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## **ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT**

#### INTENTIONAL RADIATOR CERTIFICATION TO

FCC PART 22 SUBPART H, PART 24 SUBPART E and PART 27 SUBPART B, C & SUBPART L, PART 90S AND INDUSTRY CANADA RSS-130, RSS-132, RSS-133, RSS-139, RSS-195 & RSS-199REQUIREMENT

OF

Applicant: Microsoft Corporation

One Microsoft Way, Redmond, WA 98052-6399 USA

**Product Name:** Portable Computing Device

**Brand Name:** Microsoft Model No.: 1825 **Model Difference:** N/A

FCC ID: C3K1825 IC: 3048A-1825 E2/2018/70116 **Report Number:** 

**FCC Rule Part:** 2, 22H & 24E & 27B, C & L & 90S

> RSS 130 Issue 1 Oct. 2013, RSS 132 Issue 3 Jan. 2013, RSS 133 Issue 6 Jan. 2018, RSS 139 Issue 3 Jul. 2015,

RSS 195 Issue 2 Apr. 2014, RSS 199 Issue 3 Dec. 2016

**Issue Date:** Aug. 29, 2018

Date of Test: Jun. 26, 2018 ~ Aug. 24, 2018

Date of EUT Received: Jun. 26, 2018

We hereby certify that:

IC Rule Part:

The above equipment was tested by SGS Taiwan Ltd. Electronics & Communication Laboratory The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.26-2015 and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits.

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

Tested By:

Vito Pei / Sr. Engineer

Approved By:

Jim Chang / Manager





0513

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# **Revision History**

Report Number	Revision	Description	Effected Page	Issue Date	Revised By
E2/2018/70116	Rev.00	Initial creation of document	All	Aug. 29, 2018	Tiffany Kao

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### 1. GENERAL PRODUCT INFORMATION

# 1.1. Product Description

#### General:

cilciai.					
Product Name:	Portable C	Computing Device			
Brand Name:	Microsoft				
Model No.:	1825				
Model Difference:	N/A				
Product SW/HW version:	Windows '	10 Pro / EV2.7			
Radio SW/HW version:	18.33.105.6 / EV2.7				
Test SW Version:	N/A				
RF power setting in TEST SW:	N/A				
		om Rechargeable Li-ion Battery n AC/DC Adapter			
Power Supply:	Battery:	Model No.: G16QA043H, Supplier: SMP			
	Adapter:	Model No.: 1735, Supplier: LITEON			

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# 1.2. WCDMA / LTE: Cellular Phone Standards Frequency Range

Operating Frequency (MHz)						
WCDMA / HSPA+ Band II 1852.4 - 1907.6						
WCDMA / HSPA+ Band V 826.4 - 846.6						

LTE Band	BW (MHz)	Operation F	requei	ncy (MHz)	LTE Band	BW (MHz)	Operation	Frequer	icy (MHz)
	1.4	1850.7	-	1909.3	13	5	779.5	-	784.5
	3	1851.5	-	1908.5	13	10		782	
2	5	1852.5	-	1907.5		1.4	1850.7	-	1914.3
2	10	1855.0	-	1905.0		3	1851.5	-	1913.5
	15	1857.5	-	1902.5	25	5	1852.5	-	1912.5
	20	1860.0	-	1900.0	23	10	1855.0	-	1910.0
	1.4	1710.7	-	1754.3	26	15	1857.5	-	1907.5
	3	1711.5	-	1753.5		20	1860.0	-	1905.0
4	5	1712.5	-	1752.5		1.4	824.7	-	848.3
4	10	1715.0	-	1780.0		3	825.5	-	847.5
	15	1717.5	-	1747.5		5	826.5	-	846.5
	20	1720.0	-	1745.0		10	829.0	-	844.0
	1.4	824.7	-	848.3		15	831.5	-	841.5
5	3	825.5	-	847.5		1.4	814.7	-	823.3
5	5	826.5	-	846.5	26 Part90	3	815.5	-	822.5
	10	829.0	-	844.0	20 Fai 190	5	816.5	-	821.5
	5	2502.5	-	2567.5		10		819.0	
7	10	2505.0	-	2565.0	30	5	2307.5	-	2312.5
,	15	2507.5	-	2562.5	30	10		2310.0	
	20	2510.0	-	2560.0		5	2572.5	-	2617.5
	1.4	699.7	-	715.3	20	10	2575.0	-	2615.0
12	3	700.5	-	714.5	38	15	2577.5	-	2612.5
12	5	701.5	-	713.5		20	2580.0	-	2610.0
	10	704.0	~	711.0					

LTE Band	BW (MHz)	Operation Frequency (MHz)			LTE Band	BW (MHz)	Operation	Frequ	ency (MHz)
	5	2498.5	-	2687.5		1.4	1710.7	-	1779.3
11	10	2501.0	-	2685.0		3	1711.5	-	1778.5
41	15	2503.5	-	2682.5	4.4	5	1712.5	-	1777.5
	20	2506.0	-	2680.0	66	10	1715.0	-	1775.0
						15	1717.5	-	1772.5
						20	1720.0	-	1770.0

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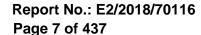
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### **Antenna Designation**

Vendor	Туре	Main / Aux	Antenna Part No.	Modulation	Frequency (MHz)	Peak Antenna Gain (dBi)
				WCDMA / HSPA Band II	1852.4 ~ 1907.6	1.09
				WCDMA / HSPA Band V	826.4 ~ 846.6	0.16
				LTE Band 2	1850 ~ 1910	1.09
				LTE Band 4	1710 ~ 1755	1.92
				LTE Band 5	824 ~ 849	0.16
Jieng Tai		ouple Main DQ67KYQUT77 / 7KYQUTAN000398		LTE Band 7	2503 ~ 2560	2.11
International			DO47KVOLIT77 /	LTE Band 12	699 ~ 716	0.09
Electronic	Couple			LTE Band 13	777 ~ 787	1.48
Corp.			/K1Q01AN000398	LTE Band 25	1850 ~ 1915	1.09
Corp.				LTE Band 26	824 ~ 849	0.72
				LTE Band 26	814 ~ 824	0.72
			LTE Band 30	2305 ~ 2315	0.95	
				LTE Band 38	2573 ~ 2610	2.11
				LTE Band 41	2496 ~ 2690	2.11
				LTE Band 66	1710 ~ 1780	1.92





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

	ERP / EI	RP (dBm)	(W)	Type of Emission
WCDMA Band II	23.29	EIRP	0.213	4M12F9W
HSDPA Band II	22.32	EIRP	0.171	4M12F9W
HSUPA Band II	22.83	EIRP	0.192	4M13F9W
WCDMA Band V	24.11	ERP	0.258	4M12F9W
VVCDIVIA Ballu V	26.26	EIRP	0.423	4111121 711
HSDPA Band V	23.25	ERP	0.211	4M13F9W
NSDPA Dallu V	25.40	EIRP	0.347	4101135900
HSUPA Band V	23.13	ERP	0.206	4M14F9W
INSUPA DAIIU V	25.28	EIRP	0.337	4101145900

LTE Band	BW (MHz)	Modulation		/EIRP Bm)	(W)	Type of Emission
	1.4	QPSK	23.19	EIRP	0.208	1M10G7D
	1.4	16QAM	22.42	EIRP	0.175	1M10D7W
	3	QPSK	23.24	EIRP	0.211	2M70G7D
	3	16QAM	22.54	EIRP	0.179	2M70D7W
	5	QPSK	23.26	EIRP	0.212	4M50G7D
2	5	16QAM	22.57	EIRP	0.181	4M51D7W
2	10	QPSK	23.20	EIRP	0.209	9M02G7D
	10	16QAM	22.56	EIRP	0.180	8M96D7W
	15	QPSK	23.32	EIRP	0.215	13M5G7D
	15	16QAM	22.57	EIRP	0.181	13M5D7W
	20	QPSK	23.37	EIRP	0.217	18M0G7D
	20	16QAM	22.45	EIRP	0.176	18M0D7W
	1.4	QPSK	24.13 26.28	ERP EIRP	0.259 0.425	1M10G7D
	1.4	16QAM	23.50 25.65	ERP EIRP	0.224 0.367	1M10D7W
	3	QPSK	24.15 26.30	ERP EIRP	0.260 0.426	2M70G7D
5	3	16QAM	23.60 25.75	ERP EIRP	0.229 0.376	2M70D7W
5	5	QPSK	24.21 26.36	ERP EIRP	0.264 0.433	4M50G7D
	5	16QAM	23.56 25.71	ERP EIRP	0.227 0.372	4M50D7W
	10	QPSK	24.23 26.38	ERP EIRP	0.265 0.435	9M01G7D
	10	16QAM	23.63 25.78	ERP EIRP	0.231 0.379	8M98D7W

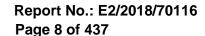
	514			. / 5155		<b>-</b> .
LTE Band	BW (MHz)	Modulation	Modulation ERP / EIRP (W)		(W)	Type of Emission
	1.4	QPSK	26.00	EIRP	0.398	1M09G7D
	1.4	16QAM	25.25	EIRP	0.335	1M10D7W
	3	QPSK	26.03	EIRP	0.401	2M70G7D
	3	16QAM	25.41	EIRP	0.348	2M70D7W
	5	QPSK	26.02	EIRP	0.400	4M52G7D
4	5	16QAM	25.41	EIRP	0.348	4M51D7W
4	10	QPSK	26.17	EIRP	0.414	9M01G7D
	10	16QAM	25.39	EIRP	0.346	8M97D7W
	15	QPSK	26.31	EIRP	0.428	13M5G7D
	15	16QAM	25.33	EIRP	0.341	13M5D7W
	20	QPSK	26.32	EIRP	0.429	18M0G7D
	20	16QAM	25.80	EIRP	0.380	18M0D7W

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7	BW (MHz)	Modulation	ERP/E	IRP (dBm)	(W)	Type of Emission
	5	QPSK	26.40	EIRP	0.437	4M50G7D
	5	16QAM	25.56	EIRP	0.360	4M51D7W
	10	QPSK	26.37	EIRP	0.434	8M99G7D
7	10	16QAM	25.57	EIRP	0.361	8M96D7W
/	15	QPSK	26.45	EIRP	0.442	13M5G7D
	15	16QAM	25.94	EIRP	0.393	13M5D7W
	20	QPSK	26.53	EIRP	0.450	18M0G7D
	20	16QAM	25.86	EIRP	0.385	18M0D7W

		1				1	
	1.4	QPSK	24.08	ERP	0.256	1M10G7D	
	1.4	QI SIX	26.23	EIRP	0.420	IIVIIOG7D	
	1.4	16QAM	23.37	ERP	0.217	1M10D7W	
	1.4	TOQAW	25.52	EIRP	0.356		
	3	QPSK	24.11	ERP	0.258	21/17/06/71	
	J	UPSK	26.26	EIRP	0.423	2M70G7D	
	3	16QAM	23.56	ERP	0.227	2M71D7W	
12	J	TOQAW	25.71	EIRP	0.372	ZIVITIDTVV	
12	5	ODCV	24.15	ERP	0.260	4M51G7D	
	5 QPSK	26.30	EIRP	0.426	41013 13 7 0		
	5	16QAM	23.52	ERP	0.225	4M51D7W	
	)	TOUAIVI	25.67	EIRP	0.369	4101310700	
	10	QPSK	24.14	ERP	0.259	9M03G7D	
	10	UPSK	26.29	EIRP	0.425	91003670	
	10	16QAM	23.50	ERP	0.224	8M96D7W	
	10	TOQAW	25.65	EIRP	0.367	0101900770	
	5	QPSK	25.56	ERP	0.360	4M52G7D	
	3	UPSK	27.71	EIRP	0.590	410132070	
	5	16QAM	24.65	ERP	0.292	4M51D7W	
13	Э	TOUAIVI	26.80	EIRP	0.479	4101310700	
13	10	QPSK	25.37	ERP	0.344	8M96G7D	
	10	UPSK	27.52	EIRP	0.564	OIVI70G/D	
	10	160414	24.73	ERP	0.297	01/05/07/1/	
	10   16QAM		26.88	EIRP	0.487	8M95D7W	

LTE	BW				(14.0)	Type of				
Band	(MHz)	Modulation	ERP / E	IRP (dBm)	(W)	Emission				
	1.4	QPSK	23.09	EIRP	0.204	1M10G7D				
	1.4	16QAM	22.45	EIRP	0.176	1M10D7W				
	3	QPSK	23.22	EIRP	0.210	2M70G7D				
	3	16QAM	22.49	EIRP	0.177	2M70D7W				
	5	QPSK	23.18	EIRP	0.208	4M50G7D				
25	5	16QAM	22.40	EIRP	0.174	4M51D7W				
25	10	QPSK	23.40	EIRP	0.219	9M01G7D				
	10	16QAM	22.50	EIRP	0.178	8M97D7W				
	15	QPSK	23.32	EIRP	0.215	13M5G7D				
	15	16QAM	22.79	EIRP	0.190	13M5D7W				
	20	QPSK	23.31	EIRP	0.214	17M9G7D				
	20	16QAM	22.48	EIRP	0.177	18M0D7W				
	1.4	1 /	1 4	1 4	QPSK	24.74	ERP	0.298	1M09G7D	
		QLOK	26.89	EIRP	0.489	TIVIO7C7D				
	1.4	1.4	16QAM	24.09	ERP	0.256	1M10D7W			
			26.24 24.86	EIRP ERP	0.420					
	3	QPSK	27.01	EIRP	0.502	2M70G7D				
	_	1/0414	24.05	ERP	0.254	0147007144				
	3	3	16QAM	26.20	EIRP	0.417	2M70D7W			
	5	QPSK	24.82	ERP	0.303	4M50G7D				
26		QIOIC	26.97	EIRP	0.497	111100075				
	5	5	5	5	5	16QAM	24.22 26.37	ERP EIRP	0.264 0.433	4M50D7W
			24.85	ERP	0.433					
	10	QPSK	27.00	EIRP	0.500	9M00G7D				
	10	16QAM	24.22	ERP	0.264	8M97D7W				
	10	TOUAIVI	26.37	EIRP	0.433	OIVI7/U/W				
	15	15 QPSK	24.95	ERP	0.313	13M5G7D				
			27.10	EIRP	0.513					
	15	16QAM	24.20 26.35	ERP EIRP	0.263 0.431	13M5D7W				
	13	10		26.35	EIRP	0.431				

