ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

Applicant:	Telit Communications S.p.A. Via Stazione di Prosecco 5/b 34010 Sgonico - Trieste
Product Name:	LN920A12-WW / LN920A6-WW
Brand Name:	Telit
Model No.:	LN920A12-WW / LN920A6-WW
Model Difference:	1. Internal Component is different between two model. 2. Capability is different between two model.
Report Number:	ER/2021/A0030
FCC ID	RI7LN920
IC:	5131A-LN920
Issue Date:	February 9, 2022
Date of Test:	October 6, 2021~January 26, 2022
Date of EUT Received:	October 6, 2021

Approved By _____
Blue Yang

We hereby certify that:

The above equipment was tested by SGS Taiwan Ltd. Central RF Lab The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI ANSI C63.26-2015 and the energy emitted by the sample EUT comply with FCC rule part 2, 22H & 27C and ISED RSS-Gen, 132, 199.

The results of this report relate only to the sample identified in this report.

Revision History					
Report Number	**Revision**	**Description**	**Issue Date**	**Revised By**	**Remark**
ER/2021/A0030	00	Original.	February 9, 2022	Susan Lin	

Note:

1、 The remark "*" indicates modification of the report upon requests from certification body.

2、 Variant information of model numbers is provided by the applicant, test results of this report are applicable to the sample EUT(s) received and are assessed as identical in hardware and firmware to each other.

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1 GENERAL PRODUCT INFORMATION

1.1 Product Description

Product Name:	LN920A12-WW / LN920A6-WW
Brand Name:	Telit
Model No.:	LN920A12-WW / LN920A6-WW
Model Difference:	1. Internal Component is different between two model. 2. Capability is different between two model.
Hardware Version:	1.0
Firmware Version:	LN920A12-WW: M0L.000001 / LN920A6-WW : M0L.010001
EUT Series No.:	35417570001280
Power Supply:	3.3Vdc
Test Software (Name/Version):	N/A

1.2 Operation Frequency Range

LTE Band 5	
BW (MHz)	Operation Frequency (MHz)
1.4	824.7 - 848.3
3	825.5 - 847.5
5	826.5 - 846.5
10	829.0 - 844.0

LTE Band 7	
BW (MHz)	Operation Frequency (MHz)
5	2502.5 - 2567.5
10	2505.0 - 2565.0
15	2507.5 - 2562.5
20	2510.0 - 2560.0

LTE Band 38	
BW (MHz)	Operation Frequency (MHz)
5	2572.5 - 2617.5
10	2575.0 - 2615.0
15	2577.5 - 2612.5
20	2580.0 - 2610.0

LTE Band 41	
BW (MHz)	Operation Frequency (MHz)
5	2498.5 - 2687.5
10	2501.0 - 2685.0
15	2503.5 - 2682.5
20	2506.0 - 2680.0

LTE Band 41 RSS-199	
BW (MHz)	Operation Frequency (MHz)
5	2502.5 - 2687.5
10	2505.0 - 2685.0
15	2507.5 - 2682.5
20	2510.0 - 2680.0

1.3 Antenna Designation

Antenna Type	Antenna Model No.
Monopole	TG.55.8113
Note: Transmission frequencies in this test report are only available by the above antenna(s).	

Type	Modulation	Frequency (MHz)	Peak Antenna Gain (dBi)
Monopole	LTE-Band 5	824 ~ 849	3.2
	LTE-Band 7	2500 ~ 2570	3.12
	LTE-Band 38	2570 ~ 2620	3.12
	LTE-Band 41	2496 ~ 2690	3.12

Note: Antenna information is provided by the applicant.

1.4 Type of Emission & Max ERP/EIRP Power Measurement Result:

1.4.1 Intra-Band

LTE Band	BW	Modulation	ERP / EIRP (dBm)		(W)	99%	Type of Emission
5B	15	QPSK	24.79	ERP	**0.301**	13.8270	13M8G7D
		16QAM	23.72	ERP	0.236	13.8370	13M8D7W
		64QAM	21.79	ERP	0.151	13.8240	13M8D7W
5B	20	QPSK	24.66	ERP	0.292	18.7970	18M8G7D
		16QAM	23.83	ERP	0.242	18.6920	18M7D7W
		64QAM	21.62	ERP	0.145	18.7390	18M7D7W
LTE Band	BW	Modulation	ERP / EIRP (dBm)		(W)	99%	Type of Emission
7C	30	QPSK	27.00	EIRP	**0.501**	28.4610	28M5G7D
		16QAM	25.92	EIRP	0.391	28.4050	28M4D7W
		64QAM	23.73	EIRP	0.236	28.3650	28M4D7W
7C	35	QPSK	26.84	EIRP	0.483	32.6960	32M7G7D
		16QAM	25.88	EIRP	0.387	32.7190	32M7D7W
		64QAM	23.70	EIRP	0.234	32.6770	32M7D7W
7C	40	QPSK	26.89	EIRP	**0.489**	37.7060	37M7G7D
		16QAM	25.91	EIRP	0.390	37.7060	37M7D7W
		64QAM	24.00	EIRP	0.251	37.6690	37M7D7W
LTE Band	BW	Modulation	ERP / EIRP (dBm)		(W)	99%	Type of Emission
38C	30	QPSK	26.49	EIRP	**0.446**	28.3470	28M3G7D
		16QAM	25.38	EIRP	0.345	28.4020	28M4D7W
		64QAM	23.65	EIRP	0.232	28.3300	28M3D7W
38C	40	QPSK	26.42	EIRP	**0.439**	37.6930	37M7D7W
		16QAM	25.38	EIRP	0.345	37.7410	37M7D7W
		64QAM	23.62	EIRP	0.230	37.7060	37M7D7W
LTE Band	BW	Modulation	ERP / EIRP (dBm)		(W)	99%	Type of Emission
41C	25	QPSK	26.80	EIRP	**0.479**	22.9400	22M9G7D
		16QAM	26.21	EIRP	0.418	22.9080	22M9D7W
		64QAM	24.20	EIRP	0.263	22.9010	22M9D7W
41C	30	QPSK	26.73	EIRP	0.471	28.3890	28M4G7D
		16QAM	25.87	EIRP	0.386	28.3880	28M4D7W
		64QAM	23.92	EIRP	0.247	28.3130	28M3D7W
41C	35	QPSK	26.94	EIRP	**0.494**	32.6870	32M7G7D
		16QAM	25.48	EIRP	0.353	32.6450	32M6D7W
		64QAM	23.58	EIRP	0.228	32.6400	32M6D7W
41C	40	QPSK	26.61	EIRP	**0.458**	37.6560	37M7G7D
		16QAM	25.65	EIRP	0.367	37.5840	37M6D7W
		64QAM	23.67	EIRP	0.233	37.6630	37M7D7W

1.5 Test Methodology of Applied Standards

FCC 47 CFR Part 2, 22H, 27C.
ISED RSS-132 Issue 3 Jan. 2013
ISED RSS-199 Issue 3 Dec. 2016
ANSI C63.26-2015
KDB971168 D01 Power Meas license Digital System v03r01
KDB412172 D01 Determining ERP and EIRP v01r01

1.6 Test Facility

Laboratory	Test Site Address	Test Site Name	FCC Designation number	IC CAB identifier
SGS Taiwan Ltd. Central RF Lab. (TAF code 3702)	No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan.	SAC 1	TW0027	TW3702
		SAC 3		
		Conduction 1		
		Conducted 1		
		Conducted 2		
		Conducted 3		
		Conducted 4		
		Conducted 5		
		Conducted 6		
	No.2, Keji 1st Rd., Guishan District, Taoyuan City, Taiwan 333	Conduction C	TW0028	
		SAC C		
		SAC D		
		SAC G		
		Conducted A		
		Conducted B		
		Conducted C		
		Conducted D		
		Conducted E		
		Conducted F		
		Conducted G		
Note: Test site name is remarked on the equipment list in each section of this report as an indication where measurements occurred in specific test site and address.				

1.7 Special Accessories

No special accessories were used during testing.

1.8 Equipment Modifications

There was no modifications incorporated into the EUT.

1.9 Radiated Emission Test Sites for Measurements from 9 kHz to 30 MHz

Radiated emission below 30MHz is measured in a 9m*6m*6m semi-anechoic chamber, the measurements correspond to those obtained at an open-field test site.
There is a comparison data of both open-field test site and semi-Anechoic chamber, and the result came out very similar.

2 SYSTEM TEST CONFIGURATION

2.1 EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

2.2 EUT Exercise

The EUT (Transmitter) was operated in the continuous transmission mode employed with the simulator of the Base Station that fixates at test default channels to fix the Tx frequency which was for the purpose of the measurements.

2.3 Test Procedure

2.3.1 Conducted Measurement at Antenna Port

The EUT is placed on a table which is 0.8 m above ground plane. A low loss of RF cable was used to connect the antenna port of EUT to measurement equipment.

2.3.2 Radiated Emissions (ERP/EIRP)

The EUT is placed on a turn table, for emission measurements below 1 GHz is 0.8 m above ground plane, for emission measurements above 1 GHz, the table height shall be 1.5 m. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both Horizontal and Vertical. In order to find out the max. emission, the relative positions of this hand-held transmitter (EUT) was rotated through three orthogonal axes and measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made “while keeping the antenna in the ‘cone of radiation’ from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response.” is still within the 3dB illumination BW of the measurement antenna.

2.4 Measurement Results Explanation Example

For all conducted test items:
The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuation factor between EUT conducted port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly EUT RF output level.
Note:
The spectrum analyzer offset is derived from RF cable loss and attenuator factor.
Following shows an offset computation in physical test.

Frequency	RF Cable loss (dB)	Attenuation (dB)	Offset (dB)
LB(1GHz below)	4.22	10	14.22
MB(2GHz - 3GHz)	4.83	10	14.83

2.5 Final Amplifier Voltage and Current Information:

LTE CA Band 5B

Test mode	DC voltage (V)	DC current (mA)
LTE CA Band 5B 10M+10M QPSK	3.3	**455**

LTE CA Band 7C

Test mode	DC voltage (V)	DC current (mA)
LTE CA Band 7C 20M+20M QPSK	3.3	**468**

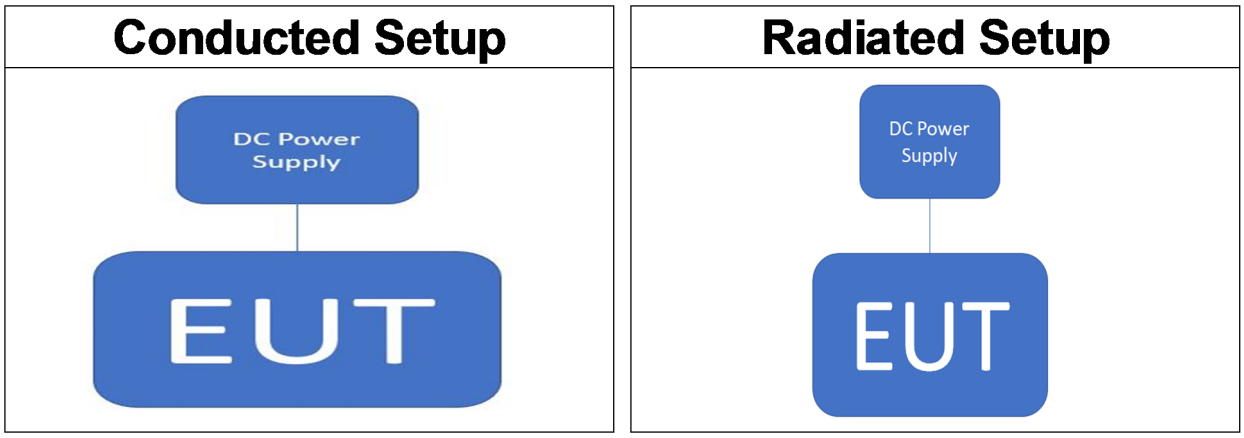
LTE CA Band 38C

Test mode	DC voltage (V)	DC current (mA)
LTE CA Band 38C 20M+20M QPSK	3.3	**447**

LTE CA Band 41C

Test mode	DC voltage (V)	DC current (mA)
LTE CA Band 41C 20M+20M QPSK	3.3	**469**

2.6 Test Configuration



Note: Radio Communication Analyzer is placed in remote side for radiated test.

2.7 Control Unit(s)

Conducted Emission Test Site: Conducted 4					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**Calibration Authority**
Test Software	SGS	Radio Test Software	Ver. 21	N.C.R	N.C.R

3 SUMMARY OF TEST RESULTS

FCC Rules	IC Rules	Description Of Test	Result
§2.1046(a)	RSS-GEN §6.12	RF Power Output	Compliant
§22.913(a)(5) §27.50(h)(2)	RSS-132 §5.4 RSS-199 §4.4	ERP/ EIRP measurement	Compliant
§2.1049(h)	RSS-GEN §6.7	99% & 26dB Occupied Bandwidth	Compliant
§2.1051 §22.917(a) §27.53(m)(4)(6)	RSS-GEN §6.13 RSS-132 §5.5 RSS-199 §4.5	Out of Band Emissions at Antenna Terminals and Band Edge / Emission mask requirements	Compliant
§2.1053 §22.917(a) §27.53(m)(4)	RSS-GEN §6.13 RSS-132 §5.5 RSS-199 §4.5	Field Strength of Spurious Radiation	Compliant
§27.50(a)(1)(B)	RSS-132 §5.4 RSS-199 §4.4	Peak to Average Ratio	Compliant
§2.1055(a)(1) §22.355 §27.54	RSS-132 §5.3 RSS-199 §4.3	Frequency Stability	Compliant

4 DESCRIPTION OF TEST MODES

4.1 The Test Channel Details

This device supports with carrier aggregation (two carrier) uplink. Intra-Band contiguous and Inter-Band non-contiguous specification as below:

E-UTRA Intra-Band CA configuration / Bandwidth combination set		
E-UTRA CA configuration	Component carriers in order of in-creasing carrier frequency Channel bandwidth for PCC and SCC [MHz]	Maximum aggregated band-width [MHz]
CA_5C	5+10 / 10+5	15
	10+10	20
CA_7C	10+20 / 20+10 / 15+15	30
	15+20 / 20+15	35
	20+20	40
CA_38C	15+15	30
	20+20	40
CA_41C	5+20 / 20+5	25
	10+20 / 20+10 / 15+15	30
	15+20 / 20+15	35
	20+20	40

4.2 The Worst-CaseTest Modes and Details

1. This EUT is UE LTE 4G 1Tx/2Rx device for single carrier that can support uplink Band 5/7/38/41 with uplink carrier aggregation (CA).
2. The worst-case scenario for all measurements is based on the average conducted output power measurement investigation results. Output power measurements were measured on QPSK, 16QAM and 64QAM modulations. It was found that QPSK results the highest, hence all testing was performed using QPSK modulations to represent the worst case.
3. Pre-scanned on the lower, middle and the higher cahnnels of each frequency band for occupied bandwidth, frequency stability, conducted unwanted emission and peak to average ratio measurements, the middle one results in the highest emission which demonstrated in this report.
4. Measurements of Band Edge and Emission Mask with the widest and narrowest BW combinations were tested. Combinations of same BW is considered equivalent. The RB combinations were selected as the signal activated closest to the band limit for determining the worst case scenario.
5. For Out of Band Emissions: The widest and narrowest RB combinations was tested to determine the worst case senario with combinations generate higher emissions.
6. The field strength of radiated emission was measured as the EUT positioned in different orthogonal planes (E1/E2/H) based on actual usage of the EUT to pre-scan the emissions for determining the worst case scenario.

4.2.1 Intra-Band

For uplink Intra-Band CA, evaluation has been done for contiguous and non-contiguous channel and bandwith, configurations that generates highest output power in standalone transmission have been selected for the final test.

Test Items	Band	Test Channel			Bandwidth (MHz)						Modulation			RB #				
		L	M	H	15	20	25	30	35	40	QPSK	16QAM	64QAM	Edge left + Edge right	Edge left + Edge left	Edge right + Edge right	Edge right + Edge left	Full
Max. Output Power	5B	v	v	v	v	v					v	v	v				v	v
	7C	v	v	v				v	v	v	v	v	v				v	v
	38C	v	v	v				v		v	v	v	v				v	v
	41C	v	v	v			v	v	v	v	v	v	v				v	v
Freqency Stability	5B		v			v					v							v
	7C		v							v	v							v
	38C		v							v	v							v
	41C		v							v	v							v
Test Items	Band	Test Channel			Bandwidth (MHz)						Modulation			RB #				
		L	M	H	15	20	25	30	35	40	QPSK	16QAM	64QAM	Edge left + Edge right	Edge left + Edge left	Edge right + Edge right	Edge right + Edge left	Full
26dB and 99% Bandwidth	5B		v		v	v					v	v	v					v
	7C		v					v	v	v	v	v	v					v
	38C		v					v		v	v	v	v					v
	41C		v				v	v	v	v	v	v	v					v
Peak-to-Average Ratio	5B		v		v	v					v	v						v
	7C		v					v	v	v	v	v						v
	38C		v					v		v	v	v						v
	41C		v				v	v	v	v			v					v
Test Items	Band	Test Channel			Bandwidth (MHz)						Modulation			RB #				
		L	M	H	15	20	25	30	35	40	QPSK	16QAM	64QAM	Edge left + Edge right	Edge left + Edge left	Edge right + Edge right	Edge right + Edge left	Full
Band Edge	5B	v		v	v	v					v				v	v		v

Test Items	Band	Test Channel			Bandwidth (MHz)						Modulation			RB #				
		L	M	H	15	20	25	30	35	40	QPSK	16QAM	64QAM	Edge left + Edge right	Edge left + Edge left	Edge right + Edge right	Edge right + Edge left	Full
Mask	7C	v		v				v		v	v				v	v		v
	38C	v		v				v		v	v				v	v		v
	41C	v		v					v	v	v				v	v		v

Test Items	Band	Test Channel			Bandwidth (MHz)						Modulation			RB #				
		L	M	H	15	20	25	30	35	40	QPSK	16QAM	64QAM	Edge left + Edge right	Edge left + Edge left	Edge right + Edge right	Edge right + Edge left	Full
Conducted Emission	5B	v	v	v	v	v					v						v	
	7C	v	v	v				v		v	v						v	
	38C	v	v	v				v		v	v						v	
	41C	v	v	v					v	v	v						v	
Test Items	Band	Test Channel			Bandwidth (MHz)						Modulation			RB #				
		L	M	H	15	20	25	30	35	40	QPSK	16QAM	64QAM	Edge left + Edge right	Edge left + Edge left	Edge right + Edge right	Edge right + Edge left	Full
Radiated Emission	5B	v	v	v	v						v						v	
	7C	v	v	v				v			v						v	
	38C	v	v	v				v			v						v	
	41C	v	v	v					v		v						v	

Radiated Emission

E-UTRA Band	Test Channel	Channel Bandwidth (MHz)	Modulation	Resource Block Allocation	
				RBs allocated	RB Start
5C	Low, Mid, High	5_10	QPSK	1/24_1/0	
7C	Low, Mid, High	20_10	QPSK	1/99_1/0	
38C	Low, Mid, High	15_15	QPSK	1/74_1/0	
41C	Low, Mid, High	20_15	QPSK	1/99_1/0	

5 MEASUREMENT UNCERTAINTY

Test Items	Uncertainty		
RF Power Output	+/-	1	dB
ERP/ EIRP measurement	+/-	3	dB
	+/-	3	dB
Emission Bandwidth	+/-	1.53	Hz
Out of Band Emissions at Antenna Terminals and Band Edge	+/-	1.68	dB
Peak to Average Ratio	+/-	1	dB
Frequency Stability vs. Temperature	+/-	1.53	Hz
Frequency Stability vs. Voltage	+/-	1.53	Hz
Temperature	+/-	0.4	°C
Humidity	+/-	3.5	%
DC / AC Power Source	+/-	1	%

Radiated Spurious Emission Measurement Uncertainty				
Polarization: Vertical	**+/-**	**2.57**	**dB**	9kHz~30MHz
	+/-	**4.85**	**dB**	30MHz - 1000MHz
	+/-	**4.45**	**dB**	1GHz - 18GHz
	+/-	**4.24**	**dB**	18GHz - 40GHz
Polarization: Horizontal	**+/-**	**2.57**	**dB**	9kHz~30MHz
	+/-	**4.37**	**dB**	30MHz - 1000MHz
	+/-	**4.45**	**dB**	1GHz - 18GHz
	+/-	**4.24**	**dB**	18GHz - 40GHz

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

6 MEASUREMENT EQUIPMENT USED

6.1 Conducted Measurement

Conducted Emission Test Site: Conducted 4					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL DUE.**
EXA Spectrum Analyzer	Agilent	N9010A	MY54200716	10/13/2021	10/12/2022
Radio Communication Analyer	Anritsu	MT8821C	6262044670	08/18/2021	08/17/2022
Test Software	SGS	Radio Test Software	Ver. 21	N.C.R	N.C.R
Temperature Chamber	Giant Force	GTH-150-40-CP-AR	MAA0512-018	05/19/2021	05/18/2022
DC Power Supply	Gwinstek	SPS-3610	GEV856761	09/18/2021	09/17/2022
Attenuator	Mini-Circuit	BW-S10W2+	2	12/14/2021	12/13/2022
Attenuator	Mini-Circuit	BW-S10W2+	4	12/16/2020	12/15/2021
DC Block	Mini-Circuits	BLK-18-S+	1	12/16/2020	12/15/2021
DC Block	Mini-Circuits	BLK-18-S+	1	12/14/2021	12/13/2022
Power Divider	RF-LAMBAD	RFLT2W1G18G	11-JSPF412-017	12/16/2020	12/15/2021
Power Divider	RF-LAMBAD	RFLT2W1G18G	11-JSPF412-017	12/14/2021	12/13/2022

6.2 Radiated Measurement

Radiated Emission Test Site: SAC 1					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL DUE.**
Bi-log Antenna	SCHWARZBECK	VULB9168	300	11/18/2020	11/17/2021
Horn Antenna	SCHWARZBECK	BBHA9120D	603	05/18/2021	05/17/2022
Horn Antenna	SCHWARZBECK	BBHA9170	184	12/11/2020	12/10/2021
Horn Antenna	SCHWARZBECK	BBHA9170	185	08/06/2021	08/05/2022
Site Cal	SGS	SAC I chamber	N/A	01/01/2021	12/31/2021
Horn Antenna	SCHWARZBECK	BBHA9120D	D803	12/17/2020	12/16/2021
Bi-log Antenna	TESEO	CBL 6112D	35242 & AT-N0555	01/13/2021	01/12/2022
Spectrum Analyzer	Agilent	E4446A	MY51100003	10/26/2020	10/25/2022
Radio Communication Analyer	Anritsu	MT8815B	6200711454	04/07/2021	04/06/2022
Radio Communication Analyer	Anritsu	MT8821C	6262044751	10/27/2021	10/26/2022
DC Power Supply	Agilent	E3640A	MY40005907	10/12/2021	10/11/2022
Pre-Amplifier	EMC Instruments	EMC184045B	980135	10/27/2021	10/26/2022
Pre-Amplifier	HP	8449B	3008A01973	12/16/2020	12/15/2021
Pre-Amplifier	HP	8447D	2944A09469	12/16/2020	12/15/2021
Bandreject Filter 635-920	Micro-Tronics	WI	4	12/16/2020	12/15/2021
Bandreject Filter 800-1000	Micro-Tronics	EWT	M1	12/16/2020	12/15/2021
Bandreject Filter 2240-2700	Micro-Tronics	WI	2	12/16/2020	12/15/2021
Bandreject Filter 3300-3800	Micro-Tronics	WI	1	12/16/2020	12/15/2021
1.3G-15GHz High Pass Filter	WI	WHKX10-1066-80SS	19	04/20/2021	04/19/2022
3.1GHz High Pass Filter	WI	WFIL-H3100-18000F-01	WRGBAFWC2B6	01/06/2021	01/05/2022
High Pass Filter	WI	WHKX4.0/18G-10SS	WHKX4.0/18G-10SS	12/16/2020	12/15/2021
High Pass Filter	WI	WHKX6.0/18G-10SS	WHKX6.0/18G-10SS	12/16/2020	12/15/2021
Coaxial Cable	Huber Suhner	succoflex 102	MY2622/2	12/16/2020	12/15/2021
Coaxial Cable	Huber Suhner	succoflex 104A	800086/4a	12/16/2020	12/15/2021
Coaxial Cable	Huber Suhner	EMC 104-SM-SM-2000	160123	12/16/2020	12/15/2021
Coaxial Cable	Huber Suhner	SUCOFLEX 104	160125	12/16/2020	12/15/2021
Coaxial Cable	Huber Suhner	SUCOFLEX 106	76096/6	12/16/2020	12/15/2021
Coaxial Cable	Huber Suhner	SUCOFLEX 102	MY2630/2	12/16/2020	12/15/2021

Coaxial Cable	Huber Suhner	SUCOFLEX 102	MY22962/2	12/16/2020	12/15/2021
Coaxial Cable	Huber Suhner	SUCOFLEX 102	SN 520430/2	12/16/2020	12/15/2021

7 MAXIMUM OUTPUT POWER

7.1 Standard Applicable

A base station simulator was used to establish communication with the EUT. Its parameters were set to transmit the maximum power on the EUT. The measured power in the radio frequency on the transmitter output terminals.

