCC ID:	A6GC4D-4G4USV8
Date of tests:	Nov. 15, 2021 ~ Dec. 01, 2021

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

☒ **FCC PART 24, Subpart E** ☒ **FCC PART 2**
☒ **ANSI/TIA/EIA-603-D** ☒ **ANSI/TIA/EIA-603-E** ☒ **ANSI C63.26-2015**

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

Prepared by Simon Wang Engineer / Mobile Department	Approved by Luke Lu Manager / Mobile Department
Simon Date: Dec. 02, 2021	Luke Lu Date: Dec. 02, 2021

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
W7L-P21090018RF05	Original release	Dec. 02, 2021

1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 24 & Part 2		
STANDARD SECTION	**TEST TYPE**	**RESULT**
2.1046 24.232	Equivalent Isotropic Radiated Power	Compliance
2.1055 24.235	Frequency Stability	Compliance
2.1049 24.238(b)	Occupied Bandwidth	Compliance
24.232(d)	Peak to average ratio	Compliance
24.238(b)	Band Edge Measurements	Compliance
2.1051 24.238	Conducted Spurious Emissions	Compliance
2.1053 24.238	Radiated Spurious Emissions	Compliance

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 & Radiated Power (30MHz~1GMHz)	±4.98dB
Radiated emissions & Radiated Power (1GMHz ~6GMHz)	±4.70dB
Radiated emissions (6GMHz ~18GMHz)	±4.60dB
Radiated emissions (18GMHz ~40GMHz)	±4.12dB
Conducted emissions	±4.01dB
Occupied Channel Bandwidth	±43.58KHz
Conducted Output power	±2.06dB
Band Edge Measurements	±4.70dB
Peak to average ratio	±0.76dB

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

1.2 TEST SITE AND INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
MXE EMI Receiver	KEYSIGHT	N9038A-544	MY54450026	Apr. 22,21	Apr. 21,22
EXA Signal Analyzer	KEYSIGHT	N9010A-544	MY54510355	Jun. 03,21	Jun. 02,22
Bilog Antenna 2	ETS-LINDGREN	3143B	00161965	Mar. 05,21	Mar. 04,22
Horn Antenna 2	ETS-LINDGREN	3117	00168692	Apr. 02,21	Apr. 01,22
Horn Antenna (18GHz-40GHz)	N/A	QWH-SL-18-40-K-SG/QMS-00361	15433	Aug. 25, 21	Aug. 24, 22
Radio Communication Analyzer	ANRITSU	MT8820C	6201465426	Feb. 25,21	Feb. 24,22
Signal Pre-Amplifier	EMSI	EMC 9135	980249	Jun. 02,21	Jun. 01,22
Signal Pre-Amplifier	EMSI	EMC 012645B	980257	Jun. 03,21	Jun. 02,22
Signal Pre-Amplifier	EMSI	EMC 184045B	980259	Apr. 22,21	Apr. 21,22
3m Semi-anechoic Chamber	ETS-LINDGREN	9m*6m*6m	Euroshieldpn-CT0001143-1216	May. 20,21	May. 19,22
3m Semi-anechoic Chamber	ETS-LINDGREN	9m*6m*6m	Euroshieldpn-CT0001143-1216	May. 19,22	May. 18,23
Test Software	E3	V 9.160323	N/A	N/A	N/A
Test Software	ADT	ADT_Radiated_V 7.6.15.9.2	N/A	N/A	N/A
10dB Attenuator	JFW/USA	50HF-010-SMA	1505	Jun. 03,21	Jun. 02,22
Power Meter	Anritsu	ML2495A	1506002	Apr. 07,21	Apr. 06,22
Power Sensor	Anritsu	MA2411B	1339352	May. 07,21	May. 06,22
Temperature Chamber	ESPEC	SH-242	93000855	Jun. 02,21	Jun. 01,22
MXG Analog Microvave Signal Generator	KEYSIGHT	N5183A	MY50143024	Mar. 05,21	Mar. 04,22
Power Divider	MCLI/USA	PS2-15	24880	N/A	N/A

NOTE: 1. The calibration interval of the above test instruments is 12 months or 24 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 525120; The Designation No. is CN1171.

2 GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

PRODUCT	telematics embedded system	
BRAND NAME	MUNIC	
MODEL NAME	C4D-4G4USAA_V8+	
NOMINAL VOLTAGE	DC13.7V	
MODULATION TYPE	**LTE Band 2:** QPSK, 16QAM	
FREQUENCY RANGE	**LTE Band 2 Channel Bandwidth: 1.4MHz**	1850.7MHz ~ 1909.3MHz
	LTE Band 2 Channel Bandwidth: 3MHz	1851.5MHz ~ 1908.5MHz
	LTE Band 2 Channel Bandwidth: 5MHz	1852.5MHz ~ 1907.5MHz
	LTE Band 2 Channel Bandwidth: 10MHz	1855.0MHz ~ 1905.0MHz
	LTE Band 2 Channel Bandwidth: 15MHz	1857.5MHz ~ 1902.5MHz
	LTE Band 2 Channel Bandwidth: 20MHz	1860.0MHz ~ 1900.0MHz
MAX. EIRP POWER	**LTE Band 2 Channel Bandwidth: 1.4MHz**	677.64mW
	LTE Band 2 Channel Bandwidth: 3MHz	680.77mW
	LTE Band 2 Channel Bandwidth: 5MHz	672.98mW
	LTE Band 2 Channel Bandwidth: 10MHz	677.64mW
	LTE Band 2 Channel Bandwidth: 15MHz	677.64mW
	LTE Band 2 Channel Bandwidth: 20MHz	683.91mW

EMISSION DESIGNATOR	**LTE Band 2 Channel Bandwidth: 1.4MHz**	QPSK: 1M12G7D
		16QAM: 1M12W7D
	LTE Band 2 Channel Bandwidth: 3MHz	QPSK: 2M76G7D
		16QAM: 2M74W7D
	LTE Band 2 Channel Bandwidth: 5MHz	QPSK: 4M56G7D
		16QAM: 4M58W7D
	LTE Band 2 Channel Bandwidth: 10MHz	QPSK: 9M06G7D
		16QAM: 9M03W7D
	LTE Band 2 Channel Bandwidth: 15MHz	QPSK: 13M5G7D
		16QAM: 13M5W7D
	LTE Band 2 Channel Bandwidth: 20MHz	QPSK: 18M1G7D
		16QAM: 18M0W7D
ANTENNA TYPE	Fixed Internal Antenna with 5.54dBi gain for LTE B2	
HW VERSION	HW.01	
SW VERSION	SW.01	
I/O PORTS	Refer to user's manual	
CABLE SUPPLIED	N/A	
EXTREME TEMPERATURE	-50-20 ℃	
EXTREME VOLTAGE	DC8V – DC18V	

NOTE:

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.

2. The EUT incorporates a SISO function. Physically, the EUT provides one completed transmitter and one receiver.

MODULATION MODE	TX FUNCTION
LTE	1TX/1RX

3. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.

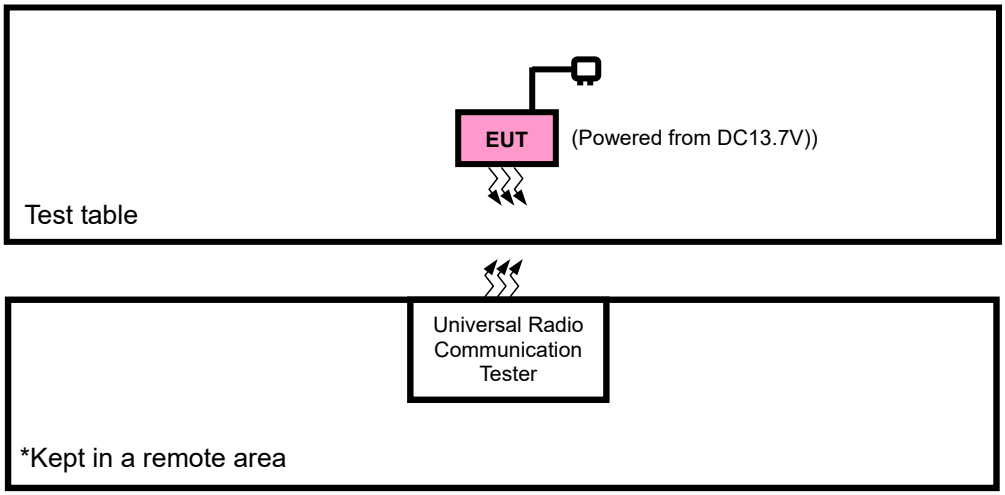
4. C4D-4G4USAA_V8+ have ESIM and SIM two modes, respectively corresponding to MFF2 SIM and 4FF SIM detail describe in PED , pre-scan two models. worst case mode MFF2 SIM is reflected in this report

List of Accessory:

ACCESSORIES	BRAND	MODEL	SPECIFICATION
Battery 1	Howell	Li-polymer 552535H	Capacity：Li-ion, 450mAh
Battery 2	Akkutronics	382530-PTL	Capacity：Li-ion, 450mAh

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	Kikusui/JP	PMX18-5A	0000001	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	DC Line: Unshielded, Detachable 1.0m

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 in EIRP and radiated emission was found when positioned on X-plane for GSM/EDGE/ LTE. Following channel(s) was (were) selected for the final test as listed below:

EUT CONFIGURE MODE	DESCRIPTION
A	EUT + DC source with LTE link

LTE BAND 2 MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
B	EIRP	18607 to 19193	18607, 18900, 19193	1.4MHz	QPSK,16QAM	1 RB / 0 RB Offset
		18615 to 19185	18615, 18900, 19185	3MHz	QPSK,16QAM	1 RB / 0 RB Offset
		18625 to 19175	18625, 18900, 19175	5MHz	QPSK,16QAM	1 RB / 0 RB Offset
		18650 to 19150	18650, 18900, 19150	10MHz	QPSK,16QAM	1 RB / 0 RB Offset
		18675 to 19125	18675, 18900, 19125	15MHz	QPSK,16QAM	1 RB / 0 RB Offset
		18700 to 19100	18700, 18900, 19100	20MHz	QPSK,16QAM	1 RB / 0 RB Offset
B	FREQUENCY STABILITY	18607 to 19193	18607, 19193	1.4MHz	QPSK	1 RB / 0 RB Offset
		18615 to 19185	18615, 19185	3MHz	QPSK	1 RB / 0 RB Offset
		18625 to 19175	18625, 19175	5MHz	QPSK	1 RB / 0 RB Offset
		18650 to 19150	18650, 19150	10MHz	QPSK	1 RB / 0 RB Offset
		18675 to 19125	18675, 19125	15MHz	QPSK	1 RB / 0 RB Offset
		18700 to 19100	18700, 19100	20MHz	QPSK	1 RB / 0 RB Offset
B	OCCUPIED BANDWIDTH	18607 to 19193	18607, 18900, 19193	1.4MHz	QPSK,16QAM	6 RB / 0 RB Offset
		18615 to 19185	18615, 18900, 19185	3MHz	QPSK,16QAM	15 RB / 0 RB Offset
		18625 to 19175	18625, 18900, 19175	5MHz	QPSK,16QAM	25 RB / 0 RB Offset
		18650 to 19150	18650, 18900, 19150	10MHz	QPSK,16QAM	50 RB / 0 RB Offset
		18675 to 19125	18675, 18900, 19125	15MHz	QPSK,16QAM	75 RB / 0 RB Offset
		18700 to 19100	18700, 18900, 19100	20MHz	QPSK,16QAM	100 RB / 0 RB Offset
B	PEAK TO AVERAGE RATIO	18607 to 19193	18607, 18900, 19193	1.4MHz	QPSK,16QAM	1 RB / 0 RB Offset
		18615 to 19185	18615, 18900, 19185	3MHz	QPSK,16QAM	1 RB / 0 RB Offset
		18625 to 19175	18625, 18900, 19175	5MHz	QPSK,16QAM	1 RB / 0 RB Offset
		18650 to 19150	18650, 18900, 19150	10MHz	QPSK,16QAM	1 RB / 0 RB Offset
		18675 to 19125	18675, 18900, 19125	15MHz	QPSK,16QAM	1 RB / 0 RB Offset
		18700 to 19100	18700, 18900, 19100	20MHz	QPSK,16QAM	1 RB / 0 RB Offset

B	BAND EDGE	18607 to 19193	18607	1.4MHz	QPSK,16QAM	1 RB / 0 RB Offset
						6 RB / 0 RB Offset
			19193	1.4MHz	QPSK,16QAM	1 RB / 5 RB Offset
						6 RB / 0 RB Offset
		18615 to 19185	18615	3MHz	QPSK,16QAM	1 RB / 0 RB Offset
						15 RB / 0 RB Offset
			19185	3MHz	QPSK,16QAM	1 RB / 14 RB Offset
						15 RB / 0 RB Offset
		18625 to 19175	18625	5MHz	QPSK,16QAM	1 RB / 0 RB Offset
						25 RB / 0 RB Offset
			19175	5MHz	QPSK,16QAM	1 RB / 24 RB Offset
						25 RB / 0 RB Offset
		18650 to 19150	18650	10MHz	QPSK,16QAM	1 RB / 0 RB Offset
						50 RB / 0 RB Offset
			19150	10MHz	QPSK,16QAM	1 RB / 49 RB Offset
						50 RB / 0 RB Offset

		18675 to 19125	18675	15MHz	QPSK,16QAM	1 RB / 0 RB Offset
						75 RB / 0 RB Offset
			19125	15MHz	QPSK,16QAM	1 RB / 74 RB Offset
						75 RB / 0 RB Offset
		18700 to 19100	18700	20MHz	QPSK,16QAM	1 RB / 0 RB Offset
						100 RB / 0 RB Offset
			19100	20MHz	QPSK,16QAM	1 RB / 99 RB Offset
						100 RB / 0 RB Offset
B	CONDCUDETED EMISSION	18607 to 19193	18607, 18900, 19193	1.4MHz	QPSK	1 RB / 0 RB Offset
		18615 to 19185	18615, 18900, 19185	3MHz	QPSK	1 RB / 0 RB Offset
		18625 to 19175	18625, 18900, 19175	5MHz	QPSK	1 RB / 0 RB Offset
		18650 to 19150	18650, 18900, 19150	10MHz	QPSK	1 RB / 0 RB Offset
		18675 to 19125	18675, 18900, 19125	15MHz	QPSK	1 RB / 0 RB Offset
		18700 to 19100	18700, 18900, 19100	20MHz	QPSK	1 RB / 0 RB Offset
A	RADIATED EMISSION	18607 to 19193	18900	1.4MHz	QPSK	1 RB / 0 RB Offset
		18615 to 19185	18900	3MHz	QPSK	1 RB / 0 RB Offset
		18625 to 19175	18900	5MHz	QPSK	1 RB / 0 RB Offset
		18650 to 19150	18607, 18900, 19193	10MHz	QPSK	1 RB / 0 RB Offset
		18675 to 19125	18900	15MHz	QPSK	1 RB / 0 RB Offset
		18700 to 19100	18900	20MHz	QPSK	1 RB / 0 RB Offset

TEST CONDITION:

TEST ITEM	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
EIRP	25deg. C, 57%RH	DC 13.7V	Jace Hu
FREQUENCY STABILITY	23deg. C, 61%RH	DC 13.7V	James Fu
OCCUPIED BANDWIDTH	23deg. C, 61%RH	DC 13.7V	James Fu
PEAK TO AVERAGE RATIO	23deg. C, 61%RH	DC 13.7V	James Fu
BAND EDGE	23deg. C, 61%RH	DC 13.7V	James Fu
CONDCUDETED EMISSION	23deg. C, 61%RH	DC 13.7V	James Fu
RADIATED EMISSION	23deg. C, 70%RH	DC 13.7V	Jace Hu

2.5 EUT OPERATING CONDITIONS

The EUT makes a call to the communication simulator. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency

2.6 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 24

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

Mobile and portable stations are limited to 2 watts EIRP.

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 determing the ERP or EIRP from the conducted RF output power measured using the guidance provided above is:

ERP or EIRP = $P_{Meas} + G_T - L_C$

Where:

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

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

G_T = gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP);

L_C = signal attenuation in the connecting cable between the transmitter and antenna, in dB.

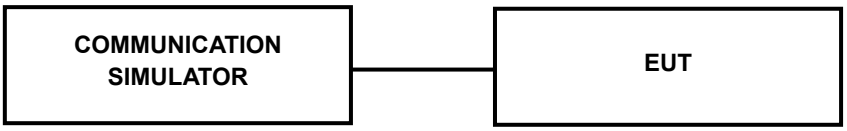
CONDUCTED POWER MEASUREMENT:

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

3.1.3 TEST SETUP

EIRP / ERP Measurement:

CONDUCTED POWER MEASUREMENT:



3.1.4 TEST RESULTS

CONDUCTED OUTPUT POWER (dBm)

LTE BAND 2

Band/BW	Modulation	RB Size	RB Offset	Low CH 18607	Mid CH 18900	High CH 19193	MPR
				Frequency 1850.7 MHz	Frequency 1880 MHz	Frequency 1909.3 MHz	
2/ 1.4	QPSK	1	0	22.48	22.77	22.27	0
		1	2	22.28	22.54	22.10	0
		1	5	21.90	22.14	21.68	0
		3	0	22.32	22.59	22.24	0
		3	1	22.38	22.64	22.10	0
		3	3	22.15	22.41	22.03	0
		6	0	21.23	21.43	21.03	1
	16QAM	1	0	21.67	21.75	21.47	1
		1	2	21.72	21.78	21.57	1
		1	5	20.79	21.08	20.69	1
		3	0	21.47	21.68	21.30	1
		3	1	21.19	21.58	21.08	1
		3	3	21.09	21.33	20.96	1
		6	0	20.16	20.44	19.93	2

Band/BW	Modulation	RB Size	RB Offset	Low CH 18615	Mid CH 18900	High CH 19185	MPR
				Frequency 1851.5 MHz	Frequency 1880 MHz	Frequency 1908.5 MHz	
2/ 3	QPSK	1	0	22.50	22.79	22.26	0
		1	7	22.24	22.55	22.10	0
		1	14	21.86	22.14	21.68	0
		8	0	21.31	21.62	21.24	1
		8	3	21.31	21.64	21.12	1
		8	7	21.12	21.48	21.07	1
		15	0	21.20	21.44	20.97	1
	16QAM	1	0	21.64	21.81	21.50	1
		1	7	21.69	21.76	21.55	1
		1	14	20.82	21.08	20.69	1
		8	0	20.43	20.69	20.30	2
		8	3	20.24	20.53	20.11	2
		8	7	20.11	20.31	19.92	2
		15	0	20.16	20.38	19.96	2

Band/BW	Modulation	RB Size	RB Offset	Low CH 18625	Mid CH 18900	High CH 19175	MPR
				Frequency 1852.5 MHz	Frequency 1880 MHz	Frequency 1907.5 MHz	
2/ 5	QPSK	1	0	22.51	22.74	22.27	0
		1	12	22.29	22.52	22.10	0
		1	24	21.87	22.13	21.72	0
		12	0	21.34	21.62	21.21	1
		12	6	21.31	21.65	21.13	1
		12	13	21.16	21.44	21.08	1
		25	0	21.18	21.47	21.00	1
	16QAM	1	0	21.65	21.77	21.50	1
		1	12	21.66	21.79	21.54	1
		1	24	20.82	21.08	20.68	1
		12	0	20.43	20.67	20.27	2
		12	6	20.21	20.57	20.07	2
		12	13	20.06	20.33	19.95	2
		25	0	20.16	20.39	19.93	2

Band/BW	Modulation	RB Size	RB Offset	Low CH 18650	Mid CH 18900	High CH 19150	MPR
				Frequency 1855 MHz	Frequency 1880 MHz	Frequency 1905 MHz	
2/ 10	QPSK	1	0	22.48	22.77	22.27	0
		1	24	22.29	22.52	22.11	0
		1	49	21.84	22.17	21.68	0
		25	0	21.35	21.61	21.24	1
		25	12	21.37	21.59	21.13	1
		25	25	21.14	21.41	21.07	1
		50	0	21.23	21.47	20.97	1
	16QAM	1	0	21.65	21.74	21.46	1
		1	24	21.71	21.75	21.57	1
		1	49	20.82	21.09	20.65	1
		25	0	20.45	20.65	20.33	2
		25	12	20.25	20.51	20.12	2
		25	25	20.05	20.34	19.92	2
		50	0	20.20	20.38	19.97	2

Band/BW	Modulation	RB Size	RB Offset	Low CH 18675	Mid CH 18900	High CH 19125	MPR
				Frequency 1857.5 MHz	Frequency 1880 MHz	Frequency 1902.5 MHz	
2/ 15	QPSK	1	0	22.55	22.77	22.24	0
		1	37	22.27	22.57	22.06	0
		1	74	21.90	22.20	21.69	0
		36	0	21.32	21.62	21.25	1
		36	19	21.38	21.64	21.13	1
		36	39	21.12	21.42	21.07	1
		75	0	21.23	21.45	21.02	1
	16QAM	1	0	21.69	21.81	21.46	1
		1	37	21.70	21.76	21.57	1
		1	74	20.78	21.14	20.67	1
		36	0	20.49	20.65	20.34	2
		36	19	20.19	20.55	20.08	2
		36	39	20.10	20.32	19.95	2
		75	0	20.21	20.41	19.90	2

Band/BW	Modulation	RB Size	RB Offset	Low CH 18700	Mid CH 18900	High CH 19100	MPR
				Frequency 1860 MHz	Frequency 1880 MHz	Frequency 1900 MHz	
2/ 20	QPSK	1	0	22.56	22.81	22.75	0
		1	50	22.31	22.60	22.12	0
		1	99	21.92	22.21	21.73	0
		50	0	21.38	21.67	21.26	1
		50	25	21.39	21.66	21.18	1
		50	50	21.20	21.49	21.09	1
		100	0	21.24	21.49	21.05	1
	16QAM	1	0	21.72	21.82	21.52	1
		1	50	21.74	21.81	21.59	1
		1	99	20.84	21.16	20.70	1
		50	0	20.51	20.73	20.35	2
		50	25	20.27	20.59	20.13	2
		50	50	20.13	20.38	19.97	2
		100	0	20.22	20.46	19.98	2

EIRP POWER (dBm)

LTE BAND 2

CHANNEL BANDWIDTH: 1.4MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18607	1850.7	22.48	5.54	28.02	633.87	2
18900	1880.0	22.77	5.54	28.31	677.64	2
19193	1909.3	22.27	5.54	27.81	603.95	2

CHANNEL BANDWIDTH: 1.4MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18607	1850.7	21.72	5.54	27.26	532.11	2
18900	1880.0	21.78	5.54	27.32	539.51	2
19193	1909.3	21.57	5.54	27.11	514.04	2

CHANNEL BANDWIDTH: 3MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18615	1851.5	22.5	5.54	28.04	636.80	2
18900	1880.0	22.79	5.54	28.33	680.77	2
19185	1908.5	22.26	5.54	27.8	602.56	2

CHANNEL BANDWIDTH: 3MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18615	1851.5	21.69	5.54	27.23	528.45	2
18900	1880.0	21.81	5.54	27.35	543.25	2
19185	1908.5	21.55	5.54	27.09	511.68	2

CHANNEL BANDWIDTH: 5MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18625	1852.5	22.51	5.54	28.05	638.26	2
18900	1880.0	22.74	5.54	28.28	672.98	2
19175	1907.5	22.27	5.54	27.81	603.95	2

CHANNEL BANDWIDTH: 5MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18625	1852.5	21.66	5.54	27.2	524.81	2
18900	1880.0	21.79	5.54	27.33	540.75	2
19175	1907.5	21.54	5.54	27.08	510.5	2

CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18650	1855.0	22.48	5.54	28.02	633.87	2
18900	1880.0	22.77	5.54	28.31	677.64	2
19150	1905.0	22.27	5.54	27.81	603.95	2

CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18650	1855.0	21.71	5.54	27.25	530.88	2
18900	1880.0	21.75	5.54	27.29	535.8	2
19150	1905.0	21.57	5.54	27.11	514.04	2

CHANNEL BANDWIDTH: 15MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18675	1857.5	22.55	5.54	28.09	644.17	2
18900	1880.0	22.77	5.54	28.31	677.64	2
19125	1902.5	22.24	5.54	27.78	599.79	2

CHANNEL BANDWIDTH: 15MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18675	1857.5	21.7	5.54	27.24	529.66	2
18900	1880.0	21.81	5.54	27.35	543.25	2
19125	1902.5	21.57	5.54	27.11	514.04	2

CHANNEL BANDWIDTH: 20MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18700	1860	22.56	5.54	28.1	645.65	2
18900	1880	22.81	5.54	28.35	683.91	2
19100	1900	22.75	5.54	28.29	674.53	2

CHANNEL BANDWIDTH: 20MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18700	1860	21.74	5.54	27.28	534.56	2
18900	1880	21.82	5.54	27.36	544.5	2
19100	1900	21.59	5.54	27.13	516.42	2

REMARKS: ERP Output Power (dBm) = EIRP (dBm) -2.15(dB).

3.2 FREQUENCY STABILITY MEASUREMENT

3.2.1 LIMITS OF FREQUENCY STABILIITY MEASUREMENT

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

3.2.2 TEST PROCEDURE

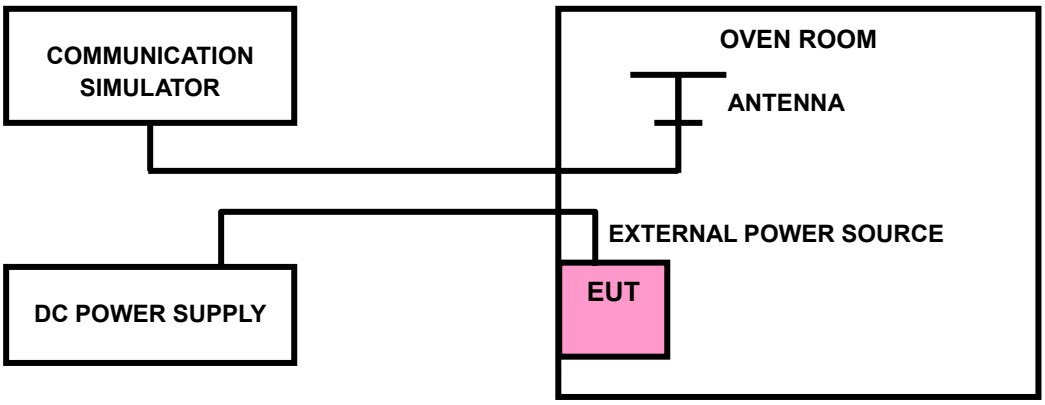
a. Device is placed at the oven room. The oven room could control the temperatures and humidity. Power warm up is at least 15 min and power applied should perform before recording frequency error.

b. 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.

c. The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the ±0.5℃ 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

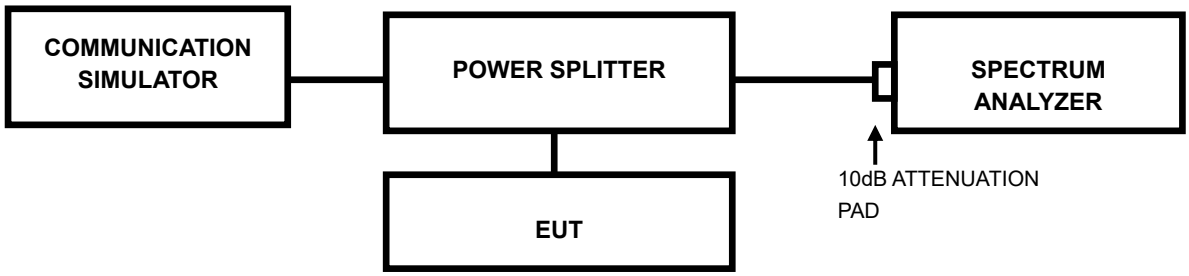
Please Refer to Appendix A Of this test report.

