

FCC Test Report

Product Name : LGA module

Trade Name : WNC

Model No. : IMQ6

FCC ID : NKRIMQ6

Applicant : Wistron Neweb Corporation

Address : 20 Park Avenue II, Hsinchu Science Park, Hsinchu
308, Taiwan, R.O.C

Date of Receipt : Sep. 24, 2020

Issued Date : Dec. 09, 2020

Report No. : 2090881R-E3042110012

Report Version : V1.0



The test results relate only to the samples tested.

The test report shall not be reproduced except in full without the written approval of DEKRA Testing and Certification Co., Ltd.

Test Report Certification

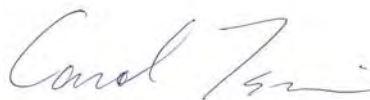
Issued Date : Dec. 09, 2020

Report No. : 2090881R-E3042110012



Product Name : LGA module
Applicant : Wistron Neweb Corporation
Address : 20 Park Avenue II, Hsinchu Science Park, Hsinchu 308, Taiwan, R.O.C
Manufacturer : Wistron Neweb Corporation
Address : 20 Park Avenue II, Hsinchu Science Park, Hsinchu 308, Taiwan, R.O.C
Trade name : WNC
Model No. : IMQ6
FCC ID : NKRIMQ6
EUT Voltage : DC 3.8V
Testing Voltage : DC 3.8V
Applicable Standard : FCC CFR Title 47 Part 22 Subpart H
FCC CFR Title 47 Part 24 Subpart E
FCC CFR Title 47 Part 27 Subpart L, Subpart F
ANSI/TIA-603-E-2016
Test Lab : Hsin Chu Laboratory
Address : No.372-2, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County 310, Taiwan, R.O.C.
TEL: +886-3-582-8001 / FAX: +886-3-582-8958
Test Result : Complied

Documented By :



(Carol Tsai / Senior Engineering Adm. Specialist)

Tested By :



(Max Chang / Senior Engineer)

Approved By :



(Louis Hsu / Deputy Manager)

Revision History

Version	Description	Issued Date
V1.0	Initial issue of report	Dec. 09, 2020

TABLE OF CONTENTS

Description	Page
1. General Information	6
1.1. EUT Description.....	6
1.2. Mode of Operation	7
1.3. Tested System Details	8
1.4. Configuration of Tested System	8
1.5. EUT Exercise Software	8
1.6. Comments and Remarks	9
2. Technical Test	10
2.1. Summary of Test Result.....	10
2.2. Test Environment	15
2.3. List of Test Equipment.....	16
2.4. Uncertainty.....	19
3. RF Output Power	20
3.1. Test Setup.....	20
3.2. Test Procedure.....	20
3.3. Test Method	20
3.4. Test Result	21
4. Occupied Bandwidth.....	36
4.1. Test Setup.....	36
4.2. Test Procedure.....	36
4.3. Test Method	36
4.4. Test Result	37
5. Peak To Average Ratio	109
5.1. Test Setup.....	109
5.2. Test Procedure.....	109
5.3. Test Method	109
5.4. Limit	109
5.5. Test Result	110
6. Spurious Emissions	182
6.1. Test Setup.....	182
6.2. Test Procedure.....	183
6.3. Test Method	183

6.4.	Test Result	184
7.	Spurious Emissions at Antenna Terminals	254
7.1.	Test Setup	254
7.2.	Test Procedure	254
7.3.	Test Method	254
7.4.	Test Result	255
8.	Frequency Stability	299
8.1.	Test Setup	299
8.2.	Test Procedure	299
8.3.	Test Method	299
8.4.	Test Result	300
Attachment 1		326
Test Setup Photograph		326
Attachment 2		329
EUT External Photograph		329
Attachment 3		333
EUT Internal Photograph		333

1. General Information

1.1. EUT Description

Product Name	LGA module
Trade Name	WNC
Model No.	IMQ6
Uplink Frequency Range (MHz)	LTE Band 2: 1850~1910 LTE Band 4: 1710~1755 LTE Band 5: 824~849 LTE Band 12: 699~716 LTE Band 13: 777~787
Downlink Frequency Range (MHz)	LTE Band 2: 1930~1990 LTE Band 4: 2110~2155 LTE Band 5: 869~894 LTE Band 12: 729~746 LTE Band 13: 746~756
Modulation	QPSK / 16QAM
HW Version	1.0
SW Version	MPSS: IMQ6_v01.04 APSS: IMQ6_v00.04 
IMEI No.	015617000298260 

Antenna Information	
MFR. / Model	WIESON TECHNOLOGIES CO., LTD / GY115HT0330-041
Antenna Type	Dipole Antenna
Antenna Gain	LTE Band 2: 1.56dBi LTE Band 4: 1.62dBi LTE Band 5: 3.2dBi LTE Band 12: 1.49dBi LTE Band 13: 1.66dBi

Note:

1. This LGA module support Cat-M1 Band 2/4/5/12/13 & 2G functions.
2. Regards to the frequency band operation: the lowest, middle and highest frequency of channel were selected to perform the test, then shown on this report.
3. The EUT description is from the customer declaration.

1.2. Mode of Operation

DEKRA has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

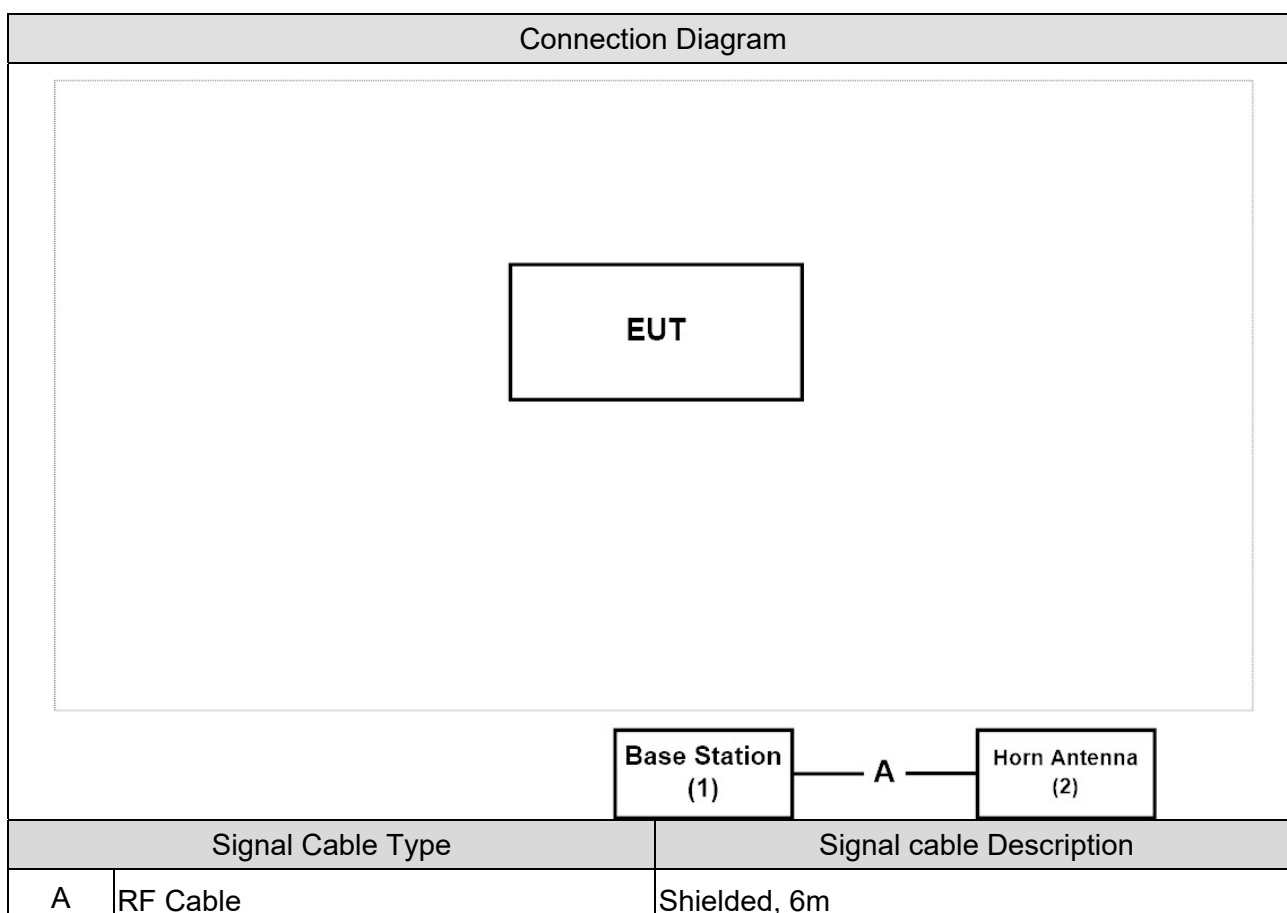
Test Mode
Mode 1: LTE Band 2
Mode 2: LTE Band 4
Mode 3: LTE Band 5
Mode 4: LTE Band 12
Mode 5: LTE Band 13

1.3. Tested System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product	Manufacturer	Model No.	Serial No.	FCC ID	Power Cord
1 Base Station	R&S	CMW500	157118	DoC	Non-Shielded, 2m
2 Horn Antenna	Schwarzbeck	BBHA 9120D	1640	DoC	--

1.4. Configuration of Tested System



1.5. EUT Exercise Software

1	Setup the EUT and simulators as shown on 1.4.
2	Turn on the power of all equipment.
3	The EUT will continue transmit the signal from LTE Cat-M1 function.
4	Repeat the above procedure.

1.6. Comments and Remarks

The product specification and testing instructions for the EUT declared in the report are provided by the manufacturer who will take all responsibilities for the accuracy.

2. Technical Test

2.1. Summary of Test Result

☒ No deviations from the test standards

☐ Deviations from the test standards as below description:

Note: Determining compliance shall be based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

B2

Uplink: 1850-1910MHz

Downlink: 1930-1990MHz

LTE B2			
FCC Part 24 Subpart E			
Test item	Reference section	Limit	Result
RF Output Power	§2.1033 §2.1046 §24.232	< 2 Watts	Pass
Occupied Bandwidth	§2.1049	N/A	Pass
Peak-to-average power ratio	§24.232	< 13 dB	Pass
Spurious Emissions	§2.1053 §24.238	< -13dBm	Pass
Spurious Emissions at Antenna Terminals	§27.238	< -13dBm	Pass
Frequency Stability	§2.1055 §24.235	< ±2.5 ppm	Pass

Note: Determining compliance shall be based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

B4

Uplink: 1710-1755MHz

Downlink: 2110-2155MHz

LTE B4			
FCC Part 27 Subpart L			
Test item	Reference section	Limit	Result
RF Output Power	§2.1033 §2.1046 §27.50	< 1 Watt	Pass
Occupied Bandwidth	§2.1049	N/A	Pass
Peak-to-average power ratio	§27.50	< 13 dB	Pass
Spurious Emissions	§2.1053 §27.53	< -13dBm	Pass
Spurious Emissions at Antenna Terminals	§27.53	< -13dBm	Pass
Frequency Stability	§2.1055 §27.54	< 2.5 ppm	Pass

Note: Determining compliance shall be based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

B5

Uplink: 824-849MHz

Downlink: 869-894MHz

LTE B5			
FCC Part 22 Subpart H			
Test item	Reference section	Limit	Result
RF Output Power	§2.1033	<7 Watts	Pass
	§2.1046		
	§22.913		
Occupied Bandwidth	§2.1049	N/A	Pass
Peak-to-average power ratio	§22.913	<13 dB	Pass
Spurious Emissions	§2.1053	<-13dBm	Pass
	§22.917		
Spurious Emissions at Antenna Terminals	§22.917	<-13dBm	Pass
Frequency Stability	§2.1055	<±2.5 ppm	Pass
	§22.335		

Note: Determining compliance shall be based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

B12

Uplink: 699-716MHz

Downlink: 729-746MHz

LTE B12			
FCC Part 27 Subpart F			
Test item	Reference section	Limit	Result
RF Output Power	§2.1033 §2.1046 §27.50	<3 Watts ERP	Pass
Occupied Bandwidth	§2.1049	N/A	Pass
Peak-to-average power ratio	§27.50	<13 dB	Pass
Spurious Emissions	§2.1053 §27.53	<-13dBm	Pass
Spurious Emissions at Antenna Terminals	§27.53	<-13dBm	Pass
Frequency Stability	§2.1055 §27.54	<±2.5 ppm	Pass

Note: Determining compliance shall be based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

B13

Uplink: 777-787MHz

Downlink: 746-756MHz

LTE B13			
FCC Part 27 Subpart F			
RF Output Power	Reference section	Limit	Result
RF Output Power	§2.1033 §2.1046 §27.50	< 3 Watts ERP	Pass
Occupied Bandwidth	§2.1049	N/A	Pass
Peak-to-average power ratio	§27.50	< 13 dB	Pass
Spurious Emissions	§2.1053 §27.53	< -13dBm	Pass
Spurious Emissions at Antenna Terminals	§27.53	< -13dBm	Pass
Frequency Stability	§2.1055 §27.54	< ±2.5 ppm	Pass

Note: Determining compliance shall be based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2.2. Test Environment

Items	Required	Test Site
Temperature (°C)	15-35	1
Humidity (%RH)	25-75	

Note: Test site information refers to Laboratory Information.

Laboratory Information

USA : FCC Registration Number: TW3024
Canada : IC Registration Number: 22397-1 / 22397-2 / 22397-3

The address and introduction of DEKRA Testing and Certification Co., Ltd. laboratories can be founded in our Web site: <http://www.dekra.com.tw>

If you have any comments, please don't hesitate to contact us. Our test sites as below:

Test Laboratory	DEKRA Testing and Certification Co., Ltd.
Address	1. No.372, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County 31061, Taiwan, R.O.C. 2. No.372-2, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County 31061, Taiwan, R.O.C.
Phone number	1. +886-3-582-8001 2. +886-3-582-8001
Fax number	1. +886-3-582-8958 2. +886-3-582-8958
Email address	info.tw@dekra.com
Website	http://www.dekra.com.tw

2.3. List of Test Equipment

RF Output Power / SR12-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Signal & Spectrum Analyzer	R&S	FSV40	101049	2020/03/30	2021/03/29
EXA Signal Analyzer	Keysight	N9010A	MY51440132	2020/02/21	2021/02/20
Spectrum Analyzer	Keysight	N9030B	MY57140404	2020/06/03	2021/06/02
Spectrum Analyzer	Keysight	N9010B	MY57110159	2020/04/15	2021/04/14
Wireless Conn. Tseter	R&S	CMW500	157118	2020/07/23	2021/07/22
Signal & Spectrum Analyzer	R&S	FSV40	101049	2020/03/30	2021/03/29

Occupied Bandwidth / SR12-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Signal & Spectrum Analyzer	R&S	FSV40	101049	2020/03/30	2021/03/29
EXA Signal Analyzer	Keysight	N9010A	MY51440132	2020/02/21	2021/02/20
Spectrum Analyzer	Keysight	N9030B	MY57140404	2020/06/03	2021/06/02
Spectrum Analyzer	Keysight	N9010B	MY57110159	2020/04/15	2021/04/14
Wireless Conn. Tseter	R&S	CMW500	157118	2020/07/23	2021/07/22
Signal & Spectrum Analyzer	R&S	FSV40	101049	2020/03/30	2021/03/29

Peak To Average Ratio / SR12-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Signal & Spectrum Analyzer	R&S	FSV40	101049	2020/03/30	2021/03/29
EXA Signal Analyzer	Keysight	N9010A	MY51440132	2020/02/21	2021/02/20
Spectrum Analyzer	Keysight	N9030B	MY57140404	2020/06/03	2021/06/02
Spectrum Analyzer	Keysight	N9010B	MY57110159	2020/04/15	2021/04/14
Wireless Conn. Tseter	R&S	CMW500	157118	2020/07/23	2021/07/22
Signal & Spectrum Analyzer	R&S	FSV40	101049	2020/03/30	2021/03/29

Conducted Spurious Emissions / SR12-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Signal & Spectrum Analyzer	R&S	FSV40	101049	2020/03/30	2021/03/29
EXA Signal Analyzer	Keysight	N9010A	MY51440132	2020/02/21	2021/02/20
Spectrum Analyzer	Keysight	N9030B	MY57140404	2020/06/03	2021/06/02
Spectrum Analyzer	Keysight	N9010B	MY57110159	2020/04/15	2021/04/14
Wireless Conn. Tseter	R&S	CMW500	157118	2020/07/23	2021/07/22
Signal & Spectrum Analyzer	R&S	FSV40	101049	2020/03/30	2021/03/29

Radiated Spurious Emissions / CB2-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Horn Antenna	Schwarzbeck	BBHA 9120D	639	2020/06/04	2021/06/03
Bilog Antenna	Teseq	CBL6112D	23191	2020/06/12	2021/06/11
Signal & Spectrum Analyzer	R&S	FSV40	101049	2020/03/30	2021/03/29
EXA Signal Analyzer	Keysight	N9010A	MY51440132	2020/02/21	2021/02/20
Signal Analyzer	R&S	FSVA40	101455	2020/10/12	2021/10/11
Horn Antenna	Schwarzbeck	BBHA 9170	202	2019/12/27	2020/12/26
Pre-Amplifier	DEKRA	AP-400C	201801231	2019/12/03	2020/12/02
Pre-Amplifier	EMCI	EMC11830I	980366	2019/12/03	2020/12/02
Horn Antenna	Schwarzbeck	BBHA 9120D	01656	2020/10/14	2021/10/13
Pre-Amplifier	DEKRA	AP-025C	12183122	2020/09/03	2021/09/02
Signal Analyzer	R&S	FSV40	101435	2020/06/24	2021/06/23
Wideband Radio Communication Tester	R&S	CMW500	106071	2020/02/03	2021/02/02
Wireless Conn. Tseter	R&S	CMW500	157118	2020/07/23	2021/07/22
Coaxial Cable(13m)	Huber+Suhner	SF104	CB2-H	2020/07/25	2021/07/24
DEKRA Testing System	DEKRA	Version 1.2	CB2-H	NA	NA

Spurious Emissions at Antenna Terminals / SR12-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Signal & Spectrum Analyzer	R&S	FSV40	101049	2020/03/30	2021/03/29
EXA Signal Analyzer	Keysight	N9010A	MY51440132	2020/02/21	2021/02/20
Spectrum Analyzer	Keysight	N9030B	MY57140404	2020/06/03	2021/06/02
Spectrum Analyzer	Keysight	N9010B	MY57110159	2020/04/15	2021/04/14
Wireless Conn. Tseter	R&S	CMW500	157118	2020/07/23	2021/07/22
Signal & Spectrum Analyzer	R&S	FSV40	101049	2020/03/30	2021/03/29

Frequency Stability / SR12-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Signal & Spectrum Analyzer	R&S	FSV40	101049	2020/03/30	2021/03/29
EXA Signal Analyzer	Keysight	N9010A	MY51440132	2020/02/21	2021/02/20
Spectrum Analyzer	Keysight	N9030B	MY57140404	2020/06/03	2021/06/02
Spectrum Analyzer	Keysight	N9010B	MY57110159	2020/04/15	2021/04/14
Wireless Conn. Tseter	R&S	CMW500	157118	2020/07/23	2021/07/22
Signal & Spectrum Analyzer	R&S	FSV40	101049	2020/03/30	2021/03/29

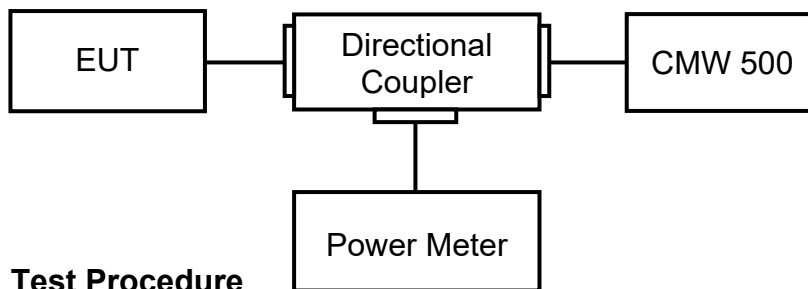
Note: All equipment upon which need to calibrated are with calibration period of 1 year.

2.4. Uncertainty

Test Item	Uncertainty
RF Output Power	± 1.27 dB
Occupied Bandwidth	± 10 Hz
Peak To Average Ratio	Not exceed 13 dB
Spurious Emissions	± 1.27 dB for Conducted Measurement ± 3.2 dB for Radiated Measurement
Spurious Emissions at Antenna Terminals	± 3.2 dB
Frequency Stability	± 10 Hz

3. RF Output Power

3.1. Test Setup



3.2. Test Procedure

- The RF output of the transmitter was connected to base station simulator.
- The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement..
- Set EUT at maximum average power by base station simulator.
- Measure lowest, middle, and highest channels for each bandwidth and different modulation.

Effective Isotropic Radiated Power = Conducted Power(dBm) + Antenna Gain(dBi)

Effective Radiated Power = Conducted Power(dBm) + Antenna Gain(dBi) - 2.15dB

The conversion of dBm to watts is given by the formula:

$$P_{(W)} = 1W \times \frac{10^{\left(\frac{P_{(dBm)}}{10}\right)}}{1000} = 10^{((P_{(dBm)} - 30)/10)}$$

3.3. Test Method

KDB 971168 D01 Power Meas License Digital Systems v03 sub-clause 5.2.4

ANSI C63.26: 2015 Sub-clause 5.2.4.2

3.4. Test Result

Product	LGA module		
Test Item	RF Output Power		
Test Mode	Mode 1: LTE Band 2		
Date of Test	2020/09/27	Test Site	SR12-H
Temperature (°C)	24	Humidity (%RH)	67

1.4M

Band	Channel Freq. (MHz)	Modulation	RB No.	RB offset	Conducted Output Power (dBm)	RF Output Power (W) EIRP	Limit (W) EIRP
Band 2 1.4MHz	18607 1850.7	QPSK	1	0	20.75	0.170	2
			6	0	18.83	0.109	2
		16-QAM	1	0	20.24	0.151	2
			5	0	18.80	0.109	2
	18900 1880	QPSK	1	0	20.64	0.166	2
			6	0	18.67	0.105	2
		16-QAM	1	0	20.09	0.146	2
			5	0	18.71	0.106	2
	19193 1909.3	QPSK	1	5	20.62	0.165	2
			6	0	18.66	0.105	2
		16-QAM	1	5	19.92	0.141	2
			5	1	18.95	0.112	2

3M

Band	Channel Freq. (MHz)	Modulation	RB No.	RB offset	Conducted Output Power (dBm)	RF Output Power (W) EIRP	Limit (W) EIRP
Band 2 3MHz	18615 1851.5	QPSK	1	0	20.67	0.167	2
			6	0	18.64	0.105	2
		16-QAM	1	0	20.03	0.144	2
			5	0	18.83	0.109	2
	18900 1880	QPSK	1	0	20.55	0.163	2
			6	0	18.58	0.103	2
		16-QAM	1	0	20.10	0.147	2
			5	0	18.84	0.110	2
	19185 1908.5	QPSK	1	5	20.66	0.167	2
			6	0	18.57	0.103	2
		16-QAM	1	5	19.89	0.140	2
			5	1	18.76	0.108	2

5M

Band	Channel Freq. (MHz)	Modulation	RB No.	RB offset	Conducted Output Power (dBm)	RF Output Power (W) EIRP	Limit (W) EIRP
Band 2 5MHz	18625 1852.5	QPSK	1	0	20.82	0.173	2
			6	0	19.73	0.135	2
		16-QAM	1	0	20.81	0.173	2
			5	0	19.97	0.142	2
	18900 1880	QPSK	1	0	20.74	0.170	2
			6	0	19.67	0.133	2
		16-QAM	1	0	20.67	0.167	2
			5	0	19.84	0.138	2
	19175 1907.5	QPSK	1	5	20.70	0.168	2
			6	0	19.72	0.134	2
		16-QAM	1	5	20.74	0.170	2
			5	1	19.77	0.136	2

10M

Band	Channel Freq. (MHz)	Modulation	RB No.	RB offset	Conducted Output Power (dBm)	RF Output Power (W) EIRP	Limit (W) EIRP
Band 2 10MHz	18650 1855	QPSK	1	0	20.81	0.173	2
			6	0	19.67	0.133	2
		16-QAM	1	0	20.72	0.169	2
			5	0	20.61	0.165	2
	18900 1880	QPSK	1	0	20.67	0.167	2
			6	0	19.59	0.130	2
		16-QAM	1	0	20.59	0.164	2
			5	0	20.74	0.170	2
	19150 1905	QPSK	1	5	20.65	0.166	2
			6	0	19.68	0.133	2
		16-QAM	1	5	20.68	0.167	2
			5	1	20.75	0.170	2

15M

Band	Channel Freq. (MHz)	Modulation	RB No.	RB offset	Conducted Output Power (dBm)	RF Output Power (W) EIRP	Limit (W) EIRP
Band 2 15MHz	18675 1857.5	QPSK	1	0	20.80	0.172	2
			6	0	20.59	0.164	2
		16-QAM	1	0	20.67	0.167	2
			5	0	20.70	0.168	2
	18900 1880	QPSK	1	0	20.68	0.167	2
			6	0	20.47	0.160	2
		16-QAM	1	0	20.49	0.160	2
			5	0	20.70	0.168	2
	19125 1902.5	QPSK	1	5	20.63	0.166	2
			6	0	20.58	0.164	2
		16-QAM	1	5	20.67	0.167	2
			5	1	20.70	0.168	2

20M

Band	Channel Freq. (MHz)	Modulation	RB No.	RB offset	Conducted Output Power (dBm)	RF Output Power (W) EIRP	Limit (W) EIRP
Band 2 20MHz	18700 1860	QPSK	1	0	20.86	0.175	2
			6	0	20.51	0.161	2
		16-QAM	1	0	20.67	0.167	2
			5	0	20.57	0.163	2
	18900 1880	QPSK	1	0	20.91	0.177	2
			6	0	20.47	0.160	2
		16-QAM	1	0	20.61	0.165	2
			5	0	20.68	0.167	2
	19100 1900	QPSK	1	5	20.77	0.171	2
			6	0	20.58	0.164	2
		16-QAM	1	5	20.66	0.167	2
			5	1	20.63	0.166	2

Product	LGA module		
Test Item	RF Output Power		
Test Mode	Mode 2: LTE Band 4		
Date of Test	2020/09/27	Test Site	SR12-H
Temperature (°C)	24	Humidity (%RH)	67

1.4M

Band	Channel Freq. (MHz)	Modulation	RB No.	RB offset	Conducted Output Power (dBm)	RF Output Power (W) EIRP	Limit (W) EIRP
Band 4 1.4MHz	19957 1710.7	QPSK	1	0	20.63	0.168	1
			6	0	18.77	0.109	1
		16-QAM	1	0	20.49	0.163	1
			5	0	18.71	0.108	1
	20175 1732.5	QPSK	1	0	20.81	0.175	1
			6	0	18.77	0.109	1
		16-QAM	1	0	20.49	0.163	1
			5	0	18.71	0.108	1
	20393 1754.3	QPSK	1	5	20.77	0.173	1
			6	0	18.75	0.109	1
		16-QAM	1	5	20.17	0.151	1
			5	1	18.65	0.106	1

3M

Band	Channel Freq. (MHz)	Modulation	RB No.	RB offset	Conducted Output Power (dBm)	RF Output Power (W) EIRP	Limit (W) EIRP
Band 4 3MHz	19965 1711.5	QPSK	1	0	20.79	0.174	1
			6	0	18.67	0.107	1
		16-QAM	1	0	20.16	0.151	1
			5	0	18.80	0.110	1
	20175 1732.5	QPSK	1	0	20.93	0.180	1
			6	0	18.84	0.111	1
		16-QAM	1	0	20.40	0.159	1
			5	0	19.05	0.117	1
	20385 1753.5	QPSK	1	5	20.88	0.178	1
			6	0	18.76	0.109	1
		16-QAM	1	5	19.77	0.138	1
			5	1	18.86	0.112	1

5M

Band	Channel Freq. (MHz)	Modulation	RB No.	RB offset	Conducted Output Power (dBm)	RF Output Power (W) EIRP	Limit (W) EIRP
Band 4 5MHz	19975 1712.5	QPSK	1	0	20.98	0.182	1
			6	0	19.85	0.140	1
		16-QAM	1	0	20.97	0.182	1
			5	0	19.93	0.143	1
	20175 1732.5	QPSK	1	0	21.11	0.187	1
			6	0	20.02	0.146	1
		16-QAM	1	0	21.06	0.185	1
			5	0	20.20	0.152	1
	20375 1752.5	QPSK	1	5	21.05	0.185	1
			6	0	19.89	0.142	1
		16-QAM	1	5	20.81	0.175	1
			5	1	19.79	0.138	1

10M

Band	Channel Freq. (MHz)	Modulation	RB No.	RB offset	Conducted Output Power (dBm)	RF Output Power (W) EIRP	Limit (W) EIRP
Band 4 10MHz	20000 1715	QPSK	1	0	21.08	0.186	1
			6	0	19.85	0.140	1
		16-QAM	1	0	20.85	0.177	1
			5	0	21.00	0.183	1
	20175 1732.5	QPSK	1	0	21.14	0.189	1
			6	0	19.90	0.142	1
		16-QAM	1	0	21.03	0.184	1
			5	0	21.14	0.189	1
	20350 1750	QPSK	1	5	21.09	0.187	1
			6	0	19.79	0.138	1
		16-QAM	1	5	20.84	0.176	1
			5	1	20.91	0.179	1

15M

Band	Channel Freq. (MHz)	Modulation	RB No.	RB offset	Conducted Output Power (dBm)	RF Output Power (W) EIRP	Limit (W) EIRP
Band 4 15MHz	20025 1717.5	QPSK	1	0	21.08	0.186	1
			6	0	20.87	0.177	1
		16-QAM	1	0	20.95	0.181	1
			5	0	21.04	0.185	1
	20175 1732.5	QPSK	1	0	21.12	0.188	1
			6	0	20.99	0.182	1
		16-QAM	1	0	20.98	0.182	1
			5	0	21.15	0.189	1
	20325 1747.5	QPSK	1	5	21.01	0.183	1
			6	0	20.94	0.180	1
		16-QAM	1	5	20.89	0.178	1
			5	1	20.92	0.179	1

20M

Band	Channel Freq. (MHz)	Modulation	RB No.	RB offset	Conducted Output Power (dBm)	RF Output Power (W) EIRP	Limit (W) EIRP
Band 4 20MHz	20050 1720	QPSK	1	0	21.09	0.187	1
			6	0	20.86	0.177	1
		16-QAM	1	0	20.97	0.182	1
			5	0	21.02	0.184	1
	20175 1732.5	QPSK	1	0	21.21	0.192	1
			6	0	20.98	0.182	1
		16-QAM	1	0	21.06	0.185	1
			5	0	21.12	0.188	1
	20300 1745	QPSK	1	5	21.12	0.188	1
			6	0	20.88	0.178	1
		16-QAM	1	5	20.84	0.176	1
			5	1	20.94	0.180	1

Product	LGA module		
Test Item	RF Output Power		
Test Mode	Mode 3: LTE Band 5		
Date of Test	2020/09/27	Test Site	SR12-H
Temperature (°C)	24	Humidity (%RH)	67

1.4M

Band	Channel Freq. (MHz)	Modulation	RB No.	RB offset	Conducted Output Power (dBm)	RF Output Power (W) ERP	Limit (W) ERP
Band 5 1.4MHz	20407 824.7	QPSK	1	0	21.69	0.188	7
			6	0	20.00	0.127	7
		16-QAM	1	0	21.49	0.179	7
			5	0	20.04	0.129	7
	20525 836.5	QPSK	1	0	21.55	0.182	7
			6	0	19.83	0.122	7
		16-QAM	1	0	21.27	0.171	7
			5	0	19.78	0.121	7
	20643 848.3	QPSK	1	5	21.68	0.187	7
			6	0	19.92	0.125	7
		16-QAM	1	5	20.71	0.150	7
			5	1	20.04	0.129	7

3M

Band	Channel Freq. (MHz)	Modulation	RB No.	RB offset	Conducted Output Power (dBm)	RF Output Power (W) ERP	Limit (W) ERP
Band 5 3MHz	20415 825.5	QPSK	1	0	22.12	0.207	7
			6	0	19.98	0.127	7
		16-QAM	1	0	21.17	0.167	7
			5	0	20.18	0.133	7
	20525 836.5	QPSK	1	0	21.80	0.193	7
			6	0	19.72	0.119	7
		16-QAM	1	0	21.34	0.173	7
			5	0	19.91	0.125	7
	20635 847.5	QPSK	1	5	21.80	0.193	7
			6	0	19.76	0.121	7
		16-QAM	1	5	20.90	0.157	7
			5	1	19.97	0.126	7

5M

Band	Channel Freq. (MHz)	Modulation	RB No.	RB offset	Conducted Output Power (dBm)	RF Output Power (W) ERP	Limit (W) ERP
Band 5 5MHz	20425 826.5	QPSK	1	0	22.15	0.209	7
			6	0	21.05	0.162	7
		16-QAM	1	0	21.99	0.201	7
			5	0	21.32	0.173	7
	20525 836.5	QPSK	1	0	21.95	0.200	7
			6	0	20.84	0.155	7
		16-QAM	1	0	21.78	0.192	7
			5	0	21.03	0.161	7
	20625 846.5	QPSK	1	5	21.64	0.186	7
			6	0	20.75	0.151	7
		16-QAM	1	5	21.66	0.187	7
			5	1	20.85	0.155	7

10M

Band	Channel Freq. (MHz)	Modulation	RB No.	RB offset	Conducted Output Power (dBm)	RF Output Power (W) ERP	Limit (W) ERP
Band 5 10MHz	20450 829	QPSK	1	0	22.16	0.209	7
			6	0	20.95	0.158	7
		16-QAM	1	0	21.98	0.201	7
			5	0	22.02	0.203	7
	20525 836.5	QPSK	1	0	22.19	0.211	7
			6	0	20.92	0.157	7
		16-QAM	1	0	21.94	0.199	7
			5	0	22.06	0.205	7
	20600 844	QPSK	1	5	21.94	0.199	7
			6	0	20.74	0.151	7
		16-QAM	1	5	21.57	0.183	7
			5	1	21.79	0.192	7

Product	LGA module		
Test Item	RF Output Power		
Test Mode	Mode 4: LTE Band 12		
Date of Test	2020/09/27	Test Site	SR12-H
Temperature (°C)	24	Humidity (%RH)	67

1.4M

Band	Channel Freq. (MHz)	Modulation	RB No.	RB offset	Conducted Output Power (dBm)	RF Output Power (W) ERP	Limit (W) ERP
Band 12 1.4MHz	23017 699.7	QPSK	1	0	21.40	0.119	3
			6	0	19.88	0.084	3
		16-QAM	1	0	21.16	0.112	3
			5	0	20.28	0.092	3
	23095 707.5	QPSK	1	0	21.68	0.126	3
			6	0	19.89	0.084	3
		16-QAM	1	0	21.16	0.112	3
			5	0	19.89	0.084	3
	23173 715.3	QPSK	1	5	21.30	0.116	3
			6	0	20.08	0.087	3
		16-QAM	1	5	20.84	0.104	3
			5	1	19.89	0.084	3

3M

Band	Channel Freq. (MHz)	Modulation	RB No.	RB offset	Conducted Output Power (dBm)	RF Output Power (W) ERP	Limit (W) ERP
Band 12 3MHz	23025 700.5	QPSK	1	0	21.88	0.132	3
			6	0	19.90	0.084	3
		16-QAM	1	0	21.52	0.122	3
			5	0	19.99	0.086	3
	23095 707.5	QPSK	1	0	21.92	0.134	3
			6	0	19.84	0.083	3
		16-QAM	1	0	21.09	0.110	3
			5	0	19.89	0.084	3
	23165 714.5	QPSK	1	5	21.80	0.130	3
			6	0	19.90	0.084	3
		16-QAM	1	5	21.17	0.112	3
			5	1	19.72	0.081	3

5M

Band	Channel Freq. (MHz)	Modulation	RB No.	RB offset	Conducted Output Power (dBm)	RF Output Power (W) ERP	Limit (W) ERP
Band 12 5MHz	23035 701.5	QPSK	1	0	22.01	0.136	3
			6	0	20.91	0.106	3
		16-QAM	1	0	22.07	0.138	3
			5	0	21.30	0.116	3
	23095 707.5	QPSK	1	0	21.35	0.117	3
			6	0	20.95	0.107	3
		16-QAM	1	0	21.89	0.133	3
			5	0	20.94	0.107	3
	23155 713.5	QPSK	1	5	21.85	0.132	3
			6	0	20.94	0.107	3
		16-QAM	1	5	21.89	0.133	3
			5	1	20.64	0.100	3

10M

Band	Channel Freq. (MHz)	Modulation	RB No.	RB offset	Conducted Output Power (dBm)	RF Output Power (W) ERP	Limit (W) ERP
Band 12 10MHz	23060 704	QPSK	1	0	21.98	0.136	3
			6	0	20.35	0.093	3
		16-QAM	1	0	21.70	0.127	3
			5	0	21.59	0.124	3
	23095 707.5	QPSK	1	0	22.22	0.143	3
			6	0	20.34	0.093	3
		16-QAM	1	0	21.23	0.114	3
			5	0	21.59	0.124	3
	23130 711	QPSK	1	5	21.95	0.135	3
			6	0	20.46	0.095	3
		16-QAM	1	5	21.35	0.117	3
			5	1	21.36	0.117	3

Product	LGA module		
Test Item	RF Output Power		
Test Mode	Mode 5: LTE Band 13		
Date of Test	2020/09/27	Test Site	SR12-H
Temperature (°C)	24	Humidity (%RH)	67

5M

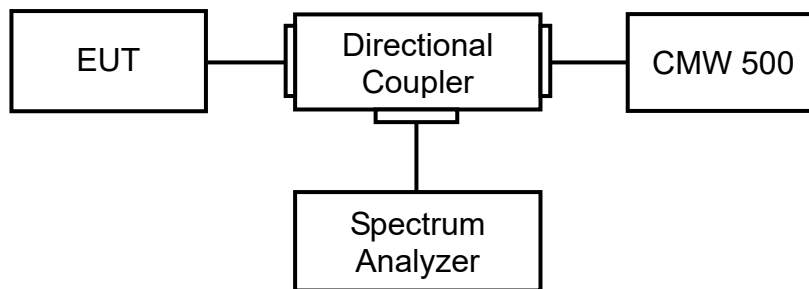
Band	Channel Freq. (MHz)	Modulation	RB No.	RB offset	Conducted Output Power (dBm)	RF Output Power (W) ERP	Limit (W) ERP
Band 13 5MHz	23205 779.5	QPSK	1	0	21.92	0.139	3
			6	0	20.90	0.110	3
		16-QAM	1	0	21.74	0.133	3
			5	0	20.97	0.112	3
	23230 782	QPSK	1	0	21.90	0.138	3
			6	0	20.85	0.109	3
		16-QAM	1	0	21.62	0.130	3
			5	0	20.99	0.112	3
	23255 784.5	QPSK	1	5	21.83	0.136	3
			6	0	20.93	0.111	3
		16-QAM	1	5	21.81	0.136	3
			5	1	21.08	0.115	3

10M

Band	Channel Freq. (MHz)	Modulation	RB No.	RB offset	Conducted Output Power (dBm)	RF Output Power (W) ERP	Limit (W) ERP
Band 13 10MHz	23230 782	QPSK	1	0	22.16	0.147	3
			6	0	20.75	0.106	3
		16-QAM	1	0	21.63	0.130	3
			5	0	21.87	0.137	3
		QPSK	1	5	22.12	0.146	3
			6	0	20.99	0.112	3
		16-QAM	1	5	21.78	0.135	3
			5	1	21.86	0.137	3

4. Occupied Bandwidth

4.1. Test Setup



4.2. Test Procedure

1. The EUT was connected to Spectrum Analyzer and Base Station via power divider.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. The 26 dB bandwidth and 99% occupied bandwidth of the low & middle & high channel for the highest RF powers were measured.

