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# **ELECTROMAGNETIC EMISSIONS** COMPLIANCE REPORT





Applicant: Quanta Computer Inc.

No. 188, Wenhua 2nd Road, Guishan District, Taoyuan City

33377, Taiwan

**Product Name:** Clover Station Solo

**Brand Name:** clover Model No.: C501

**Model Difference:** N/A

**Report Number:** E2/2021/70039

**FCC ID** HFS-C501F

Issue Date: August 24, 2021

**Date of Test:** July 16, 2021 ~ August 13, 2021

Date of EUT Received: July 15, 2021

Approved By Jan L

### 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 2,24E & 27 C.

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

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Revision History									
Report Number	Revision	Description	Issue Date	Revised By					
E2/2021/70039	00	Original	August 24, 2021	Ariel Chang					

### Note:

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# **GENERAL PRODUCT INFORMATION**

#### 1.1 **Product Description**

Product Name:	Clover Station Solo
Brand Name:	clover
Model No.:	C501
Model Difference:	N/A
Hardware Version:	N/A
Firmware Version:	N/A
EUT Series No.:	C051UQ12570003
Power Supply:	24V from AC/DC Adapter or 3.8V from Rechargeable Li-ion Polymer Battery

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#### 1.2 **Operation Frequency Range**

LTE Band 2							
BW (MHz)	Operation Frequency (MHz)						
1.4	1850.7	-	1909.3				
3	1851.5	-	1908.5				
5	1852.5	-	1907.5				
10	1855.0	-	1905.0				
15	1857.5	-	1902.5				
20	1860.0	-	1900.0				
	LTE Bar	nd 4					
BW (MHz)	Operation	Freque	ency (MHz)				
1.4	1710.7	-	1754.3				
3	1711.5	-	1753.5				
5	1712.5	-	1752.5				
10	1715.0	-	1750.0				
15	1717.5	-	1747.5				
20	1720.0	-	1745.0				

LTE Band 12								
BW (MHz)	Operation Frequency (MHz)							
1.4	699.7	-	715.3					
3	700.5	-	714.5					
5	701.5	-	713.5					
10	704.0	-	711.0					
	LTE Band 17							
BW (MHz)	Operation	Freque	ency (MHz)					
5	706.5	-	713.5					
10	709.0	-	711.0					
	LTE Ban	d 66						
BW (MHz)	Operation	Freque	ency (MHz)					
1.4	1710.7	-	1779.3					
3	1711.5	-	1778.5					
5	1712.5	-	1777.5					
10	1715.0	-	1775.0					
15	1717.5	-	1772.5					
20	1720.0	-	1770.0					

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# 1.3 Antenna Designation

Antenna Type	Antenna Model No.					
PIFA	Ant0					
Note: Transmission	<b>Note:</b> Transmission in frequencies in this test report are only available by the above antenna(s).					

Туре	Modulation	Frequency (MHz)		Peak Antenna Gain (dBi)
				Ant0
	LTE-Band 2	1850	~ 1910	1.89
	LTE-Band 4	1710	~ 1755	1.83
PIFA	LTE-Band 12	699	~ 716	-0.63
-	LTE-Band 17	704	~ 716	-0.63
	LTE-Band 66	1710	~ 1780	1.83

Note: Antenna information is provided by the applicant.

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

1.75			ERP / I	TIDD			Typo of
LTE	BW	Modulation			(W)	99%	Type of
Band			(dBr	n)	( · · /		Emission
2	1.4	QPSK	24.11	EIRP	0.258	1.0899	1M09G7D
2	1.4	16QAM	22.94	EIRP	0.197	1.0897	1M09D7W
2	3	QPSK	24.15	EIRP	0.260	2.6932	2M69G7D
	7	16QAM	22.60	EIRP	0.182	2.6922	2M69D7W
2	2 5	QPSK	24.18	EIRP	0.262	4.5078	4M51G7D
	3	16QAM	23.61	EIRP	0.230	4.4945	4M49D7W
2	10	QPSK	24.28	EIRP	0.268	8.9831	8M98G7D
2	10	16QAM	23.30	EIRP	0.214	3.0906	3M09D7W
2	15	QPSK	24.33	EIRP	0.271	13.445	13M4G7D
2	13	16QAM	22.87	EIRP	0.194	3.227	3M23D7W
2	20	QPSK	24.09	EIRP	0.256	17.940	17M9G7D
2	20	16QAM	23.15	EIRP	0.207	3.775	3M77D7W

LTE Band	BW	Modulation		ERP/EIRP (dBm)		99%	Type of Emission
4	1.4	QPSK	24.28	EIRP	0.268	1.0907	1M09G7D
4	1.4	16QAM	22.86	EIRP	0.193	1.0884	1M09D7W
4	3	QPSK	24.06	EIRP	0.255	2.7105	2M71G7D
4	7	16QAM	22.57	EIRP	0.181	2.6937	2M69D7W
4	5	QPSK	24.26	EIRP	0.267	4.5062	4M51G7D
4	3	16QAM	23.29	EIRP	0.213	4.4938	4M49D7W
4	10	QPSK	24.49	EIRP	0.281	8.9784	8M98G7D
4	10	16QAM	22.54	EIRP	0.179	3.0635	3M06D7W
4	4 15	QPSK	24.43	EIRP	0.277	13.4380	13M4G7D
4		16QAM	22.71	EIRP	0.187	3.2163	3M22D7W
4	20	QPSK	24.36	EIRP	0.273	17.9060	17M9G7D
4	20	16QAM	22.96	EIRP	0.198	3.7769	3M78D7W

LTE Band	BW	Modulation	ERP / E		(W)	99%	Type of Emission
12	1.4	QPSK	19.63	ERP	0.092	1.0905	1M09G7D
12	1.4	16QAM	18.32	ERP	0.068	1.0887	1M09D7W
12	3	QPSK	19.64	ERP	0.092	2.6907	2M69G7D
12	7	16QAM	18.70	ERP	0.074	2.6924	2M69D7W
12	5	QPSK	19.65	ERP	0.092	4.4967	4M50G7D
12 5	5	16QAM	18.16	ERP	0.065	4.4924	4M49D7W
12	10	QPSK	19.70	ERP	0.093	8.9803	8M98G7D
12		16QAM	18.23	ERP	0.067	3.0436	3M04D7W

LTE Band	BW	Modulation	ERP / EIRP (dBm)		(W)	99%	Type of Emission
17	5	QPSK	19.76	ERP	0.095	4.4999	4M50G7D
1/ 5	3	16QAM	18.50	ERP	0.071	4.4941	4M49D7W
17 10	QPSK	19.88	ERP	0.097	8.9907	8M99G7D	
	10	16QAM	18.70	ERP	0.074	3.0396	3M04D7W

LTE Band	BW	Modulation	ERP / I (dBr		(W)	99%	Type of Emission			
66	1.4	QPSK	23.76	EIRP	0.238	1.0905	1M09G7D			
00	1.4	16QAM	22.66	EIRP	0.185	1.0902	1M09D7W			
66	3	QPSK	23.96	EIRP	0.249	2.6962	2M70G7D			
00	3	3	3	3	16QAM	22.86	EIRP	0.193	2.6935	2M69D7W
66	5	QPSK	24.02	EIRP	0.252	4.5034	4M50G7D			
00	3	16QAM	22.67	EIRP	0.185	4.4931	4M49D7W			
66	10	QPSK	24.38	EIRP	0.274	8.9573	8M96G7D			
00	10	16QAM	23.20	EIRP	0.209	3.0322	3M03D7W			
66	15	QPSK	24.52	EIRP	0.283	13.4310	13M4G7D			
00	15	16QAM	22.75	EIRP	0.188	3.1834	3M18D7W			
4.6	20	QPSK	24.16	EIRP	0.261	17.8850	17M9G7D			
66	20	16QAM	22.97	EIRP	0.198	3.7367	3M74D7W			

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# **Test Methodology of Applied Standards**

FCC 47 CFR Part 2, 24E, 27C.

ISED RSS-130 Issue 2 Feb. 2019,

ISED RSS-133 Issue 6, Amendment 1 Jan. 18, 2018,

ISED RSS-139 Issue 3 July 16, 2015

ANSI C63.26-2015

KDB971168 D01 Power Meas license Digital System v03r01

KDB412172 D01 Determining ERP and EIRP v01r01

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#### 1.6 **Test Facility**

Laboratory	Test Site Address	Test Site Name	FCC Designa- tion number	IC CAB identifier			
		SAC 1					
		SAC 3					
		Conduction 1					
	No.134, Wu Kung Road, New Taipei	Conducted 1					
	Industrial Park, Wuku District, New	Conducted 2	TW0027				
	Taipei City, Taiwan.	Conducted 3					
		Conducted 4					
		Conducted 5					
SGS Taiwan Ltd.		Conducted 6					
Central RF Lab.		Conduction C		TW3702			
(TAF code 3702)		SAC C		1003702			
(1A1 code 3702)		SAC D					
		SAC G					
	No.2, Keji 1st Rd., Guishan District,	Conducted A					
	Taoyuan City, Taiwan 333	Conducted B	TW0028				
	ladydair Gity, Taiwair 555	Conducted C					
		Conducted D					
		Conducted E					
		Conducted F					
		Conducted G					

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#### 1.7 **Special Accessories**

No special accessories were used during testing.

## **Equipment Modifications**

result came out very similar.

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\*9m\*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

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### 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)	3.7	10	13.7
MB(1GHz - 2GHz)	3.9	10	13.9

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#### 2.5 **Final Amplifier Voltage and Current Information:**

Test Mode	DC voltage (V)	DC current (mA)
LTE Band 2		0.65
LTE Band 4		0.69
LTE Band 12	24	0.63
LTE Band 17		0.61
LTE Band 66		0.66

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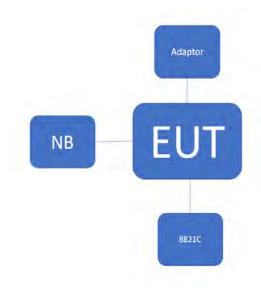
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#### 2.6 **Test Configuration**

#### 2.6.1 **Conducted Emission at the Antenna Port**



#### 2.6.2 **Radiated Emission**



#### 2.6.3 **Equipment used for test**

Equipment	Mfr/Brand	Model/Type No.	Series No.
Test Software	android	N/A	V10
Notebook	Lenovo	T470	P0001293
Base station	Anritsu	MT8821C	6262044732
Adaptor	N/A	N/A	N/A

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# **SUMMARY OF TEST RESULTS**

FCC Rules	Description Of Test	Result
§2.1046(a)	RF Power Output	Compliant
§24.232(c) §27.50(c)(9)	ERP/ EIRP measurement	Compliant
§2.1049(h)	99% & 26dB Occupied Bandwidth	Compliant
§2.1051 §27.53(g)	Out of Band Emissions at Antenna Terminals and Band Edge / Emission mask requirements	Compliant
§2.1053	Field Strength of Spurious Radiation	Compliant
§24.232(d)	Peak to Average Ratio	Compliant
§2.1055(a)(1)	Frequency Stability	Compliant

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## **DESCRIPTION OF TEST MODES**

#### 4.1 The Worst Test Modes and Channel Details

- 1. The EUT has been tested under operating condition.
- 2. Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, X(E1)Y(E2)Z(H) axis and antenna ports. The worst case was found as listed below. Following channel(s) was (were) selected for the final test as listed below:

BAND	H PLANE	E1 PLANE	E2 PLANE
LTE Band 2	V		
LTE Band 4	V		
LTE Band 12	V		
LTE Band 17	V		
LTE Band 66	V		

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# 4.2 Measurement Configuration

Test Items	Band	Tes	st Chanr	nel		E	Bandwid	th (MHz	)		Modulation			RB#	
rest items - E	Dallu	L	М	Н	1.4	3	5	10	15	20	QPSK	16QAM	1	Half	Full
	2	V	V	V	V	V	V	V	V	V	V	V	V	V	V
May Output	4	V	V	V	V	V	V	V	V	V	V	V	V	V	V
Max. Output Power	12	V	V	V	V	V	V	V	-	-	V	V	V	V	V
I OWEI	17	V	V	V	-	-	V	V	-	-	V	V	V	V	V
	66	V	٧	V	V	V	V	V	V	V	٧	V	V	٧	V
	2		V					V			V				V
Erogopov	4		V					V			V				V
Freqency Stability	12		V					V	-	-	V				V
Stability	17		V		-	-		V	-	-	V				V
	66		V					V			V				V

Toot Itomo	Dond	Tes	st Chanr	nel		E	Bandwid	th (MHz	)		Modulation		RB#		
Test Items	Band	L	М	Н	1.4	3	5	10	15	20	QPSK	16QAM	1	Half	Full
26dB and 99% Bandwidth	2	V	V	V	V	V	V	V	V	V	V	V			V
	4	V	V	V	V	V	V	V	V	V	V	V			V
	12	V	V	V	V	V	V	V	-	-	V	V			V
	17	V	V	V	-	-	V	V	-	-	V	V			V
	66	V	V	V	V	V	V	V	V	V	V	V			V
	2	V	V	V	V	V	V	V	V	V		V			V
Peak-to-Av	4	V	V	V	V	V	V	V	V	V		V			V
erage Ratio	12	V	V	V	V	V	V	V	-	-		V			V
erage Ratio	17	V	V	V	-	-	V	V	-	-		V		·	V
	66	V	V	V	V	V	V	V	V	V		V			V

Toot Itomo	Dand	Test Channel			E	3andwid	Bandwidth (MHz)						RB#		
Test Items	Band	L	М	Н	1.4	3	5	10	15	20	QPSK	16QAM	1	Half	Full
	2	V		V	V	V	V	V	V	V	٧		V		V
	4	V		V	V	V	V	V	V	V	٧		V		V
Band Edge	12	V		V	V	V	V	V	-	-	٧		V		V
	17	V		V	-	-	V	V	-	-	V		V		V
	66	V		V	V	V	V	V	V	V	٧		V		V
	2	V	٧	V	V	V	V	V	V	V	٧		V		
Conducted	4	V	V	V	V	V	V	V	V	V	V		V		
Emission	12	V	V	V	V	V	V	V	-	-	V		V		
EIIIISSIUII	17	V	V	V	-	-	V	V	-	-	V		V	·	
	66	V	V	V	V	V	V	V	V	V	V		V		

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# **5 MEASUREMENT UNCERTAINTY**

Test Items	Und	Uncertainty				
RF Power Output	+/-	1	dB			
ERP/ EIRP measurement	+/-	3	dB			
ERF/ EIRF measurement	+/-	3	dB			
Emission Bandwidth	+/-	1.53	Hz			
Out of Band Emissions at Antenna Terminals and Band Edge	+/-	1.69	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									
	+/-	2.64	dB	9kHz~30MHz					
Polarization: Vertical	+/-	4.93	dB	30MHz - 1000MHz					
Polarization: Vertical	+/-	4.81	dB	1GHz - 18GHz					
	+/-	4.52	dB	18GHz - 40GHz					
	+/-	2.64	dB	9kHz~30MHz					
Polarization: Horizontal	+/-	4.45	dB	30MHz - 1000MHz					
Folarization: Horizontal	+/-	4.81	dB	1GHz - 18GHz					
	+/-	4.52	dB	18GHz - 40GHz					

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

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## **6 MAXMUM OUTPUT POWER**

### 6.1 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.

### 6.1.1 ERP/EIRP LIMIT

According to FCC §2.1046

### FCC 24.232(c)

Mobile and portable stations are limited to 2 W EIRP.

### FCC 27.50(c)

(9) Control and mobile stations in the 698-746 MHz band are limited to 30 watts ERP.