7.1.1 ERP/EIRP LIMIT

According to FCC §2.1046

FCC 22.913(a)

(5) mobile transmitters and auxiliary test transmitters must not exceed 7 watts.

FCC 27, 50(h)

(2) Mobile and other user stations transmitting in the BRS and EBS bands are limited to 2 W EIRP.

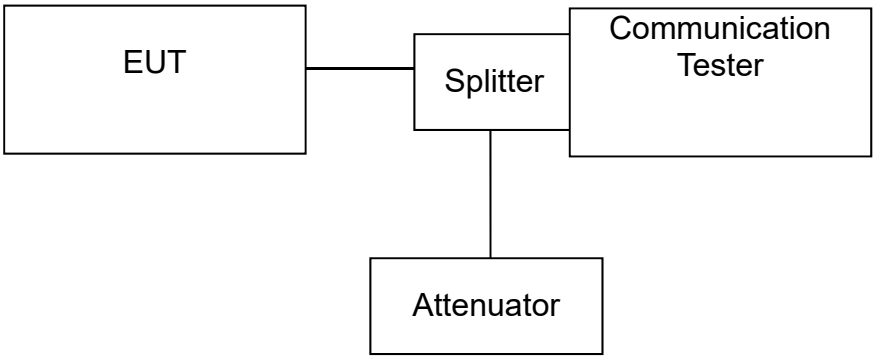
RSS-132 §5.4

The equivalent isotropically radiated power (e.i.r.p.) for mobile equipment in operating in the Bands 824-849 and 869-894MHz shall not exceed 11.5 watts.

RSS-199 §4.4

For mobile subscriber equipment operating in the Band 2500-2690MHz, the e.i.r.p. shall not exceed 2 W.

7.2 Test Set-up



Note: *Measurement setup for testing on Antenna connector*

7.3 Output Power Measurement Applicable Guideance

The transmitter output was connected to a calibrated attenuator, the other end of which was connected to a power meter. Transmitter output was read off the power meter in dBm. The power output at the transmitter antenna port was determined by adding the value of the attenuator to the power meter reading.
The Procedure of KDB941225 (SAR Measurement Procedures for 3G devices, (WCDMA/HSPA) was used for EUT and Base station setting. RMC 12.2kps is used for this testing, and KDB 971168 D01 Power Meas License Digital System as the supplemental test methodology to adjust the proper setting obtaining the measurement results.
All LTE bands conducted average power is obtained from the simulator telecommunication test set.

7.4 Determining ERP and/or EIRP from conducted RF output power measurements

According to KDB 412172 D01 Power Approach,
EIRP = P_T+G_T-L_C,
ERP= EIRP-2.15,
Where:

ERP or EIRP = effective radiated power or equivalent isotropically radiated power (expressed in the same units as PT, typically dBW, dBm, or power spectral density (PSD)2), relative to either a dipole antenna (ERP) or an isotropic antenna (EIRP);

P_T = transmitter output power, expressed in dBW, dBm, or PSD;

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

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

7.5 LTE Measurement Results:

7.5.1 Intra-Band

Part 22 / RSS 132_ ERP Limit (W)	7
Antenna Gain	3.2

OUTPUT POWER FOR LTE BAND 5 (5MHz + 10MHz)

Bandwidth	PCC		SCC1		Modulation	PCC RB		SCC1 RB		Conducted Average (dBm)			EIRP Average	ERP Average	ERP Average
	Earfcn	MHz	Earfcn	MHz		Size	Offset	Size	Offset	PCC	SCC1	Total	(dBm)	(dBm)	(W)
5MHz+ 10MHz	20428	826.8	20500	834.0	QPSK	1	24	1	0	20.71	21.93	23.74	26.94	24.79	0.301
						25	0	50	0	18.44	18.48	21.44	24.64	22.49	0.177
	20478	831.8	20550	839.0	QPSK	1	24	1	0	20.61	21.76	23.63	26.83	24.68	0.294
						25	0	50	0	18.53	18.53	21.51	24.71	22.56	0.180
	20528	836.8	20600	844.0	QPSK	1	24	1	0	20.52	21.56	23.53	26.73	24.58	0.287
						25	0	50	0	18.34	18.48	21.39	24.59	22.44	0.175
5MHz+ 10MHz	20428	826.8	20500	834.0	16QAM	1	24	1	0	19.43	20.39	22.45	25.65	23.50	0.224
						25	0	50	0	17.33	17.51	20.41	23.61	21.46	0.140
	20478	831.8	20550	839.0	16QAM	1	24	1	0	19.37	20.49	22.40	25.60	23.45	0.221
						25	0	50	0	17.58	17.51	20.53	23.73	21.58	0.144
	20528	836.8	20600	844.0	16QAM	1	24	1	0	19.39	20.42	22.39	25.59	23.44	0.221
						25	0	50	0	17.32	17.28	20.28	23.48	21.33	0.136
5MHz+ 10MHz	20428	826.8	20500	834.0	64QAM	1	24	1	0	17.42	18.41	20.43	23.63	21.48	0.141
						25	0	50	0	17.44	17.58	20.50	23.70	21.55	0.143
	20478	831.8	20550	839.0	64QAM	1	24	1	0	17.46	18.64	20.49	23.69	21.54	0.143
						25	0	50	0	17.52	17.50	20.49	23.69	21.54	0.143
	20528	836.8	20600	844.0	64QAM	1	24	1	0	17.08	19.00	20.57	23.77	21.62	0.145
						25	0	50	0	17.33	17.35	20.32	23.52	21.37	0.137

Part 22 / RSS 132_ ERP Limit (W)	7
Antenna Gain	3.2

OUTPUT POWER FOR LTE BAND 5 (10MHz + 5MHz)

Bandwidth	PCC		SCC1		Modulation	PCC RB		SCC1 RB		Conducted			EIRP Average	ERP Average	ERP Average
	Earfcn	MHz	Earfcn	MHz		Size	Offset	Size	Offset	PCC	SCC1	Total	(dBm)	(dBm)	(W)
10MHz+	20450	829.0	20522	836.2	QPSK	1	49	1	0	21.68	20.39	23.46	26.66	24.51	0.282
						50	0	25	0	18.64	18.45	21.53	24.73	22.58	0.181
	20500	834.0	20572	841.2	QPSK	1	49	1	0	21.51	20.47	23.47	26.67	24.52	0.283
						50	0	25	0	18.51	18.40	21.43	24.63	22.48	0.177
	20550	839.0	20622	846.2	QPSK	1	49	1	0	21.14	21.00	23.57	26.77	24.62	0.290
						50	0	25	0	18.36	18.36	21.35	24.55	22.40	0.174
10MHz+	20450	829.0	20522	836.2	16QAM	1	49	1	0	20.85	19.66	22.67	25.87	23.72	0.236
						50	0	25	0	17.60	17.42	20.51	23.71	21.56	0.143
	20500	834.0	20572	841.2	16QAM	1	49	1	0	20.63	19.18	22.22	25.42	23.27	0.212
						50	0	25	0	17.68	17.41	20.53	23.73	21.58	0.144
	20550	839.0	20622	846.2	16QAM	1	49	1	0	20.76	19.34	22.35	25.55	23.40	0.219
						50	0	25	0	17.48	17.30	20.37	23.57	21.42	0.139
10MHz+	20450	829.0	20522	836.2	64QAM	1	49	1	0	18.86	17.72	20.74	23.94	21.79	0.151
						50	0	25	0	17.51	17.47	20.49	23.69	21.54	0.143
	20500	834.0	20572	841.2	64QAM	1	49	1	0	18.73	17.55	20.57	23.77	21.62	0.145
						50	0	25	0	17.67	17.35	20.49	23.69	21.54	0.143
	20550	839.0	20622	846.2	64QAM	1	49	1	0	18.42	17.28	20.30	23.50	21.35	0.136
						50	0	25	0	17.51	17.41	20.43	23.63	21.48	0.141

Part 22 / RSS 132_ ERP Limit (W)	7
Antenna Gain	3.2

OUTPUT POWER FOR LTE BAND 5 (10MHz + 10MHz)

Bandwidth	PCC		SCC1		Modulation	PCC RB		SCC1 RB		Conducted			EIRP Average	ERP Average	ERP Average
	Earfcn	MHz	Earfcn	MHz		Size	Offset	Size	Offset	PCC	SCC1	Total	(dBm)	(dBm)	(W)
10MHz+	20450	829.0	20549	838.9	QPSK	1	49	1	0	21.09	20.05	23.61	**26.81**	24.66	**0.292**
						50	0	50	0	18.43	18.48	21.47	24.67	22.52	0.179
	20476	831.6	20575	841.5	QPSK	1	49	1	0	20.64	20.56	23.61	**26.81**	24.66	**0.292**
						50	0	50	0	18.48	18.46	21.48	24.68	22.53	0.179
	20501	834.1	20600	844.0	QPSK	1	49	1	0	20.56	20.58	23.58	26.78	24.63	0.290
						50	0	50	0	18.35	18.45	21.41	24.61	22.46	0.176
10MHz+	20450	829.0	20549	838.9	16QAM	1	49	1	0	19.43	19.41	22.43	25.63	23.48	0.223
						50	0	50	0	17.50	17.43	20.47	23.67	21.52	0.142
	20476	831.6	20575	841.5	16QAM	1	49	1	0	18.80	19.79	22.34	25.54	23.39	0.218
						50	0	50	0	17.55	17.47	20.52	23.72	21.57	0.144
	20501	834.1	20600	844.0	16QAM	1	49	1	0	19.81	19.73	22.78	**25.98**	23.83	**0.242**
						50	0	50	0	17.55	17.32	20.45	23.65	21.50	0.141
10MHz+	20450	829.0	20549	838.9	64QAM	1	49	1	0	17.53	17.52	20.55	23.75	21.60	0.145
						50	0	50	0	17.59	17.53	20.57	**23.77**	21.62	**0.145**
	20476	831.6	20575	841.5	64QAM	1	49	1	0	17.52	17.50	20.52	23.72	21.57	0.144
						50	0	50	0	17.59	17.37	20.49	23.69	21.54	0.143
	20501	834.1	20600	844.0	64QAM	1	49	1	0	17.36	17.34	20.36	23.56	21.41	0.138
						50	0	50	0	17.53	17.40	20.48	23.68	21.53	0.142

Part 27 / RSS 199_ EIRP Limit (W)	2
Antenna Gain	3.12

OUTPUT POWER FOR LTE BAND 7 (10MHz + 20MHz)

Bandwidth	PCC		SCC1		Modulation	PCC RB		SCC1 RB		Conducted Average (dBm)			EIRP Average	EIRP Average
	Earfcn	MHz	Earfcn	MHz		Size	Offset	Size	Offset	PCC	SCC1	Total	(dBm)	(W)
10MHz+ 20MHz	20805	2505.5	20949	2519.9	QPSK	1	49	1	0	20.43	22.4.	23.41	26.53	0.450
						50	0	100	0	18.47	18.58	21.51	24.63	0.290
	21006	2525.6	21150	2540.0	QPSK	1	49	1	0	20.30	22.38	23.32	26.44	0.441
						50	0	100	0	18.47	18.61	21.53	24.65	0.292
	21206	2545.6	21350	2560.0	QPSK	1	49	1	0	20.78	22.78	23.81	**26.93**	0.493
						50	0	100	0	18.57	18.68	21.61	24.73	0.297
10MHz+ 20MHz	20805	2505.5	20949	2519.9	16QAM	1	49	1	0	19.63	21.67	22.66	**25.78**	0.378
						50	0	100	0	17.48	17.57	20.51	23.63	0.231
	21006	2525.6	21150	2540.0	16QAM	1	49	1	0	19.27	21.42	22.33	25.45	0.351
						50	0	100	0	17.49	17.61	20.53	23.65	0.232
	21206	2545.6	21350	2560.0	16QAM	1	49	1	0	19.59	21.56	22.56	25.68	0.370
						50	0	100	0	17.62	17.47	20.53	23.65	0.232
10MHz+ 20MHz	20805	2505.5	20949	2519.9	64QAM	1	49	1	0	17.36	19.37	20.38	23.50	0.224
						50	0	100	0	17.42	17.55	20.47	23.59	0.229
	21006	2525.6	21150	2540.0	64QAM	1	49	1	0	17.49	19.57	20.50	23.62	0.230
						50	0	100	0	17.50	17.60	20.53	23.65	0.232
	21206	2545.6	21350	2560.0	64QAM	1	49	1	0	17.41	19.30	20.43	23.55	0.226
						50	0	100	0	17.59	17.59	20.57	**23.69**	0.234

OUTPUT POWER FOR LTE BAND 7 (15MHz + 15MHz)

Part 27 / RSS 199_ EIRP Limit (W)	2
Antenna Gain	3.12

Bandwidth	PCC		SCC1		Modulation	PCC RB		SCC1 RB		Conducted Average (dBm)			EIRP Average	EIRP Average
	Earfcn	MHz	Earfcn	MHz		Size	Offset	Size	Offset	PCC	SCC1	Total	(dBm)	(W)
15MHz+ 15MHz	20825	2507.5	20975	2522.5	QPSK	1	74	1	0	20.59	20.66	23.64	26.76	0.474
						75	0	75	0	18.40	18.42	21.42	24.54	0.284
	21025	2527.5	21175	2542.5	QPSK	1	74	1	0	20.65	20.64	23.65	**26.77**	0.475
						75	0	75	0	18.44	18.42	21.44	24.56	0.286
	21225	2547.5	21375	2562.5	QPSK	1	74	1	0	20.60	20.57	23.59	26.71	0.469
						75	0	75	0	18.58	18.54	21.57	24.69	0.294
15MHz+ 15MHz	20825	2507.5	20975	2522.5	16QAM	1	74	1	0	19.67	19.64	22.66	25.78	0.378
						75	0	75	0	17.53	17.52	20.53	23.65	0.232
	21025	2527.5	21175	2542.5	16QAM	1	74	1	0	19.69	19.68	22.70	**25.82**	0.382
						75	0	75	0	17.48	17.55	20.53	23.65	0.232
	21225	2547.5	21375	2562.5	16QAM	1	74	1	0	19.42	19.39	22.41	25.53	0.357
						75	0	75	0	17.63	17.60	20.62	23.74	0.237
15MHz+ 15MHz	20825	2507.5	20975	2522.5	64QAM	1	74	1	0	17.54	17.53	20.55	23.67	0.233
						75	0	75	0	17.51	17.51	20.52	23.64	0.231
	21025	2527.5	21175	2542.5	64QAM	1	74	1	0	17.40	17.40	20.41	23.53	0.225
						75	0	75	0	17.49	17.28	20.40	23.52	0.225
	21225	2547.5	21375	2562.5	64QAM	1	74	1	0	17.41	17.37	20.40	23.52	0.225
						75	0	75	0	17.62	17.59	20.61	**23.73**	0.236

OUTPUT POWER FOR LTE BAND 7 (15MHz + 20MHz)

Part 27 / RSS 199_ EIRP Limit (W)	2
Antenna Gain	3.12

Bandwidth	PCC		SCC1		Modulation	PCC RB		SCC1 RB		Conducted Average (dBm)			EIRP Average	EIRP Average
	Earfcn	MHz	Earfcn	MHz		Size	Offset	Size	Offset	PCC	SCC1	Total	(dBm)	(W)
15MHz+ 20MHz	20828	2507.8	20999	2524.9	QPSK	1	74	1	0	20.43	20.45	23.45	26.57	0.454
						75	0	100	0	18.46	18.49	21.48	24.60	0.288
	21003	2525.3	21174	2542.4	QPSK	1	74	1	0	20.61	20.64	23.64	26.76	0.474
						75	0	100	0	18.48	18.57	21.54	24.66	0.292
	21179	2542.9	21350	2560.0	QPSK	1	74	1	0	20.65	20.77	23.72	**26.84**	0.483
						75	0	100	0	18.57	18.62	21.60	24.72	0.296
15MHz+ 20MHz	20828	2507.8	20999	2524.9	16QAM	1	74	1	0	19.52	19.53	22.53	25.65	0.367
						75	0	100	0	17.51	17.51	20.52	23.64	0.231
	21003	2525.3	21174	2542.4	16QAM	1	74	1	0	19.74	17.76	22.76	**25.88**	0.387
						75	0	100	0	17.44	17.63	20.55	23.67	0.233
	21179	2542.9	21350	2560.0	16QAM	1	74	1	0	19.53	19.56	22.55	25.67	0.369
						75	0	100	0	17.62	17.48	20.56	23.68	0.233
15MHz+ 20MHz	20828	2507.8	20999	2524.9	64QAM	1	74	1	0	17.45	17.56	20.51	23.63	0.231
						75	0	100	0	17.49	17.51	20.51	23.63	0.231
	21003	2525.3	21174	2542.4	64QAM	1	74	1	0	17.34	17.37	20.36	23.48	0.223
						75	0	100	0	17.43	17.63	20.54	23.66	0.232
	21179	2542.9	21350	2560.0	64QAM	1	74	1	0	17.57	17.58	20.58	**23.70**	0.234
						75	0	100	0	17.55	17.54	20.55	23.67	0.233

Part 27 / RSS 199_ EIRP Limit (W)	2
Antenna Gain	3.12

OUTPUT POWER FOR LTE BAND 7 (20MHz + 10MHz)

Bandwidth	PCC		SCC1		Modulation	PCC RB		SCC1 RB		Conducted Average (dBm)			EIRP Average	EIRP Average
	Earfcn	MHz	Earfcn	MHz		Size	Offset	Size	Offset	PCC	SCC1	Total	(dBm)	(W)
20MHz+ 10MHz	20850	2510.0	20994	2524.4	QPSK	1	99	1	0	22.24	20.26	23.25	26.37	0.434
						100	0	50	0	18.20	17.58	20.88	24.00	0.251
	21051	2530.1	21195	2544.5	QPSK	1	99	1	0	22.72	20.85	23.88	**27.00**	0.501
						100	0	50	0	17.99	17.75	20.85	23.97	0.249
	21251	2550.1	21395	2564.5	QPSK	1	99	1	0	22.27	20.48	23.52	26.64	0.461
						100	0	50	0	18.48	17.49	21.01	24.13	0.259
20MHz+ 10MHz	20850	2510.0	20994	2524.4	16QAM	1	99	1	0	21.66	19.61	22.66	25.78	0.378
						100	0	50	0	17.23	16.64	19.64	22.76	0.189
	21051	2530.1	21195	2544.5	16QAM	1	99	1	0	21.59	19.72	22.70	25.82	0.382
						100	0	50	0	17.12	16.98	20.04	23.16	0.207
	21251	2550.1	21395	2564.5	16QAM	1	99	1	0	21.94	19.74	22.80	**25.92**	0.391
						100	0	50	0	17.62	16.69	20.17	23.29	0.213
20MHz+ 10MHz	20850	2510.0	20994	2524.4	64QAM	1	99	1	0	19.21	17.29	20.28	23.40	0.219
						100	0	50	0	17.36	16.77	20.07	23.19	0.208
	21051	2530.1	21195	2544.5	64QAM	1	99	1	0	19.04	17.16	20.19	23.31	0.214
						100	0	50	0	17.28	17.09	20.17	23.29	0.213
	21251	2550.1	21395	2564.5	64QAM	1	99	1	0	18.93	17.09	20.09	23.21	0.209
						100	0	50	0	17.91	16.94	20.44	**23.56**	0.227

Part 27 / RSS 199_ EIRP Limit (W)	2
Antenna Gain	3.12

OUTPUT POWER FOR LTE BAND 7 (20MHz + 15MHz)

Bandwidth	PCC		SCC1		Modulation	PCC RB		SCC1 RB		Conducted Average (dBm)			EIRP Average	EIRP Average
	Earfcn	MHz	Earfcn	MHz		Size	Offset	Size	Offset	PCC	SCC1	Total	(dBm)	(W)
20MHz+ 15MHz	20850	2510.0	21021	2527.1	QPSK	1	99	1	0	20.69	20.69	23.70	**26.82**	0.481
						100	0	75	0	18.35	18.48	21.43	24.55	0.285
	21026	2527.6	21197	2544.7	QPSK	1	99	1	0	20.48	20.45	23.47	26.59	0.456
						100	0	75	0	18.53	18.62	21.58	24.70	0.295
	21201	2545.1	21372	2562.2	QPSK	1	99	1	0	20.10	20.06	23.09	26.21	0.418
						100	0	75	0	18.64	18.59	21.63	24.75	0.299
20MHz+ 15MHz	20850	2510.0	21021	2527.1	16QAM	1	99	1	0	19.44	19.43	22.44	25.56	0.360
						100	0	75	0	17.34	17.48	20.42	23.54	0.226
	21026	2527.6	21197	2544.7	16QAM	1	99	1	0	19.53	19.50	22.52	25.64	0.366
						100	0	75	0	17.49	17.59	20.55	23.67	0.233
	21201	2545.1	21372	2562.2	16QAM	1	99	1	0	19.51	19.55	22.54	**25.66**	0.368
						100	0	75	0	17.62	17.58	20.61	23.73	0.236
20MHz+ 15MHz	20850	2510.0	21021	2527.1	64QAM	1	99	1	0	17.34	17.32	20.34	23.46	0.222
						100	0	75	0	17.40	17.54	20.48	23.60	0.229
	21026	2527.6	21197	2544.7	64QAM	1	99	1	0	17.59	17.54	20.58	**23.70**	0.234
						100	0	75	0	17.50	17.55	20.54	23.66	0.232
	21201	2545.1	21372	2562.2	64QAM	1	99	1	0	17.26	17.24	20.26	23.38	0.218
						100	0	75	0	17.54	17.52	20.54	23.66	0.232

OUTPUT POWER FOR LTE BAND 7 (20MHz + 20MHz)

Part 27 / RSS 199_ EIRP Limit (W)	2
Antenna Gain	3.12

Bandwidth	PCC		SCC1		Modulation	PCC RB		SCC1 RB		Conducted Average (dBm)			EIRP Average	EIRP Average
	Earfcn	MHz	Earfcn	MHz		Size	Offset	Size	Offset	PCC	SCC1	Total	(dBm)	(W)
20MHz+ 20MHz	20850	2510.0	21048	2529.8	QPSK	1	99	1	0	20.76	20.76	23.77	26.89	0.489
						100	0	100	0	18.41	18.49	21.46	24.58	0.287
	21001	2525.1	21199	2544.9	QPSK	1	99	1	0	20.72	20.70	23.72	26.84	0.483
						100	0	100	0	18.55	18.63	21.60	24.72	0.296
	21152	2540.2	21350	2560.0	QPSK	1	99	1	0	20.58	20.54	23.57	26.69	0.467
						100	0	100	0	18.68	18.69	21.69	24.81	0.303
20MHz+ 20MHz	20850	2510.0	21048	2529.8	16QAM	1	99	1	0	19.23	19.23	22.24	25.36	0.344
						100	0	100	0	17.37	17.45	20.42	23.54	0.226
	21001	2525.1	21199	2544.9	16QAM	1	99	1	0	19.32	19.32	22.33	25.45	0.351
						100	0	100	0	17.43	17.62	20.54	23.66	0.232
	21152	2540.2	21350	2560.0	16QAM	1	99	1	0	19.80	19.76	22.79	25.91	0.390
						100	0	100	0	17.71	17.73	20.73	23.85	0.243
20MHz+ 20MHz	20850	2510.0	21048	2529.8	64QAM	1	99	1	0	17.82	17.92	20.88	24.00	0.251
						100	0	100	0	17.37	17.44	20.41	23.53	0.225
	21001	2525.1	21199	2544.9	64QAM	1	99	1	0	17.77	17.76	20.77	23.89	0.245
						100	0	100	0	17.57	17.64	20.61	23.73	0.236
	21152	2540.2	21350	2560.0	64QAM	1	99	1	0	17.51	17.46	20.50	23.62	0.230
						100	0	100	0	17.65	17.67	20.67	23.79	0.239

OUTPUT POWER FOR LTE BAND 38 (15MHz + 15MHz)