4.3. Test Method

KDB 971168 D01 Power Meas License Digital Systems v03 sub-clause 4.2 & 4.3

ANSI C63.26: 2015 Sub-clause 5.4.3 & 5.4.4

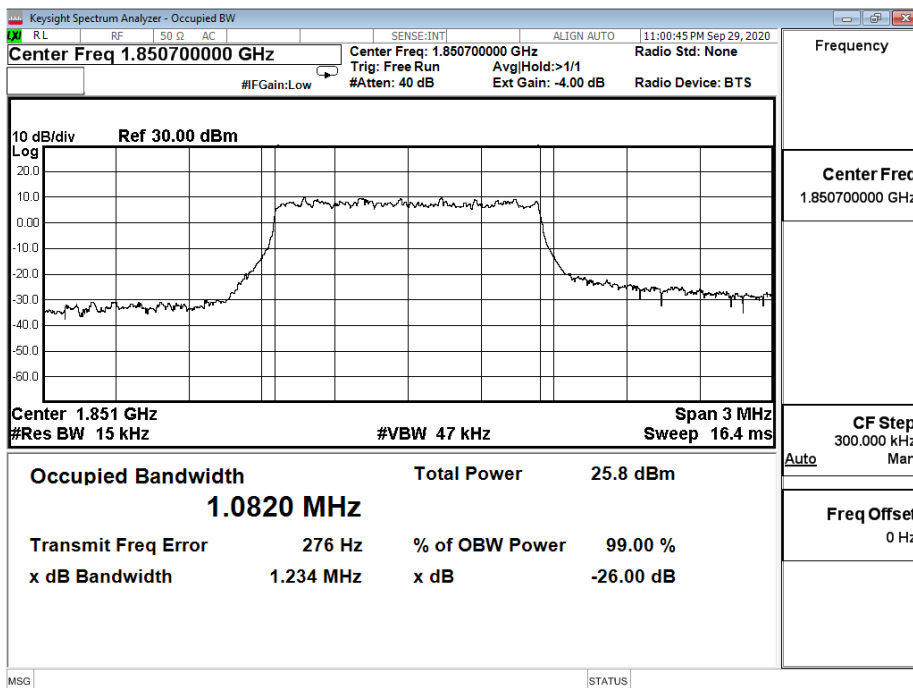
4.4. Test Result

Product	LGA module		
Test Item	Occupied Bandwidth		
Test Mode	Mode 1: LTE Band 2		
Date of Test	2020/09/29	Test Site	SR12-H
Temperature (°C)	24	Humidity (%RH)	67

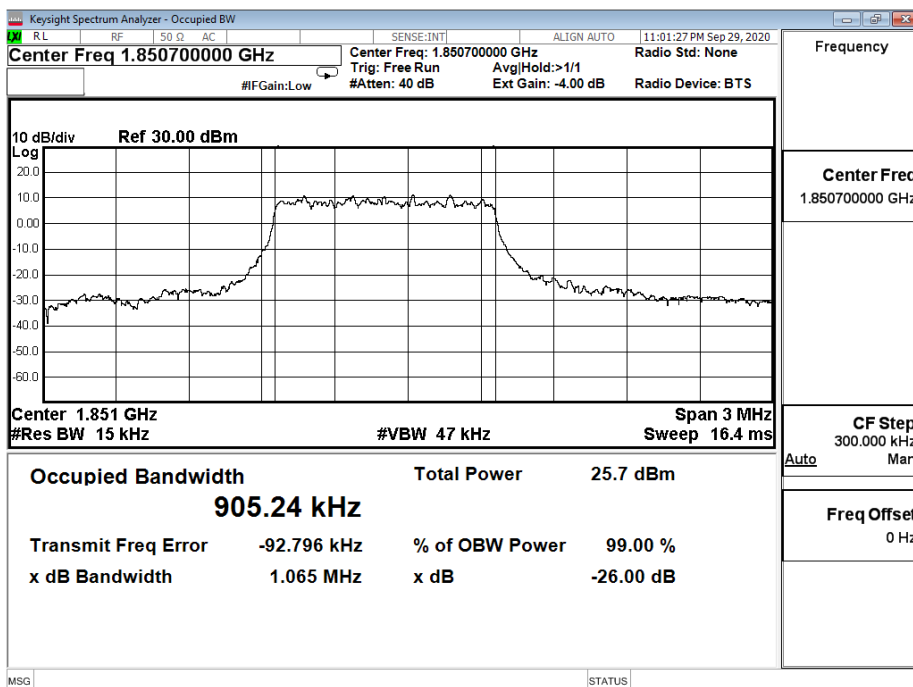
LTE Band 2					
Bandwidth (MHz)	Modulation	Frequency (MHz)	Measure Level (MHz)		Limit (MHz)
			26dB BW	99% BW	
1.4M	QPSK	1850.7	1.234	1.082	N/A
		1880.0	1.233	1.077	N/A
		1909.3	1.231	1.076	N/A
	16-QAM	1850.7	1.065	0.905	N/A
		1880.0	1.065	0.904	N/A
		1909.3	1.082	0.909	N/A
3M	QPSK	1851.5	1.228	1.077	N/A
		1880.0	1.224	1.077	N/A
		1908.5	1.226	1.077	N/A
	16-QAM	1851.5	1.059	0.904	N/A
		1880.0	1.065	0.905	N/A
		1908.5	1.055	0.903	N/A
5M	QPSK	1852.5	1.239	1.086	N/A
		1880.0	1.240	1.085	N/A
		1907.5	1.226	1.074	N/A
	16-QAM	1852.5	1.120	0.909	N/A
		1880.0	1.083	0.905	N/A
		1907.5	1.078	0.906	N/A
10M	QPSK	1855.0	1.237	1.089	N/A
		1880.0	1.247	1.090	N/A
		1905.0	1.255	1.078	N/A
	16-QAM	1855.0	1.170	0.924	N/A
		1880.0	1.156	0.920	N/A
		1905.0	1.094	0.911	N/A

Bandwidth (MHz)	Modulation	Frequency (MHz)	Measure Level (MHz)		Limit (MHz)
			26dB BW	99% BW	
15M	QPSK	1857.5	1.299	1.102	N/A
		1880.0	1.285	1.095	N/A
		1902.5	1.262	1.105	N/A
	16-QAM	1857.5	1.131	0.927	N/A
		1880.0	1.182	0.932	N/A
		1902.5	1.111	0.930	N/A
20M	QPSK	1860.0	1.301	1.106	N/A
		1880.0	1.300	1.108	N/A
		1900.0	1.269	1.103	N/A
	16-QAM	1860.0	1.221	0.918	N/A
		1880.0	1.179	0.917	N/A
		1900.0	1.138	0.943	N/A