## FCC 27.50(d)

(4) Mobile, and portable (hand-held) stations operating in the 1710-1755 MHz, 1695-1710 MHz and 1755-1780 MHz bands are limited to 1W EIRP.

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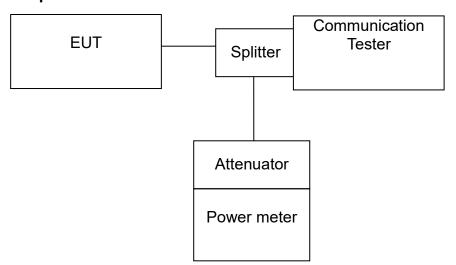
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#### 6.2 **Test Set-up**



Note: Measurement setup for testing on Antenna connector

#### 6.3 **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.

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.

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## 6.4 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<sub>C</sub> = signal attenuation in the connecting cable between the transmitter

and antenna, in dB.

### 6.5 Measurement Equipment Used

	Conducte	ed Emission Test Sit	e: Conducted	В	
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	KEYSIGHT	N9010A	MY51440113	07/13/2021	07/12/2022
Radio Communica- tion Analyer	Anritsu	MT8820C	6201107337	07/28/2021	07/27/2022
Attenuator	Marvelous	MVE2213-10	RF05	11/19/2020	11/18/2021
DC Block	PASTER- NACK	PE8210	RF157	11/19/2020	11/18/2021
Splitter	Woken	DOM35LW1A2	RF255	11/19/2020	11/18/2021
Coaxial Cables	Woken	00100A1F1A185C	RF54	11/19/2020	11/18/2021
Coaxial Cables	Woken	00100A1F1A185C	RF55	11/19/2020	11/18/2021
Coaxial Cables	Woken	00100A1F1A185C	RF71	11/19/2020	11/18/2021
Coaxial Cables	Woken	00100A1F1A185C	RF72	11/19/2020	11/18/2021
DC Power Supply	Agilent	E3640A	MY53140006	05/28/2021	05/27/2022
Temperature Chamber	TERCHY	MHK-120LK	1020582	07/01/2021	06/30/2022
Test Software	SGS	Radio Test Software	Ver.21	N.C.R	N.C.R
Radio Communica- tion Analyer	Anritsu	MT8820C	6201107337	07/28/2021	07/27/2022

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#### 6.6 **Measurement Results:**

Antenna	gain (dBi)	1.89							
		l	TE Band 2_Upl	ink frequ	ency bar	nd : 1850 to 1910	O MHz		
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	22.06	23.95	33	-9.05
	18607	1850.7	OPSK	1	5	22.22	24.11	33	-8.89
	10007	1030.7	QFSK	3	2	22.14	24.03	33	-8.97
				6	0	20.94	22.83	33	-10.17
				1	0	22.06	23.95	33	-9.05
1.4	18900	1880	QPSK	1	5	22.01	23.90	33	-9.1
1.4	10700	1000	QF3K	3	2	21.93	23.82	33	-9.18
				6	0	20.96	22.85	33	-10.15
				1	0	21.87	23.76	33	-9.24
	19193	1909.3	OPSK	1	5	21.83	23.72	33	-9.28
	17173	1707.5	QI SIK	3	2	21.81	23.70	33	-9.3
				6	0	20.60	22.49	33	-10.51
				1	0	20.83	22.72	33	-10.28
	18607	1850.7	16OAM	1	5	20.88	22.77	33	-10.23
	10007	1030.7	TOCAW	3	2	21.05	22.94	33	-10.06
				6	0	20.09	21.98	33	-11.02
				1	0	20.53	22.42	33	-10.58
1.4	18900	1880	16OAM	1	5	20.61	22.50	33	-10.5
1.4	10700	1000	IOQAW	3	2	20.74	22.63	33	-10.37
				6	0	19.73	21.62	33	-11.38
				1	0	20.38	22.27	33	-10.73
	19193	1909.3	16OAM	1	5	20.75	22.64	33	-10.36
	17173	1707.3	TOUAIVI	3	2	20.46	22.35	33	-10.65
				6	0	19.87	21.76	33	-11.24

Antenna	gain (dBi)	1.89							
		l	TE Band 2_Upl	ink frequ	ency bar	nd : 1850 to 1910	) MHz		
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	22.26	24.15	33	-8.85
	18615	1851.5	QPSK	1	14	22.00	23.89	33	-9.11
	10015	1031.3	QFSK	8	4	21.07	22.96	33	-10.04
				15	0	20.99	22.88	33	-10.12
				1	0	22.11	24.00	33	-9
3	18900	1880	QPSK	1	14	21.90	23.79	33	-9.21
3	10700	1000	QF3K	8	4	20.95	22.84	33	-10.16
				15	0	21.04	22.93	33	-10.07
				1	0	21.92	23.81	33	-9.19
	19185	1908.5	QPSK	1	14	21.84	23.73	33	-9.27
	17103	1700.5	QLSK	8	4	20.97	22.86	33	-10.14
				15	0	20.85	22.74	33	-10.26
				1	0	20.71	22.60	33	-10.4
	18615	1851.5	16OAM	1	14	20.65	22.54	33	-10.46
	10013	1031.3	TOCAW	8	4	20.15	22.04	33	-10.96
				15	0	19.65	21.54	33	-11.46
				1	0	20.10	21.99	33	-11.01
3	18900	1880	16OAM	1	14	20.25	22.14	33	-10.86
3	10700	1000	TOQAW	8	4	19.79	21.68	33	-11.32
				15	0	19.81	21.70	33	-11.3
				1	0	20.71	22.60	33	-10.4
	19185	1908.5	16OAM	1	14	20.59	22.48	33	-10.52
	17103	1700.3	TOQAM	8	4	19.75	21.64	33	-11.36
				15	0	19.59	21.48	33	-11.52

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Antenna	gain (dBi)	1.89							
		l	_TE Band 2_Upl	link frequ	iency bar	nd : 1850 to 191	0 MHz		
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	22.29	24.18	33	-8.82
	18625	1852.5	QPSK	1	24	22.22	24.11	33	-8.89
	10020	1002.0	QI SIK	12	6	21.12	23.01	33	-9.99
				25	0	20.94	22.83	33	-10.17
				1	0	21.87	23.76	33	-9.24
5	18900	1880	OPSK	1	24	22.03	23.92	33	-9.08
				12	6	21.08	22.97	33	-10.03
				25	0	20.94	22.83	33	-10.17
				1	0	21.97	23.86	33	-9.14
	19175	1907.5	QPSK	1	24	21.90	23.79	33	-9.21
				12	6	20.93	22.82	33	-10.18
				25	0	20.96	22.85	33	-10.15
				1	0	21.72	23.61	33	-9.39
	18625	1852.5	16QAM	1	24	21.59	23.48	33	-9.52
				12	6	20.27	22.16	33	-10.84
				25	0	20.07	21.96	33	-11.04
					0	20.40	22.29	33	-10.71
5	18900	1880	16QAM	1	24	20.06	21.95	33	-11.05
				12	6	19.93	21.82	33	-11.18
				25 1	0	19.38	21.27	33	-11.73
				1	0	20.53	22.42	33	-10.58
	19175	1907.5	16QAM	12	24	20.46	22.35	33	-10.65
					6	19.61	21.50	33	-11.5
				25	0	19.58	21.47	33	-11.53

Antenna	gain (dBi)	1.89							
		I	TE Band 2_Upl	ink frequ	iency bar	nd : 1850 to 1910	0 MHz		
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	22.39	24.28	33	-8.72
	18650	1855	QPSK	1	49	22.27	24.16	33	-8.84
	10030	1000	QF3K	25	12	21.03	22.92	33	-10.08
				50	0	20.59	22.48	33	-10.52
				1	0	22.19	24.08	33	-8.92
10	18900	1880	QPSK	1	49	21.89	23.78	33	-9.22
10	10700	1000	QI SK	25	12	20.91	22.80	33	-10.2
				50	0	20.47	22.36	33	-10.64
				1	0	21.26	23.15	33	-9.85
	19150	1905	QPSK	1	49	22.19	24.08	33	-8.92
	17130	1703	QI SIK	25	12	19.33	21.22	33	-11.78
				50	0	19.96	21.85	33	-11.15
				1	0	21.41	23.30	33	-9.7
	18650	1855	16OAM	1	15	21.31	23.20	33	-9.8
	10030	1000	100/11/1	12	0	20.43	22.32	33	-10.68
				16	0	20.50	22.39	33	-10.61
				1	0	21.03	22.92	33	-10.08
10	18900	1880	16OAM	1	15	21.00	22.89	33	-10.11
10	10700	1000	100/11/1	12	0	20.41	22.30	33	-10.7
				16	0	20.61	22.50	33	-10.5
				1	0	20.99	22.88	33	-10.12
	19150	1905	16QAM	1	15	20.88	22.77	33	-10.23
	17130	1,00	102/11/1	12	0	20.47	22.36	33	-10.64
				16	0	20.65	22.54	33	-10.46

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Antenna	gain (dBi)	1.89							
		ı	_TE Band 2_Upl	ink frequ	iency bar	nd : 1850 to 191	0 MHz		
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	22.44	24.33	33	-8.67
	18675	1857.5	QPSK	1	74	21.50	23.39	33	-9.61
	10073	1037.3	QI SIX	36	18	21.03	22.92	33	-10.08
				75	0	20.94	22.83	33	-10.17
				1	0	21.89	23.78	33	-9.22
15	18900	1880	OPSK	1	74	21.94	23.83	33	-9.17
15	10700	1000	QI SIX	36	18	20.97	22.86	33	-10.14
				75	0	20.90	22.79	33	-10.21
				1	0	21.99	23.88	33	-9.12
	19125	1902.5	OPSK	1	74	22.14	24.03	33	-8.97
	17120	1702.5	QI SIK	36	18	20.83	22.72	33	-10.28
				75	0	20.72	22.61	33	-10.39
				1	0	20.98	22.87	33	-10.13
	18675	1857.5	16QAM	1	15	20.91	22.80	33	-10.2
				16	0	20.85	22.74	33	-10.26
				1	0	20.61	22.50	33	-10.5
15	18900	1880	16QAM	1	15	20.55	22.44	33	-10.56
				16	0	20.42	22.31	33	-10.69
				1	0	20.65	22.54	33	-10.46
	19125	1902.5	16QAM	1	15	20.45	22.34	33	-10.66
				16	0	20.39	22.28	33	-10.72

Antenna	gain (dBi)	1.89							
		I	_TE Band 2_Upl	ink frequ	ency bar	nd : 1850 to 1910	O MHz		
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	22.20	24.09	33	-8.91
	18700	1860	OPSK	1	99	22.07	23.96	33	-9.04
	10700	1000	QI SIK	50	25	20.88	22.77	33	-10.23
				100	0	21.13	23.02	33	-9.98
				1	0	22.14	24.03	33	-8.97
20	18900	1880	QPSK	1	99	22.15	24.04	33	-8.96
20	10700	1000	QI SIK	50	25	20.98	22.87	33	-10.13
				100	0	20.94	22.83	33	-10.17
				1	0	22.14	24.03	33	-8.97
	19100	1900	QPSK	1	99	22.15	24.04	33	-8.96
	17100	1700	QISK	50	25	20.98	22.87	33	-10.13
				100	0	20.93	22.82	33	-10.18
				1	0	21.26	23.15	33	-9.85
	18700	1860	16QAM	1	17	21.09	22.98	33	-10.02
				18	0	20.88	22.77	33	-10.23
				1	0	21.11	23.00	33	-10
20	18900	1880	16QAM	1	17	21.00	22.89	33	-10.11
				18	0	20.72	22.61	33	-10.39
				1	0	21.04	22.93	33	-10.07
	19100	1900	16QAM	1	17	20.93	22.82	33	-10.18
				18	0	20.79	22.68	33	-10.32

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Antenna	gain (dBi)	1.83							
		l	_TE Band 4_Upl	ink frequ	iency bar	nd : 1710 to 175	5 MHz		
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
	19957	1710.7	QPSK	1 1 3	0 5 2	21.24 21.83 21.97	23.07 23.66 23.80	30 30 30	-6.93 -6.34 -6.2
				6 1 1	0 0 5	20.90 21.90 22.02	22.73 23.73 23.85	30 30 30	-7.27 -6.27 -6.15
1.4	20175	1732.5	QPSK	3	2	21.97 20.76	23.80 22.59	30 30	-6.2 -7.41
	20393	1754.3	QPSK	1 1 3 6	0 5 2 0	22.45 21.70 21.98 20.89	24.28 23.53 23.81 22.72	30 30 30 30	-5.72 -6.47 -6.19 -7.28
	19957	1710.7	16QAM	1 1 3 6	0 5 2	20.47 20.47 20.27 19.67	22.77 22.30 22.10 21.50	30 30 30 30	-7.26 -7.73 -7.7 -7.9 -8.5
1.4	20175	1732.5	16QAM	1 1 3 6	0 5 2 0	20.18 20.69 20.87 19.82	22.01 22.52 22.70 21.65	30 30 30 30	-7.99 -7.48 -7.3 -8.35
	20393	1754.3	16QAM	1 1 3 6	0 5 2 0	20.38 20.44 21.03 20.01	22.21 22.27 22.86 21.84	30 30 30 30	-7.79 -7.73 -7.14 -8.16

Antenna	gain (dBi)	1.83							
			_TE Band 4_Upl	ink frequ	iency bar	nd : 1710 to 1759	5 MHz		
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	21.92	23.75	30	-6.25
	19965	1711.5	QPSK	1	14	20.73	22.56	30	-7.44
	17703	1711.5	QF3K	8	4	21.05	22.88	30	-7.12
				15	0	20.99	22.82	30	-7.18
				1	0	21.88	23.71	30	-6.29
3	20175	1732.5	QPSK	1	14	21.17	23.00	30	-7
J	20175	1732.3	QFSK	8	4	20.91	22.74	30	-7.26
				15	0	20.90	22.73	30	-7.27
				1	0	21.96	23.79	30	-6.21
	20385	1753.5	QPSK	1	14	22.23	24.06	30	-5.94
	20303	1755.5	QFSK	8	4	20.81	22.64	30	-7.36
				15	0	20.83	22.66	30	-7.34
				1	0	20.49	22.32	30	-7.68
	19965	1711.5	16QAM	1	14	20.35	22.18	30	-7.82
	19900	1711.3	TOQAW	8	4	20.12	21.95	30	-8.05
				15	0	19.94	21.77	30	-8.23
				1	0	20.49	22.32	30	-7.68
3	20175	1732.5	16QAM	1	14	20.62	22.45	30	-7.55
J	20175	1732.3	TOQAW	8	4	19.87	21.70	30	-8.3
				15	0	19.73	21.56	30	-8.44
				1	0	20.40	22.23	30	-7.77
	20385	1753.5	16OAM	1	14	20.74	22.57	30	-7.43
	20303	1733.3	16QAM	8	4	19.74	21.57	30	-8.43
				15	0	19.87	21.70	30	-8.3

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\*\*CSTainsaction\*\* \*\*Description\*\* \*



