

Page 1 of 164

ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

OF

Sharp Corporation, Mobile Communication B.U.

FCC Applicant: 2-13-1, Hachihonmatsu-lida, Higashi-hiroshima-shi, Hiroshima,

739-0192, Japan

Sharp Corporation FCC Manufacturer:

1 Takumi-cho, Sakai-ku, Sakai City, Osaka 590-8522, Japan

Product Name: Smart phone **Report Number:** ER/2020/B0118 FCC ID APYHRO00292

FCC Rule Part: 2, 22H & 24E & 27 C Issue Date: January 27, 2021

November 24, 2020 - December 18, 2020 Date of Test:

Date of EUT Received: November 24, 2020

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 C63.26-2015 and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits.

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

Approved By:

Blue Yang / Asst. Manager

Men Lay





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Page 2 of 164

Revision History								
Report Number	Revision	Description	Issue Date	Remark				
ER/2020/B0118	Rev.00	Original.	January 27, 2021	Revised By: Violetta Tang				

Note:

1 Disclaimer

Antenna information is provided by the applicant, test results of this report are applicable to the sample EUT received.

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Page 3 of 164

Contents

1	GENERAL PRODUCT INFORMATION	4
2	SYSTEM TEST CONFIGURATION	8
3	SUMMARY OF TEST RESULTS	11
4	DESCRIPTION OF TEST MODES	12
5	MEASUREMENT UNCERTAINTY	15
6	MAXMUM OUTPUT POWER	16
7	OCCUPIED BANDWIDTH MEASUREMENT	40
8	OUT OF BAND EMISSION AT ANTENNA TERMINALS	74
9	FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT	95
	FREQUENCY STABILITY MEASUREMENT	
_	DEAK TO MIEDAGE DATIO	_

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Page 4 of 164

GENERAL PRODUCT INFORMATION

Product Description

General:

Product Name:	Smart phone
Hardware Version:	DVT
Software Version:	N/A
Power Supply:	3.85 Vdc from Rechargeable Li-polymer Battery
Antenna Designation:	Inverted-F Antenna, Gain: -4.2dBi (GSM/GPRS 800, WCDMA B5, LTE B5) -4.3dBi (GSM/GPRS 1900) -4.8dBi (LTE B12, LTE B17) -3.9dBi (LTE B38, LTE B41)
IMEI:	004401230121341/004401230120731/004401230120921 004401230120475/004401230120574/004401230122307

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Page 5 of 164

1.2 **Operation Frequency Range**

Operating Frequency (MHz)						
GSM/GPRS 850	824.2	-	848.8			
GSM/GPRS 1900	1850.2	-	1909.8			

Operating Frequency	uency (MHz)	
WCDMA / HSPA+ Band V	826.4 -	846.6

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

LTE Band 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 Frequency (MHz)						
5	706.5	-	713.5			
10	709.0	-	711.0			

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

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

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

Type of Linission & Max Litt/Litte Fower Measurement itesuit.								
	ERP / EIR	P (dBm)	W 99%		Type of Emission			
GSM 850	26.56	ERP	0.453	0.2457	246KGXW			
GPRS 850	26.54	ERP	0.451	0.2473	247KGXW			
GSM 1900	25.65	EIRP	0.367	0.2478	248KGXW			
GPRS 1900	25.61	EIRP	0.364	0.2462	246KGXW			
	ERP / EIRP (dBm)		W	99%	Type of Emission			
WCDMA Band V	18.04	ERP	0.064	4.1454	4M15F9W			
HSDPA Band V	17.06	ERP	0.051	4.1400	4M14F9W			
HSUPA Band V	17.08	ERP	0.051	4.1445	4M14F9W			

LTE Band	BW	Modulation	ERP / EIRP (dBm)		(W)	99%	Type of Emission
Dana		QPSK	16.82	ERP	0.048	1.0950	G7D
5	1.4	16QAM	16.37	ERP	0.043	1.0976	D7W
		64QAM	14.80	ERP	0.030	1.0966	D7W
		QPSK	16.94	ERP	0.049	2.6989	G7D
5	3	16QAM	16.38	ERP	0.043	2.7003	D7W
		64QAM	14.87	ERP	0.031	2.7017	D7W
		QPSK	16.92	ERP	0.049	4.4999	G7D
5	5	16QAM	16.43	ERP	0.044	4.4997	D7W
		64QAM	14.83	ERP	0.030	4.5072	D7W
		QPSK	17.05	ERP	0.051	9.0027	G7D
5	10	16QAM	16.34	ERP	0.043	8.9506	D7W
		64QAM	14.88	ERP	0.031	8.9910	D7W
LTE Band	BW	Modulation	ERP / E (dBm		(W)	99%	Type of Emission
		QPSK	16.33	ERP	0.043	1.0958	G7D
12	1.4	16QAM	15.82	ERP	0.038	1.0976	D7W
		64QAM	14.37	ERP	0.027	1.0962	D7W
		QPSK	16.43	ERP	0.044	2.7030	G7D
12	3	16QAM	15.80	ERP	0.038	2.7014	D7W
		64QAM	14.38	ERP	0.027	2.7140	D7W
		QPSK	16.41	ERP	0.044	4.5089	G7D
12	5	16QAM	15.76	ERP	0.038	4.5063	D7W
		64QAM	14.36	ERP	0.027	4.5194	D7W
		QPSK	16.94	ERP	0.049	9.0487	G7D
12	10	16QAM	16.05	ERP	0.040	8.9867	D7W
		64QAM	14.44	ERP	0.028	9.0174	D7W
LTE Band	BW	Modulation	ERP / E (dBm		(W)	99%	Type of Emission
		QPSK	16.39	ERP	0.044	4.5066	G7D
17	5	16QAM	16.03	ERP	0.040	4.4974	D7W
		64QAM	14.33	ERP	0.027	4.5172	D7W
		QPSK	16.54	ERP	0.045	8.9698	G7D
17	10	16QAM	15.57	ERP	0.036	8.9167	D7W
		64QAM	14.41	ERP	0.028	8.9433	D7W

LTE	BW	Modulation	ERP / E	EIRP	(W)	99%	Type of
Band	DVV	Woodulation	(dBn	,	(۷۷)	7770	Emission
		QPSK	18.79	EIRP	0.076	4.5110	G7D
38	5	16QAM	17.96	EIRP	0.063	4.5027	D7W
		64QAM	17.19	EIRP	0.052	4.5085	D7W
		QPSK	19.07	EIRP	0.081	8.9990	G7D
38	10	16QAM	18.19	EIRP	0.066	8.9826	D7W
		64QAM	17.21	EIRP	0.053	9.0015	D7W
		QPSK	19.25	EIRP	0.084	13.517	G7D
38	15	16QAM	18.40	EIRP	0.069	13.516	D7W
		64QAM	17.26	EIRP	0.053	13.479	D7W
		QPSK	19.44	EIRP	0.088	17.959	G7D
38	20	16QAM	18.73	EIRP	0.075	17.972	D7W
		64QAM	17.26	EIRP	0.053	17.993	D7W
LTE	BW	Modulation	ERP / E	IRP	0.00	000/	Type of
Band	DVV	iviouulalioii	(dBn	n)	(W)	99%	Emission
		QPSK	19.71	EIRP	0.094	4.5102	G7D
41	5	16QAM	19.20	EIRP	0.083	4.5078	D7W
		64QAM	18.11	EIRP	0.065	4.5137	D7W
		QPSK	19.65	EIRP	0.092	9.0047	G7D
41	10	16QAM	18.83	EIRP	0.076	8.9811	D7W
		64QAM	18.02	EIRP	0.063	8.9912	D7W
		QPSK	19.77	EIRP	0.095	13.510	G7D
41	15	16QAM	18.82	EIRP	0.076	13.505	D7W
		64OAM	18.13			13.475	D7W
		0.4.				4= 0=0	
		QPSK	19.89	EIRP	0.097	17.970	G7D
41	20		19.89 19.15	EIRP EIRP	0.097 0.082	17.970	G7D D7W

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Page 7 of 164

1.4 Test Methodology of Applied Standards

FCC 47 CFR Part 2, 22H, 24E, 27C

ANSI C63.26-2015

KDB971168 D01 Power Meas license Digital System v03r01

KDB941225 D01 SAR test for 3G devices v03r01 (SAR Measurement Procedures for 3G Devices, WCDMA / HSPA) was used for EUT and Base station setting.

KDB412172 D01 Determining ERP and EIRP v01r01

TS 151 010-1 is used to set, and measure the output power.

Test Facility

SGS Taiwan Ltd. Central RF Lab (TAF code 3702)

No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803 FCC Designation number: TW0027

Special Accessories 1.6

No special accessories were used during testing.

Equipment Modifications 1.7

There was no modifications incorporated into the EUT.

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 result came out very similar.

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Page 8 of 164

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.

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Page 9 of 164

Measurement Results Explanation Example 2.4 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. 2G/3G:

	RF cable loss (dB)	Attenuation factor(dB)	offset(dB)
Low Band (Below 1GHz)	4.03	10	14.03
High Band (Above 1 GHz)	4.54	10	14.54

LTE:

	RF cable loss (dB)	Attenuation factor(dB)	offset(dB)
Low Band (Below 1GHz)	4.03	10	14.03
Middle Band (1 GHz - 2 GHz)	4.54	10	14.54
Middle Band (2 GHz - 3 GHz)	4.87	10	14.87

2.5 Final Amplifier Voltage and Current Information:

Test Mode	DC voltage (V)	DC current (mA)
GSM 850		944
GSM 1900		888
HSUPA B5		930
LTE Band 5	3.85	1268
LTE Band 12	3.00	1267
LTE Band 17		1269
LTE Band 38		1257
LTE Band 41		1254

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Page 10 of 164

2.6 **Configuration of Tested System**

Fig. 2-1 Configuration of Tested System (Fixed Channel-Conducted)

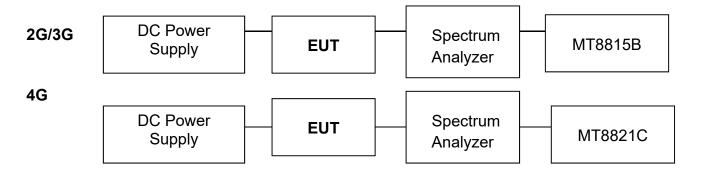


Fig. 2-2 Configuration of Tested System (Fixed Channel-Radiated)

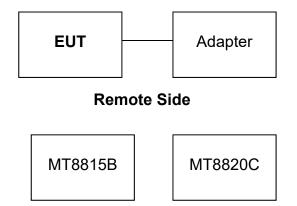


Table 2-1 Equipment Used in

Item	Equipment	Mfr/Brand	Model/ Type No.	Series No.	Data Cable	Power Cord	
1.	Radio Communication Analyzer	Anritsu	MT8815B	6200711454	shielded	Un-shielded	
2.	Radio Communication Analyzer	Anritsu	MT8821C	6261786084	shielded	Un-shielded	
3.	Radio Communication Analyzer	Anritsu	MT8820C	6200711454	shielded	Un-shielded	

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SUMMARY OF TEST RESULTS

FCC Rules	Description Of Test	Result
§2.1046(a)	RF Power Output	Compliant
§22.913(a)(5) §24.232(c) §27.50(c)(9) §27.50(h)(2)	ERP/ EIRP measurement	Compliant
§2.1049(h)	99% & 26dB Occuupied Bandwidth	Compliant
§2.1051 §22.917(a) §24.238(a) §27.53(g) §27.53(m)(4)(6)	Out of Band Emissions at Antenna Terminals and Band Edge / Emission mask requirements	Compliant
§2.1053 §22.917(a) §24.238(a) §27.53(g) §27.53(m)(2)	Field Strength of Spurious Radiation	Compliant
§27.50(a)(1)(B)	Peak to Average Ratio	Compliant
§2.1055(a)(1) §22.355 §24.235 §27.54	Frequency Stability	Compliant

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Page 12 of 164

4 DESCRIPTION OF TEST MODES

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 PLAN	E1 PLAN	E2 PLAN
GSM/GPRS 850	V		
GSM/GPRS 1900	V		
WCDMA/HSPA Band V	V		
LTE Band 5	V		
LTE Band 12	V		
LTE Band 17	V		
LTE Band 38	V		
LTE Band 41	V		

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Page 13 of 164

4.2 **Measurement Configuration**

<u> </u>										
Test Items	GSM	Test Channel								
rest items	Bands	L	М	Н						
ERP	850	V	٧	٧						
EIRP	1900	V	V	V						
FREQUENCY STABILITY	850	-	٧	-						
TREQUENCT STABILITY	1900	-	٧	-						
OCCUPIED BANDWIDTH	850	V	٧	٧						
OCCOPIED BANDWIDTH	1900	V	٧	V						
PEAK TO AVERAGE	850	V	٧	٧						
RATIO	1900	V	٧	٧						
BAND EDGE	850	V	-	٧						
DAIND EDGE	1900	V	-	V						
CONDCUDETED EMISSION	850	V	V	V						
CONDCODETED LIMISSION	1900	V	V	V						
RADIATED EMISSION	850	V	V	V						
INADIATED LIVITOSION	1900	V	V	V						

Test Items	WCDMA / HSPA	Test	Test Channel				
rest items	Bands	L	М	Н			
ERP	Band V	V	٧	V			
FREQUENCY STABILITY	Band V	-	٧	-			
OCCUPIED BANDWIDTH	Band V	V	٧	V			
PEAK TO AVERAGE	Band V	V	٧	V			
BAND EDGE	Band V	V	-	V			
CONDCUDETED EMISSION	Band V	V	٧	V			
RADIATED EMISSION	Band V	V	٧	V			

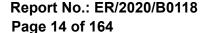
Test Items	Band	Tes	t Char	nnel		Ba	ndwid	th (M	Hz)		Modulation			RB#		
rest items	Dallu	L	М	Н	1.4	3	5	10	15	20	QPSK	16QAM	64QAM	1	Half	Full
	5	٧	V	٧	V	٧	V	V	-	-	٧	V	٧	٧	V	V
Max.	12	٧	V	V	٧	٧	V	V	-	-	V	V	V	٧	٧	V
Output	17	٧	٧	V	-	•	٧	٧	-	-	V	٧	V	٧	٧	V
Power	38	٧	٧	٧	-	٠	٧	٧	٧	V	V	٧	V	٧	٧	V
	41	٧	٧	٧	-	-	V	٧	V	V	V	٧	V	٧	V	V
	5	ı	V	-				٧	-	-	V	ı	-	•	-	V
Freqency	12	-	V	-				٧	-	-	V	-	-	-	-	V
Stability	17	-	V	-	-	-		٧	-	-	V	-	-	-	-	V
Stubility	38	-	V	-	-	-		V			V	-	-	-	-	V
	41	-	V	-	-	-		V			V	-	-	-	-	V
Test Items	Band	Tes	Test Channel			Bandwidth (MHz)					Мо	dulati	ion		RB#	
Test items	Dana	L	М	Н	1.4	3	5	10	15	20	QPSK	16QAM	64QAM	1	Half	Full
	5	V	V	V	V	٧	V	V	-	-	V	V	V	-	-	V
26dB and	12	V	V	V	V	V	V	٧	-	-	V	V	V	-	-	V
99%	17	V	V	V	-	-	V	٧	-	-	V	V	V	-	-	V
Bandwidth	38	V	V	V	-	-	V	V	V	٧	V	V	V	-	-	V
	41	V	V	V	-	-	V	V	V	V	V	V	V	-	-	V
	5	V	V	V	V	V	V	٧	-	-			V	-	-	V
Peak-to-Av	12	V	V	V	V	٧	V	V	-	-			V	-	-	V
erage Ratio	17	V	V	٧	-	-	V	V	-	-			V	-	-	V
crage Ratio	38	V	V	٧	-	-	V	٧	V	V			V	-	-	V
	41	V	v	٧	-	-	l v	v	V	V			V	-	-	V

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		Tes	Test Channel			Bandwidth (MHz)						Modulation			RB#		
Test Items	Band	L M H			1.4					QPSK 16QAM 64QAM			1	Half	Full		
	5	٧	-	V	-	-	-	٧	-	-	٧	-	-	V	ν	٧	
	12	٧	-	V	-	-	-	٧	-	-	٧	-	-	٧	٧	٧	
Band Edge	17	٧	-	٧	-	-	-	٧	-	-	٧	-	-	V	٧	٧	
	38	V	-	V	-	-	-	-	-	V	V	-	-	٧	V	٧	
	41	٧	-	V	-	-	-	-	-	٧	V	-	-	٧	٧	V	
	5	V	٧	V	-	-	-	٧	-	-	٧	-	-	V	-	-	
Conducted	12	V	٧	V	-	-	-	V	-	-	٧	-	-	٧	-	-	
Emission	17	٧	٧	٧	-	-	-	٧	-	-	٧	-	-	V	-	-	
LIIIISSIUII	38	٧	٧	٧	-	-	-	-	-	٧	٧	-	-	V	-	-	
	41	٧	٧	V	-	-	-	-	-	V	V	-	-	V	-	-	
Test Items	Band	Tes	t Char	nnel		Bai	ndwid	th (M	Hz)		Modulation			RB#			
1 CSt ItCIIIS	Danu	L	M	Н	1.4	3	5	10	15	20	QPSK	16QAM	64QAM	1	Half	Full	
	5	V	V	V				V	-	-	V			V			
Radiated	12	٧	V	V				٧	•	ı	V			٧			
Emission	17	٧	V	٧	•	-		٧	-	•	٧			V			
LIIII331011	38	٧	V	V	•	•				٧	V			V			
	41	V	V	V	-	-				V	V			V			

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Page 15 of 164

MEASUREMENT UNCERTAINTY

Test Items	Uncertainty
RF Power Output	+/- 1.10 dB
ERP/ EIRP measurement	Vertical Polarization = +/- 4.74dB Horizontal Polarization =+/- 4.62dB
99% Occupied Bandwidth	+/- 5.19 Hz
Out of Band Emissions at Antenna Terminals and Band Edge	+/- 0.70 dB
Peak to Average Ratio	+/- 0.70 dB
Frequency Stability vs. Temperature	+/- 5.19 Hz
Frequency Stability vs. Voltage	+/- 5.19 Hz
Temperature	+/- 0.65 °C
Humidity	+/- 4.6 %
DC / AC Power Source	DC= +/- 0.13%, AC=+/- 0.2%

Radiated Spurious Emission:

	9kHz – 30MHz: +/- 2.87 dB					
Macaurament upportainty	30MHz - 180MHz: +/- 3.37dB					
Measurement uncertainty (Polarization : Vertical)	180MHz -417MHz: +/- 3.19dB					
	0.417GHz-1GHz: +/- 3.19dB					
	1GHz - 18GHz: +/- 4.04dB					
	18GHz - 40GHz: +/- 4.04dB					

	9kHz – 30MHz: +/- 2.87 dB					
NA	30MHz - 167MHz: +/- 4.22dB					
Measurement uncertainty (Polarization : Horizontal)	167MHz -500MHz: +/- 3.44dB					
	0.5GHz-1GHz: +/- 3.39dB					
	1GHz - 18GHz: +/- 4.08dB					
	18GHz - 40GHz: +/- 4.08dB					

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

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Page 16 of 164

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.