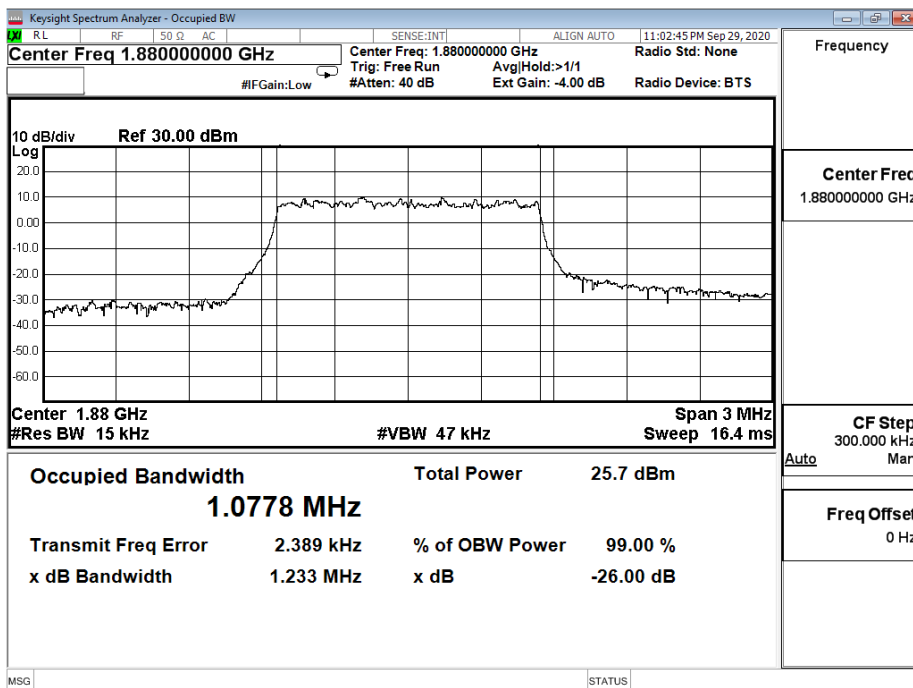
B2_CH18607_1.4M_QPSK_6RB0



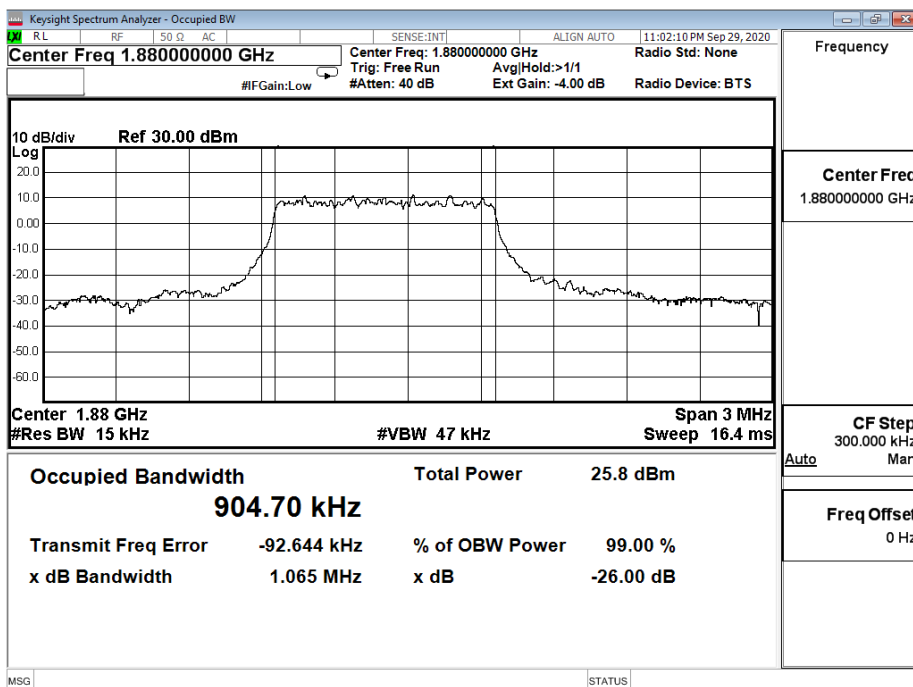
B2_CH18607_1.4M_16-QAM_5RB0



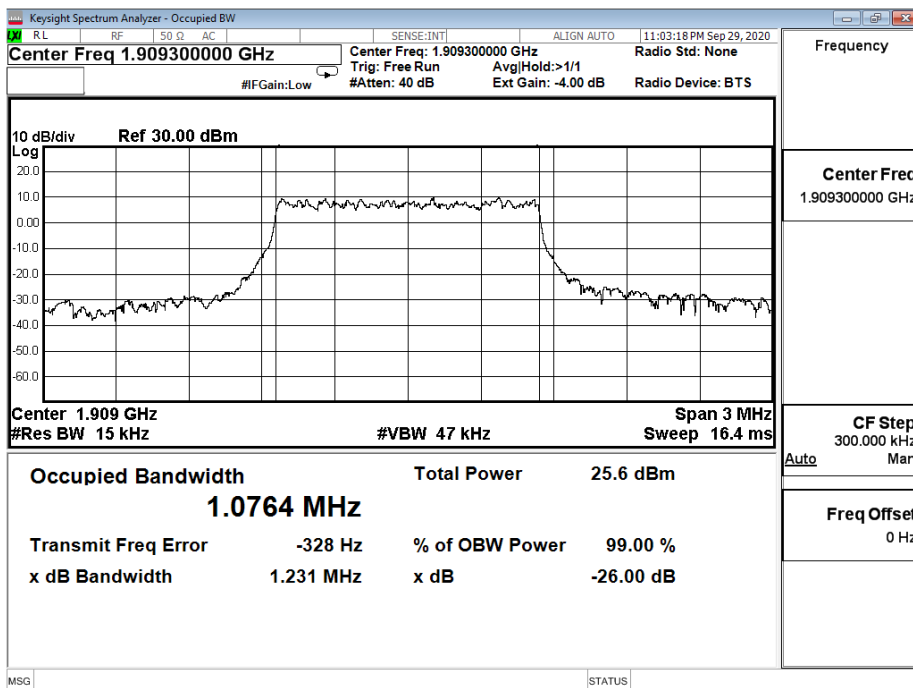
B2_CH18900_1.4M_QPSK_6RB0



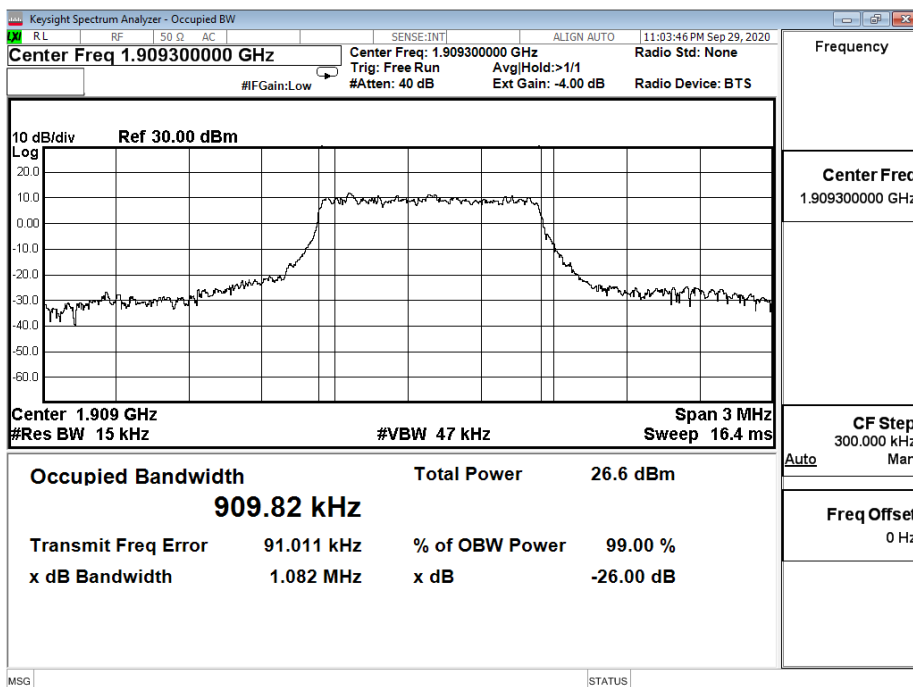
B2_CH18900_1.4M_16-QAM_5RB0



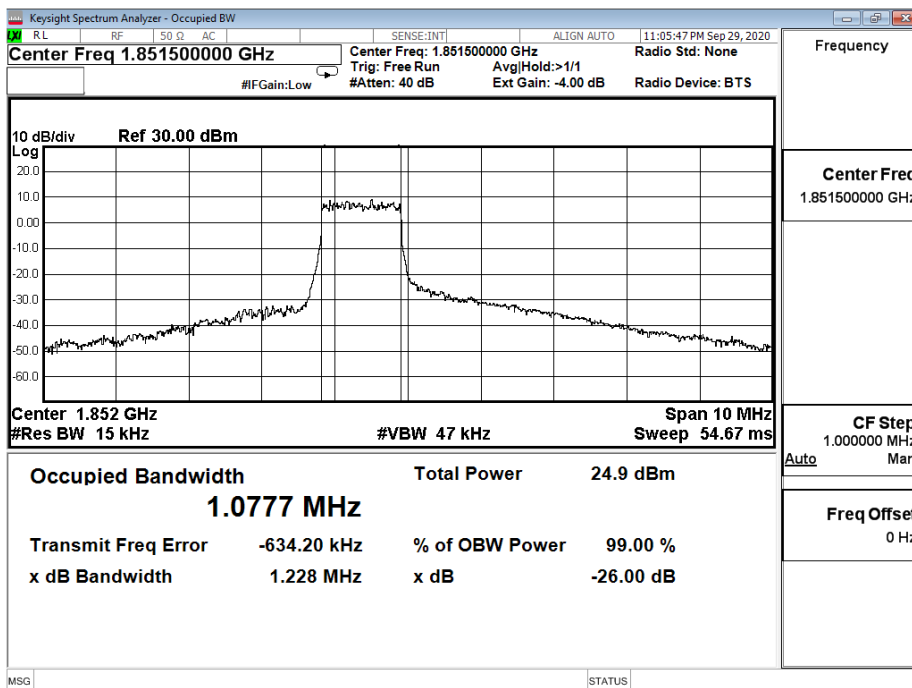
B2_CH19193_1.4M_QPSK_6RB0



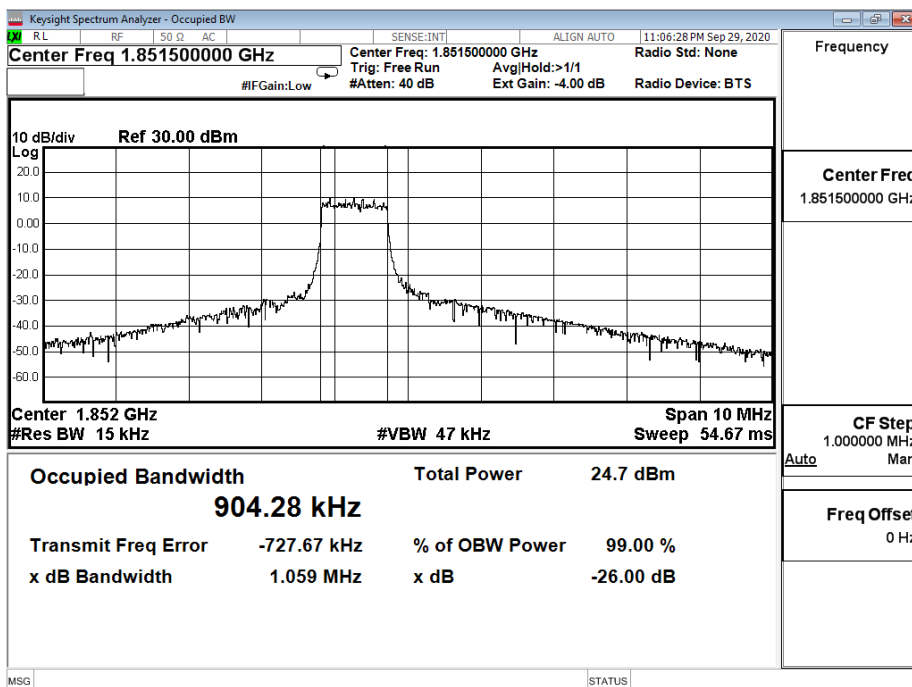
B2_CH19193_1.4M_16-QAM_5RB1



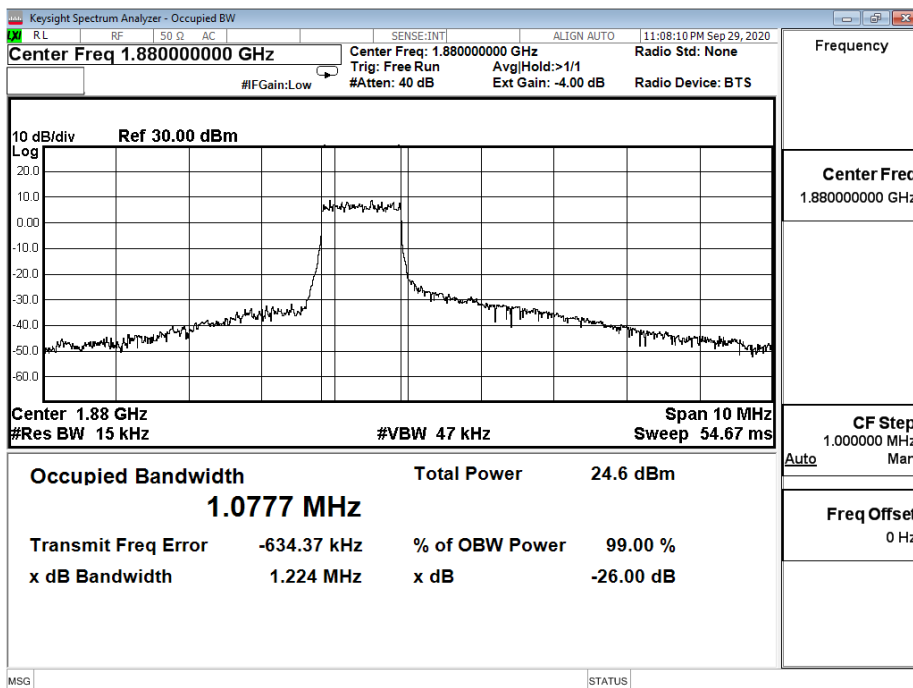
B2_CH18615_3M_QPSK_6RB0



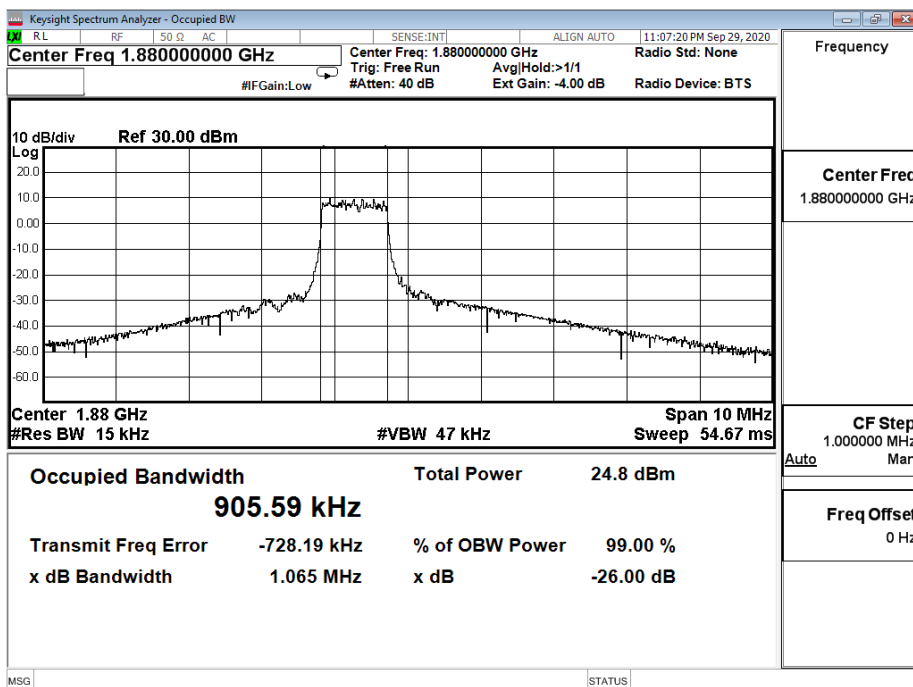
B2_CH18615_3M_16-QAM_5RB0



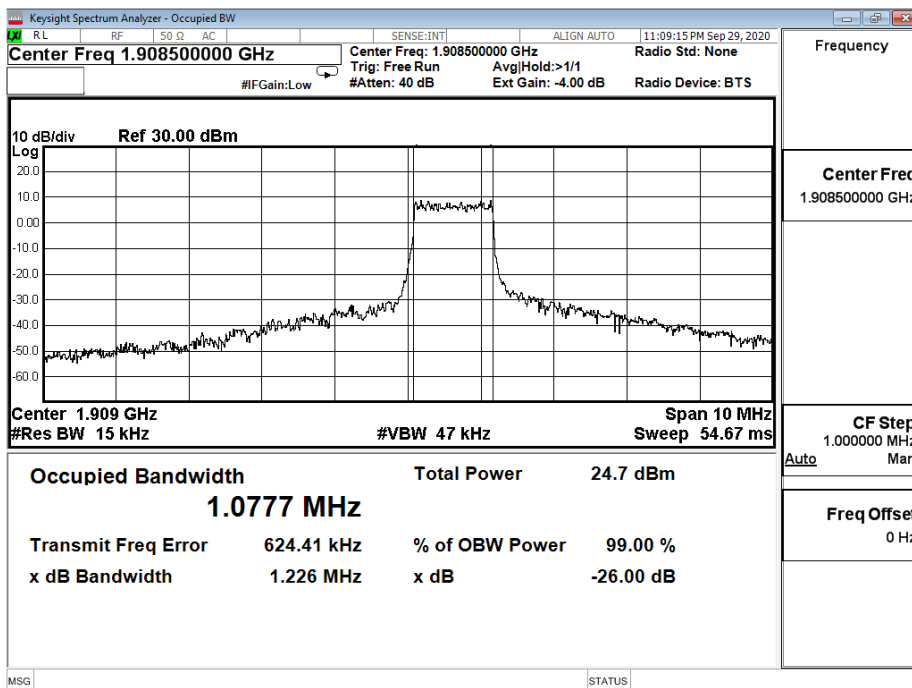
B2_CH18900_3M_QPSK_6RB0



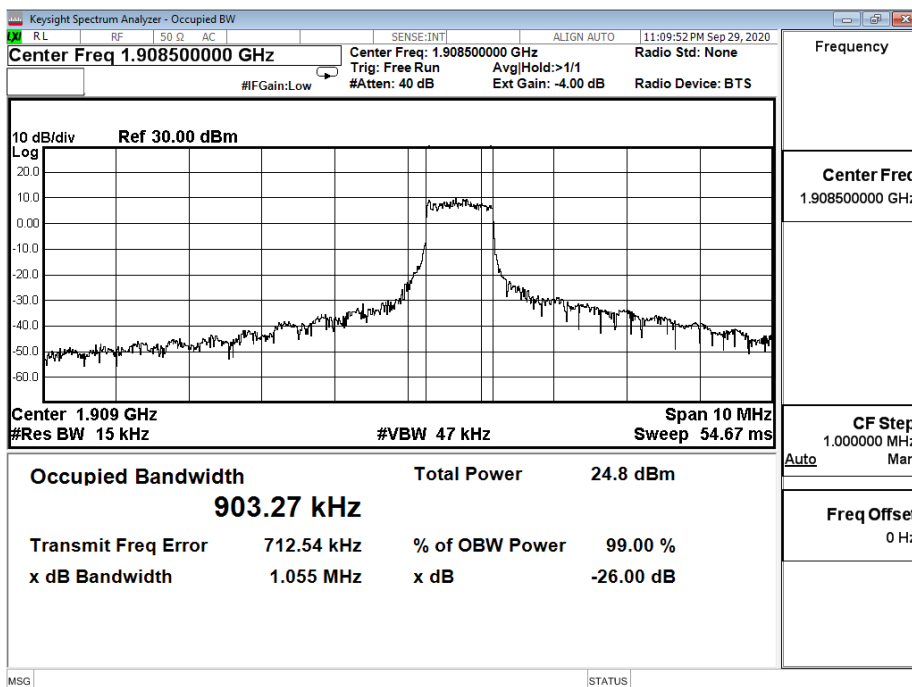
B2_CH18900_3M_16-QAM_5RB0



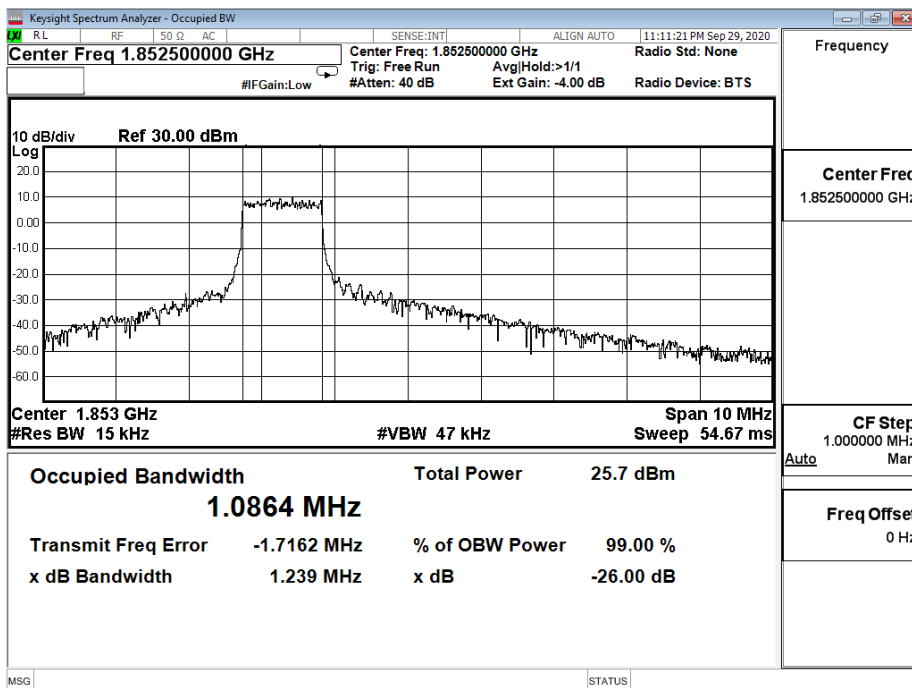
B2_CH19185_3M_QPSK_6RB0



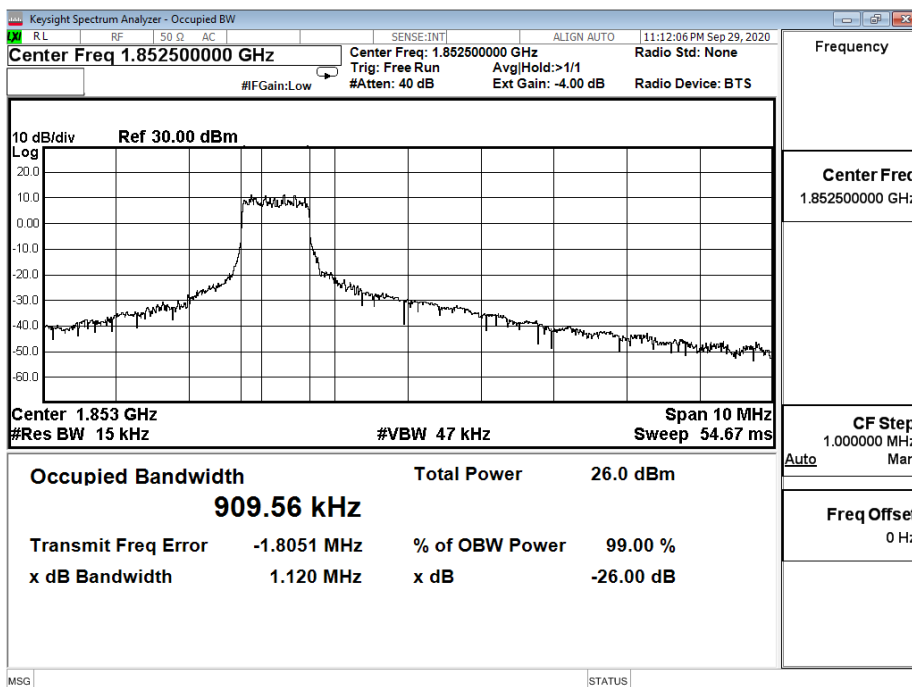
B2_CH19185_3M_16-QAM_5RB1



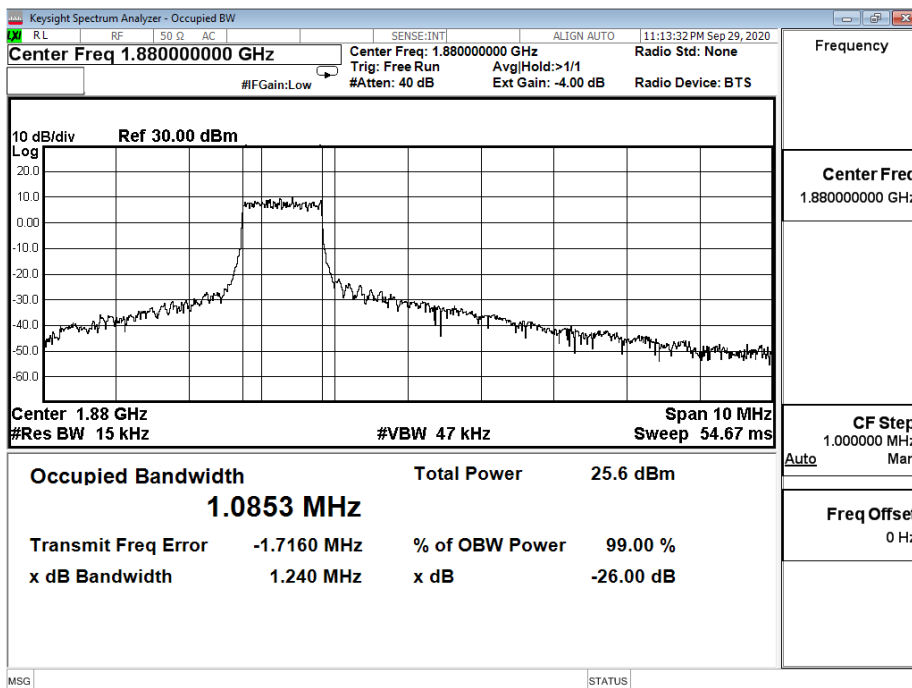
B2_CH18625_5M_QPSK_6RB0



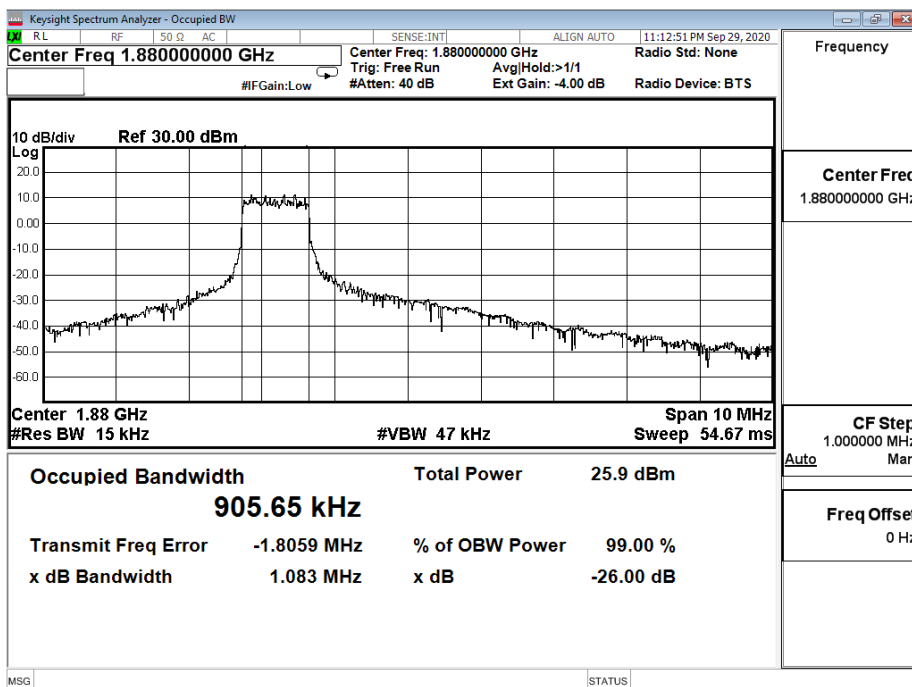
B2_CH18625_5M_16-QAM_5RB0



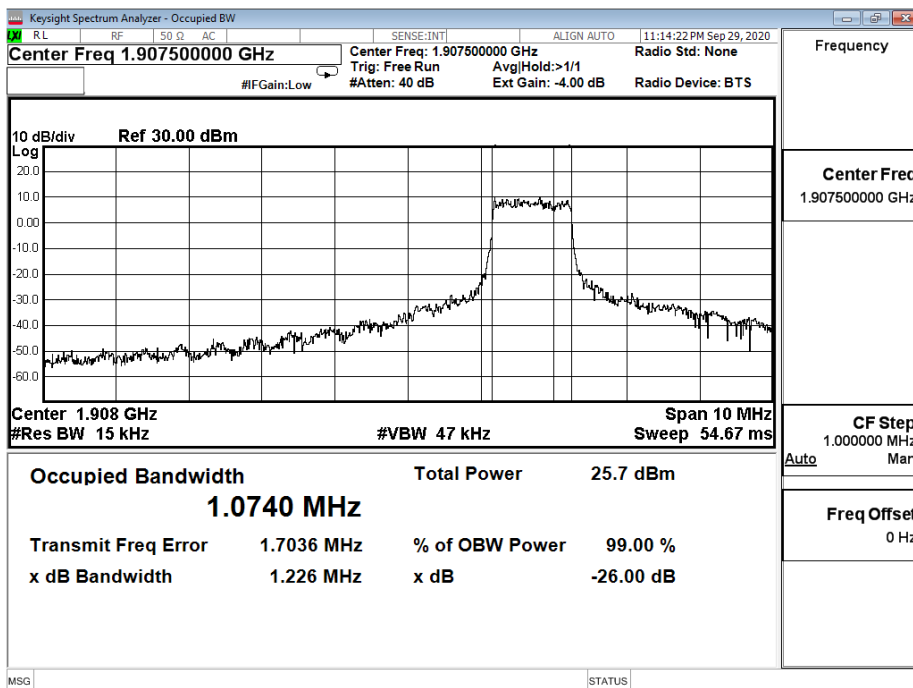
B2_CH18900_5M_QPSK_6RB0



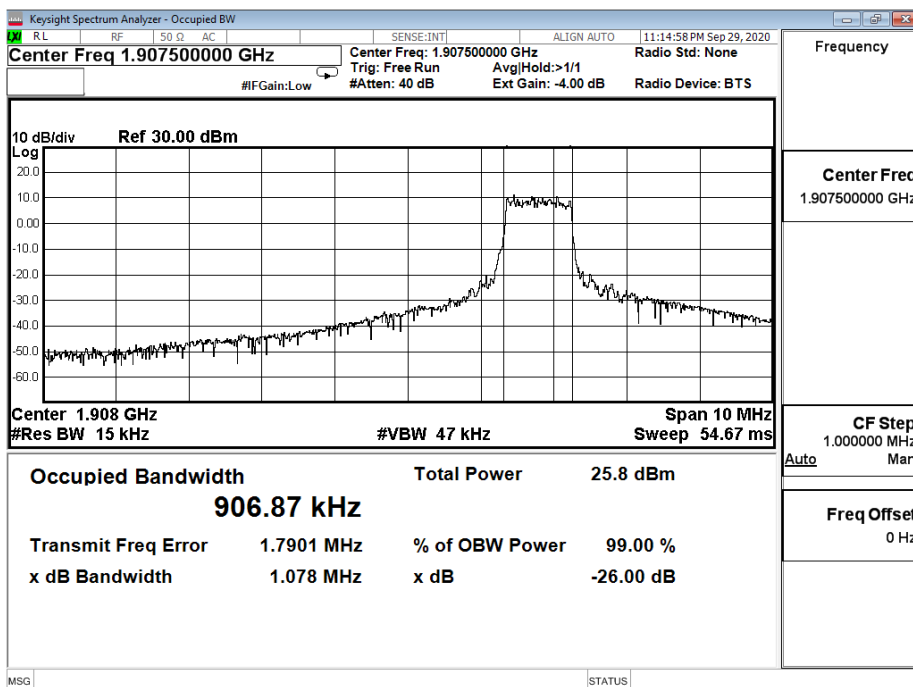
B2_CH18900_5M_16-QAM_5RB0



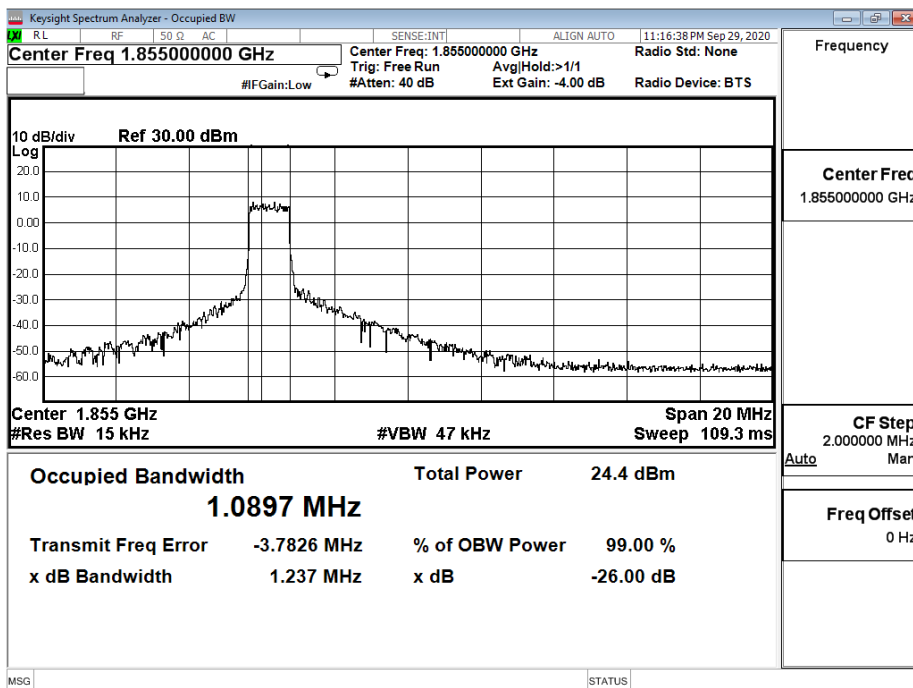
B2_CH19175_5M_QPSK_6RB0



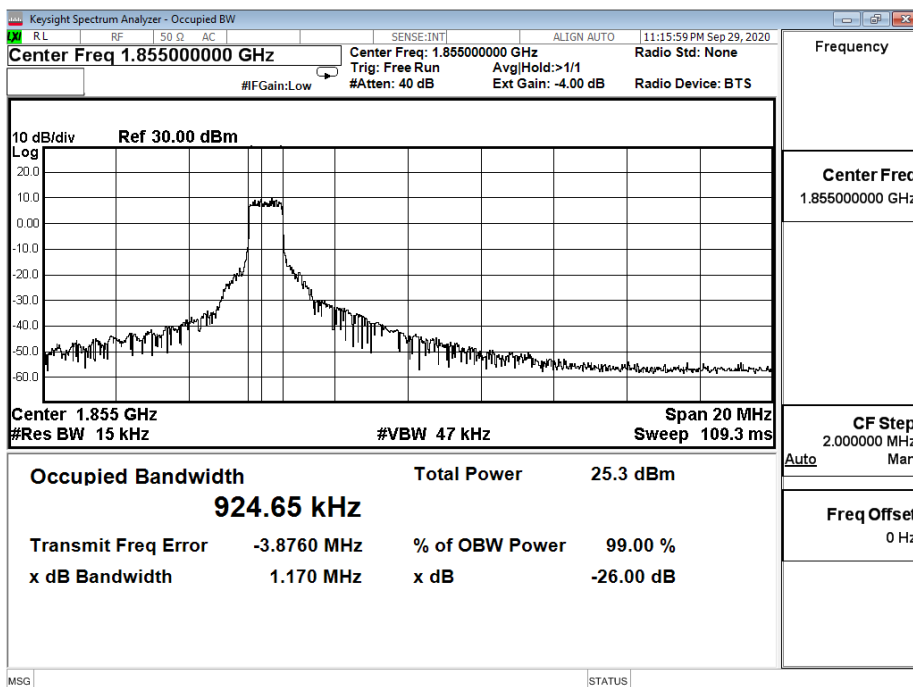
B2_CH19175_5M_16-QAM_5RB1



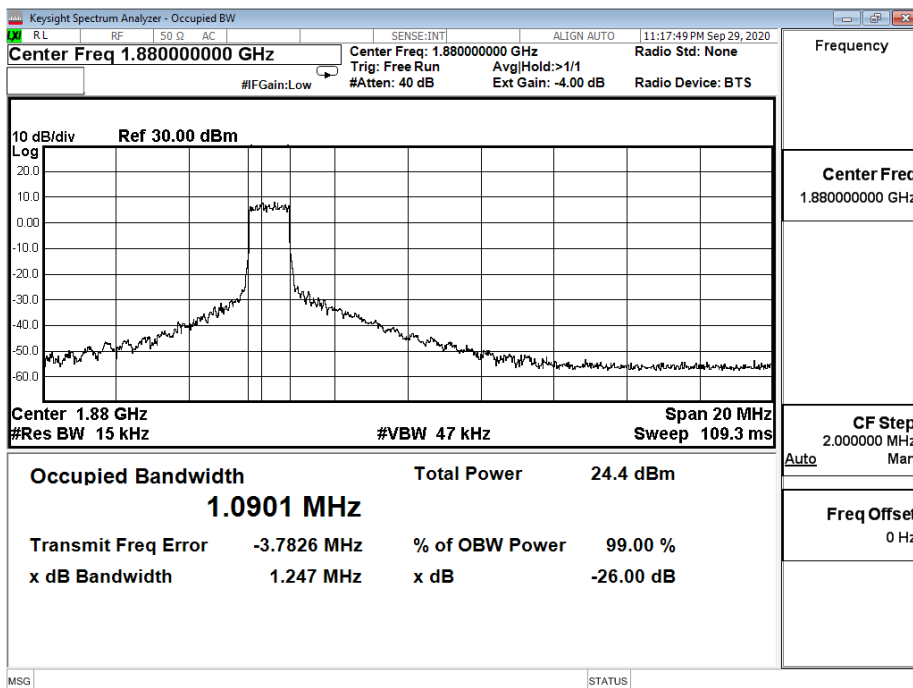
B2_CH18650_10M_QPSK_6RB0



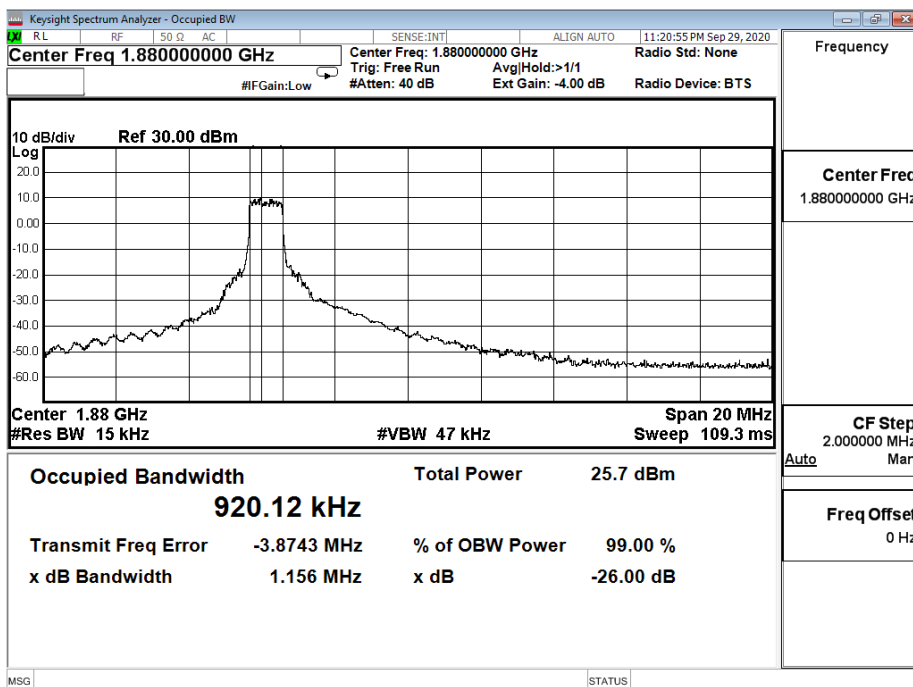
B2_CH18650_10M_16-QAM_5RB0



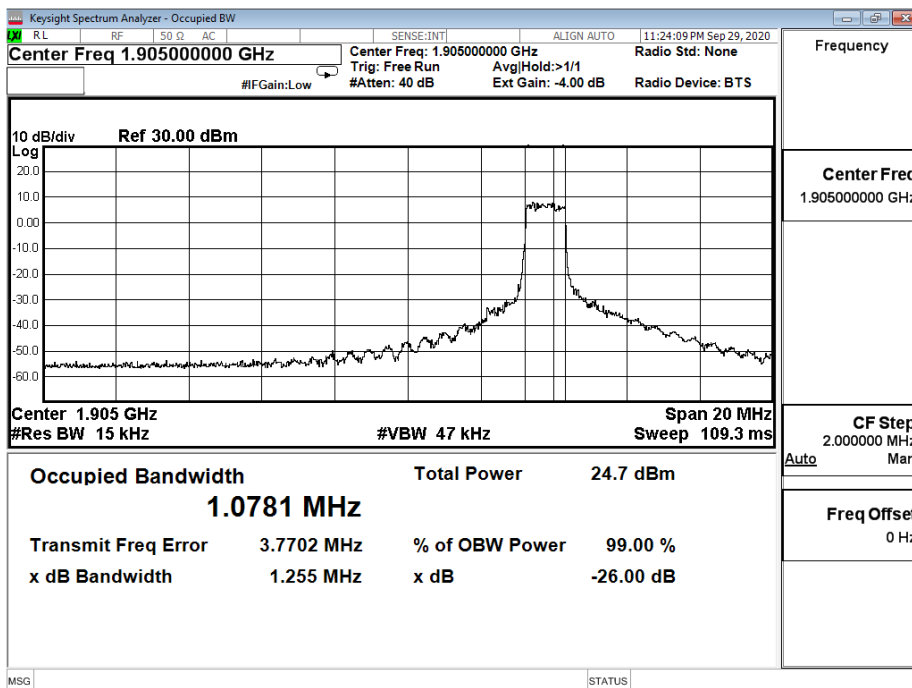
B2_CH18900_10M_QPSK_6RB0



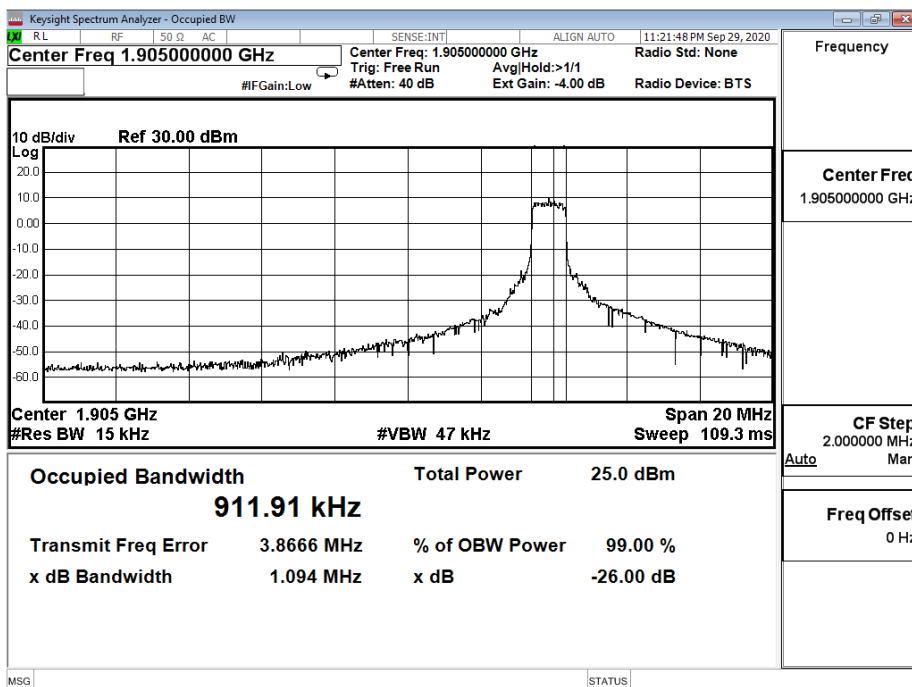
B2_CH18900_10M_16-QAM_5RB0



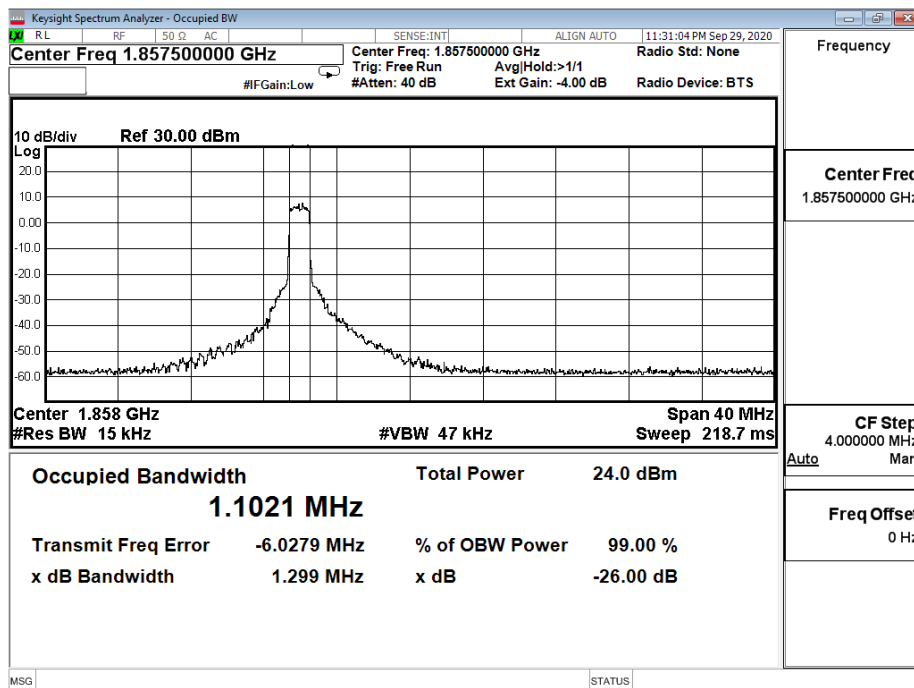
B2_CH19150_10M_QPSK_6RB0



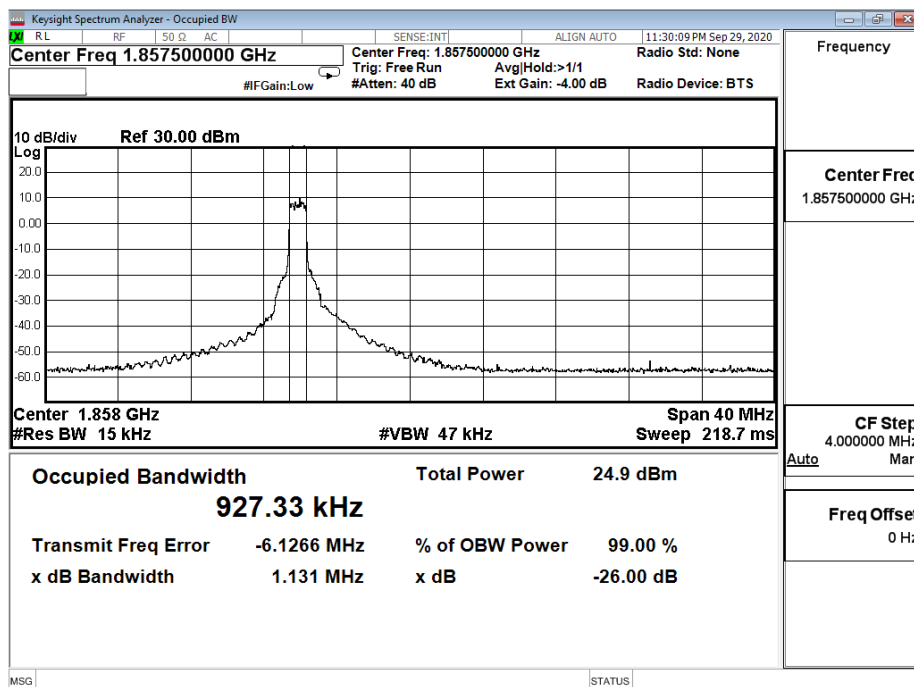
B2_CH19150_10M_16-QAM_5RB1



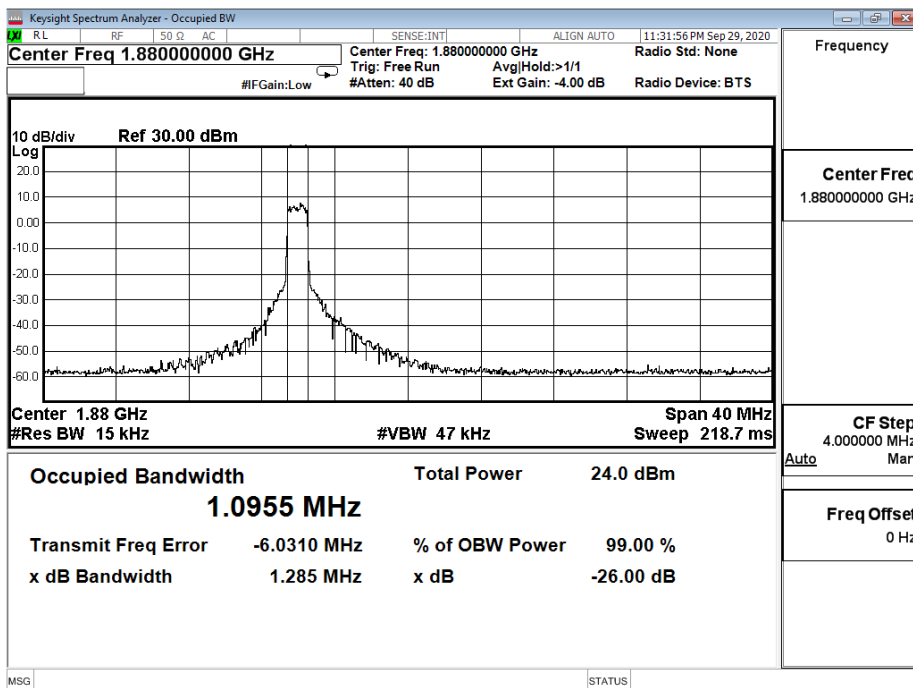
B2_CH18675_15M_QPSK_6RB0



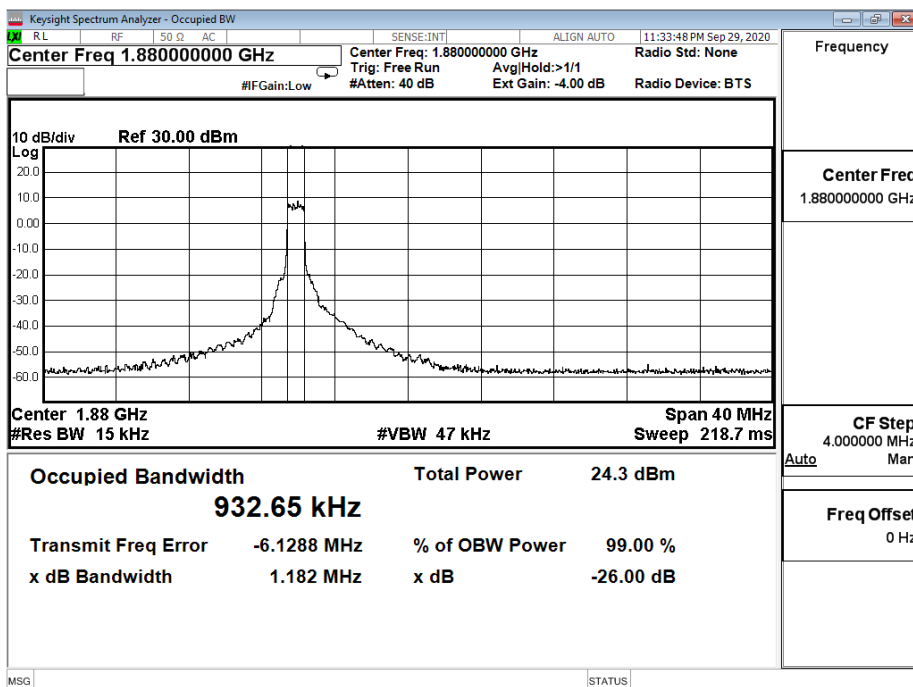
B2_CH18675_15M_16-QAM_5RB0



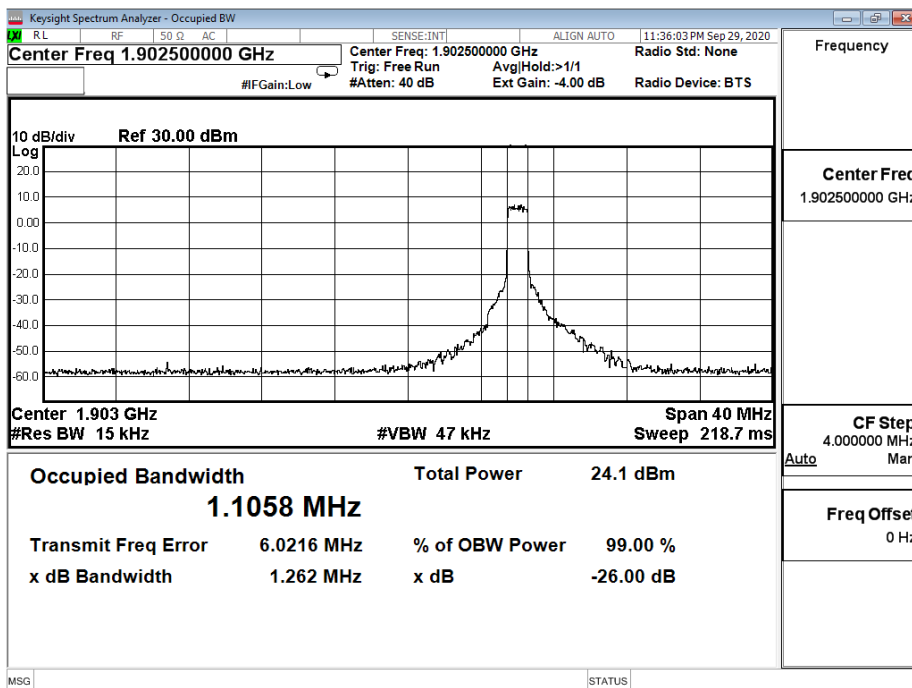
B2_CH18900_15M_QPSK_6RB0



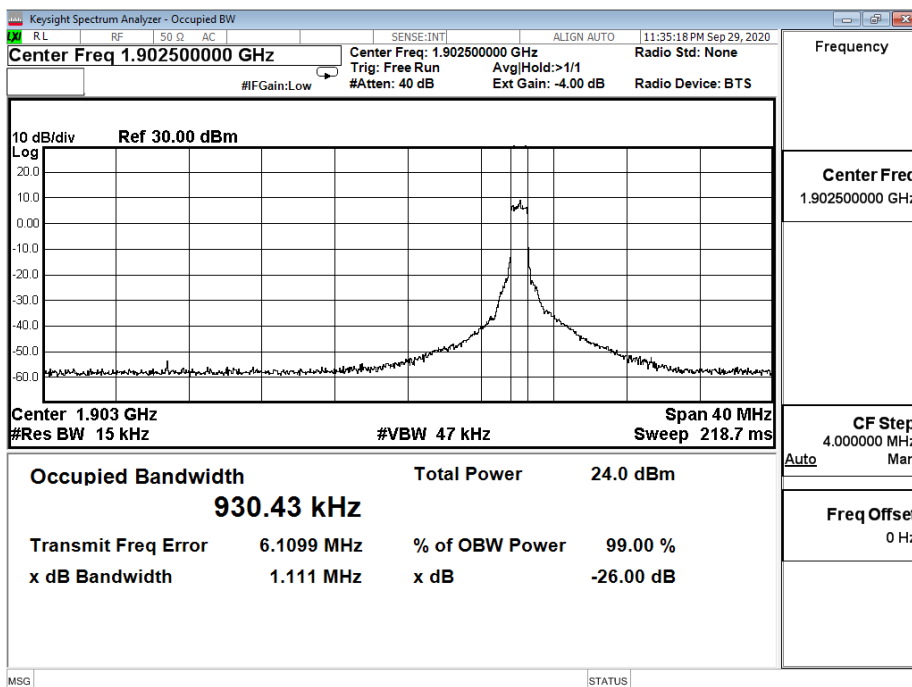
