

# FCC Test Report

Product Name : TracKing V5  
Trade Name : Thermo King  
Model No. : TKV5  
FCC ID : Q37TKV5

Applicant : Thermo King Corporation  
Address : 314 West 90th Street, Minneapolis, MN USA 55420

Date of Receipt : Aug. 24, 2021  
Issued Date : Nov. 12, 2021  
Report No. : 2181021R-E3042110012  
Report Version : V1.0



The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration of the equipment and evaluated measurement uncertainty herein.

This report must not be used to claim product endorsement by TAF or any agency of the government.


Measurement uncertainties evaluated for each testing system and associated connections are given here to provide the system information for reference. Compliance determinations do not take into account measurement uncertainties for each testing system, but are based on the results of the compliance measurement.


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# Test Report Certification



Product Name : TracKing V5  
 Applicant : Thermo King Corporation  
 Address : 314 West 90th Street, Minneapolis, MN USA 55420  
 Manufacturer : Thermo King Corporation  
 Address : 314 West 90th Street, Minneapolis, MN USA 55420  
 Trade Name : Thermo King  
 Model No. : TKV5  
 FCC ID : Q37TKV5  
 EUT Voltage : DC 14.2V  
 Testing Voltage : DC 14.2V  
 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  
 FCC CFR Title 47 Part 90 Subpart S,  
 ANSI/TIA-603-E  
 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 :   
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 ( Carol Tsai / Senior Engineering Adm. Specialist )

Approved By :   
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 ( Louis Hsu / Deputy Manager )

The test results relate only to the samples tested.  
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**Revision History**

Version	Description	Issued Date
V1.0	Initial issue of report	Nov. 12, 2021

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## 1. General Information

### 1.1. EUT Description

Product Name	TracKing V5
Trade Name	Thermo King
Model No.	TKV5
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 LTE Band 25: 1850~1915 LTE Band 26: 814~849
Downlink Frequency Range (MHz)	LTE Band 2: 1930~1990 LTE Band 4: 2110~2115 LTE Band 5: 869~894 LTE Band 12: 729~746 LTE Band 13: 746~756 LTE Band 25: 1930~1995 LTE Band 26: 859~894
Bandwidth (MHz)	LTE Band 2: 1.4 / 3 / 5 / 10 / 15 / 20 LTE Band 4: 1.4 / 3 / 5 / 10 / 15 / 20 LTE Band 5: 1.4 / 3 / 5 / 10 LTE Band 12: 1.4 / 3 / 5 / 10 LTE Band 13: 5 / 10 LTE Band 25: 1.4 / 3 / 5 / 10 / 15 / 20 LTE Band 26: 1.4 / 3 / 5 / 10 / 15
Type of Modulation	QPSK / 16QAM / 64QAM
Hardware Version	1.0
Software Version	1.00001
IMEI No.	864049050129487

Antenna Information										
Ant. No.	Manufacturer	Model No.	Ant. Type	Ant. Gain (dBi)						
				LTE Band						
				2	4	5	12	13	25	26
0	N/A	N/A	PCB	2.33	3.39	-0.27	-0.66	0.36	2.33	-0.22

Note:

- Regarding frequency band operation, the lowest, middle and highest frequency of channel were selected to perform the test, and the details were shown on this report.
- The EUT description is from the customer declaration.
- The device was tested under all bandwidths, RB configurations and modulations.  
For Conducted Band Edge and Spurious Emission test: The worst case was found in QPSK modulation and its test result was written in this report.
- The 64QAM modulation for downlink only.

## 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 2/25
Mode 2: LTE Band 4
Mode 3: LTE Band 5/26 (Part 22)
Mode 4: LTE Band 12
Mode 5: LTE Band 13
Mode 6: LTE Band 26 (Part 90)

Note:

1. LTE Band 2 is covered by LTE Band 25.
2. LTE Band 5 is covered by LTE Band 26.
3. The EUT was performed at X axis and Z axis position for radiated spurious emission test.  
The worst case was found at Z axis, so the measurement will follow this same test configuration.

## 1.3. Comments and Remarks

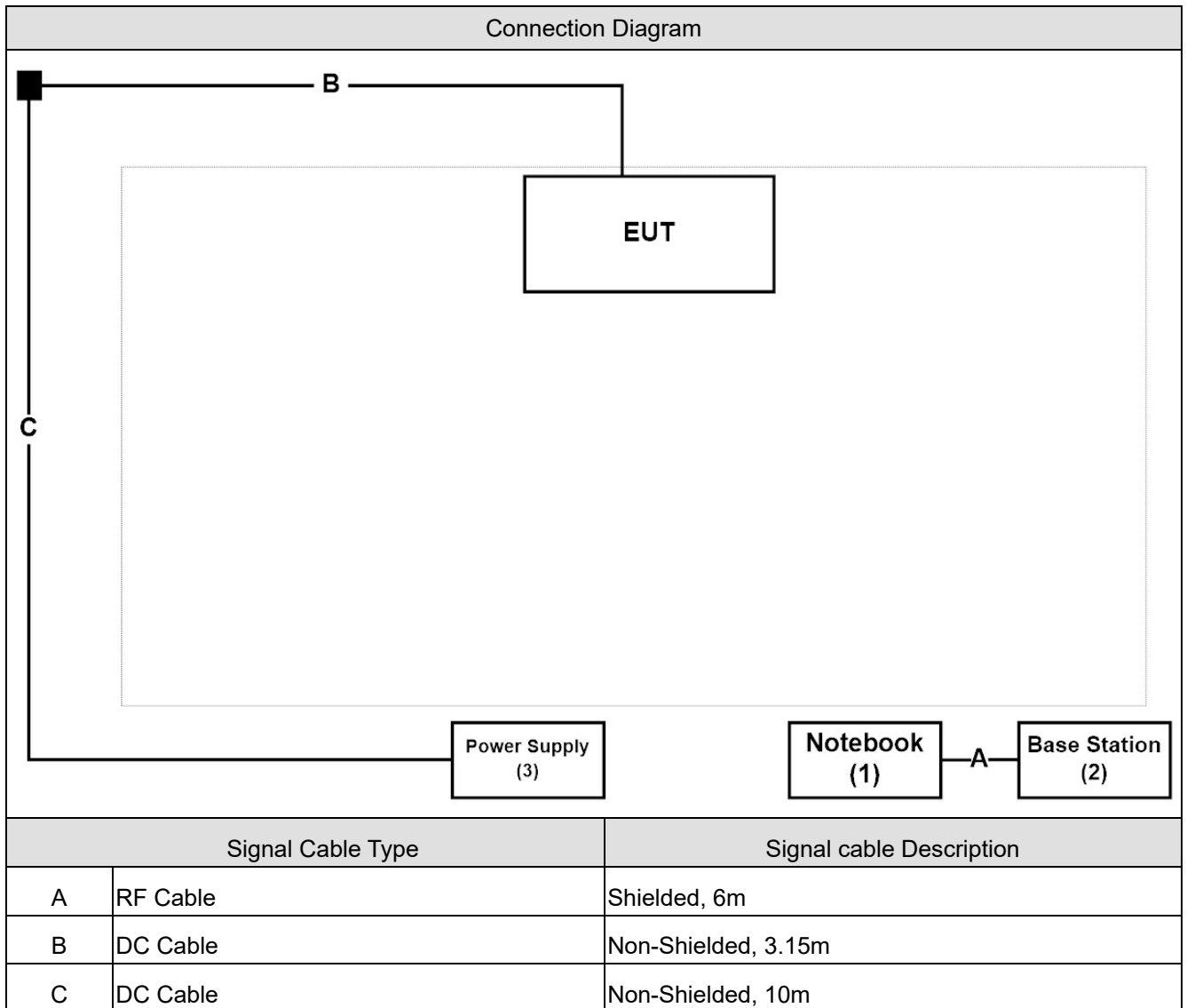
The product specification and testing instructions for the EUT declared in the report are provided by the manufacturer who will take all responsibilities for the accuracy.

### 1.4. 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   Horn Antenna	Schwarzbeck	BBHA 9120D	1640	N/A	--
2   Base Station	R&S	CMW500	157118	N/A	Non-Shielded, 1.8m
3   Power Supply	Topward	6303D	8095908	N/A	Non-Shielded, 1.8m

### 1.5. Configuration of Tested System





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## 1.6. EUT Operation of during Test

1	Set the EUT as shown.
2	EUT is connected through the base station.
3	Configure test mode, test channel and data rate.
4	Let the EUT start sending continuously.
5	Verify that the device is working properly.

## 2. Technical Test

### 2.1. Summary of Test Result

- No deviations from the test standards
- Deviations from the test standards as below description:

LTE Band 2			
FCC Part 24 Subpart E			
Performed Item	FCC Reference Section	Limit	Result
RF Output Power	§2.1033	< 2 Watts	Pass
	§2.1046		
	§24.232		
Occupied Bandwidth	§2.1049	N/A	Pass
Peak to Average Ratio	§24.232(d)	≤ 13dB	Pass
Conducted Band Edge	§27.238	< -13dBm	Pass
Spurious Emission	§2.1053	< -13dBm	Pass
	§24.238		
Frequency Stability	§2.1055	<±2.5 ppm	Pass
	§24.235		

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

LTE Band 4			
FCC Part 27 Subpart L			
Performed Item	FCC Reference Section	Limit	Result
RF Output Power	§2.1033	< 1 Watts	Pass
	§2.1046		
	§27.50		
Occupied Bandwidth	§2.1049	N/A	Pass
Peak to Average Ratio	§27.50	≤ 13dB	Pass
Conducted Band Edge	§2.1053	< -13 dBm	Pass
	§27.53		
Spurious Emission	§27.53	< -13 dBm	Pass
Frequency Stability	§2.1055	<±2.5 ppm	Pass
	§27.54		

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

LTE Band 5			
FCC Part 22 Subpart H			
Performed Item	FCC 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 Ratio	§22.913	≤ 13dB	Pass
Conducted Band Edge	§2.1053	< -13dBm	Pass
	§22.917		
Spurious Emission	§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.

LTE Band 12			
FCC Part 27 Subpart F			
Performed Item	FCC Reference Section	Limit	Result
RF Output Power	§2.1033	<3 Watts ERP	Pass
	§2.1046		
	§27.50		
Occupied Bandwidth	§2.1049	N/A	Pass
Peak to Average Ratio	§27.50	<13 dB	Pass
Conducted Band Edge	§2.1053	<-13dBm	Pass
	§27.53		
Spurious Emission	§27.53	<-13dBm	Pass
Frequency Stability	§2.1055	<±2.5 ppm	Pass
	§27.54		

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

LTE Band 13			
FCC Part 27 Subpart F			
Performed Item	FCC Reference Section	Limit	Result
RF Output Power	§2.1033	<3 Watts ERP	Pass
	§2.1046		
	§27.50		
Occupied Bandwidth	§2.1049	N/A	Pass
Peak to Average Ratio	§27.50	<-13 dB	Pass
Conducted Band Edge	§2.1053	<-13dBm <-35dBm (763-775MHz &793-805MHz)	Pass
	§27.53		
Spurious Emission	§27.53	<-13dBm <-70 dBW/MHz e.i.r.p.of all emissions, including harmonics in the band 1559-1610 MHz	Pass
Frequency Stability	§2.1055	<±2.5 ppm	Pass
	§27.54		

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

LTE Band 25			
FCC Part 24 Subpart E			
Performed Item	FCC Reference Section	Limit	Result
RF Output Power	§2.1033	<2 Watts	Pass
	§2.1046		
	§24.232		
Occupied Bandwidth	§2.1049	N/A	Pass
Peak to Average Ratio	§24.232	<13 dB	Pass
Conducted Band Edge	§2.1053	<-13dBm	Pass
	§24.238		
Spurious Emission	§27.238	<-13dBm	Pass
Frequency Stability	§2.1055	<±2.5 ppm	Pass
	§24.235		

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

LTE Band 26			
FCC Part 22 Subpart H			
FCC Part 90 Subpart S			
Performed Item	FCC Reference Section	Limit	Result
RF Output Power	§2.1033 §2.1046 §90.635(b) §22.913	<100 Watts	Pass
Occupied Bandwidth	§2.1049	N/A	Pass
Peak to Average Ratio	§22.913	<13 dB	Pass
Conducted Band Edge	§2.1053 §90.691 §22.917	<-13dBm	Pass
Spurious Emission	§90.691 §22.917	<-13dBm	Pass
Frequency Stability	§2.1055 §90.213	<±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

Ambient conditions in the laboratory:

Items	Test Item	Actually	Tested by	Test Date	Test Site
Temperature (°C)	RF Output Power	24 ~ 24.2	Getaz Yang	2021/8/29 ~ 2021/9/6	SR12-H
Humidity (%RH)		58 ~ 64			
Temperature (°C)	Occupied Bandwidth	24 ~ 24.2	Getaz Yang	2021/8/29 ~ 2021/9/6	SR12-H
Humidity (%RH)		58 ~ 64			
Temperature (°C)	Peak to Average Ratio	24 ~ 24.2	Getaz Yang	2021/8/29 ~ 2021/9/6	SR12-H
Humidity (%RH)		58 ~ 64			
Temperature (°C)	Conducted Band Edge	24 ~ 24.2	Getaz Yang	2021/8/29 ~ 2021/9/6	SR12-H
Humidity (%RH)		58 ~ 64			
Temperature (°C)	Spurious Emission (Conducted Spurious Emission)	24 ~ 24.2	Getaz Yang	2021/8/29 ~ 2021/9/6	SR12-H
Humidity (%RH)		58 ~ 64			
Temperature (°C)	Spurious Emission (Radiated Spurious Emission)	23.1 ~ 23.7	Getaz Yang Cyril Chen	2021/8/29 ~ 2021/8/31	CB2-H
Humidity (%RH)		61.3 ~ 64.3			
Temperature (°C)	Frequency Stability	25.3	Rueyyan Lin	2021/9/24	SR12-H
Humidity (%RH)		63			

Note: Test site information refers to Laboratory Information.

**Laboratory Information**

**USA** : **FCC Registration Number: TW3024**  
**Canada** : **CAB identifier : TW3024**

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.372-2, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County 31061, Taiwan, R.O.C. 2. No.372, 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
E mail address	<a href="mailto:info.tw@dekra.com">info.tw@dekra.com</a>
Website	<a href="http://www.dekra.com.tw">http://www.dekra.com.tw</a>
Note: Test site for address 1 includes SR2-H. Test site for address 2 includes CB2-H, CB3-H, CB4-H, SR10-H and SR12-H.	

## 2.3. List of Test Equipment

### SR12-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
High Speed Peak Power Meter Dual Input	Anritsu	ML2496A	1602004	2020/11/30	2021/11/29
Pulse Power Sensor	Anritsu	MA2411B	1531043	2020/11/30	2021/11/29
EXA Signal Analyzer	Keysight	N9010A	MY51440132	2021/01/25	2022/01/24
Pulse Power Sensor	Anritsu	MA2411B	1531044	2020/11/30	2021/11/29
Power Meter	Keysight	8990B	MY51000248	2021/05/21	2022/05/20
Power Sensor	Keysight	N1923A	MY57240005	2021/05/21	2022/05/20
Spectrum Analyzer	Keysight	N9030B	MY57140404	2021/05/14	2022/05/13
Spectrum Analyzer	Keysight	N9010B	MY57110159	2021/03/29	2022/03/28
Wideband Radio Communication Tester	R&S	CMW500	106071	2021/01/27	2022/01/26
Wireless Conn. Tseter	R&S	CMW500	157118	2021/07/07	2022/07/06
Spectrum Analyzer	Agilent	N9010A	US47140172	2021/05/28	2022/05/27
Signal & Spectrum Analyzer	R&S	FSV40	101049	2021/03/31	2022/03/30

### CB2-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Signal Analyzer	R&S	FSVA40	101455	2020/10/12	2021/10/11
Signal & Spectrum Analyzer	R&S	FSV40	101049	2021/03/31	2022/03/30
Signal Analyzer	R&S	FSVA40	101435	2021/06/04	2022/06/03
EXA Signal Analyzer	Keysight	N9010A	MY51440132	2021/01/25	2022/01/24
Trilog Broadband Antenna	Schwarzbeck	VULB 9168	1272	2021/08/20	2022/08/19
Bilog Antenna	Teseq	CBL6112D	23191	2021/02/26	2022/02/25
Horn Antenna	Schwarzbeck	BBHA 9120D	639	2021/05/17	2022/05/16
Horn Antenna	Schwarzbeck	BBHA 9170	202	2020/12/16	2021/12/15
Pre-Amplifier	EMCI	EMC01820I	980365	2021/05/28	2022/05/27
Pre-Amplifier	EMEC	EM01G18GA	060741	2021/07/02	2022/07/01
Pre-Amplifier	DEKRA	AP-400C	201801231	2020/11/16	2021/11/15
Wideband Radio Communication Tester	R&S	CMW500	106071	2021/01/27	2022/01/26
Wireless Conn. Tseter	R&S	CMW500	157118	2021/07/07	2022/07/06
Coaxial Cable(13m)	Huber+Suhner	SF104	CB2-H	2021/08/17	2022/08/16
Radiated Software	AUDIX	e3 V9	CB2-H	N/A	N/A

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

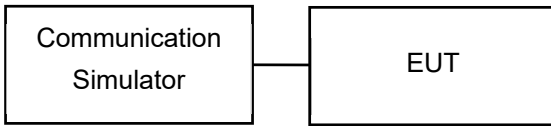


## 2.4. Measurement Uncertainty

Test Item	Uncertainty
RF Output Power	$\pm 1.16$ dB
Occupied Bandwidth	$\pm 214$ Hz
Peak to Average Ratio	$\pm 2.11$ dB
Conducted Band Edge	$\pm 2.11$ dB
Spurious Emissions	below 1GHz as $\pm 3.4$ dB above 1GHz as $\pm 3.46$ dB
Frequency Stability	$\pm 214$ Hz

### 3. RF Output Power

#### 3.1. Test Setup



#### 3.2. Test Procedure

The EUT makes a call to the communication simulator. The communication simulator station system controlled a EUT to export maximum conducted RF output power under transmission mode and specific channel frequency. The relevant equation for determining the ERP or EIRP from the conducted RF output power measured using the guidance provided above is:

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

where:

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

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

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

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

#### 3.3. Test Methodology and Reference Procedures

KDB 971168 D01 Power Meas License Digital Systems v03r01

ANSI C63.26-2015

### 3.4. Test Result of RF Output Power

#### Mode 1: LTE Band 2/25

Band	Channel Freq. (MHz)	Modulation	RB No.	RB offset	MPR	Conducted Output Power (dBm)	RF Output Power (W) EIRP	Limit (W) EIRP
Band 25 1.4MHz	26047 1850.7	QPSK	1	0	0	23.41	0.375	2
		QPSK		2		23.09	0.348	2
		QPSK		5		23.32	0.367	2
		QPSK	6	0	1	22.41	0.298	2
		16-QAM	1	0	1	22.65	0.315	2
		16-QAM		2		22.47	0.302	2
		16-QAM		5		22.53	0.306	2
		16-QAM	6	0	2	21.55	0.244	2
	26365 1882.5	QPSK	1	0	0	23.02	0.343	2
		QPSK		2		22.91	0.334	2
		QPSK		5		22.75	0.322	2
		QPSK	6	0	1	21.93	0.267	2
		16-QAM	1	0	1	22.43	0.299	2
		16-QAM		2		22.36	0.294	2
		16-QAM		5		22.26	0.288	2
		16-QAM	6	0	2	21.09	0.220	2
	26683 1914.3	QPSK	1	0	0	22.96	0.338	2
		QPSK		2		22.80	0.326	2
		QPSK		5		22.69	0.318	2
		QPSK	6	0	1	21.86	0.262	2
		16-QAM	1	0	1	22.35	0.294	2
		16-QAM		2		22.22	0.285	2
		16-QAM		5		22.00	0.271	2
		16-QAM	6	0	2	21.13	0.222	2

Note:

1. RF Output Power (W) EIRP = Conducted Output Power (dBm) + Antenna Gain (dBi)

2. Power (W) =  $(10^{(\text{Power(dBm)}/10)}) \times 10^{-3}$

Band	Channel Freq. (MHz)	Modulation	RB No.	RB offset	MPR	Conducted Output Power (dBm)	RF Output Power (W) EIRP	Limit (W) EIRP
Band 25 3MHz	26055 1851.5	QPSK	1	0	0	23.28	0.364	2
		QPSK		7		23.09	0.348	2
		QPSK		14		23.15	0.353	2
		QPSK	15	0	1	22.32	0.292	2
		16-QAM	1	0	1	22.52	0.305	2
		16-QAM		7		22.17	0.282	2
		16-QAM		14		22.42	0.299	2
		16-QAM	15	0	2	21.46	0.239	2
	26365 1882.5	QPSK	1	0	0	22.82	0.327	2
		QPSK		7		22.65	0.315	2
		QPSK		14		22.57	0.309	2
		QPSK	15	0	1	21.88	0.264	2
		16-QAM	1	0	1	22.00	0.271	2
		16-QAM		7		21.91	0.265	2
		16-QAM		14		21.67	0.251	2
		16-QAM	15	0	2	21.06	0.218	2
	26675 1913.5	QPSK	1	0	0	23.02	0.343	2
		QPSK		7		22.71	0.319	2
		QPSK		14		22.79	0.325	2
		QPSK	15	0	1	21.86	0.262	2
		16-QAM	1	0	1	21.34	0.233	2
		16-QAM		7		22.20	0.284	2
		16-QAM		14		21.14	0.222	2
		16-QAM	15	0	2	21.11	0.221	2

Note:

1. RF Output Power (W) EIRP = Conducted Output Power (dBm) + Antenna Gain (dBi)
2. Power (W) =  $(10^{(\text{Power(dBm)}/10)}) * 10^{-3}$

Band	Channel Freq. (MHz)	Modulation	RB No.	RB offset	MPR	Conducted Output Power (dBm)	RF Output Power (W) EIRP	Limit (W) EIRP
Band 25 5MHz	26065 1852.5	QPSK	1	0	0	23.23	0.360	2
		QPSK		12		22.95		
		QPSK		24		23.12		
		QPSK	25	0	1	22.28	0.289	2
		16-QAM	1	0	1	22.05	0.274	2
		16-QAM		12		21.94		
		16-QAM		24		21.80		
		16-QAM	25	0	2	21.32	0.232	2
	26365 1882.5	QPSK	1	0	0	22.92	0.335	2
		QPSK		12		22.72		
		QPSK		24		22.79		
		QPSK	25	0	1	21.84	0.261	2
		16-QAM	1	0	1	22.15	0.281	2
		16-QAM		12		21.86		
		16-QAM		24		21.98		
		16-QAM	25	0	2	20.82	0.207	2
	26665 1912.5	QPSK	1	0	0	22.70	0.318	2
		QPSK		12		22.63		
		QPSK		24		22.44		
		QPSK	25	0	1	21.80	0.259	2
		16-QAM	1	0	1	21.09	0.220	2
		16-QAM		12		20.92		
		16-QAM		24		20.75		
		16-QAM	25	0	2	20.92	0.211	2

Note:

1. RF Output Power (W) EIRP = Conducted Output Power (dBm) + Antenna Gain (dBi)
2. Power (W) =  $(10^{(\text{Power(dBm)/10})}) * 10^{-3}$

Band	Channel Freq. (MHz)	Modulation	RB No.	RB offset	MPR	Conducted Output Power (dBm)	RF Output Power (W) EIRP	Limit (W) EIRP
Band 25 10MHz	26090 1855	QPSK	1	0	0	23.27	0.363	2
		QPSK		24		23.03	0.344	2
		QPSK		49		23.02	0.343	2
		QPSK	50	0	1	22.27	0.288	2
		16-QAM	1	0	1	21.95	0.268	2
		16-QAM		24		21.65	0.250	2
		16-QAM		49		21.76	0.256	2
		16-QAM	27	0	2	21.37	0.234	2
	26365 1882.5	QPSK	1	0	0	23.00	0.341	2
		QPSK		24		22.74	0.321	2
		QPSK		49		22.91	0.334	2
		QPSK	50	0	1	21.81	0.259	2
		16-QAM	1	0	1	22.23	0.286	2
		16-QAM		24		22.02	0.272	2
		16-QAM		49		22.06	0.275	2
		16-QAM	27	0	2	20.90	0.210	2
	26640 1910	QPSK	1	0	0	22.85	0.330	2
		QPSK		24		22.66	0.316	2
		QPSK		49		22.52	0.305	2
		QPSK	50	0	1	21.86	0.262	2
		16-QAM	1	0	1	22.24	0.286	2
		16-QAM		24		21.97	0.269	2
		16-QAM		49		22.08	0.276	2
		16-QAM	27	23	2	20.90	0.210	2

Note:

1. RF Output Power (W) EIRP = Conducted Output Power (dBm) + Antenna Gain (dBi)
2. Power (W) =  $(10^{(\text{Power(dBm)/10})}) * 10^{-3}$

Band	Channel Freq. (MHz)	Modulation	RB No.	RB offset	MPR	Conducted Output Power (dBm)	RF Output Power (W) EIRP	Limit (W) EIRP
Band 25 15MHz	26115 1857.5	QPSK	1	0	0	23.08	0.348	2
		QPSK		37		22.88	0.332	2
		QPSK		74		22.86	0.330	2
		QPSK	75	0	1	22.23	0.286	2
		16-QAM	1	0	1	22.72	0.320	2
		16-QAM		37		22.59	0.310	2
		16-QAM		74		22.45	0.301	2
		16-QAM	27	0	2	21.22	0.226	2
	26365 1882.5	QPSK	1	0	0	22.63	0.313	2
		QPSK		37		22.38	0.296	2
		QPSK		74		22.31	0.291	2
		QPSK	75	0	1	21.64	0.249	2
		16-QAM	1	0	1	21.87	0.263	2
		16-QAM		37		21.55	0.244	2
		16-QAM		74		21.59	0.247	2
		16-QAM	27	0	2	20.90	0.210	2
	26615 1907.5	QPSK	1	0	0	22.59	0.310	2
		QPSK		37		22.47	0.302	2
		QPSK		74		22.32	0.292	2
		QPSK	75	0	1	21.83	0.261	2
		16-QAM	1	0	1	21.72	0.254	2
		16-QAM		37		21.39	0.236	2
		16-QAM		74		21.49	0.241	2
		16-QAM	27	48	2	20.87	0.209	2

Note:

1. RF Output Power (W) EIRP = Conducted Output Power (dBm) + Antenna Gain (dBi)
2. Power (W) =  $(10^{(\text{Power(dBm)/10})}) * 10^{-3}$

Band	Channel Freq. (MHz)	Modulation	RB No.	RB offset	MPR	Conducted Output Power (dBm)	RF Output Power (W) EIRP	Limit (W) EIRP
Band 25 20MHz	26140 1860	QPSK	1	0	0	23.42	0.376	2
		QPSK		49		23.19	0.356	2
		QPSK		99		22.65	0.315	2
		QPSK	100	0	1	22.13	0.279	2
		16-QAM	1	0	1	23.25	0.361	2
		16-QAM		49		23.24	0.361	2
		16-QAM		99		22.85	0.330	2
		16-QAM	27	0	2	21.12	0.221	2
	26365 1882.5	QPSK	1	0	0	22.92	0.335	2
		QPSK		49		22.73	0.321	2
		QPSK		99		22.43	0.299	2
		QPSK	100	0	1	21.63	0.249	2
		16-QAM	1	0	1	22.56	0.308	2
		16-QAM		49		22.19	0.283	2
		16-QAM		99		22.31	0.291	2
		16-QAM	27	0	2	20.96	0.213	2
	26590 1905	QPSK	1	0	0	22.97	0.339	2
		QPSK		49		22.83	0.328	2
		QPSK		99		22.76	0.323	2
		QPSK	100	0	1	21.56	0.245	2
		16-QAM	1	0	1	21.71	0.254	2
		16-QAM		49		21.53	0.243	2
		16-QAM		99		21.19	0.225	2
		16-QAM	27	73	2	20.72	0.202	2

Note:

1. RF Output Power (W) EIRP = Conducted Output Power (dBm) + Antenna Gain (dBi)
2. Power (W) =  $(10^{(\text{Power(dBm)/10})}) * 10^{-3}$



**Mode 2: LTE Band 4**

Band	Channel Freq. (MHz)	Modulation	RB No.	RB offset	MPR	Conducted Output Power (dBm)	RF Output Power (W) EIRP	Limit (W) EIRP
Band 4 1.4MHz	19957 1710.7	QPSK	1	0	0	23.23	0.459	1
		QPSK		2		22.98	0.434	1
		QPSK		5		22.98	0.434	1
		QPSK	6	0	1	22.06	0.351	1
		16-QAM	1	0	1	22.40	0.379	1
		16-QAM		2		22.28	0.369	1
		16-QAM		5		22.34	0.374	1
		16-QAM		6		0	2	21.22
	20175 1732.5	QPSK	1	0	0	23.31	0.468	1
		QPSK		2		23.17	0.453	1
		QPSK		5		23.20	0.456	1
		QPSK	6	0	1	22.20	0.362	1
		16-QAM	1	0	1	21.99	0.345	1
		16-QAM		2		22.80	0.416	1
		16-QAM		5		21.90	0.338	1
		16-QAM		6		0	2	21.41
	20393 1754.3	QPSK	1	0	0	23.09	0.445	1
		QPSK		2		22.83	0.419	1
		QPSK		5		22.85	0.421	1
		QPSK	6	0	1	21.78	0.329	1
		16-QAM	1	0	1	22.13	0.356	1
		16-QAM		2		21.88	0.337	1
		16-QAM		5		21.88	0.337	1
		16-QAM		6		0	2	20.97

Note:

1. RF Output Power (W) EIRP = Conducted Output Power (dBm) + Antenna Gain (dBi)
2. Power (W)=  $(10^{(Power(dBm)/10)}) * 10^{-3}$

Band	Channel Freq. (MHz)	Modulation	RB No.	RB offset	MPR	Conducted Output Power (dBm)	RF Output Power (W) EIRP	Limit (W) EIRP
Band 4 3MHz	19965 1711.5	QPSK	1	0	0	23.24	0.460	1
		QPSK		7		22.90	0.426	1
		QPSK		14		23.17	0.453	1
		QPSK	15	0	1	22.21	0.363	1
		16-QAM	1	0	1	22.38	0.378	1
		16-QAM		7		22.15	0.358	1
		16-QAM		14		22.08	0.352	1
		16-QAM	15	0	2	21.49	0.308	1
	20175 1732.5	QPSK	1	0	0	22.99	0.435	1
		QPSK		7		22.80	0.416	1
		QPSK		14		22.85	0.421	1
		QPSK	15	0	1	22.14	0.357	1
		16-QAM	1	0	1	22.49	0.387	1
		16-QAM		7		22.39	0.378	1
		16-QAM		14		22.36	0.376	1
		16-QAM	15	0	2	21.24	0.290	1
	20385 1753.5	QPSK	1	0	0	22.68	0.405	1
		QPSK		7		22.61	0.398	1
		QPSK		14		22.46	0.385	1
		QPSK	15	0	1	21.71	0.324	1
		16-QAM	1	0	1	21.77	0.328	1
		16-QAM		7		22.62	0.399	1
		16-QAM		14		21.71	0.324	1
		16-QAM	15	0	2	20.99	0.274	1

Note:

1. RF Output Power (W) EIRP = Conducted Output Power (dBm) + Antenna Gain (dBi)
2. Power (W) =  $(10^{(\text{Power(dBm)}/10)}) * 10^{-3}$

Band	Channel Freq. (MHz)	Modulation	RB No.	RB offset	MPR	Conducted Output Power (dBm)	RF Output Power (W) EIRP	Limit (W) EIRP
Band 4 5MHz	19975 1712.5	QPSK	1	0	0	23.08	0.444	1
		QPSK		12		23.01	0.437	1
		QPSK		24		22.85	0.421	1
		QPSK	25	0	1	22.19	0.361	1
		16-QAM	1	0	1	21.75	0.327	1
		16-QAM		12		21.52	0.310	1
		16-QAM		24		21.55	0.312	1
		16-QAM	25	0	2	21.42	0.303	1
	20175 1732.5	QPSK	1	0	0	23.05	0.441	1
		QPSK		12		22.96	0.432	1
		QPSK		24		22.77	0.413	1
		QPSK	25	0	1	22.09	0.353	1
		16-QAM	1	0	1	22.32	0.372	1
		16-QAM		12		22.21	0.363	1
		16-QAM		24		22.03	0.348	1
		16-QAM	25	0	2	21.24	0.290	1
	20375 1752.5	QPSK	1	0	0	22.63	0.400	1
		QPSK		12		22.49	0.387	1
		QPSK		24		22.50	0.388	1
		QPSK	25	0	1	21.70	0.323	1
		16-QAM	1	0	1	21.11	0.282	1
		16-QAM		12		21.00	0.275	1
		16-QAM		24		20.88	0.267	1
		16-QAM	25	0	1	20.98	0.274	1

Note:

1. RF Output Power (W) EIRP = Conducted Output Power (dBm) + Antenna Gain (dBi)
2. Power (W) =  $(10^{(\text{Power(dBm)}/10)}) * 10^{-3}$

Band	Channel Freq. (MHz)	Modulation	RB No.	RB offset	MPR	Conducted Output Power (dBm)	RF Output Power (W) EIRP	Limit (W) EIRP
Band 4 10MHz	20000 1715	QPSK	1	0	0	23.23	0.459	1
		QPSK		24		22.91	0.427	1
		QPSK		49		23.01	0.437	1
		QPSK	50	0	1	22.08	0.352	1
		16-QAM	1	0	1	22.45	0.384	1
		16-QAM		24		22.21	0.363	1
		16-QAM		49		22.34	0.374	1
		16-QAM	27	0	2	21.17	0.286	1
	20175 1732.5	QPSK	1	0	0	23.05	0.441	1
		QPSK		24		22.93	0.429	1
		QPSK		49		22.87	0.423	1
		QPSK	50	0	1	22.09	0.353	1
		16-QAM	1	0	1	21.92	0.340	1
		16-QAM		24		21.82	0.332	1
		16-QAM		49		21.60	0.316	1
		16-QAM	27	0	2	21.29	0.294	1
	20350 1750	QPSK	1	0	0	22.73	0.409	1
		QPSK		24		22.56	0.394	1
		QPSK		49		22.40	0.379	1
		QPSK	50	0	1	21.70	0.323	1
		16-QAM	1	0	1	22.35	0.375	1
		16-QAM		24		22.22	0.364	1
		16-QAM		49		22.13	0.356	1
		16-QAM	27	23	2	20.76	0.260	1

Note:

1. RF Output Power (W) EIRP = Conducted Output Power (dBm) + Antenna Gain (dBi)
2. Power (W) =  $(10^{(\text{Power(dBm)}/10)}) * 10^{-3}$

Band	Channel Freq. (MHz)	Modulation	RB No.	RB offset	MPR	Conducted Output Power (dBm)	RF Output Power (W) EIRP	Limit (W) EIRP
Band 4 15MHz	20025 1717.5	QPSK	1	0	0	23.14	0.450	1
		QPSK		37		22.95	0.431	1
		QPSK		74		22.97	0.433	1
		QPSK	75	0	1	22.24	0.366	1
		16-QAM	1	0	1	22.38	0.378	1
		16-QAM		37		22.13	0.356	1
		16-QAM		74		22.18	0.361	1
		16-QAM	27	0	2	21.20	0.288	1
	20175 1732.5	QPSK	1	0	0	22.84	0.420	1
		QPSK		37		22.55	0.393	1
		QPSK		74		22.71	0.407	1
		QPSK	75	0	1	21.98	0.344	1
		16-QAM	1	0	1	22.00	0.346	1
		16-QAM		37		21.87	0.336	1
		16-QAM		74		21.75	0.327	1
		16-QAM	27	0	2	21.00	0.275	1
	20325 1747.5	QPSK	1	0	0	22.59	0.396	1
		QPSK		37		22.32	0.372	1
		QPSK		74		22.45	0.384	1
		QPSK	75	0	1	21.69	0.322	1
		16-QAM	1	0	1	22.15	0.358	1
		16-QAM		37		21.92	0.340	1
		16-QAM		74		21.95	0.342	1
		16-QAM	27	48	2	20.78	0.261	1

## Note:

1. RF Output Power (W) EIRP = Conducted Output Power (dBm) + Antenna Gain (dBi)
2. Power (W) =  $(10^{(\text{Power(dBm)/10})}) * 10^{-3}$

Band	Channel Freq. (MHz)	Modulation	RB No.	RB offset	MPR	Conducted Output Power (dBm)	RF Output Power (W) EIRP	Limit (W) EIRP
Band 4 20MHz	20050 1720	QPSK	1	0	0	23.24	0.460	1
		QPSK		49		22.99	0.435	1
		QPSK		99		23.19	0.455	1
		QPSK	100	0	1	22.06	0.351	1
		16-QAM	1	0	1	22.13	0.356	1
		16-QAM		49		21.84	0.333	1
		16-QAM		99		22.04	0.349	1
		16-QAM	27	0	2	21.25	0.291	1
	20175 1732.5	QPSK	1	0	0	23.32	0.469	1
		QPSK		49		23.03	0.439	1
		QPSK		99		22.47	0.385	1
		QPSK	100	0	1	21.99	0.345	1
		16-QAM	1	0	1	23.01	0.437	1
		16-QAM		49		22.87	0.423	1
		16-QAM		99		22.31	0.372	1
		16-QAM	27	0	2	20.87	0.267	1
	20300 1745	QPSK	1	0	0	22.94	0.430	1
		QPSK		49		22.67	0.404	1
		QPSK		99		22.67	0.404	1
		QPSK	100	0	1	21.76	0.327	1
		16-QAM	1	0	1	22.38	0.378	1
		16-QAM		49		22.32	0.372	1
		16-QAM		99		22.21	0.363	1
		16-QAM	27	73	2	20.81	0.263	1

Note:

1. RF Output Power (W) EIRP = Conducted Output Power (dBm) + Antenna Gain (dBi)
2. Power (W) =  $(10^{(\text{Power(dBm)/10})}) * 10^{-3}$

**Mode 3: LTE Band 5/26 (Part 22)**

Band	Channel Freq. (MHz)	Modulation	RB No.	RB offset	MPR	Conducted Output Power (dBm)	RF Output Power (W) ERP	Limit (W) ERP
Band 26 1.4MHz	26797 824.7	QPSK	1	0	0	23.74	0.136	7
		QPSK		2		23.52	0.129	7
		QPSK		5		23.40	0.125	7
		QPSK	6	0	1	22.84	0.110	7
		16-QAM	1	0	1	22.52	0.102	7
		16-QAM		2		22.31	0.097	7
		16-QAM		5		22.30	0.097	7
		16-QAM	6	0	2	22.02	0.091	7
	26915 836.5	QPSK	1	0	0	23.77	0.136	7
		QPSK		2		23.45	0.127	7
		QPSK		5		23.65	0.133	7
		QPSK	6	0	1	22.81	0.109	7
		16-QAM	1	0	1	23.28	0.122	7
		16-QAM		2		22.98	0.114	7
		16-QAM		5		22.95	0.113	7
		16-QAM	6	0	2	22.06	0.092	7
	27033 848.3	QPSK	1	0	0	23.83	0.138	7
		QPSK		2		23.48	0.128	7
		QPSK		5		23.63	0.132	7
		QPSK	6	0	1	22.78	0.109	7
		16-QAM	1	0	1	23.03	0.115	7
		16-QAM		2		22.69	0.106	7
		16-QAM		5		22.86	0.111	7
		16-QAM	6	0	2	21.88	0.088	7

## Note:

1. RF Output Power (W) ERP = Conducted Output Power (dBm) + Antenna Gain (dBi) - 2.15dB
2. Power (W)=  $(10^{(\text{Power(dBm)}/10)}) \times 10^{-3}$

Band	Channel Freq. (MHz)	Modulation	RB No.	RB offset	MPR	Conducted Output Power (dBm)	RF Output Power (W) ERP	Limit (W) ERP
Band 26 3MHz	26805 825.5	QPSK	1	0	0	23.74	0.136	7
		QPSK		7		23.52	0.129	7
		QPSK		14		23.67	0.133	7
		QPSK	15	0	1	22.95	0.113	7
		16-QAM	1	0	1	22.99	0.114	7
		16-QAM		7		22.78	0.109	7
		16-QAM		14		22.75	0.108	7
		16-QAM	15	0	2	22.05	0.092	7
	26915 836.5	QPSK	1	0	0	23.68	0.134	7
		QPSK		7		23.51	0.129	7
		QPSK		14		23.39	0.125	7
		QPSK	15	0	1	22.82	0.110	7
		16-QAM	1	0	1	23.19	0.119	7
		16-QAM		7		22.99	0.114	7
		16-QAM		14		22.91	0.112	7
		16-QAM	15	0	2	22.10	0.093	7
	27025 847.5	QPSK	1	0	0	23.55	0.130	7
		QPSK		7		23.26	0.121	7
		QPSK		14		23.42	0.126	7
		QPSK	15	0	1	22.71	0.107	7
		16-QAM	1	0	1	22.27	0.097	7
		16-QAM		7		22.18	0.095	7
		16-QAM		14		22.04	0.092	7
		16-QAM	15	0	2	21.95	0.090	7

Note:

1. RF Output Power (W) ERP = Conducted Output Power (dBm) + Antenna Gain (dBi) - 2.15dB
2. Power (W)=  $(10^{(Power(dBm)/10)}) * 10^{-3}$