ERP/EIRP LIMIT 6.1.1

According to FCC §2.1046

FCC 22.913(a) LTE 5

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

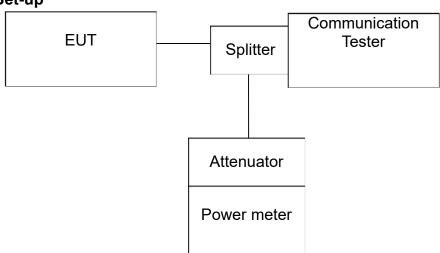
FCC 27.50(c) LTE 12 / 17

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

FCC 27, 50(h) LTE 38 / 41

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

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. TS 151 010-1 is reference to conduct the test measurement of output power. The Procedure of KDB941225 (SAR Measurement Procedures for 3G devices, (WCDMA/HSPA) was used for EUT and Base station setting. RMC 12.2kps is used for this

testing, and KDB 971168 D01 Power Meas License Digital System as the supplemental test methodology to adjust the proper setting obtaining the measurement results.

All LTE bands conducted average power is obtained from the simulator telecommunication test set.

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Page 17 of 164

Determining ERP and/or EIRP from conducted RF output power measurements 6.4 According to KDB 412172 D01 Power Approach,

 $EIRP = P_T + G_T - L_C$

ERP= EIRP-2.15,

Where:

= effective radiated power or equivalent isotropically radiated power (ex-**ERP or EIRP**

> pressed 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;

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

= signal attenuation in the connecting cable between the transmitter and

antenna, in dB.

Measurement Equipment Used 6.5

Condu	Conducted Emission (measured at antenna port) Test Site												
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.								
TYPE		NUMBER	NUMBER	CAL.									
DC Power Supply	Agilent	E3640A	MY40000811	12/23/2019	12/22/2020								
Radio Communication Analyzer	Anritsu	MT8815B	6200711454	04/01/2020	03/31/2021								
Radio Communication Analyzer	Anritsu	MT8821C	6261786084	01/18/2020	01/17/2021								
Attenuator	Mini-Circuit	BW-S10W2+	2	01/02/2020	01/01/2021								

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Page 18 of 164

6.6 **GSM Measurement Results**

GSM/GPRS/EDGE (GMSK: 8-PSK) Result:

EUT Mode	Freq. (MHz)	СН	Conducted Avg. Power (dBm)	Antenna Gain (dBi)	ERP (dBm)	EIRP (dBm)	Limit (dBm)	Margin (dB)
0.014	824.2	128	32.91	-4.20	26.56	28.71	38.50	-9.79
GSM 850	836.6	190	32.34	-4.20	25.99	28.14	38.50	-10.36
030	848.8	251	32.41	-4.20	26.06	28.21	38.50	-10.29
0014	1850.2	512	29.95	-4.30	23.50	25.65	33.00	-7.35
GSM 1900	1880.0	661	29.85	-4.30	23.40	25.55	33.00	-7.45
1700	1909.8	810	29.83	-4.30	23.38	25.53	33.00	-7.47
0000	824.2	128	32.89	-4.20	26.54	28.69	38.50	-9.81
GPRS 850	836.6	190	32.31	-4.20	25.96	28.11	38.50	-10.39
030	848.8	251	32.37	-4.20	26.02	28.17	38.50	-10.33
CDDC	1850.2	512	29.91	-4.30	23.46	25.61	33.00	-7.39
GPRS 1900	1880.0	661	29.82	-4.30	23.37	25.52	33.00	-7.48
1700	1909.8	810	29.79	-4.30	23.34	25.49	33.00	-7.51

EUT Mode	Frequency (MHz)	СН	Average Burst Power (1DN 1UP) Class 8 (dBm)	Average Burst Power (1DN 2UP) Class 10 (dBm)	Average Burst Power (1DN 3UP) Class 12 (dBm)	Average Burst Power (1DN 4UP) Class 12 (dBm)
0000	824.2	128	32.89	29.72	27.77	27.23
GPRS 850	836.6	190	32.31	29.52	27.64	27.27
030	848.8	251	32.37	29.62	27.66	27.31
CDDC	1850.2	512	29.91	27.02	24.84	24.14
GPRS 1900	1880.0	661	29.82	26.71	24.55	23.98
1700	1909.8	810	29.79	26.59	24.64	23.97

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Page 19 of 164

6.7 WCDMA & HSPA Measurement Results:

The following tests were completed according to the test requirements outlined in section 5.2 of the 3GPP TS34.121-1 specification. The EUT supports power Class 3, which has a nominal maximum output power of **25dBm**. RMC 12.2kps is used for this testing.

WCDMA/HSUPA/HSDPA Band V Result:

EUT Mode	Freq. (MHz)	СН	Conducted Avg. Power (dBm)	Antenna Gain (dBi)	ERP (dBm)	EIRP (dBm)	Limit (dBm)	Margin (dB)
	826.4	4132	24.37	-4.20	18.02	20.17	38.50	-18.33
WCDMA	836.6	4183	24.36	-4.20	18.01	20.16	38.50	-18.34
	846.6	4233	24.39	-4.20	18.04	20.19	38.50	-18.31
	826.4	4132	23.40	-4.20	17.05	19.20	38.50	-19.30
HSDPA	836.6	4183	23.38	-4.20	17.03	19.18	38.50	-19.32
	846.6	4233	23.41	-4.20	17.06	19.21	38.50	-19.29
	826.4	4132	23.41	-4.20	17.06	19.21	38.50	-19.29
HSUPA	836.6	4183	23.43	-4.20	17.08	19.23	38.50	-19.27
	846.6	4233	23.42	-4.20	17.07	19.22	38.50	-19.28

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Page 20 of 164

6.7.1 HSPA (HSDPA & HSUPA) Release 6:

The following 4 Sub-Tests were completed according to the test requirements outlined in section 5.2A of the 3GPP TS34.121-1 specification. All TX RMS power requirements for Power Class 3 were met according to table 5.2AA.5 and 5.2B.5 All UE channels and power ratio's are set according to table C10.1.4 & C11.1.3 in the 3GPP TS34.121-1. RMC 12.2kps is used for this testing.

6.7.2 **HSDPA SUB-TEST Setting**

Table C.10.1.4: β values for transmitter characteristics tests with HS-DPCCH(FOR HSDPA)

Sub-test	βς	βa	β _d (SF)	βc/βd	β _{HS} (Note1, Note 2)	CM (dB) (Note 3)	MPR (dB) (Note 3)	RMC (Kbps)
1	2/15	15/15	64	2/15	4/15	0.0	0.0	12.2
2	12/15 (Note 4)	15/15 (Note 4)	64	12/15 (Note 4)	24/15	1.0	0.0	12.2
3	15/15	8/15	64	15/8	30/15	1.5	0.5	12.2
4	15/15	4/15	64	15/4	30/15	1.5	0.5	12.2

Note: The recommended HSDPA MPRs are implemented as per following sub-tests.

Mode	Sub test	l (Channel					
	เธอเ	4132.00	4183.00	4233.00			
	1	23.40	23.38	23.41			
HSDPA V	2	22.90	22.89	22.91			
нэрра у	3	22.89	22.87	22.89			
	4	22.86	22.85	22.88			

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Page 21 of 164

6.7.3 **HSPA SUB-TEST Setting**

Table C.11.1.3: β values for transmitter characteristics tests with HS-DPCCH and E-DCH(FOR

	11001	,		ı					1			1		_
Sub- test	βε	βa	β _d (SF)	βε/βα	βнs	βес	$eta_{ extsf{ed}}$	β _{ed} (SF)	β _{ed} (Code s)	CM (dB)	MPR (dB)	AG Index	E-TFCI	RMC (Kbps)
1	11/15 (Note 3)	15/15 (Note 3)	64	11/15 (Note 3)	22/15	209/22 5	1309/225	4	1	1.0	0.0	20	75	12.2
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67	12.2
3	15/15	9/15	64	15/9	30/15	30/15	β _{ed} 1: 47/15 β _{ed} 2: 47/15	4 4	2	2.0	1.0	15	92	12.2
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71	12.2
5	15/15 (Note 4)	15/15 (Note 4)	64	15/15 (Note 4)	30/15	24/15	134/15	4	1	1.0	0.0	21	81	12.2

Note: The recommended HSUPA MPRs are implemented as per following sub-tests.

Mode	Sub	Avg. Power (dBm) Channel					
	test	4132.00	4183.00	4233.00			
	1	23.41	23.43	23.42			
	2	21.43	21.41	21.39			
HSUPA V	3	22.43	22.41	22.42			
	4	21.41	21.41	21.44			
	5	23.42	23.51	23.41			

6.7.4 WCDMA/HSDPA/HSUPA band V

The EUT output power was controlled by simulator and enter max rated power 24dBm. The EUT is going to be set to max output power to 24dBm then record the read. The min. power was measures by a function key "minimum power" then record the read. It is -52.3dBm. The power variation can be 0.1dB step by setting.

6.7.5 **Minimum Communications Power Measurement**

PCS 1900 band

PCL	0	1	2	3	4	5	6	7	8
Output power (dBm)	30.47	29.12	27.16	25.1	22.94	20.86	18.84	17.03	14.9

PCL	9	10	11	12	13	14	15
Output power (dBm)	12.82	10.85	8.84	6.86	4.82	2.8	1.23

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Page 22 of 164

6.8 LTE Measurement Results:

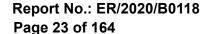
Antenna (gain (dBi)	-4.2								
			LTE Ba	nd 5_l	Jplink fi	requency band	: 824 to 849 M	Hz		·
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	ERP Limit (dBm)	Margin (dB)
				1	0	23.12	16.77	18.92	38.45	-21.68
				1	5	23.10	16.75	18.90	38.45	-21.70
	20407	824.7	QPSK	3	2	23.15	16.80	18.95	38.45	-21.65
				6	0	22.13	15.78	17.93	38.45	-22.67
				1	0	23.06	16.71	18.86	38.45	-21.74
	20525	007.5	ODCK	1	5	23.09	16.74	18.89	38.45	-21.71
	20525	836.5	QPSK	3	2	23.16	16.81	18.96	38.45	-21.64
				6	0	22.19	15.84	17.99	38.45	-22.61
Ī				1	0	23.02	16.67	18.82	18.82 38.45	-21.78
	204.42	848.3	QPSK	1	5	22.99	16.64	18.79	38.45	-21.81
20643	20043	040.3	QPSK	3	2	23.17	16.82	18.97	38.45	-21.63
				6	0	22.11	15.76	17.91	38.45	-22.69
				1	0	22.72	16.37	18.52	38.45	-22.08
	20407	824.7	16QAM	1	5	22.29	15.94	18.09	38.45	-22.51
	20407	024.7	TOCAW	3	2	22.08	15.73	17.88	38.45	-22.72
				6	0	21.21	14.86	17.01	38.45	-23.59
				1	0	22.31	15.96	18.11	38.45	-22.49
1.4	20525	836.5	16QAM	1	5	22.15	15.80	17.95	38.45	-22.65
1.4	20323			3	2	22.11	15.76	17.91	38.45	-22.69
				6	0	21.13	14.78	16.93	38.45	-23.67
				1	0	22.41	16.06	18.21	38.45	-22.39
	20643	848.3	16QAM	1	5	22.25	15.90	18.05	38.45	-22.55
	20043		TOCAIVI	3	2	21.99	15.64	17.79	38.45	-22.81
				6	0	21.21	14.86	17.01	38.45	-23.59
				1	0	21.15	14.80	16.95	38.45	-23.65
	20407	824.7	64QAM	1	5	21.04	14.69	16.84	38.45	-23.76
	20407	024.7	04QAIVI	3	2	20.39	14.04	16.19	38.45	-24.41
				6	0	19.94	13.59	15.74	38.45	-24.86
				1	0	21.11	14.76	16.91	38.45	-23.69
	20525	836.5	64QAM	1	5	20.97	14.62	16.77	38.45	-23.83
	20323	030.0	U+QAIVI	3	2	20.49	14.14	16.29	38.45	-24.31
				6	0	19.90	13.55	15.70	38.45	-24.90
				1	0	20.92	14.57	16.72	38.45	-23.88
	20643	848.3	64QAM	1	5	20.91	14.56	16.71	38.45	-23.89
	20043	070.3	UTUAIVI	3	2	20.41	14.06	16.21	38.45	-24.39
				6	0	19.85	13.50	15.65	38.45	-24.95

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Antenna gain (dBi) -4.2LTE Band 5_Uplink frequency band: 824 to 849 MHz Conducted **ERP EIRP ERP** UL **RB** BW Frequency **RB** Margin Modulation Average Average Average Limit (MHz) Channel (MHz) Size Offset (dB) (dBm) (dBm) (dBm) (dBm) 1 0 23.20 -21.60 16.85 19.00 38.45 14 -21.73 1 23.07 16.72 18.87 38.45 20415 825.5 **QPSK** 8 4 22.28 15.93 18.08 38.45 -22.52 15 0 22.27 15.92 18.07 38.45 -22.53 0 23.17 18.97 -21.63 1 16.82 38.45 14 1 23.21 19.01 -21.59 16.86 38.45 20525 836.5 **OPSK** 8 4 22.31 15.96 18.11 38.45 -22.49 15 0 22.18 15.83 17.98 38.45 -22.62 1 0 23.29 16.94 19.09 38.45 -21.51 1 14 23.19 16.84 18.99 38.45 -21.61 20635 847.5 **QPSK** 8 4 22.21 15.86 18.01 38.45 -22.59 0 15 22.23 15.88 18.03 38.45 -22.57 0 22.19 15.84 17.99 38.45 1 -22.61 1 14 22.46 -22.34 16.11 18.26 38.45 20415 825.5 16QAM 8 4 17.02 -23.58 21.22 14.87 38.45 15 0 14.77 16.92 21.12 38.45 -23.68 1 0 22.73 16.38 18.53 38.45 -22.07 22.54 1 14 16.19 18.34 38.45 -22.26 3 20525 836.5 160AM 8 4 21.28 14.93 17.08 -23.52 38.45 15 0 21.19 14.84 16.99 38.45 -23.61 0 22.22 15.87 18.02 38.45 -22.58 1 1 14 22.43 16.08 18.23 38.45 -22.37 20635 847.5 16QAM 4 8 21.17 14.82 16.97 38.45 -23.63 15 0 21.29 14.94 17.09 38.45 -23.51 0 1 21.22 14.87 17.02 38.45 -23.58 14 21.15 14.80 16.95 38.45 -23.65 20415 825.5 64QAM 8 4 13.83 15.98 -24.62 20.18 38.45 15 0 19.91 13.56 15.71 38.45 -24.89 0 14.78 16.93 1 21.13 38.45 -23.67 1 14 21.01 14.66 38.45 -23.79 16.81 20525 836.5 64QAM 8 13.78 15.93 -24.67 4 20.13 38.45 15 0 19.94 13.59 15.74 -24.86 38.45 1 0 21.09 14.74 16.89 38.45 -23.71 1 14 21.02 14.67 16.82 38.45 -23.78 20635 847.5 64QAM 8 4 20.03 13.68 15.83 38.45 -24.77 0 15 19.91 13.56 15.71 38.45 -24.89

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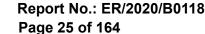
Page 24 of 164

Antenna g	ıain (dBi)	-4.2								
	(LTE Ba	nd 5 l	Jplink fi	requency band	: 824 to 849 M	Hz		
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	23.27	16.92	19.07	38.45	-21.53
	20425	826.5	QPSK	1	24	23.21	16.86	19.01	38.45	-21.59
	20423	020.3		12	6	22.20	15.85	18.00	38.45	-22.60
				25	0	22.29	15.94	18.09	38.45	-22.51
				1	0	23.11	16.76	18.91	38.45	-21.69
	20525	20525 836.5	QPSK	1	24	23.21	16.86	19.01	38.45	-21.59
	20020	030.3	QF 3N	12	6	22.25	15.90	18.05	38.45	-22.55
				25	0	22.28	15.93	18.08	38.45	-22.52
			1	0	23.23	16.88	19.03	38.45	-21.57	
	20625	846.5	QPSK	1	24	23.20	16.85	19.00	38.45	-21.60
	20023	040.3		12	6	22.23	15.88	18.03	38.45	-22.57
				25	0	22.15	15.80	17.95	38.45	-22.65
		826.5		1	0	22.72	16.37	18.52	38.45	-22.08
	20425		16QAM	1	24	22.10	15.75	17.90	38.45	-22.70
	20423	020.3		12	6	21.16	14.81	16.96	38.45	-23.64
				25	0	21.37	15.02	17.17	38.45	-23.43
		836.5	16QAM	1	0	22.78	16.43	18.58	38.45	-22.02
5	20525			1	24	22.20	15.85	18.00	38.45	-22.60
3	20323			12	6	21.31	14.96	17.11	38.45	-23.49
				25	0	21.18	14.83	16.98	38.45	-23.62
				1	0	22.71	16.36	18.51	38.45	-22.09
	20625	846.5	16QAM	1	24	22.46	16.11	18.26	38.45	-22.34
	20023			12	6	21.32	14.97	17.12	38.45	-23.48
				25	0	21.23	14.88	17.03	38.45	-23.57
				1	0	21.18	14.83	16.98	38.45	-23.62
	20425	826.5	64QAM	1	24	21.16	14.81	16.96	38.45	-23.64
	20423	020.5	UTQAW	12	6	20.15	13.80	15.95	38.45	-24.65
				25	0	19.91	13.56	15.71	38.45	-24.89
				1	0	21.16	14.81	16.96	38.45	-23.64
	20525	836.5	64QAM	1	24	21.04	14.69	16.84	38.45	-23.76
	20020	000.0	U-QAIVI	12	6	20.05	13.70	15.85	38.45	-24.75
				25	0	19.86	13.51	15.66	38.45	-24.94
				1	0	21.05	14.70	16.85	38.45	-23.75
	20625	846.5	64QAM	1	24	20.92	14.57	16.72	38.45	-23.88
	20020	0-0.0	UTUAINI	12	6	19.96	13.61	15.76	38.45	-24.84
				25	0	19.90	13.55	15.70	38.45	-24.90