B2_CH18900_15M_16-QAM_5RB0



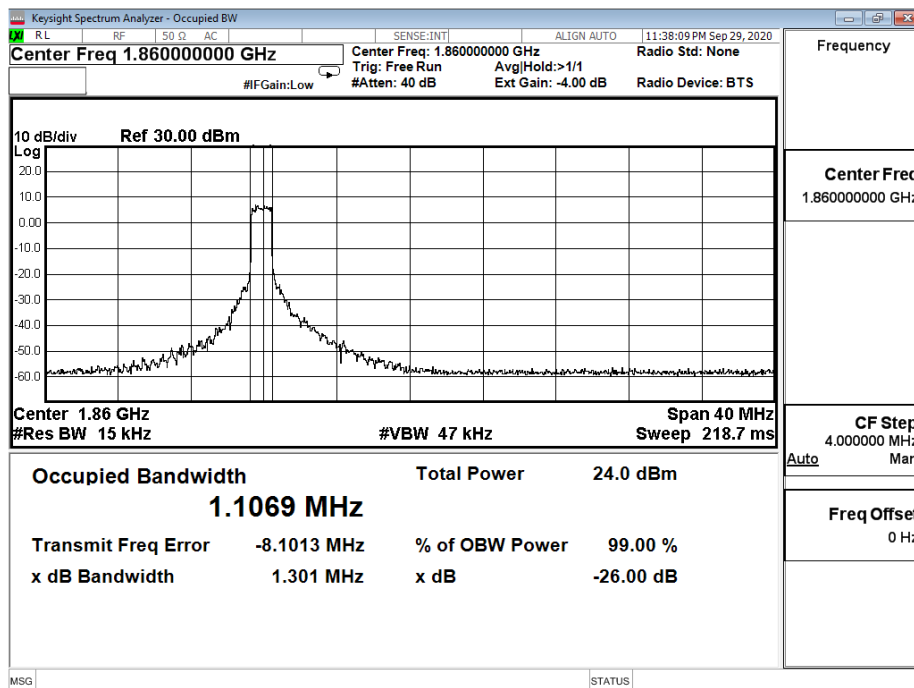
B2_CH19125_15M_QPSK_6RB0



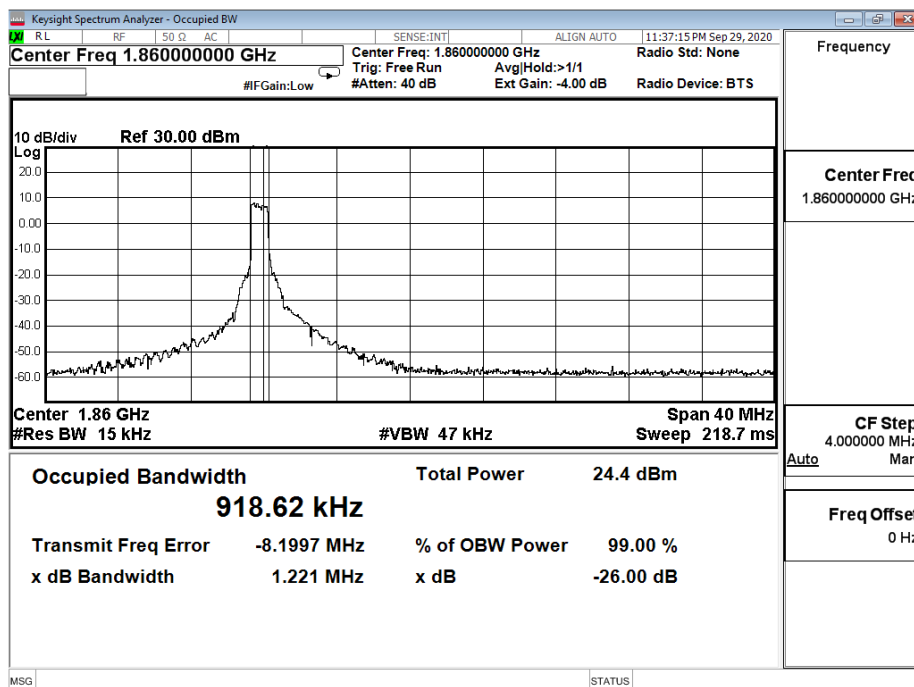
B2_CH19125_15M_16-QAM_5RB1



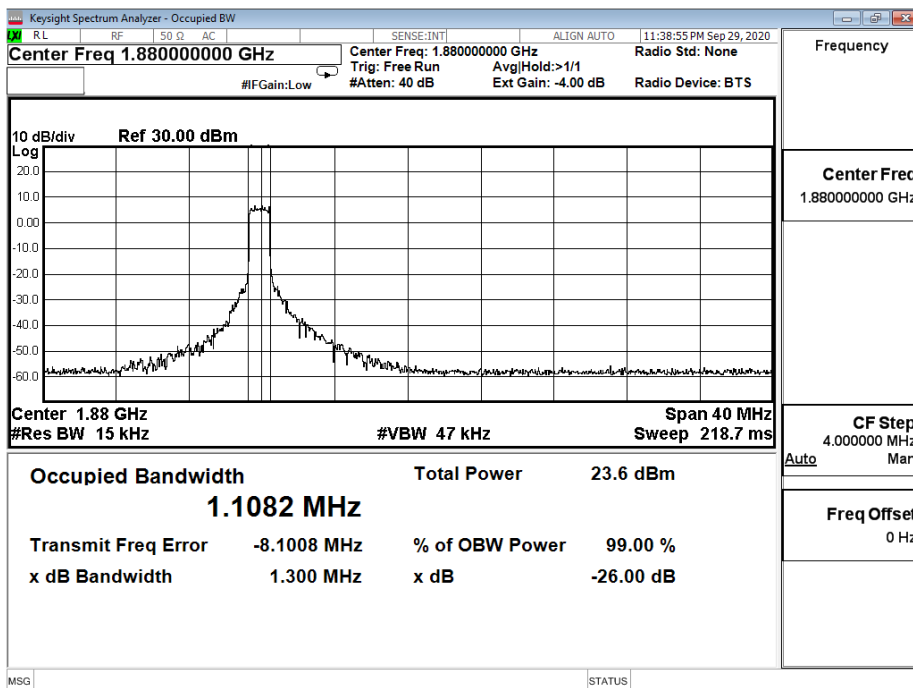
B2_CH18700_20M_QPSK_6RB0



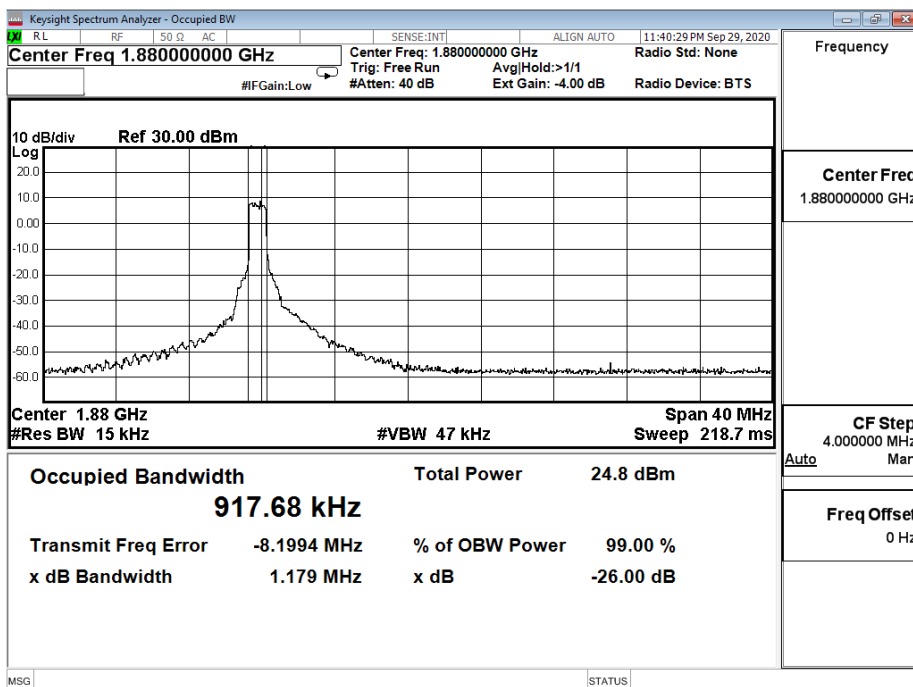
B2_CH18700_20M_16-QAM_5RB0



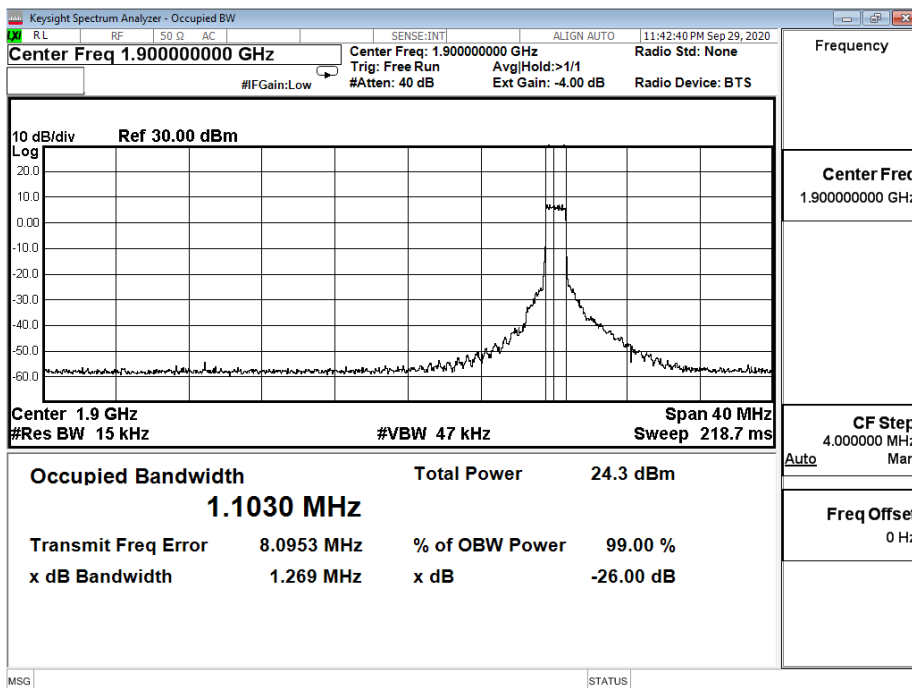
B2_CH18900_20M_QPSK_6RB0



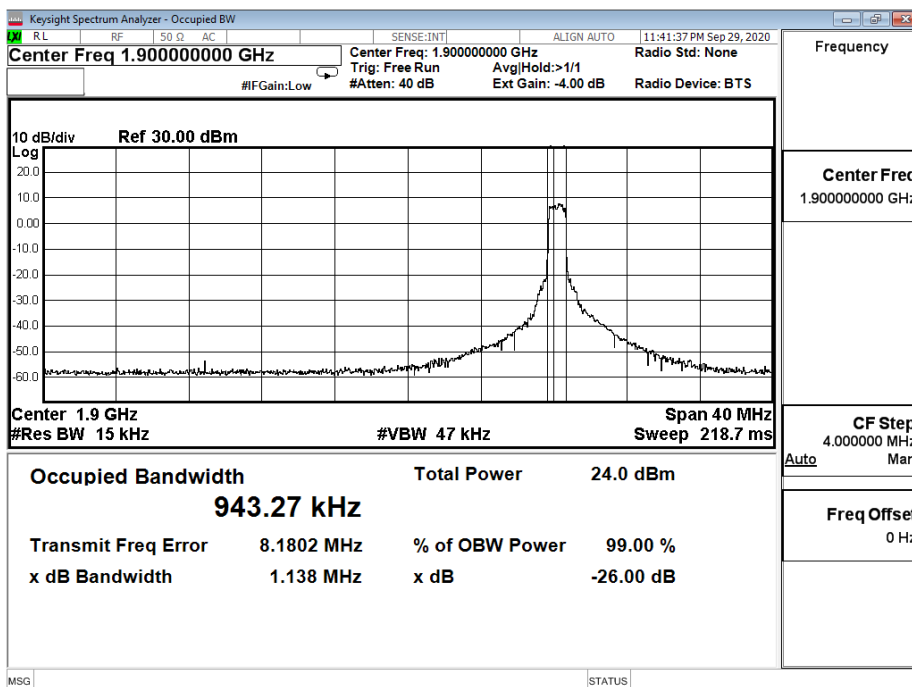
B2_CH18900_20M_16-QAM_5RB0



B2_CH19100_20M_QPSK_6RB0



B2_CH19100_20M_16-QAM_5RB1

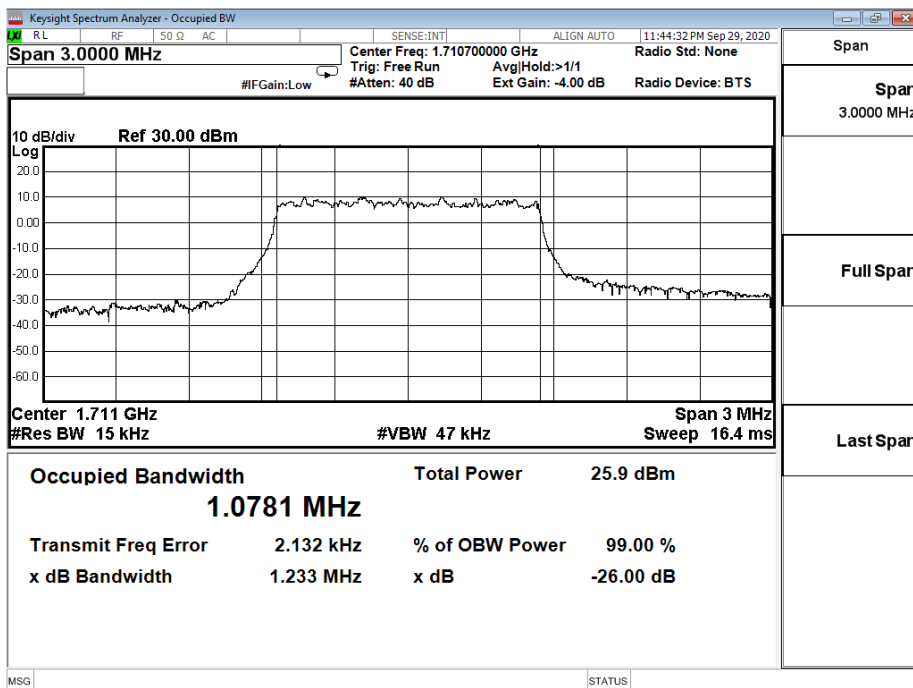


Product	LGA module		
Test Item	Occupied Bandwidth		
Test Mode	Mode 2: LTE Band 4		
Date of Test	2020/09/29~2020/09/30	Test Site	SR12-H
Temperature (°C)	24	Humidity (%RH)	67

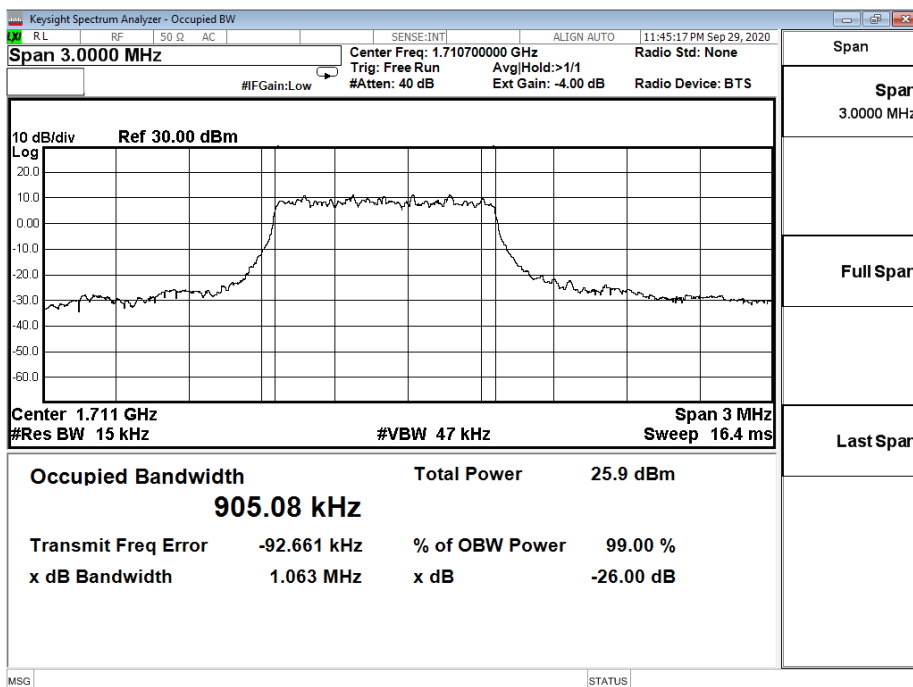
LTE Band 4					
Bandwidth (MHz)	Modulation	Frequency (MHz)	Measure Level (MHz)		Limit (MHz)
			26dB BW	99% BW	
1.4M	QPSK	1710.7	1.233	1.078	N/A
		1732.5	1.233	1.079	N/A
		1754.3	1.234	1.076	N/A
	16-QAM	1710.7	1.063	0.905	N/A
		1732.5	1.064	0.904	N/A
		1754.3	1.114	0.904	N/A
3M	QPSK	1711.5	1.226	1.078	N/A
		1732.5	1.222	1.077	N/A
		1753.5	1.248	1.077	N/A
	16-QAM	1711.5	1.060	0.905	N/A
		1732.5	1.058	0.904	N/A
		1753.5	1.053	0.904	N/A
5M	QPSK	1712.5	1.262	1.086	N/A
		1732.5	1.244	1.079	N/A
		1753.5	1.226	1.073	N/A
	16-QAM	1712.5	1.103	0.908	N/A
		1732.5	1.112	0.909	N/A
		1753.5	1.071	0.907	N/A
10M	QPSK	1715.0	1.242	1.088	N/A
		1732.5	1.243	1.090	N/A
		1750.0	1.251	1.077	N/A
	16-QAM	1715.0	1.157	0.918	N/A
		1732.5	1.166	0.917	N/A
		1750.0	1.094	0.909	N/A

Bandwidth (MHz)	Modulation	Frequency (MHz)	Measure Level (MHz)		Limit (MHz)
			26dB BW	99% BW	
15M	QPSK	1717.5	1.279	1.102	N/A
		1732.5	1.299	1.099	N/A
		1747.5	1.277	1.109	N/A
	16-QAM	1717.5	1.207	0.916	N/A
		1732.5	1.163	0.927	N/A
		1747.5	1.076	0.918	N/A
20M	QPSK	1720.0	1.308	1.105	N/A
		1732.5	1.313	1.108	N/A
		1745.0	1.267	1.104	N/A
	16-QAM	1720.0	1.159	0.917	N/A
		1732.5	1.170	0.917	N/A
		1745.0	1.130	0.942	N/A