Band	Channel Freq. (MHz)	Modulation	RB No.	RB offset	MPR	Conducted Output Power (dBm)	RF Output Power (W) ERP	Limit (W) ERP
Band 26 5MHz	26815 826.5	QPSK	1	0	0	23.54	0.129	7
		QPSK		12		23.43	0.126	7
		QPSK		24		23.28	0.122	7
		QPSK	25	0	1	22.17	0.094	7
		16-QAM	1	0	1	21.90	0.089	7
		16-QAM		12		22.17	0.094	7
		16-QAM		24		21.94	0.090	7
		16-QAM	25	0	2	21.98	0.090	7
	26915 836.5	QPSK	1	0	0	23.72	0.135	7
		QPSK		12		23.60	0.131	7
		QPSK		24		23.54	0.129	7
		QPSK	25	0	1	22.80	0.109	7
		16-QAM	1	0	1	22.55	0.103	7
		16-QAM		12		22.23	0.096	7
		16-QAM		24		22.27	0.097	7
		16-QAM	25	0	2	22.05	0.092	7
	27015 846.5	QPSK	1	0	0	23.50	0.128	7
		QPSK		12		23.32	0.123	7
		QPSK		24		23.33	0.123	7
		QPSK	25	0	1	22.76	0.108	7
		16-QAM	1	0	1	22.93	0.112	7
		16-QAM		12		22.87	0.111	7
		16-QAM		24		22.88	0.111	7
		16-QAM	25	0	2	21.87	0.088	7

Note:

1. RF Output Power (W) ERP = Conducted Output Power (dBm) + Antenna Gain (dBi) - 2.15dB

2. Power (W)=  $(10^{(Power(dBm)/10)}) * 10^{-3}$

Band	Channel Freq. (MHz)	Modulation	RB No.	RB offset	MPR	Conducted Output Power (dBm)	RF Output Power (W) ERP	Limit (W) ERP
Band 26 10MHz	26840 829	QPSK	1	0	0	23.60	0.131	7
		QPSK		24		23.55	0.130	7
		QPSK		49		23.59	0.131	7
		QPSK	50	0	1	22.82	0.110	7
		16-QAM	1	0	1	22.99	0.114	7
		16-QAM		24		22.75	0.108	7
		16-QAM		49		22.85	0.110	7
		16-QAM	27	0	2	22.01	0.091	7
	26915 836.5	QPSK	1	0	0	23.74	0.136	7
		QPSK		24		23.68	0.134	7
		QPSK		49		23.67	0.133	7
		QPSK	50	0	1	22.68	0.106	7
		16-QAM	1	0	1	23.33	0.123	7
		16-QAM		24		23.04	0.115	7
		16-QAM		49		22.80	0.109	7
		16-QAM	27	0	2	21.83	0.087	7
	26990 844	QPSK	1	0	0	23.84	0.139	7
		QPSK		24		23.67	0.133	7
		QPSK		49		23.75	0.136	7
		QPSK	50	0	1	22.72	0.107	7
		16-QAM	1	0	1	23.37	0.124	7
		16-QAM		24		23.27	0.122	7
		16-QAM		49		23.26	0.121	7
		16-QAM	27	23	2	21.73	0.085	7

## Note:

1. RF Output Power (W) ERP = Conducted Output Power (dBm) + Antenna Gain (dBi) - 2.15dB
2. Power (W) =  $(10^{(\text{Power(dBm)/10})}) * 10^{-3}$

Band	Channel Freq. (MHz)	Modulation	RB No.	RB offset	MPR	Conducted Output Power (dBm)	RF Output Power (W) ERP	Limit (W) ERP		
Band 26 15MHz	26865 831.5	QPSK	1	0	0	23.89	0.140	7		
		QPSK		37		23.25			0.121	7
		QPSK		74		23.45			0.127	7
		QPSK	16-QAM	75	0	1	22.96	0.113	7	
		16-QAM		1	0	1	22.81	0.109	7	
		16-QAM			37		22.75			0.108
		16-QAM	1	74	1	22.69	0.106	7		
		16-QAM		27		0			2	21.97
	26915 836.5	QPSK	1	0	0	23.86	0.139	7		
		QPSK		37		23.79			0.137	7
		QPSK		74		23.64			0.132	7
		QPSK	16-QAM	75	0	1	22.75	0.108	7	
		16-QAM		1	0	1	22.96	0.113	7	
		16-QAM			37		22.76			0.108
		16-QAM	1	74	1	22.67	0.106	7		
		16-QAM		27		0			2	21.54
	26965 841.5	QPSK	1	0	0	23.72	0.135	7		
		QPSK		37		23.55			0.130	7
		QPSK		74		23.61			0.132	7
		QPSK	16-QAM	75	0	1	22.47	0.101	7	
		16-QAM		1	0	1	22.82	0.110	7	
		16-QAM			37		22.70			0.107
		16-QAM	1	74	1	22.69	0.106	7		
		16-QAM		27		48			2	21.85

Note:

1. RF Output Power (W) ERP = Conducted Output Power (dBm) + Antenna Gain (dBi) - 2.15dB
2. Power (W)=  $(10^{(Power(dBm)/10)}) * 10^{-3}$

**Mode 4: LTE Band 12**

Band	Channel Freq. (MHz)	Modulation	RB No.	RB offset	MPR	Conducted Output Power (dBm)	RF Output Power (W) ERP	Limit (W) ERP
Band 12 1.4MHz	23017 699.7	QPSK	1	0	0	22.30	0.089	3
		QPSK		2		22.21	0.087	3
		QPSK		5		22.23	0.087	3
		QPSK	6	0	1	22.28	0.089	3
		16-QAM	1	0	1	21.04	0.067	3
		16-QAM		2		21.24	0.070	3
		16-QAM		5		21.10	0.067	3
		16-QAM	6	0	2	20.26	0.056	3
	23097 707.5	QPSK	1	0	0	21.97	0.082	3
		QPSK		2		21.87	0.081	3
		QPSK		5		21.86	0.080	3
		QPSK	6	0	1	21.64	0.076	3
		16-QAM	1	0	1	20.88	0.064	3
		16-QAM		2		20.50	0.059	3
		16-QAM		5		20.77	0.063	3
		16-QAM	6	0	2	20.11	0.054	3
	23173 715.3	QPSK	1	0	0	22.35	0.090	3
		QPSK		2		21.85	0.080	3
		QPSK		5		22.16	0.086	3
		QPSK	6	0	1	22.00	0.083	3
		16-QAM	1	0	1	21.15	0.068	3
		16-QAM		2		21.34	0.071	3
		16-QAM		5		21.07	0.067	3
		16-QAM	6	0	2	20.09	0.053	3

**Note:**

1. RF Output Power (W) ERP = Conducted Output Power (dBm) + Antenna Gain (dBi) - 2.15dB
2. Power (W)=  $(10^{(Power(dBm)/10)}) * 10^{-3}$

Band	Channel Freq. (MHz)	Modulation	RB No.	RB offset	MPR	Conducted Output Power (dBm)	RF Output Power (W) ERP	Limit (W) ERP
Band 12 3MHz	23025 700.5	QPSK	1	0	0	22.90	0.102	3
		QPSK		7		22.82	0.100	3
		QPSK		14		22.57	0.095	3
		QPSK	15	0	1	22.44	0.092	3
		16-QAM	1	0	1	21.86	0.080	3
		16-QAM		7		21.78	0.079	3
		16-QAM		14		21.59	0.076	3
		16-QAM	15	0	2	20.59	0.060	3
	23095 707.5	QPSK	1	0	0	22.57	0.095	3
		QPSK		7		22.11	0.085	3
		QPSK		14		22.49	0.093	3
		QPSK	15	0	1	22.49	0.093	3
		16-QAM	1	0	1	21.53	0.074	3
		16-QAM		7		21.09	0.067	3
		16-QAM		14		21.33	0.071	3
		16-QAM	15	0	2	20.14	0.054	3
	23165 714.5	QPSK	1	0	0	22.59	0.095	3
		QPSK		7		22.56	0.094	3
		QPSK		14		22.38	0.091	3
		QPSK	15	0	1	22.34	0.090	3
		16-QAM	1	0	1	21.17	0.069	3
		16-QAM		7		21.18	0.069	3
		16-QAM		14		21.45	0.073	3
		16-QAM	15	0	2	20.52	0.059	3

Note:

1. RF Output Power (W) ERP = Conducted Output Power (dBm) + Antenna Gain (dBi) - 2.15dB
2. Power (W)=  $(10^{(\text{Power(dBm)/10})}) * 10^{-3}$

Band	Channel Freq. (MHz)	Modulation	RB No.	RB offset	MPR	Conducted Output Power (dBm)	RF Output Power (W) ERP	Limit (W) ERP
Band 12 5MHz	23035 701.5	QPSK	1	0	0	23.22	0.110	3
		QPSK		12		22.92	0.103	3
		QPSK		24		23.17	0.109	3
		QPSK	25	0	1	23.16	0.108	3
		16-QAM	1	0	1	21.95	0.082	3
		16-QAM		12		22.03	0.084	3
		16-QAM		24		21.88	0.081	3
		16-QAM	25	0	2	20.83	0.063	3
	23095 707.5	QPSK	1	0	0	22.96	0.104	3
		QPSK		12		22.90	0.102	3
		QPSK		24		22.60	0.095	3
		QPSK	25	0	1	22.57	0.095	3
		16-QAM	1	0	1	21.81	0.079	3
		16-QAM		12		21.81	0.079	3
		16-QAM		24		21.70	0.077	3
		16-QAM	25	0	2	20.46	0.058	3
	23155 713.5	QPSK	1	0	0	23.05	0.106	3
		QPSK		12		22.56	0.094	3
		QPSK		24		22.62	0.096	3
		QPSK	25	0	1	22.69	0.097	3
		16-QAM	1	0	1	21.78	0.079	3
		16-QAM		12		21.56	0.075	3
		16-QAM		24		21.96	0.082	3
		16-QAM	25	0	2	20.92	0.065	3

Note:

1. RF Output Power (W) ERP = Conducted Output Power (dBm) + Antenna Gain (dBi) - 2.15dB
2. Power (W)=  $(10^{(\text{Power(dBm)/10})}) \times 10^{-3}$

Band	Channel Freq. (MHz)	Modulation	RB No.	RB offset	MPR	Conducted Output Power (dBm)	RF Output Power (W) ERP	Limit (W) ERP
Band 12 10MHz	23060 704	QPSK	1	0	0	23.45	0.116	3
		QPSK		24		23.44	0.116	3
		QPSK		49		23.20	0.109	3
		QPSK	50	0	1	23.00	0.104	3
		16-QAM	1	0	1	22.17	0.086	3
		16-QAM		24		22.37	0.090	3
		16-QAM		49		22.40	0.091	3
		16-QAM	27	0	2	21.35	0.071	3
	23095 707.5	QPSK	1	0	0	23.26	0.111	3
		QPSK		24		22.84	0.101	3
		QPSK		49		23.15	0.108	3
		QPSK	50	0	1	22.85	0.101	3
		16-QAM	1	0	1	22.10	0.085	3
		16-QAM		24		22.25	0.088	3
		16-QAM		49		22.06	0.084	3
		16-QAM	27	0	2	21.08	0.067	3
	23130 711	QPSK	1	0	0	23.29	0.112	3
		QPSK		24		23.16	0.108	3
		QPSK		49		22.98	0.104	3
		QPSK	50	0	1	23.13	0.108	3
		16-QAM	1	0	1	22.07	0.084	3
		16-QAM		24		21.79	0.079	3
		16-QAM		49		22.16	0.086	3
		16-QAM	27	23	2	20.80	0.063	3

Note:

1. RF Output Power (W) ERP = Conducted Output Power (dBm) + Antenna Gain (dBi) - 2.15dB
2. Power (W)=  $(10^{(\text{Power(dBm)/10})}) * 10^{-3}$

**Mode 5: LTE Band 13**

Band	Channel Freq. (MHz)	Modulation	RB No.	RB offset	MPR	Conducted Output Power (dBm)	RF Output Power (W) ERP	Limit (W) ERP
Band 13 5MHz	23205 779.5	QPSK	1	0	0	23.59	0.151	3
		QPSK		12		23.54	0.150	3
		QPSK		24		23.41	0.145	3
		QPSK	25	0	1	23.48	0.148	3
		16-QAM	1	0	1	22.45	0.116	3
		16-QAM		12		22.10	0.107	3
		16-QAM		24		22.38	0.115	3
		16-QAM	25	0	2	21.56	0.095	3
	23230 782	QPSK	1	0	0	23.36	0.144	3
		QPSK		12		23.08	0.135	3
		QPSK		24		22.88	0.129	3
		QPSK	25	0	1	23.19	0.138	3
		16-QAM	1	0	1	22.31	0.113	3
		16-QAM		12		22.17	0.109	3
		16-QAM		24		22.00	0.105	3
		16-QAM	25	0	2	20.95	0.082	3
	23255 784.5	QPSK	1	0	0	23.58	0.151	3
		QPSK		12		23.45	0.147	3
		QPSK		24		23.52	0.149	3
		QPSK	25	0	1	23.18	0.138	3
		16-QAM	1	0	1	22.12	0.108	3
		16-QAM		12		22.54	0.119	3
		16-QAM		24		22.13	0.108	3
		16-QAM	25	0	2	21.43	0.092	3

Note:

1. RF Output Power (W) ERP = Conducted Output Power (dBm) + Antenna Gain (dBi) - 2.15dB
2. Power (W)=  $(10^{(\text{Power(dBm)/10})}) * 10^{-3}$



Band	Channel Freq. (MHz)	Modulation	RB No.	RB offset	MPR	Conducted Output Power (dBm)	RF Output Power (W) ERP	Limit (W) ERP
Band 13 10MHz	23230 782	QPSK	1	0	0	23.63	0.153	3
		QPSK		24		23.15	0.137	3
		QPSK		49		23.23	0.139	3
		QPSK	50	0	1	23.57	0.151	3
		16-QAM	1	0	1	22.56	0.119	3
		16-QAM		24		22.22	0.110	3
		16-QAM		49		22.40	0.115	3
		16-QAM		27		21.20	0.087	3

## Note:

- RF Output Power (W) ERP = Conducted Output Power (dBm) + Antenna Gain (dBi) - 2.15dB
- Power (W) =  $(10^{(\text{Power(dBm)}/10)}) * 10^{-3}$

**Mode 6: LTE Band 26 (Part 90)**

Band	Channel Freq. (MHz)	Modulation	RB No.	RB offset	MPR	Conducted Output Power (dBm)	RF Output Power (W) ERP	Limit (W) ERP
Band 26 1.4MHz	26697 814.7	QPSK	1	0	0	23.14	0.119	100
		QPSK		2		23.12	0.119	100
		QPSK		5		23.08	0.118	100
		QPSK	6	0	1	22.90	0.113	100
		16-QAM	1	0	1	21.71	0.086	100
		16-QAM		2		21.90	0.090	100
		16-QAM		5		21.78	0.087	100
		16-QAM	6	0	2	20.97	0.072	100
	26740 819	QPSK	1	0	0	23.10	0.118	100
		QPSK		2		22.83	0.111	100
		QPSK		5		22.74	0.109	100
		QPSK	6	0	1	22.66	0.107	100
		16-QAM	1	0	1	21.60	0.084	100
		16-QAM		2		22.03	0.092	100
		16-QAM		5		21.73	0.086	100
		16-QAM	6	0	2	20.71	0.068	100
	26783 823.3	QPSK	1	0	0	22.80	0.110	100
		QPSK		2		22.48	0.103	100
		QPSK		5		22.62	0.106	100
		QPSK	6	0	1	22.31	0.099	100
		16-QAM	1	0	1	21.44	0.081	100
		16-QAM		2		21.47	0.081	100
		16-QAM		5		21.74	0.086	100
		16-QAM	6	0	2	20.66	0.067	100

Note:

1. RF Output Power (W) ERP = Conducted Output Power (dBm) + Antenna Gain (dBi) - 2.15dB
2. Power (W)=  $(10^{(Power(dBm)/10)}) * 10^{-3}$

Band	Channel Freq. (MHz)	Modulation	RB No.	RB offset	MPR	Conducted Output Power (dBm)	RF Output Power (W) ERP	Limit (W) ERP
Band 26 3MHz	26705 815.5	QPSK	1	0	0	23.41	0.127	100
		QPSK		7		23.03	0.116	100
		QPSK		14		23.00	0.116	100
		QPSK	15	0	1	23.00	0.116	100
		16-QAM	1	0	1	22.29	0.098	100
		16-QAM		7		22.07	0.093	100
		16-QAM		14		21.96	0.091	100
		16-QAM	15	0	2	21.17	0.076	100
	26740 819	QPSK	1	0	0	23.39	0.126	100
		QPSK		7		23.10	0.118	100
		QPSK		14		23.31	0.124	100
		QPSK	15	0	1	22.91	0.113	100
		16-QAM	1	0	1	22.10	0.094	100
		16-QAM		7		21.98	0.091	100
		16-QAM		14		22.15	0.095	100
		16-QAM	15	0	2	21.06	0.074	100
	26775 822.5	QPSK	1	0	0	23.51	0.130	100
		QPSK		7		23.27	0.123	100
		QPSK		14		23.01	0.116	100
		QPSK	15	0	1	23.26	0.123	100
		16-QAM	1	0	1	22.49	0.103	100
		16-QAM		7		22.16	0.095	100
		16-QAM		14		22.12	0.094	100
		16-QAM	15	0	2	21.45	0.081	100

Note:

1. RF Output Power (W) ERP = Conducted Output Power (dBm) + Antenna Gain (dBi) - 2.15dB
2. Power (W)=  $(10^{(\text{Power(dBm)}/10)}) * 10^{-3}$

Band	Channel Freq. (MHz)	Modulation	RB No.	RB offset	MPR	Conducted Output Power (dBm)	RF Output Power (W) ERP	Limit (W) ERP
Band 26 5MHz	26715 816.5	QPSK	1	0	0	23.86	0.141	100
		QPSK		12		23.63	0.134	100
		QPSK		24		23.41	0.127	100
		QPSK	25	0	1	23.63	0.134	100
		16-QAM	1	0	1	22.75	0.109	100
		16-QAM		12		22.62	0.106	100
		16-QAM		24		22.60	0.105	100
		16-QAM	25	0	2	21.45	0.081	100
	26740 819	QPSK	1	0	0	23.81	0.139	100
		QPSK		12		23.54	0.131	100
		QPSK		24		23.41	0.127	100
		QPSK	25	0	1	23.79	0.139	100
		16-QAM	1	0	1	22.73	0.109	100
		16-QAM		12		22.44	0.102	100
		16-QAM		24		22.44	0.102	100
		16-QAM	25	0	2	21.50	0.082	100
	26765 821.5	QPSK	1	0	0	23.75	0.137	100
		QPSK		12		23.63	0.134	100
		QPSK		24		23.52	0.130	100
		QPSK	25	0	1	23.50	0.130	100
		16-QAM	1	0	1	22.51	0.103	100
		16-QAM		12		22.51	0.103	100
		16-QAM		24		22.54	0.104	100
		16-QAM	25	0	2	21.49	0.082	100

Note:

1. RF Output Power (W) ERP = Conducted Output Power (dBm) + Antenna Gain (dBi) - 2.15dB
2. Power (W) =  $(10^{(\text{Power(dBm)/10})}) * 10^{-3}$

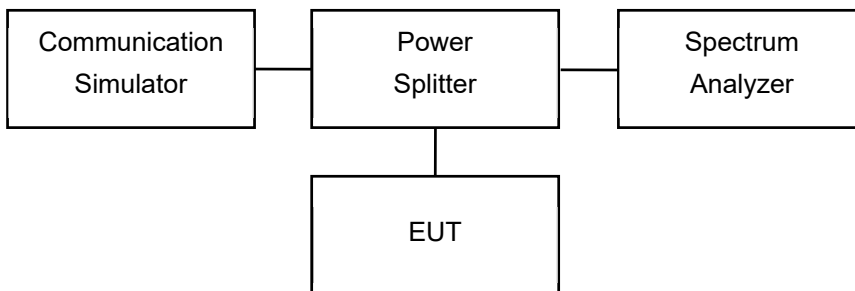
Band	Channel Freq. (MHz)	Modulation	RB No.	RB offset	MPR	Conducted Output Power (dBm)	RF Output Power (W) ERP	Limit (W) ERP
Band 26 10MHz	26740 819	QPSK	1	0	0	23.94	0.144	100
		QPSK		24		23.51	0.130	100
		QPSK		49		23.53	0.131	100
		QPSK	50	0	1	23.71	0.136	100
		16-QAM	1	0	1	22.80	0.110	100
		16-QAM		24		22.55	0.104	100
		16-QAM		49		22.48	0.103	100
		16-QAM	27	0	2	21.71	0.086	100

Note:

1. RF Output Power (W) ERP = Conducted Output Power (dBm) + Antenna Gain (dBi) - 2.15dB
2. Power (W) =  $(10^{(\text{Power(dBm)}/10)}) * 10^{-3}$

## 4. Occupied Bandwidth

### 4.1. Test Setup



### 4.2. Test Procedure

The EUT makes a call to the communication simulator. The 26dB bandwidth and 99% occupied bandwidth 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. The path loss was compensated to the results for each measurement.

### 4.3. Test Methodology and Reference Procedures

KDB 971168 D01 Power Meas License Digital Systems v03r01

ANSI C63.26-2015

#### 4.4. Test Result of Occupied Bandwidth

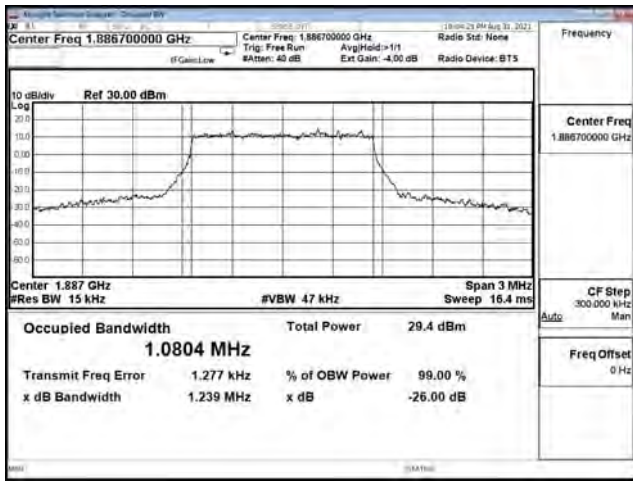
##### Mode 1: LTE Band 2/25

Bandwidth (MHz)	Modulation	Frequency (MHz)	Measure Level (MHz)		Limit (MHz)
			26dB BW	99% BW	
1.4M	QPSK	1850.7	1.239	1.080	N/A
		1882.5	1.237	1.079	N/A
		1914.3	1.243	1.081	N/A
	16-QAM	1850.7	1.226	1.709	N/A
		1882.5	1.237	1.078	N/A
		1914.3	1.244	1.079	N/A
3M	QPSK	1851.5	2.917	2.679	N/A
		1882.5	2.905	2.682	N/A
		1913.5	2.925	2.681	N/A
	16-QAM	1851.5	2.910	2.687	N/A
		1882.5	2.911	2.676	N/A
		1913.5	2.933	2.679	N/A
5M	QPSK	1852.5	4.908	4.472	N/A
		1882.5	4.923	4.473	N/A
		1912.5	4.869	4.466	N/A
	16-QAM	1852.5	4.918	4.467	N/A
		1882.5	4.923	4.472	N/A
		1912.5	4.930	4.470	N/A

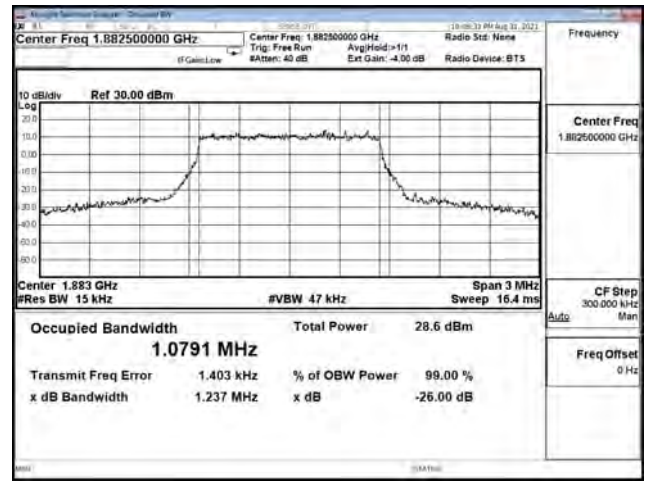
Bandwidth (MHz)	Modulation	Frequency (MHz)	Measure Level (MHz)		Limit (MHz)
			26dB BW	99% BW	
10M	QPSK	1855	9.670	8.930	N/A
		1882.5	9.577	8.920	N/A
		1910	9.610	8.924	N/A
	16-QAM	1855	5.397	4.840	N/A
		1882.5	5.372	4.841	N/A
		1910	5.464	4.844	N/A
15M	QPSK	1857.5	14.330	13.382	N/A
		1882.5	14.340	13.398	N/A
		1907.5	14.270	13.327	N/A
	16-QAM	1857.5	5.416	4.854	N/A
		1882.5	5.410	4.839	N/A
		1907.5	5.370	4.849	N/A
20M	QPSK	1860	19.080	17.829	N/A
		1882.5	19.040	17.825	N/A
		1905	19.020	17.767	N/A
	16-QAM	1860	5.472	4.842	N/A
		1882.5	5.517	4.850	N/A
		1905	5.482	4.853	N/A