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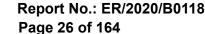




Antenna gain (dBi) -4.2LTE Band 5_Uplink frequency band: 824 to 849 MHz **EIRP** Conducted **ERP ERP RB** BW UL Frequency **RB** Margin Modulation Average Average **Average** Limit (MHz) Channel (MHz) Size Offset (dB) (dBm) (dBm) (dBm) (dBm) 1 0 38.45 -21.70 23.10 16.75 18.90 49 -21.43 1 23.37 17.02 19.17 38.45 20450 **QPSK** 829 25 12 22.25 15.90 18.05 38.45 -22.55 50 0 22.25 15.90 18.05 38.45 -22.55 0 23.40 17.05 19.20 -21.40 1 38.45 49 1 23.21 19.01 -21.59 16.86 38.45 20525 836.5 **OPSK** 25 12 22.26 15.91 18.06 38.45 -22.54 50 0 22.24 15.89 18.04 38.45 -22.56 1 0 23.25 16.90 19.05 38.45 -21.55 1 49 23.19 16.84 18.99 38.45 -21.61 20600 844 **QPSK** 25 12 22.16 15.81 17.96 38.45 -22.64 50 0 22.14 15.79 17.94 38.45 -22.66 1 0 22.35 16.00 18.15 38.45 -22.45 49 22.55 16.20 38.45 -22.25 18.35 20450 829 16QAM 17.13 25 12 -23.47 21.33 14.98 38.45 17.03 50 0 21.23 14.88 38.45 -23.57 1 0 22.28 15.93 38.45 -22.52 18.08 49 -22.49 1 22.31 15.96 18.11 38.45 20525 10 836.5 160AM 25 12 21.26 14.91 17.06 -23.54 38.45 50 0 21.26 14.91 17.06 38.45 -23.54 1 0 22.13 15.78 17.93 38.45 -22.67 49 1 22.69 16.34 18.49 38.45 -22.11 20600 844 16QAM 12 25 21.25 14.90 17.05 38.45 -23.55 50 0 21.21 14.86 17.01 38.45 -23.59 0 1 21.23 14.88 17.03 38.45 -23.57 -23.63 49 21.17 14.82 16.97 38.45 20450 829 64QAM 25 12 13.84 -24.61 20.19 15.99 38.45 50 0 20.03 13.68 15.83 38.45 -24.77 0 17.03 1 21.23 14.88 38.45 -23.571 49 14.72 38.45 -23.73 21.07 16.87 20525 836.5 64QAM 25 13.79 15.94 12 20.14 38.45 -24.66 50 0 19.99 15.79 -24.81 13.64 38.45 1 0 21.12 14.77 16.92 38.45 -23.68 1 49 21.03 14.68 16.83 38.45 -23.77 20600 844 64QAM 25 12 20.11 13.76 15.91 38.45 -24.69 50 0 20.02 13.67 15.82 38.45 -24.78

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Antenna gain (dBi) -4.8 LTE Band 12_Uplink frequency band: 699 to 716 MHz Conducted **ERP EIRP ERP** UL **RB** BW Frequency **RB** Margin Modulation **Average** Average Average Limit (MHz) Channel (MHz) Size Offset (dB) (dBm) (dBm) (dBm) (dBm) 1 16.23 18.38 34.77 -18.54 0 23.18 5 -18.50 1 23.22 16.27 18.42 34.77 23017 699.7 **QPSK** 3 2 23.23 16.28 18.43 34.77 -18.49 6 0 22.34 15.39 17.54 34.77 -19.38 0 23.11 34.77 1 16.16 18.31 -18.61 1 5 23.28 16.33 18.48 34.77 -18.44 23095 707.5 **OPSK** 3 2 23.22 16.27 18.42 34.77 -18.50 6 0 22.26 15.31 17.46 34.77 -19.46 1 0 23.13 16.18 18.33 34.77 -18.59 1 5 23.12 16.17 18.32 34.77 -18.60 23173 715.5 **QPSK** 3 2 23.22 16.27 18.42 34.77 -18.50 0 6 22.24 15.29 17.44 34.77 -19.48 1 0 22.77 15.82 17.97 34.77 -18.95 5 1 22.68 15.73 17.88 -19.04 34.77 23017 699.7 16QAM 2 3 17.47 22.27 15.32 34.77 -19.450 14.39 6 21.34 16.54 34.77 -20.38 1 0 22.28 15.33 17.48 34.77 -19.44 5 17.52 22.32 15.37 34.77 -19.40 1 23095 1.4 707.5 160AM 3 2 22.43 15.48 17.63 34.77 -19.29 6 0 21.33 14.38 16.53 34.77 -20.39 1 0 22.33 15.38 17.53 34.77 -19.39 5 1 22.15 15.20 17.35 34.77 -19.57 23173 715.5 16QAM 2 3 22.25 15.30 17.45 34.77 -19.47 6 0 21.38 14.43 16.58 34.77 -20.340 1 21.26 14.31 16.46 34.77 -20.46 5 21.26 14.31 16.46 34.77 -20.46 23017 699.7 64QAM 3 2 13.46 15.61 -21.31 20.41 34.77 6 0 20.14 13.19 15.34 34.77 -21.58 1 0 14.37 34.77 21.32 16.52 -20.40 1 5 21.21 14.26 16.41 34.77 -20.51 23095 707.5 64QAM 3 2 20.52 13.57 15.72 34.77 -21.20 0 20.10 13.15 15.30 34.77 -21.62 6 1 0 21.07 14.12 16.27 34.77 -20.65 1 5 21.22 14.27 16.42 34.77 -20.50 23173 715.5 64QAM 2 3 20.44 13.49 15.64 34.77 -21.28 0 6 20.08 13.13 15.28 34.77 -21.64

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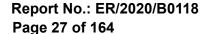
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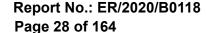




Antenna gain (dBi) -4.8LTE Band 12_Uplink frequency band: 699 to 716 MHz Conducted **ERP EIRP ERP RB** BW UL Frequency **RB** Margin Modulation Average Average Average Limit (MHz) Channel (MHz) Size Offset (dB) (dBm) (dBm) (dBm) (dBm) 1 23.23 16.28 34.77 -18.49 0 18.43 34.77 -18.51 1 14 23.21 16.26 18.41 23025 700.5 **QPSK** 8 22.30 15.35 17.50 34.77 -19.42 4 15 0 22.32 15.37 17.52 34.77 -19.4018.58 34.77 0 23.38 16.43 -18.34 1 1 23.25 18.45 14 16.30 34.77 -18.4723095 707.5 **QPSK** 8 4 22.36 15.41 17.56 34.77 -19.36 15 0 22.29 15.34 17.49 34.77 -19.43 1 0 23.16 16.21 18.36 34.77 -18.56 1 14 23.18 16.23 18.38 34.77 -18.54 **OPSK** 23165 714.5 8 22.29 15.34 17.49 34.77 -19.43 4 15 0 22.26 15.31 17.46 34.77 -19.461 0 22.62 15.67 17.82 34.77 -19.10 15.35 17.50 34.77 14 22.30 -19.4223025 700.5 16QAM 8 4 34.77 21.46 14.51 16.66 -20.2615 0 21.24 14.29 16.44 34.77 -20.48 1 0 22.48 15.53 17.68 34.77 -19.24 17.58 34.77 -19.34 14 22.38 15.43 3 23095 707.5 16QAM 8 4 21.31 14.36 16.51 34.77 -20.41 15 0 21.42 14.47 16.62 34.77 -20.30 1 0 22.53 15.58 17.73 34.77 -19.19 1 14 17.95 34.77 -18.97 22.75 15.80 23165 714.5 16QAM 34.77 8 4 21.40 14.45 16.60 -20.3215 0 21.29 14.34 34.77 -20.43 16.49 1 0 21.25 14.30 16.45 34.77 -20.47 1 14 21.28 14.33 16.48 34.77 -20.44 23025 700.5 64QAM 8 4 34.77 20.30 13.35 15.50 -21.42 15 0 20.16 13.21 15.36 34.77 -21.56 1 0 21.33 14.38 16.53 34.77 -20.39 1 14 21.19 14.24 16.39 34.77 -20.53 23095 707.5 64QAM 8 4 20.18 13.23 15.38 34.77 -21.54 15 0 20.19 13.24 15.39 34.77 -21.53 1 0 21.09 14.14 16.29 34.77 -20.63 21.10 14.15 16.30 34.77 -20.62 1 14 714.5 23165 64QAM 8 4 20.16 13.21 15.36 34.77 -21.56 34.77 15 0 20.10 13.15 15.30 -21.62

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Antenna gain (dBi) -4.8LTE Band 12_Uplink frequency band: 699 to 716 MHz Conducted **ERP EIRP ERP** UL **RB** BW Frequency **RB** Margin Modulation Average Average Average Limit (MHz) Channel (MHz) Size Offset (dB) (dBm) (dBm) (dBm) (dBm) 1 0 34.77 -18.51 23.21 16.26 18.41 24 18.56 1 23.36 16.41 34.77 -18.36 23035 701.5 **QPSK** 12 22.43 15.48 17.63 34.77 -19.29 6 25 0 22.36 15.41 17.56 34.77 -19.36 1 0 23.21 16.26 34.77 18.41 -18.51 24 1 23.34 16.39 18.54 34.77 -18.38 23095 707.5 **OPSK** 12 6 22.29 15.34 17.49 34.77 -19.43 25 0 22.46 15.51 17.66 34.77 -19.26 23.34 1 0 16.39 18.54 34.77 -18.38 1 24 23.24 16.29 18.44 34.77 -18.48 23155 713.5 **QPSK** 12 6 22.25 15.30 17.45 34.77 -19.47 17.49 25 0 22.29 15.34 34.77 -19.43 1 0 22.16 15.21 17.36 34.77 -19.56 24 1 22.54 15.59 17.74 34.77 -19.18 23035 701.5 16QAM 12 34.77 6 21.48 14.53 16.68 -20.24 25 0 14.32 16.47 21.27 34.77 -20.45 1 0 22.71 15.76 17.91 34.77 -19.01 24 17.83 1 22.63 15.68 34.77 -19.09 5 23095 707.5 160AM 12 6 21.44 14.49 16.64 34.77 -20.28 25 0 21.36 14.41 16.56 34.77 -20.36 1 0 22.28 15.33 17.48 34.77 -19.44 1 24 22.46 15.51 17.66 34.77 -19.26 23155 713.5 16QAM 12 6 21.72 14.77 16.92 34.77 -20.00 25 0 21.29 14.34 16.49 34.77 -20.43 0 1 21.31 14.36 16.51 34.77 -20.41 24 21.27 14.32 34.77 -20.45 16.47 23035 701.5 64QAM 12 20.27 13.32 15.47 -21.45 6 34.77 25 0 20.22 13.27 15.42 34.77 -21.50 0 14.26 16.41 34.77 1 21.21 -20.51 1 24 21.19 14.24 16.39 34.77 -20.53 23095 707.5 64QAM 12 20.21 13.26 34.77 -21.51 6 15.41 25 0 20.09 13.14 15.29 34.77 -21.63 1 0 21.07 14.12 16.27 34.77 -20.65 1 24 21.08 14.13 16.28 34.77 -20.64 23155 713.5 64QAM 12 6 20.17 13.22 15.37 34.77 -21.55

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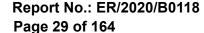
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15.27

34.77

-21.65





Antenna gain (dBi) -4.8LTE Band 12_Uplink frequency band: 699 to 716 MHz Conducted **ERP EIRP ERP** UL **RB** BW Frequency **RB** Margin Modulation Average Average Average Limit (MHz) Channel (MHz) Size Offset (dB) (dBm) (dBm) (dBm) (dBm) 1 16.25 34.77 -18.52 0 23.20 18.40 49 1 23.44 16.49 18.64 34.77 -18.28 704 **QPSK** 23060 25 12 22.40 15.45 17.60 34.77 -19.32 50 0 22.32 15.37 17.52 34.77 -19.40 0 23.19 16.24 34.77 1 18.39 -18.53 49 1 23.89 16.94 19.09 34.77 -17.8323095 707.5 **OPSK** 25 12 22.32 15.37 17.52 34.77 -19.40 50 0 22.41 15.46 17.61 34.77 -19.31 1 0 23.53 16.58 18.73 34.77 -18.19 1 49 23.17 16.22 18.37 34.77 -18.55 23130 711 **QPSK** 25 12 22.29 15.34 17.49 34.77 -19.43 50 0 22.15 15.20 17.35 34.77 -19.57 1 0 22.45 15.50 17.65 34.77 -19.27 1 49 16.05 18.20 34.77 -18.72 23.00 23060 704 16QAM 25 12 34.77 21.44 14.49 16.64 -20.28 16.75 50 0 21.55 14.60 34.77 -20.17 1 0 22.52 15.57 17.72 34.77 -19.20 49 17.83 -19.09 1 22.63 15.68 34.77 23095 707.5 10 160AM 25 12 21.37 14.42 16.57 34.77 -20.35 50 0 21.38 14.43 16.58 34.77 -20.34 0 22.34 15.39 17.54 34.77 -19.38 1 1 49 22.65 15.70 17.85 34.77 -19.07 23130 711 16QAM 12 25 21.51 14.56 16.71 34.77 -20.21 50 0 21.25 14.30 16.45 34.77 -20.47 1 0 21.36 14.41 16.56 34.77 -20.36 49 21.39 14.44 16.59 34.77 -20.33 23060 704 64QAM 25 12 13.42 15.57 -21.35 20.37 34.77 50 0 20.28 13.33 15.48 34.77 -21.44 0 14.38 34.77 -20.39 1 21.33 16.53 1 49 21.30 14.35 16.50 34.77 -20.42 23095 707.5 64QAM 25 20.27 13.32 15.47 34.77 12 -21.45 50 0 20.20 13.25 15.40 34.77 -21.52 1 0 21.19 14.24 16.39 34.77 -20.53 1 49 21.22 14.27 16.42 34.77 -20.50 23130 711 64QAM 25 12 20.28 13.33 15.48 34.77 -21.44 50 0 20.19 13.24 15.39 34.77 -21.53

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Page 30 of 164

Antenna	gain (dBi)	-4.8								
			LTE Bar	nd 17_	Uplink f	requency band	1: 704 to 716 N	lHz		
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	23.08	16.13	18.28	34.77	-18.64
	23755	706.5	QPSK	1	24	23.31	16.36	18.51	34.77	-18.41
	23733	700.3	QPSK	12	6	22.37	15.42	17.57	34.77	-19.35
				25	0	22.38	15.43	17.58	34.77	-19.34
				1	0	23.17	16.22	18.37	34.77	-18.55
	23790	710	QPSK	1	24	23.21	16.26	18.41	34.77	-18.51
	23770	710	QI 3K	12	6	22.34	15.39	17.54	34.77	-19.38
				25	0	22.28	15.33	17.48	34.77	-19.44
				1	0	23.34	16.39	18.54	34.77	-18.38
	23825	713.5	QPSK	1	24	23.31	16.36	18.51	34.77	-18.41
	23023	713.3	QI 3K	12	6	22.30	15.35	17.50	34.77	-19.42
				25	0	22.27	15.32	17.47	34.77 -1 34.77 -1 34.77 -1 34.77 -2 34.77 -2	-19.45
				1	0	22.44	15.49	17.64	34.77	-19.28
	23755	706.5	16QAM	1	24	22.39	15.44	17.59	34.77	-19.33
	23733	700.0	10071111	12	6	21.36	14.41	16.56	34.77	-20.36
				25	0	21.44	14.49	16.64	34.77	-20.28
			710 16QAM	1	0	22.34	15.39	17.54	34.77	-19.38
5	23790	710		1	24	22.58	15.63	17.78	34.77	-19.14
3	23770			12	6	21.31	14.36	16.51	34.77	-20.41
				25	0	21.29	14.34	16.49	34.77	-20.43
				1	0	22.66	15.71	17.86	34.77	-19.06
	23825	713.5	16QAM	1	24	22.98	16.03	18.18	34.77	-18.74
	23023			12	6	21.41	14.46	16.61	34.77	-20.31
				25	0	21.37	14.42	16.57	34.77	-20.35
				1	0	21.28	14.33	16.48	34.77	-20.44
	23755	706.5	64QAM	1	24	21.11	14.16	16.31	34.77	-20.61
	20700	700.0	5 1 2/ tivi	12	6	20.11	13.16	15.31	34.77	-21.61
				25	0	20.12	13.17	15.32	34.77	-21.60
				1	0	21.24	14.29	16.44	34.77	-20.48
	23790	710	64QAM	1	24	21.23	14.28	16.43	34.77	-20.49
	25770	, , , ,	5 1 W 11VI	12	6	20.23	13.28	15.43	34.77	-21.49
				25	0	20.14	13.19	15.34	34.77	-21.58
				1	0	21.27	14.32	16.47	34.77	-20.45
	23825	713.5	64QAM	1	24	20.96	14.01	16.16	34.77	-20.76
	20020	, 10.0	012/11/1	12	6	20.16	13.21	15.36	34.77	-21.56
				25	0	20.07	13.12	15.27	34.77	-21.65

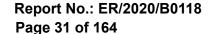
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Antenna gain (dBi) -4.8LTE Band 17_Uplink frequency band: 704 to 716 MHz **ERP EIRP ERP** Conducted BW UL Frequency **RB RB** Margin Modulation Average Average Average Limit (MHz) Channel (MHz) Size Offset (dB) (dBm) (dBm) (dBm) (dBm) 34.77 -18.51 1 0 23.21 16.26 18.41 49 23.27 16.32 18.47 34.77 -18.45 1 23780 709 **OPSK** 25 34.77 -19.34 12 22.38 15.43 17.58 50 0 22.32 15.37 17.52 34.77 -19.400 23.24 16.29 18.44 34.77 -18.48 1 1 49 34.77 -18.23 23.49 16.54 18.69 23790 710 **QPSK** 25 12 15.31 17.46 34.77 -19.46 22.26 50 0 22.27 15.32 17.47 34.77 -19.45 1 0 23.34 16.39 18.54 34.77 -18.38 49 23.12 16.17 18.32 34.77 -18.60 23800 711 **OPSK** 25 12 22.29 15.34 17.49 -19.43 34.77 50 0 22.20 15.25 17.40 34.77 -19.521 0 22.26 15.31 17.46 34.77 -19.46 49 1 22.51 15.56 17.71 34.77 -19.21 23780 709 16QAM 25 12 21.43 14.48 34.77 -20.29 16.63 0 14.39 34.77 50 21.34 16.54 -20.38 1 0 22.26 15.31 17.46 34.77 -19.46 1 49 22.48 15.53 17.68 34.77 -19.24 23790 10 710 16QAM 25 12 21.37 14.42 16.57 34.77 -20.3550 0 21.38 14.43 16.58 34.77 -20.34 1 0 15.24 -19.53 22.19 17.39 34.77 1 49 22.52 15.57 17.72 34.77 -19.20 23800 711 16QAM 25 12 21.37 14.42 16.57 34.77 -20.35 50 0 21.16 14.21 16.36 34.77 -20.56 0 21.33 14.38 16.53 34.77 -20.39 1 1 49 21.24 14.29 16.44 34.77 -20.48 23780 709 64QAM 25 12 20.23 13.28 15.43 34.77 -21.49 50 0 20.19 13.24 15.39 34.77 -21.53 1 0 21.26 14.31 34.77 -20.46 16.46 49 14.33 34.77 21.28 16.48 -20.44 23790 710 **640AM** 25 12 20.24 13.29 15.44 34.77 -21.48 50 0 20.16 13.21 15.36 34.77 -21.56 14.41 1 0 21.36 16.56 34.77 -20.36 1 49 21.07 14.12 16.27 34.77 -20.65 23800 711 64QAM 25 20.25 13.30 12 15.45 34.77 -21.47 50 0 15.30 34.77 20.10 13.15 -21.62