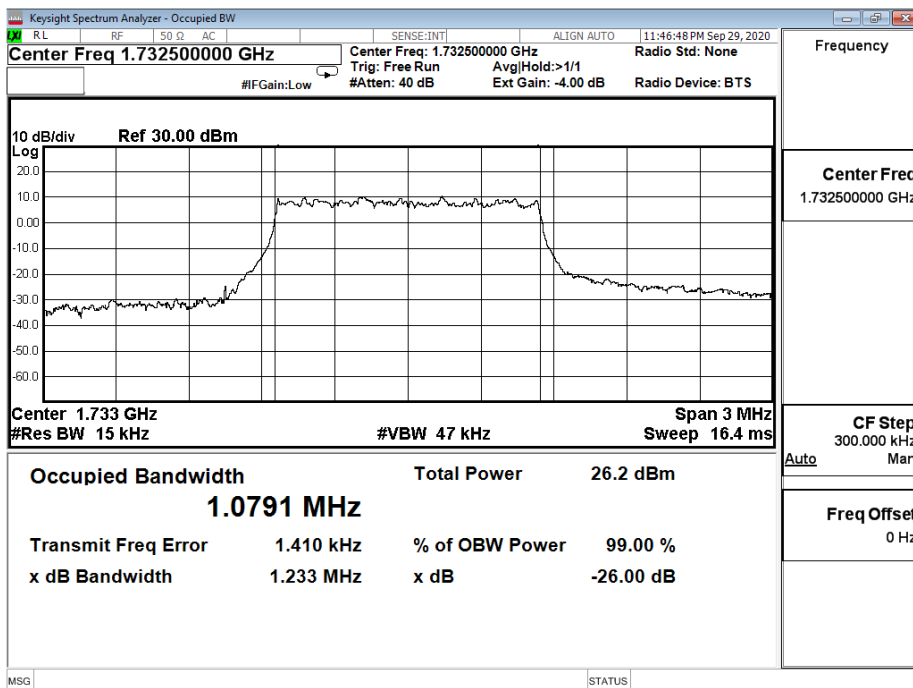
B4_CH19957_1.4M_QPSK_6RB0



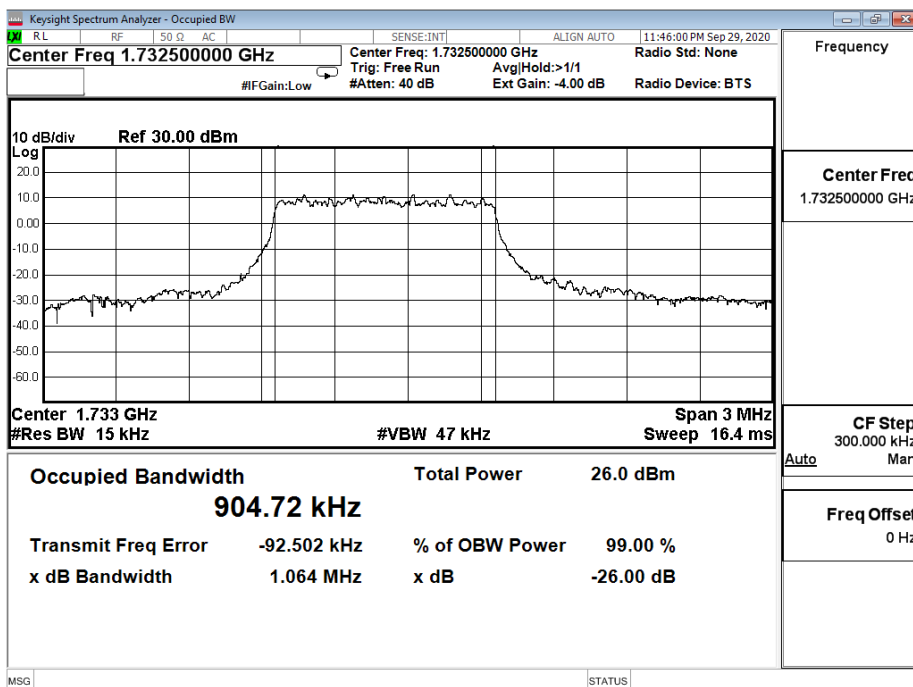
B4_CH19957_1.4M_16-QAM_5RB0



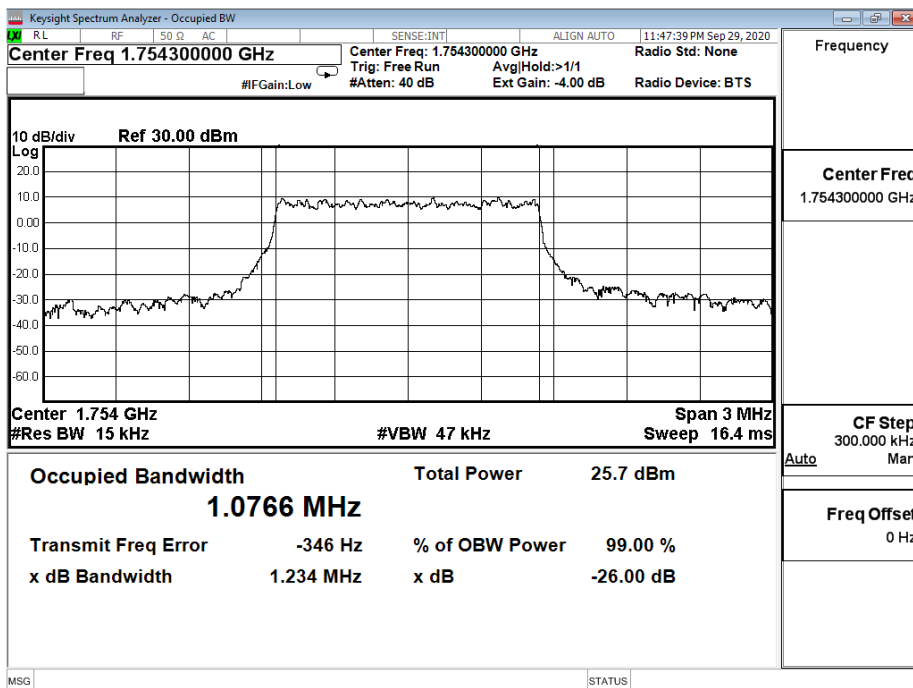
B4_CH20175_1.4M_QPSK_6RB0



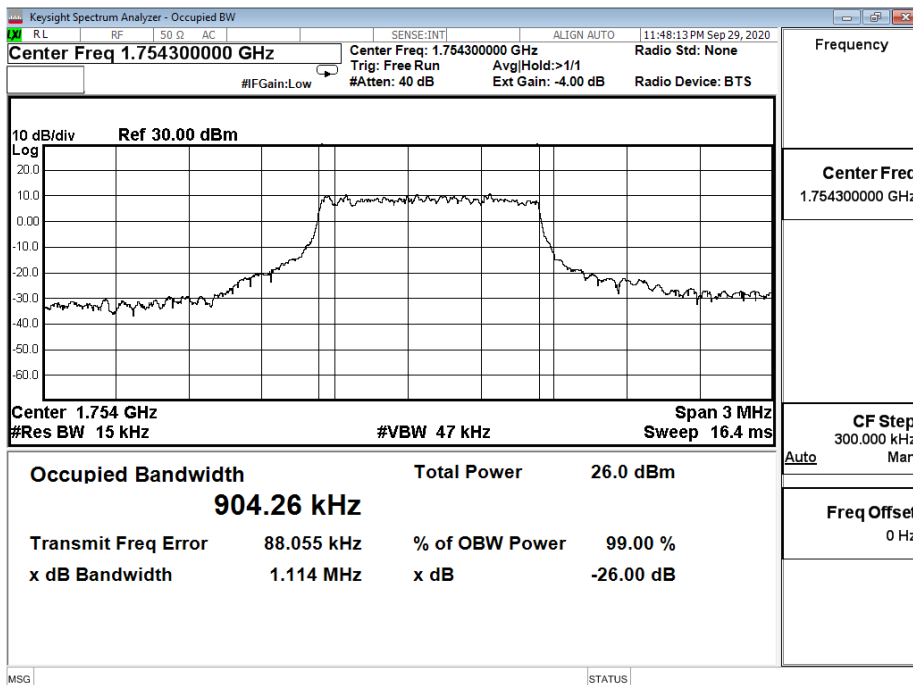
B4_CH20175_1.4M_16-QAM_5RB0



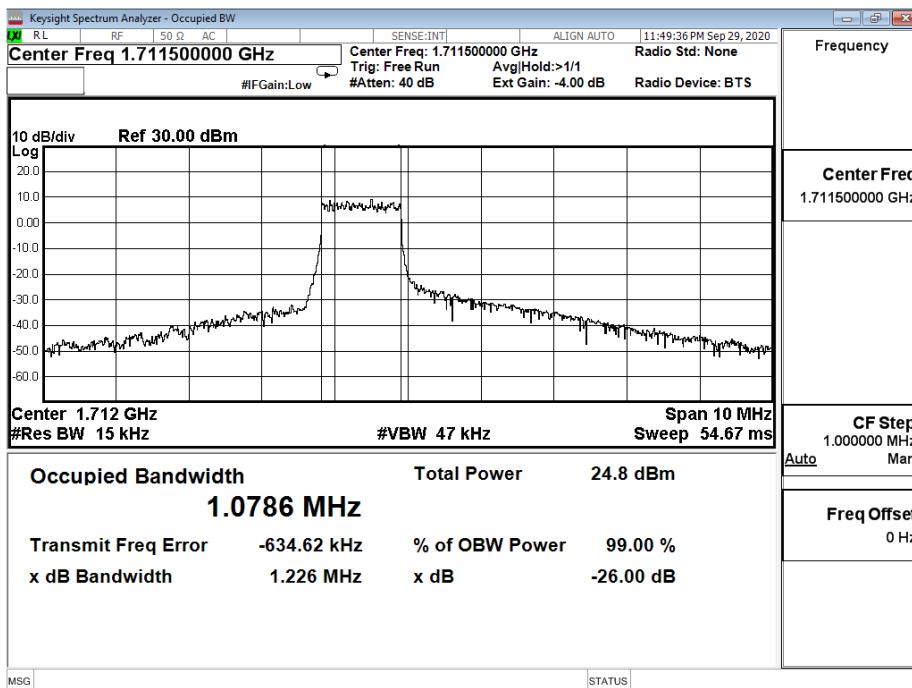
B4_CH20393_1.4M_QPSK_6RB0



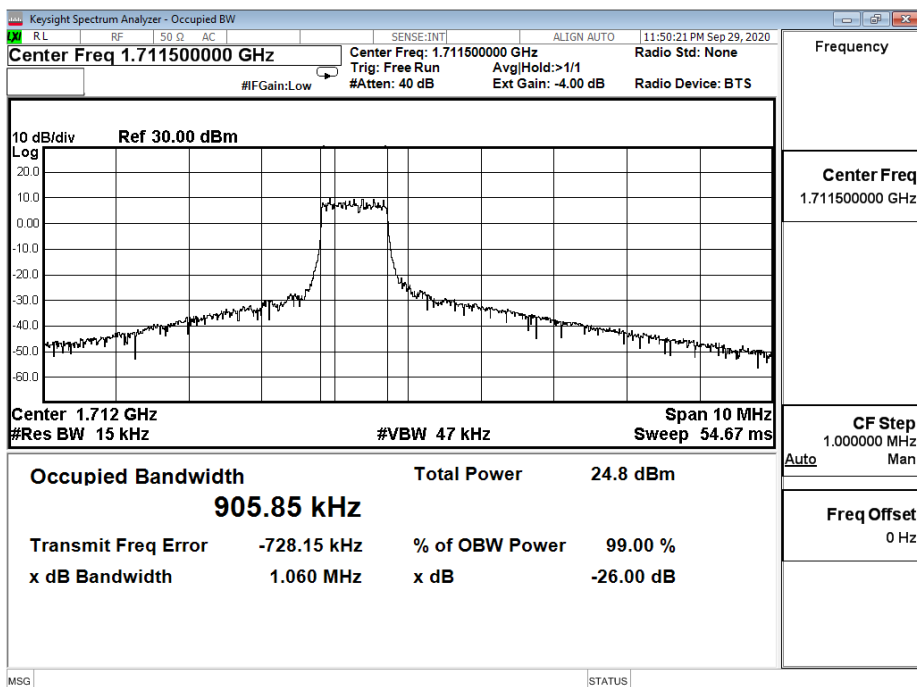
B4_CH20393_1.4M_16-QAM_5RB1



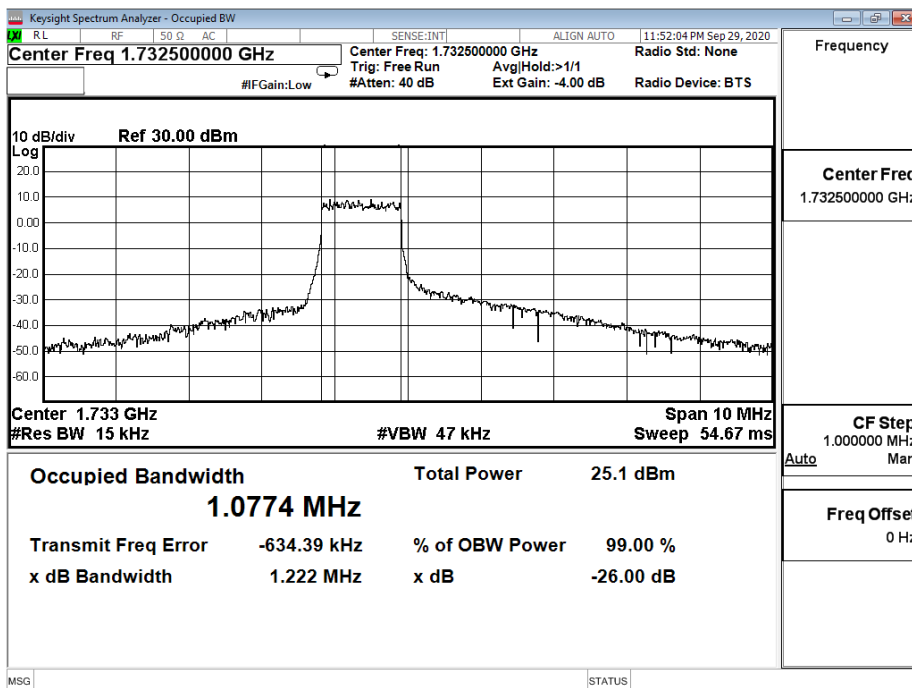
B4_CH19965_3M_QPSK_6RB0



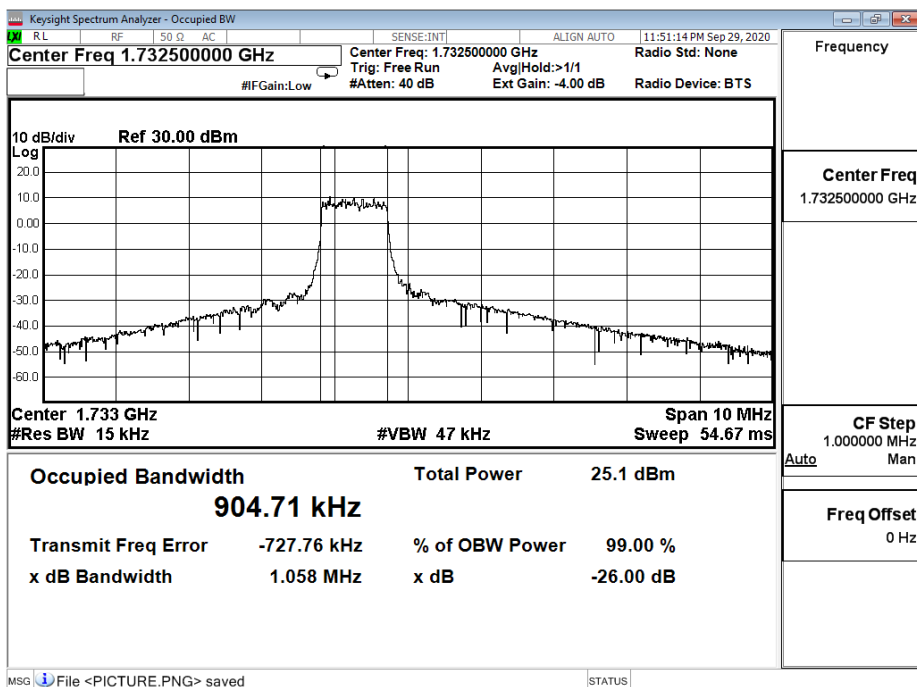
B4_CH19965_3M_16-QAM_5RB0



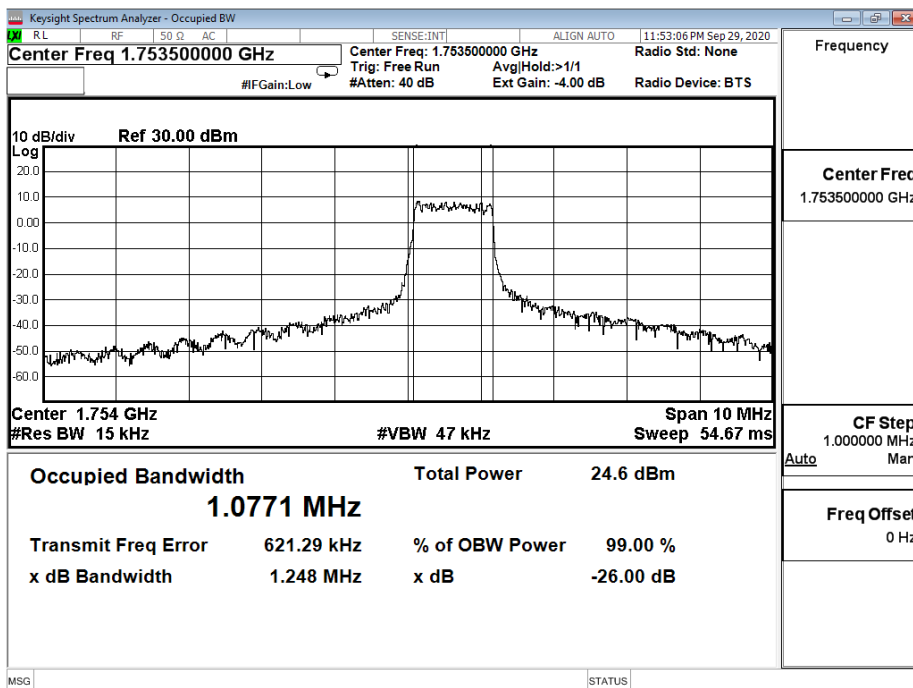
B4_CH20175_3M_QPSK_6RB0



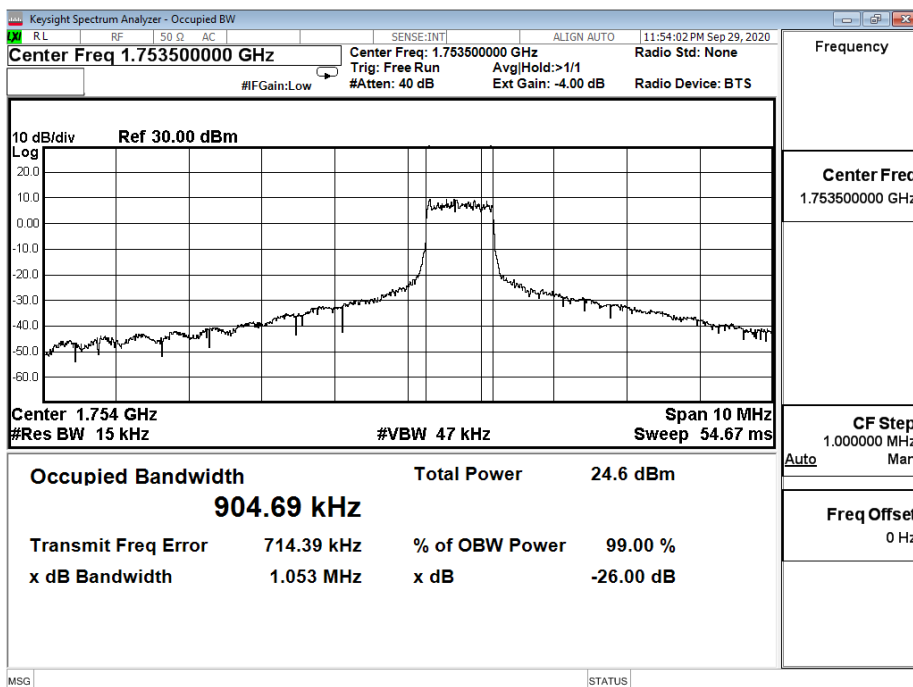
B4_CH20175_3M_16-QAM_5RB0



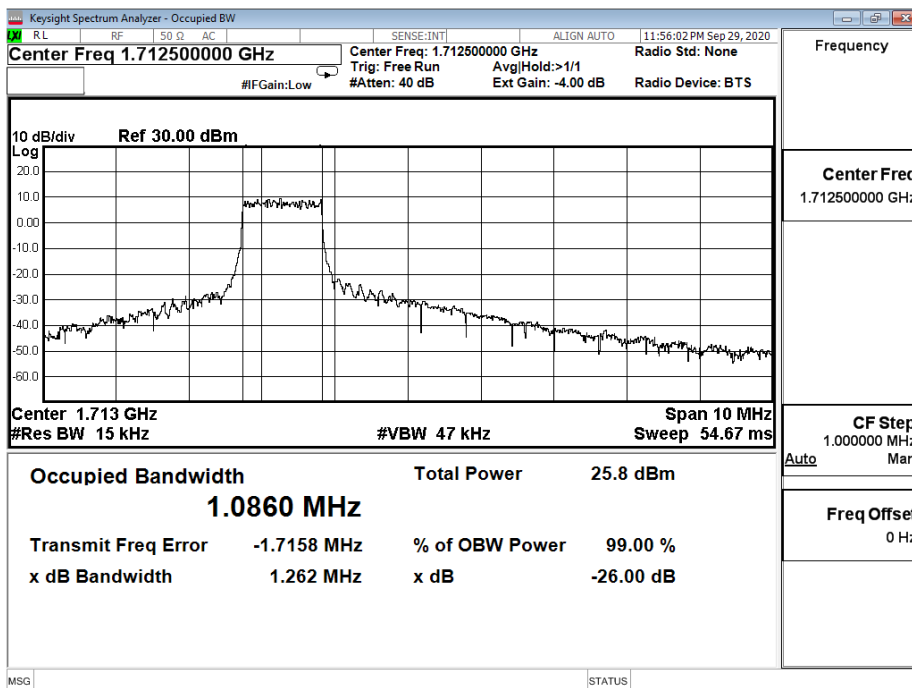
B4_CH20385_3M_QPSK_6RB0



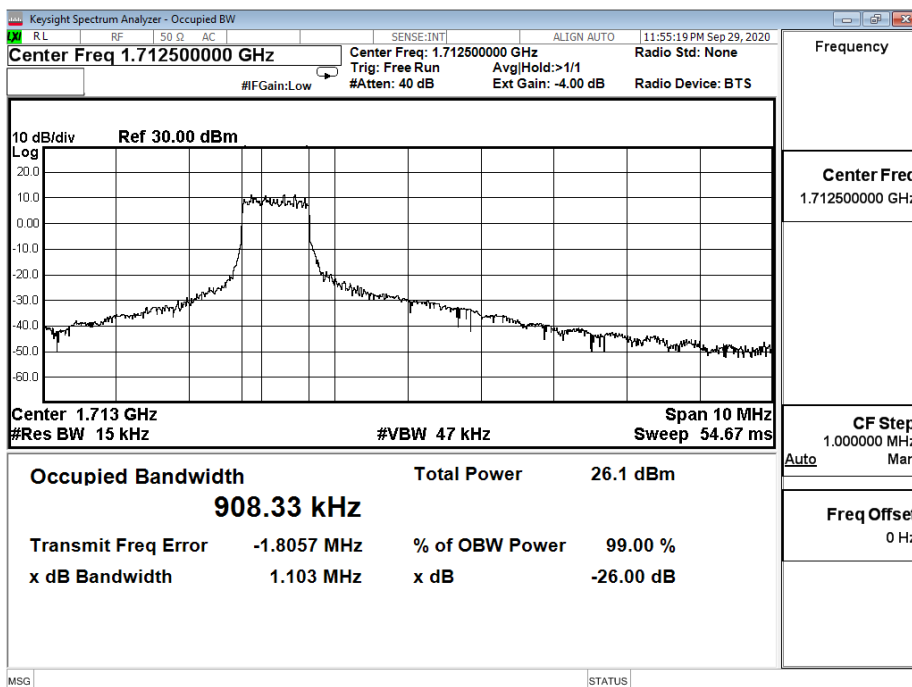
B4_CH20385_3M_16-QAM_5RB1



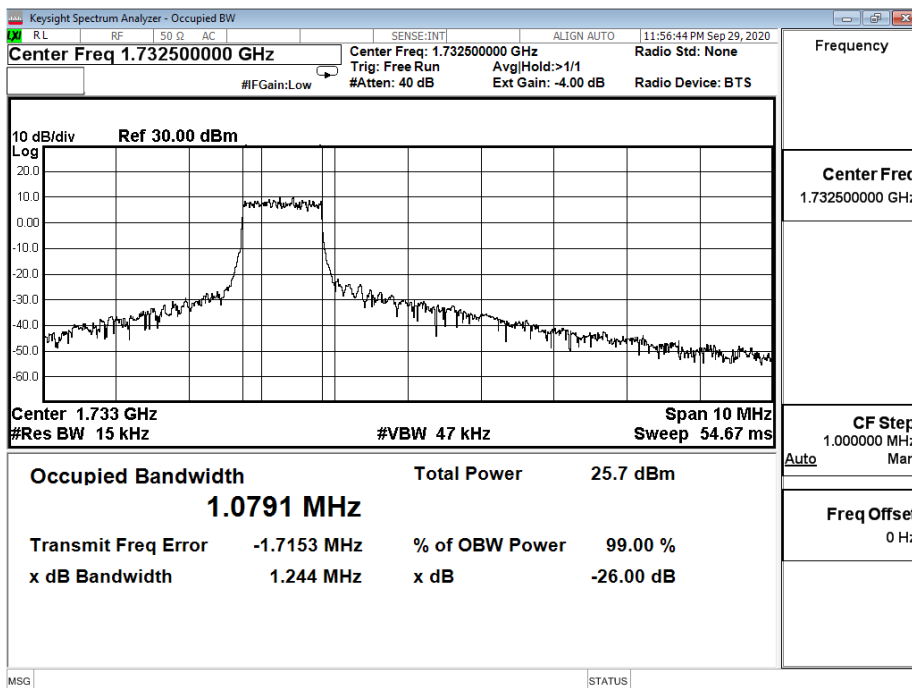
B4_CH19975_5M_QPSK_6RB0



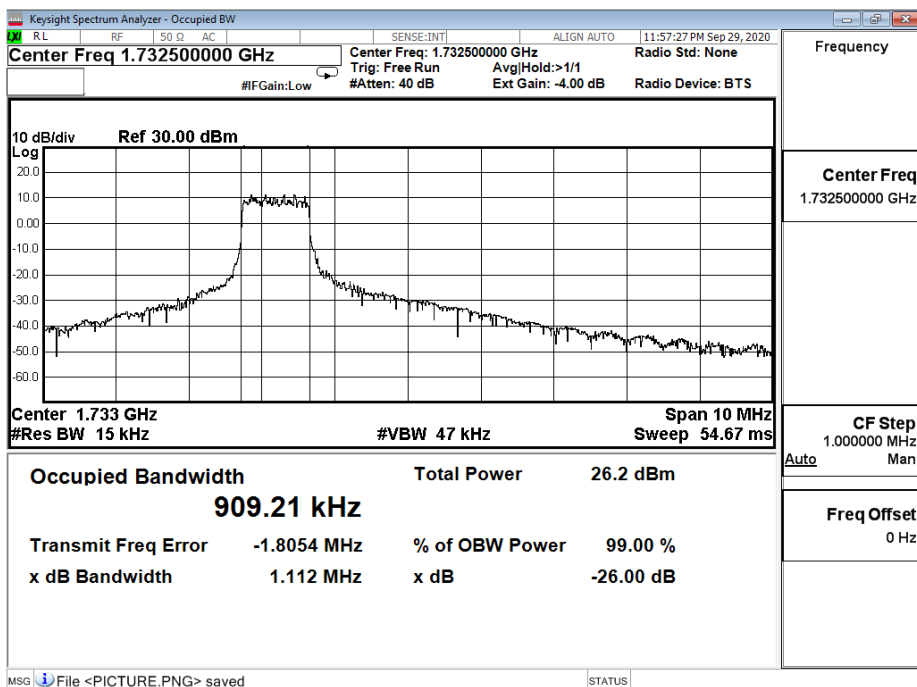
B4_CH19975_5M_16-QAM_5RB0



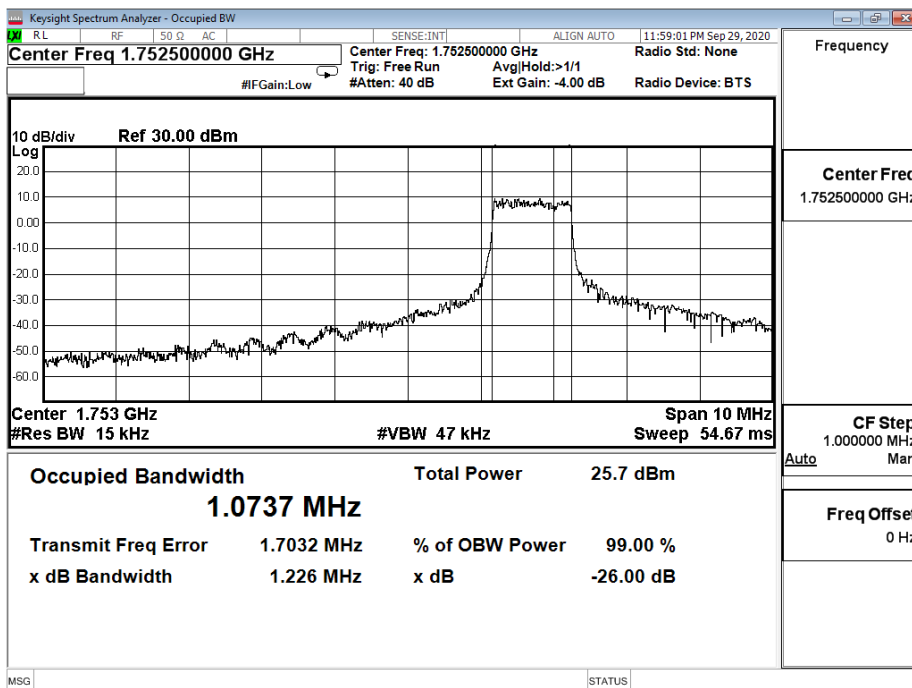
B4_CH20175_5M_QPSK_6RB0



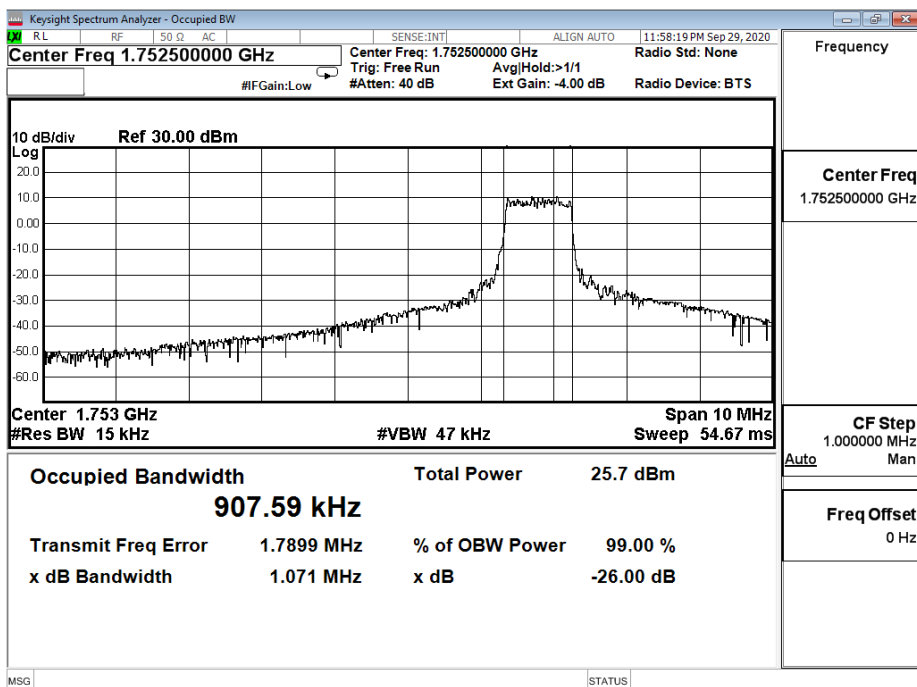
B4_CH20175_5M_16-QAM_5RB0



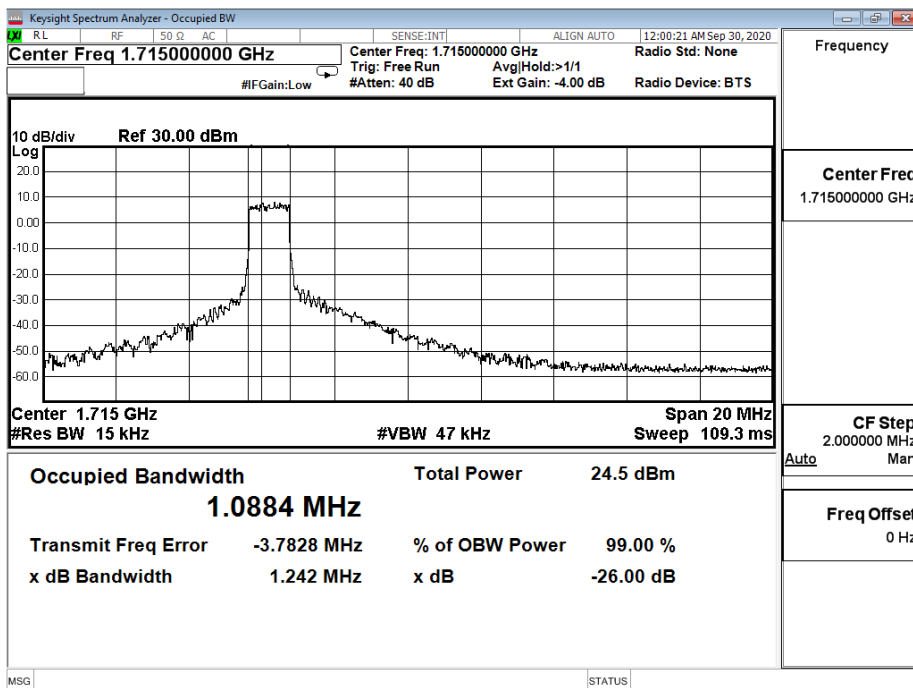
B4_CH20375_5M_QPSK_6RB0



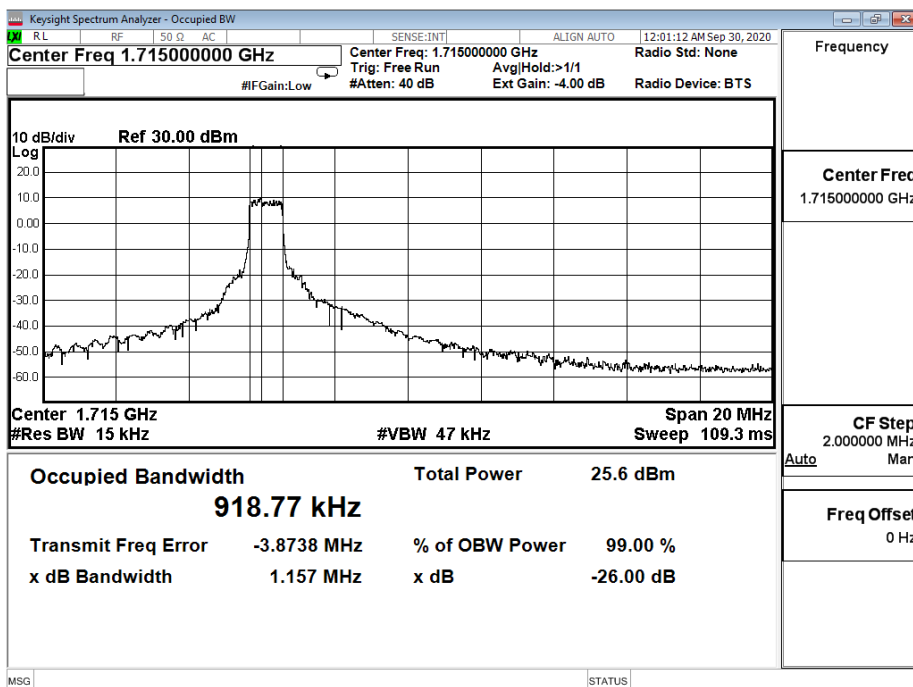
B4_CH20375_5M_16-QAM_5RB1



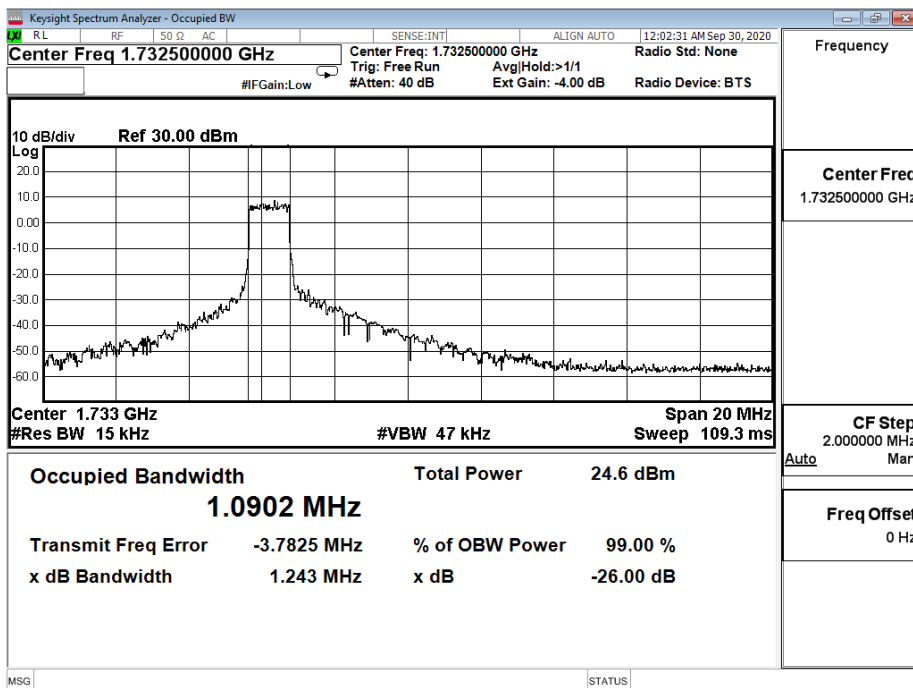
B4_CH20000_10M_QPSK_6RB0



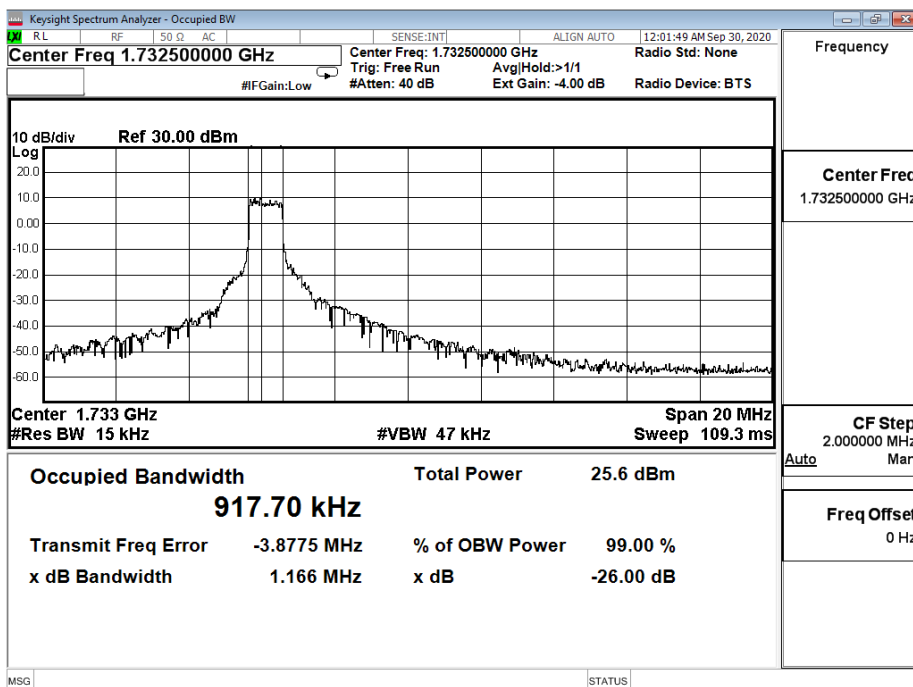
B4_CH20000_10M_16-QAM_5RB0



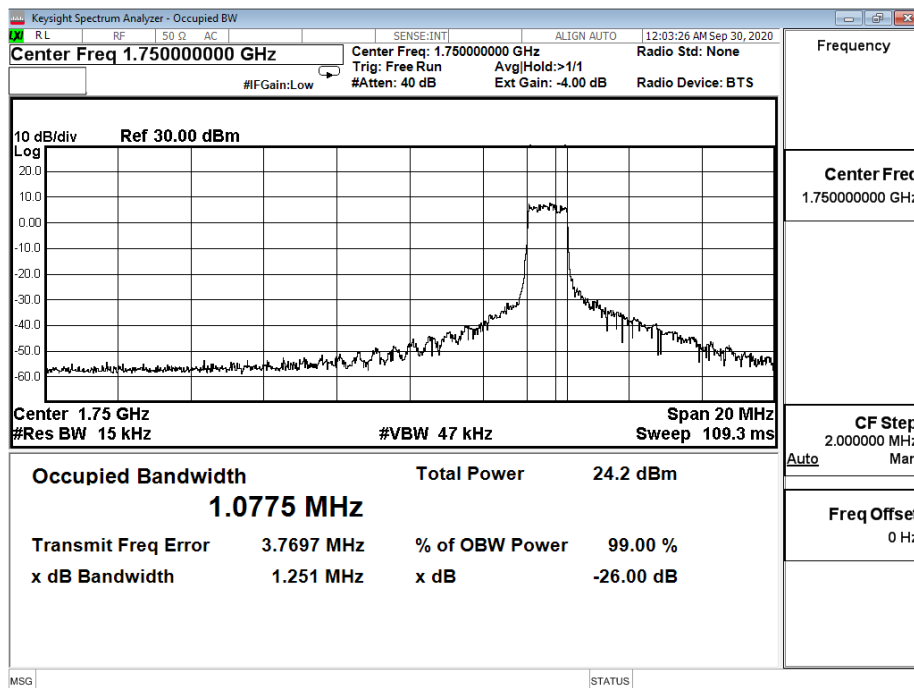
B4_CH20175_10M_QPSK_6RB0



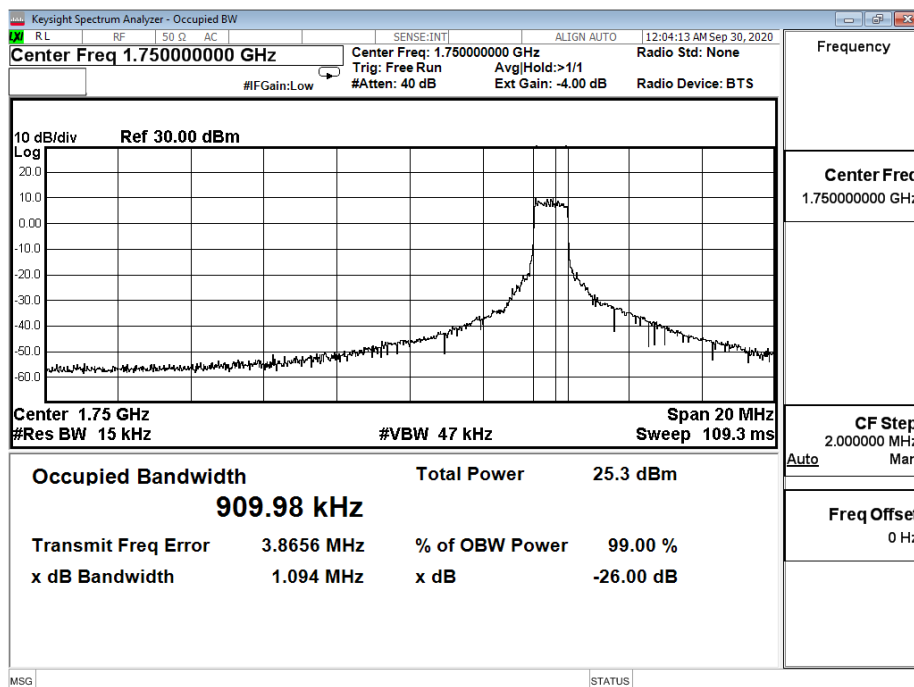
B4_CH20175_10M_16-QAM_5RB0



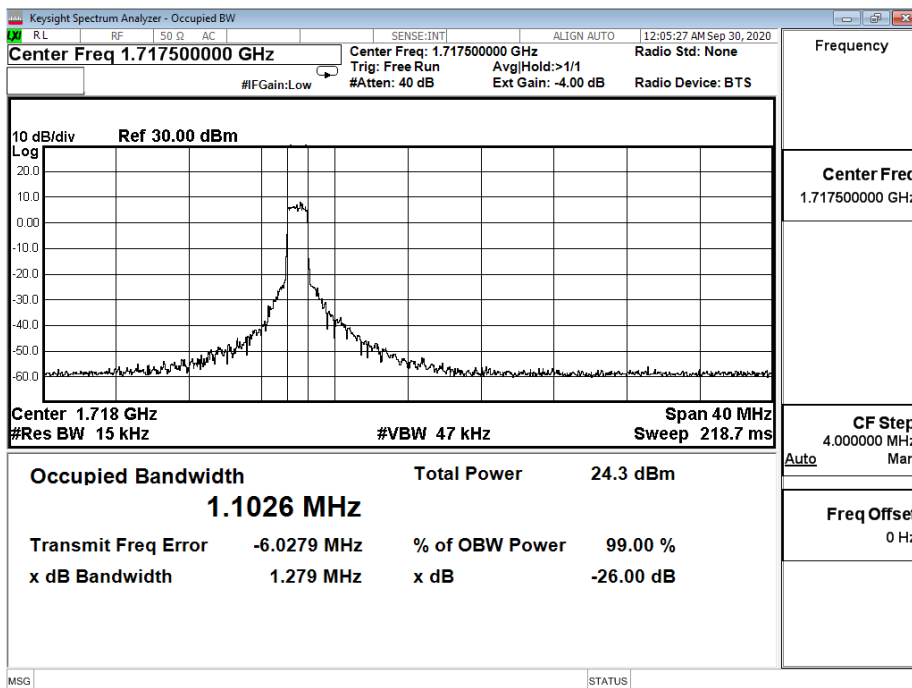
B4_CH20350_10M_QPSK_6RB0



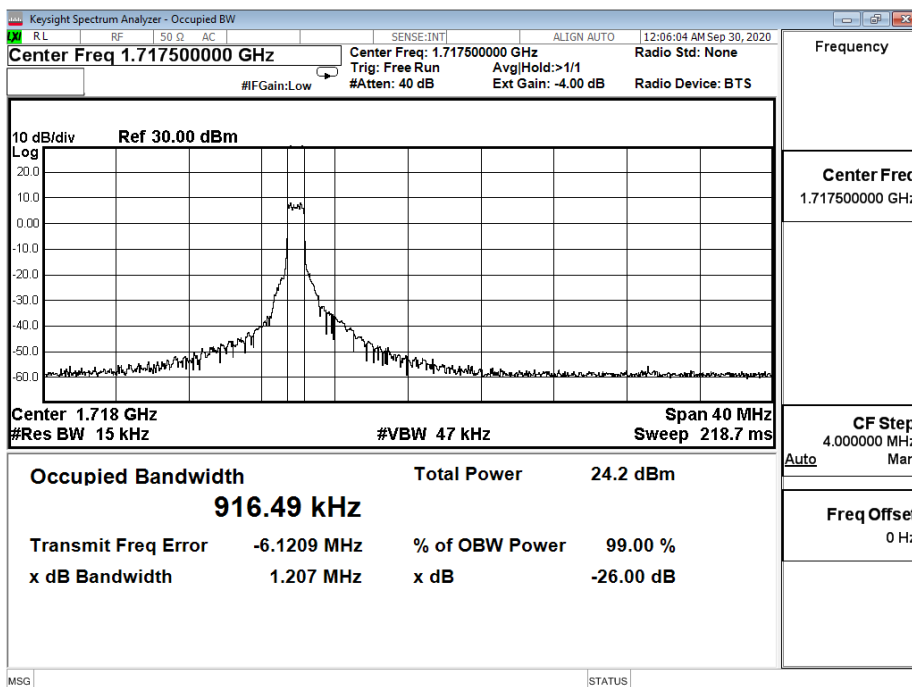
B4_CH20350_10M_16-QAM_5RB1



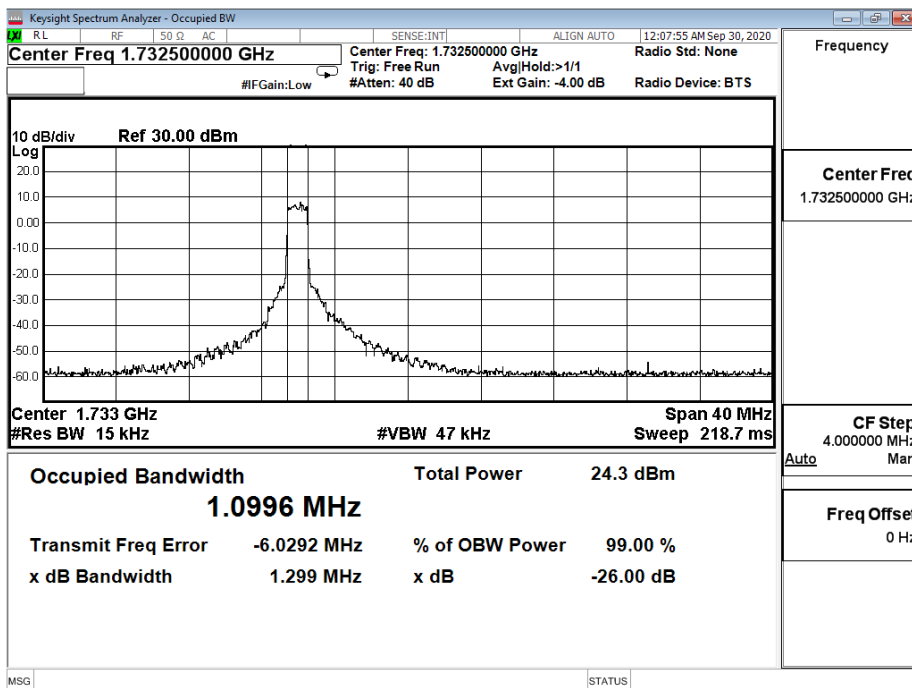
B4_CH20025_15M_QPSK_6RB0



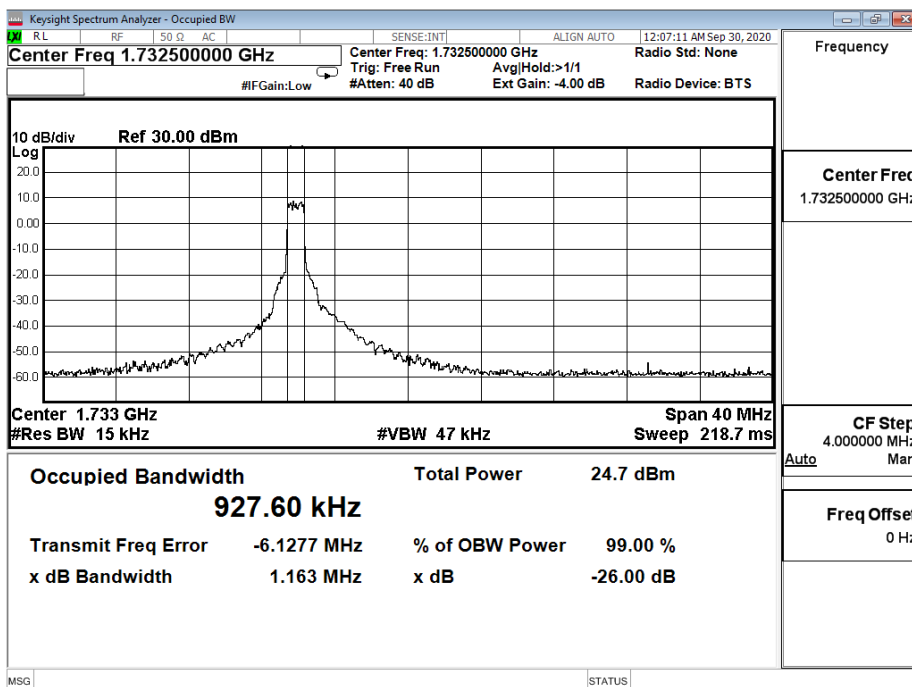
B4_CH20025_15M_16-QAM_5RB0



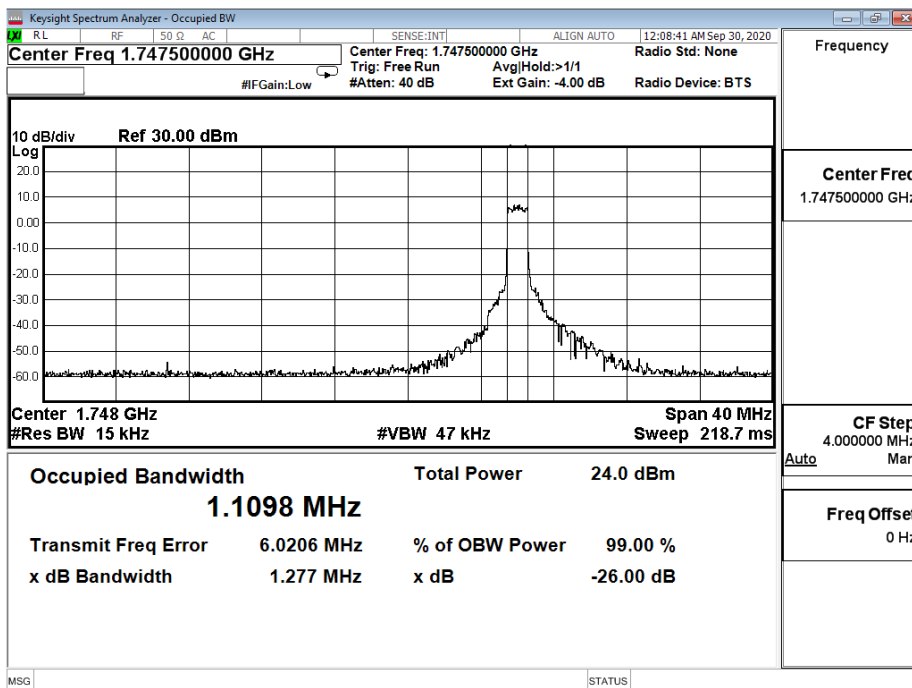
B4_CH20175_15M_QPSK_6RB0



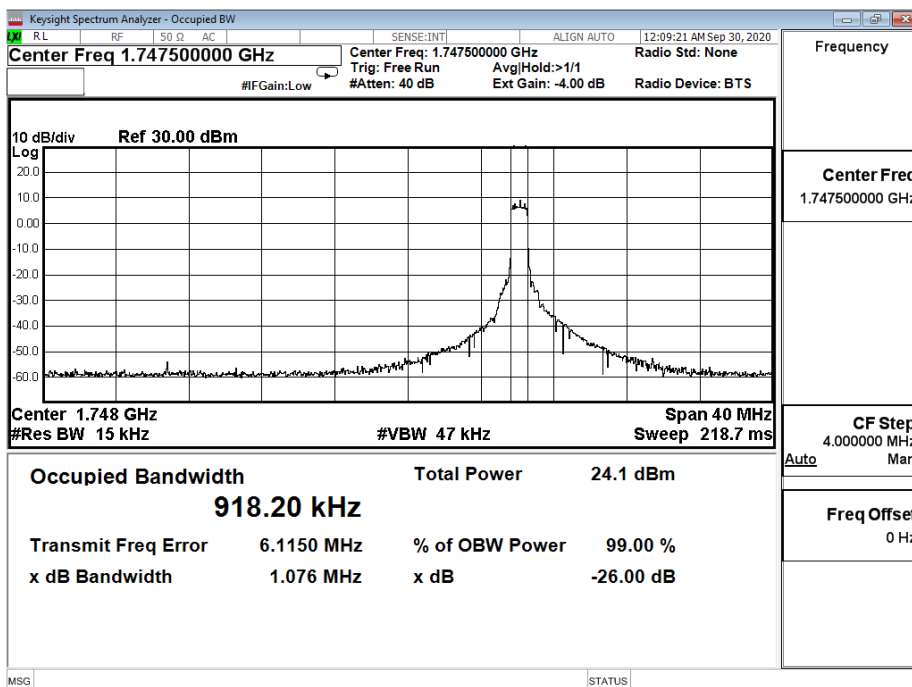
B4_CH20175_15M_16-QAM_5RB0



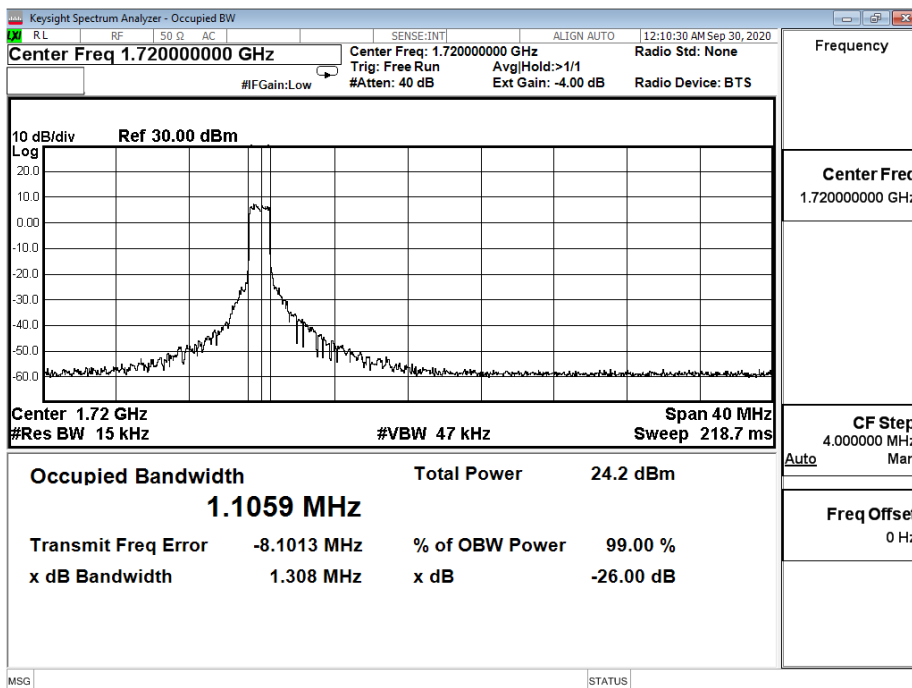
B4_CH20325_15M_QPSK_6RB0



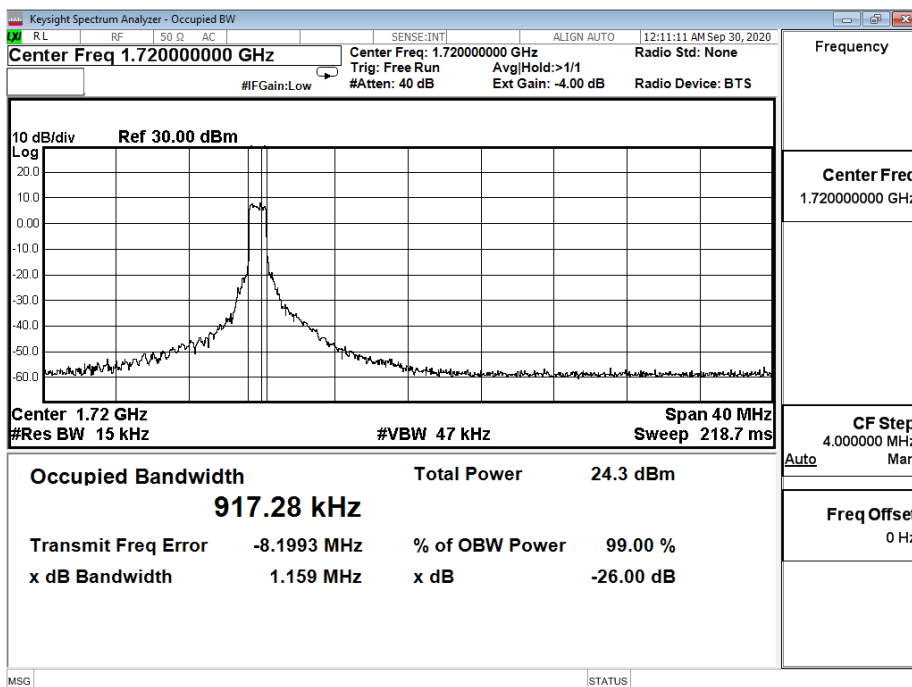
B4_CH20325_15M_16-QAM_5RB1



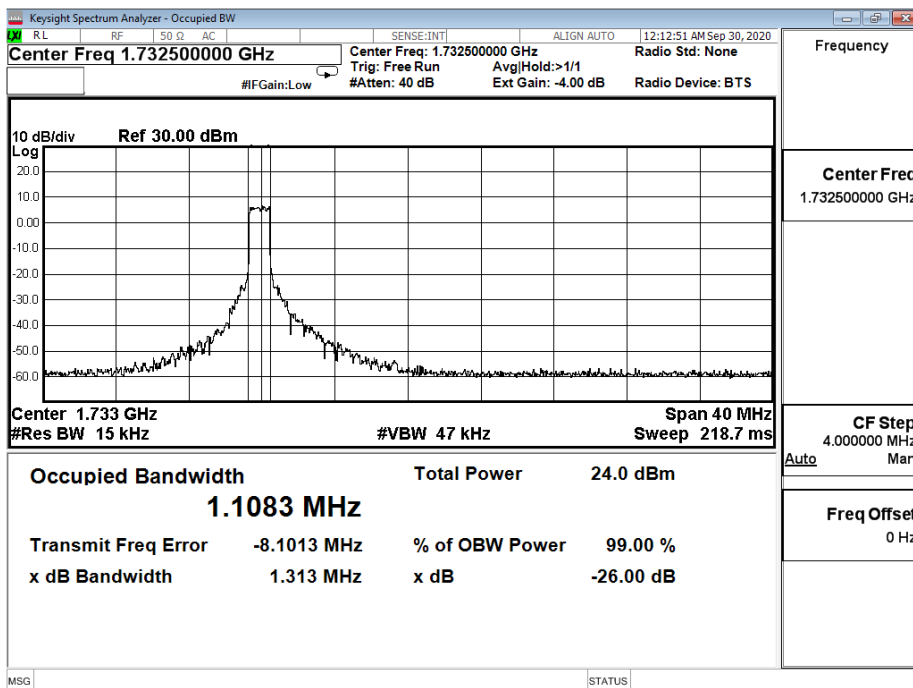
B4_CH20050_20M_QPSK_6RB0



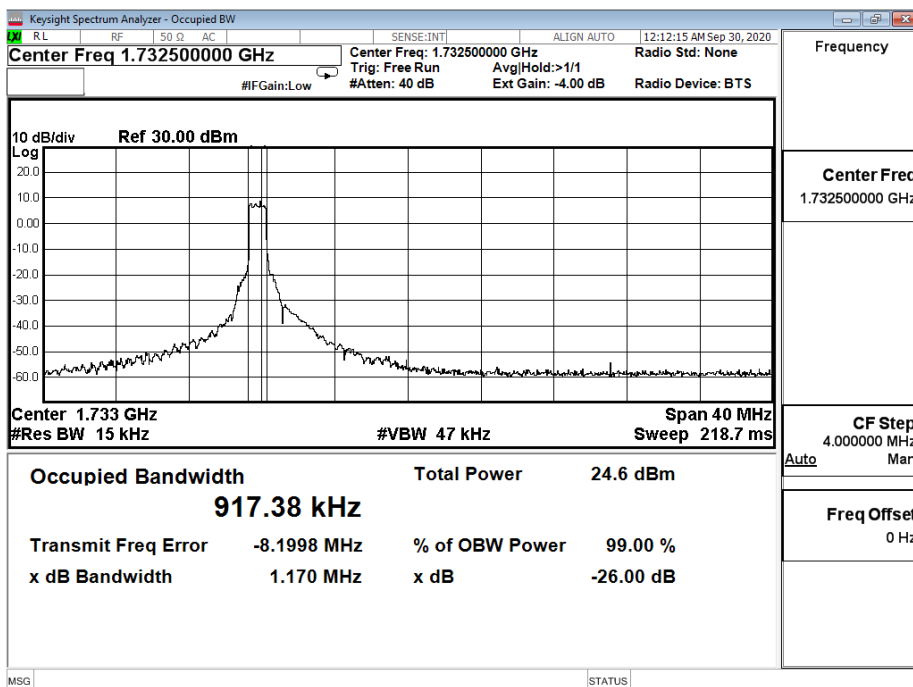
B4_CH20050_20M_16-QAM_5RB0



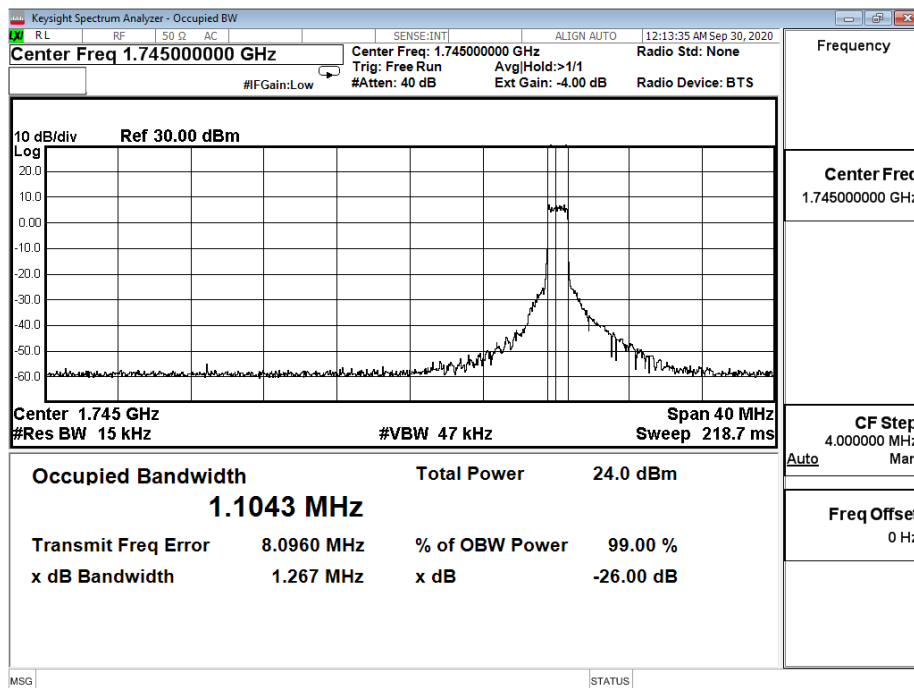
B4_CH20175_20M_QPSK_6RB0



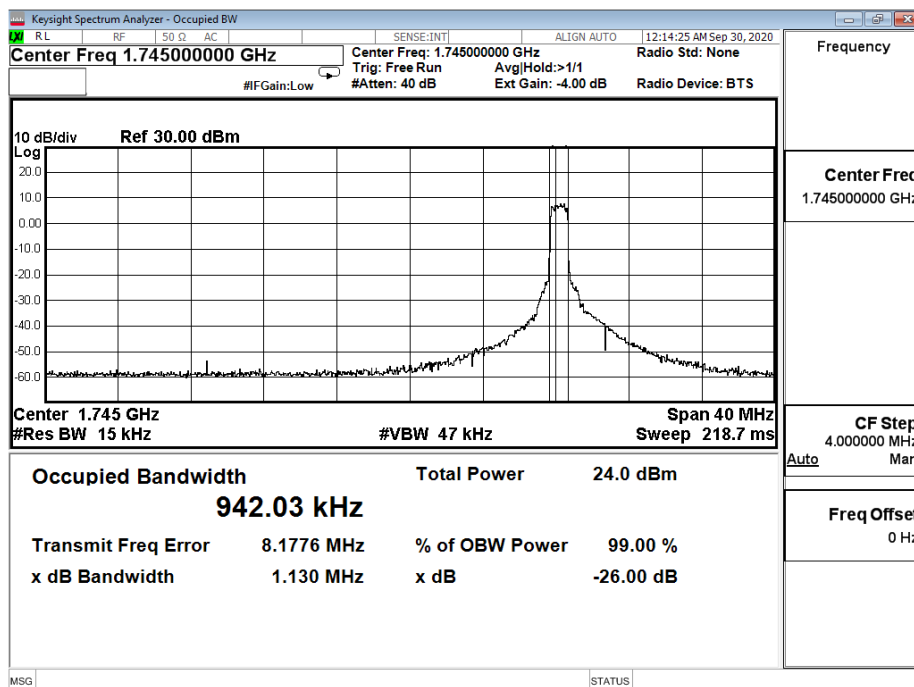
B4_CH20175_20M_16-QAM_5RB0



B4_CH20300_20M_QPSK_6RB0



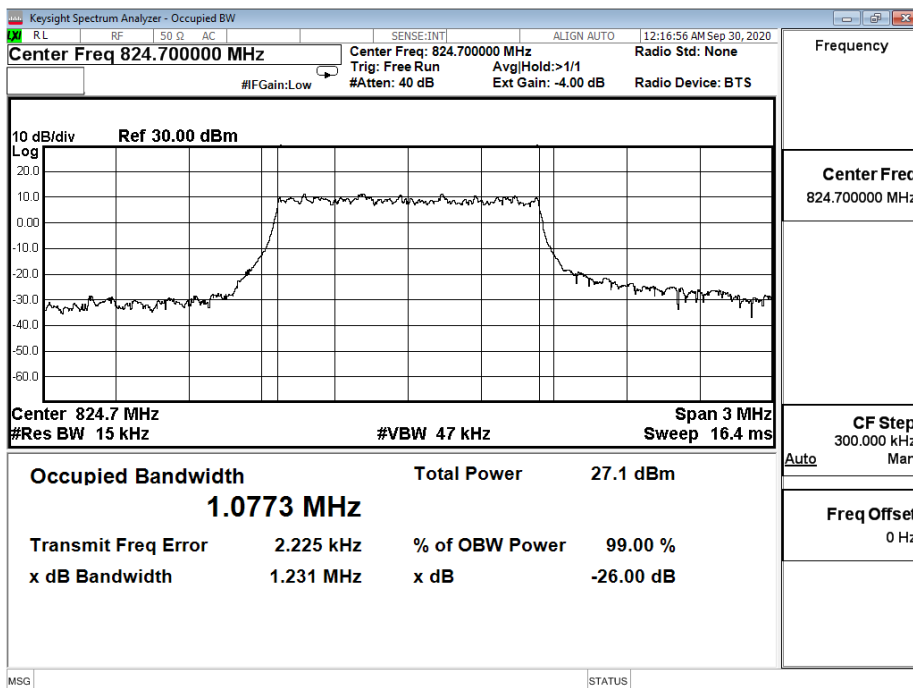
B4_CH20300_20M_16-QAM_5RB1



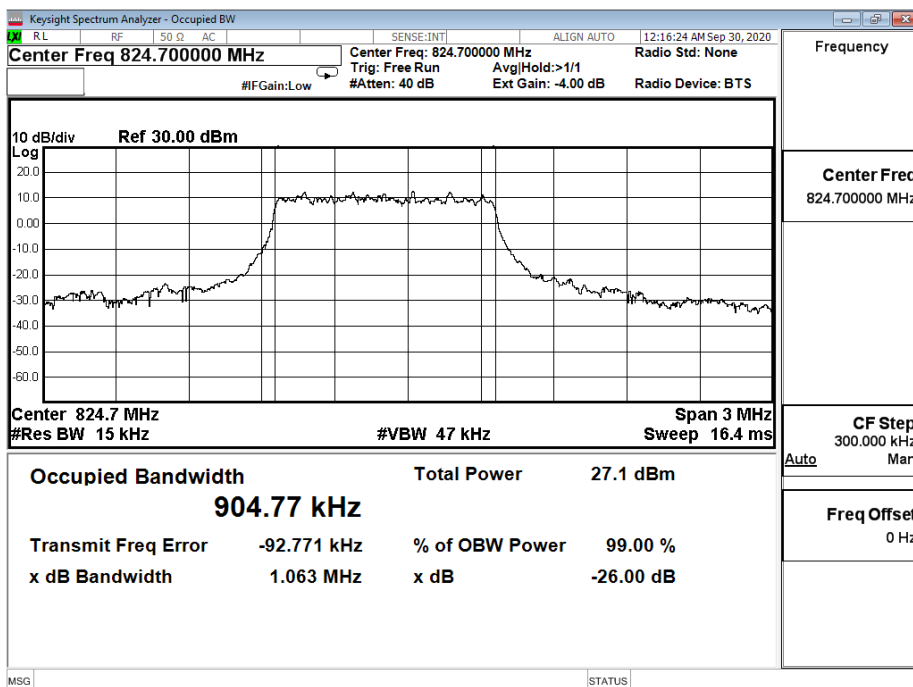
Product	LGA module		
Test Item	Occupied Bandwidth		
Test Mode	Mode 3: LTE Band 5		
Date of Test	2020/09/30	Test Site	SR12-H
Temperature (°C)	24	Humidity (%RH)	67

Bandwidth (MHz)	Modulation	Frequency (MHz)	Measure Level (MHz)		Limit (MHz)
			26dB BW	99% BW	
1.4M	QPSK	824.7	1.231	1.077	N/A
		836.5	1.234	1.077	N/A
		848.3	1.232	1.076	N/A
	16-QAM	824.7	1.063	0.904	N/A
		836.5	1.063	0.904	N/A
		848.3	1.098	0.903	N/A
3M	QPSK	825.5	1.213	1.077	N/A
		836.5	1.230	1.077	N/A
		847.5	1.225	1.077	N/A
	16-QAM	825.5	1.053	0.906	N/A
		836.5	1.059	0.906	N/A
		847.5	1.077	0.903	N/A
5M	QPSK	826.5	1.242	1.083	N/A
		836.5	1.247	1.083	N/A
		846.5	1.223	1.071	N/A
	16-QAM	826.5	1.112	0.907	N/A
		836.5	1.109	0.905	N/A
		846.5	1.085	0.905	N/A
10M	QPSK	829.0	1.235	1.089	N/A
		836.5	1.236	1.088	N/A
		844.0	1.250	1.075	N/A
	16-QAM	829.0	1.154	0.917	N/A
		836.5	1.161	0.918	N/A
		844.0	1.095	0.908	N/A

