

Page: 1 of 199

ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT





Applicant: Quanta Computer Inc.

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

33377, Taiwan

Manufacturer: Quanta Computer Inc.

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

33377, Taiwan

Product Name: Clover Mini

Brand Name: Clover Model No.: C305

Model Difference: N/A

Report Number: E2/2022/20116

FCC ID HFS-C305

IC: 1787B-C305

Issue Date: May 4, 2022

Date of Test: March 11, 2022 ~ March 23, 2022

Date of EUT Received: February 22, 2022

Approved By

We hereby certify that:

The above equipment was tested by SGS Taiwan Ltd. Central RF Lab The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI ANSI C63.26-2015 and the energy emitted by the sample EUT comply with FCC rule part 2, 22H & 24E & 27 C and ISED RSS-Gen, 130, 132, 133, 139.

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

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製

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Page: 2 of 199

Revision History							
Report Number	Revision	Description	Issue Date	Revised By	Remark		
E2/2022/20116	00	Original	April 14, 2022	Yuri Tsai			
E2/2022/20116	01	Updated RSE test data	May 4, 2022	Yuri Tsai	*		

Note:

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

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Page: 3 of 199

Contents

1	GENERAL PRODUCT INFORMATION	4
2	SYSTEM TEST CONFIGURATION	11
3	SUMMARY OF TEST RESULTS	14
4	DESCRIPTION OF TEST MODES	15
5	MEASUREMENT UNCERTAINTY	18
6	MEASUREMENT EQUIPMENT USED	19
7	MAXMUM OUTPUT POWER	20
8	OCCUPIED BANDWIDTH MEASUREMENT	53
9	OUT OF BAND EMISSION AT ANTENNA TERMINALS	87
10	FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT	129
11	FREQUENCY STABILITY MEASUREMENT	175
12	PEAK TO AVERAGE RATIO	180

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Page: 4 of 199

1 GENERAL PRODUCT INFORMATION

1.1 Product Description

Product Name:	Clover Mini
Brand Name:	Clover
Model No.:	C305
Model Difference:	N/A
Hardware Version:	N/A
Firmware Version:	N/A
EUT Series No.:	C035UT20430001
Power Supply:	12V from Adapter
Test Software (Name/Version)	default

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Page: 5 of 199

1.2 Operation Frequency Range

LTE Band 2					
	LIL Dai	iu z			
BW (MHz)	Operation	Freque	ency (MHz)		
1.4	1850.7	-	1909.3		
3	1851.5	-	1908.5		
5	1852.5	-	1907.5		
10	1855.0	-	1905.0		
15	1857.5	-	1902.5		
20	1860.0	-	1900.0		
	LTE Bar	nd 4			
BW (MHz)	Operation	Freque	ency (MHz)		
1.4	1710.7	-	1754.3		
3	1711.5	-	1753.5		
5	1712.5	-	1752.5		
10	1715.0	-	1750.0		
15	1717.5	-	1747.5		
20	1720.0	-	1745.0		
	LTE Bar	nd 5			
BW (MHz)	Operation	Freque	ency (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	Freque	ency (MHz)			
1.4	699.7	-	715.3			
3	700.5	-	714.5			
5	701.5	-	713.5			
10	704.0	-	711.0			
	LTE Band	d 13				
BW (MHz)	Operation	Freque	ency (MHz)			
5	779.5	-	784.5			
10	782.0					
LTE Band 17						
BW (MHz)	Operation	Freque	ency (MHz)			
5	706.5	-	713.5			
10	709.0	-	711.0			
	LTE Band	d 66				
BW (MHz)	Operation	Freque	ency (MHz)			
1.4	1710.7	-	1779.3			
3	1711.5	-	1778.5			
5	1712.5	-	1777.5			
10	1715.0	-	1775.0			
15	1717.5	-	1772.5			
20	1720.0	-	1770.0			

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Page: 6 of 199

1.3 **Antenna Designation**

Туре	Modulation	Frequency (MHz)		Peak Antenna Gain (dBi)	
	LTE-Band 2	1850	~	1910	2
	LTE-Band 4	1710	~	1755	2.19
	LTE-Band 5	824	~	849	0.34
PIFA	LTE-Band 12	699	~	716	2.47
	LTE-Band 13	777	~	787	1.75
	LTE-Band 17	704	~	716	2.47
	LTE-Band 66	1710	~	1780	2.19

Note: Antenna information is provided by the applicant.

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Page: 7 of 199

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

LTE	BW	Frequ	iency	Modulation	ERP / EIR	P (dBm)	(W)	99%	Type of
Band			,			` ′	` '		Emission
2	1.4	1850.7	1909.3	QPSK	23.92	EIRP	0.247	1.0868	1M09G7D
				16QAM	23.00	EIRP	0.200	1.0883	1M09D7W
2	3	1851.5	1908.5	QPSK	24.01	EIRP	0.252	2.6862	2M69G7D
	Ů	1001.0	1700.0	16QAM	23.06	EIRP	0.202	2.6912	2M69D7W
2	5	1852.5	1907.5	QPSK	24.08	EIRP	0.256	4.4915	4M49G7D
2	,	1032.3	1707.5	16QAM	22.97	EIRP	0.198	4.4925	4M49D7W
2	10	1855.0	1905.0	QPSK	24.01	EIRP	0.252	8.9634	8M96G7D
	10	1033.0	1703.0	16QAM	23.39	EIRP	0.218	3.0713	3M07D7W
2	15	1857.5	1902.5	QPSK	24.05	EIRP	0.254	13.436	13M4G7D
2	15	1837.3	1902.5	16QAM	23.16	EIRP	0.207	3.198	3M20D7W
-	20	10/00	1000.0	QPSK	23.92	EIRP	0.247	17.893	17M9G7D
2	20	1860.0	1900.0	16QAM	23.23	EIRP	0.210	3.766	3M77D7W
LTE	BW	From	iency	Madulation	ERP / EIR	D (dDm)	(W)	99%	Type of
Band	DVV	Псцс	iciicy	WOULdidio	ERF / EIR	r (ubili)	(۷۷)	9970	Emission
4	1.4	1710.7	1754.3	QPSK	24.51	EIRP	0.282	1.0875	1M09G7D
4	1.4	1710.7	1734.3	16QAM	23.55	EIRP	0.226	1.0877	1M09D7W
4	3	1711.5	1753.5	QPSK	24.67	EIRP	0.293	2.6883	2M69G7D
4	3	1/11.5	1/53.5	16QAM	23.29	EIRP	0.213	2.6899	2M69D7W
4	5	1710 5	1750 5	QPSK	24.60	EIRP	0.288	4.4917	4M49G7D
4	5	1712.5	1752.5	16QAM	24.01	EIRP	0.252	4.4925	4M49D7W
	10	1715.0	1750.0	QPSK	24.66	EIRP	0.292	8.9729	8M97G7D
4	10	1715.0	1750.0	16QAM	23.93	EIRP	0.247	3.0523	3M05D7W
	15	1717.5	1747.5	QPSK	24.78	EIRP	0.301	13.4270	13M4G7D
4	15	1717.5	1747.5	16QAM	24.47	EIRP	0.280	3.1772	3M18D7W
		47000	4745.0	QPSK	24.64	EIRP	0.291	17.8580	17M9G7D
4	20	1720.0	1745.0	16QAM	23.90	EIRP	0.245	3.7599	3M76D7W
LTE	DW	From	iency		EDD / EID	D (1D)	0.40	000/	Type of
Band	BW	Frequ	iency	Modulation	ERP / EIR	P (aBM)	(W)	99%	Emission
5	1.4	0047	040.0	QPSK	20.84	ERP	0.121	1.0876	1M09G7D
5	1.4	824.7	848.3	16QAM	20.05	ERP	0.101	1.0874	1M09D7W
5	3	025.5	047.5	QPSK	20.88	ERP	0.122	2.6893	2M69G7D
5	3	825.5	847.5	16QAM	20.75	ERP	0.119	2.6911	2M69D7W
-	-	00/ 5	04/ 5	QPSK	20.70	ERP	0.117	4.4859	4M49G7D
5	5	826.5	846.5	16QAM	20.01	ERP	0.100	4.4917	4M49D7W
				QPSK	20.98	ERP	0.125	8.9620	8M96G7D
5	10	829.0	844.0	16QAM	20.19	ERP	0.104	3.0526	3M05D7W

		-							Type of
Band	BW	Frequ	iency	Modulation	ERP / EIR	P (dBm)	(W)	99%	Emission
				QPSK	23.02	ERP	0.200	1.0869	1M09G7D
12	1.4	699.7	715.3	16QAM	22.18	ERP	0.165	1.0875	1M09D7W
				QPSK	23.09	ERP	0.204	2.6874	2M69G7D
12	3	700.5	714.5	16QAM	21.87	ERP	0.154	2.6921	2M69D7W
				QPSK	22.85	ERP	0.193	4.4883	4M49G7D
12	5	701.5	713.5	16QAM	22.18	ERP	0.165	4.4901	4M49D7W
				QPSK	22.95	ERP	0.197	8.9849	8M98G7D
12	10	704.0	711.0	16QAM	22.38	ERP	0.173	3.0536	3M05D7W
LTE	BW	Erogu	iency		EDD / EID	D (4D**)	۸۸۸	000/	Type of
Band	BVV	Fiequ	шенсу		ERP / EIR	P (aBm)	(W)	99%	Emission
				QPSK	22.23	ERP	0.167	4.4880	4M49G7D
13	5	779.5	784.5	16QAM	21.53	ERP	0.142	4.4941	4M49D7W
13	5	119.5	/84.5						0KD7W
									0KD7W
				QPSK	22.06	ERP	0.161	8.9372	8M94G7D
10	10	700.0	700.0	16QAM	21.50	ERP	0.141	3.0287	3M03D7W
13	10	782.0	782.0						0KD7W
									0KD7W
									OKD/ W
LTE	DW	Erogu	ioneu		EDD / EID	D (4D**)	040	000/	Type of
LTE Band	BW	Frequ	uency	Modulation	ERP / EIR	P (dBm)	(W)	99%	
Band				Modulation QPSK	ERP / EIR 23.14	P (dBm) ERP	(W) 0.206	99% 4.4911	Type of
	BW 5	Frequ 706.5	nency 713.5			` ′	. ,		Type of Emission
Band 17	5	706.5	713.5	QPSK	23.14	ERP	0.206	4.4911	Type of Emission 4M49G7D
Band				QPSK 16QAM	23.14 21.86	ERP ERP	0.206 0.153	4.4911 4.4908	Type of Emission 4M49G7D 4M49D7W
Band 17	5	706.5	713.5 711.0	QPSK 16QAM QPSK 16QAM	23.14 21.86 23.12 22.69	ERP ERP ERP	0.206 0.153 0.205 0.186	4.4911 4.4908 8.9639 3.0520	Type of Emission 4M49G7D 4M49D7W 8M96G7D
17 17	5	706.5	713.5	QPSK 16QAM QPSK	23.14 21.86 23.12	ERP ERP ERP	0.206 0.153 0.205 0.186 (W)	4.4911 4.4908 8.9639	Type of Emission 4M49G7D 4M49D7W 8M96G7D 3M05D7W
Band 17 17 LTE Band	5 10 BW	706.5 709.0 Frequ	713.5 711.0	QPSK 16QAM QPSK 16QAM Modulation QPSK	23.14 21.86 23.12 22.69	ERP ERP ERP	0.206 0.153 0.205 0.186	4.4911 4.4908 8.9639 3.0520	Type of Emission 4M49G7D 4M49D7W 8M96G7D 3M05D7W Type of
Band 17 17 LTE	5	706.5	713.5 711.0	QPSK 16QAM QPSK 16QAM Modulation	23.14 21.86 23.12 22.69 ERP / EIR	ERP ERP ERP ERP P (dBm)	0.206 0.153 0.205 0.186 (W)	4.4911 4.4908 8.9639 3.0520 99%	Type of Emission 4M49G7D 4M49D7W 8M96G7D 3M05D7W Type of Emission
Band 17 17 LTE Band 66	5 10 BW 1.4	706.5 709.0 Frequ	713.5 711.0 Jency	QPSK 16QAM QPSK 16QAM Modulation QPSK	23.14 21.86 23.12 22.69 ERP / EIR 23.91	ERP ERP ERP ERP P (dBm)	0.206 0.153 0.205 0.186 (W) 0.246	4.4911 4.4908 8.9639 3.0520 99% 1.0867	Type of Emission 4M49G7D 4M49D7W 8M96G7D 3M05D7W Type of Emission 1M09G7D
Band 17 17 LTE Band	5 10 BW	706.5 709.0 Frequ	713.5 711.0	QPSK 16QAM QPSK 16QAM Modulation QPSK 16QAM	23.14 21.86 23.12 22.69 ERP / EIR 23.91 23.21	ERP ERP ERP ERP ERP P (dBm)	0.206 0.153 0.205 0.186 (W) 0.246 0.209	4.4911 4.4908 8.9639 3.0520 99% 1.0867 1.0872	Type of Emission 4M49G7D 4M49D7W 8M96G7D 3M05D7W Type of Emission 1M09G7D 1M09D7W
17 17 LTE Band 66 66	5 10 BW 1.4	706.5 709.0 Frequ 1710.7	713.5 711.0 Jency 1779.3	QPSK 16QAM QPSK 16QAM Modulation QPSK 16QAM QPSK	23.14 21.86 23.12 22.69 ERP / EIR 23.91 23.21 24.06	ERP ERP ERP ERP ERP ERP EIRP EIRP EIRP	0.206 0.153 0.205 0.186 (W) 0.246 0.209 0.255	4.4911 4.4908 8.9639 3.0520 99% 1.0867 1.0872 2.6885	Type of Emission 4M49G7D 4M49D7W 8M96G7D 3M05D7W Type of Emission 1M09G7D 1M09D7W 2M69G7D
Band 17 17 LTE Band 66	5 10 BW 1.4	706.5 709.0 Frequ	713.5 711.0 Jency	QPSK 16QAM QPSK 16QAM Modulation QPSK 16QAM QPSK 16QAM	23.14 21.86 23.12 22.69 ERP / EIR 23.91 23.21 24.06 22.80	ERP ERP ERP ERP ERP P (dBm) EIRP EIRP EIRP	0.206 0.153 0.205 0.186 (W) 0.246 0.209 0.255 0.191	4.4911 4.4908 8.9639 3.0520 99% 1.0867 1.0872 2.6885 2.6922	Type of Emission 4M49G7D 4M49D7W 8M96G7D 3M05D7W Type of Emission 1M09D7W 2M69G7D 2M69D7W
17 17 LTE Band 66 66 66	5 10 BW 1.4 3	706.5 709.0 Frequ 1710.7 1711.5	713.5 711.0 Hency 1779.3 1778.5	QPSK 16QAM QPSK 16QAM Modulation QPSK 16QAM QPSK 16QAM QPSK 16QAM QPSK	23.14 21.86 23.12 22.69 ERP / EIR 23.91 23.21 24.06 22.80 23.92	ERP ERP ERP ERP P (dBm) EIRP EIRP EIRP	0.206 0.153 0.205 0.186 (W) 0.246 0.209 0.255 0.191 0.247	4.4911 4.4908 8.9639 3.0520 99% 1.0867 1.0872 2.6885 2.6922 4.4881	Type of Emission 4M49G7D 4M49D7W 8M9GG7D 3M05D7W Type of Emission 1M09G7D 1M09D7W 2M69G7D 2M69D7W 4M49G7D
17 17 LTE Band 66 66	5 10 BW 1.4	706.5 709.0 Frequ 1710.7	713.5 711.0 Jency 1779.3	OPSK 16OAM OPSK 16OAM Modulation OPSK 16OAM OPSK 16OAM OPSK 16OAM OPSK 16OAM	23.14 21.86 23.12 22.69 ERP / EIR 23.91 23.21 24.06 22.80 23.92 22.98	ERP ERP EIRP EIRP EIRP EIRP EIRP	0.206 0.153 0.205 0.186 (W) 0.246 0.209 0.255 0.191 0.247 0.199	4.4911 4.4908 8.9639 3.0520 99% 1.0867 1.0872 2.6885 2.6922 4.4881 4.4918	Type of Emission 4M49G7D 4M49D7W 8M96G7D 3M05D7W Type of Emission 1M09G7D 1M09D7W 2M69G7D 2M69D7W 4M49G7D 4M49D7W
Band 17 17 LTE Band 66 66 66	5 10 BW 1.4 3 5	706.5 709.0 Frequ 1710.7 1711.5 1712.5	713.5 711.0 Jency 1779.3 1778.5 1777.5	QPSK 16QAM QPSK 16QAM Modulation QPSK 16QAM QPSK 16QAM QPSK 16QAM QPSK 16QAM QPSK	23.14 21.86 23.12 22.69 ERP / EIR 23.91 23.21 24.06 22.80 23.92 22.98 24.15	ERP ERP EIRP EIRP EIRP EIRP EIRP EIRP	0.206 0.153 0.205 0.186 (W) 0.246 0.209 0.255 0.191 0.247 0.199 0.260	4.4911 4.4908 8.9639 3.0520 99% 1.0867 1.0872 2.6885 2.6922 4.4881 4.4918 8.9631	Type of Emission 4M49G7D 4M49D7W 8M96G7D 3M05D7W Type of Emission 1M09G7D 1M09D7W 2M69G7D 2M69D7W 4M49G7D 4M49D7W 8M96G7D
17 17 LTE Band 66 66 66	5 10 BW 1.4 3	706.5 709.0 Frequ 1710.7 1711.5	713.5 711.0 Hency 1779.3 1778.5	QPSK 16QAM QPSK 16QAM Modulation QPSK 16QAM QPSK 16QAM QPSK 16QAM QPSK 16QAM QPSK 16QAM	23.14 21.86 23.12 22.69 ERP / EIR 23.91 23.21 24.06 22.80 23.92 22.98 24.15 23.50	ERP ERP ERP ERP EIRP EIRP EIRP EIRP EIRP	0.206 0.153 0.205 0.186 (W) 0.246 0.209 0.255 0.191 0.247 0.199 0.260 0.224	4.4911 4.4908 8.9639 3.0520 99% 1.0867 1.0872 2.6885 2.6922 4.4881 4.4918 8.9631 3.0303	Type of Emission 4M49G7D 4M49D7W 8M96G7D 3M05D7W Type of Emission 1M09G7D 1M09D7W 2M69G7D 2M69D7W 2M69D7W 4M49G7D 4M49D7W 8M96G7D 3M03D7W
Band 17 17 LTE Band 66 66 66	5 10 BW 1.4 3 5	706.5 709.0 Frequ 1710.7 1711.5 1712.5	713.5 711.0 Jency 1779.3 1778.5 1777.5	QPSK 16OAM OPSK 16OAM Modulation OPSK 16OAM OPSK 16OAM OPSK 16OAM OPSK 16OAM	23.14 21.86 23.12 22.69 ERP / EIR 23.91 23.21 24.06 22.80 23.92 22.98 24.15 23.50 23.97	ERP ERP ERP ERP EIRP EIRP EIRP EIRP EIRP	0.206 0.153 0.205 0.186 (W) 0.246 0.209 0.255 0.191 0.247 0.199 0.260 0.224 0.249	4.4911 4.4908 8.9639 3.0520 99% 1.0867 1.0872 2.6885 2.6922 4.4881 8.9631 3.0303 13.4410	Type of Emission 4M49G7D 4M49D7W 8M96G7D 3M05D7W Type of Emission 1M09G7D 1M09D7W 2M69G7D 2M69D7W 4M49G7D 4M49D7W 8M96G7D 3M03D7W 13M4G7D

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Page: 8 of 199

1.5 **Test Methodology of Applied Standards**

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

ISED RSS-130 Issue 2 Feb. 2019.