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Page 32 of 164

ntenna o	gain (dBi)	-3.9							
	· · ·	LTE Ban	d 38_Uplink	frequ	ency ba	nd : 2570 to	2620 MHz	7	
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	22.57	18.67	33	-14.33
	37775	2572.5	QPSK	1	24	22.61	18.71	33	-14.29
	3///3	2372.3	UPSK	12	6	21.79	17.89	33	-15.11
				25	0	21.82	17.92	33	-15.08
				1	0	22.68	18.78	33	-14.22
	38000	2595	QPSK	1	24	22.52	18.62	33	-14.38
	30000		UPSK	12	6	21.80	17.90	33	-15.1
				25	0	21.83	17.93	33	-15.07
				1	0	22.69	18.79	33	-14.21
	38225	2617.5	QPSK	1	24	22.64	18.74	33	-14.26
	30223	2017.5		12	6	21.85	17.95	33	-15.05
				25	0	21.67	17.77	33	-15.23
				1	0	21.86	17.96	33	-15.04
07775	27775	2572.5	16QAM	1	24	21.78	17.88	33	-15.12
	37775			12	6	20.86	16.96	33	-16.04
				25	0	20.90	17.00	33	-16
		2595	16QAM	1	0	21.73	17.83	33	-15.17
-	20000			1	24	21.83	17.93	33	-15.07
5	38000	2595		12	6	20.84	16.94	33	-16.06
				25	0	20.88	16.98	33	-16.02
				1	0	21.83	17.93	33	-15.07
	20225	2/17 5	1/04:	1	24	21.67	17.77	33	-15.23
	38225	2617.5	16QAM	12	6	20.76	16.86	33	-16.14
				25	0	20.80	16.90	33	-16.1
				1	0	21.08	17.18	33	-15.82
	27775	2572.5	(40004	1	24	20.99	17.09	33	-15.91
	37775	2572.5	64QAM	12	6	20.00	16.10	33	-16.9
				25	0	19.90	16.00	33	-17
				1	0	21.04	17.14	33	-15.86
	20222	0505	(40.004	1	24	21.09	17.19	33	-15.81
	38000	2595	64QAM	12	6	20.00	16.10	33	-16.9
				25	0	20.05	16.15	33	-16.85
				1	0	21.01	17.11	33	-15.89
	00005	0/47.5	(40	1	24	21.03	17.13	33	-15.87
	38225	2617.5	64QAM	12	6	19.89	15.99	33	-17.01
				25	0	19.88	15.98	33	-17.02

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Page 33 of 164

ntenna ç	gain (dBi)	-3.9							
			d 38_Uplink	frequ	ency ba	ınd : 2570 to	2620 MHz	7	
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	22.93	19.03	33	-13.97
	37800	2575	QPSK	1	49	22.97	19.07	33	-13.93
	37000	2575	QF3K	25	12	22.07	18.17	33	-14.83
				50	0	22.09	18.19	33	-14.81
				1	0	22.87	18.97	33	-14.03
	38000	2595	QPSK	1	49	22.80	18.90	33	-14.1
	30000	2373	QI SIX	25	12	22.09	18.19	33	-14.81
				50	0	22.13	18.23	33	-14.77
				1	0	22.85	18.95	33	-14.05
	38200	2615	QPSK	1	49	22.83	18.93	33	-14.07
	30200	2013		25	12	21.93	18.03	33	-14.97
				50	0	21.97	18.07	33	-14.93
				1	0	22.09	18.19	33	-14.81
	37800	2575	16QAM	1	49	22.02	18.12	33	-14.88
	37000			25	12	21.08	17.18	33	-15.82
				50	0	21.18	17.28	33	-15.72
			16QAM	1	0	22.07	18.17	33	-14.83
10	38000	2595		1	49	21.98	18.08	33	-14.92
10	30000	2070		25	12	21.04	17.14	33	-15.86
				50	0	21.11	17.21	33	-15.79
				1	0	21.88	17.98	33	-15.02
	38200	2615	16QAM	1	49	21.90	18.00	33	-15
	30200	2015		25	12	20.87	16.97	33	-16.03
				50	0	20.97	17.07	33	-15.93
				1	0	21.01	17.11	33	-15.89
	37800	2575	64QAM	1	49	21.06	17.16	33	-15.84
	37000	2010	U4QAIVI	25	12	20.07	16.17	33	-16.83
				50	0	19.96	16.06	33	-16.94
				1	0	21.10	17.20	33	-15.8
200	38000	2595	64QAM	1	49	21.11	17.21	33	-15.79
	30000	2070	U4QAIVI	25	12	20.00	16.10	33	-16.9
				50	0	20.00	16.10	33	-16.9
				1	0	21.07	17.17	33	-15.83
	38200	2615	64QAM	1	49	21.06	17.16	33	-15.84
	30200	2010	04QAIVI	25	12	19.88	15.98	33	-17.02
				50	0	19.92	16.02	33	-16.98

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Antenna ga		2 0							
<u> </u>	ain (dBi)	-3.9	d 20 Haliak	frogu	onov bo	and . 2570 to	2420 MILI	-	
		LIE Ball	а зв_оршік І	irequ	ency ba	nd : 2570 to Conducted	EIRP	EIRP	
BW	UL	Frequency	Modulation	RB	RB	Average	Average	Limit	Margin
(MHz)	Channel	(MHz)	iviouulation	Size	Offset	(dBm)	(dBm)	(dBm)	(dB)
				1	0	23.00	19.10	33	-13.9
				1	74	23.05	19.15	33	-13.85
	37825	2577.5	QPSK	36	19	22.21	18.31	33	-14.69
			75	0	22.27	18.37	33	-14.63	
				1	0	23.15	19.25	33	-13.75
				1	74	22.96	19.06	33	-13.94
	38000	2595	QPSK	36	19	22.17	18.27	33	-14.73
				75	0	22.17	18.33	33	-14.67
				1	0	23.04	19.14	33	-13.86
			QPSK	1	74	22.98	19.08	33	-13.92
	38175	2612.5		36	19	22.08	18.18	33	-14.82
				75	0	22.16	18.26	33	-14.74
				1	0	22.30	18.40	33	-14.6
		2577.5	16QAM	1	74	22.30	18.40	33	-14.6
	37825			36	19	21.30	17.40	33	-15.6
				75	0	21.27	17.37	33	-15.63
				1	0	22.30	18.40	33	-14.6
			16QAM	1	74	22.20	18.30	33	-14.7
15	38000	2595		36	19	21.27	17.37	33	-15.63
				75	0	21.25	17.35	33	-15.65
				1	0	22.19	18.29	33	-14.71
				1	74	22.13	18.23	33	-14.77
	38175	2612.5	16QAM	36	19	21.20	17.30	33	-15.7
				75	0	21.26	17.36	33	-15.64
				1	0	20.99	17.09	33	-15.91
	07005	0577.5	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	1	74	20.99	17.09	33	-15.91
	37825	2577.5	64QAM	36	19	19.96	16.06	33	-16.94
				75	0	19.90	16.00	33	-17
				1	0	21.16	17.26	33	-15.74
	20222	0505	/ 40 4	1	74	21.07	17.17	33	-15.83
	38000	2595	64QAM	36	19	19.96	16.06	33	-16.94
				75	0	19.95	16.05	33	-16.95
				1	0	21.02	17.12	33	-15.88
	20475	2/12 5	/ 40 4 4	1	74	21.00	17.10	33	-15.9
	38175	2612.5	64QAM	36	19	19.85	15.95	33	-17.05
				75	0	20.03	16.13	33	-16.87

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Antenna g	ain (dBi)	-3.9							
, , , , , , , , , , , , , , , , , , ,	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	l .	d 38_Uplink	fregu	ency ba	and : 2570 to	2620 MH	Z	
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	23.27	19.37	33	-13.63
	27050	2500	ODCK	1	99	23.34	19.44	33	-13.56
	37850	2580	QPSK	50	25	22.27	18.37	33	-14.63
				100	0	22.25	18.35	33	-14.65
				1	0	23.28	19.38	33	-13.62
	38000	2595	QPSK	1	99	23.19	19.29	33	-13.71
	36000	2090	QPSK	50	25	22.23	18.33	33	-14.67
				100	0	22.23	18.33	33	-14.67
				1	0	23.14	19.24	33	-13.76
	38150	2610	QPSK	1	99	23.20	19.30	33	-13.7
	30130	2010		50	25	22.16	18.26	33	-14.74
				100	0	22.17	18.27	33	-14.73
				1	0	22.08	18.18	33	-14.82
	37850	2580	16QAM	1	99	22.63	18.73	33	-14.27
	3/630			50	25	21.21	17.31	33	-15.69
				100	0	21.26	17.36	33	-15.64
			16QAM	1	0	22.56	18.66	33	-14.34
20	38000	2595		1	99	22.14	18.24	33	-14.76
20	30000			50	25	21.19	17.29	33	-15.71
				100	0	21.24	17.34	33	-15.66
				1	0	22.45	18.55	33	-14.45
	38150	2610	16QAM	1	99	22.43	18.53	33	-14.47
	30130			50	25	21.13	17.23	33	-15.77
				100	0	21.18	17.28	33	-15.72
				1	0	21.13	17.23	33	-15.77
	37850	2580	64QAM	1	99	21.07	17.17	33	-15.83
	37000	2300	U4QAIVI	50	25	20.11	16.21	33	-16.79
				100	0	20.05	16.15	33	-16.85
				1	0	21.16	17.26	33	-15.74
	38000	2595	64QAM	1	99	21.13	17.23	33	-15.77
	30000	2370	U4QAIVI	50	25	20.07	16.17	33	-16.83
				100	0	20.07	16.17	33	-16.83
				1	0	21.12	17.22	33	-15.78
	38150	2610	64QAM	1	99	21.09	17.19	33	-15.81
	30130	2010	UHUHIVI	50	25	19.98	16.08	33	-16.92
				100	0	20.03	16.13	33	-16.87

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Page 36 of 164

Antenna g	gain (dBi)	-3.9							
		Ľ	TE Band 41.	_Uplin	k freque	ency band: 249	96 to 2690 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	22.12	18.22	33	-14.78
	20/75	2400 5	ODCK	1	24	22.11	18.21	33	-14.79
	39675	2498.5	QPSK	12	6	21.21	17.31	33	-15.69
				25	0	21.19	17.29	33	-15.71
				1	0	23.61	19.71	33	-13.29
	40/20	2502	QPSK	1	24	23.58	19.68	33	-13.32
	40620	2593		12	6	22.72	18.82	33	-14.18
				25	0	22.72	18.82	33	-14.18
				1	0	22.16	18.26	33	-14.74
	415/5	2/07 5	ODCK	1	24	22.03	18.13	33	-14.87
	41565	2687.5	QPSK	12	6	21.16	17.26	33	-15.74
				25	0	21.17	17.27	33	-15.73
				1	0	21.55	17.65	33	-15.35
	39675	0.400 5	1/0414	1	24	21.51	17.61	33	-15.39
		2498.5	16QAM	12	6	20.17	16.27	33	-16.73
				25	0	20.23	16.33	33	-16.67
	40/20			1	0	23.02	19.12	33	-13.88
-		2593	16QAM	1	24	23.10	19.20	33	-13.8
5	40620			12	6	21.72	17.82	33	-15.18
				25	0	21.69	17.79	33	-15.21
				1	0	21.42	17.52	33	-15.48
	44575	0.40==		1	24	21.47	17.57	33	-15.43
	41565	2687.5	16QAM	12	6	20.17	16.27	33	-16.73
				25	0	20.13	16.23	33	-16.77
				1	0	19.34	15.44	33	-17.56
	20/75	0.400 5	(40004	1	24	20.33	16.43	33	-16.57
	39675	2498.5	64QAM	12	6	19.31	15.41	33	-17.59
				25	0	19.34	15.44	33	-17.56
				1	0	22.01	18.11	33	-14.89
	40/00	0500	(40.414	1	24	21.91	18.01	33	-14.99
	40620	2593	64QAM	12	6	20.91	17.01	33	-15.99
				25	0	20.90	17.00	33	-16
				1	0	20.34	16.44	33	-16.56
		0.6		1	24	20.45	16.55	33	-16.45
	41565	2687.5	64QAM	12	6	19.15	15.25	33	-17.75
				25	0	19.30	15.40	33	-17.6

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Page 37 of 164

Antenna ç	gain (dBi)	-3.9							
	<i>,</i> , ,	L	TE Band 41	_Uplin	k freque	ency band : 24	96 to 2690 MHz		
BW (MHz)	UL Channel	Frequency	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
		2501		1	0	22.13	18.23	33	-14.77
	20700		ODCK	1	49	22.10	18.20	33	-14.8
	39700	2501	QPSK	25	12	21.17	17.27	33	-15.73
				50	0	21.22	17.32	33	-15.68
				1	0	23.55	19.65	33	-13.35
	40620	2593	QPSK	1	49	23.41	19.51	33	-13.49
	40020	2093	UPSK	25	12	22.86	18.96	33	-14.04
				50	0	22.72	18.82	33	-14.18
				1	0	21.96	18.06	33	-14.94
	41540	2685	ODSK	1	49	22.08	18.18	33	-14.82
	41340		QPSK	25	12	21.17	17.27	33	-15.73
				50	0	21.11	17.21	33	-15.79
		2501	16QAM	1	0	21.27	17.37	33	-15.63
	39700			1	49	21.23	17.33	33	-15.67
	39700			25	12	20.37	16.47	33	-16.53
				50	0	20.33	16.43	33	-16.57
			16QAM	1	0	22.73	18.83	33	-14.17
10	40620	2593		1	49	22.69	18.79	33	-14.21
10	40020			25	12	21.82	17.92	33	-15.08
				50	0	21.79	17.89	33	-15.11
		2685	16QAM	1	0	21.24	17.34	33	-15.66
	41540			1	49	21.08	17.18	33	-15.82
	41340			25	12	20.21	16.31	33	-16.69
				50	0	20.05	16.15	33	-16.85
				1	0	20.49	16.59	33	-16.41
	39700	2501	64QAM	1	49	20.34	16.44	33	-16.56
	37700	ZJU I	UTUMIVI	25	12	19.31	15.41	33	-17.59
				50	0	19.25	15.35	33	-17.65
				1	0	21.90	18.00	33	-15
	40620	2593	64QAM	1	49	21.92	18.02	33	-14.98
	70020	2373	UTUAIVI	25	12	21.02	17.12	33	-15.88
				50	0	20.89	16.99	33	-16.01
				1	0	20.32	16.42	33	-16.58
	41540	2685	640AM	1	49	20.33	16.43	33	-16.57
	71340	2000	64QAM	25	12	19.20	15.30	33	-17.7
				50	0	19.21	15.31	33	-17.69

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Page 38 of 164

Antenna (gain (dBi)	-3.9							
`	<i>,</i> , , ,	L	TE Band 41	Uplin	k freque	ency band : 24	96 to 2690 MHz		
BW (MHz)	UL Channel	Frequency	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	21.98	18.08	33	-14.92
	39725	2503.5	QPSK	1	74	21.96	18.06	33	-14.94
	39723	2003.0	QPSK	36	18	21.17	17.27	33	-15.73
				75	0	21.22	17.32	33	-15.68
				1	0	23.60	19.70	33	-13.3
	40620	2593	QPSK	1	74	23.67	19.77	33	-13.23
	40620	2575	QF3K	36	18	22.64	18.74	33	-14.26
				75	0	22.67	18.77	33	-14.23
				1	0	21.94	18.04	33	-14.96
	41515	2682.5	ODCK	1	74	22.09	18.19	33	-14.81
	41313		QPSK	36	18	21.11	17.21	33	-15.79
				75	0	21.13	17.23	33	-15.77
		2503.5	16QAM	1	0	21.17	17.27	33	-15.73
	39725			1	74	21.12	17.22	33	-15.78
				36	18	20.11	16.21	33	-16.79
				75	0	20.20	16.30	33	-16.7
			16QAM	1	0	22.67	18.77	33	-14.23
15	40620	2593		1	74	22.72	18.82	33	-14.18
15	40620			36	18	21.74	17.84	33	-15.16
				75	0	21.81	17.91	33	-15.09
		2682.5	16QAM	1	0	21.12	17.22	33	-15.78
	41515			1	74	21.11	17.21	33	-15.79
	41515			36	18	20.10	16.20	33	-16.8
				75	0	20.17	16.27	33	-16.73
				1	0	20.44	16.54	33	-16.46
	20725	2E02 E	640011	1	74	20.31	16.41	33	-16.59
	39725	2503.5	64QAM	36	18	19.32	15.42	33	-17.58
				75	0	19.29	15.39	33	-17.61
				1	0	21.98	18.08	33	-14.92
	40/20	2502	640004	1	74	22.03	18.13	33	-14.87
	40620	2593	64QAM	36	18	20.95	17.05	33	-15.95
				75	0	20.83	16.93	33	-16.07
				1	0	20.31	16.41	33	-16.59
	11515	2/02 5	(40004	1	74	20.42	16.52	33	-16.48
	41515	2682.5	64QAM	36	18	19.15	15.25	33	-17.75
				75	0	19.34	15.44	33	-17.56

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Page 39 of 164

Antenna ç	gain (dBi)	-3.9							
,	, , ,		TE Band 41	Uplin	k freque	ency band : 24	96 to 2690 MHz		
BW (MHz)	UL Channel	Frequency	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	22.18	18.28	33	-14.72
	20750	2507	QPSK	1	99	22.22	18.32	33	-14.68
	39750	2506	UPSK	50	25	21.43	17.53	33	-15.47
				100	0	21.39	17.49	33	-15.51
				1	0	23.79	19.89	33	-13.11
	40620	2593	QPSK	1	99	23.78	19.88	33	-13.12
	40620	2393	UPSK	50	25	22.98	19.08	33	-13.92
				100	0	23.00	19.10	33	-13.9
				1	0	22.22	18.32	33	-14.68
	41400	2680	ODCK	1	99	22.23	18.33	33	-14.67
	41490		QPSK	50	25	21.31	17.41	33	-15.59
				100	0	21.31	17.41	33	-15.59
		2506	16QAM	1	0	21.40	17.50	33	-15.5
	39750			1	99	21.37	17.47	33	-15.53
	39/50			50	25	20.40	16.50	33	-16.5
				100	0	20.47	16.57	33	-16.43
			16QAM	1	0	23.05	19.15	33	-13.85
20	40700	2593		1	99	22.91	19.01	33	-13.99
20	40620			50	25	22.03	18.13	33	-14.87
				100	0	22.04	18.14	33	-14.86
		2680	16QAM	1	0	21.42	17.52	33	-15.48
	41.400			1	99	21.35	17.45	33	-15.55
	41490			50	25	20.26	16.36	33	-16.64
				100	0	20.35	16.45	33	-16.55
				1	0	20.43	16.53	33	-16.47
	20750	2507	64000	1	99	20.37	16.47	33	-16.53
	39750	2506	64QAM	50	25	19.26	15.36	33	-17.64
				100	0	19.32	15.42	33	-17.58
				1	0	21.96	18.06	33	-14.94
	40/00	2502	6 4 O A B 4	1	99	21.95	18.05	33	-14.95
	40620	2593	64QAM	50	25	20.95	17.05	33	-15.95
				100	0	20.85	16.95	33	-16.05
				1	0	20.38	16.48	33	-16.52
	41.400	2/02	(4000	1	99	20.39	16.49	33	-16.51
	41490	2680	64QAM	50	25	19.17	15.27	33	-17.73
				100	0	19.26	15.36	33	-17.64

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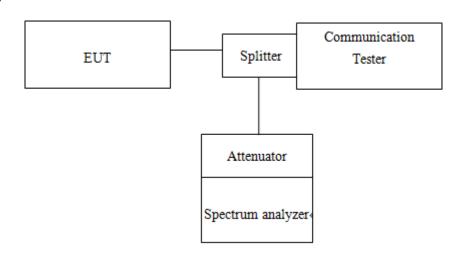
Page 40 of 164

OCCUPIED BANDWIDTH MEASUREMENT

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%.