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Antenna	gain (dBi)	1.83							
		l	_TE Band 4_Upl	ink frequ	iency bar	nd : 1710 to 175	5 MHz		
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
	19975	1712.5	QPSK	1 1 12 25	0 24 6 0	22.10 22.14 21.17 20.96	23.93 23.97 23.00 22.79	30 30 30 30	-6.07 -6.03 -7 -7.21
5	20175	1732.5	QPSK	1 1 12 25	0 24 6 0	22.14 22.30 21.01 21.06	23.97 24.13 22.84 22.89	30 30 30 30 30	-6.03 -5.87 -7.16
	20375	1752.5	QPSK	1 1 12 25	0 24 6 0	22.12 22.43 20.73 20.92	23.95 24.26 22.56 22.75	30 30 30 30 30	-6.05 -5.74 -7.44 -7.25
	19975	1712.5	16QAM	1 1 12 25	0 24 6 0	20.71 20.66 19.61 19.94	22.54 22.49 21.44 21.77	30 30 30 30 30	-7.46 -7.51 -8.56 -8.23
5	20175	1732.5	16QAM	1 1 12 25	0 24 6 0	20.12 20.44 19.94 20.00	21.95 22.27 21.77 21.83	30 30 30 30	-8.05 -7.73 -8.23 -8.17
	20375	1752.5	16QAM	1 1 12 25	0 24 6 0	21.46 20.67 19.85 20.18	23.29 22.50 21.68 22.01	30 30 30 30 30	-6.71 -7.5 -8.32 -7.99

Antenna	gain (dBi)	1.83							
		ı	_TE Band 4_Upl	link frequ	iency bar	nd : 1710 to 175	5 MHz		
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	21.89	23.72	30	-6.28
	20000	1715	QPSK	1	49	22.05	23.88	30	-6.12
	20000	1715	QF3K	25	12	20.88	22.71	30	-7.29
				50	0	21.06	22.89	30	-7.11
				1	0	21.98	23.81	30	-6.19
10	20175	1732.5	QPSK	1	49	21.04	22.87	30	-7.13
10	20175	1732.3	QFSK	25	12	20.94	22.77	30	-7.23
				50	0	20.80	22.63	30	-7.37
				1	0	22.18	24.01	30	-5.99
	20350	1750	QPSK	1	49	22.66	24.49	30	-5.51
	20330	1730	QI SIK	25	12	21.01	22.84	30	-7.16
				50	0	20.91	22.74	30	-7.26
				1	0	20.71	22.54	30	-7.46
	20000	1715	16QAM	1	15	20.62	22.45	30	-7.55
	20000	1713	TOQAW	12	0	20.49	22.32	30	-7.68
				16	0	20.31	22.14	30	-7.86
				1	0	20.37	22.20	30	-7.8
10	20175	1732.5	16QAM	1	15	20.25	22.08	30	-7.92
10	20173	1732.0	TOQAW	12	0	20.18	22.01	30	-7.99
				16	0	20.00	21.83	30	-8.17
				1	0	20.27	22.10	30	-7.9
	20350	1750	16QAM	1	15	20.12	21.95	30	-8.05
	20300	1730	TOQAW	12	0	20.13	21.96	30	-8.04
				16	0	20.02	21.85	30	-8.15

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Antenna	gain (dBi)	1.83							
		ı	_TE Band 4_Upl	ink frequ	iency bar	nd : 1710 to 175	5 MHz		
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
	20025	1717.5	OPSK	1	0 74	22.09 22.05	23.92 23.88	30 30	-6.08 -6.12
	20023	1717.5	QPSK	36 75	18 0	20.96 20.88	22.79 22.71	30 30	-7.21 -7.29
15	20175	1732.5	QPSK	1 1	74	20.22	22.05 23.97	30 30	-7.95 -6.03
				36 75	18 0 0	20.90 20.86 22.48	22.73 22.69 24.31	30 30 30	-7.27 -7.31 -5.69
	20325	1747.5	QPSK	1 36	74 18	22.60 21.11	24.43 22.94	30 30	-5.57 -7.06
	20025	1717.5	16QAM	75 1 1	0 0 15	20.96 20.88 20.70	22.79 22.71 22.53	30 30 30	-7.21 -7.29 -7.47
				16 1	0	20.63 20.65	22.46 22.48	30 30	-7.54 -7.52
15	20175	1732.5	16QAM	1 16	15 0	20.55 20.49	22.38 22.32	30 30	-7.62 -7.68
	20325	1747.5	16QAM	1	0 15	20.43	22.26 22.21	30 30	-7.74 -7.79
				16	0	20.33	22.16	30	-7.84

Antenna	gain (dBi)	1.83							
		I	_TE Band 4_Upl	link frequ	iency bar	nd : 1710 to 175	5 MHz		
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0 99	22.12 22.24	23.95 24.07	30 30	-6.05 -5.93
	20050	1720	QPSK	50	25 0	20.99	22.82	30 30	-7.18 -7.2
				1	0	22.05	23.88	30	-6.12
20	20175	1732.5	QPSK	1 50	99 25	22.25 20.90	24.08 22.73	30 30	-5.92 -7.27
				100	0	21.00 22.53	22.83 24.36	30 30	-7.17 -5.64
	20300	1745	QPSK	1 50	99 25	20.49 21.06	22.32 22.89	30 30	-7.68 -7.11
				100	0	21.18	23.01	30	-6.99
	20050	1720	16QAM	1	17	20.83	22.66 22.63	30 30	-7.34 -7.37
				18	0	20.68	22.51 22.22	30 30	-7.49 -7.78
20	20175	1732.5	16QAM	1 18	17	20.15	21.98 21.83	30 30	-8.02 -8.17
	20200	1745	1/0414	1	0	21.13	22.96	30	-7.04
	20300	1745	16QAM	18	17 0	20.73 20.55	22.56 22.38	30 30	-7.44 -7.62

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Antenna	gain (dBi)	-0.63								
			LTE Bar	nd 12_Up	link frequ	uency band : 69	9 to 716 MHz			
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	ERP Limit (dBm)	Margin (dB)
				1	0	22.24	19.46	21.61	34.77	-15.31
	23017	699.7	OPSK	1	5	22.23	19.45	21.60	34.77	-15.32
	23017	077.7	QI SK	3	2	22.28	19.50	21.65	34.77	-15.27
				6	0	21.28	18.50	20.65	34.77	-16.27
				1	0	22.30	19.52	21.67	34.77	-15.25
1.4	23095	707.5	QPSK	1	5	22.29	19.51	21.66	34.77	-15.26
1.1	20070	707.0	Qi Sik	3	2	22.23	19.45	21.60	34.77	-15.32
				6	0	21.37	18.59	20.74	34.77	-16.18
				1	0	22.37	19.59	21.74	34.77	-15.18
	23173	715.5	OPSK	1	5	22.38	19.60	21.75	34.77	-15.17
	20170	7.10.0	2.0.0	3	2	22.41	19.63	21.78	34.77	-15.14
				6	0	21.36	18.58	20.73	34.77	-16.19
				1	0	21.10	18.32	20.47	34.77	-16.45
	23017	699.7	16OAM	1	5	21.02	18.24	20.39	34.77	-16.53
	20017	077.1	100 1111	3	2	20.97	18.19	20.34	34.77	-16.58
				6	0	19.88	17.10	19.25	34.77	-17.67
				1	0	20.74	17.96	20.11	34.77	-16.81
1.4	23095	707.5	16OAM	1	5	20.89	18.11	20.26	34.77	-16.66
1.1	20070	707.5	100/11/1	3	2	20.74	17.96	20.11	34.77	-16.81
				6	0	20.18	17.40	19.55	34.77	-17.37
				1	0	20.90	18.12	20.27	34.77	-16.65
	23173	715.5	16OAM	1	5	20.70	17.92	20.07	34.77	-16.85
	20170	7.10.0	102/11/1	3	2	20.96	18.18	20.33	34.77	-16.59
				6	0	20.29	17.51	19.66	34.77	-17.26

Antenna	gain (dBi)	-0.63								
			LTE Bar	nd 12_Up	link frequ	uency band : 69	9 to 716 MHz			
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	ERP Limit (dBm)	Margin (dB)
				1	0	22.40	19.62	21.77	34.77	-15.15
	23025	700.5	OPSK	1	14	22.42	19.64	21.79	34.77	-15.13
	23023	700.5	QFSK	8	4	21.29	18.51	20.66	34.77	-16.26
				15	0	21.23	18.45	20.60	34.77	-16.32
				1	0	22.36	19.58	21.73	34.77	-15.19
3	23095	707.5	OPSK	1	14	22.33	19.55	21.70	34.77	-15.22
J	23073	707.5	QFSK	8	4	21.30	18.52	20.67	34.77	-16.25
				15	0	21.25	18.47	20.62	34.77	-16.30
				1	0	22.36	19.58	21.73	34.77	-15.19
	23165	714.5	OPSK	1	14	22.30	19.52	21.67	34.77	-15.25
	23103	714.5	QI SK	8	4	21.09	18.31	20.46	34.77	-16.46
				15	0	21.01	18.23	20.38	34.77	-16.54
				1	0	21.11	18.33	20.48	34.77	-16.44
	23025	700.5	16OAM	1	14	21.48	18.70	20.85	34.77	-16.07
	23023	700.5	TOCAM	8	4	20.16	17.38	19.53	34.77	-17.39
				15	0	20.19	17.41	19.56	34.77	-17.36
				1	0	20.93	18.15	20.30	34.77	-16.62
3	23095	707.5	16OAM	1	14	21.02	18.24	20.39	34.77	-16.53
J	23073	707.5	TOZAW	8	4	20.15	17.37	19.52	34.77	-17.40
				15	0	20.34	17.56	19.71	34.77	-17.21
				1	0	20.97	18.19	20.34	34.77	-16.58
	23165	714.5	16OAM	1	14	21.11	18.33	20.48	34.77	-16.44
	23103	717.0	100/11/1	8	4	20.28	17.50	19.65	34.77	-17.27
				15	0	20.33	17.55	19.70	34.77	-17.22

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Antenna	gain (dBi)	-0.63								
			LTE Bar	nd 12_Up	link frequ	uency band : 69	9 to 716 MHz			
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	ERP Limit (dBm)	Margin (dB)
				1	0	22.30	19.52	21.67	34.77	-15.25
	23035	701.5	OPSK	1	24	22.43	19.65	21.80	34.77	-15.12
	23033	701.5	QI SK	12	6	21.50	18.72	20.87	34.77	-16.05
				25	0	21.42	18.64	20.79	34.77	-16.13
				1	0	22.38	19.60	21.75	34.77	-15.17
5	23095	707.5	QPSK	1	24	22.41	19.63	21.78	34.77	-15.14
5	23073	707.5	QI SIK	12	6	21.32	18.54	20.69	34.77	-16.23
				25	0	21.27	18.49	20.64	34.77	-16.28
				1	0	22.35	19.57	21.72	34.77	-15.20
	23155	713.5	OPSK	1	24	22.15	19.37	21.52	34.77	-15.40
	20100	7 10.0	Qi Sik	12	6	21.26	18.48	20.63	34.77	-16.29
				25	0	21.28	18.50	20.65	34.77	-16.27
				1	0	20.66	17.88	20.03	34.77	-16.89
	23035	701.5	16OAM	1	24	20.88	18.10	20.25	34.77	-16.67
	23000	701.5	100/101	12	6	20.23	17.45	19.60	34.77	-17.32
				25	0	20.38	17.60	19.75	34.77	-17.17
				1	0	20.38	17.60	19.75	34.77	-17.17
5	23095	707.5	16OAM	1	24	20.43	17.65	19.80	34.77	-17.12
J	20070	707.0	100/11/1	12	6	20.00	17.22	19.37	34.77	-17.55
				25	0	20.31	17.53	19.68	34.77	-17.24
				1	0	20.56	17.78	19.93	34.77	-16.99
	23155	713.5	16OAM	1	24	20.94	18.16	20.31	34.77	-16.61
	20100	, 13.3	102/11/1	12	6	20.11	17.33	19.48	34.77	-17.44
				25	0	20.24	17.46	19.61	34.77	-17.31

Antenna	gain (dBi)	-0.63								
			LTE Bar	nd 12_Up	link frequ	uency band : 69	9 to 716 MHz			
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	ERP Limit (dBm)	Margin (dB)
				1	0	22.17	19.39	21.54	34.77	-15.38
	23060	704	OPSK	1	49	22.48	19.70	21.85	34.77	-15.07
	23000	704	QFSK	25	12	21.35	18.57	20.72	34.77	-16.20
				50	0	21.28	18.50	20.65	34.77	-16.27
				1	0	22.23	19.45	21.60	34.77	-15.32
10	23095	707.5	QPSK	1	49	21.69	18.91	21.06	34.77	-15.86
10	23073	707.5	QFSK	25	12	21.31	18.53	20.68	34.77	-16.24
				50	0	21.28	18.50	20.65	34.77	-16.27
				1	0	22.30	19.52	21.67	34.77	-15.25
	23130	711	OPSK	1	49	22.31	19.53	21.68	34.77	-15.24
	23130	711	QI SK	25	12	21.50	18.72	20.87	34.77	-16.05
				50	0	21.29	18.51	20.66	34.77	-16.26
				1	0	20.86	18.08	20.23	34.77	-16.69
	23060	704	16OAM	1	15	20.72	17.94	20.09	34.77	-16.83
	23000	704	TOCAM	12	0	20.68	17.90	20.05	34.77	-16.87
				16	0	20.70	17.92	20.07	34.77	-16.85
				1	0	21.01	18.23	20.38	34.77	-16.54
10	23095	707.5	16OAM	1	15	20.83	18.05	20.20	34.77	-16.72
10	23073	707.5	TOCAM	12	0	20.89	18.11	20.26	34.77	-16.66
				16	0	20.45	17.67	19.82	34.77	-17.10
				1	0	20.91	18.13	20.28	34.77	-16.64
	23130	711	16OAM	1	15	20.73	17.95	20.10	34.77	-16.82
	23130	/ 11	IUQAW	12	0	20.65	17.87	20.02	34.77	-16.90
				16	0	20.44	17.66	19.81	34.77	-17.11

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Antenna	gain (dBi)	-0.63								
			LTE Bar	nd 17_Up	link frequ	uency band : 70	14 to 716 MHz			
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	ERP Limit (dBm)	Margin (dB)
				1	0	22.03	19.25	21.40	34.77	-15.52
	23755	706.5	OPSK	1	24	22.24	19.46	21.61	34.77	-15.31
	23733	700.5	QI SK	12	6	21.37	18.59	20.74	34.77	-16.18
				25	0	21.31	18.53	20.68	34.77	-16.24
				1	0	22.12	19.34	21.49	34.77	-15.43
5	23790	710	QPSK	1	24	22.54	19.76	21.91	34.77	-15.01
3	23770	710	QI SIK	12	6	21.37	18.59	20.74	34.77	-16.18
				25	0	21.34	18.56	20.71	34.77	-16.21
				1	0	22.41	19.63	21.78	34.77	-15.14
	23825	713.5	OPSK	1	24	22.35	19.57	21.72	34.77	-15.20
	20020	710.0	Qi Sik	12	6	21.35	18.57	20.72	34.77	-16.20
				25	0	21.35	18.57	20.72	34.77	-16.20
				1	0	20.75	17.97	20.12	34.77	-16.80
	23755	706.5	16OAM	1	24	20.69	17.91	20.06	34.77	-16.86
	23733	700.5	100/101	12	6	20.22	17.44	19.59	34.77	-17.33
				25	0	20.24	17.46	19.61	34.77	-17.31
				1	0	20.98	18.20	20.35	34.77	-16.57
5	23790	710	16OAM	1	24	21.22	18.44	20.59	34.77	-16.33
Ü	20,70	710	100/11/1	12	6	20.22	17.44	19.59	34.77	-17.33
				25	0	20.18	17.40	19.55	34.77	-17.37
				1	0	21.28	18.50	20.65	34.77	-16.27
	23825	713.5	16OAM	1	24	21.04	18.26	20.41	34.77	-16.51
	20020	713.3	102/11/1	12	6	20.25	17.47	19.62	34.77	-17.30
				25	0	20.28	17.50	19.65	34.77	-17.27