Part 27 / RSS 199_ EIRP Limit (W)	2
Antenna Gain	3.12

Bandwidth	PCC		SCC1		Modulation	PCC RB		SCC1 RB		Conducted Average (dBm)			EIRP Average	EIRP Average
	Earfcn	MHz	Earfcn	MHz		Size	Offset	Size	Offset	PCC	SCC1	Total	(dBm)	(W)
15MHz+ 15MHz	37825	2577.5	37975	2592.5	QPSK	1	74	1	0	20.27	20.34	23.32	26.44	0.441
						75	0	75	0	18.38	18.38	21.39	24.51	0.282
	37925	2587.5	38075	2602.5	QPSK	1	74	1	0	20.28	20.32	23.31	26.43	0.440
						75	0	75	0	18.37	18.42	21.41	24.53	0.284
	38025	2597.5	38175	2612.5	QPSK	1	74	1	0	20.36	20.37	23.37	26.49	0.446
						75	0	75	0	18.40	18.41	21.42	24.54	0.284
15MHz+ 15MHz	37825	2577.5	37975	2592.5	16QAM	1	74	1	0	19.27	19.23	22.26	25.38	0.345
						75	0	75	0	17.39	17.40	20.40	23.52	0.225
	37925	2587.5	38075	2602.5	16QAM	1	74	1	0	19.23	19.27	22.26	25.38	0.345
						75	0	75	0	17.50	17.43	20.47	23.59	0.229
	38025	2597.5	38175	2612.5	16QAM	1	74	1	0	19.22	19.23	22.23	25.35	0.343
						75	0	75	0	17.49	17.51	20.51	23.63	0.231
15MHz+ 15MHz	37825	2577.5	37975	2592.5	64QAM	1	74	1	0	17.30	17.26	20.29	23.41	0.219
						75	0	75	0	17.42	17.43	20.43	23.55	0.226
	37925	2587.5	38075	2602.5	64QAM	1	74	1	0	17.20	17.24	20.23	23.35	0.216
						75	0	75	0	17.48	17.53	20.51	23.63	0.231
	38025	2597.5	38175	2612.5	64QAM	1	74	1	0	17.52	17.52	20.53	23.65	0.232
						75	0	75	0	17.50	17.52	20.52	23.64	0.231

OUTPUT POWER FOR LTE BAND 38 (20MHz + 20MHz)

Part 27 / RSS 199_ EIRP Limit (W)	2
Antenna Gain	3.12

Bandwidth	PCC		SCC1		Modulation	PCC RB		SCC1 RB		Conducted Average (dBm)			EIRP Average	EIRP Average
	Earfcn	MHz	Earfcn	MHz		Size	Offset	Size	Offset	PCC	SCC1	Total	(dBm)	(W)
20MHz+ 20MHz	37850	2580.0	38048	2599.8	QPSK	1	99	1	0	20.24	20.29	23.28	26.40	0.437
						100	0	100	0	18.41	18.38	21.41	24.53	0.284
	37901	2585.1	38099	2604.9	QPSK	1	99	1	0	20.27	20.30	23.30	**26.42**	0.439
						100	0	100	0	18.45	18.46	21.46	24.58	0.287
	37952	2590.2	38150	2610.0	QPSK	1	99	1	0	20.31	20.25	23.29	26.41	0.438
						100	0	100	0	18.46	18.51	21.49	24.61	0.289
20MHz+ 20MHz	37850	2580.0	38048	2599.8	16QAM	1	99	1	0	19.16	19.22	22.20	25.32	0.340
						100	0	100	0	17.41	17.49	20.46	23.58	0.228
	37901	2585.1	38099	2604.9	16QAM	1	99	1	0	19.23	19.27	22.26	**25.38**	0.345
						100	0	100	0	17.36	17.38	20.38	23.50	0.224
	37952	2590.2	38150	2610.0	16QAM	1	99	1	0	19.13	19.19	22.17	25.29	0.338
						100	0	100	0	17.42	17.47	20.45	23.57	0.228
20MHz+ 20MHz	37850	2580.0	38048	2599.8	64QAM	1	99	1	0	17.20	17.25	20.23	23.35	0.216
						100	0	100	0	17.47	17.45	20.47	23.59	0.229
	37901	2585.1	38099	2604.9	64QAM	1	99	1	0	17.22	17.25	20.25	23.37	0.217
						100	0	100	0	17.48	17.51	20.50	**23.62**	0.230
	37952	2590.2	38150	2610.0	64QAM	1	99	1	0	17.27	17.32	20.31	23.43	0.220
						100	0	100	0	17.40	17.46	20.44	23.56	0.227

OUTPUT POWER FOR LTE BAND 41 (5MHz + 20MHz)

Part 27 / RSS 199_ EIRP Limit (W)	2
Antenna Gain	3.12

Bandwidth	PCC		SCC1		Modulation	PCC RB		SCC1 RB		Conducted Average (dBm)			EIRP Average	EIRP Average
	Earfcn	MHz	Earfcn	MHz		Size	Offset	Size	Offset	PCC	SCC1	Total	(dBm)	(W)
5MHz+ 20MHz	39683	2499.3	39800	2511.0	QPSK	1	24	1	0	23.47	23.49	23.50	**26.62**	0.459
						25	0	100	0	18.19	18.82	21.24	24.36	0.273
	40528	2583.8	40645	2595.5	QPSK	1	24	1	0	20.38	23.39	23.40	26.52	0.449
						25	0	100	0	18.30	18.91	21.34	24.46	0.279
	41373	2668.3	41490	2680.0	QPSK	1	24	1	0	20.37	23.34	23.34	26.46	0.443
						25	0	100	0	18.41	18.98	21.43	24.55	0.285
5MHz+ 20MHz	39683	2499.3	39800	2511.0	16QAM	1	24	1	0	19.13	22.14	22.15	25.27	0.337
						25	0	100	0	17.23	17.83	20.29	23.41	0.219
	40528	2583.8	40645	2595.5	16QAM	1	24	1	0	19.34	22.36	22.36	**25.48**	0.353
						25	0	100	0	17.34	17.92	20.39	23.51	0.224
	41373	2668.3	41490	2680.0	16QAM	1	24	1	0	19.34	22.36	22.36	**25.48**	0.353
						25	0	100	0	17.41	17.95	20.44	23.56	0.227
5MHz+ 20MHz	39683	2499.3	39800	2511.0	64QAM	1	24	1	0	17.24	20.25	20.25	23.37	0.217
						25	0	100	0	17.16	17.76	20.23	23.35	0.216
	40528	2583.8	40645	2595.5	64QAM	1	24	1	0	17.44	20.46	20.46	**23.58**	0.228
						25	0	100	0	17.37	17.87	20.40	23.52	0.225
	41373	2668.3	41490	2680.0	64QAM	1	24	1	0	17.15	20.16	20.16	23.28	0.213
						25	0	100	0	17.37	17.91	20.42	23.54	0.226

Part 27 / RSS 199_ EIRP Limit (W)	2
Antenna Gain	3.12

OUTPUT POWER FOR LTE BAND 41 (10MHz + 20MHz)

Bandwidth	PCC		SCC1		Modulation	PCC RB		SCC1 RB		Conducted Average (dBm)			EIRP Average	EIRP Average
	Earfcn	MHz	Earfcn	MHz		Size	Offset	Size	Offset	PCC	SCC1	Total	(dBm)	(W)
10MHz+ 20MHz	39705	2501.5	39849	2515.9	QPSK	1	49	1	0	20.56	22.45	23.60	**26.72**	0.470
						50	0	100	0	18.34	18.49	21.40	24.52	0.283
	40526	2583.6	40670	2598.0	QPSK	1	49	1	0	20.20	22.25	23.22	26.34	0.431
						50	0	100	0	18.34	18.41	21.36	24.48	0.281
	41346	2665.6	41490	2680.0	QPSK	1	49	1	0	20.48	22.35	23.50	26.62	0.459
						50	0	100	0	18.46	18.53	21.48	24.60	0.288
10MHz+ 20MHz	39705	2501.5	39849	2515.9	16QAM	1	49	1	0	19.19	21.26	22.23	25.35	0.343
						50	0	100	0	17.37	17.50	20.42	23.54	0.226
	40526	2583.6	40670	2598.0	16QAM	1	49	1	0	19.31	21.36	22.34	**25.46**	0.352
						50	0	100	0	17.36	17.51	20.42	23.54	0.226
	41346	2665.6	41490	2680.0	16QAM	1	49	1	0	19.36	21.35	22.34	**25.46**	0.352
						50	0	100	0	17.47	17.53	20.49	23.61	0.230
10MHz+ 20MHz	39705	2501.5	39849	2515.9	64QAM	1	49	1	0	17.32	19.34	20.36	23.48	0.223
						50	0	100	0	17.36	17.49	20.41	23.53	0.225
	40526	2583.6	40670	2598.0	64QAM	1	49	1	0	17.06	19.05	20.07	23.19	0.208
						50	0	100	0	17.39	17.46	20.41	23.53	0.225
	41346	2665.6	41490	2680.0	64QAM	1	49	1	0	17.09	19.09	20.11	23.23	0.210
						50	0	100	0	17.41	17.49	20.44	**23.56**	0.227

Part 27 / RSS 199_ EIRP Limit (W)	2
Antenna Gain	3.12

OUTPUT POWER FOR LTE BAND 41 (15MHz + 15MHz)

Bandwidth	PCC		SCC1		Modulation	PCC RB		SCC1 RB		Conducted Average (dBm)			EIRP Average	EIRP Average
	Earfcn	MHz	Earfcn	MHz		Size	Offset	Size	Offset	PCC	SCC1	Total	(dBm)	(W)
15MHz+ 15MHz	39725	2503.5	39875	2518.5	QPSK	1	74	1	0	20.62	20.58	23.61	**26.73**	0.471
						75	0	75	0	18.34	18.36	21.36	24.48	0.281
	40545	2585.5	40695	2600.5	QPSK	1	74	1	0	20.34	20.44	23.40	26.52	0.449
						75	0	75	0	18.30	18.40	21.36	24.48	0.281
	41365	2667.5	41515	2682.5	QPSK	1	74	1	0	20.50	20.49	23.51	26.63	0.460
						75	0	75	0	18.41	18.36	21.39	24.51	0.282
15MHz+ 15MHz	39725	2503.5	39875	2518.5	16QAM	1	74	1	0	19.21	19.30	22.27	25.39	0.346
						75	0	75	0	17.38	17.40	20.40	23.52	0.225
	40545	2585.5	40695	2600.5	16QAM	1	74	1	0	19.37	19.38	22.39	25.51	0.356
						75	0	75	0	17.40	17.42	20.42	23.54	0.226
	41365	2667.5	41515	2682.5	16QAM	1	74	1	0	19.39	19.41	22.41	**25.53**	0.357
						75	0	75	0	17.44	17.39	20.42	23.54	0.226
15MHz+ 15MHz	39725	2503.5	39875	2518.5	64QAM	1	74	1	0	17.39	17.39	20.40	23.52	0.225
						75	0	75	0	17.36	17.38	20.38	23.50	0.224
	40545	2585.5	40695	2600.5	64QAM	1	74	1	0	17.47	17.08	20.29	23.41	0.219
						75	0	75	0	17.40	17.42	20.42	**23.54**	0.226
	41365	2667.5	41515	2682.5	64QAM	1	74	1	0	17.23	17.24	20.24	23.36	0.217
						75	0	75	0	17.40	17.37	20.39	23.51	0.224

OUTPUT POWER FOR LTE BAND 41 (15MHz + 20MHz)

Part 27 / RSS 199_ EIRP Limit (W)	2
Antenna Gain	3.12

Bandwidth	PCC		SCC1		Modulation	PCC RB		SCC1 RB		Conducted Average (dBm)			EIRP Average	EIRP Average
	Earfcn	MHz	Earfcn	MHz		Size	Offset	Size	Offset	PCC	SCC1	Total	(dBm)	(W)
15MHz+ 20MHz	39728	2503.8	39899	2520.9	QPSK	1	74	1	0	20.12	20.14	23.14	26.26	0.423
						75	0	100	0	18.32	18.33	21.34	24.46	0.279
	40523	2583.3	40694	2600.4	QPSK	1	74	1	0	20.40	20.45	23.44	**26.56**	0.453
						75	0	100	0	18.38	18.45	21.42	24.54	0.284
	41319	2662.9	41490	2680.0	QPSK	1	74	1	0	20.33	20.28	23.32	26.44	0.441
						75	0	100	0	18.42	18.38	21.41	24.53	0.284
15MHz+ 20MHz	39728	2503.8	39899	2520.9	16QAM	1	74	1	0	19.18	19.21	22.21	25.33	0.341
						75	0	100	0	17.35	17.40	20.39	23.51	0.224
	40523	2583.3	40694	2600.4	16QAM	1	74	1	0	19.35	19.31	22.34	25.46	0.352
						75	0	100	0	17.41	17.48	20.46	23.58	0.228
	41319	2662.9	41490	2680.0	16QAM	1	74	1	0	19.32	19.37	22.35	**25.47**	0.352
						75	0	100	0	17.46	17.42	20.45	23.57	0.228
15MHz+ 20MHz	39728	2503.8	39899	2520.9	64QAM	1	74	1	0	17.42	17.47	20.46	**23.58**	0.228
						75	0	100	0	17.39	17.34	20.38	23.50	0.224
	40523	2583.3	40694	2600.4	64QAM	1	74	1	0	17.04	17.08	20.07	23.19	0.208
						75	0	100	0	17.43	17.39	20.42	23.54	0.226
	41319	2662.9	41490	2680.0	64QAM	1	74	1	0	17.10	17.13	20.13	23.25	0.211
						75	0	100	0	17.46	17.41	20.44	23.56	0.227

OUTPUT POWER FOR LTE BAND 41 (20MHz + 5MHz)

Part 27 / RSS 199_ EIRP Limit (W)	2
Antenna Gain	3.12

Bandwidth	PCC		SCC1		Modulation	PCC RB		SCC1 RB		Conducted Average (dBm)			EIRP Average	EIRP Average
	Earfcn	MHz	Earfcn	MHz		Size	Offset	Size	Offset	PCC	SCC1	Total	(dBm)	(W)
20MHz+ 5MHz	39750	2506.0	39867	2517.7	QPSK	1	99	1	0	23.19	20.21	23.19	26.31	0.428
						100	0	25	0	18.83	18.36	21.34	24.46	0.279
	40595	2590.5	40712	2602.2	QPSK	1	99	1	0	23.33	20.32	23.33	26.45	0.442
						100	0	25	0	18.93	18.38	21.41	24.53	0.284
	41440	2675.0	41557	2686.7	QPSK	1	99	1	0	23.68	20.66	23.68	**26.80**	0.479
						100	0	25	0	19.03	18.47	21.50	24.62	0.290
20MHz+ 5MHz	39750	2506.0	39867	2517.7	16QAM	1	99	1	0	22.71	19.68	22.72	25.84	0.384
						100	0	25	0	17.80	17.34	20.33	23.45	0.221
	40595	2590.5	40712	2602.2	16QAM	1	99	1	0	22.63	19.61	22.63	25.75	0.376
						100	0	25	0	17.88	17.43	20.42	23.54	0.226
	41440	2675.0	41557	2686.7	16QAM	1	99	1	0	23.09	20.12	23.09	**26.21**	0.418
						100	0	25	0	18.59	18.05	21.09	24.21	0.264
20MHz+ 5MHz	39750	2506.0	39867	2517.7	64QAM	1	99	1	0	20.05	17.03	20.05	23.17	0.207
						100	0	25	0	17.85	17.42	20.38	23.50	0.224
	40595	2590.5	40712	2602.2	64QAM	1	99	1	0	20.59	17.51	20.59	23.71	0.235
						100	0	25	0	17.81	17.45	20.41	23.53	0.225
	41440	2675.0	41557	2686.7	64QAM	1	99	1	0	20.16	17.14	20.16	23.28	0.213
						100	0	25	0	18.58	18.07	21.08	**24.20**	0.263

OUTPUT POWER FOR LTE BAND 41 (20MHz + 10MHz)

Part 27 / RSS 199_ EIRP Limit (W)	2
Antenna Gain	3.12

Bandwidth	PCC		SCC1		Modulation	PCC RB		SCC1 RB		Conducted Average (dBm)			EIRP Average	EIRP Average
	Earfcn	MHz	Earfcn	MHz		Size	Offset	Size	Offset	PCC	SCC1	Total	(dBm)	(W)
20MHz+ 10MHz	39750	2506.0	39894	2520.4	QPSK	1	99	1	0	22.15	20.15	23.13	26.25	0.422
						100	0	50	0	18.47	18.39	21.41	24.53	0.284
	40571	2588.1	40715	2602.5	QPSK	1	99	1	0	22.36	20.26	23.29	**26.41**	0.438
						100	0	50	0	18.44	18.47	21.44	24.56	0.286
	41391	2670.1	41535	2684.5	QPSK	1	99	1	0	22.31	20.27	23.28	26.40	0.437
						100	0	50	0	18.59	18.51	21.53	24.65	0.292
20MHz+ 10MHz	39750	2506.0	39894	2520.4	16QAM	1	99	1	0	21.68	19.76	22.75	**25.87**	0.386
						100	0	50	0	17.45	17.40	20.41	23.53	0.225
	40571	2588.1	40715	2602.5	16QAM	1	99	1	0	21.55	19.59	22.62	25.74	0.375
						100	0	50	0	17.52	17.48	20.48	23.60	0.229
	41391	2670.1	41535	2684.5	16QAM	1	99	1	0	21.63	19.70	22.70	25.82	0.382
						100	0	50	0	17.95	17.90	20.91	24.03	0.253
20MHz+ 10MHz	39750	2506.0	39894	2520.4	64QAM	1	99	1	0	19.00	17.03	20.05	23.17	0.207
						100	0	50	0	17.38	17.40	20.38	23.50	0.224
	40571	2588.1	40715	2602.5	64QAM	1	99	1	0	19.03	17.13	20.10	23.22	0.210
						100	0	50	0	17.39	17.44	20.40	23.52	0.225
	41391	2670.1	41535	2684.5	64QAM	1	99	1	0	19.08	17.13	20.14	23.26	0.212
						100	0	50	0	17.79	17.83	20.80	**23.92**	0.247

OUTPUT POWER FOR LTE BAND 41 (20MHz + 15MHz)

Part 27 / RSS 199_ EIRP Limit (W)	2
Antenna Gain	3.12

Bandwidth	PCC		SCC1		Modulation	PCC RB		SCC1 RB		Conducted Average (dBm)			EIRP Average	EIRP Average
	Earfcn	MHz	Earfcn	MHz		Size	Offset	Size	Offset	PCC	SCC1	Total	(dBm)	(W)
20MHz+ 15MHz	39750	2506.0	39921	2523.1	QPSK	1	99	1	0	20.79	20.83	23.82	**26.94**	0.494
						100	0	75	0	18.34	18.34	21.35	24.47	0.280
	40546	2585.6	40717	2602.7	QPSK	1	99	1	0	20.17	20.22	23.21	26.33	0.430
						100	0	75	0	18.35	18.36	21.37	24.49	0.281
	41341	2665.1	41512	2682.2	QPSK	1	99	1	0	20.50	20.47	23.50	26.62	0.459
						100	0	75	0	18.54	18.60	21.58	24.70	0.295
20MHz+ 15MHz	39750	2506.0	39921	2523.1	16QAM	1	99	1	0	19.21	19.24	22.23	25.35	0.343
						100	0	75	0	17.34	17.34	20.35	23.47	0.222
	40546	2585.6	40717	2602.7	16QAM	1	99	1	0	19.29	19.34	22.33	25.45	0.351
						100	0	75	0	17.42	17.42	20.43	23.55	0.226
	41341	2665.1	41512	2682.2	16QAM	1	99	1	0	19.32	19.39	22.36	**25.48**	0.353
						100	0	75	0	17.50	17.45	20.48	23.60	0.229
20MHz+ 15MHz	39750	2506.0	39921	2523.1	64QAM	1	99	1	0	17.32	17.36	20.35	23.47	0.222
						100	0	75	0	17.36	17.27	20.33	23.45	0.221
	40546	2585.6	40717	2602.7	64QAM	1	99	1	0	17.09	17.04	20.08	23.20	0.209
						100	0	75	0	17.37	17.40	20.40	**23.52**	0.225
	41341	2665.1	41512	2682.2	64QAM	1	99	1	0	17.16	17.13	20.16	23.28	0.213
						100	0	75	0	17.40	17.36	20.39	23.51	0.224

Part 27 / RSS 199_ EIRP Limit (W)	2
Antenna Gain	3.12

OUTPUT POWER FOR LTE BAND 41 (20MHz + 20MHz)

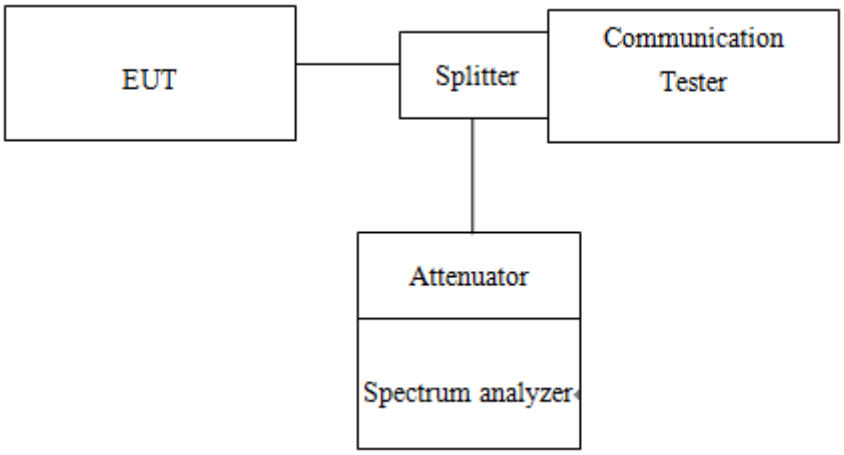
Bandwidth	PCC		SCC1		Modulation	PCC RB		SCC1 RB		Conducted Average (dBm)			EIRP Average	EIRP Average
	Earfcn	MHz	Earfcn	MHz		Size	Offset	Size	Offset	PCC	SCC1	Total	(dBm)	(W)
20MHz+ 20MHz	39750	2506.0	39948	2525.8	QPSK	1	99	1	0	20.24	20.21	23.23	26.35	0.432
						100	0	100	0	18.25	18.35	21.31	24.43	0.277
	40521	2583.1	40719	2602.9	QPSK	1	99	1	0	20.44	20.53	23.49	**26.61**	0.458
						100	0	100	0	18.39	18.37	21.39	24.51	0.282
	41292	2660.2	41490	2680.0	QPSK	1	99	1	0	20.33	20.33	23.34	26.46	0.443
						100	0	100	0	18.43	18.45	21.45	24.57	0.286
20MHz+ 20MHz	39750	2506.0	39948	2525.8	16QAM	1	99	1	0	19.25	19.34	22.30	25.42	0.348
						100	0	100	0	17.30	17.34	20.33	23.45	0.221
	40521	2583.1	40719	2602.9	16QAM	1	99	1	0	19.46	19.47	22.48	25.60	0.363
						100	0	100	0	17.39	17.38	20.40	23.52	0.225
	41292	2660.2	41490	2680.0	16QAM	1	99	1	0	19.51	19.53	22.53	**25.65**	0.367
						100	0	100	0	17.44	17.45	20.45	23.57	0.228
20MHz+ 20MHz	39750	2506.0	39948	2525.8	64QAM	1	99	1	0	17.28	17.37	20.34	23.46	0.222
						100	0	100	0	17.27	17.31	20.30	23.42	0.220
	40521	2583.1	40719	2602.9	64QAM	1	99	1	0	17.07	17.08	20.09	23.21	0.209
						100	0	100	0	17.34	17.42	20.39	23.51	0.224
	41292	2660.2	41490	2680.0	64QAM	1	99	1	0	17.56	17.53	20.55	**23.67**	0.233
						100	0	100	0	17.43	17.44	20.45	23.57	0.228

8 OCCUPIED BANDWIDTH MEASUREMENT

8.1 Standard Applicable

The occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power.

8.2 Test Set-up



8.3 Measurement Procedure

99% &26dB Bandwidth with detector peak

The EUT's output RF connector was connected with a short cable to the spectrum analyzer, RBW was set to about 1% of emission BW, VBW= 3 times RBW, -26dBc display line was placed on the screen (or 26dB bandwidth), the occupied bandwidth is the delta frequency between the two points where the display line intersects the signal trace. Then set RBW to 99% bandwidth, RBW= 1%, VBW= 3 RBW, with span > 2 * Signal BW, set % Power = 99%.