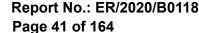
7.4 Measurement Equipment Used

	Conducted Emission (measured at antenna port) Test Site												
Con	ducted Emiss	ion (measured a	t antenna port	Test Site									
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.								
TYPE		NUMBER	NUMBER	CAL.									
PXA Spectrum Analyzer	Agilent	N9030A	MY53120760	04/21/2020	04/20/2021								
DC Power Supply	Agilent	E3640A	MY40000811	12/23/2019	12/22/2020								
Radio	_												
Communication	Anritsu	MT8815B	6200711454	04/01/2020	03/31/2021								
Analyzer													
Radio													
Communication	Anritsu	MT8821C	6261786084	01/18/2020	01/17/2021								
Analyzer													
Attenuator	Mini-Circuit	BW-S10W2+	2	01/02/2020	01/01/2021								
DC Block	Mini-Circuits	BLK-18-S+	1	01/02/2020	01/01/2021								
Splitter	RF-LAMBAD	RFLT2W1G18G	11-JSPF412- 018	01/02/2020	01/01/2021								

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7.5 **Measurement Result**

Freq.	СН	99% BV	V (MHz)	26 dB BW (MHz)			
(MHz)		GSM	GPRS	GSM	GPRS		
(IVII IZ)		850	850	850	850		
824.2	128	0.24260	0.24726	0.3142	0.3158		
836.6	190	0.24446	0.24399	0.3171	0.3281		
848.8	251	0.24574	0.24442	0.3166	0.3131		
-							
Erog		99% BV	V (MHz)	26 dB B	W (MHz)		
Freq.	СН	99% BV GSM	V (MHz) GPRS	26 dB B GSM	W (MHz) GPRS		
Freq. (MHz)	СН						
· ·	CH 512	GSM	GPRS	GSM	GPRS		
(MHz)		GSM 1900	GPRS 1900	GSM 1900	GPRS 1900		

Freq.		99	% BW (MF	łz)	26 dB BW (MHz)				
(MHz) CH		WCDMA	HSDPA	HSUPA	WCDMA	HSDPA	HSUPA		
(IVIHZ)		V	V	V	V	V	V		
826.40	4132	4.13970	4.13080	4.13870	4.703	4.672	4.705		
836.60	4183	4.14540	4.14000	4.14450	4.707	4.683	4.683		
846.60	4233	4.14470	4.11480	4.13290	4.713	4.694	4.680		

		I TF BAN	D 5 Chanr	nel bandwi	dth: 1 4M	H7				I TE BAN	ID 5 Chan	nel bandw	idth: 3ME	7	
Freq.			% BW (M			dB BW (N	IHz)	Freq.			% BW (MF			dB BW (N	1Hz)
(MHz)	СН	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM	(MHz)	СН	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
824.7	20407	1.0948	1.0976	1.0966	1.238	1.237	1.239	825.5	20415	2.6962	2.6995	2.7017	2.998	3.003	2.990
836.5	20525	1.0945	1.0945	1.0943	1.238	1.239	1.235	836.5	20525	2.6961	2.7003	2.7008	2.979	3.009	2.985
848.3	20643	1.0950	1.0946	1.0942	1.235	1.234	1.238	847.5	20635	2.6989	2.6986	2.6962	2.986	3.003	2.982
LTE BAND 5 Channel bandwidth: 5MHz										LTE BAN	D 5 Chanr	nel bandwi	dth: 10MI	Ηz	
Freq.	CH 99% BW (MHz) 26 dB BW (MHz)				Freq.	СН	99'	% BW (MF	łz)	26	dB BW (N	1Hz)			
(MHz)	Сп	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM	(MHz)	СП	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
826.5	20425	4.4999	4.4997	4.5061	4.983	4.996	4.997	829.0	20450	9.0027	8.9500	8.9910	9.801	9.802	9.825
836.5	20525	4.4952	4.4997	4.5072	4.985	5.013	4.997	836.5	20525	9.0025	8.9506	8.9828	9.836	9.792	9.823
846.5	20625	4.4938	4.4969	4.5037	4.992	4.975	4.972	844.0	20600	8.9900	8.9415	8.9642	9.814	9.763	9.836
	L	TE BANI) 12 Chan	nel bandw	idth: 1.4N	1Hz				LTE BAN	D 12 Char	nel bandw	ridth: 3M l	Ηz	
Freq.	СН	99	% BW (M	Hz)	26	dB BW (N	IHz)	Freq. CH		99% BW (MHz)			26	dB BW (N	IHz)
(MHz)	СП	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM	(MHz)	CH	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
699.7	23017	1.0937	1.0963	1.0961	1.233	1.232	1.234	700.5	23025	2.6908	2.6881	2.6948	2.992	2.996	2.981
707.5	23095	1.0945	1.0976	1.0962	1.238	1.239	1.235	707.5	23095	2.6956	2.6943	2.6989	2.978	3.012	2.985
715.3	23173	1.0958	1.0968	1.0954	1.239	1.243	1.231	714.5	23165	2.7030	2.7014	2.7140	2.994	3.001	2.884
		LTE BAN	D 12 Cha	nnel bandv	vidth: 5M	Hz				LTE BANI) 12 Chan	nel bandw	idth: 10M	Hz	
Freq.	СН	99	% BW (M	Hz)	26	dB BW (M	IHz)	Freq.	СН	99'	% BW (MF	łz)	26	26 dB BW (MHz)	
(MHz)	CII	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM	(MHz)	CII	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
701.5	23035	4.4964	4.4888	4.4978	4.955	4.956	4.963	704.0	23060	9.0487	8.9867	9.0174	9.880	9.807	9.866
707.5	23095	4.4959	4.4967	4.5082	4.953	4.961	4.980	707.5	23095	8.9924	8.9494	8.9693	9.794	9.764	9.800
713.5	23155	4.5089	4.5063	4.5194	4.964	4.981	4.977	711.0	23130	8.9625	8.9102	8.9237	9.736	9.753	9.773

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	LTE BAND 17 Channel bandwidth: 5MHz										LTE BAND 17 Channel bandwidth: 10MHz					
Freq.	СН	99	% BW (M	Hz)	26	dB BW (M	IHz)		Freq.	СН	99	% BW (MI	Hz)	26 dB BW (MHz)		
(MHz)	СН	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM		(MHz)	СН	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
706.5	23755	4.4954	4.4970	4.5049	4.979	4.969	4.989		709.0	23780	8.9698	8.9167	8.9284	9.745	9.707	9.780
710.0	23790	4.4848	4.4834	4.4950	4.958	4.958	4.932		710.0	23790	8.9417	8.9009	8.9273	9.752	9.693	9.739
713.5	23825	4.5066	4.4974	4.5172	4.992	4.977	4.966		711.0	23800	8.9641	8.9132	8.9433	9.750	9.742	9.752
LTE BAND 38 Channel bandwidth: 5MHz								Ι.			LTE BAN	D 38 Char	nel bandw	idth: 10N	1Hz	
Freq.	CII	99	% BW (M	Hz)	26	dB BW (N	ИHz)		Freq.	СН	99	% BW (M	Hz)	26	dB BW (N	lHz)
(MHz)	СН	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM		(MHz)	CH	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
2572.5	37775	4.5110	4.5027	4.5031	5.198	5.124	4.944		2575.0	37800	8.9820	8.9686	9.0015	9.802	9.767	10.110
2595.0	38000	4.5048	4.5017	4.5085	5.201	5.212	4.947		2595.0	38000	8.9969	8.9738	8.9882	9.874	9.866	10.180
2617.5	38225	4.5065	4.5009	4.5032	5.161	5.209	4.954		2615.0	38200	8.9990	8.9826	8.9788	9.858	9.946	10.520
		LTE BAN	D 38 Char	nel bandv	vidth: 15N	1Hz			LTE BAND 38 Channel bandwidth: 20MHz							
Freq.	СН	99	% BW (M	Hz)	26	dB BW (N	ИHz)		Freq.	СН	99	% BW (M	Hz)	26	dB BW (N	IHz)
(MHz)	СП	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM		(MHz)		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
2577.5	37825	13.517	13.516	13.475	15.710	17.210	16.620		2580.0	37850	17.959	17.972	17.960	19.470	20.040	20.230
2595.0	38000	13.496	13.509	13.479	15.840	15.150	16.070		2595.0	38000	17.947	17.963	17.993	19.500	20.520	20.380
2612.5	38175	13.509	13.508	13.468	17.890	15.320	15.870		2610.0	38150	17.959	17.940	17.976	19.630	20.730	20.130
		LTE BAN	D 41 Chai	nnel bandv	vidth: 5MI	I z			LTE BAND 41 Channel bandwidth: 10MHz							
Freq.	СН	99	% BW (M	Hz)	26	dB BW (M	Hz)		Freq.	СН	99	% BW (MI	łz)	26	dB BW (N	IHz)
(MHz)	CII	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM		(MHz)	CIT	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
2498.5	39675	4.5058	4.5006	4.5137	5.084	5.191	4.934		2501.0	39700	9.0021	8.9670	8.9720	10.160	9.758	9.990
2593.0	40620	4.5102	4.5078	4.5027	5.201	5.141	4.925		2593.0	40620	8.9936	8.9811	8.9912	9.987	9.893	10.110
2687.5	41565	4.5032	4.5063	4.5045	5.113	5.186	4.911		2685.0	41540	9.0047	8.9741	8.9787	10.280	9.789	10.020
		LTE BANI	O 41 Char	nel bandw	idth: 15M	Hz					LTE BANI	0 41 Chan	nel bandw	idth: 20M	Hz	
Freq.	СН		% BW (M	•		dB BW (M			Freq.	СН		% BW (MI	,	26 dB BW (MHz)		,
(MHz)		QPSK		64QAM	QPSK	16QAM	64QAM		(MHz)		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
2503.5	39725	13.481	13.504	13.453	15.200	14.760	15.060		2506.0	39750	17.906	17.955	17.938	19.560	19.790	20.750
2593.0	40620	13.508	13.502	13.475	15.680	16.430	14.930		2593.0	40620	17.967	17.948	17.962	19.730	20.390	21.340
2682.5	41515	13.510	13.505	13.455	15.570	20.770	15.330		2680.0	41490	17.970	17.942	17.965	20.850	20.270	21.430

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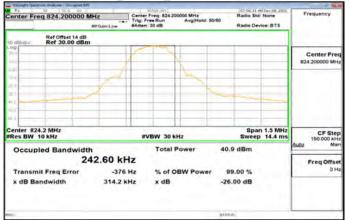
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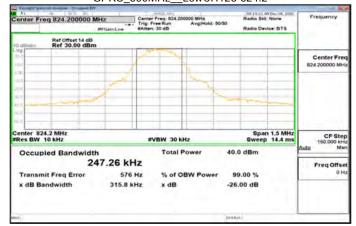


Report No.: ER/2020/B0118 Page 43 of 164

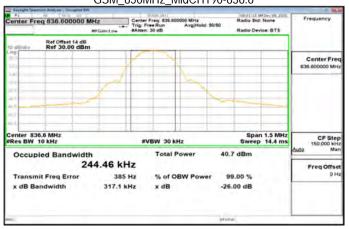
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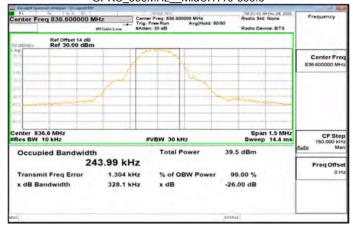
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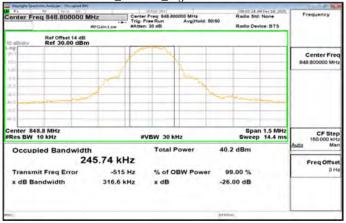
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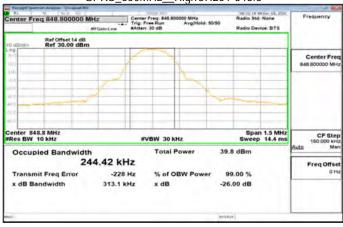
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GSM_850MHz_HighCH251-848.8



GPRS_850MHz__HighCH251-848.8



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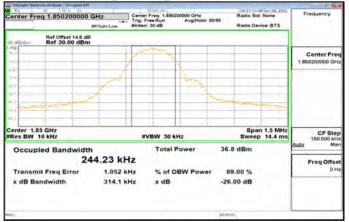
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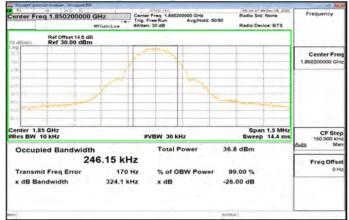


Report No.: ER/2020/B0118 Page 44 of 164

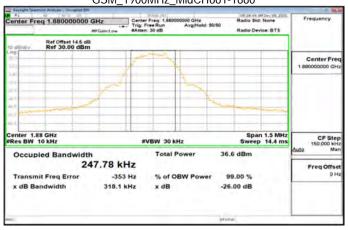
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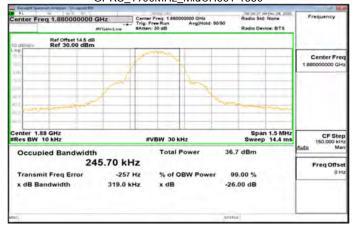
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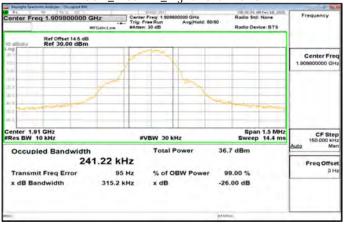
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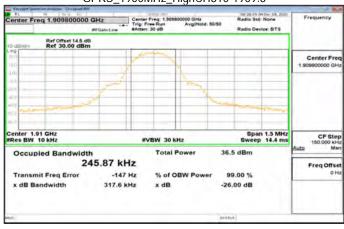
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GSM_1900MHz_HighCH810-1909.8



GPRS_1900MHz_HighCH810-1909.8



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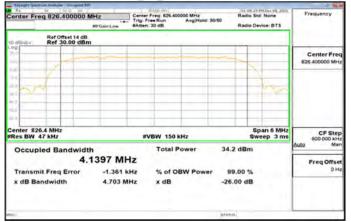
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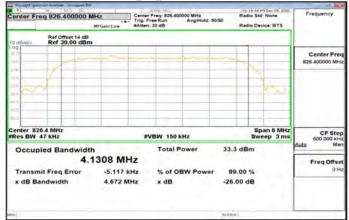


Report No.: ER/2020/B0118 Page 45 of 164

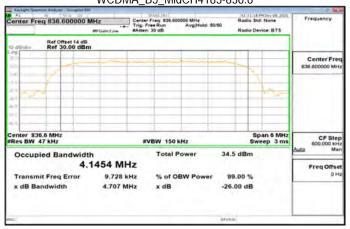
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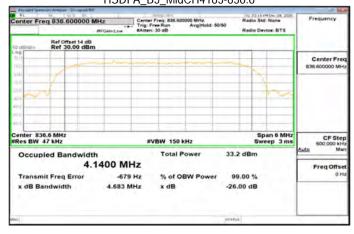
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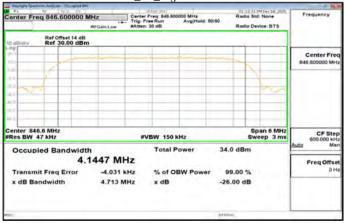
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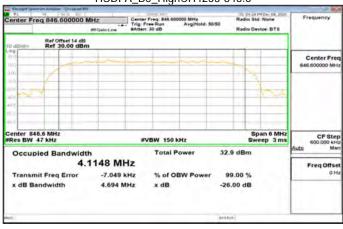
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WCDMA_B5_HighCH4233-846.6



HSDPA_B5_HighCH4233-846.6



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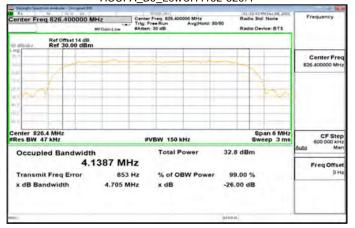
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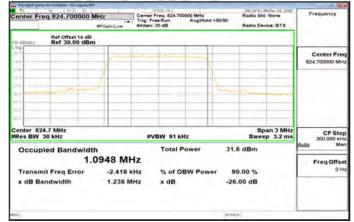