3.3 OCCUPIED BANDWIDTH MEASUREMENT

3.3.1 TEST PROCEDURES

The EUT makes a call to the communication simulator. All measurements were done at low, middle and high operational frequency range. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth.

3.3.2 TEST SETUP



3.3.3 TEST RESULTS

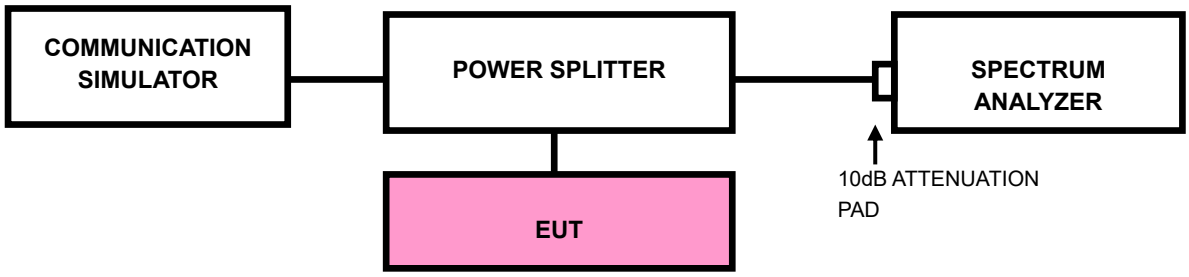
Please Refer to Appendix A Of this test report.

3.4 BAND EDGE MEASUREMENTC

3.4.1 LIMITS OF BAND EDGE MEASUREMENT

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. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

3.4.2 TEST SETUP



3.4.3 TEST PROCEDURES

a. All measurements were done at low and high operational frequency range.

b. The center frequency of spectrum is the band edge frequency and span is 1.5 MHz. RBW of the spectrum is 10kHz and VBW of the spectrum is 30kHz (GSM/GPRS/ EDGE).

c. The center frequency of spectrum is the band edge frequency and span is 10MHz. RBW of the spectrum is 100kHz and VBW of the spectrum is 300kHz (WCDMA).

d. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz. RBW of the spectrum is 20kHz and VBW of the spectrum is 100 kHz. (LTE bandwidth 1.4MHz)

e. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz. RBW of the spectrum is 30kHz and VBW of the spectrum is 100kHz. (LTE bandwidth 3MHz)

f. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz. RBW of the spectrum is 50kHz and VBW of the spectrum is 200kHz. (LTE bandwidth 5MHz)

g. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz. RBW of the spectrum is 100kHz and VBW of the spectrum is 300kHz. (LTE bandwidth 10MHz)

h. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz. RBW of the spectrum is 200kHz and VBW of the spectrum is 1MHz. (LTE bandwidth 15MHz)

i. he center frequency of spectrum is the band edge frequency and span is 1~5 MHz. RBW of the spectrum is 200kHz and VBW of the spectrum is 1MHz. (LTE bandwidth 20MHz)

j. Record the max trace plot into the test report.

3.4.4. TEST RESULTS

Please Refer to Appendix A Of this test report.

3.5 CONDUCTED SPURIOUS EMISSIONS

3.5.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

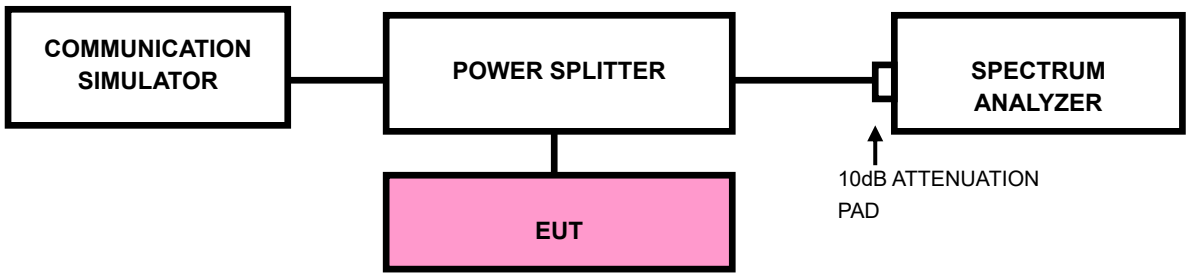
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB. The emission limit equal to –13dBm.

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 30 MHz to 19.1GHz. 10dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz is used for conducted emission measurement.

3.5.3 TEST SETUP



3.5.4 TEST RESULTS

Please Refer to Appendix A 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 –13dBm.

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. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution horn.

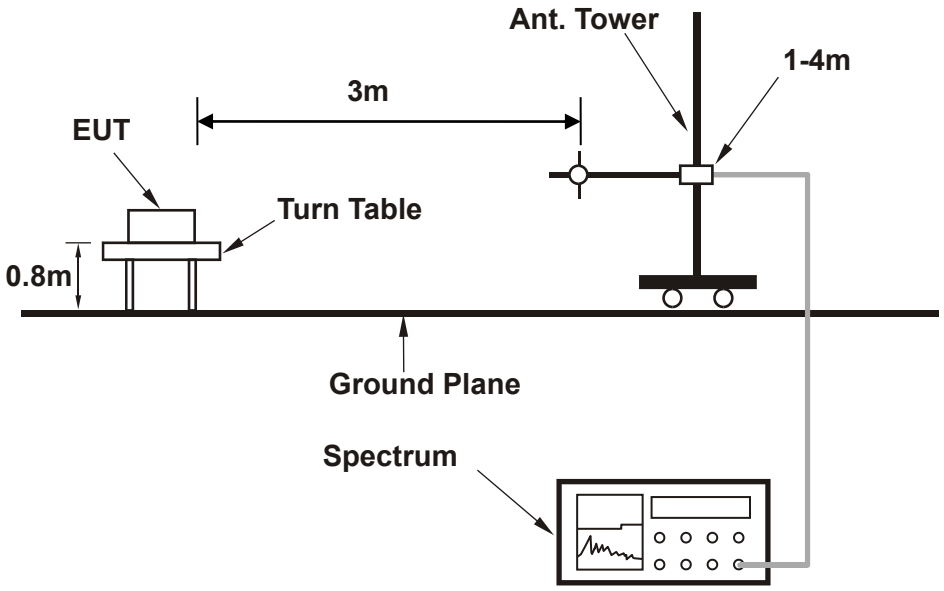
NOTE: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.

3.6.3 DEVIATION FROM TEST STANDARD

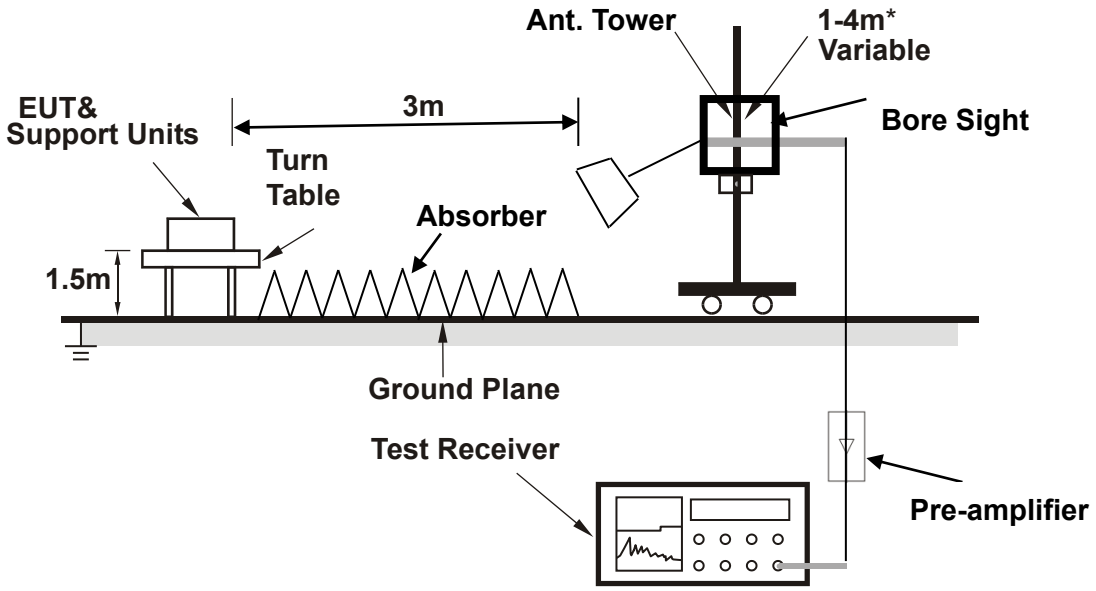
No deviation

3.6.4 TEST SETUP

< Frequency Range 30MHz~1GHz >



<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

BELOW 1GHz WORST-CASE DATA

Note：The emission in the range of 9KHz-30MHz was tested 20dB below the limit,the data not recorded in the sheet.

30 MHz – 1GHz data:

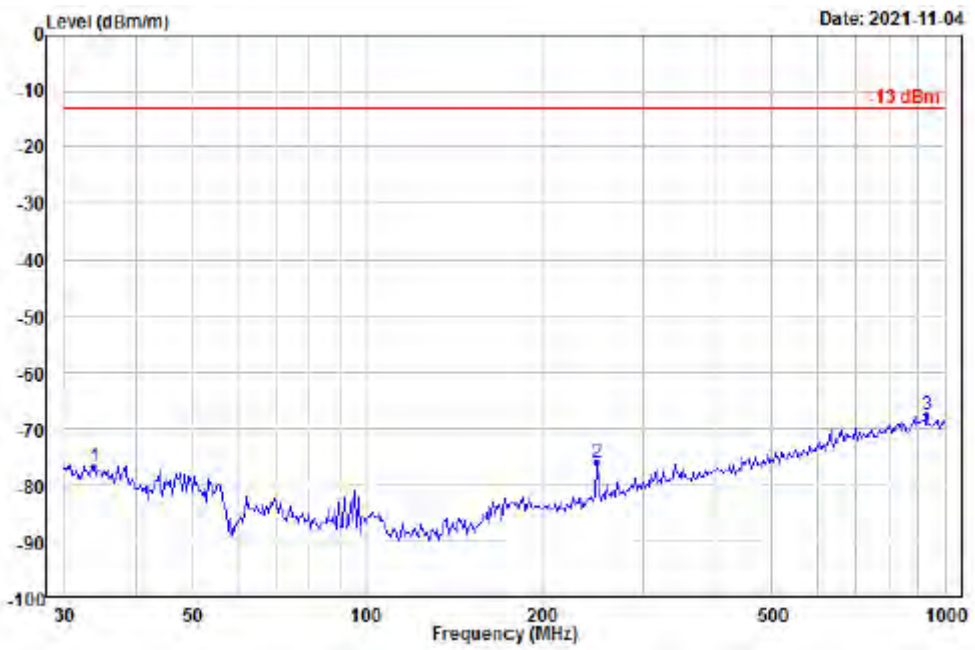
LTE Band 2

CHANNEL BANDWIDTH: 20MHz / QPSK

CH18900

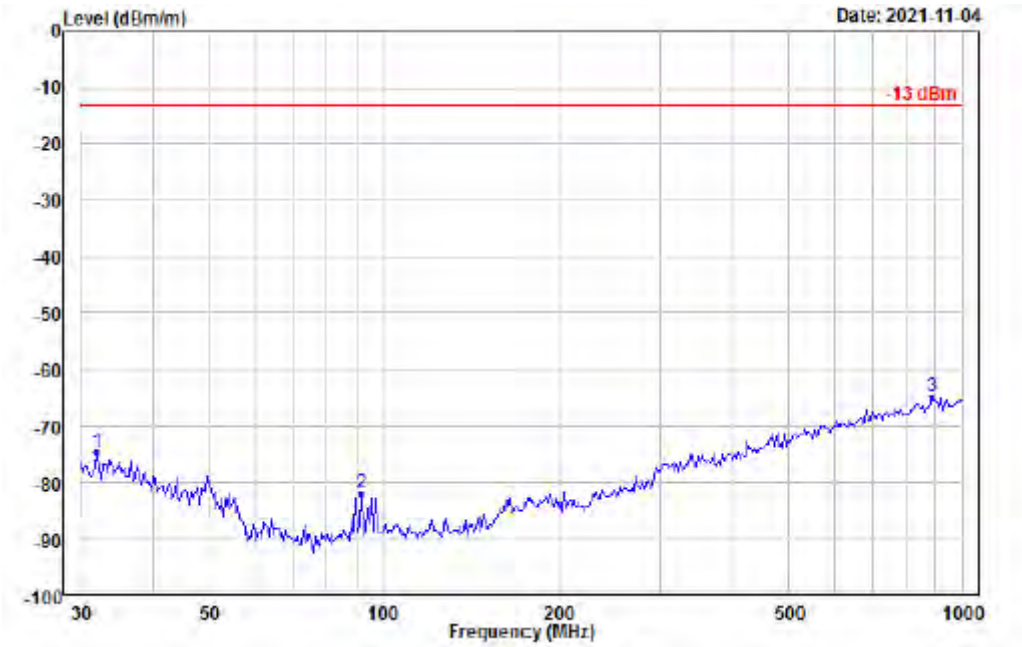
MODE	TX channel 18900	**FREQUENCY RANGE**	Below 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	**INPUT POWER**	DC13.7V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Read Level	Ant Factor	Preamp Factor	Aux Factor	Cable Loss	Level	Limit Line	Over Limit	APos	TPos	Rema
	MHz	dBm	dB/m	dB	dB	dB	dBm/m	dBm/m	dB	cm	deg	
1	33.887	-81.56	23.32	28.81	0.00	10.31	-76.74	-13.00	-63.74	---	---	Peak
2	250.486	-76.61	17.63	28.10	0.00	11.13	-75.95	-13.00	-62.95	---	---	Peak
3 PP	932.141	-81.40	30.14	28.80	0.00	12.51	-67.55	-13.00	-54.55	---	---	Peak



MODE	TX channel 18900	FREQUENCY RANGE	Below 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC13.7V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

	Freq	Read Level	Ant Factor	Preamp Factor	Aux Factor	Cable Loss	Level	Limit Line	Over Limit	APos	TPos	Rema
	MHz	dBm	dB/m	dB	dB	dB	dBm/m	dBm/m	dB	cm	deg	
1	31.959	-79.29	23.21	28.81	0.00	10.26	-74.63	-13.00	-61.63	---	---	Peak
2	91.700	-75.48	11.43	28.68	0.00	10.60	-82.13	-13.00	-69.13	---	---	Peak
3 PP	887.398	-78.41	30.25	28.93	0.00	12.34	-64.75	-13.00	-51.75	---	---	Peak



ABOVE 1GHz DATA

Note: For higher frequency, the emission is too low to be detected.

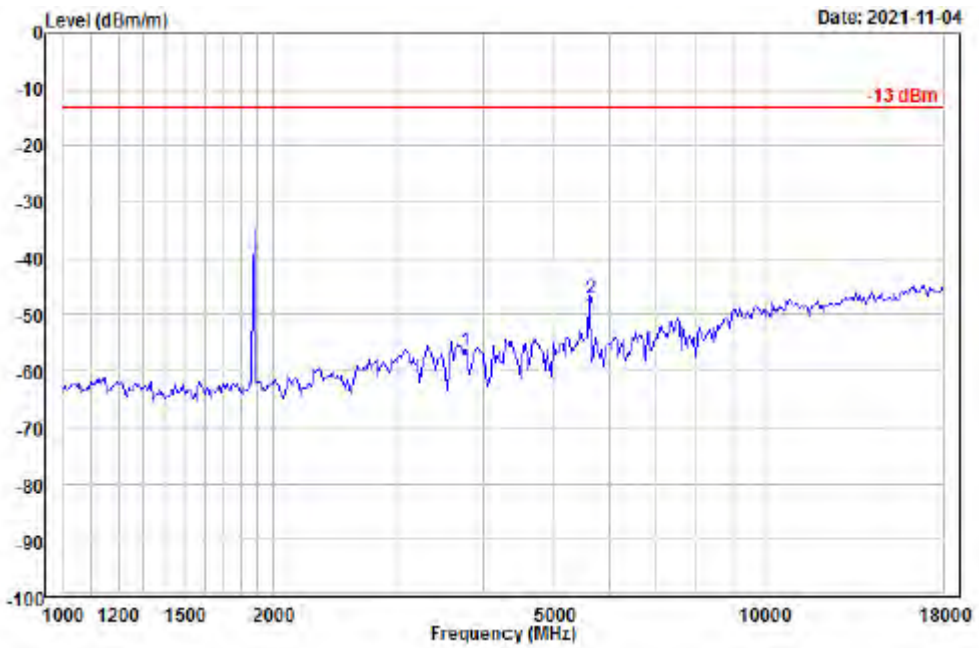
WORST-CASE DATA

LTE Band 2

CHANNEL BANDWIDTH: 1.4MHz / QPSK

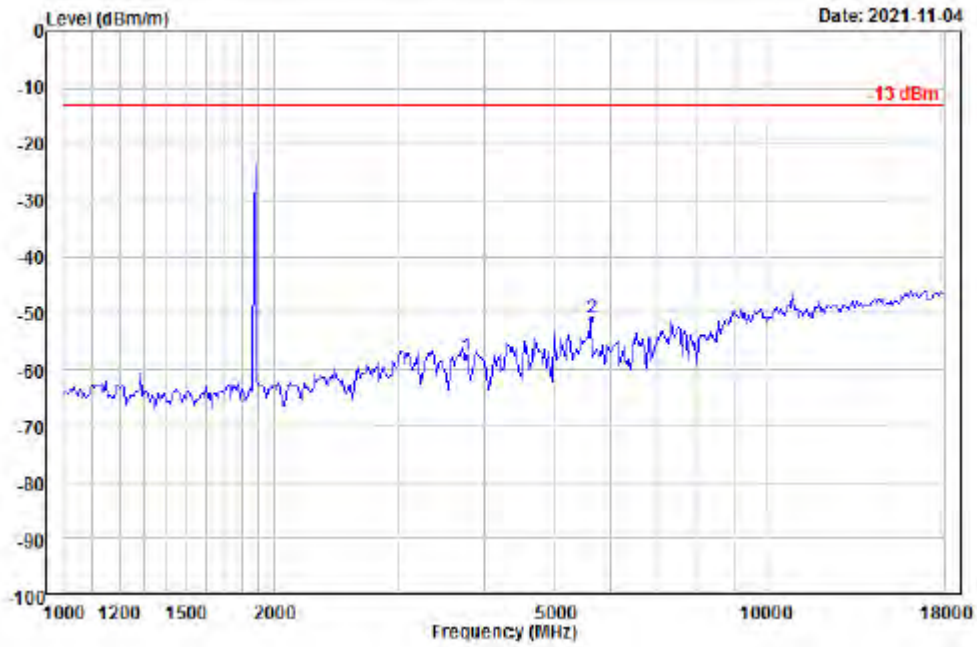
MODE	TX channel 18900	**FREQUENCY RANGE**	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	**INPUT POWER**	DC13.7V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Read Level	Ant Factor	Preamp Factor	Aux Factor	Cable Loss	Level	Limit Line	Over Limit	APos	TPos	Rema
	MHz	dBm	dB/m	dB	dB	dB	dBm/m	dBm/m	dB	cm	deg	
1	3760.000	-64.23	33.87	46.44	0.00	20.36	-56.44	-13.00	-43.44	---	---	Peak
2 PP	5640.000	-58.63	35.27	45.62	0.00	21.91	-47.07	-13.00	-34.07	---	---	Peak



MODE	TX channel 18900	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC13.7V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

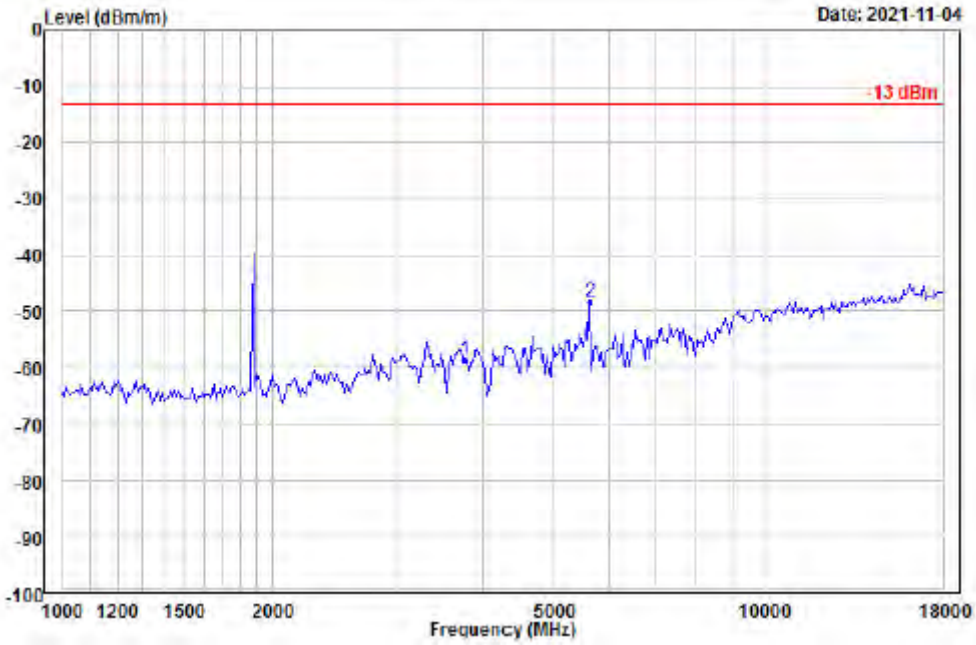
		Freq	Read Level	Ant Factor	Preamp Factor	Aux Factor	Cable Loss	Level	Limit Line	Over Limit	APos	TPos	Rema
		MHz	dBm	dB/m	dB	dB	dB	dBm/m	dBm/m	dB	cm	deg	
1		3760.000	-65.49	33.87	46.44	0.00	20.36	-57.70	-13.00	-44.70	---	---	Peak
2	PP	5640.000	-62.43	35.27	45.62	0.00	21.91	-50.87	-13.00	-37.87	---	---	Peak



CHANNEL BANDWIDTH: 3MHz / QPSK

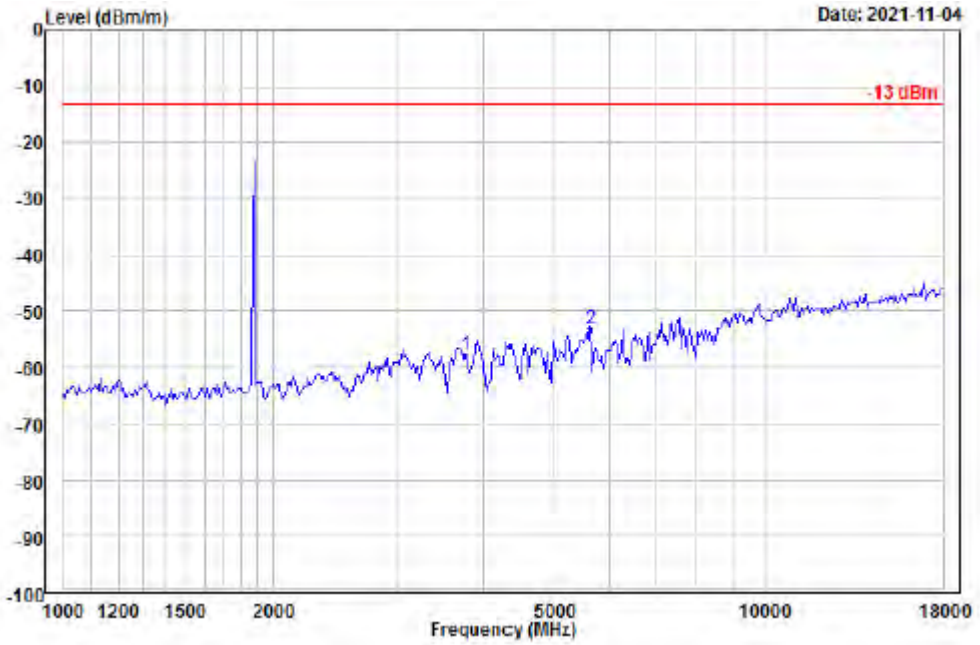
MODE	TX channel 18900	**FREQUENCY RANGE**	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	**INPUT POWER**	DC13.7V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

		Freq	Read Level	Ant Factor	Preamp Factor	Aux Factor	Cable Loss	Level	Limit Line	Over Limit	APos	TPos	Rema
		MHz	dBm	dB/m	dB	dB	dB	dBm/m	dBm/m	dB	cm	deg	
1		3760.000	-66.32	33.87	46.44	0.00	20.36	-58.53	-13.00	-45.53	---	---	Peak
2	PP	5640.000	-59.89	35.27	45.62	0.00	21.91	-48.33	-13.00	-35.33	---	---	Peak



MODE	TX channel 18900	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC13.7V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

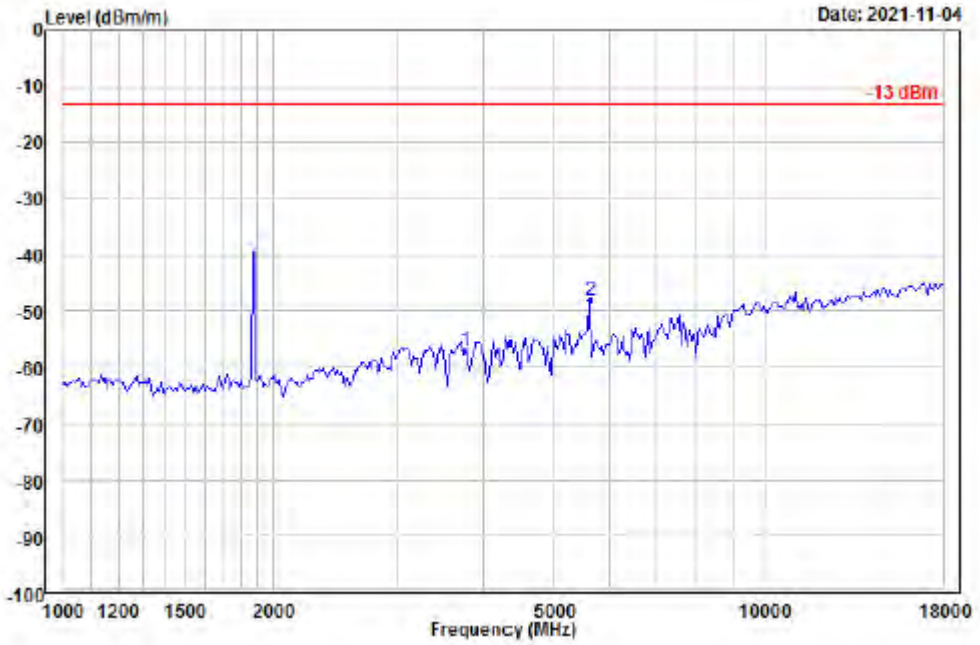
		Freq	Read Level	Ant Factor	Preamp Factor	Aux Factor	Cable Loss	Level	Limit Line	Over Limit	APos	TPos	Rema
		MHz	dBm	dB/m	dB	dB	dB	dBm/m	dBm/m	dB	cm	deg	
1		3760.000	-65.47	33.87	46.44	0.00	20.36	-57.68	-13.00	-44.68	---	---	Peak
2	PP	5640.000	-64.57	35.27	45.62	0.00	21.91	-53.01	-13.00	-40.01	---	---	Peak