99% Bandwidth with detector sample

The EUT's output RF connector was connected with a short cable to the spectrum analyzer, RBW was set to about 1% ~ 5% of emission BW, VBW= 3 times RBW, -20dBc display line was placed on the screen (or 20dB bandwidth). Set RBW to 99% bandwidth, RBW= 1% ~ 5%, VBW= 3 RBW, with span > 2 * Signal BW, set % Power = 99%.

8.4 Measurement Result

LTE BAND 5

Band	Bandwidth	RB Allocation/RB Offset	Freqency (MHz)	99% BW (MHz)			26 dB BW (MHz)		
				QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
LTE BAND 5	5MHz+10MHz	25/0+50/0	836.5	13.827	**13.796**	**13.824**	**14.58**	**14.6**	**14.6**
LTE BAND 5	10MHz+5MHz	50/0+25/0	836.5	**13.819**	**13.837**	**13.768**	**14.59**	**14.6**	**14.54**
LTE BAND 5	10MHz+10MHz	50/0+50/0	836.5	**18.797**	**18.692**	**18.739**	**19.77**	**19.5**	**19.82**

LTE BAND 7

Band	Bandwidth	RB Allocation/RB Offset	Freqency (MHz)	99% BW (MHz)			26 dB BW (MHz)		
				QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
LTE BAND 7	10MHz+20MHz	50/0+100/0	2535.0	27.779	**27.794**	**27.787**	**29.39**	**29.38**	**29.33**
LTE BAND 7	20MHz+10MHz	100/0+50/0	2535.0	27.822	**27.788**	**27.785**	**29.59**	**29.4**	**29.56**
LTE BAND 7	15MHz+15MHz	75/0+75/0	2535.0	28.461	**28.405**	**28.365**	**30.16**	**30.06**	**30.15**
LTE BAND 7	15MHz+20MHz	75/0+100/0	2535.0	32.682	**32.719**	**32.677**	**34.57**	**34.59**	**34.48**
LTE BAND 7	20MHz+15MHz	100/0+75/0	2535.0	32.696	**32.653**	**32.668**	**34.65**	**34.57**	**34.63**
LTE BAND 7	20MHz+20MHz	100/0+100/0	2535.0	37.706	**37.706**	**37.669**	**40.05**	**40.08**	**43.75**

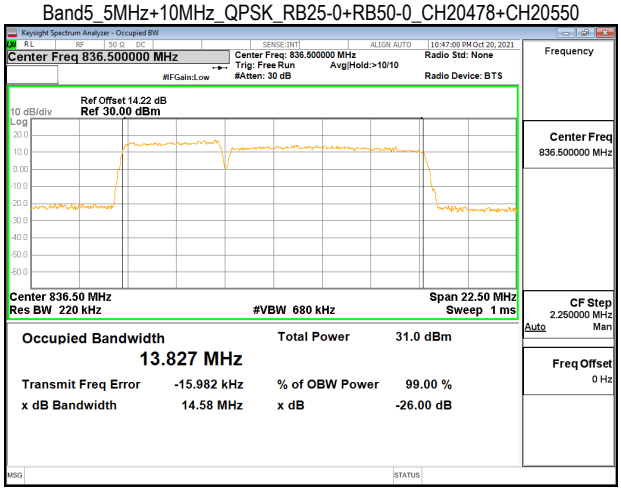
LTE BAND 38

Band	Bandwidth	RB Allocation/RB Offset	Freqency (MHz)	99% BW (MHz)			26 dB BW (MHz)		
				QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
LTE BAND 38	15MHz+15MHz	75/0+75/0	2595.0	28.347	**28.402**	**28.33**	**30.06**	**30.01**	**30.05**
LTE BAND 38	20MHz+20MHz	100/0+100/0	2595.0	**37.693**	**37.741**	**37.706**	**39.82**	**39.87**	**40.62**

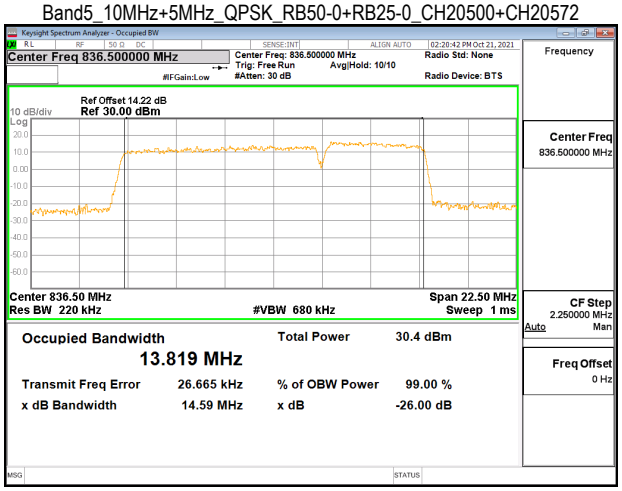
LTE BAND 41

Band	Bandwidth	RB Allocation/RB Offset	Freqency (MHz)	99% BW (MHz)			26 dB BW (MHz)		
				QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
LTE BAND 41	5MHz+20MHz	25/0+100/0	2593.0	22.94	**22.894**	**22.9**	**24.03**	**24.11**	**24.02**
LTE BAND 41	20MHz+5MHz	100/0+25/0	2593.0	22.921	**22.908**	**22.901**	**24.22**	**24.13**	**24.06**
LTE BAND 41	10MHz+20MHz	50/0+100/0	2593.0	27.793	**27.790**	**27.748**	**29.41**	**29.38**	**29.34**
LTE BAND 41	20MHz+10MHz	100/0+50/0	2593.0	27.829	**27.816**	**27.771**	**29.33**	**29.34**	**29.45**
LTE BAND 41	15MHz+15MHz	75/0+75/0	2593.0	28.389	**28.388**	**28.313**	**30.03**	**29.97**	**30.13**
LTE BAND 41	15MHz+20MHz	75/0+100/0	2593.0	32.687	**32.638**	**32.636**	**34.63**	**34.63**	**34.41**
LTE BAND 41	20MHz+15MHz	100/0+75/0	2593.0	32.683	**32.645**	**32.64**	**34.51**	**34.71**	**34.74**
LTE BAND 41	20MHz+20MHz	100/0+100/0	2593.0	37.656	**37.584**	**37.663**	**39.76**	**39.86**	**39.66**

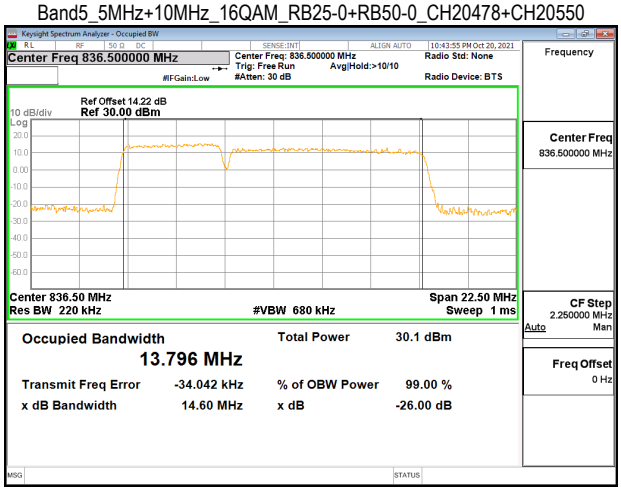
Band5_5MHz+10MHz_QPSK_RB25-0+RB50-0_CH20478+CH20550



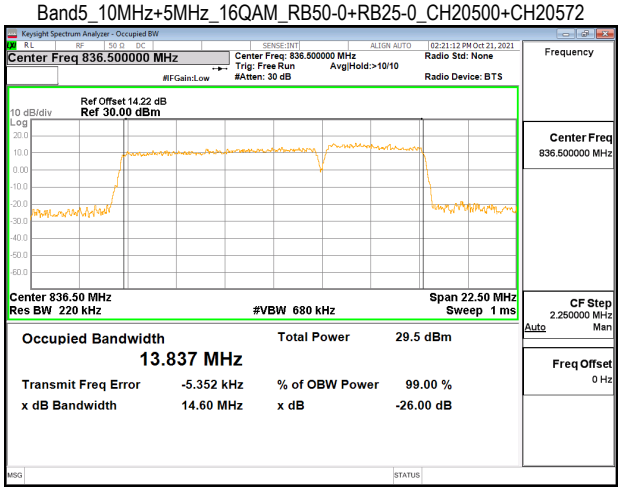
Band5_10MHz+5MHz_QPSK_RB50-0+RB25-0_CH20500+CH20572



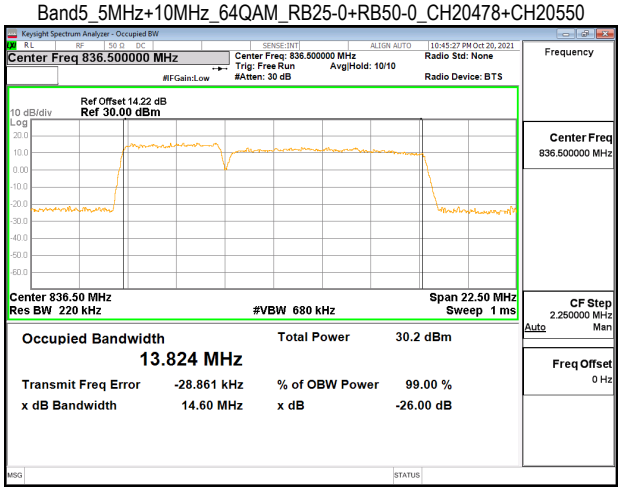
Band5_5MHz+10MHz_16QAM_RB25-0+RB50-0_CH20478+CH20550



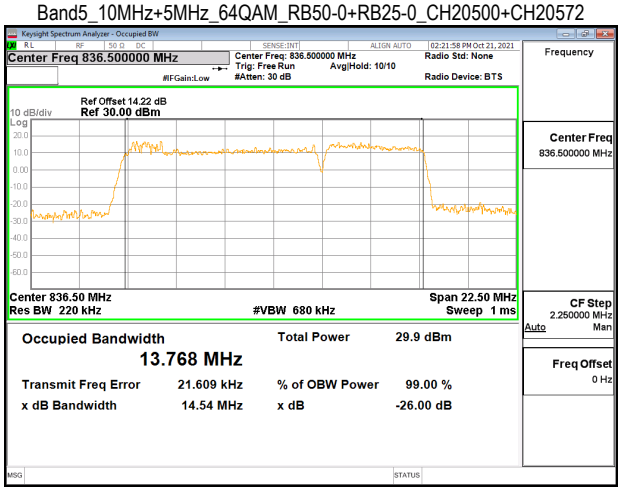
Band5_10MHz+5MHz_16QAM_RB50-0+RB25-0_CH20500+CH20572



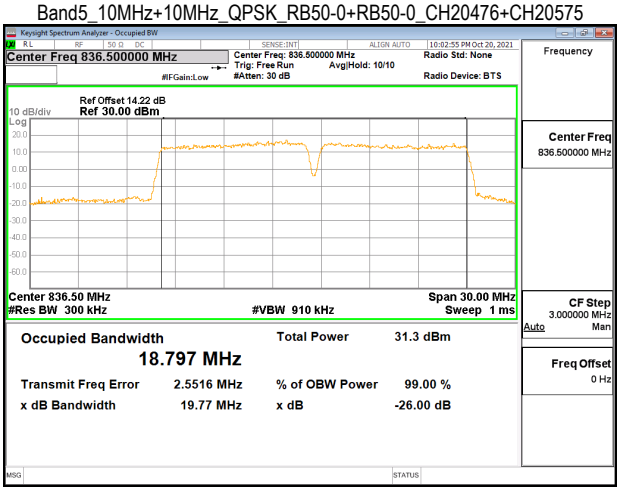
Band5_5MHz+10MHz_64QAM_RB25-0+RB50-0_CH20478+CH20550



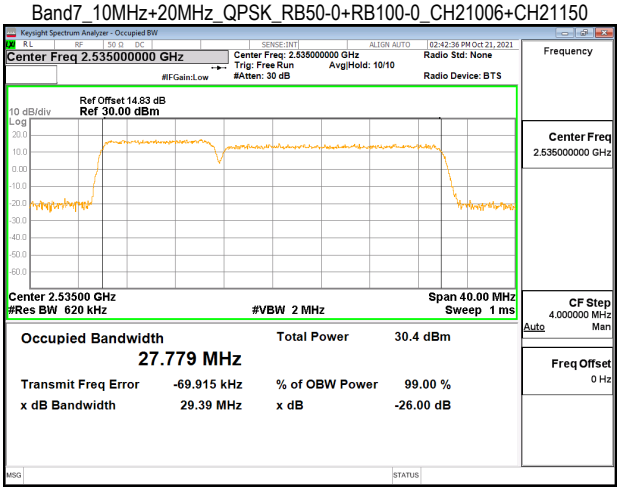
Band5_10MHz+5MHz_64QAM_RB50-0+RB25-0_CH20500+CH20572



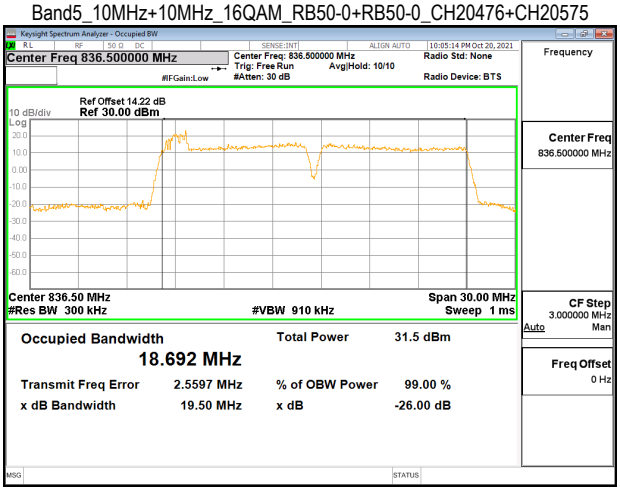
Band5_10MHz+10MHz_QPSK_RB50-0+RB50-0_CH20476+CH20575



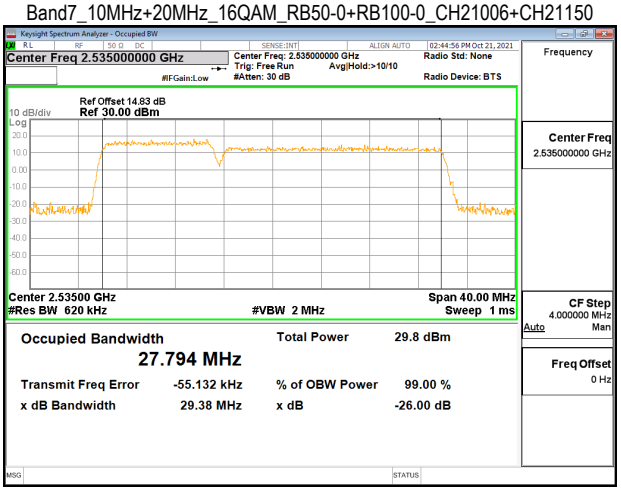
Band7_10MHz+20MHz_QPSK_RB50-0+RB100-0_CH21006+CH21150



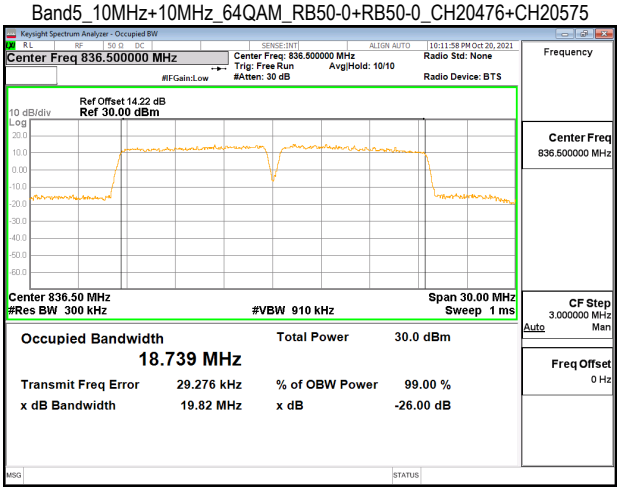
Band5_10MHz+10MHz_16QAM_RB50-0+RB50-0_CH20476+CH20575



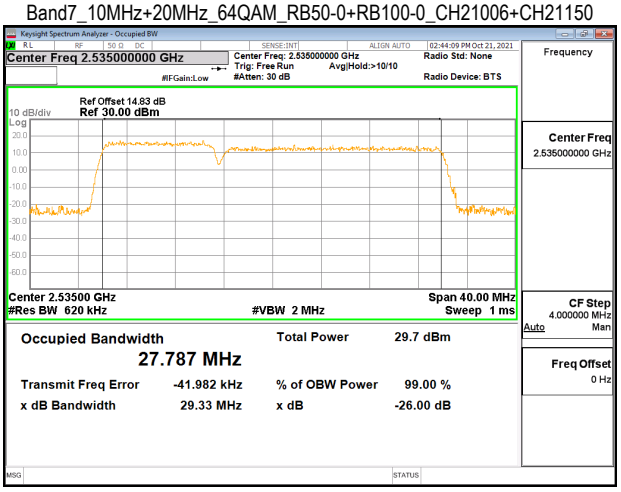
Band7_10MHz+20MHz_16QAM_RB50-0+RB100-0_CH21006+CH21150



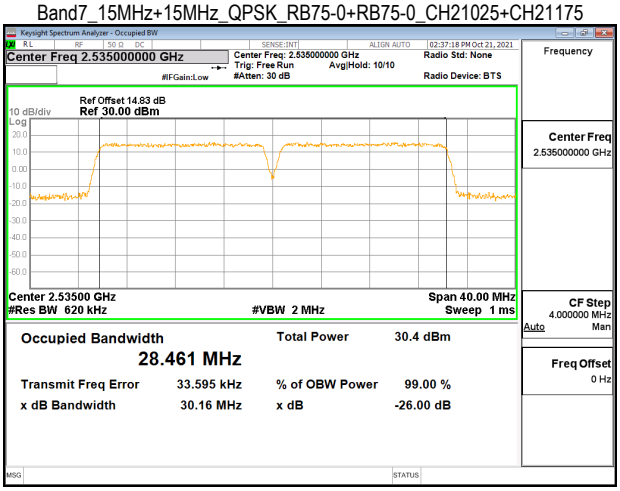
Band5_10MHz+10MHz_64QAM_RB50-0+RB50-0_CH20476+CH20575



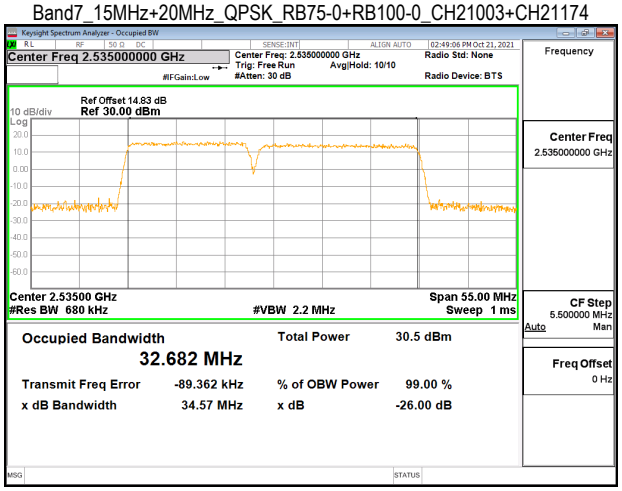
Band7_10MHz+20MHz_64QAM_RB50-0+RB100-0_CH21006+CH21150



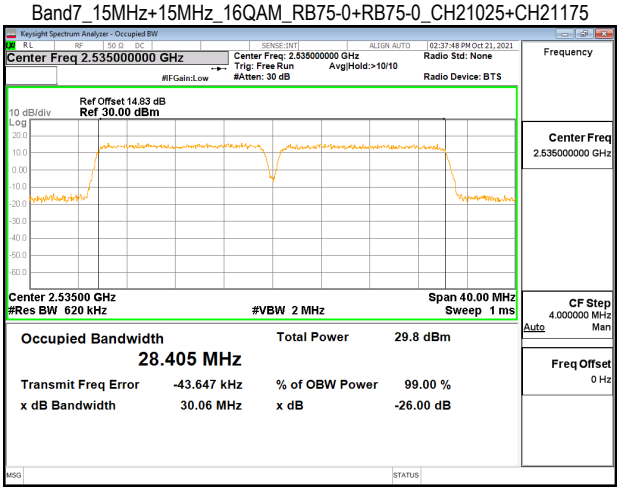
Band7_15MHz+15MHz_QPSK_RB75-0+RB75-0_CH21025+CH21175



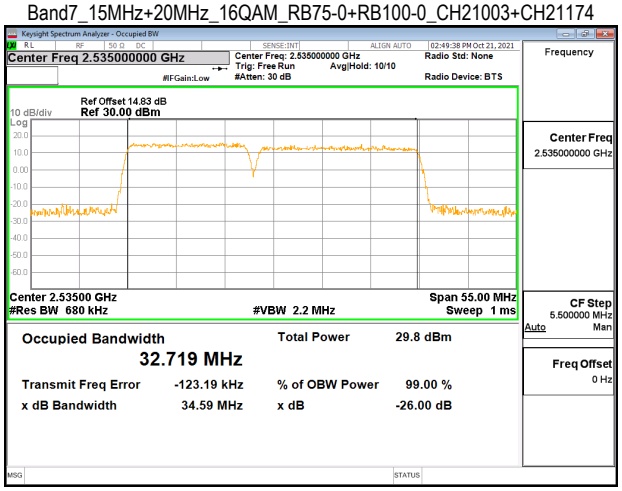
Band7_15MHz+20MHz_QPSK_RB75-0+RB100-0_CH21003+CH21174



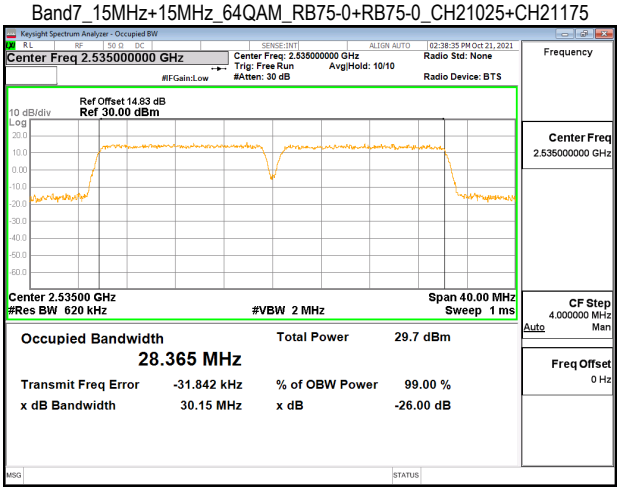
Band7_15MHz+15MHz_16QAM_RB75-0+RB75-0_CH21025+CH21175



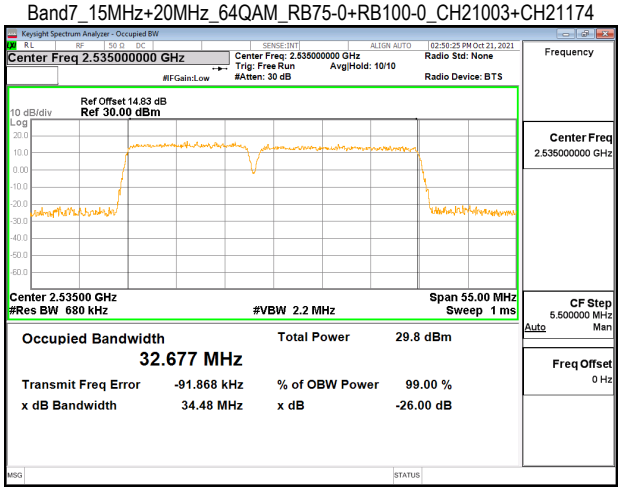
Band7_15MHz+20MHz_16QAM_RB75-0+RB100-0_CH21003+CH21174