Report No.: ER/2020/B0118 Page 46 of 164

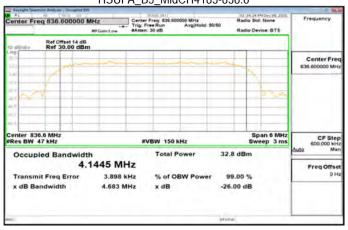
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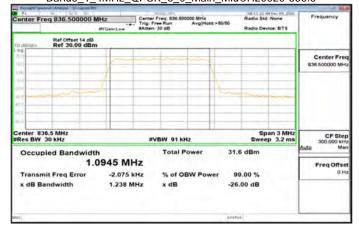
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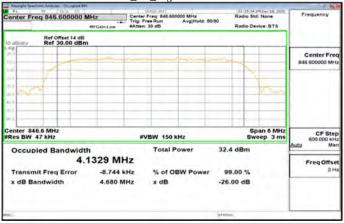
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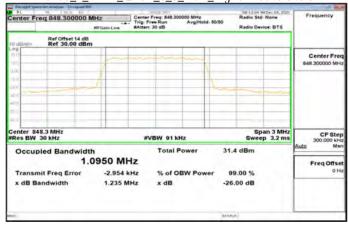
Band5_1_4MHz_QPSK_6_0_Main_MidCH20525-836.5



HSUPA_B5_HighCH4233-846.6



Band5_1_4MHz_QPSK_6_0_Main_HighCH20643-848.3



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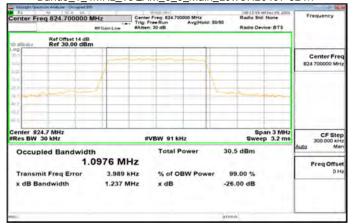
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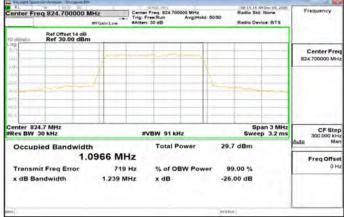


Report No.: ER/2020/B0118 Page 47 of 164

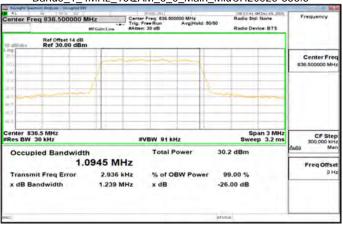
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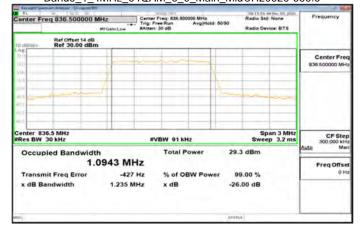
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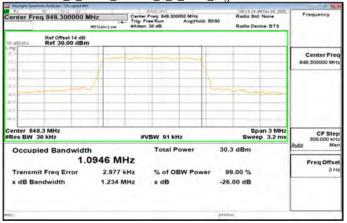
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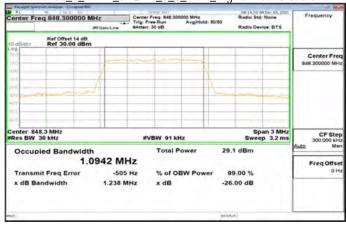
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Band5_1_4MHz_16QAM_6_0_Main_HighCH20643-848.3



Band5_1_4MHz_64QAM_6_0_Main_HighCH20643-848.3



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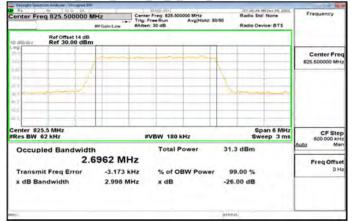
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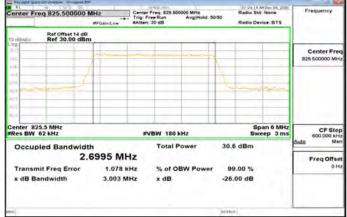


Report No.: ER/2020/B0118 Page 48 of 164

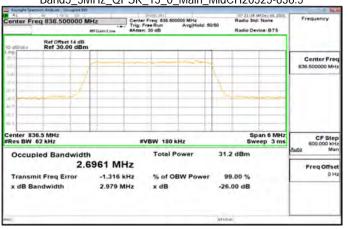
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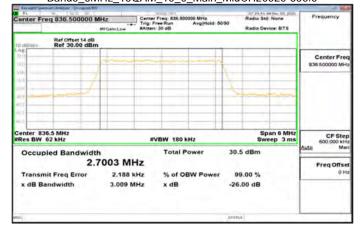
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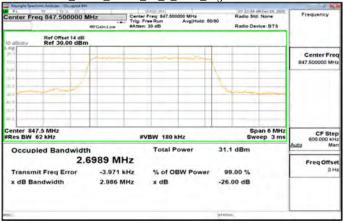
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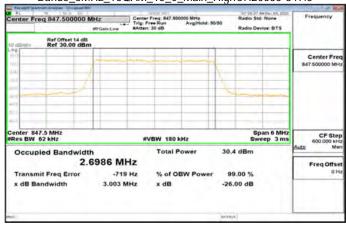
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Band5_3MHz_QPSK_15_0_Main_HighCH20635-847.5



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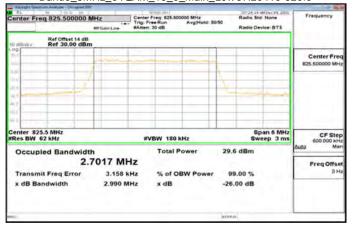
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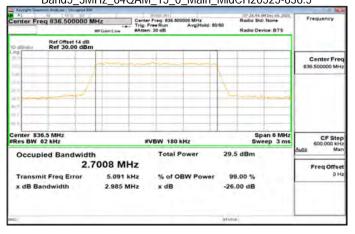


Report No.: ER/2020/B0118 Page 49 of 164

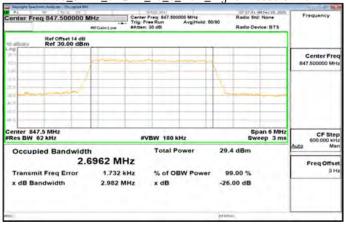
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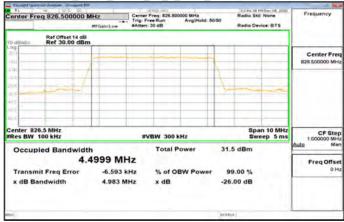
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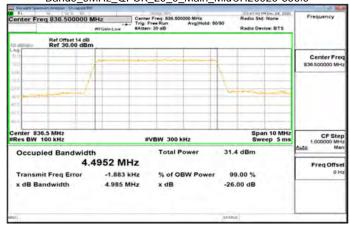
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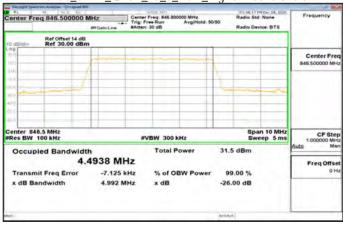
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Band5_5MHz_QPSK_25_0_Main_MidCH20525-836.5



Band5_5MHz_QPSK_25_0_Main_HighCH20625-846.5



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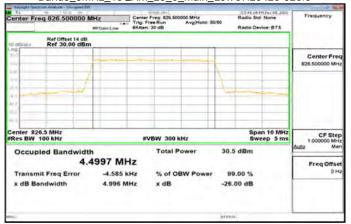
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Report No.: ER/2020/B0118 Page 50 of 164

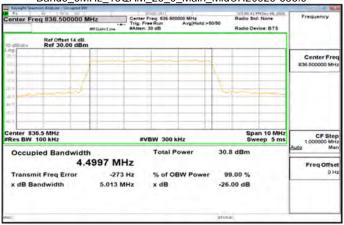
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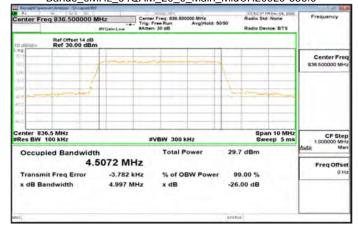
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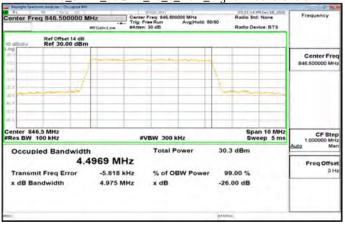
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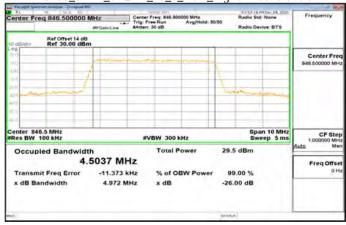
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Band5_5MHz_16QAM_25_0_Main_HighCH20625-846.5



Band5_5MHz_64QAM_25_0_Main_HighCH20625-846.5



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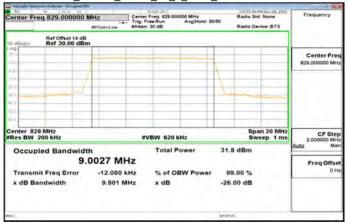
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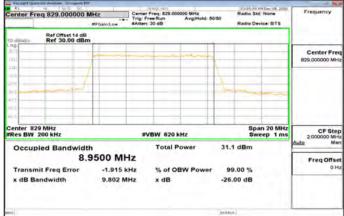


Report No.: ER/2020/B0118 Page 51 of 164

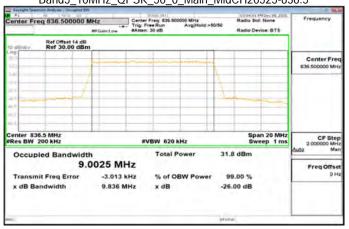
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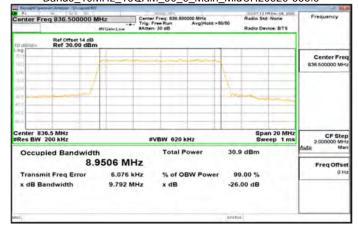
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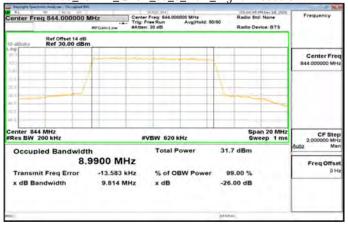
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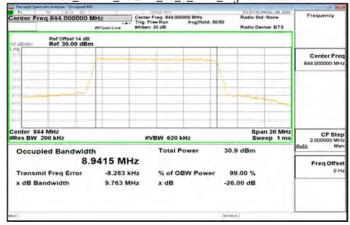
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Band5_10MHz_QPSK_50_0_Main_HighCH20600-844



Band5_10MHz_16QAM_50_0_Main_HighCH20600-844



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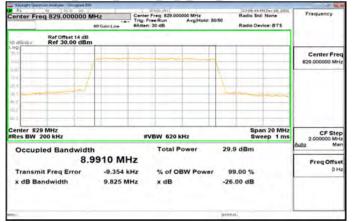
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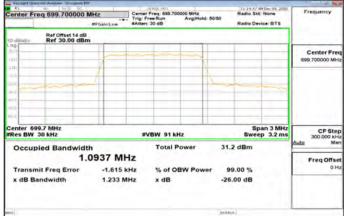


Report No.: ER/2020/B0118 Page 52 of 164

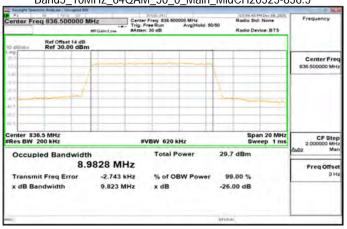
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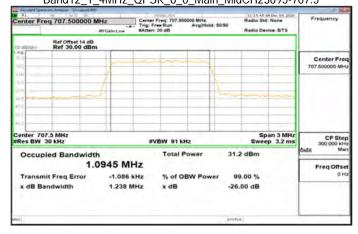
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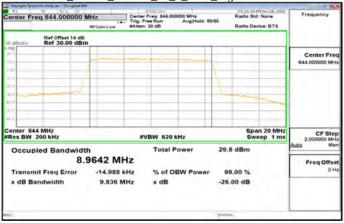
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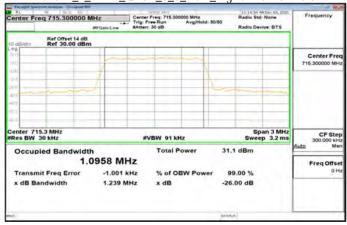
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Band5_10MHz_64QAM_50_0_Main_HighCH20600-844



Band12_1_4MHz_QPSK_6_0_Main_HighCH23173-715.3



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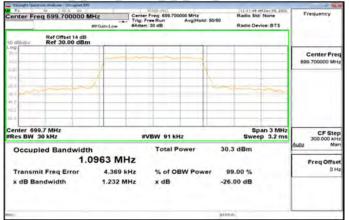
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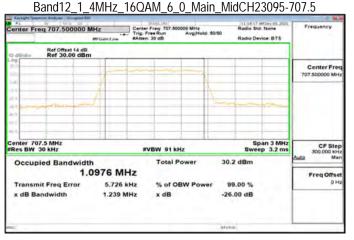
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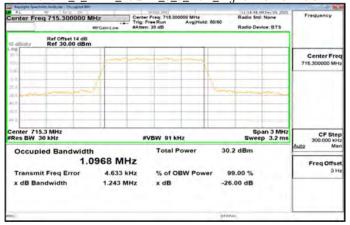
Report No.: ER/2020/B0118 Page 53 of 164

Band12_1_4MHz_16QAM_6_0_Main_LowCH23017-699.7

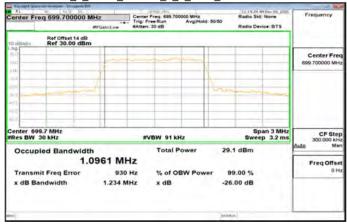




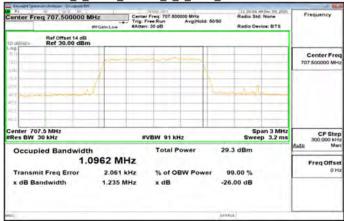
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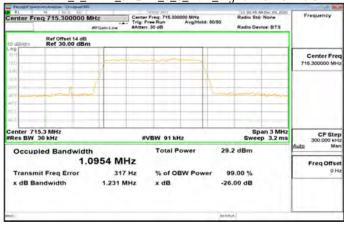
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Band12_1_4MHz_64QAM_6_0_Main_MidCH23095-707.5



Band12_1_4MHz_64QAM_6_0_Main_HighCH23173-715.3



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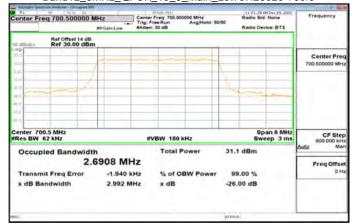
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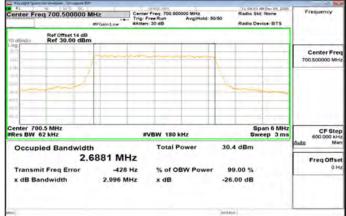


Report No.: ER/2020/B0118 Page 54 of 164

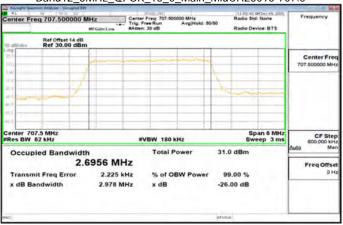
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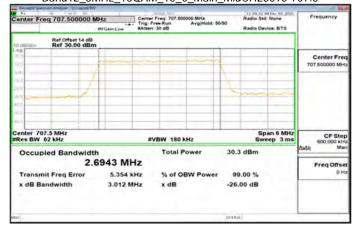
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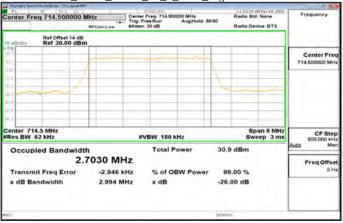
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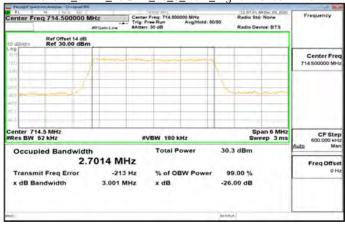
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Band12_3MHz_QPSK_15_0_Main_HighCH23165-714.5



Band12_3MHz_16QAM_15_0_Main_HighCH23165-714.5



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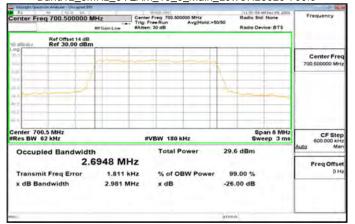
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Report No.: ER/2020/B0118 Page 55 of 164

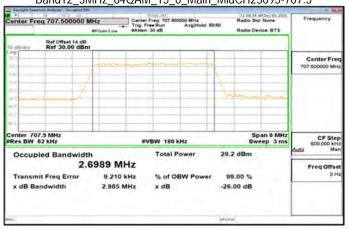
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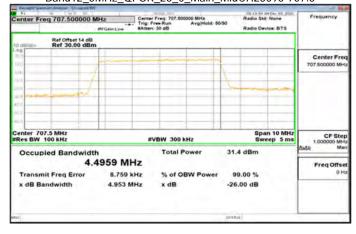
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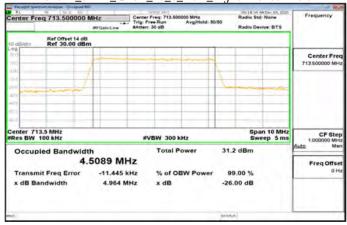
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Band12_3MHz_64QAM_15_0_Main_HighCH23165-714.5



Band12_5MHz_QPSK_25_0_Main_HighCH23155-713.5



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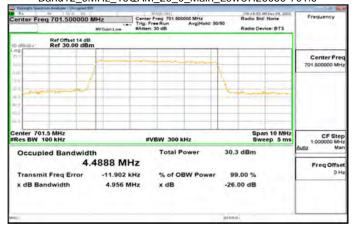
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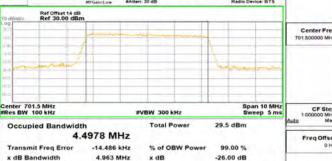