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LTE Band	BW (MHz)	Modulation	ERP /	EIRP (dBm)	(W)	Type of Emission
	1.4	QPSK	24.75	ERP	0.299	1M10G7D
	1.4	16QAM	24.12	ERP	0.258	1M10D7W
	3	QPSK	24.77	ERP	0.300	2M70G7D
26	3	16QAM	24.15	ERP	0.260	2M71D7W
Part90	5	QPSK	24.80	ERP	0.302	4M51G7D
	5	16QAM	24.01	ERP	0.252	4M51D7W
	10	QPSK	24.81	ERP	0.303	8M99G7D
	10	16QAM	23.97	ERP	0.249	8M94D7W
	5	QPSK	23.99	EIRP	0.251	4M50G7D
30	5	16QAM	23.89	EIRP	0.245	4M50D7W
	10	QPSK	23.96	EIRP	0.249	9M01G7D
	10	16QAM	23.84	EIRP	0.242	8M96D7W

LTE Band	BW (MHz)	Modulation	ERP /	EIRP (dBm)	(W)	Type of Emission
	5	QPSK	27.96	EIRP	0.625	4M51G7D
	5	16QAM	27.16	EIRP	0.520	4M51D7W
	10	QPSK	27.95	EIRP	0.624	8M98G7D
38	10	16QAM	27.21	EIRP	0.526	8M96D7W
30	15	QPSK	28.11	EIRP	0.647	13M5G7D
	15	16QAM	27.31	EIRP	0.538	13M5D7W
	20	QPSK	28.11	EIRP	0.647	17M9G7D
	20	16QAM	27.28	EIRP	0.535	17M9D7W

LTE Band	BW (MHz)	Modulation	ERP / EIRP (dBm)		(W)	Type of Emission
	5	QPSK	28.05	EIRP	0.638	4M50G7D
	5	16QAM	27.26	EIRP	0.532	4M50D7W
	10	QPSK	28.04	EIRP	0.637	8M98G7D
41	10	16QAM	27.26	EIRP	0.532	8M97D7W
41	15	QPSK	28.11	EIRP	0.647	13M5G7D
	15	16QAM	27.27	EIRP	0.533	13M5D7W
	20	QPSK	28.16	EIRP	0.655	17M9G7D
	20	16QAM	27.29	EIRP	0.536	17M9D7W

LTE Band	BW (MHz)	Modulation	ERP / EIRP (dBm)		(W)	Type of Emission
	1.4	QPSK	26.02	EIRP	0.400	1M10G7D
	1.4	16QAM	25.41	EIRP	0.348	1M10D7W
	3	QPSK	26.09	EIRP	0.397	2M70G7D
	3	16QAM	25.21	EIRP	0.332	2M71D7W
	5	QPSK	26.08	EIRP	0.406	4M51G7D
66	5	16QAM	25.36	EIRP	0.344	4M51D7W
00	10	QPSK	26.18	EIRP	0.415	9M02G7D
	10	16QAM	25.28	EIRP	0.337	8M97D7W
	15	QPSK	26.26	EIRP	0.423	13M5G7D
	15	16QAM	25.36	EIRP	0.344	13M5D7W
	20	QPSK	26.30	EIRP	0.427	18M0G7D
	20	16QAM	25.40	EIRP	0.347	18M0D7W

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# 1.4. Test Methodology of Applied Standards

CC 47 CFR Part 2, 22, 24, 27, Part 90S.

ANSI C63.26-2015

KDB971168 D01 Power Meas license Digital System v03

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

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

RSS Gen Issue 5 Apr. 2018

RSS-130-issue 1 Oct. 2013, RSS-132 Issue 3 Jan. 2013,

RSS-133 Issue 6 Jan. 2013, RSS-139 Issue 3 Jul. 2015,

RSS-195 Issue 2 Apr. 2014. RSS-199 Issue 3 Dec. 2016

Note: All test items have been performed and record as per the above standards.

# 1.5. Test Facility

SGS Taiwan Ltd. Electronics & Communication Laboratory No.2, Keji 1st Rd., Guishan District, Taoyuan City, Taiwan 333 (TAF code 0513)

FCC Registration Numbers are: 735305 / TW0002

Canada Registration Number: 4620A-5

# 1.6. Special Accessories

AC Adapter is used while the test is conducted and there is no other accessory attached. This is the worst case condition.

### 1.7. Equipment Modifications

There were no modifications incorporated into the EUT.

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### 2. SYSTEM TEST CONFIGURATION

# 2.1. EUT Configuration

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

#### 2.2. EUT Exercise

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

### 2.3. Test Procedure

#### 2.3.1 Conducted Measurement at Antenna Port

According to measurement procured ANSI C63.26-2015, the EUT is placed on a turn table which is 0.8m 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

According to measurement procured ANSI C63.26-2015, The EUT is a placed on as 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 according to the requirements in Section 8 and 13.

# 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.

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#### 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)	0.4	10	10.4
High Band (Above 1 GHz)	0.8	10	10.8

# 2.5. Final Amplifier Voltage and Current Information:

Test Mode	DC voltage (V)	DC current (mA)
WCDMA B2		0.728
WCDMA B5		0.692
LTE Band 2		0.670
LTE Band 4		0.771
LTE Band 5		0.715
LTE Band 7		0.679
LTE Band 12		0.697
LTE Band 13	7.66	0.728
LTE Band 25		0.708
LTE Band 26		0.710
LTE Band 26 (Part 90S)		0.701
LTE Band 30		0.950
LTE Band 38		0.709
LTE Band 41		0.699
LTE Band 66		0.766

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# 2.6. Configuration of Tested System

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

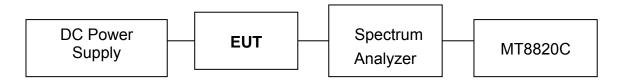


Fig. 2-2 Configuration of Tested System (Fixed Channel-Radiated)

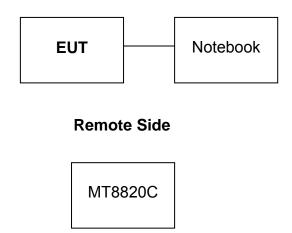


Table 2-1 Equipment Used in

Item	Equipment	Mfr/Brand	Model/ Type No.	Series No.	Data Cable	Power Cord
1.	Universal Radio Communication Tester	Anritsu	MT8820C	6200307563	shielded	Un-shielded
2.	Notebook	Lenovo	L420	S0011721	shielded	Un-shielded

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# 3. SUMMARY OF TEST RESULTS

FCC Rules	IC Rules	Description Of Test	Result
§2.1046(a)	N/A	RF Power Output	Compliant
§2.1046(a) §22.913(a)(5) §24.232(c) §27.50(a)(3) §27.50(c)(10) §27.50(d)(4) §90.635	§6.8 (RSS-Gen Issue 5) §4.4 (RSS-130) §5.4 (RSS-132) §6.4 (RSS-133) §6.5 (RSS-139) §5.5 (RSS-195) §4.4 (RSS-199)	ERP/ EIRP measure- ment	Compliant
§2.1049(h)	§6.7 (RSS-Gen Issue 5) §4.6 (RSS-130) §2.3 (RSS-133)	99% & 26dB Occuupied Bandwidth	Compliant
§2.1051 §22.917(a) §24.238(a) §27.53(g) §27.50(c)(5) §27.53(h) §27.53(m)(4)(6) §90.691	§6.13 (RSS-Gen Issue 5) §4.6 (RSS-130) §5.5 (RSS-132) §6.5 (RSS-133) §6.6 (RSS-139) §5.6.2 (RSS-195) §4.5 (RSS-199)	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)(2),(4) §27.50(c)(5) §27.53(f) §27.53(g) §27.53(h) §27.53(m)(4) §90.691(a)(1)(2)	§6.12 (RSS-Gen Issue 5) §4.6 (RSS-130) §5.5 (RSS-132) §6.5 (RSS-133) §6.6 (RSS-139) §5.6.2 (RSS-195) §4.5 (RSS-199)	Field Strength of Spurious Radiation	Compliant
§27.53(f)	§4.6 (RSS-130)	Spurious emission in 1559 -1610MHz Band	Compliant
§24.232(d) §27.53(d) (5) §27.50(i) (B)	§4.4 (RSS-130) §5.4 (RSS-132) §6.4 (RSS-133) §6.5 (RSS-139) §5.5.1 (RSS-195)	Peak to Average Ratio	Compliant
§2.1055(a)(1) §22.355 §24.235 §27.54 §90.213	§6.11 (RSS-Gen Issue 5) §4.3 (RSS-130) §5.3 (RSS-132) §6.3 (RSS-133) §6.4 (RSS-139) §5.4 (RSS-195) §4.3 (RSS-199)	Frequency Stability	Compliant

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### 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 mode from all possible combinations between available modulations, data rates. EUT set to at the channel with highest output power to investigated spurious emission with stand-up position (H, E1 mode) and lie down position (E2 mode) axis and antenna ports as worst-case scenario. The worst case was found as listed below. Following channel(s) was (were) selected for the final test as listed below:

BAND	RADIATED EMISSION
WCDMA/HSPA Band II	E1 Mode
WCDMA/HSPA Band V	E1 Mode
LTE Band 2	E1 Mode
LTE Band 4	E1 Mode
LTE Band 5	E1 Mode
LTE Band 7	E1 Mode
LTE Band 12	E1 Mode
LTE Band 13	E1 Mode
LTE Band 25	E1 Mode
LTE Band 26	E1 Mode
LTE Band 26 (Part 90S)	E1 Mode
LTE Band 30	E1 Mode
LTE Bnad 38	E1 Mode
LTE Band 41	E1 Mode
LTE Band 66	E1 Mode

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### WCDMA/HSPA MODE

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	MODE
ERP / EIRP	4132 to 4233	4132, 4183, 4233	WCDMA/HSPA Band V
EIRP	9262 to 9538	9262, 9400, 9538	WCDMA/HSPA Band II
FREQUENCY	4132 to 4233	4183	WCDMA Band II
STABILITY	9262 to 9538	9400	WCDMA Band V
OCCUPIED	4132 to 4233	4132, 4183, 4233	WCDMA/HSPA Band II
BANDWIDTH	9262 to 9538	9262, 9400, 9538	WCDMA/HSPA Band V
PEAK TO AVERAGE	4132 to 4233	4132, 4183, 4233	WCDMA/HSPA Band II
RATIO	9262 to 9538	9262, 9400, 9538	WCDMA/HSPA Band V
BAND EDGE	4132 to 4233	4132, 4233	WCDMA Band II
BAND EDGE	9262 to 9538	9262, 9538	WCDMA Band V
CONDUCTED	4132 to 4233	4132, 4183, 4233	WCDMA Band II
EMISSION	9262 to 9538	9262, 9400, 9538	WCDMA Band V
RADIATED EMISSION	4132 to 4233	4132, 4183, 4233	WCDMA Band II
RADIATED EMISSION	9262 to 9538	9262, 9400, 9538	WCDMA Band V

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### LTE Band 2 MODE

	AVAILABLE TECTED QUANNEL								
TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE				
	18607 to 19193	18607, 18900, 19193	1.4MHz	QPSK, 16QAM	1 RB/ 0,5 RB Offest				
	18615 to 19185	18615, 18900, 19185	3MHz	QPSK, 16QAM	1 RB/ 0,14 RB Offest				
LIDD	18625 to 19175	18625, 18900, 19175	5MHz	QPSK, 16QAM	1 RB/ 0,24 RB Offest				
EIRP	18650 to 19150	18650, 18900, 19150	10MHz	QPSK, 16QAM	1 RB/ 0,49 RB Offest				
	18675 to 19125	18675, 18900, 19125	15MHz	QPSK, 16QAM	1 RB/ 0,74 RB Offest				
	18700 to 19100	18700, 18900, 19100	20MHz	QPSK, 16QAM	1 RB/ 0,99 RB Offest				
FREQUENCY STA- BILITY	18650 to 19150	18900	10MHz	QPSK,	Full RB				
	18607 to 19193	18607, 18900, 19193	1.4MHz	QPSK, 16QAM	Full RB				
	18615 to 19185	18615, 18900, 19185	3MHz	QPSK, 16QAM	Full RB				
OCCUPIED BAND-	18625 to 19175	18625, 18900, 19175	5MHz	QPSK, 16QAM	Full RB				
WIDTH	18650 to 19150	18650, 18900, 19150	10MHz	QPSK, 16QAM	Full RB				
	18675 to 19125	18675, 18900, 19125	15MHz	QPSK, 16QAM	Full RB				
	18700 to 19100	18700, 18900, 19100	20MHz	QPSK, 16QAM	Full RB				
	18607 to 19193	18607, 18900, 19193	1.4MHz	16QAM	Full RB				
	18615 to 19185	18615, 18900, 19185	3MHz	16QAM	Full RB				
PEAK TO AVERAGE	18625 to 19175	18625, 18900, 19175	5MHz	16QAM	Full RB				
RATIO	18650 to 19150	18650, 18900, 19150	10MHz	16QAM	Full RB				
	18675 to 19125	18675, 18900, 19125	15MHz	16QAM	Full RB				
	18700 to 19100	18700, 18900, 19100	20MHz	16QAM	Full RB				
	18607 to 19193	18607, 19193	1.4MHz	QPSK,	1 RB/ 0,5 RB Offes Full RB				
	18615 to 19185	18615, 19185	3MHz	QPSK,	1 RB/ 0,14 RB Offest Full RB				
	18625 to 19175	18625, 19175	5MHz	QPSK,	1 RB/ 0,24 RB Offest Full RB				
BAND EDGE	18650 to 19150	18650, 19150	10MHz	QPSK,	1 RB/ 0,49 RB Offest Full RB				
	18675 to 19125	18675, 19125	15MHz	QPSK,	1 RB/ 0,74 RB Offest Full RB				
	18700 to 19100	18700, 19100	20MHz	QPSK,	1 RB/ 0,99 RB Offest Full RB				
	18607 to 19193	18607, 18900, 19193	1.4MHz	QPSK,	1 RB, 0 RB Offest				
OONDUOTED	18615 to 19185	18615, 18900, 19185	3MHz	QPSK,	1 RB, 0 RB Offest				
CONDUCTED	18625 to 19175	18625, 18900, 19175	5MHz	QPSK,	1 RB, 0 RB Offest				
EMISSION	18650 to 19150	18650, 18900, 19150	10MHz	QPSK,	1 RB, 0 RB Offest				
	18675 to 19125	18675, 18900, 19125	15MHz	QPSK,	1 RB, 0 RB Offest				
	18700 to 19100	18700, 18900, 19100	20MHz	QPSK,	1 RB, 0 RB Offest				
RADIATED EMISSION	18700 to 19100	18700, 18900, 19100	20MHz	QPSK	1 RB, 0 RB Offest				