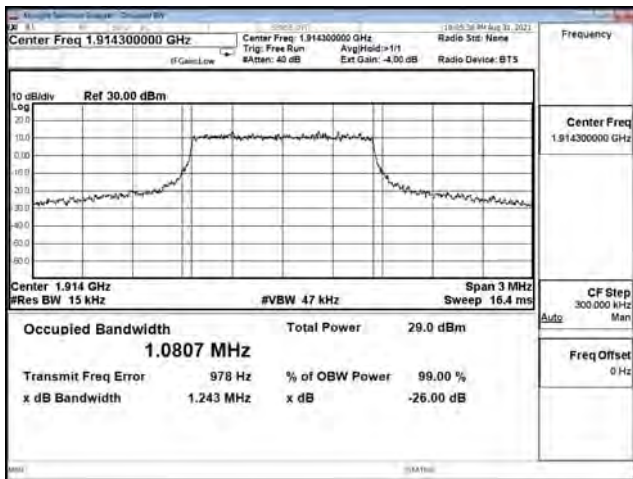
QPSK\_CH26047\_1.4M



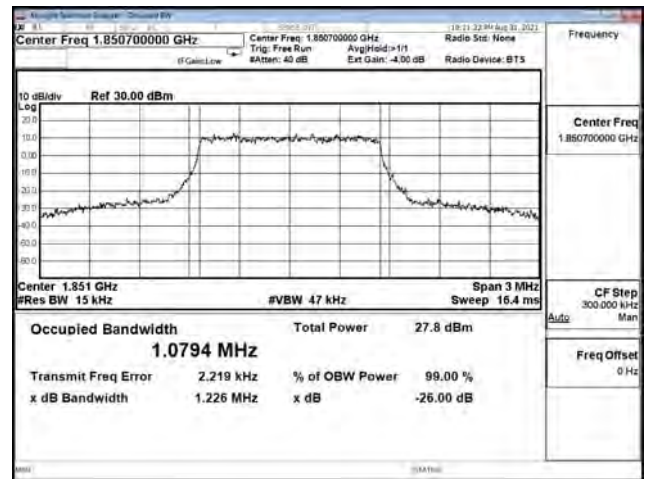
QPSK\_CH26365\_1.4M



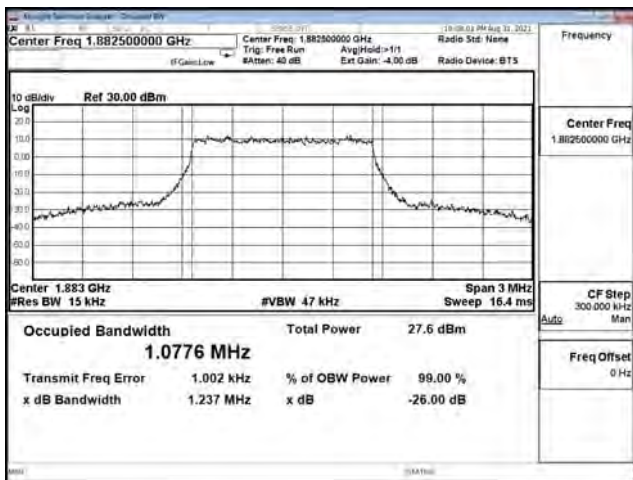
QPSK\_CH26683\_1.4M



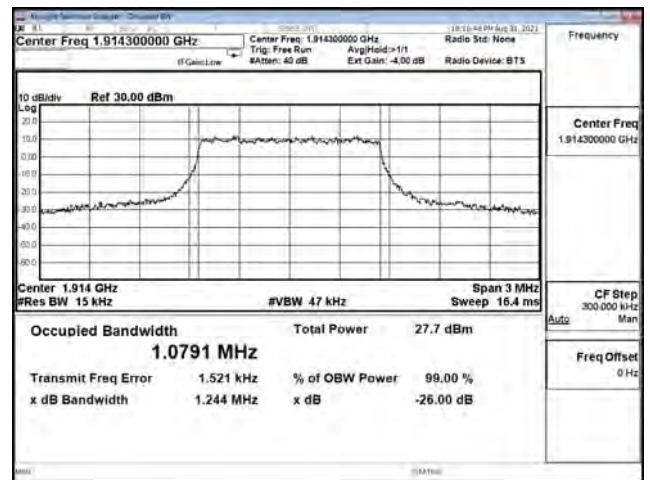
16QAM\_CH26047\_1.4M



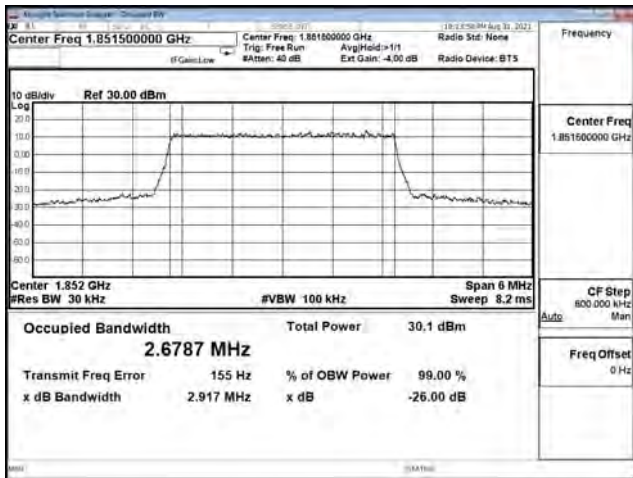
16QAM\_CH26365\_1.4M



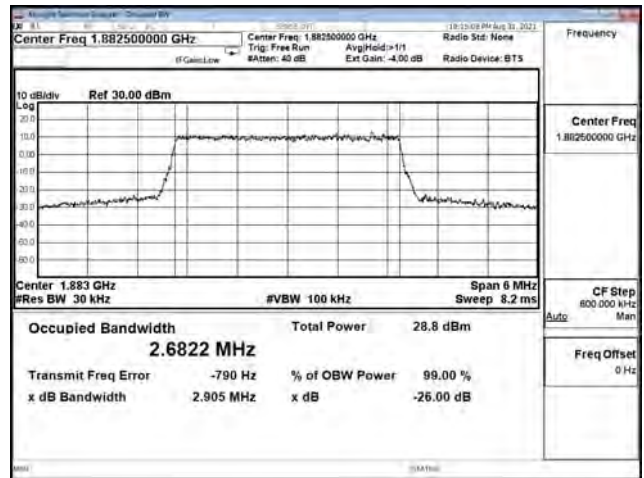
16QAM\_CH26683\_1.4M



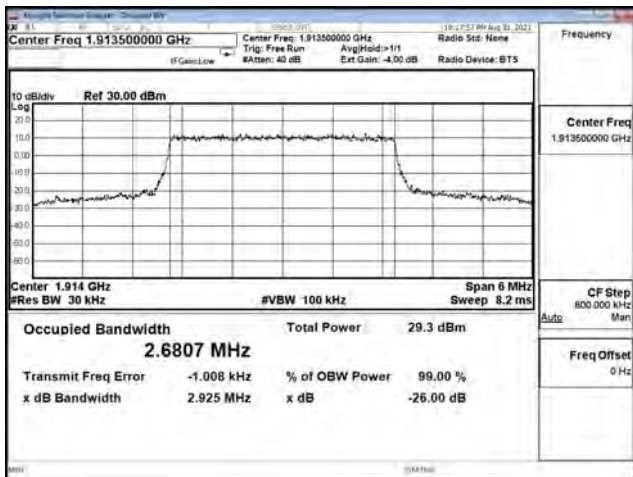
QPSK\_CH26055\_3M



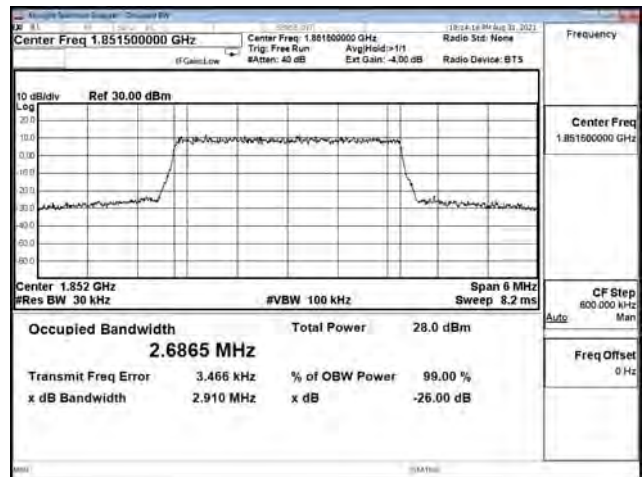
QPSK\_CH26365\_3M



QPSK\_CH26675\_3M



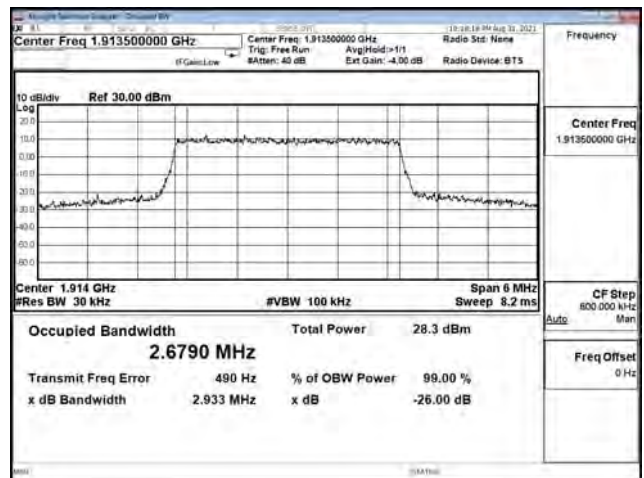
16QAM\_CH26055\_3M



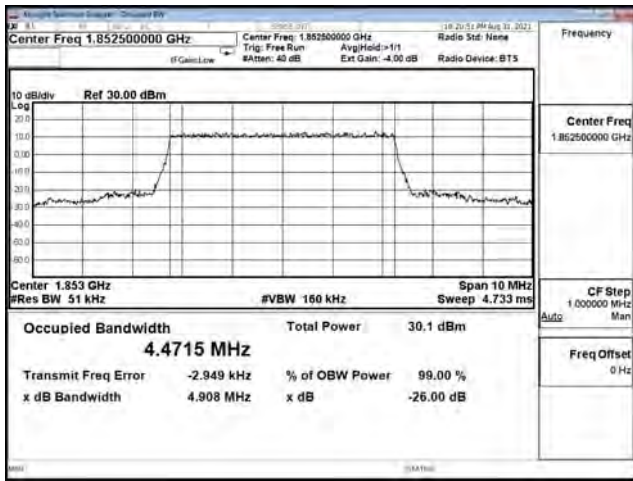
16QAM\_CH26365\_3M



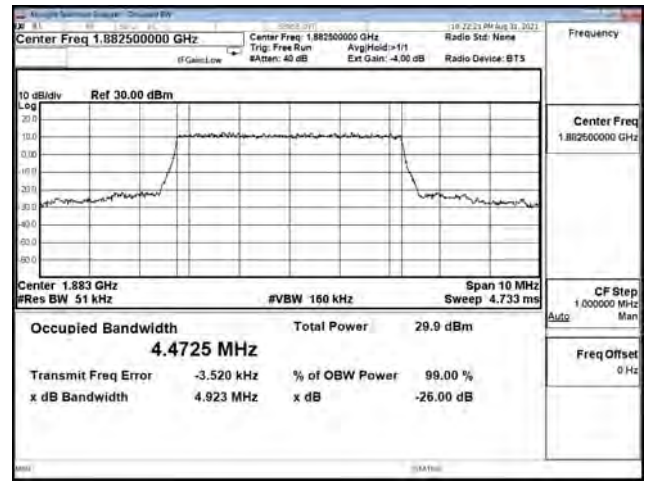
16QAM\_CH26675\_3M



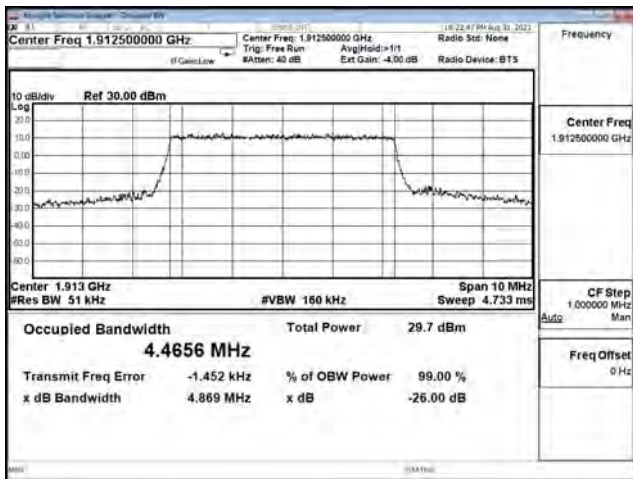
QPSK\_CH26065\_5M



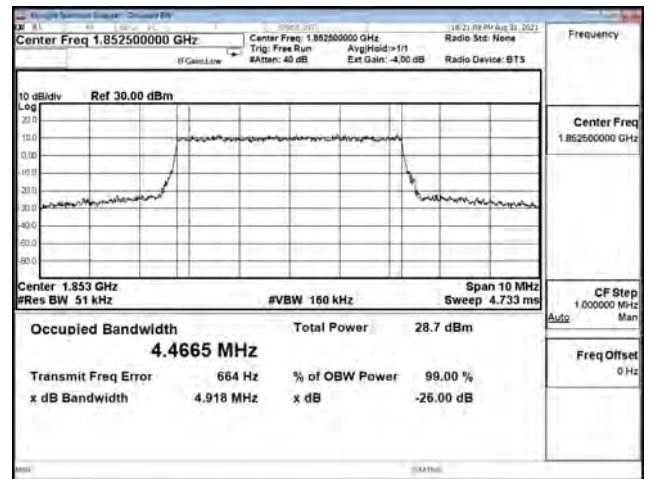
QPSK\_CH26365\_5M



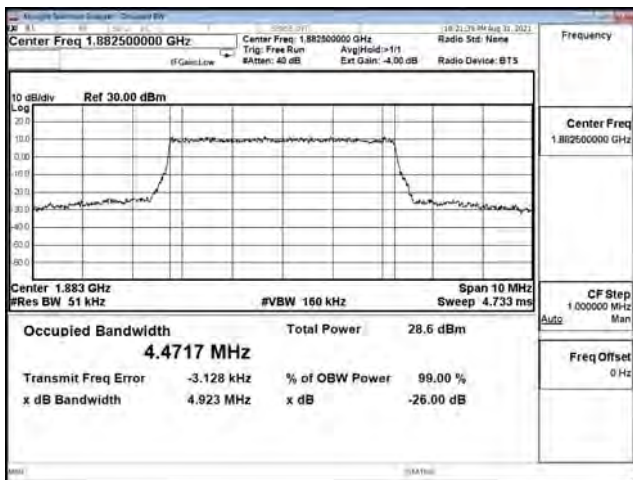
QPSK\_CH26665\_5M



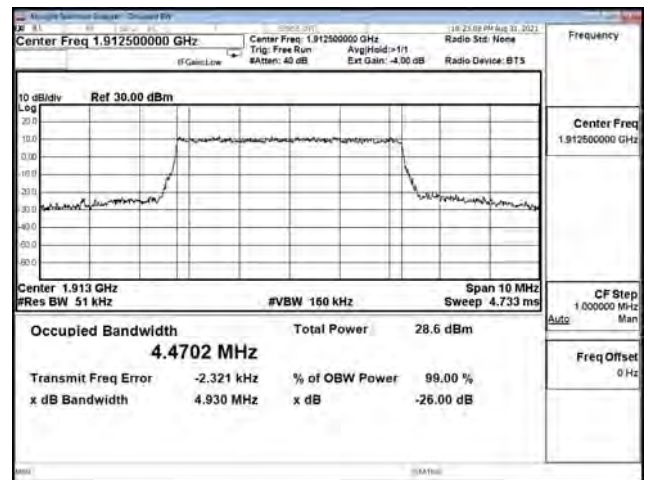
16QAM\_CH26065\_5M



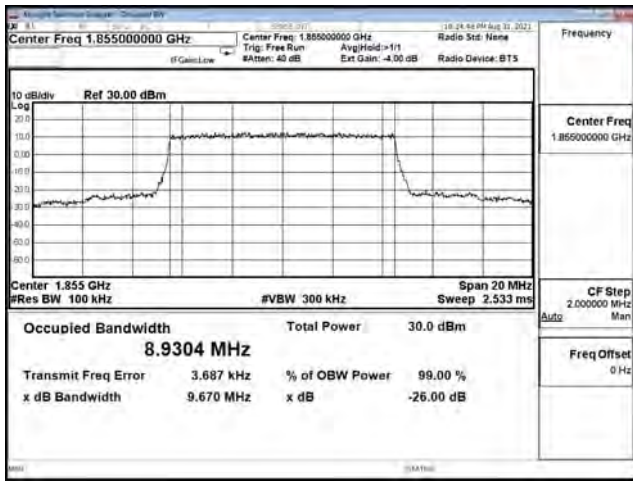
16QAM\_CH26365\_5M



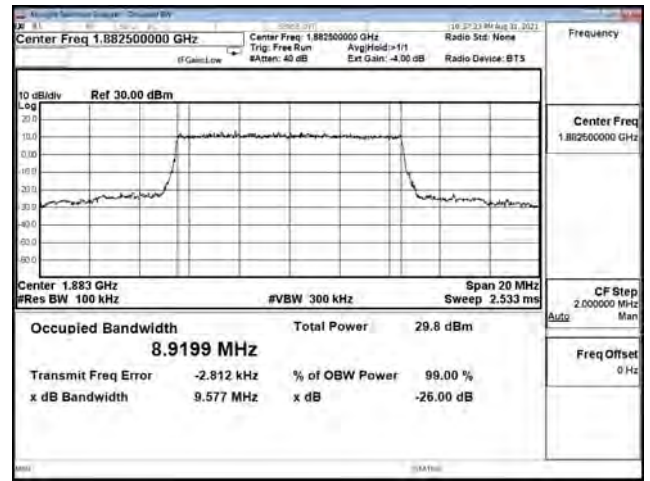
16QAM\_CH26665\_5M



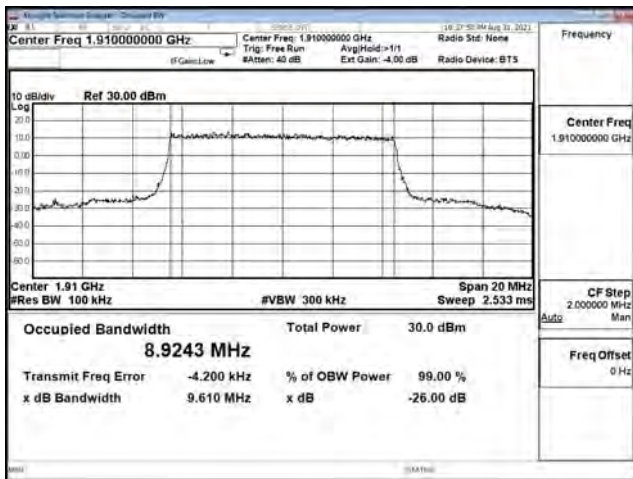
QPSK\_CH26090\_10M



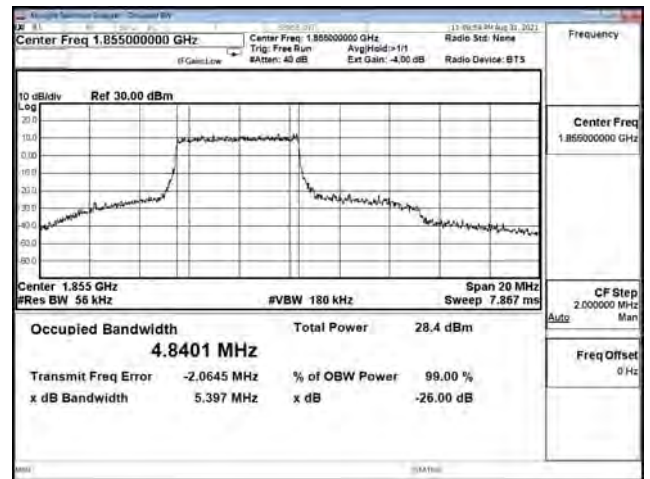
QPSK\_CH26365\_10M



QPSK\_CH26640\_10M



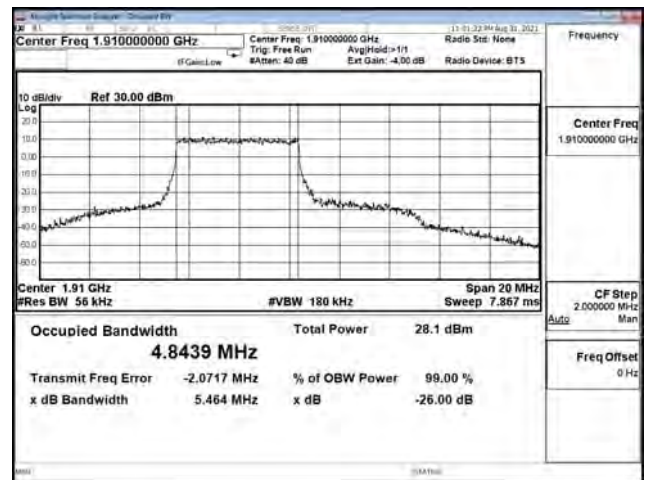
16QAM\_CH26090\_10M



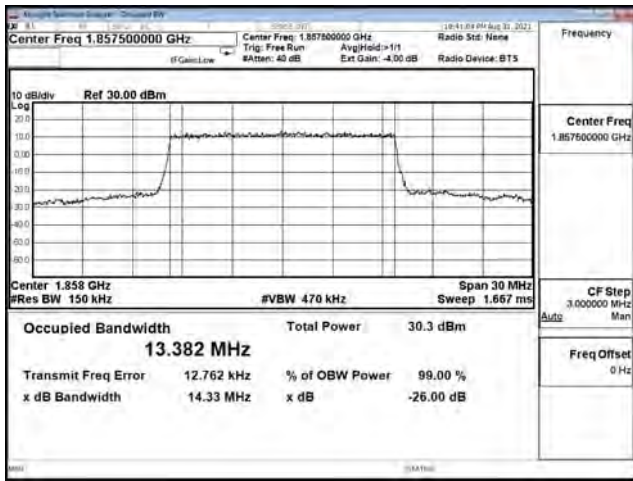
16QAM\_CH26365\_10M



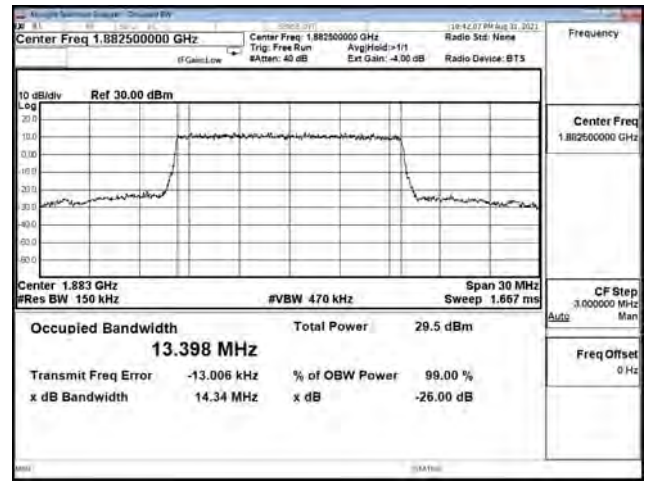
16QAM\_CH26640\_10M



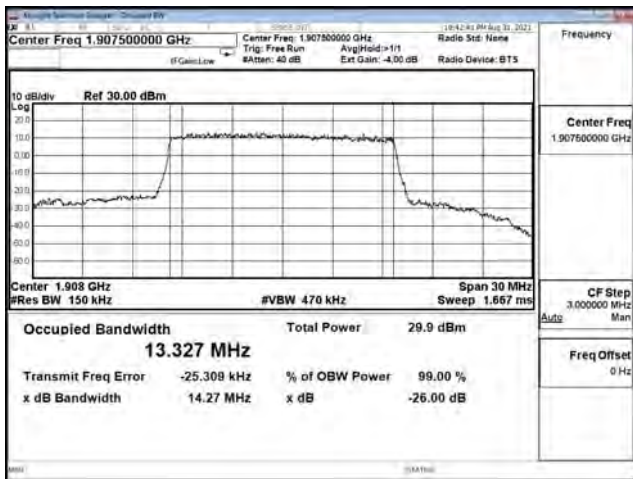
QPSK\_CH26115\_15M



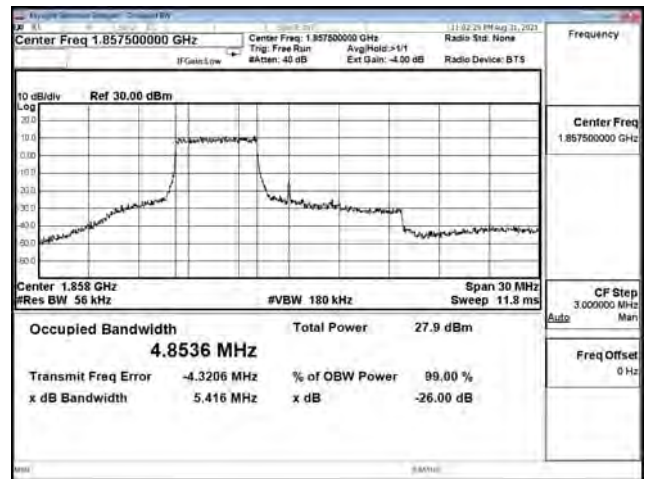
QPSK\_CH26365\_15M



QPSK\_CH26615\_15M



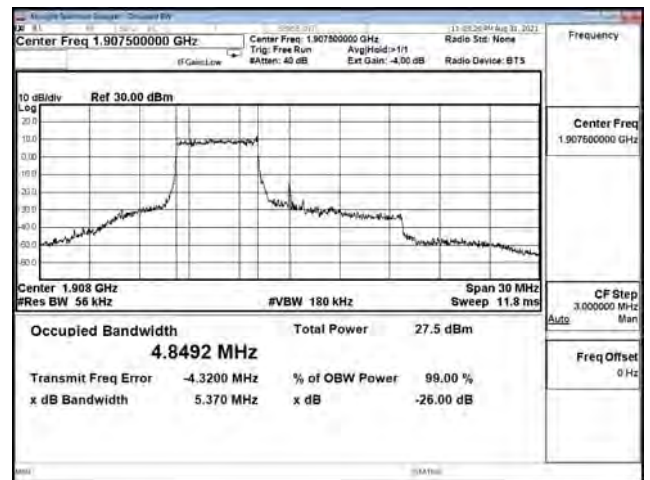
16QAM\_CH26115\_15M



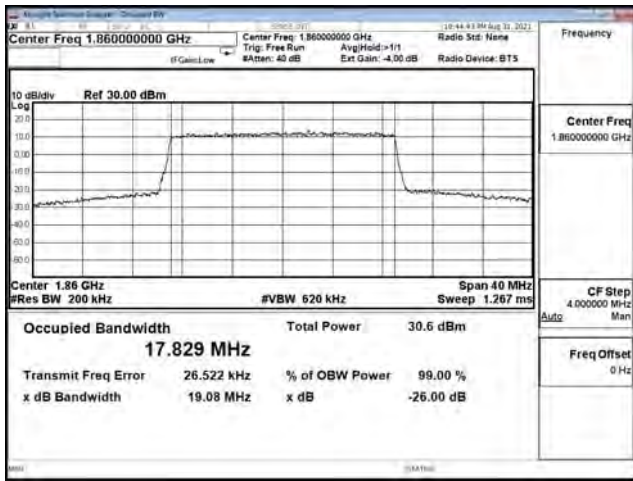
16QAM\_CH26365\_15M



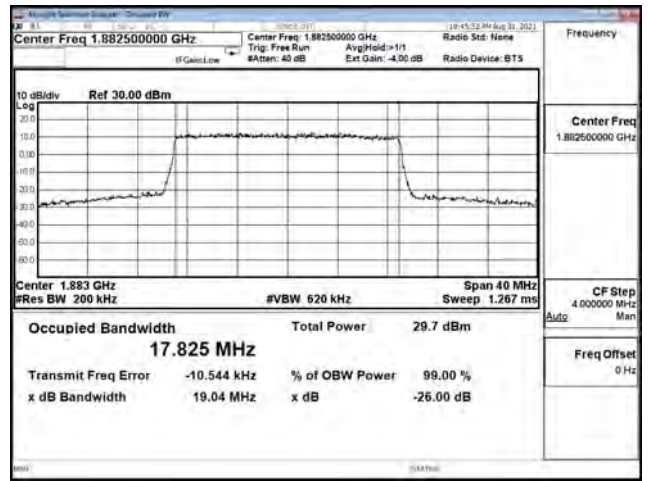
16QAM\_CH26615\_15M



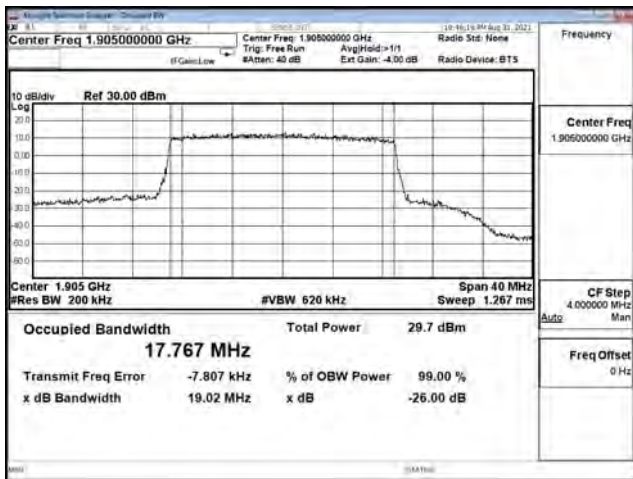
QPSK\_CH26140\_20M



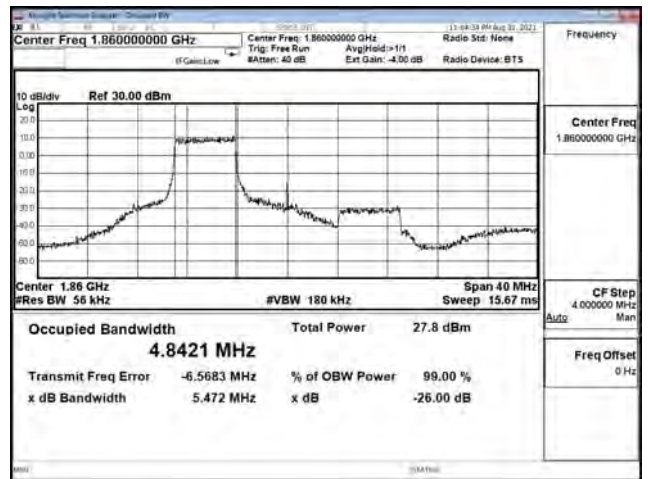
QPSK\_CH26365\_20M



QPSK\_CH26590\_20M



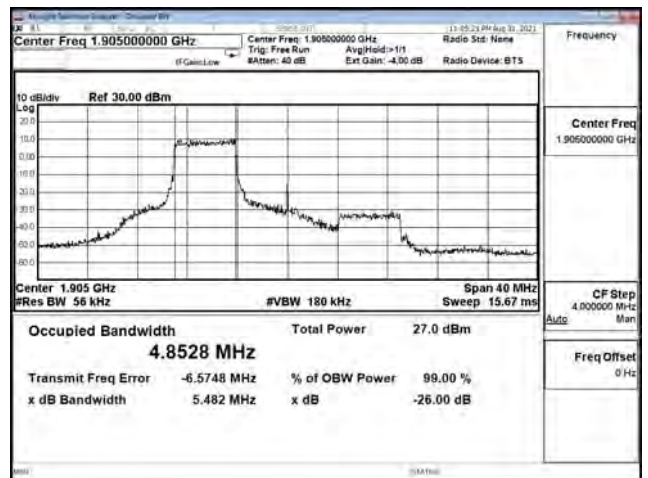
16QAM\_CH26140\_20M



16QAM\_CH26365\_20M



16QAM\_CH26590\_20M



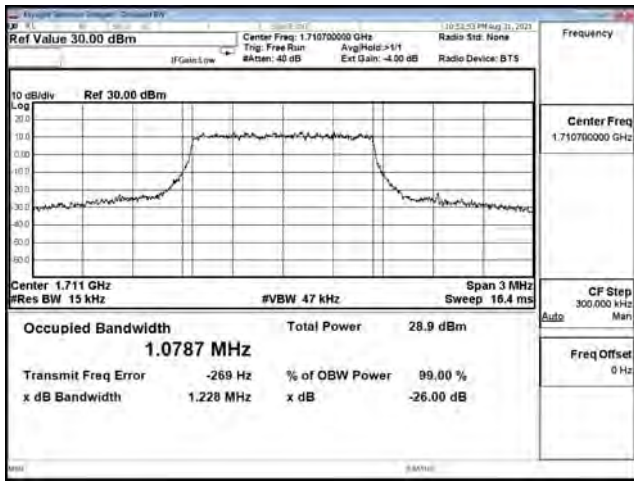
**Mode 2: LTE Band 4**

Bandwidth (MHz)	Modulation	Frequency (MHz)	Measure Level (MHz)		Limit (MHz)
			26dB BW	99% BW	
1.4M	QPSK	1710.7	1.228	1.079	N/A
		1732.5	1.231	1.079	N/A
		1754.3	1.230	1.080	N/A
	16-QAM	1710.7	1.244	1.080	N/A
		1732.5	1.243	1.077	N/A
		1754.3	1.240	1.078	N/A
3M	QPSK	1711.5	2.908	2.680	N/A
		1732.5	2.900	2.676	N/A
		1753.5	2.922	2.678	N/A
	16-QAM	1711.5	2.920	2.684	N/A
		1732.5	2.920	2.682	N/A
		1753.5	2.912	2.682	N/A
5M	QPSK	1712.5	4.916	4.469	N/A
		1732.5	4.921	4.465	N/A
		1752.2	4.888	4.462	N/A
	16-QAM	1712.5	4.908	4.478	N/A
		1732.5	4.902	4.469	N/A
		1752.2	4.923	4.462	N/A

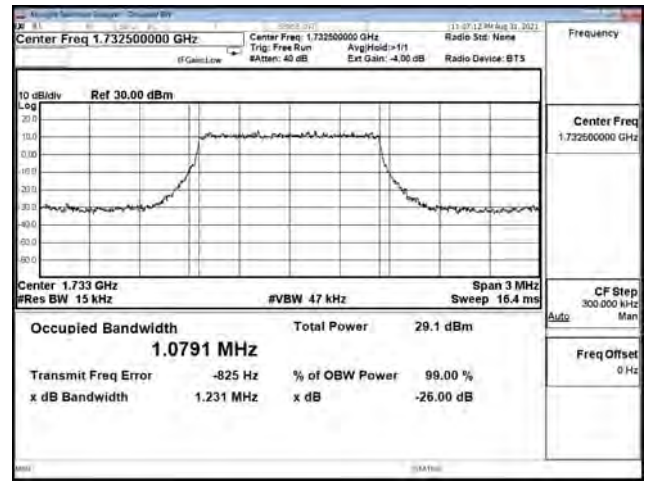
Bandwidth (MHz)	Modulation	Frequency (MHz)	Measure Level (MHz)		Limit (MHz)
			26dB BW	99% BW	
10M	QPSK	1715	9.651	8.924	N/A
		1732.5	9.578	8.925	N/A
		1750	9.579	8.925	N/A
	16-QAM	1715	5.414	4.840	N/A
		1732.5	5.438	4.844	N/A
		1750	5.339	4.834	N/A
15M	QPSK	1717.5	14.390	13.393	N/A
		1732.5	14.260	13.366	N/A
		1747.5	14.260	13.339	N/A
	16-QAM	1717.5	5.481	4.854	N/A
		1732.5	5.497	4.841	N/A
		1747.5	5.370	4.854	N/A
20M	QPSK	1720	19.040	17.812	N/A
		1732.5	18.850	17.796	N/A
		1745	18.960	17.804	N/A
	16-QAM	1720	5.506	4.851	N/A
		1732.5	5.586	4.859	N/A
		1745	5.429	4.842	N/A