Report No.: ER/2020/B0118 Page 56 of 164

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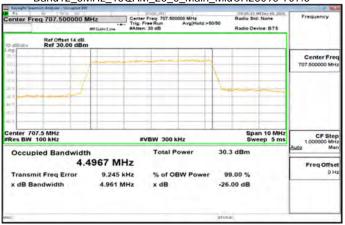


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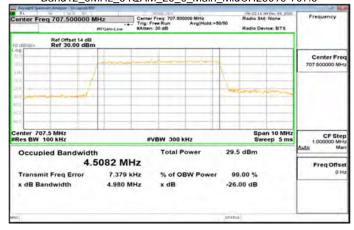


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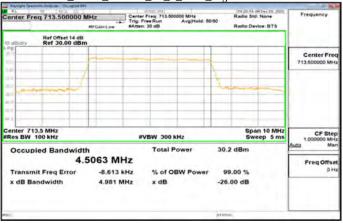
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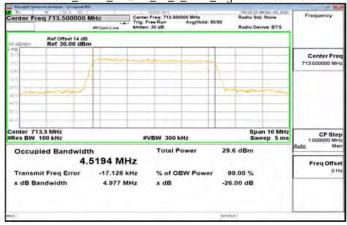
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Band12_5MHz_16QAM_25_0_Main_HighCH23155-713.5



Band12_5MHz_64QAM_25_0_Main_HighCH23155-713.5



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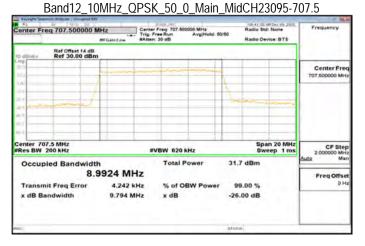


Report No.: ER/2020/B0118 Page 57 of 164

Band12_10MHz_QPSK_50_0_Main_LowCH23060-704



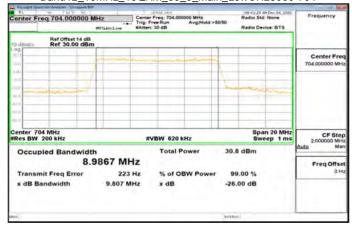
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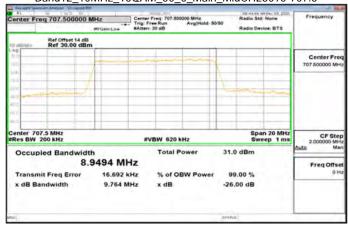
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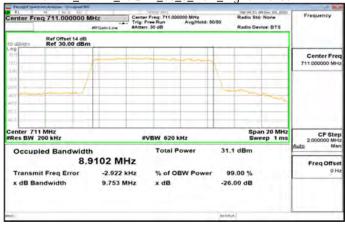
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Band12_10MHz_16QAM_50_0_Main_MidCH23095-707.5



Band12_10MHz_16QAM_50_0_Main_HighCH23130-711



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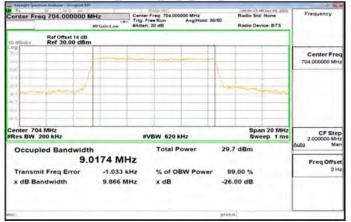
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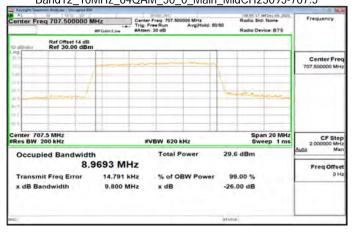


Report No.: ER/2020/B0118 Page 58 of 164

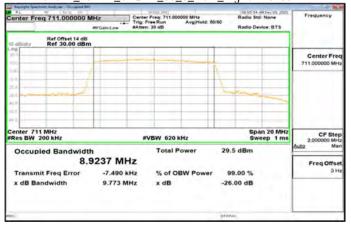
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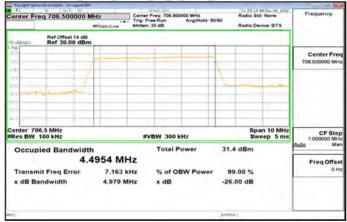
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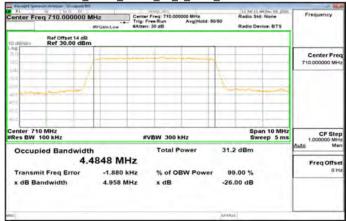
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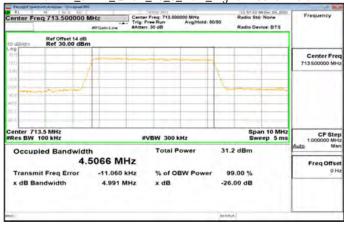
Band17_5MHz_QPSK_25_0_Main_LowCH23755-706.5



Band17_5MHz_QPSK_25_0_Main_MidCH23790-710



Band17_5MHz_QPSK_25_0_Main_HighCH23825-713.5



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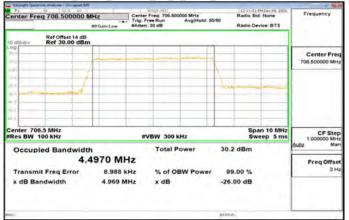
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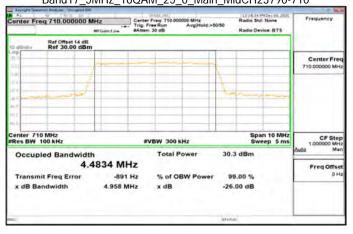


Report No.: ER/2020/B0118 Page 59 of 164

Band17_5MHz_16QAM_25_0_Main_LowCH23755-706.5



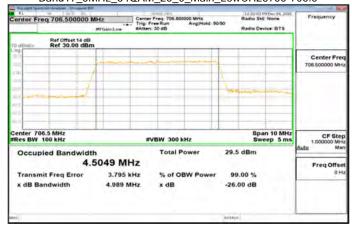
Band17_5MHz_16QAM_25_0_Main_MidCH23790-710



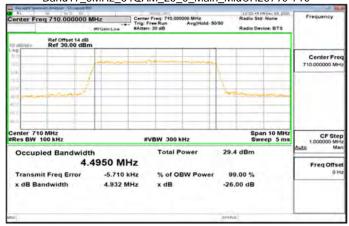
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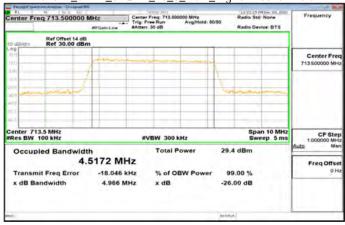
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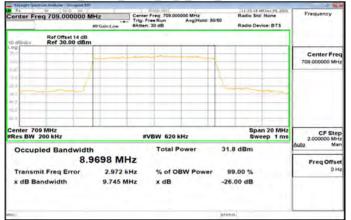
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Report No.: ER/2020/B0118 Page 60 of 164

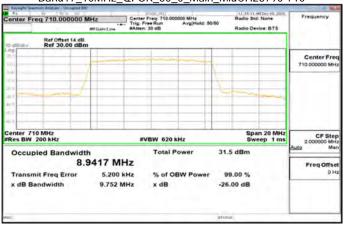
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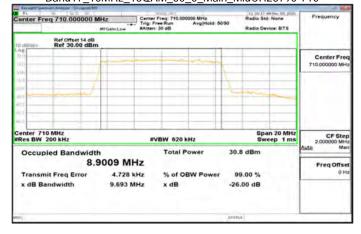
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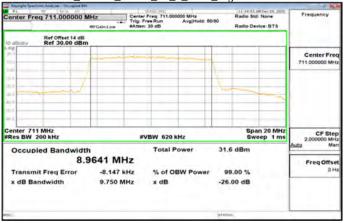
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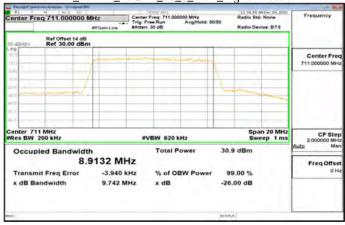
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Band17_10MHz_16QAM_50_0_Main_HighCH23800-711



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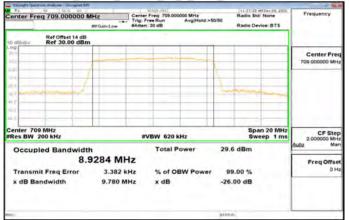
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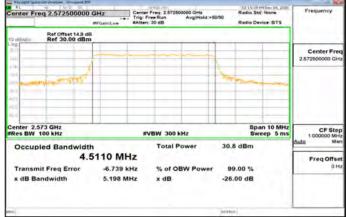


Report No.: ER/2020/B0118 Page 61 of 164

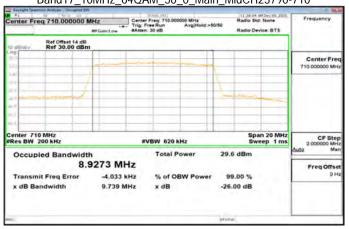
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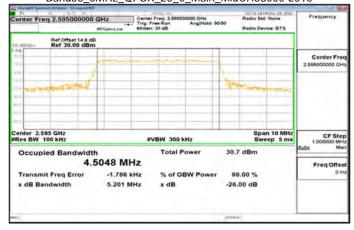
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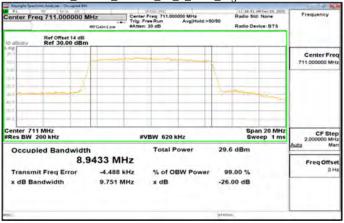
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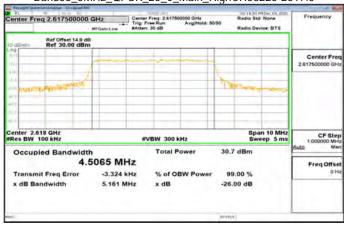
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Band17_10MHz_64QAM_50_0_Main_HighCH23800-711



Band38_5MHz_QPSK_25_0_Main_HighCH38225-2617.5



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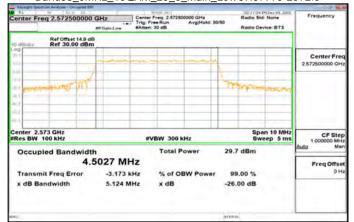
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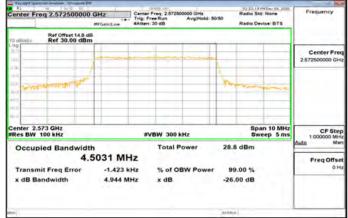


Report No.: ER/2020/B0118 Page 62 of 164

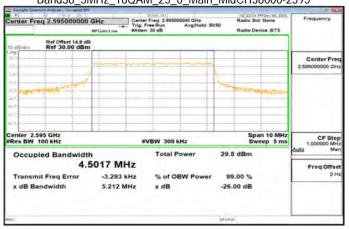
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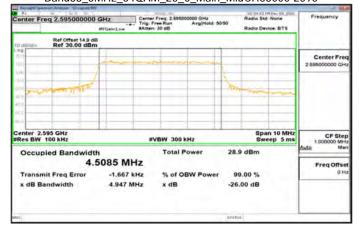
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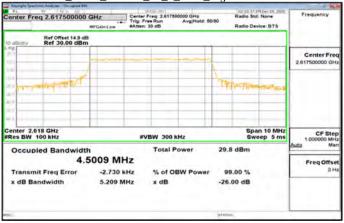
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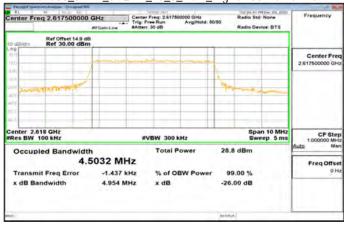
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Band38_5MHz_16QAM_25_0_Main_HighCH38225-2617.5



Band38_5MHz_64QAM_25_0_Main_HighCH38225-2617.5



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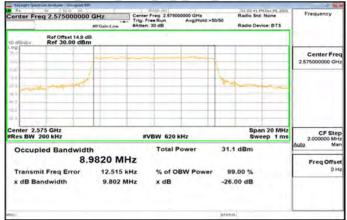
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Report No.: ER/2020/B0118 Page 63 of 164

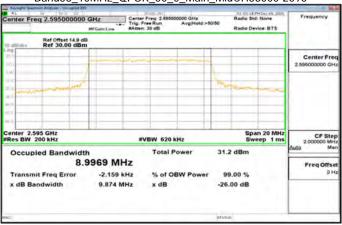
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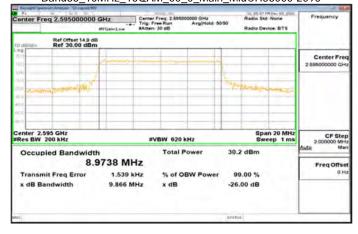
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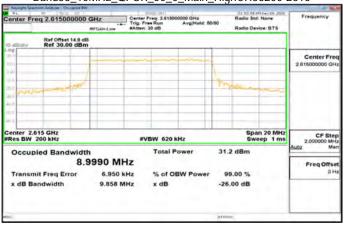
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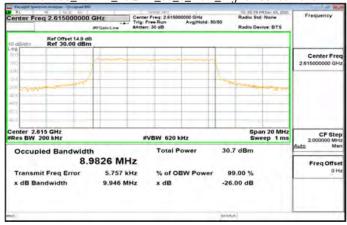
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Band38_10MHz_QPSK_50_0_Main_HighCH38200-2615



Band38_10MHz_16QAM_50_0_Main_HighCH38200-2615



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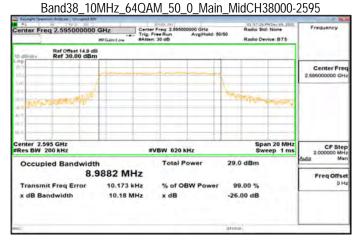
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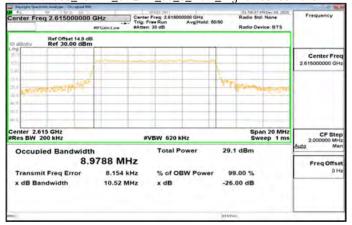
Report No.: ER/2020/B0118 Page 64 of 164

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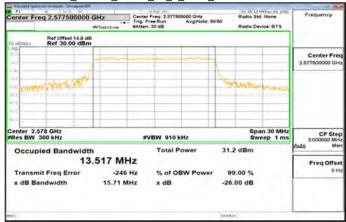




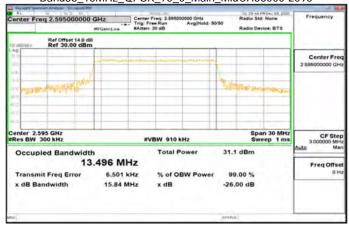
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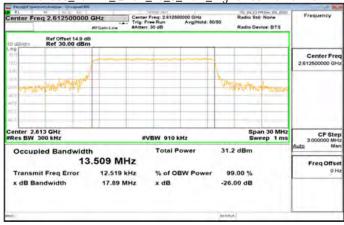
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Band38_15MHz_QPSK_75_0_Main_MidCH38000-2595



Band38_15MHz_QPSK_75_0_Main_HighCH38175-2612.5



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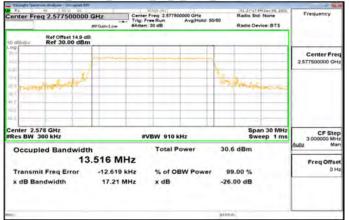
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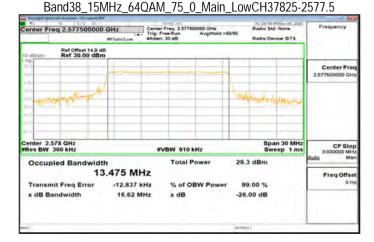
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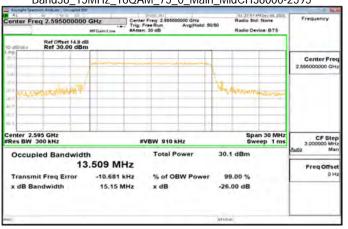
Report No.: ER/2020/B0118 Page 65 of 164

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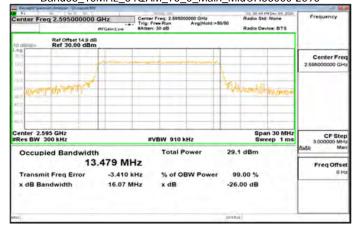




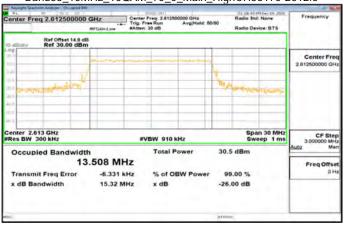
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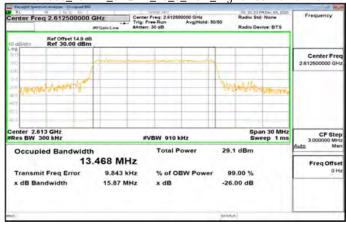
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Band38_15MHz_16QAM_75_0_Main_HighCH38175-2612.5



Band38_15MHz_64QAM_75_0_Main_HighCH38175-2612.5



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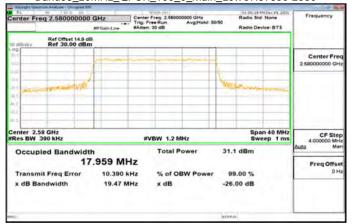
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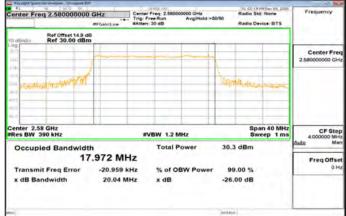


Report No.: ER/2020/B0118 Page 66 of 164

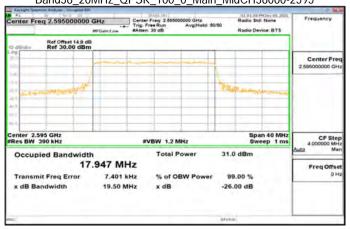
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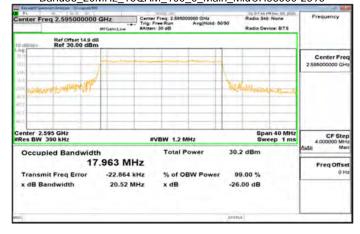
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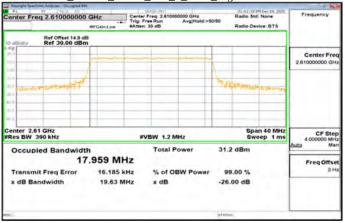
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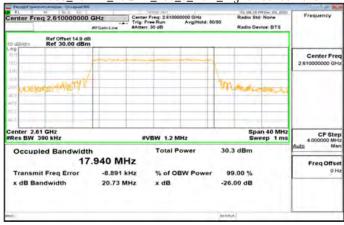
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Band38_20MHz_QPSK_100_0_Main_HighCH38150-2610