Antenna	gain (dBi)	-0.63								
			LTE Bar	nd 17_Up	link frequ	uency band : 70	4 to 716 MHz			
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	ERP Limit (dBm)	Margin (dB)
				1	0	22.60	19.82	21.97	34.77	-14.95
	23780	709	OPSK	1	49	22.66	19.88	22.03	34.77	-14.89
	23700	707	QFSK	25	12	21.39	18.61	20.76	34.77	-16.16
				50	0	21.43	18.65	20.80	34.77	-16.12
				1	0	22.28	19.50	21.65	34.77	-15.27
10	23790	710	QPSK	1	49	22.28	19.50	21.65	34.77	-15.27
10	23170	710	QF3K	25	12	21.41	18.63	20.78	34.77	-16.14
				50	0	21.40	18.62	20.77	34.77	-16.15
				1	0	22.53	19.75	21.90	34.77	-15.02
	23800	711	OPSK	1	49	22.45	19.67	21.82	34.77	-15.10
	23000	711	QI SK	25	12	21.38	18.60	20.75	34.77	-16.17
				50	0	21.34	18.56	20.71	34.77	-16.21
				1	0	21.48	18.70	20.85	34.77	-16.07
	23780	709	16OAM	1	15	21.20	18.42	20.57	34.77	-16.35
	23700	707	TOCAM	12	0	20.89	18.11	20.26	34.77	-16.66
				16	0	20.92	18.14	20.29	34.77	-16.63
				1	0	20.04	17.26	19.41	34.77	-17.51
10	23790	710	16OAM	1	15	20.15	17.37	19.52	34.77	-17.40
10	23170	, 10	TOZAW	12	0	20.10	17.32	19.47	34.77	-17.45
				16	0	19.92	17.14	19.29	34.77	-17.63
				1	0	20.96	18.18	20.33	34.77	-16.59
	23800	711	16OAM	1	15	20.82	18.04	20.19	34.77	-16.73
	23000	/ 11	100/11/1	12	0	20.68	17.90	20.05	34.77	-16.87
				16	0	20.59	17.81	19.96	34.77	-16.96

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Antenna	gain (dBi)	1.83							
		L	TE Band 66_Up	link freq	uency ba	nd : 1710 to 178	0 MHz		
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	21.93	23.76	30	-6.24
	131979	1710.7	OPSK	1	5	21.92	23.75	30	-6.25
	131777	1710.7	QI SIK	3	2	21.90	23.73	30	-6.27
				6	0	20.84	22.67	30	-7.33
				1	0	21.76	23.59	30	-6.41
1.4	132322	1745	OPSK	1	5	21.84	23.67	30	-6.33
				3	2	21.92	23.75	30	-6.25
				6	0	21.02	22.85	30	-7.15
				1	0	21.71	23.54	30	-6.46
	132665	1779.3	QPSK	1	5	21.70	23.53	30	-6.47
				3	2	21.71	23.54	30	-6.46
				6	0	20.57	22.40	30	-7.6
				1	0	20.66	22.49	30	-7.51
	131979	1710.7	16QAM	1	5	20.59	22.42	30	-7.58
				3	2	20.83	22.66	30	-7.34
				6	0	19.77	21.60	30	-8.4
				1	0	20.64	22.47	30	-7.53
1.4	132322	1745	16QAM	1	5	20.66	22.49	30	-7.51
				3	2	20.50	22.33	30	-7.67
		1		6	0	20.01	21.84	30	-8.16
				1	0	20.21	22.04	30	-7.96
	132665	1779.3	16QAM	3	5	20.28	22.11	30	-7.89
					2	20.28	22.11	30	-7.89
				6	0	19.47	21.30	30	-8.7

Antenna	gain (dBi)	1.83							
		L	TE Band 66_Up	link freq	uency ba	nd : 1710 to 178	0 MHz		
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	21.85	23.68	30	-6.32
	131987	1711.5	QPSK	1	14	21.64	23.47	30	-6.53
	131707	1711.5	QI SIK	8	4	20.90	22.73	30	-7.27
				15	0	20.91	22.74	30	-7.26
				1	0	22.13	23.96	30	-6.04
3	132322	1745	QPSK	1	14	21.84	23.67	30	-6.33
J	132322	1743	QI SIK	8	4	21.08	22.91	30	-7.09
				15	0	21.06	22.89	30	-7.11
				1	0	21.72	23.55	30	-6.45
	132657	1778.5	QPSK	1	14	21.70	23.53	30	-6.47
	132037	1770.5	QI SIC	8	4	20.67	22.50	30	-7.5
				15	0	20.69	22.52	30	-7.48
				1	0	20.52	22.35	30	-7.65
	131987	1711.5	16QAM	1	14	20.85	22.68	30	-7.32
	131707	1711.5	TOQAW	8	4	19.66	21.49	30	-8.51
				15	0	19.78	21.61	30	-8.39
				1	0	21.03	22.86	30	-7.14
3	132322	1745	16QAM	1	14	21.00	22.83	30	-7.17
J	132322	1745	TOQAM	8	4	20.06	21.89	30	-8.11
				15	0	20.03	21.86	30	-8.14
				1	0	20.58	22.41	30	-7.59
	132657	1778.5	16QAM	1	14	20.33	22.16	30	-7.84
	132037	1770.5	TOQAM	8	4	19.53	21.36	30	-8.64
			<u> </u>	15	0	19.44	21.27	30	-8.73

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\*\*CSTainsaction\*\* \*\*Description\*\* \*



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		L	TE Band 66_Up	link frequ	uency ba	nd : 1710 to 178	0 MHz		
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	21.72	23.55	30	-6.45
	131997	1712.5	OPSK	1	24	22.06	23.89	30	-6.11
	131997	1712.3	QF3K	12	6	20.96	22.79	30	-7.21
				25	0	21.08	22.91	30	-7.09
				1	0	22.19	24.02	30	-5.98
5	132322	1745	OPSK	1	24	21.87	23.70	30	-6.3
J	132322	1745	QI SIX	12	6	21.04	22.87	30	-7.13
				25	0	21.11	22.94	30	-7.06
				1	0	21.89	23.72	30	-6.28
	132647	1777.5	OPSK	1	24	21.47	23.30	30	-6.7
	132047	1777.5	QI SIX	12	6	20.61	22.44	30	-7.56
				25	0	20.57	22.40	30	-7.6
				1	0	20.73	22.56	30	-7.44
	131997	1712.5	16OAM	1	24	20.68	22.51	30	-7.49
	131777	1712.5	TOQAW	12	6	20.04	21.87	30	-8.13
				25	0	19.99	21.82	30	-8.18
				1	0	20.84	22.67	30	-7.33
5	132322	1745	16OAM	1	24	20.34	22.17	30	-7.83
,	IJZJZZ	1743	IOQAW	12	6	19.95	21.78	30	-8.22
				25	0	20.32	22.15	30	-7.85
				1	0	20.27	22.10	30	-7.9
	132647	1777.5	160AM	1	24	20.20	22.03	30	-7.97
	132077	1777.5	IOQAW	12	6	19.47	21.30	30	-8.7
				25	0	19.60	21.43	30	-8.57

Antenna	gain (dBi)	1.83							
		L	TE Band 66_Up	link freq	uency ba	nd : 1710 to 178	0 MHz		
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	21.84	23.67	30	-6.33
	132022	1715	QPSK	1	49	22.13	23.96	30	-6.04
	132022	1713	QI SK	25	12	20.99	22.82	30	-7.18
				50	0	20.97	22.80	30	-7.2
				1	0	21.91	23.74	30	-6.26
10	132322	1745	QPSK	1	49	22.55	24.38	30	-5.62
10	132322	1743	QI SK	25	12	21.14	22.97	30	-7.03
				50	0	21.18	23.01	30	-6.99
				1	0	20.49	22.32	30	-7.68
	132622	1775	QPSK	1	49	21.76	23.59	30	-6.41
	132022	1775	QFSK	25	12	20.67	22.50	30	-7.5
				50	0	20.66	22.49	30	-7.51
				1	0	20.95	22.78	30	-7.22
	132022	1715	16QAM	1	15	20.67	22.50	30	-7.5
	132022	1713	TOQAW	12	0	20.73	22.56	30	-7.44
				16	0	20.53	22.36	30	-7.64
				1	0	21.37	23.20	30	-6.8
10	132322	1745	16QAM	1	15	20.81	22.64	30	-7.36
10	132322	1740	TOQAW	12	0	20.69	22.52	30	-7.48
				16	0	20.73	22.56	30	-7.44
				1	0	20.93	22.76	30	-7.24
	132622	1775	16QAM	1	15	20.88	22.71	30	-7.29
	132022	1775	TOUAIVI	12	0	20.72	22.55	30	-7.45
	1			16	0	20.69	22.52	30	-7.48

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Antenna	gain (dBi)	1.83							
		L	TE Band 66_Up	link frequ	uency ba	nd : 1710 to 178	80 MHz		
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
	132047	1717.5	QPSK	1 1 36	0 74 18	21.86 22.24 21.08	23.69 24.07 22.91	30 30 30	-6.31 -5.93 -7.09
15	132322	1745	QPSK	75 1 1 36	0 0 74 18	20.78 22.28 22.69 21.14	22.61 24.11 24.52 22.97	30 30 30 30	-7.39 -5.89 -5.48 -7.03
	132597	1772.5	QPSK	75 1 1 36 75	0 0 74 18	21.20 22.10 21.65 20.72 20.66	23.03 23.93 23.48 22.55 22.49	30 30 30 30 30	-6.97 -6.07 -6.52 -7.45
	132047	1717.5	16QAM	1 1 1 16	0 15 0	20.85 20.73 20.61	22.68 22.56 22.44	30 30 30	-7.32 -7.44 -7.56
15	132322	1745	16QAM	1 1 16	0 15 0	20.92 20.70 20.71	22.75 22.53 22.54	30 30 30	-7.25 -7.47 -7.46
	132597	1772.5	16QAM	1 1 16	0 15 0	20.82 20.70 20.57	22.65 22.53 22.40	30 30 30	-7.35 -7.47 -7.6

Antenna	gain (dBi)	1.83							
		L	TE Band 66_Up	link frequ	uency ba	nd : 1710 to 178	0 MHz		
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	21.98	23.81	30	-6.19
	132072	1720	OPSK	1	99	21.93	23.76	30	-6.24
	132072	1720	QI SIK	50	25	21.05	22.88	30	-7.12
				100	0	20.97	22.80	30	-7.2
				1	0	22.14	23.97	30	-6.03
20	132322	1745	QPSK	1	99	22.33	24.16	30	-5.84
	132322	1743	QI SK	50	25	21.07	22.90	30	-7.1
				100	0	21.18	23.01	30	-6.99
				1	0	22.16	23.99	30	-6.01
	132572	1770	QPSK	1	99	21.57	23.40	30	-6.6
				100	0	19.99	21.82	30	-8.18
				1	0	20.75	22.58	30	-7.42
	132072	1720	16QAM	1	17	20.63	22.46	30	-7.54
				18	0	20.45	22.28	30	-7.72
				1	0	21.14	22.97	30	-7.03
20	132322	1745	16QAM	1	17	20.81	22.64	30	-7.36
				18	0	20.60	22.43	30	-7.57
				1	0	20.85	22.68	30	-7.32
	132572	1770	16QAM	1	17	20.62	22.45	30	-7.55
				18	0	20.45	22.28	30	-7.72

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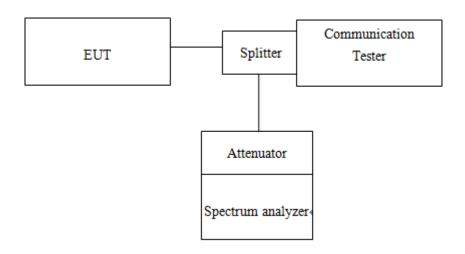
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### 7 OCCUPIED BANDWIDTH MEASUREMENT

### 7.1 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.

## 7.2 Test Set-up



### 7.3 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%.

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#### 7.4 **Measurement Equipment Used**

	Conducted Emission Test Site: Conducted B									
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.					
Spectrum Analyzer	KEYSIGHT	N9010A	MY51440113	07/13/2021	07/12/2022					
Radio Communica- tion Analyer	Anritsu	MT8820C	6201107337	07/28/2021	07/27/2022					
Attenuator	Marvelous	MVE2213-10	RF05	11/19/2020	11/18/2021					
DC Block	PASTER- NACK PE8210		RF157	11/19/2020	11/18/2021					
Splitter	Woken	DOM35LW1A2	RF255	11/19/2020	11/18/2021					
Coaxial Cables	Woken	00100A1F1A185C	RF54	11/19/2020	11/18/2021					
Coaxial Cables	Woken	00100A1F1A185C	RF55	11/19/2020	11/18/2021					
Coaxial Cables	Woken	00100A1F1A185C	RF71	11/19/2020	11/18/2021					
Coaxial Cables	Woken	00100A1F1A185C	RF72	11/19/2020	11/18/2021					
DC Power Supply	Agilent	E3640A	MY53140006	05/28/2021	05/27/2022					
Temperature Chamber	TERCHY	MHK-120LK	1020582	07/01/2021	06/30/2022					
Test Software	SGS	Radio Test Software	Ver.21	N.C.R	N.C.R					

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#### 7.5 **Measurement Result**

LTE BAND 2 Channel bandwidth: 1.4MHz								
Freq.	' I (H	99% BV	V (MHz)	26 dB B	W (MHz)			
(MHz)		QPSK	16QAM	QPSK	16QAM			
1850.7	18607	1.0899	1.0897	1.269	1.292			
1880.0	18900	1.0887	1.0893	1.263	1.290			
1909.3	19193	1.0876	1.0884	1.264	1.287			

LTE BAND 2 Channel bandwidth: 5MHz								
Freq. CH	99% BW (MHz)		26 dB BW (MHz)					
(MHz)	CH	QPSK	16QAM	QPSK	16QAM			
1852.5	18625	4.4900	4.4944	4.946	5.011			
1880.0	18900	4.4990	4.4945	5.020	5.024			
1907.5	19175	4.5078	4.4873	5.048	5.009			

	LTE BAND 2 Channel bandwidth: 15MHz							
Freq.	CH	99% BW (MHz) 26 dB BW (MHz)		W (MHz)				
(MHz)	CH	QPSK	16QAM	QPSK	16QAM			
1857.5	18675	13.329	3.227	14.36	4.60			
1880.0	18900	13.445	3.210	14.52	4.27			
1902.5	19125	13.369	3.179	14.48	4.57			
	LTE BAND 4 Channel bandwidth: 1.4MHz							
Freq.	CH	99% BV	V (MHz)	26 dB B	W (MHz)			
(MHz)	CH	QPSK	16QAM	QPSK	16QAM			
1710.7	19957	1.0907	1.0884	1.274	1.281			
1732.5	20175	1.0892	1.0857	1.299	1.279			
1754.3	20393	1.0899	1.0876	1.285	1.284			

LTE BAND 4 Channel bandwidth: 5MHz								
Freq.	CH	99% BW (MHz)		26 dB BW (MHz)				
(MHz)	Hz)	QPSK	16QAM	QPSK	16QAM			
1712.5	19975	4.5000	4.4925	5.010	5.017			
1732.5	20175	4.5062	4.4866	4.984	4.996			
1752.5	20375	4.5010	4.4938	4.980	4.999			

LTE BAND 4 Channel bandwidth: 15MHz								
Freq.	СН	99% BV	V (MHz)	26 dB B	W (MHz)			
(MHz)	G	QPSK	16QAM	QPSK	16QAM			
1717.5	20025	13.357	3.216	14.41	4.57			
1732.5	20175	13.405	3.165	14.55	4.33			
1747.5	20325	13.438	3.176	14.55	4.35			