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#### LTE Band 4 MODE

LIE Balla 4 MODE							
TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE		
	19957 to 19393	19957, 20175, 19393	1.4MHz	QPSK, 16QAM	1 RB/ 0,5 RB Offest		
	19965 to 22385	19965, 20175, 22385	3MHz	QPSK, 16QAM	1 RB/ 0,14 RB Offest		
LIDD	19975 to 20375	19975, 20175, 20375	5MHz	QPSK, 16QAM	1 RB/ 0,24 RB Offest		
EIRP	20000 to 20350	20000, 20175, 20350	10MHz	QPSK, 16QAM	1 RB/ 0,49 RB Offest		
	20025 to 20325	20025, 20175, 20325	15MHz	QPSK, 16QAM	1 RB/ 0,74 RB Offest		
	20050 to 20300	20050, 20175, 20300	20MHz	QPSK, 16QAM	1 RB/ 0,99 RB Offest		
FREQUENCY STA- BILITY	20000 to 20350	20175	10MHz	QPSK,	Full RB		
	19957 to 19393	19957, 20175, 19393	1.4MHz	QPSK, 16QAM	Full RB		
	19965 to 22385	19965, 20175, 22385	3MHz	QPSK, 16QAM	Full RB		
OCCUPIED BAND-	19975 to 20375	19975, 20175, 20375	5MHz	QPSK, 16QAM	Full RB		
WIDTH	20000 to 20350	20000, 20175, 20350	10MHz	QPSK, 16QAM	Full RB		
	20025 to 20325	20025, 20175, 20325	15MHz	QPSK, 16QAM	Full RB		
	20050 to 20300	20050, 20175, 20300	20MHz	QPSK, 16QAM	Full RB		
	19957 to 19393	19957, 20175, 19393	1.4MHz	16QAM	Full RB		
	19965 to 22385	19965, 20175, 22385	3MHz	16QAM	Full RB		
PEAK TO AVERAGE	19975 to 20375	19975, 20175, 20375	5MHz	16QAM	Full RB		
BILITY  OCCUPIED BAND- WIDTH	20000 to 20350	20000, 20175, 20350	10MHz	16QAM	Full RB		
	20025 to 20325	20025, 20175, 20325	15MHz	16QAM	Full RB		
	20050 to 20300	20050, 20175, 20300	20MHz	16QAM	Full RB		
	19957 to 19393	19957, 19393	1.4MHz	QPSK,	1 RB/ 0,5 RB Offes Full RB		
	19965 to 22385	19965, 22385	3MHz	QPSK,	1 RB/ 0,14 RB Offest Full RB		
	19975 to 20375	19975, 20375	5MHz	QPSK,	1 RB/ 0,24 RB Offest Full RB		
BAND EDGE	20000 to 20350	20000, 20350	10MHz	QPSK,	1 RB/ 0,49 RB Offest Full RB		
	20025 to 20325	20025, 20325	15MHz	QPSK,	1 RB/ 0,74 RB Offest Full RB		
	20050 to 20300	20050, 20300	20MHz	QPSK,	1 RB/ 0,99 RB Offest Full RB		
	19957 to 19393	19957, 20175, 19393	1.4MHz	QPSK,	1 RB, 0 RB Offest		
	19965 to 22385	19965, 20175, 22385	3MHz	QPSK,	1 RB, 0 RB Offest		
l ·	19975 to 20375	19975, 20175, 20375	5MHz	QPSK,	1 RB, 0 RB Offest		
EMISSION	20000 to 20350	20000, 20175, 20350	10MHz	QPSK,	1 RB, 0 RB Offest		
	20025 to 20325	20025, 20175, 20325	15MHz	QPSK,	1 RB, 0 RB Offest		
	20050 to 20300	20050, 20175, 20300	20MHz	QPSK,	1 RB, 0 RB Offest		
RADIATED EMISSION	20050 to 20300	20050, 20175, 20300	20MHz	QPSK,	1 RB, 0 RB Offest		



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### LTE Band 5 MODE

LIE Ballu 3 WOL		TECTED	CHANNE		
TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
	20470 to 20643	20470, 20525, 20643	1.4MHz	QPSK, 16QAM	1 RB/ 0,5 RB Offest
ERP / EIRP	20415 to 20635	20415, 20525, 20635	3MHz	QPSK, 16QAM	1 RB/ 0,14 RB Offest
ERP / EIRP	20425 to 20625	20425, 20525, 20625	5MHz	QPSK, 16QAM	1 RB/ 0,24 RB Offest
	20450 to 20600	20450, 20525, 20600	10MHz	QPSK, 16QAM	1 RB/ 0,49 RB Offest
FREQUENCY STA- BILITY	20450 to 20600	20525	10MHz	QPSK,	Full RB
	20470 to 20643	20470, 20525, 20643	1.4MHz	QPSK, 16QAM	Full RB
OCCUPIED BAND-	20415 to 20635	20415, 20525, 20635	3MHz	QPSK, 16QAM	Full RB
WIDTH	20425 to 20625	20425, 20525, 20625	5MHz	QPSK, 16QAM	Full RB
	20450 to 20600	20450, 20525, 20600	10MHz	QPSK, 16QAM	Full RB
	20470 to 20643	20470, 20525, 20643	1.4MHz	16QAM	Full RB
PEAK TO AVERAGE	20415 to 20635	20415, 20525, 20635	3MHz	16QAM	Full RB
RATIO	20425 to 20625	20425, 20525, 20625	5MHz	16QAM	Full RB
	20450 to 20600	20450, 20525, 20600	10MHz	16QAM	Full RB
	20470 to 20643	20470, 20643	1.4MHz	QPSK,	1 RB/ 0,5 RB Offes Full RB
DANDEDGE	20415 to 20635	20415, 20635	3MHz	QPSK,	1 RB/ 0,14 RB Offest Full RB
BAND EDGE	20425 to 20625	20425, 20625	5MHz	QPSK,	1 RB/ 0,24 RB Offest Full RB
	20450 to 20600	20450, 20600	10MHz	QPSK, 16QAM 16QAM 16QAM 16QAM 16QAM QPSK, 16QAM	1 RB/ 0,49 RB Offest Full RB
	20470 to 20643	20470, 20525, 20643	1.4MHz	QPSK,	1 RB, 0 RB Offest
CONDUCTED	20415 to 20635	20415, 20525, 20635	3MHz	QPSK,	1 RB, 0 RB Offest
EMISSION	20425 to 20625	20425, 20525, 20625	5MHz	·	1 RB, 0 RB Offest
	20450 to 20600	20450, 20525, 20600	10MHz	QPSK,	1 RB, 0 RB Offest
RADIATED EMISSION	20450 to 20600	20450, 20525, 20600	10MHz	16QAM	1 RB, 0 RB Offest



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#### LTE Band 7 MODE

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
	20775 to 21425	20775, 21100, 21425	5MHz	QPSK, 16QAM	1 RB/ 0,24 RB Offest
LIDD	20800 to 21400	20800, 21100, 21400	10MHz	QPSK, 16QAM	1 RB/ 0,49 RB Offest
EIRP	20850 to 21375	20850, 21100, 21375	15MHz	QPSK, 16QAM	1 RB/ 0,74 RB Offest
	20850 to 21350	20850, 21100, 21350	20MHz	QPSK, 16QAM	1 RB/ 0,99 RB Offest
FREQUENCY STABILITY	20800 to 21400	21100	10MHz	QPSK	Full RB
	20775 to 21425	20775, 21100, 21425	5MHz	QPSK, 16QAM	Full RB
OCCUPIED BAND-	20800 to 21400	20800, 21100, 21400	10MHz	QPSK, 16QAM	Full RB
WIDTH	20850 to 21375	20850, 21100, 21375	15MHz	QPSK, 16QAM	Full RB
	20850 to 21350	20850, 21100, 21350	20MHz	QPSK, 16QAM	Full RB
	20775 to 21425	20775, 21100, 21425	5MHz	16QAM	Full RB
PEAK TO AVERAGE	20800 to 21400	20800, 21100, 21400	10MHz	16QAM	Full RB
RATIO	20850 to 21375	20850, 21100, 21375	15MHz	16QAM	Full RB
	20850 to 21350	20850, 21100, 21350	20MHz	16QAM	Full RB
	20775 to 21425	20775, 21100, 21425	5MHz	QPSK	1 RB/ 0,24 RB Offest Full RB
BAND EDGE	20800 to 21400	20800, 21100, 21400	10MHz	QPSK	1 RB/ 0,49 RB Offest Full RB
BAND EDGE	20850 to 21375	20850, 21100, 21375	15MHz	QPSK	1 RB/ 0,74 RB Offest Full RB
	20850 to 21350	20850, 21100, 21350	20MHz	QPSK	1 RB/ 0,99 RB Offest Full RB
	20775 to 21425	20775, 21100, 21425	5MHz	QPSK	1 RB, 0 RB Offest
CONDUCTED	20800 to 21400	20800, 21100, 21400	10MHz	QPSK	1 RB, 0 RB Offest
EMISSION	20850 to 21375	20850, 21100, 21375	15MHz	QPSK	1 RB, 0 RB Offest
	20850 to 21350	20850, 21100, 21350	20MHz	QPSK	1 RB, 0 RB Offest
RADIATED EMISSION	20850 to 21350	20850, 21100, 21350	20MHz	QPSK	1 RB, 0 RB Offest
	20775 to 21425	20775, 21100, 21425	5MHz	QPSK	1 RB/ 0,24 RB Offest 25 RB/ 0 Offset
EMISSION MASK	20800 to 21400	20800, 21100, 21400	10MHz	QPSK	1 RB/ 0,49 RB Offest 50 RB/ 0 Offset
LIVIIOSION WASK	20850 to 21375	20850, 21100, 21375	15MHz	QPSK	1 RB/ 0,74 RB Offest 75 RB/ 0 Offset
	20850 to 21350	20850, 21100, 21350	20MHz	QPSK	1 RB/ 0,99 RB Offest 100 RB/ 0 Offset

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### LTE Band 12 MODE

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
	23017 to 23173	23017, 23095, 23173	1.4MHz	QPSK, 16QAM	1 RB/ 0,5 RB Offest
EDD / EIDD	23025 to 23165	23025, 23095, 23165	3MHz	QPSK, 16QAM	1 RB/ 0,14 RB Offest
ERP / EIRP	23035 to 23155	23035, 23095, 23155	5MHz	QPSK, 16QAM	1 RB/ 0,24 RB Offest
	23060 to 23130	23060, 23095, 23130	10MHz	QPSK, 16QAM	1 RB/ 0,49 RB Offest
FREQUENCY STABILITY	23060 to 23130	23095	10MHz	QPSK,	Full RB
	23017 to 23173	23017, 23095, 23173	1.4MHz	QPSK, 16QAM	Full RB
OCCUPIED	23025 to 23165	23025, 23095, 23165	3MHz	QPSK, 16QAM	Full RB
BANDWIDTH	23035 to 23155	23035, 23095, 23155	5MHz	QPSK, 16QAM	Full RB
	23060 to 23130	23060, 23095, 23130	10MHz	QPSK, 16QAM	Full RB
	23017 to 23173	23017, 23095, 23173	1.4MHz	16QAM	Full RB
PEAK TO AV-	23025 to 23165	23025, 23095, 23165	3MHz	16QAM	Full RB
ERAGE RATIO	23035 to 23155	23035, 23095, 23155	5MHz	16QAM	Full RB
	23060 to 23130	23060, 23095, 23130	10MHz	16QAM	Full RB
	23017 to 23173	23017, 23095, 23173	1.4MHz	QPSK,	1 RB/ 0,5 RB Offes Full RB
	23025 to 23165	23025, 23095, 23165	3MHz	QPSK,	1 RB/ 0,14 RB Offest Full RB
BAND EDGE	23035 to 23155	23035, 23095, 23155	5MHz	QPSK,	1 RB/ 0,24 RB Offest Full RB
	23060 to 23130	23060, 23095, 23130	10MHz	QPSK,	1 RB/ 0,49 RB Offest Full RB
	23017 to 23173	23017, 23095, 23173	1.4MHz	QPSK,	1 RB, 0 RB Offest
CONDUCTED	23025 to 23165	23025, 23095, 23165	3MHz	QPSK,	1 RB, 0 RB Offest
EMISSION	23035 to 23155	23035, 23095, 23155	5MHz	QPSK,	1 RB, 0 RB Offest
	23060 to 23130	23060, 23095, 23130	10MHz	QPSK,	1 RB, 0 RB Offest
RADIATED EMISSION	23035 to 23155	23035, 23095, 23155	5MHz	QPSK	1 RB, 0 RB Offest