CHANNEL BANDWIDTH: 5MHz / QPSK

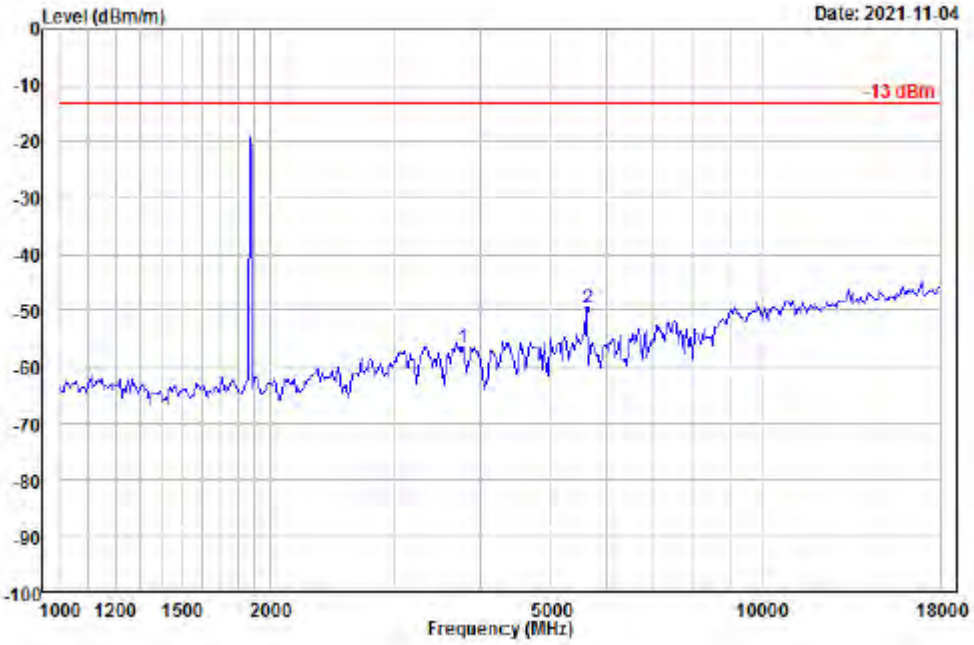
MODE	TX channel 18900	**FREQUENCY RANGE**	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	**INPUT POWER**	DC13.7V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

		Freq	Read Level	Ant Factor	Preamp Factor	Aux Factor	Cable Loss	Level	Limit Line	Over Limit	APos	TPos	Rema
		MHz	dBm	dB/m	dB	dB	dB	dBm/m	dBm/m	dB	cm	deg	
1		3760.000	-64.65	33.87	46.44	0.00	20.36	-56.86	-13.00	-43.86	---	---	Peak
2	PP	5640.000	-59.56	35.27	45.62	0.00	21.91	-48.00	-13.00	-35.00	---	---	Peak



MODE	TX channel 18900	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC13.7V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

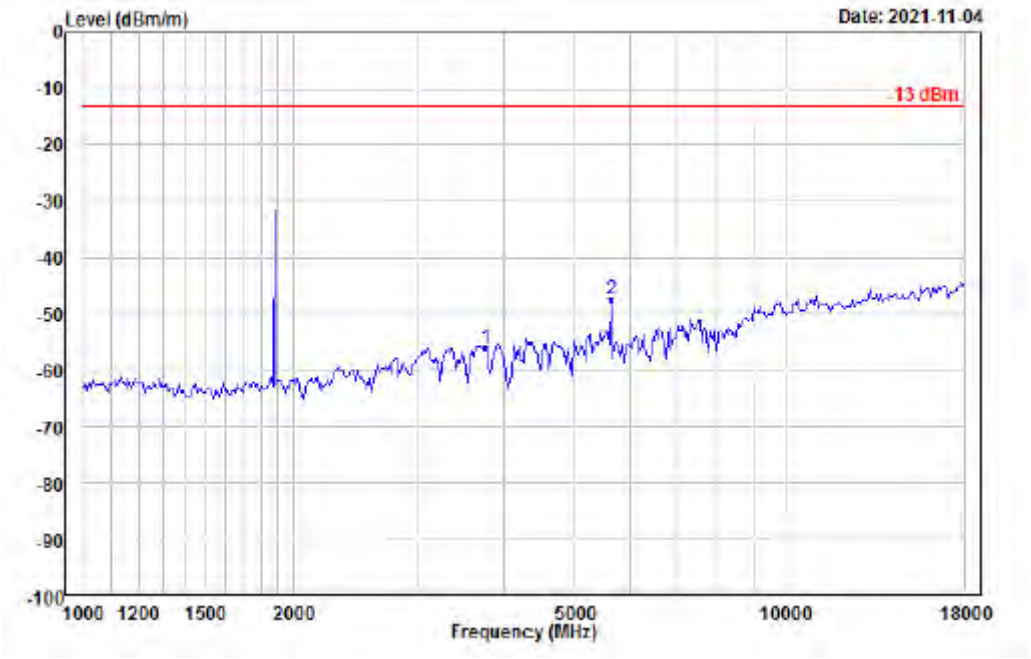
		Freq	Read Level	Ant Factor	Preamp Factor	Aux Factor	Cable Loss	Level	Limit Line	Over Limit	APos	TPos	Rema
		MHz	dBm	dB/m	dB	dB	dB	dBm/m	dBm/m	dB	cm	deg	
1		3760.000	-64.42	33.87	46.44	0.00	20.36	-56.63	-13.00	-43.63	---	---	Peak
2	PP	5640.000	-61.07	35.27	45.62	0.00	21.91	-49.51	-13.00	-36.51	---	---	Peak



CHANNEL BANDWIDTH: 10MHz / QPSK

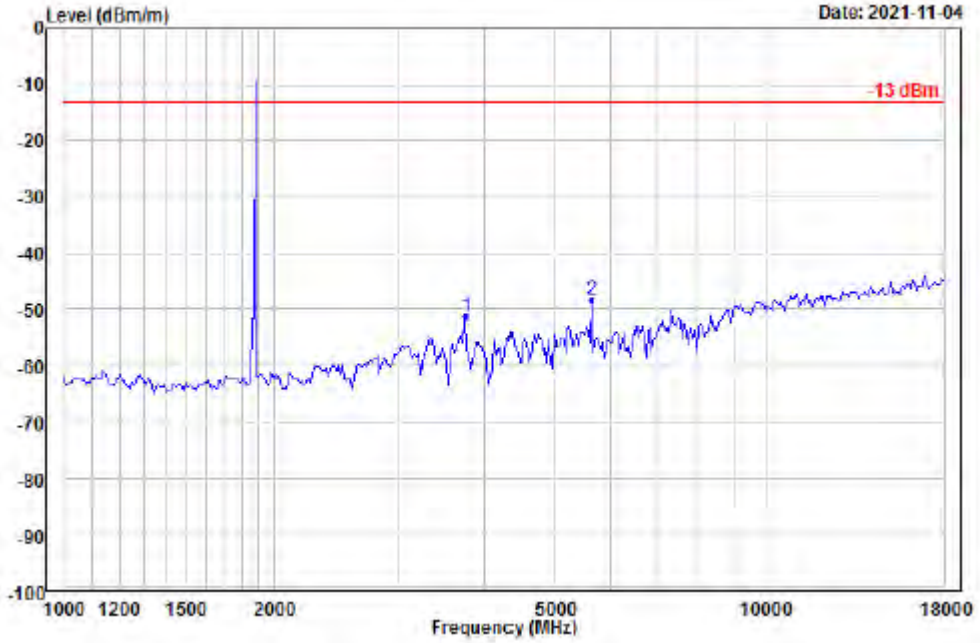
MODE	TX channel 18900	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC13.7V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Read Level	Ant Factor	Preamp Factor	Aux Factor	Cable Loss	Level	Limit Line	Over Limit	APos	TPos	Rema
	MHz	dBm	dB/m	dB	dB	dB	dBm/m	dBm/m	dB	cm	deg	
1	3760.000	-63.90	33.87	46.44	0.00	20.36	-56.11	-13.00	-43.11	---	---	Peak
2 PP	5640.000	-58.94	35.27	45.62	0.00	21.91	-47.38	-13.00	-34.38	---	---	Peak



MODE	TX channel 18900	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC13.7V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

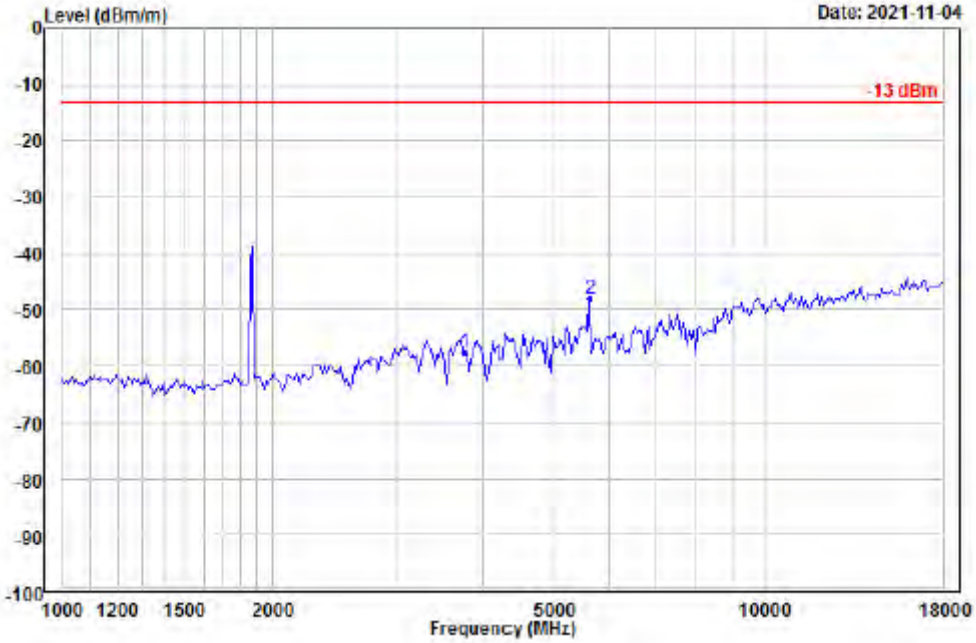
		Freq	Read Level	Ant Factor	Preamp Factor	Aux Factor	Cable Loss	Level	Limit Line	Over Limit	APos	TPos	Rema
		MHz	dBm	dB/m	dB	dB	dB	dBm/m	dBm/m	dB	cm	deg	
1		3760.000	-59.06	33.87	46.44	0.00	20.36	-51.27	-13.00	-38.27	---	---	Peak
2	PP	5640.000	-59.84	35.27	45.62	0.00	21.91	-48.28	-13.00	-35.28	---	---	Peak



CHANNEL BANDWIDTH: 15MHz / QPSK

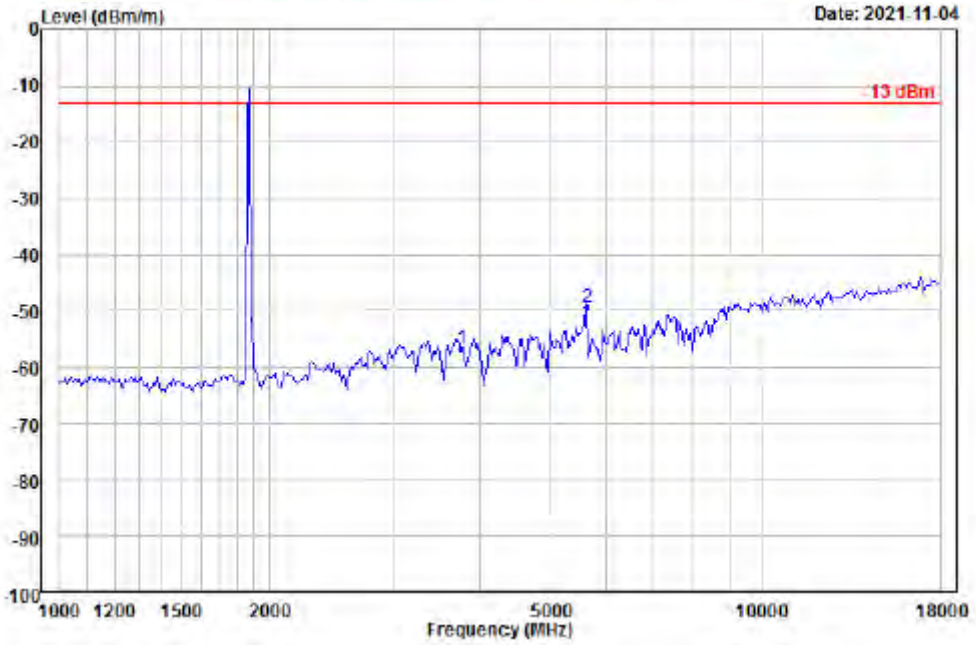
MODE	TX channel 18900	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC13.7V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Read Level	Ant Factor	Preamp Factor	Aux Factor	Cable Loss	Level	Limit Line	Over Limit	APos	TPos	Rema
	MHz	dBm	dB/m	dB	dB	dB	dBm/m	dBm/m	dB	cm	deg	
1	3760.000	-65.15	33.87	46.44	0.00	20.36	-57.36	-13.00	-44.36	---	---	Peak
2 PP	5640.000	-59.44	35.27	45.62	0.00	21.91	-47.88	-13.00	-34.88	---	---	Peak



MODE	TX channel 18900	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC13.7V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

		Freq	Read Level	Ant Factor	Preamp Factor	Aux Factor	Cable Loss	Level	Limit Line	Over Limit	APos	TPos	Rema
		MHz	dBm	dB/m	dB	dB	dB	dBm/m	dBm/m	dB	cm	deg	
1		3760.000	-64.36	33.87	46.44	0.00	20.36	-56.57	-13.00	-43.57	---	---	Peak
2	PP	5640.000	-60.91	35.27	45.62	0.00	21.91	-49.35	-13.00	-36.35	---	---	Peak

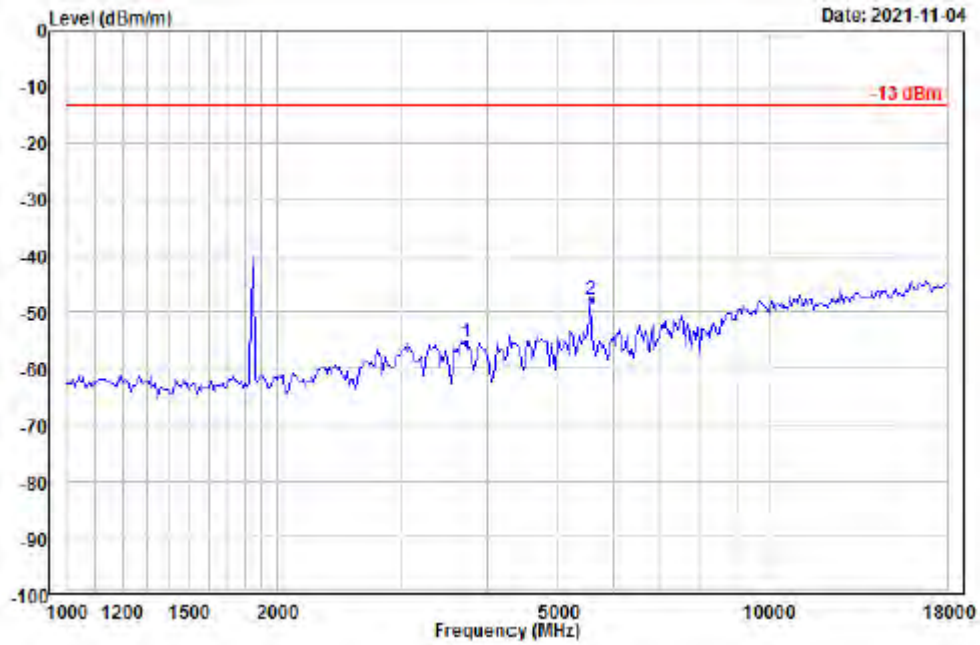


CHANNEL BANDWIDTH: 20MHz / QPSK

CH18700

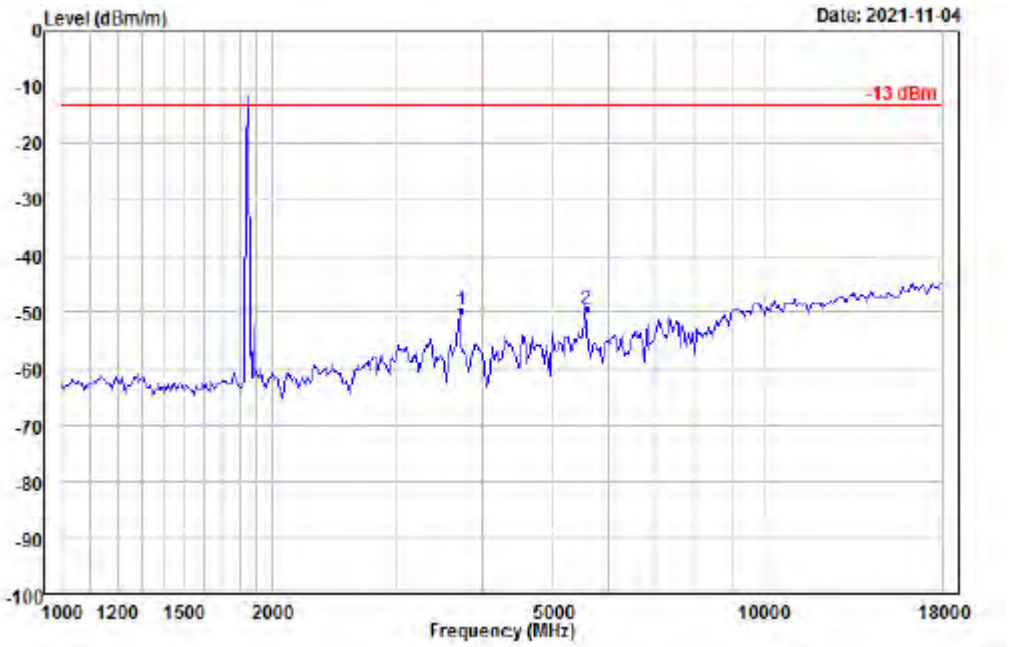
MODE	TX channel 18700	**FREQUENCY RANGE**	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	**INPUT POWER**	DC13.7V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

		Freq	Read Level	Ant Factor	Preamp Factor	Aux Factor	Cable Loss	Level	Limit Line	Over Limit	APos	TPos	Rema
		MHz	dBm	dB/m	dB	dB	dB	dBm/m	dBm/m	dB	cm	deg	
1		3720.000	-62.91	33.80	46.48	0.00	20.33	-55.26	-13.00	-42.26	---	---	Peak
2	PP	5580.000	-59.52	35.28	45.65	0.00	22.07	-47.82	-13.00	-34.82	---	---	Peak



MODE	TX channel 18700	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC13.7V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

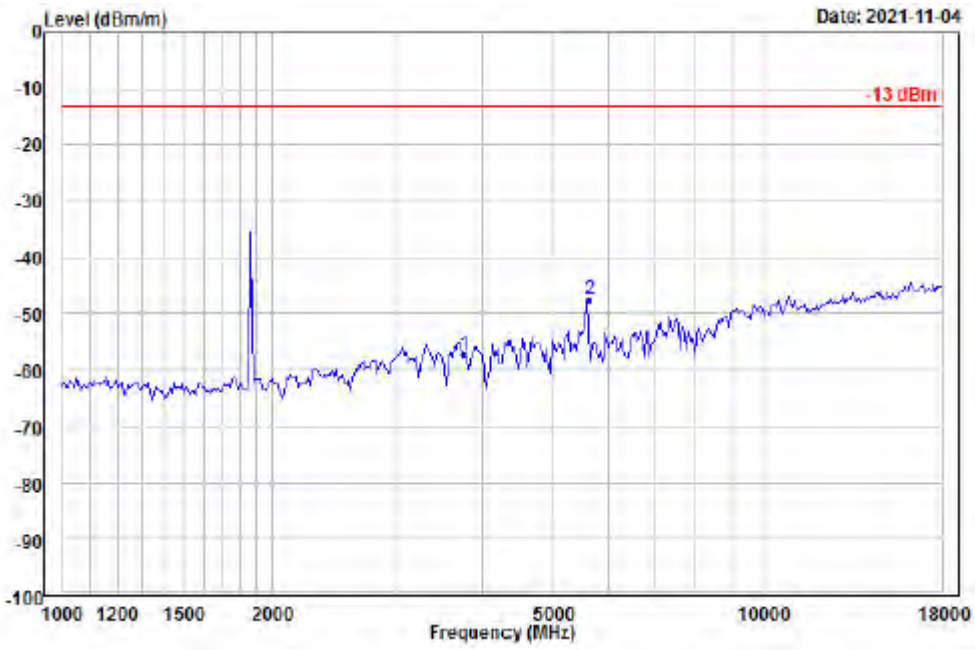
		Freq	Read Level	Ant Factor	Preamp Factor	Aux Factor	Cable Loss	Level	Limit Line	Over Limit	APos	TPos	Rema
		MHz	dBm	dB/m	dB	dB	dB	dBm/m	dBm/m	dB	cm	deg	
1		3720.000	-57.20	33.80	46.48	0.00	20.33	-49.55	-13.00	-36.55	---	---	Peak
2	PP	5580.000	-61.00	35.28	45.65	0.00	22.07	-49.30	-13.00	-36.30	---	---	Peak



CH18900

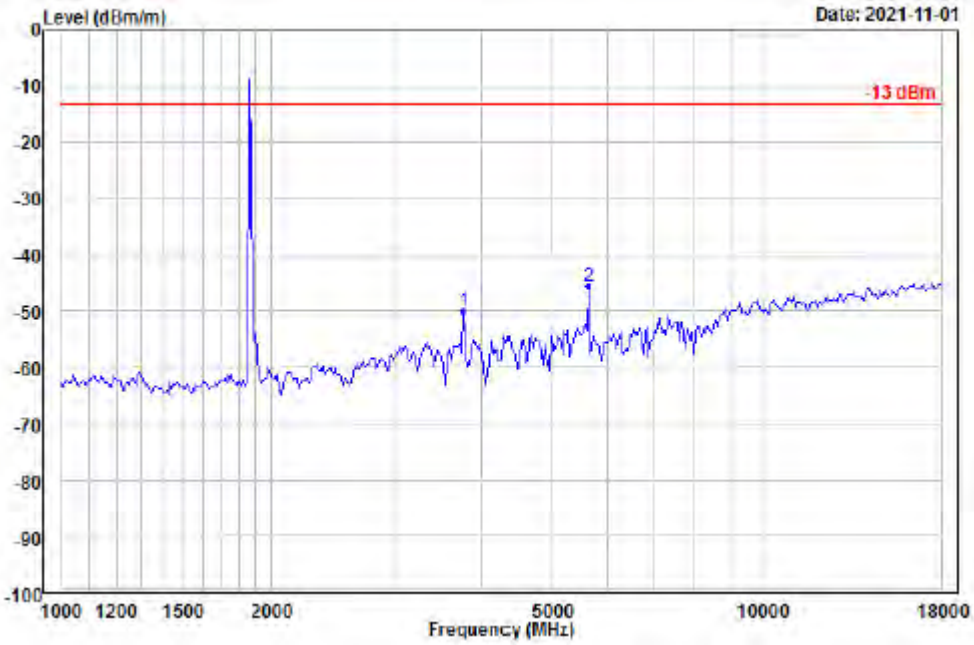
MODE	TX channel 18900	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC13.7V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

		Freq	Read Level	Ant Factor	Preamp Factor	Aux Factor	Cable Loss	Level	Limit Line	Over Limit	APos	TPos	Rema
		MHz	dBm	dB/m	dB	dB	dB	dBm/m	dBm/m	dB	cm	deg	
1		3760.000	-64.91	33.87	46.44	0.00	20.36	-57.12	-13.00	-44.12	---	---	Peak
2	PP	5640.000	-59.08	35.27	45.62	0.00	21.91	-47.52	-13.00	-34.52	---	---	Peak



MODE	TX channel 18900	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC13.7V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

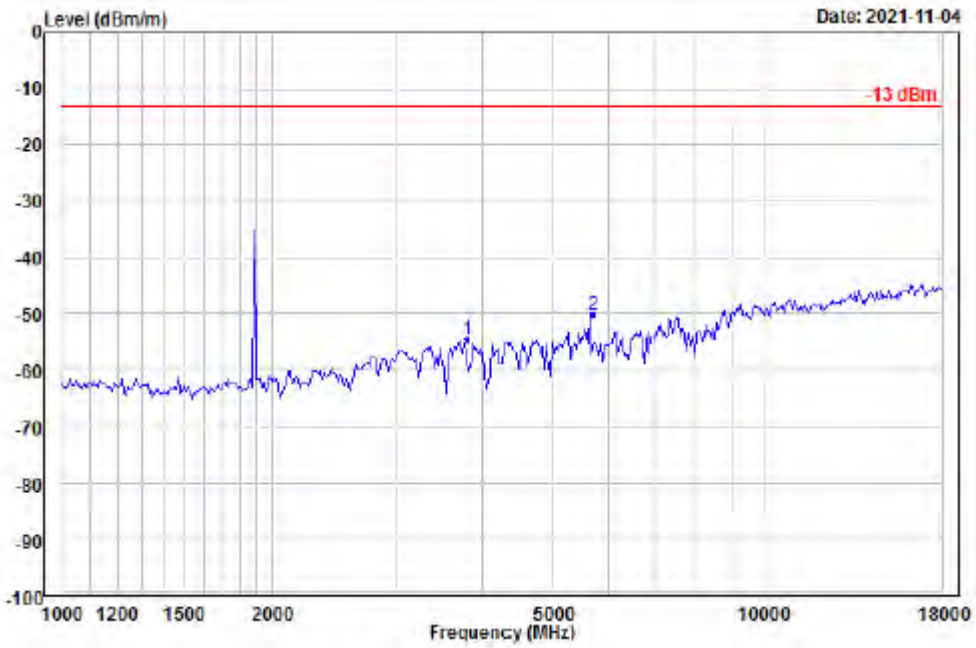
		Freq	Read Level	Ant Factor	Preamp Factor	Aux Factor	Cable Loss	Level	Limit Line	Over Limit	APos	TPos	Rema
		MHz	dBm	dB/m	dB	dB	dB	dBm/m	dBm/m	dB	cm	deg	
1		3760.000	-57.71	33.87	46.44	0.00	20.36	-49.92	-13.00	-36.92	---	---	Peak
2	PP	5640.000	-56.99	35.27	45.62	0.00	21.91	-45.43	-13.00	-32.43	---	---	Peak



CH19100

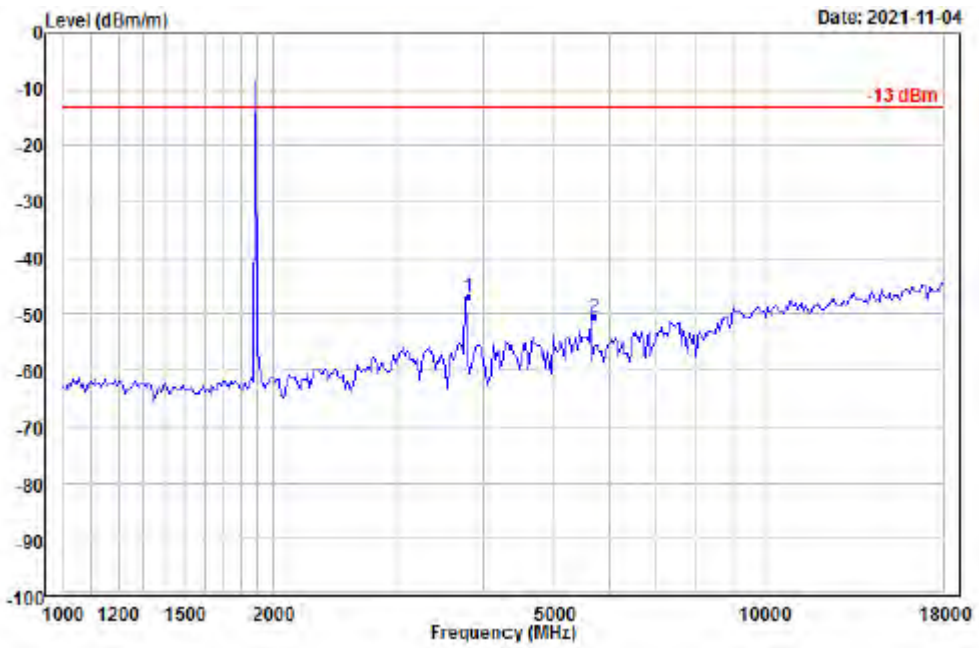
MODE	TX channel 19100	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC13.7V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Read Level	Ant Factor	Preamp Factor	Aux Factor	Cable Loss	Level	Limit Line	Over Limit	APos	TPos	Rema
	MHz	dBm	dB/m	dB	dB	dB	dBm/m	dBm/m	dB	cm	deg	
1	3800.000	-62.33	33.94	46.40	0.00	20.39	-54.40	-13.00	-41.40	---	---	Peak
2 PP	5700.000	-61.46	35.26	45.58	0.00	21.75	-50.03	-13.00	-37.03	---	---	Peak



MODE	TX channel 19100	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC13.7V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

	Freq	Read Level	Ant Factor	Preamp Factor	Aux Factor	Cable Loss	Level	Limit Line	Over Limit	APos	TPos	Rema
	MHz	dBm	dB/m	dB	dB	dB	dBm/m	dBm/m	dB	cm	deg	
1 PP	3800.000	-54.78	33.94	46.40	0.00	20.39	-46.85	-13.00	-33.85	---	---	Peak
2	5700.000	-61.77	35.26	45.58	0.00	21.75	-50.34	-13.00	-37.34	---	---	Peak

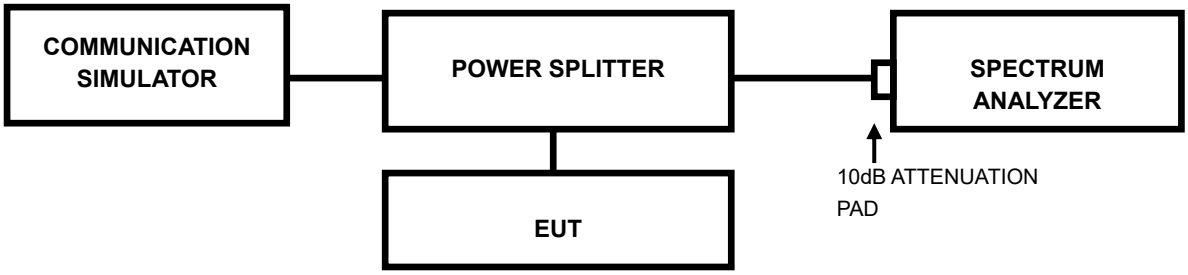


3.7 PEAK TO AVERAGE RATIO

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 ≥ 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 A Of this test report.