LTE BAND 2 Channel bandwidth: 3MHz								
Freq. CH	99% BV	99% BW (MHz)		26 dB BW (MHz)				
(MHz)	CH	QPSK	16QAM	QPSK	16QAM			
1851.5	18615	2.6930	2.6878	2.934	2.962			
1880.0	18900	2.6868	2.6922	2.939	2.964			
1908.5	19185	2.6932	2.6918	2.947	2.946			

LTE BAND 2 Channel bandwidth: 10MHz									
Freq.	СН	99% BW (MHz)		26 dB BW (MHz)					
(MHz)	CIT	QPSK	16QAM	QPSK	16QAM				
1855.0	18650	8.9385	3.0906	9.774	4.124				
1880.0	18900	8.9822	3.0623	9.865	4.005				
1905.0	19150	8.9831	3.0531	9.924	4.103				

	LTE BAND 2 Channel bandwidth: 20MHz					
Freq.	CH	99% BW (MHz)		26 dB B	W (MHz)	
(MHz)	CII	QPSK	16QAM	QPSK	16QAM	
1860.0	18700	17.714	3.775	18.97	5.26	
1880.0	18900	17.940	3.740	19.51	5.15	
1900.0	19100	17.684	3.745	19.10	5.26	
	LTE BAN	D 4 Chann	el bandwid	Ith: 3MHz		
Freq.	CH	99% BV	V (MHz)	26 dB B	W (MHz)	
(MHz)	СГ	QPSK	16QAM	QPSK	16QAM	
1711.5	19965	2.6837	2.6925	2.942	2.949	
1732.5	20175	2.7105	2.6937	2.888	2.961	
1753.5	20385	2.6881	2.6924	2.964	2.963	

LTE BAND 4 Channel bandwidth: 10MHz									
Freq.	Freq. CH	99% BV	V (MHz)	26 dB BW (MHz)					
(MHz)	СП	QPSK	16QAM	QPSK	16QAM				
1715.0	20000	8.9608	3.0635	9.809	4.053				
1732.5	20175	8.9578	3.0463	9.850	3.766				
1750.0	20350	8.9784	3.0519	9.878	4.131				

LTE BAND 4 Channel bandwidth: 20MHz									
Freq.	CH	99% BV	V (MHz)	26 dB B'	W (MHz)				
(MHz)	СГ	QPSK	16QAM	QPSK	16QAM				
1720.0	20050	17.771	3.773	19.04	5.43				
1732.5	20175	17.870	3.705	19.19	5.22				
1745.0	20300	17.906	3.777	19.31	5.34				

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l	LTE BAND 12 Channel bandwidth: 1.4MHz								
Freq.	СН	99% BV	V (MHz)	26 dB B	W (MHz)				
(MHz)		QPSK	16QAM	QPSK	16QAM				
699.7	23017	1.0905	1.0856	1.270	1.264				
707.5	23095	1.0896	1.0887	1.274	1.255				
715.3	23173	1.0905	1.0873	1.266	1.271				

LTE BAND 12 Channel bandwidth: 5MHz						
Freq.	CH	99% BW (MHz)		26 dB BW (MHz)		
(MHz)	CH	QPSK	16QAM	QPSK	16QAM	
701.5	23035	4.4925	4.4924	4.984	4.968	
707.5	23095	4.4955	4.4845	4.984	4.948	
713.5	23155	4.4967	4.4842	4.970	4.946	

LTE BAND 17 Channel bandwidth: 5MHz							
Freq.	CH	99% BW (MHz)		26 dB BW (MHz)			
(MHz)	CH	QPSK	16QAM	QPSK	16QAM		
706.5	23755	4.4889	4.4856	4.955	4.904		
710.0	23790	4.4938	4.4941	4.994	4.986		
713.5	23825	4.4999	4.4877	4.956	4.936		

LTE BAND 66 Channel bandwidth: 1.4MHz							
Freq.	СН	99% BW (MHz)		26 dB BW (MHz)			
(MHz)		QPSK	16QAM	QPSK	16QAM		
1710.7	131979	1.0893	1.0875	1.280	1.258		
1745.0	132322	1.0901	1.0902	1.291	1.263		
1779.3	132665	1.0905	1.0900	1.287	1.270		

LTE BAND 66 Channel bandwidth: 5MHz							
Freq.	СН	99% BW (MHz)		26 dB BW (MHz)			
(MHz)		QPSK	16QAM	QPSK	16QAM		
1712.5	131997	4.5034	4.4868	4.988	4.964		
1745.0	132322	4.4951	4.4931	4.995	4.993		
1777.5	132647	4.4992	4.4910	4.960	4.975		

LTE BAND 66 Channel bandwidth: 15MHz						
Freq.	CH	99% BW (MHz)		26 dB BW (MHz)		
(MHz)	CH	QPSK	16QAM	QPSK	16QAM	
1717.5	132047	13.371	3.160	14.39	4.07	
1745.0	132322	13.431	3.183	14.57	4.14	
1772.5	132597	13.342	3.163	14.39	4.12	

LTE BAND 12 Channel bandwidth: 3MHz							
Freq.	СН	99% BW (MHz)		26 dB BW (MHz)			
(MHz)		QPSK	16QAM	QPSK	16QAM		
700.5	23025	2.6892	2.6907	2.952	2.969		
707.5	23095	2.6907	2.6924	2.951	2.956		
714.5	23165	2.6874	2.6898	2.950	2.962		

LTE BAND 12 Channel bandwidth: 10MHz							
Freq.	CH	99% BW (MHz)		26 dB BW (MHz)			
(MHz)	CIT	QPSK	16QAM	QPSK	16QAM		
704.0	23060	8.9509	3.0318	9.770	3.775		
707.5	23095	8.9631	3.0185	9.801	3.691		
711.0	23130	8.9803	3.0436	9.879	3.705		

LTE BAND 17 Channel bandwidth: 10MHz							
Freq.	CH	99% BW (MHz)		26 dB BW (MHz)			
(MHz)	G	QPSK	16QAM	QPSK	16QAM		
709.0	23780	8.9892	3.0396	9.819	3.732		
710.0	23790	8.9733	3.0291	9.871	3.762		
711.0	23800	8.9907	3.0273	9.874	3.755		

LTE BAND 66 Channel bandwidth: 3MHz							
Freq.	СН	99% BW (MHz)		26 dB BW (MHz)			
(MHz)		QPSK	16QAM	QPSK	16QAM		
1711.5	131987	2.6904	2.6916	2.949	2.965		
1745.0	132322	2.6962	2.6935	2.949	2.963		
1778.5	132657	2.6945	2.6917	2.942	2.958		

LTE BAND 66 Channel bandwidth: 10MHz							
Freq.	СН	99% BW (MHz)		26 dB BW (MHz)			
(MHz)		QPSK	16QAM	QPSK	16QAM		
1715.0	132022	8.9573	3.0322	9.735	3.700		
1745.0	132322	8.9544	3.0322	9.861	3.715		
1775.0	132622	8.9558	3.0184	9.773	3.793		

Ī	LTE BAND 66 Channel bandwidth: 20MHz						
Ī	Freq.	СН	99% BW (MHz)		26 dB BW (MHz)		
	(MHz)	CH	QPSK	16QAM	QPSK	16QAM	
	1720.0	132072	17.778	3.690	19.07	4.74	
	1745.0	132322	17.885	3.737	19.35	5.32	
	1770.0	132572	17.767	3.672	19.09	4.92	

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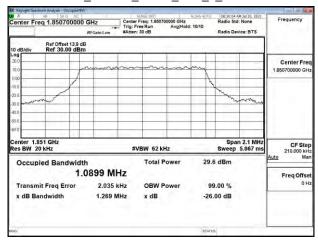
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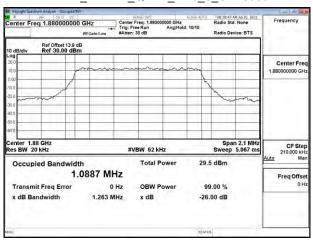


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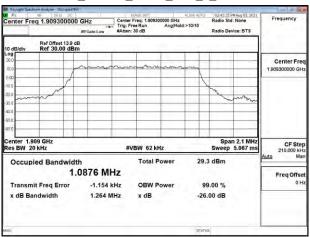
Band2 1.4MHz QPSK RB6 0 CH18607



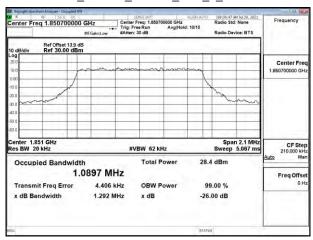
### Band2 1.4MHz QPSK RB6 0 CH18900



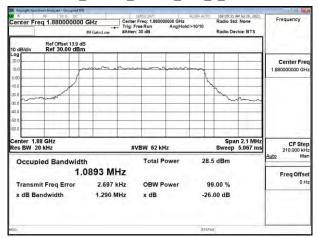
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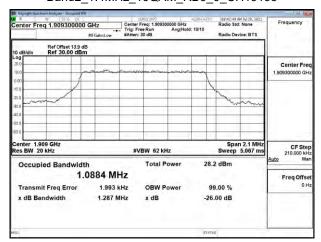
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#### Band2 1.4MHz 16QAM RB6 0 CH18900



# Band2\_1.4MHz\_16QAM\_RB6\_0\_CH19193



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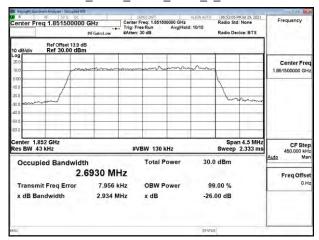
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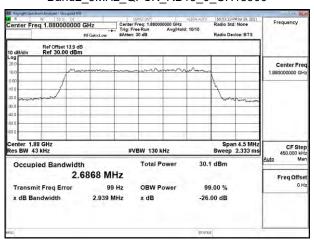


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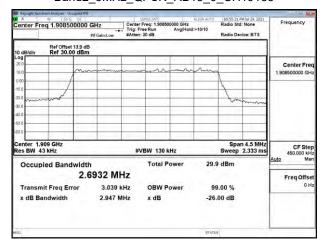
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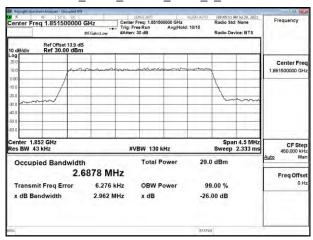
#### Band2 3MHz QPSK RB15 0 CH18900



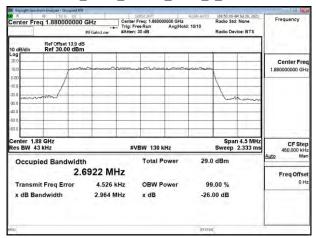
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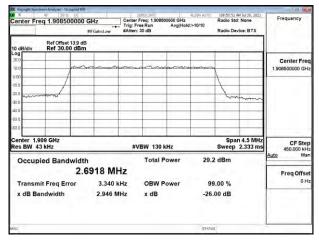
### Band2\_3MHz\_16QAM\_RB15\_0\_CH18615



#### Band2 3MHz 16QAM RB15 0 CH18900



# Band2\_3MHz\_16QAM\_RB15\_0\_CH19185



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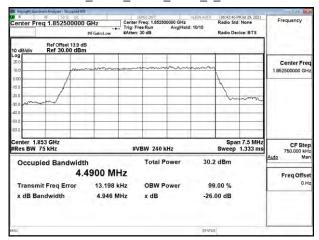
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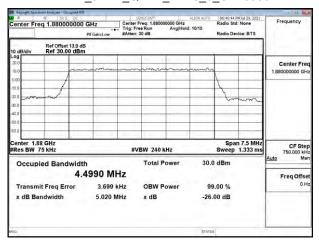


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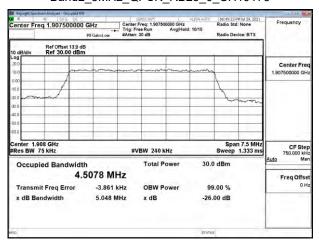
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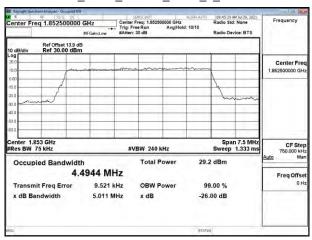
### Band2 5MHz QPSK RB25 0 CH18900



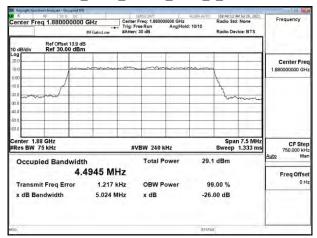
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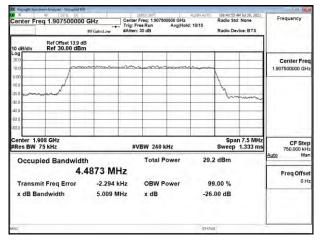
#### Band2 5MHz 16QAM RB25 0 CH18625



#### Band2 5MHz 16QAM RB25 0 CH18900



# Band2\_5MHz\_16QAM\_RB25\_0\_CH19175



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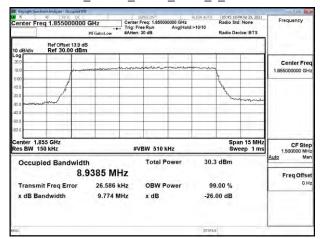
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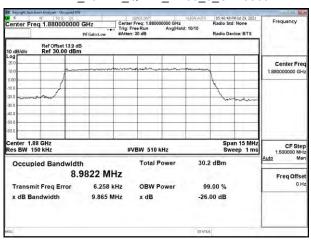


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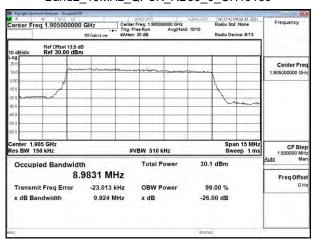
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### Band2 10MHz QPSK RB50 0 CH18900



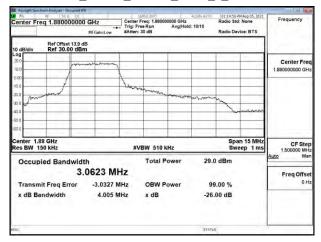
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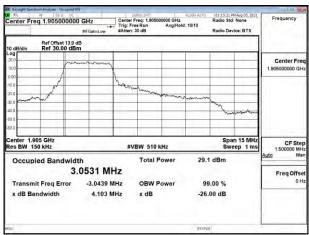
### Band2\_10MHz\_16QAM\_RB16\_0\_CH18650



### Band2 10MHz 16QAM RB16 0 CH18900



# Band2\_10MHz\_16QAM\_RB16\_0\_CH19150



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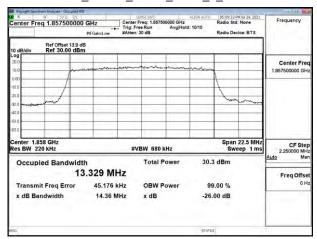
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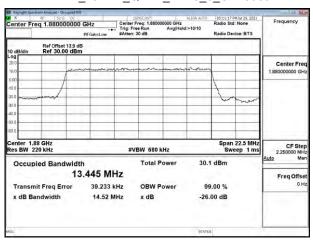


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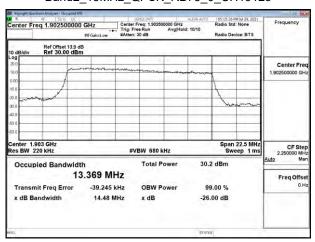
Band2 15MHz QPSK RB75 0 CH18675