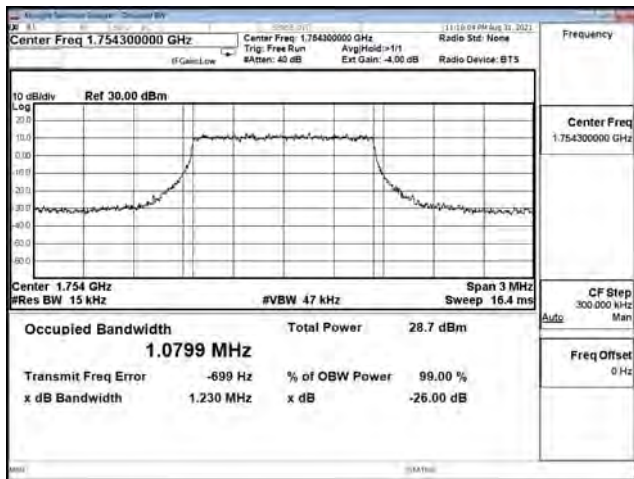
QPSK\_CH19957\_1.4M



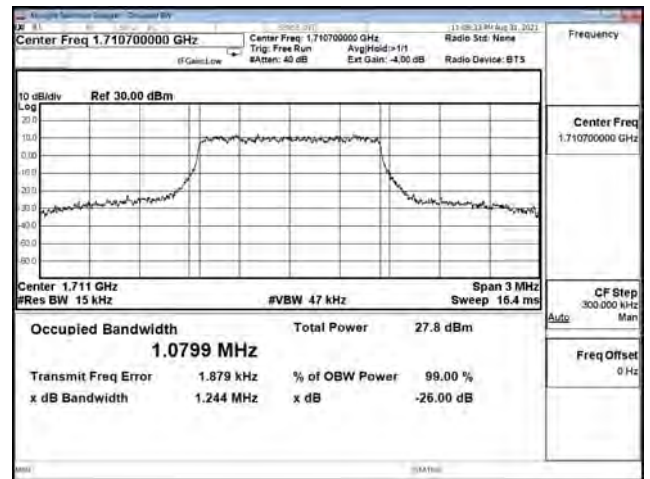
QPSK\_CH20175\_1.4M



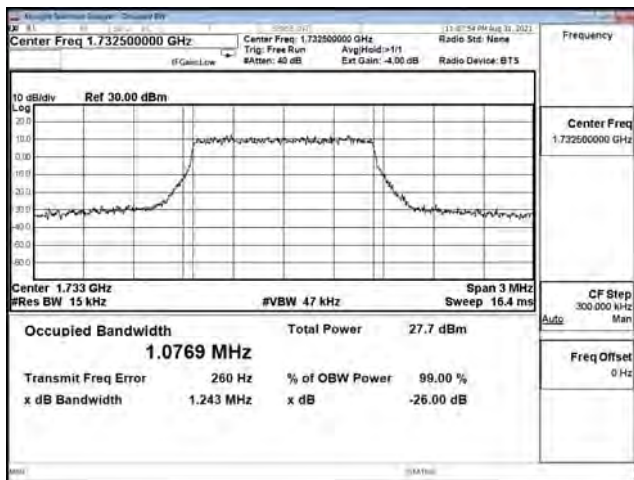
QPSK\_CH20393\_1.4M



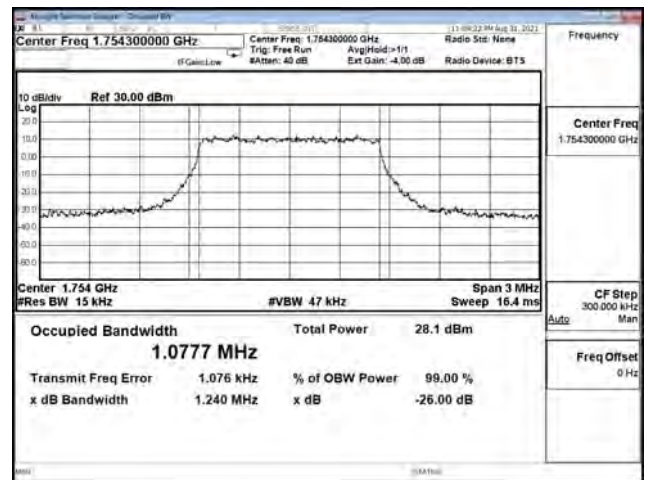
16QAM\_CH19957\_1.4M



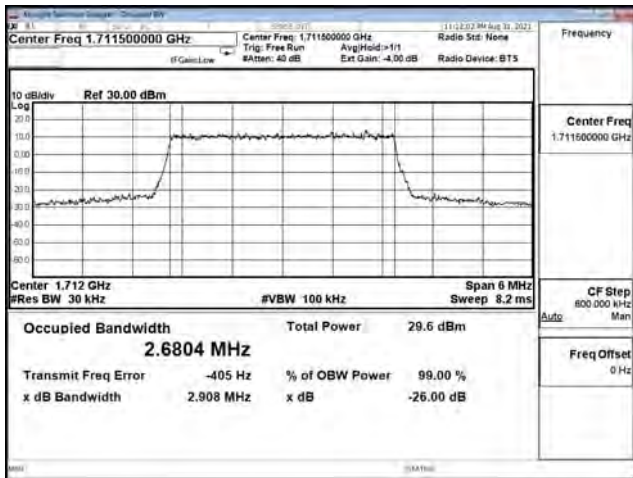
16QAM\_CH20175\_1.4M



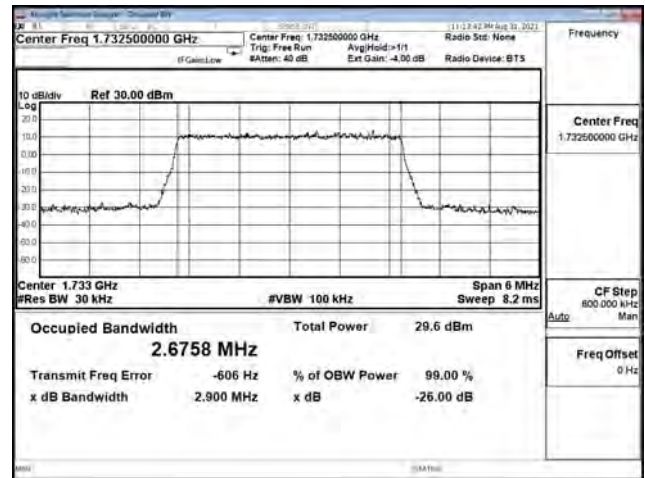
16QAM\_CH20393\_1.4M



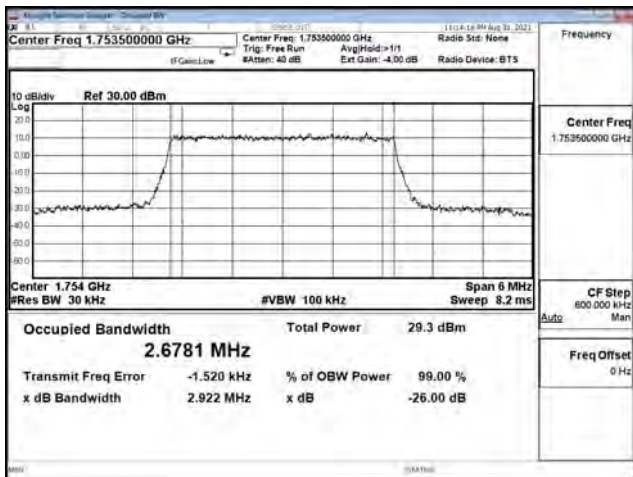
QPSK\_CH19965\_3M



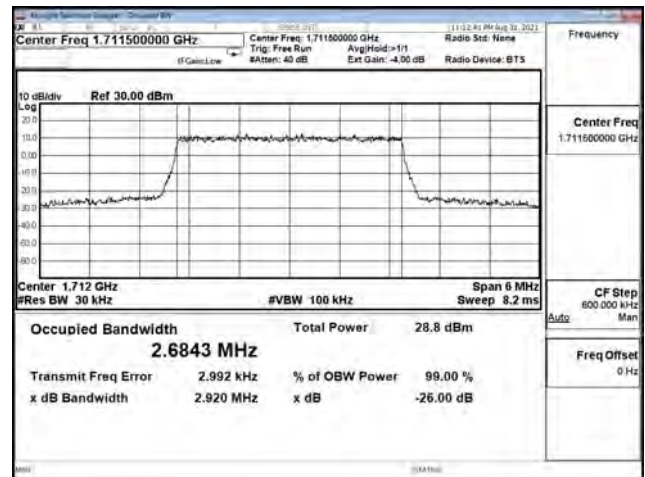
QPSK\_CH20175\_3M



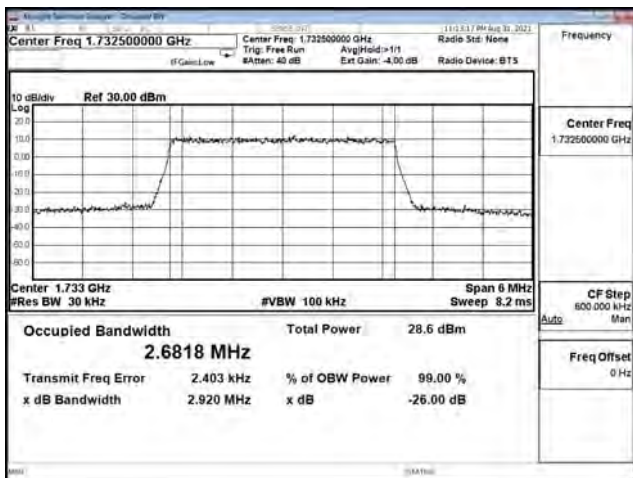
QPSK\_CH20385\_3M



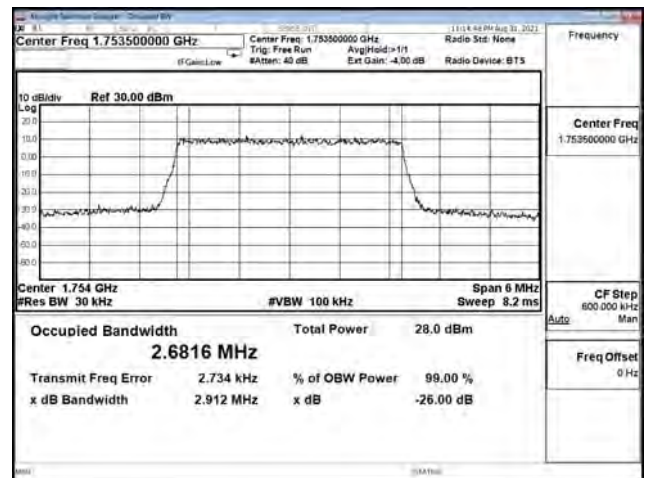
16QAM\_CH19965\_3M



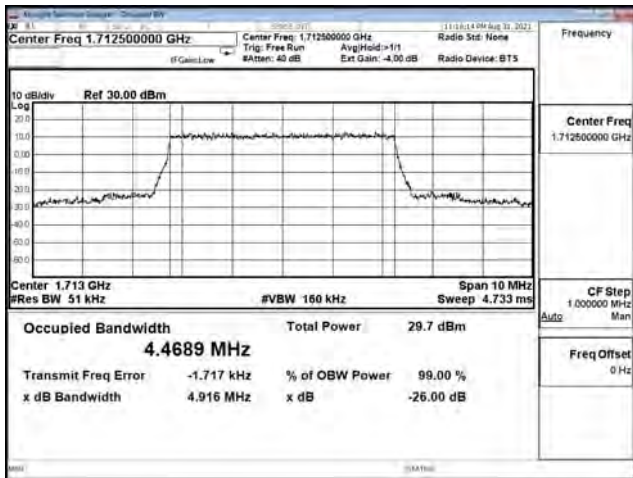
16QAM\_CH20175\_3M



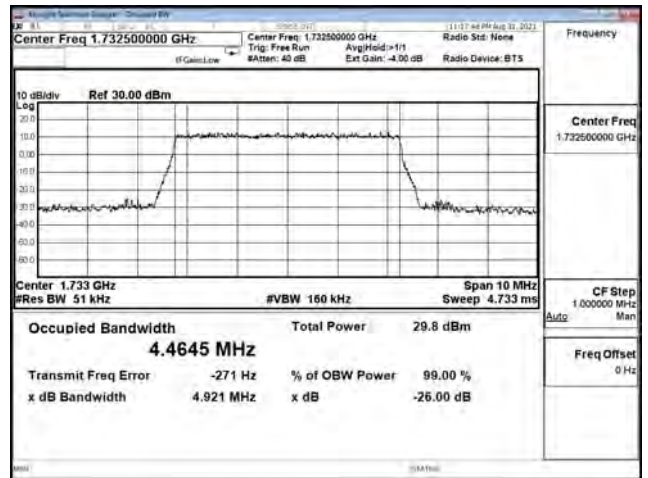
16QAM\_CH20385\_3M



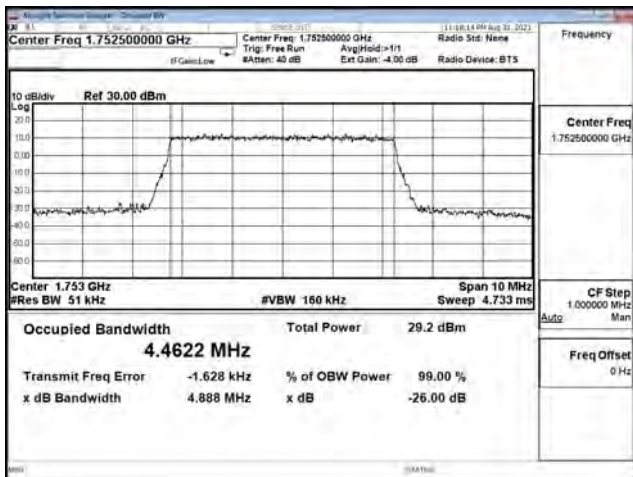
QPSK\_CH19975\_5M



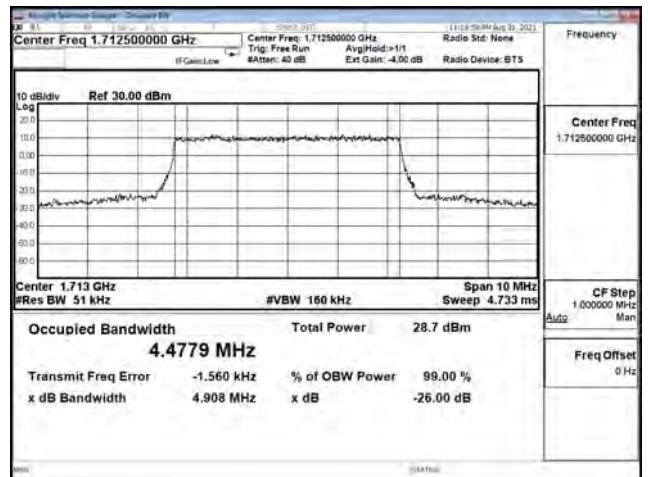
QPSK\_CH20175\_5M



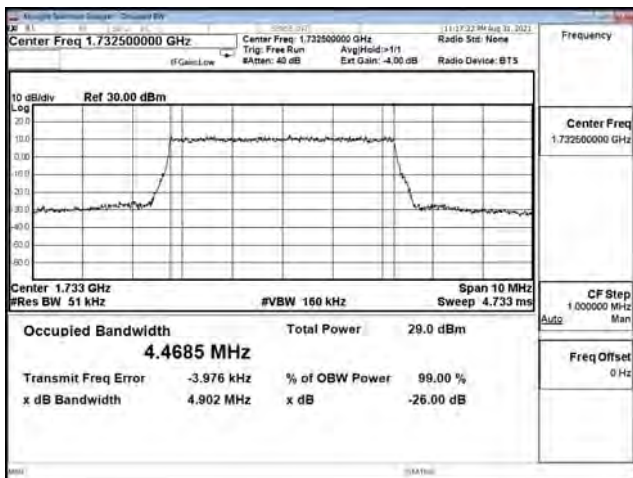
QPSK\_CH20375\_5M



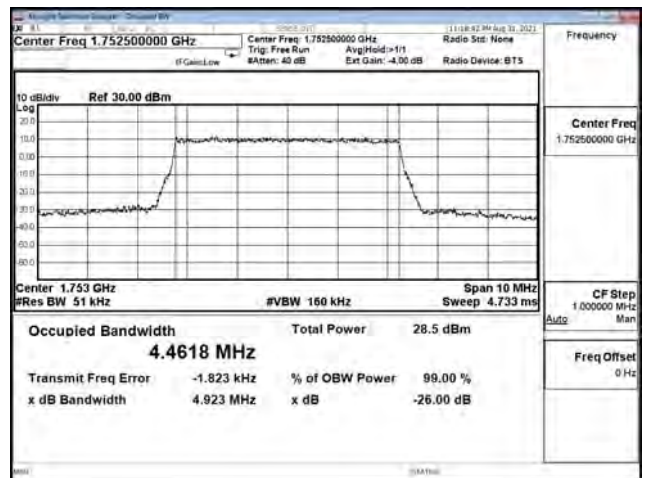
16QAM\_CH19975\_5M



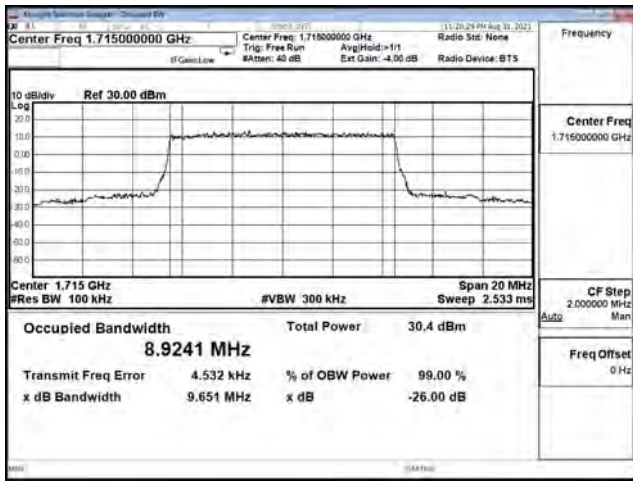
16QAM\_CH20175\_5M



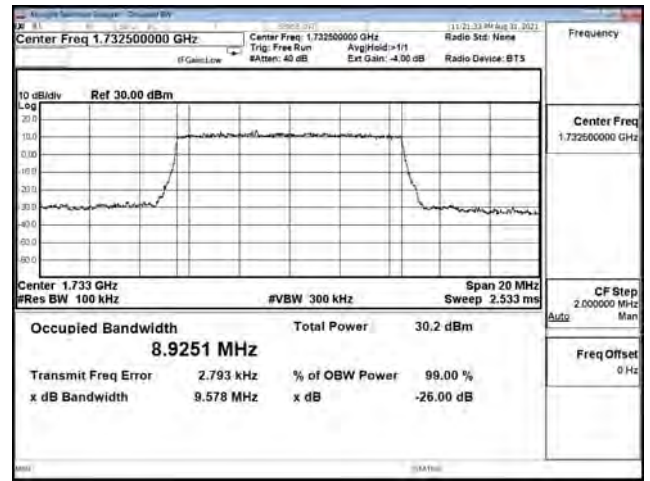
16QAM\_CH20375\_5M



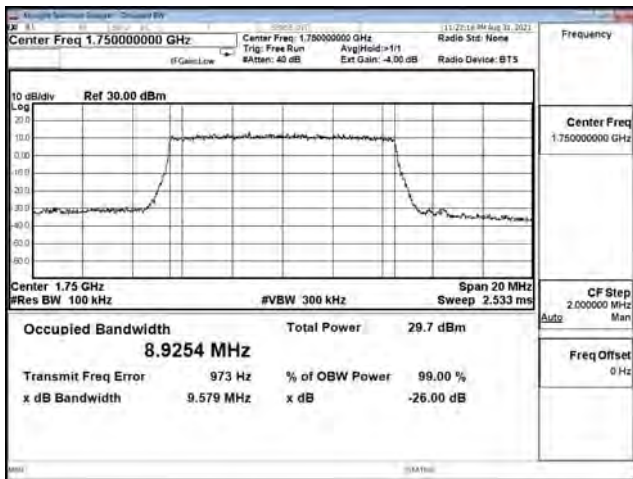
QPSK\_CH20000\_10M



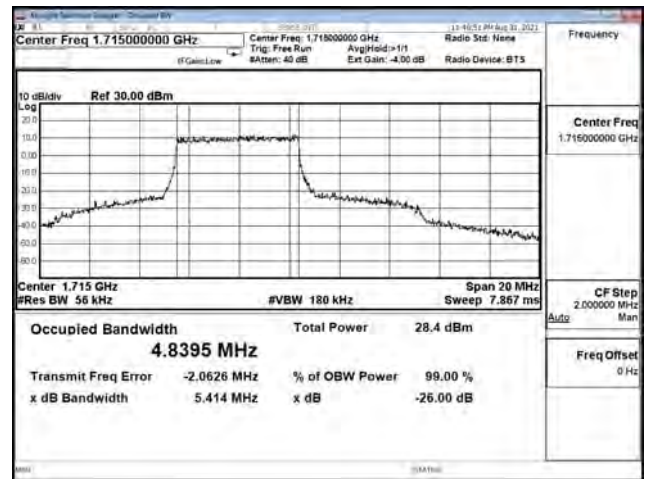
QPSK\_CH20175\_10M



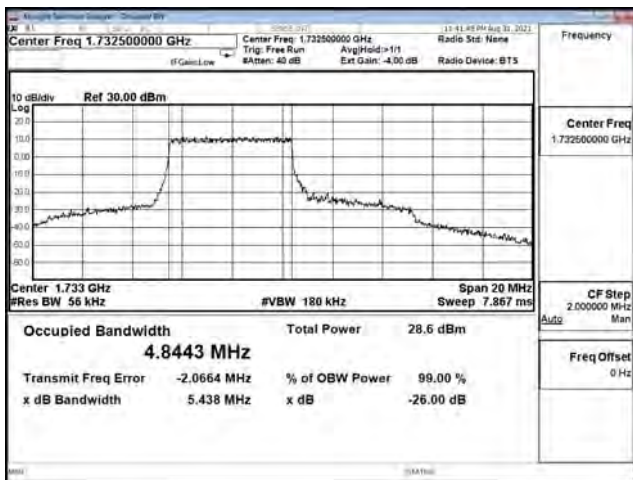
QPSK\_CH20350\_10M



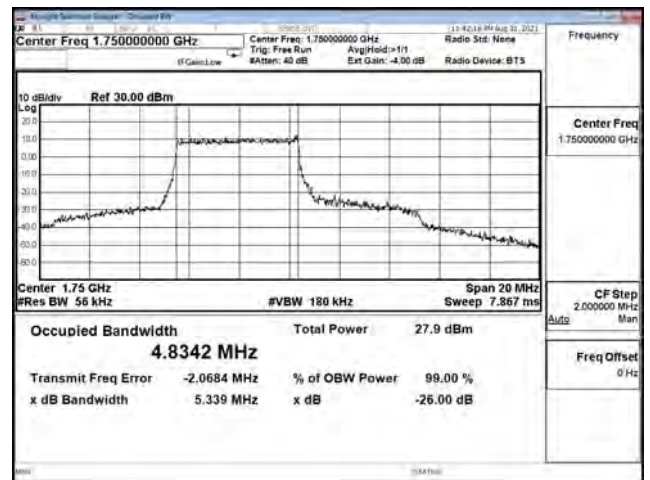
16QAM\_CH20000\_10M



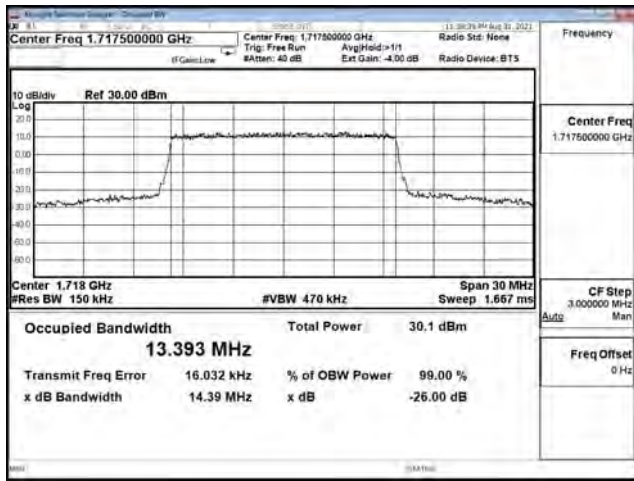
16QAM\_CH20175\_10M



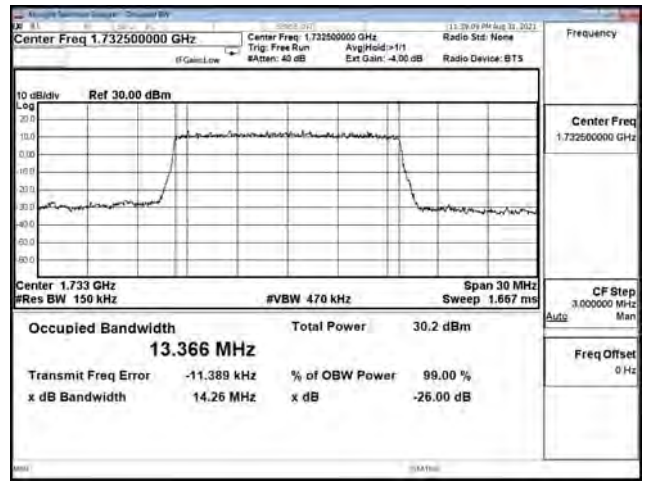
16QAM\_CH20350\_10M



QPSK\_CH20025\_15M



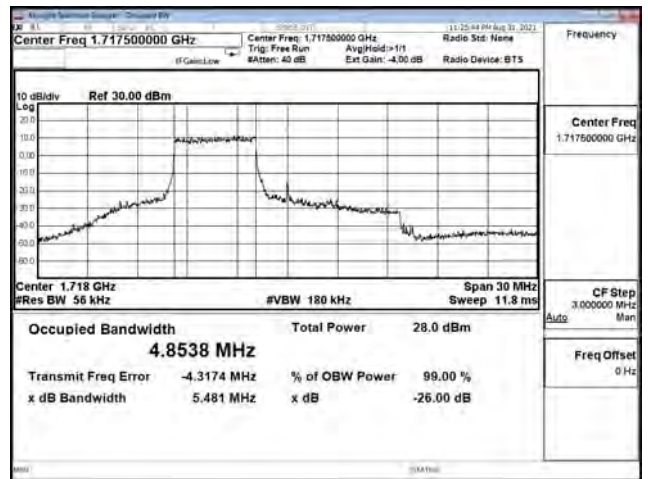
QPSK\_CH20175\_15M



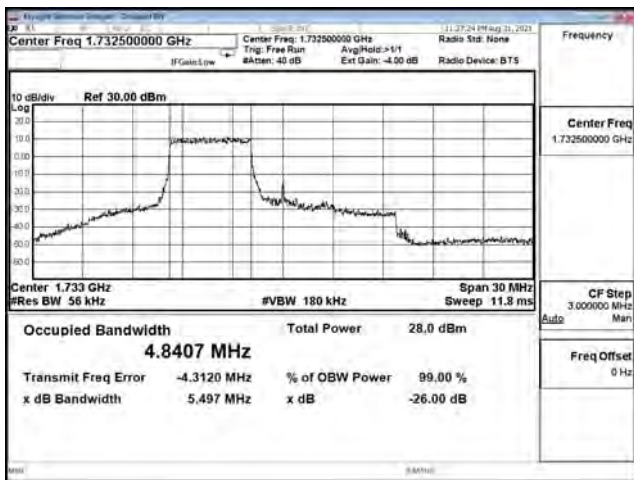
QPSK\_CH20325\_15M



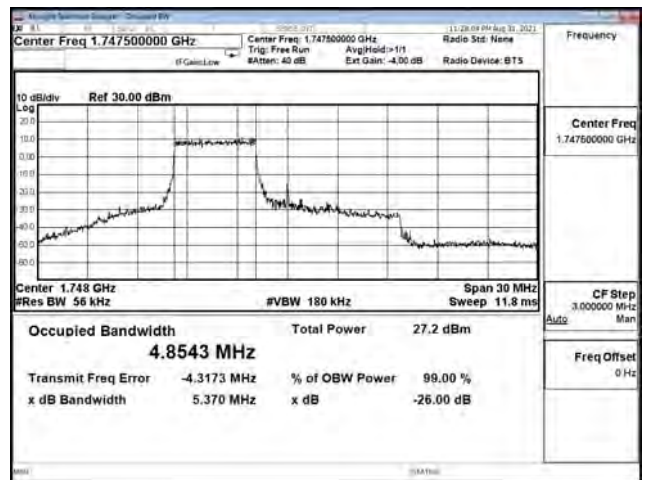
16QAM\_CH20025\_15M



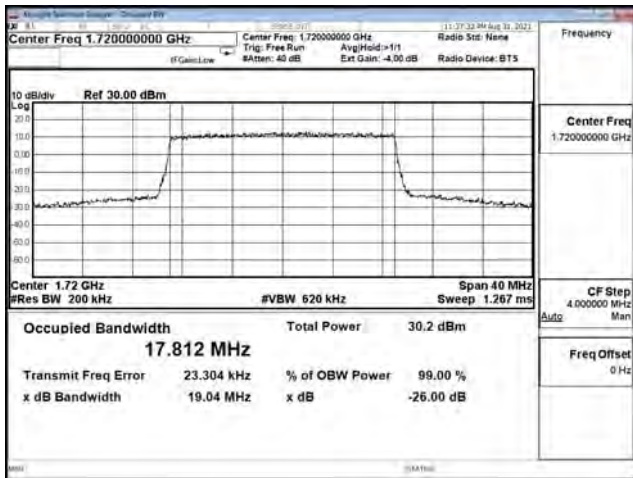
16QAM\_CH20175\_15M



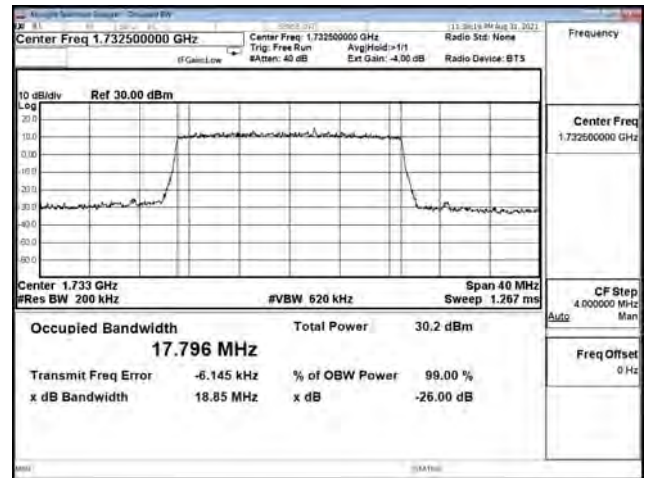
16QAM\_CH20325\_15M



QPSK\_CH20050\_20M



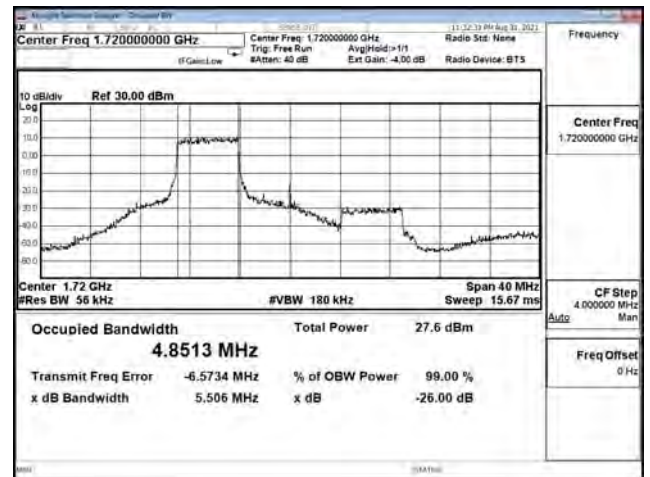
QPSK\_CH20175\_20M



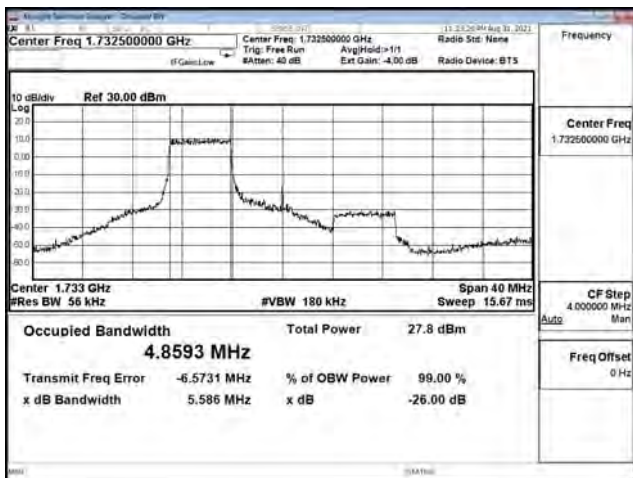
QPSK\_CH20300\_20M



16QAM\_CH20050\_20M



16QAM\_CH20175\_20M



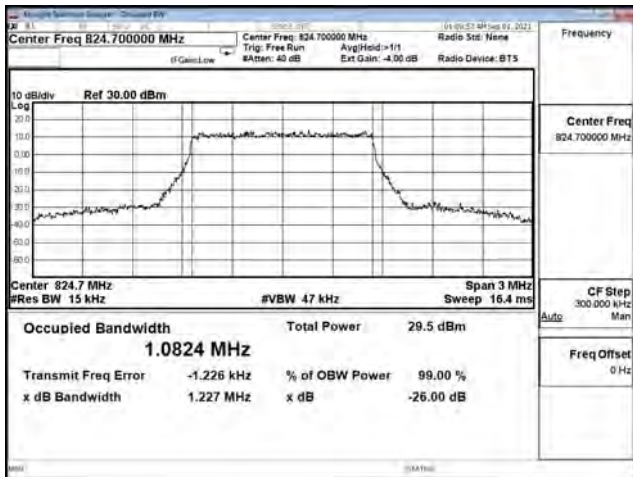
16QAM\_CH20300\_20M



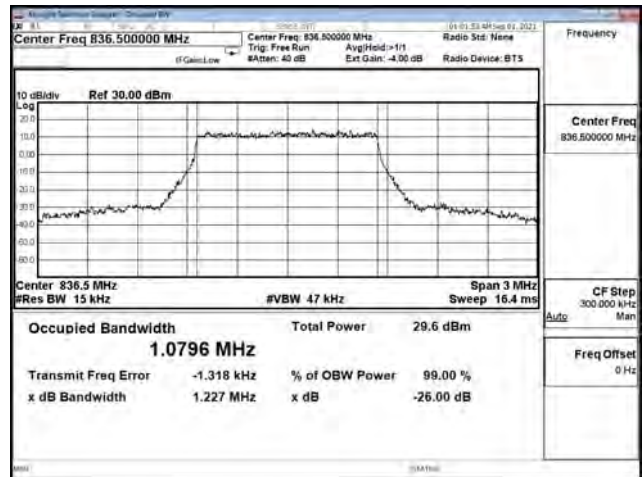
**Mode 3: LTE Band 5/26 (Part 22)**

Bandwidth (MHz)	Modulation	Frequency (MHz)	Measure Level (MHz)		Limit (MHz)
			26dB BW	99% BW	
1.4M	QPSK	824.7	1.227	1.082	N/A
		836.5	1.227	1.080	N/A
		848.3	1.222	1.081	N/A
	16-QAM	824.7	1.237	1.079	N/A
		836.5	1.238	1.077	N/A
		848.3	1.235	1.078	N/A
3M	QPSK	825.5	2.904	2.679	N/A
		836.5	2.904	2.675	N/A
		847.5	2.903	2.676	N/A
	16-QAM	825.5	2.910	2.683	N/A
		836.5	2.924	2.677	N/A
		847.5	2.921	2.684	N/A
5M	QPSK	826.5	4.894	4.467	N/A
		836.5	4.885	4.468	N/A
		846.5	4.893	4.466	N/A
	16-QAM	826.5	4.877	4.463	N/A
		836.5	4.840	4.471	N/A
		846.5	4.896	4.466	N/A
10M	QPSK	829	9.603	8.931	N/A
		836.5	9.595	8.934	N/A
		844	9.565	8.917	N/A
	16-QAM	829	5.383	4.837	N/A
		836.5	5.326	4.839	N/A
		844	5.382	4.841	N/A
15M	QPSK	831.5	14.300	13.403	N/A
		836.5	14.220	13.399	N/A
		841.5	14.280	13.386	N/A
	16-QAM	831.5	5.379	4.839	N/A
		836.5	5.400	4.844	N/A
		841.5	5.331	4.843	N/A

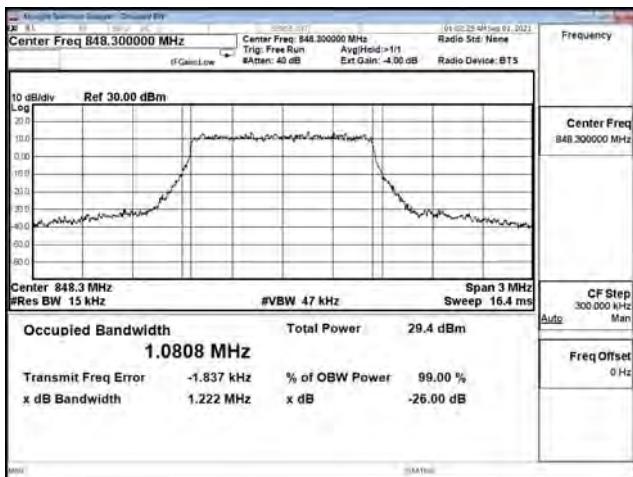
QPSK\_CH26797\_1.4M



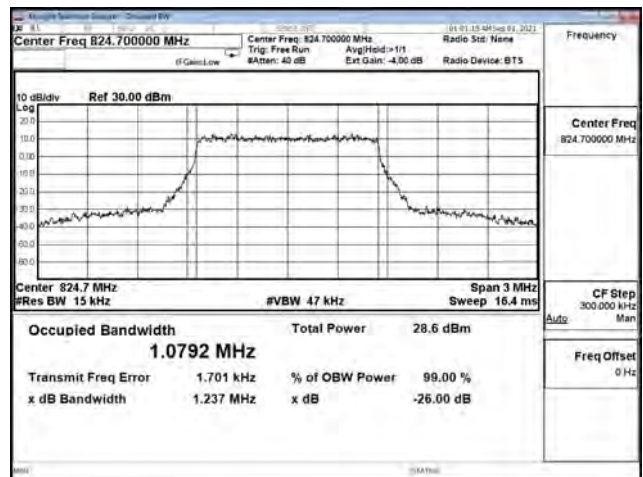
QPSK\_CH26915\_1.4M



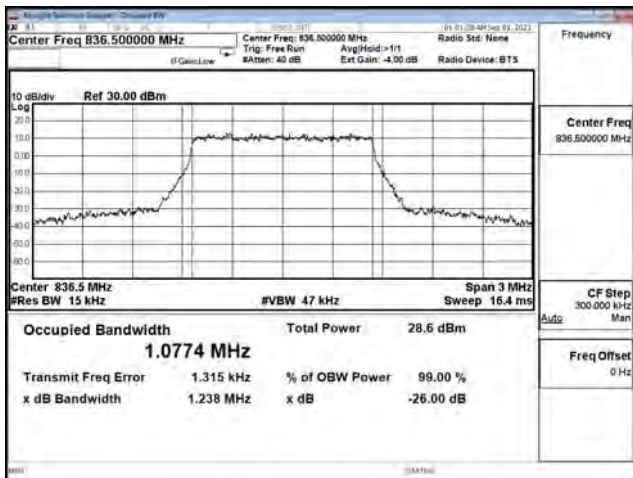
QPSK\_CH27033\_1.4M



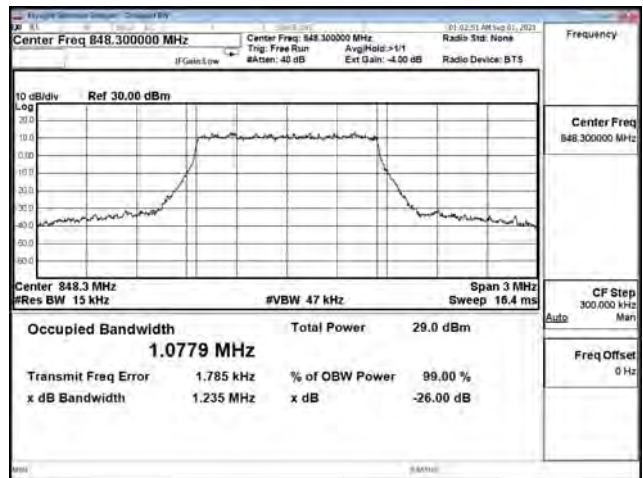
16QAM\_CH26797\_1.4M



16QAM\_CH26915\_1.4M

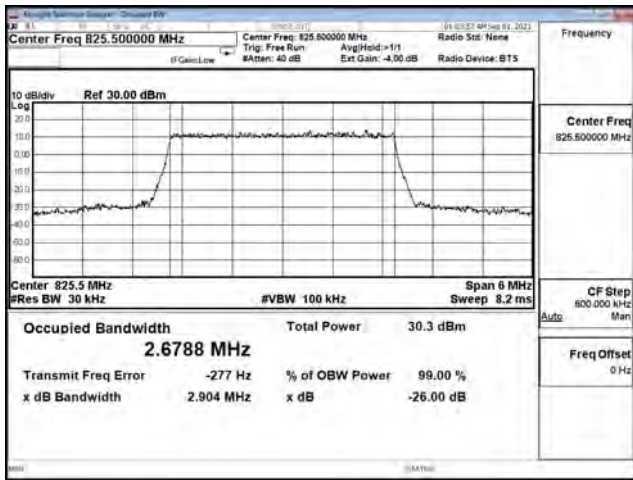


16QAM\_CH27033\_1.4M

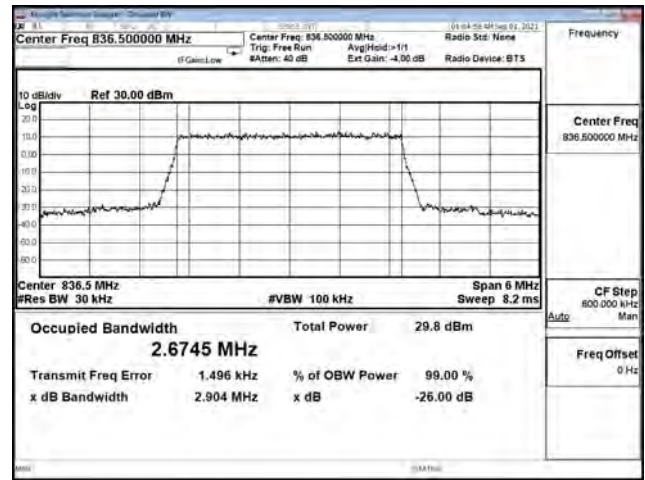




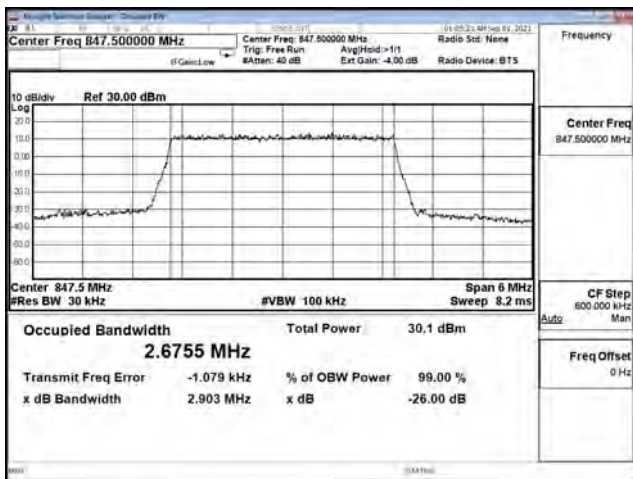
QPSK\_CH26805\_3M



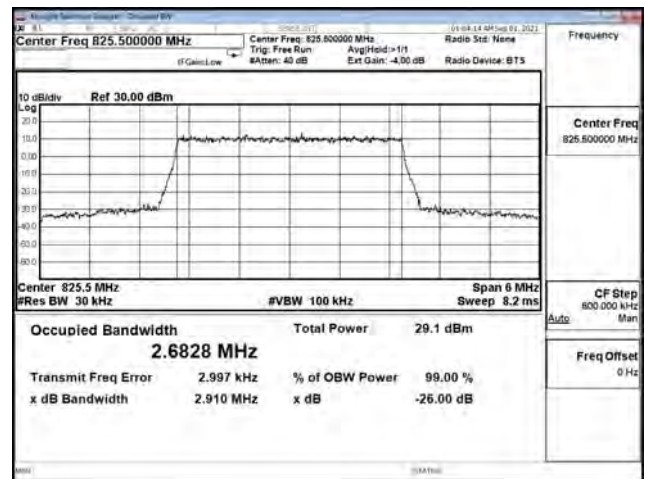
QPSK\_CH26915\_3M



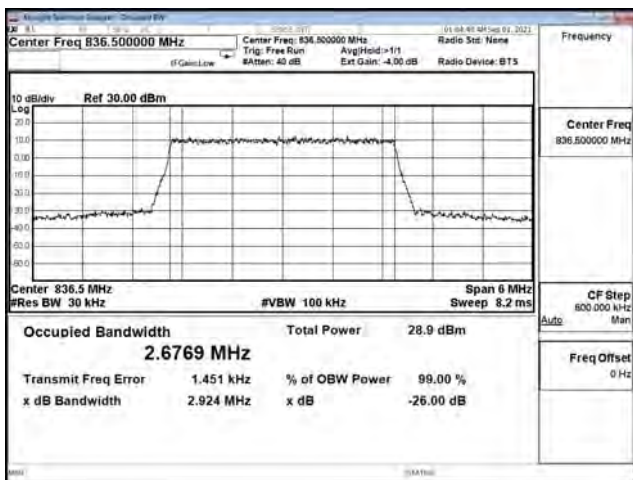
QPSK\_CH27025\_3M



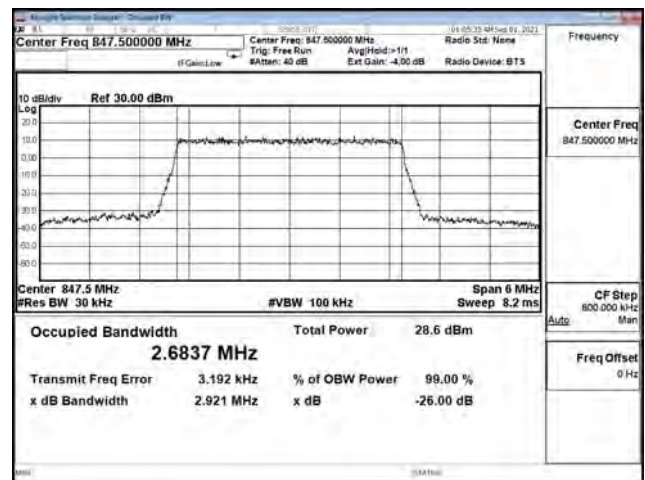
16QAM\_CH26805\_3M



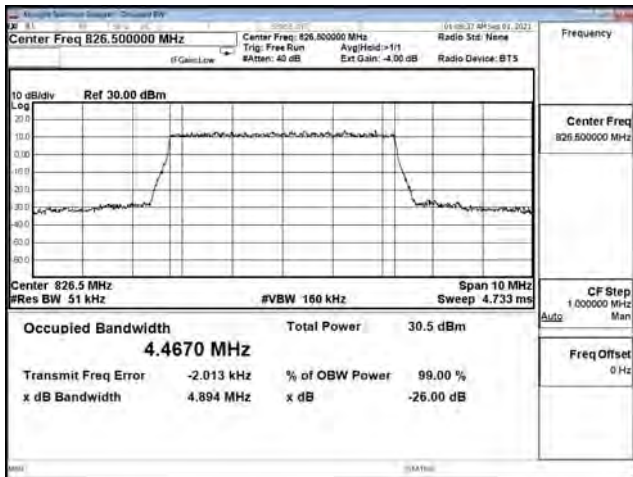
16QAM\_CH26915\_3M



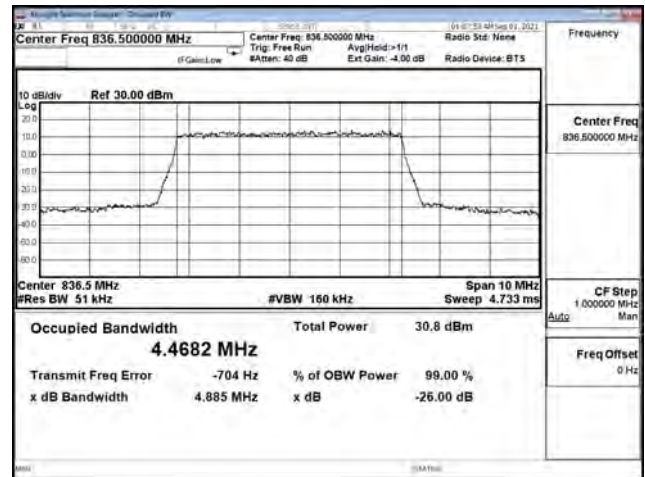
16QAM\_CH27025\_3M



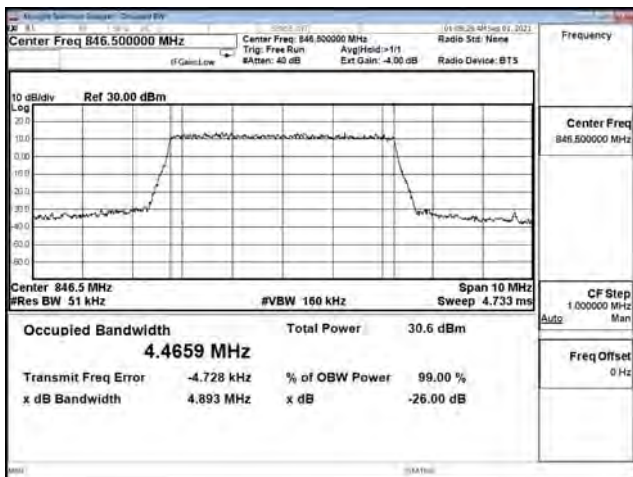
QPSK\_CH26815\_5M



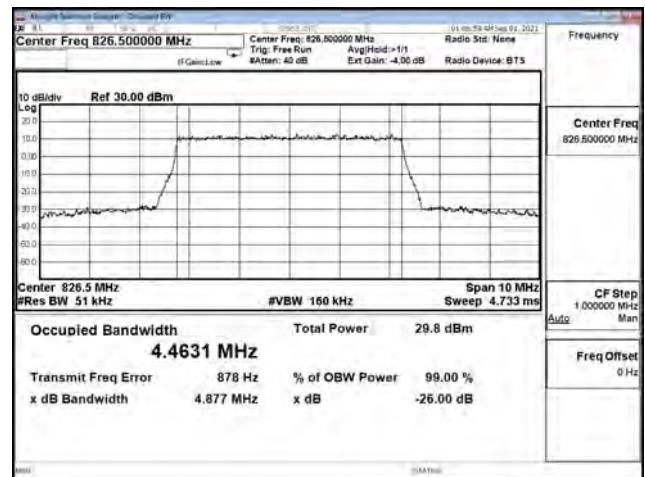
QPSK\_CH26915\_5M



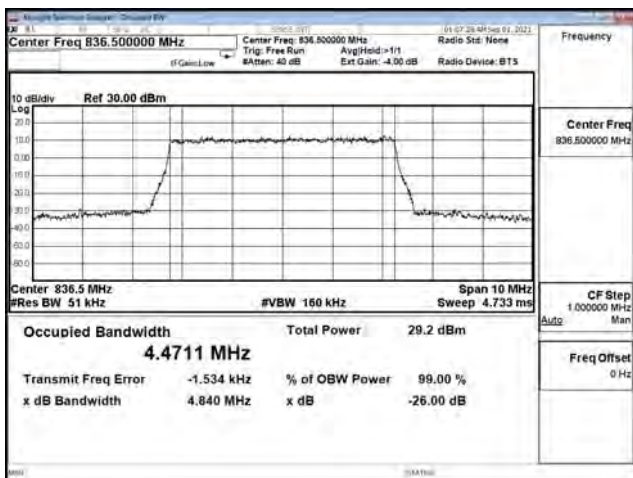
QPSK\_CH27015\_5M



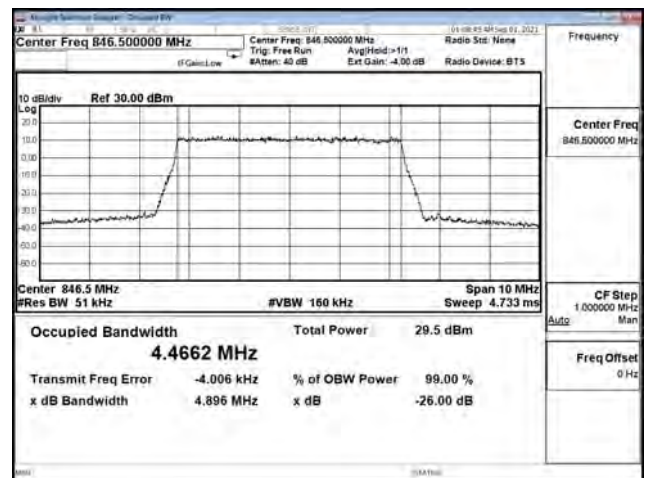
16QAM\_CH26815\_5M



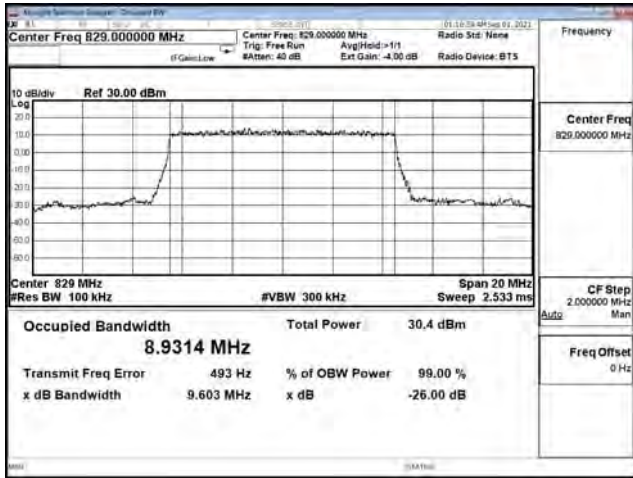
16QAM\_CH26915\_5M



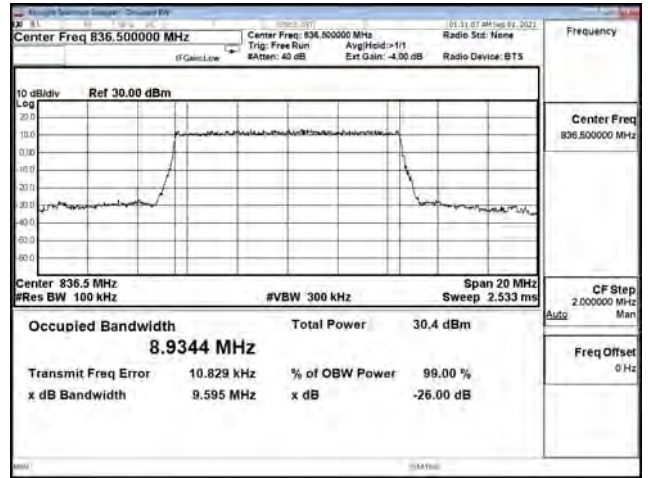
16QAM\_CH27015\_5M



QPSK\_CH26840\_10M



QPSK\_CH26915\_10M



QPSK\_CH26990\_10M



16QAM\_CH26840\_10M



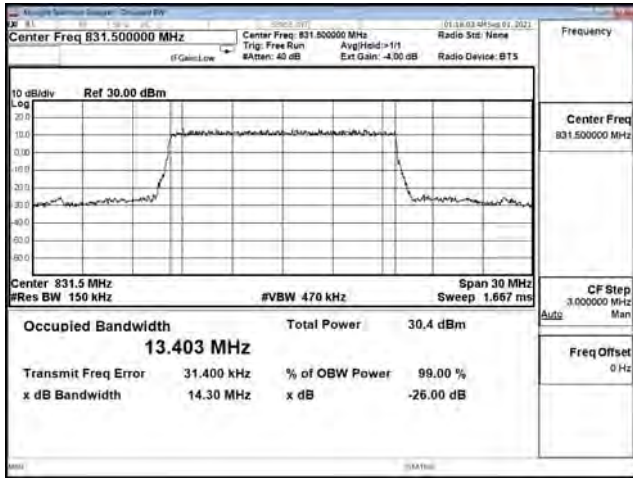
16QAM\_CH26915\_10M



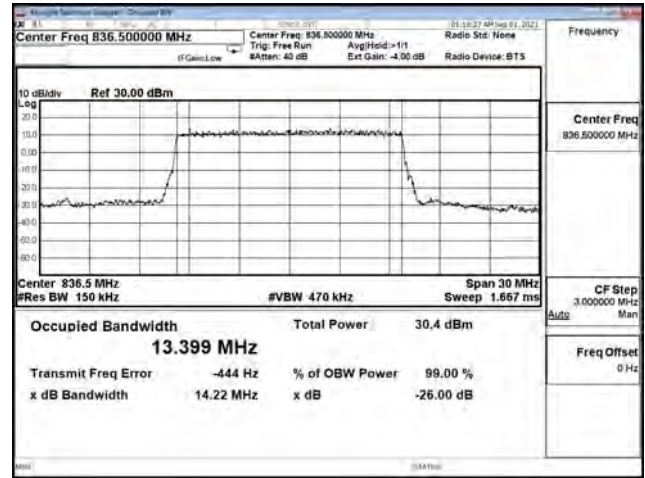
16QAM\_CH26990\_10M



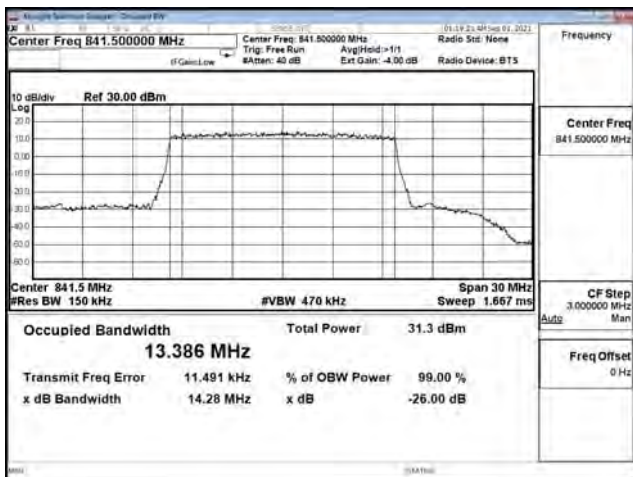
QPSK\_CH26865\_15M



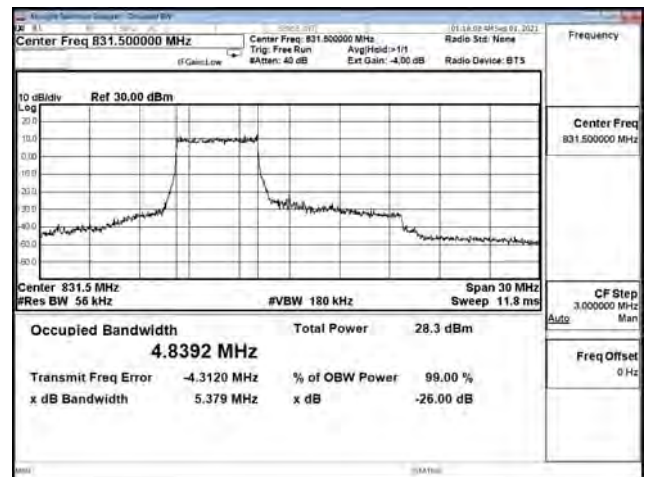
QPSK\_CH26915\_15M



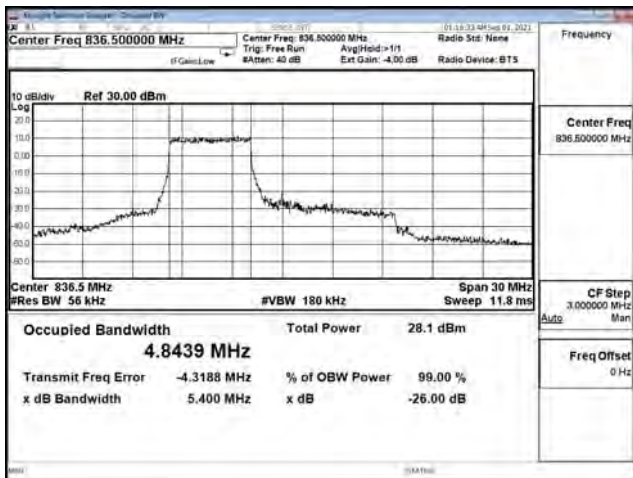
QPSK\_CH26965\_15M



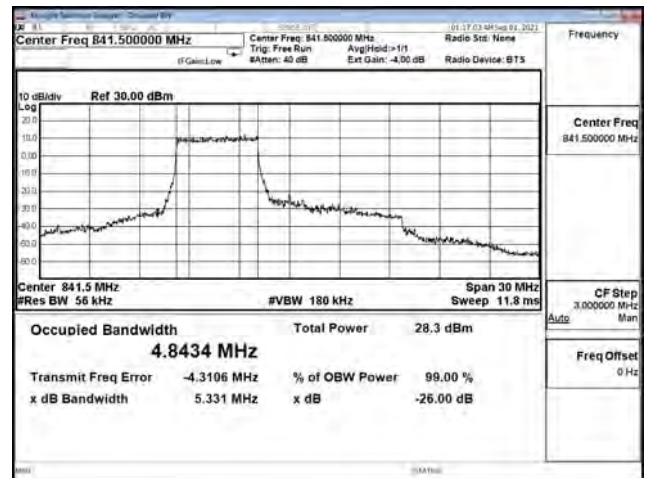
16QAM\_CH26865\_15M



16QAM\_CH26915\_15M



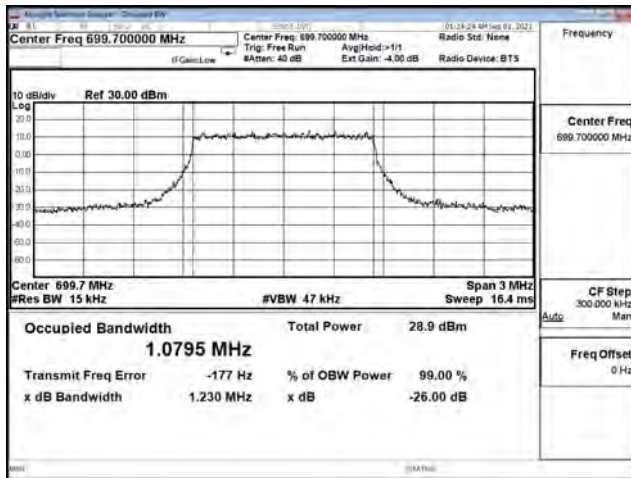
16QAM\_CH26965\_15M



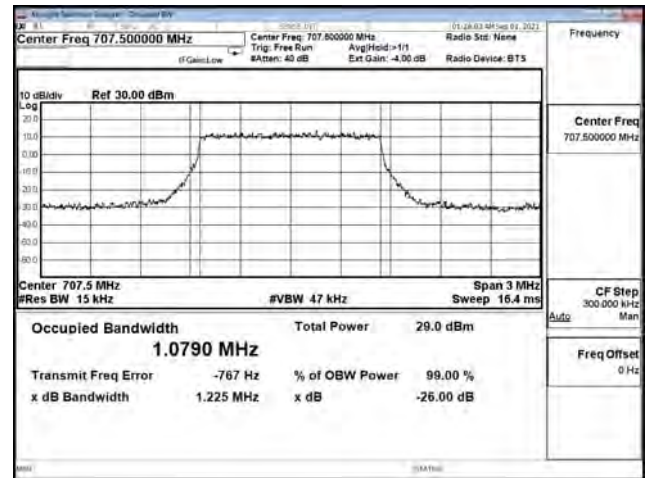
**Mode 4: LTE Band 12**

Bandwidth (MHz)	Modulation	Frequency (MHz)	Measure Level (MHz)		Limit (MHz)
			26dB BW	99% BW	
1.4M	QPSK	699.7	1.230	1.079	N/A
		707.5	1.225	1.079	N/A
		715.3	1.230	1.078	N/A
	16-QAM	699.7	1.256	1.079	N/A
		707.5	1.251	1.079	N/A
		715.3	1.254	1.079	N/A
3M	QPSK	700.5	2.897	2.678	N/A
		707.5	2.907	2.678	N/A
		714.5	2.928	2.682	N/A
	16-QAM	700.5	2.918	2.676	N/A
		707.5	2.930	2.681	N/A
		714.5	2.924	2.681	N/A
5M	QPSK	710.5	4.899	4.465	N/A
		707.5	4.899	4.472	N/A
		713.5	4.894	4.462	N/A
	16-QAM	710.5	4.870	4.464	N/A
		707.5	4.883	4.474	N/A
		713.5	4.867	4.464	N/A
10M	QPSK	704.0	9.604	8.930	N/A
		707.5	9.645	8.925	N/A
		711.0	9.562	8.897	N/A
	16-QAM	704.0	5.419	4.841	N/A
		707.5	5.366	4.835	N/A
		711.0	5.450	4.843	N/A