ISED RSS-132 Issue 3 Jan. 2013

ISED RSS-133 Issue 6, Amendment 1 Jan. 18, 2018, ISED RSS-139 Issue 3 July 16, 2015

ANSI C63.26-2015

KDB971168 D01 Power Meas license Digital System v03r01

KDB412172 D01 Determining ERP and EIRP v01r01

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Page: 9 of 199

1.6 Test Facility

Laboratory	Test Site Address	Test Site Name	FCC Designa- tion number	IC CAB identifier
		SAC 1		
		SAC 3		
		Conduction 1		
	No.134, Wu Kung Road, New Taipei	Conducted 1		
	Industrial Park, Wuku District, New	Conducted 2	TW0027	TW3702
	Taipei City, Taiwan.	Conducted 3		
		Conducted 4		
		Conducted 5		
SGS Taiwan Ltd.		Conducted 6		
Central RF Lab.	No 2 Kaii dat Dd. Cuishan Diatriat	Conduction C		
(TAF code 3702)		SAC C		
(1A1 code 3/02)		SAC D		
		SAC G		
		Conducted A		
	No.2, Keji 1st Rd., Guishan District, Taoyuan City, Taiwan 333	Conducted B	TW0028	
	laoydan Oity, Taiwan 555	Conducted C		
		Conducted D		
		Conducted E		
		Conducted F		
		Conducted G		

Note: Test site name is remarked on the equipment list in each section of this report as an indication where measurements occurred in specific test site and address.

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Page: 10 of 199

1.7 **Special Accessories**

No special accessories were used during testing.

1.8 **Equipment Modifications**

There was no modifications incorporated into the EUT.

1.9 Radiated Emission Test Sites For Measurements From 9 kHz To 30 MHz

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

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Page: 11 of 199

SYSTEM TEST CONFIGURATION

2.1 **EUT Configuration**

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

2.2 **EUT Exercise**

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

2.3 **Test Procedure**

2.3.1 **Conducted Measurement at Antenna Port**

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

2.3.2 Radiated Emissions (ERP/EIRP)

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

2.4 **Measurement Results Explanation Example**

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuation factor between EUT conducted port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly EUT RF output level.

Note:

The spectrum analyzer offset is derived from RF cable loss and attenuator factor. Following shows an offset computation in physical test.

	RF cable loss (dB)	Attenuation factor(dB)	offset(dB)
Low Band (Below 1GHz)	3.6	10	13.6
High Band (Above 1 GHz)	3.8	10	13.8

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Page: 12 of 199

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

LTE Band 2

Test mode	DC voltage (V)	DC current (mA)
LTE Band 2_20M QPSK	12	612

LTE Band 4

Test mode	DC voltage (V)	DC current (mA)
LTE Band 4_20M QPSK	12	592

LTE Band 5

Test mode	DC voltage (V)	DC current (mA)		
LTE Band 5_10M QPSK	12	573		

LTE Band 12

Test mode	DC voltage (V)	DC current (mA)		
LTE Band 5_10M QPSK	12	575		

LTE Band 13

Test mode	DC voltage (V)	DC current (mA)
LTE Band 13_10M QPSK	12	579

LTE Band 17

Test mode	DC voltage (V)	DC current (mA)		
LTE Band 17_10M QPSK	12	584		

LTE Band 66

Test mode	DC voltage (V)	DC current (mA)
LTE Band 66_20M QPSK	12	635

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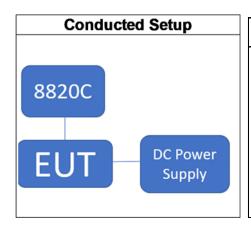
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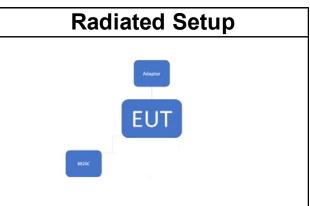
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Page: 13 of 199

2.6 **Test Configuration**





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

2.7 Control Unit(s)

	Conducted Emission Test Site: Conducted E								
EQUIPMENT TYPE	LAST CAL.	CAL DUE.							
DC Power Supply	Gwinstek	SPS-3610	GEV856769	2021/8/4	08/03/2022				
	Ra	diated Emission Test Si	te: SAC D						
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.				
Adapter	Clover	FSP040-RHBN3	N/A	N/A	N/A				

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Page: 14 of 199

SUMMARY OF TEST RESULTS

FCC Rules	IC Rules	Description Of Test	Result
§2.1046(a)	RSS-GEN §6.12	RF Power Output	Compliant
§22.913(a)(5) §24.232(c) §27.50(c)(9) §27.50(d)(4)	RSS-130 §4.6 RSS-132 §5.4 RSS-133 §6.4 RSS-139 §6.5	ERP/ EIRP measure- ment	Compliant
§2.1049(h)	RSS-GEN §6.7	99% & 26dB Occupied Bandwidth	Compliant
§2.1051 §22.917(a)(b) §24.238(a) §27.53(c) §27.53(g) §27.53(h)	RSS-GEN §6.13 RSS-130 §4.7 RSS-132 §5.5 RSS-133 §6.5 RSS-139 §6.6	Out of Band Emissions at Antenna Terminals and Band Edge / Emission mask requirements	Compliant
§2.1053 §22.917(a) §24.238(a) §27.53(c)(f) §27.53(g) §27.53(h)	RSS-GEN §6.13 RSS-130 §4.7 RSS-132 §5.5 RSS-133 §6.5 RSS-139 §6.6	Field Strength of Spurious Radiation	Compliant
§24.232(d) §27.50(a)(1)(B)	RSS-130 §4.6.1 RSS-132 §5.4 RSS-133 §6.4 RSS-139 §6.4	Peak to Average Ra- tio	Compliant
§2.1055(a)(1) §22.355 §24.235 §27.54	RSS-130 §4.5 RSS-132 §5.3 RSS-133 §6.3 RSS-139 §6.5	Frequency Stability	Compliant

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Page: 15 of 199

4 DESCRIPTION OF TEST MODES

4.1 The Worst Test Modes and Channel Details

- 1. The EUT has been tested under operating condition.
- 2. Pre-Scan has been conducted to determine the worst-case scenario from all possible combinations among available modulations, data rates and antenna ports, the worst case configurations listed below for the final test.
- 3. The field strength of radiated emission was measured as the EUT positioned in different orthogonal planes (E1/E2/H) based on actual usage of the EUT to pre-scan the emissions for determining the worst case scenario.

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Page: 16 of 199

4.2 **Measurement Configuration**

	Test Items Max. Output Power													
Dand	Te	nel		Bandwidth (MHz)						Modulation		RB#		
Band	L	М	Н	1.4	3	5	10	15	20	QPSK	16QAM	1	Half	Full
2	V	V	V	V	V	V	V	V	V	V	V	V	V	V
4	V	V	V	V	V	V	V	V	V	V	V	V	V	V
5	V	V	V	V	V	V	V	-	-	V	V	V	V	V
12	V	V	V	V	V	V	V	-	-	V	V	V	V	V
13	V	V	V	-	-	V	V	-	-	V	V	V	V	V
17	V	V	V	-	-	V	V	-	-	V	V	V	V	V
66	V	V	V	V	V	V	V	V	V	V	V	V	V	V
	Test Ite	ms						Freq	ency Sta	bility				
2	-	V	-	-	-	-	V	-	-	V	-	-	-	V
4	-	V	-	-	-	-	V	-	-	V	-	-	-	V
5	-	V	-	-	-	-	V	-	-	V	-	-	-	V
12	-	V	-	-	-	-	V	-	-	V	-	-	-	V
13	-	V	-	-	-	-	V	-	-	V	-	-	-	V
17	-	V	-	-	-		V	-	-	V	-	-	-	V
66	-	V	-	-	-	-	V	-	-	V	-	-	-	V

	Test Ite	ms			26dB and 99% Bandwidth										
Band	Test Channel				E	Bandwid	th (MHz	:)		Modu	lation		RB#		
Danu	L	М	Н	1.4	3	5	10	15	20	QPSK	16QAM	1	Half	Full	
2	V	V	V	V	٧	V	V	V	V	V	V	-	-	V	
4	V	V	V	V	V	V	V	V	V	V	V	-	-	V	
5	V	V	V	V	V	V	V	-	-	V	V	-	-	V	
12	V	V	V	V	V	V	V	-	-	V	V	-	-	V	
13	V	V	V	-	-	V	V	-	-	V	V	-	-	V	
17	V	V	V	-	-	V	V	-	-	V	V	-	-	V	
66	V	V	V	V	V	V	V	V	V	V	V	-	-	V	
	Test Ite	ms						Peak-to	-Av eraç	ge Ratio					
2	V	V	V	V	V	V	V	V	V	V	V	-	-	V	
4	V	V	V	V	V	V	V	٧	V	V	V	-	-	V	
5	V	V	V	V	V	V	V	-	-	V	V	-	-	V	
12	V	V	V	V	V	V	V	-	-	V	V	-	-	V	
13	V	V	V	-	-	V	V	-	-	V	V	-	-	V	
17	V	V	V	-	-	V	V	-	-	V	V	-	-	V	
66	V	V	V	V	V	V	V	V	V	V	V	-	-	V	

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Page: 17 of 199

Test Items					Band Edge									
Dand	Te	st Chan	nel		E	Bandwid	th (MHz	<u>'</u>)		Modu	lation	RB#		
Band	L	М	Н	1.4	3	5	10	15	20	QPSK	16QAM	1	Half	Full
2	V	-	V	V	V	V	V	V	V	V	-	V	V	٧
4	V	-	V	V	V	V	V	V	V	V	-	V	V	V
5	V	-	V	V	V	V	V	-	-	V	-	V	V	V
12	V	-	V	V	V	V	V	-	-	V	-	V	V	V
13	V	-	V	-	-	V	V	-	-	V	-	V	V	V
17	V	-	V	-	-	V	V	-	-	V	-	V	V	V
66	V	-	V	V	V	V	V	V	V	V	-	V	V	V
	Test Ite	ms						Condu	cted En	nission				
2	V	V	V	V	V	V	V	V	V	V	-	V	-	-
4	V	V	V	V	V	V	V	V	V	V	-	V	-	-
5	V	V	V	V	V	V	V	-	-	V	-	V	-	-
12	V	V	V	V	V	V	V	-	-	V	-	V	-	-
13	V	V	V	-	-	V	V	-	-	V	-	V	-	-
17	V	V	V	-	-	V	V	-	-	V	-	V	-	-
66	V	V	V	V	V	V	V	V	V	V	-	V	-	-

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Page: 18 of 199

MEASUREMENT UNCERTAINTY

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

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

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

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Page: 19 of 199

6 MEASUREMENT EQUIPMENT USED

6.1 Conducted Measurement

	Con	ducted Emission Test Site: Co	nducted E		
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
DC Power Supply	Gwinstek	SPS-3610	GEV856769	2021/8/4	08/03/2022
Radio Communication Analyer	Anritsu	MT8820C	6201107337	07/28/2021	07/27/2022
Spectrum Analyzer	KEYSIGHT	N9010A	MY51440113	07/13/2021	07/12/2022
Temperature Chamber	TERCHY	MHK-120LK	1020582	07/01/2021	06/30/2022
Test Software	SGS Taiwan	Radio Test Software	Ver.21	N.C.R	N.C.R
Coaxial Cables	Woken	00100A1F1A185C	RF87	11/18/2021	11/17/2022
Coaxial Cables	Woken	00100A1F1A185C	RF92	11/18/2021	11/17/2022
Coaxial Cables	Woken	00100A1F2A196C	RF93	11/18/2021	11/17/2022
Attenuator	Marvelous	MVE2213-10	RF06	11/18/2021	11/17/2022
DC Block	PASTERNACK	PE8210	RF158	11/18/2021	11/17/2022
Splitter	Woken	DOM35LW1A2	RF258	11/18/2021	11/17/2022

6.2 Radiated Measurement

	Rac	liated Emission Test Si	te: SAC D		
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Broadband Antenna	SCHWARZBECK	VULB 9168	9168-617	11/12/2021	11/11/2022
Horn Antenna	Schwarzbeck	BBHA9170	185	08/06/2021	08/05/2022
Horn Antenna	Schwarzbeck	BBHA9120D	1341	06/04/2021	06/03/2022
Loop Antenna	ETS.LINDGREN	6502	143303	05/07/2021	05/06/2022
3m Site NSA	SGS	966 chamber D	N/A	07/12/2021	07/11/2022
Test Software	audix	e3	E3 20923 SGS Ver.9 (C)	N.C.R	N.C.R
Spectrum Analyzer	KEYSIGHT	N9010B	MY59071570	06/01/2021	05/31/2022
Radio Communication Analyer	Anritsu	MT8820C	6201107337	07/28/2021	07/27/2022
Pre-Amplifier	EMC Instruments	EMC184045B	980135	10/27/2021	10/26/2022
Pre-Amplifier	EMC Instruments	EMC9135	980234	11/18/2021	11/17/2022
Pre-Amplifier	EMC Instruments	EMC12630SE	980273	11/18/2021	11/17/2022
Coaxial Cable	Huber+Suhner	RG 214/U	W21.01	11/18/2021	11/17/2022
Coaxial Cable	Huber Suhner	EMC106-SM-SM-7200	150703	11/18/2021	11/17/2022
Coaxial Cable	Huber Suhner	SUCOFLEX 104	MY17413/4	11/18/2021	11/17/2022
Attenuator	Marvelous	WATT-218FS-10	RF17	11/18/2021	11/17/2022
Lowpass Filter	Woken	EWT-56-0019	RF173	11/18/2021	11/17/2022
High Pass Filter	R&S	F13 HPF 3GHz	RF175	11/18/2021	11/17/2022
Band Rejection Filter	Micro-Tronics	BRM50701-01	RF201	11/18/2021	11/17/2022

NOTE: N.C.R refers to Not Calibrated Required.

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Page: 20 of 199

MAXMUM OUTPUT POWER

7.1 Standard Applicable

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

7.1.1 **ERP/EIRP LIMIT**

According to FCC §2.1046

FCC 22.913(a)

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

FCC 24.232(c)

Mobile and portable stations are limited to 2 W EIRP.

FCC 27.50 (b)

(9) Control stations and mobile stations transmitting in the 746-757 MHz, 776-788 MHz, and 805-806 MHz bands are limited to 30 watts ERP.

FCC 27.50(c)

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

FCC 27.50(d)

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

RSS-130 §4.6

The e.r.p. shall not exceed 3 watts for portable equipment and indoor fixed subscriber equipment operating in 698-756 and 777-787 MHz.

RSS-132 §5.4

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

RSS-133 §6.4

The equivalent isotropically radiated power (e.i.r.p.) for transmitters shall not exceed the limits given in SRSP-510.

According to section 5.1.2 of SRSP-510, Mobile stations and hand-held portables are limited to 2 watts maximum e.i.r.p. The equipment shall employ means to limit the power to the minimum necessary for successful communication.

RSS-139 §6.5

The equivalent isotropically radiated power (e.i.r.p.) for mobile and portable transmitters in the Bands 1710-1780MHz shall not exceed one watt.

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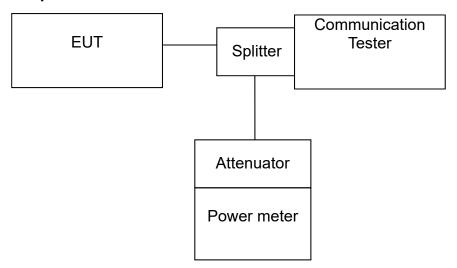
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Page: 21 of 199

7.2 **Test Set-up**



Note: Measurement setup for testing on Antenna connector

7.3 **Output Power Measurement Applicable Guideance**

The transmitter output was connected to a calibrated attenuator, the other end of which was connected to a power meter. Transmitter output was read off the power meter in dBm. The power output at the transmitter antenna port was determined by adding the value of the attenuator to the power meter reading.

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: 22 of 199

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

According to KDB 412172 D01 Power Approach,

 $EIRP = P_T + G_T - L_C$

ERP= EIRP-2.15.