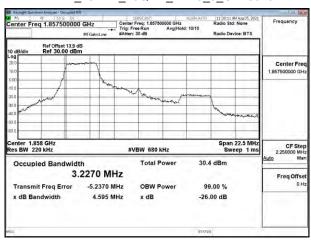
### Band2 15MHz QPSK RB75 0 CH18900



### Band2 15MHz QPSK RB75 0 CH19125



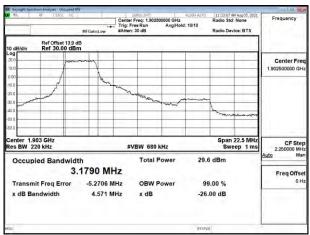
# Band2\_15MHz\_16QAM\_RB16\_0\_CH18675



### Band2 15MHz 16QAM RB16 0 CH18900



# Band2\_15MHz\_16QAM\_RB16\_0\_CH19125



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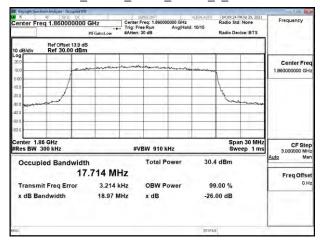
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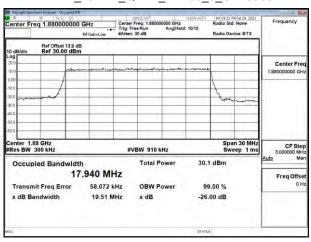


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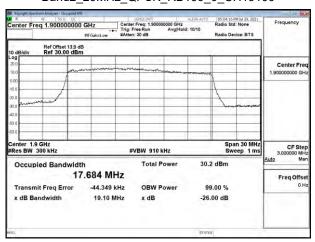
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### Band2 20MHz QPSK RB100 0 CH18900



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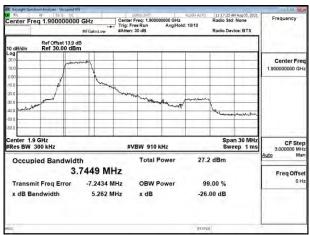
#### Band2 20MHz 16QAM RB18 0 CH18700



### Band2 20MHz 16QAM RB18 0 CH18900



# Band2\_20MHz\_16QAM\_RB18\_0\_CH19100



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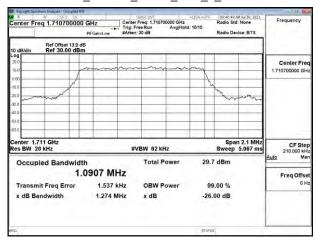
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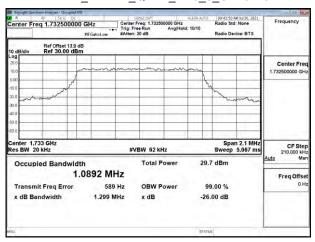


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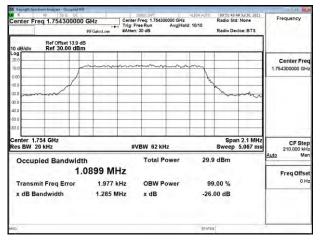
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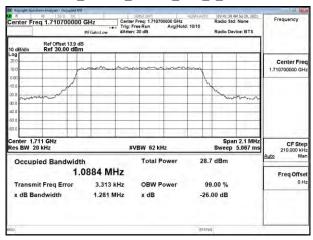
Band4 1.4MHz QPSK RB6 0 CH20175



Band4\_1.4MHz\_QPSK\_RB6\_0\_CH20393



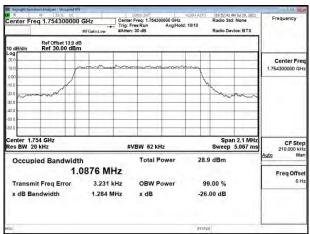
Band4\_1.4MHz\_16QAM\_RB6\_0\_CH19957



Band4 1.4MHz 16QAM RB6 0 CH20175



Band4\_1.4MHz\_16QAM\_RB6\_0\_CH20393



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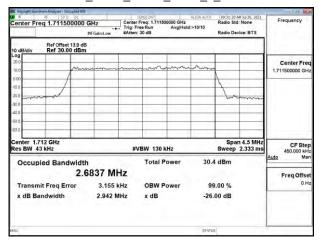
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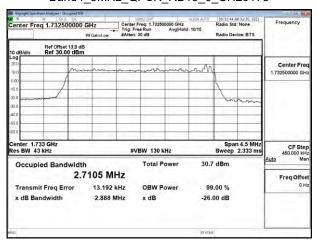


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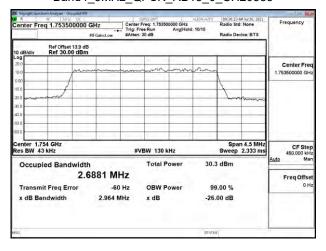
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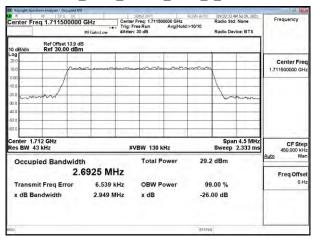
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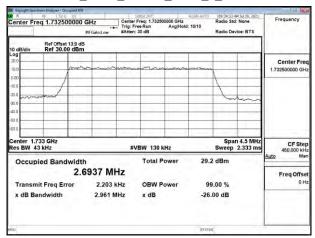
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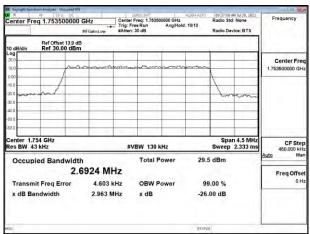
### Band4\_3MHz\_16QAM\_RB15\_0\_CH19965



#### Band4 3MHz 16QAM RB15 0 CH20175



# Band4\_3MHz\_16QAM\_RB15\_0\_CH20385



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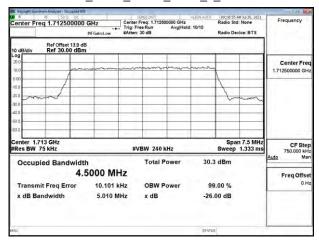
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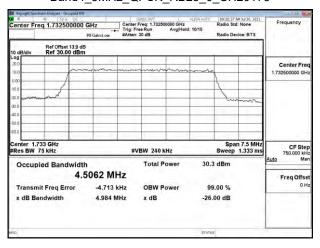


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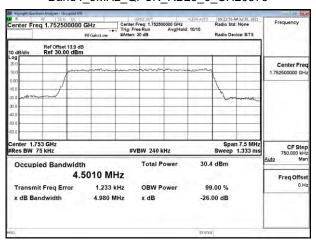
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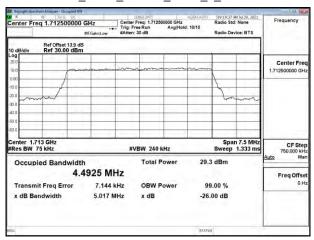
#### Band4 5MHz QPSK RB25 0 CH20175



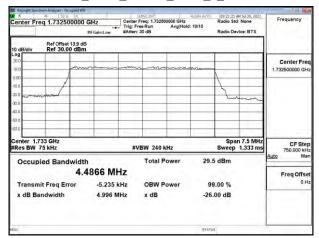
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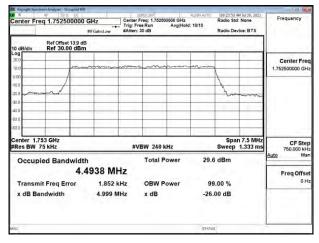
### Band4\_5MHz\_16QAM\_RB25\_0\_CH19975



#### Band4 5MHz 16QAM RB25 0 CH20175



# Band4\_5MHz\_16QAM\_RB25\_0\_CH20375



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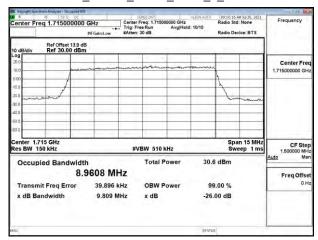
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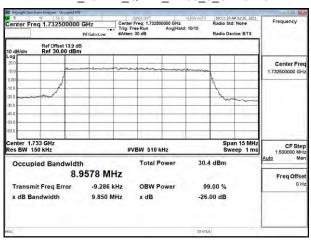


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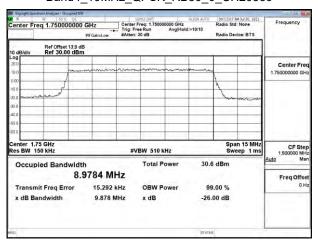
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### Band4 10MHz QPSK RB50 0 CH20175



### Band4 10MHz QPSK RB50 0 CH20350



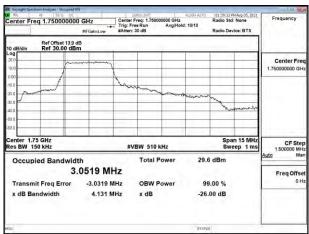
### Band4\_10MHz\_16QAM\_RB16\_0\_CH20000



#### Band4 10MHz 16QAM RB16 0 CH20175



# Band4\_10MHz\_16QAM\_RB16\_0\_CH20350



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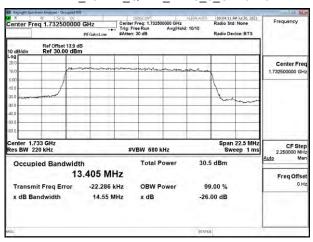


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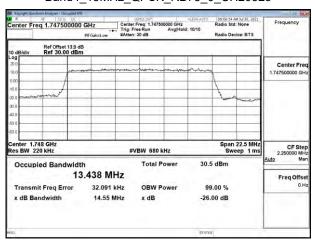
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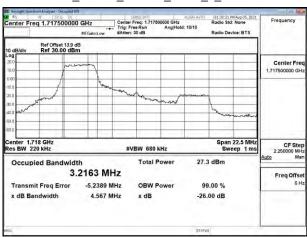
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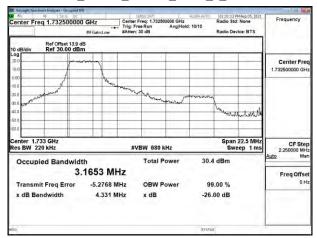
# Band4\_15MHz\_QPSK\_RB75\_0\_CH20325



### Band4\_15MHz\_16QAM\_RB16\_0\_CH20025



#### Band4 15MHz 16QAM RB16 0 CH20175



# Band4\_15MHz\_16QAM\_RB16\_0\_CH20325



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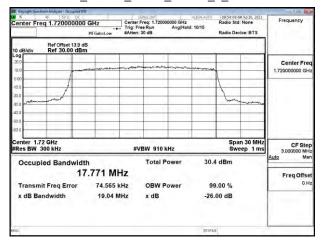
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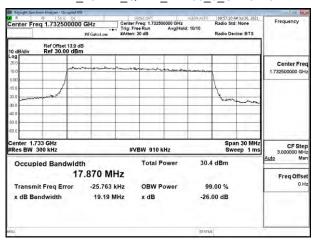


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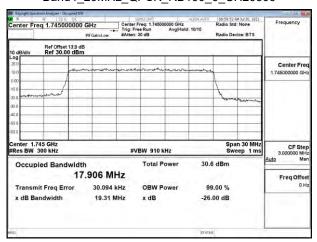
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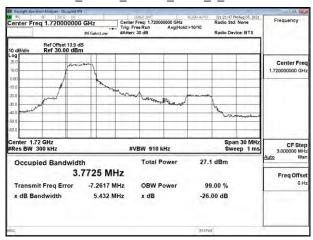
### Band4 20MHz QPSK RB100 0 CH20175



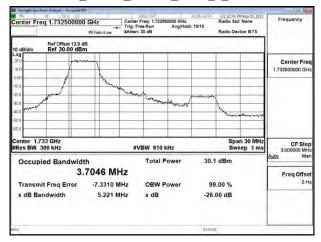
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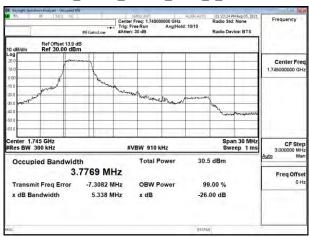
#### Band4 20MHz 16QAM RB18 0 CH20050



#### Band4 20MHz 16QAM RB18 0 CH20175



# Band4\_20MHz\_16QAM\_RB18\_0\_CH20300



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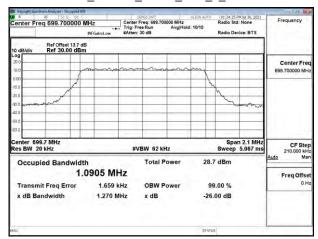
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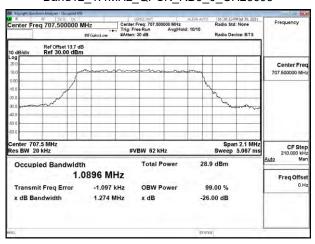


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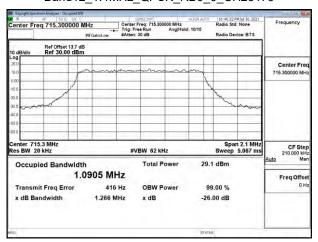
Band12\_1.4MHz\_QPSK\_RB6\_0\_CH23017



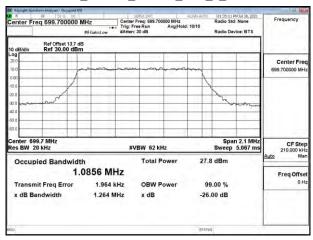
Band12 1.4MHz QPSK RB6 0 CH23095



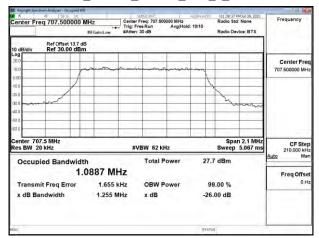
Band12 1.4MHz QPSK RB6 0 CH23173



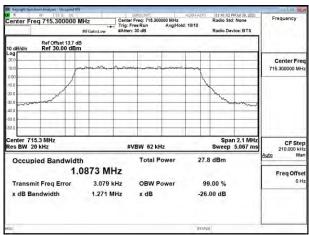
Band12\_1.4MHz\_16QAM\_RB6\_0\_CH23017



Band12 1.4MHz 16QAM RB6 0 CH23095



Band12 1.4MHz 16QAM RB6 0 CH23173



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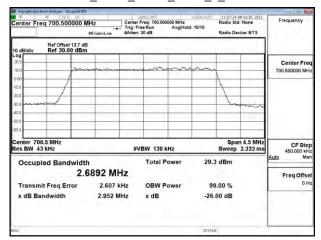
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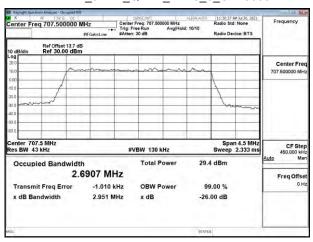


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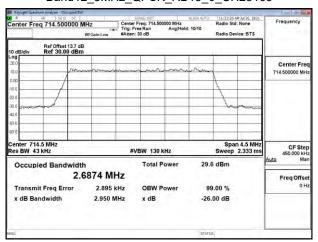
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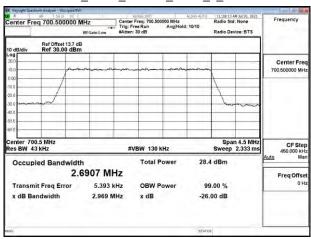
### Band12 3MHz QPSK RB15 0 CH23095