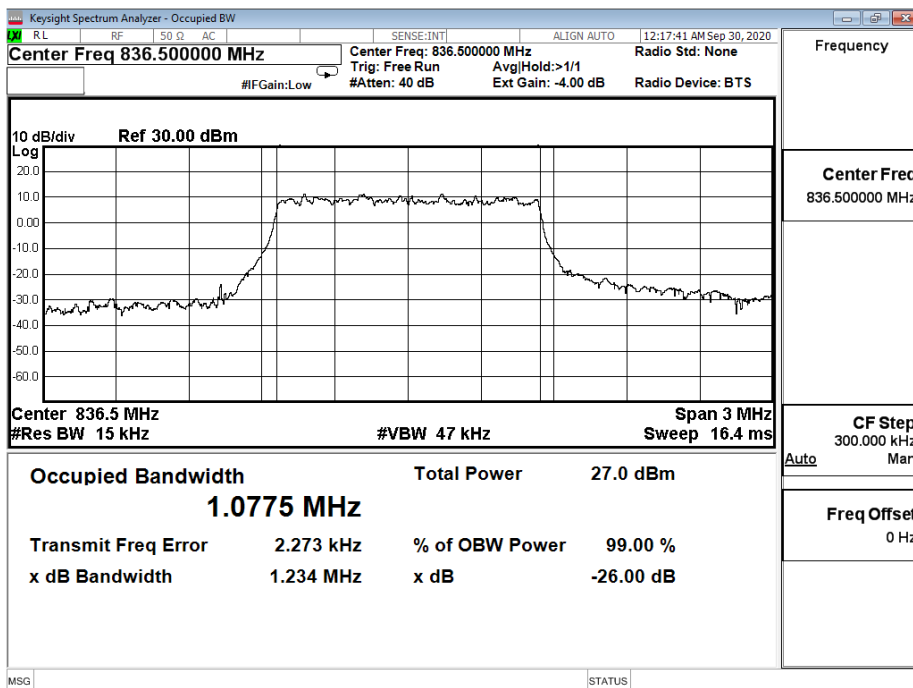
B5_CH20407_1.4M_QPSK_6RB0



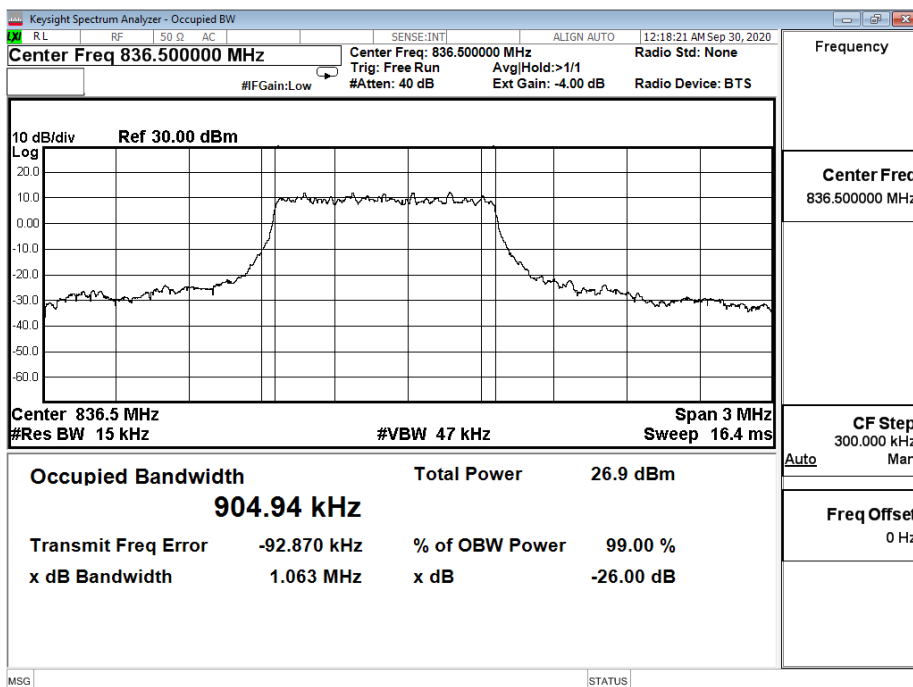
B5_CH20407_1.4M_16-QAM_5RB0



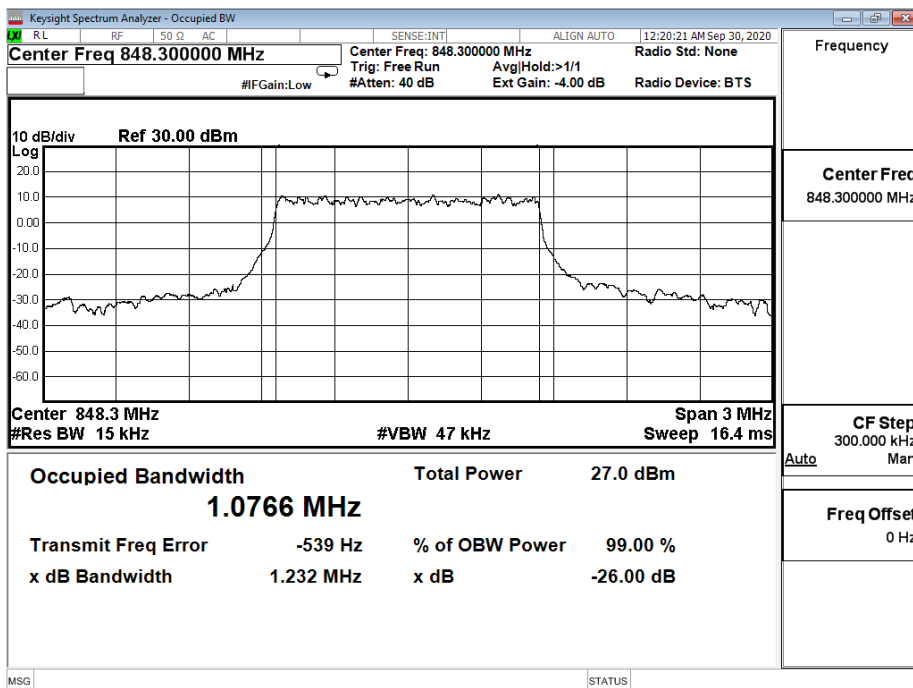
B5_CH20525_1.4M_QPSK_6RB0



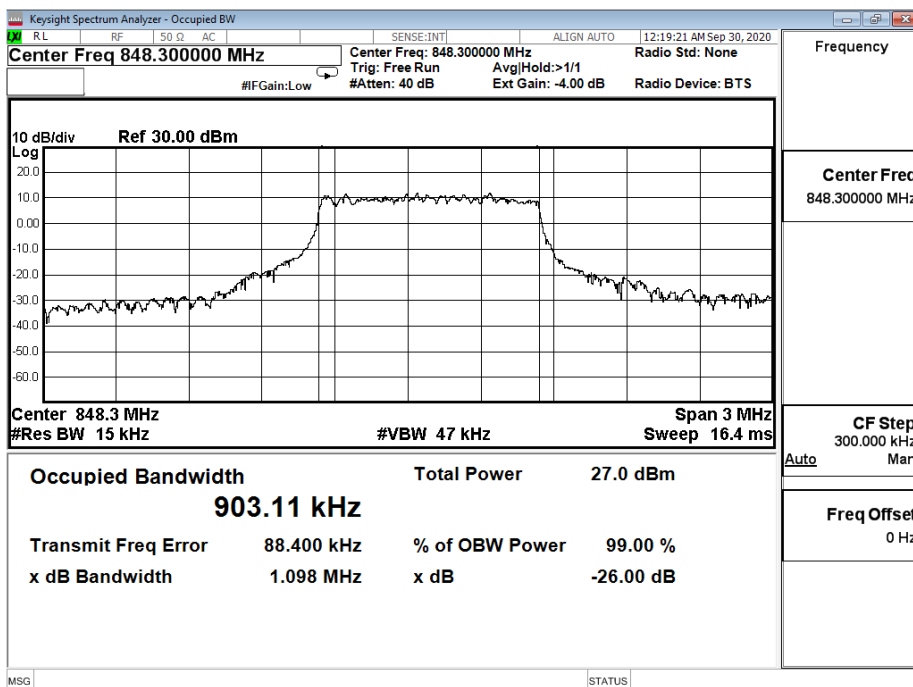
B5_CH20525_1.4M_16-QAM_5RB0



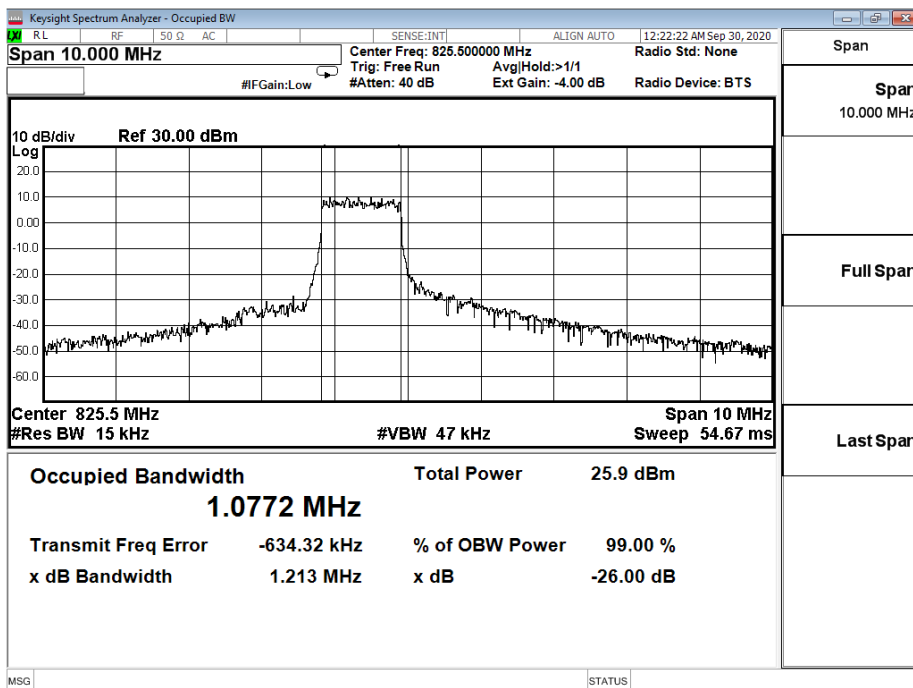
B5_CH20643_1.4M_QPSK_6RB0



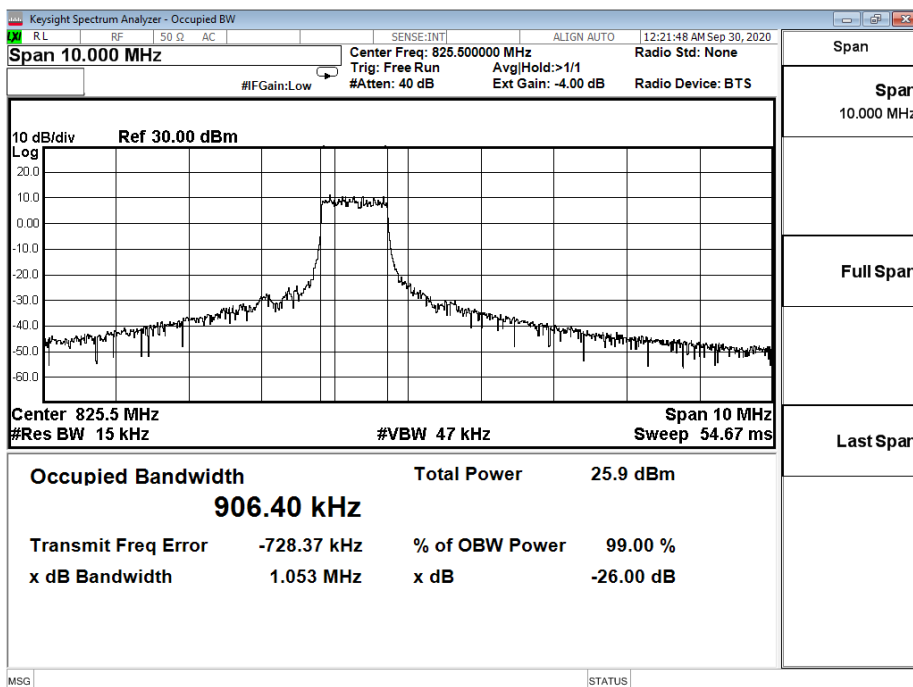
B5_CH20643_1.4M_16-QAM_5RB1



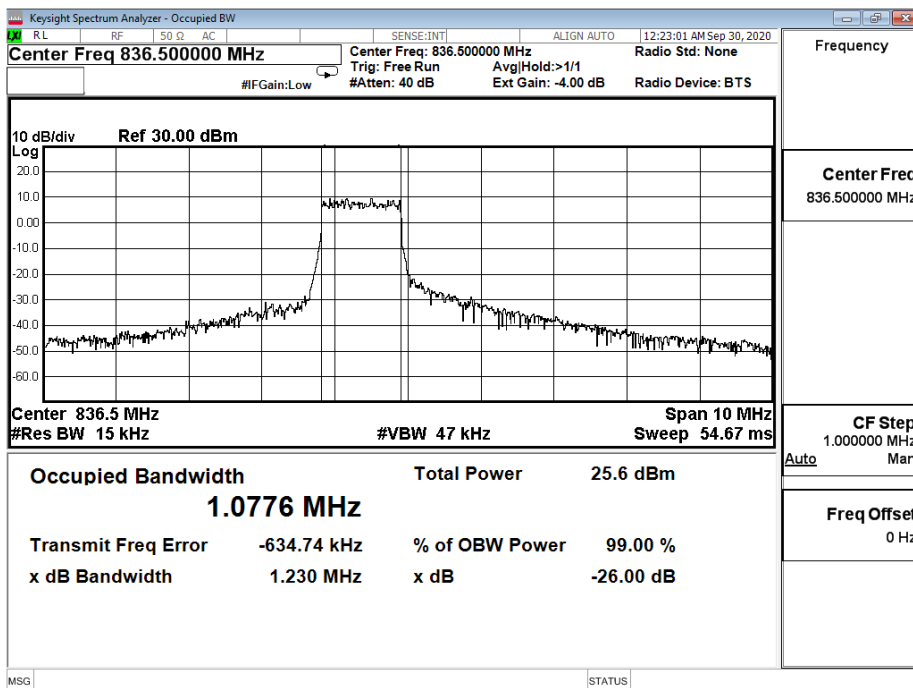
B5_CH20415_3M_QPSK_6RB0



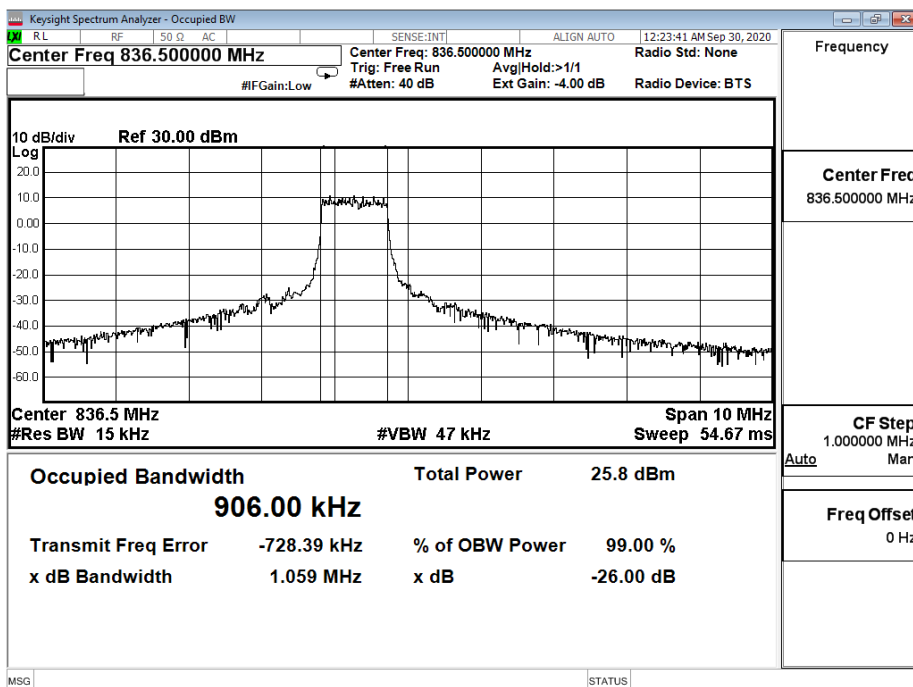
B5_CH20415_3M_16-QAM_5RB0



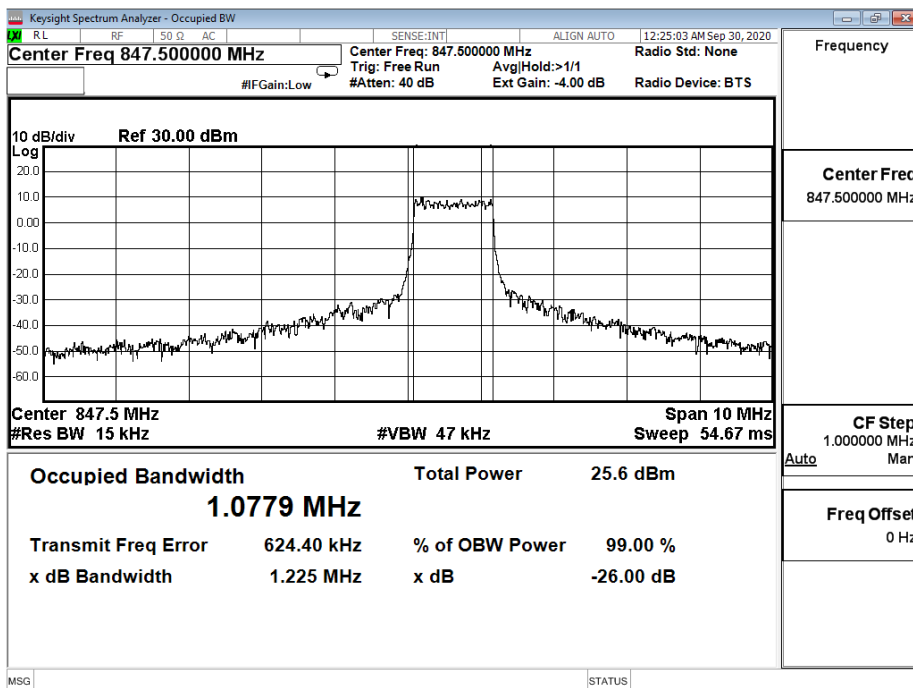
B5_CH20525_3M_QPSK_6RB0



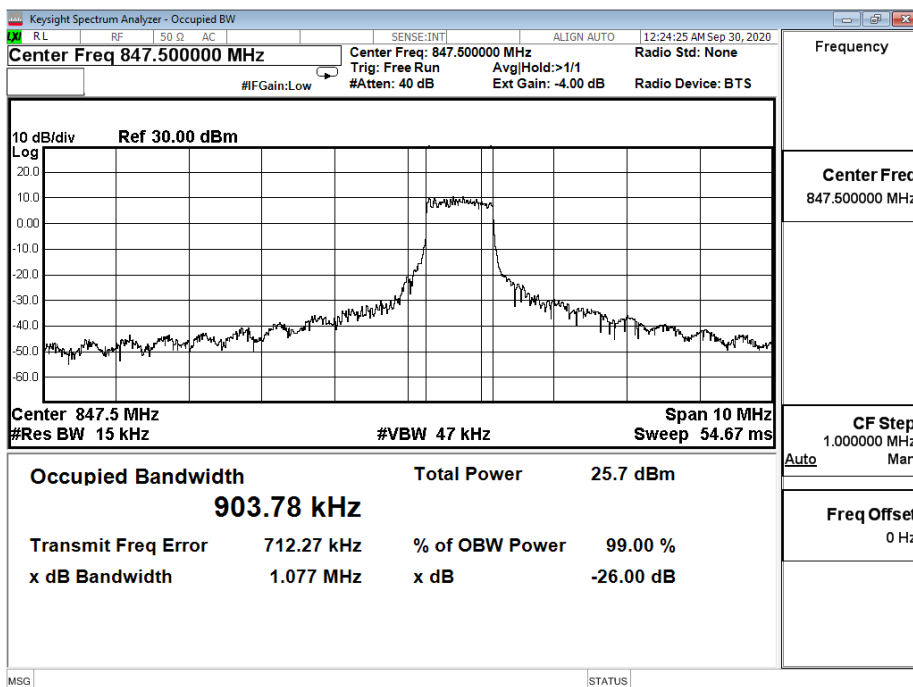
B5_CH20525_3M_16-QAM_5RB0



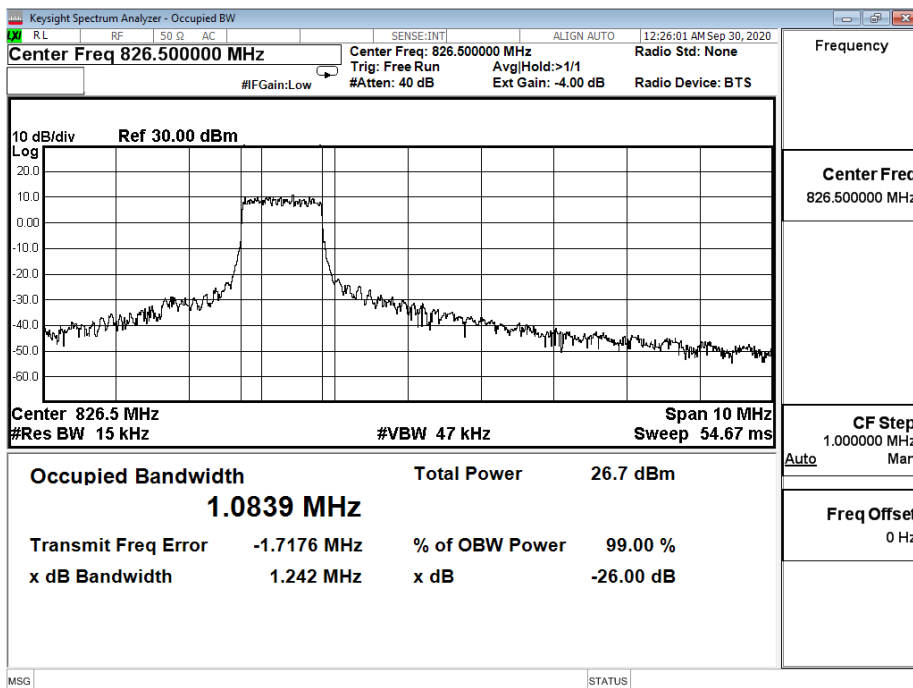
B5_CH20635_3M_QPSK_6RB0



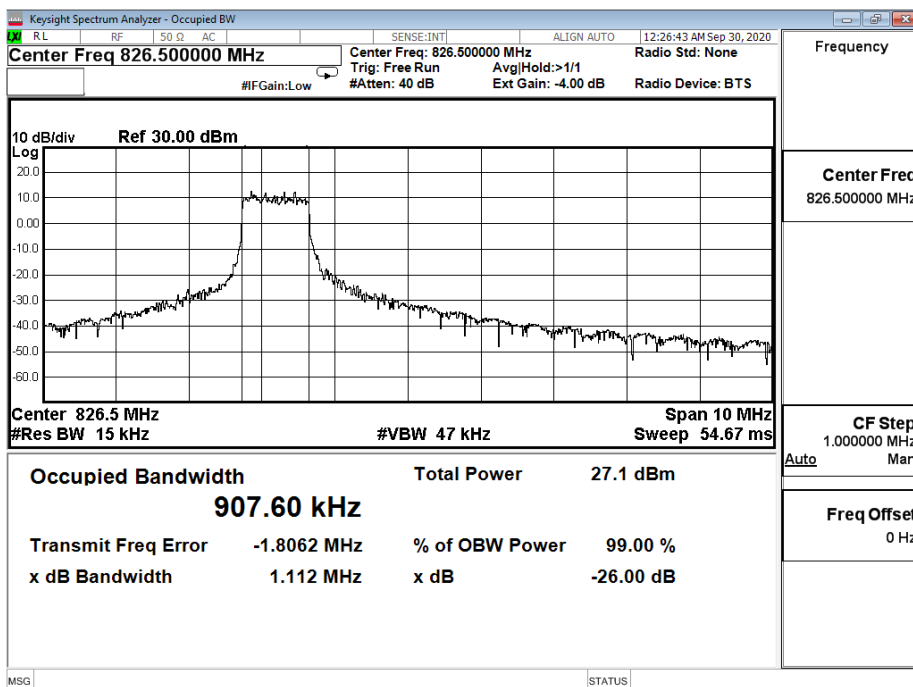
B5_CH20635_3M_16-QAM_5RB1



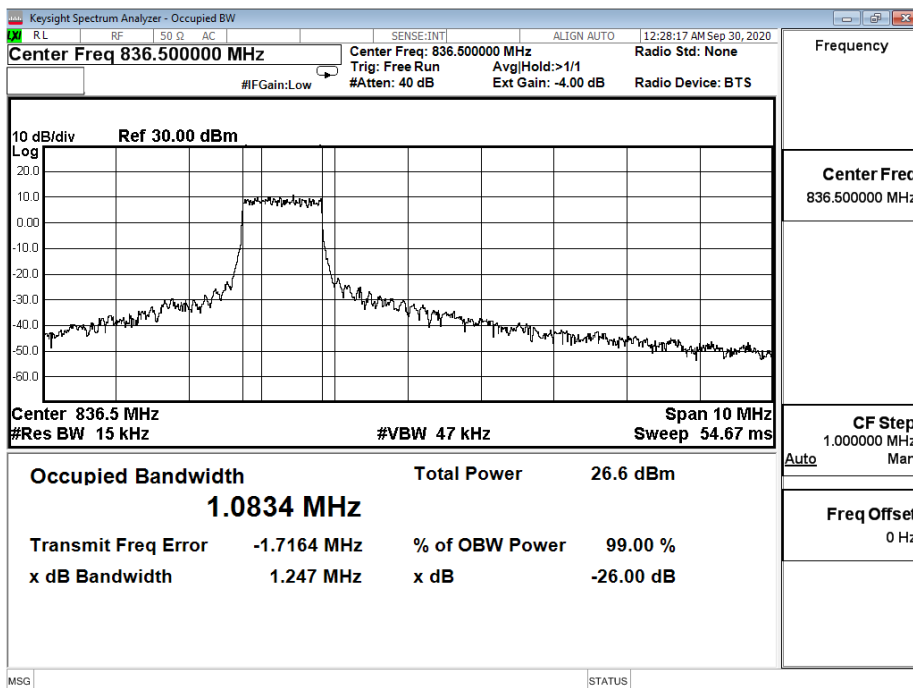
B5_CH20425_5M_QPSK_6RB0



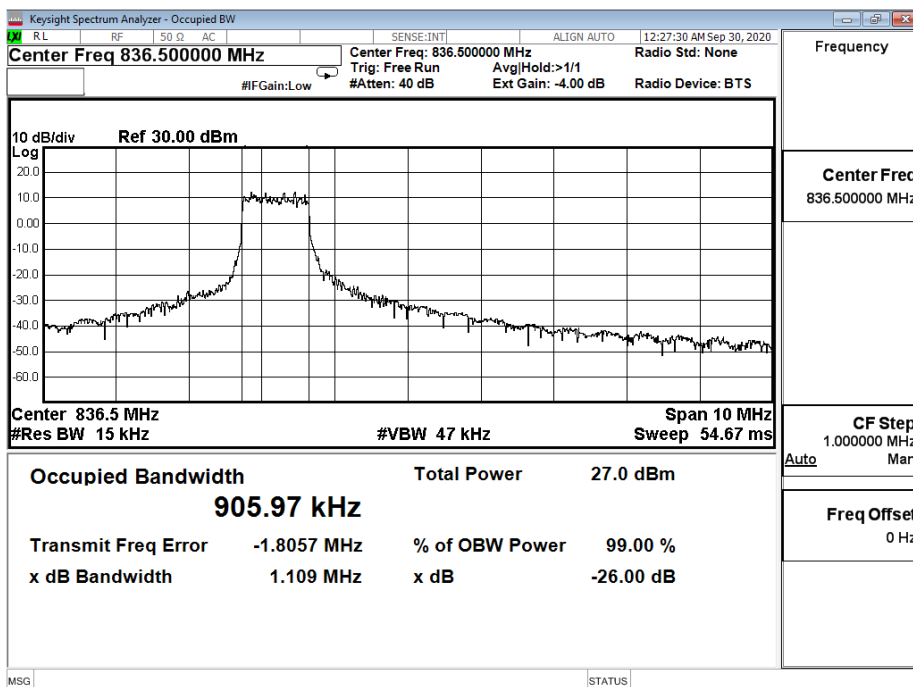
B5_CH20425_5M_16-QAM_5RB0



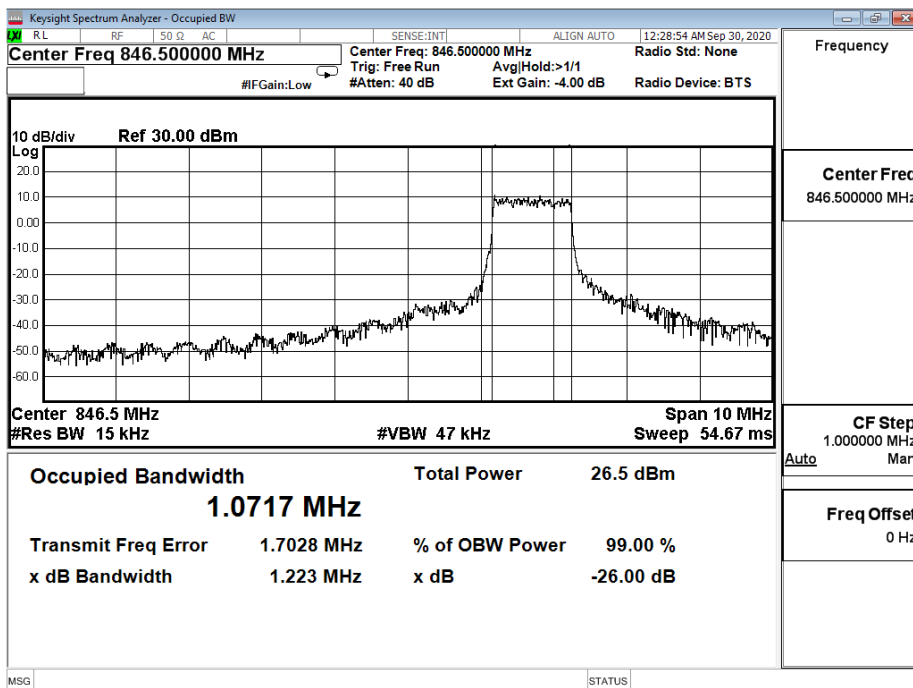
B5_CH20525_5M_QPSK_6RB0



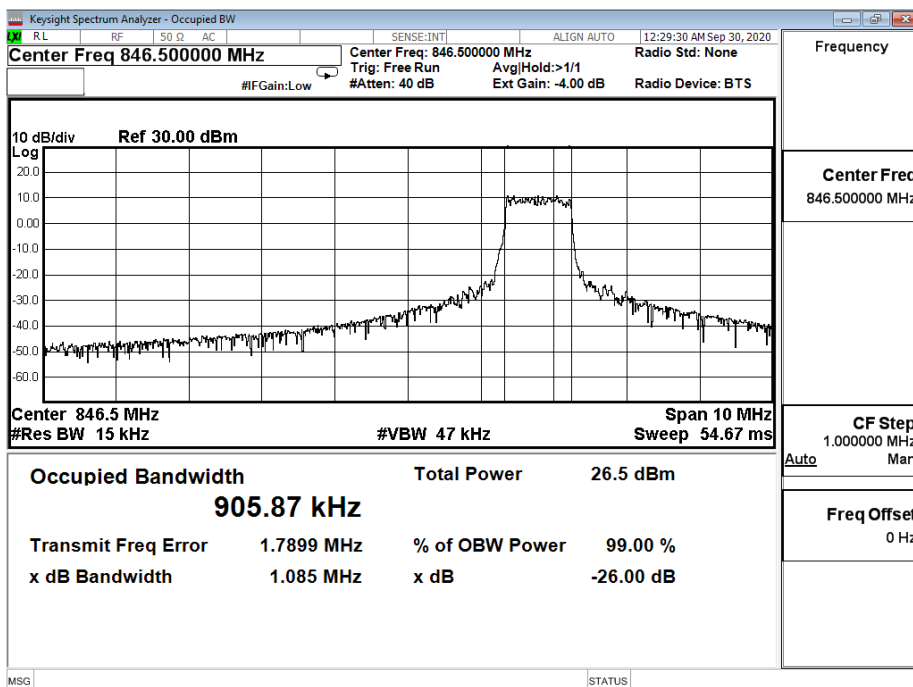
B5_CH20525_5M_16-QAM_5RB0



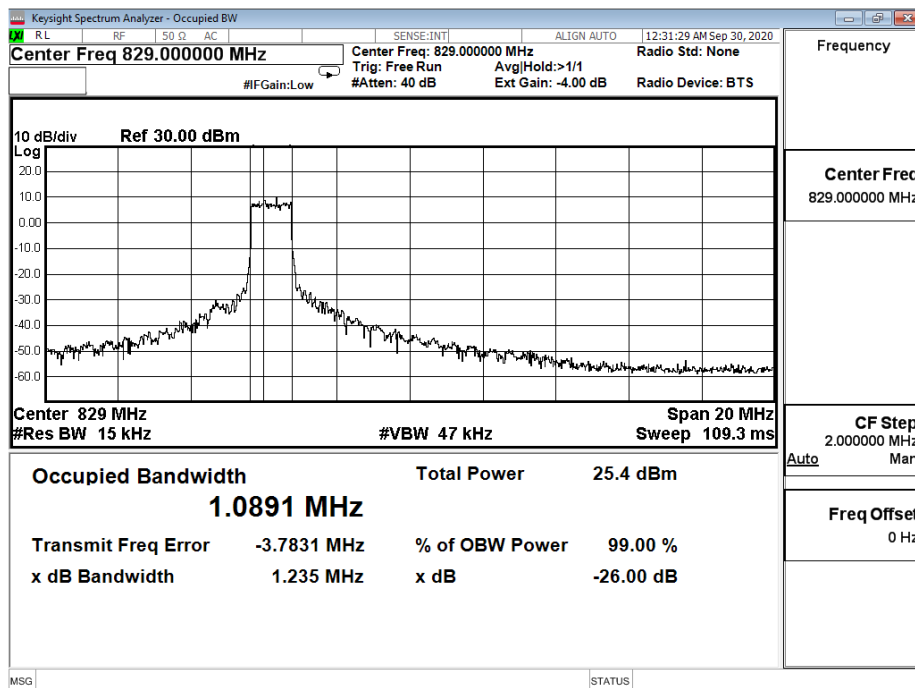
B5_CH20625_5M_QPSK_6RB0



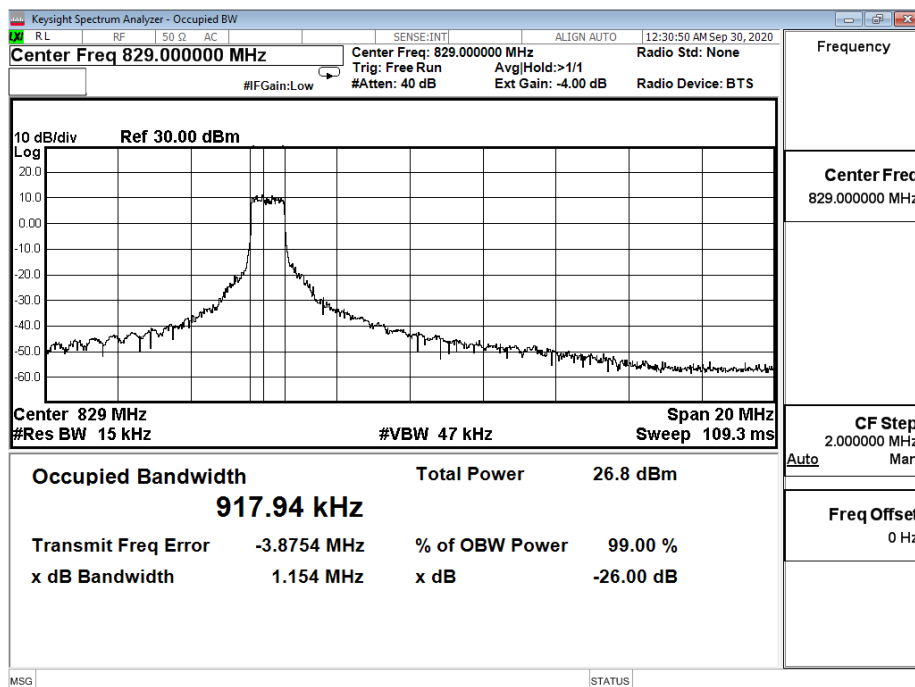
B5_CH20625_5M_16-QAM_5RB1



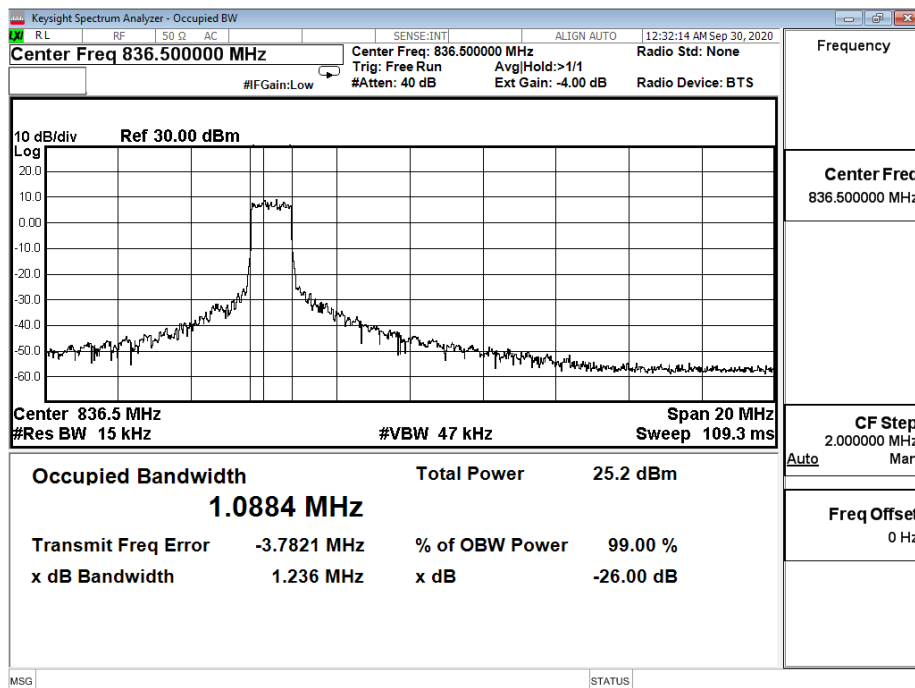
B5_CH20450_10M_QPSK_6RB0



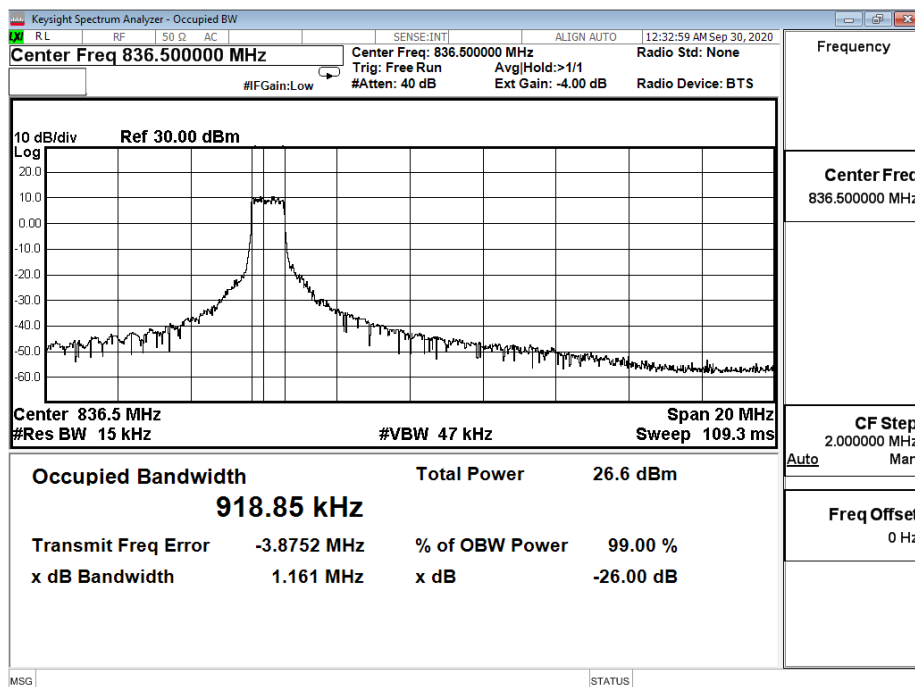
B5_CH20450_10M_16-QAM_5RB0



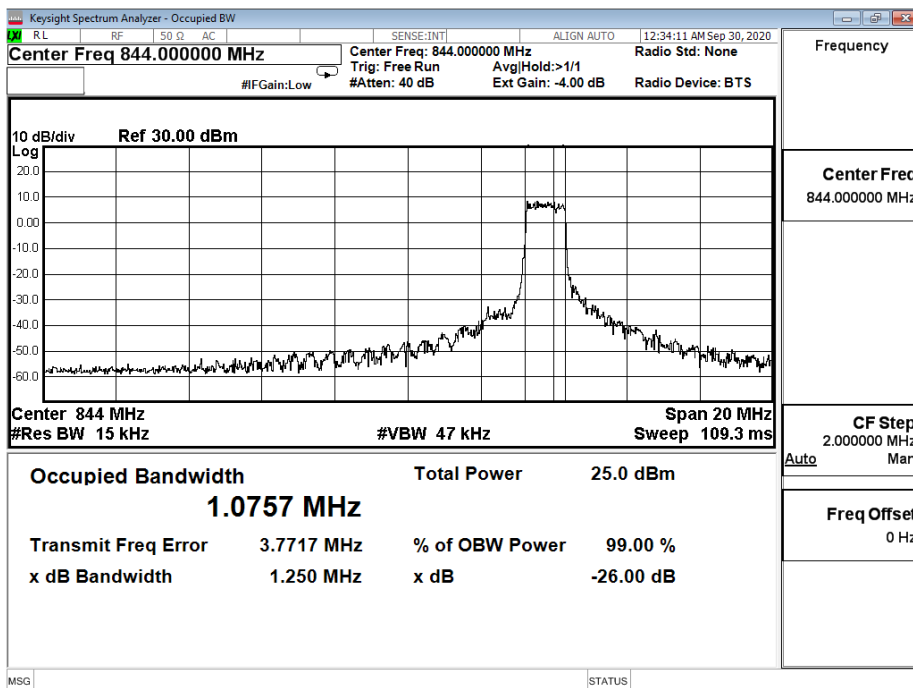
B5_CH20525_10M_QPSK_6RB0



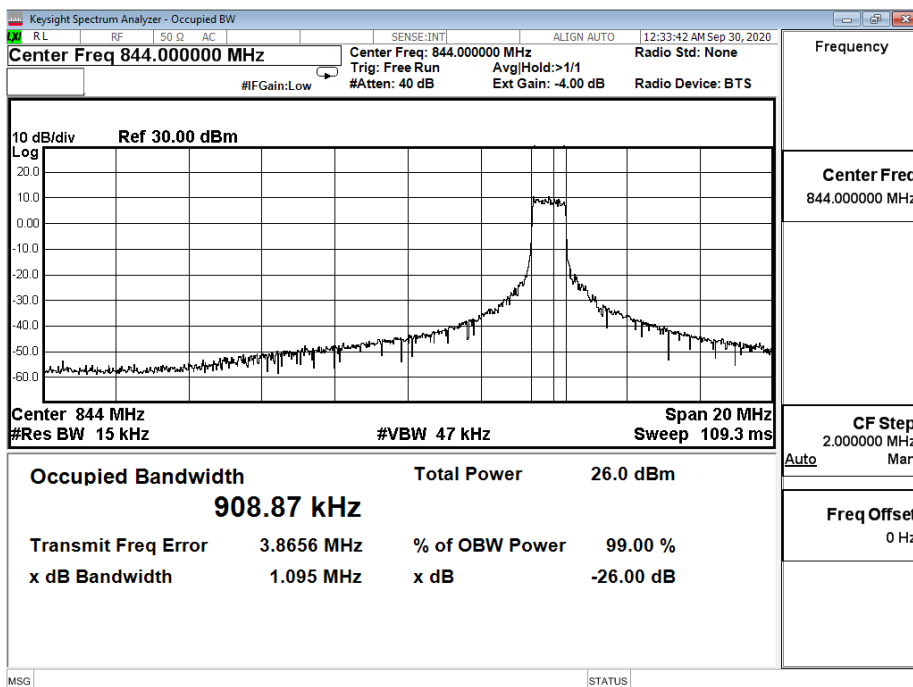
B5_CH20525_10M_16-QAM_5RB0



B5_CH20600_10M_QPSK_6RB0



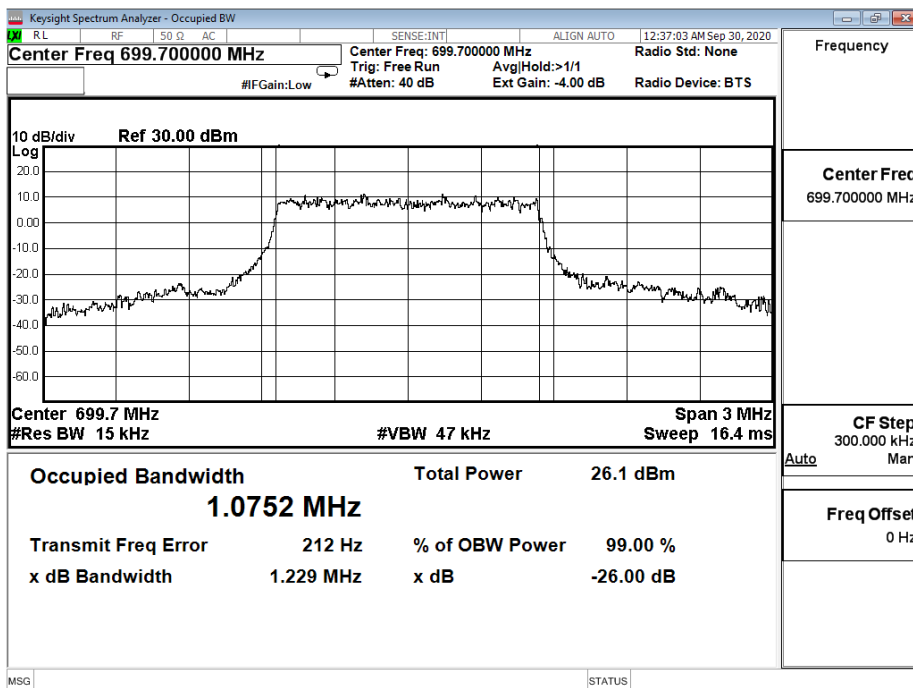
B5_CH20600_10M_16-QAM_5RB1



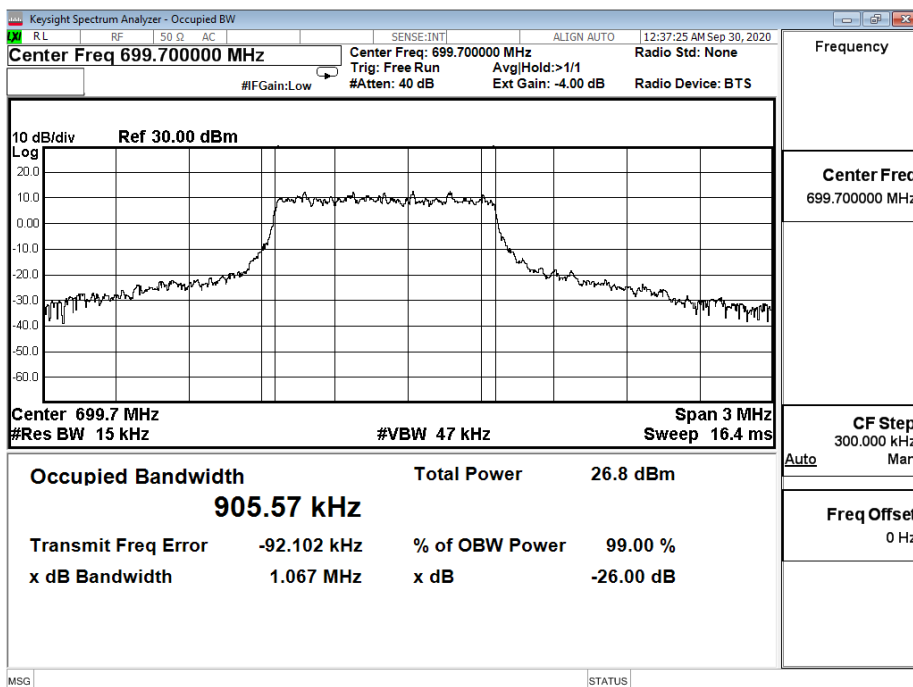
Product	LGA module		
Test Item	Occupied Bandwidth		
Test Mode	Mode 4: LTE Band 12		
Date of Test	2020/09/30	Test Site	SR12-H
Temperature (°C)	24	Humidity (%RH)	67

Bandwidth (MHz)	Modulation	Frequency (MHz)	Measure Level (MHz)		Limit (MHz)
			26dB BW	99% BW	
1.4M	QPSK	699.7	1.299	1.075	N/A
		707.5	1.236	1.077	N/A
		715.3	1.229	1.077	N/A
	16-QAM	699.7	1.067	0.905	N/A
		707.5	1.068	0.905	N/A
		715.3	1.123	0.903	N/A
3M	QPSK	700.5	1.232	1.078	N/A
		707.5	1.238	1.077	N/A
		714.5	1.218	1.075	N/A
	16-QAM	700.5	1.075	0.906	N/A
		707.5	1.066	0.906	N/A
		714.5	1.091	0.904	N/A
5M	QPSK	710.5	1.294	1.086	N/A
		707.5	1.268	1.085	N/A
		713.5	1.232	1.073	N/A
	16-QAM	710.5	1.129	0.912	N/A
		707.5	1.119	0.911	N/A
		713.5	1.073	0.907	N/A
10M	QPSK	704.0	1.246	1.090	N/A
		707.5	1.260	1.088	N/A
		711.0	1.243	1.078	N/A
	16-QAM	704.0	1.294	0.925	N/A
		707.5	1.292	0.926	N/A
		711.0	1.131	0.912	N/A