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#### LTE Band 13 MODE

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
ERP / EIRP	23205 to 23255	23205, 23230, 23255	5MHz	QPSK, 16QAM	1 RB/ 0,24 RB Offest
ERF / EIRF	23230	23230	10MHz	QPSK, 16QAM	1 RB/ 0,49 RB Offest
FREQUENCY STABILITY	23230	23230	10MHz	QPSK,	Full RB
OCCUPIED	23205 to 23255	23205, 23230, 23255	5MHz	QPSK, 16QAM	Full RB
BANDWIDTH	23230	23230	10MHz	QPSK, 16QAM	Full RB
PEAK TO AVER-	23205 to 23255	23205, 23230, 23255	5MHz	16QAM	Full RB
AGE RATIO	23230	23230	10MHz	16QAM	Full RB
BAND EDGE	23205 to 23255	23205, 23255	5MHz	QPSK,	1 RB/ 0,24 RB Offest Full RB
BAIND EDGE	23230	23230	10MHz	QPSK,	1 RB/ 0,49 RB Offest Full RB
CONDUCTED	23205 to 23255	23205, 23230, 23255	5MHz	QPSK,	1 RB, 0 RB Offest
EMISSION	23230	23230	10MHz	QPSK,	1 RB, 0 RB Offest
RADIATED EMISSION	23205 to 23255	23205, 23230, 23255	5MHz	QPSK	1 RB/ 0 RB Offest



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### LTE Band 25 MODE

	AVAILABLE	TESTED	CHANNEL		
TEST ITEM	CHANNEL	CHANNEL	BANDWIDTH	MODULATION	MODE
	26047 to 26683	26047, 26365, 26683	1.4MHz	QPSK, 16QAM	1 RB/ 0,5 RB Offest
	26055 to 26675	26055, 26365, 26675	3MHz	QPSK, 16QAM	1 RB/ 0,14 RB Offest
LIDD	26065 to 26665	26065, 26365, 26665	5MHz	QPSK, 16QAM	1 RB/ 0,24 RB Offest
EIRP	26090 to 26640	26090, 26365, 26640	10MHz	QPSK, 16QAM	1 RB/ 0,49 RB Offest
	26115 to 26615	26115, 26365, 26615	15MHz	QPSK, 16QAM	1 RB/ 0,74 RB Offest
	26140 to 26590	26140, 26365, 26590	20MHz	QPSK, 16QAM	1 RB/ 0,99 RB Offest
FREQUENCY STA- BILITY	18650 to 19150	18900	10MHz	QPSK,	Full RB
	26047 to 26683	26047, 26365, 26683	1.4MHz	QPSK, 16QAM	Full RB
	26055 to 26675	26055, 26365, 26675	3MHz	QPSK, 16QAM	Full RB
OCCUPIED BAND-	26065 to 26665	26065, 26365, 26665	5MHz	QPSK, 16QAM	Full RB
WIDTH	26090 to 26640	26090, 26365, 26640	10MHz	QPSK, 16QAM	Full RB
	26115 to 26615	26115, 26365, 26615	15MHz	QPSK, 16QAM	Full RB
	26140 to 26590	26140, 26365, 26590	20MHz	QPSK, 16QAM	Full RB
	26047 to 26683	26047, 26365, 26683	1.4MHz	16QAM	Full RB
	26055 to 26675	26055, 26365, 26675	3MHz	16QAM	Full RB
PEAK TO AVERAGE	26065 to 26665	26065, 26365, 26665	5MHz	16QAM	Full RB
RATIO	26090 to 26640	26090, 26365, 26640	10MHz	16QAM	Full RB
	26115 to 26615	26115, 26365, 26615	15MHz	16QAM	Full RB
	26140 to 26590	26140, 26365, 26590	20MHz	16QAM	Full RB
	26047 to 26683	26047, 26683	1.4MHz	QPSK,	1 RB/ 0,5 RB Offes Full RB
	26055 to 26675	26055, 26675	3MHz	QPSK,	1 RB/ 0,14 RB Offest Full RB
BAND EDGE	26065 to 26665	26065, 26665	5MHz	QPSK,	1 RB/ 0,24 RB Offest Full RB
DAND EDGE	26090 to 26640	26090, 26640	10MHz	QPSK,	1 RB/ 0,49 RB Offest Full RB
	26115 to 26615	26115, 26615	15MHz	QPSK,	1 RB/ 0,74 RB Offest Full RB
	26140 to 26590	26140, 26590	20MHz	QPSK,	1 RB/ 0,99 RB Offest Full RB
	26047 to 26683	26047, 26365, 26683	1.4MHz	QPSK,	1 RB, 0 RB Offest
	26055 to 26675	26055, 26365, 26675	3MHz	QPSK,	1 RB, 0 RB Offest
CONDUCTED	26065 to 26665	26065, 26365, 26665	5MHz	QPSK,	1 RB, 0 RB Offest
EMISSION	26090 to 26640	26090, 26365, 26640	10MHz	QPSK,	1 RB, 0 RB Offest
	26115 to 26615	26115, 26365, 26615	15MHz	QPSK,	1 RB, 0 RB Offest
	26140 to 26590	26140, 26365, 26590	20MHz	QPSK,	1 RB, 0 RB Offest
RADIATED EMISSION	26090 to 26640	26090, 26365, 26640	10MHz	QPSK,	1 RB, 0 RB Offest



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#### LTE Band 26 MODE

TEST ITEM	AVAILABLE	TESTED	CHANNEL	MODULATION	MODE
IESTITEW	CHANNEL	CHANNEL	BANDWIDTH	WIODULATION	INIODE
	26797 to 27033	26797, 26915, 27033	1.4MHz	QPSK, 16QAM	1 RB/ 0,5 RB Offest
	26805 to 27025	26805, 26915, 27025	3MHz	QPSK, 16QAM	1 RB/ 0,14 RB Offest
ERP / EIRP	26815 to 27015	26815, 26915, 27015	5MHz	QPSK, 16QAM	1 RB/ 0,24 RB Offest
	26840 to 26990	26840, 26915, 26990	10MHz	QPSK, 16QAM	1 RB/ 0,49 RB Offest
	26865 to 26965	26865, 26915, 26965	15MHz	QPSK, 16QAM	1 RB/ 0,74 RB Offest
FREQUENCY STA- BILITY	26865 to 26965	26915	15MHz	QPSK,	Full RB
	26797 to 27033	26797, 26915, 27033	1.4MHz	QPSK, 16QAM	Full RB
OCCUPIED BAND-	26805 to 27025	26805, 26915, 27025	3MHz	QPSK, 16QAM	Full RB
WIDTH	26815 to 27015	26815, 26915, 27015	5MHz	QPSK, 16QAM	Full RB
WIDIU	26840 to 26990	26840, 26915, 26990	10MHz	QPSK, 16QAM	Full RB
	26865 to 26965	26865, 26915, 26965	15MHz	QPSK, 16QAM	Full RB
	26797 to 27033	26797, 26915, 27033	1.4MHz	16QAM	Full RB
PEAK TO AVERAGE	26805 to 27025	26805, 26915, 27025	3MHz	16QAM	Full RB
RATIO	26815 to 27015	26815, 26915, 27015	5MHz	16QAM	Full RB
KATIO	26840 to 26990	26840, 26915, 26990	10MHz	16QAM	Full RB
	26865 to 26965	26865, 26915, 26965	15MHz	16QAM	Full RB
	26797 to 27033	26797, 26915, 27033	1.4MHz	QPSK,	1 RB/ 0,5 RB Offes Full RB
	26805 to 27025	26805, 26915, 27025	3MHz	QPSK,	1 RB/ 0,14 RB Offest Full RB
BAND EDGE	26815 to 27015	26815, 26915, 27015	5MHz	QPSK,	1 RB/ 0,24 RB Offest Full RB
	26840 to 26990	26840, 26915, 26990	10MHz	QPSK,	1 RB/ 0,49 RB Offest Full RB
	26865 to 26965	26865, 26915, 26965	15MHz	QPSK	1 RB/ 0,74 RB Offest
	26797 to 27033	26797, 26915, 27033	1.4MHz	QPSK,	1 RB, 0 RB Offest
CONDUCTED	26805 to 27025	26805, 26915, 27025	3MHz	QPSK,	1 RB, 0 RB Offest
	26815 to 27015	26815, 26915, 27015	5MHz	QPSK,	1 RB, 0 RB Offest
EMISSION	26840 to 26990	26840, 26915, 26990	10MHz	QPSK,	1 RB, 0 RB Offest
	26865 to 26965	26865, 26915, 26965	15MHz	QPSK	1 RB, 0 RB Offest
RADIATED EMISSION	26865 to 26965	26865, 26915, 26965	15MHz	QPSK,	1 RB, 0 RB Offest

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### LTE Band 26 for 90S MODE

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
	26697 to 26783	26697, 26740, 26783	1.4MHz	QPSK, 16QAM	1 RB/ 0,5 RB Offest
EDD / EIDD	26705 to 26775	26705, 26740, 26775	3MHz	QPSK, 16QAM	1 RB/ 0,14 RB Offest
ERP / EIRP	26715 to 26765	26715, 26740, 26765	5MHz	QPSK, 16QAM	1 RB/ 0,24 RB Offest
	26740	26740	10MHz	QPSK, 16QAM	1 RB/ 0,49 RB Offest
FREQUENCY STA- BILITY	26697 to 26783	26740	1.4MHz	QPSK,	Full RB
	26697 to 26783	26697, 26740, 26783	1.4MHz	QPSK, 16QAM	Full RB
OCCUPIED BAND-	26705 to 26775	26705, 26740, 26775	3MHz	QPSK, 16QAM	Full RB
WIDTH	26715 to 26765	26715, 26740, 26765	5MHz	QPSK, 16QAM	Full RB
	26740	26740	10MHz	QPSK, 16QAM	Full RB
	26697 to 26783	26697, 26740, 26783	1.4MHz	16QAM	Full RB
PEAK TO AVERAGE	26705 to 26775	26705, 26740, 26775	3MHz	16QAM	Full RB
RATIO	26715 to 26765	26715, 26740, 26765	5MHz	16QAM	Full RB
	26740	26740	10MHz	16QAM	Full RB
	26697 to 26783	26697, 26740, 26783	1.4MHz	QPSK,	1 RB/ 0,5 RB Offes Full RB
	26705 to 26775	26705, 26740, 26775	3MHz	QPSK,	1 RB/ 0,14 RB Offest Full RB
	QPSK,	1 RB/ 0,24 RB Offest Full RB			
	26740	26740	10MHz	QPSK,	1 RB/ 0,49 RB Offest Full RB
	26697 to 26783	26697, 26740, 26783	1.4MHz	QPSK,	1 RB, 0 RB Offest
CONDUCTED	26705 to 26775	26705, 26740, 26775	3MHz	QPSK,	1 RB, 0 RB Offest
EMISSION	26715 to 26765	26715, 26740, 26765	5MHz	QPSK,	1 RB, 0 RB Offest
	26740	26740	10MHz	QPSK,	1 RB, 0 RB Offest
RADIATED EMISSION	26740	26740	10MHz	QPSK,	1 RB, 0 RB Offest
	26697 to 26783	26697, 26740, 26783	1.4MHz	QPSK,	1 RB/ 0,5 RB Offest 6 RB/ 0 Offset
EMISSION	26705 to 26775	26705, 26740, 26775	3MHz	QPSK,	1 RB/ 0,14 RB Offest 15 RB/ 0 Offset
MASK	26715 to 26765	26715, 26740, 26765	5MHz	QPSK,	1 RB/ 0,24 RB Offest 25 RB/ 0 Offset
	26740	26740	10MHz	QPSK,	1 RB/ 0,49 RB Offest 50 RB/ 0 Offset

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### LTE Band 30 MODE

LIL Balla 30 W	<u> </u>				
TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
ERP	27685 to 27735	27685, 27710, 27735	5MHz	QPSK, 16QAM	1 RB/ 0,24 RB Offest
LIXI	27710	27710	10MHz	QPSK, 16QAM	1 RB/ 0,49 RB Offest
EIRP Power	27685 to 27735	27685, 27710, 27735	5MHz	QPSK, 16QAM	1 RB/ 0 RB Offest
Density	27710	27710	10MHz	QPSK, 16QAM	1 RB/ 0 RB Offest
FREQUENCY STABILITY	27710	27710	10MHz	QPSK,	Full RB
OCCUPIED	27685 to 27735	27685, 27710, 27735	5MHz	QPSK, 16QAM	Full RB
BANDWIDTH	27710	27710	10MHz	QPSK, 16QAM	Full RB
PEAK TO AVER-	27685 to 27735	27685, 27710, 27735	5MHz	16QAM	Full RB
AGE RATIO	27710	27710	10MHz	16QAM	Full RB
BAND EDGE	27685 to 27735	27685, 27710, 27735	5MHz	QPSK,	1 RB/ 0,24 RB Offest Full RB
DAIND EDGE	27710	27710	10MHz	QPSK,	1 RB/ 0,49 RB Offest Full RB
CONDUCTED	27685 to 27735	27685, 27710, 27735	5MHz	QPSK,	1 RB, 0 RB Offest
EMISSION	27710	27710	10MHz	QPSK,	1 RB, 0 RB Offest
RADIATED EMISSION	27685 to 27735	27685, 27710, 27735	10MHz	QPSK	1 RB/ 0 RB Offest
EMISSION	27685 to 27735	27685, 27710, 27735	5MHz	QPSK,	1 RB/ 0,24 RB Offest 25 RB/ 0 Offset
MASK	27710	27710	10MHz	QPSK,	1 RB/ 0,49 RB Offest 50 RB/ 0 Offset