4 INFORMATION ON THE TESTING LABORATORIES

We, BV 7LAYERS COMMUNICATIONS TECHNOLOGY (SHENZHEN) CO. LTD., were founded in 2015 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

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

Shenzhen EMC/RF Lab:
Tel: +86-755-88696566
Fax: +86-755-88696577

Email: customerservice.sw@bureauveritas.com
Web Site: www.adt.com.tw

The address and road map of all our labs can be found in our web site also.

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.

Appendix A:

Frequency Stability

LTE BAND2

TEST RESULT

Band: 2 / Bandwidth: 1.4MHz									
Modulation	Frequency (MHz)	RB Allocation		Temp. (°C)	Voltage (VDC)	Freq. Error (Hz)	Freq. vs. Rated (ppm)		Verdict
		Size	Offset				Result	Limit	
QPSK	1850.7	6	0	20	11.64	-3.69	-0.00	-2.5 to 2.5	Pass
					13.70	-2.86	-0.00	-2.5 to 2.5	Pass
					15.75	-1.86	-0.00	-2.5 to 2.5	Pass
				-10	13.7	-2.25	-0.00	-2.5 to 2.5	Pass
				0	13.7	-2.07	-0.00	-2.5 to 2.5	Pass
				10	13.7	-1.90	-0.00	-2.5 to 2.5	Pass
				30	13.7	-2.63	-0.00	-2.5 to 2.5	Pass
				40	13.7	-2.06	-0.00	-2.5 to 2.5	Pass
				50	13.7	-1.90	-0.00	-2.5 to 2.5	Pass
	1880	6	0	20	11.64	-2.49	-0.00	-2.5 to 2.5	Pass
					13.70	-3.45	-0.00	-2.5 to 2.5	Pass
					15.75	-3.30	-0.00	-2.5 to 2.5	Pass
				-10	13.7	-2.99	-0.00	-2.5 to 2.5	Pass
				0	13.7	-2.32	-0.00	-2.5 to 2.5	Pass
				10	13.7	-3.19	-0.00	-2.5 to 2.5	Pass
				30	13.7	-3.16	-0.00	-2.5 to 2.5	Pass
				40	13.7	-2.73	-0.00	-2.5 to 2.5	Pass
				50	13.7	-4.33	-0.00	-2.5 to 2.5	Pass
	1909.3	6	0	20	11.64	-0.10	-0.00	-2.5 to 2.5	Pass
					13.70	2.20	0.00	-2.5 to 2.5	Pass
					15.75	-0.26	-0.00	-2.5 to 2.5	Pass
				-10	13.7	-0.26	-0.00	-2.5 to 2.5	Pass
				0	13.7	1.59	0.00	-2.5 to 2.5	Pass
				10	13.7	-0.71	-0.00	-2.5 to 2.5	Pass
				30	13.7	1.25	0.00	-2.5 to 2.5	Pass
				40	13.7	0.09	0.00	-2.5 to 2.5	Pass
				50	13.7	0.76	0.00	-2.5 to 2.5	Pass
16QAM	1850.7	6	0	20	11.64	-1.67	-0.00	-2.5 to 2.5	Pass
					13.70	-1.07	-0.00	-2.5 to 2.5	Pass
					15.75	-1.77	-0.00	-2.5 to 2.5	Pass
				-10	13.7	-1.09	-0.00	-2.5 to 2.5	Pass

				0	13.7	-2.43	-0.00	-2.5 to 2.5	Pass
				10	13.7	-2.12	-0.00	-2.5 to 2.5	Pass
				30	13.7	-2.53	-0.00	-2.5 to 2.5	Pass
				40	13.7	-2.35	-0.00	-2.5 to 2.5	Pass
				50	13.7	-1.70	-0.00	-2.5 to 2.5	Pass
	1880	6	0	20	11.64	-3.76	-0.00	-2.5 to 2.5	Pass
					13.70	-4.18	-0.00	-2.5 to 2.5	Pass
					15.75	-3.99	-0.00	-2.5 to 2.5	Pass
				-10	13.7	-4.00	-0.00	-2.5 to 2.5	Pass
				0	13.7	-4.99	-0.00	-2.5 to 2.5	Pass
				10	13.7	-5.19	-0.00	-2.5 to 2.5	Pass
				30	13.7	-4.02	-0.00	-2.5 to 2.5	Pass
				40	13.7	-4.39	-0.00	-2.5 to 2.5	Pass
				50	13.7	-3.28	-0.00	-2.5 to 2.5	Pass
	1909.3	6	0	20	11.64	0.70	0.00	-2.5 to 2.5	Pass
					13.70	-0.63	-0.00	-2.5 to 2.5	Pass
					15.75	0.76	0.00	-2.5 to 2.5	Pass
				-10	13.7	1.86	0.00	-2.5 to 2.5	Pass
				0	13.7	-1.06	-0.00	-2.5 to 2.5	Pass
				10	13.7	2.00	0.00	-2.5 to 2.5	Pass
				30	13.7	-0.36	-0.00	-2.5 to 2.5	Pass
				40	13.7	0.71	0.00	-2.5 to 2.5	Pass
				50	13.7	-0.24	-0.00	-2.5 to 2.5	Pass
Band: 2 / Bandwidth: 3MHz									
Modulation	Frequency (MHz)	RB Allocation		Temp. (°C)	Voltage (VDC)	Freq. Error (Hz)	Freq. vs. Rated (ppm)		Verdict
		Size	Offset				Result	Limit	
QPSK	1851.5	15	0	20	11.64	-1.80	-0.00	-2.5 to 2.5	Pass
					13.70	-2.49	-0.00	-2.5 to 2.5	Pass
					15.75	-1.96	-0.00	-2.5 to 2.5	Pass
				-10	13.7	-2.39	-0.00	-2.5 to 2.5	Pass
				0	13.7	-1.86	-0.00	-2.5 to 2.5	Pass
				10	13.7	-2.00	-0.00	-2.5 to 2.5	Pass
				30	13.7	-1.53	-0.00	-2.5 to 2.5	Pass
				40	13.7	-1.39	-0.00	-2.5 to 2.5	Pass
				50	13.7	-0.30	-0.00	-2.5 to 2.5	Pass
	1880	15	0	20	11.64	-2.95	-0.00	-2.5 to 2.5	Pass
					13.70	-3.60	-0.00	-2.5 to 2.5	Pass
					15.75	-2.79	-0.00	-2.5 to 2.5	Pass
				-10	13.7	-3.78	-0.00	-2.5 to 2.5	Pass
				0	13.7	-4.28	-0.00	-2.5 to 2.5	Pass
				10	13.7	-3.36	-0.00	-2.5 to 2.5	Pass
				30	13.7	-2.70	-0.00	-2.5 to 2.5	Pass
				40	13.7	-3.90	-0.00	-2.5 to 2.5	Pass
				50	13.7	-3.55	-0.00	-2.5 to 2.5	Pass
	1908.5	15	0	20	11.64	1.10	0.00	-2.5 to 2.5	Pass
					13.70	-0.50	-0.00	-2.5 to 2.5	Pass
					15.75	0.74	0.00	-2.5 to 2.5	Pass
				-10	13.7	0.47	0.00	-2.5 to 2.5	Pass
				0	13.7	1.97	0.00	-2.5 to 2.5	Pass
				10	13.7	0.61	0.00	-2.5 to 2.5	Pass
				30	13.7	1.76	0.00	-2.5 to 2.5	Pass
				40	13.7	1.56	0.00	-2.5 to 2.5	Pass
				50	13.7	1.47	0.00	-2.5 to 2.5	Pass

16QAM	1851.5	15	0	20	11.64	-2.09	-0.00	-2.5 to 2.5	Pass
					13.70	-2.16	-0.00	-2.5 to 2.5	Pass
					15.75	-1.65	-0.00	-2.5 to 2.5	Pass
				-10	13.7	-3.15	-0.00	-2.5 to 2.5	Pass
				0	13.7	-2.30	-0.00	-2.5 to 2.5	Pass
				10	13.7	-1.87	-0.00	-2.5 to 2.5	Pass
				30	13.7	-2.29	-0.00	-2.5 to 2.5	Pass
				40	13.7	-1.92	-0.00	-2.5 to 2.5	Pass
				50	13.7	-3.76	-0.00	-2.5 to 2.5	Pass
	1880	15	0	20	11.64	-4.62	-0.00	-2.5 to 2.5	Pass
					13.70	-4.51	-0.00	-2.5 to 2.5	Pass
					15.75	-4.25	-0.00	-2.5 to 2.5	Pass
				-10	13.7	-4.52	-0.00	-2.5 to 2.5	Pass
				0	13.7	-4.78	-0.00	-2.5 to 2.5	Pass
				10	13.7	-4.93	-0.00	-2.5 to 2.5	Pass
				30	13.7	-4.63	-0.00	-2.5 to 2.5	Pass
				40	13.7	-2.76	-0.00	-2.5 to 2.5	Pass
				50	13.7	-3.48	-0.00	-2.5 to 2.5	Pass
	1908.5	15	0	20	11.64	0.83	0.00	-2.5 to 2.5	Pass
					13.70	2.26	0.00	-2.5 to 2.5	Pass
					15.75	1.59	0.00	-2.5 to 2.5	Pass
				-10	13.7	2.56	0.00	-2.5 to 2.5	Pass
				0	13.7	-0.80	-0.00	-2.5 to 2.5	Pass
				10	13.7	0.90	0.00	-2.5 to 2.5	Pass
				30	13.7	0.30	0.00	-2.5 to 2.5	Pass
				40	13.7	0.97	0.00	-2.5 to 2.5	Pass
				50	13.7	-0.06	0.00	-2.5 to 2.5	Pass

Band: 2 / Bandwidth: 5MHz

Modulation	Frequency (MHz)	RB Allocation		Temp. (°C)	Voltage (VDC)	Freq. Error (Hz)	Freq. vs. Rated (ppm)		Verdict
		Size	Offset				Result	Limit	
QPSK	1852.5	25	0	20	11.64	-1.83	-0.00	-2.5 to 2.5	Pass
					13.70	-1.54	-0.00	-2.5 to 2.5	Pass
					15.75	-2.00	-0.00	-2.5 to 2.5	Pass
				-10	13.7	-1.34	-0.00	-2.5 to 2.5	Pass
				0	13.7	-1.75	-0.00	-2.5 to 2.5	Pass
				10	13.7	-1.14	-0.00	-2.5 to 2.5	Pass
				30	13.7	-2.16	-0.00	-2.5 to 2.5	Pass
				40	13.7	-2.45	-0.00	-2.5 to 2.5	Pass
				50	13.7	-1.12	-0.00	-2.5 to 2.5	Pass
	1880	25	0	20	11.64	-2.75	-0.00	-2.5 to 2.5	Pass
					13.70	-3.28	-0.00	-2.5 to 2.5	Pass
					15.75	-2.83	-0.00	-2.5 to 2.5	Pass
				-10	13.7	-4.12	-0.00	-2.5 to 2.5	Pass
				0	13.7	-4.02	-0.00	-2.5 to 2.5	Pass
				10	13.7	-4.09	-0.00	-2.5 to 2.5	Pass
				30	13.7	-4.22	-0.00	-2.5 to 2.5	Pass
				40	13.7	-4.13	-0.00	-2.5 to 2.5	Pass
				50	13.7	-4.54	-0.00	-2.5 to 2.5	Pass
	1907.5	25	0	20	11.64	-0.17	-0.00	-2.5 to 2.5	Pass
					13.70	0.54	0.00	-2.5 to 2.5	Pass
					15.75	1.17	0.00	-2.5 to 2.5	Pass
				-10	13.7	-0.01	0.00	-2.5 to 2.5	Pass
				0	13.7	-0.24	-0.00	-2.5 to 2.5	Pass

				10	13.7	0.56	0.00	-2.5 to 2.5	Pass
				30	13.7	1.32	0.00	-2.5 to 2.5	Pass
				40	13.7	0.41	0.00	-2.5 to 2.5	Pass
				50	13.7	-0.26	-0.00	-2.5 to 2.5	Pass
16QAM	1852.5	25	0	20	11.64	-1.30	-0.00	-2.5 to 2.5	Pass
					13.70	-2.29	-0.00	-2.5 to 2.5	Pass
					15.75	-2.17	-0.00	-2.5 to 2.5	Pass
				-10	13.7	-2.03	-0.00	-2.5 to 2.5	Pass
				0	13.7	-0.90	-0.00	-2.5 to 2.5	Pass
				10	13.7	-1.77	-0.00	-2.5 to 2.5	Pass
				30	13.7	-0.79	-0.00	-2.5 to 2.5	Pass
				40	13.7	-1.43	-0.00	-2.5 to 2.5	Pass
				50	13.7	-1.30	-0.00	-2.5 to 2.5	Pass
	1880	25	0	20	11.64	-4.54	-0.00	-2.5 to 2.5	Pass
					13.70	-3.35	-0.00	-2.5 to 2.5	Pass
					15.75	-3.85	-0.00	-2.5 to 2.5	Pass
				-10	13.7	-4.62	-0.00	-2.5 to 2.5	Pass
				0	13.7	-4.29	-0.00	-2.5 to 2.5	Pass
				10	13.7	-2.45	-0.00	-2.5 to 2.5	Pass
				30	13.7	-4.21	-0.00	-2.5 to 2.5	Pass
				40	13.7	-3.62	-0.00	-2.5 to 2.5	Pass
				50	13.7	-3.36	-0.00	-2.5 to 2.5	Pass
	1907.5	25	0	20	11.64	1.66	0.00	-2.5 to 2.5	Pass
					13.70	0.73	0.00	-2.5 to 2.5	Pass
					15.75	-0.86	-0.00	-2.5 to 2.5	Pass
				-10	13.7	0.73	0.00	-2.5 to 2.5	Pass
				0	13.7	-0.33	-0.00	-2.5 to 2.5	Pass
				10	13.7	0.36	0.00	-2.5 to 2.5	Pass
				30	13.7	-0.24	-0.00	-2.5 to 2.5	Pass
				40	13.7	0.04	0.00	-2.5 to 2.5	Pass
				50	13.7	0.50	0.00	-2.5 to 2.5	Pass
Band: 2 / Bandwidth: 10MHz									
Modulation	Frequency (MHz)	RB Allocation		Temp. (°C)	Voltage (VDC)	Freq. Error (Hz)	Freq. vs. Rated (ppm)		Verdict
		Size	Offset				Result	Limit	
QPSK	1855	50	0	20	11.64	-2.30	-0.00	-2.5 to 2.5	Pass
					13.70	-3.09	-0.00	-2.5 to 2.5	Pass
					15.75	-1.47	-0.00	-2.5 to 2.5	Pass
				-10	13.7	-3.62	-0.00	-2.5 to 2.5	Pass
				0	13.7	-2.35	-0.00	-2.5 to 2.5	Pass
				10	13.7	-3.23	-0.00	-2.5 to 2.5	Pass
				30	13.7	-2.70	-0.00	-2.5 to 2.5	Pass
				40	13.7	-3.93	-0.00	-2.5 to 2.5	Pass
				50	13.7	-2.10	-0.00	-2.5 to 2.5	Pass
	1880	50	0	20	11.64	-3.35	-0.00	-2.5 to 2.5	Pass
					13.70	-3.79	-0.00	-2.5 to 2.5	Pass
					15.75	-2.72	-0.00	-2.5 to 2.5	Pass
				-10	13.7	-3.15	-0.00	-2.5 to 2.5	Pass
				0	13.7	-1.69	-0.00	-2.5 to 2.5	Pass
				10	13.7	-3.02	-0.00	-2.5 to 2.5	Pass
				30	13.7	-4.13	-0.00	-2.5 to 2.5	Pass
				40	13.7	-3.46	-0.00	-2.5 to 2.5	Pass
				50	13.7	-3.65	-0.00	-2.5 to 2.5	Pass
	1905	50	0	20	11.64	0.11	0.00	-2.5 to 2.5	Pass

					13.70	0.92	0.00	-2.5 to 2.5	Pass
					15.75	1.19	0.00	-2.5 to 2.5	Pass
				-10	13.7	2.10	0.00	-2.5 to 2.5	Pass
				0	13.7	1.17	0.00	-2.5 to 2.5	Pass
				10	13.7	1.46	0.00	-2.5 to 2.5	Pass
				30	13.7	0.74	0.00	-2.5 to 2.5	Pass
				40	13.7	-0.56	-0.00	-2.5 to 2.5	Pass
				50	13.7	1.19	0.00	-2.5 to 2.5	Pass
16QAM	1855	50	0	20	11.64	-2.12	-0.00	-2.5 to 2.5	Pass
					13.70	-2.35	-0.00	-2.5 to 2.5	Pass
					15.75	-2.38	-0.00	-2.5 to 2.5	Pass
				-10	13.7	-2.25	-0.00	-2.5 to 2.5	Pass
				0	13.7	-2.10	-0.00	-2.5 to 2.5	Pass
				10	13.7	-3.30	-0.00	-2.5 to 2.5	Pass
				30	13.7	-2.25	-0.00	-2.5 to 2.5	Pass
				40	13.7	-3.13	-0.00	-2.5 to 2.5	Pass
				50	13.7	-2.93	-0.00	-2.5 to 2.5	Pass
	1880	50	0	20	11.64	-1.67	-0.00	-2.5 to 2.5	Pass
					13.70	-4.08	-0.00	-2.5 to 2.5	Pass
					15.75	-3.23	-0.00	-2.5 to 2.5	Pass
				-10	13.7	-1.96	-0.00	-2.5 to 2.5	Pass
				0	13.7	-2.67	-0.00	-2.5 to 2.5	Pass
				10	13.7	-3.56	-0.00	-2.5 to 2.5	Pass
				30	13.7	-4.15	-0.00	-2.5 to 2.5	Pass
				40	13.7	-2.66	-0.00	-2.5 to 2.5	Pass
				50	13.7	-3.73	-0.00	-2.5 to 2.5	Pass
	1905	50	0	20	11.64	1.32	0.00	-2.5 to 2.5	Pass
					13.70	0.66	0.00	-2.5 to 2.5	Pass
					15.75	1.30	0.00	-2.5 to 2.5	Pass
				-10	13.7	2.43	0.00	-2.5 to 2.5	Pass
				0	13.7	0.03	0.00	-2.5 to 2.5	Pass
				10	13.7	0.01	0.00	-2.5 to 2.5	Pass
				30	13.7	1.20	0.00	-2.5 to 2.5	Pass
				40	13.7	0.57	0.00	-2.5 to 2.5	Pass
				50	13.7	0.81	0.00	-2.5 to 2.5	Pass
Band: 2 / Bandwidth: 15MHz									
Modulation	Frequency (MHz)	RB Allocation		Temp. (°C)	Voltage (VDC)	Freq. Error (Hz)	Freq. vs. Rated (ppm)		Verdict
		Size	Offset				Result	Limit	
QPSK	1857.5	75	0	20	11.64	-2.95	-0.00	-2.5 to 2.5	Pass
					13.70	-3.50	-0.00	-2.5 to 2.5	Pass
					15.75	-2.50	-0.00	-2.5 to 2.5	Pass
				-10	13.7	-2.76	-0.00	-2.5 to 2.5	Pass
				0	13.7	-3.72	-0.00	-2.5 to 2.5	Pass
				10	13.7	-2.83	-0.00	-2.5 to 2.5	Pass
				30	13.7	-2.92	-0.00	-2.5 to 2.5	Pass
				40	13.7	-3.29	-0.00	-2.5 to 2.5	Pass
				50	13.7	-2.25	-0.00	-2.5 to 2.5	Pass
	1880	75	0	20	11.64	-3.10	-0.00	-2.5 to 2.5	Pass
					13.70	-3.28	-0.00	-2.5 to 2.5	Pass
					15.75	-2.93	-0.00	-2.5 to 2.5	Pass
				-10	13.7	-3.45	-0.00	-2.5 to 2.5	Pass
				0	13.7	-3.19	-0.00	-2.5 to 2.5	Pass
				10	13.7	-4.03	-0.00	-2.5 to 2.5	Pass

				30	13.7	-3.36	-0.00	-2.5 to 2.5	Pass
				40	13.7	-3.18	-0.00	-2.5 to 2.5	Pass
				50	13.7	-4.18	-0.00	-2.5 to 2.5	Pass
	1902.5	75	0	20	11.64	-4.49	-0.00	-2.5 to 2.5	Pass
					13.70	-3.46	-0.00	-2.5 to 2.5	Pass
					15.75	-2.90	-0.00	-2.5 to 2.5	Pass
				-10	13.7	-3.63	-0.00	-2.5 to 2.5	Pass
				0	13.7	-2.62	-0.00	-2.5 to 2.5	Pass
				10	13.7	-3.25	-0.00	-2.5 to 2.5	Pass
				30	13.7	-2.79	-0.00	-2.5 to 2.5	Pass
				40	13.7	-2.60	-0.00	-2.5 to 2.5	Pass
				50	13.7	-3.79	-0.00	-2.5 to 2.5	Pass
16QAM	1857.5	75	0	20	11.64	-3.50	-0.00	-2.5 to 2.5	Pass
					13.70	-3.33	-0.00	-2.5 to 2.5	Pass
					15.75	-1.60	-0.00	-2.5 to 2.5	Pass
				-10	13.7	-2.95	-0.00	-2.5 to 2.5	Pass
				0	13.7	-3.62	-0.00	-2.5 to 2.5	Pass
				10	13.7	-3.59	-0.00	-2.5 to 2.5	Pass
				30	13.7	-2.43	-0.00	-2.5 to 2.5	Pass
				40	13.7	-5.06	-0.00	-2.5 to 2.5	Pass
				50	13.7	-3.58	-0.00	-2.5 to 2.5	Pass
	1880	75	0	20	11.64	-2.90	-0.00	-2.5 to 2.5	Pass
					13.70	-3.63	-0.00	-2.5 to 2.5	Pass
					15.75	-3.86	-0.00	-2.5 to 2.5	Pass
				-10	13.7	-4.05	-0.00	-2.5 to 2.5	Pass
				0	13.7	-3.29	-0.00	-2.5 to 2.5	Pass
				10	13.7	-2.65	-0.00	-2.5 to 2.5	Pass
				30	13.7	-3.20	-0.00	-2.5 to 2.5	Pass
				40	13.7	-3.62	-0.00	-2.5 to 2.5	Pass
				50	13.7	-3.68	-0.00	-2.5 to 2.5	Pass
	1902.5	75	0	20	11.64	-3.33	-0.00	-2.5 to 2.5	Pass
					13.70	-2.96	-0.00	-2.5 to 2.5	Pass
					15.75	-4.54	-0.00	-2.5 to 2.5	Pass
				-10	13.7	-2.22	-0.00	-2.5 to 2.5	Pass
				0	13.7	-3.05	-0.00	-2.5 to 2.5	Pass
				10	13.7	-2.89	-0.00	-2.5 to 2.5	Pass
				30	13.7	-3.00	-0.00	-2.5 to 2.5	Pass
				40	13.7	-3.35	-0.00	-2.5 to 2.5	Pass
				50	13.7	-4.74	-0.00	-2.5 to 2.5	Pass

Band: 2 / Bandwidth: 20MHz

Modulation	Frequency (MHz)	RB Allocation		Temp. (°C)	Voltage (VDC)	Freq. Error (Hz)	Freq. vs. Rated (ppm)		Verdict
		Size	Offset				Result	Limit	
QPSK	1860	100	0	20	11.64	1.72	0.00	-2.5 to 2.5	Pass
					13.70	0.77	0.00	-2.5 to 2.5	Pass
					15.75	0.73	0.00	-2.5 to 2.5	Pass
				-10	13.7	1.13	0.00	-2.5 to 2.5	Pass
				0	13.7	1.20	0.00	-2.5 to 2.5	Pass
				10	13.7	0.17	0.00	-2.5 to 2.5	Pass
				30	13.7	1.57	0.00	-2.5 to 2.5	Pass
				40	13.7	1.12	0.00	-2.5 to 2.5	Pass
				50	13.7	1.10	0.00	-2.5 to 2.5	Pass
	1880	100	0	20	11.64	-3.60	-0.00	-2.5 to 2.5	Pass
					13.70	-3.85	-0.00	-2.5 to 2.5	Pass