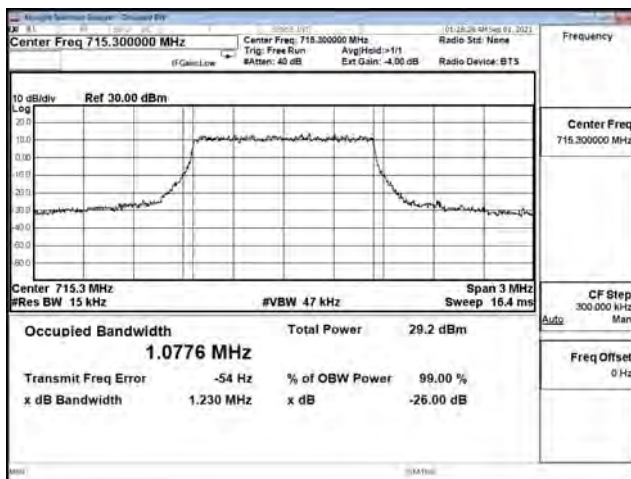
QPSK\_CH23017\_1.4M



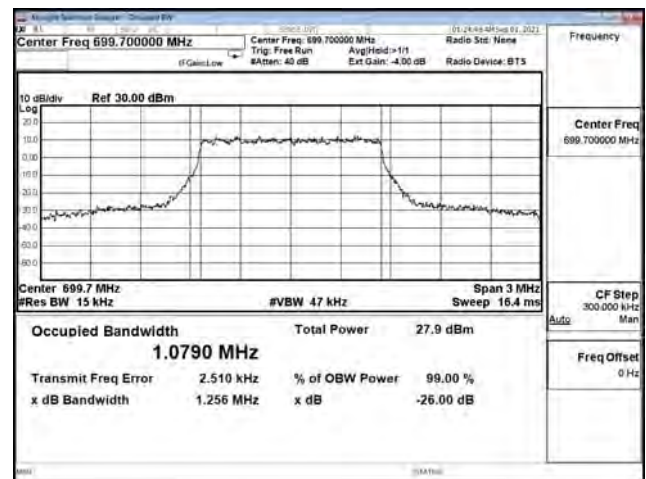
QPSK\_CH23095\_1.4M



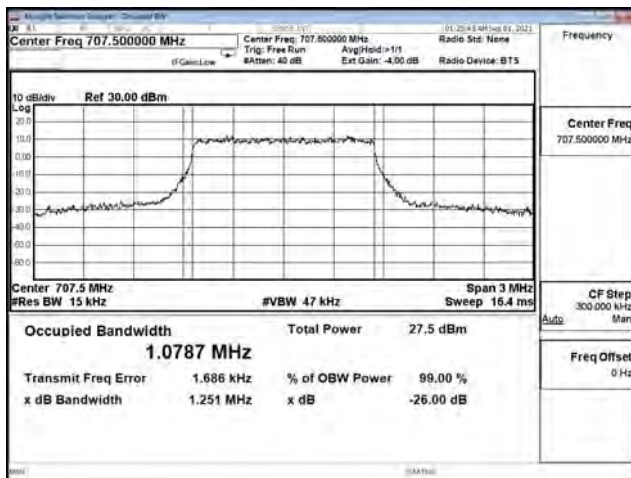
QPSK\_CH23173\_1.4M



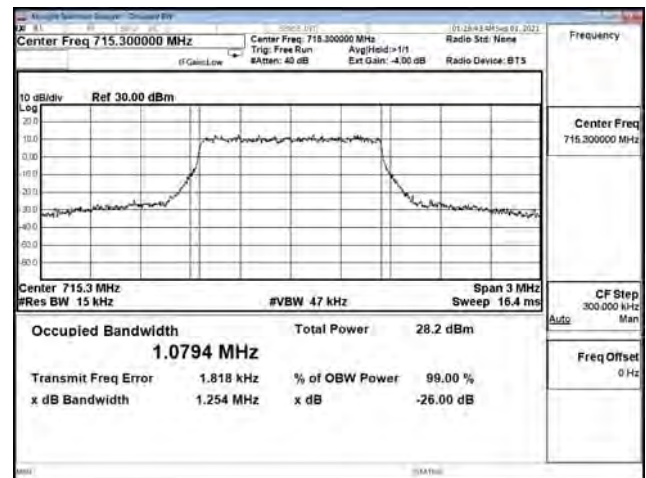
16QAM\_CH23017\_1.4M



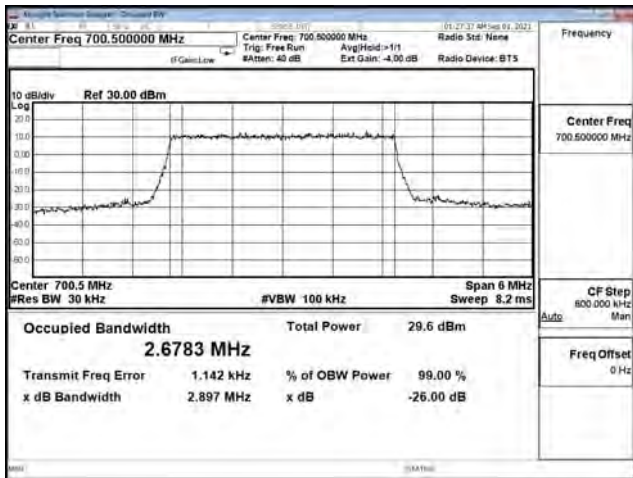
16QAM\_CH23095\_1.4M



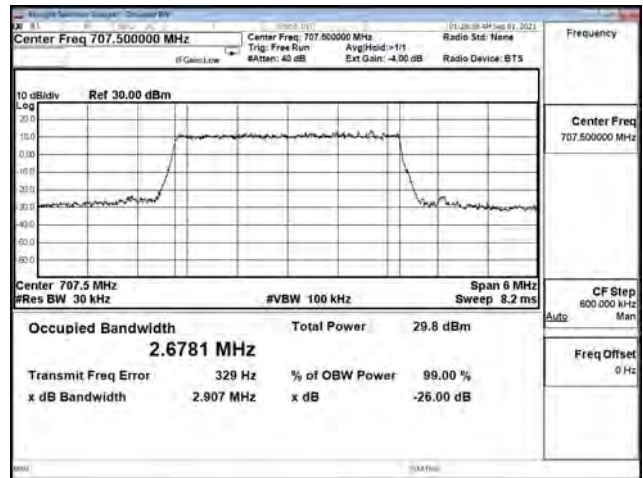
16QAM\_CH23173\_1.4M



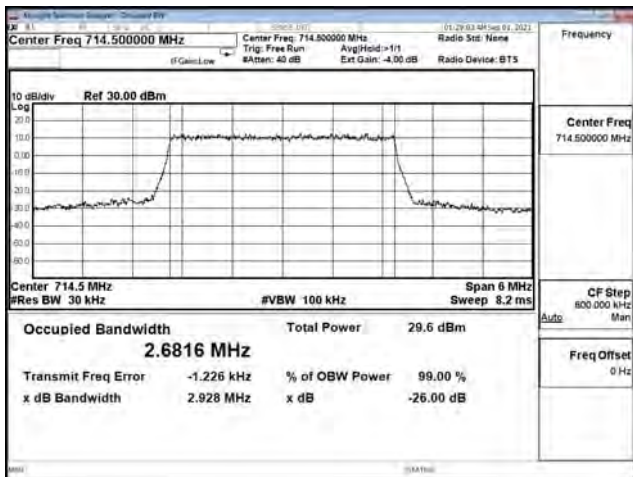
QPSK\_CH23025\_3M



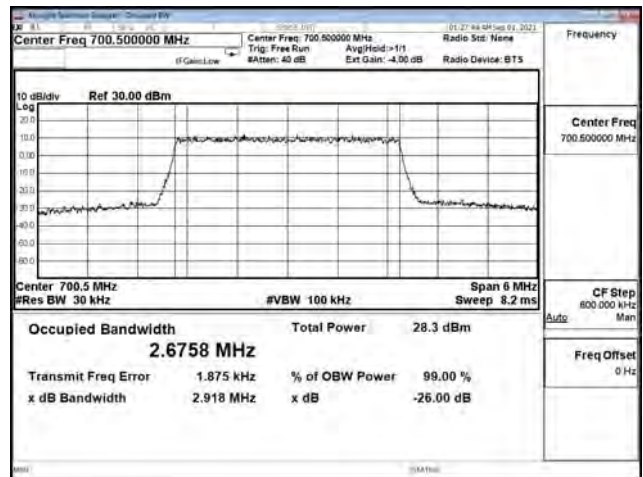
QPSK\_CH23095\_3M



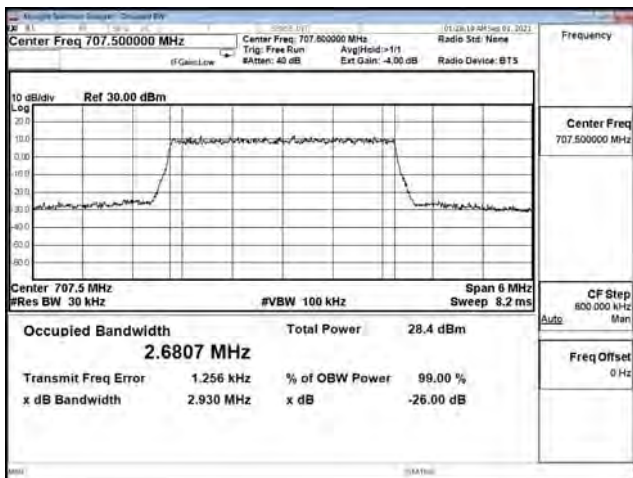
QPSK\_CH23165\_3M



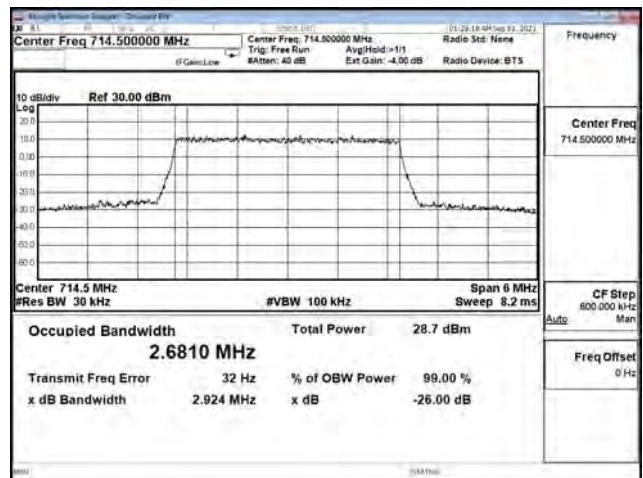
16QAM\_CH23025\_3M



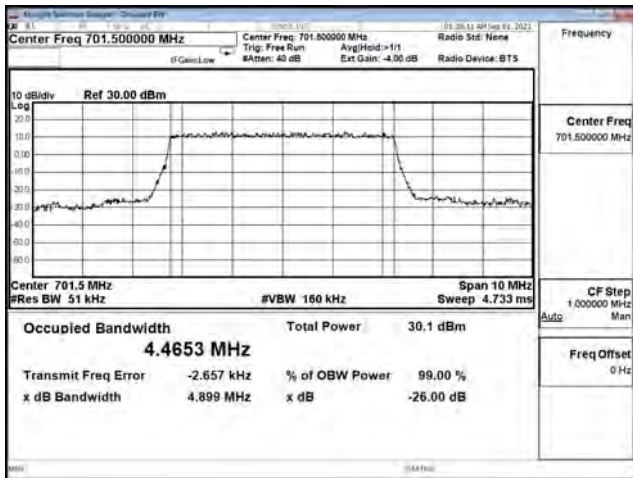
16QAM\_CH23095\_3M



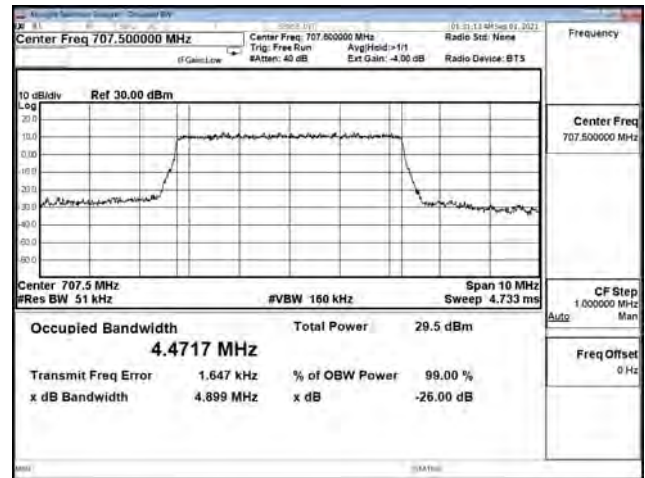
16QAM\_CH23165\_3M



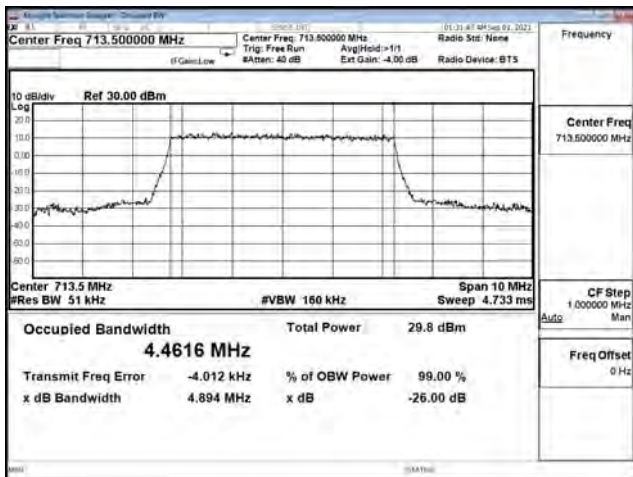
QPSK\_CH23035\_5M



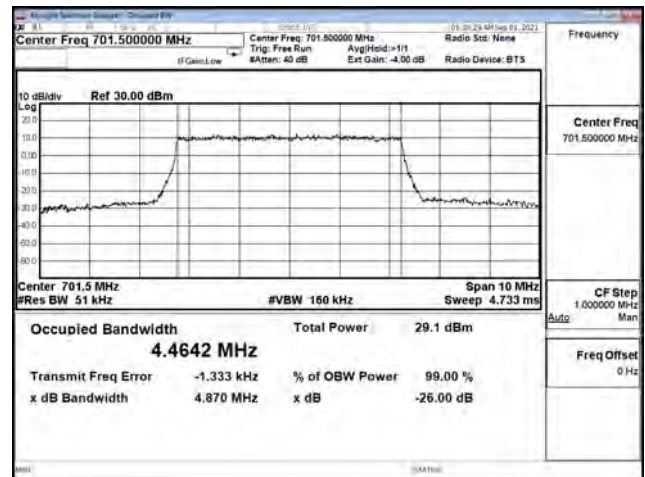
QPSK\_CH23095\_5M



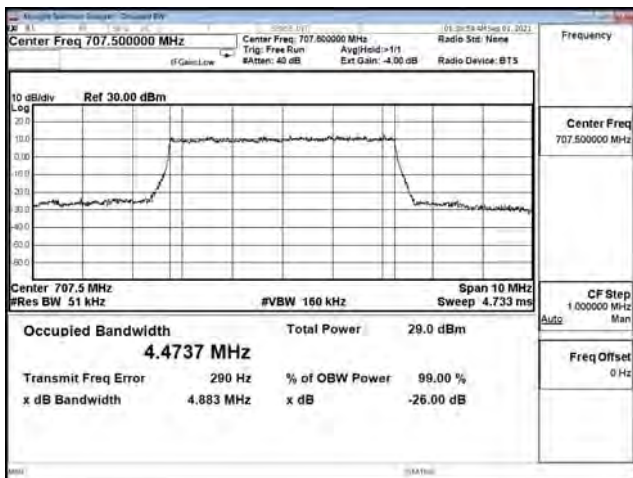
QPSK\_CH23155\_5M



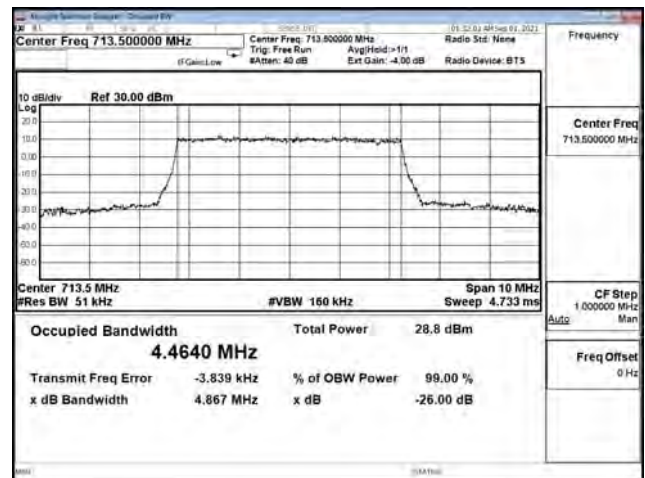
16QAM\_CH23035\_5M



16QAM\_CH23095\_5M

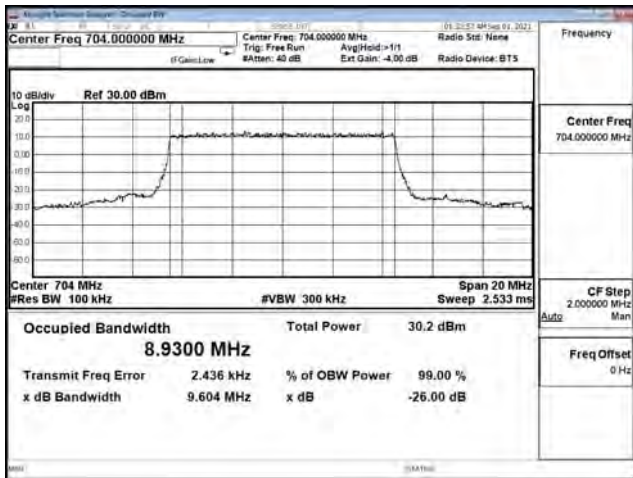


16QAM\_CH23155\_5M

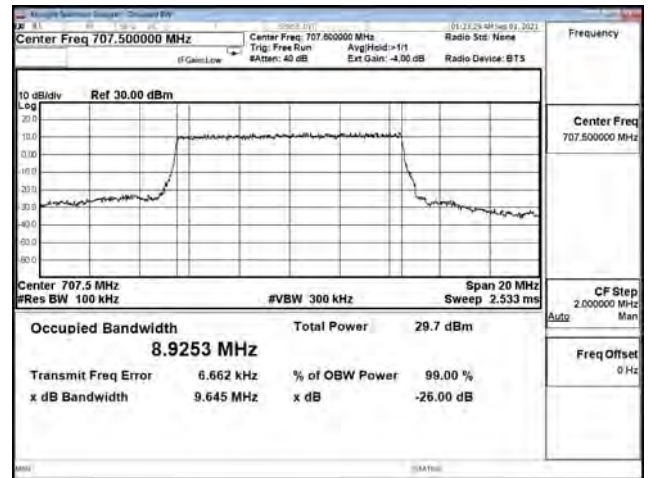




QPSK\_CH23060\_10M



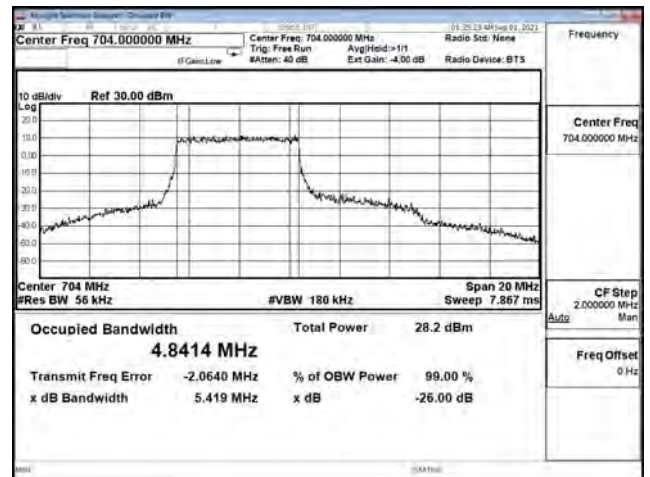
QPSK\_CH23095\_10M



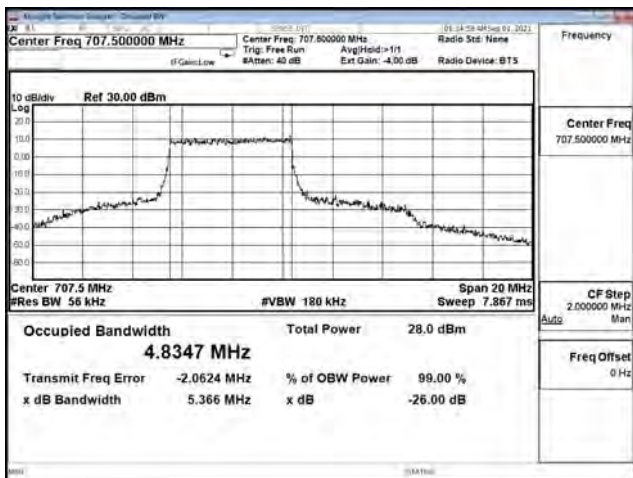
QPSK\_CH23130\_10M



16QAM\_CH23060\_10M



16QAM\_CH23095\_10M



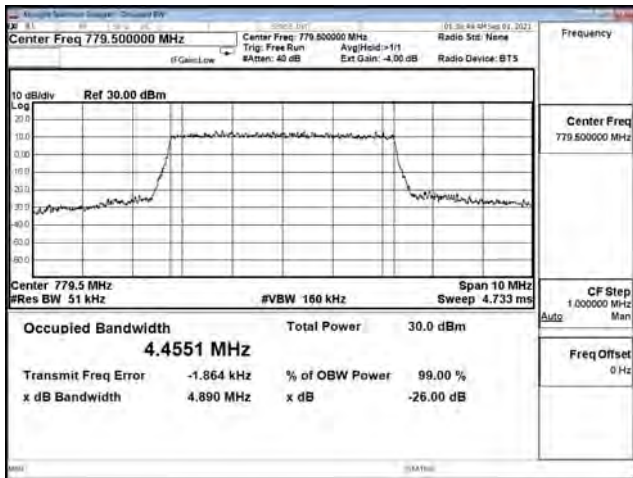
16QAM\_CH23130\_10M



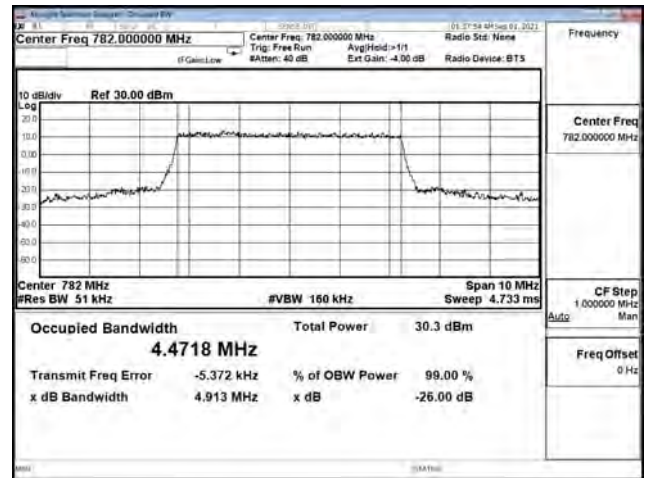
**Mode 5: LTE Band 13**

Bandwidth (MHz)	Modulation	Frequency (MHz)	Measure Level (MHz)		Limit (MHz)
			26dB BW	99% BW	
5M	QPSK	779.5	4.890	4.455	N/A
		782	4.913	4.472	N/A
		784.5	4.911	4.475	N/A
	16-QAM	779.5	4.884	4.465	N/A
		782	4.892	4.466	N/A
		784.5	4.898	4.469	N/A
10M	QPSK	782	9.534	8.925	N/A
	16-QAM	782	5.432	4.838	N/A

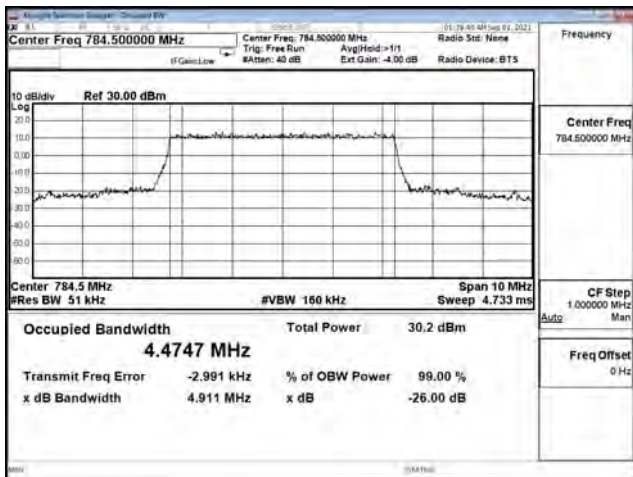
QPSK\_CH23205\_5M



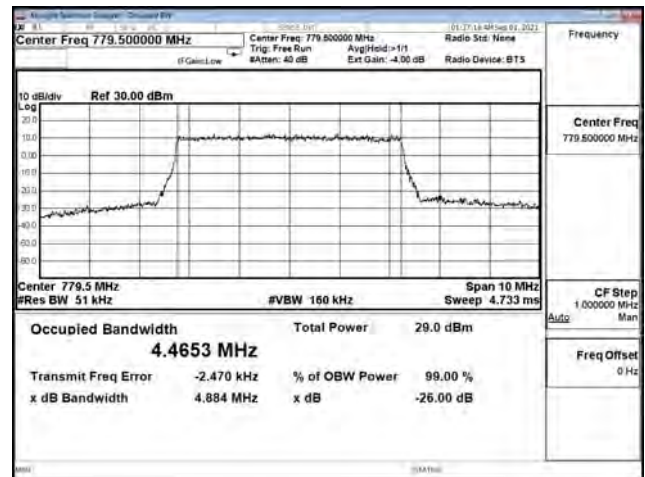
QPSK\_CH23230\_5M



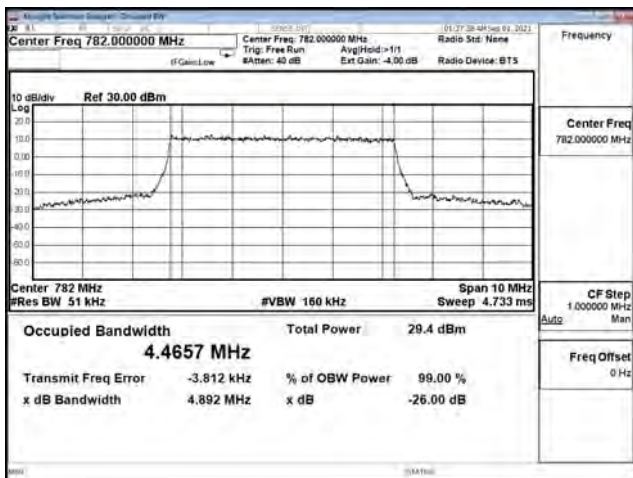
QPSK\_CH23255\_5M



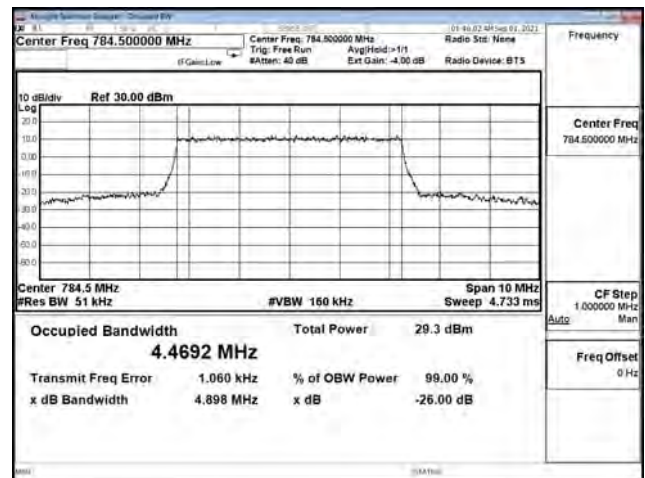
16QAM\_CH23205\_5M



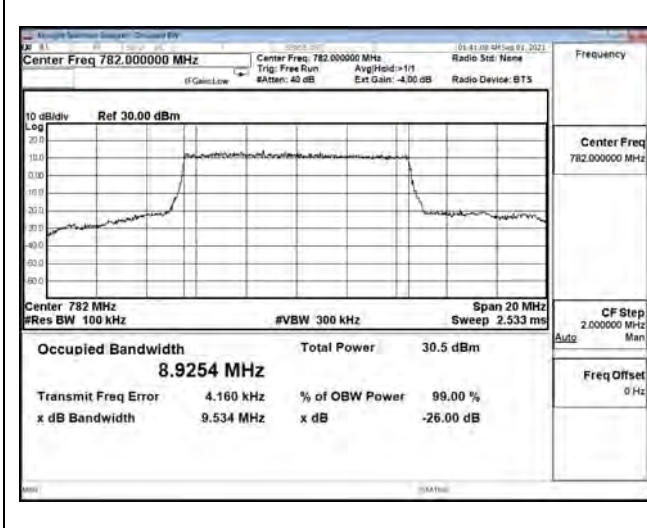
16QAM\_CH23230\_5M



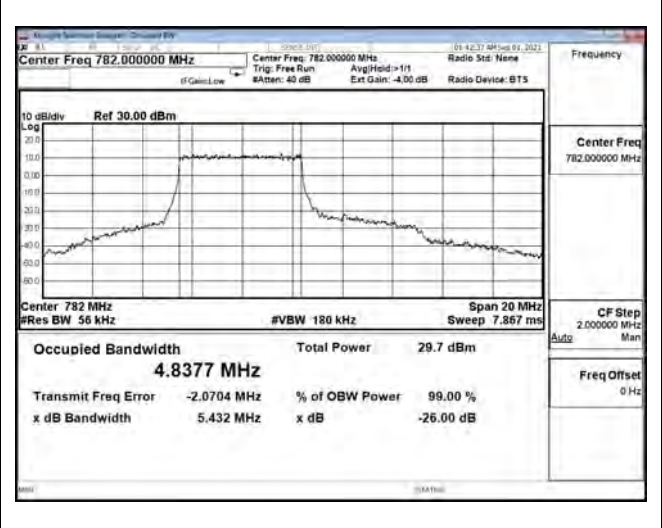
16QAM\_CH23255\_5M



QPSK\_CH23230\_10M



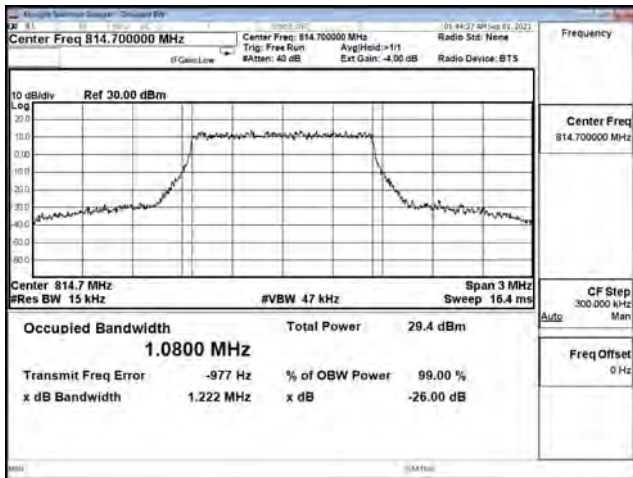
16QAM\_CH23230\_10M



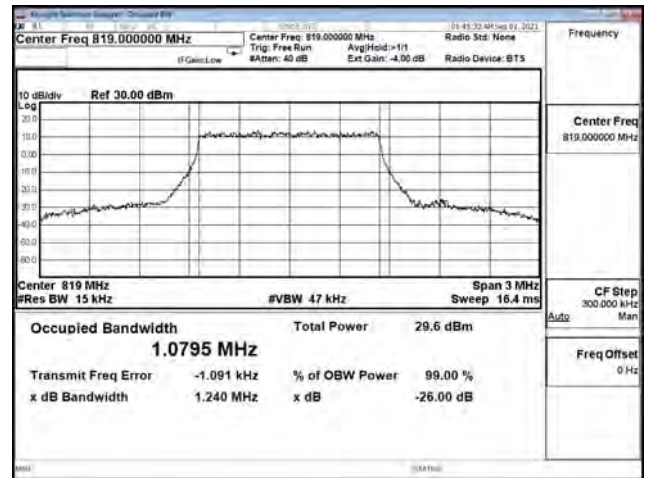
**Mode 6: LTE Band 26 (Part 90)**

Bandwidth (MHz)	Modulation	Frequency (MHz)	Measure Level (MHz)		Limit (MHz)
			26dB BW	99% BW	
1.4M	QPSK	814.7	1.222	1.080	N/A
		819	1.240	1.080	N/A
		823.3	1.244	1.080	N/A
	16-QAM	814.7	1.247	1.078	N/A
		819	1.228	1.080	N/A
		823.3	1.226	1.079	N/A
3M	QPSK	815.5	2.901	2.677	N/A
		819	2.907	2.679	N/A
		822.5	2.910	2.680	N/A
	16-QAM	815.5	2.899	2.677	N/A
		819	2.919	2.682	N/A
		822.5	2.919	2.675	N/A
5M	QPSK	816.5	4.883	4.464	N/A
		819	4.893	4.466	N/A
		821.5	4.895	4.466	N/A
	16-QAM	816.5	4.872	4.463	N/A
		819	4.873	4.472	N/A
		821.5	4.870	4.458	N/A
10M	QPSK	819	9.634	8.927	N/A
	16-QAM	819	5.473	4.850	N/A