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#### LTE Band 38 MODE

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
	37775 to 38225	37775, 38000, 38225	5MHz	QPSK, 16QAM	1 RB/ 0,24 RB Offest
	37800 to 38200	37800 , 38000, 38200	10MHz	QPSK, 16QAM	1 RB/ 0,49 RB Offest
EIRP	37825 to 38175	37825 , 38000, 38175	15MHz	QPSK, 16QAM	1 RB/ 0,74 RB Offest
	37850 to 38150	37850 , 38000, 38150	20MHz	QPSK, 16QAM	1 RB/ 0,99 RB Offest
FREQUENCY STABILITY	37800 to 38200	37800 , 38000, 38200	10MHz	QPSK	Full RB
	37775 to 38225	37775, 38000, 38225	5MHz	QPSK, 16QAM	Full RB
OCCUPIED BAND-	37800 to 38200	37800 , 38000, 38200	10MHz	QPSK, 16QAM	Full RB
WIDTH	37825 to 38175	37825 , 38000, 38175	15MHz	QPSK, 16QAM	Full RB
	37850 to 38150	37850 , 38000, 38150	20MHz	QPSK, 16QAM	Full RB
	37775 to 38225	37775, 38000, 38225	5MHz	16QAM	Full RB
PEAK TO AVERAGE	37800 to 38200	37800 , 38000, 38200	10MHz	16QAM	Full RB
RATIO	37825 to 38175	37825 , 38000, 38175	15MHz	16QAM	Full RB
	37850 to 38150	37850 , 38000, 38150	20MHz	16QAM	Full RB
	37775 to 38225	37775, 38000, 38225	5MHz	QPSK	1 RB/ 0,24 RB Offest Full RB
BAND EDGE	37800 to 38200	37800 , 38000, 38200	10MHz	QPSK	1 RB/ 0,49 RB Offest Full RB
DAND EDGE	37825 to 38175	37825 , 38000, 38175	15MHz	QPSK	1 RB/ 0,74 RB Offest Full RB
	37850 to 38150	37850 , 38000, 38150	20MHz	QPSK	1 RB/ 0,99 RB Offest Full RB
	37775 to 38225	37775, 38000, 38225	5MHz	QPSK	1 RB, 0 RB Offest
CONDUCTED	37800 to 38200	37800 , 38000, 38200	10MHz	QPSK	1 RB, 0 RB Offest
EMISSION	37825 to 38175	37825 , 38000, 38175	15MHz	QPSK	1 RB, 0 RB Offest
	37850 to 38150	37850 , 38000, 38150	20MHz	QPSK	1 RB, 0 RB Offest
RADIATED EMISSION	37825 to 38175	37825 , 38000, 38175	15MHz	QPSK	1 RB, 0 RB Offest
	37775 to 38225	37775, 38000, 38225	5MHz	QPSK	1 RB/ 0,24 RB Offest 25 RB/ 0 Offset
EMISSION MASK	37800 to 38200	37800 , 38000, 38200	10MHz	QPSK	1 RB/ 0,49 RB Offest 50 RB/ 0 Offset
LIVIISSION WASK	37825 to 38175	37825 , 38000, 38175	15MHz	QPSK	1 RB/ 0,74 RB Offest 75 RB/ 0 Offset
	37850 to 38150	37850 , 38000, 38150	20MHz	QPSK	1 RB/ 0,99 RB Offest 100 RB/ 0 Offset



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#### LTE Band 41 MODE

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
	39675 to 41565	39675, 40620, 41565	5MHz	QPSK, 16QAM	1 RB/ 0,24 RB Offest
FIDD	39700 to 41540	39700, 40620, 41540	10MHz	QPSK, 16QAM	1 RB/ 0,49 RB Offest
EIRP	39725 to 41515	39725, 40620, 41515	15MHz	QPSK, 16QAM	1 RB/ 0,74 RB Offest
	39750 to 41490	39750, 40620, 41490	20MHz	QPSK, 16QAM	1 RB/ 0,99 RB Offest
FREQUENCY STABILITY	39700 to 41540	39700, 40620, 41540	10MHz	QPSK,	Full RB
	39675 to 41565	39675, 40620, 41565	5MHz	QPSK, 16QAM	Full RB
OCCUPIED BAND-	39700 to 41540	39700, 40620, 41540	10MHz	QPSK, 16QAM	Full RB
WIDTH	39725 to 41515	39725, 40620, 41515	15MHz	QPSK, 16QAM	Full RB
	39750 to 41490	39750, 40620, 41490	20MHz	QPSK, 16QAM	Full RB
	39675 to 41565	39675, 40620, 41565	5MHz	16QAM	Full RB
PEAK TO AVERAGE	39700 to 41540	39700, 40620, 41540	10MHz	16QAM	Full RB
RATIO	39725 to 41515	39725, 40620, 41515	15MHz	16QAM	Full RB
	39750 to 41490	39750, 40620, 41490	20MHz	16QAM	Full RB
	39675 to 41565	39675, 41565	5MHz	QPSK,	1 RB/ 0,24 RB Offest Full RB
BAND EDGE	39700 to 41540	39700, 41540	10MHz	QPSK,	1 RB/ 0,49 RB Offest Full RB
DAND EDGE	39725 to 41515	39725, 41515	15MHz	QPSK,	1 RB/ 0,74 RB Offest Full RB
	39750 to 41490	39750, 41490	20MHz	QPSK,	1 RB/ 0,99 RB Offest Full RB
	39675 to 41565	39675, 40620, 41565	5MHz	QPSK,	1 RB, 0 RB Offest
CONDUCTED	39700 to 41540	39700, 40620, 41540	10MHz	QPSK,	1 RB, 0 RB Offest
EMISSION	39725 to 41515	39725, 40620, 41515	15MHz	QPSK,	1 RB, 0 RB Offest
	39750 to 41490	39750, 40620, 41490	20MHz	QPSK,	1 RB, 0 RB Offest
	39675 to 41565	39675, 40620, 41565	5MHz	QPSK,	1 RB/ 0,24 RB Offest 25 RB/ 0 Offset
EMISSION MASK	39700 to 41540	39700, 40620, 41540	10MHz	QPSK,	1 RB/ 0,49 RB Offest 50 RB/ 0 Offset
EMISSION MASK	39725 to 41515	39725, 40620, 41515	15MHz	QPSK,	1 RB/ 0,74 RB Offest 75 RB/ 0 Offset
	39750 to 41490	39750, 40620, 41490	20MHz	QPSK,	1 RB/ 0,99 RB Offest 100 RB/ 0 Offset
RADIATED EMISSION	39750 to 41490	39750, 40620, 41490	20MHz	QPSK	1 RB, 0 RB Offest



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### LTE Band 66 MODE

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
	131979 to 132665	131979, 132322, 132665	1.4MHz	QPSK, 16QAM	1 RB/ 0,5 RB Offest
	131987 to 132657	131987, 132322, 132657	3MHz	QPSK, 16QAM	1 RB/ 0,14 RB Offest
LIDD	131997 to 132647	131997, 132322, 132647	5MHz	QPSK, 16QAM	1 RB/ 0,24 RB Offest
EIRP	132022 to 132622	132022, 132322, 132622	10MHz	QPSK, 16QAM	1 RB/ 0,49 RB Offest
	132047 to 132597	132047, 132322, 132597	15MHz	QPSK, 16QAM	1 RB/ 0,74 RB Offest
	132072 to 132572	132072, 132322, 132572	20MHz	QPSK, 16QAM	1 RB/ 0,99 RB Offest
FREQUENCY STA- BILITY	18650 to 19150	18900	10MHz	QPSK,	Full RB
	131979 to 132665	131979, 132322, 132665	1.4MHz	QPSK, 16QAM	Full RB
	131987 to 132657	131987, 132322, 132657	3MHz	QPSK, 16QAM	Full RB
OCCUPIED BAND-	131997 to 132647	131997, 132322, 132647	5MHz	QPSK, 16QAM	Full RB
WIDTH	132022 to 132622	132022, 132322, 132622	10MHz	QPSK, 16QAM	Full RB
	132047 to 132597	132047, 132322, 132597	15MHz	QPSK, 16QAM	Full RB
	132072 to 132572	132072, 132322, 132572	20MHz	QPSK, 16QAM	Full RB
	131979 to 132665	131979, 132322, 132665	1.4MHz	16QAM	Full RB
	131987 to 132657	131987, 132322, 132657	3MHz	16QAM	Full RB
PEAK TO AVERAGE	131997 to 132647	131997, 132322, 132647	5MHz	16QAM	Full RB
RATIO	132022 to 132622	132022, 132322, 132622	10MHz	16QAM	Full RB
	132047 to 132597	132047, 132322, 132597	15MHz	16QAM	Full RB
	132072 to 132572	132072, 132322, 132572	20MHz	16QAM	Full RB
	18607 to 19193	18607, 19193	1.4MHz	QPSK,	1 RB/ 0,5 RB Offes Full RB
	18615 to 19185	18615, 19185	3MHz	QPSK,	1 RB/ 0,14 RB Offest Full RB
BAND EDGE	18625 to 19175	18625, 19175	5MHz	QPSK,	1 RB/ 0,24 RB Offest Full RB
DAND LDGL	18650 to 19150	18650, 19150	10MHz	QPSK,	1 RB/ 0,49 RB Offest Full RB
	18675 to 19125	18675, 19125	15MHz	QPSK,	1 RB/ 0,74 RB Offest Full RB
	18700 to 19100	18700, 19100	20MHz	QPSK,	1 RB/ 0,99 RB Offest Full RB
	18607 to 19193	18607, 18900, 19193	1.4MHz	QPSK,	1 RB, 0 RB Offest
0.0110110755	18615 to 19185	18615, 18900, 19185	3MHz	QPSK,	1 RB, 0 RB Offest
CONDUCTED	18625 to 19175	18625, 18900, 19175	5MHz	QPSK,	1 RB, 0 RB Offest
EMISSION	18650 to 19150	18650, 18900, 19150	10MHz	QPSK,	1 RB, 0 RB Offest
	18675 to 19125	18675, 18900, 19125	15MHz	QPSK,	1 RB, 0 RB Offest
	18700 to 19100	18700, 18900, 19100	20MHz	QPSK,	1 RB, 0 RB Offest
RADIATED EMISSION	18700 to 19100	18700, 18900, 19100	20MHz	QPSK	1 RB, 0 RB Offest

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### 5. MEASUREMENT UNCERTAINTY

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

## Radiated Spurious Emission:

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

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

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

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### 6. DUTY CYCLE OF TEST SIGNAL

Pre-analysis Check: While conducting average power measurement, duty cycle of each mode shall be checked to ensure its duty cycle in order to compensate for the loss due to insufficient ratio of duty cycle.

All duty cycle is pre-scanned, and result as obtained below shows only the most representative ones where duty cycle is conducted as the given transmission with given virtual operation that expresses the percentage.

### Formula:

Duty Cycle = Ton / (Ton+Toff)

#### **Measurement Procedure:**

- 1. Set span = Zero
- 2. RBW = 8MHz
- VBW = 8MHz,
- 4. Detector = Peak

### **Duty Cycle:**

	Δ1	Δ2	Duty Cycle	Duty Cycle (%)	Duty Factor
Band38 10M Mid Channel	3.0000 ms	5.0000 ms	0.600	60.0 %	2.22
Band41 10M Mid Channel	2.9900 ms	5.0300 ms	0.594	59.4 %	2.26

Duty Cycle Factor:  $10* \log (1/0.600) = 2.22$ Duty Cycle Factor:  $10^* \log (1/0.594) = 2.26$ 

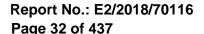
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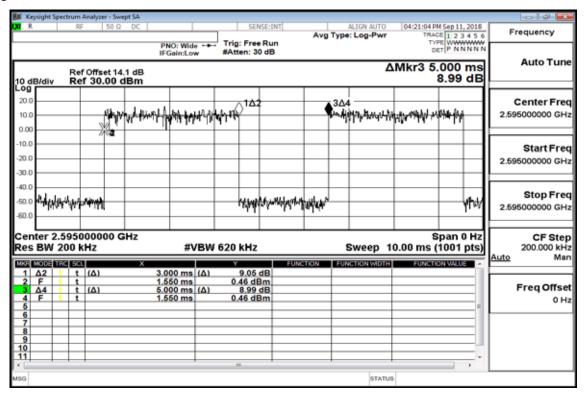
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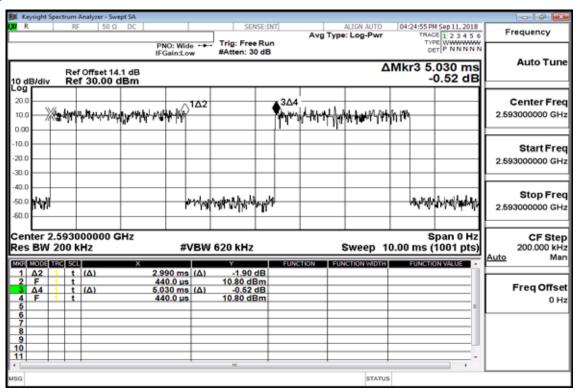


# 6.1. DUTY CYCLE TEST SIGNAL Measurement Result

#### **LTE B38**



#### **LTE B41**



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### 7. 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.