					15.75	-3.48	-0.00	-2.5 to 2.5	Pass
				-10	13.7	-3.10	-0.00	-2.5 to 2.5	Pass
				0	13.7	-2.32	-0.00	-2.5 to 2.5	Pass
				10	13.7	-4.32	-0.00	-2.5 to 2.5	Pass
				30	13.7	-4.00	-0.00	-2.5 to 2.5	Pass
				40	13.7	-2.80	-0.00	-2.5 to 2.5	Pass
				50	13.7	-2.48	-0.00	-2.5 to 2.5	Pass
	1900	100	0	20	11.64	-1.99	-0.00	-2.5 to 2.5	Pass
					13.70	-2.48	-0.00	-2.5 to 2.5	Pass
					15.75	-2.15	-0.00	-2.5 to 2.5	Pass
				-10	13.7	-3.12	-0.00	-2.5 to 2.5	Pass
				0	13.7	-2.49	-0.00	-2.5 to 2.5	Pass
				10	13.7	-2.19	-0.00	-2.5 to 2.5	Pass
				30	13.7	-3.06	-0.00	-2.5 to 2.5	Pass
				40	13.7	-1.49	-0.00	-2.5 to 2.5	Pass
				50	13.7	-2.33	-0.00	-2.5 to 2.5	Pass
16QAM	1860	100	0	20	11.64	1.45	0.00	-2.5 to 2.5	Pass
					13.70	1.77	0.00	-2.5 to 2.5	Pass
					15.75	1.26	0.00	-2.5 to 2.5	Pass
				-10	13.7	0.77	0.00	-2.5 to 2.5	Pass
				0	13.7	0.79	0.00	-2.5 to 2.5	Pass
				10	13.7	1.49	0.00	-2.5 to 2.5	Pass
				30	13.7	1.16	0.00	-2.5 to 2.5	Pass
				40	13.7	1.54	0.00	-2.5 to 2.5	Pass
				50	13.7	0.70	0.00	-2.5 to 2.5	Pass
	1880	100	0	20	11.64	-3.12	-0.00	-2.5 to 2.5	Pass
					13.70	-3.29	-0.00	-2.5 to 2.5	Pass
					15.75	-3.32	-0.00	-2.5 to 2.5	Pass
				-10	13.7	-3.46	-0.00	-2.5 to 2.5	Pass
				0	13.7	-3.12	-0.00	-2.5 to 2.5	Pass
				10	13.7	-3.68	-0.00	-2.5 to 2.5	Pass
				30	13.7	-2.56	-0.00	-2.5 to 2.5	Pass
				40	13.7	-2.69	-0.00	-2.5 to 2.5	Pass
				50	13.7	-3.43	-0.00	-2.5 to 2.5	Pass
	1900	100	0	20	11.64	-2.15	-0.00	-2.5 to 2.5	Pass
					13.70	-2.16	-0.00	-2.5 to 2.5	Pass
					15.75	-1.97	-0.00	-2.5 to 2.5	Pass
				-10	13.7	-2.50	-0.00	-2.5 to 2.5	Pass
				0	13.7	-2.95	-0.00	-2.5 to 2.5	Pass
				10	13.7	-1.50	-0.00	-2.5 to 2.5	Pass
				30	13.7	-3.56	-0.00	-2.5 to 2.5	Pass
				40	13.7	-3.28	-0.00	-2.5 to 2.5	Pass
				50	13.7	-3.40	-0.00	-2.5 to 2.5	Pass

99% Bandwidth

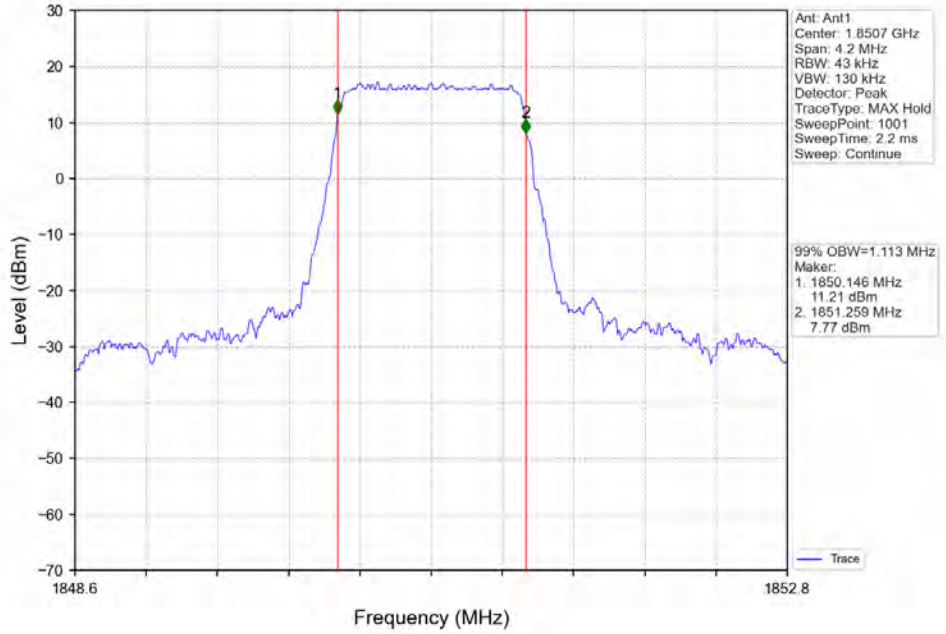
LTE Band2_OBW

Test Result

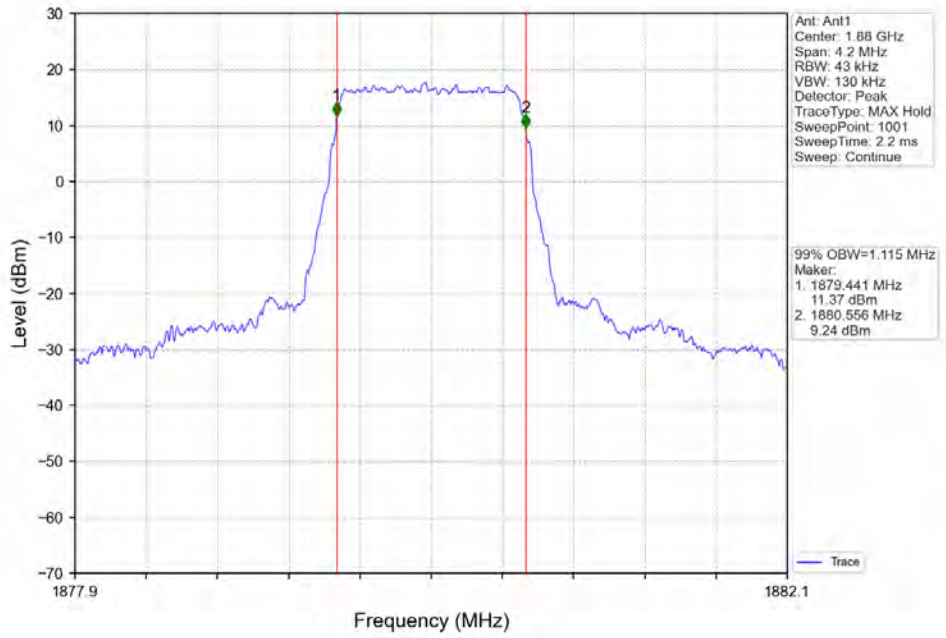
Band: 2 / NTNV						
Bandwidth (MHz)	Modulation	Frequency (MHz)	RB Allocation		99% Occupied Bandwidth (MHz)	Verdict
			Size	Offset	Result	
1.4	QPSK	1850.7	6	0	1.113	Pass
		1880	6	0	1.115	Pass
		1909.3	6	0	1.111	Pass
	16QAM	1850.7	6	0	1.104	Pass
		1880	6	0	1.113	Pass
		1909.3	6	0	1.115	Pass
3	QPSK	1851.5	15	0	2.744	Pass
		1880	15	0	2.758	Pass
		1908.5	15	0	2.752	Pass
	16QAM	1851.5	15	0	2.741	Pass
		1880	15	0	2.735	Pass
		1908.5	15	0	2.731	Pass
5	QPSK	1852.5	25	0	4.563	Pass
		1880	25	0	4.543	Pass
		1907.5	25	0	4.555	Pass
	16QAM	1852.5	25	0	4.548	Pass
		1880	25	0	4.576	Pass
		1907.5	25	0	4.573	Pass
10	QPSK	1855	50	0	9.057	Pass
		1880	50	0	9.026	Pass
		1905	50	0	9.014	Pass
	16QAM	1855	50	0	9.016	Pass
		1880	50	0	9.024	Pass
		1905	50	0	9.032	Pass
15	QPSK	1857.5	75	0	13.549	Pass
		1880	75	0	13.523	Pass
		1902.5	75	0	13.495	Pass
	16QAM	1857.5	75	0	13.534	Pass
		1880	75	0	13.523	Pass
		1902.5	75	0	13.539	Pass
20	QPSK	1860	100	0	18.039	Pass
		1880	100	0	18.087	Pass
		1900	100	0	17.990	Pass
	16QAM	1860	100	0	17.970	Pass
		1880	100	0	18.018	Pass
		1900	100	0	17.944	Pass

Test Graph

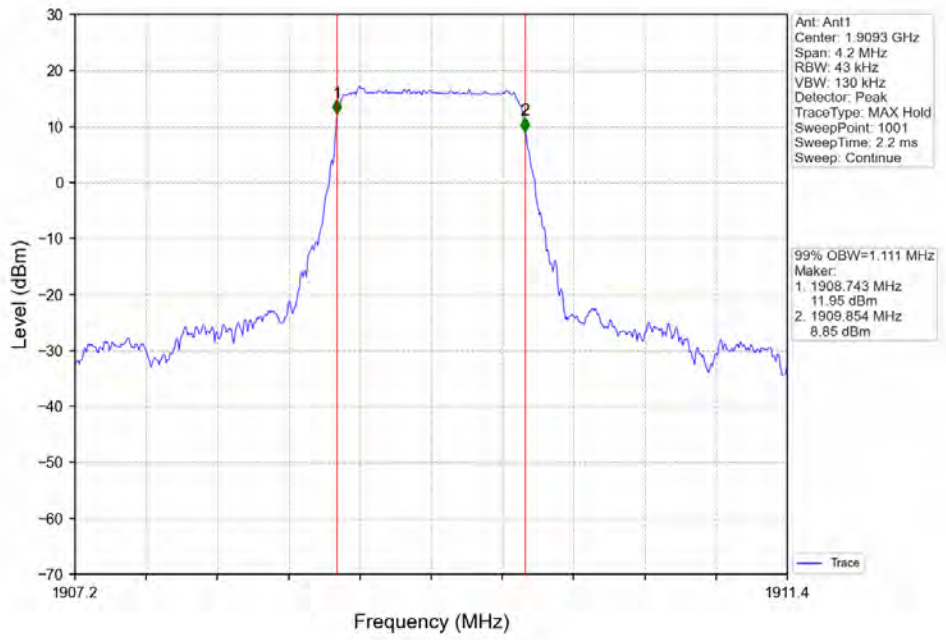
Band2_1.4MHz_QPSK_LCH_1850.7MHz_RB_6_0_NTNV



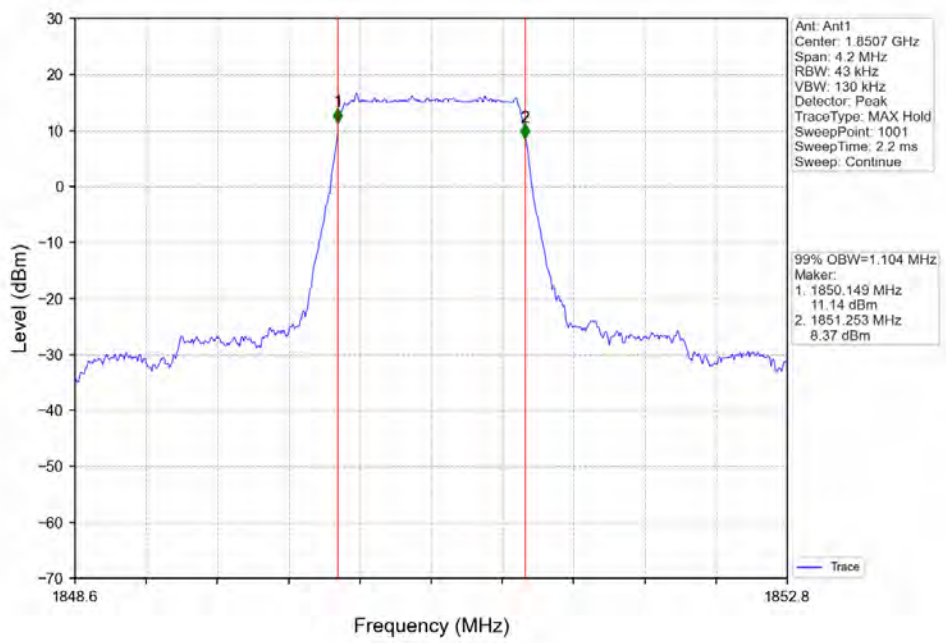
Band2_1.4MHz_QPSK_MCH_1880MHz_RB_6_0_NTNV



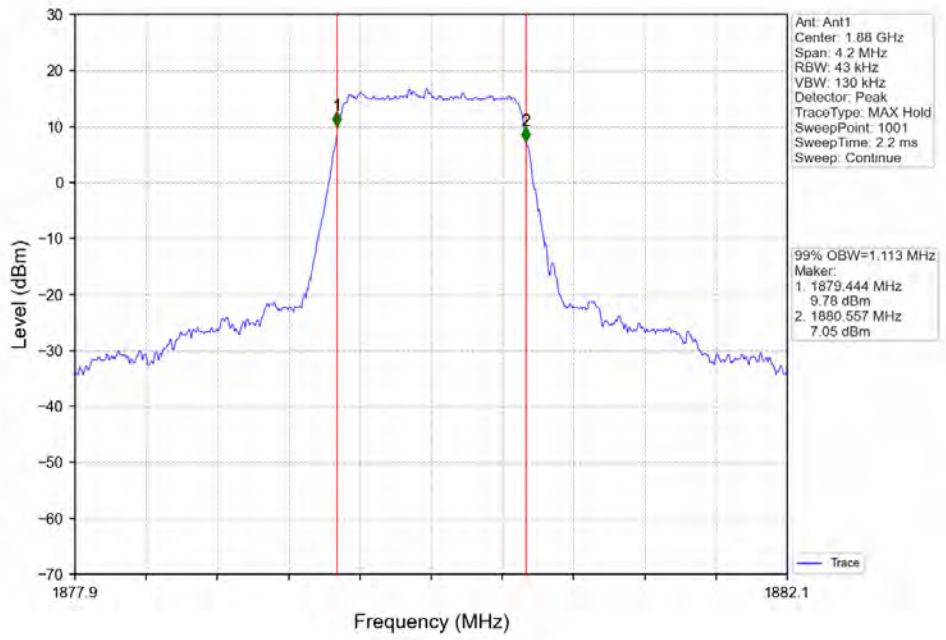
Band2_1.4MHz_QPSK_HCH_1909.3MHz_RB_6_0_NTNV



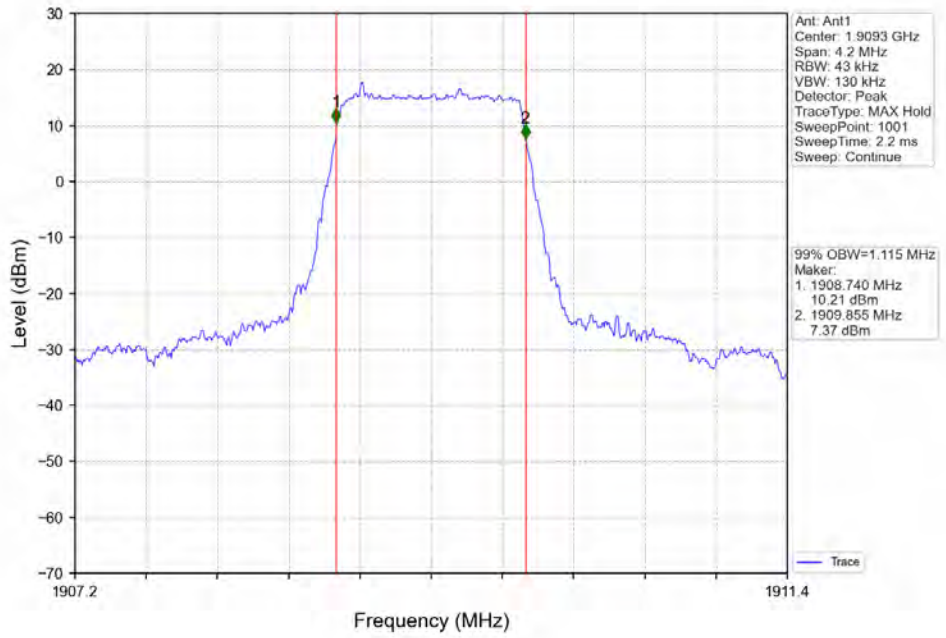
Band2_1.4MHz_16QAM_LCH_1850.7MHz_RB_6_0_NTNV



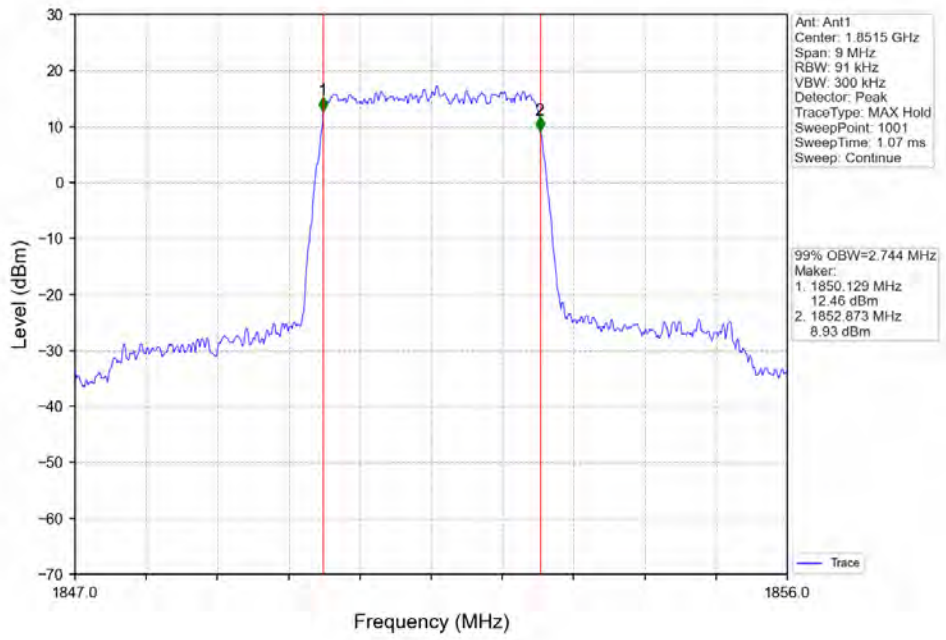
Band2_1.4MHz_16QAM_MCH_1880MHz_RB_6_0_NTNV



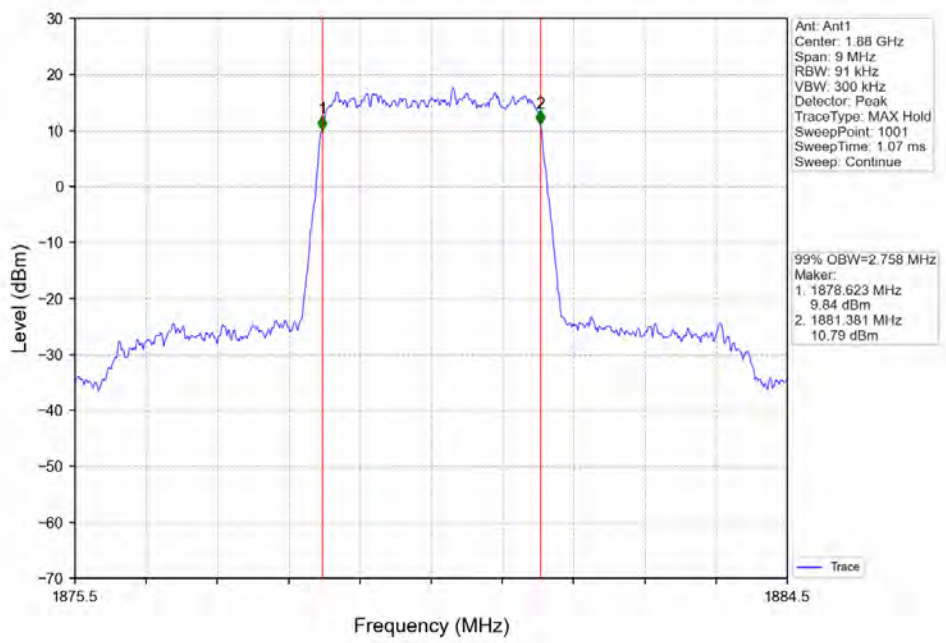
Band2_1.4MHz_16QAM_HCH_1909.3MHz_RB_6_0_NTNV



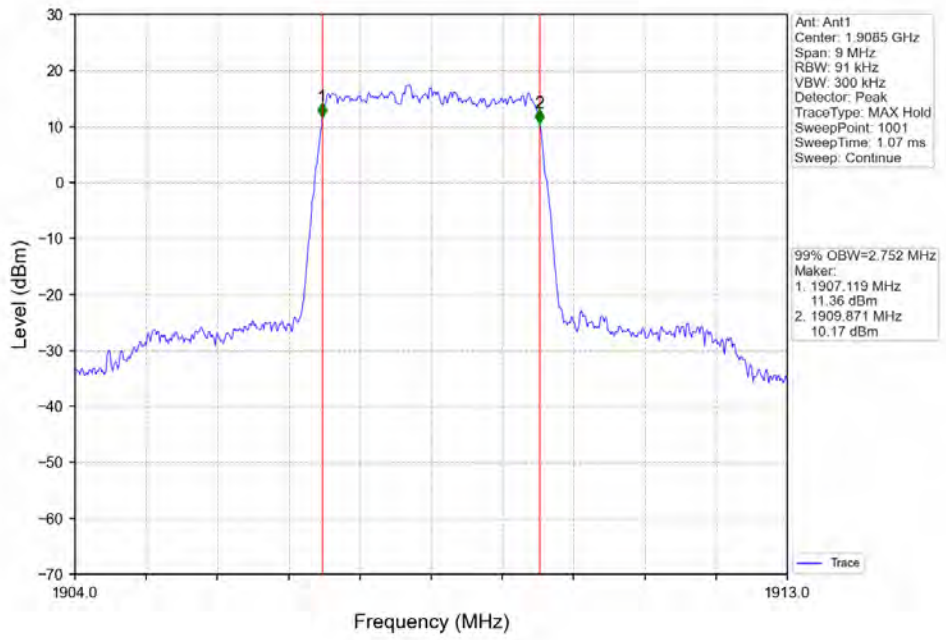
Band2_3MHz_QPSK_LCH_1851.5MHz_RB_15_0_NTNV



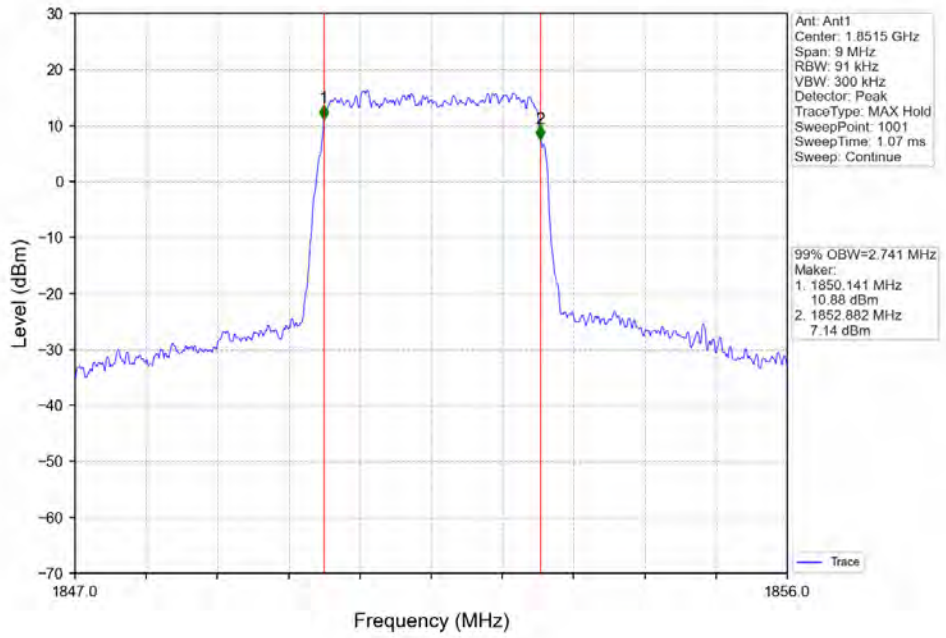
Band2_3MHz_QPSK_MCH_1880MHz_RB_15_0_NTNV



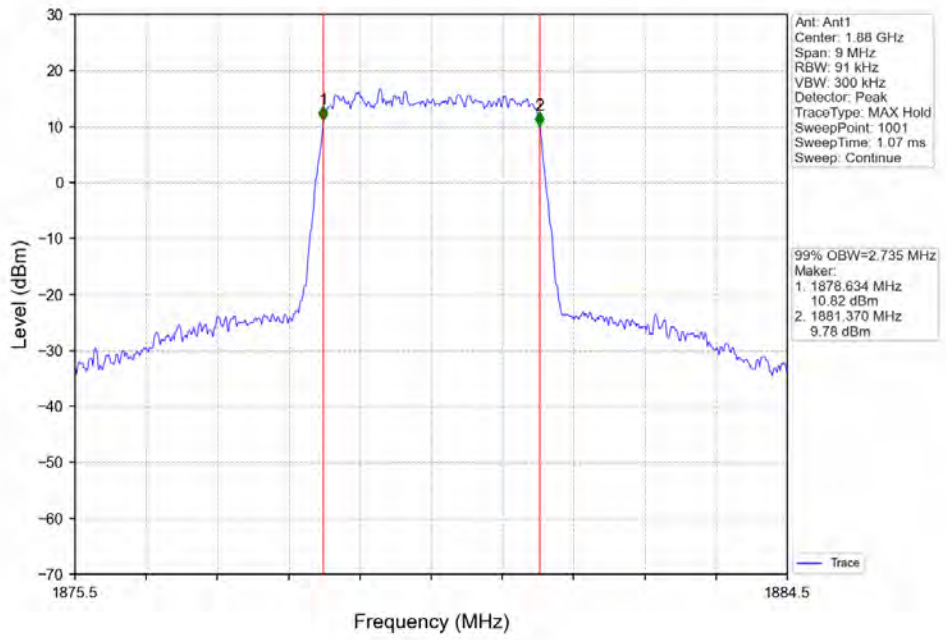
Band2_3MHz_QPSK_HCH_1908.5MHz_RB_15_0_NTNV