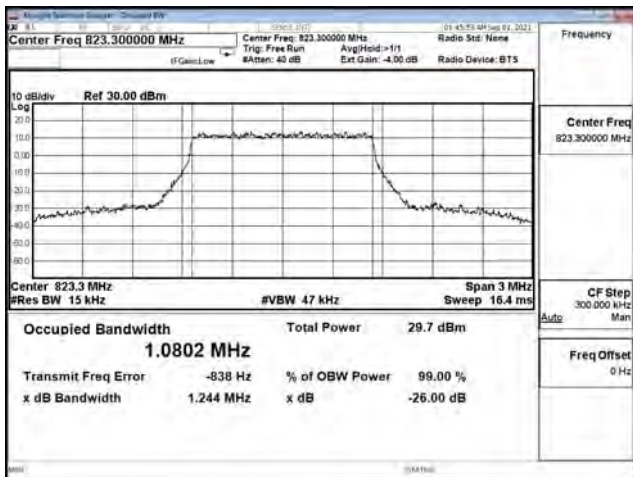
QPSK\_CH26697\_1.4M



QPSK\_CH26740\_1.4M



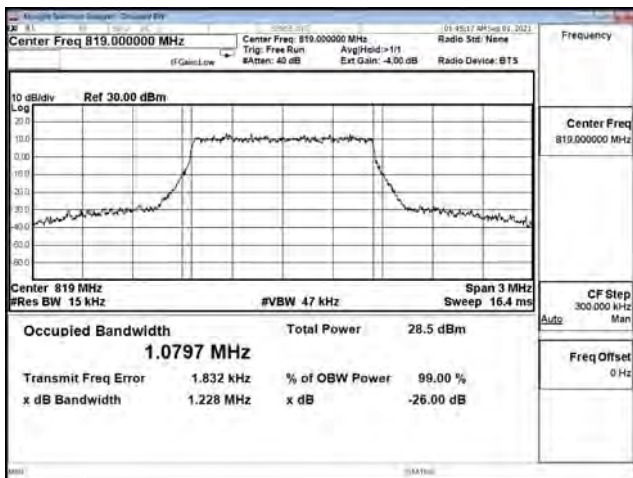
QPSK\_CH26783\_1.4M



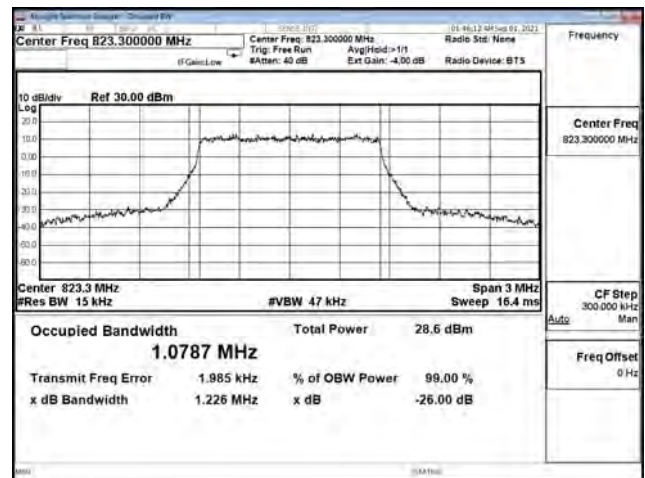
16QAM\_CH26697\_1.4M



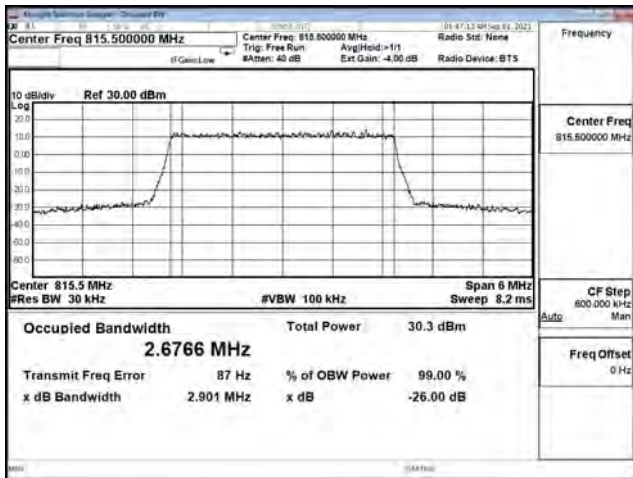
16QAM\_CH26740\_1.4M



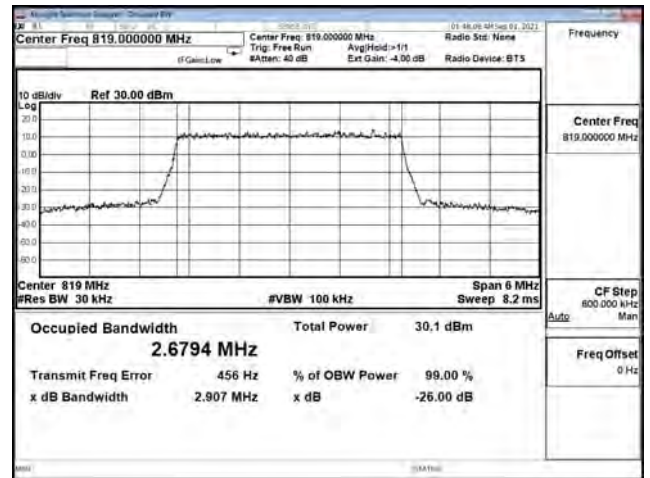
16QAM\_CH26783\_1.4M



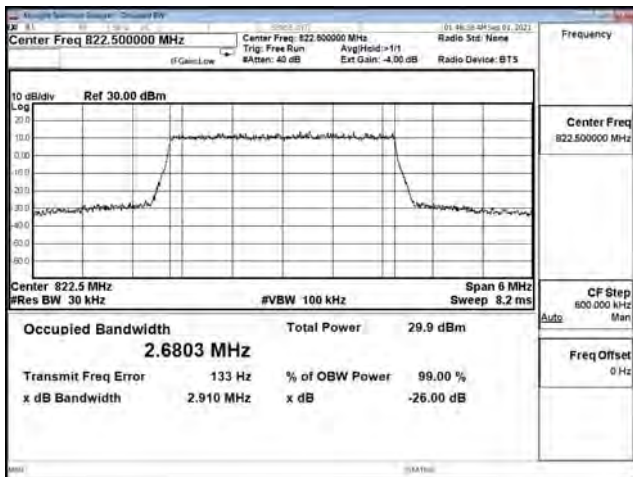
QPSK\_CH26705\_3M



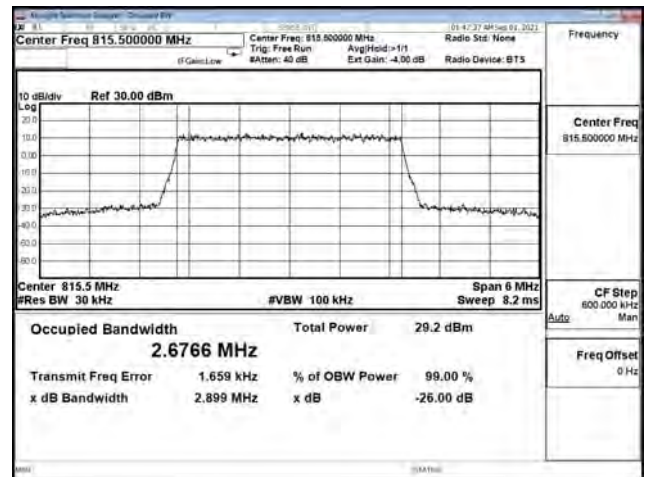
QPSK\_CH26740\_3M



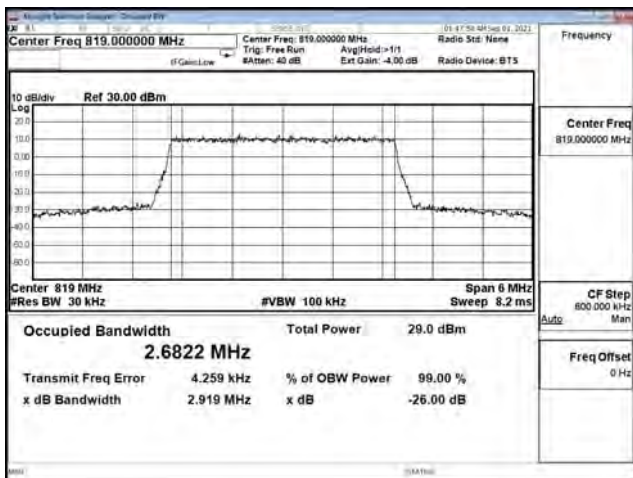
QPSK\_CH26775\_3M



16QAM\_CH26705\_3M



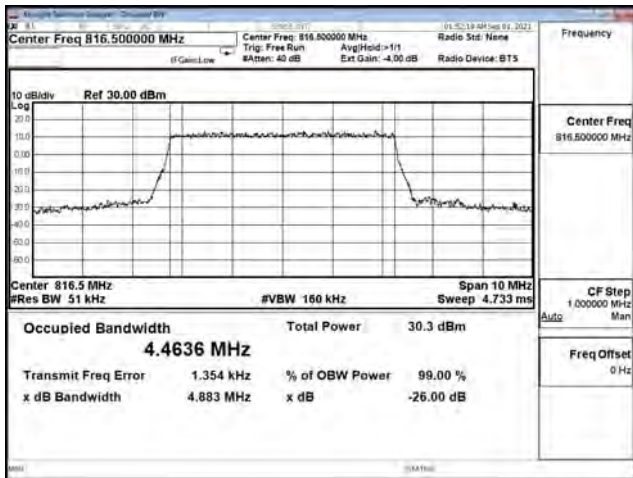
16QAM\_CH26740\_3M



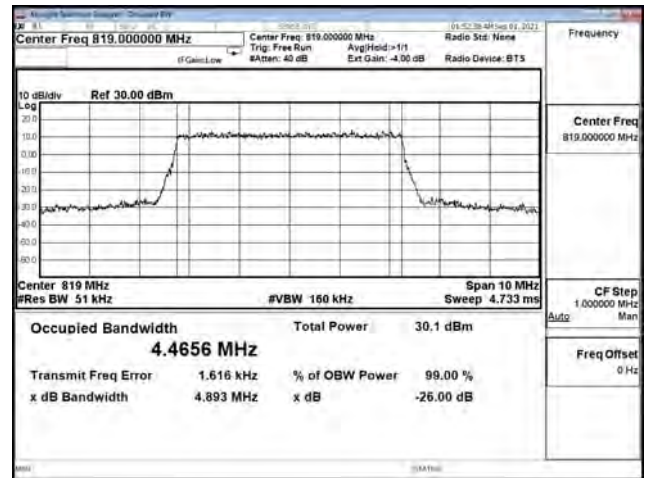
16QAM\_CH26775\_3M



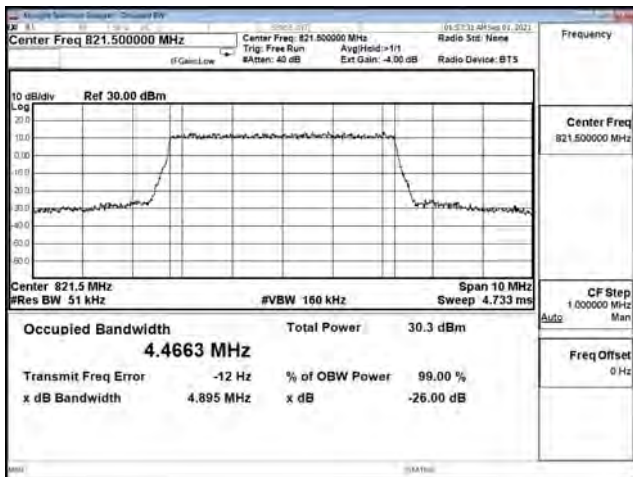
QPSK\_CH26715\_5M



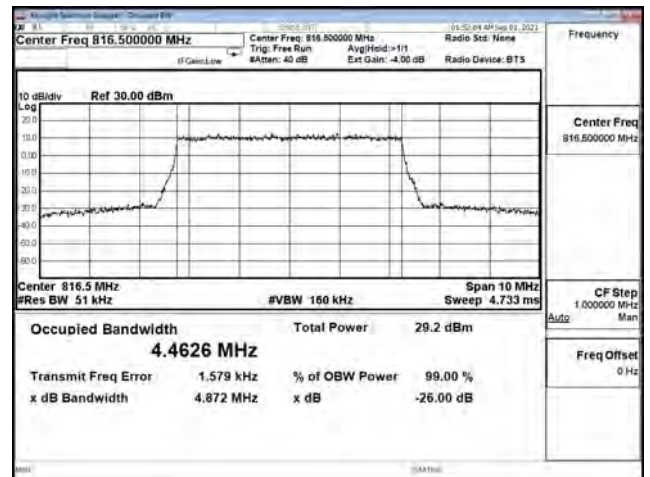
QPSK\_CH26740\_5M



QPSK\_CH26765\_5M



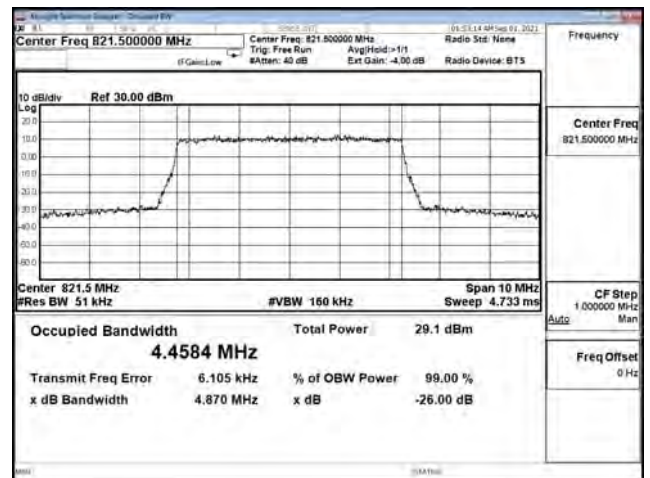
16QAM\_CH26715\_5M



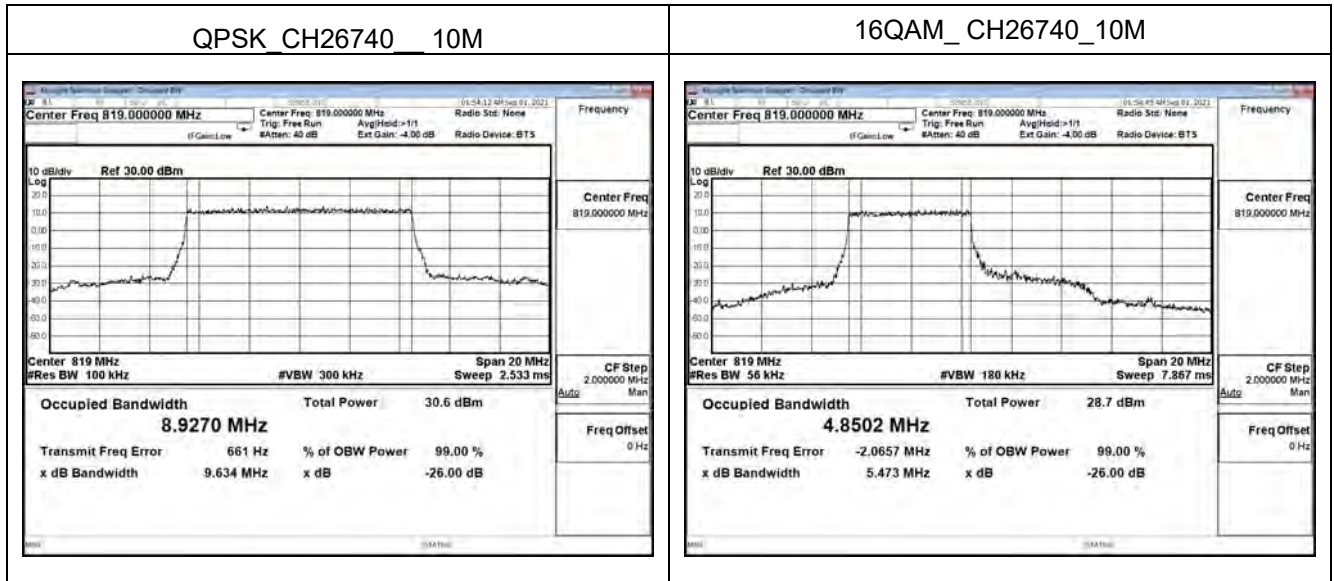
16QAM\_CH26740\_5M



16QAM\_CH26765\_5M

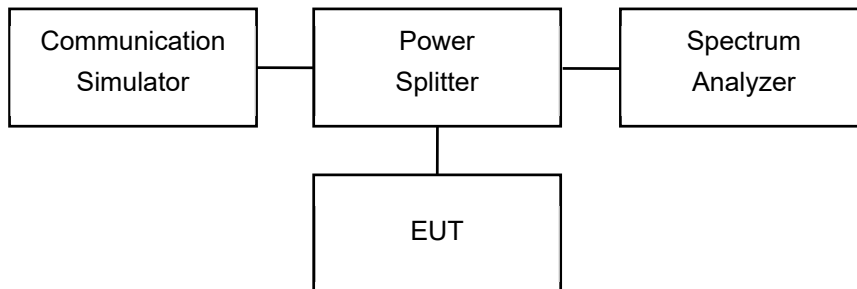






## 5. Peak to Average Ratio

### 5.1. Test Setup



### 5.2. Test Procedure

1. 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. The path loss was compensated to the results for each measurement.
2. Set resolution/measurement bandwidth  $\geq$  signal's occupied bandwidth.
3. Set the number of counts to a value that stabilizes the measured CCDF curve.
4. Record the maximum PAPR level associated with a probability of 0.1 %.

### 5.3. Test Methodology and Reference Procedures

KDB 971168 D01 Power Meas License Digital Systems v03r01

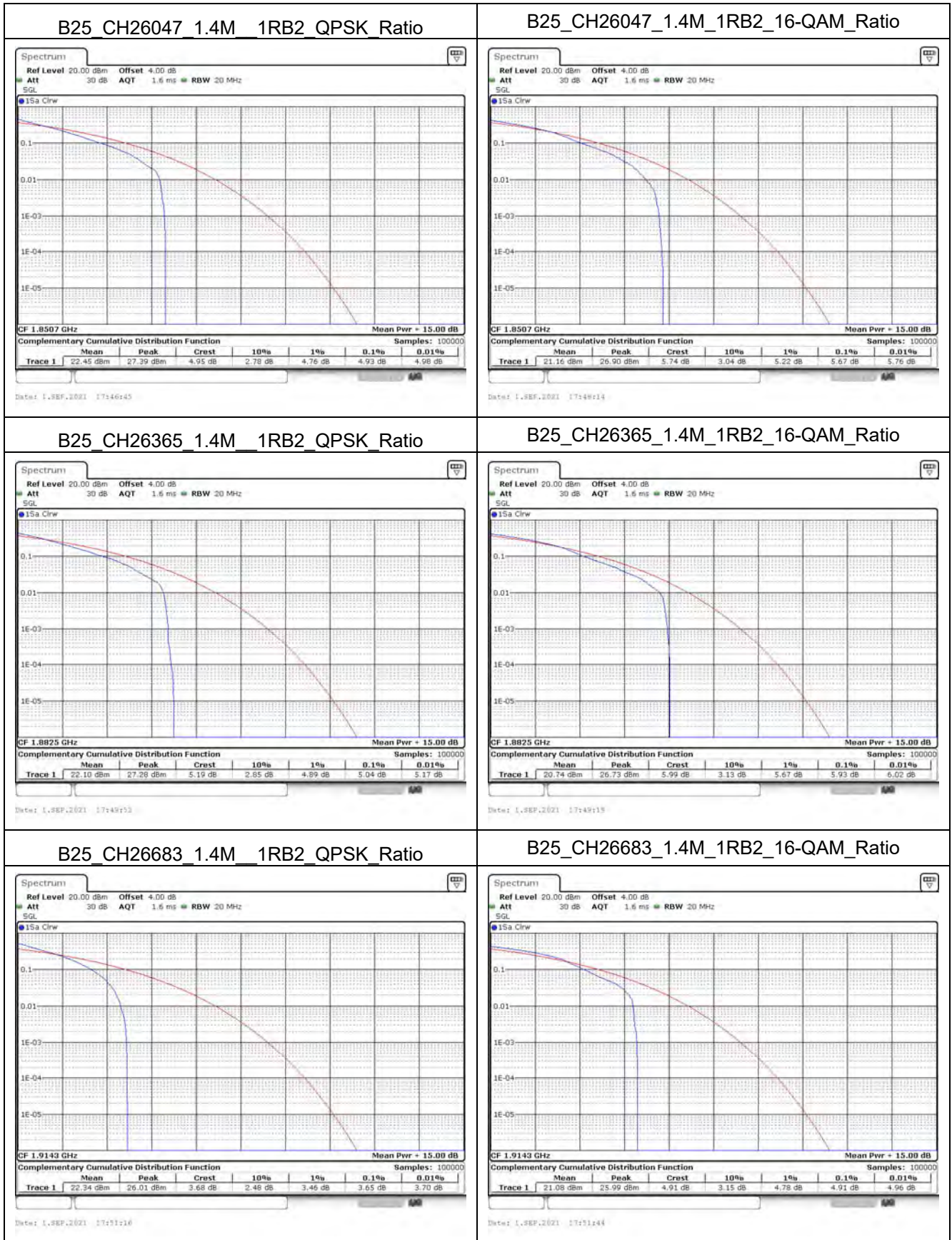
ANSI C63.26-2015

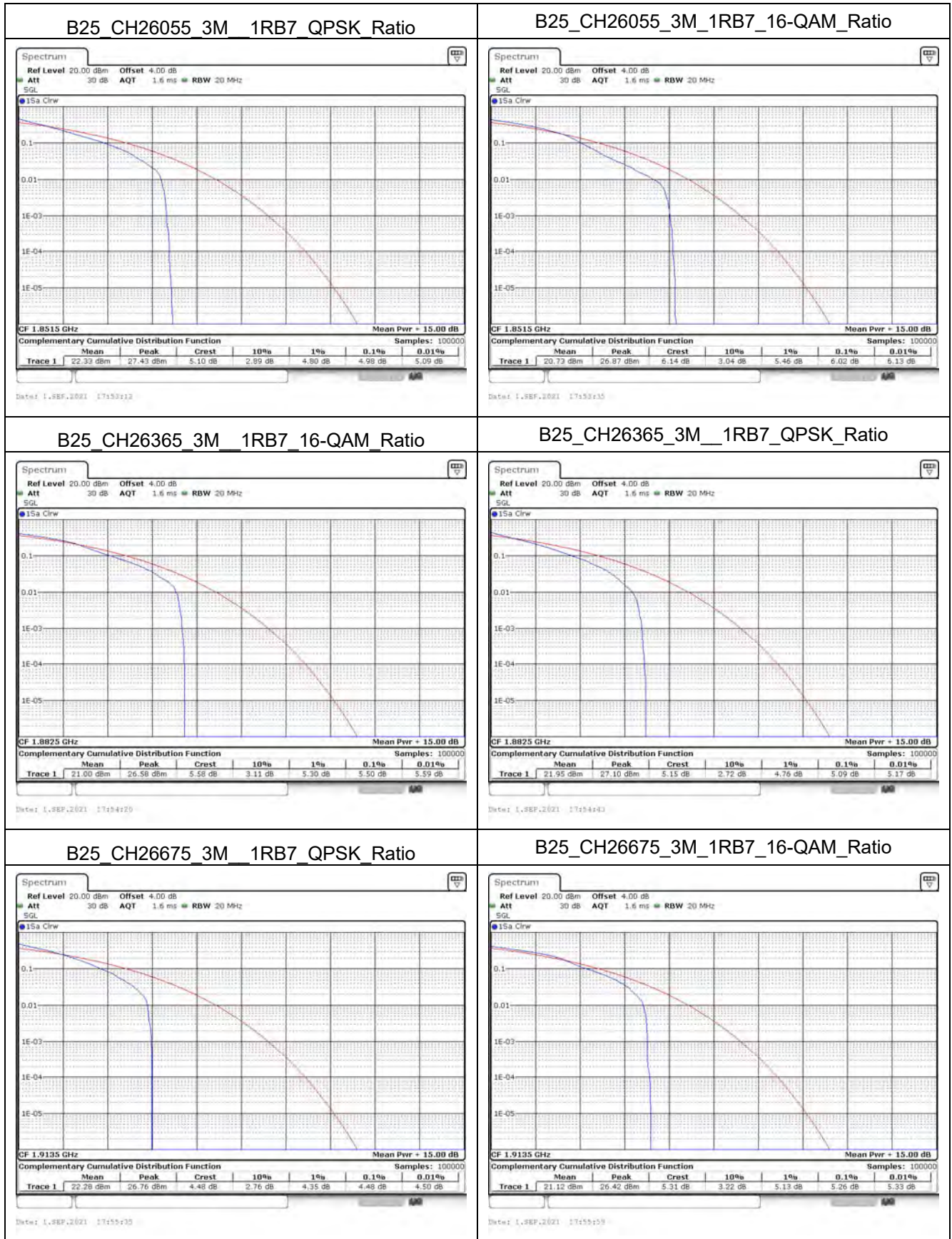
## 5.4. Test Result of Peak to Average Ratio

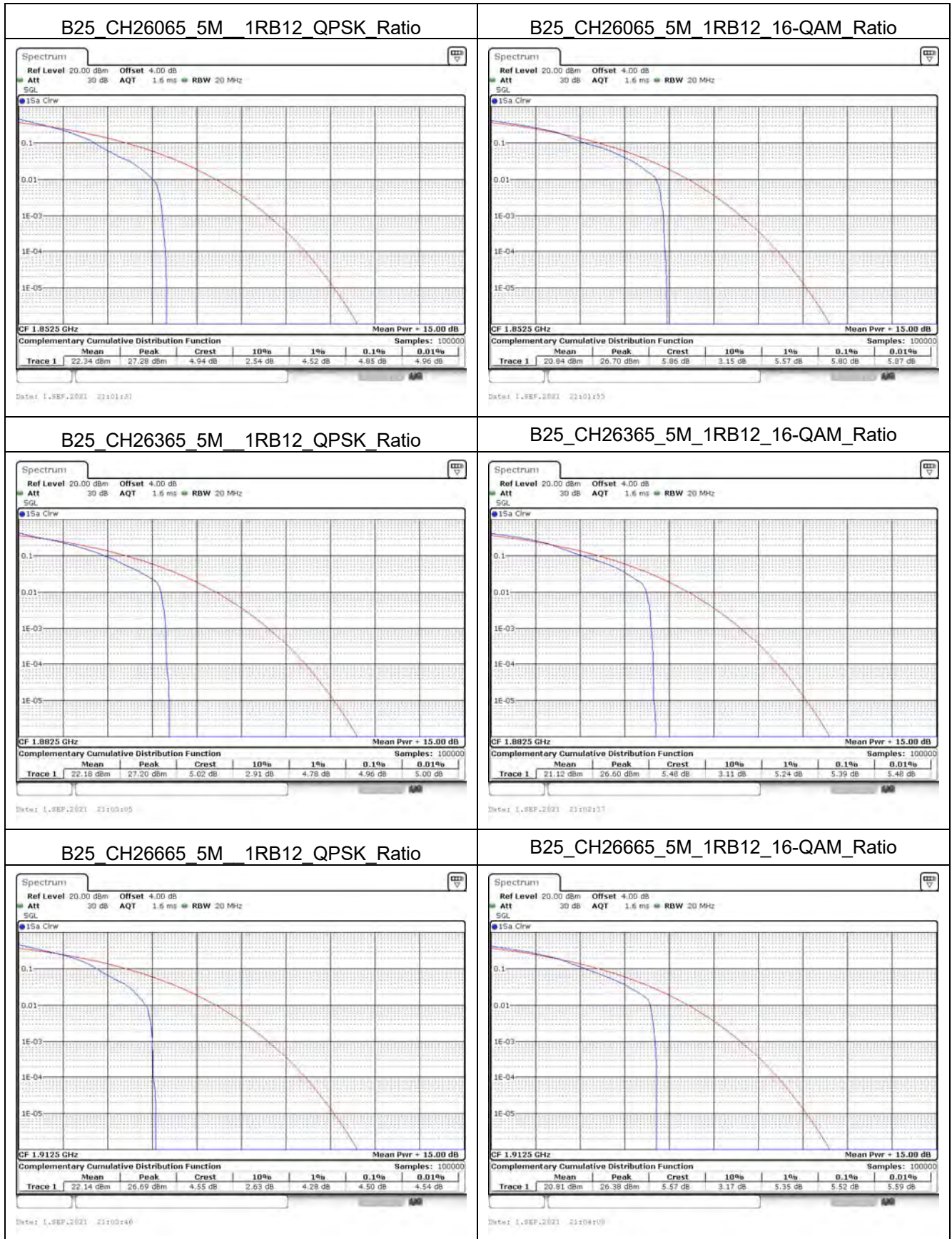
### Mode 1: LTE Band 2/25

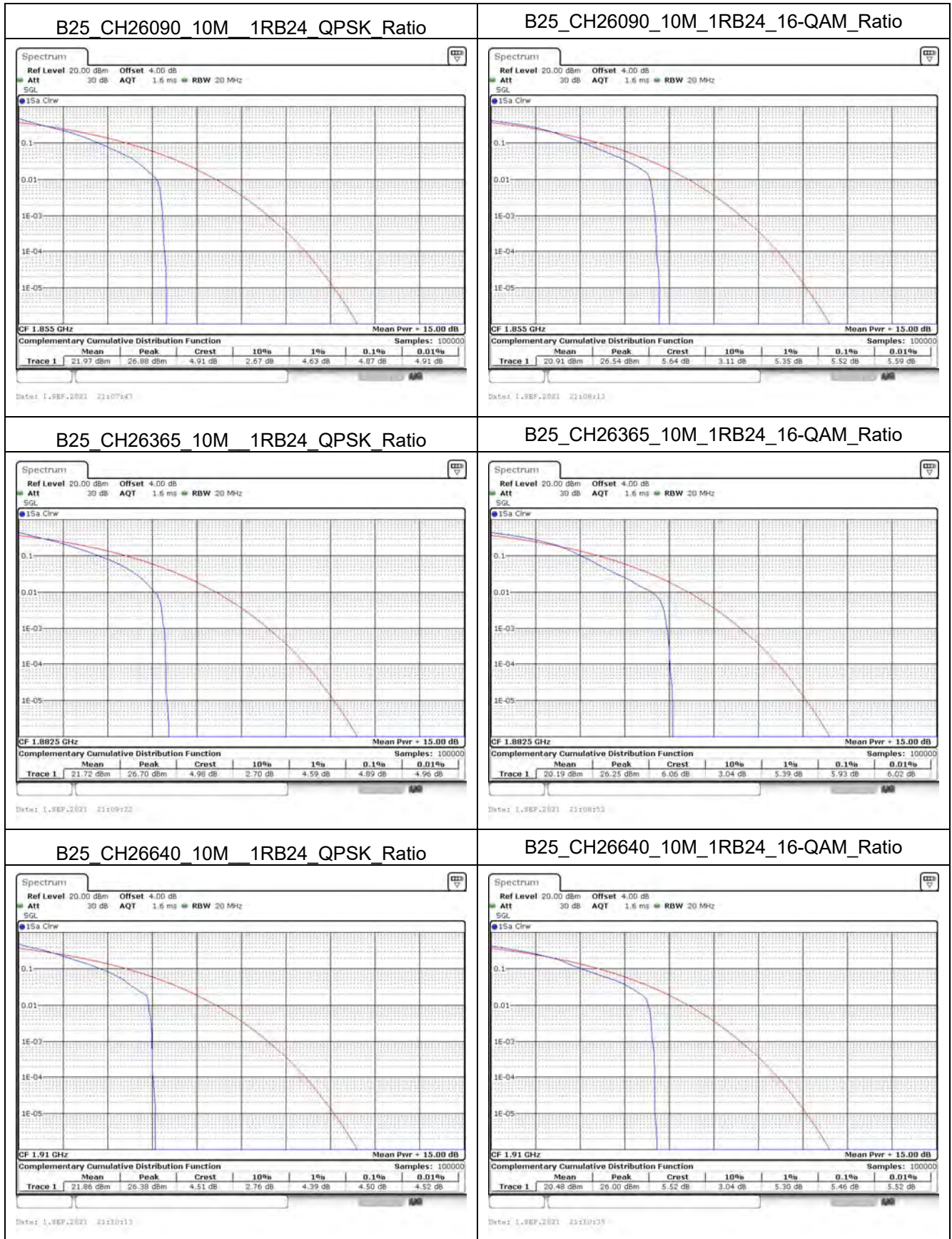
BW	CH	Freq. (MHz)	Modulation	Peak (dBm)	Average (dBm)	PAPR (dB)
1.4M	26047	1850.7	QPSK	27.39	22.45	4.93
			16-QAM	26.90	21.16	5.67
	26365	1882.5	QPSK	27.28	22.10	5.04
			16-QAM	26.73	20.74	5.93
	26683	1914.3	QPSK	26.01	22.34	3.65
			16-QAM	25.99	21.08	4.91
3M	26055	1851.5	QPSK	27.43	22.33	4.98
			16-QAM	26.87	20.73	6.02
	26365	1882.5	QPSK	26.58	21.00	5.50
			16-QAM	27.10	21.95	5.09
	26675	1913.5	QPSK	26.76	22.28	4.48
			16-QAM	26.42	21.12	5.26
5M	26065	1852.5	QPSK	27.28	22.34	4.85
			16-QAM	26.70	20.84	5.80
	26365	1882.5	QPSK	27.20	22.18	4.96
			16-QAM	26.60	21.12	5.39
	26665	1912.5	QPSK	26.69	22.14	4.50
			16-QAM	26.38	20.81	5.52

BW	CH	Freq. (MHz)	Modulation	Peak (dBm)	Average (dBm)	PAPR (dB)
10M	26090	1855	QPSK	26.88	21.97	4.87
			16-QAM	26.54	20.91	5.52
	26365	1882.5	QPSK	26.70	21.72	4.89
			16-QAM	26.25	20.19	5.93
	26640	1910	QPSK	26.38	21.86	4.50
			16-QAM	26.00	20.48	5.46
15M	26115	1857.5	QPSK	27.06	22.03	4.98
			16-QAM	26.62	20.48	6.04
	26365	1882.5	QPSK	26.71	21.74	4.89
			16-QAM	26.33	20.62	5.59
	26615	1907.5	QPSK	26.69	22.14	4.52
			16-QAM	26.32	20.74	5.50
20M	26140	1860	QPSK	25.12	20.16	4.87
			16-QAM	24.80	19.06	5.61
	26365	1882.5	QPSK	24.92	19.99	4.89
			16-QAM	24.34	18.26	5.93
	26590	1905	QPSK	24.93	19.90	4.96
			16-QAM	24.42	18.38	5.98