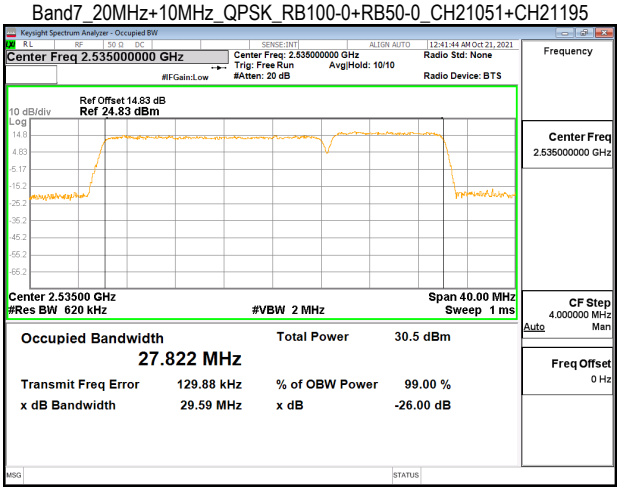
Band7_15MHz+15MHz_64QAM_RB75-0+RB75-0_CH21025+CH21175



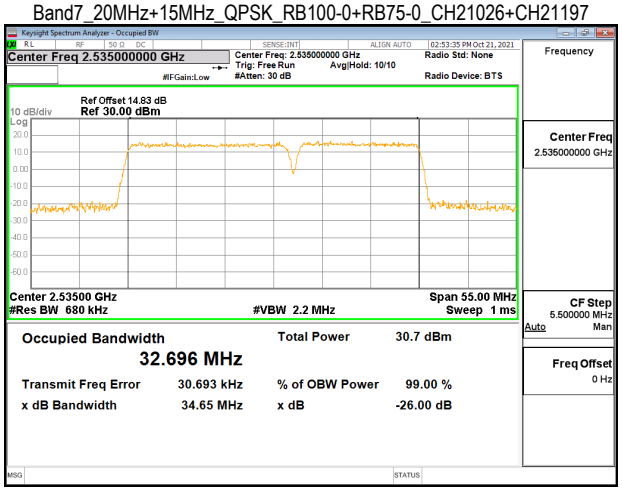
Band7_15MHz+20MHz_64QAM_RB75-0+RB100-0_CH21003+CH21174



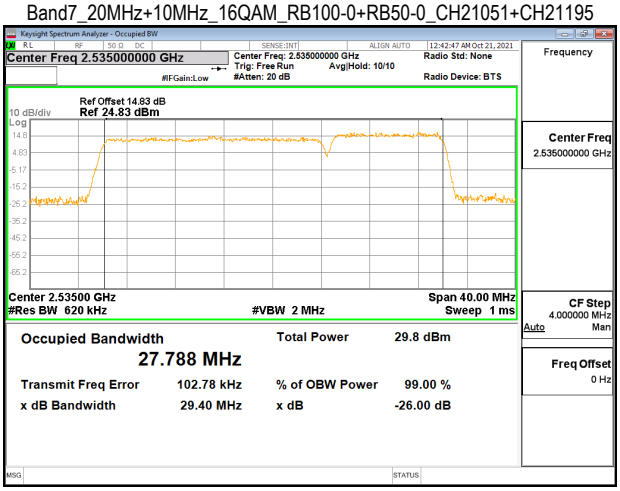
Band7_20MHz+10MHz_QPSK_RB100-0+RB50-0_CH21051+CH21195



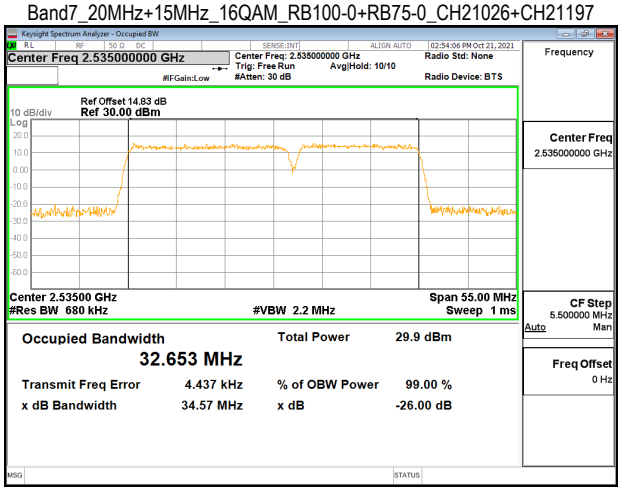
Band7_20MHz+15MHz_QPSK_RB100-0+RB75-0_CH21026+CH21197



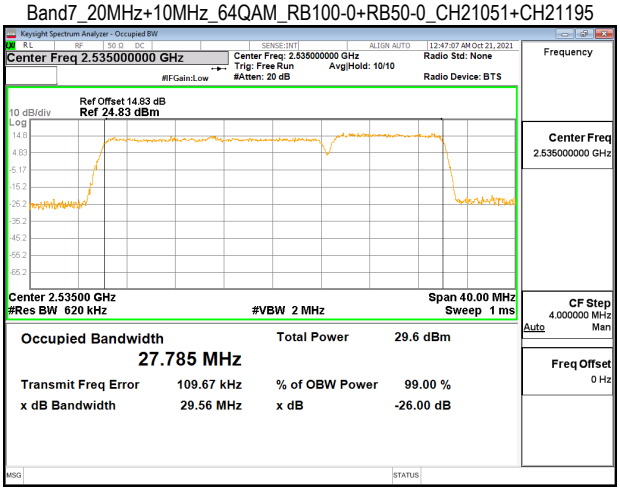
Band7_20MHz+10MHz_16QAM_RB100-0+RB50-0_CH21051+CH21195



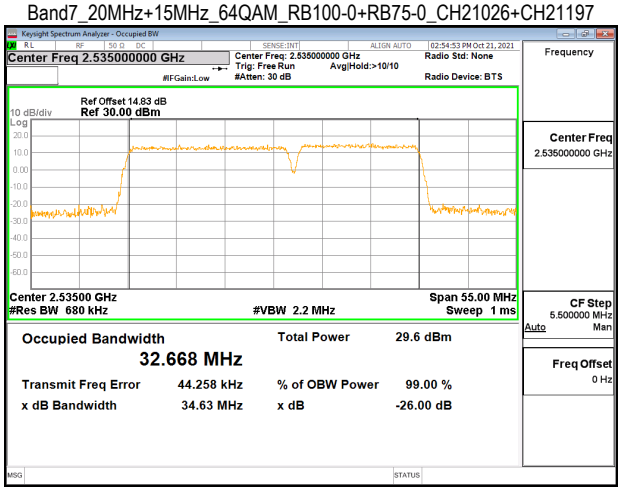
Band7_20MHz+15MHz_16QAM_RB100-0+RB75-0_CH21026+CH21197



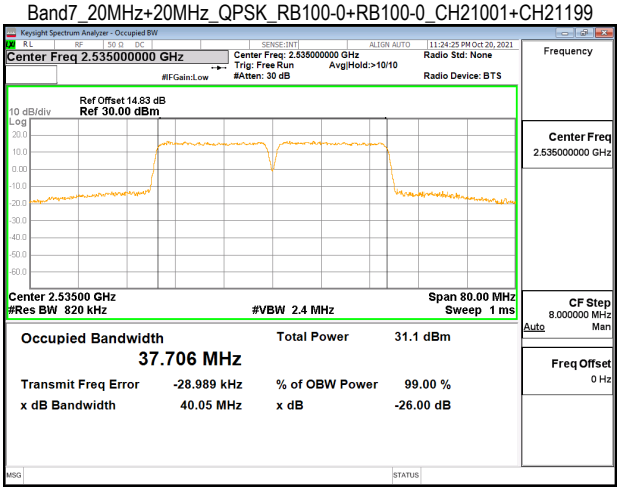
Band7_20MHz+10MHz_64QAM_RB100-0+RB50-0_CH21051+CH21195



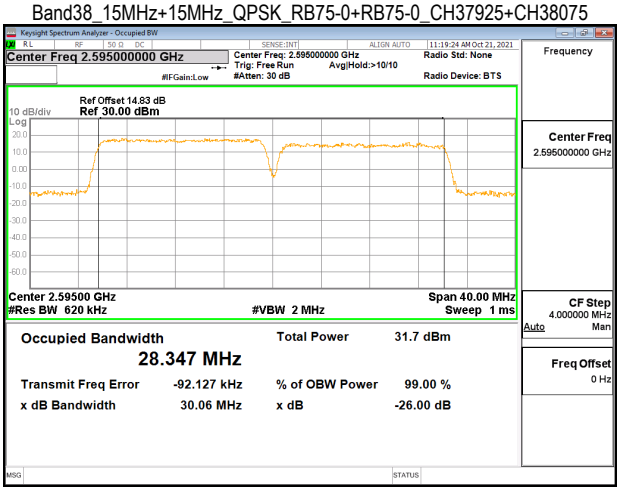
Band7_20MHz+15MHz_64QAM_RB100-0+RB75-0_CH21026+CH21197



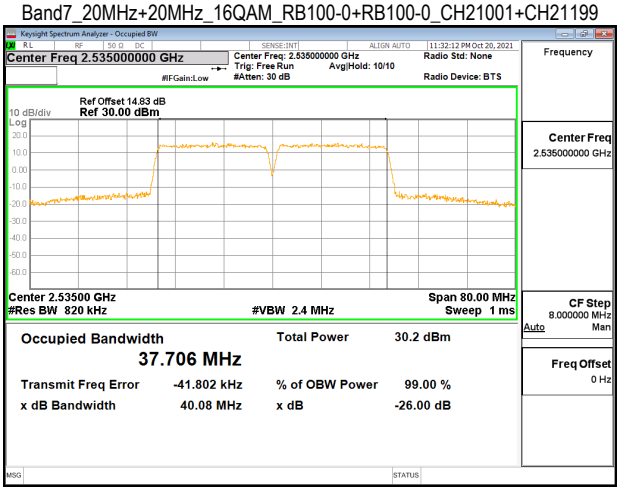
Band7_20MHz+20MHz_QPSK_RB100-0+RB100-0_CH21001+CH21199



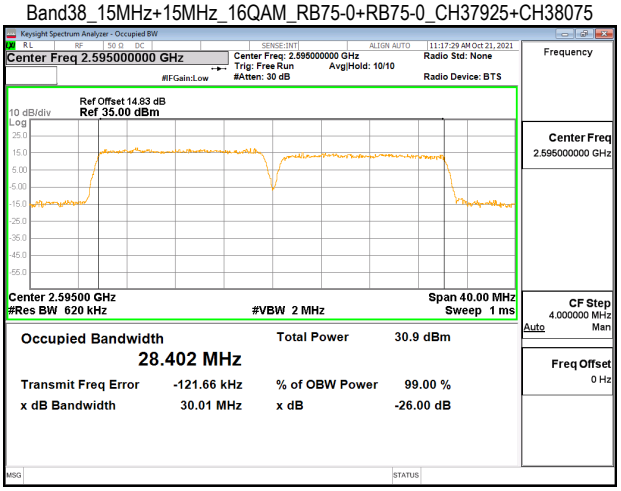
Band38_15MHz+15MHz_QPSK_RB75-0+RB75-0_CH37925+CH38075



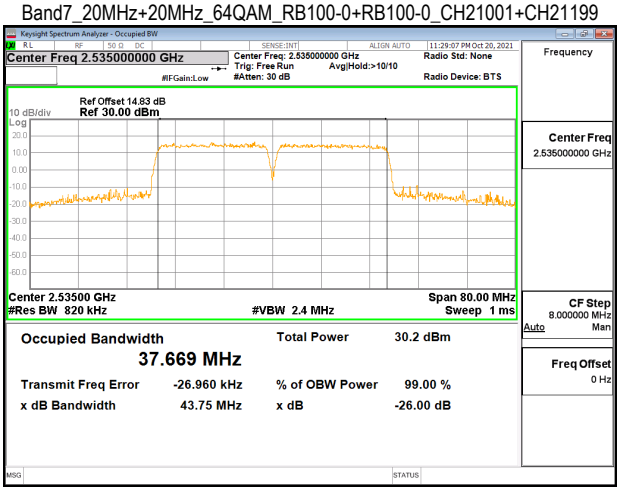
Band7_20MHz+20MHz_16QAM_RB100-0+RB100-0_CH21001+CH21199



Band38_15MHz+15MHz_16QAM_RB75-0+RB75-0_CH37925+CH38075



Band7_20MHz+20MHz_64QAM_RB100-0+RB100-0_CH21001+CH21199



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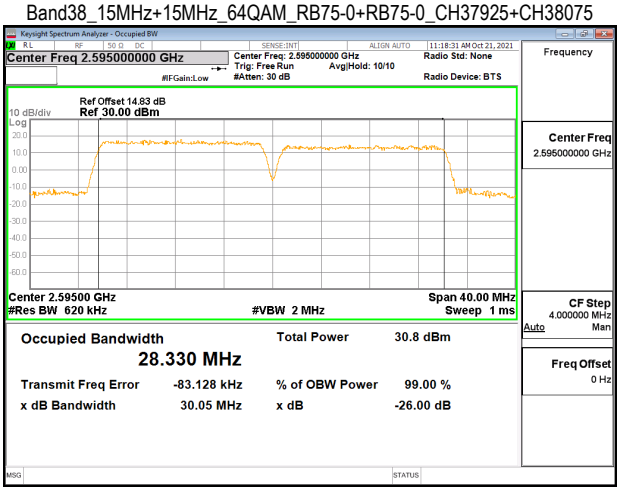
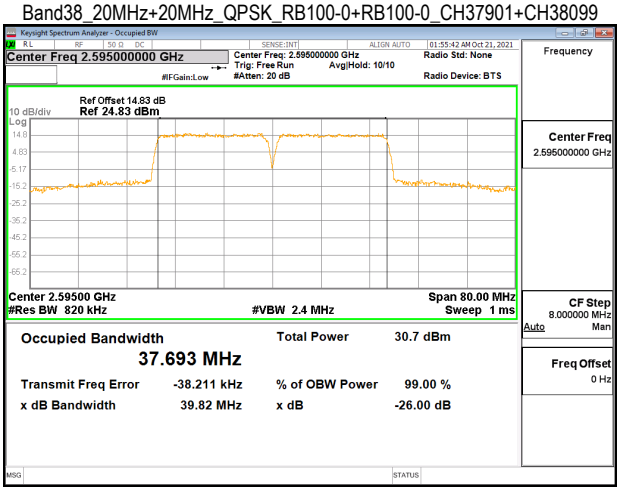
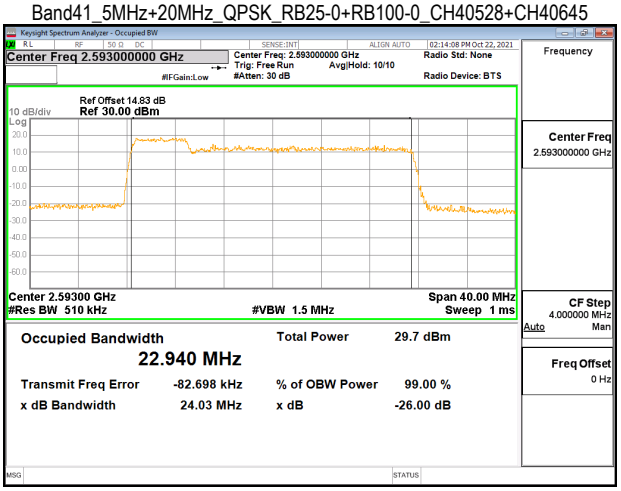


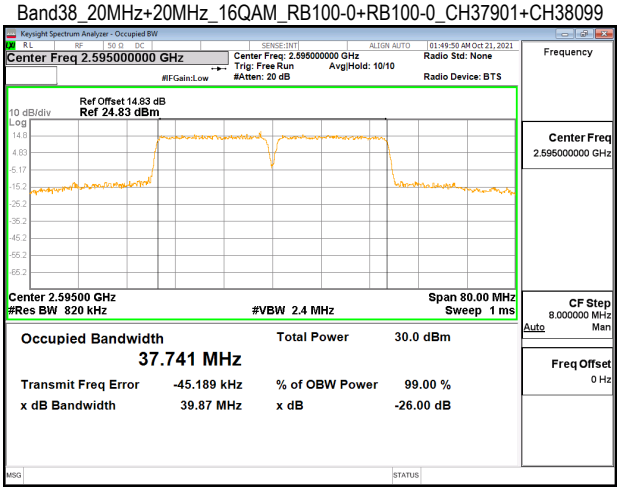
Band38_20MHz+20MHz_QPSK_RB100-0+RB100-0_CH37901+CH38099



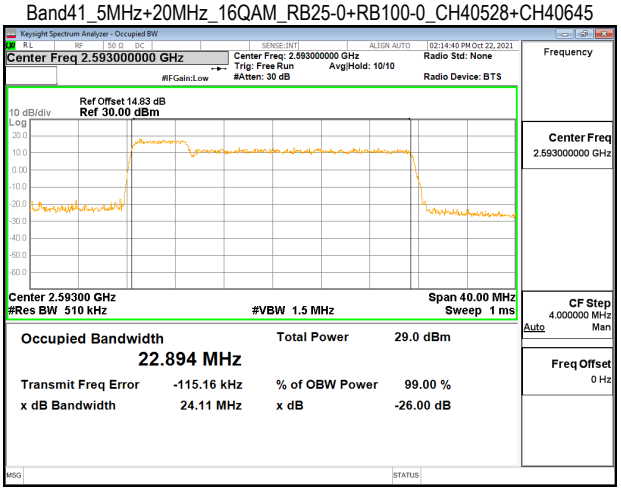
Band41_5MHz+20MHz_QPSK_RB25-0+RB100-0_CH40528+CH40645



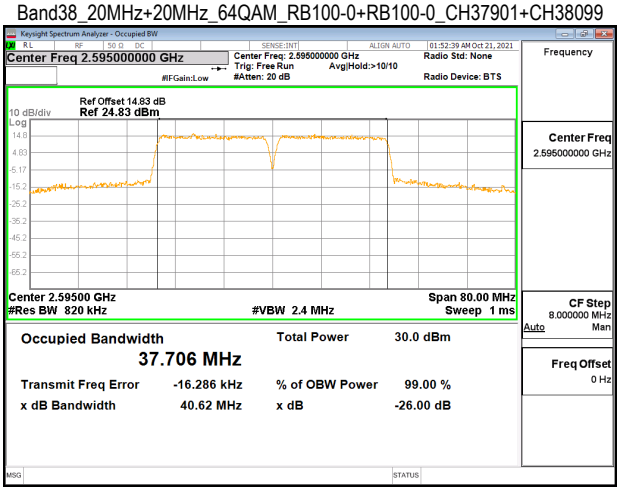
Band38_20MHz+20MHz_16QAM_RB100-0+RB100-0_CH37901+CH38099



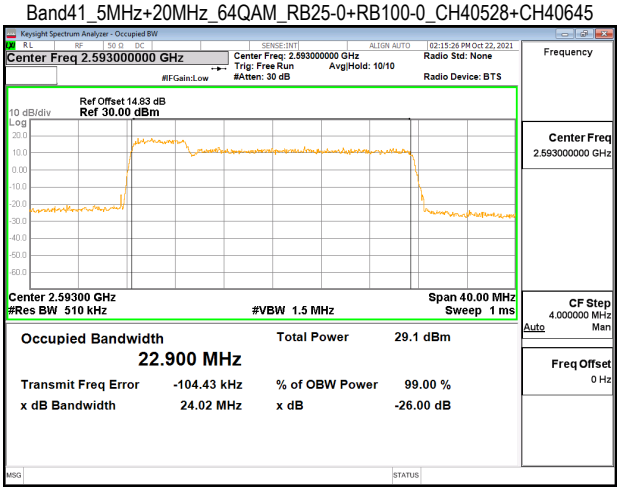
Band41_5MHz+20MHz_16QAM_RB25-0+RB100-0_CH40528+CH40645



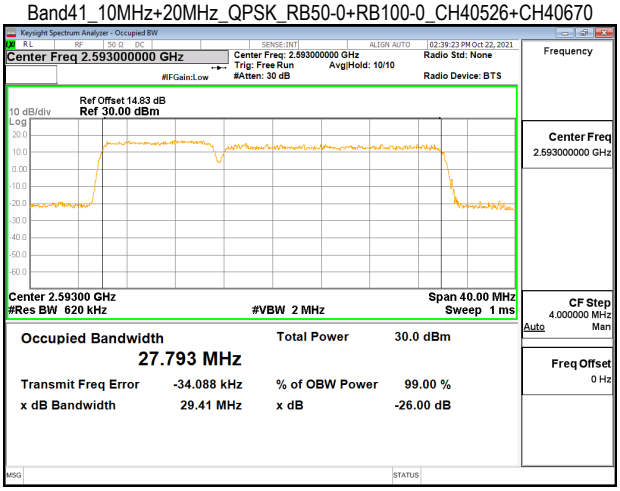
Band38_20MHz+20MHz_64QAM_RB100-0+RB100-0_CH37901+CH38099



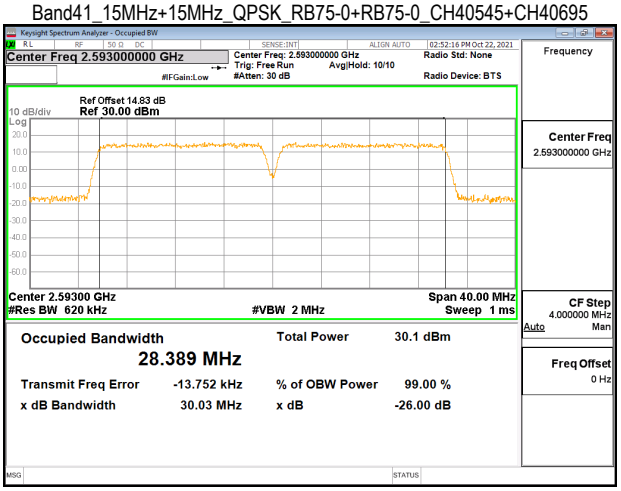
Band41_5MHz+20MHz_64QAM_RB25-0+RB100-0_CH40528+CH40645



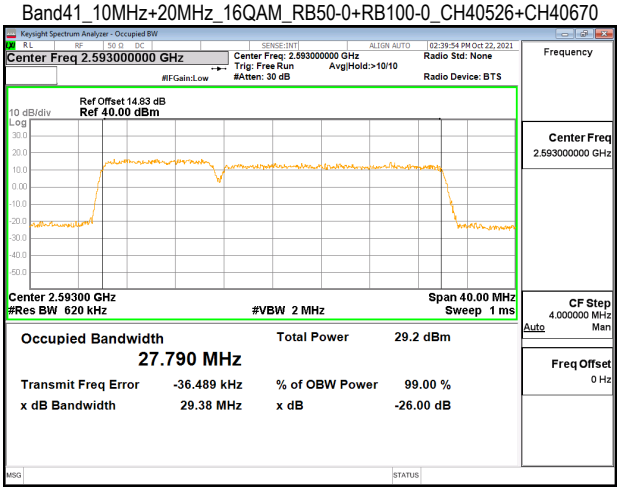
Band41_10MHz+20MHz_QPSK_RB50-0+RB100-0_CH40526+CH40670



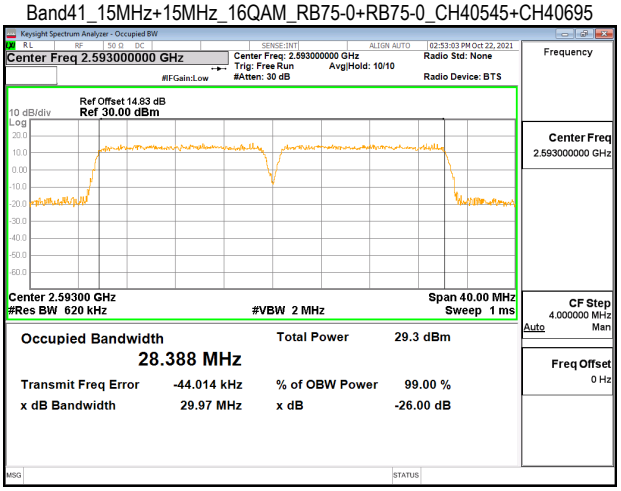
Band41_15MHz+15MHz_QPSK_RB75-0+RB75-0_CH40545+CH40695



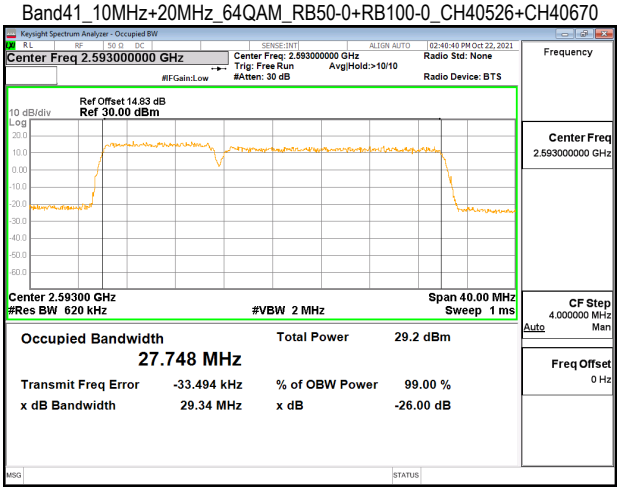
Band41_10MHz+20MHz_16QAM_RB50-0+RB100-0_CH40526+CH40670