Band38_20MHz_16QAM_100_0_Main_HighCH38150-2610



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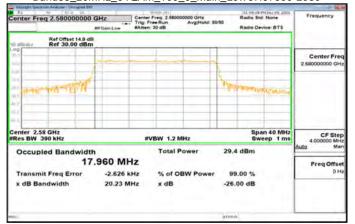
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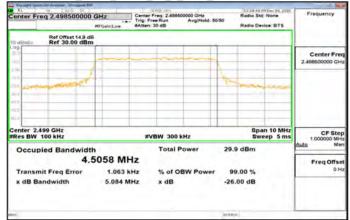


Report No.: ER/2020/B0118 Page 67 of 164

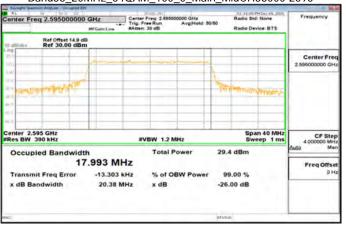
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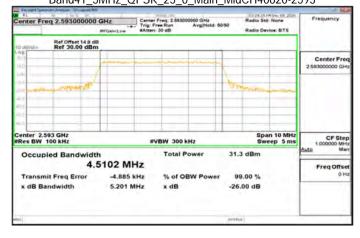
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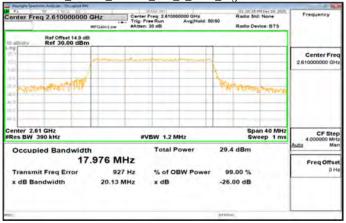
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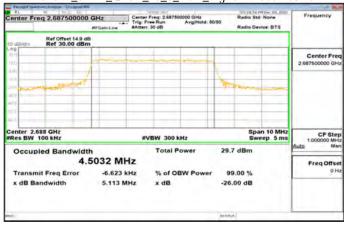
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Band38_20MHz_64QAM_100_0_Main_HighCH38150-2610



Band41_5MHz_QPSK_25_0_Main_HighCH41565-2687.5



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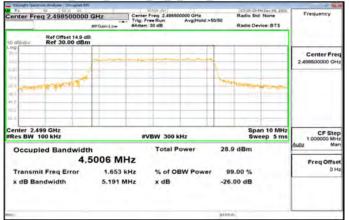
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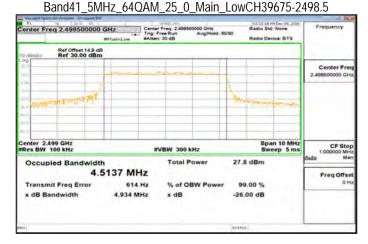
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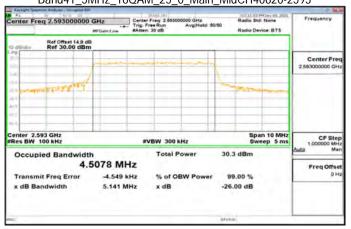
Report No.: ER/2020/B0118 Page 68 of 164

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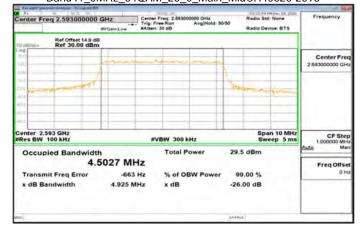




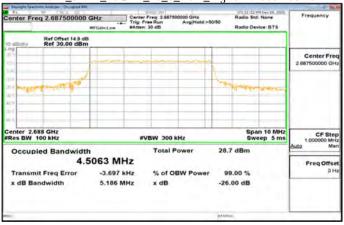
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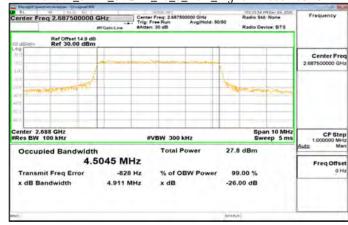
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Band41_5MHz_16QAM_25_0_Main_HighCH41565-2687.5



Band41_5MHz_64QAM_25_0_Main_HighCH41565-2687.5



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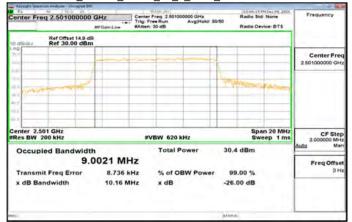
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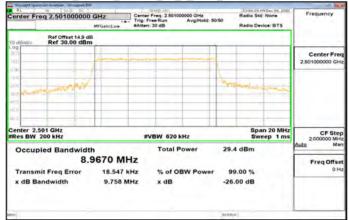


Report No.: ER/2020/B0118 Page 69 of 164

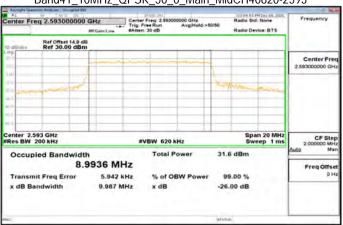
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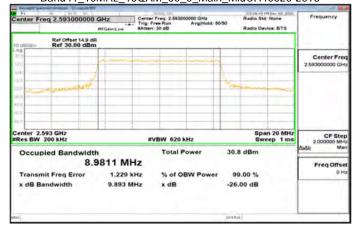
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Band41_10MHz_16QAM_50_0_Main_MidCH40620-2593



Band41_10MHz_QPSK_50_0_Main_HighCH41540-2685



Band41_10MHz_16QAM_50_0_Main_HighCH41540-2685



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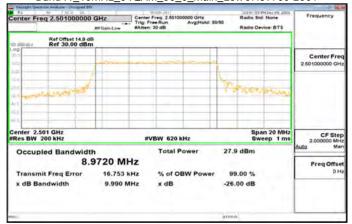
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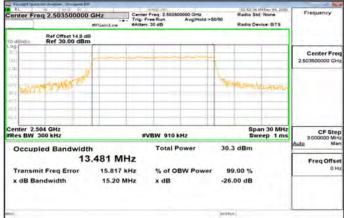


Report No.: ER/2020/B0118 Page 70 of 164

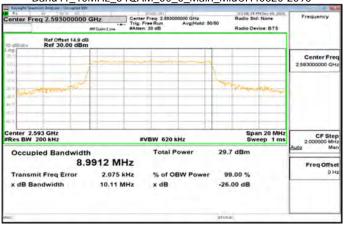
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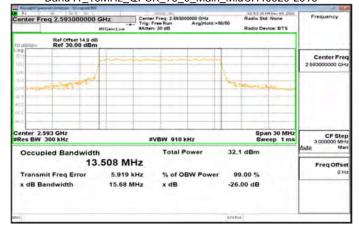
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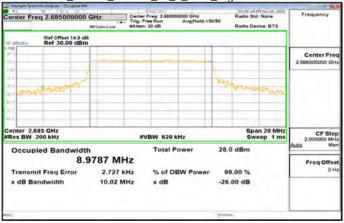
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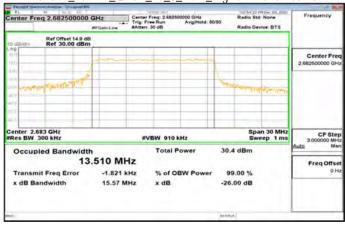
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Band41_10MHz_64QAM_50_0_Main_HighCH41540-2685



Band41_15MHz_QPSK_75_0_Main_HighCH41515-2682.5



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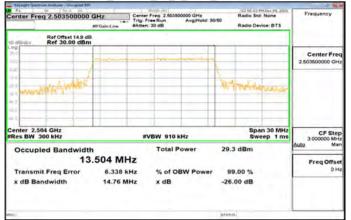
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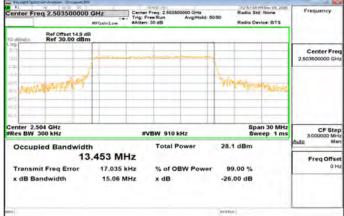


Report No.: ER/2020/B0118 Page 71 of 164

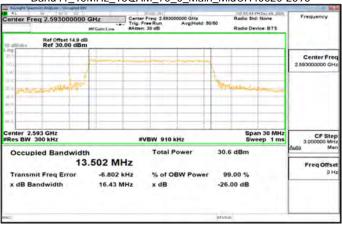
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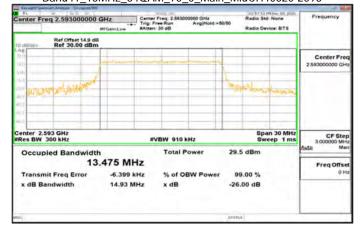
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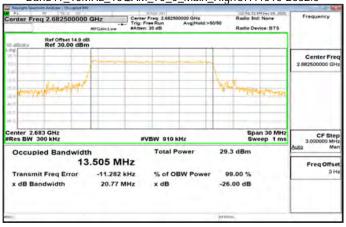
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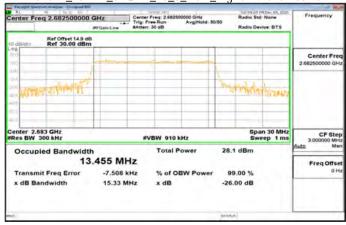
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Band41_15MHz_16QAM_75_0_Main_HighCH41515-2682.5



Band41_15MHz_64QAM_75_0_Main_HighCH41515-2682.5



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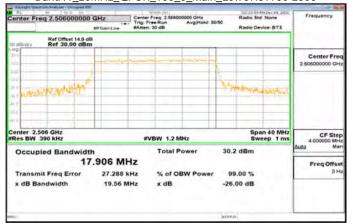
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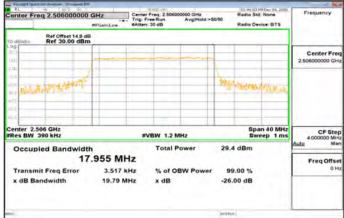


Report No.: ER/2020/B0118 Page 72 of 164

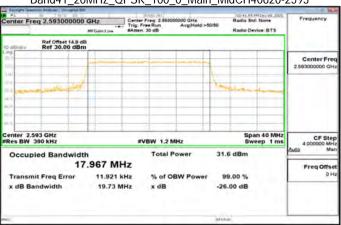
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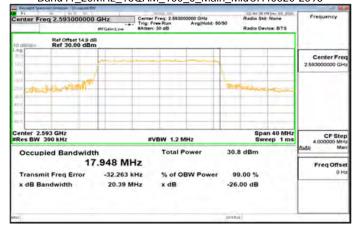
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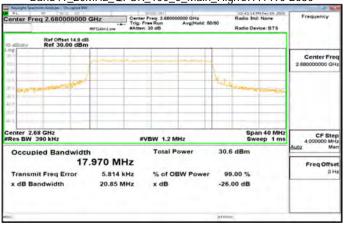
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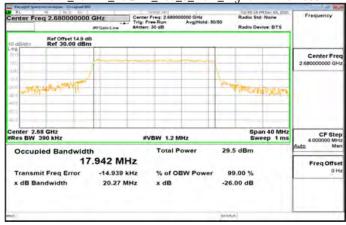
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Band41_20MHz_QPSK_100_0_Main_HighCH41490-2680



Band41_20MHz_16QAM_100_0_Main_HighCH41490-2680

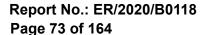


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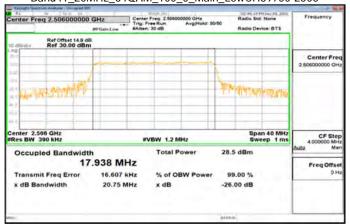
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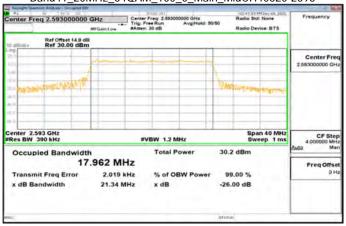




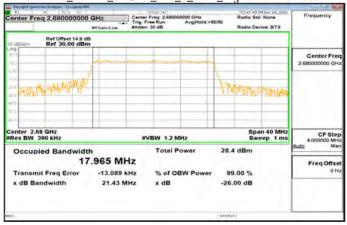
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Band41_20MHz_64QAM_100_0_Main_MidCH40620-2593



Band41_20MHz_64QAM_100_0_Main_HighCH41490-2680



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Page 74 of 164

OUT OF BAND EMISSION AT ANTENNA TERMINALS

8.1 Standard Applicable

FCC §22.917(a), §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) for LTE B12

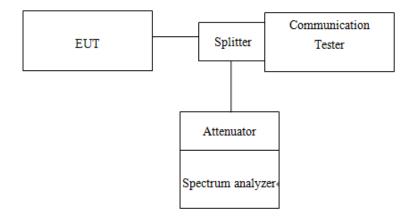
Compliance for operations in the 600 MHz, 698-746 MHz, 746-758 MHz and the 776-788 MHz band with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's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

FCC §27.53(m) (4) (6) for LTE B38, 41

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

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

8.2 **Test SET-UP**



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Page 75 of 164

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.

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

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**

Con	Conducted Emission (measured at antenna port) Test Site													
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.									
PXA Spectrum Analyzer	Agilent	N9030A	MY53120760	04/21/2020	04/20/2021									
DC Power Supply	Agilent	E3640A	MY40000811	12/23/2019	12/22/2020									
Radio Communication Analyzer	Anritsu	MT8815B	6200711454	04/01/2020	03/31/2021									
Radio Communication Analyzer	Anritsu	MT8821C	6261786084	01/18/2020	01/17/2021									
Attenuator	Mini-Circuit	BW-S10W2+	2	01/02/2020	01/01/2021									
DC Block	Mini-Circuits	BLK-18-S+	1	01/02/2020	01/01/2021									
Splitter	RF-LAMBAD	RFLT2W1G18G	11-JSPF412- 018	01/02/2020	01/01/2021									

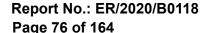
8.5 **Measurement Result:**

Refer to next pages.

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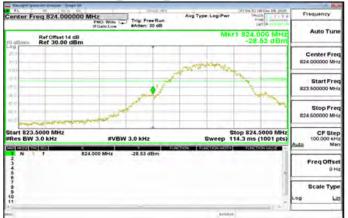
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Bandedge GSM 850MHz LowCH128-824.2





enter Freq 824.000000 MHz PNG Wide Trig Free Run Matter: 30 dB Auto Tur Ref Offset 14 dB Ref 30.00 dBm 823.5000 MHz BW 3.0 kHz CF Ste Freq Offse

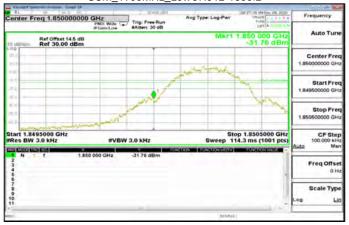
GPRS_850MHz_

LowCH128-824.2

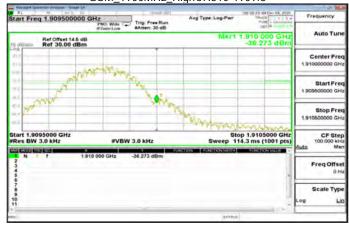
GPRS_850MHz__HighCH251-848.8



GSM_1900MHz_LowCH512-1850.2



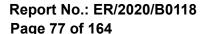
GSM_1900MHz_HighCH810-1909.8



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GPRS_1900MHz_LowCH512-1850.2



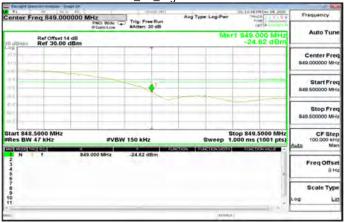




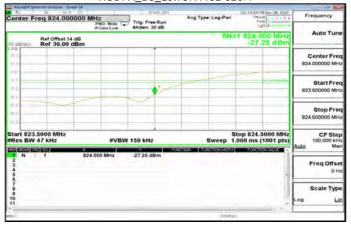
WCDMA_B5_LowCH4132-826.4



WCDMA_B5_HighCH4233-846.6



HSDPA_B5_LowCH4132-826.4



HSDPA_B5_HighCH4233-846.6

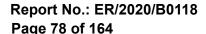


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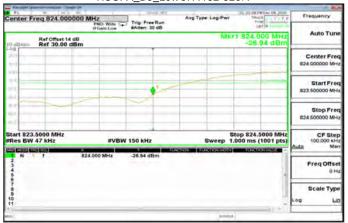
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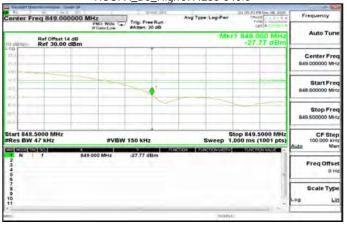




HSUPA_B5_LowCH4132-826.4







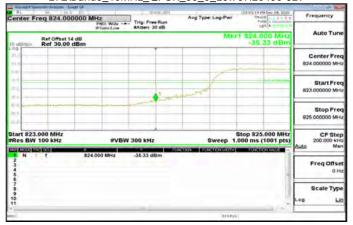
LTE\Band5_10MHz_QPSK_1_0_LowCH20450-829



LTE\Band5_10MHz_QPSK_1_49_HighCH20600-844



LTE\Band5_10MHz_QPSK_50_0_LowCH20450-829



LTE\Band5_10MHz_QPSK_50_0_HighCH20600-844

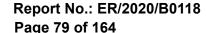


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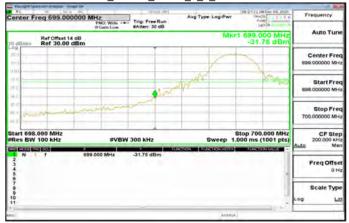
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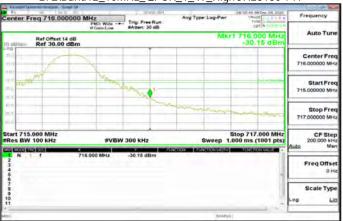




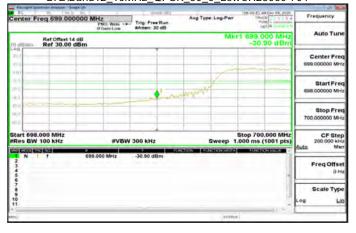
LTE\Band12_10MHz_QPSK_1_0_LowCH23060-704



LTE\Band12_10MHz_QPSK_1_49_HighCH23130-711



LTE\Band12_10MHz_QPSK_50_0_LowCH23060-704



LTE\Band12_10MHz_QPSK_50_0_HighCH23130-711



LTE\Band17_10MHz_QPSK_1_0_LowCH23780-709



LTE\Band17_10MHz_QPSK_1_49_HighCH23800-711



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