#### **ERP/EIRP LIMIT**

According to FCC §2.1046

FCC 22.913(a) Mobile station is limited to 7W ERP.

FCC 24.232(b) Mobile and portable stations are limited to 2 W EIRP.

FCC 27.50(a)(3) Mobile and portable stations (hand-held devices) are limited to 250 mW/ 5MHz EIRP.

FCC 27.50(c)(10) Portable stations (hand-held devices) are limited to 3 watts ERP.

FCC 27.50(d)(4) Fixed, mobile, and portable (hand-held) stations are limited to 1W EIRP.

FCC 27, 50(h)(2) Mobile and other user stations. Mobile stations are limited to 2 W EIRP

FCC 90.635(b) Mobile station is limited to 100W ERP

According to RSS-130 §4.4

It shall not exceed 5 W for portable equipment or for indoor fixed subscriber equipment.

According to RSS-132, section 5.4.

The equivalent isotropically radiated power (e.i.r.p.) for mobile equipment shall not exceed 11.5 watts.

According to RSS-133 §6.4

The peak e.i.r.p. for transmitters operating in the band 1850-1910 MHz shall not exceed the limits 2W given in SRSP-510.

According to RSS 139 §6.4

The average equivalent isotropically radiated power (e.i.r.p.) for fixed, mobile and portable transmitters in the 1710-1755 MHz shall not exceed 1 watt.

According to RSS-199 §4.4

For mobile subscriber equipment, the e.i.r.p. shall not exceed 2 watts.

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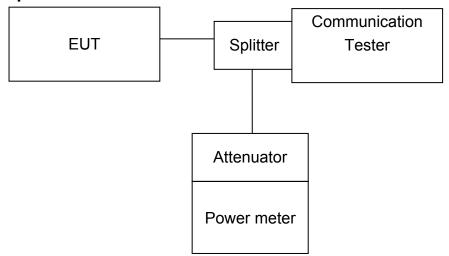
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## 7.2. Test Set-up



**Note:** Measurement setup for testing on Antenna connector

#### 7.3. Measurement Procedure

The transmitter output was connected to a calibrated attenuator, the other end of which was connected to a power meter. Transmitter output was read off the power meter in dBm. The power output at the transmitter antenna port was determined by adding the value of the attenuator to the power meter reading. TS 151 010-1 is reference to conduct the test measurement of output power.

The Procedure of KDB941225 (SAR Measurement Procedures for 3G devices, (WCD-MA/HSPA) was used for EUT and Base station setting. RMC 12.2kps is used for this testing, and KDB 971168 D01 Power Meas License Digital System as the supplemental test methodology to adjust the proper setting obtaining the measurement results

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

The following tests were conducted according to the test requirements outlined in section 6.2 of the 3GPP.

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### **TEST PROCEDURE:**

ANSI C63.26:2015 KDB 971168 Section 5.6

ERP/EIRP = PMeas + GT-LC

where: ERP/EIRP = effective or equivalent radiated power, respectively (expressed in the same units as PMeas, typically dBW or dBm);

PMeas = measured transmitter output power or PSD, in dBm or dBW;

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

LC = signal attenuation in the connecting cable between the transmitter and antenna, in dB.2 For devices utilizing multiple antennas, KDB 662911 provides guidance for determining the effective array transmit antenna gain term to be used in the above equation.

# 7.4. Measurement Equipment Used

Conducted Emission (measured at antenna port) Test Site									
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.				
Spectrum Analyzer	Agilent	N9010A	MY51440113	2018/06/20	2019/06/19				
Radio Communication Analyer	Anritsu	MT8820C	6201107337	2018/06/15	2019/06/14				
DC Power Supply	Agilent	E3640A	MY53130054	2017/09/04	2018/09/03				
Attenuator	Marvelous	MVE2213-10	RF30	2017/12/26	2018/12/25				
Splitter	Woken	DOM35LW1 A2	RF36	2017/12/26	2018/12/25				

Conducted Emission (measured at antenna port) Test Site								
EQUIPMENT MFR MODEL SERIAL LAST CAL DUE								
TYPE		NUMBER	NUMBER	CAL.				
DC Power Supply	Agilent	E3640A	MY53130054	2018/09/03	2019/09/04			

**Remark:** Please note that the duration to conduct the test took place in the mean time when the calibration for several equipments is due, and therefore extra tables of equipment calibration is constructed to indicate the calibration work is still maintained.

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#### 7.5. Measurement Result

### **RF Conducted Output Power**

#### WCDMA MODE:

The following tests were completed according to the test requirements outlined in section 5.2 of the 3GPP TS34.121-1 V8.4.0 specification. The EUT supports power Class 3, which has a nominal maximum output power of 24 dBm (+1.7/-3.7). RMC 12.2kps is used for this testing.

#### Results:

#### WCDMA/HSLIPA/HSDPA Rand II Result.

EUT Mode	Freq. (MHz)	СН	Conducted Avg. Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)
	1852.4	9262	22.12	1.09	23.21	33	-9.79
WCDMA	1880	9400	22.2	1.09	23.29	33	-9.71
	1907.6	9538	22.05	1.09	23.14	33	-9.86
HSDPA	1852.4	9262	21.13	1.09	22.22	33	-10.78
	1880	9400	21.23	1.09	22.32	33	-10.68
	1907.6	9538	21.18	1.09	22.27	33	-10.73
HSUPA	1852.4	9262	21.12	1.09	22.21	33	-10.79
	1880	9400	21.22	1.09	22.31	33	-10.69
	1907.6	9538	21.74	1.09	22.83	33	-10.17

#### WCDMA/HSUPA/HSDPA Band V Result:

EUT Mode	Freq. (MHz)	СН	Conducted Avg. Power (dBm)	Antenna Gain (dBi)	ERP (dBm)	ERP (dBm)	IC EIRP Limit (dBm)	Limit (dBm)	Margin (dB)
	826.4	4132	23.95	0.16	24.11	26.26	40.6	38.5	-14.39
WCDMA	836.6	4183	23.89	0.16	24.05	26.2	40.6	38.5	-14.45
	846.6	4233	23.92	0.16	24.08	26.23	40.6	38.5	-14.42
	826.4	4132	23.08	0.16	23.24	25.39	40.6	38.5	-15.26
HSDPA	836.6	4183	22.95	0.16	23.11	25.26	40.6	38.5	-15.39
	846.6	4233	23.09	0.16	23.25	25.4	40.6	38.5	-15.25
HSUPA	826.4	4132	22.88	0.16	23.04	25.19	40.6	38.5	-15.46
	836.6	4183	22.88	0.16	23.04	25.19	40.6	38.5	-15.46
	846.6	4233	22.97	0.16	23.13	25.28	40.6	38.5	-15.37

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#### **HSDPA Release 6 MODE:**

The following 4 Sub-Tests were completed according to the test requirements outlined in section 5.2A of the 3GPP TS34.121-1 V8.4.0 specification. All TX RMS power requirements for Power Class 3 were met according to table 5.2AA.5 and 5.2B.5 All UE channels and power ratio's are set according to table C10.1.4 & C11.1.3 in the 3GPP TS34.121-1 V8.4.0. RMC 12.2kps is used for this testing.

### **HSDPA SUB-TEST Setting**

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

Sub-test	βς	$\beta_d$	β <sub>d</sub> ( <b>SF</b> )	β <sub>0</sub> /β <sub>d</sub>	β <sub>HS</sub> (Note1, Note 2)	CM (dB) (Note 3)	MPR (dB) (Note 3)	RMC (Kbps)
1	2/15	15/15	64	2/15	4/15	0.0	0.0	12.2
2	12/15 (Note 4)	15/15 (Note 4)	64	12/15 (Note 4)	24/15	1.0	0.0	12.2
3	15/15	8/15	64	15/8	30/15	1.5	0.5	12.2
4	15/15	4/15	64	15/4	30/15	1.5	0.5	12.2

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

Mode	Sub test	А	vg. Power (dBr Channel	n)	Power Class 3 Limitation (dBm)	Comments
	1031	9262	9400	9538	Limitation (ubin)	
	1	20.77	21.34	20.35	20.3dBm – 25.7dBm	Pass
HSDPA II	2	20.81	21.23	20.23	20.3dBm – 25.7dBm	Pass
HADDEAII	3	20.05	20.19	19.58	19.8dBm – 25.7dBm	Pass
	4	20.11	20.28	19.55	19.8dBm – 25.7dBm	Pass

Mode	Sub test	Avg. Power (dBm) Channel			Power Class 3 Limitation (dBm)	Comments
	1031	4132	4183	4233	Limitation (dbin)	
	1	22.87	22.79	22.95	20.3dBm – 25.7dBm	Pass
HSDPA V	2	21.88	21.83	21.99	20.3dBm – 25.7dBm	Pass
TISUPA V	3	21.08	21.05	21.16	19.8dBm – 25.7dBm	Pass
	4	21.00	20.95	21.07	19.8dBm – 25.7dBm	Pass

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# HSPA (HSDPA & HSUPA) Release 6 MODE

The following 5 Sub-Tests were completed according to the test requirements outlined in section 5.2A of the 3GPP TS34.121-1 V8.4.0 specification. All TX RMS power requirements for Power Class 3 were met according to table 5.2AA.5 and 5.2B.5 All UE channels and power ratio's are set according to table C11.1.3 in the 3GPP TS34.121-1 V8.4.0. RMC 12.2kps is used for this testing

## **HSPA SUB-TEST Setting**

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

Sub- test	βα	βа	β <sub>d</sub> (SF)	βс∕βа	βнѕ	βес	βed	β <sub>ed</sub> (SF)	β <sub>ed</sub> (Code s)	CM (dB)	MPR (dB)	AG Index	E-TFCI	RMC (Kbps
1	11/15 (Note 3)	15/15 (Note 3)	64	11/15 (Note 3)	22/15	209/22 5	1309/225	4	1	1.0	0.0	20	75	12.2
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67	12.2
3	15/15	9/15	64	15/9	30/15	30/15	$\beta_{ed}$ 1: 47/15 $\beta_{ed}$ 2: 47/15	4 4	2	2.0	1.0	15	92	12.2
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71	12.2
5	15/15 (Note 4)	15/15 (Note 4)	64	15/15 (Note 4)	30/15	24/15	134/15	4	1	1.0	0.0	21	81	12.2

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

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#### Results:

Mode	Sub test	А	vg. Power (dBr Channel	n)	Power Class 3 Limitation (dBm)	Comments
	1031	9262	9400	9538	Ellilliation (abili)	
	1	20.37	21.10	21.57	18.8dBm – 25.7dBm	Pass
	2	20.15	21.42	22.06	16.8dBm – 25.7dBm	Pass
HSUPA II	3	20.37	21.92	21.49	17.8dBm – 25.7dBm	Pass
	4	20.19	21.03	21.41	16.8dBm – 25.7dBm	Pass
F	5	20.14	21.06	21.33	18.8dBm – 25.7dBm	Pass

Mode	Sub test	А	vg. Power (dBr Channel	n)	Power Class 3 Limitation (dBm)	Comments
		4132	4183	4233	Elimitation (abin)	
	1	22.87	22.86	22.98	18.8dBm – 25.7dBm	Pass
	2	22.23	22.27	22.37	16.8dBm – 25.7dBm	Pass
HSUPA V	3	22.75	22.80	22.95	17.8dBm – 25.7dBm	Pass
	4	22.81	22.76	22.82	16.8dBm – 25.7dBm	Pass
	5	22.83	22.78	22.82	18.8dBm – 25.7dBm	Pass

# WCDMA/HSDPA/HSUPA band II, V

The EUT output power was controlled by simulator. Set Communication Tester MT8820C function key "UE Power Control" and enter max rated power 24dBm. The EUT is going to be set to max output power to 24dBm. Then record the read (see page 15 for measurement data). The min. power was measures by a function key "minimum power" then record the read. It is -52.3dBm. The power variation can be 0.1dB step by setting.