Where:

Lc

ERP or EIRP = effective radiated power or equivalent isotropically radiated power

> (expressed in the same units as PT, typically dBW, dBm, or power spectral density (PSD)2), relative to either a dipole antenna (ERP) or

an isotropic antenna (EIRP);

 P_{T} = transmitter output power, expressed in dBW, dBm, or PSD;

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

= signal attenuation in the connecting cable between the transmitter

and antenna, in dB.

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Page: 23 of 199

7.5 Measurement Results:

7 11 10 11 11 1	yairi (ubi)	2								
		ı	TE Band 2_Upl	link frequ	iency bar	nd : 1850 to 191	0 MHz			
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)	
				1	0	21.73	23.73	33	-9.27	
	18607	1850.7	QPSK	1	5	21.58	23.58	33	-9.42	
	10007	1030.7	Q1 510	3	2	21.91	23.91	33	-9.09	
				6	0	20.88	22.88	33	-10.12	
				1	0	21.51	23.51	33	-9.49	
1.4	18900	1880	QPSK	1	5	21.69	23.69	33	-9.31	
1.4	10900	1000	QF3K	3	2	21.68	23.68	33	-9.32	
				6	0	20.72	22.72	33	-10.28	
		1909.3		1	0	21.62	23.62	33	-9.38	
	19193		QPSK	1	5	21.92	23.92	33	-9.08	
	17173	1707.3	UPSK	3	2	21.83	23.83	33	-9.17	
				6	0	20.84	22.84	33	-10.16	
					1	0	21.00	23.00	33	-10
	18607	1850.7	16QAM	1	5	20.73	22.73	33	-10.27	
	10007	1630.7	TOQAIVI	3	2	20.93	22.93	33	-10.07	
				6	0	19.98	21.98	33	-11.02	
				1	0	20.49	22.49	33	-10.51	
1.4	18900	1880	16QAM	1	5	20.56	22.56	33	-10.44	
1.4	10700	1000	TOUAIVI	3	2	20.83	22.83	33	-10.17	
			6	0	19.67	21.67	33	-11.33		
			1	0	20.65	22.65	33	-10.35		
10102	1000.2	16QAM	1	5	20.60	22.60	33	-10.4		
	19193 1909.3	IOQAW	3	2	21.00	23.00	33	-10		
				6	0	19.92	21.92	33	-11.08	

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Page: 24 of 199

Antenna gain (dBi)

	5								
		l	_TE Band 2_Upl	ink frequ	iency bar	nd: 1850 to 191	0 MHz		
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	22.01	24.01	33	-8.99
	18615	1851.5	QPSK	1	14	21.78	23.78	33	-9.22
	10013	1001.0	QPSK	8	4	21.03	23.03	33	-9.97
				15	0	20.92	22.92	33	-10.08
				1	0	21.73	23.73	33	-9.27
3	18900	1880	QPSK	1	14	21.52	23.52	33	-9.48
J	10700	1000	QF3K	8	4	20.69	22.69	33	-10.31
		1908.5		15	0	20.67	22.67	33	-10.33
				1	0	21.57	23.57	33	-9.43
	19185		QPSK	1	14	21.85	23.85	33	-9.15
	19100	1900.3	QPSK	8	4	20.93	22.93	33	-10.07
				15	0	20.79	22.79	33	-10.21
				1	0	21.06	23.06	33	-9.94
	18615	1851.5	16QAM	1	14	20.71	22.71	33	-10.29
	10015	1051.5	TOCAW	8	4	20.03	22.03	33	-10.97
				15	0	19.86	21.86	33	-11.14
				1	0	20.89	22.89	33	-10.11
3	18900	1880	16QAM	1	14	20.51	22.51	33	-10.49
J	10700	1000	TOWAIVI	8	4	19.65	21.65	33	-11.35
	19185 1908.5		15	0	19.73	21.73	33	-11.27	
			1	0	20.71	22.71	33	-10.29	
		16QAM	1	14	20.69	22.69	33	-10.31	
	17100	1700.5	TOWAIVI	8	4	19.85	21.85	33	-11.15
				15	0	19.77	21.77	33	-11.23

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Page: 25 of 199

Antenna gain (dBi)

		ı	_TE Band 2_Upl	link frequ	iency bar	nd: 1850 to 191	0 MHz		
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	22.08	24.08	33	-8.92
	18625	1852.5	QPSK	1	24	21.66	23.66	33	-9.34
	10025	1002.0	UPSK	12	6	20.85	22.85	33	-10.15
				25	0	20.88	22.88	33	-10.12
				1	0	21.51	23.51	33	-9.49
5	18900	1880	QPSK	1	24	21.50	23.50	33	-9.5
3	10900	1000	UPSK	12	6	20.61	22.61	33	-10.39
				25	0	20.61	22.61	33	-10.39
			1907.5 QPSK	1	0	21.53	23.53	33	-9.47
	19175	1007 5		1	24	21.67	23.67	33	-9.33
	19175	1907.5		12	6	20.67	22.67	33	-10.33
				25	0	20.82	22.82	33	-10.18
				1	0	20.53	22.53	33	-10.47
	18625	1852.5	16QAM	1	24	20.86	22.86	33	-10.14
	10025	1002.0	TOCAIVI	12	6	19.84	21.84	33	-11.16
				25	0	19.84	21.84	33	-11.16
				1	0	20.97	22.97	33	-10.03
5	18900	1880	16QAM	1	24	20.41	22.41	33	-10.59
ິນ	10700	1000	TOUAIVI	12	6	19.70	21.70	33	-11.3
			25	0	19.55	21.55	33	-11.45	
1017E 1007 E		1	0	20.78	22.78	33	-10.22		
	1007 5	16QAM	1	24	20.78	22.78	33	-10.22	
	19175 1907.5	TOUAIVI	12	6	19.66	21.66	33	-11.34	
				25	0	20.01	22.01	33	-10.99

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Page: 26 of 199

Antenna gain (dBi)

	gaiii (abi)	2							
		ı	_TE Band 2_Upl	ink frequ	iency bar	nd: 1850 to 191	0 MHz		
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	21.87	23.87	33	-9.13
	18650	1855	QPSK	1	49	21.66	23.66	33	-9.34
	10000	1000	UPSK	25	12	20.93	22.93	33	-10.07
				50	0	20.93	22.93	33	-10.07
				1	0	22.01	24.01	33	-8.99
10	18900	1880	QPSK	1	49	21.80	23.80	33	-9.2
10	10900	1000	QF3K	25	12	20.87	22.87	33	-10.13
				50	0	20.94	22.94	33	-10.06
			QPSK	1	0	21.59	23.59	33	-9.41
	19150	1905		1	49	21.99	23.99	33	-9.01
	19150	1905	QF3K	25	12	20.94	22.94	33	-10.06
				50	0	20.97	22.97	33	-10.03
				1	0	20.96	22.96	33	-10.04
	18650	1855	16QAM	1	15	21.03	23.03	33	-9.97
	10050	1000	TOCAW	12	0	21.39	23.39	33	-9.61
				16	0	20.18	22.18	33	-10.82
				1	0	21.11	23.11	33	-9.89
10	18900	1880	16QAM	1	15	21.36	23.36	33	-9.64
10	10700	1000	TOUAIVI	12	0	21.11	23.11	33	-9.89
	10150 1005		16	0	20.22	22.22	33	-10.78	
			1	0	20.36	22.36	33	-10.64	
		16QAM	1	15	21.15	23.15	33	-9.85	
	17100	19150 1905	TOWAIVI	12	0	21.11	23.11	33	-9.89
				16	0	20.17	22.17	33	-10.83

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Page: 27 of 199

Antenna gain (dBi)

rincina	gaiii (ubi)	2							
		I	LTE Band 2_Upl	link frequ	uency bar	nd : 1850 to 1910	0 MHz		
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	22.05	24.05	33	-8.95
	18675	1857.5	QPSK	1	74	21.62	23.62	33	-9.38
	10073	1037.3	QION	36	18	20.81	22.81	33	-10.19
				75	0	20.79	22.79	33	-10.21
				1	0	21.72	23.72	33	-9.28
15	18900	1880	QPSK	1	74	21.55	23.55	33	-9.45
10	13 10300 1000	Qi oit	36	18	20.75	22.75	33	-10.25	
			75	0	20.76	22.76	33	-10.24	
				1	0	21.77	23.77	33	-9.23
	19125	1902.5	QPSK	1	74	21.85	23.85	33	-9.15
	10120	1002.0	Qi Oit	36	18	20.68	22.68	33	-10.32
				75	0	20.70	22.70	33	-10.3
				1	0	20.75	22.75	33	-10.25
	18675	1857.5	16QAM	1	15	21.16	23.16	33	-9.84
				16	0	21.07	23.07	33	-9.93
				1	0	20.86	22.86	33	-10.14
15	18900	1880	16QAM	1	15	20.83	22.83	33	-10.17
		16	0	20.94	22.94	33	-10.06		
		1	0	20.70	22.70	33	-10.3		
	19125 1902.5	16QAM	1	15	20.76	22.76	33	-10.24	
				16	0	20.69	22.69	33	-10.31



Page: 28 of 199

Antenna gain (dBi)

	gain (abi)	_								
		I	TE Band 2_Up	link frequ	iency bai	nd : 1850 to 1910) MHz			
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)	
				1	0	21.92	23.92	33	-9.08	
	18700	1860	QPSK	1	99	21.46	23.46	33	-9.54	
	10700	1000	QION	50	25	20.89	22.89	33	-10.11	
				100	0	20.82	22.82	33	-10.18	
				1	0	21.51	23.51	33	-9.49	
20	18900	1880	QPSK	1	99	21.52	23.52	33	-9.48	
20	10000	0 1000	Qi Oit	50	25	20.75	22.75	33	-10.25	
			100	0	20.88	22.88	33	-10.12		
					1	0	21.55	23.55	33	-9.45
	19100	1900	QPSK	1	99	21.69	23.69	33	-9.31	
	10100	1000	Qi Oit	50	25	20.58	22.58	33	-10.42	
				100	0	20.86	22.86	33	-10.14	
				1	0	20.77	22.77	33	-10.23	
	18700	1860	16QAM	1	17	21.23	23.23	33	-9.77	
				18	0	21.17	23.17	33	-9.83	
				1	0	20.57	22.57	33	-10.43	
20	18900	1880	16QAM	1	17	20.82	22.82	33	-10.18	
			18	0	21.01	23.01	33	-9.99		
		1	0	20.57	22.57	33	-10.43			
	19100 1900	16QAM	1	17	20.29	22.29	33	-10.71		
				18	0	20.62	22.62	33	-10.38	

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Page: 29 of 199

Antenna gain (dBi) 2.19

		!	LTE Band 4_Upl	link frequ	iency bar	nd: 1710 to 175	5 MHz		
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	22.07	24.26	30	-5.74
	19957	1710.7	QPSK	1	5	22.14	24.33	30	-5.67
	19957	1710.7	UPSK	3	2	22.18	24.37	30	-5.63
				6	0	21.14	23.33	30	-6.67
				1	0	22.13	24.32	30	-5.68
1.4	20175	1732.5	QPSK	1	5	22.31	24.50	30	-5.5
1.4	20173	1732.0		3	2	22.22	24.41	30	-5.59
		1754.2		6	0	20.98	23.17	30	-6.83
			QPSK	1	0	22.29	24.48	30	-5.52
	20393			1	5	22.14	24.33	30	-5.67
	20393	1754.3	UPSK	3	2	22.32	24.51	30	-5.49
				6	0	21.45	23.64	30	-6.36
				1	0	21.14	23.33	30	-6.67
	19957	1710.7	16QAM	1	5	20.65	22.84	30	-7.16
	19907	1710.7	TOQAW	3	2	21.14	23.33	30	-6.67
				6	0	19.81	22.00	30	-8
				1	0	20.79	22.98	30	-7.02
1.4	20175	1720 E	14000	1	5	20.57	22.76	30	-7.24
1.4	20175	1732.5	16QAM	3	2	21.35	23.54	30	-6.46
	20393 1754.3		6	0	19.82	22.01	30	-7.99	
			1	0	21.17	23.36	30	-6.64	
		160014	1	5	21.15	23.34	30	-6.66	
	20373	1704.5	16QAM	3	2	21.36	23.55	30	-6.45
				6	0	20.02	22.21	30	-7.79

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Page: 30 of 199

Antenna gain (dBi)

	9 ()								
		ı	_TE Band 4_Upl	ink frequ	iency bar	nd: 1710 to 175	5 MHz		
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	21.81	24.00	30	-6
	19965	1711.5	QPSK	1	14	22.04	24.23	30	-5.77
	19900	1711.3	UPSK	8	4	21.17	23.36	30	-6.64
				15	0	21.12	23.31	30	-6.69
				1	0	22.20	24.39	30	-5.61
3	20175	1732.5	QPSK	1	14	21.93	24.12	30	-5.88
J	20173	1732.5		8	4	21.12	23.31	30	-6.69
				15	0	21.04	23.23	30	-6.77
		1753.5	QPSK	1	0	22.33	24.52	30	-5.48
	20385			1	14	22.48	24.67	30	-5.33
	20303	1733.3	QI SIX	8	4	20.85	23.04	30	-6.96
				15	0	21.41	23.60	30	-6.4
				1	0	20.96	23.15	30	-6.85
	19965	1711.5	16QAM	1	14	21.04	23.23	30	-6.77
	19903	1711.5	TOCAM	8	4	20.08	22.27	30	-7.73
				15	0	19.92	22.11	30	-7.89
				1	0	20.98	23.17	30	-6.83
3	20175	1732.5	16QAM	1	14	20.97	23.16	30	-6.84
J	20175	1732.0	TOWAIVI	8	4	20.35	22.54	30	-7.46
			15	0	20.16	22.35	30	-7.65	
20205 1752 5		1	0	20.93	23.12	30	-6.88		
	1753 5	16QAM	1	14	21.10	23.29	30	-6.71	
	20385 1753.5	1733.3	TOCAM	8	4	20.60	22.79	30	-7.21
				15	0	19.86	22.05	30	-7.95

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Page: 31 of 199

Antenna gain (dBi) 2.19

	•								
		l	LTE Band 4_Upl	link frequ	iency bar	nd : 1710 to 175	5 MHz		
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	22.00	24.19	30	-5.81
	19975	1712.5	QPSK	1	24	21.91	24.10	30	-5.9
	19975	1712.3	UPSK	12	6	21.07	23.26	30	-6.74
				25	0	20.78	22.97	30	-7.03
				1	0	22.11	24.30	30	-5.7
5	20175	1732.5	QPSK	1	24	21.95	24.14	30	-5.86
J	20173	1732.3	QP3K	12	6	20.95	23.14	30	-6.86
				25	0	20.89	23.08	30	-6.92
				1	0	22.20	24.39	30	-5.61
	20375	1752.5	QPSK	1	24	22.41	24.60	30	-5.4
	20373	1752.5	QF3K	12	6	21.36	23.55	30	-6.45
				25	0	21.25	23.44	30	-6.56
				1	0	20.72	22.91	30	-7.09
	19975	1712.5	16QAM	1	24	21.06	23.25	30	-6.75
	19973	1712.5	TOCAIVI	12	6	20.06	22.25	30	-7.75
				25	0	19.87	22.06	30	-7.94
				1	0	20.48	22.67	30	-7.33
5	20175	1732.5	16QAM	1	24	20.82	23.01	30	-6.99
J	20173	1732.3	TOWAIVI	12	6	19.82	22.01	30	-7.99
	20375 1752.5		25	0	20.01	22.20	30	-7.8	
			1	0	21.82	24.01	30	-5.99	
		16QAM	1	24	21.16	23.35	30	-6.65	
	20373	1752.5	TOUAIVI	12	6	20.43	22.62	30	-7.38
				25	0	20.22	22.41	30	-7.59

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Page: 32 of 199

Antenna gain (dBi) 2.19

LTE Band 4_Uplink frequency band : 1710 to 1755 MHz										
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)	
	20000	1715	QPSK	1	0	22.08	24.27	30	-5.73	
				1	49	22.23	24.42	30	-5.58	
	20000	1713		25	12	21.10	23.29	30	-6.71	
				50	0	21.57	23.76	Limit (dBm) 30 30	-6.24	
			QPSK	1	0	21.82	24.01		-5.99	
10	20175	1732.5		1	49	22.06	24.25	30	-5.75	
10	20173			25	12	21.11	23.30	30	-6.7	
				50	0	21.33	23.52	30	-6.48	
	20350	1750	QPSK	1	0	22.47	24.66	30	-5.34	
				1	49	22.39	24.58	30	-5.42	
				25	12	21.41	23.60		-6.4	
				50	0	21.61	23.80	30	-6.2	
	20000	1715	16QAM	1	0	20.62	22.81		-7.19	
				1	15	21.74	23.93	30	-6.07	
	20000			12	0	21.69	23.88		-6.12	
				16	0	20.59	22.78	30 30 30 30 30 30 30 30 30 30 30 30 30 3	-7.22	
	20175	1732.5	16QAM	1	0	21.06	23.25		-6.75	
10				1	15	21.26	23.45		-6.55	
10				12	0	21.57	23.76		-6.24	
				16	0	20.15	22.34		-7.66	
	20350	1750	16QAM	1	0	21.25	23.44		-6.56	
 -				1	15	21.54	23.73		-6.27	
				12	0	21.42	23.61		-6.39	
				16	0	20.32	22.51	30	-7.49	