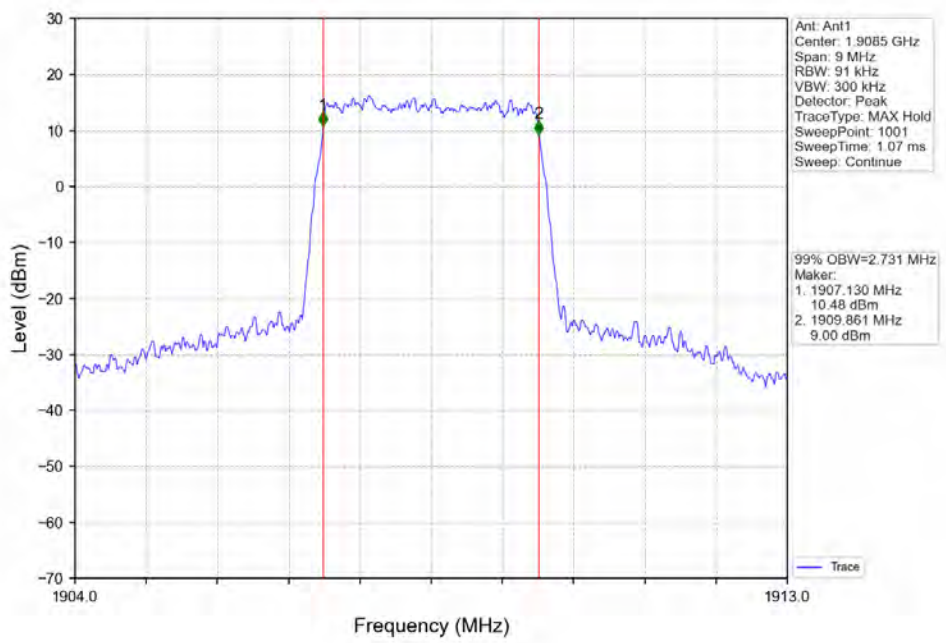
Band2_3MHz_16QAM_LCH_1851.5MHz_RB_15_0_NTNV



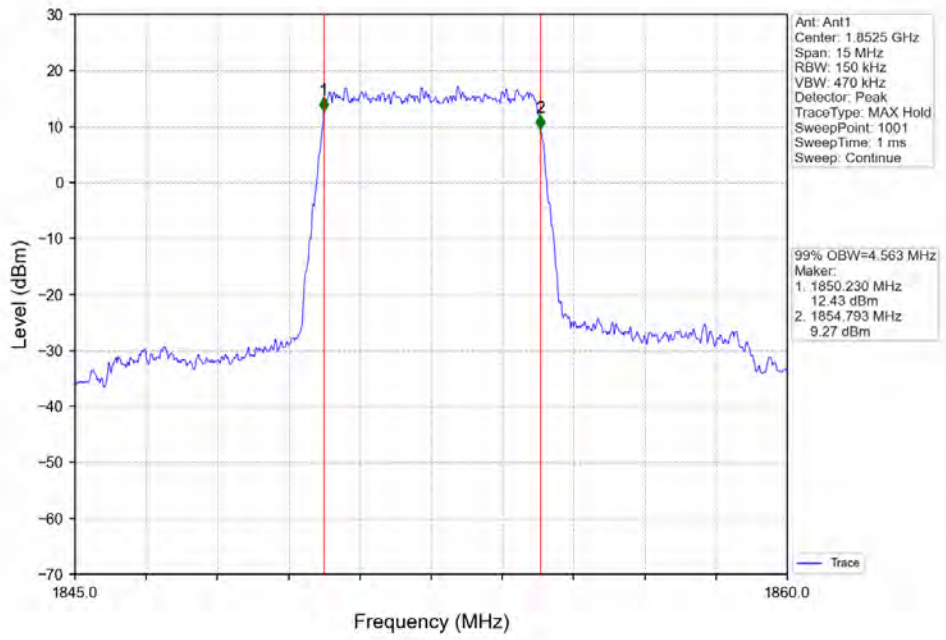
Band2_3MHz_16QAM_MCH_1880MHz_RB_15_0_NTNV



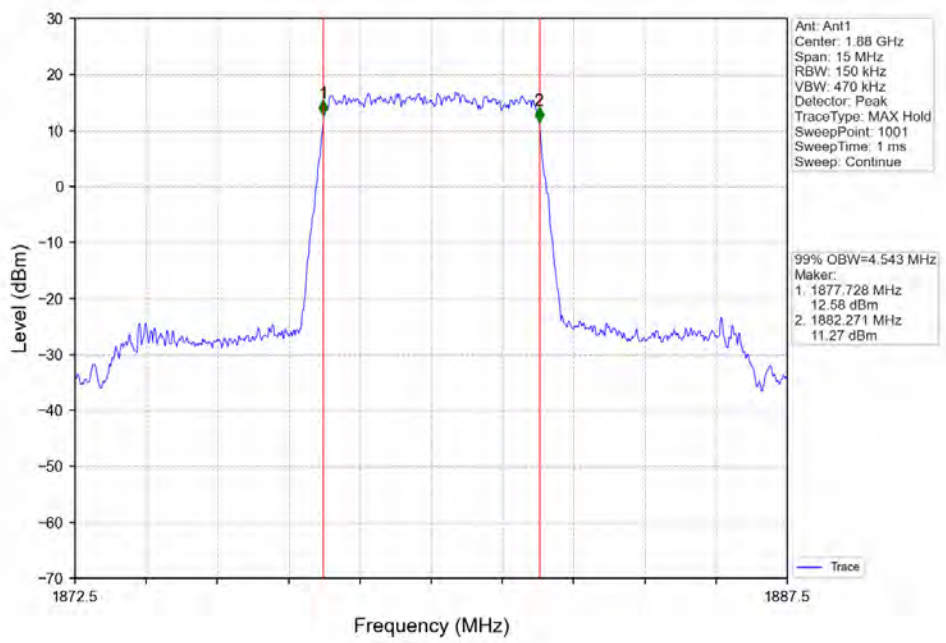
Band2_3MHz_16QAM_HCH_1908.5MHz_RB_15_0_NTNV



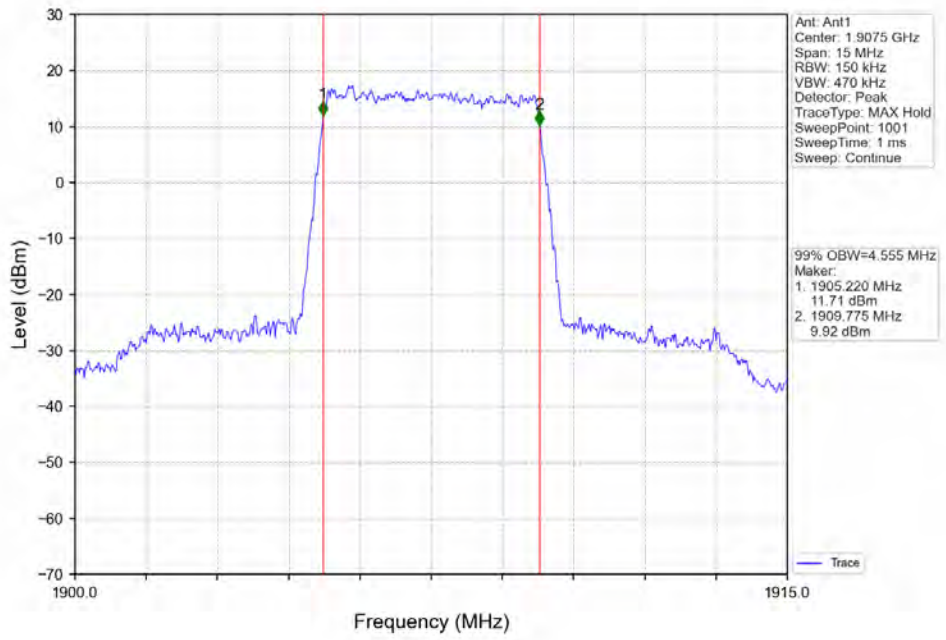
Band2_5MHz_QPSK_LCH_1852.5MHz_RB_25_0_NTNV



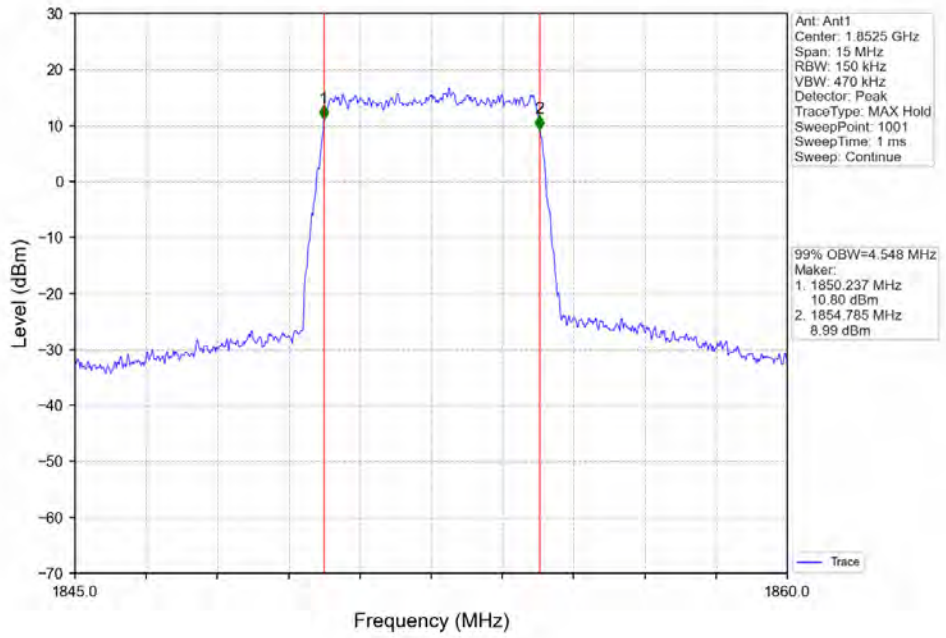
Band2_5MHz_QPSK_MCH_1880MHz_RB_25_0_NTNV



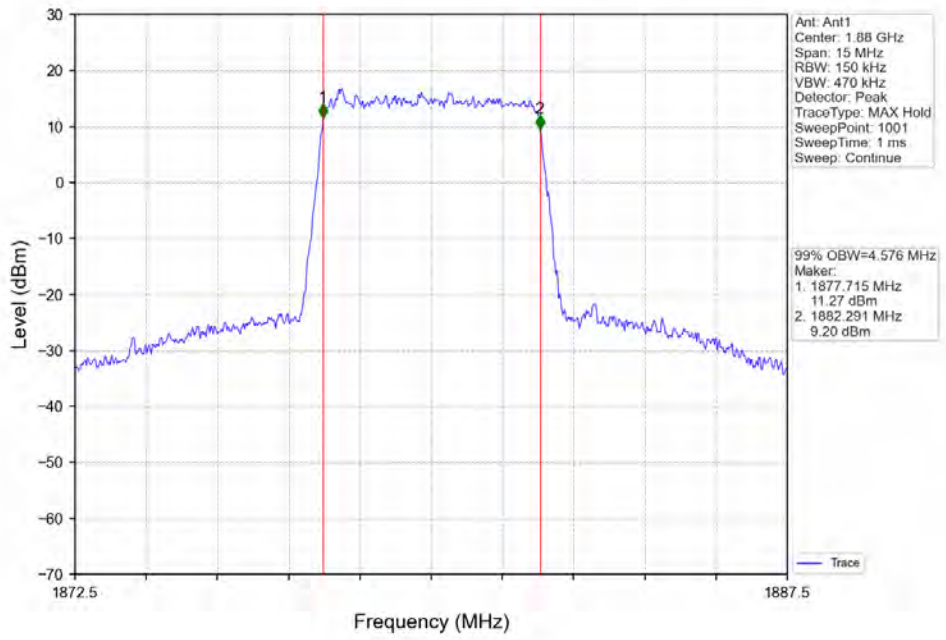
Band2_5MHz_QPSK_HCH_1907.5MHz_RB_25_0_NTNV



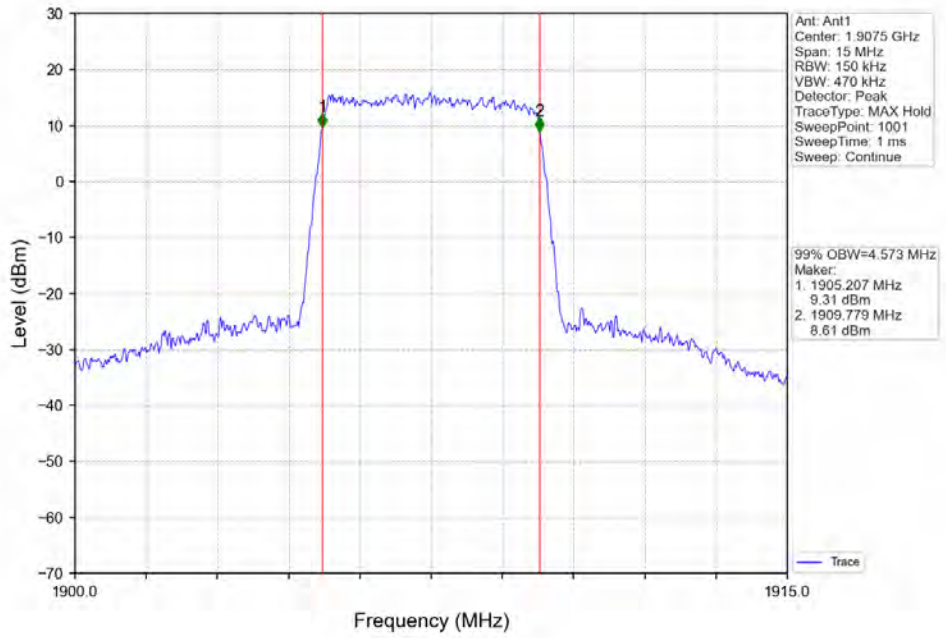
Band2_5MHz_16QAM_LCH_1852.5MHz_RB_25_0_NTNV



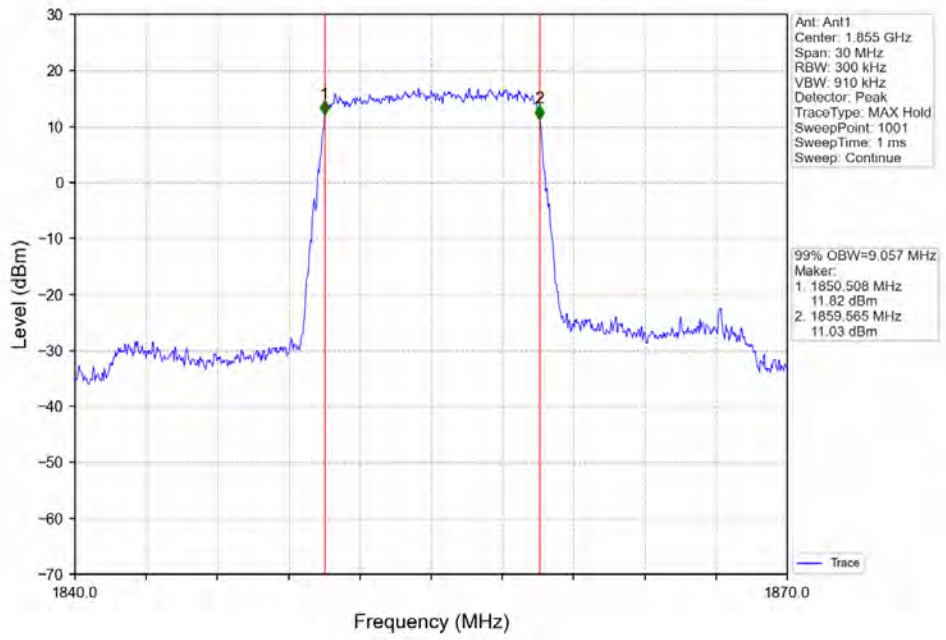
Band2_5MHz_16QAM_MCH_1880MHz_RB_25_0_NTNV



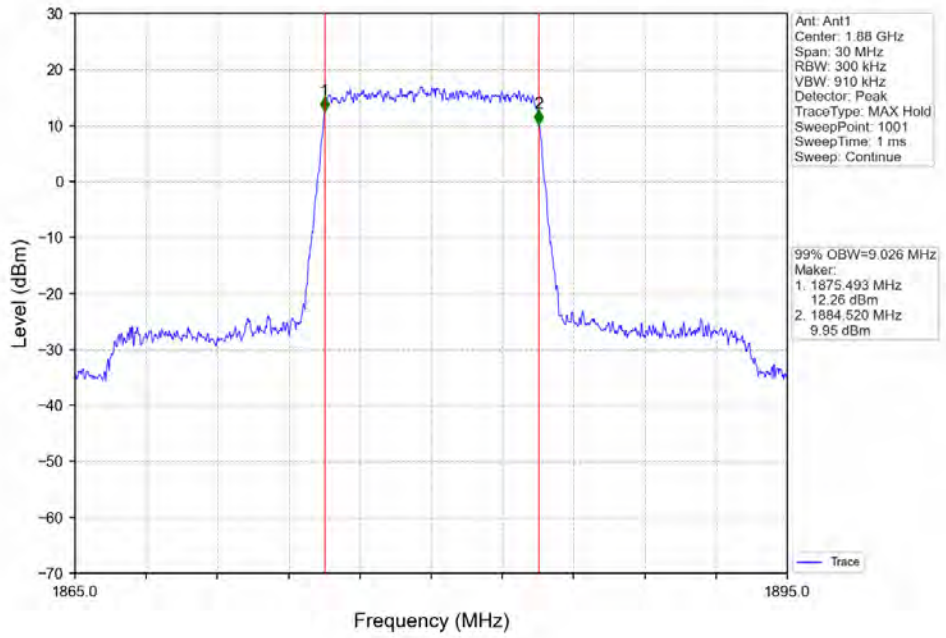
Band2_5MHz_16QAM_HCH_1907.5MHz_RB_25_0_NTNV



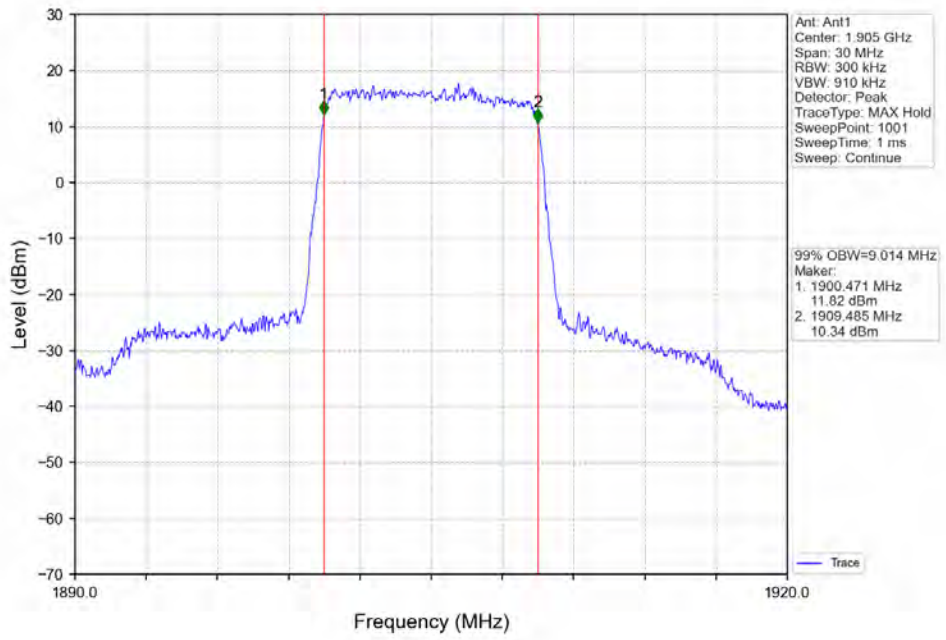
Band2_10MHz_QPSK_LCH_1855MHz_RB_50_0_NTNV



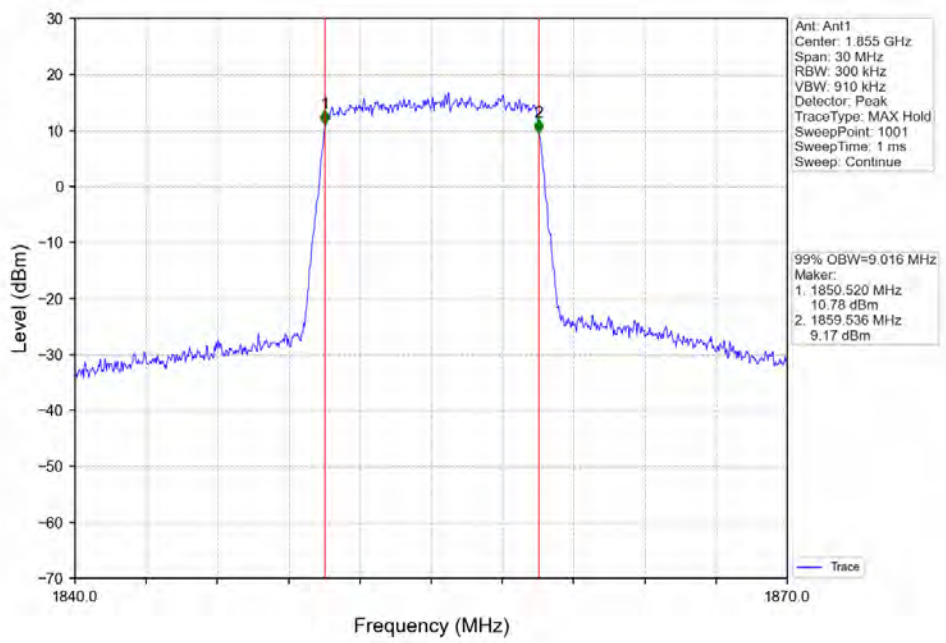
Band2_10MHz_QPSK_MCH_1880MHz_RB_50_0_NTNV



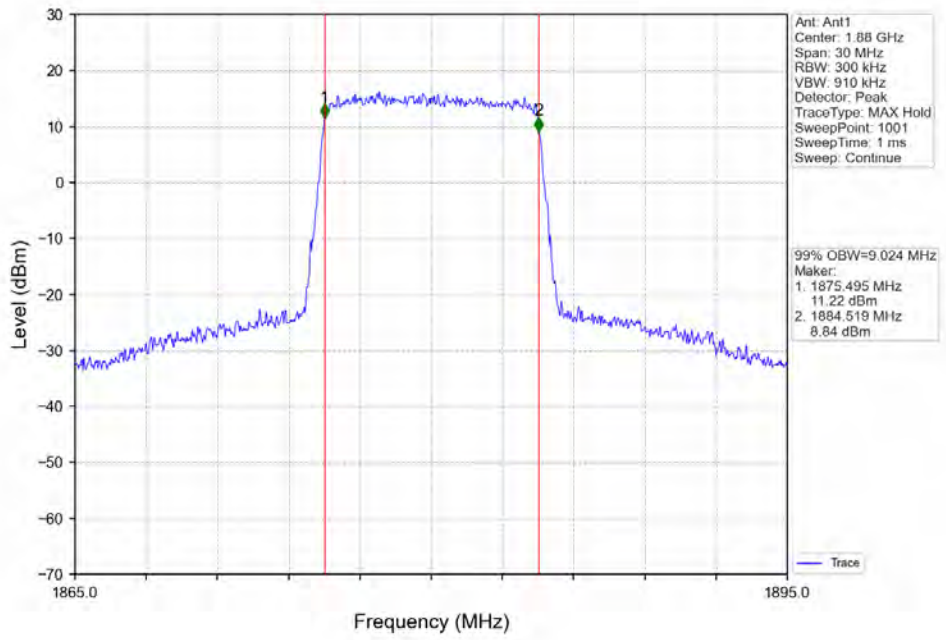
Band2_10MHz_QPSK_HCH_1905MHz_RB_50_0_NTNV



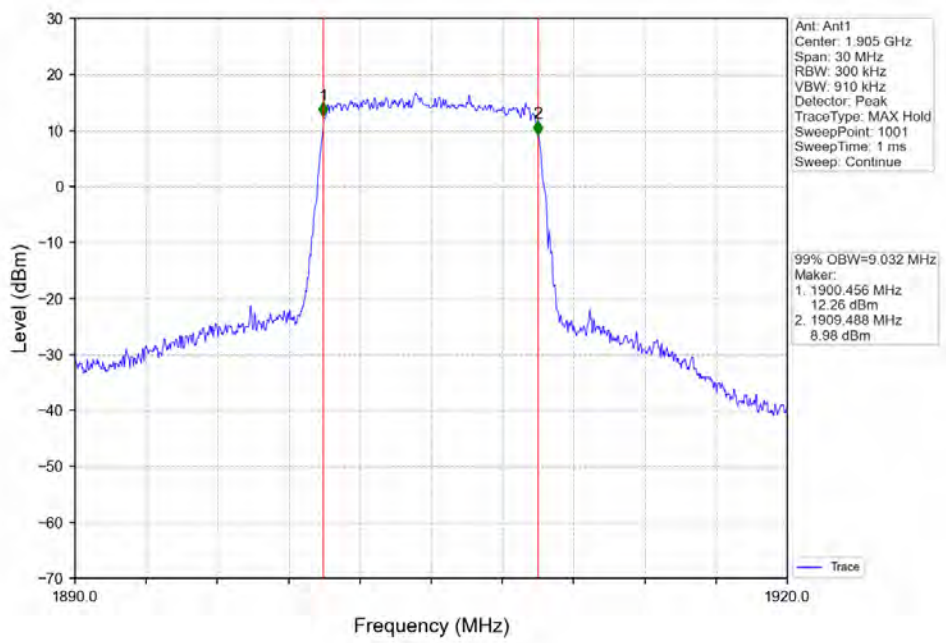
Band2_10MHz_16QAM_LCH_1855MHz_RB_50_0_NTNV



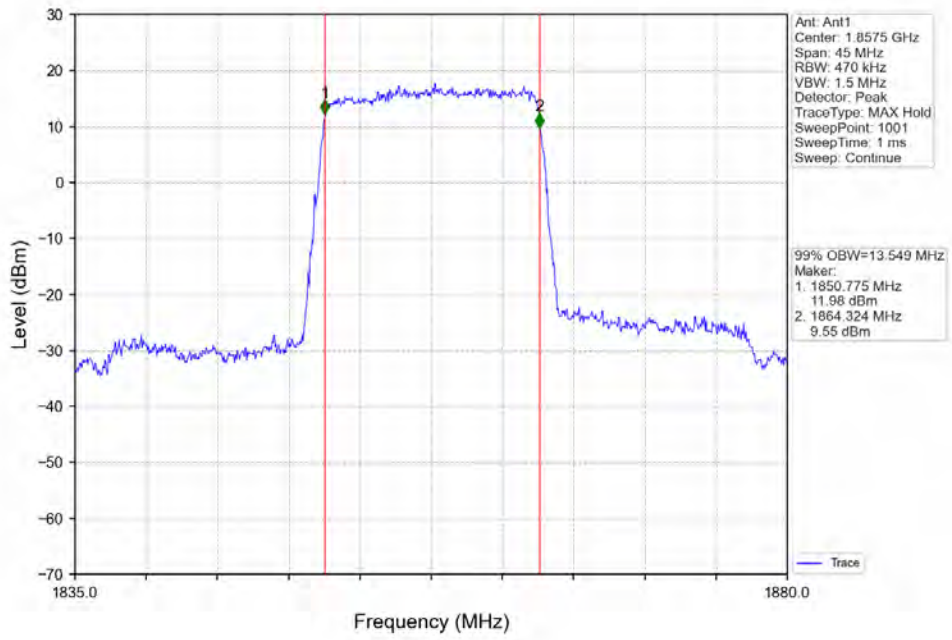
Band2_10MHz_16QAM_MCH_1880MHz_RB_50_0_NTNV