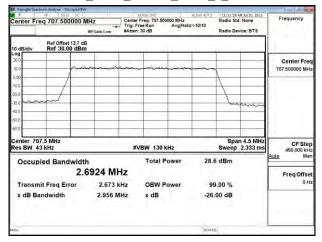
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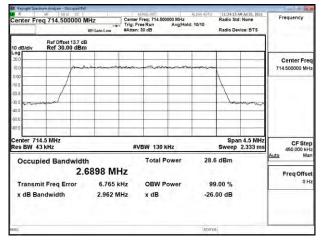
#### Band12 3MHz 16QAM RB15 0 CH23025



#### Band12 3MHz 16QAM RB15 0 CH23095



# Band12 3MHz 16QAM RB15 0 CH23165



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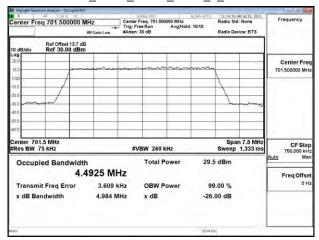
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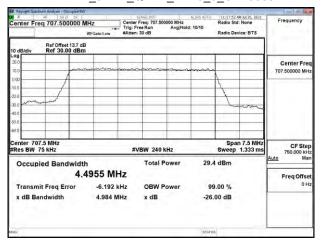


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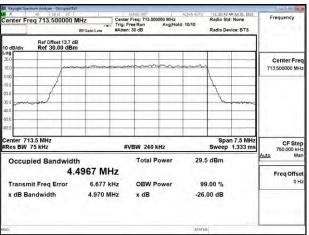
### Band12 5MHz QPSK RB25 0 CH23035



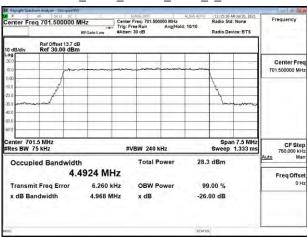
### Band12 5MHz QPSK RB25 0 CH23095



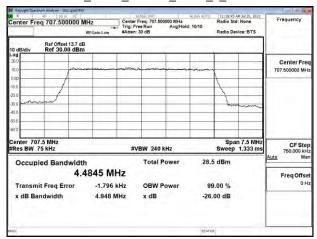
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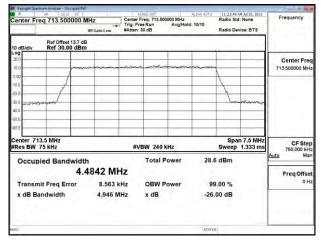
#### Band12 5MHz 16QAM RB25 0 CH23035



#### Band12 5MHz 16QAM RB25 0 CH23095



# Band12\_5MHz\_16QAM\_RB25\_0\_CH23155



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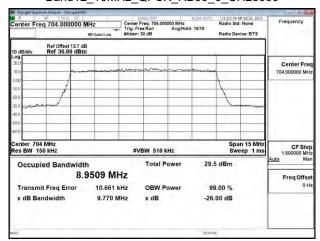
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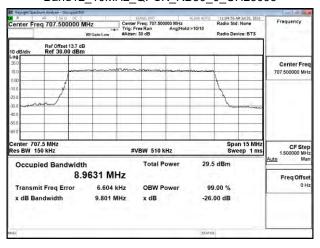


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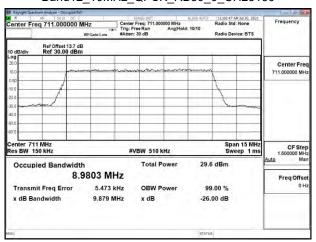
### Band12 10MHz QPSK RB50 0 CH23060



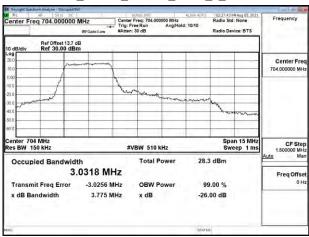
#### Band12 10MHz QPSK RB50 0 CH23095



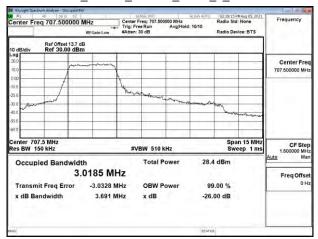
### Band12 10MHz QPSK RB50 0 CH23130



### Band12\_10MHz\_16QAM\_RB16\_0\_CH23060



#### Band12 10MHz 16QAM RB16 0 CH23095



# Band12\_10MHz\_16QAM\_RB16\_0\_CH23130



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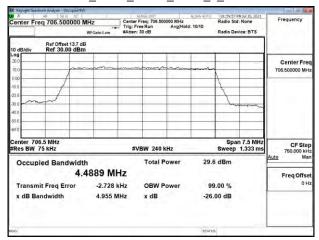
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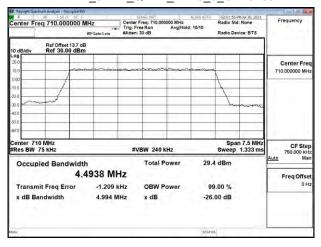


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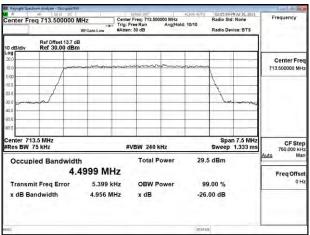
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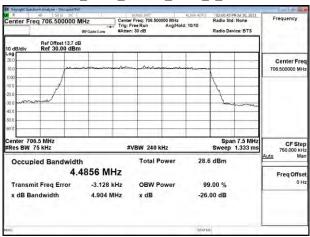
### Band17 5MHz QPSK RB25 0 CH23790



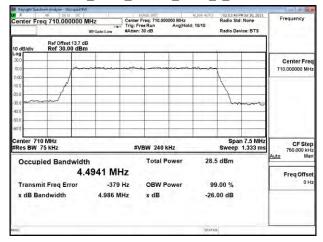
# Band17 5MHz QPSK RB25 0 CH23825



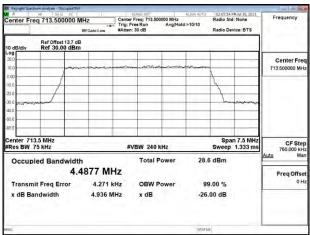
### Band17 5MHz 16QAM RB25 0 CH23755



#### Band17 5MHz 16QAM RB25 0 CH23790



# Band17 5MHz 16QAM RB25 0 CH23825



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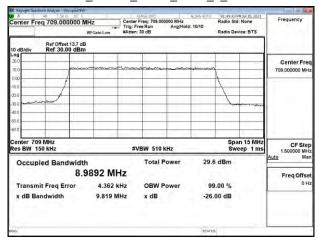
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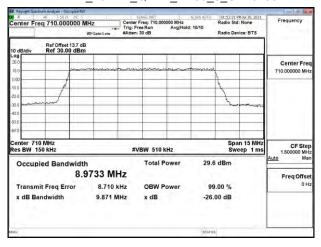


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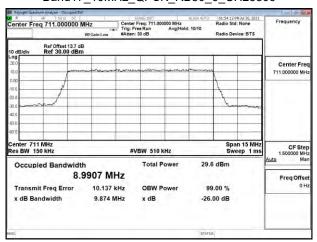
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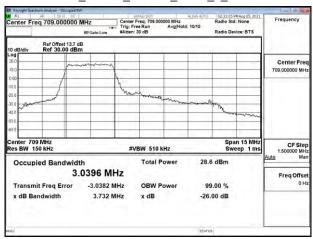
### Band17 10MHz QPSK RB50 0 CH23790



# Band17\_10MHz\_QPSK\_RB50\_0\_CH23800



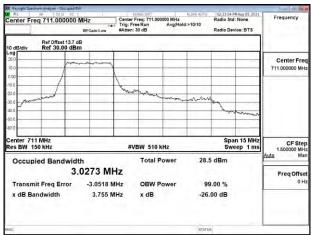
#### Band17 10MHz 16QAM RB16 0 CH23780



#### Band17 10MHz 16QAM RB16 0 CH23790



# Band17 10MHz 16QAM RB16 0 CH23800



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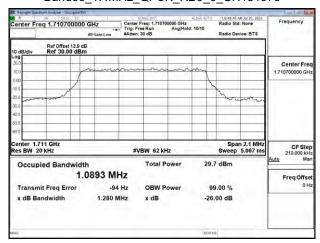
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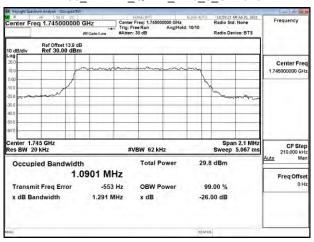


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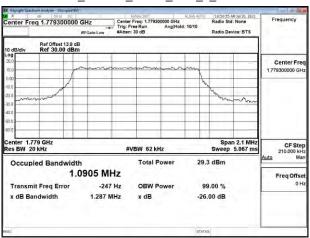
Band66 1.4MHz QPSK RB6 0 CH131979



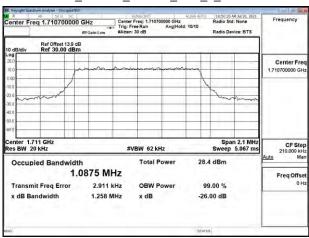
### Band66 1.4MHz QPSK RB6 0 CH132322



# Band66 1.4MHz QPSK RB6 0 CH132665



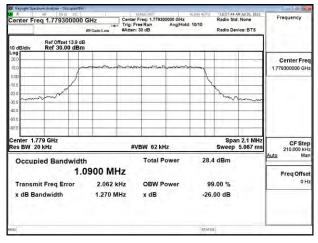
#### Band66 1.4MHz 16QAM RB6 0 CH131979



#### Band66 1.4MHz 16QAM RB6 0 CH132322



# Band66\_1.4MHz\_16QAM\_RB6\_0\_CH132665



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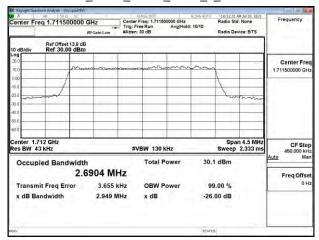
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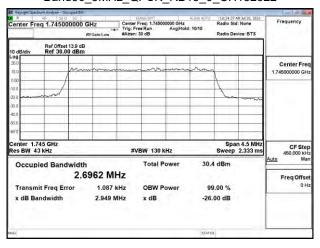


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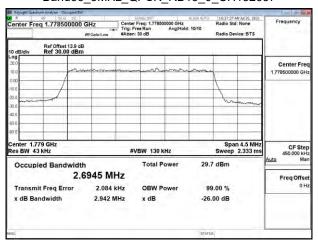
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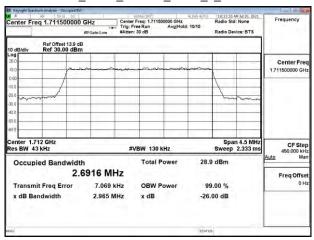
#### Band66 3MHz QPSK RB15 0 CH132322



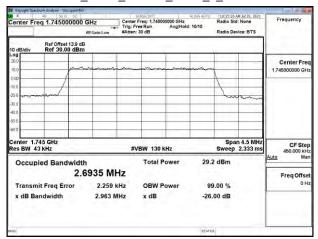
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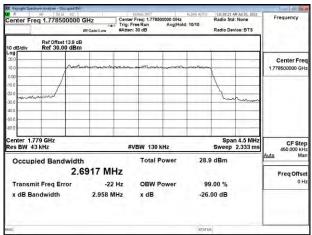
#### Band66 3MHz 16QAM RB15 0 CH131987



#### Band66 3MHz 16QAM RB15 0 CH132322



# Band66 3MHz 16QAM RB15 0 CH132657



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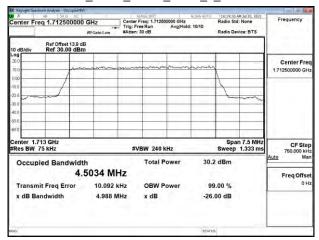
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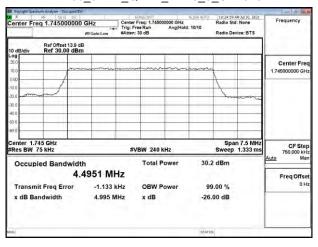


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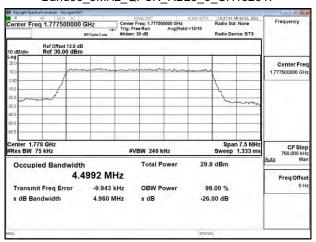
#### Band66 5MHz QPSK RB25 0 CH131997



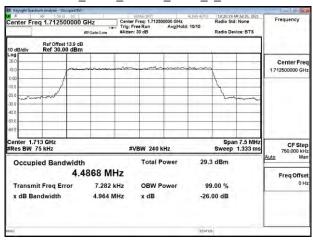
### Band66 5MHz QPSK RB25 0 CH132322



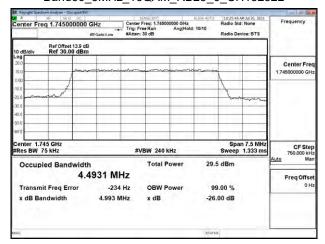
### Band66 5MHz QPSK RB25 0 CH132647



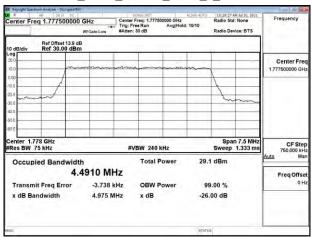
#### Band66 5MHz 16QAM RB25 0 CH131997



#### Band66 5MHz 16QAM RB25 0 CH132322



# Band66\_5MHz\_16QAM\_RB25\_0\_CH132647



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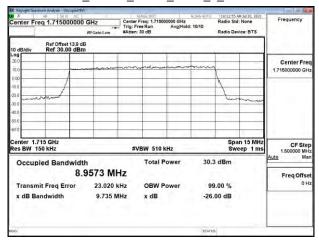
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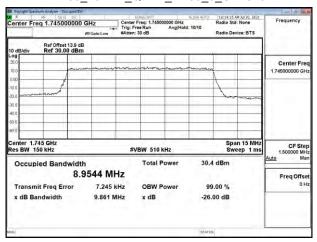


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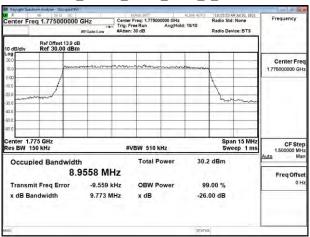
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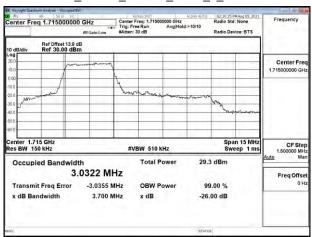
### Band66 10MHz QPSK RB50 0 CH132322



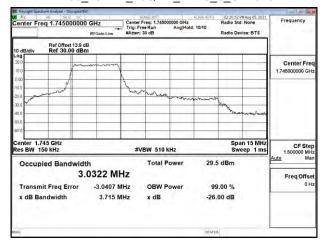
# Band66 10MHz QPSK RB50 0 CH132622



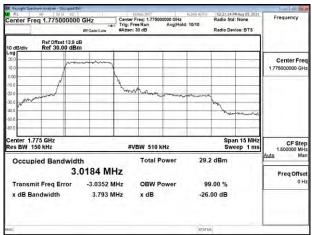
#### Band66 10MHz 16QAM RB16 0 CH132022



### Band66 10MHz 16QAM RB16 0 CH132322



# Band66 10MHz 16QAM RB16 0 CH132622



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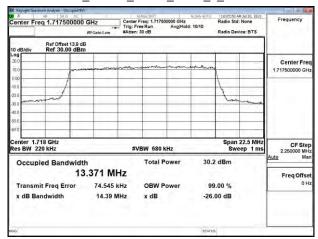
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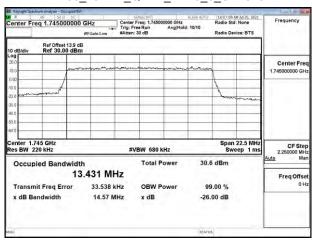