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## LTE Result:

LTE Band 2

Antenna gain (dRi) 1 00

Antenna gain	Intenna gain (dBi) 1.09  LTE Band 2_Uplink frequency band : 1850 to 1910 MHz											
		LIE Band	a Z_Uplink freq	uency b	and : 18	50 to 1910 MH	Z					
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)			
				1	0	21.98	23.07	33	-9.93			
	18607	1850.7	QPSK	1	5	21.97	23.06	33	-9.94			
	18007	1630.7	QPSK	3	2	22.10	23.19	33	-9.81			
				6	0	21.06	22.15	33	-10.85			
				1	0	21.94	23.03	33	-9.97			
	18900	1880	QPSK	1	5	21.95	23.04	33	-9.96			
	10900	1000	QPSK	3	2	22.04	23.13	33	-9.87			
				6	0	20.97	22.06	33	-10.94			
		9193 1909.3	QPSK	1	0	21.88	22.97	33	-10.03			
	19193			1	5	21.86	22.95	33	-10.05			
				3	2	21.95	23.04	33	-9.96			
1.4				6	0	20.87	21.96	33	-11.04			
1.4				1	0	21.16	22.25	33	-10.75			
	18607	1850.7	16QAM	1	5	21.15	22.24	33	-10.76			
	10007	1030.7	TOCAIVI	3	2	21.00	22.09	33	-10.91			
				6	0	20.07	21.16	33	-11.84			
				1	0	21.16	22.25	33	-10.75			
	18900	1880	16QAM	1	5	21.10	22.19	33	-10.81			
	10900	1000	TOQAW	3	2	21.06	22.15	33	-10.85			
				6	0	20.06	21.15	33	-11.85			
				1	0	21.33	22.42	33	-10.58			
	19193	1000 3	160AM	1	5	21.31	22.40	33	-10.6			
	17173	1909.3	16QAM <b>—</b>	3	2	20.93	22.02	33	-10.98			
				6	0	19.87	20.96	33	-12.04			

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LTE Band 2

Antenna gain (dRi) 1 00

Antenna gain	ntenna gain (dBi) 1.09  LTE Band 2_Uplink frequency band : 1850 to 1910 MHz											
		LIEBand	z_opiink ireqi	uency b	anu : 18	50 (O 1910 WH.	Z					
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)			
				1	0	22.15	23.24	33	-9.76			
	18615	1851.5	QPSK	1	14	22.09	23.18	33	-9.82			
	10013	1001.0	QF3K	8	4	21.12	22.21	33	-10.79			
				15	0	21.08	22.17	33	-10.83			
				1	0	22.05	23.14	33	-9.86			
	18900	1880	QPSK	1	14	22.00	23.09	33	-9.91			
	10900	1000	QF3K	8	4	21.05	22.14	33	-10.86			
				15	0	21.02	22.11	33	-10.89			
		85 1908.5	QPSK	1	0	21.96	23.05	33	-9.95			
	19185			1	14	21.92	23.01	33	-9.99			
				8	4	20.96	22.05	33	-10.95			
3				15	0	20.97	22.06	33	-10.94			
3				1	0	21.31	22.40	33	-10.6			
	18615	1851.5	16QAM	1	14	21.28	22.37	33	-10.63			
	10013	1001.0	TOCAIVI	8	4	20.07	21.16	33	-11.84			
				15	0	20.14	21.23	33	-11.77			
				1	0	21.33	22.42	33	-10.58			
	18900	1880	16QAM	1	14	21.30	22.39	33	-10.61			
	10900	1000	TOQAM	8	4	20.10	21.19	33	-11.81			
				15	0	20.00	21.09	33	-11.91			
				1	0	21.45	22.54	33	-10.46			
	19185	1000 E	14000	1	14	21.25	22.34	33	-10.66			
	19100	1908.5	16QAM —	8	4	20.10	21.19	33	-11.81			
				15	0	20.12	21.21	33	-11.79			



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LTE Band 2

Antenna gain (dRi) 1 09

Antenna gain	(dDI)	1.09 LTE Band	d 2_Uplink freq	uencv b	and : 18	50 to 1910 MH	<u> </u>		
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	22.17	23.26	33	-9.74
	18625	1852.5	QPSK	1	24	22.08	23.17	33	-9.83
	18023	1632.3	QP3K	12	6	21.15	22.24	33	-10.76
				25	0	21.09	22.18	33	-10.82
				1	0	22.09	23.18	33	-9.82
	18900	1880	QPSK	1	24	22.02	23.11	33	-9.89
	10900	1000	UPSK	12	6	21.08	22.17	33	-10.83
				25	0	21.01	22.10	33	-10.9
	19175	75 1907.5	QPSK	1	0	22.01	23.10	33	-9.9
				1	24	21.94	23.03	33	-9.97
	19173			12	6	20.97	22.06	33	-10.94
5				25	0	20.93	22.02	33	-10.98
5				1	0	21.32	22.41	33	-10.59
	18625	1852.5	16QAM	1	24	21.20	22.29	33	-10.71
	10023	1002.0	TOCAIVI	12	6	20.12	21.21	33	-11.79
				25	0	20.05	21.14	33	-11.86
				1	0	21.48	22.57	33	-10.43
	18900	1880	16QAM	1	24	21.46	22.55	33	-10.45
	10900	1000	TOQAIVI	12	6	20.12	21.21	33	-11.79
				25	0	20.07	21.16	33	-11.84
				1	0	21.37	22.46	33	-10.54
	19175	1007 5	16\\A\\	1	24	21.28	22.37	33	-10.63
	17173	1907.5	16QAM <b>–</b>	12	6	20.04	21.13	33	-11.87
				25	0	19.99	21.08	33	-11.92



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LTE Band 2

Antenna gain (dRi) 1 00

Antenna gain	ntenna gain (dBi) 1.09  LTE Band 2_Uplink frequency band : 1850 to 1910 MHz											
		LTE Band	2_Uplink freq	uency b	and : 18	50 to 1910 MH:	Z					
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)			
				1	0	22.09	23.18	33	-9.82			
	18650	1855	QPSK	1	24	21.96	23.05	33	-9.95			
	10000	1000	QPSK	12	6	21.11	22.20	33	-10.8			
				25	0	21.04	22.13	33	-10.87			
				1	0	22.11	23.20	33	-9.8			
	18900	1880	QPSK	1	24	21.99	23.08	33	-9.92			
	10900	1000	QF3K	12	6	21.10	22.19	33	-10.81			
				25	0	21.02	22.11	33	-10.89			
		1905	QPSK	1	0	21.98	23.07	33	-9.93			
	19150			1	24	21.88	22.97	33	-10.03			
				12	6	21.01	22.10	33	-10.9			
10				25	0	21.01	22.10	33	-10.9			
10				1	0	21.47	22.56	33	-10.44			
	18650	1855	16QAM	1	24	21.43	22.52	33	-10.48			
	10030	1000	TOCAIVI	12	6	20.10	21.19	33	-11.81			
				25	0	20.10	21.19	33	-11.81			
				1	0	21.34	22.43	33	-10.57			
	18900	1880	16QAM	1	24	21.11	22.20	33	-10.8			
	10900	1000	TOCAIVI	12	6	20.14	21.23	33	-11.77			
				25	0	20.10	21.19	33	-11.81			
				1	0	21.11	22.20	33	-10.8			
	19150	1005	160AM	1	24	21.02	22.11	33	-10.89			
	17130	1905	16QAM <b>—</b>	12	6	20.06	21.15	33	-11.85			
				25	0	20.00	21.09	33	-11.91			

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LTE Band 2

Antenna gain (dRi) 1 00

Antenna gain	Itenna gain (dBi) 1.09  LTE Band 2_Uplink frequency band : 1850 to 1910 MHz											
		LIE Band	2_Uplink freq	uency b	and : 18	50 to 1910 MH	Z					
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)			
				1	0	22.23	23.32	33	-9.68			
	18675	1857.5	QPSK	1	74	21.98	23.07	33	-9.93			
	10073	1007.0	QPSK	36	19	21.09	22.18	33	-10.82			
				75	0	21.11	22.20	33	-10.8			
				1	0	22.22	23.31	33	-9.69			
	18900	1880	QPSK	1	74	22.00	23.09	33	-9.91			
	10900	1000	QPSK	36	19	21.09	22.18	33	-10.82			
				75	0	21.11	22.20	33	-10.8			
		125 1902.5	QPSK	1	0	22.18	23.27	33	-9.73			
	19125			1	74	21.97	23.06	33	-9.94			
				36	19	21.03	22.12	33	-10.88			
15				75	0	21.03	22.12	33	-10.88			
10				1	0	21.48	22.57	33	-10.43			
	18675	1857.5	16QAM	1	74	21.47	22.56	33	-10.44			
	10073	1007.0	TOUAIVI	36	19	20.14	21.23	33	-11.77			
				75	0	20.13	21.22	33	-11.78			
				1	0	21.39	22.48	33	-10.52			
	18900	1880	16QAM	1	74	21.17	22.26	33	-10.74			
	10900	1000	TOQAM	36	19	20.09	21.18	33	-11.82			
				75	0	20.10	21.19	33	-11.81			
				1	0	21.42	22.51	33	-10.49			
	19125	1002 5	14000	1	74	21.27	22.36	33	-10.64			
	19125	1902.5	16QAM —	36	19	20.05	21.14	33	-11.86			
				75	0	20.06	21.15	33	-11.85			



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LTE Band 2

Antenna gain (dRi) 1 00

Antenna gain	tenna gain (dBi) 1.09  LTE Band 2_Uplink frequency band : 1850 to 1910 MHz										
		LIE Band	d 2_Uplink frequ	uency b	and : 18	50 to 1910 MH	7				
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)		
				1	0	22.26	23.35	33	-9.65		
	18700	1860	QPSK	1	99	21.92	23.01	33	-9.99		
	16700	1000	UPSK	50	25	21.13	22.22	33	-10.78		
				100	0	21.09	22.18	33	-10.82		
				1	0	22.28	23.37	33	-9.63		
	18900	1880	QPSK	1	99	21.98	23.07	33	-9.93		
	10900	1000	QF3K	50	25	21.10	22.19	33	-10.81		
				100	0	21.14	22.23	33	-10.77		
		1900	QPSK	1	0	22.16	23.25	33	-9.75		
	19100			1	99	21.92	23.01	33	-9.99		
				50	25	21.03	22.12	33	-10.88		
20				100	0	21.06	22.15	33	-10.85		
20				1	0	21.24	22.33	33	-10.67		
	18700	1860	16QAM	1	99	20.95	22.04	33	-10.96		
	10700	1000	TOCAIVI	50	25	20.15	21.24	33	-11.76		
				100	0	20.06	21.15	33	-11.85		
				1	0	21.36	22.45	33	-10.55		
	18900	1880	16QAM	1	99	21.08	22.17	33	-10.83		
	10900	1000	TOQAIVI	50	25	20.05	21.14	33	-11.86		
				100	0	20.08	21.17	33	-11.83		
				1	0	21.36	22.45	33	-10.55		
	19100	1000	160AM	1	99	21.31	22.40	33	-10.6		
	17100	1900	16QAM <b>—</b>	50	25	20.06	21.15	33	-11.85		
				100	0	20.03	21.12	33	-11.88		



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LTE Band 4

Antenna gain (dBi) 192

LTE Band 4_Uplink frequency band : 1710 to 1755 MHz												
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)			
				1	0	23.92	25.84	30	-4.16			
	19957	1710.7	QPSK	1	5	23.91	25.83	30	-4.17			
	17737	1710.7	QFSK	3	2	23.96	25.88	30	-4.12			
				6	0	22.89	24.81	30	-5.19			
				1	0	23.98	25.90	30	-4.1			
	20175	1732.5	QPSK	1	5	23.96	25.88	30	-4.12			
	20175 1732.5	1732.3	QF3K	3	2	24.03	25.95	30	-4.05			
				6	0	22.96	24.88	30	-5.12			
		20393 1754.3	QPSK	1	0	24.00	25.92	30	-4.08			
	20303			1	5	23.98	25.90	30	-4.1			
	20373			3	2	24.08	26.00	30	-4			
1.4				6	0	23.04	24.96	30	-5.04			
1.4				1	0	23.12	25.04	30	-4.96			
	19957	1710.7	16QAM	1	5	23.24	25.16	30	-4.84			
	17737	1710.7	TOCAM	3	2	23.03	24.95	30	-5.05			
				6	0	21.99	23.91	30	-6.09			
				1	0	23.21	25.13	30	-4.87			
	20175	1732.5	16QAM	1	5	23.33	25.25	30	-4.75			
	20175	1732.3	TOCAM	3	2	23.05	24.97	30	-5.03			
				6	0	22.14	24.06	30	-5.94			
				1	0	23.26	25.18	30	-4.82			
	20393	1754.3	16QAM	1	5	23.20	25.12	30	-4.88			
	20373		TOUAIVI	3	2	23.12	25.04	30	-4.96			
				6	0	22.10	24.02	30	-5.98			

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LTE Band 4

Antenna gain	(dBi)	1.92							
		LTE Band	d 4_Uplink freq	uency b	and : 17	10 to 1755 MH	Z		
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	23.96	25.88	30	-4.12
	19965	1711.5	QPSK	1	14	23.87	25.79	30	-4.21
	19905	1711.5	QF3K	8	4	23.00	24.92	30	-5.08
				15	0	23.02	24.94	30	-5.06
				1	0	24.04	25.96	30	-4.04
	20175 1732.5	QPSK	1	14	24.03	25.95	30	-4.05	
		1732.3	QF3K	8	4	23.13	25.05	30	-4.95
				15	0	23.07	24.99	30	-5.01
	20385	85 1753.5	QPSK	1	0	24.11	26.03	30	-3.97
				1	14	24.05	25.97	30	-4.03
	20303	1755.5	QI SK	8	4	23.15	25.07	30	-4.93
3				15	0	23.13	25.05	30	-4.95
3				1	0	22.99	24.91	30	-5.09
	19965	1711.5	16QAM	1	14	22.91	24.83	30	-5.17
	17703	1711.5	TOCAIVI	8	4	22.10	24.02	30	-5.98
				15	0	22.01	23.93	30	-6.07
				1	0	23.21	25.13	30	-4.87
	20175	1722 5	16QAM	1	14	23.25	25.17	30	-4.83
	20175 1732.5	1732.3	TOCAIVI	8	4	22.17	24.09	30	-5.91
				15	0	22.08	24.00	30	-6
			1	0	23.49	25.41	30	-4.59	
	20385	1753.5	16QAM	1	14	23.43	25.35	30	-4.65
	20303	1703.0	TOQAM	8	4	22.17	24.09	30	-5.91
				15	0	22.20	24.12	30	-5.88