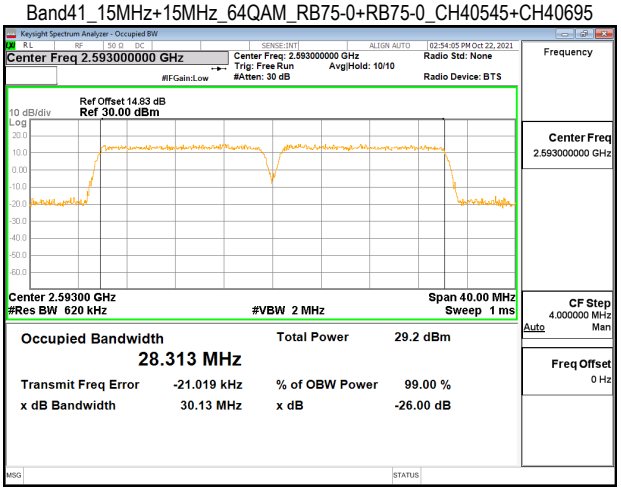
Band41_15MHz+15MHz_16QAM_RB75-0+RB75-0_CH40545+CH40695



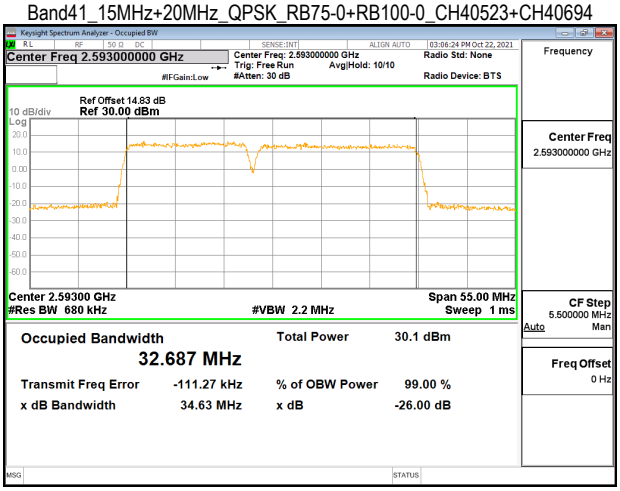
Band41_10MHz+20MHz_64QAM_RB50-0+RB100-0_CH40526+CH40670



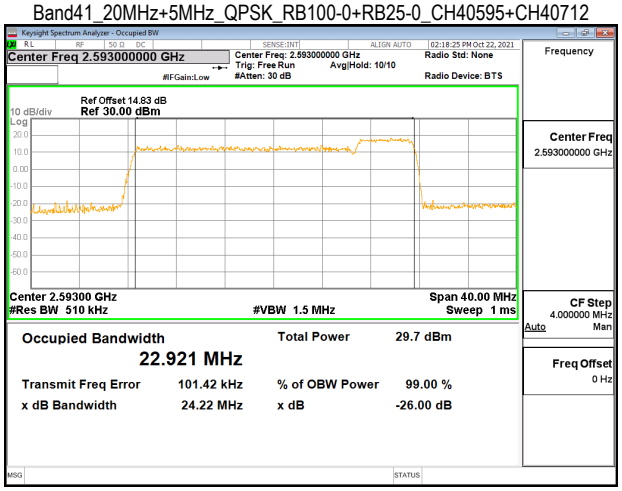
Band41_15MHz+15MHz_64QAM_RB75-0+RB75-0_CH40545+CH40695



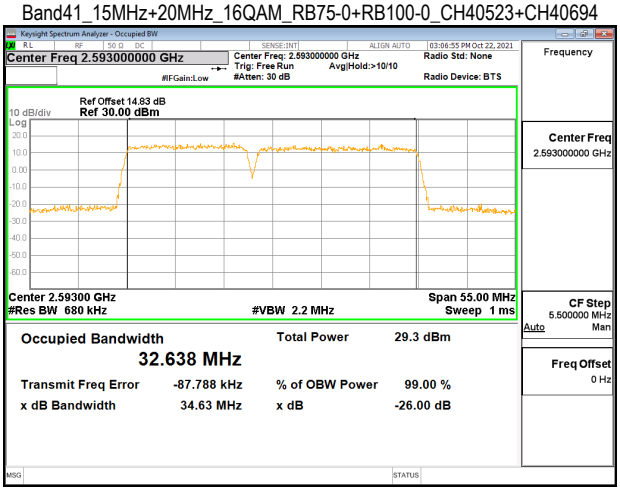
Band41_15MHz+20MHz_QPSK_RB75-0+RB100-0_CH40523+CH40694



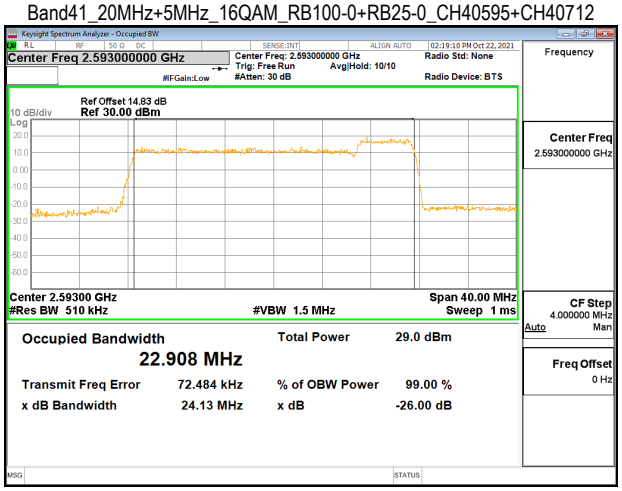
Band41_20MHz+5MHz_QPSK_RB100-0+RB25-0_CH40595+CH40712



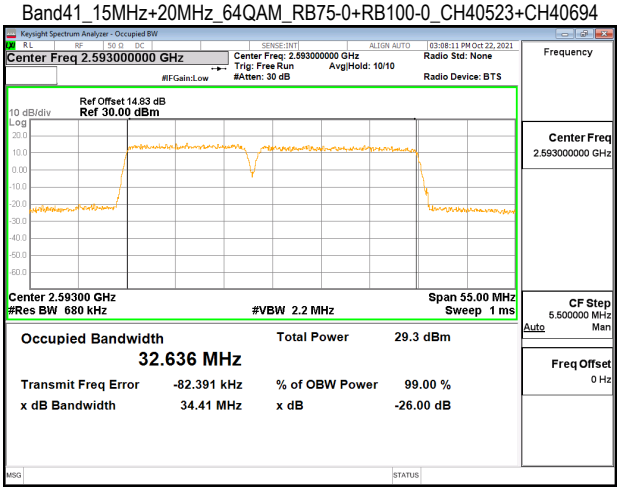
Band41_15MHz+20MHz_16QAM_RB75-0+RB100-0_CH40523+CH40694



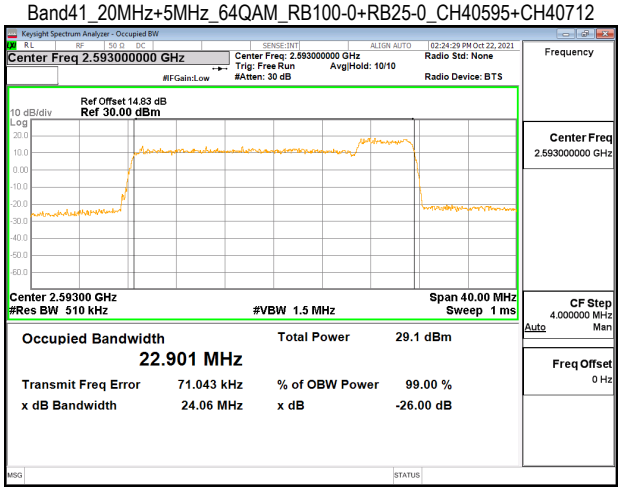
Band41_20MHz+5MHz_16QAM_RB100-0+RB25-0_CH40595+CH40712



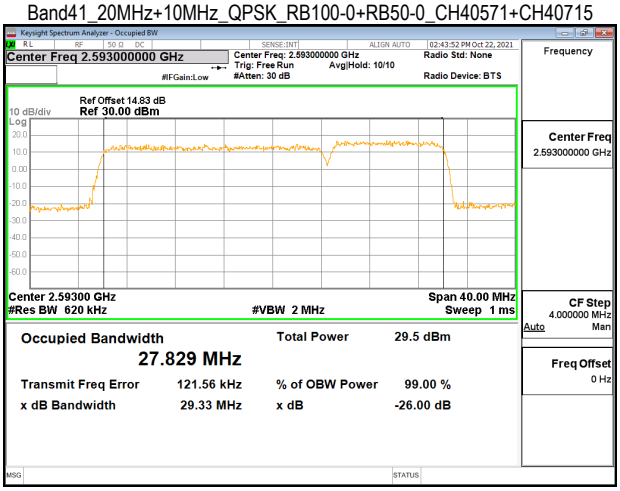
Band41_15MHz+20MHz_64QAM_RB75-0+RB100-0_CH40523+CH40694



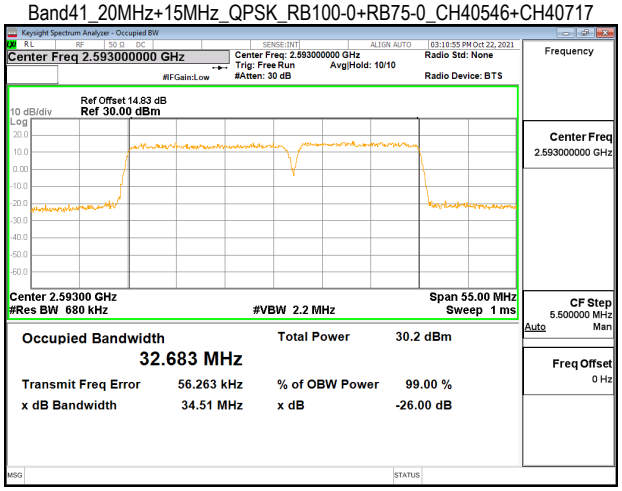
Band41_20MHz+5MHz_64QAM_RB100-0+RB25-0_CH40595+CH40712



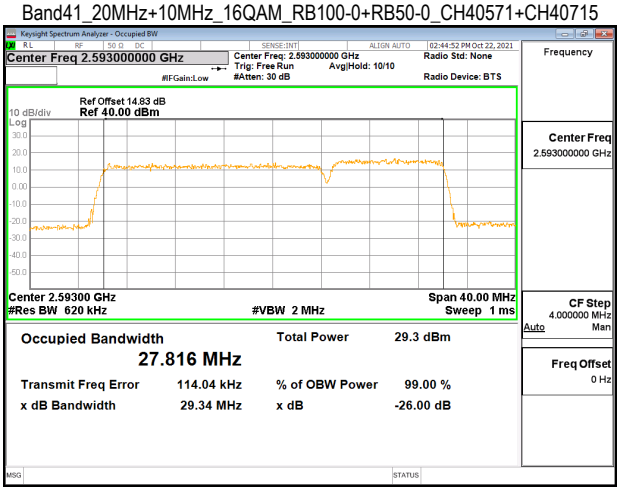
Band41_20MHz+10MHz_QPSK_RB100-0+RB50-0_CH40571+CH40715



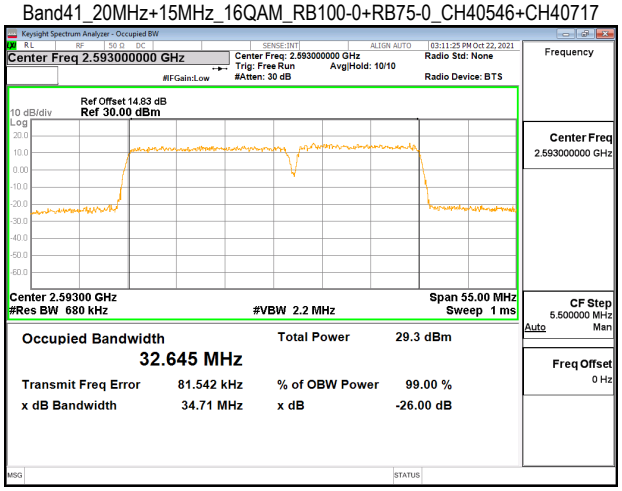
Band41_20MHz+15MHz_QPSK_RB100-0+RB75-0_CH40546+CH40717



Band41_20MHz+10MHz_16QAM_RB100-0+RB50-0_CH40571+CH40715



Band41_20MHz+15MHz_16QAM_RB100-0+RB75-0_CH40546+CH40717



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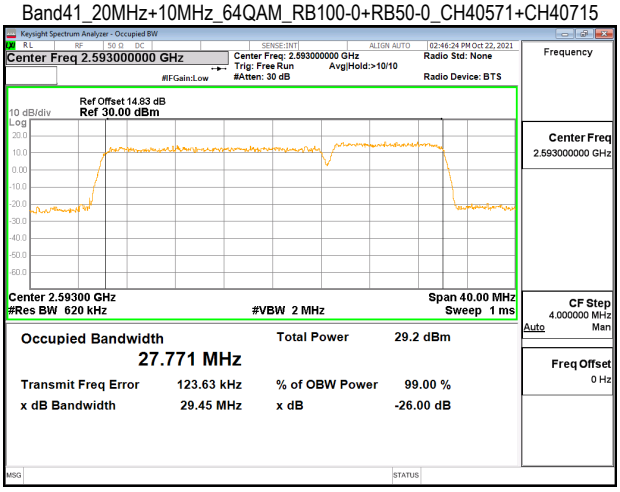
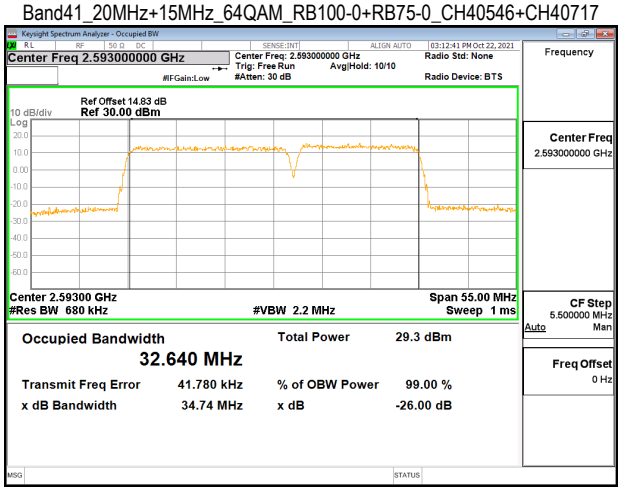
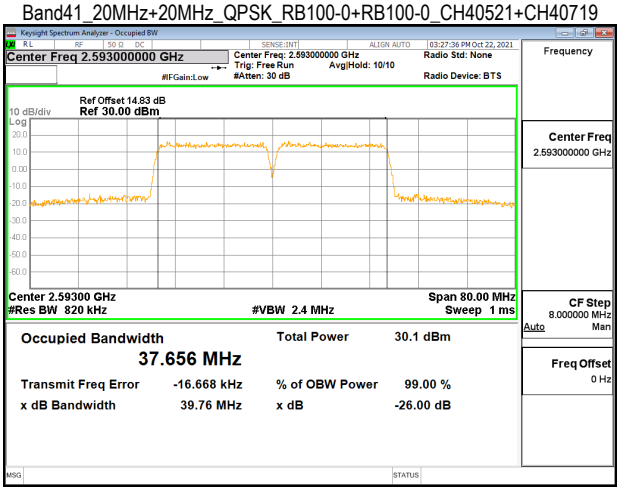


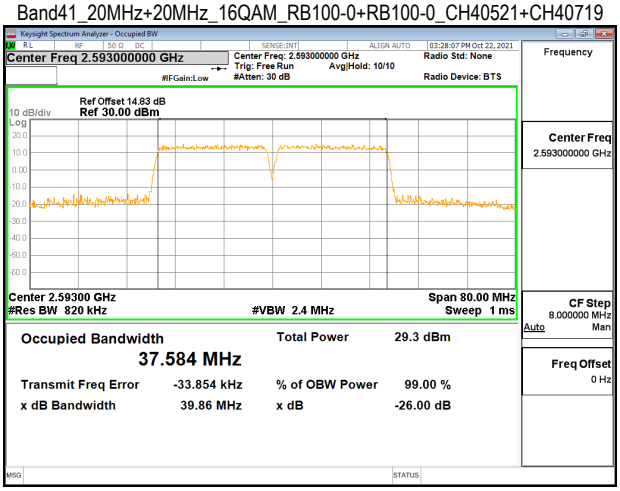
Band41_20MHz+15MHz_64QAM_RB100-0+RB75-0_CH40546+CH40717



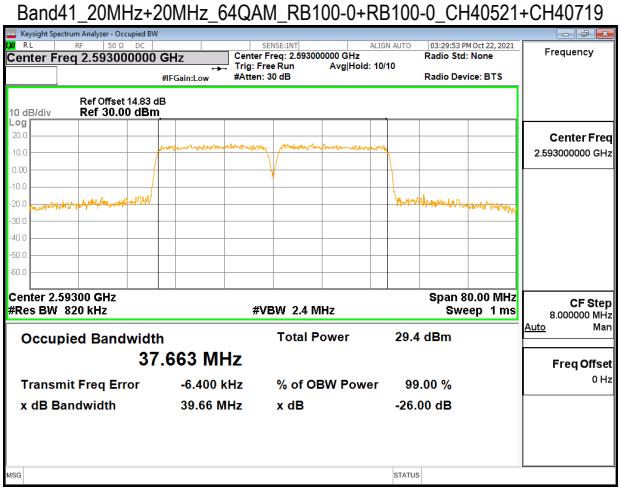
Band41_20MHz+20MHz_QPSK_RB100-0+RB100-0_CH40521+CH40719



Band41_20MHz+20MHz_16QAM_RB100-0+RB100-0_CH40521+CH40719



Band41_20MHz+20MHz_64QAM_RB100-0+RB100-0_CH40521+CH40719



9 OUT OF BAND EMISSION AT ANTENNA TERMINALS

9.1 Standard Applicable

FCC §22.917(a), §27.53(h)
RSS-132 §5.5, RSS-199 §4.5

Out of band emissions.The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

FCC §27.53(m) (4) (6)

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

Measurement procedure. Compliance with these rules is based on the use of measurement nstrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed; for mobile digital stations, in the 1 megahertz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least two percent may be employed, except when the 1 megahertz band is 2495-2496 MHz, in which case a resolution bandwidth of at least one percent may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 1 megahertz or 1 percent of emission bandwidth, as specified; or 1 megahertz or 2 percent for mobile digital stations, except in the band 2495-2496 MHz). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power. With respect to television operations, measurements must be made of the separate visual and aural operating powers at sufficiently frequent intervals to ensure compliance with the rules.

ISED RSS-132 §5.5

Mobile and base station equipment shall comply with the limits in (i) and (ii) below.

i. In the first 1.0 MHz band immediately outside and adjacent to each of the sub-bands specified in Section 5.1, the power of emissions per any 1% of the occupied bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least 43 + 10 log10p (watts).

ii. After the first 1.0 MHz immediately outside and adjacent to each of the sub-bands, the power of emissions in any 100 kHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least 43 + 10 log10 p (watts). If the measurement is performed using 1% of the occupied bandwidth, power integration over 100 kHz is required.

RSS-199 §4.5

In the 1 MHz band immediately outside and adjacent to the channel edge, the unwanted emission power shall be measured with a resolution bandwidth of at least 1% of the occupied bandwidth for base station and fixed subscriber equipment, and 2% for mobile subscriber equipment. Beyond the 1 MHz band, a resolution bandwidth of 1 MHz shall be used. A narrower resolution bandwidth can be used, provided that the measured power is integrated over the full required measurement bandwidth of 1 MHz, or 1% or 2% of the occupied bandwidth, as applicable.
Equipment shall comply with the following unwanted emission limits:
for base station and fixed subscriber equipment, the power of any unwanted emissions measured as above shall be attenuated (in dB) below the transmitter power, P (dBW), by at least 43 + 10 log10 p for mobile subscriber equipment, the power of any unwanted emissions measured as above shall be attenuated (in dB) below the transmitter power, P (dBW), by at least:

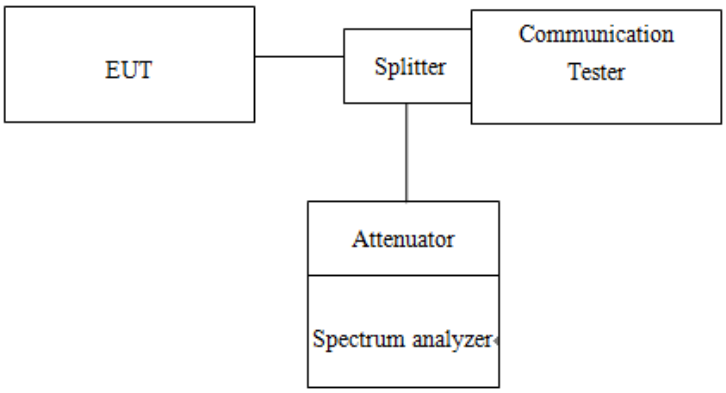
40 + 10 log10 p from the channel edges to 5 MHz away

43 + 10 log10 p between 5 MHz and X MHz from the channel edges, and

55 + 10 log10 p at X MHz and beyond from the channel edges

In addition, the attenuation shall not be less than 43 + 10 log10 p on all frequencies between 2490.5 MHz and 2496 MHz, and 55 + 10 log10 p at or below 2490.5 MHz.
In (a) and (b), p is the transmitter power measured in watts and X is 6 MHz or the equipment occupied bandwidth, whichever is greater.

9.2 Test SET-UP



9.3 Measurement Procedure

9.3.1 Conducted Emission

The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation The resolution bandwidth of the spectrum analyzer was set at 1MHz, sufficient scans were taken to show the out of band Emissions if any up to 10th harmonic.

1. To connect Antenna Port of EUT to Spectrum.
2. Set RBW = 1MHz & VBW = 1MHz on Spectrum.
3. Allow trace to fully stabilize
4. Repeat above procedures until all default test channel measured were complete.

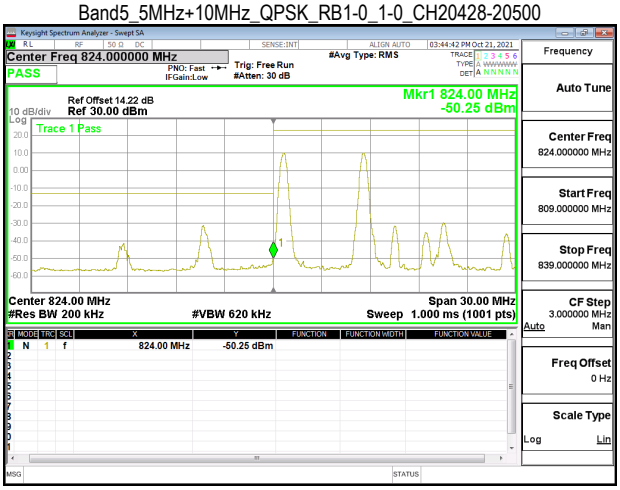
9.3.2 Band Edge or Mask

1. To connect Antenna Port of EUT to Spectrum.
2. The band edge of low and high channels for the highest RF powers was measured. Setting RBW ≥ 1% EBW.
3. Allow trace to fully stabilize
4. Repeat above procedures until all default test channel measured were complete.

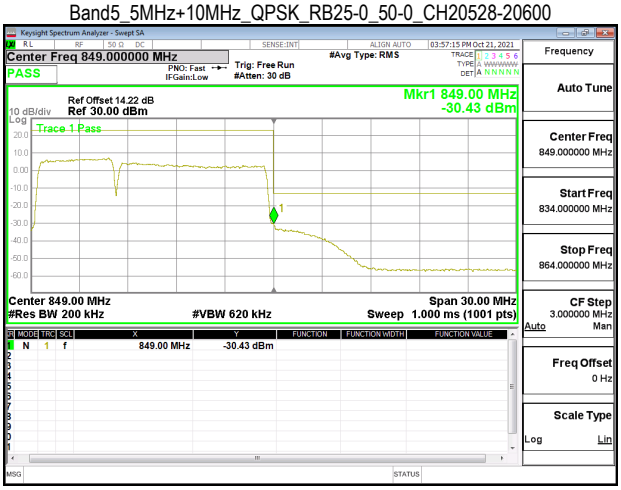
9.4 Band Edge Measurement Result:

Refer to next pages.