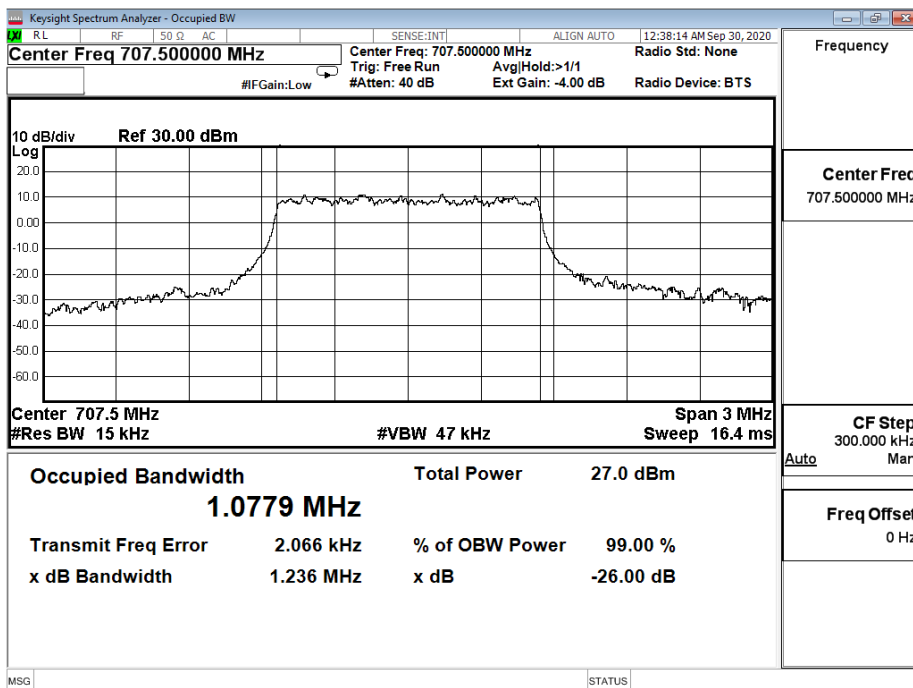
B12_CH23017_1.4M_QPSK_6RB0



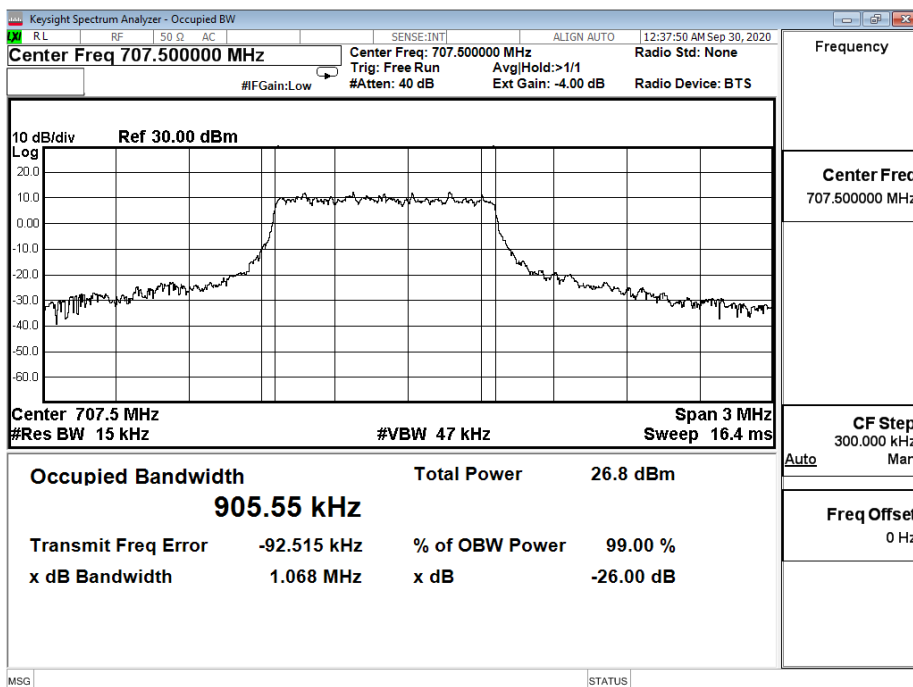
B12_CH23017_1.4M_16-QAM_5RB0



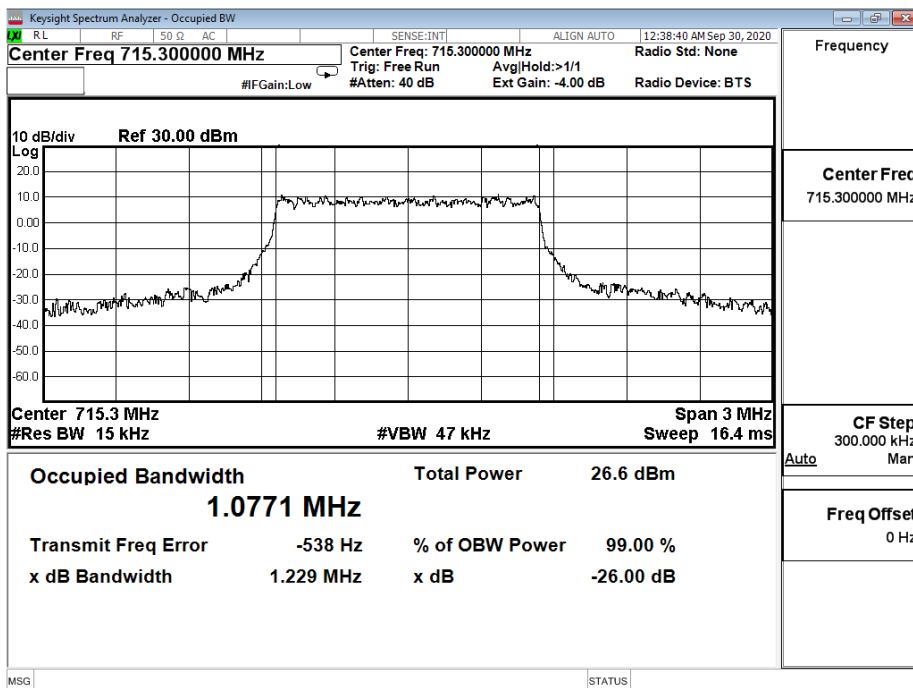
B12_CH23095_1.4M_QPSK_6RB0



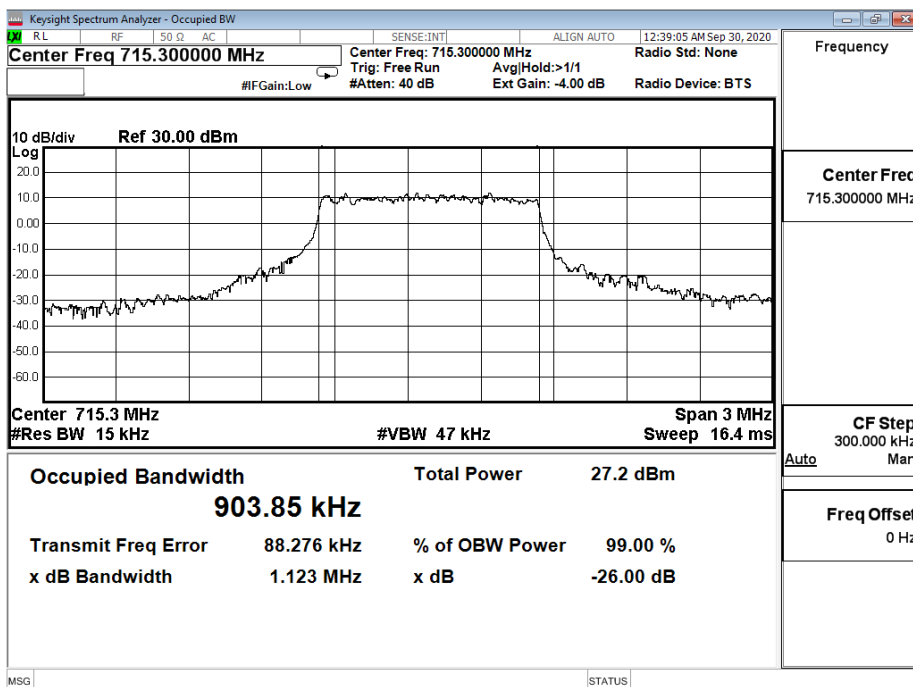
B12_CH23095_1.4M_16-QAM_5RB0



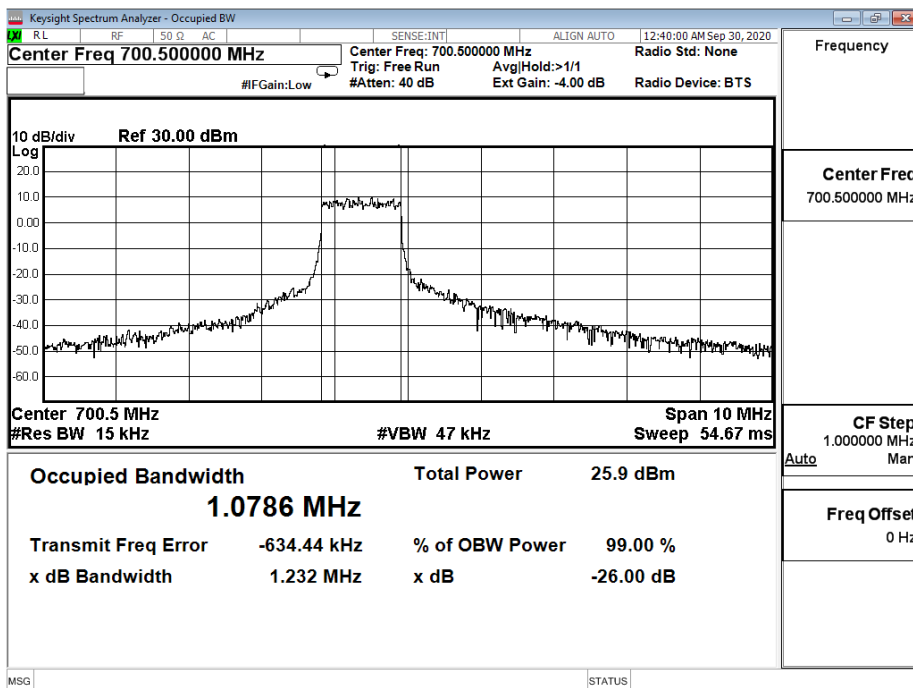
B12_CH23173_1.4M_QPSK_6RB0



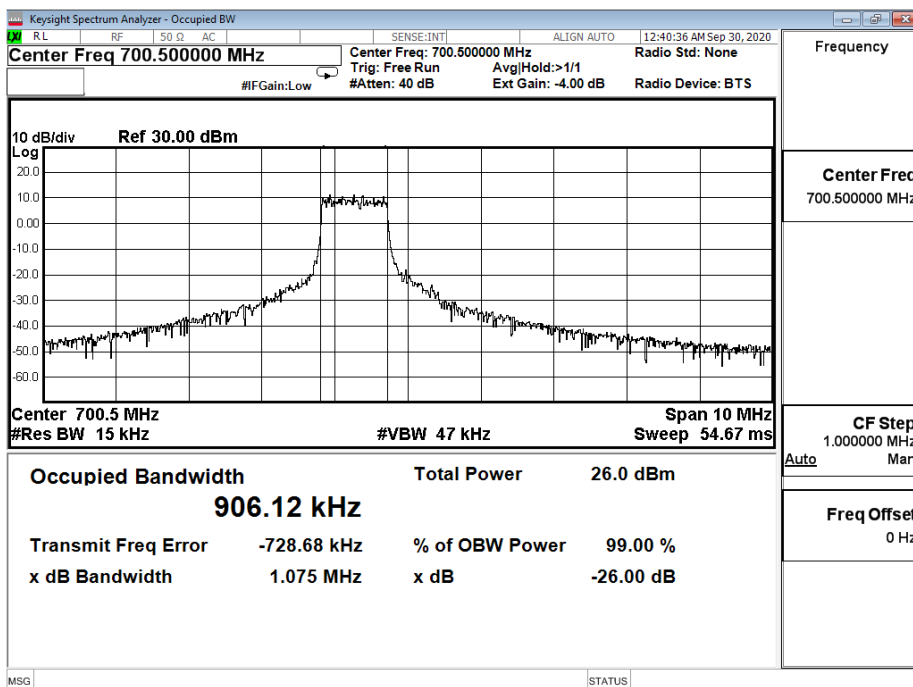
B12_CH23173_1.4M_16-QAM_5RB1



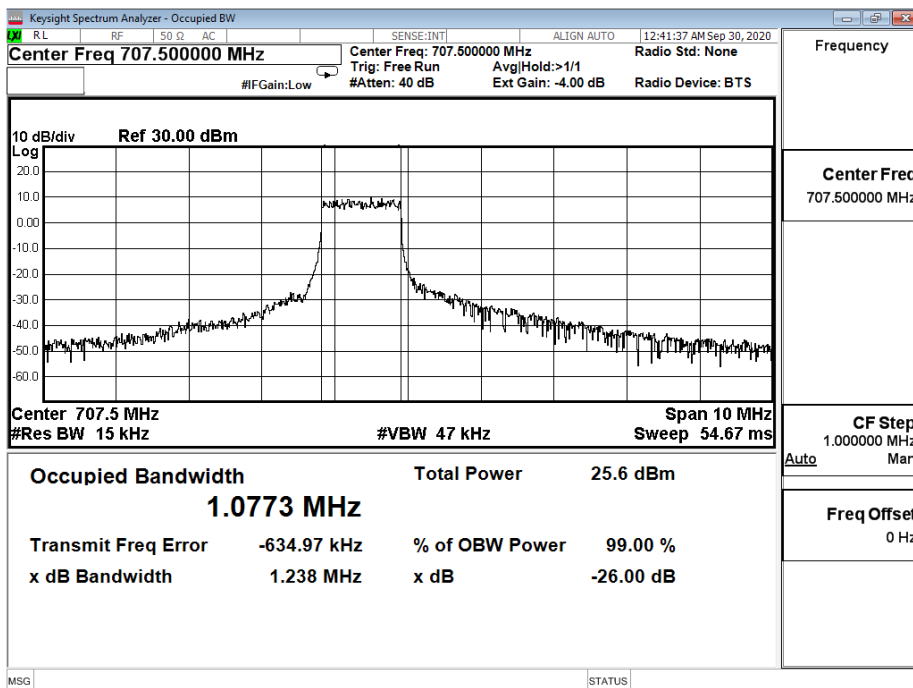
B12_CH23025_3M_QPSK_6RB0



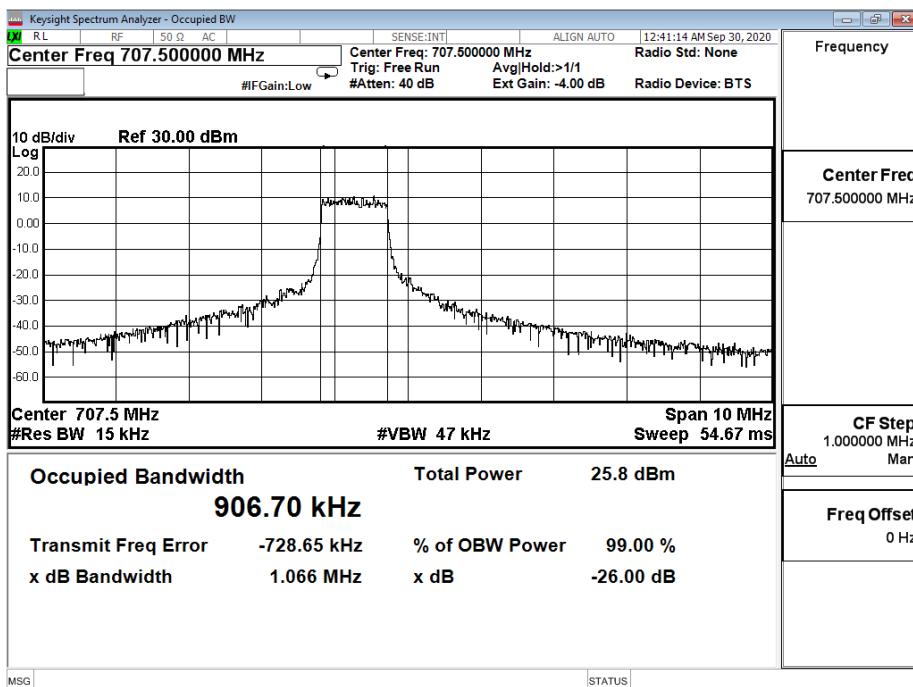
B12_CH23025_3M_16-QAM_5RB0



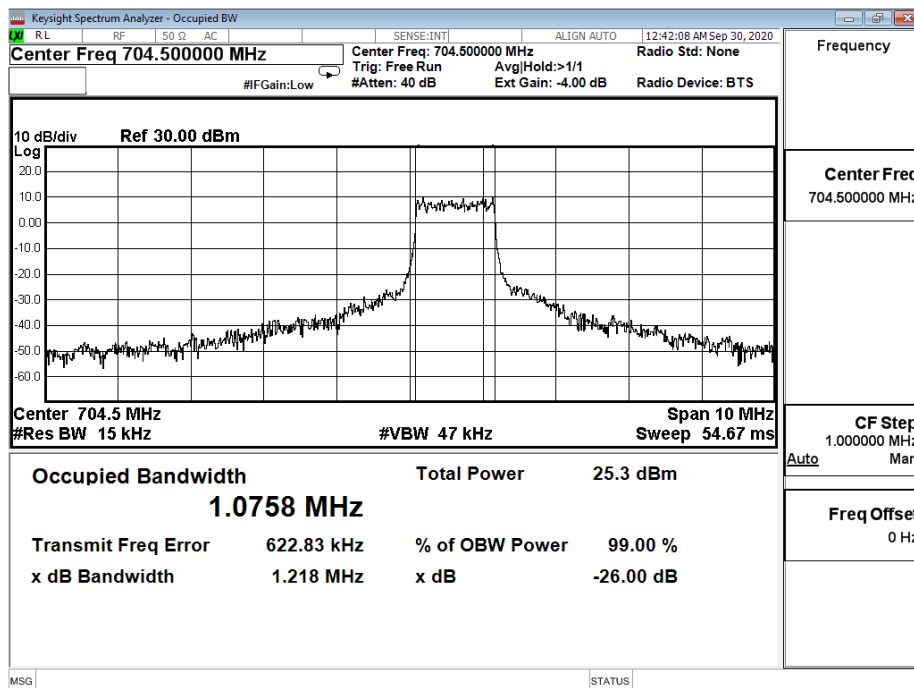
B12_CH23095_3M_QPSK_6RB0



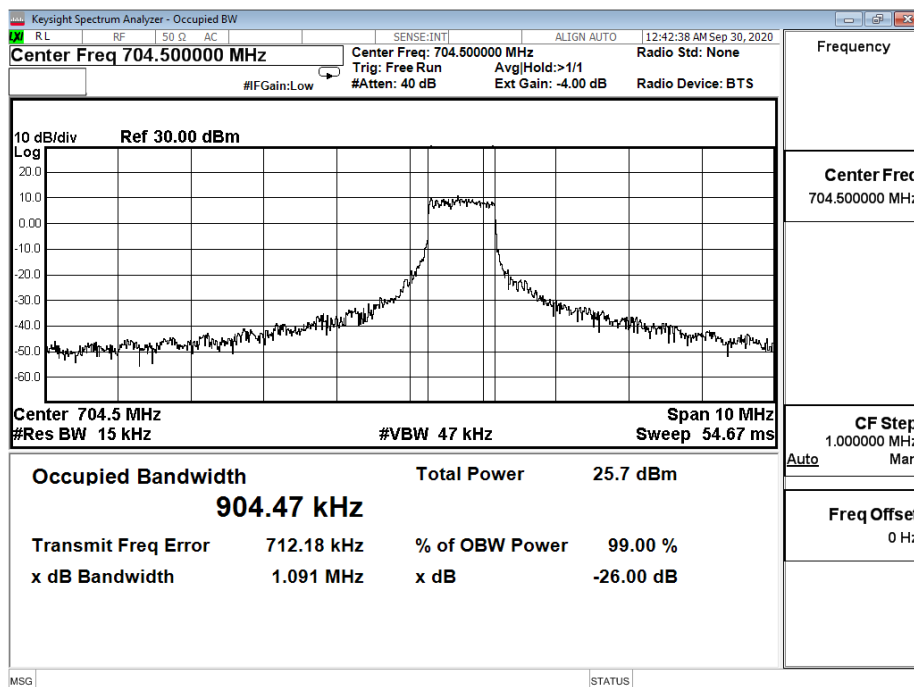
B12_CH23095_3M_16-QAM_5RB0



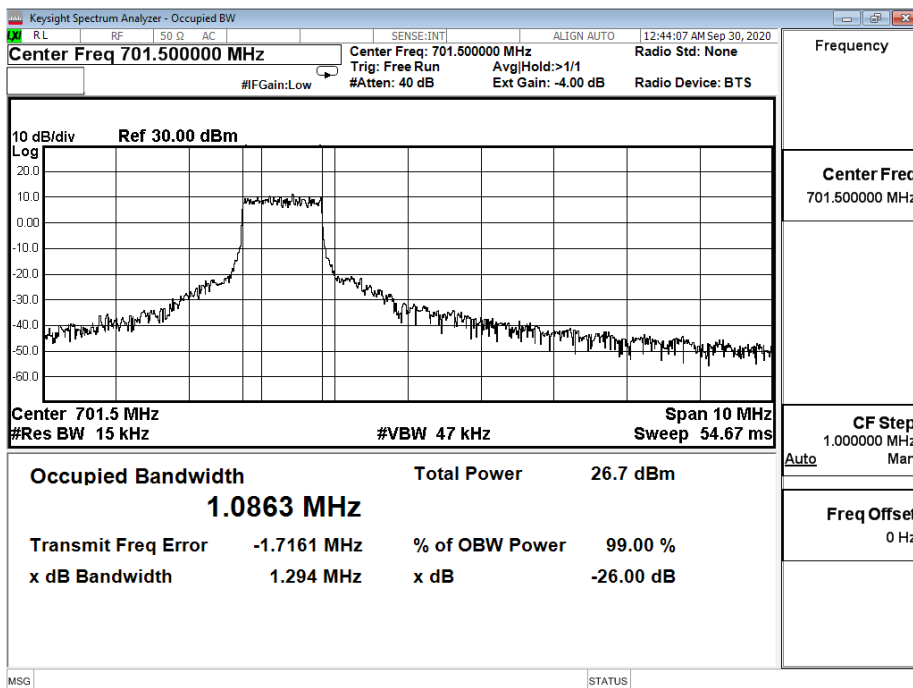
B12_CH23165_3M_QPSK_6RB0



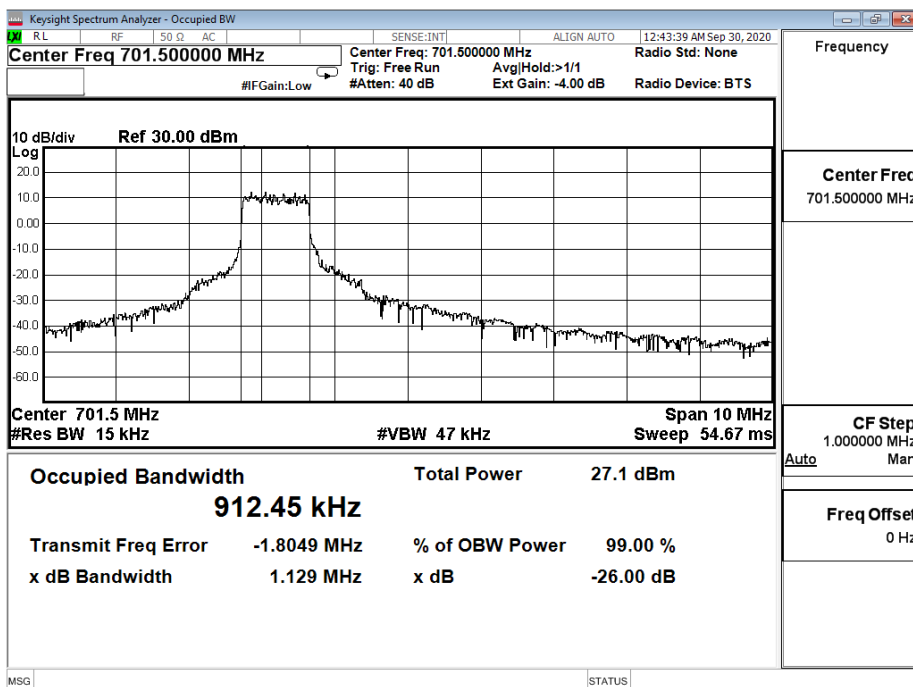
B12_CH23165_3M_16-QAM_5RB1



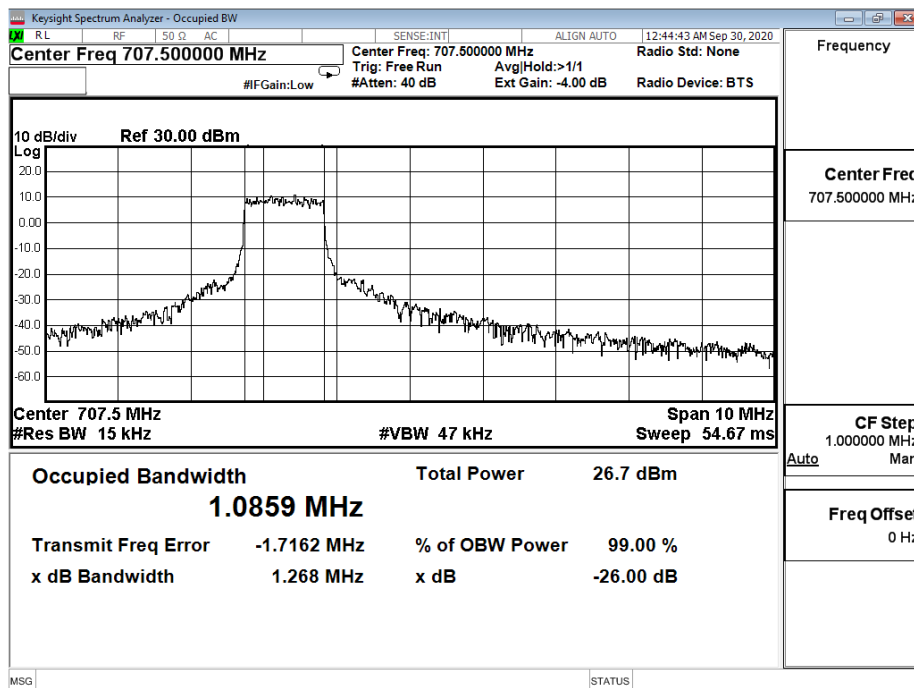
B12_CH23035_5M_QPSK_6RB0



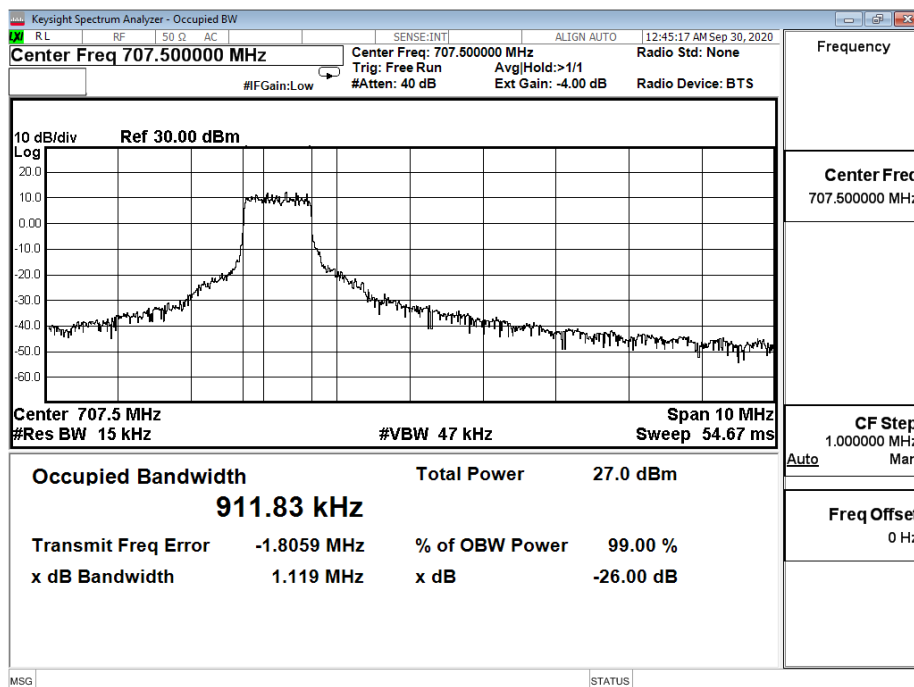
B12_CH23035_5M_16-QAM_5RB0



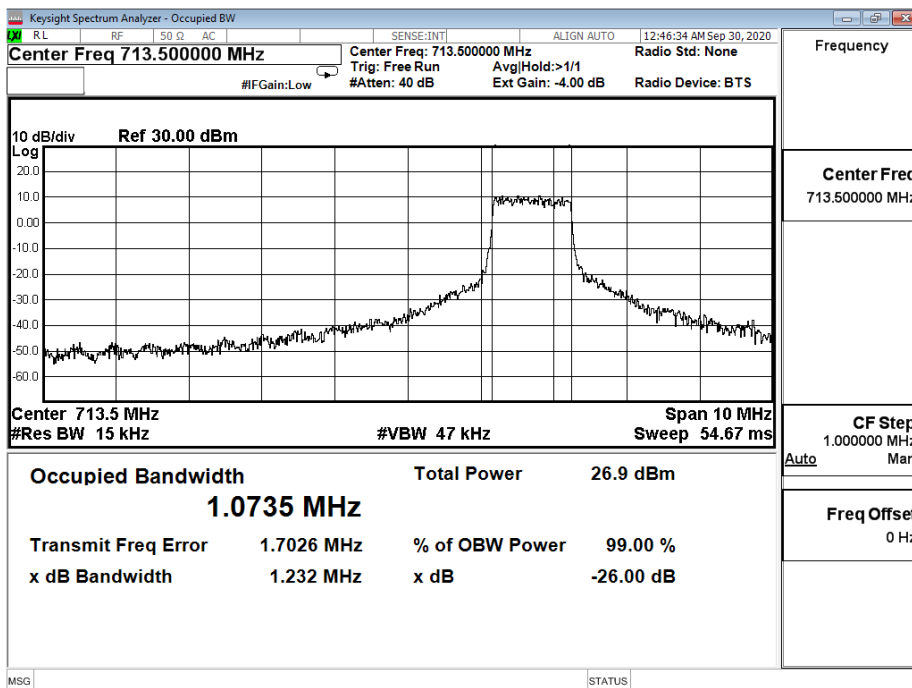
B12_CH23095_5M_QPSK_6RB0



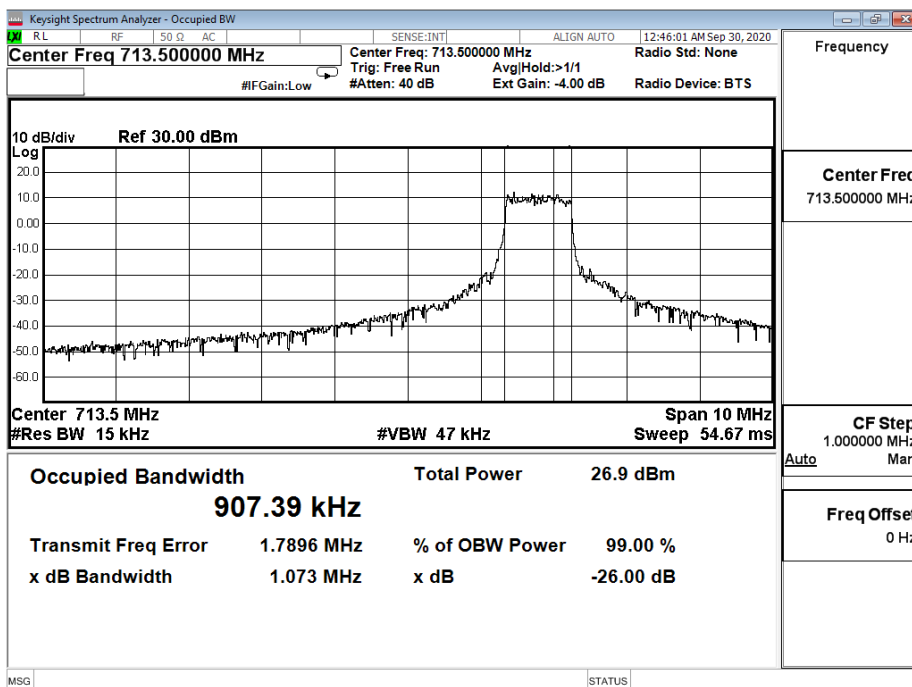
B12_CH23095_5M_16-QAM_5RB0



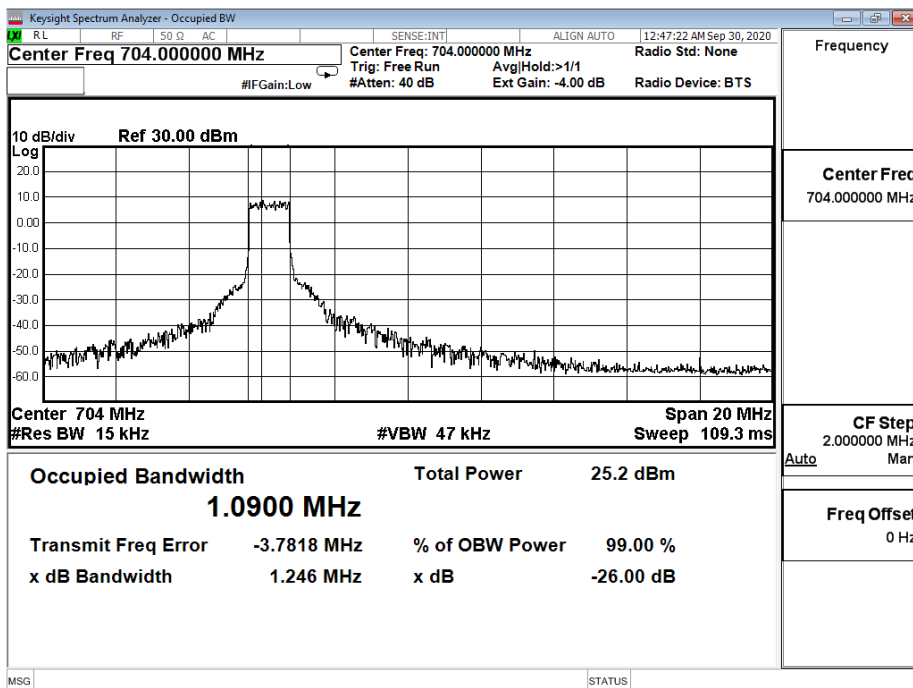
B12_CH23155_5M_QPSK_6RB0



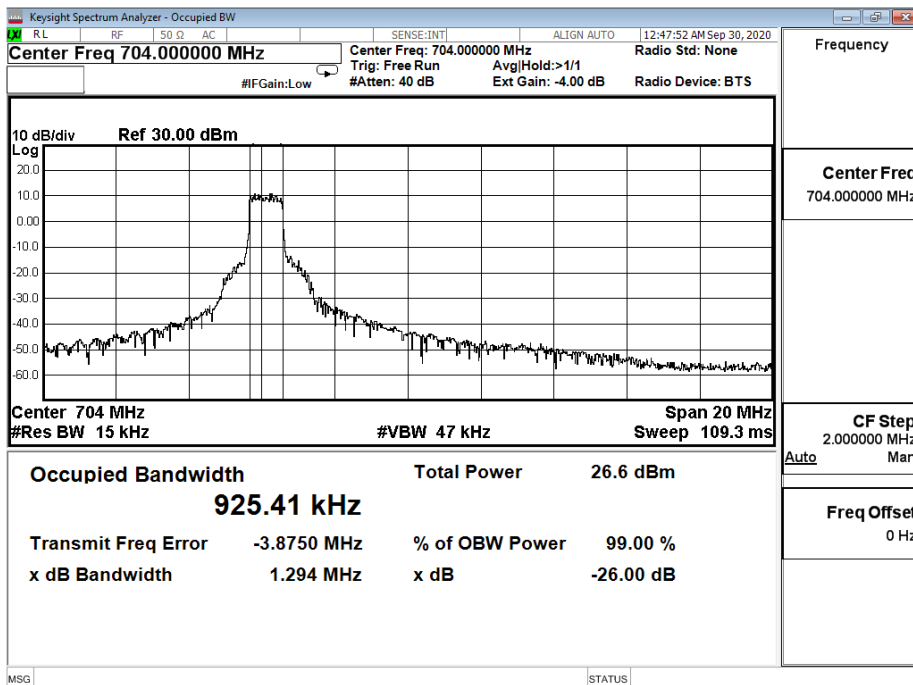
B12_CH23155_5M_16-QAM_5RB1



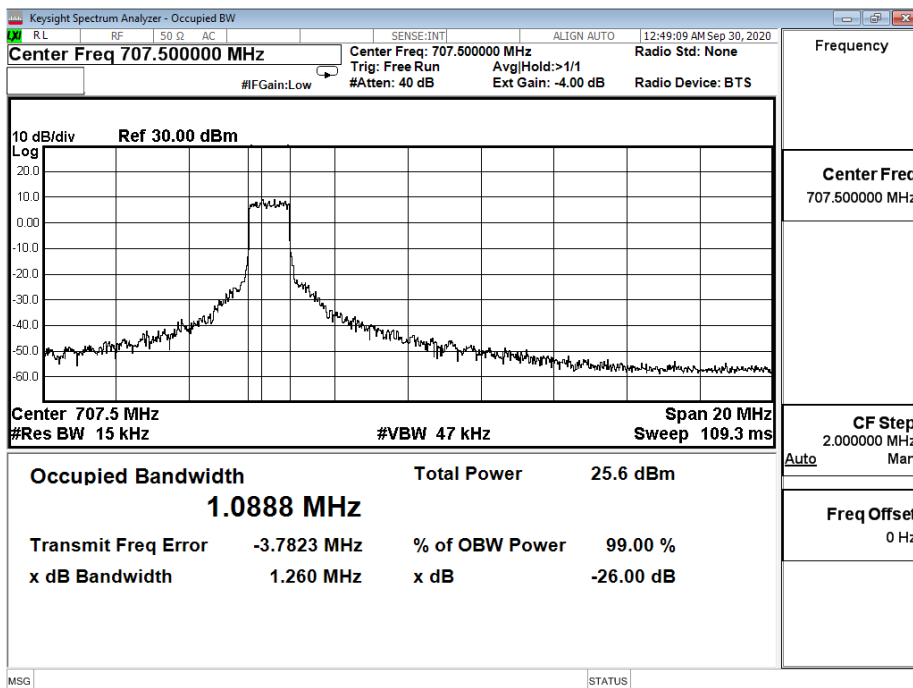
B12_CH23060_10M_QPSK_6RB0



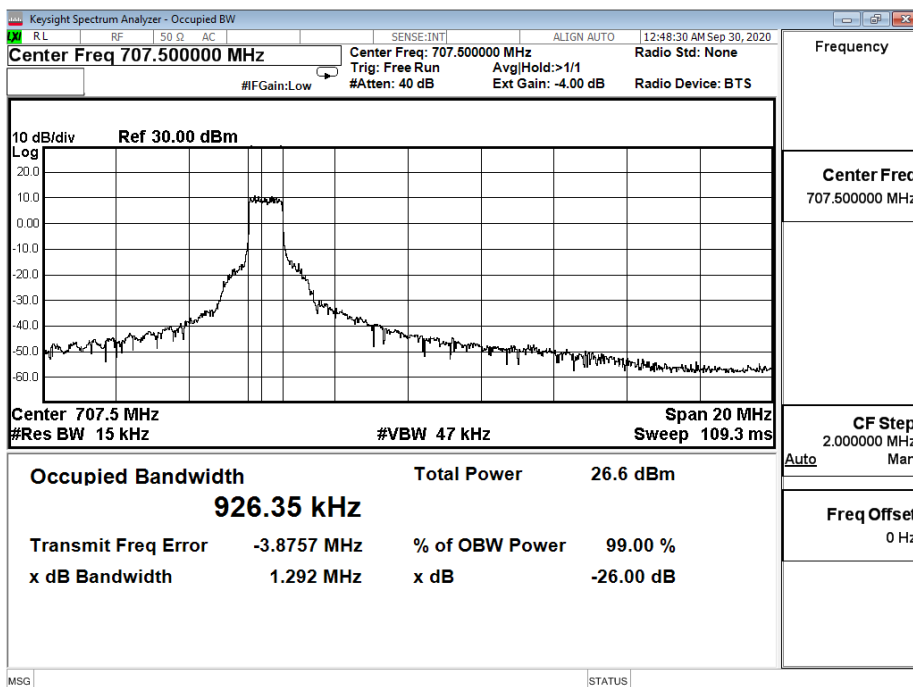
B12_CH23060_10M_16-QAM_5RB0



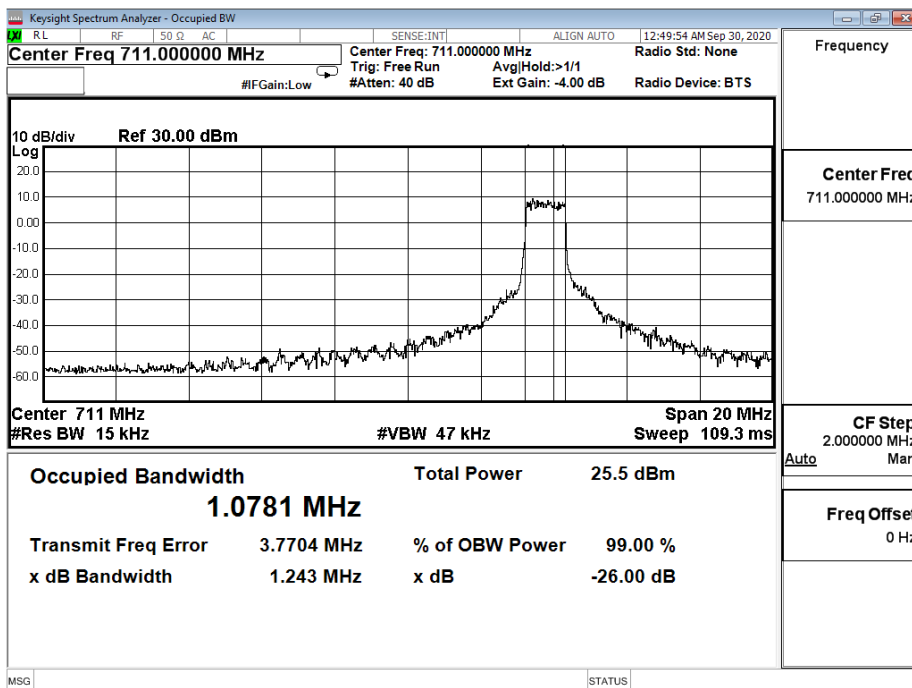
B12_CH23095_10M_QPSK_6RB0



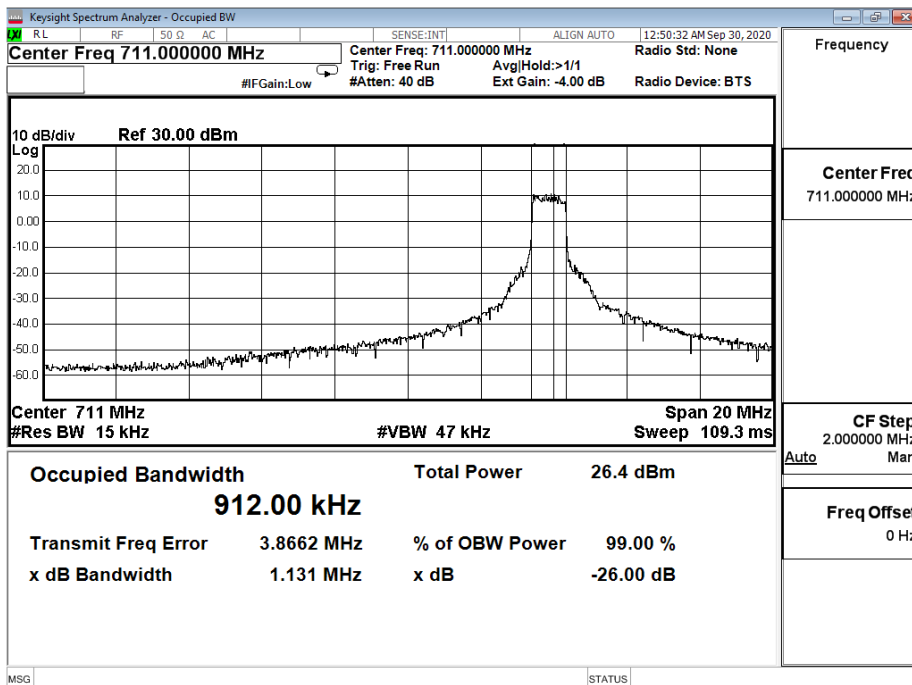
B12_CH23095_10M_16-QAM_5RB0



B12_CH23130_10M_QPSK_6RB0



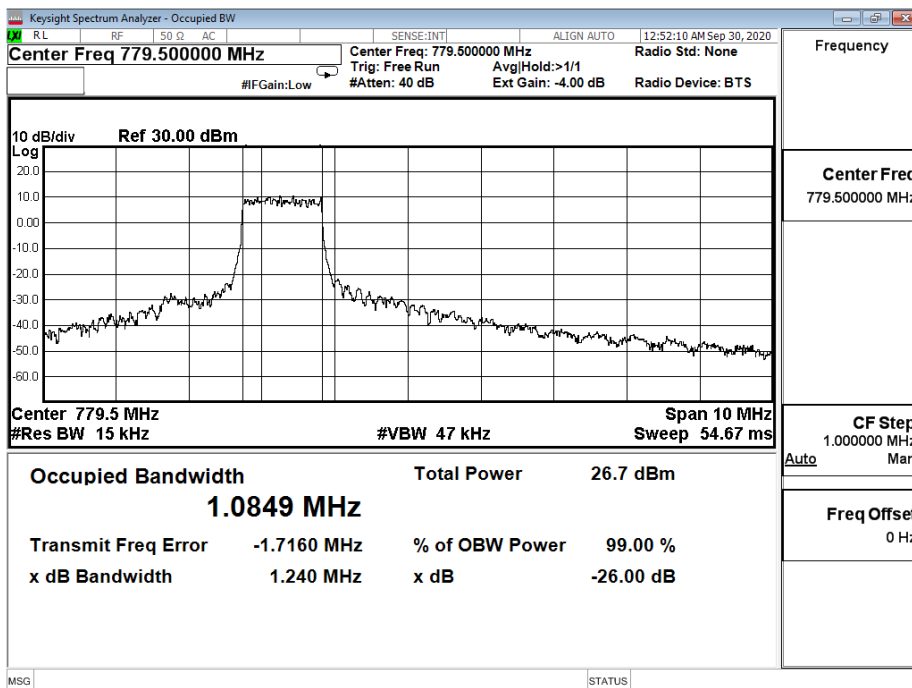
B12_CH23130_10M_16-QAM_5RB1



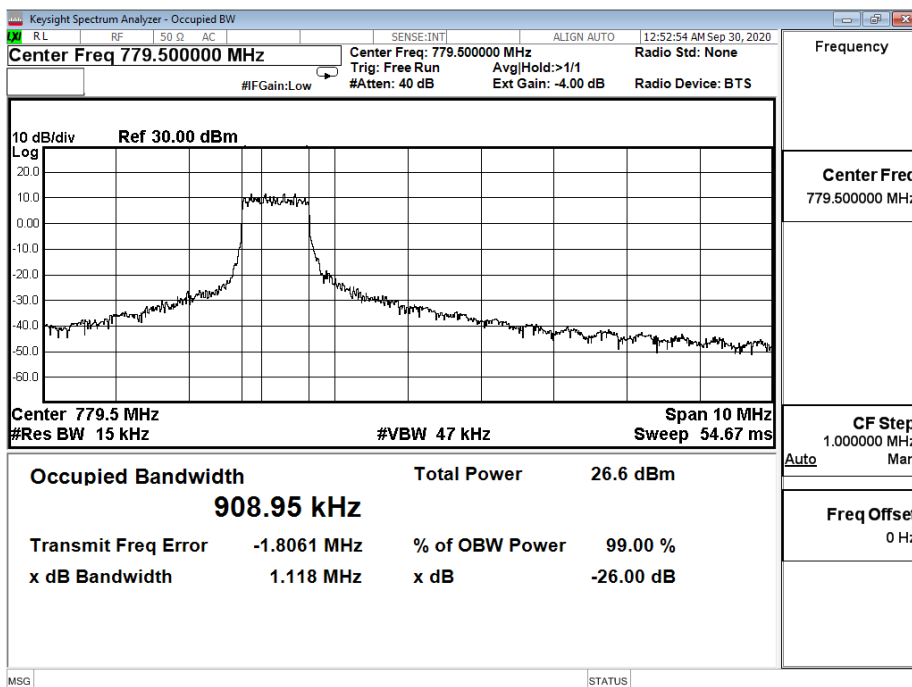
Product	LGA module		
Test Item	Occupied Bandwidth		
Test Mode	Mode 5: LTE Band 13		
Date of Test	2020/09/30	Test Site	SR12-H
Temperature (°C)	24	Humidity (%RH)	67