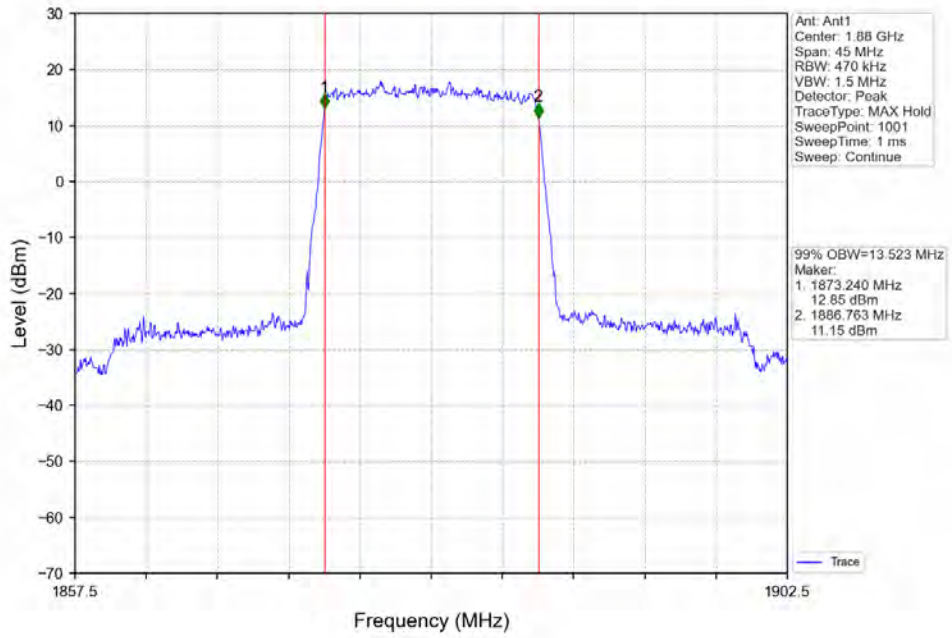
Band2_10MHz_16QAM_HCH_1905MHz_RB_50_0_NTNV



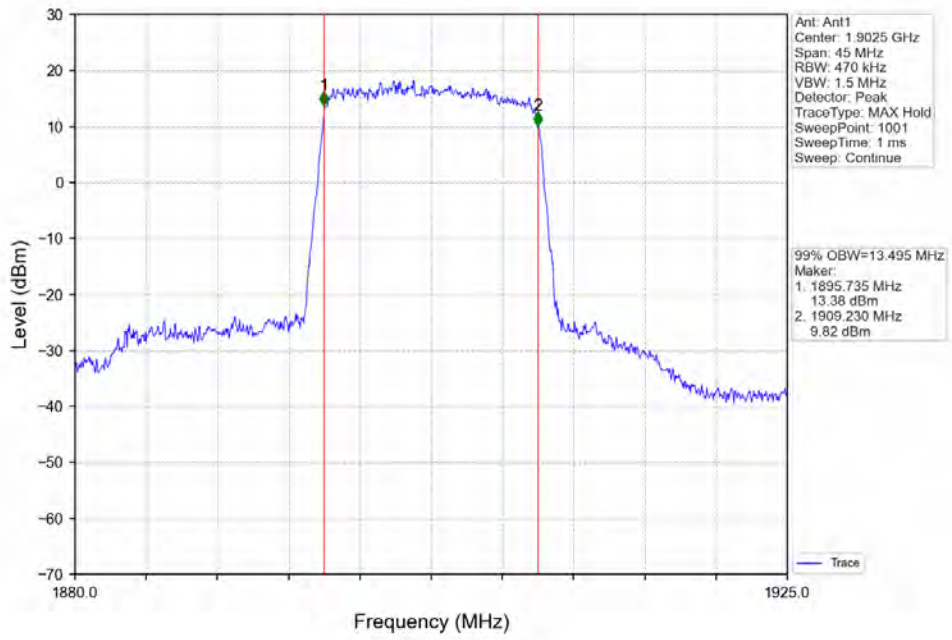
Band2_15MHz_QPSK_LCH_1857.5MHz_RB_75_0_NTNV



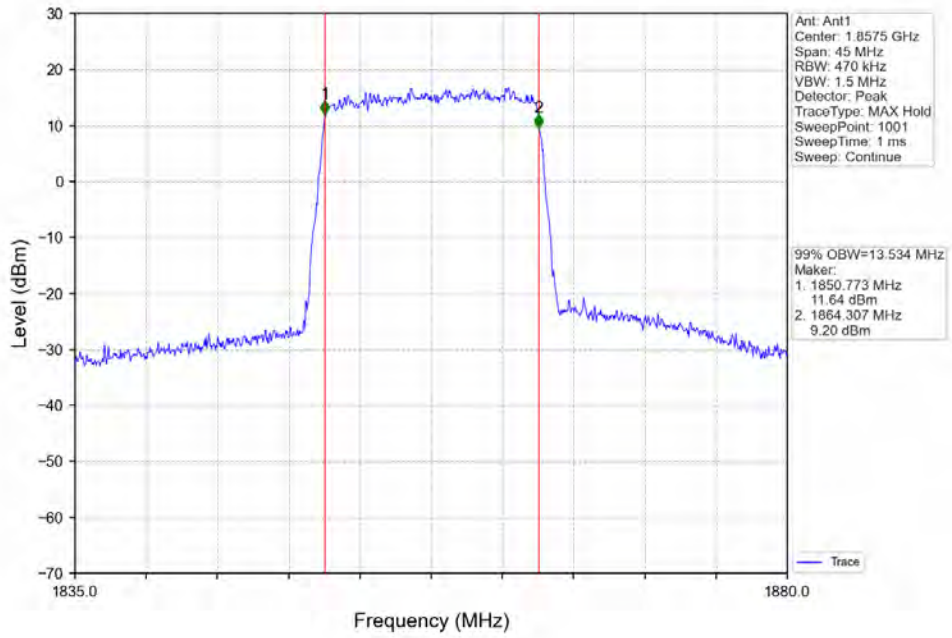
Band2_15MHz_QPSK_MCH_1880MHz_RB_75_0_NTNV



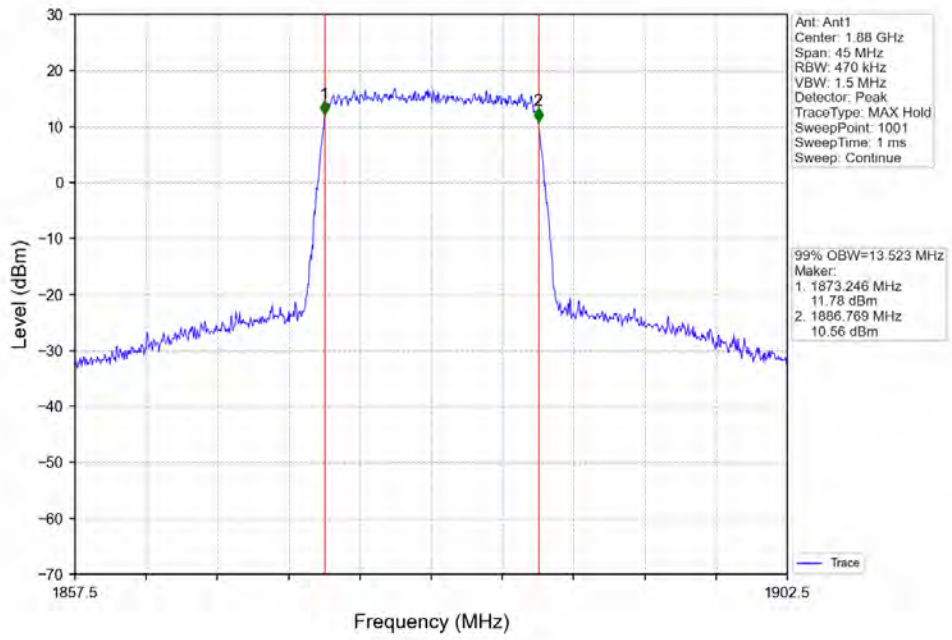
Band2_15MHz_QPSK_HCH_1902.5MHz_RB_75_0_NTNV



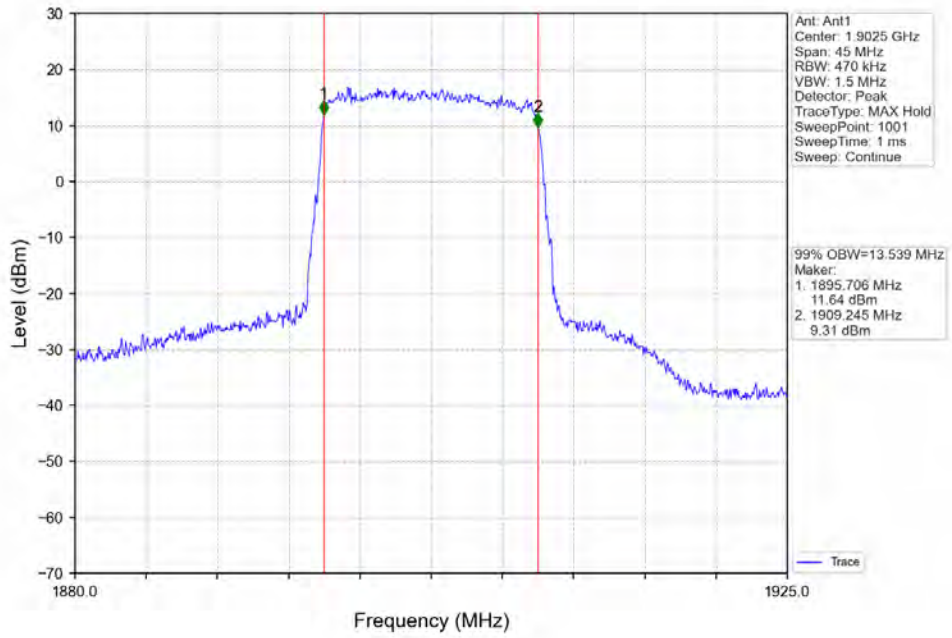
Band2_15MHz_16QAM_LCH_1857.5MHz_RB_75_0_NTNV



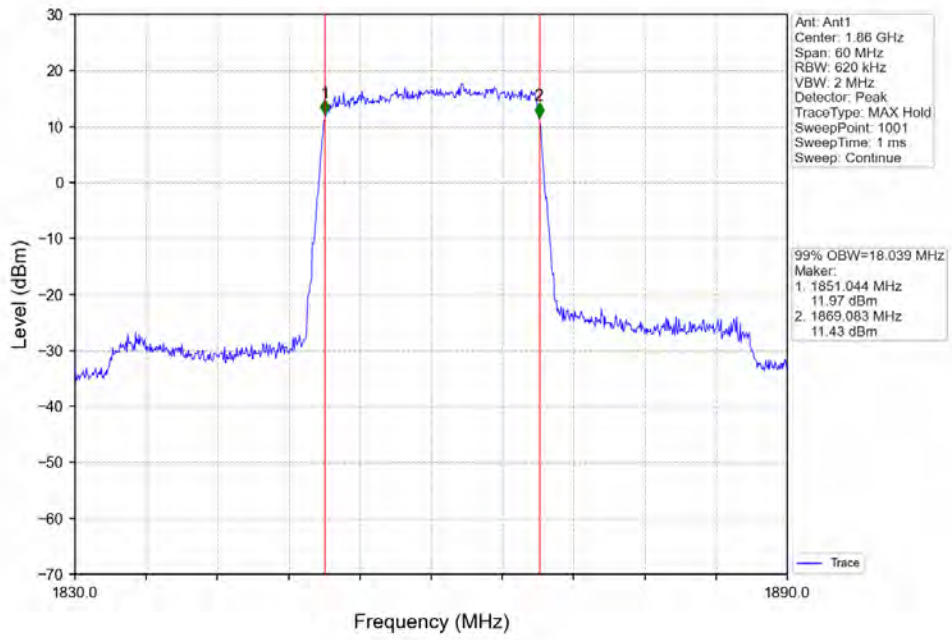
Band2_15MHz_16QAM_MCH_1880MHz_RB_75_0_NTNV



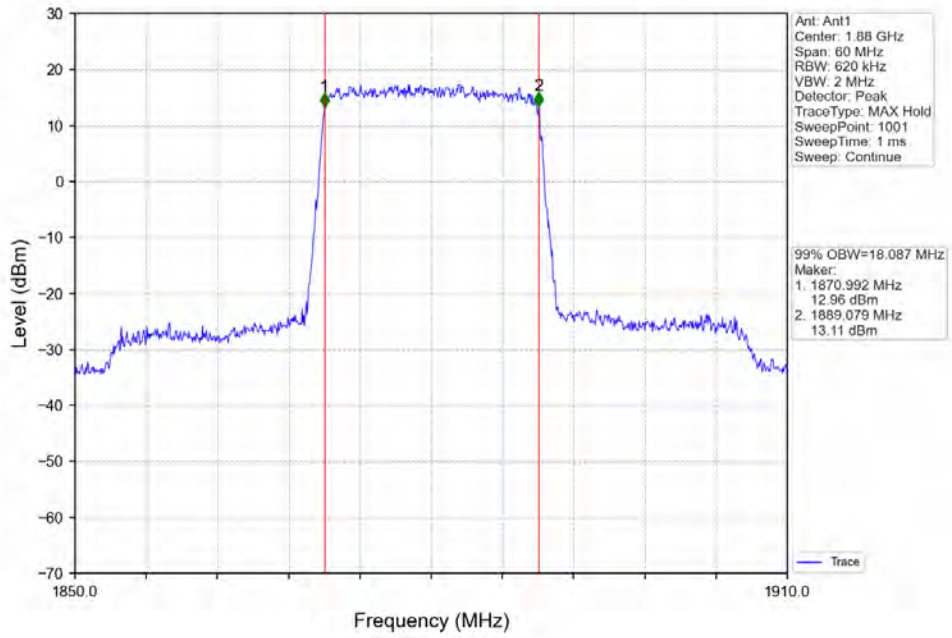
Band2_15MHz_16QAM_HCH_1902.5MHz_RB_75_0_NTNV



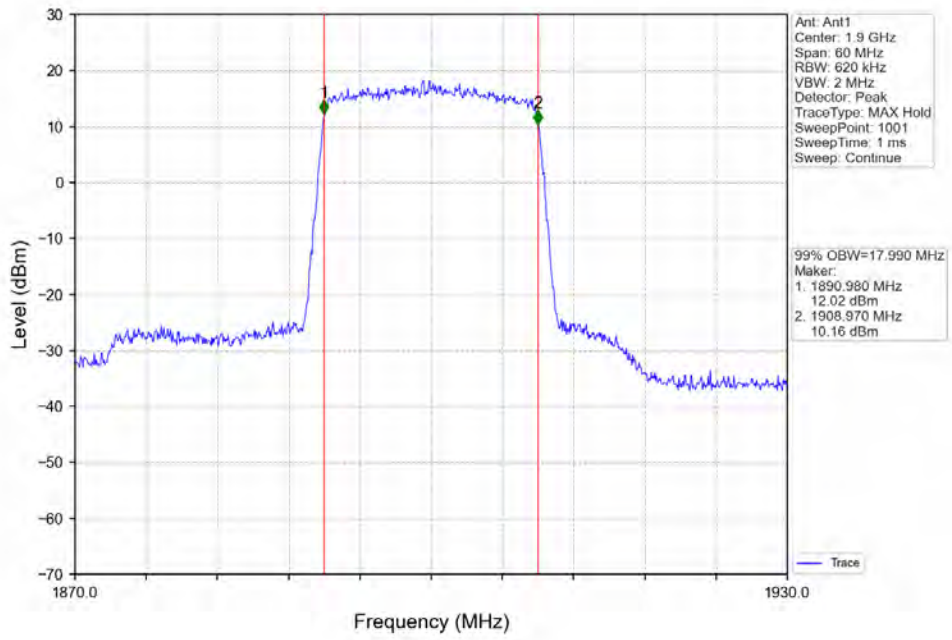
Band2_20MHz_QPSK_LCH_1860MHz_RB_100_0_NTNV



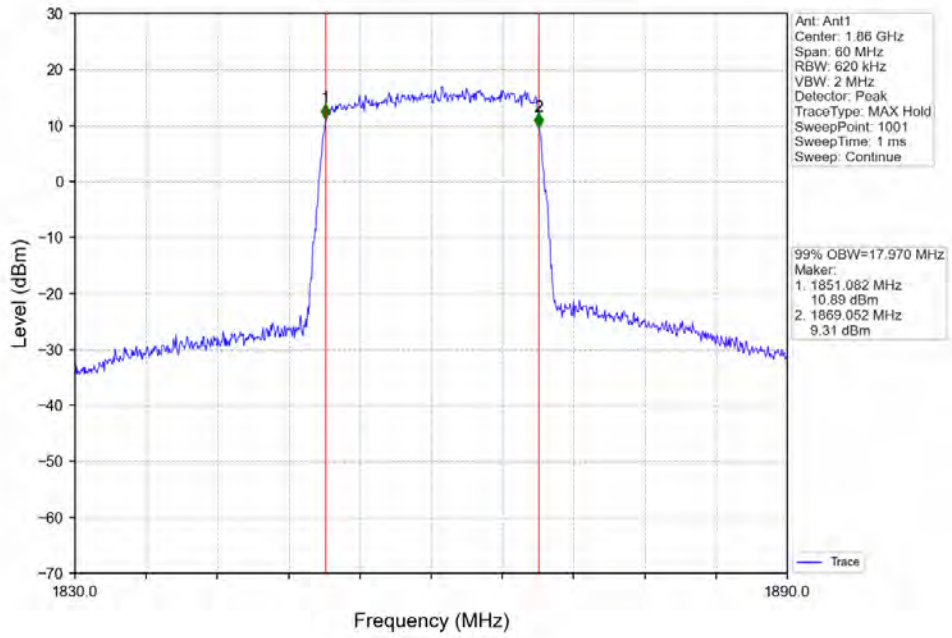
Band2_20MHz_QPSK_MCH_1880MHz_RB_100_0_NTNV



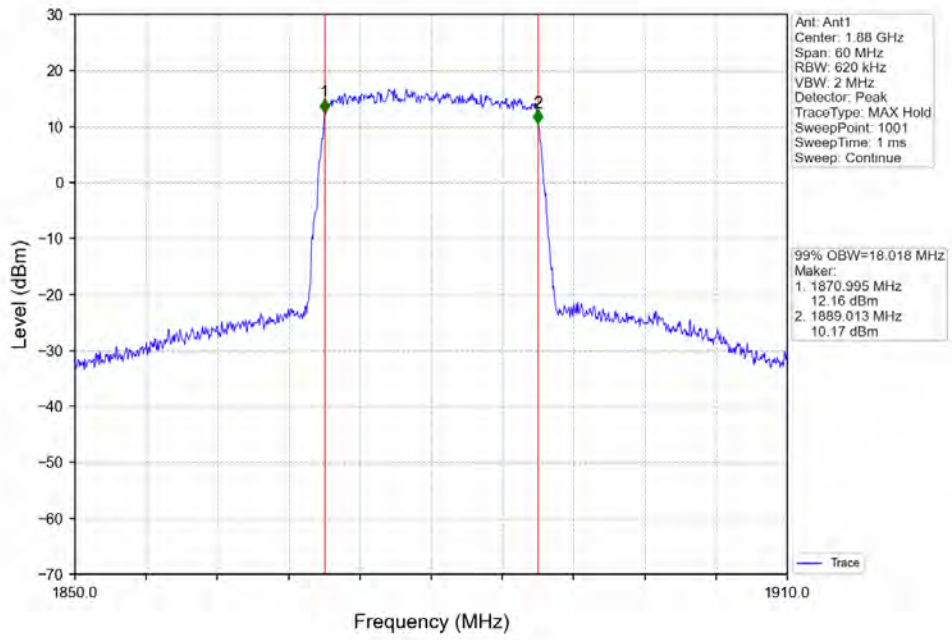
Band2_20MHz_QPSK_HCH_1900MHz_RB_100_0_NTNV



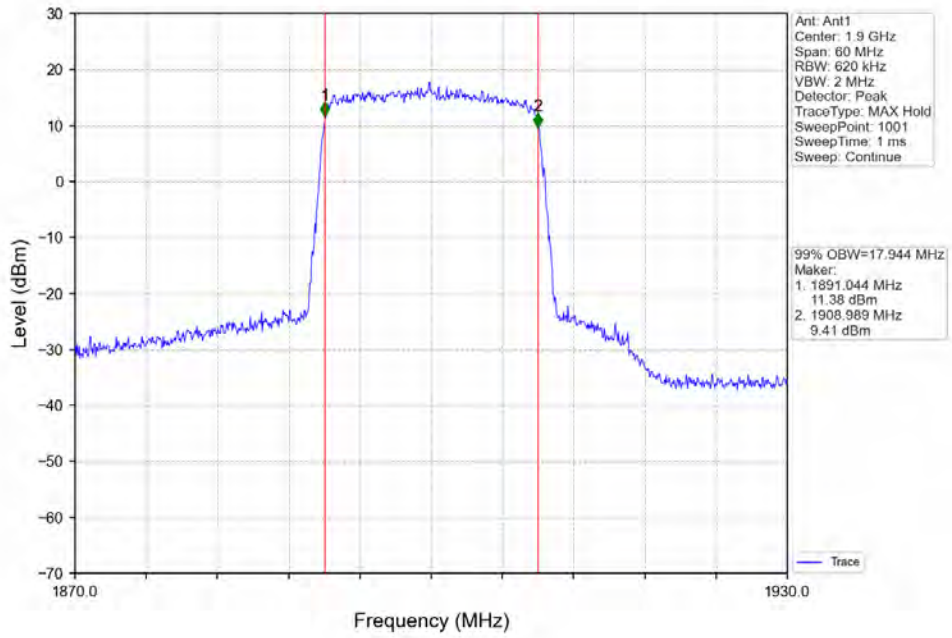
Band2_20MHz_16QAM_LCH_1860MHz_RB_100_0_NTNV



Band2_20MHz_16QAM_MCH_1880MHz_RB_100_0_NTNV



Band2_20MHz_16QAM_HCH_1900MHz_RB_100_0_NTNV



26dB Bandwidth

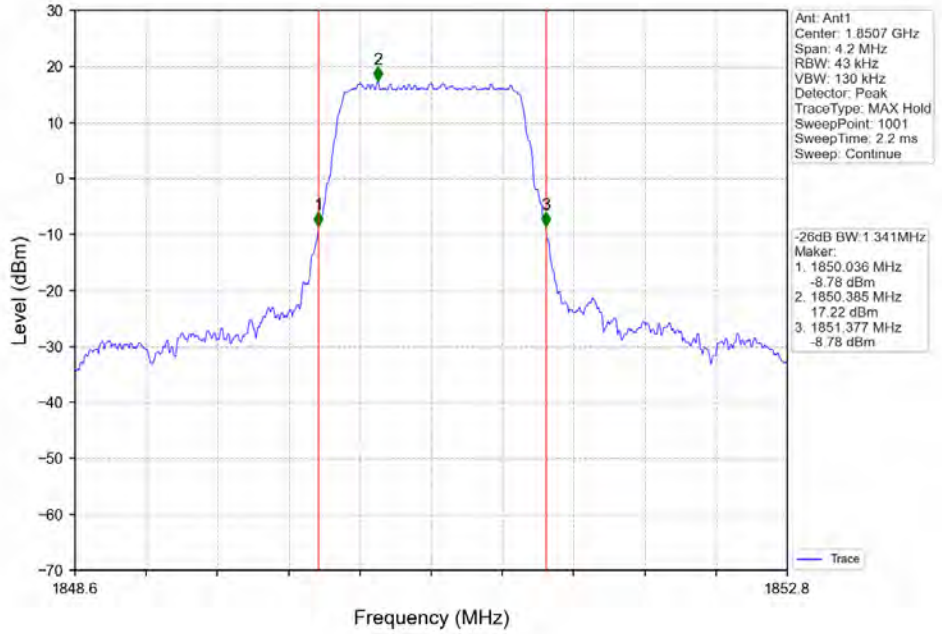
LTE Band2_26DB bandwidth

Test Result

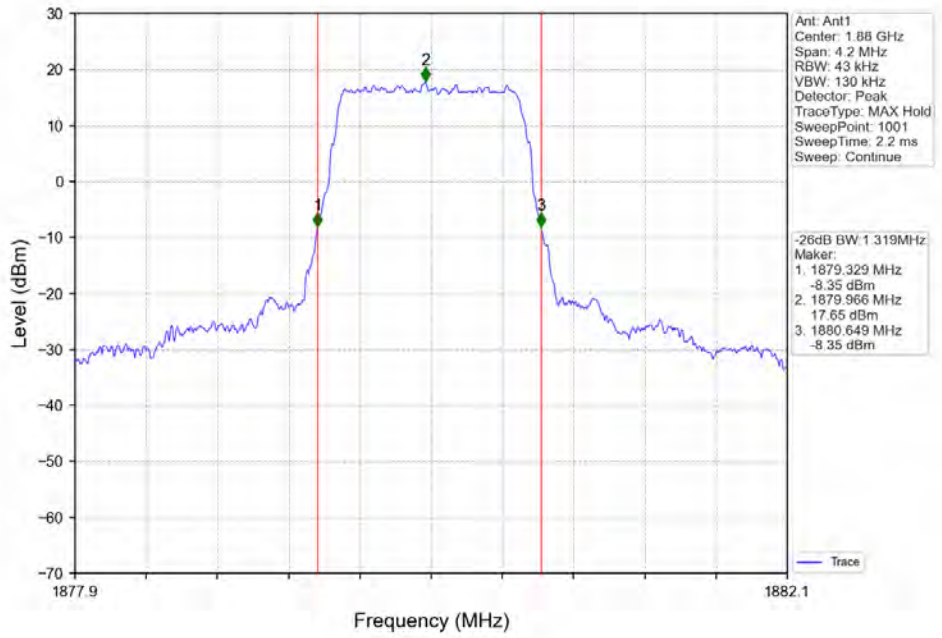
Band: 2 / NTNV						
Bandwidth (MHz)	Modulation	Frequency (MHz)	RB Allocation		26dB Bandwidth (MHz)	Verdict
			Size	Offset	Result	
1.4	QPSK	1850.7	6	0	1.341	Pass
		1880	6	0	1.319	Pass
		1909.3	6	0	1.327	Pass
	16QAM	1850.7	6	0	1.309	Pass
		1880	6	0	1.324	Pass
		1909.3	6	0	1.328	Pass
3	QPSK	1851.5	15	0	3.057	Pass
		1880	15	0	3.062	Pass
		1908.5	15	0	3.056	Pass
	16QAM	1851.5	15	0	3.029	Pass
		1880	15	0	3.057	Pass
		1908.5	15	0	3.055	Pass
5	QPSK	1852.5	25	0	5.095	Pass
		1880	25	0	5.104	Pass
		1907.5	25	0	5.087	Pass
	16QAM	1852.5	25	0	5.077	Pass
		1880	25	0	5.078	Pass
		1907.5	25	0	5.098	Pass
10	QPSK	1855	50	0	10.106	Pass
		1880	50	0	10.004	Pass
		1905	50	0	9.982	Pass
	16QAM	1855	50	0	10.040	Pass
		1880	50	0	10.005	Pass
		1905	50	0	10.051	Pass
15	QPSK	1857.5	75	0	14.908	Pass
		1880	75	0	14.991	Pass
		1902.5	75	0	14.862	Pass
	16QAM	1857.5	75	0	14.988	Pass
		1880	75	0	14.951	Pass
		1902.5	75	0	14.935	Pass
20	QPSK	1860	100	0	19.727	Pass
		1880	100	0	19.789	Pass
		1900	100	0	19.786	Pass
	16QAM	1860	100	0	19.690	Pass
		1880	100	0	19.812	Pass
		1900	100	0	19.677	Pass