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Page: 33 of 199

Antenna gain (dBi) 2.19

LTE Band 4_Uplink frequency band : 1710 to 1755 MHz										
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)	
	20025	1717.5	QPSK	1	0	22.59	24.78	30	-5.22	
				1	74	22.20	24.39	30	-5.61	
				36	18	21.09	23.28	30	-6.72	
				75	0	20.83	23.02	30	-6.98	
	20175	1732.5	QPSK	1	0	22.22	24.41	30	-5.59	
15				1	74	22.46	24.65	30	-5.35	
	20175			36	18	21.22	23.41	30	-6.59	
				75	0	20.85	23.04	30	-6.96	
21	20325	1747.5	QPSK	1	0	22.41	24.60	30	-5.4	
				1	74	22.45	24.64	30	-5.36	
				36	18	21.39	23.58	30	-6.42	
				75	0	20.88	23.07	30	-6.93	
15	20025	1717.5	16QAM	1	0	22.28	24.47	30	-5.53	
				1	15	21.40	23.59	30	-6.41	
				16	0	21.70	23.89	30	-6.11	
	20175	1732.5	16QAM	1	0	21.25	23.44	30	-6.56	
				1	15	21.32	23.51	30	-6.49	
				16	0	21.40	23.59	30	-6.41	
	20325	1747.5	16QAM	1	0	20.41	22.60	30	-7.4	
				1	15	21.57	23.76	30	-6.24	
				16	0	21.49	23.68	30	-6.32	

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Page: 34 of 199

Antenna gain (dBi) 2.19

	3 (/								
		I	LTE Band 4_Upl	link frequ	iency bar	nd : 1710 to 175	5 MHz		
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
	20050	1720	QPSK	1	0	21.18	23.37	30	-6.63
				1	99	21.85	24.04	30	-5.96
				50	25	21.04	23.23	30	-6.77
				100	0	21.03	23.22	30	-6.78
	20175	1732.5	QPSK	1	0	22.24	24.43	30	-5.57
				1	99	22.26	24.45	30	-5.55
	20170			50	25	21.14	23.33	30	-6.67
				100	0	21.12	23.31	30	-6.69
	20300	1745	QPSK	1	0	22.43	24.62	30	-5.38
				1	99	22.45	24.64	30	-5.36
				50	25	21.33	23.52	30	-6.48
				100	0	21.15	23.34	30	-6.66
20	20050	1720	16QAM	1	0	20.94	23.13	30	-6.87
				1	17	21.48	23.67	30	-6.33
				18	0	21.62	23.81	30	-6.19
	20175	1732.5	16QAM	1	0	20.83	23.02	30	-6.98
				1	17	21.13	23.32	30	-6.68
				18	0	21.49	23.68	30	-6.32
	20300	1745	16QAM	1	0	20.62	22.81	30	-7.19
				1	17	21.61	23.80	30	-6.2
				18	0	21.71	23.90	30	-6.1

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Page: 35 of 199

Antenna gain (dBi) 0.34 LTE Band 5_Uplink frequency band: 824 to 849 MHz ERP **EIRP ERP** Conducted BW UL RB RB Frequency Margin Modulation Average Limit Average Average (MHz) (MHz) Channel Size Offset (dB) (dBm) (dBm) (dBm) (dBm) 0 22.53 20.72 22.87 38.45 -17.73 5 22.39 20.58 22.73 38.45 -17.87 20407 824.7 **QPSK** 3 2 22.64 20.83 22.98 38.45 -17.62 0 19.83 21.98 6 21.64 38.45 -18.62 22.66 0 22.32 20.51 38.45 -17.94 1 5 22.29 20.48 22.63 38.45 -17.97 1.4 20525 836.5 **QPSK** 3 2 22.46 20.65 22.80 38.45 -17.80 6 0 21.50 19.69 21.84 38.45 -18.76 1 0 22.60 20.79 22.94 38.45 -17.66 5 22.65 20.84 22.99 38.45 -17.61 1 20643 848.3 **QPSK** 3 2 22.63 20.82 22.97 38.45 -17.63 6 0 21.71 19.90 22.05 38.45 -18.55 1 0 21.35 19.54 21.69 38.45 -18.91 21.29 19.48 21.63 38.45 -18.97 1 5 20407 824 7 16QAM 3 2 19.85 22.00 38.45 -18.60 21.66 6 0 20.45 18.64 20.79 38.45 -19.81 0 21.23 19.42 21.57 38.45 -19.03 5 21.35 19.54 21.69 38.45 -18.91 1.4 20525 836.5 16QAM 2 21.61 19.80 21.95 38.45 -18.65 6 0 20.40 18.59 20.74 38.45 -19.86 21.56 0 19.75 21.90 38.45 -18.70 5 21.86 20.05 22.20 38.45 -18.40 20643 848.3 16QAM 3 2 21.80 19.99 22.14 38.45 -18.46 6 0 20.46 18.65 20.80 38.45 -19.80

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Page: 36 of 199

Antenna gain (dBi) 0.34 LTE Band 5_Uplink frequency band: 824 to 849 MHz ERP **EIRP ERP** Conducted BW UL RB RB Frequency Margin Modulation Average Limit Average Average (MHz) (MHz) Channel Size Offset (dB) (dBm) (dBm) (dBm) (dBm) 0 22.69 20.88 23.03 38.45 -17.57 14 22.54 20.73 22.88 38.45 -17.72 20415 825.5 **QPSK** 8 4 21.57 19.76 21.91 38.45 -18.69 15 0 21.55 19.74 21.89 38.45 -18.71 22.53 0 22.19 20.38 38.45 -18.07 1 14 22.45 20.64 22.79 38.45 -17.81 3 20525 836.5 **QPSK** 8 4 21.46 19.65 21.80 38.45 -18.80 15 0 21.45 19.64 21.79 38.45 -18.81 1 0 22.59 20.78 22.93 38.45 -17.67 22.42 20.61 22.76 38.45 -17.84 1 14 20635 847.5 **QPSK** 8 4 21.80 19.99 22.14 38.45 -18.46 15 0 21.77 19.96 22.11 38.45 -18.49 1 0 21.38 19.57 21.72 38.45 -18.88 14 21.38 19.57 21.72 38.45 -18.88 1 825.5 20415 16QAM 8 4 20.48 18.67 20.82 38.45 -19.78 15 0 20.24 18.43 20.58 38.45 -20.02 1 0 21.10 19.29 21.44 38.45 -19.16 14 21.38 19.57 21.72 38.45 -18.88 3 20525 836.5 16QAM 8 4 20.63 18.82 20.97 38.45 -19.63 15 0 20.56 18.75 20.90 38.45 -19.70 22.56 20.75 0 22.90 38.45 -17.70 14 21.51 19.70 21.85 38.45 -18.75 20635 847 5 16QAM -19.76 8 4 20.50 18.69 20.84 38.45 15 0 20.53 18.72 20.87 38.45 -19.73

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Page: 37 of 199

Antenna	gain (dBi)	0.34								
			LTE Ba	nd 5_Upl	link frequ	ency band : 824	4 to 849 MHz			
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	ERP Limit (dBm)	Margin (dB)
				1	0	22.16	20.35	22.50	38.45	-18.10
	20425	826.5	OPSK	1	24	22.04	20.23	22.38	38.45	-18.22
	20423	020.5	QI SIX	12	6	21.61	19.80	21.95	38.45	-18.65
				25	0	21.47	19.66	21.81	38.45	-18.79
				1	0	22.28	20.47	22.62	38.45	-17.98
5	20525	836.5	OPSK	1	24	22.51	20.70	22.85	38.45	-17.75
J	20323	030.3	QI SIK	12	6	21.47	19.66	21.81	38.45	-18.79
				25	0	21.49	19.68	21.83	38.45	-18.77
				1	0	22.41	20.60	22.75	38.45	-17.85
	20625	846.5	QPSK	1	24	22.44	20.63	22.78	38.45	-17.82
	20023	040.5	QI SIK	12	6	21.80	19.99	22.14	38.45	-18.46
				25	0	21.71	19.90	22.05	38.45	-18.55
				1	0	21.70	19.89	22.04	38.45	-18.56
	20425	826.5	16OAM	1	24	20.98	19.17	21.32	38.45	-19.28
	20423	020.5	TOCAW	12	6	20.29	18.48	20.63	38.45	-19.97
				25	0	20.58	18.77	20.92	38.45	-19.68
				1	0	20.92	19.11	21.26	38.45	-19.34
5	20525	836.5	16QAM	1	24	21.55	19.74	21.89	38.45	-18.71
J	20020	030.5	IOZAWI	12	6	20.45	18.64	20.79	38.45	-19.81
				25	0	20.53	18.72	20.87	38.45	-19.73
				1	0	21.82	20.01	22.16	38.45	-18.44
	20625	846.5	16OAM	1	24	21.70	19.89	22.04	38.45	-18.56
	20023	040.5	TOCAM	12	6	20.68	18.87	21.02	38.45	-19.58
				25	0	20.70	18.89	21.04	38.45	-19.56

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Page: 38 of 199

Antenna	gain (dBi)	0.34								
			LTE Ba	nd 5_Up	link frequ	ency band : 824	4 to 849 MHz			
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	ERP Limit (dBm)	Margin (dB)
				1	0	22.73	20.92	23.07	38.45	-17.53
	20450	829	QPSK	1	49	22.74	20.93	23.08	38.45	-17.52
	20430	027	QI SIX	25	12	21.59	19.78	21.93	38.45	-18.67
				50	0	21.61	19.80	21.95	38.45	-18.65
				1	0	22.13	20.32	22.47	38.45	-18.13
10	20525	836.5	QPSK	1	49	22.51	20.70	22.85	38.45	-17.75
10	20323	030.3	QI SIX	25	12	21.61	19.80	21.95	38.45	-18.65
				50	0	21.55	19.74	21.89	38.45	-18.71
				1	0	22.48	20.67	22.82	38.45	-17.78
	20600	844	QPSK	1	49	22.79	20.98	23.13	38.45	-17.47
	20000	044	QI SIX	25	12	21.78	19.97	22.12	38.45	-18.48
				50	0	21.71	19.90	22.05	38.45	-18.55
				1	0	21.46	19.65	21.80	38.45	-18.80
	20450	829	16OAM	1	15	21.54	19.73	21.88	38.45	-18.72
	20430	027	TOCAW	12	0	21.80	19.99	22.14	38.45	-18.46
				16	0	20.81	19.00	21.15	38.45	-19.45
				1	0	21.47	19.66	21.81	38.45	-18.79
10	20525	836.5	16QAM	1	15	21.85	20.04	22.19	38.45	-18.41
10	10 20525	030.5	TOCAM	12	0	21.71	19.90	22.05	38.45	-18.55
				16	0	20.67	18.86	21.01	38.45	-19.59
				1	0	21.48	19.67	21.82	38.45	-18.78
	20600	844	16QAM	1	15	22.00	20.19	22.34	38.45	-18.26
	20000	044	TOCAM	12	0	21.83	20.02	22.17	38.45	-18.43
				16	0	21.04	19.23	21.38	38.45	-19.22

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Page: 39 of 199

Antenna	Antenna gain (dBi)									
			LTE Bar	nd 12_Up	link frequ	uency band : 69	9 to 716 MHz			
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	ERP Limit (dBm)	Margin (dB)
				1	0	22.10	22.42	24.57	34.77	-12.35
	23017	699.7	QPSK	1	5	22.45	22.77	24.92	34.77	-12.00
	20017	077.7	Qi oit	3	2	22.44	22.76	24.91	34.77	-12.01
				6	0	21.41	21.73	23.88	34.77	-13.04
				1	0	22.41	22.73	24.88	34.77	-12.04
1.4	23095	707.5	QPSK	1	5	22.45	22.77	24.92	34.77	-12.00
	20070	70710	2. 5.1	3	2	22.64	22.96	25.11	34.77	-11.81
				6	0	21.75	22.07	24.22	34.77	-12.70
				1	0	22.53	22.85	25.00	34.77	-11.92
	23173	715.5	QPSK	1	5	22.70	23.02	25.17	34.77	-11.75
	20170	7.0.0	2. 5.1	3	2	22.47	22.79	24.94	34.77	-11.98
				6	0	21.66	21.98	24.13	34.77	-12.79
				1	0	21.41	21.73	23.88	34.77	-13.04
	23017	699.7	16QAM	1	5	21.50	21.82	23.97	34.77	-12.95
	20017	077.7	1021111	3	2	21.63	21.95	24.10	34.77	-12.82
				6	0	20.43	20.75	22.90	34.77	-14.02
				1	0	21.70	22.02	24.17	34.77	-12.75
1.4	23095	707.5	16QAM	1	5	21.63	21.95	24.10	34.77	-12.82
		, , , ,		3	2	21.86	22.18	24.33	34.77	-12.59
				6	0	20.79	21.11	23.26	34.77	-13.66
				1	0	21.67	21.99	24.14	34.77	-12.78
	23173	715.5	16QAM	1	5	21.66	21.98	24.13	34.77	-12.79
	20170	7.0.0		3	2	21.81	22.13	24.28	34.77	-12.64
				6	0	20.67	20.99	23.14	34.77	-13.78

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Page: 40 of 199

Antenna gain (dBi) 2.47 LTE Band 12_Uplink frequency band: 699 to 716 MHz ERP **EIRP ERP** Conducted BW UL Frequency RB RB Margin Modulation Average Limit Average Average (MHz) (MHz) Channel Size Offset (dB) (dBm) (dBm) (dBm) (dBm) 0 22.41 22.73 24.88 34.77 -12.04 14 22.40 22.72 24.87 34.77 -12.05 23025 700.5 **QPSK** 8 4 21.55 21.87 24.02 34.77 -12.90 15 0 21.85 24.00 34.77 -12.92 21.53 0 22.62 22.94 25.09 34.77 -11.83 1 14 22.77 23.09 25.24 34.77 -11.68 3 23095 707.5 **QPSK** 8 4 21.82 22.14 24.29 34.77 -12.63 15 0 21.78 22.10 24.25 34.77 -12.67 1 0 22.56 22.88 25.03 34.77 -11.89 1 22.41 22.73 24.88 34.77 -12.04 14 23165 714.5 **QPSK** 8 4 21.61 21.93 24.08 34.77 -12.84 15 0 21.54 21.86 24.01 34.77 -12.91 1 0 21.52 21.84 23.99 34.77 -12.93 14 21.51 21.83 23.98 34.77 -12.94 1 23025 700 5 16QAM 22.92 8 4 20.45 20.77 34.77 -14.00 15 0 20.32 20.64 22.79 34.77 -14.13 1 0 21.36 21.68 23.83 34.77 -13.09 14 21.55 21.87 24.02 34.77 -12.90 3 23095 707.5 16QAM 8 4 20.74 21.06 23.21 34.77 -13.71 15 0 20.70 21.02 23.17 34.77 -13.75 21.66 0 21.34 23.81 34.77 -13.11 23.97 14 21.50 21.82 34.77 -12.95 23165 7145 16QAM 8 4 20.72 21.04 23.19 34.77 -13.73 15 0 20.24 20.56 22.71 34.77 -14.21

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Page: 41 of 199

Antenna	Antenna gain (dBi)									
			LTE Bar	nd 12_Up	link frequ	uency band : 69	9 to 716 MHz			
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	ERP Limit (dBm)	Margin (dB)
				1	0	22.30	22.62	24.77	34.77	-12.15
	23035	701.5	QPSK	1	24	21.96	22.28	24.43	34.77	-12.49
	20000	701.0	QI OK	12	6	21.48	21.80	23.95	34.77	-12.97
				25	0	21.45	21.77	23.92	34.77	-13.00
				1	0	22.53	22.85	25.00	34.77	-11.92
5	23095	707.5	QPSK	1	24	22.45	22.77	24.92	34.77	-12.00
	20070	707.0	2. 5.1	12	6	21.72	22.04	24.19	34.77	-12.73
				25	0	21.72	22.04	24.19	34.77	-12.73
				1	0	22.31	22.63	24.78	34.77	-12.14
	23155	713.5	QPSK	1	24	22.23	22.55	24.70	34.77	-12.22
	20.00	7.0.0	2. 5.1	12	6	21.52	21.84	23.99	34.77	-12.93
				25	0	21.43	21.75	23.90	34.77	-13.02
				1	0	21.17	21.49	23.64	34.77	-13.28
	23035	701.5	16QAM	1	24	21.24	21.56	23.71	34.77	-13.21
	23033	701.5	10071111	12	6	20.32	20.64	22.79	34.77	-14.13
				25	0	20.35	20.67	22.82	34.77	-14.10
				1	0	21.40	21.72	23.87	34.77	-13.05
5	23095	707.5	16QAM	1	24	21.31	21.63	23.78	34.77	-13.14
	20070	, , , , ,	102111	12	6	20.55	20.87	23.02	34.77	-13.90
				25	0	20.57	20.89	23.04	34.77	-13.88
				1	0	21.86	22.18	24.33	34.77	-12.59
	23155	713.5	16QAM	1	24	21.39	21.71	23.86	34.77	-13.06
	20100	, 10.0	102/11/1	12	6	20.23	20.55	22.70	34.77	-14.22
				25	0	20.47	20.79	22.94	34.77	-13.98

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Page: 42 of 199

Antenna	gain (dBi)	2.47								
			LTE Bar	nd 12_Up	link frequ	uency band : 69	9 to 716 MHz			
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	ERP Limit (dBm)	Margin (dB)
				1	0	22.00	22.32	24.47	34.77	-12.45
	23060	704	OPSK	1	49	22.63	22.95	25.10	34.77	-11.82
	23000	704	QI SIX	25	12	21.53	21.85	24.00	34.77	-12.92
				50	0	21.64	21.96	24.11	34.77	-12.81
				1	0	22.42	22.74	24.89	34.77	-12.03
10	23095	707.5	OPSK	1	49	22.37	22.69	24.84	34.77	-12.08
10	23075	707.5	QI SIX	25	12	21.56	21.88	24.03	34.77	-12.89
				50	0	21.61	21.93	24.08	34.77	-12.84
				1	0	22.22	22.54	24.69	34.77	-12.23
	23130	711	QPSK	1	49	22.38	22.70	24.85	34.77	-12.07
	23130	, , , ,	QI SIX	25	12	21.54	21.86	24.01	34.77	-12.91
				50	0	21.63	21.95	24.10	34.77	-12.82
				1	0	21.51	21.83	23.98	34.77	-12.94
	23060	704	16OAM	1	15	21.75	22.07	24.22	34.77	-12.70
	23000	704	TOQAW	12	0	21.93	22.25	24.40	34.77	-12.52
				16	0	20.82	21.14	23.29	34.77	-13.63
				1	0	21.13	21.45	23.60	34.77	-13.32
10	23095	707.5	16QAM	1	15	21.92	22.24	24.39	34.77	-12.53
10	23075	707.5	102/11/1	12	0	21.74	22.06	24.21	34.77	-12.71
				16	0	21.05	21.37	23.52	34.77	-13.40
				1	0	21.42	21.74	23.89	34.77	-13.03
	23130	711	16OAM	1	15	21.59	21.91	24.06	34.77	-12.86
	23130	/ ' ' '	TOCAM	12	0	22.06	22.38	24.53	34.77	-12.39
				16	0	21.00	21.32	23.47	34.77	-13.45