Bandwidth (MHz)	Modulation	Frequency (MHz)	Measure Level (MHz)		Limit (MHz)
			26dB BW	99% BW	
5M	QPSK	779.5	1.240	1.084	N/A
		782.0	1.239	1.074	N/A
		784.5	1.253	1.079	N/A
	16-QAM	779.5	1.118	0.908	N/A
		782.0	1.083	0.905	N/A
		784.5	1.067	0.901	N/A
10M	QPSK	782	1.227	1.088	N/A
		low	1.252	1.088	N/A
	16-QAM	782	1.147	0.917	N/A
		high	1.133	0.911	N/A

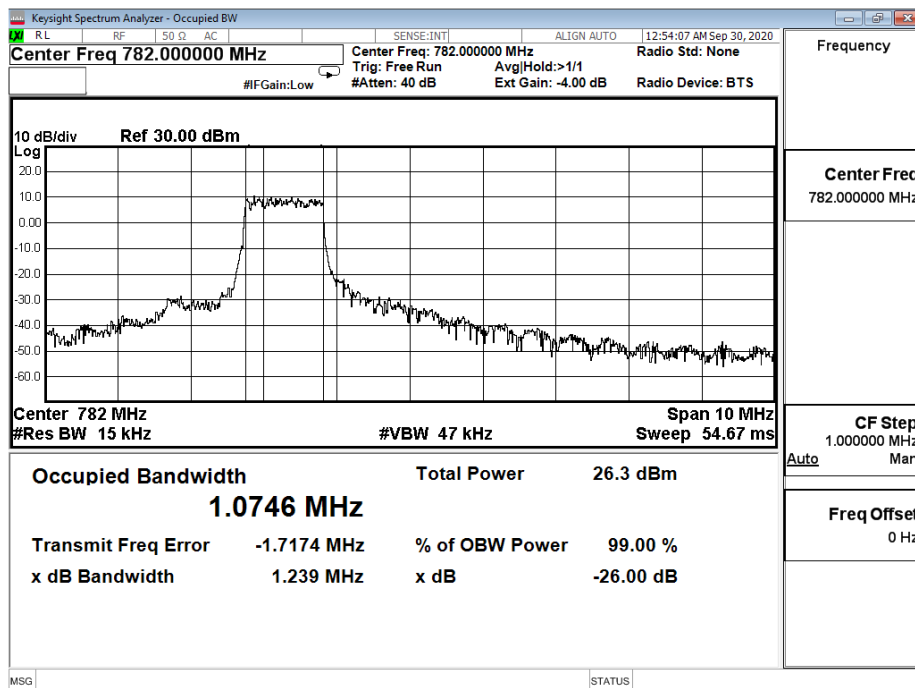
B13_CH23205_5M_QPSK_6RB0



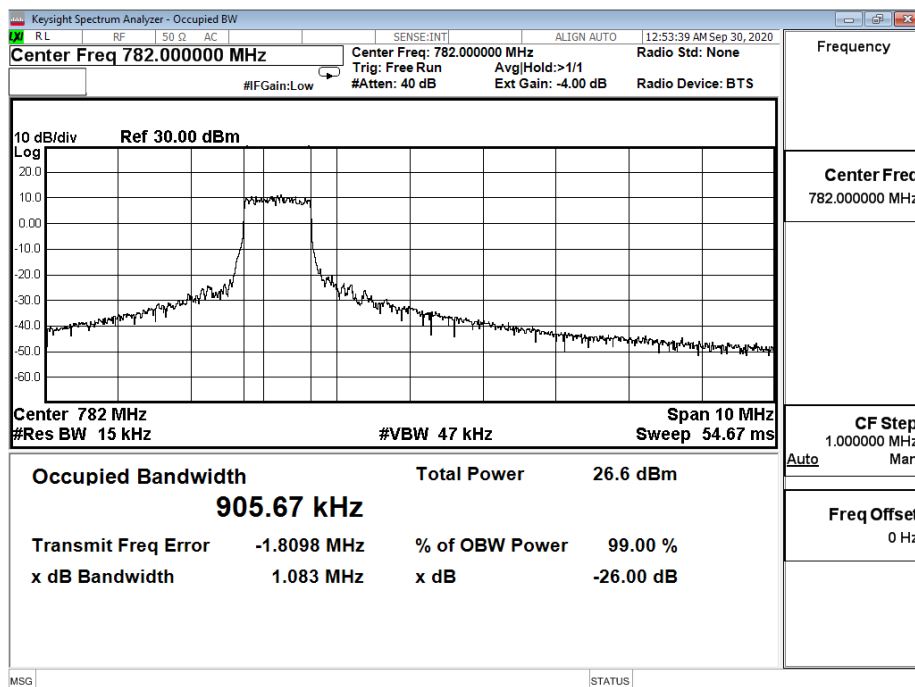
B13_CH23205_5M_16-QAM_5RB0



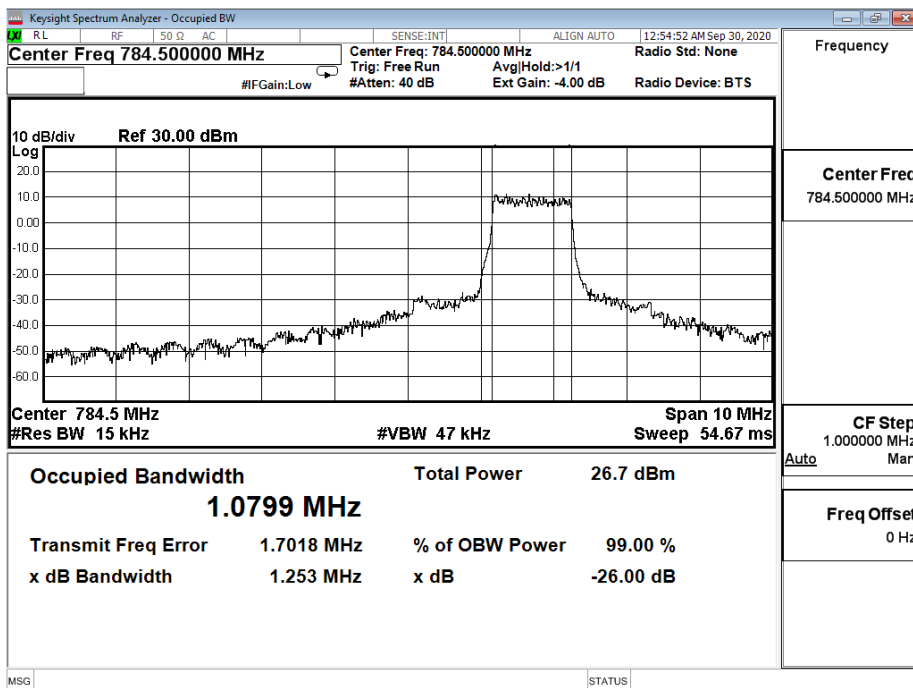
B13_CH23230_5M_QPSK_6RB0



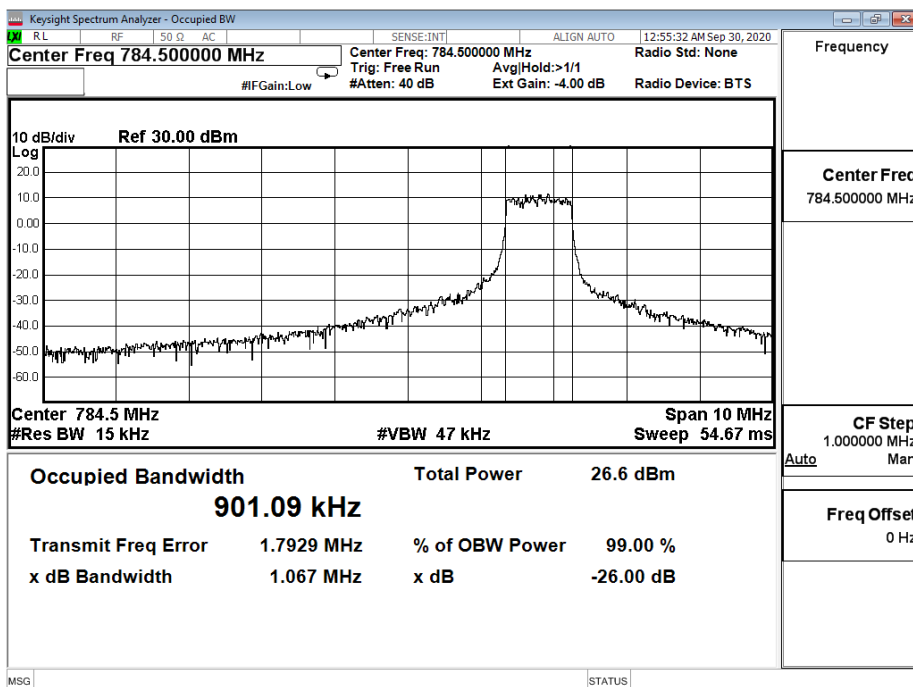
B13_CH23230_5M_16-QAM_5RB0



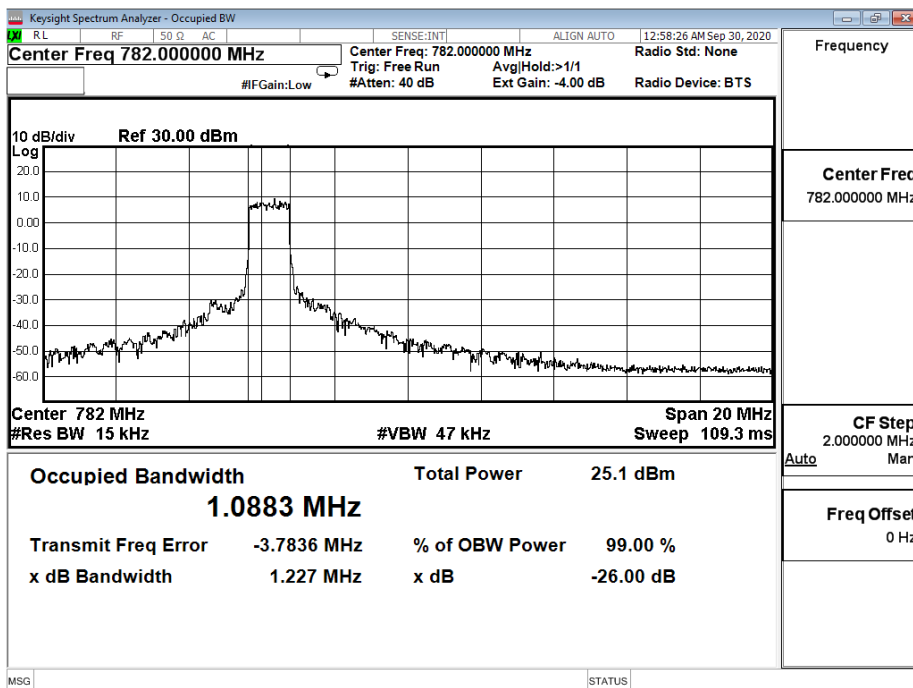
B13_CH23255_5M_QPSK_6RB0



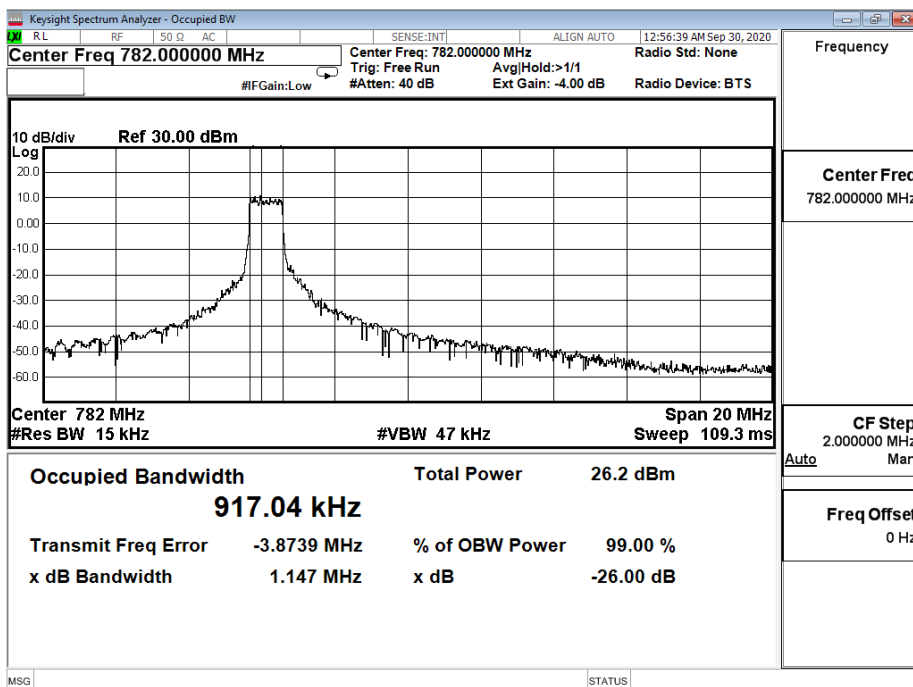
B13_CH23255_5M_16-QAM_5RB1



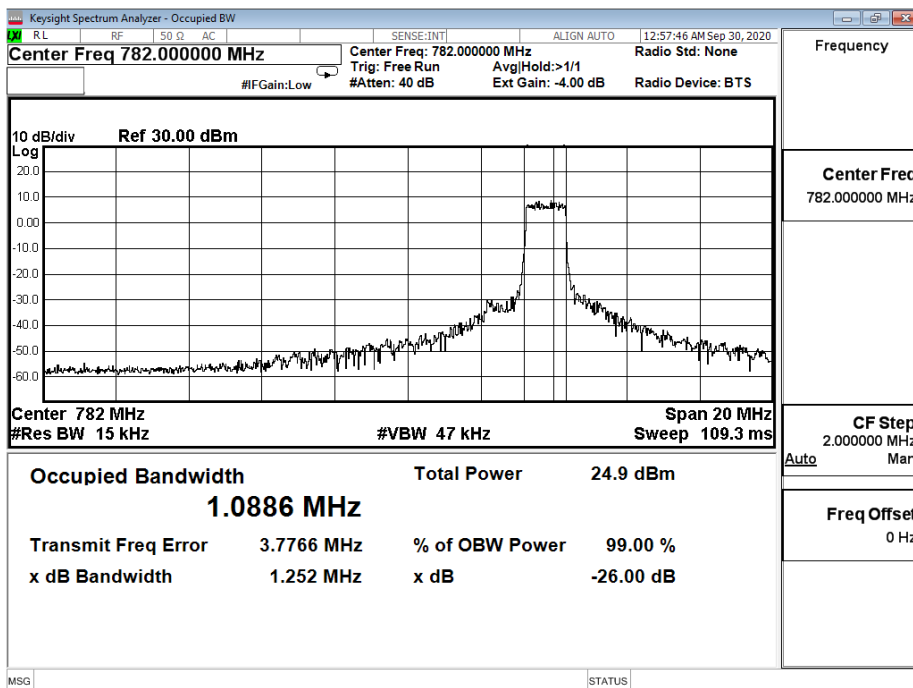
B13_CH23230_10M_QPSK_6RB0_low



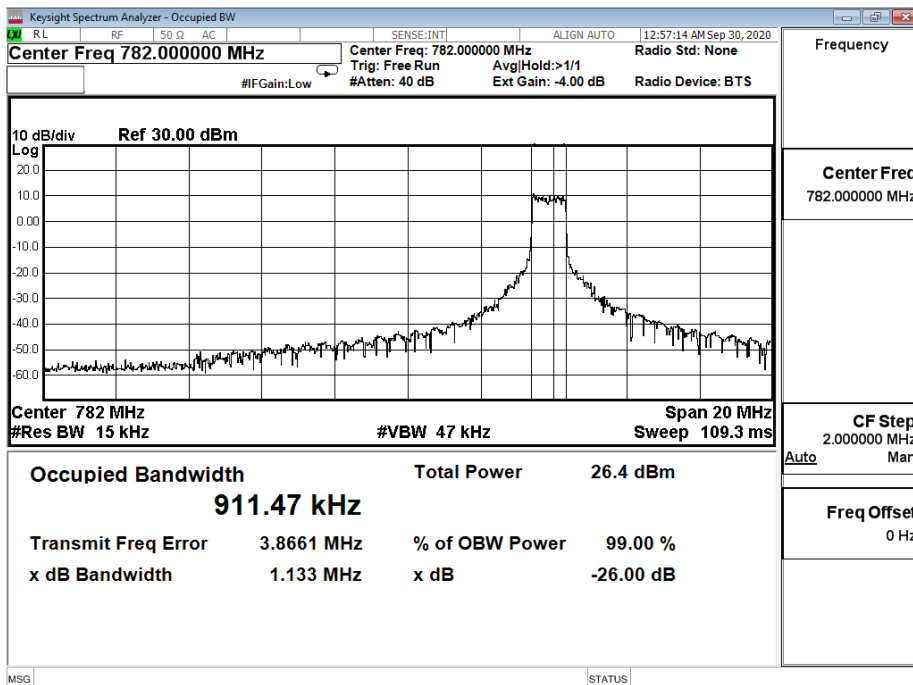
B13_CH23230_10M_16-QAM_5RB0_low



B13_CH23230_10M_QPSK_6RB0_high

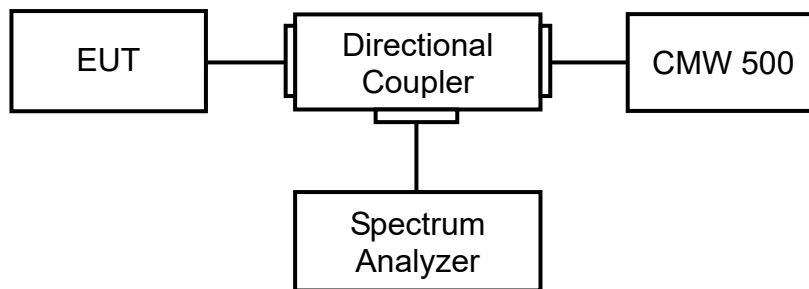


B13_CH23230_10M_16-QAM_5RB1_high



5. Peak To Average Ratio

5.1. Test Setup



5.2. Test Procedure

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 %.

5.3. Test Method

KDB 971168 D01 Power Meas License Digital Systems v03 sub-clause 5.7.2

ANSI C63.26: 2015 Sub-clause 5.2.3.4

5.4. Limit

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

5.5. Test Result

Product	LGA module		
Test Item	Peak To Average Ratio		
Test Mode	Mode 1: LTE Band 2		
Date of Test	2020/10/07	Test Site	SR12-H
Temperature (°C)	24	Humidity (%RH)	65

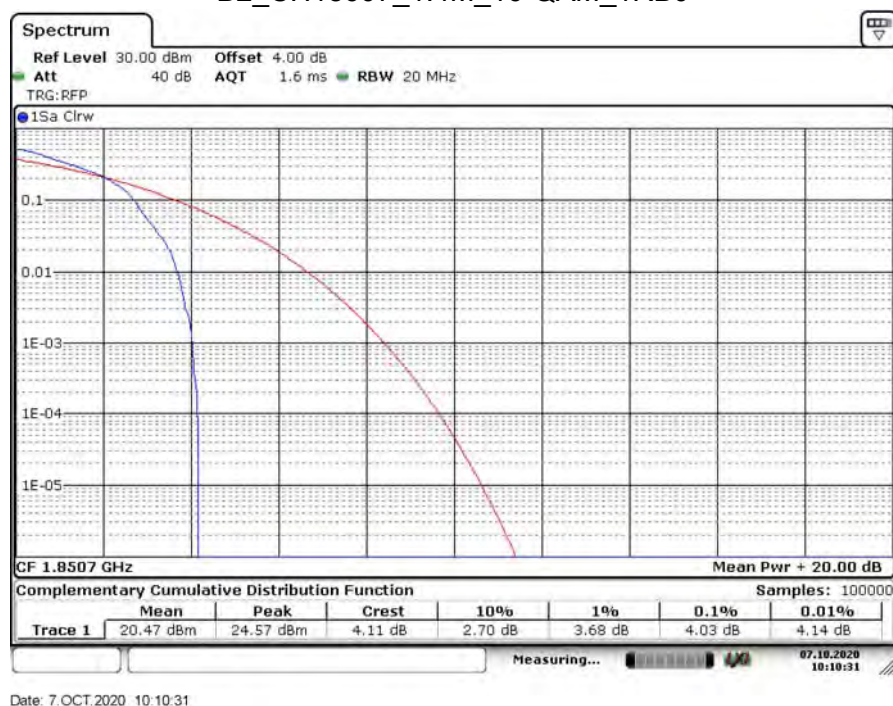
Band width (MHz)	Channel	Frequency (MHz)	Modulation	Peak (dBm)	Average (dBm)	PAPR (dB)
1.4M	18607	1850.7	QPSK	24.33	20.80	3.54
			16-QAM	24.57	20.47	4.03
	18900	1880	QPSK	24.34	20.73	3.59
			16-QAM	24.37	19.89	4.35
	19193	1909.3	QPSK	24.32	20.73	3.59
			16-QAM	24.22	19.65	4.58
3M	18615	1851.5	QPSK	24.27	20.84	3.42
			16-QAM	24.12	19.59	4.52
	18900	1880	QPSK	24.11	20.50	3.62
			16-QAM	24.22	19.78	4.35
	19185	1908.5	QPSK	24.19	20.59	3.59
			16-QAM	24.13	19.60	4.52
5M	18625	1852.5	QPSK	24.06	20.59	3.48
			16-QAM	24.47	20.60	3.86
	18900	1880	QPSK	24.00	20.37	3.62
			16-QAM	24.42	20.36	4.06
	19175	1907.5	QPSK	24.00	20.41	3.59
			16-QAM	24.37	20.27	4.09
10M	18650	1855	QPSK	23.58	20.01	3.57
			16-QAM	23.94	20.17	3.80
	18900	1880	QPSK	23.52	19.93	3.57
			16-QAM	23.91	19.98	3.97
	19150	1905	QPSK	23.51	19.87	3.62
			16-QAM	23.87	19.75	4.12

Band width (MHz)	Channel	Frequency (MHz)	Modulation	Peak (dBm)	Average (dBm)	PAPR (dB)
15M	18675	1857.5	QPSK	22.95	19.42	3.54
			16-QAM	23.31	19.44	3.86
	18900	1880	QPSK	22.90	19.19	3.71
			16-QAM	23.27	19.21	4.06
	19125	1902.5	QPSK	22.92	19.20	3.71
			16-QAM	23.28	19.17	4.12
20M	18700	1860	QPSK	21.95	18.40	3.54
			16-QAM	22.28	18.42	3.86
	18900	1880	QPSK	21.98	18.48	3.48
			16-QAM	22.28	18.28	3.97
	19100	1900	QPSK	21.88	18.14	3.71
			16-QAM	22.39	18.38	4.00

B2_CH18607_1.4M_QPSK_1RB0



B2_CH18607_1.4M_16-QAM_1RB0



B2_CH18900_1.4M_QPSK_1RB0



B2_CH18900_1.4M_16-QAM_1RB0

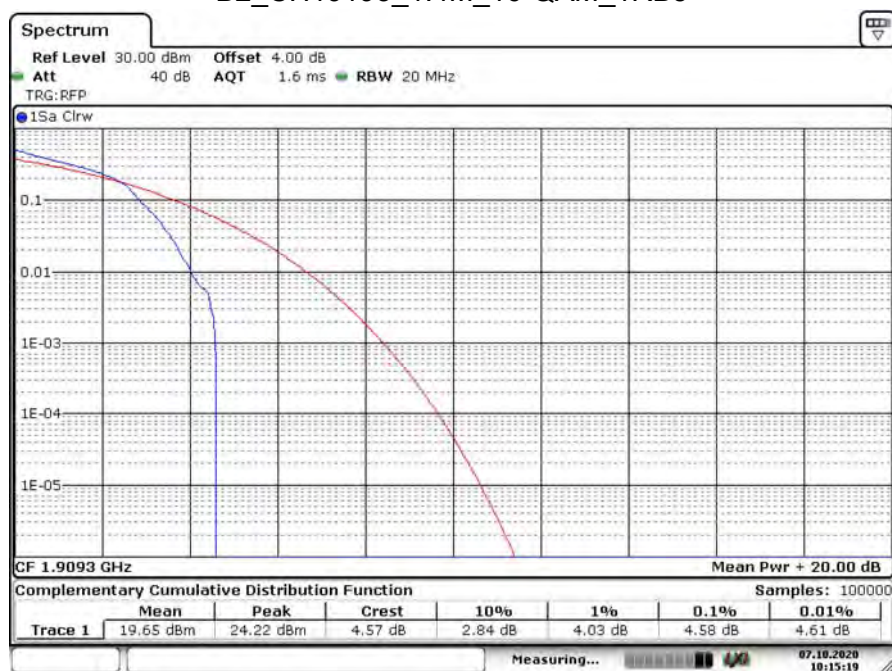


B2_CH19193_1.4M_QPSK_1RB5



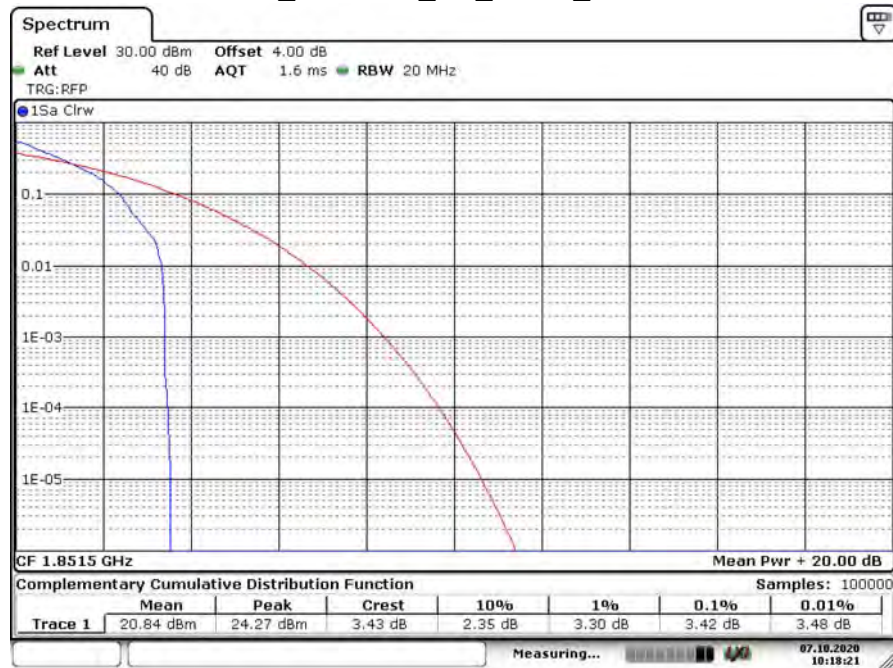
Date: 7.OCT.2020 10:14:55

B2_CH19193_1.4M_16-QAM_1RB5



Date: 7.OCT.2020 10:15:19

B2_CH18615_3M_QPSK_1RB0



Date: 7.OCT.2020 10:18:22

B2_CH18615_3M_16-QAM_1RB0



Date: 7.OCT.2020 10:18:50

B2_CH18900_3M_QPSK_1RB0



B2_CH18900_3M_16-QAM_1RB0



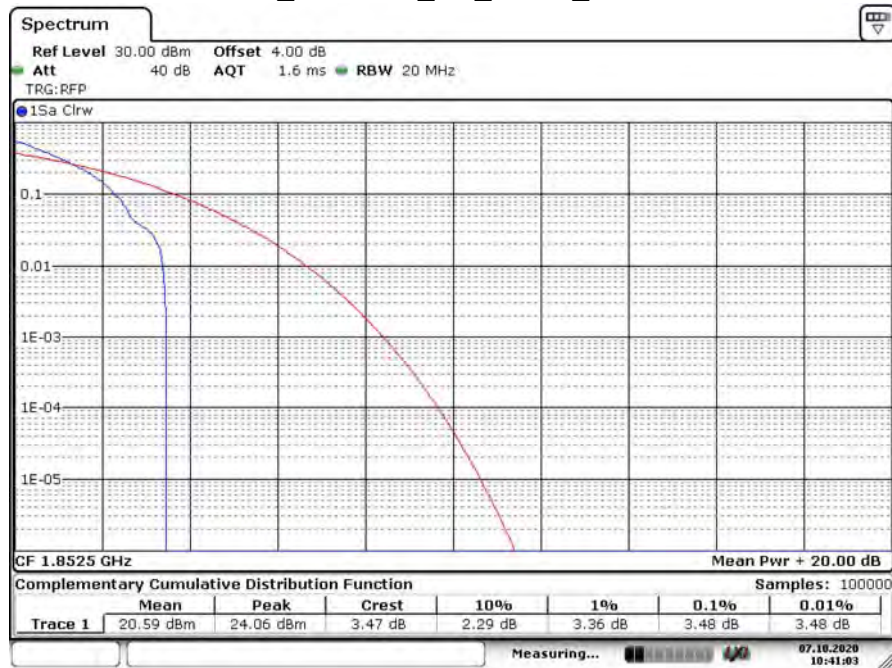
B2_CH19185_3M_QPSK_1RB5



B2_CH19185_3M_16-QAM_1RB5



B2_CH18625_5M_QPSK_1RB0



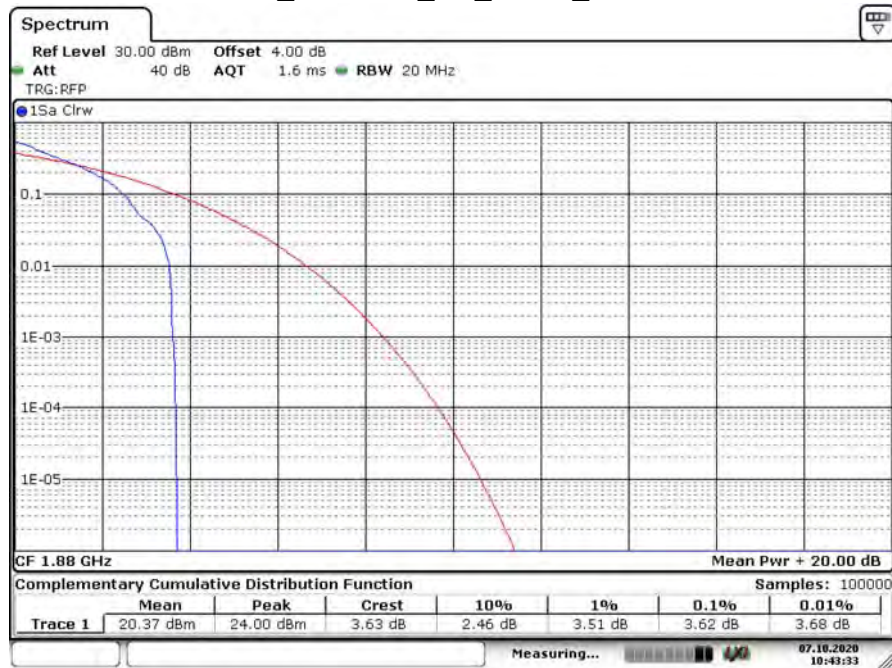
Date: 7.OCT.2020 10:41:03

B2_CH18625_5M_16-QAM_1RB0



Date: 7.OCT.2020 10:41:40

B2_CH18900_5M_QPSK_1RB0



Date: 7.OCT.2020 10:43:34

B2_CH18900_5M_16-QAM_1RB0

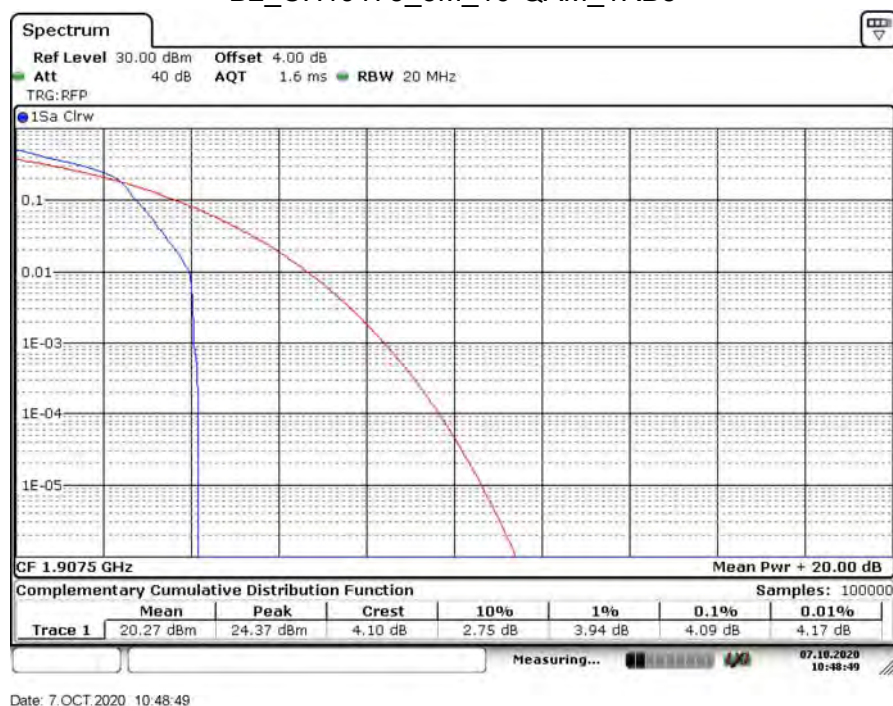


Date: 7.OCT.2020 10:42:27

B2_CH19175_5M_QPSK_1RB5



B2_CH19175_5M_16-QAM_1RB5

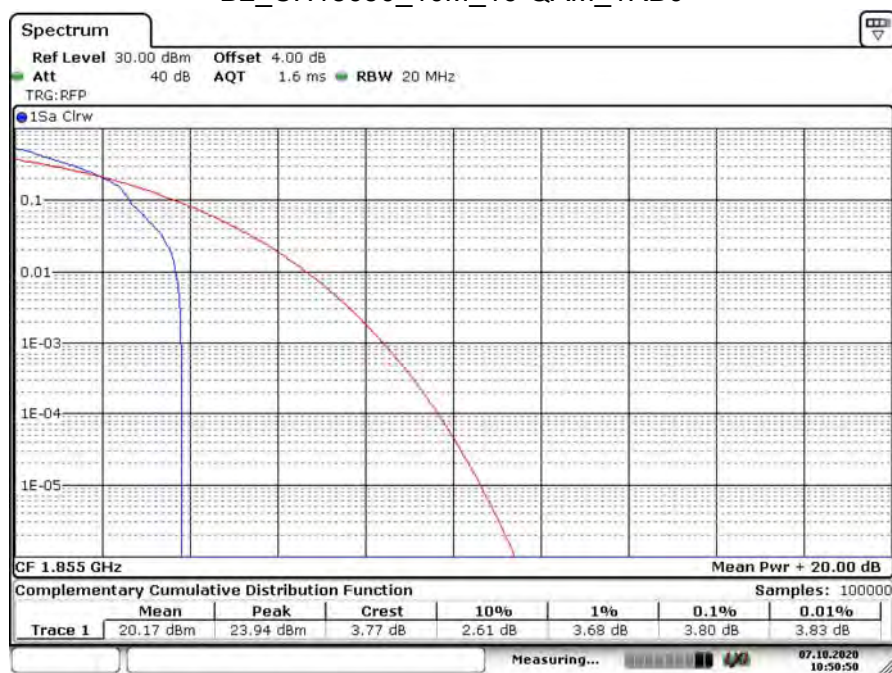


B2_CH18650_10M_QPSK_1RB0



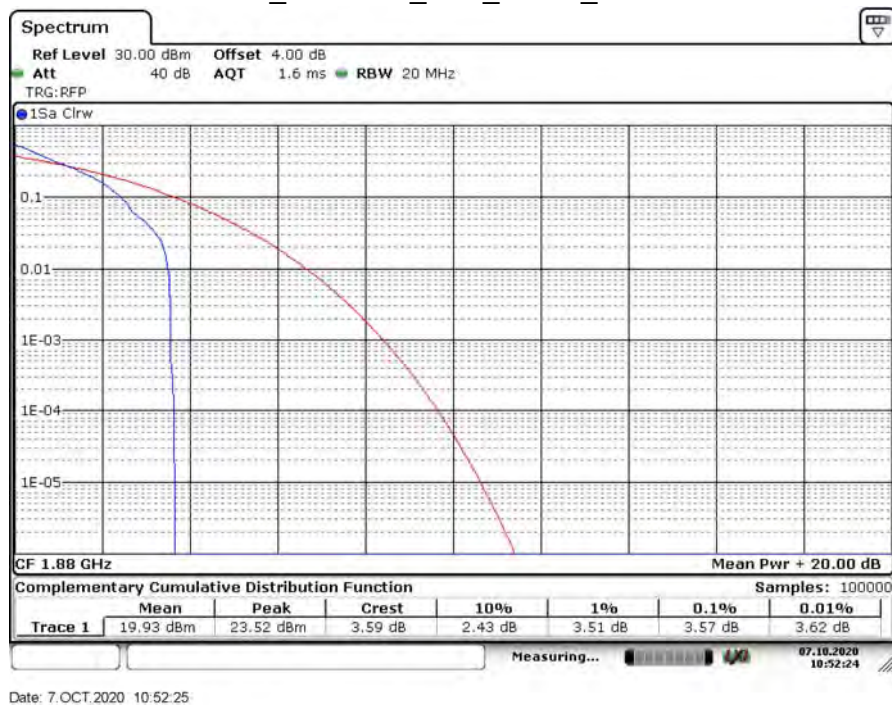
Date: 7.OCT.2020 10:50:15

B2_CH18650_10M_16-QAM_1RB0



Date: 7.OCT.2020 10:50:51

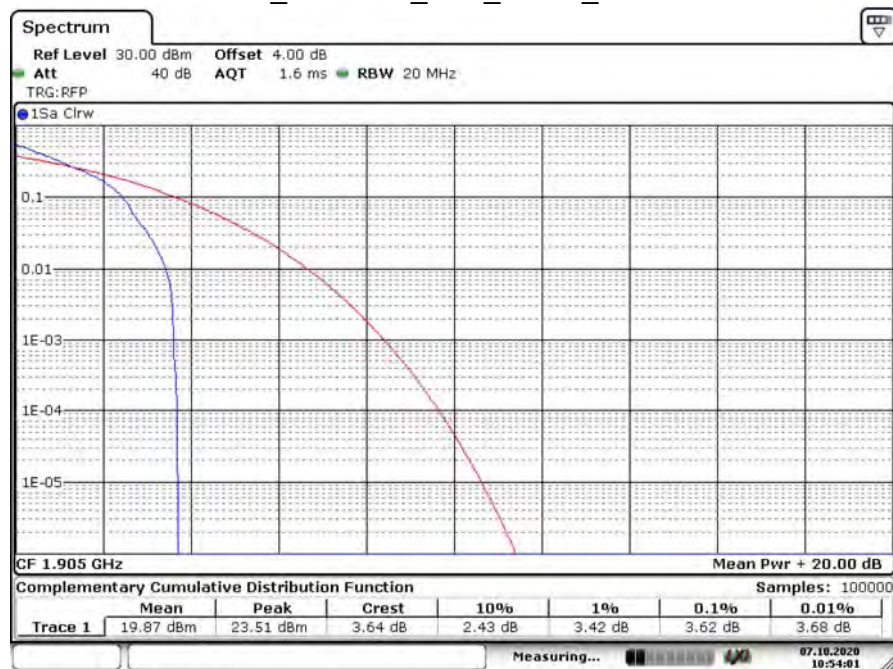
B2_CH18900_10M_QPSK_1RB0



B2_CH18900_10M_16-QAM_1RB0

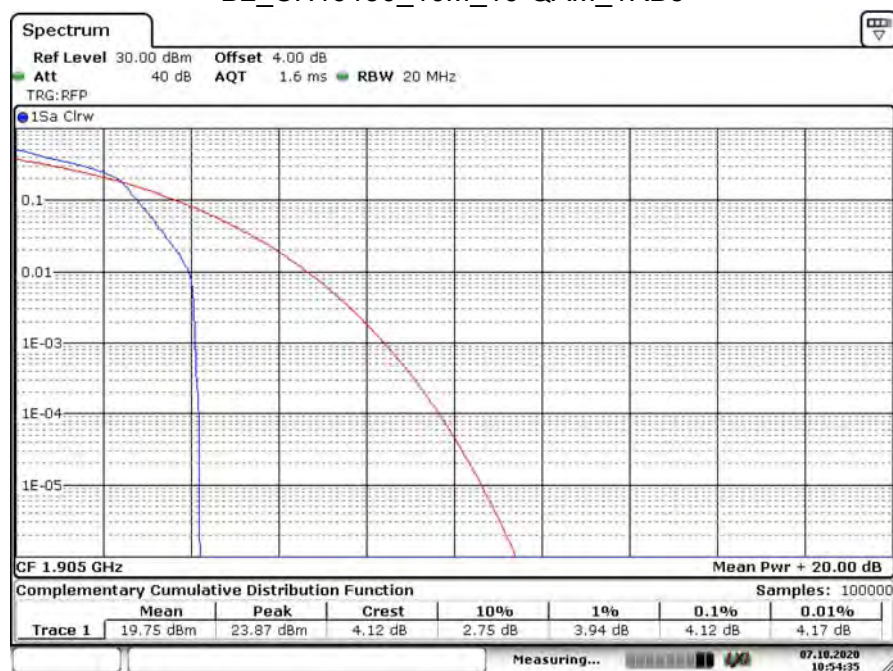


B2_CH19150_10M_QPSK_1RB5



Date: 7.OCT.2020 10:54:01

B2_CH19150_10M_16-QAM_1RB5



Date: 7.OCT.2020 10:54:36

B2_CH18675_15M_QPSK_1RB0



B2_CH18675_15M_16-QAM_1RB0