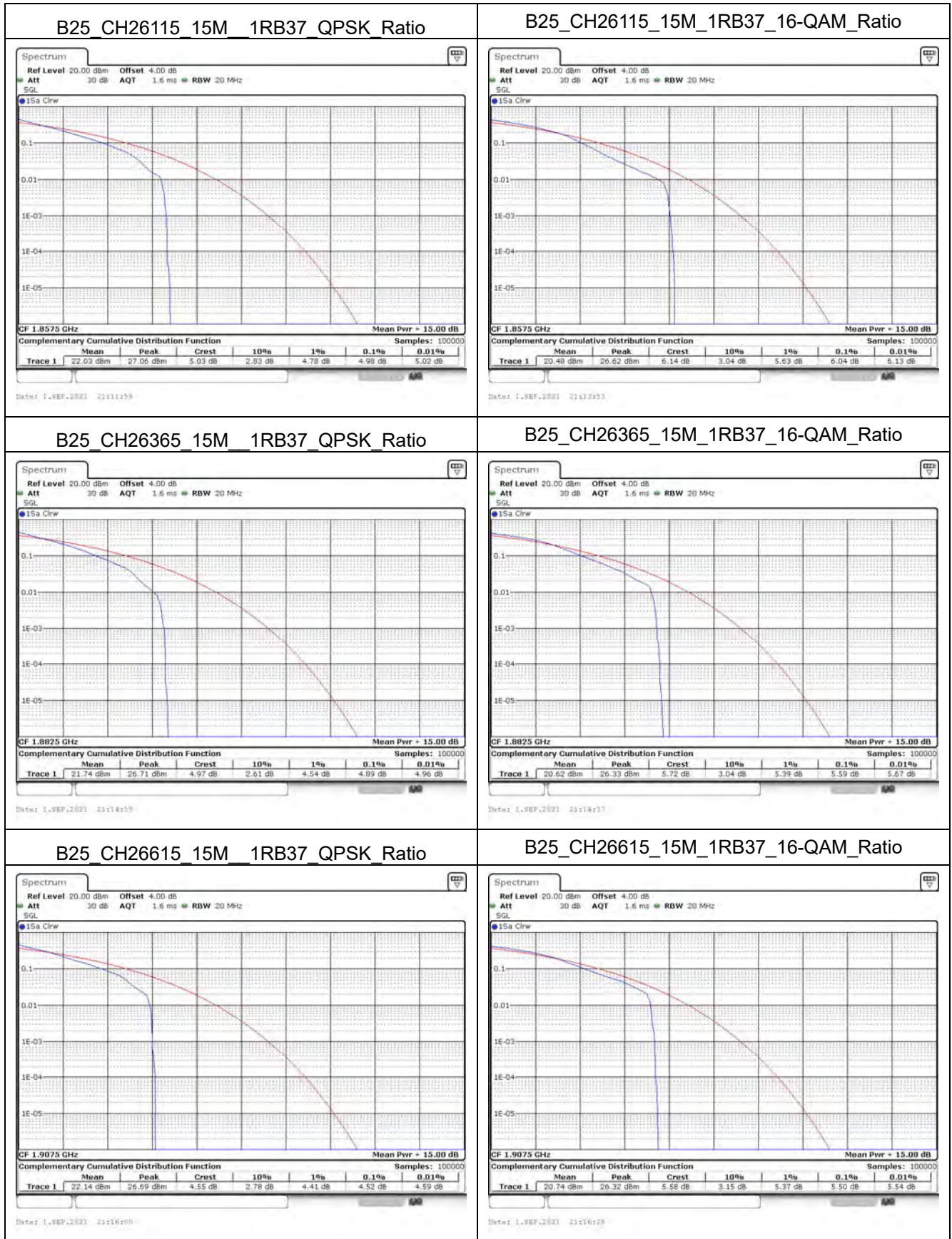


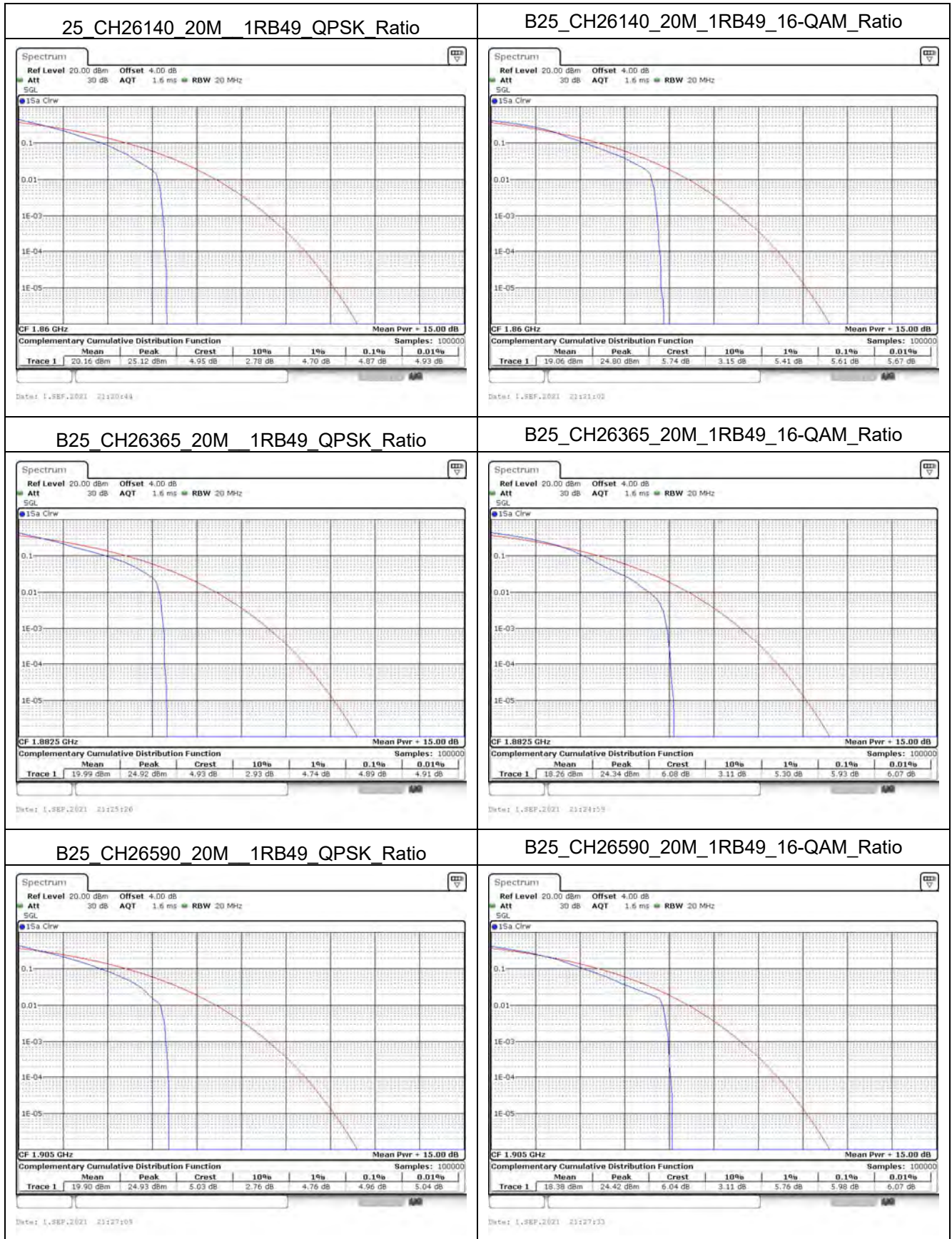








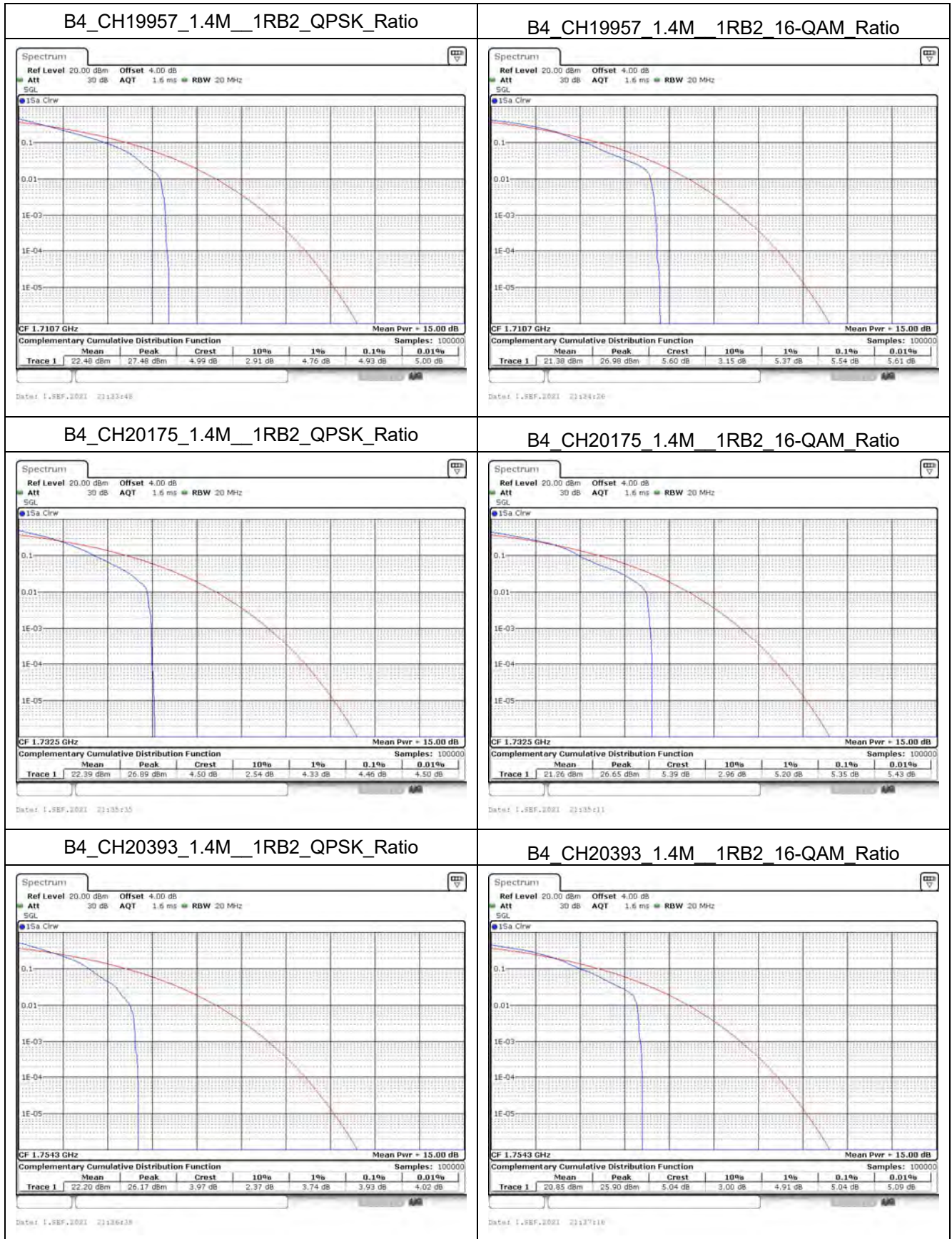


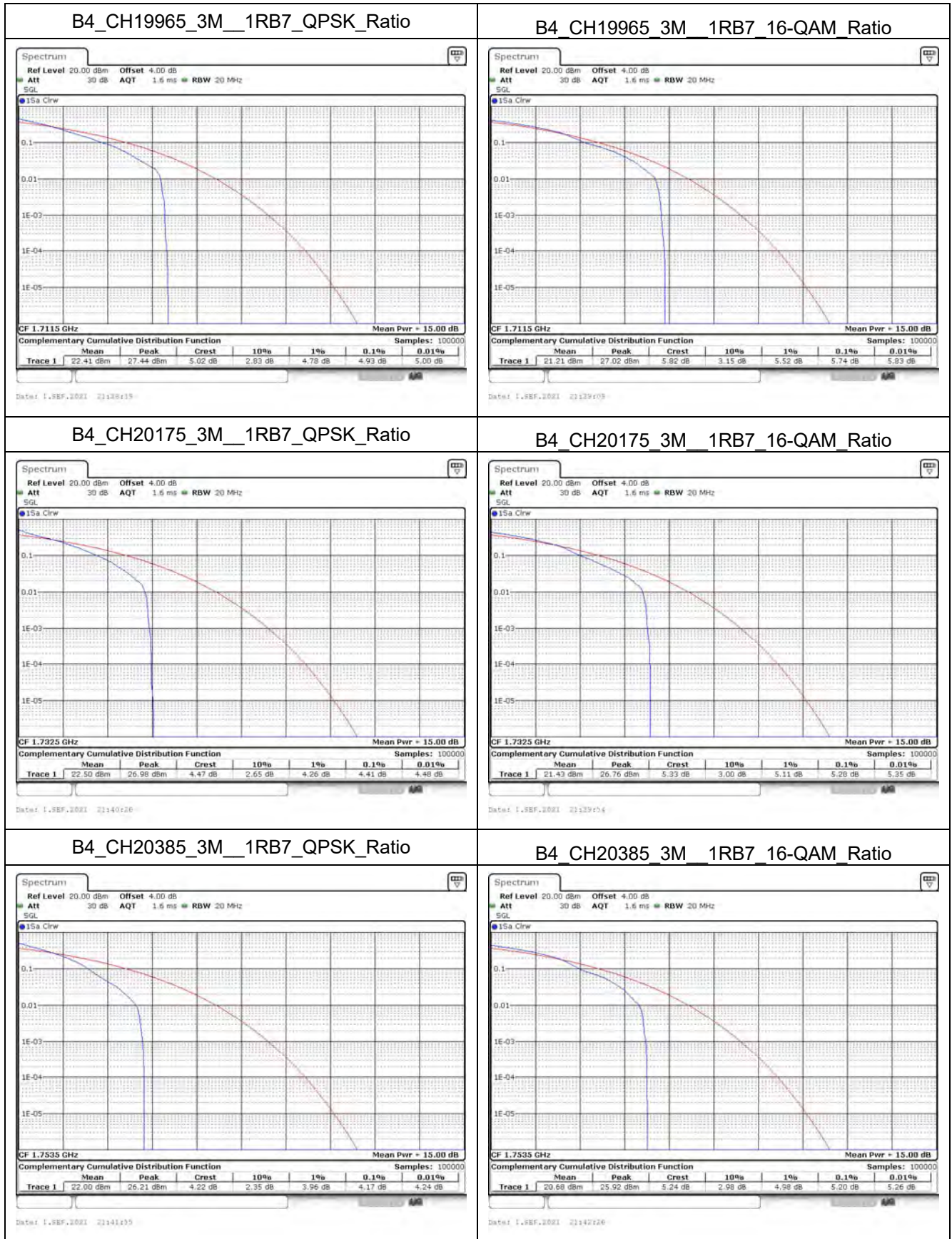


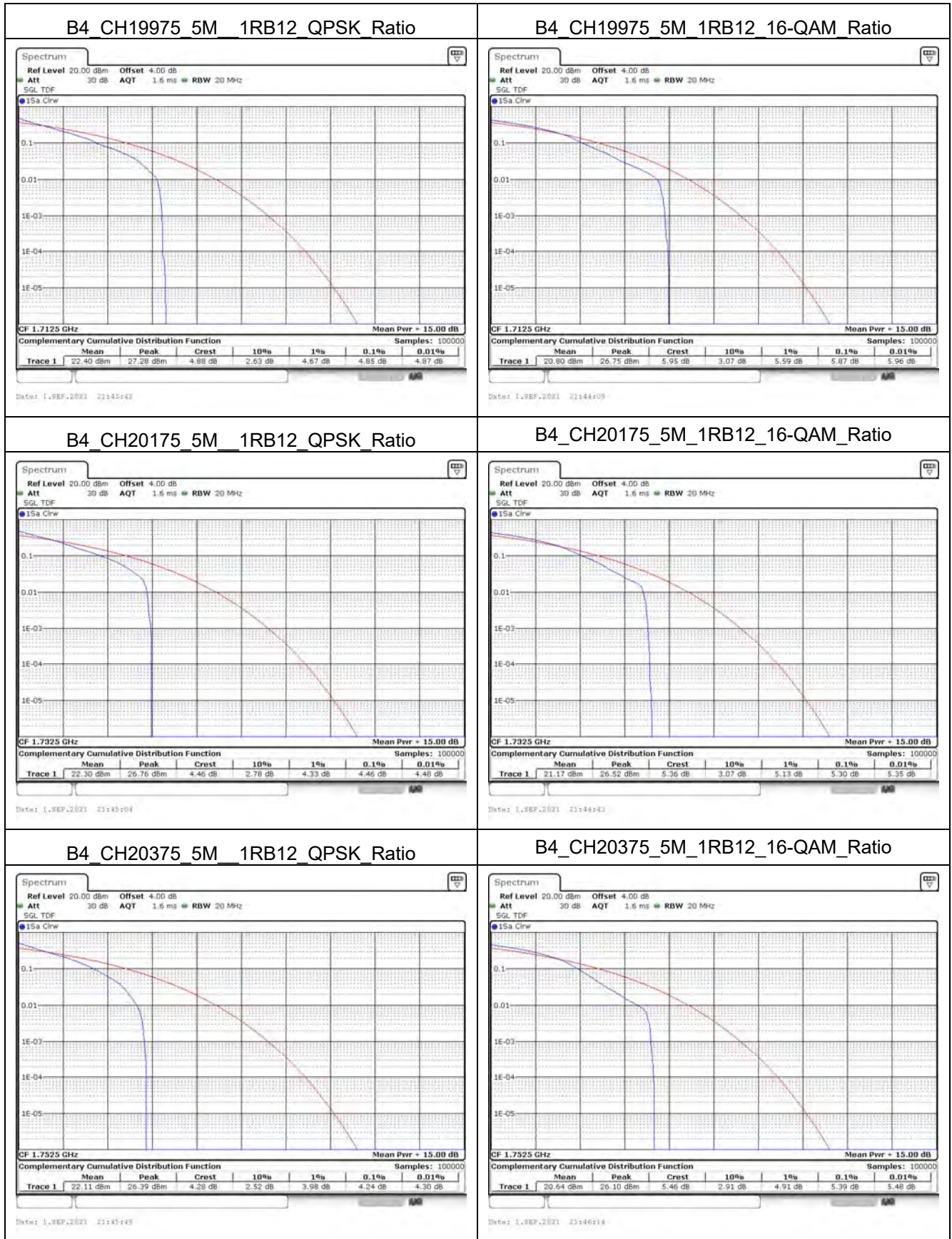
**Mode 2: LTE Band 4**

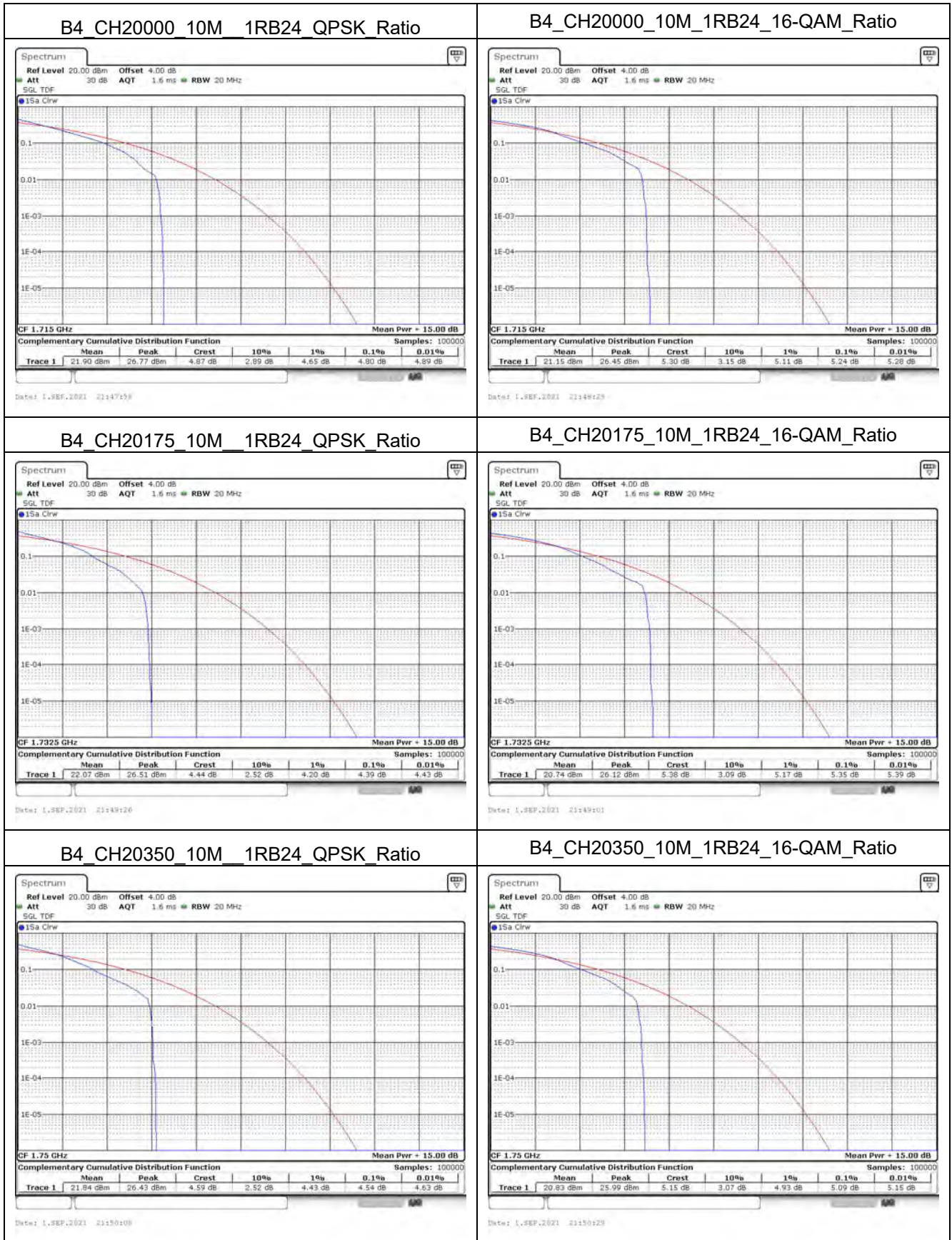
BW	CH	Freq. (MHz)	Modulation	Peak (dBm)	Average (dBm)	PAPR (dB)
1.4M	19957	1710.7	QPSK	27.48	22.48	4.93
			16-QAM	26.98	21.38	5.54
	20175	1732.5	QPSK	26.89	22.39	4.46
			16-QAM	26.65	21.26	5.35
	20393	1754.3	QPSK	26.17	22.20	3.93
			16-QAM	25.90	20.85	5.04
3M	19965	1711.5	QPSK	27.44	22.41	4.93
			16-QAM	27.02	21.21	5.74
	20175	1732.5	QPSK	26.98	22.50	4.41
			16-QAM	26.76	21.43	5.28
	20385	1753.5	QPSK	26.21	22.00	4.17
			16-QAM	25.92	20.68	5.20
5M	19975	1712.5	QPSK	27.28	22.40	4.85
			16-QAM	26.75	20.80	5.87
	20175	1732.5	QPSK	26.76	22.30	4.46
			16-QAM	26.52	21.17	5.30
	20375	1752.5	QPSK	26.39	22.11	4.24
			16-QAM	26.10	20.64	5.39

BW	CH	Freq. (MHz)	Modulation	Peak (dBm)	Average (dBm)	PAPR (dB)
10M	20000	1715	QPSK	26.77	21.90	4.80
			16-QAM	26.45	21.15	5.24
	20175	1732.5	QPSK	26.51	20.07	4.39
			16-QAM	26.12	20.74	5.35
	20350	1750	QPSK	26.43	21.84	4.54
			16-QAM	25.99	20.83	5.09
15M	20025	1717.5	QPSK	25.96	21.06	4.89
			16-QAM	25.54	19.75	5.74
	20175	1732.5	QPSK	25.72	21.21	4.50
			16-QAM	25.42	19.82	5.54
	20325	1747.5	QPSK	25.55	21.00	4.50
			16-QAM	25.55	19.95	5.54
20M	20050	1720	QPSK	24.91	20.03	4.78
			16-QAM	24.43	18.41	5.87
	20175	1732.5	QPSK	26.93	22.63	4.26
			16-QAM	26.46	21.20	5.20
	20300	1745	QPSK	26.84	22.33	4.50
			16-QAM	26.38	20.89	5.43

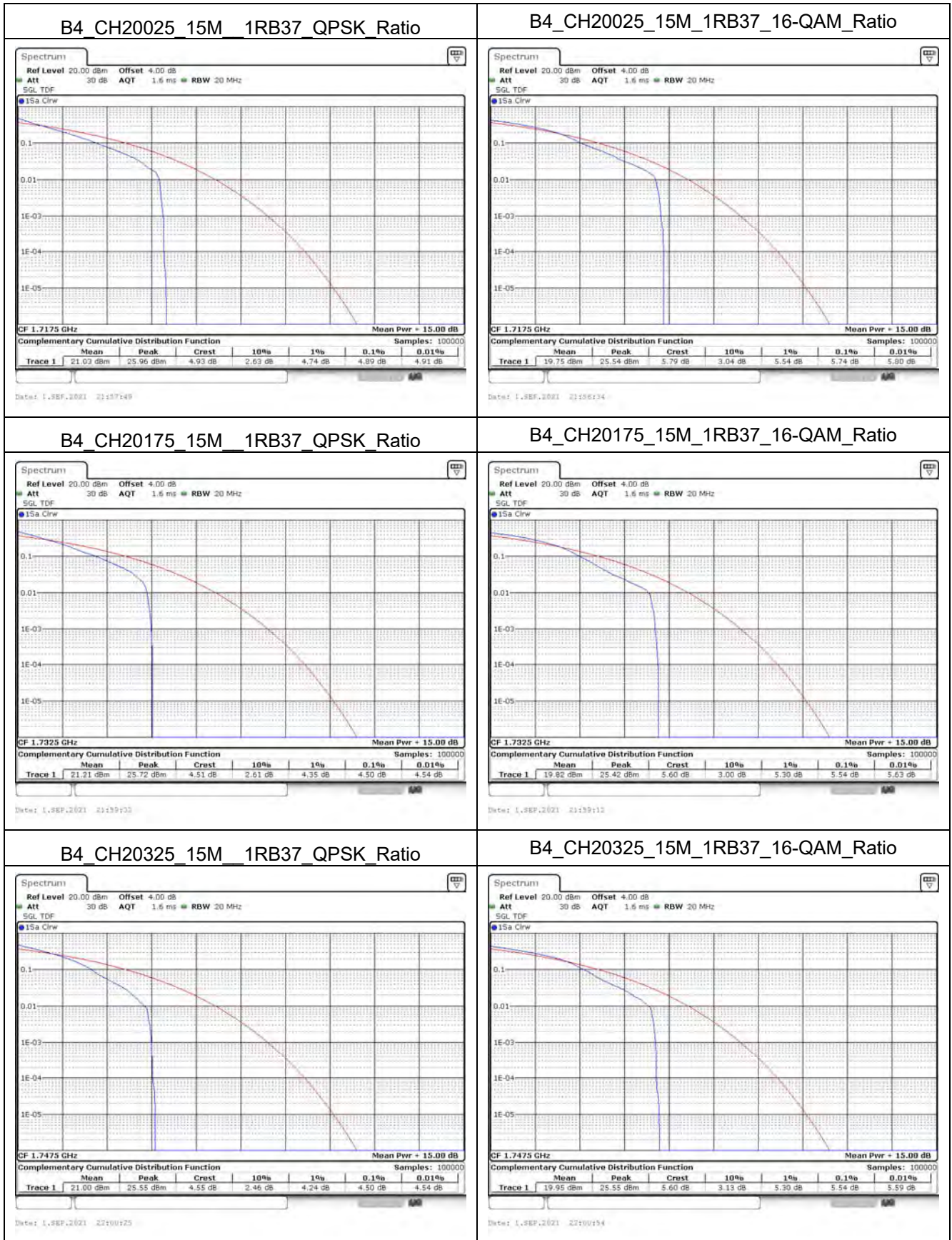


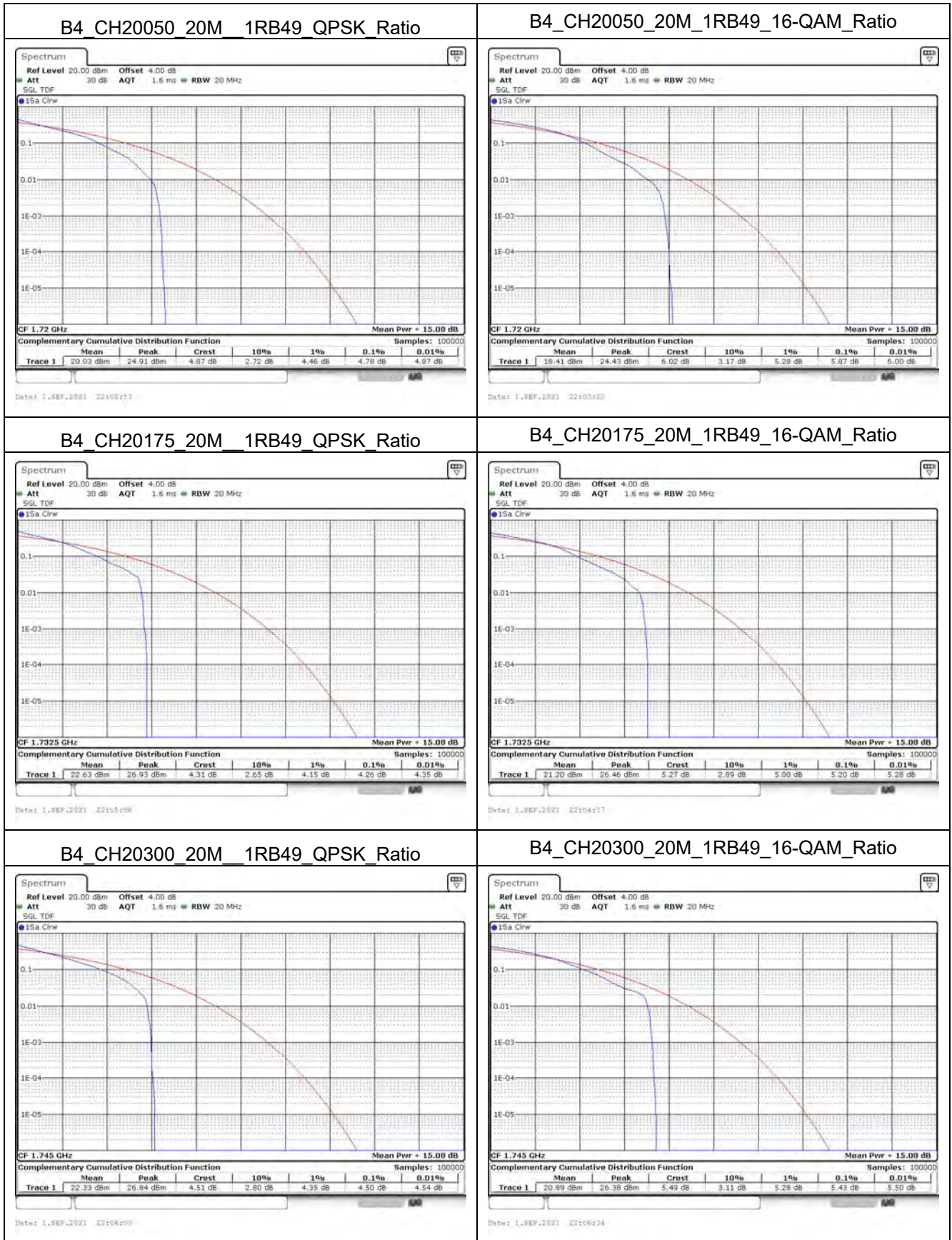






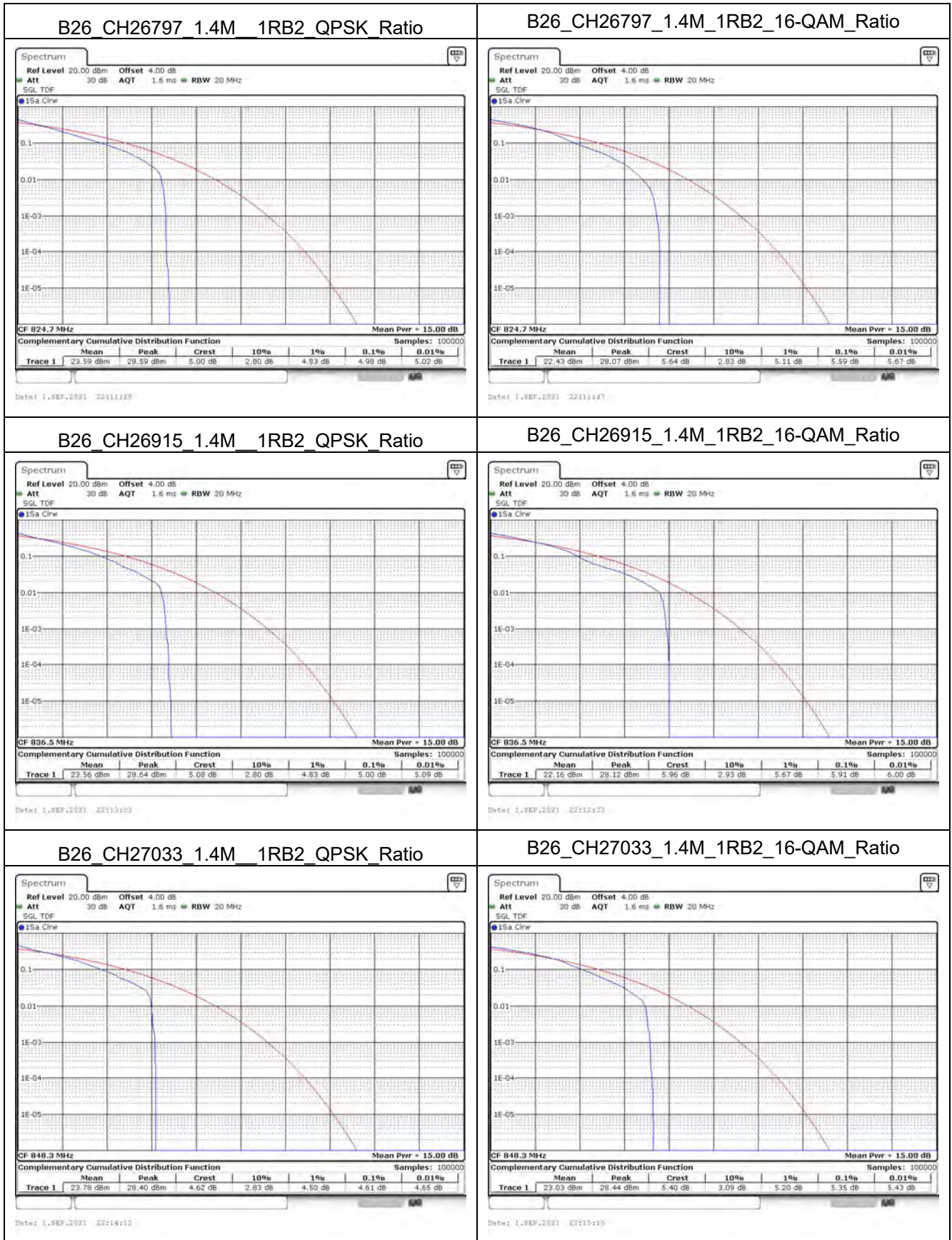


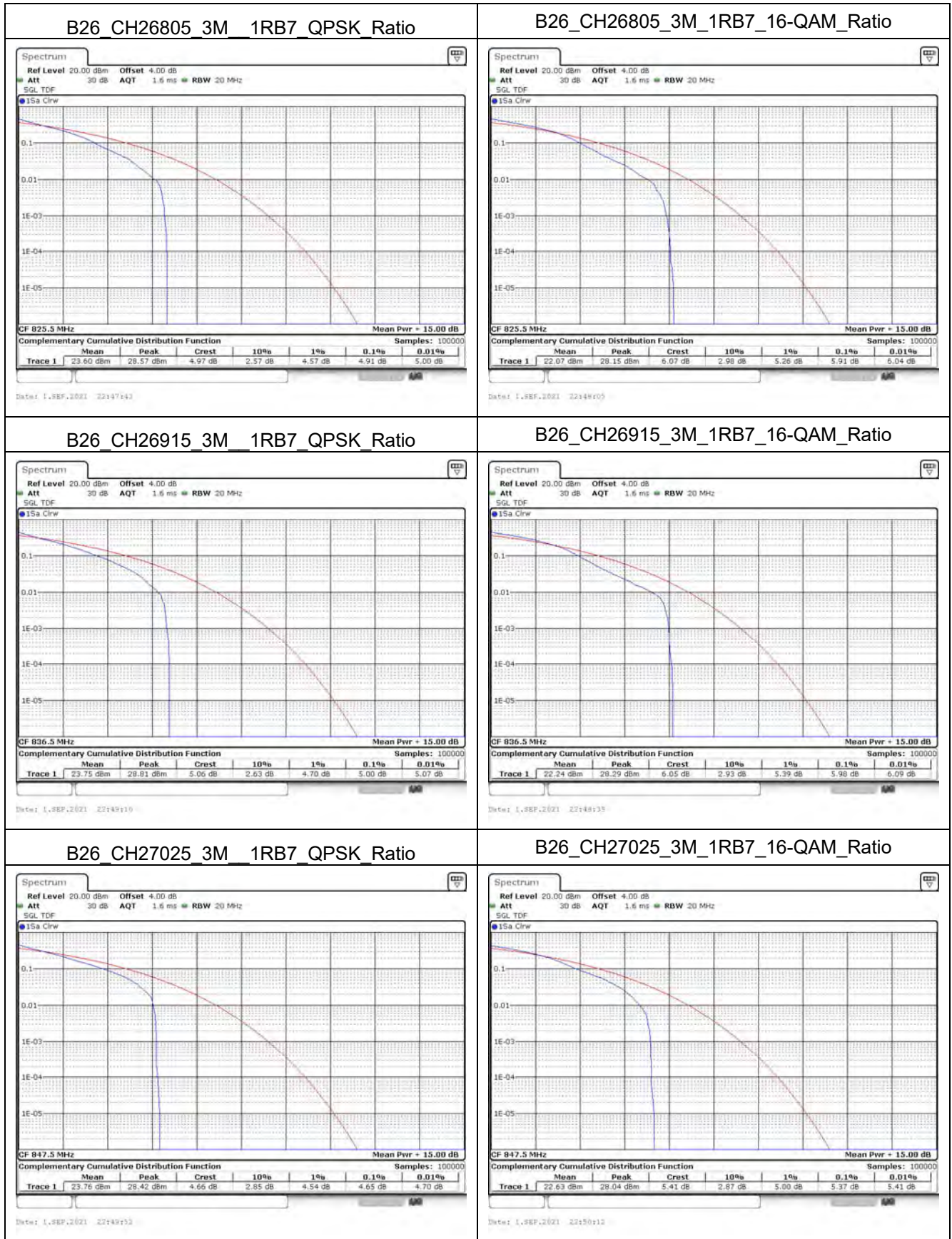


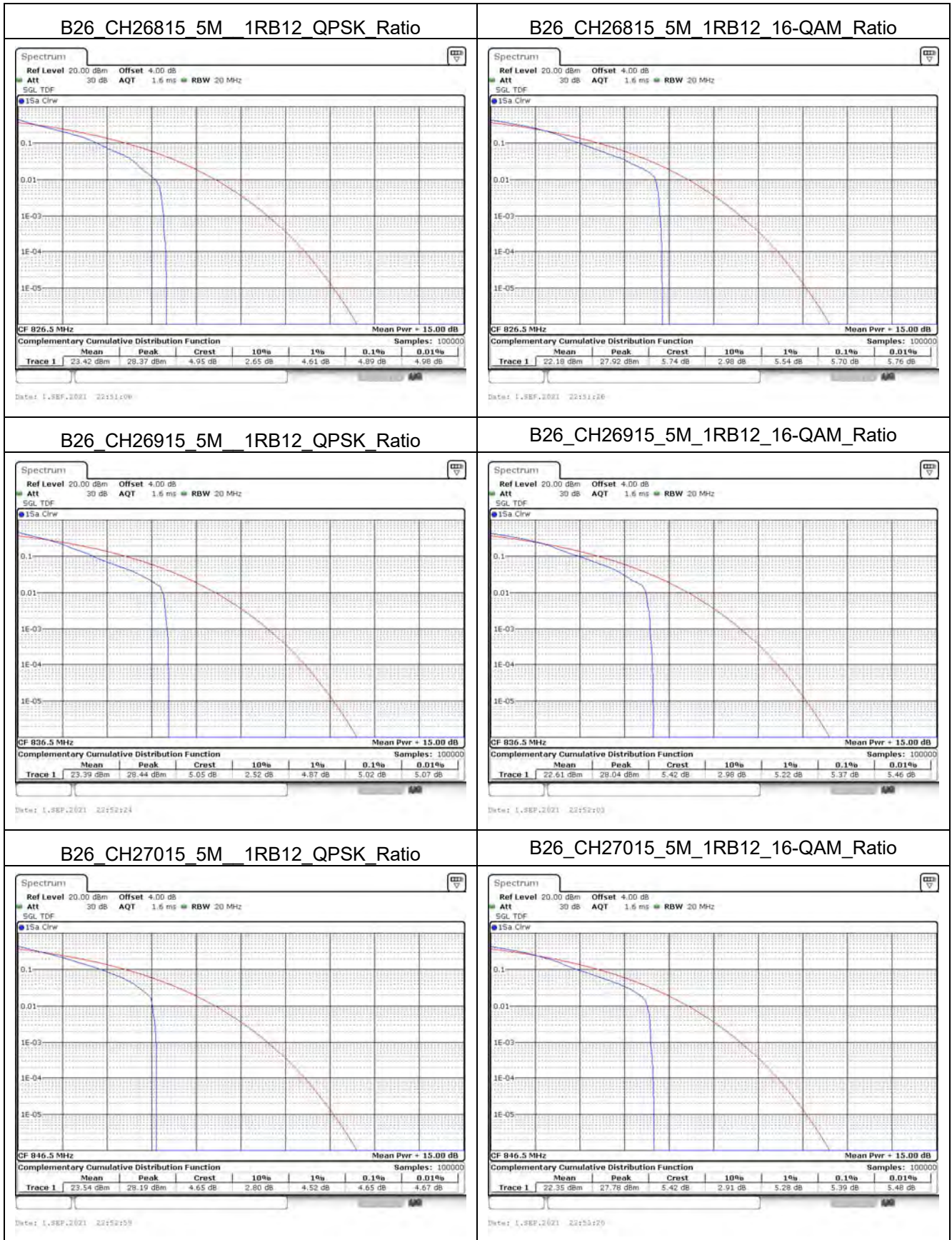


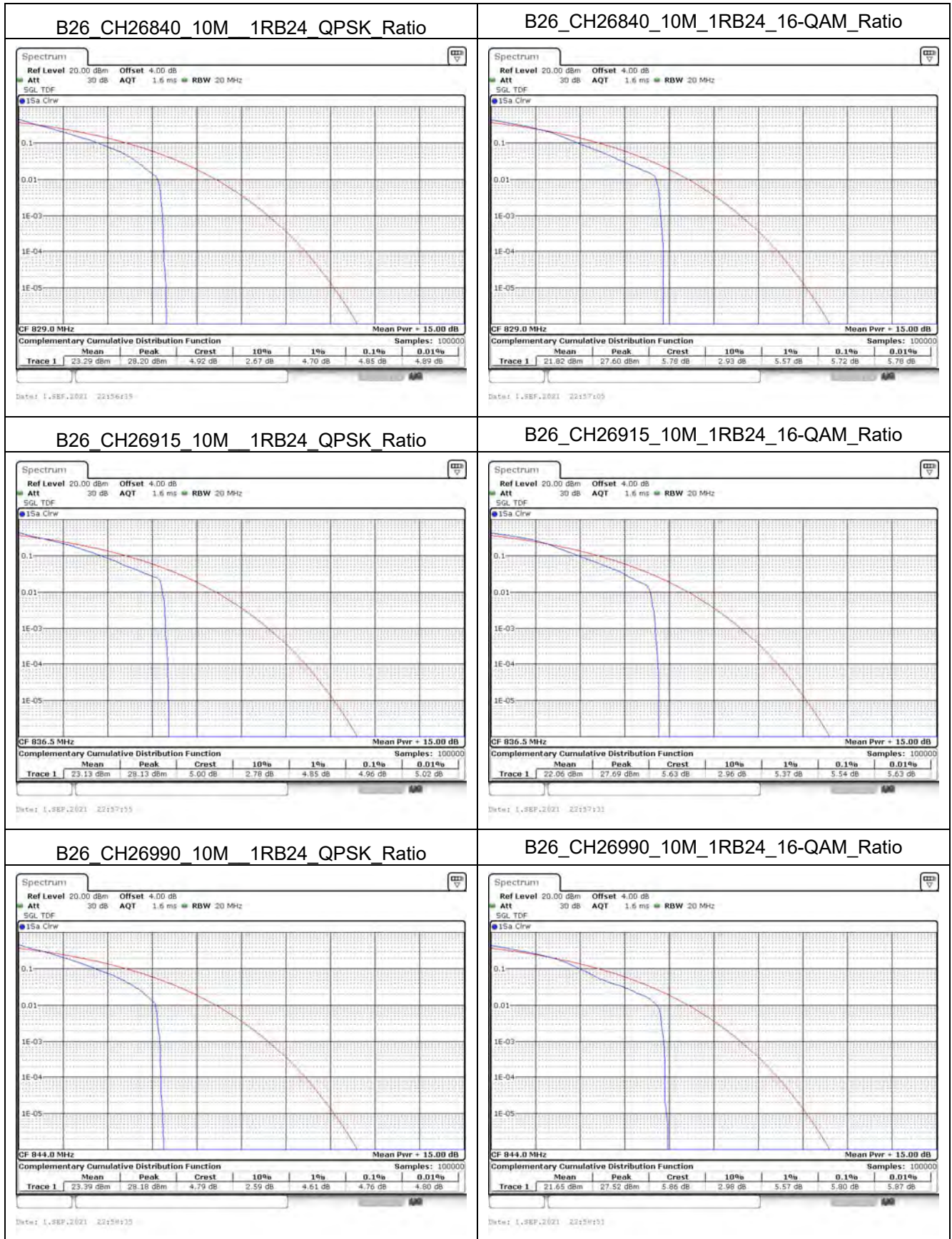
**Mode 3: LTE Band 5/26 (Part 22)**

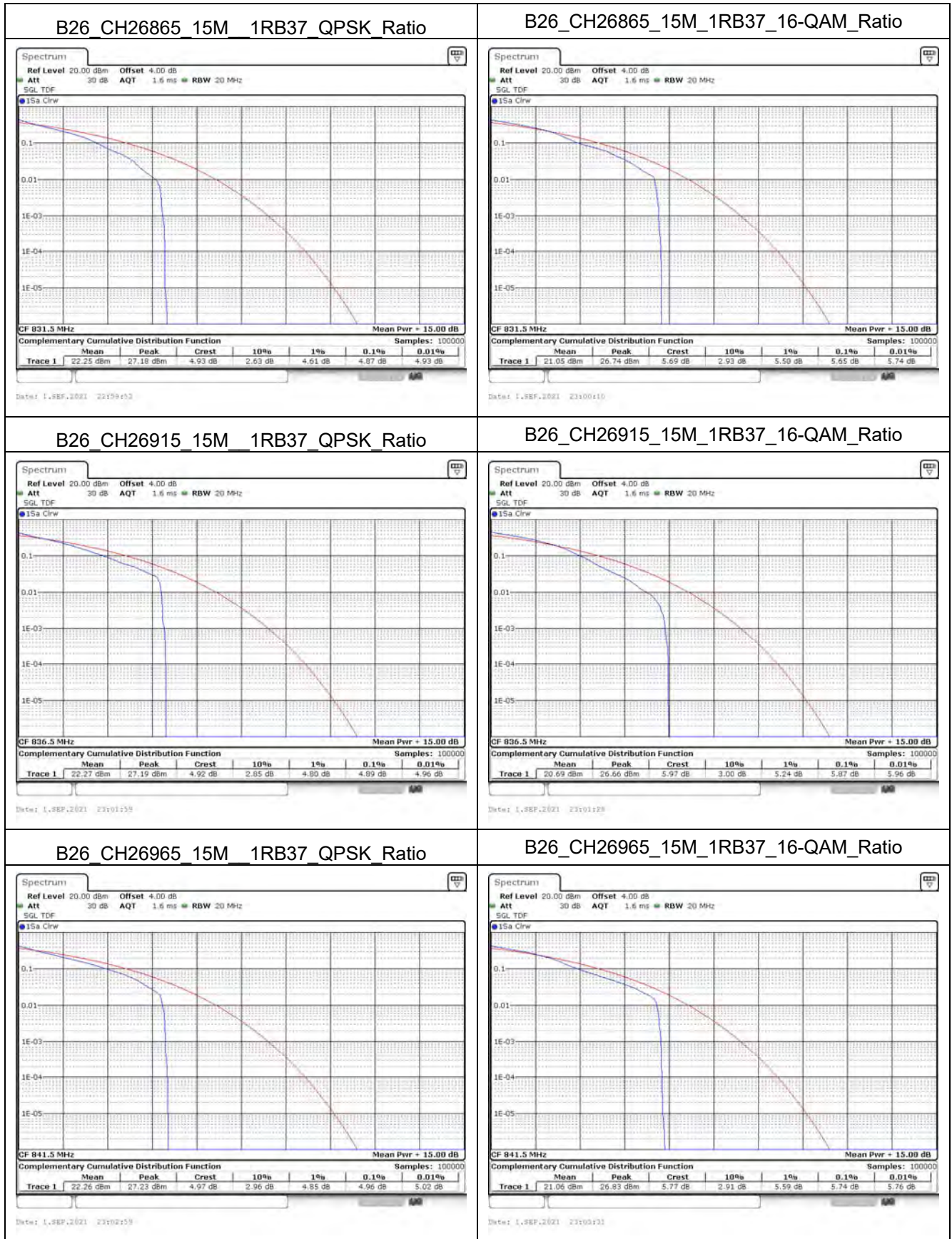
BW	CH	Freq. (MHz)	Modulation	Peak (dBm)	Average (dBm)	PAPR (dB)
1.4M	26797	824.7	QPSK	28.59	23.59	4.98
			16-QAM	28.07	22.43	5.59
	26915	836.5	QPSK	28.64	23.56	5.00
			16-QAM	28.12	22.16	5.91
	27033	848.3	QPSK	28.40	23.78	4.61
			16-QAM	28.44	23.03	5.35
3M	26805	525.5	QPSK	28.57	23.60	4.91
			16-QAM	28.15	6.07	5.91
	26915	836.5	QPSK	28.81	23.75	5.00
			16-QAM	28.29	22.24	5.98
	27025	847.5	QPSK	28.42	23.76	4.65
			16-QAM	28.04	22.63	5.37
5M	26815	826.5	QPSK	28.37	23.42	4.89
			16-QAM	27.92	22.18	5.70
	26915	836.5	QPSK	28.44	23.39	5.02
			16-QAM	28.04	22.61	5.37
	27015	846.5	QPSK	28.19	23.54	4.65
			16-QAM	27.78	22.35	5.39
10M	26840	829	QPSK	28.20	23.29	4.85
			16-QAM	27.60	21.82	5.72
	26915	836.5	QPSK	28.13	23.13	4.96
			16-QAM	27.69	22.06	5.54
	26990	844	QPSK	28.18	23.39	4.76
			16-QAM	27.52	21.65	5.80
15M	26865	831.5	QPSK	27.18	22.25	4.87
			16-QAM	26.74	21.05	5.65
	26915	836.5	QPSK	27.19	22.27	4.89
			16-QAM	26.66	20.69	5.87
	26965	841.5	QPSK	27.23	22.26	4.96
			16-QAM	26.83	21.06	5.74