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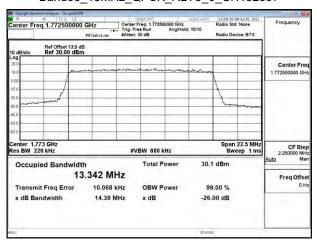
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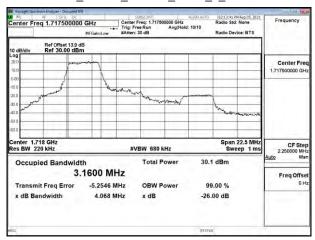
### Band66 15MHz QPSK RB75 0 CH132322



# Band66\_15MHz\_QPSK\_RB75\_0\_CH132597



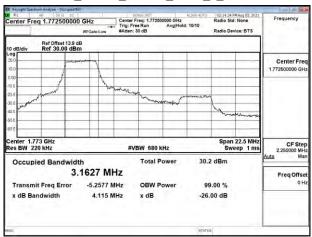
### Band66\_15MHz\_16QAM\_RB16\_0\_CH132047



#### Band66 15MHz 16QAM RB16 0 CH132322



# Band66\_15MHz\_16QAM\_RB16\_0\_CH132597



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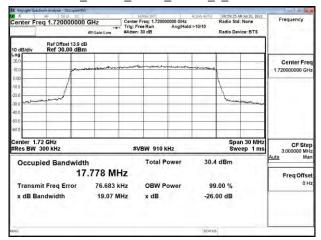
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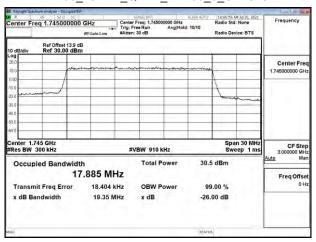


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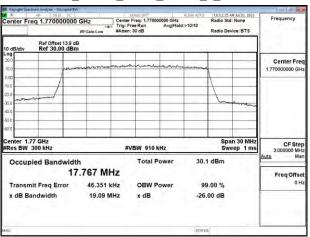
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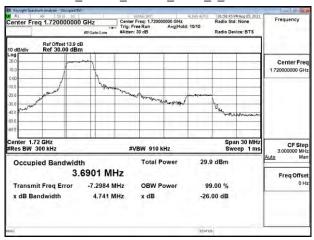
### Band66 20MHz QPSK RB100 0 CH132322



# Band66 20MHz QPSK RB100 0 CH132572



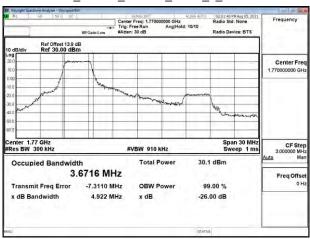
#### Band66 20MHz 16QAM RB18 0 CH132072



#### Band66 20MHz 16QAM RB18 0 CH132322



# Band66\_20MHz\_16QAM\_RB18\_0\_CH132572



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# 8 OUT OF BAND EMISSION AT ANTENNA TERMINALS

# 8.1 Standard Applicable

### FCC §24.238(a), §27.53(h)

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(g)

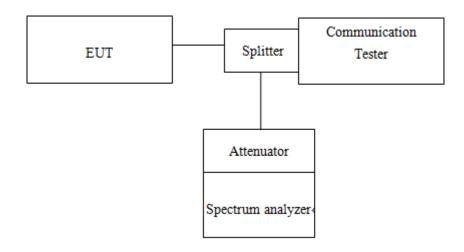
Compliance for operations in the 600 MHz, 698-746 MHz, 746-758 MHz and the 776-788 MHz band with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

- (2) On any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) dB;
- (3) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than 76 + 10 log (P) dB in a 6.25 kHz band segment, for base and fixed stations;
- (4) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than 65 + 10 log (P) dB in a 6.25 kHz band segment, for mobile and portable stations;

# FCC §27.53(h)(1)

(h) AWS emission limits—(1) General protection levels. Except as otherwise specified below, for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least  $43 + 10 \log_{10}$  (P) dB.

### 8.2 Test SET-UP



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#### 8.3 **Measurement Procedure**

#### 8.3.1 **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.

- 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.

#### 8.3.2 **Band Edge**

- 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.

#### 8.4 **Measurement Equipment Used**

Conducted Emission Tost Sites Conducted B					
Conducted Emission Test Site: Conducted B					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	KEYSIGHT	N9010A	MY51440113	07/13/2021	07/12/2022
Radio Communica- tion Analyer	Anritsu	MT8820C	6201107337	07/28/2021	07/27/2022
Attenuator	Marvelous	MVE2213-10	RF05	11/19/2020	11/18/2021
DC Block	PASTER- NACK	PE8210	RF157	11/19/2020	11/18/2021
Splitter	Woken	DOM35LW1A2	RF255	11/19/2020	11/18/2021
Coaxial Cables	Woken	00100A1F1A185C	RF54	11/19/2020	11/18/2021
Coaxial Cables	Woken	00100A1F1A185C	RF55	11/19/2020	11/18/2021
Coaxial Cables	Woken	00100A1F1A185C	RF71	11/19/2020	11/18/2021
Coaxial Cables	Woken	00100A1F1A185C	RF72	11/19/2020	11/18/2021
DC Power Supply	Agilent	E3640A	MY53140006	05/28/2021	05/27/2022
Temperature Chamber	TERCHY	MHK-120LK	1020582	07/01/2021	06/30/2022
Test Software	SGS	Radio Test Software	Ver.21	N.C.R	N.C.R

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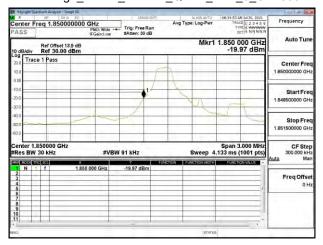


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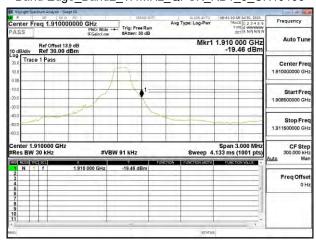
#### 8.5 **Measurement Result:**

# **Band Edge**

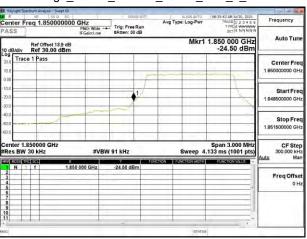
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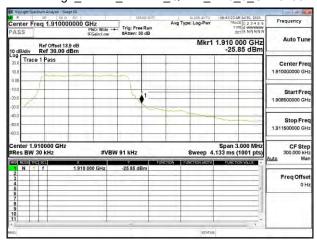
Band Edge Band2 1.4MHz QPSK RB1 5 CH19193



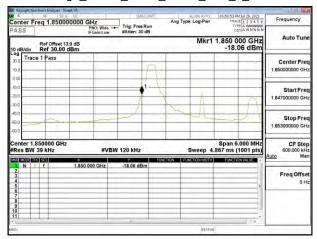
Band Edge Band2 1.4MHz QPSK RB6 0 CH18607



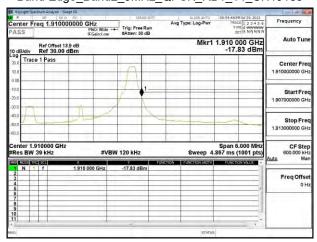
Band Edge\_Band2\_1.4MHz\_QPSK\_RB6\_0\_CH19193



Band Edge Band2 3MHz QPSK RB1 0 CH18615



Band Edge Band2 3MHz QPSK RB1 14 CH19185



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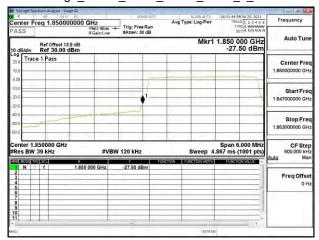
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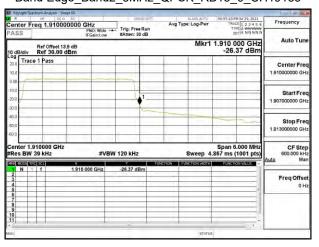


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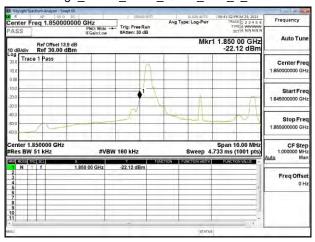
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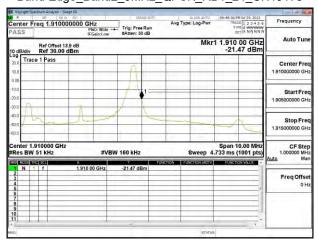
### Band Edge Band2 3MHz QPSK RB15 0 CH19185



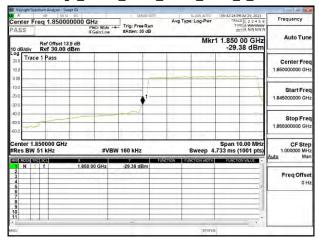
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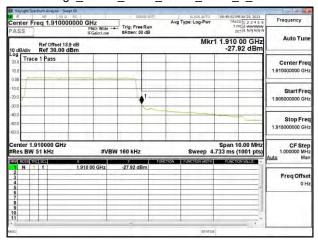
### Band Edge Band2 5MHz QPSK RB1 24 CH19175



#### Band Edge Band2 5MHz QPSK RB25 0 CH18625



### Band Edge Band2 5MHz QPSK RB25 0 CH19175



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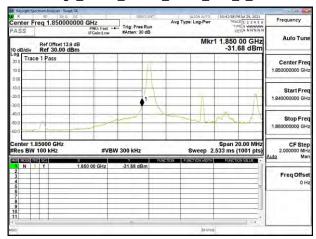
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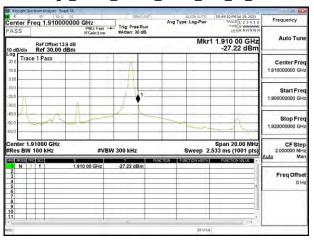


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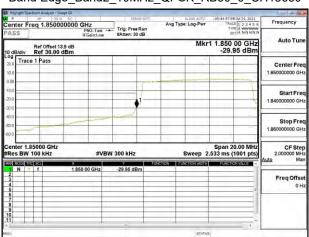
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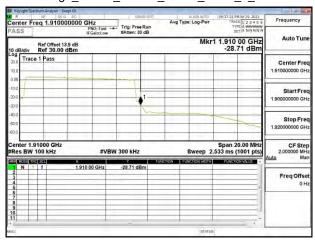
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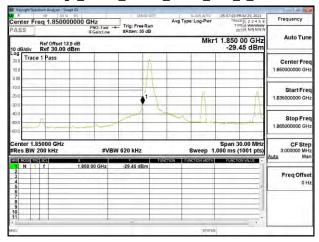
### Band Edge Band2 10MHz QPSK RB50 0 CH18650



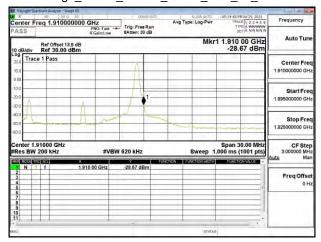
#### Band Edge Band2 10MHz QPSK RB50 0 CH19150



#### Band Edge Band2 15MHz QPSK RB1 0 CH18675



### Band Edge Band2 15MHz QPSK RB1 74 CH19125



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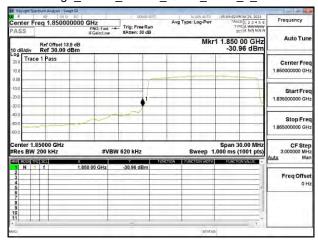
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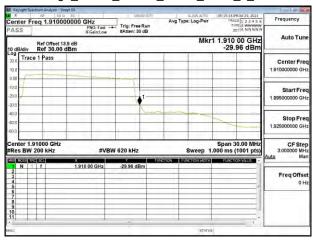


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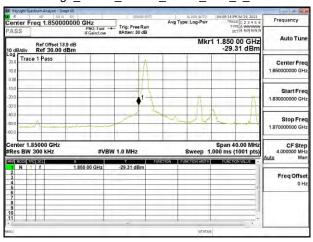
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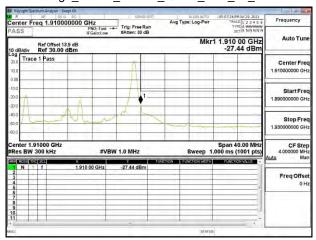
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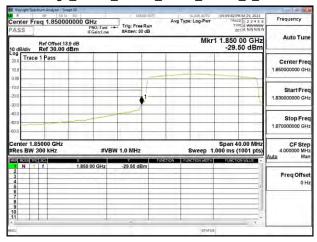
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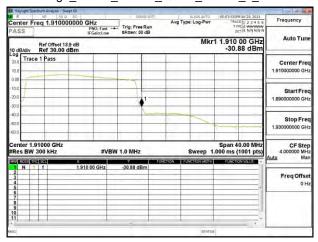
#### Band Edge Band2 20MHz QPSK RB1 99 CH19100



#### Band Edge Band2 20MHz QPSK RB100 0 CH18700



### Band Edge Band2 20MHz QPSK RB100 0 CH19100



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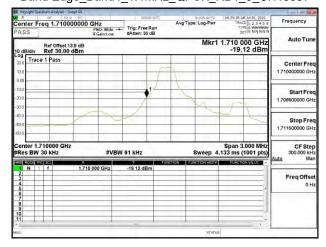
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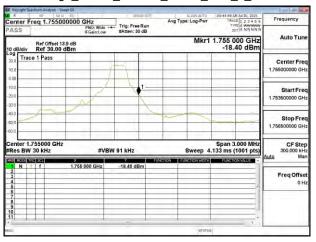


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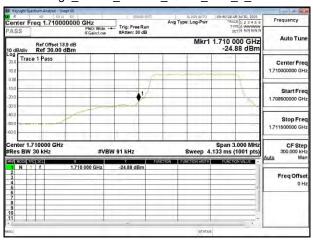
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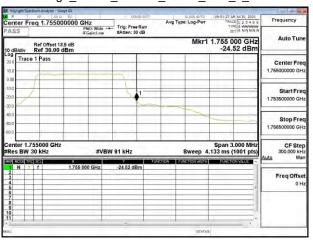
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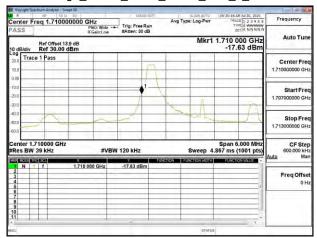
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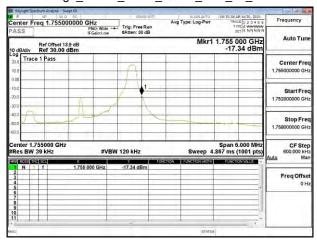
#### Band Edge Band4 1.4MHz QPSK RB6 0 CH20393



#### Band Edge Band4 3MHz QPSK RB1 0 CH19965



### Band Edge Band4 3MHz QPSK RB1 14 CH20385



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