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Page: 43 of 199

Antenna	gain (dBi)	1.75								
			LTE Bar	nd 13_Up	link frequ	uency band : 77	7 to 787 MHz			
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	ERP Limit (dBm)	Margin (dB)
				1	0	22.63	22.23	24.38	34.77	-12.54
	23205	779.5	QPSK	1	24	22.11	21.71	23.86	34.77	-13.06
	23203	117.5	QI SIX	12	6	21.47	21.07	23.22	34.77	-13.70
				25	0	21.43	21.03	23.18	34.77	-13.74
				1	0	22.53	22.13	24.28	34.77	-12.64
5	23230	782	QPSK	1	24	22.08	21.68	23.83	34.77	-13.09
	23230	702	QI SIX	12	6	21.48	21.08	23.23	34.77	-13.69
				25	0	21.48	21.08	23.23	34.77	-13.69
				1	0	22.49	22.09	24.24	34.77	-12.68
	23255	784.5	QPSK	1	24	22.27	21.87	24.02	34.77	-12.90
	23233	704.5	QI SIX	12	6	21.51	21.11	23.26	34.77	-13.66
				25	0	21.63	21.23	23.38	34.77	-13.54
				1	0	21.36	20.96	23.11	34.77	-13.81
	23205	779.5	16OAM	1	24	21.25	20.85	23.00	34.77	-13.92
	23203	117.5	TOQAW	12	6	20.22	19.82	21.97	34.77	-14.95
				25	0	20.33	19.93	22.08	34.77	-14.84
				1	0	21.93	21.53	23.68	34.77	-13.24
5	23230	782	16QAM	1	24	21.28	20.88	23.03	34.77	-13.89
	23230	702	TOZAWI	12	6	20.37	19.97	22.12	34.77	-14.80
				25	0	20.50	20.10	22.25	34.77	-14.67
				1	0	21.19	20.79	22.94	34.77	-13.98
	23255	784.5	16QAM	1	24	21.21	20.81	22.96	34.77	-13.96
	23233	704.3	TOCAM	12	6	20.34	19.94	22.09	34.77	-14.83
				25	0	20.46	20.06	22.21	34.77	-14.71

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Page: 44 of 199

Antenna	gain (dBi)	1.75								
			LTE Bar	nd 13_Up	link frequ	uency band : 77	7 to 787 MHz			
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	ERP Limit (dBm)	Margin (dB)
				1	0	22.39	21.99	24.14	34.77	-12.78
10	23230	782	QPSK	1	49	22.46	22.06	24.21	34.77	-12.71
10	23230	782	QF3K	25	12	21.42	21.02	23.17	34.77	-13.75
				50	0	21.45	21.05	23.20	34.77	-13.72
				1	0	21.33	20.93	23.08	34.77	-13.84
10	23230	782	16QAM	1	15	21.37	20.97	23.12	34.77	-13.80
	23230	102	TOCHINI	12	0	21.90	21.50	23.65	34.77	-13.27
				16	0	20.75	20.35	22.50	34.77	-14.42

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Page: 45 of 199

Antenna	Antenna gain (dBi) 2.4									
			LTE Bar	nd 17_Up	link frequ	uency band : 70	4 to 716 MHz			
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	ERP Limit (dBm)	Margin (dB)
				1	0 24	22.56	22.88 22.77	25.03	34.77 34.77	-11.89
	23755	706.5	QPSK	12 25	6	22.45 21.73 21.67	22.77 22.05 21.99	24.92 24.20 24.14	34.77 34.77 34.77	-12.00 -12.72 -12.78
				1	0	22.82	23.14	25.29	34.77	-11.63
5	23790	710	QPSK	1	24	22.51	22.83	24.98	34.77	-11.94
3	23/90	710	QF3K	12	6	21.45	21.77	23.92	34.77	-13.00
				25	0	21.57	21.89	24.04	34.77	-12.88
				1	0	22.34	22.66	24.81	34.77	-12.11
	23825	713.5	QPSK	1	24	22.03	22.35	24.50	34.77	-12.42
				12	6	21.52	21.84	23.99	34.77	-12.93
				25	0	21.52	21.84	23.99	34.77	-12.93
				1	0	21.54	21.86	24.01	34.77	-12.91
	23755	706.5	16QAM	1	24	21.34	21.66	23.81	34.77	-13.11
				12	6	20.56	20.88	23.03	34.77	-13.89
				25	0	20.54	20.86	23.01	34.77	-13.91
				1	0	21.49	21.81	23.96	34.77	-12.96
5	23790	710	16QAM	1	24	21.44	21.76	23.91	34.77	-13.01
				12	6	20.26	20.58	22.73	34.77	-14.19
				25	0	20.64	20.96	23.11	34.77	-13.81
				1	0	21.40	21.72	23.87	34.77	-13.05
	23825	713.5	16QAM	1	24	21.10	21.42	23.57	34.77	-13.35
				12	6	20.26	20.58	22.73	34.77	-14.19
				25	0	20.44	20.76	22.91	34.77	-14.01

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Page: 46 of 199

Antenna gain (dBi) 2.47 LTE Band 17_Uplink frequency band: 704 to 716 MHz ERP **EIRP ERP** Conducted BW UL Frequency RB RB Margin Modulation Average Limit Average Average (MHz) (MHz) Channel Size Offset (dB) (dBm) (dBm) (dBm) (dBm) 1 0 22.58 22.90 25.05 34.77 -11.87 49 22.80 23.12 25.27 34.77 -11.65 23780 709 **QPSK** 25 12 21.64 21.96 24.11 34.77 -12.81 50 21.92 24.07 34.77 -12.85 0 21.60 22.83 0 22.51 24.98 34.77 -11.94 1 49 22.60 22.92 25.07 34.77 -11.85 10 23790 710 **QPSK** 25 12 21.57 21.89 24.04 34.77 -12.88 50 0 21.64 21.96 24.11 34.77 -12.81 1 0 22.38 22.70 24.85 34.77 -12.07 1 49 22.26 22.58 24.73 34.77 -12.19 23800 711 **QPSK** 25 12 21.54 21.86 24.01 34.77 -12.91 50 0 21.61 21.93 24.08 34.77 -12.84 1 0 21.35 21.67 23.82 34.77 -13.10 15 22.65 24.80 34.77 -12.12 1 22.33 709 23780 16QAM 22.08 12 0 22.40 24.55 34.77 -12.37 16 0 21.11 21.43 23.58 34.77 -13.34 1 0 21.59 21.91 24.06 34.77 -12.86 15 22.15 22.47 24.62 34.77 -12.30 10 23790 710 16QAM 12 0 22.37 22.69 24.84 34.77 -12.08 16 0 21.13 21.45 23.60 34.77 -13.32 21.87 -12.90 0 21.55 24.02 34.77 15 21.88 22.20 24.35 34.77 -12.57 23800 711 16QAM 12 0 22.37 22.69 24.84 34.77 -12.08 16 0 20.86 21.18 23.33 34.77 -13.59

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Page: 47 of 199

Antenna gain (dBi) 2.19

		L	TE Band 66_Up	link freq	uency ba	nd: 1710 to 178	0 MHz		
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	21.57	23.76	30	-6.24
	131979	1710.7	QPSK	1	5	21.60	23.79	30	-6.21
	131979	1710.7	QF3K	3	2	21.62	23.81	30	-6.19
				6	0	20.60	22.79	30	-7.21
		_		1	0	21.34	23.53	30	-6.47
1.4	132322	1745	QPSK	1	5	21.37	23.56	30	-6.44
1.4	132322	1745	QF3K	3	2	21.59	23.78	30	-6.22
				6	0	20.44	22.63	30	-7.37
				1	0	21.72	23.91	30	-6.09
	132665	1779.3	QPSK	1	5	21.67	23.86	30	-6.14
	132003			3	2	21.71	23.90	30	-6.1
				6	0	20.75	22.94	30	-7.06
				1	0	20.26	22.45	30	-7.55
	131979	1710.7	16QAM	1	5	20.43	22.62	30	-7.38
	131777	1710.7	TOCAM	3	2	20.82	23.01	30	-6.99
				6	0	19.45	21.64	30	-8.36
				1	0	20.69	22.88	30	-7.12
1.4	132322	1745	16QAM	1	5	20.33	22.52	30	-7.48
1.4	132322	1743	TOCAM	3	2	20.56	22.75	30	-7.25
				6	0	19.25	21.44	30	-8.56
				1	0	21.02	23.21	30	-6.79
	132665 1779.3	1770 3	16QAM	1	5	20.97	23.16	30	-6.84
		TOCAM	3	2	20.68	22.87	30	-7.13	
				6	0	19.65	21.84	30	-8.16

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Page: 48 of 199

Antenna gain (dBi) 2.19

		L	TE Band 66_Up	link freq	uency ba	nd: 1710 to 178	80 MHz		
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	21.63	23.82	30	-6.18
	121007	1711 E	QPSK	1	14	21.87	24.06	30	-5.94
	131987	1711.5	UPSK	8	4	20.53	22.72	30	-7.28
				15	0	20.39	22.58	30	-7.42
				1	0	21.72	23.91	30	-6.09
3	132322	1745	QPSK	1	14	21.61	23.80	30	-6.2
3	132322	1745	UPSK	8	4	20.48	22.67	30	-7.33
				15	0	20.48	22.67	30	-7.33
				1	0	21.46	23.65	30	-6.35
	132657	1778.5	QPSK	1	14	21.32	23.51	30	-6.49
	132037	1770.5		8	4	20.55	22.74	30	-7.26
				15	0	20.57	22.76	30	-7.24
				1	0	20.14	22.33	30	-7.67
	131987	1711.5	16QAM	1	14	20.30	22.49	30	-7.51
	131907	1711.3	TOQAM	8	4	19.72	21.91	30	-8.09
				15	0	19.47	21.66	30	-8.34
				1	0	20.61	22.80	30	-7.2
3	132322	1745	16QAM	1	14	20.00	22.19	30	-7.81
J	132322	1740	TOWAIVI	8	4	19.52	21.71	30	-8.29
				15	0	19.37	21.56	30	-8.44
				1	0	20.52	22.71	30	-7.29
	132657	1770 5	16QAM -	1	14	20.32	22.51	30	-7.49
	132657 1778.5	TOWAIVI	8	4	19.78	21.97	30	-8.03	
				15	0	19.62	21.81	30	-8.19

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Page: 49 of 199

		L	TE Band 66_Up	link frequ	uency ba	nd : 1710 to 178	30 MHz		
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	21.41	23.60	30	-6.4
	131997	1712.5	QPSK	1	24	21.73	23.92	30	-6.08
	131777	1712.5	QF3K	12	6	20.40	22.59	30	-7.41
				25	0	20.39	22.58	30	-7.42
				1	0	21.59	23.78	30	-6.22
5	132322	1745	QPSK	1	24	21.64	23.83	30	-6.17
3	132322	1745	QF3K	12	6	20.38	22.57	30	-7.43
				25	0	20.46	22.65	30	-7.35
				1	0	21.69	23.88	30	-6.12
	132647 1777	1777.5	QPSK	1	24	21.46	23.65	30	-6.35
	132047	1777.5		12	6	20.50	22.69	30	-7.31
				25	0	20.58	22.77	30	-7.23
				1	0	19.99	22.18	30	-7.82
	131997	1712.5	16QAM	1	24	20.06	22.25	30	-7.75
	131777	1712.5	TOQAW	12	6	19.39	21.58	30	-8.42
				25	0	19.42	21.61	30	-8.39
				1	0	20.32	22.51	30	-7.49
5	132322	1745	16QAM	1	24	20.11	22.30	30	-7.7
J	132322	1743	TOCAWI	12	6	19.28	21.47	30	-8.53
				25	0	19.44	21.63	30	-8.37
				1	0	20.79	22.98	30	-7.02
	132647 1777.5	1777 5	16OAM	1	24	20.13	22.32	30	-7.68
		16QAM –	12	6	19.34	21.53	30	-8.47	
l				25	0	19.49	21.68	30	-8.32

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Page: 50 of 199

Antenna gain (dBi) 2.19

		L	TE Band 66_Up	link freq	uency ba	nd: 1710 to 178	0 MHz		
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	21.82	24.01	30	-5.99
	132022	1715	QPSK	1	49	21.26	23.45	30	-6.55
	132022	1713	QF3K	25	12	20.61	22.80	30	-7.2
				50	0	20.61	22.80	30	-7.2
				1	0	21.69	23.88	30	-6.12
10	132322	1745	QPSK	1	49	21.42	23.61	30	-6.39
10	132322	1745	QF3K	25	12	20.59	22.78	30	-7.22
				50	0	20.65	22.84	30	-7.16
				1	0	21.96	24.15	30	-5.85
	132622	1775	QPSK	1	49	21.51	23.70	30	-6.3
	132022			25	12	20.73	22.92	30	-7.08
				50	0	20.78	22.97	30	-7.03
				1	0	20.56	22.75	30	-7.25
	132022	1715	16QAM	1	15	20.75	22.94	30	-7.06
	132022	1713	TOCAM	12	0	20.94	23.13	30	-6.87
				16	0	19.85	22.04	30	-7.96
				1	0	20.91	23.10	30	-6.9
10	132322	1745	16QAM	1	15	20.85	23.04	30	-6.96
10	132322	1743	TOCAM	12	0	20.54	22.73	30	-7.27
				16	0	19.75	21.94	30	-8.06
				1	0	21.31	23.50	30	-6.5
	132622 1775	16QAM	1	15	20.40	22.59	30	-7.41	
		TOCAM	12	0	20.89	23.08	30	-6.92	
				16	0	19.92	22.11	30	-7.89

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Page: 51 of 199

Antenna gain (dBi) 2.19

		L	TE Band 66_Up	link freq	uency ba	nd: 1710 to 178	0 MHz		
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	21.56	23.75	30	-6.25
	132047	1717.5	QPSK	1	74	21.58	23.77	30	-6.23
	132047	1717.5	QF3K	36	18	20.48	22.67	30	-7.33
				75	0	20.62	22.81	30	-7.19
				1	0	21.68	23.87	30	-6.13
15	132322	1745	QPSK	1	74	21.75	23.94	30	-6.06
10	13 132322 1743	1745) UPSK	36	18	20.60	22.79	30	-7.21
				75	0	20.67	22.86	30	-7.14
				1	0	21.78	23.97	30	-6.03
	132597	1772.5	QPSK	1	74	21.73	23.92	30	-6.08
	132371	1772.5	QF3K	36	18	20.99	23.18	30	-6.82
				75	0	20.63	22.82	30	-7.18
				1	0	20.34	22.53	30	-7.47
	132047	1717.5	16QAM	1	15	20.65	22.84	30	-7.16
	132047	1717.5	TOCAW	12	0	20.82	23.01	30	-6.99
				16	0	20.70	22.89	30	-7.11
				1	0	20.54	22.73	30	-7.27
15	132322	1745	16QAM	1	15	20.42	22.61	30	-7.39
IJ	132322	1743	TOCAM	12	0	20.69	22.88	30	-7.12
				16	0	20.63	22.82	30	-7.18
				1	0	21.01	23.20	30	-6.8
	132597	1772.5	16QAM	1	15	20.64	22.83	30	-7.17
i	132371	1112.3	TOCAM	12	0	20.64	22.83	30	-7.17
ı				16	0	20.67	22.86	30	-7.14

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Page: 52 of 199

Antenna gain (dBi) 2.19

		L	TE Band 66_Up	66_Uplink frequency band : 1710 to 1780 MHz							
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)		
				1	0	21.51	23.70	30	-6.3		
	132072	1720	QPSK	1	99	21.17	23.36	30	-6.64		
	132072	1720	QFSK	50	25	20.41	22.60	30	-7.4		
				100	0	20.59	22.78	30	-7.22		
				1	0	21.73	23.92	30	-6.08		
20	132322	1745 QPSK	QPSK	1	99	21.67	23.86	30	-6.14		
20	132322		1745	1745	QION	50	25	20.71	22.90	30	-7.1
				100	0	20.56	22.75	30	-7.25		
Ī		1770		1	0	21.80	23.99	30	-6.01		
	132572		QPSK	1	99	21.31	23.50	30	-6.5		
	102072	1770	QION	50	25	20.89	23.08	30	-6.92		
				100	0	20.50	22.69	30	-7.31		
				1	0	20.46	22.65	30	-7.35		
	132072	1720	16QAM	1	17	20.72	22.91	30	-7.09		
				18	0	20.74	22.93	30	-7.07		
				1	0	20.98	23.17	30	-6.83		
20	132322	1745	16QAM	1	17	20.58	22.77	30	-7.23		
				18	0	20.59	22.78	30	-7.22		
				1	0	20.96	23.15	30	-6.85		
	132572	1770	16QAM	1	17	20.37	22.56	30	-7.44		
				18	0	20.35	22.54	30	-7.46		

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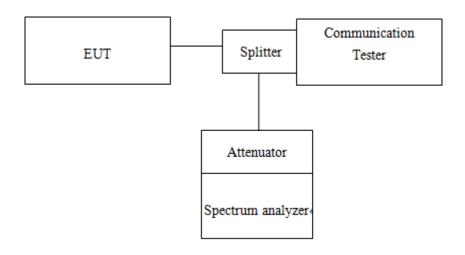
Page: 53 of 199

OCCUPIED BANDWIDTH MEASUREMENT

8.1 Standard Applicable

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

8.2 **Test Set-up**



8.3 **Measurement Procedure**

99% &26dB Bandwidth with detector peak

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

99% Bandwidth with detector sample

The EUT's output RF connector was connected with a short cable to the spectrum analyzer. RBW was set to about 1% ~ 5% of emission BW, VBW= 3 times RBW.