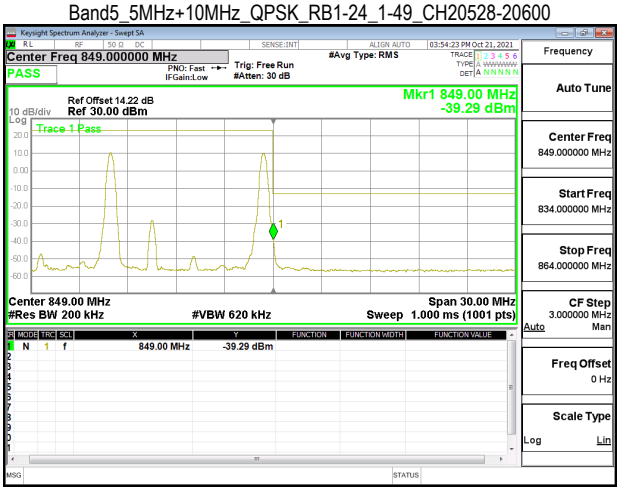
Band5_5MHz+10MHz_QPSK_RB1-0_1-0_CH20428-20500



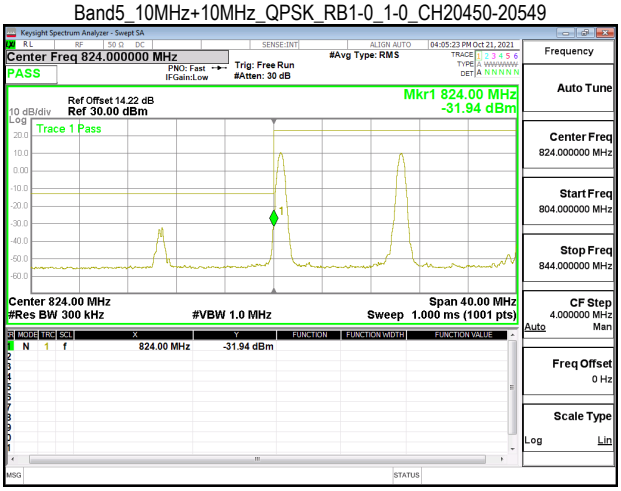
Band5_5MHz+10MHz_QPSK_RB25-0_50-0_CH20528-20600



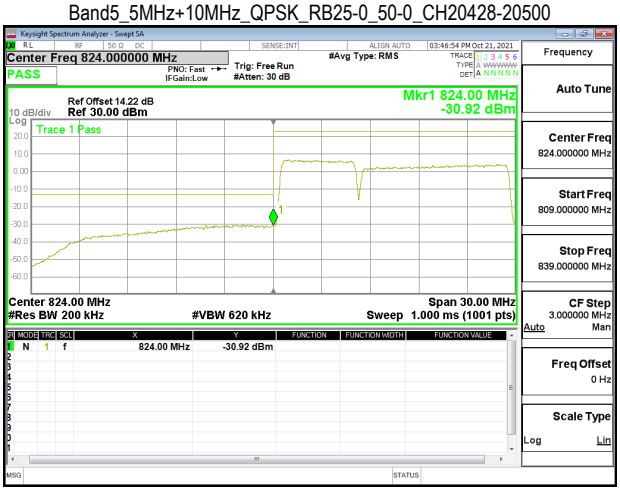
Band5_5MHz+10MHz_QPSK_RB1-24_1-49_CH20528-20600



Band5_10MHz+10MHz_QPSK_RB1-0_1-0_CH20450-20549



Band5_5MHz+10MHz_QPSK_RB25-0_50-0_CH20428-20500



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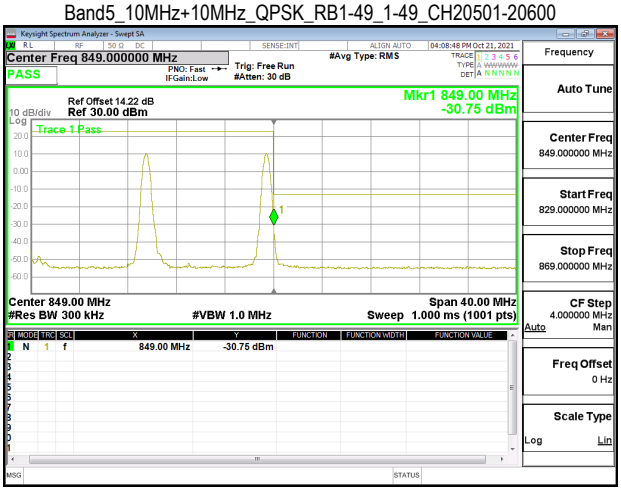
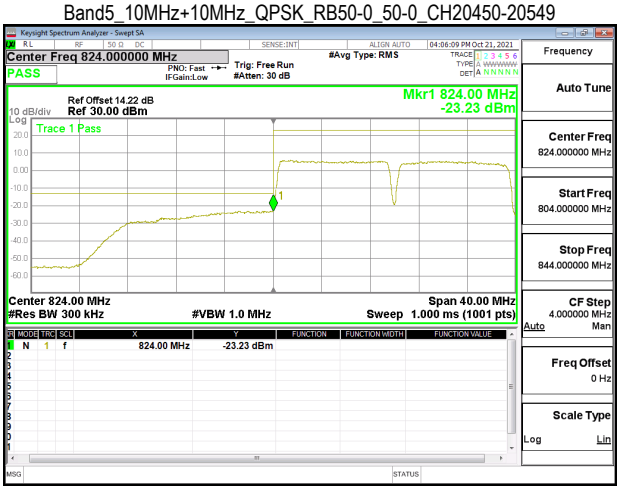
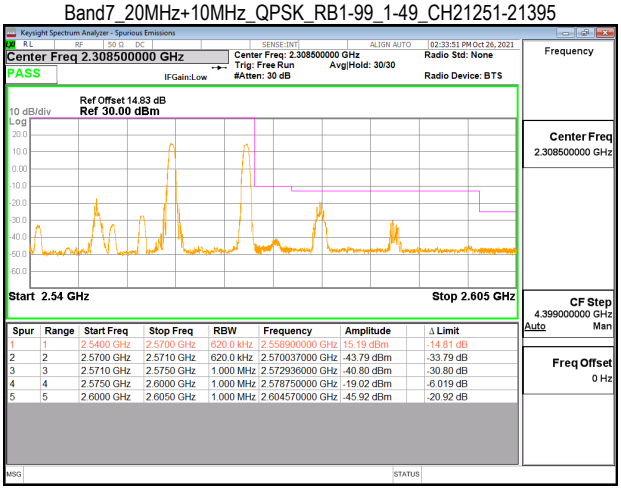


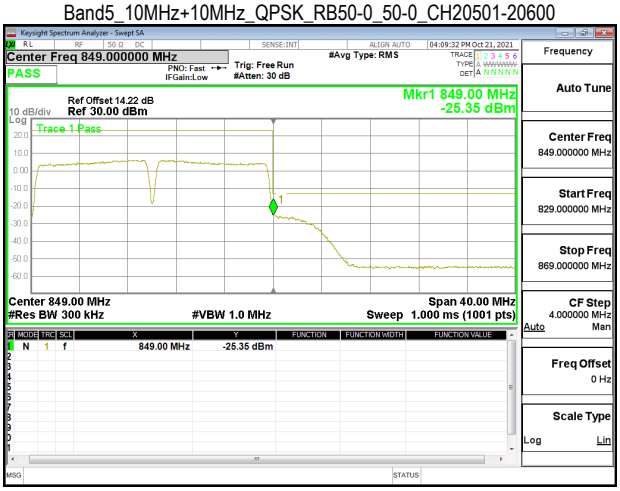
Band5_10MHz+10MHz_QPSK_RB50-0_50-0_CH20450-20549



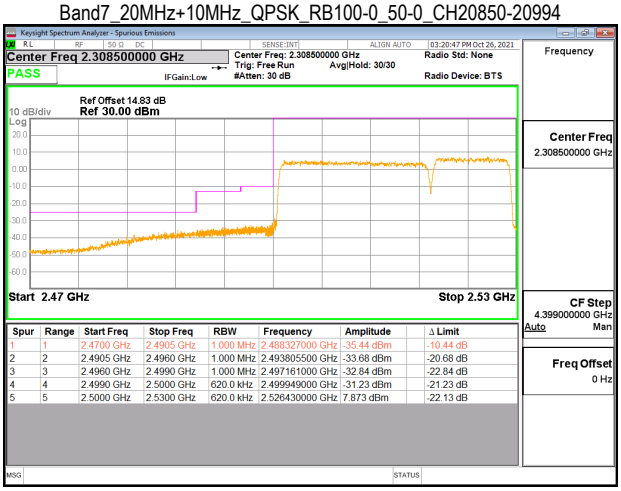
Band7_20MHz+10MHz_QPSK_RB1-99_1-49_CH21251-21395



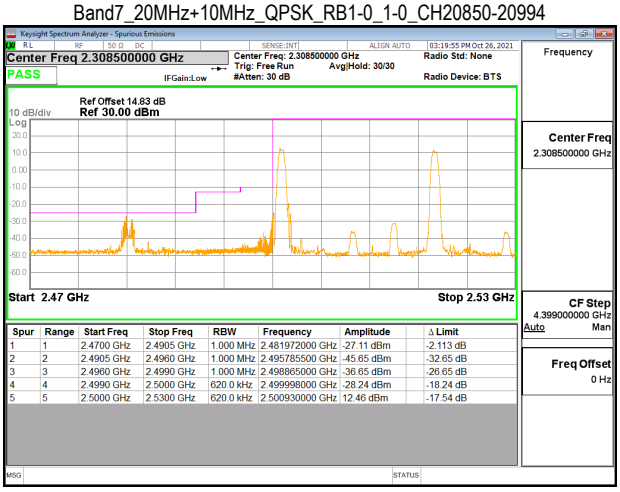
Band5_10MHz+10MHz_QPSK_RB50-0_50-0_CH20501-20600



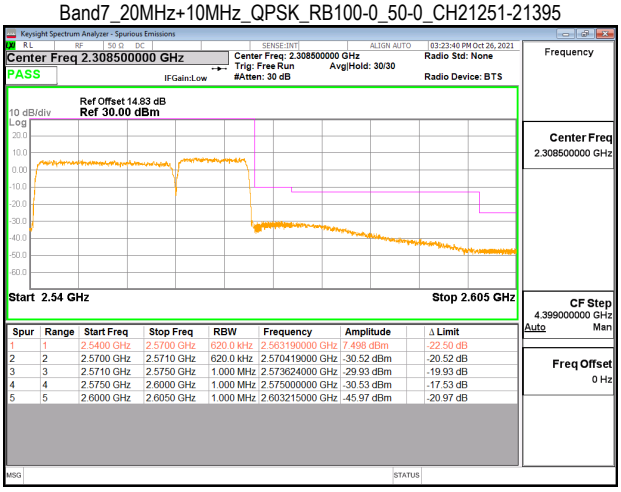
Band7_20MHz+10MHz_QPSK_RB100-0_50-0_CH20850-20994



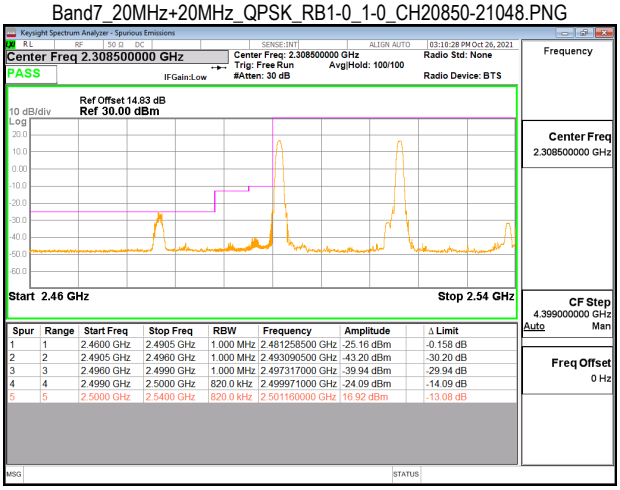
Band7_20MHz+10MHz_QPSK_RB1-0_1-0_CH20850-20994



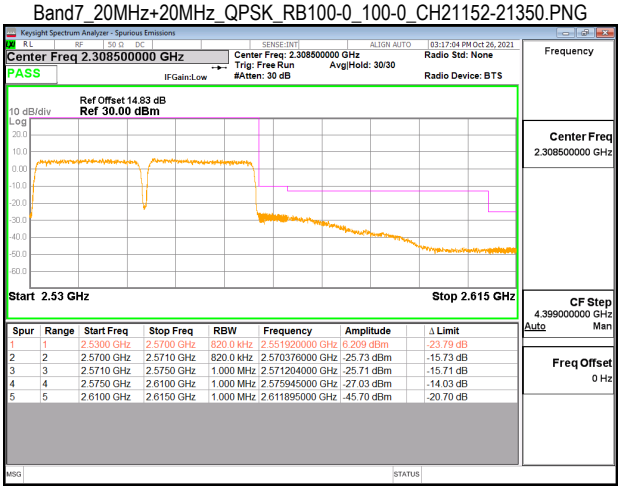
Band7_20MHz+10MHz_QPSK_RB100-0_50-0_CH21251-21395



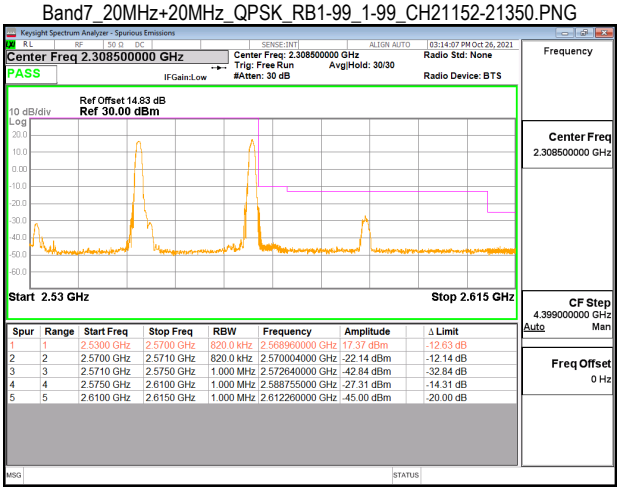
Band7_20MHz+20MHz_QPSK_RB1-0_1-0_CH20850-21048.PNG



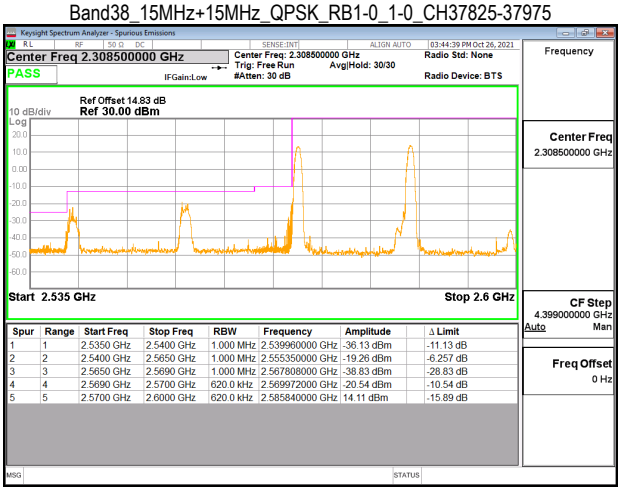
Band7_20MHz+20MHz_QPSK_RB100-0_100-0_CH21152-21350.PNG



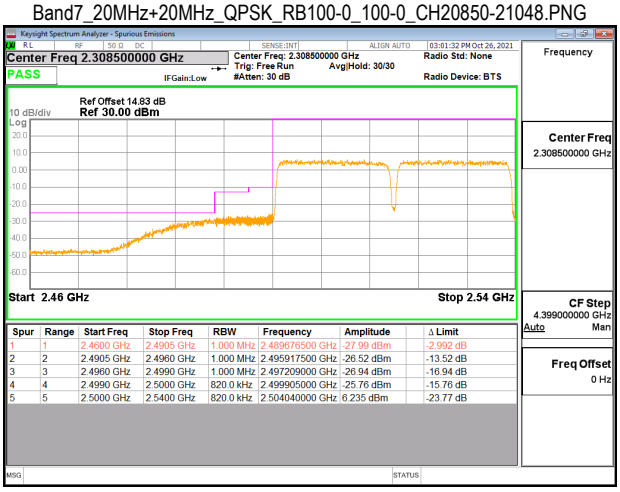
Band7_20MHz+20MHz_QPSK_RB1-99_1-99_CH21152-21350.PNG



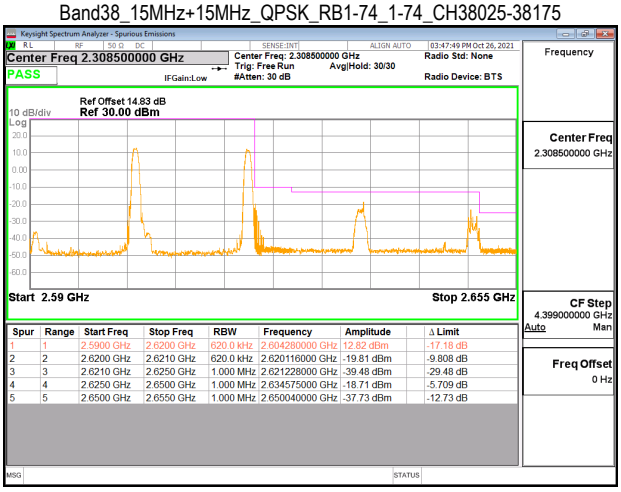
Band38_15MHz+15MHz_QPSK_RB1-0_1-0_CH37825-37975



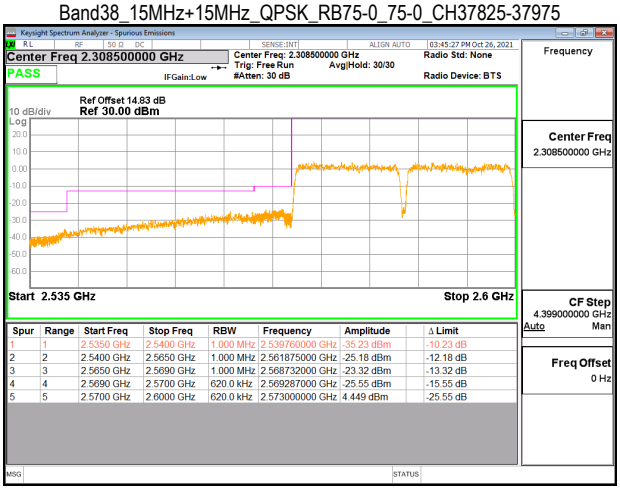
Band7_20MHz+20MHz_QPSK_RB100-0_100-0_CH20850-21048.PNG



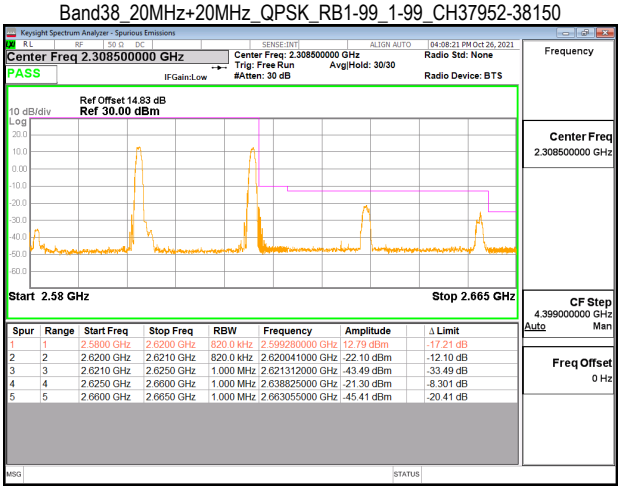
Band38_15MHz+15MHz_QPSK_RB1-74_1-74_CH38025-38175



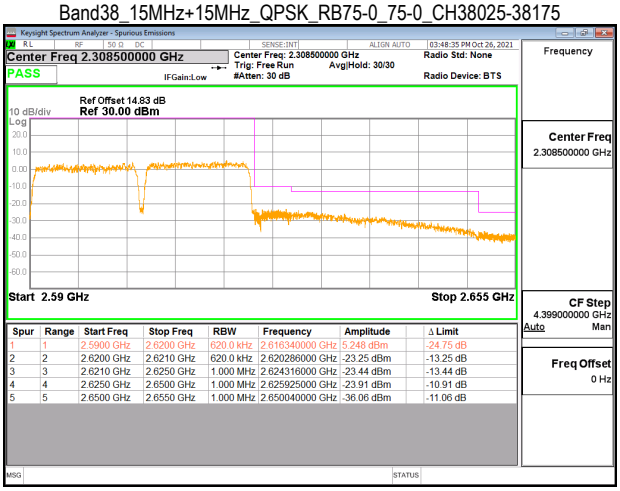
Band38_15MHz+15MHz_QPSK_RB75-0_75-0_CH37825-37975



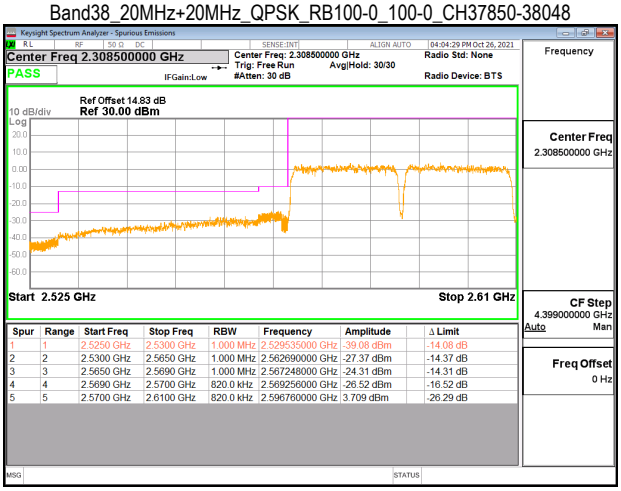
Band38_20MHz+20MHz_QPSK_RB1-99_1-99_CH37952-38150



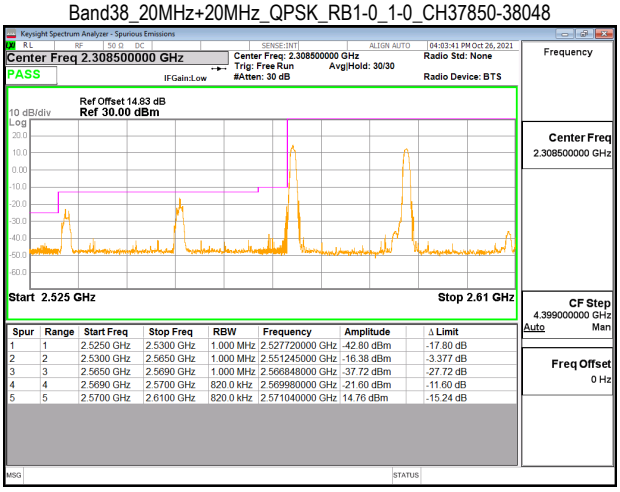
Band38_15MHz+15MHz_QPSK_RB75-0_75-0_CH38025-38175



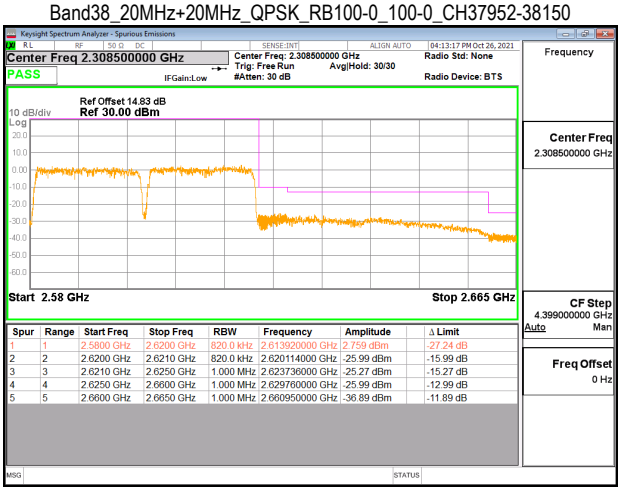
Band38_20MHz+20MHz_QPSK_RB100-0_100-0_CH37850-38048