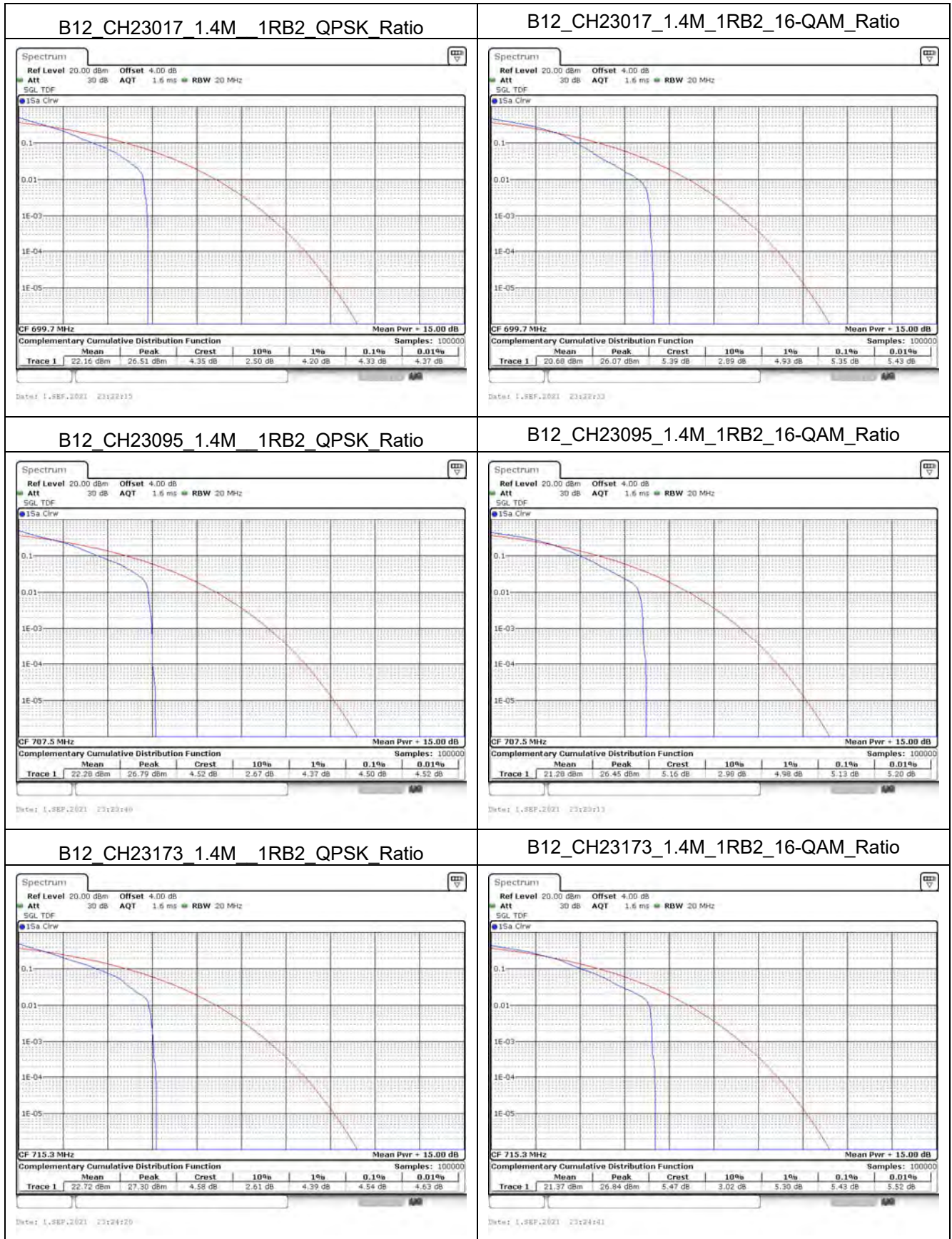


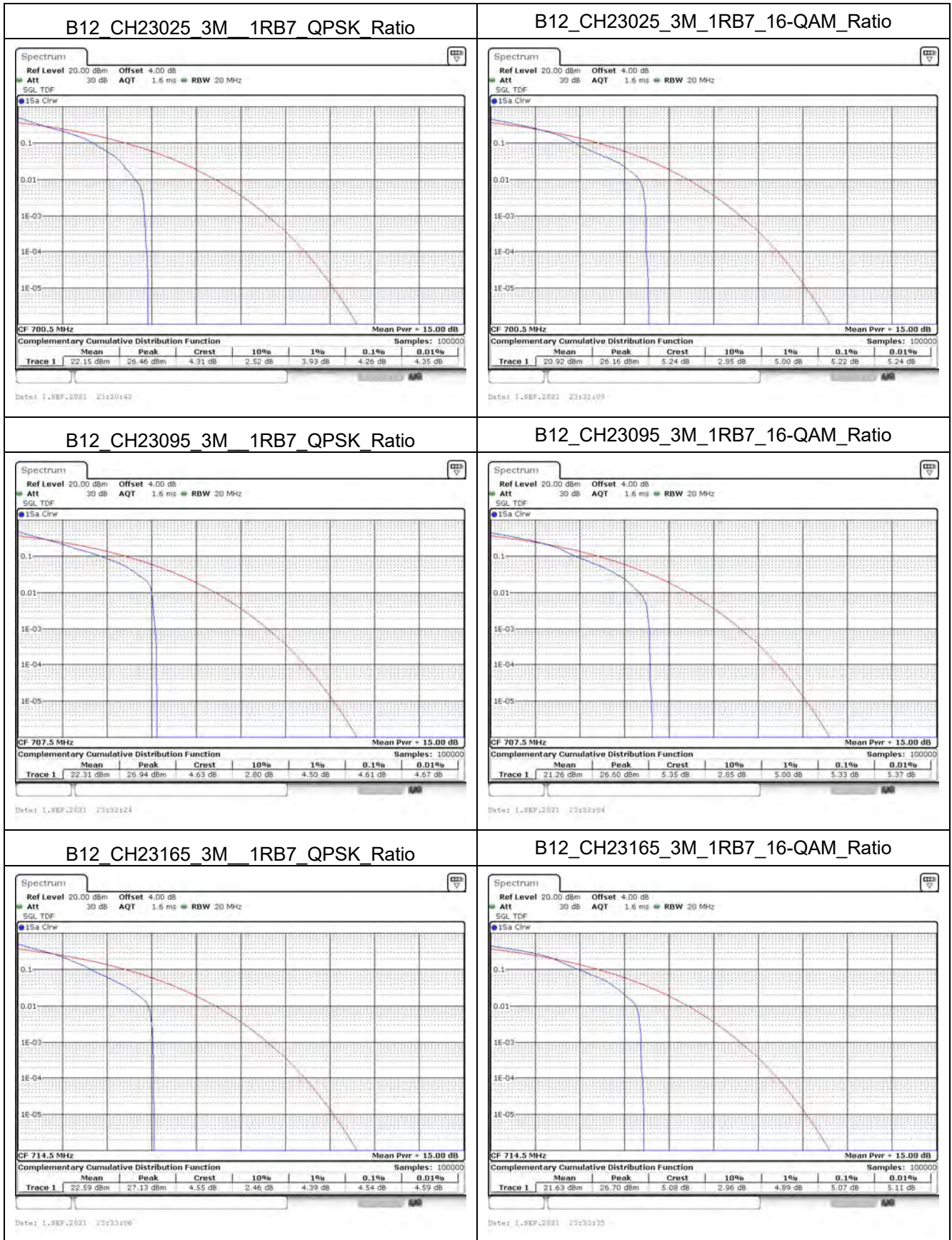


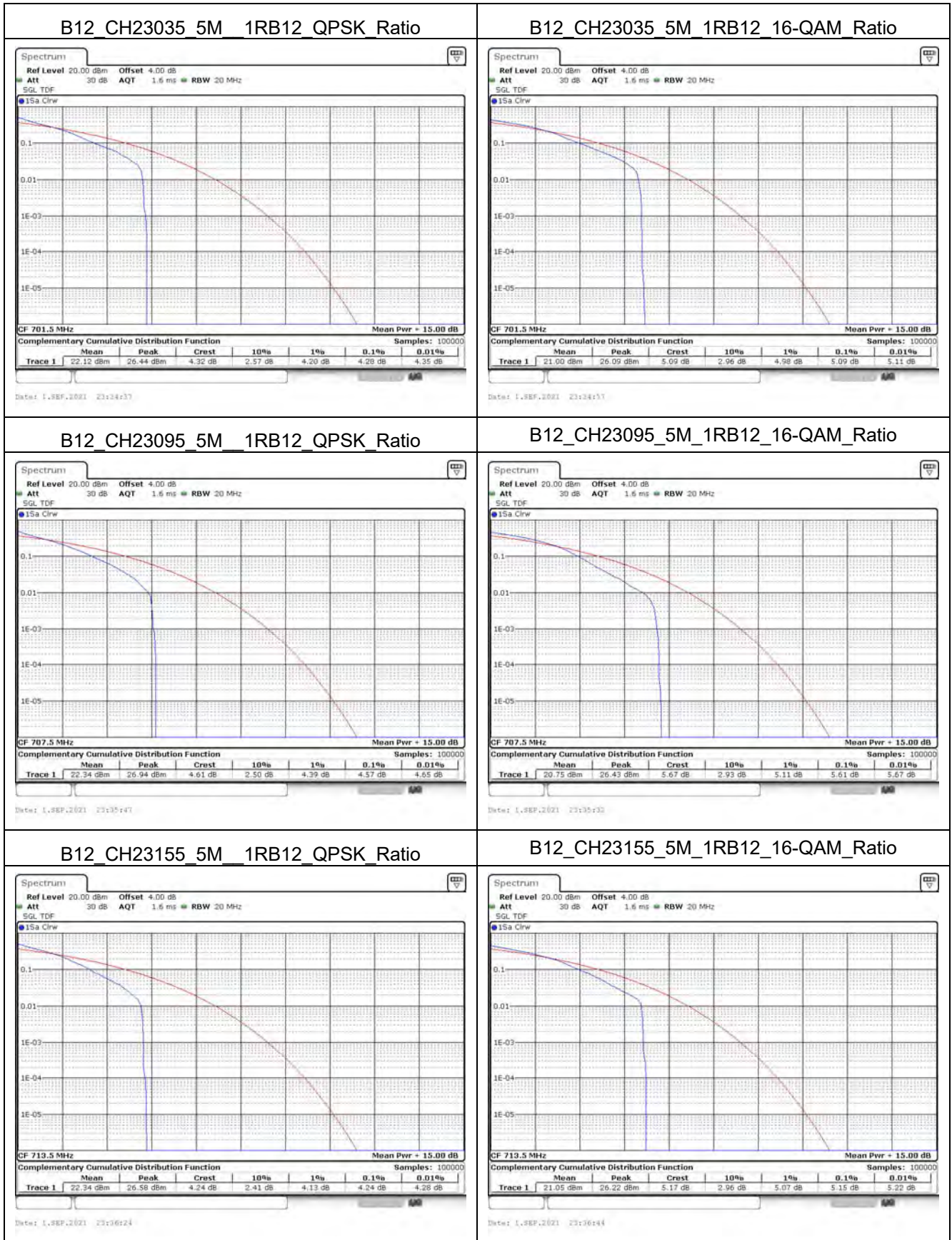


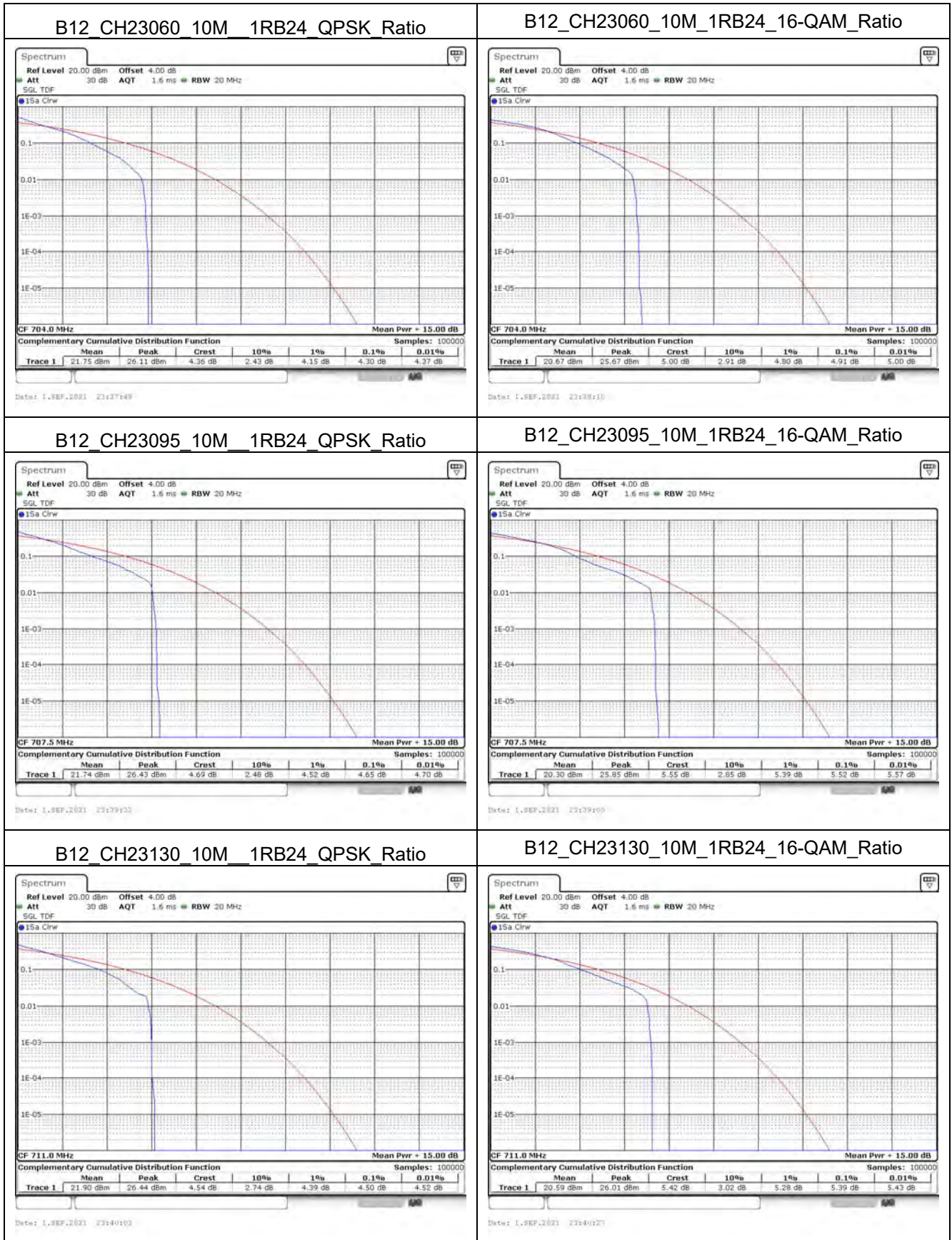
**Mode 4: LTE Band 12**

BW	CH	Freq. (MHz)	Modulation	Peak (dBm)	Average (dBm)	PAPR (dB)
1.4M	23017	699.7	QPSK	26.51	22.16	4.33
			16-QAM	26.07	20.68	5.35
	23097	707.5	QPSK	26.79	22.28	4.50
			16-QAM	26.45	21.28	5.13
	23173	715.3	QPSK	27.30	22.72	4.54
			16-QAM	26.84	21.37	5.43
3M	23025	700.5	QPSK	26.46	22.15	4.26
			16-QAM	26.16	20.92	5.22
	23095	707.5	QPSK	26.94	22.31	4.61
			16-QAM	26.60	21.26	5.33
	23165	714.5	QPSK	27.13	22.59	4.54
			16-QAM	26.70	21.63	5.07
5M	23035	701.5	QPSK	26.44	22.12	4.28
			16-QAM	26.09	21.00	5.09
	23095	707.5	QPSK	26.94	22.34	4.57
			16-QAM	26.43	20.75	5.61
	23155	713.5	QPSK	26.58	22.34	4.24
			16-QAM	26.22	21.05	5.15
10M	23060	704	QPSK	26.11	21.75	4.30
			16-QAM	25.67	20.67	4.91
	23095	707.5	QPSK	26.43	21.74	4.65
			16-QAM	25.85	20.30	5.52
	23130	711	QPSK	26.44	21.90	4.50
			16-QAM	26.01	20.59	5.39



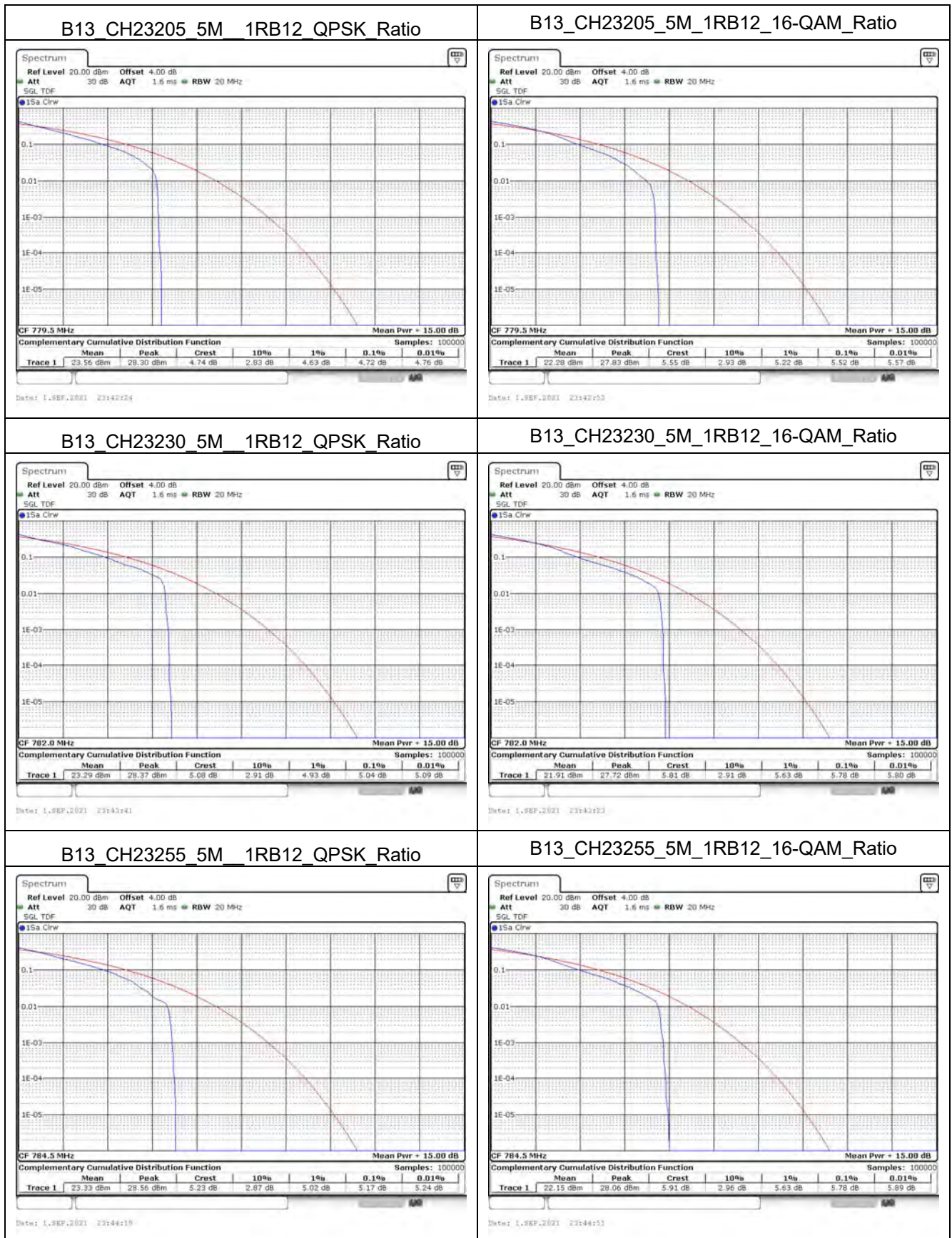


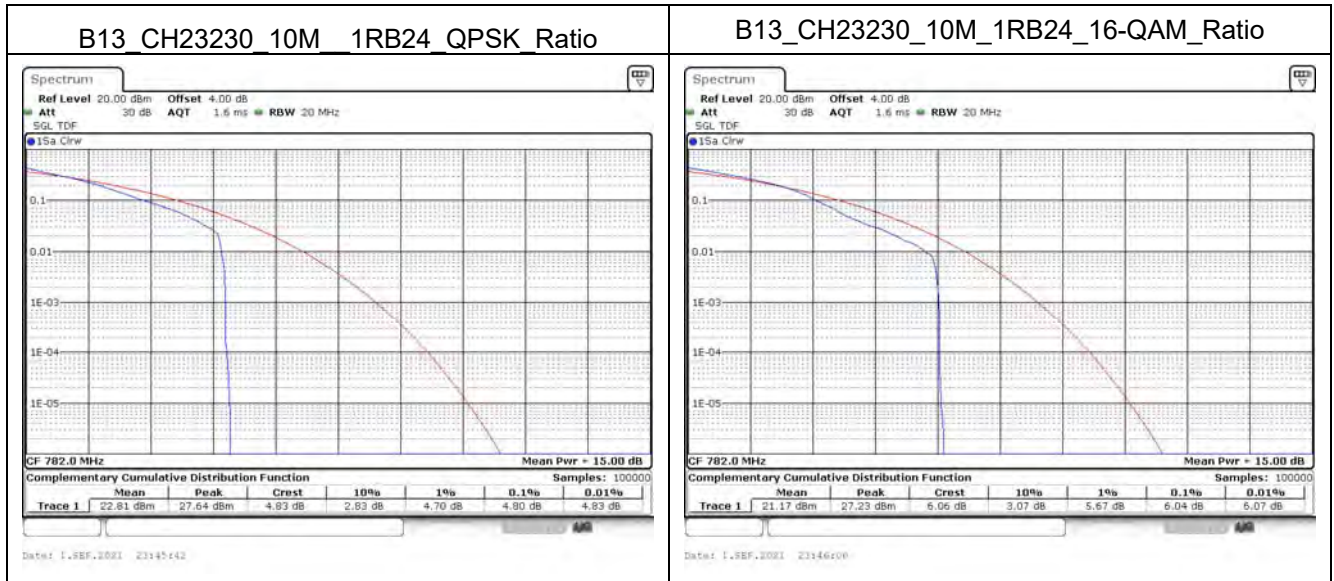




**Mode 5: LTE Band 13**

BW	CH	Freq. (MHz)	Modulation	Peak (dBm)	Average (dBm)	PAPR (dB)
5M	23205	779.5	QPSK	28.30	23.56	4.72
			16-QAM	27.83	22.28	5.52
	23230	782	QPSK	28.37	23.29	5.04
			16-QAM	27.72	21.91	5.78
	23255	784.5	QPSK	28.56	23.33	5.17
			16-QAM	28.06	22.15	5.78
10M	23230	782	QPSK	27.64	22.81	4.80
			16-QAM	27.23	21.17	6.04

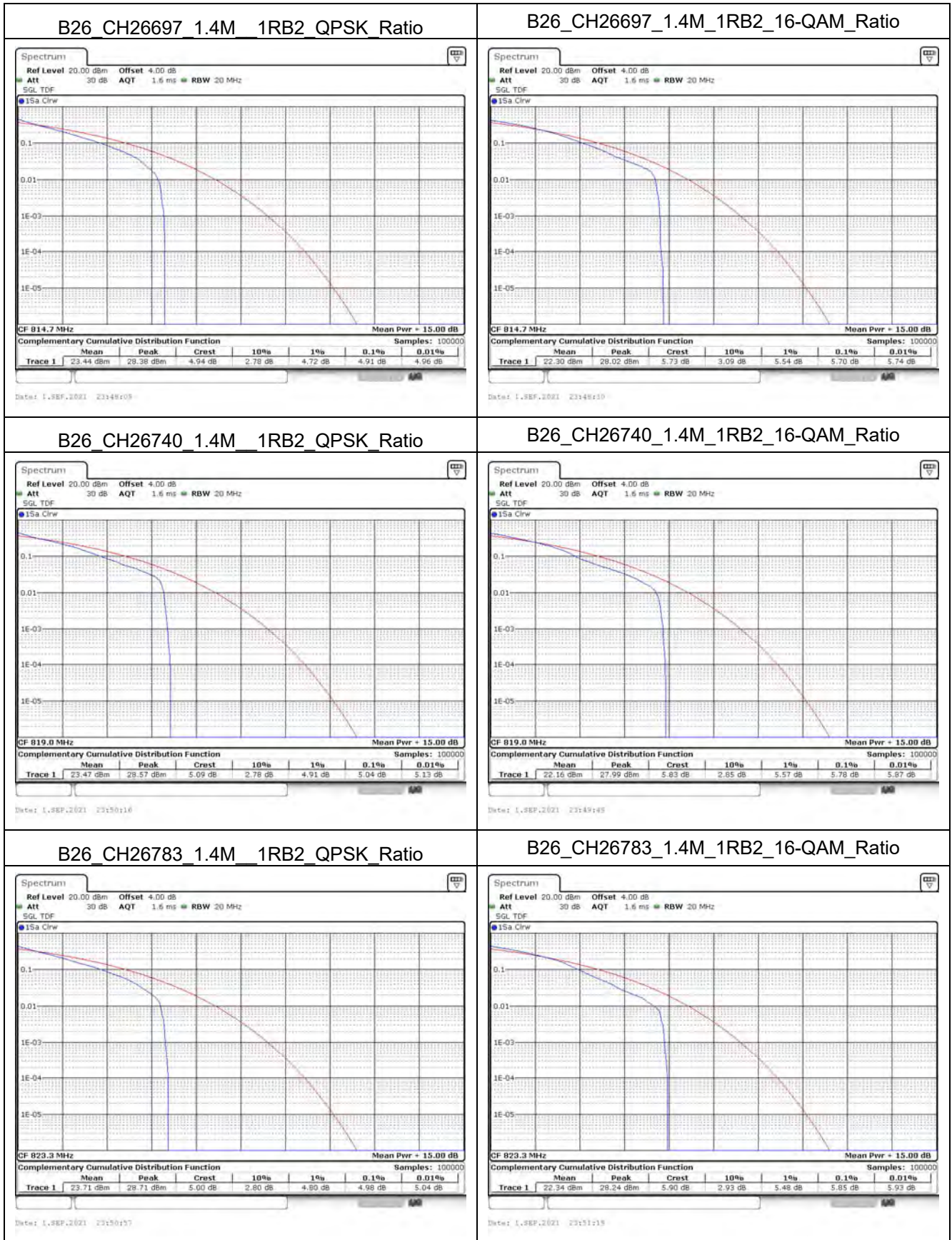


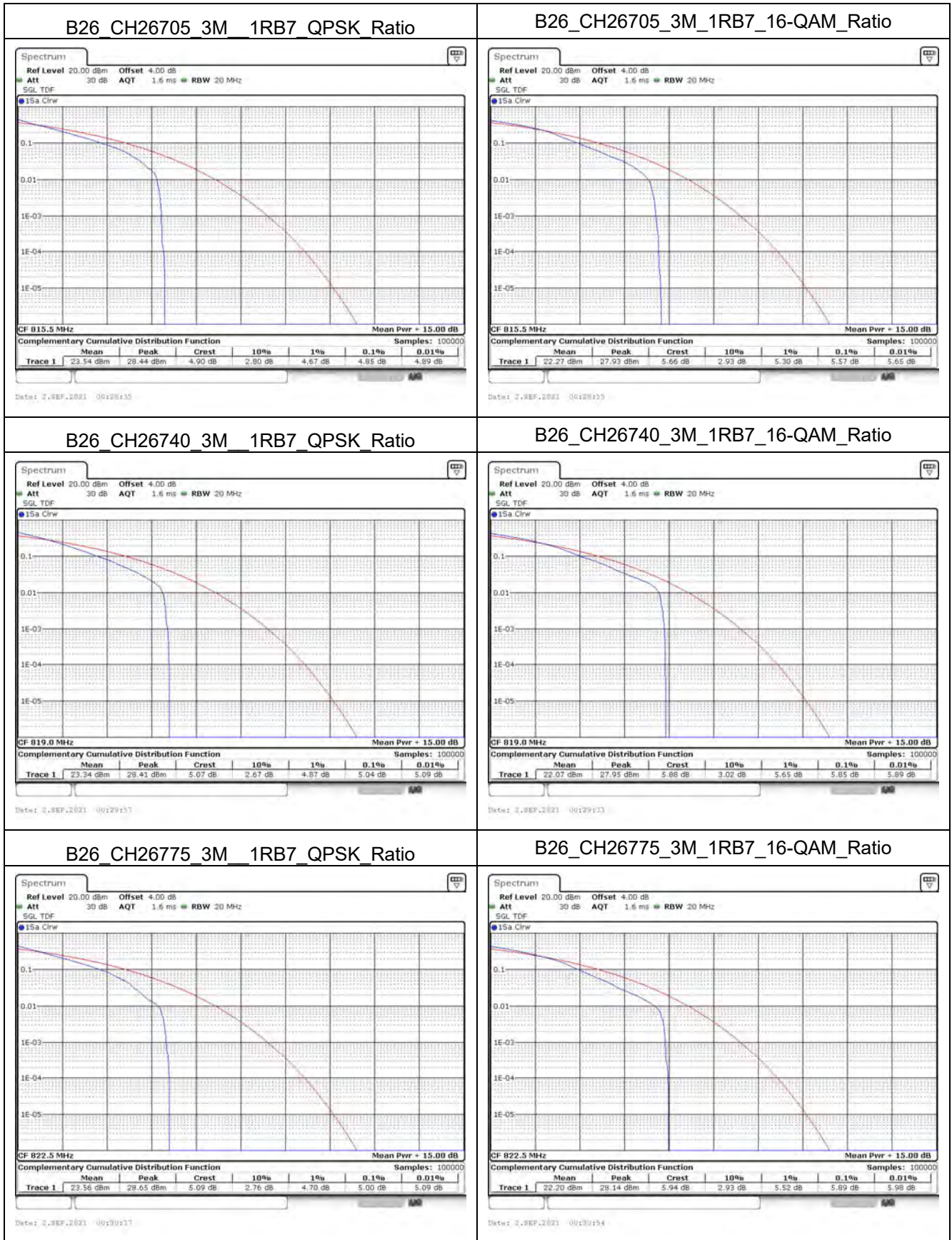


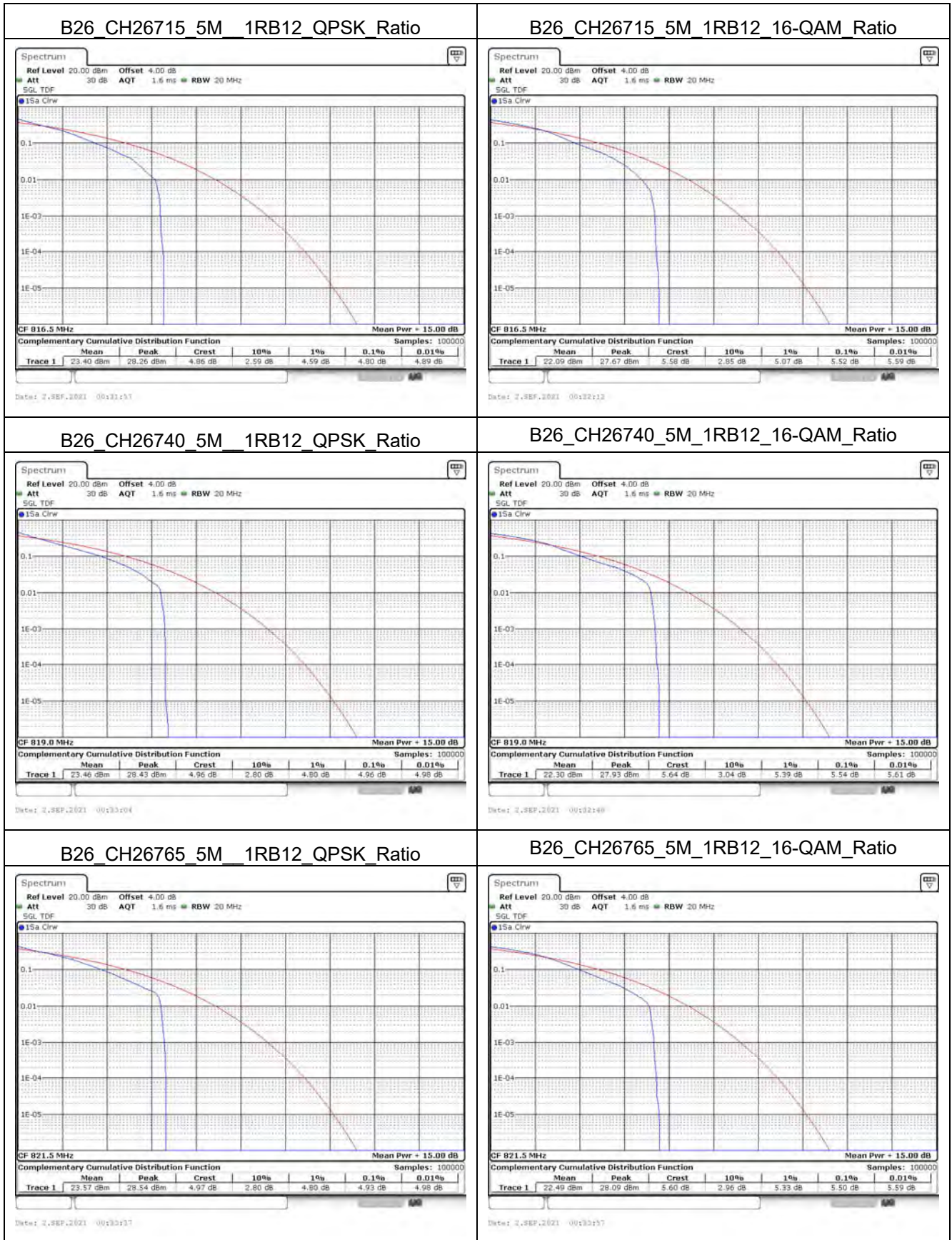


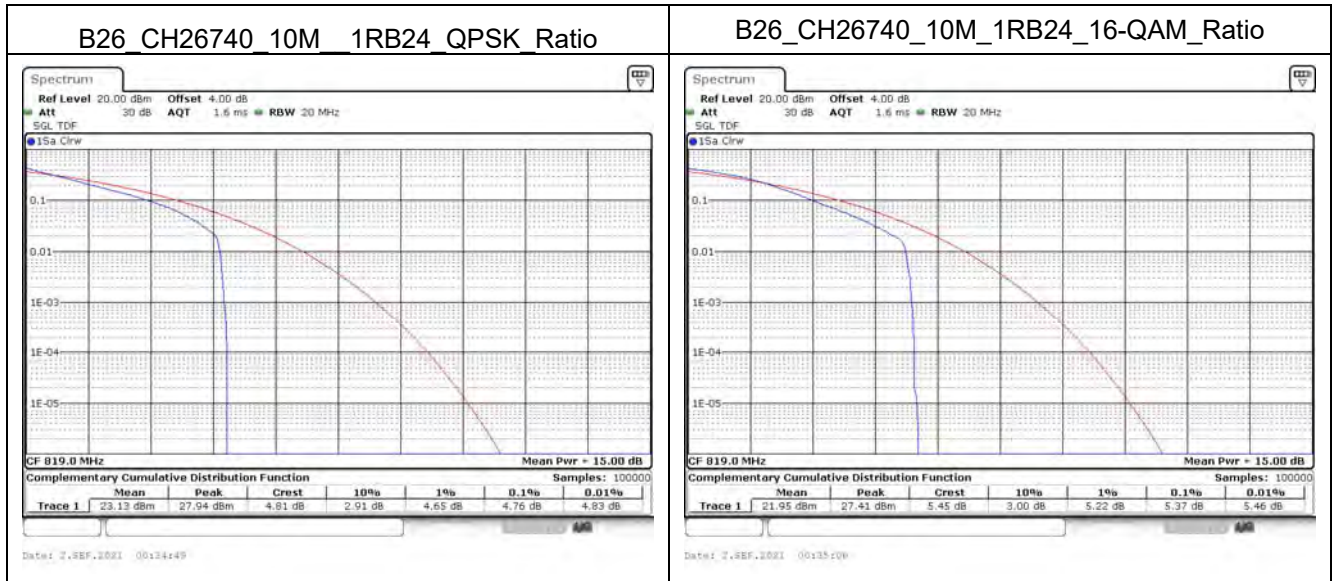
**Mode 6: LTE Band 26 (Part 90)**

BW	CH	Freq. (MHz)	Modulation	Peak (dBm)	Average (dBm)	PAPR (dB)
1.4M	26697	814.7	QPSK	28.38	23.44	4.91
			16-QAM	28.02	22.30	5.70
	26740	819	QPSK	28.57	23.47	5.04
			16-QAM	27.99	22.16	5.78
	26783	823.3	QPSK	28.71	23.71	4.98
			16-QAM	28.24	22.34	5.85
3M	26705	815.5	QPSK	28.44	23.54	4.85
			16-QAM	27.93	22.27	5.57
	26740	819	QPSK	28.41	23.34	5.04
			16-QAM	27.95	22.07	5.85
	26775	822.5	QPSK	28.65	23.56	5.00
			16-QAM	28.14	22.20	5.89
5M	26715	816.5	QPSK	28.26	23.40	4.80
			16-QAM	27.67	22.09	5.52
	26740	819	QPSK	28.43	23.46	4.96
			16-QAM	27.93	22.30	5.54
	26765	821.5	QPSK	28.54	23.57	4.93
			16-QAM	28.09	22.49	5.50
10M	26740	819	QPSK	27.94	23.13	4.76
			16-QAM	27.41	21.95	5.37





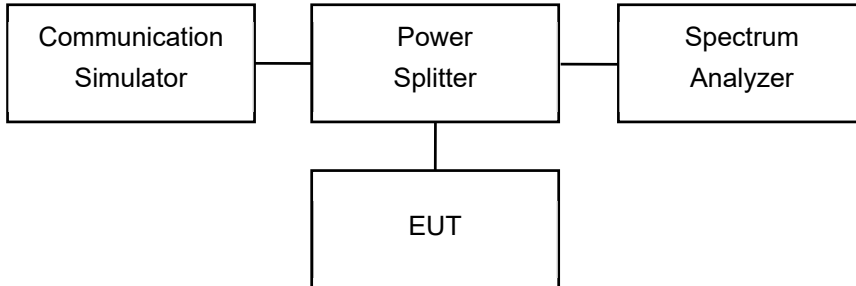




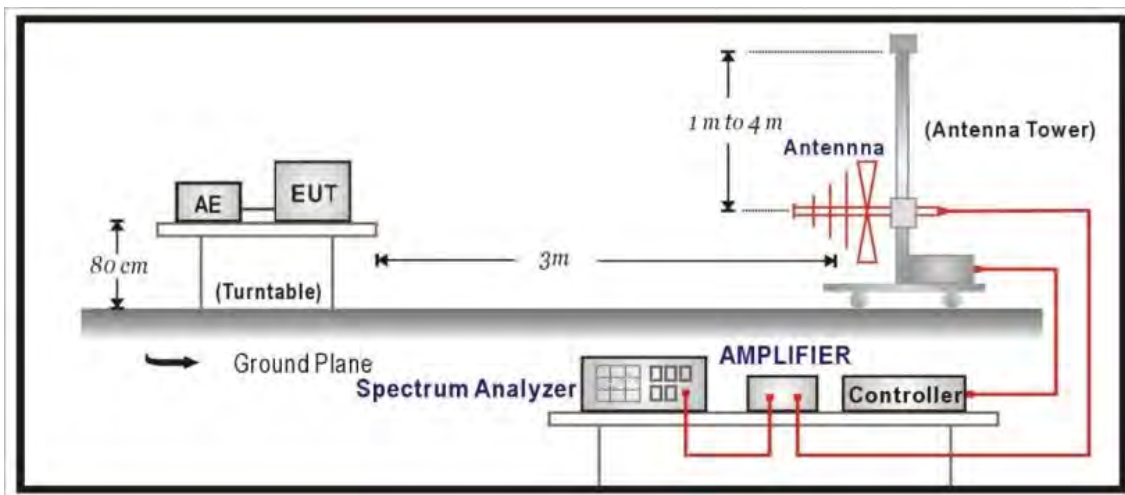
## 6. Spurious Emissions

### 6.1. Test Setup

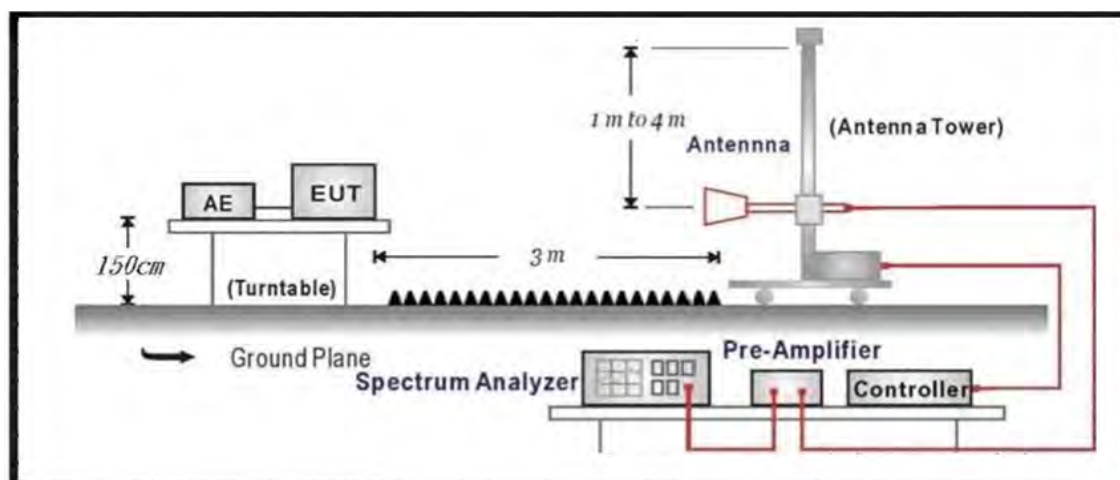
Conducted Spurious Measurement



Radiated Spurious Measurement: below 1GHz



Radiated Spurious Measurement: above 1GHz



## 6.2. Test Procedure

### Conducted Spurious Measurement:

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. The path loss was compensated to the results for each measurement. The resolution bandwidth of the spectrum analyzer was set at 1 MHz, sufficient scans were taken to show the out of band Emission if any up to 10<sup>th</sup> harmonic.

### Radiated Spurious Measurement:

The EUT and its simulators are placed on a turn table which is 0.8 or 1.5 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The height of the receiving antenna is varied between one meter and four meters to search the maximum spurious emission for both horizontal and vertical polarizations. The resolution bandwidth of the spectrum analyzer was set at 1 MHz, sufficient scans were taken to show the out of band Emission if any up to 10th harmonic. Taking the record of maximum spurious emission.

## 6.3. Test Methodology and Reference Procedures

KDB 971168 D01 Power Meas License Digital Systems v03r01

ANSI C63.26-2015

### 6.4. Test Result of Conducted Spurious Emission

#### Mode 1: LTE Band 2/25