Set RBW= 1% ~ 5%, VBW= 3 * RBW, with span > 2 * Signal BW, set % Power = 99%.

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Page: 54 of 199

8.4 **Measurement Result**

LTE BAND 2 Channel bandwidth: 1.4MHz								
Freq.	СН	99% BW (MHz)		26 dB BW (MHz)				
(MHz)		QPSK	16QAM	QPSK	16QAM			
1850.7	18607	1.0868	1.0883	1.267	1.296			
1880.0	18900	1.0868	1.0883	1.261	1.288			
1909.3	19193	1.0824	1.0882	1.293	1.288			

LTE BAND 2 Channel bandwidth: 5MHz								
Freq.	СН	99% BW (MHz)		26 dB BW (MHz)				
(MHz)	CIT	QPSK	16QAM	QPSK	16QAM			
1852.5	18625	4.4857	4.4910	4.992	5.023			
1880.0	18900	4.4846	4.4895	5.010	4.976			
1907.5	19175	4.4915	4.4925	5.006	4.976			

LTE BAND 2 Channel bandwidth: 15MHz								
Freq.	СН	99% BV	V (MHz)	26 dB B	W (MHz)			
(MHz)	СП	QPSK	16QAM	QPSK	16QAM			
1857.5	18675	13.375	3.1979	14.51	4.579			
1880.0	18900	13.436	3.1975	14.64	4.149			
1902.5	19125	13.414	3.1657	14.50	4.273			
LTE BAND 4 Channel bandwidth: 1.4MHz								
	LTE BAND) 4 Channe	l bandwidt	h: 1.4MHz				
Freq.			el bandwidt V (MHz)		W (MHz)			
Freq. (MHz)	LTE BAND							
		99% BV	V (MHz)	26 dB B	W (MHz)			
(MHz)	СН	99% BV QPSK	V (MHz) 16QAM	26 dB B	W (MHz) 16QAM			

LTE BAND 4 Channel bandwidth: 5MHz								
Freq.	СН	99% BW (MHz)		26 dB BW (MHz)				
(MHz)	CH	QPSK	16QAM	QPSK	16QAM			
1712.5	19975	4.4837	4.4893	5.010	4.960			
1732.5	20175	4.4879	4.4882	5.030	4.987			
1752.5	20375	4.4917	4.4925	5.006	4.974			

LTE BAND 4 Channel bandwidth: 15MHz							
Freq.	СН	99% BW (MHz)		26 dB BW (MHz)			
(MHz)	CIT	QPSK	16QAM	QPSK	16QAM		
1717.5	20025	13.378	3.1751	14.51	4.330		
1732.5	20175	13.416	3.1695	14.56	4.280		
1747.5	20325	13.427	3.1772	14.58	4.467		

LTE BAND 2 Channel bandwidth: 3MHz							
Freq.	СН	99% BW (MHz)		26 dB BW (MHz)			
(MHz)	CIT	QPSK	16QAM	QPSK	16QAM		
1851.5	18615	2.6858	2.6899	2.947	2.964		
1880.0	18900	2.6849	2.6912	2.958	2.964		
1908.5	19185	2.6862	2.6888	2.947	2.969		

LTE BAND 2 Channel bandwidth: 10MHz							
Freq.	СН	99% BW (MHz)		26 dB BW (MHz)			
(MHz)	CH	QPSK	16QAM	QPSK	16QAM		
1855.0	18650	8.9443	3.0502	9.757	3.726		
1880.0	18900	8.9490	3.0713	9.868	4.043		
1905.0	19150	8.9634	3.0425	9.851	3.781		

LTE BAND 2 Channel bandwidth: 20MHz							
Freq.	СН	99% BV	V (MHz)	26 dB BW (MHz)			
(MHz)	Сп	QPSK	16QAM	QPSK	16QAM		
1860.0	18700	17.770	3.766	19.15	5.573		
1880.0	18900	17.893	3.678	19.36	5.309		
1900.0	19100	17.790	3.757	19.18	5.326		
LTE BAND 4 Channel bandwidth: 3MHz							
	LTE BAN	D 4 Chann	el bandwic	Ith: 3MHz			
Freq.			el bandwic V (MHz)		W (MHz)		
Freq. (MHz)	LTE BAN				W (MHz) 16QAM		
		99% BV	V (MHz)	26 dB B	, ,		
(MHz)	СН	99% BV QPSK	V (MHz) 16QAM	26 dB B QPSK	16QAM		

LTE BAND 4 Channel bandwidth: 10MHz							
Freq.	СН	99% BW (MHz)		26 dB BW (MHz)			
(MHz)	CIT	QPSK	16QAM	QPSK	16QAM		
1715.0	20000	8.9455	3.0481	9.795	3.794		
1732.5	20175	8.9567	3.0475	9.793	3.991		
1750.0	20350	8.9729	3.0523	9.848	4.121		

LTE BAND 4 Channel bandwidth: 20MHz								
Freq.	СН	99% BV	99% BW (MHz)		26 dB BW (MHz)			
(MHz)	СП	QPSK	16QAM	QPSK	16QAM			
1720.0	20050	17.800	3.7599	19.18	5.156			
1732.5	20175	17.833	3.6977	19.31	5.266			
1745.0	20300	17.858	3.6976	19.34	5.234			

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Page: 55 of 199

LTE BAND 5 Channel bandwidth: 1.4MHz								
Freq.	СН	99% BV	V (MHz)	26 dB B	W (MHz)			
(MHz)	CIT	QPSK	16QAM	QPSK	16QAM			
824.7	20407	1.0866	1.0867	1.286	1.269			
836.5	20525	1.0868	1.0867	1.266	1.272			
848.3	20643	1.0876	1.0874	1.278	1.269			

TE DANK						
LTE BAND 5 Channel bandwidth: 5MHz						
CI	99% BV	V (MHz)	26 dB B	W (MHz)		
СП	QPSK	16QAM	QPSK	16QAM		
20425	4.4838	4.4778	4.998	4.966		
20525	4.4859	4.4915	4.969	4.970		
20625	4.4852	4.4917	4.993	4.980		
E BAND	12 Channe	el bandwid	th: 1.4MHz	-		
CI	99% BV	V (MHz)	26 dB B'	W (MHz)		
CH	QPSK	16QAM	QPSK	16QAM		
23017	1.0861	1.0867	1.245	1.259		
23095	1.0869	1.0873	1.248	1.264		
23173	1.0868	1.0875	1.289	1.262		
	CH 20425 20525 20625 E BAND CH 23017 23095	CH 99% BV QPSK 20425 4.4838 20525 4.4859 20625 4.4852 E BAND 12 Channe CH 99% BV QPSK 23017 1.0861 23095 1.0869	CH 99% BW (MHz) QPSK 16QAM 20425 4.4838 4.4778 20525 4.4859 4.4915 20625 4.4852 4.4917 E BAND 12 Channel bandwid CH 99% BW (MHz) QPSK 16QAM 23017 1.0861 1.0867 23095 1.0869 1.0873	CH 99% BW (MHz) 26 dB B' QPSK 16QAM QPSK 20425 4.4838 4.4778 4.998 20525 4.4859 4.4915 4.969 20625 4.4852 4.4917 4.993 E BAND 12 Channel bandwidth: 1.4MHz 99% BW (MHz) 26 dB B QPSK 16QAM QPSK 23017 1.0861 1.0867 1.245 23095 1.0869 1.0873 1.248		

LTE BAND 12 Channel bandwidth: 5MHz								
Freq.	СН	99% BV	V (MHz)	26 dB BW (MHz)				
(MHz)	CIT	QPSK	16QAM	QPSK	16QAM			
701.5	23035	4.4759	4.4830	4.961	4.956			
707.5	23095	4.4883	4.4901	4.983	4.997			
713.5	23155	4.4802	4.4789	4.974	4.952			
	LTE BAND 13 Channel bandwidth: 5MHz							
Freq.	СН	99% BV	V (MHz)	26 dB B	W (MHz)			
(MHz)	CIT	QPSK	16QAM	QPSK	16QAM			
779.5	23205	4.4880	4.4941	4.949	4.989			
782.0	23230	4.4770	4.4797	4.979	4.958			
784.5	23255	4.4848	4.4863	4.985	4.961			
	LTE BAND	0 17 Chanr	nel bandwi	dth: 5MHz				
Freq.	СН	99% BV	V (MHz)	26 dB B	W (MHz)			
(MHz)	CIT	QPSK	16QAM	QPSK	16QAM			
706.5	23755	4.4911	4.4873	5.010	4.964			
710.0	23790	4.4874	4.4908	4.991	4.965			
713.5	23825	4.4796	4.4831	4.954	4.948			

LTE BAND 5 Channel bandwidth: 3MHz								
Freq.	СН	99% BV	V (MHz)	26 dB B	W (MHz)			
(MHz)	CIT	QPSK	16QAM	QPSK	16QAM			
825.5	20415	2.6842	2.6911	2.945	2.960			
836.5	20525	2.6893	2.6892	2.968	2.967			
847.5	20635	2.6855	2.6911	2.938	2.962			

LTE BAND 5 Channel bandwidth: 10MHz							
Freq.	СН	99% BV	99% BW (MHz)		26 dB BW (MHz)		
(MHz)	CIT	QPSK	16QAM	QPSK	16QAM		
829.0	20450	8.9515	3.0526	9.758	3.809		
836.5	20525	8.9620	3.0503	9.809	3.815		
844.0	20600	8.9552	3.0359	9.738	3.798		
LTE BAND 12 Channel bandwidth: 3MHz							
	LTE BANG) 12 Chanr	nel bandwi	dth: 3MHz			
Freq.		99% BV			W (MHz)		
Freq. (MHz)	LTE BANI CH				W (MHz) 16QAM		
		99% BV	V (MHz)	26 dB B	` '		
(MHz)	СН	99% BV QPSK	V (MHz) 16QAM	26 dB B QPSK	16QAM		

LTE BAND 12 Channel bandwidth: 10MHz							
Freq.	СН	99% BV	V (MHz)	26 dB B	W (MHz)		
(MHz)	OH	QPSK	16QAM	QPSK	16QAM		
704.0	23060	8.9521	3.0158	9.731	3.670		
707.5	23095	8.9849	3.0240	9.795	3.692		
711.0	23130	8.9434	3.0536	9.703	3.812		
	LTE BAND	13 Chann	el bandwic	Ith: 10MHz			
Freq.	СН	99% BV	V (MHz)	26 dB B	W (MHz)		
(MHz)	CII	QPSK	16QAM	QPSK	16QAM		
782.0	23230	8.9372	3.0287	9.713	3.787		

LTE BAND 17 Channel bandwidth: 10MHz								
Freq.	СН	99% BV	V (MHz)	26 dB B	W (MHz)			
(MHz)	CIT	QPSK	16QAM	QPSK	16QAM			
709.0	23780	8.9639	3.0425	9.792	3.686			
710.0	23790	8.9542	3.0520	9.755	3.780			
711.0	23800	8.9438	3.0486	9.714	3.755			

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Page: 56 of 199

LTE BAND 66 Channel bandwidth: 1.4MHz								
Freq.	СН	99% BV	V (MHz)	26 dB B	W (MHz)			
(MHz)	СП	QPSK	16QAM	QPSK	16QAM			
1710.7	131979	1.0867	1.0872	1.261	1.261			
1745.0	132322	1.0867	1.0862	1.264	1.261			
1779.3	132665	1.0861	1.0866	1.270	1.261			

LTE BAND 66 Channel bandwidth: 5MHz							
Freq.	СН	99% BV	V (MHz)	26 dB B	W (MHz)		
(MHz)	CIT	QPSK	16QAM	QPSK	16QAM		
1712.5	131997	4.4801	4.4897	4.970	4.968		
1745.0	132322	4.4876	4.4918	4.986	4.989		
1777.5	132647	4.4881	4.4881	4.962	4.962		

LTE BAND 66 Channel bandwidth: 15MHz							
Freq.	СН	99% BV	V (MHz)	26 dB B	W (MHz)		
(MHz)	CIT	QPSK	16QAM	QPSK	16QAM		
1717.5	132047	13.407	3.1568	14.42	4.063		
1745.0	132322	13.441	3.0253	14.53	3.782		
1772.5	132597	13.399	2.9841	14.48	3.738		

LTE BAND 66 Channel bandwidth: 3MHz							
Freq.	СН	99% BV	V (MHz)	26 dB B	W (MHz)		
(MHz)	CIT	QPSK	16QAM	QPSK	16QAM		
1711.5	131987	2.6878	2.6922	2.947	2.956		
1745.0	132322	2.6876	2.6897	2.941	2.969		
1778.5	132657	2.6885	2.6870	2.944	2.959		

LTE BAND 66 Channel bandwidth: 10MHz							
Freq.	СН	99% BV	V (MHz)	26 dB B	W (MHz)		
(MHz)	CII	QPSK	16QAM	QPSK	16QAM		
1715.0	132022	8.9615	3.0303	9.771	3.699		
1745.0	132322	8.9480	3.0275	9.738	3.757		
1775.0	132622	8.9631	2.8651	9.776	3.403		

LTE BAND 66 Channel bandwidth: 20MHz					
Freq.	СН	99% BW (MHz)		26 dB BW (MHz)	
(MHz)		QPSK	16QAM	QPSK	16QAM
1720.0	132072	17.782	3.6544	19.19	4.764
1745.0	132322	17.884	3.6907	19.35	4.970
1770.0	132572	17.808	3.6750	19.12	4.779

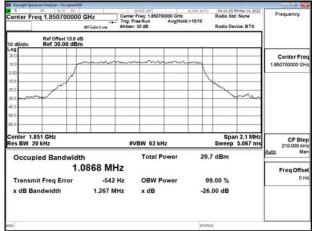
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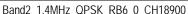
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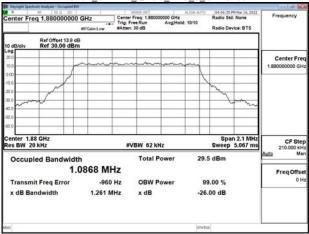


Page: 57 of 199

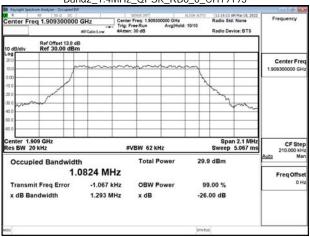
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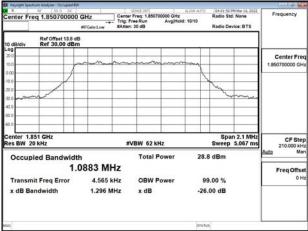




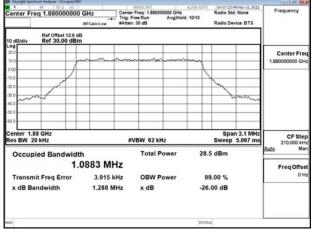
Band2 1.4MHz QPSK RB6 0 CH19193



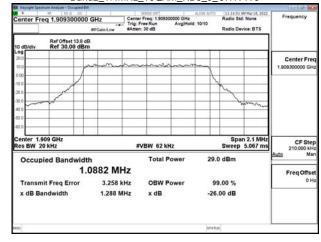
Band2_1.4MHz_16QAM_RB6_0_CH18607



Band2 1.4MHz 16QAM RB6 0 CH18900



Band2 1.4MHz 16QAM RB6 0 CH19193



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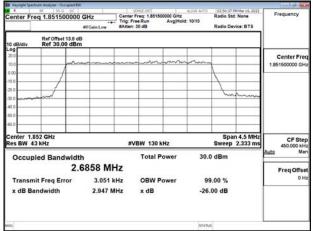
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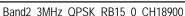
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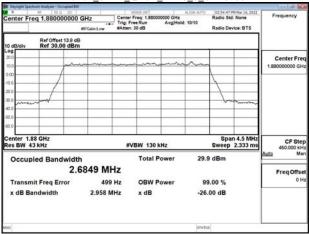


Page: 58 of 199

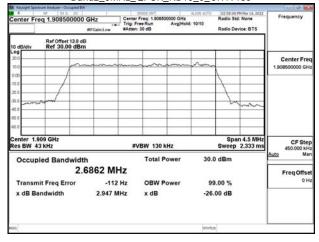
Band2_3MHz_QPSK_RB15_0_CH18615



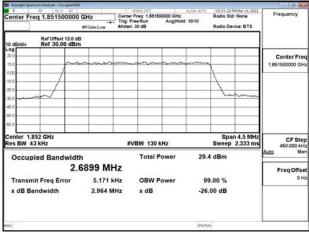




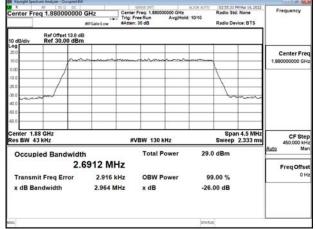
Band2 3MHz QPSK RB15 0 CH19185



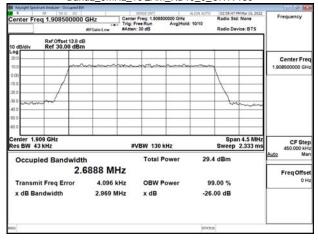
Band2_3MHz_16QAM_RB15_0_CH18615



Band2 3MHz 16QAM RB15 0 CH18900



Band2 3MHz 16QAM RB15 0 CH19185



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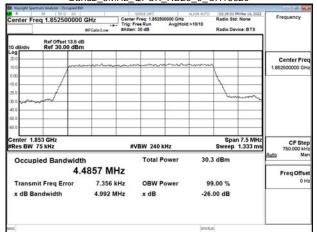
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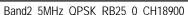
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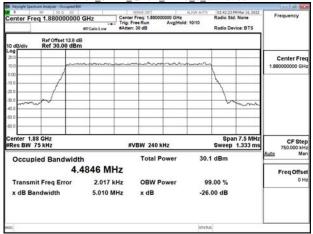