Test Graph

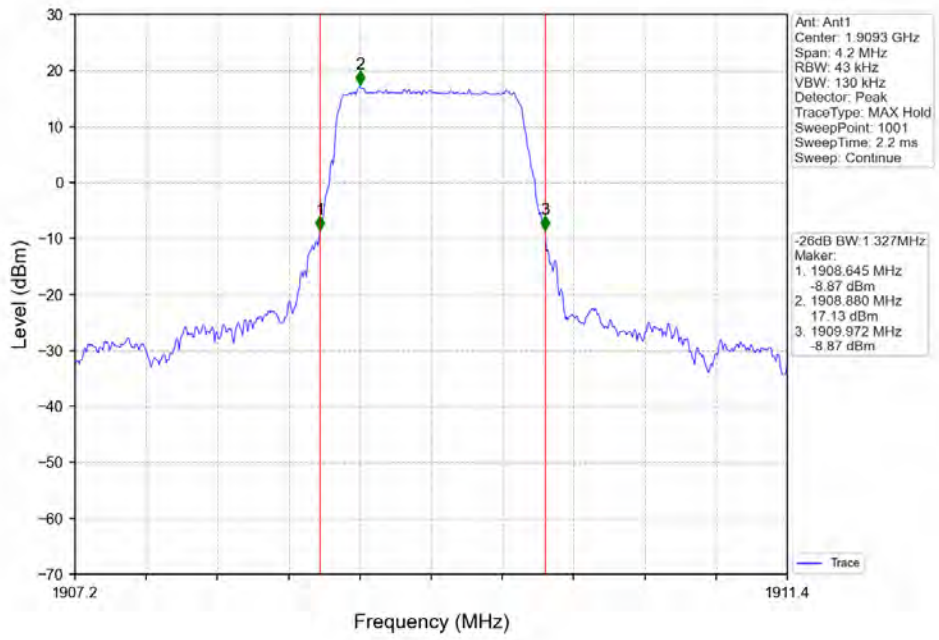
Band2_1.4MHz_QPSK_LCH_1850.7MHz_RB_6_0_NTNV



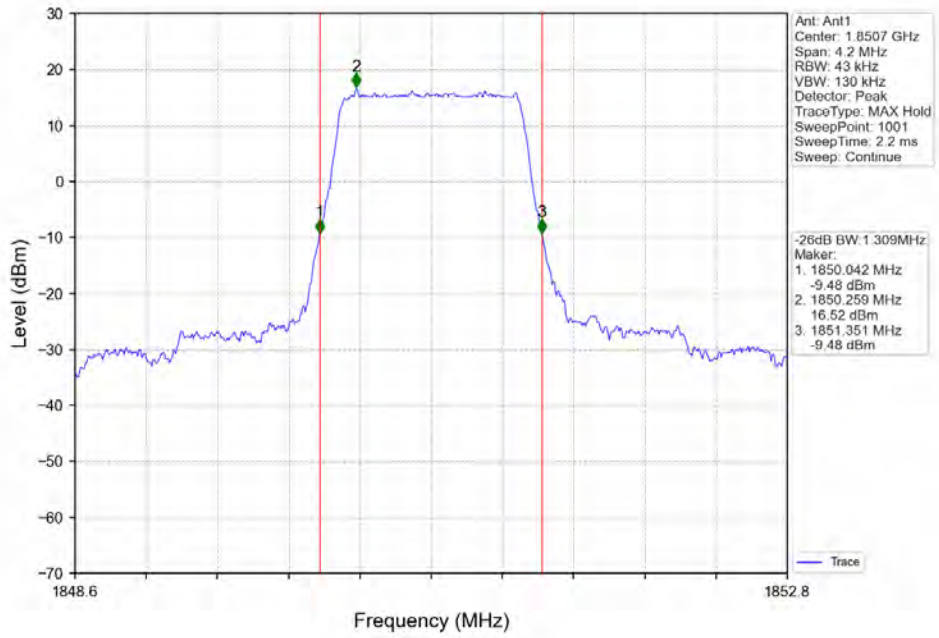
Band2_1.4MHz_QPSK_MCH_1880MHz_RB_6_0_NTNV



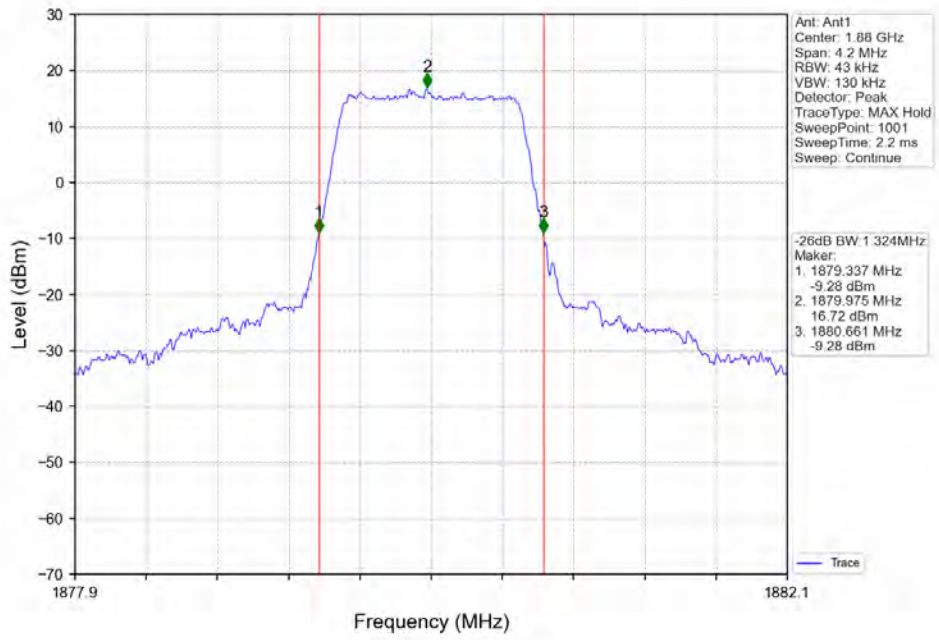
Band2_1.4MHz_QPSK_HCH_1909.3MHz_RB_6_0_NTNV



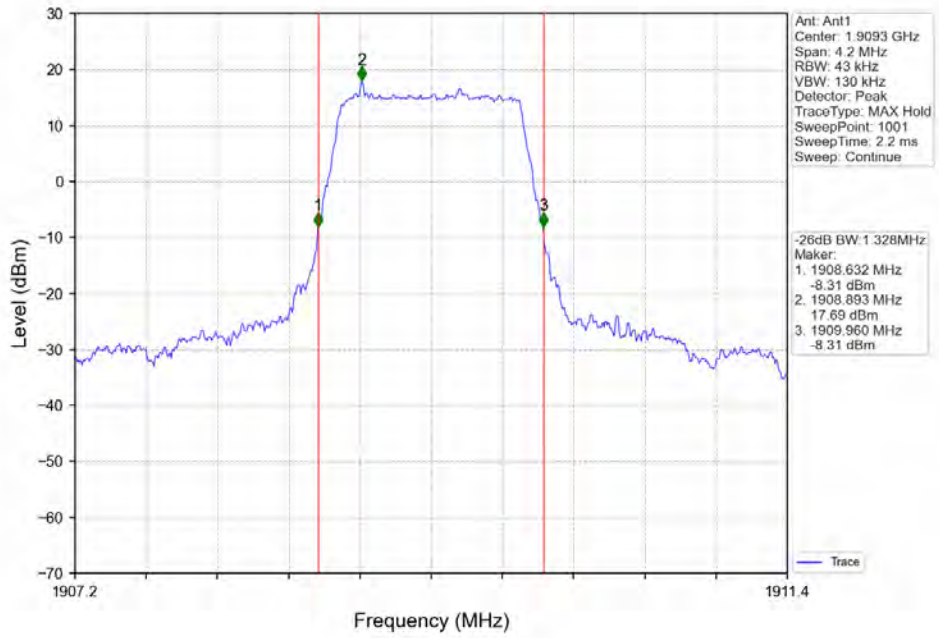
Band2_1.4MHz_16QAM_LCH_1850.7MHz_RB_6_0_NTNV



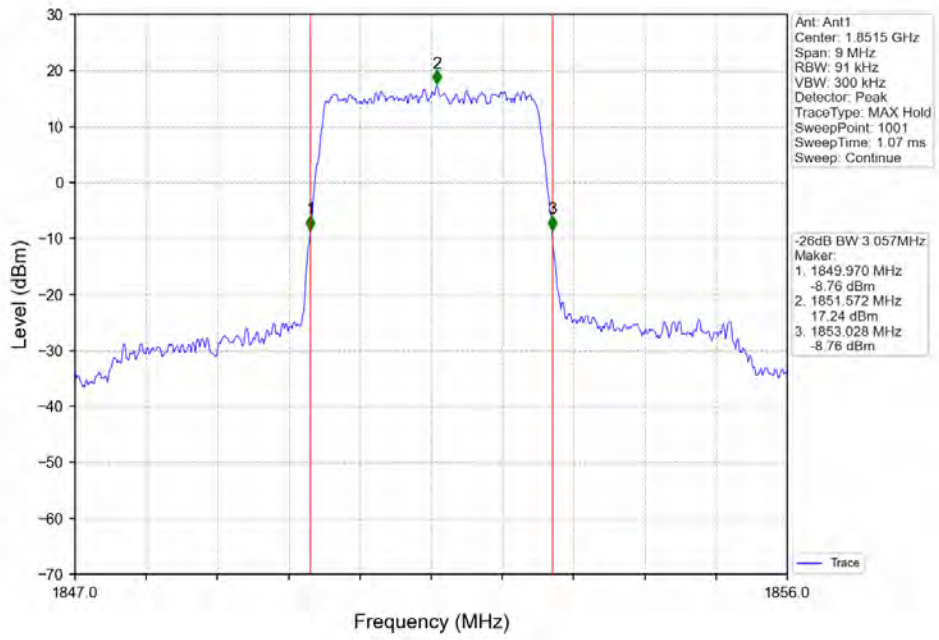
Band2_1.4MHz_16QAM_MCH_1880MHz_RB_6_0_NTNV



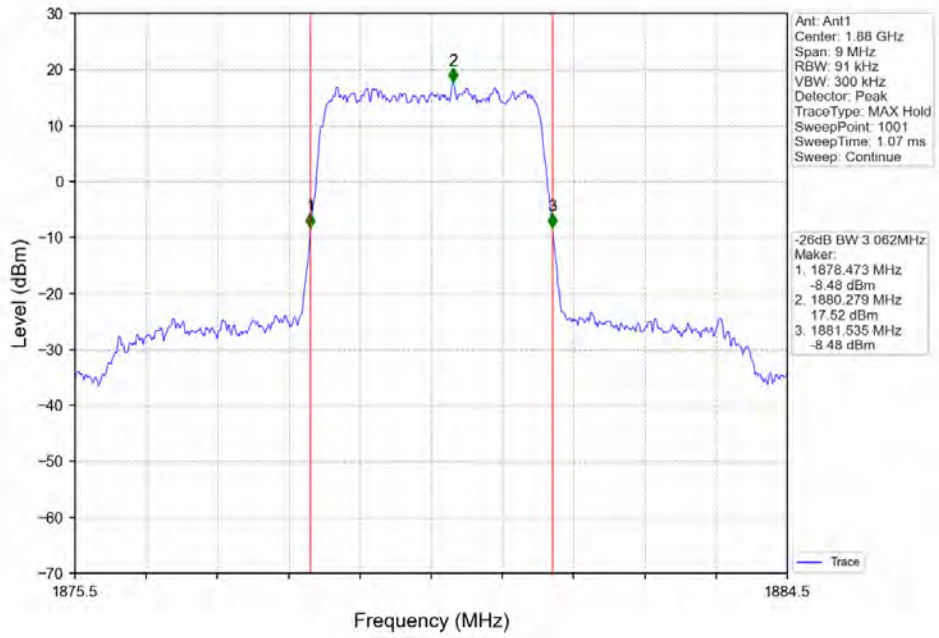
Band2_1.4MHz_16QAM_HCH_1909.3MHz_RB_6_0_NTNV



Band2_3MHz_QPSK_LCH_1851.5MHz_RB_15_0_NTNV



Band2_3MHz_QPSK_MCH_1880MHz_RB_15_0_NTNV



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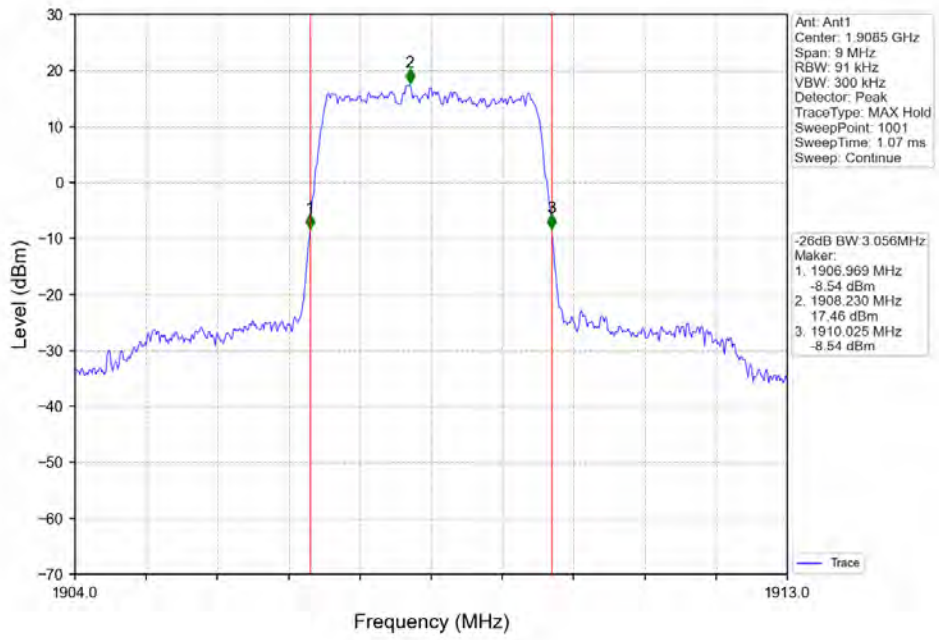

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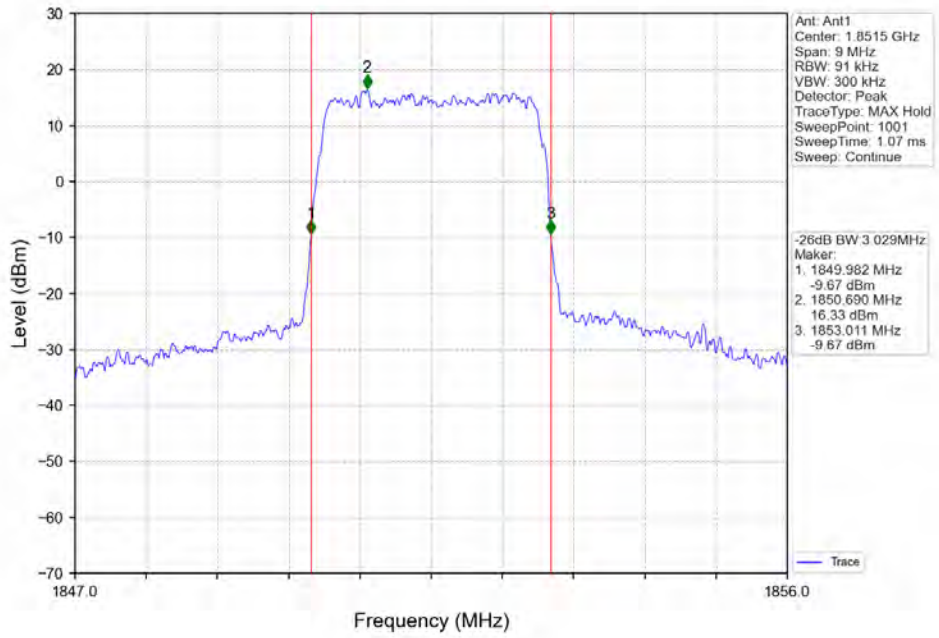

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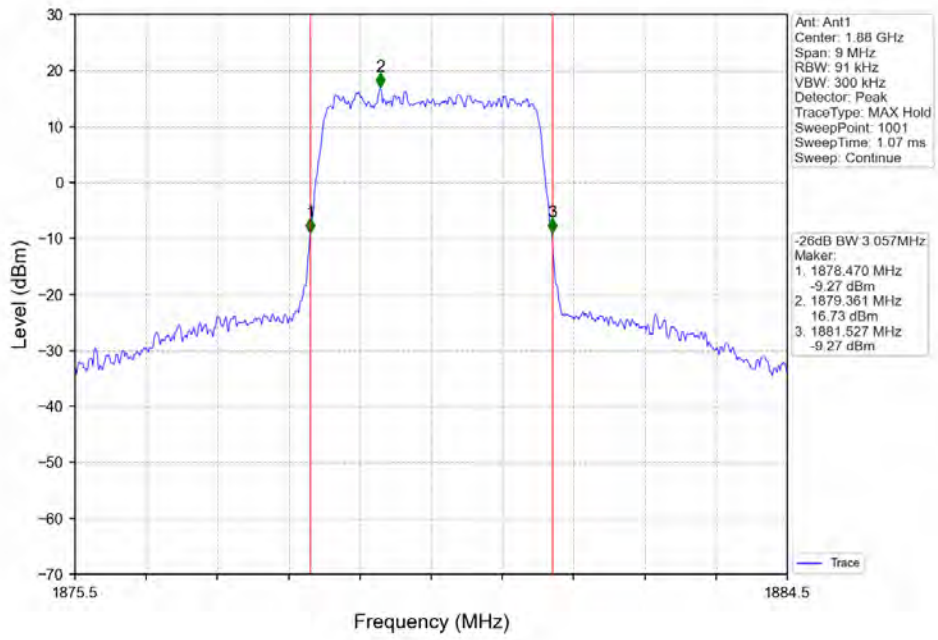

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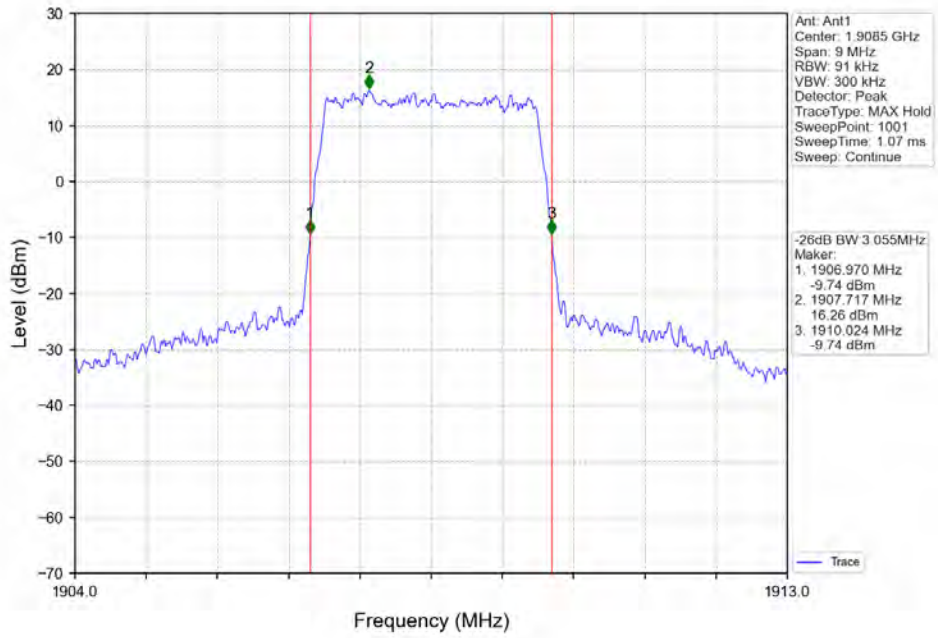

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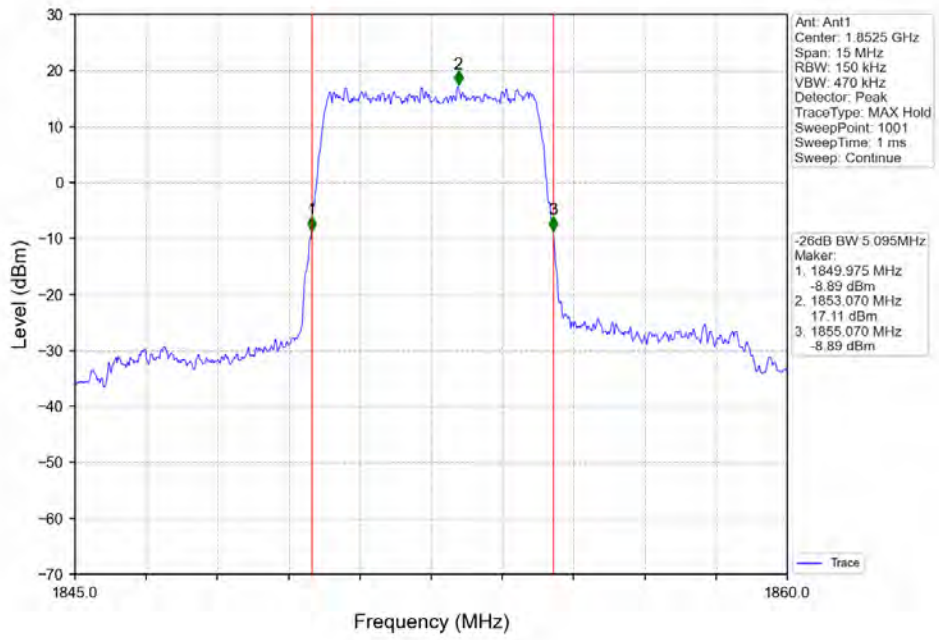

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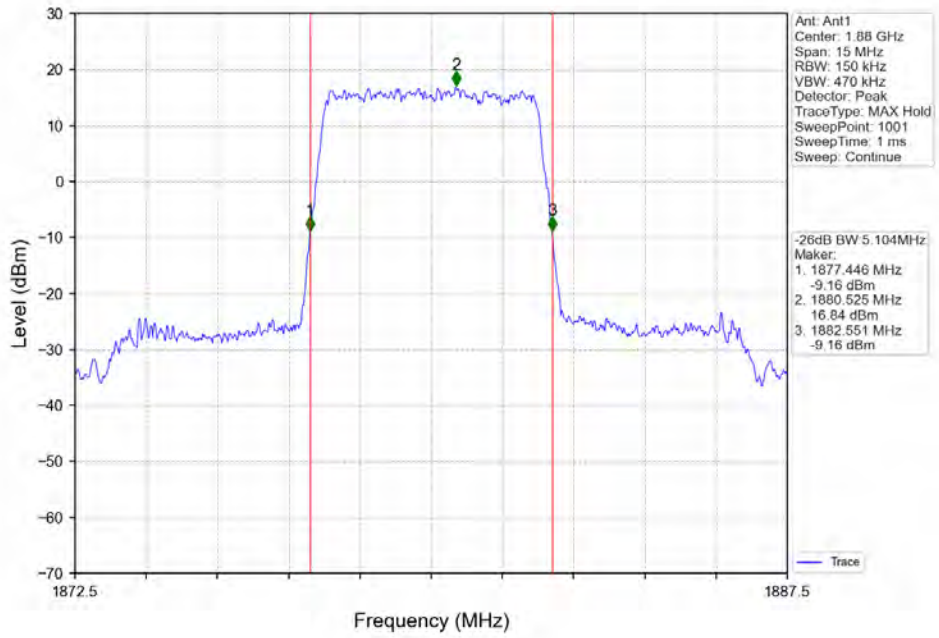

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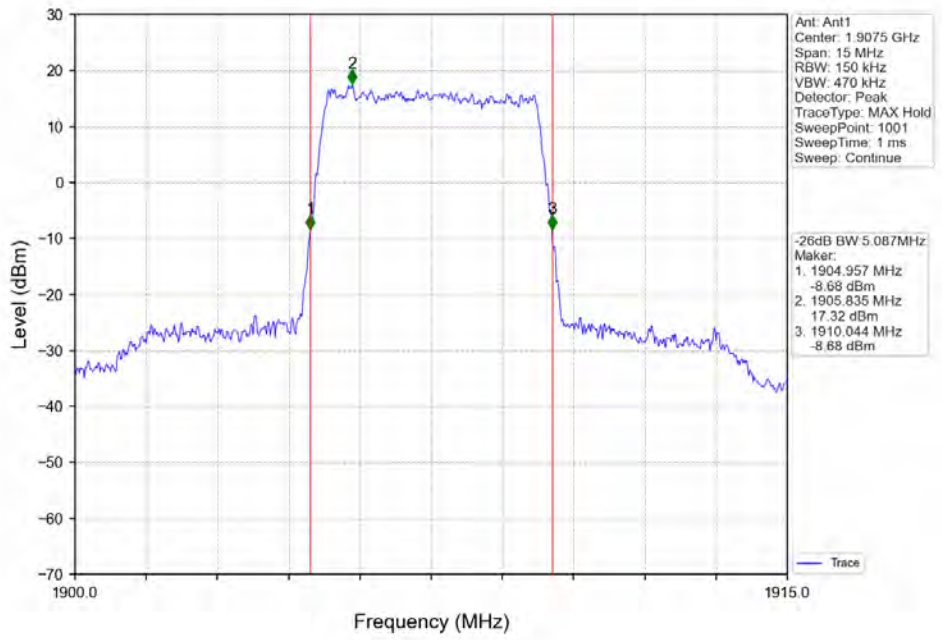
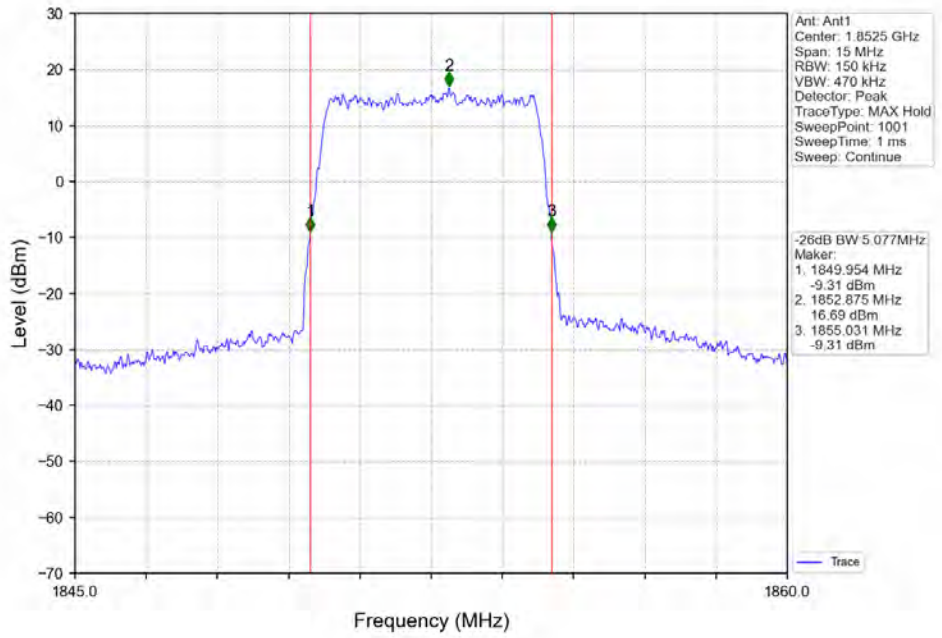
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