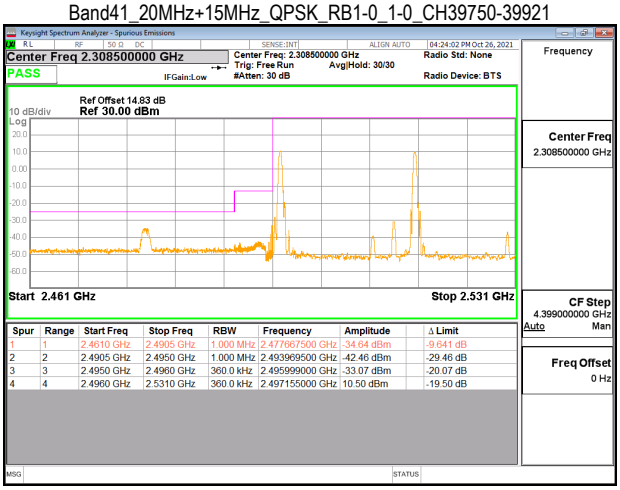
Band38_20MHz+20MHz_QPSK_RB1-0_1-0_CH37850-38048



Band38_20MHz+20MHz_QPSK_RB100-0_100-0_CH37952-38150

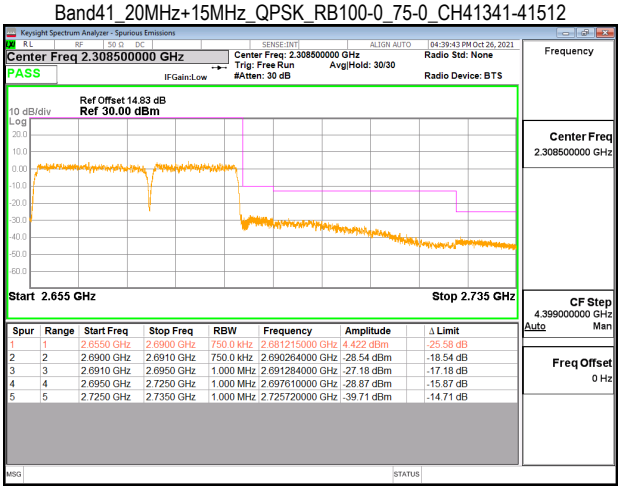


Band41_20MHz+15MHz_QPSK_RB1-0_1-0_CH39750-39921



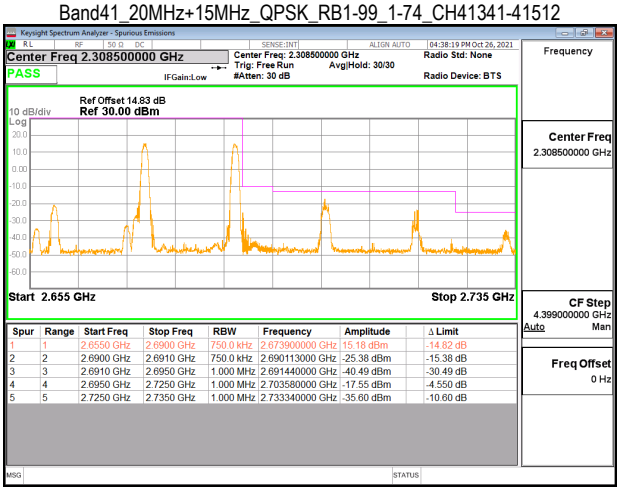
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4610 GHz	2.4905 GHz	1.000 MHz	2.477667500 GHz	-34.64 dBm	-9.641 dB
2	2	2.4905 GHz	2.4950 GHz	1.000 MHz	2.493969500 GHz	-42.46 dBm	-29.46 dB
3	3	2.4950 GHz	2.4960 GHz	360.0 kHz	2.495999000 GHz	-33.07 dBm	-20.07 dB
4	4	2.4960 GHz	2.5310 GHz	360.0 kHz	2.497155000 GHz	10.50 dBm	-19.50 dB

Band41_20MHz+15MHz_QPSK_RB100-0_75-0_CH41341-41512



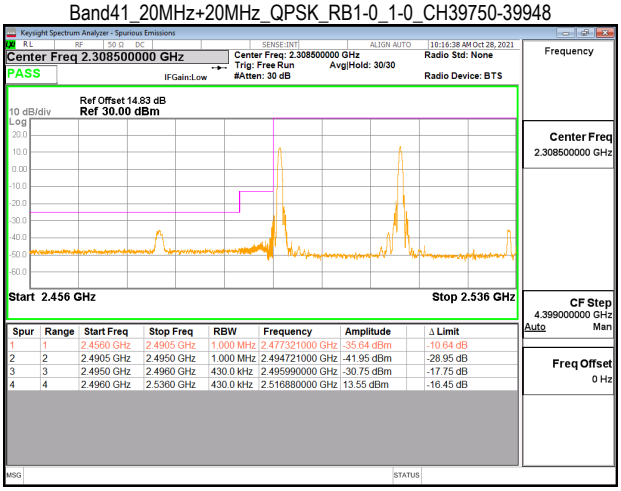
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.6550 GHz	2.6900 GHz	750.0 kHz	2.681215000 GHz	4.422 dBm	-25.58 dB
2	2	2.6900 GHz	2.6910 GHz	750.0 kHz	2.690264000 GHz	-28.54 dBm	-18.54 dB
3	3	2.6910 GHz	2.6950 GHz	1.000 MHz	2.691284000 GHz	-27.18 dBm	-17.18 dB
4	4	2.6950 GHz	2.7250 GHz	1.000 MHz	2.697610000 GHz	-28.87 dBm	-15.87 dB
5	5	2.7250 GHz	2.7350 GHz	1.000 MHz	2.725720000 GHz	-39.71 dBm	-14.71 dB

Band41_20MHz+15MHz_QPSK_RB1-99_1-74_CH41341-41512



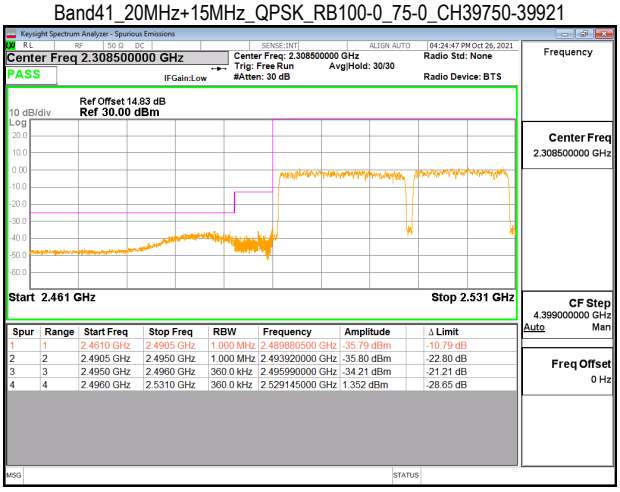
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.6550 GHz	2.6900 GHz	750.0 kHz	2.673900000 GHz	15.18 dBm	-14.82 dB
2	2	2.6900 GHz	2.6910 GHz	750.0 kHz	2.690113000 GHz	-25.38 dBm	-15.38 dB
3	3	2.6910 GHz	2.6950 GHz	1.000 MHz	2.691440000 GHz	-40.49 dBm	-30.49 dB
4	4	2.6950 GHz	2.7250 GHz	1.000 MHz	2.703580000 GHz	-17.55 dBm	-4.550 dB
5	5	2.7250 GHz	2.7350 GHz	1.000 MHz	2.733340000 GHz	-35.60 dBm	-10.60 dB

Band41_20MHz+20MHz_QPSK_RB1-0_1-0_CH39750-39948



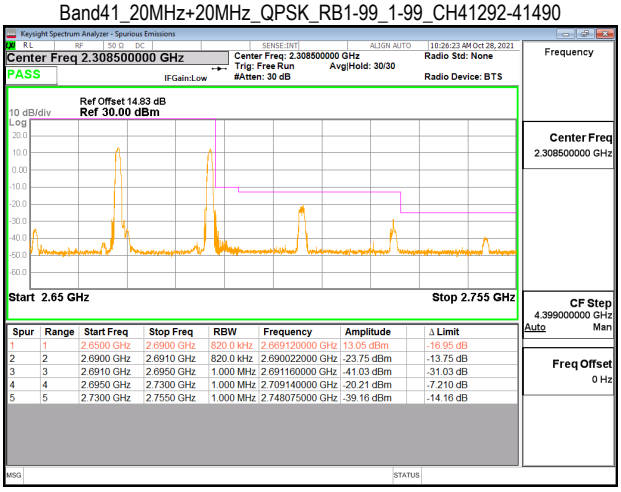
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4560 GHz	2.4905 GHz	1.000 MHz	2.477321000 GHz	-35.64 dBm	-10.64 dB
2	2	2.4905 GHz	2.4950 GHz	1.000 MHz	2.494721000 GHz	-41.95 dBm	-28.95 dB
3	3	2.4950 GHz	2.4960 GHz	430.0 kHz	2.495990000 GHz	-30.75 dBm	-17.75 dB
4	4	2.4960 GHz	2.5360 GHz	430.0 kHz	2.516880000 GHz	13.55 dBm	-16.45 dB

Band41_20MHz+15MHz_QPSK_RB100-0_75-0_CH39750-39921



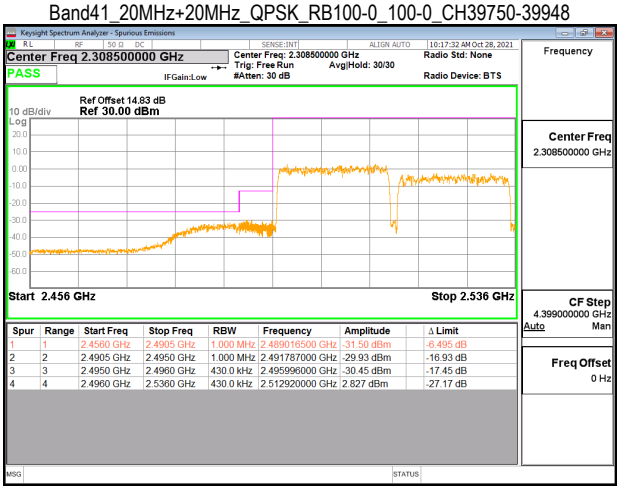
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4610 GHz	2.4905 GHz	1.000 MHz	2.489880500 GHz	-35.79 dBm	-10.79 dB
2	2	2.4905 GHz	2.4950 GHz	1.000 MHz	2.493920000 GHz	-35.80 dBm	-22.80 dB
3	3	2.4950 GHz	2.4960 GHz	360.0 kHz	2.495990000 GHz	-34.21 dBm	-21.21 dB
4	4	2.4960 GHz	2.5310 GHz	360.0 kHz	2.529145000 GHz	1.352 dBm	-28.65 dB

Band41_20MHz+20MHz_QPSK_RB1-99_1-99_CH41292-41490

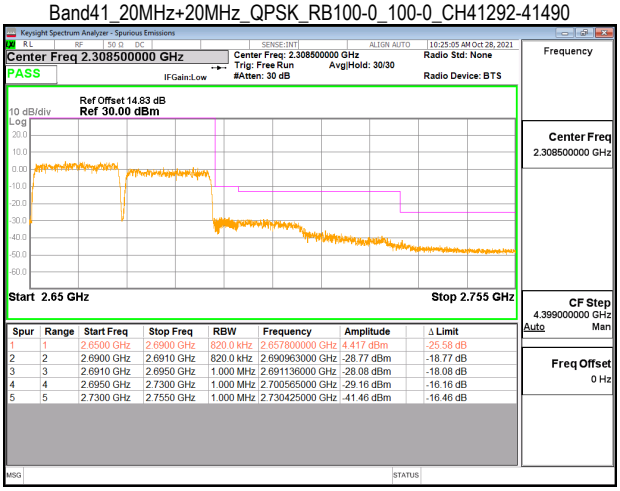


Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.6500 GHz	2.6900 GHz	820.0 kHz	2.669120000 GHz	13.05 dBm	-16.95 dB
2	2	2.6900 GHz	2.6910 GHz	820.0 kHz	2.690022000 GHz	-23.75 dBm	-13.75 dB
3	3	2.6910 GHz	2.6950 GHz	1.000 MHz	2.691160000 GHz	-41.03 dBm	-31.03 dB
4	4	2.6950 GHz	2.7300 GHz	1.000 MHz	2.709140000 GHz	-20.21 dBm	-7.210 dB
5	5	2.7300 GHz	2.7550 GHz	1.000 MHz	2.748075000 GHz	-39.16 dBm	-14.16 dB

Band41_20MHz+20MHz_QPSK_RB100-0_100-0_CH39750-39948



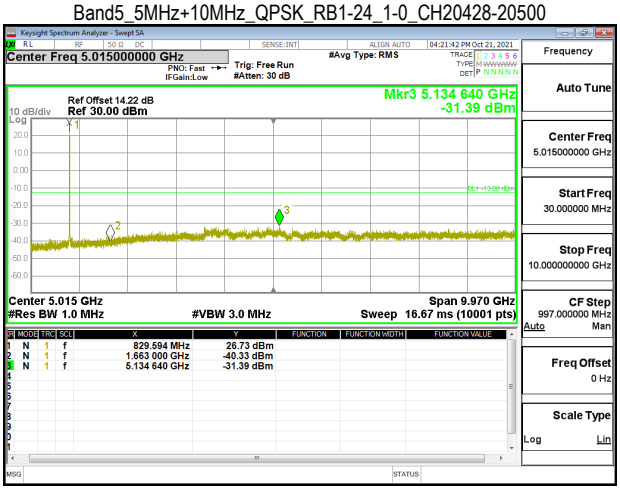
Band41_20MHz+20MHz_QPSK_RB100-0_100-0_CH41292-41490



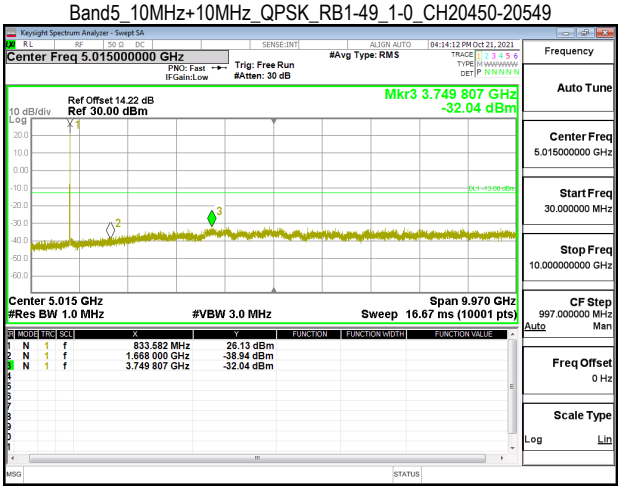
9.5 Spurious Emisson Measurement Result:

Refer to next pages.

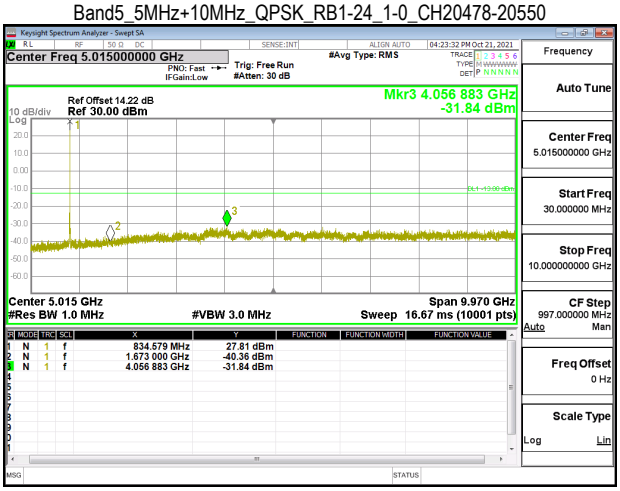
Band5_5MHz+10MHz_QPSK_RB1-24_1-0_CH20428-20500



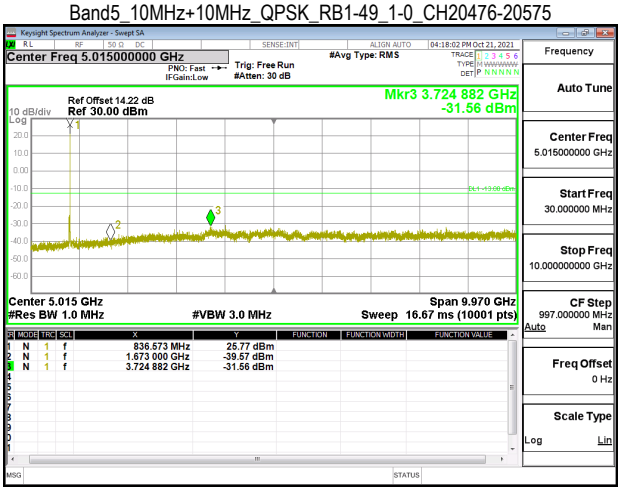
Band5_10MHz+10MHz_QPSK_RB1-49_1-0_CH20450-20549



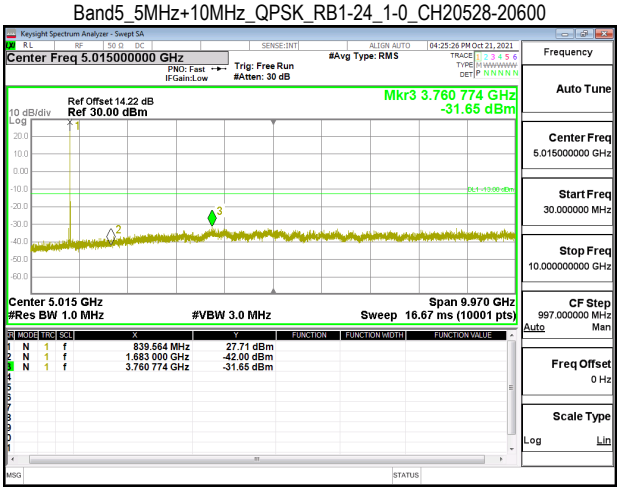
Band5_5MHz+10MHz_QPSK_RB1-24_1-0_CH20478-20550



Band5_10MHz+10MHz_QPSK_RB1-49_1-0_CH20476-20575



Band5_5MHz+10MHz_QPSK_RB1-24_1-0_CH20528-20600



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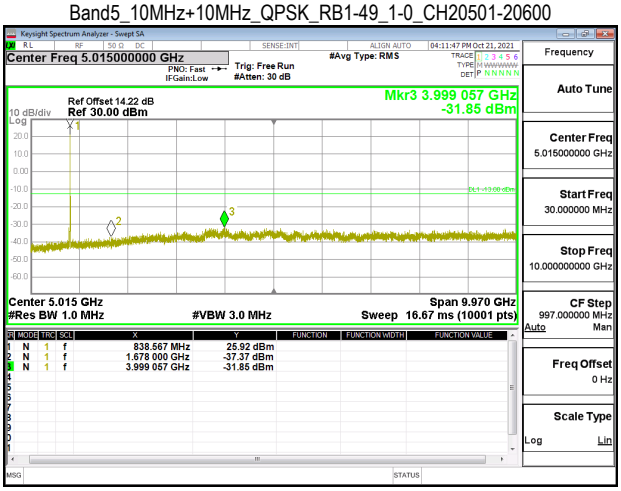
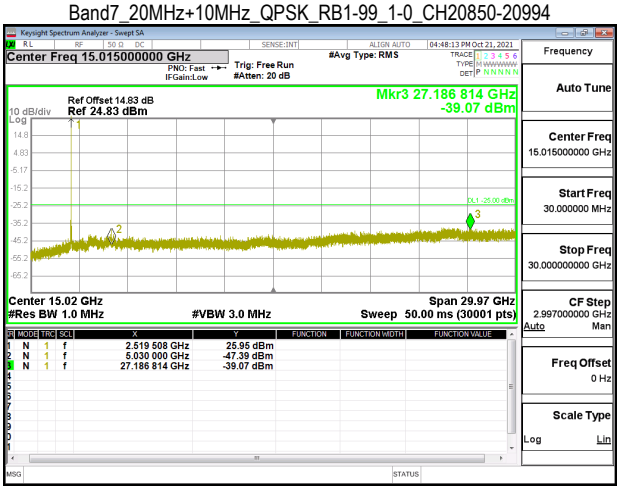
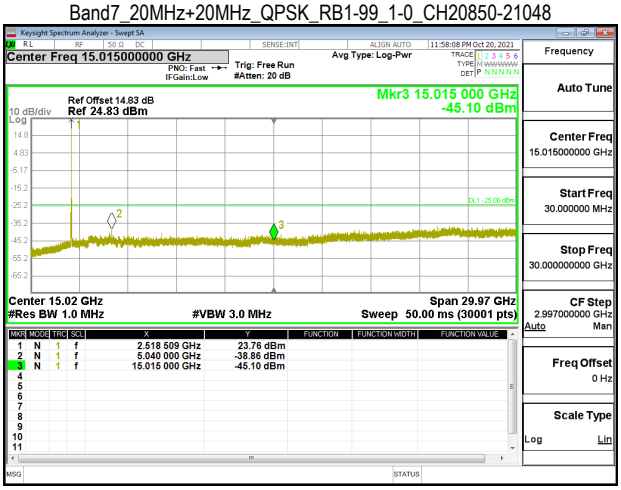


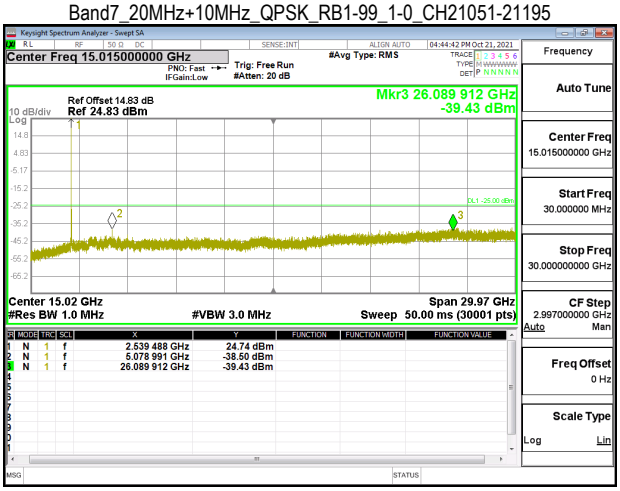
Band7_20MHz+10MHz_QPSK_RB1-99_1-0_CH20850-20994



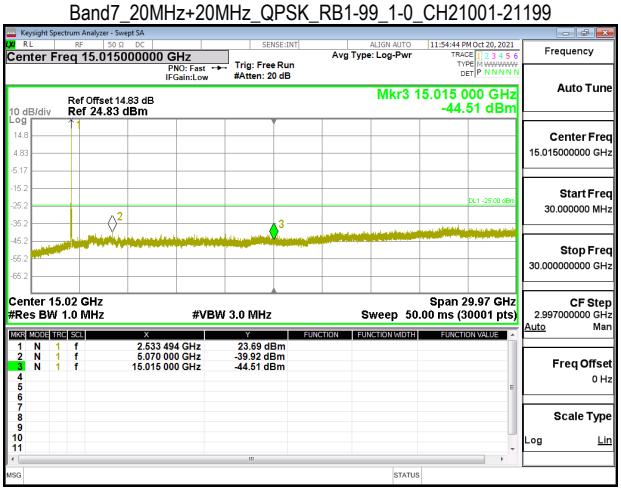
Band7_20MHz+20MHz_QPSK_RB1-99_1-0_CH20850-21048



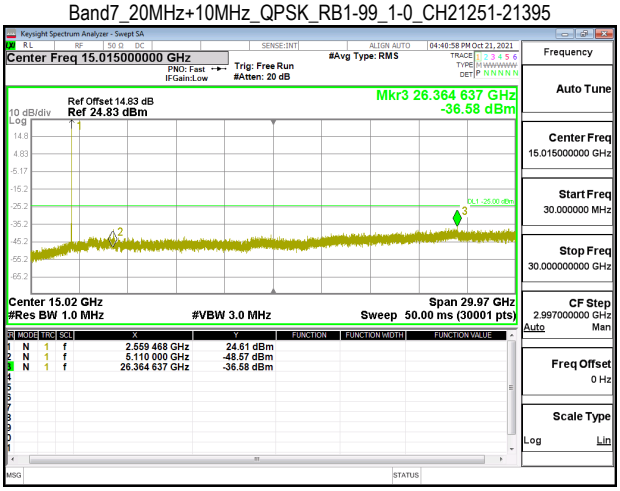
Band7_20MHz+10MHz_QPSK_RB1-99_1-0_CH21051-21195



Band7_20MHz+20MHz_QPSK_RB1-99_1-0_CH21001-21199



Band7_20MHz+10MHz_QPSK_RB1-99_1-0_CH21251-21395



Band7_20MHz+20MHz_QPSK_RB1-99_1-0_CH21152-21350