Page: 59 of 199

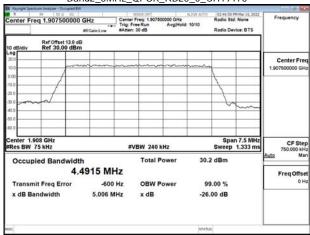
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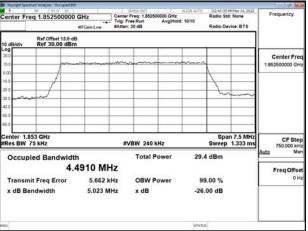




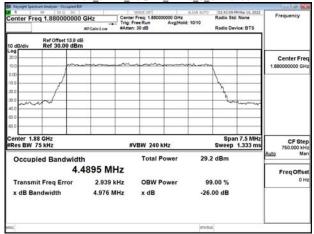
Band2 5MHz QPSK RB25 0 CH19175



Band2_5MHz_16QAM_RB25_0_CH18625



Band2 5MHz 16QAM RB25 0 CH18900



Band2 5MHz 16QAM RB25 0 CH19175



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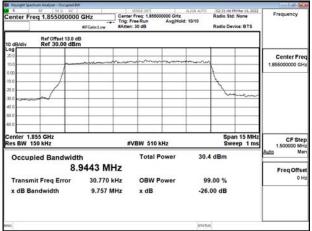
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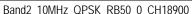
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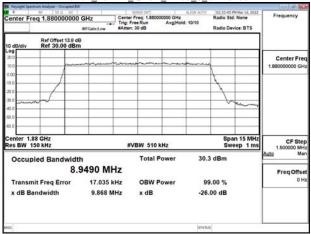


Page: 60 of 199

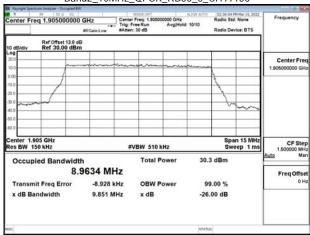








Band2 10MHz QPSK RB50 0 CH19150



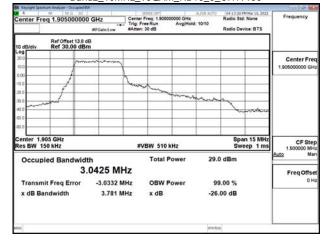
Band2_10MHz_16QAM_RB16_0_CH18650



Band2 10MHz 16QAM RB16 0 CH18900



Band2 10MHz 16QAM RB16 0 CH19150



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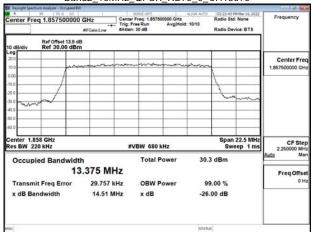
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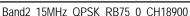
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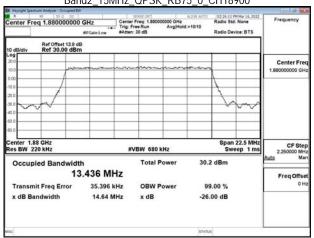


Page: 61 of 199

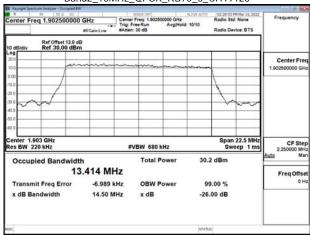
Band2_15MHz_QPSK_RB75_0_CH18675







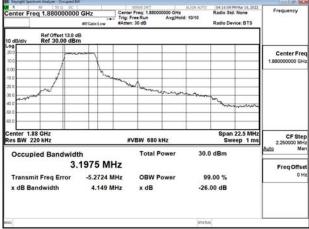
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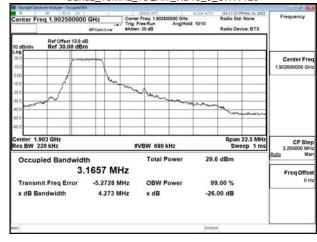
Band2_15MHz_16QAM_RB16_0_CH18675



Band2 15MHz 16QAM RB16 0 CH18900



Band2 15MHz 16QAM RB16 0 CH19125



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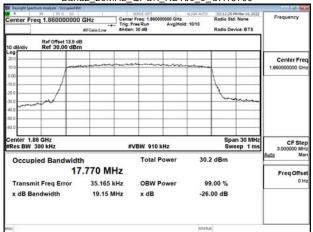
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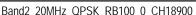
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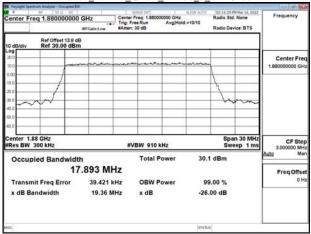


Page: 62 of 199

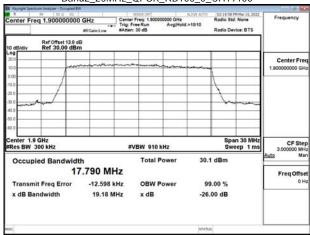
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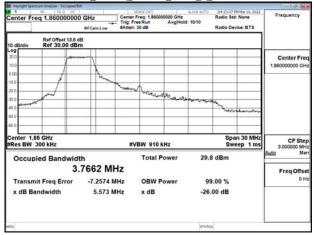




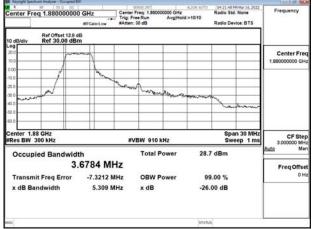
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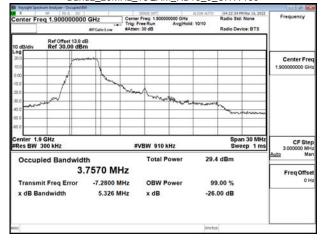
Band2_20MHz_16QAM_RB18_0_CH18700



Band2 20MHz 16QAM RB18 0 CH18900



Band2 20MHz 16QAM RB18 0 CH19100



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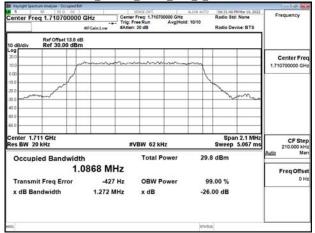
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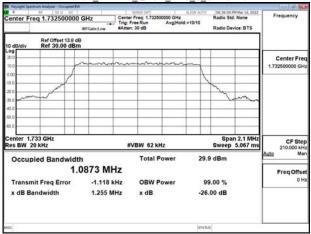


Page: 63 of 199

Band4_1.4MHz_QPSK_RB6_0_CH19957



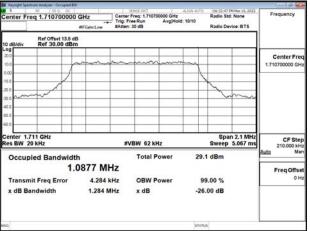
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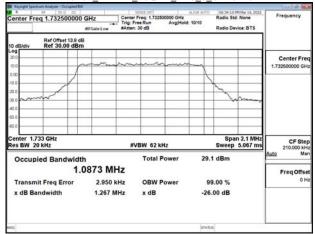
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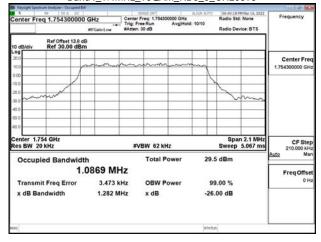
Band4_1.4MHz_16QAM_RB6_0_CH19957



Band4 1.4MHz 16QAM RB6 0 CH20175



Band4 1.4MHz 16QAM RB6 0 CH20393



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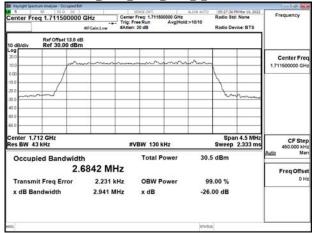
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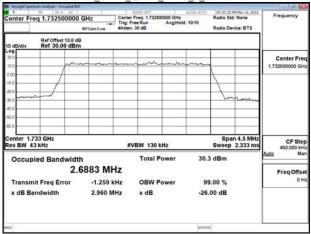


Page: 64 of 199

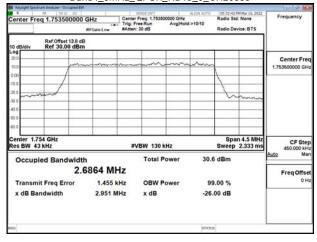
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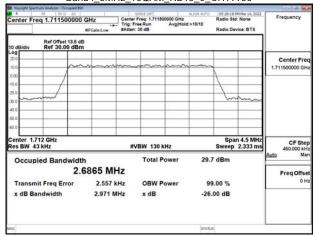
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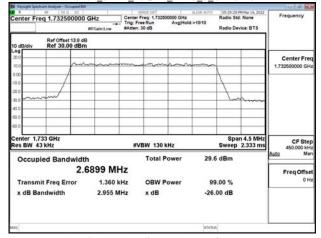
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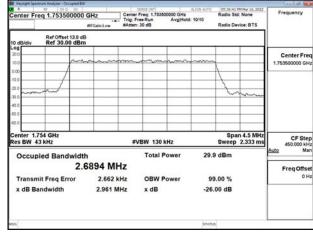
Band4_3MHz_16QAM_RB15_0_CH19965



Band4 3MHz 16QAM RB15 0 CH20175



Band4_3MHz_16QAM_RB15_0_CH20385



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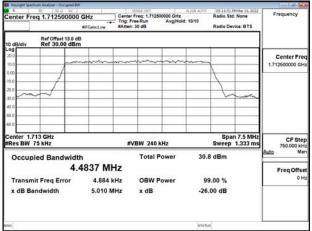
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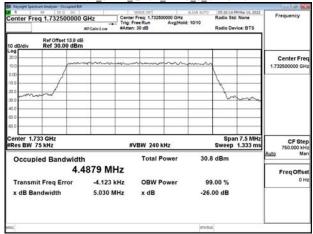


Page: 65 of 199

Band4_5MHz_QPSK_RB25_0_CH19975



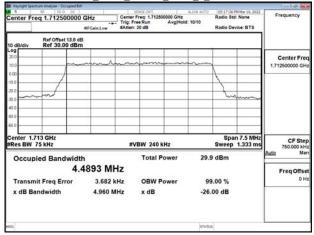




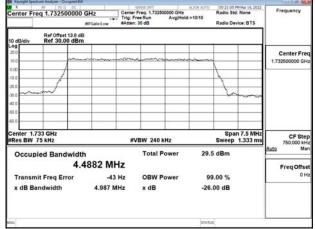
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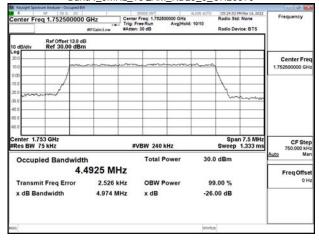
Band4_5MHz_16QAM_RB25_0_CH19975



Band4 5MHz 16QAM RB25 0 CH20175



Band4 5MHz 16QAM RB25 0 CH20375



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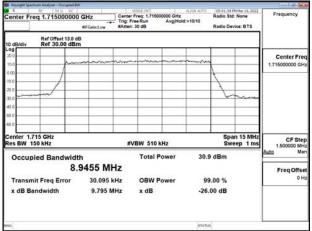
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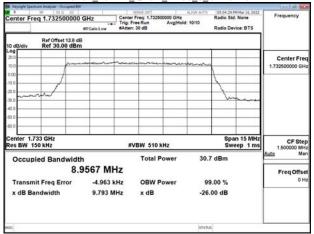


Page: 66 of 199

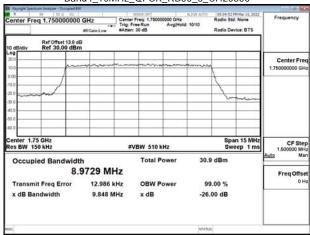
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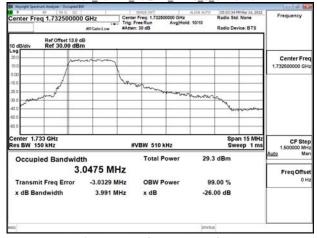
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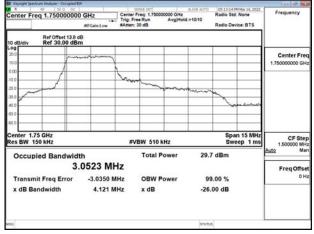
Band4_10MHz_16QAM_RB16_0_CH20000



Band4 10MHz 16QAM RB16 0 CH20175



Band4_10MHz_16QAM_RB16_0_CH20350



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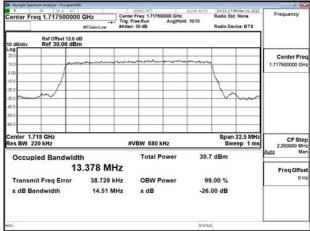
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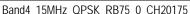
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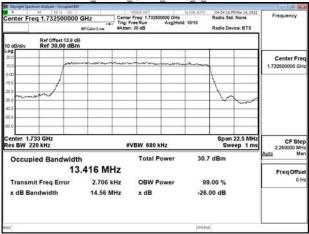


Page: 67 of 199

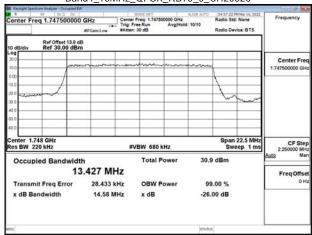
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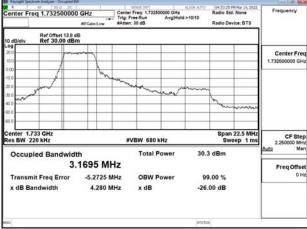
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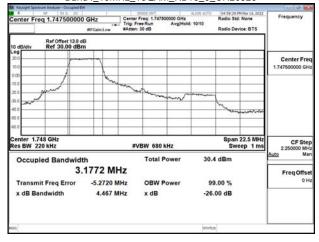
Band4_15MHz_16QAM_RB16_0_CH20025



Band4 15MHz 16QAM RB16 0 CH20175



Band4 15MHz 16QAM RB16 0 CH20325



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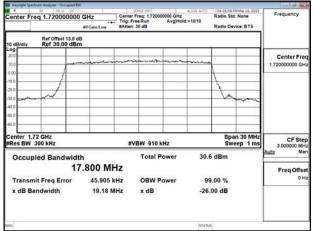
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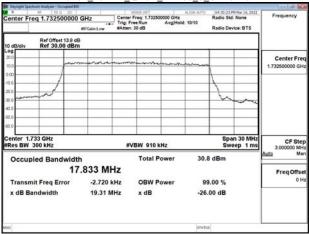


Page: 68 of 199

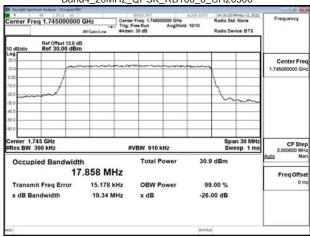
Band4_20MHz_QPSK_RB100_0_CH20050



Band4 20MHz QPSK RB100 0 CH20175



Band4 20MHz QPSK RB100 0 CH20300



Band4_20MHz_16QAM_RB18_0_CH20050



Band4 20MHz 16QAM RB18 0 CH20175



Band4 20MHz 16QAM RB18 0 CH20300



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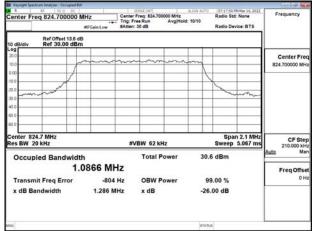
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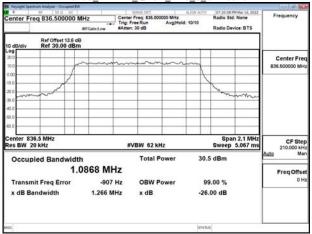


Page: 69 of 199

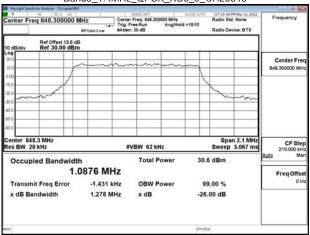
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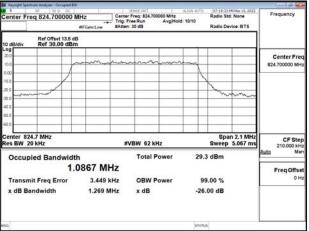




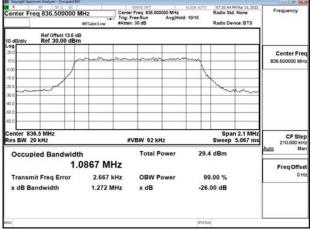
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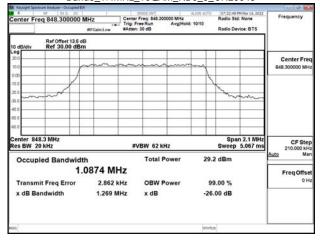
Band5_1.4MHz_16QAM_RB6_0_CH20407



Band5 1.4MHz 16QAM RB6 0 CH20525



Band5 1.4MHz 16QAM RB6 0 CH20643



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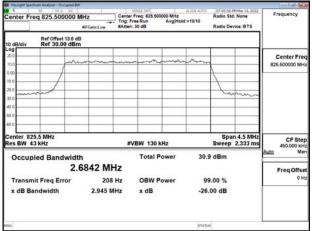
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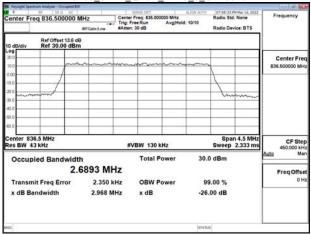


Page: 70 of 199

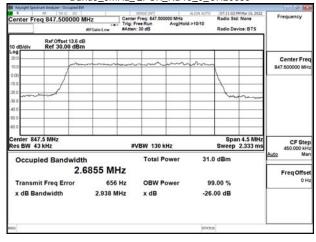
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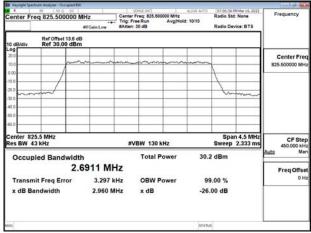




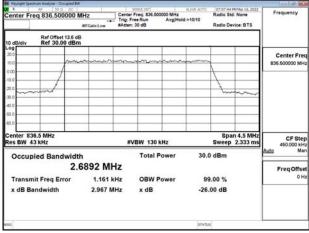
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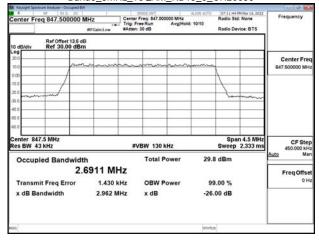
Band5_3MHz_16QAM_RB15_0_CH20415



Band5 3MHz 16QAM RB15 0 CH20525



Band5 3MHz 16QAM RB15 0 CH20635



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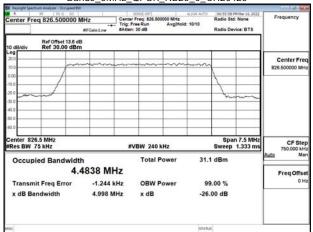
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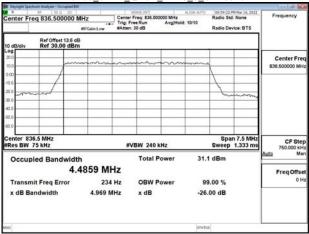


Page: 71 of 199

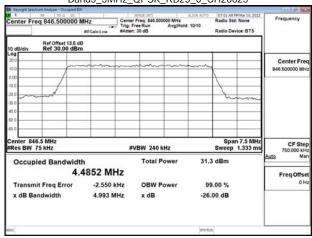
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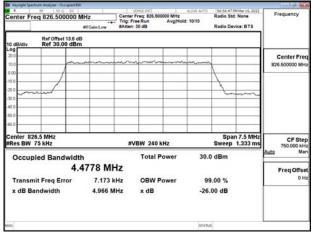
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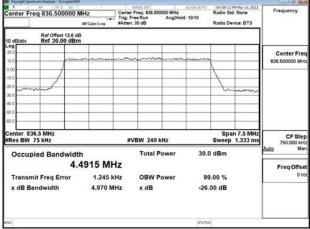
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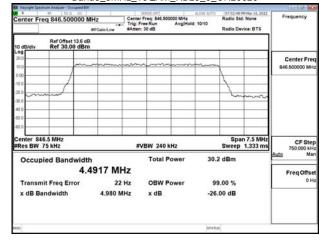
Band5_5MHz_16QAM_RB25_0_CH20425



Band5 5MHz 16QAM RB25 0 CH20525



Band5 5MHz 16QAM RB25 0 CH20625



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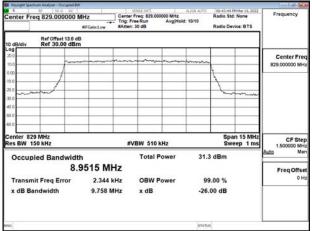
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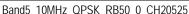
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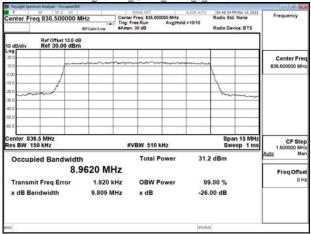


Page: 72 of 199

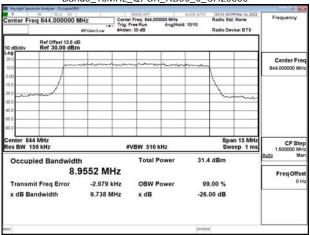
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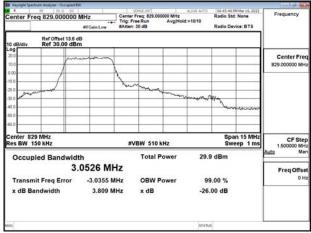




Band5 10MHz QPSK RB50 0 CH20600



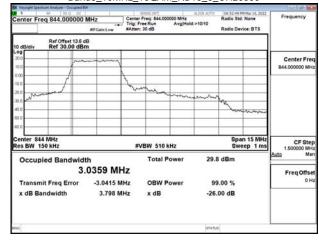
Band5_10MHz_16QAM_RB16_0_CH20450



Band5 10MHz 16QAM RB16 0 CH20525



Band5 10MHz 16QAM RB16 0 CH20600



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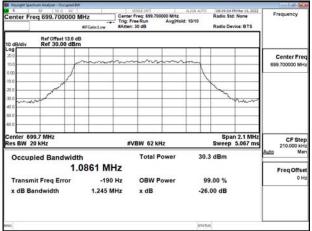
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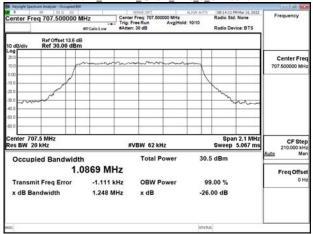


Page: 73 of 199

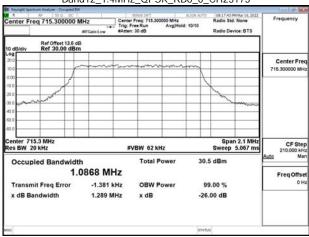
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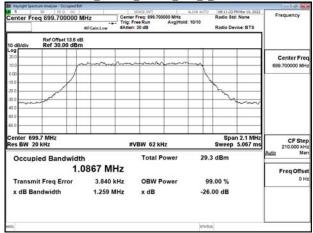
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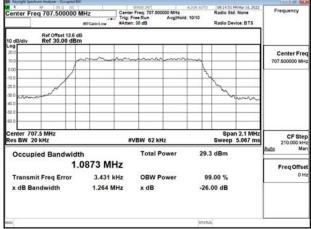
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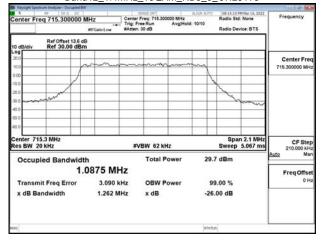
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Band12 1.4MHz 16QAM RB6 0 CH23095



Band12 1.4MHz 16QAM RB6 0 CH23173



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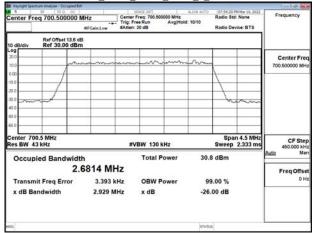
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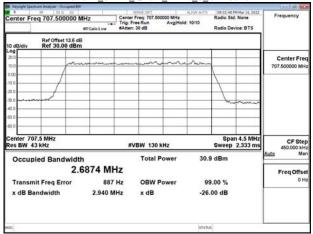


Page: 74 of 199

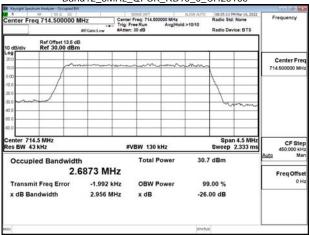
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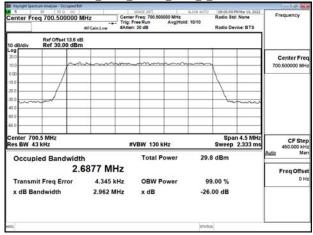
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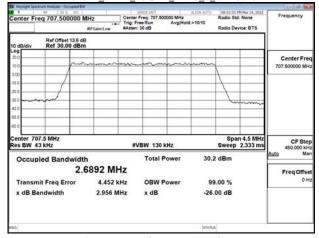
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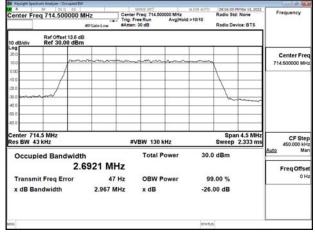
Band12_3MHz_16QAM_RB15_0_CH23025



Band12 3MHz 16QAM RB15 0 CH23095



Band12_3MHz_16QAM_RB15_0_CH23165



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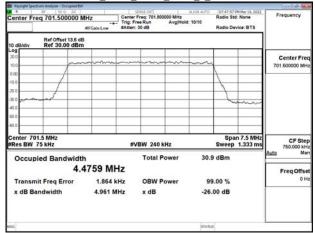
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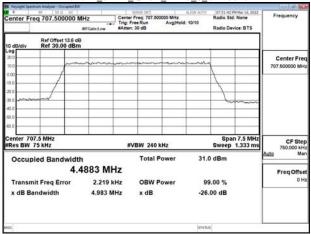


Page: 75 of 199

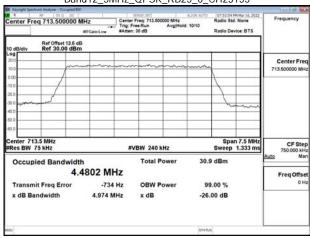
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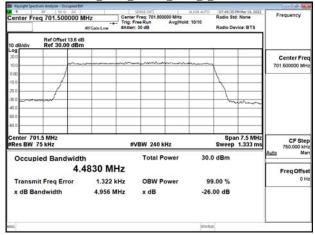
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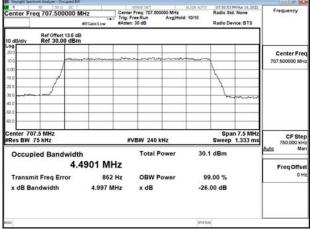
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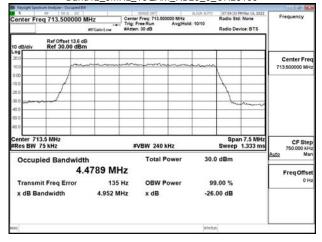
Band12_5MHz_16QAM_RB25_0_CH23035



Band12 5MHz 16QAM RB25 0 CH23095



Band12 5MHz 16QAM RB25 0 CH23155



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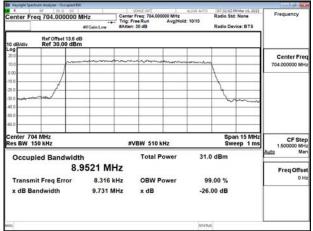
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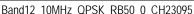
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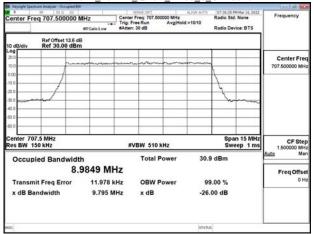


Page: 76 of 199

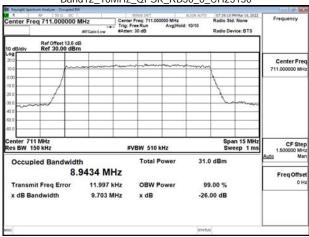
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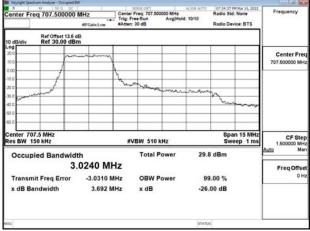
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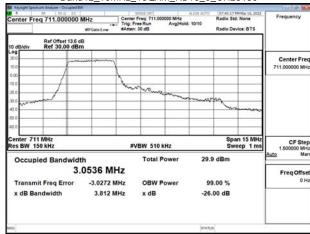
Band12_10MHz_16QAM_RB16_0_CH23060



Band12 10MHz 16QAM RB16 0 CH23095



Band12 10MHz 16QAM RB16 0 CH23130



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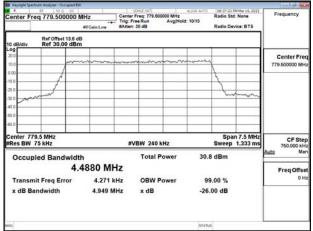
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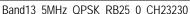
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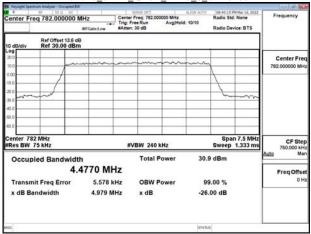


Page: 77 of 199

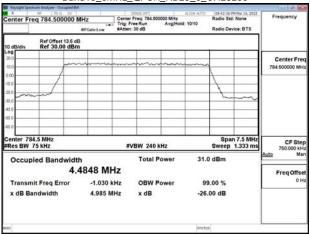
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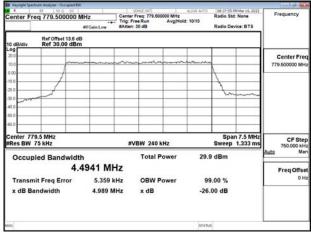




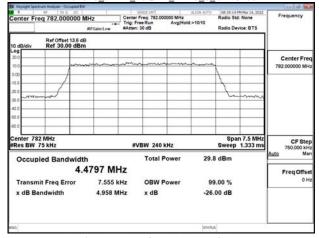
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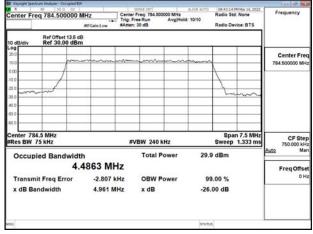
Band13_5MHz_16QAM_RB25_0_CH23205



Band13 5MHz 16QAM RB25 0 CH23230



Band13_5MHz_16QAM_RB25_0_CH23255



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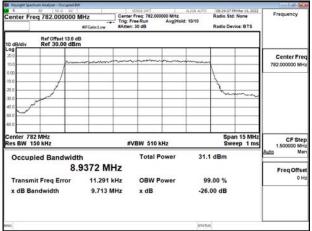
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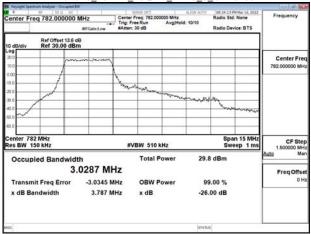


Page: 78 of 199

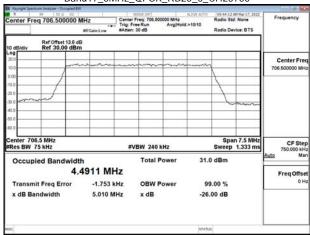
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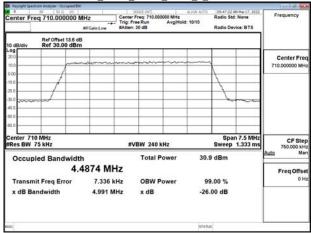




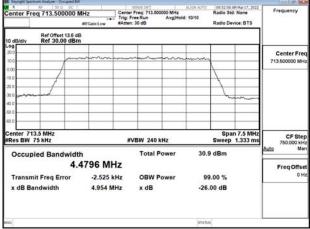
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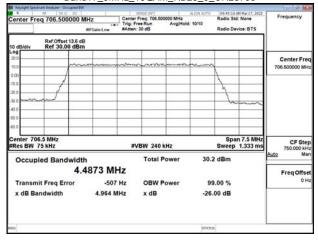
Band17_5MHz_QPSK_RB25_0_CH23790



Band17 5MHz QPSK RB25 0 CH23825



Band17 5MHz 16QAM RB25 0 CH23755



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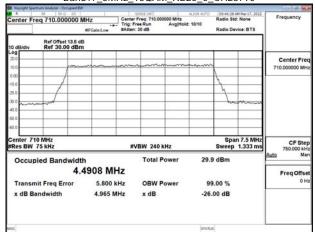
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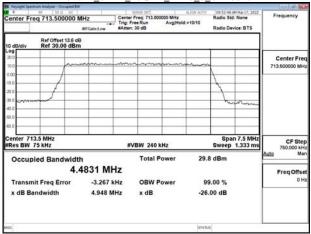


Page: 79 of 199

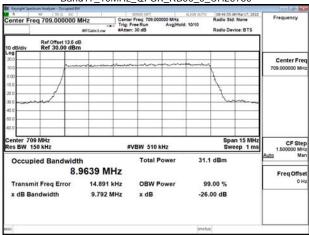
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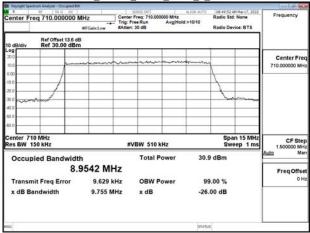
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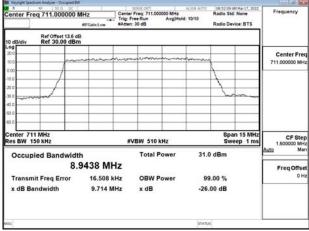
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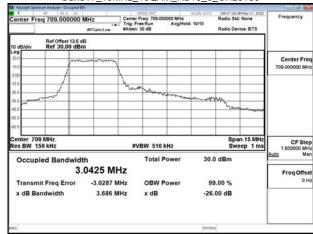
Band17_10MHz_QPSK_RB50_0_CH23790



Band17 10MHz QPSK RB50 0 CH23800



Band17 10MHz 16QAM RB16 0 CH23780



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