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LTE Band 4

Antenna gain (dBi) 192

LTE Band 4_Uplink frequency band : 1710 to 1755 MHz												
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)			
				1	0	24.05	25.97	30	-4.03			
	19975	1712.5	QPSK	1	24	23.99	25.91	30	-4.09			
	19973	1712.3	UPSK	12	6	23.01	24.93	30	-5.07			
				25	0	22.99	24.91	30	-5.09			
				1	0	24.10	26.02	30	-3.98			
	20175	1732.5	QPSK	1	24	24.03	25.95	30	-4.05			
	20173	1/32.5	QF3K	12	6	23.10	25.02	30	-4.98			
	20375 1752.5			25	0	23.06	24.98	30	-5.02			
		1752 F	QPSK	1	0	24.08	26.00	30	-4			
				1	24	24.02	25.94	30	-4.06			
	20373	1752.5	QF 3K	12	6	23.16	25.08	30	-4.92			
5				25	0	23.15	25.07	30	-4.93			
3				1	0	23.18	25.10	30	-4.9			
	19975	1712.5	16QAM	1	24	23.19	25.11	30	-4.89			
	17773	1712.3	TOCAM	12	6	22.07	23.99	30	-6.01			
				25	0	22.01	23.93	30	-6.07			
				1	0	23.41	25.33	30	-4.67			
	20175	1732 5	16QAM	1	24	23.41	25.33	30	-4.67			
	20175 1732.5 20375 1752.5	1732.3	TOCAM	12	6	22.07	23.99	30	-6.01			
			25	0	22.07	23.99	30	-6.01				
			1	0	23.49	25.41	30	-4.59				
		1752 <b>5</b>	16QAM	1	24	23.26	25.18	30	-4.82			
		IUUMIVI	12	6	22.25	24.17	30	-5.83				
				25	0	22.21	24.13	30	-5.87			



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LTE Band 4

Antenna gain (dRi) 1 02

Antenna gain (dBi) 1.92  LTE Band 4_Uplink frequency band : 1710 to 1755 MHz													
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)				
				1	0	24.04	25.96	30	-4.04				
	20000	1715	QPSK	1	24	23.83	25.75	30	-4.25				
	20000	1713	QF3K	12	6	23.04	24.96	30	-5.04				
				25	0	23.02	24.94	30	-5.06				
		1722 5		1	0	24.11	26.03	30	-3.97				
	20175	1732.5	QPSK	1	24	23.97	25.89	30	-4.11				
	20175 1732.5	QF3K	12	6	23.11	25.03	30	-4.97					
				25	0	23.08	25.00	30	-5				
			QPSK	1	0	24.25	26.17	30	-3.83				
	20375	1750		1	24	24.03	25.95	30	-4.05				
	20373	1750		12	6	23.20	25.12	30	-4.88				
10				25	0	23.17	25.09	30	-4.91				
10				1	0	23.07	24.99	30	-5.01				
	20000	1715	16QAM	1	24	22.88	24.80	30	-5.2				
	20000	1713	TOCAM	12	6	22.05	23.97	30	-6.03				
				25	0	22.00	23.92	30	-6.08				
				1	0	23.30	25.22	30	-4.78				
	20175	1732.5	16QAM	1	24	23.13	25.05	30	-4.95				
	20175	1732.3	TOCAM	12	6	22.10	24.02	30	-5.98				
				25	0	22.08	24.00	30	-6				
				1	0	23.44	25.36	30	-4.64				
	20275	1750	1750 16QAM <b>-</b>	1	24	23.47	25.39	30	-4.61				
	20375 1750	1730	TOQAWI	12	6	22.26	24.18	30	-5.82				
				25	0	22.25	24.17	30	-5.83				



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LTE Band 4

Antenna gain (dBi) 192

LTE Band 4_Uplink frequency band : 1710 to 1755 MHz												
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)			
				1	0	24.19	26.11	30	-3.89			
	20025	1717.5	QPSK	1	74	23.95	25.87	30	-4.13			
	20023	1717.5	QF 3K	36	19	22.99	24.91	30	-5.09			
				75	0	23.06	24.98	30	-5.02			
				1	0	24.24	26.16	30	-3.84			
	20175	1732.5	QPSK	1	74	24.01	25.93	30	-4.07			
	20175 1732.5	QI SK	36	19	23.15	25.07	30	-4.93				
				75	0	23.15	25.07	30	-4.93			
		25 1747.5	QPSK	1	0	24.39	26.31	30	-3.69			
	20325			1	74	24.07	25.99	30	-4.01			
	20323			36	19	23.23	25.15	30	-4.85			
15				75	0	23.20	25.12	30	-4.88			
13				1	0	23.35	25.27	30	-4.73			
	20025	1717.5	16QAM	1	74	23.15	25.07	30	-4.93			
	20023	1717.5	100/1111	36	19	22.03	23.95	30	-6.05			
				75	0	22.13	24.05	30	-5.95			
				1	0	23.39	25.31	30	-4.69			
	20175	1732.5	16QAM	1	74	23.36	25.28	30	-4.72			
	20173	1732.3	IOQAM	36	19	22.14	24.06	30	-5.94			
				75	0	22.11	24.03	30	-5.97			
				1	0	23.41	25.33	30	-4.67			
	20325	1747.5	16QAM	1	74	23.25	25.17	30	-4.83			
	20323	1747.3	IOQAM	36	19	22.22	24.14	30	-5.86			
				75	0	22.19	24.11	30	-5.89			



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LTE Band 4

Antonna gain (dRi)

Antenna gain	Antenna gain (dBi) 1.92  LTE Band 4_Uplink frequency band : 1710 to 1755 MHz												
5 ( )													
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)				
				1	0	24.18	26.10	30	-3.9				
	20050	1720	QPSK	1	99	23.85	25.77	30	-4.23				
	20030	1720	QF3K	50	25	23.04	24.96	30	-5.04				
				100	0	23.06	24.98	30	-5.02				
				1	0	24.28	26.20	30	-3.8				
	20175	1732.5	QPSK	1	99	23.96	25.88	30	-4.12				
	20175 1732.	1732.3	QPSK	50	25	23.13	25.05	30	-4.95				
				100	0	23.15	25.07	30	-4.93				
			QPSK	1	0	24.40	26.32	30	-3.68				
	20300	1745		1	99	24.03	25.95	30	-4.05				
	20300	1743		50	25	23.24	25.16	30	-4.84				
20				100	0	23.25	25.17	30	-4.83				
20				1	0	23.16	25.08	30	-4.92				
	20050	1720	16QAM	1	99	22.97	24.89	30	-5.11				
	20030	1720	TOCAM	50	25	22.03	23.95	30	-6.05				
				100	0	22.00	23.92	30	-6.08				
				1	0	23.41	25.33	30	-4.67				
	20175	1722 5	16QAM	1	99	23.11	25.03	30	-4.97				
	20175 1732.5	1732.3	TOCAM	50	25	22.12	24.04	30	-5.96				
				100	0	22.09	24.01	30	-5.99				
			1	0	23.88	25.80	30	-4.2					
	20300	1745	16QAM	1	99	23.50	25.42	30	-4.58				
	20300	1740	TOUAIVI	50	25	22.27	24.19	30	-5.81				
				100	0	22.23	24.15	30	-5.85				



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LTE Band 5

Antenna gain	(dBi)	0.16									
			LTE Band 5	_Uplink	frequen	cy band : 824	to 849 MHz				
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	IC EIRP Limit (dBm)	ERP Limit (dBm)	Margin (dB)
				1	0	23.93	24.09	26.24	40.6	38.45	-14.36
	20407	824.7	QPSK	1	5	23.83	23.99	26.14	40.6	38.45	-14.46
	20407	024.7	QF3N	3	2	23.88	24.04	26.19	40.6	38.45	-14.41
				6	0	22.94	23.10	25.25	40.6	38.45	-15.35
				1	0	23.87	24.03	26.18	40.6	38.45	-14.42
	20525	836.5	QPSK	1	5	23.84	24.00	26.15	40.6	38.45	-14.45
	20323	030.5	QF 3K	3	2	23.97	24.13	26.28	40.6	38.45	-14.32
				6	0	22.88	23.04	25.19	40.6	38.45	-15.41
		0643 848.3	QPSK	1	0	23.92	24.08	26.23	40.6	38.45	-14.37
	20643			1	5	23.91	24.07	26.22	40.6	38.45	-14.38
	20643			3	2	23.88	24.04	26.19	40.6	38.45	-14.41
1.4				6	0	22.88	23.04	25.19	40.6	38.45	-15.41
1.4				1	0	23.15	23.31	25.46	40.6	38.45	-15.14
	20407	824.7	16QAM	1	5	23.14	23.30	25.45	40.6	38.45	-15.15
	20407	024.7	100/1111	3	2	23.00	23.16	25.31	40.6	38.45	-15.29
				6	0	22.01	22.17	24.32	40.6	38.45	-16.28
				1	0	23.34	23.50	25.65	40.6	38.45	-14.95
	20525	836.5	16QAM	1	5	23.26	23.42	25.57	40.6	38.45	-15.03
	20020	030.3	100/1111	3	2	22.98	23.14	25.29	40.6	38.45	-15.31
				6	0	21.94	22.10	24.25	40.6	38.45	-16.35
				1	0	23.09	23.25	25.40	40.6	38.45	-15.2
	20643	848.3	16QAM <b>-</b>	1	5	22.96	23.12	25.27	40.6	38.45	-15.33
	20010	0 10.0	102/1111	3	2	22.98	23.14	25.29	40.6	38.45	-15.31
				6	0	21.85	22.01	24.16	40.6	38.45	-16.44



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LTE Band 5

Antenna dain (dRi)

Antenna gain	(aBI)	0.16									
			LTE Band 5	_Uplink	frequen	cy band : 824	to 849 MHz				
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	IC EIRP Limit (dBm)	ERP Limit (dBm)	Margin (dB)
				1	0	23.89	24.05	26.20	40.6	38.45	-14.4
	20415	825.5	QPSK	1	14	23.86	24.02	26.17	40.6	38.45	-14.43
	20415	023.3	QF 3N	8	4	23.03	23.19	25.34	40.6	38.45	-15.26
				15	0	23.00	23.16	25.31	40.6	38.45	-15.29
				1	0	23.99	24.15	26.30	40.6	38.45	-14.3
	20525	836.5	QPSK	1	14	23.90	24.06	26.21	40.6	38.45	-14.39
	20635 847.5	QI JIX	8	4	23.01	23.17	25.32	40.6	38.45	-15.28	
				15	0	23.01	23.17	25.32	40.6	38.45	-15.28
		847 5	QPSK	1	0	23.95	24.11	26.26	40.6	38.45	-14.34
				1	14	23.90	24.06	26.21	40.6	38.45	-14.39
	20033	047.5		8	4	23.03	23.19	25.34	40.6	38.45	-15.26
3				15	0	22.94	23.10	25.25	40.6	38.45	-15.35
3				1	0	23.06	23.22	25.37	40.6	38.45	-15.23
	20415	825.5	16QAM	1	14	23.03	23.19	25.34	40.6	38.45	-15.26
	20110	020.0	10071111	8	4	22.07	22.23	24.38	40.6	38.45	-16.22
				15	0	21.98	22.14	24.29	40.6	38.45	-16.31
				1	0	23.14	23.30	25.45	40.6	38.45	-15.15
	20525	836.5	16QAM	1	14	23.27	23.43	25.58	40.6	38.45	-15.02
	20525 836	000.0	10071111	8	4	22.03	22.19	24.34	40.6	38.45	-16.26
				15	0	22.03	22.19	24.34	40.6	38.45	-16.26
				1	0	23.44	23.60	25.75	40.6	38.45	-14.85
	20635	847.5	16QAM	1	14	23.37	23.53	25.68	40.6	38.45	-14.92
	20000	847.5		8	4	22.01	22.17	24.32	40.6	38.45	-16.28
				15	0	21.96	22.12	24.27	40.6	38.45	-16.33



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LTE Band 5

Antenna gain (dBi) 0.16

Antenna gain (	( <del></del> )	0.16	LTE Band 5	_Uplink	frequen	cy band : 824	to 849 MHz				
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	IC EIRP Limit (dBm)	ERP Limit (dBm)	Margin (dB)
				1	0	24.00	24.16	26.31	40.6	38.45	-14.29
	20425	826.5	QPSK	1	24	23.95	24.11	26.26	40.6	38.45	-14.34
	20423	020.5	QF3K	12	6	23.04	23.20	25.35	40.6	38.45	-15.25
				25	0	22.99	23.15	25.30	40.6	38.45	-15.3
				1	0	24.05	24.21	26.36	40.6	38.45	-14.24
	20525	836.5	QPSK	1	24	23.90	24.06	26.21	40.6	38.45	-14.39
		Q. O.K	12	6	23.04	23.20	25.35	40.6	38.45	-15.25	
				25	0	23.00	23.16	25.31	40.6	38.45	-15.29
		846.5		1	0	24.02	24.18	26.33	40.6	38.45	-14.27
			QPSK	1	24	23.99	24.15	26.30	40.6	38.45	-14.3
	20020			12	6	23.00	23.16	25.31	40.6	38.45	-15.29
5				25	0	22.97	23.13	25.28	40.6	38.45	-15.32
Ŭ				1	0	23.25	23.41	25.56	40.6	38.45	-15.04
	20425	826.5	16QAM	1	24	23.17	23.33	25.48	40.6	38.45	-15.12
	20120	020.0	10 (2) (1)	12	6	21.95	22.11	24.26	40.6	38.45	-16.34
				25	0	21.99	22.15	24.30	40.6	38.45	-16.3
				1	0	23.40	23.56	25.71	40.6	38.45	-14.89
	20525	836.5	16QAM	1	24	23.35	23.51	25.66	40.6	38.45	-14.94
	20020	000.0	10 (2) (1)	12	6	22.07	22.23	24.38	40.6	38.45	-16.22
				25	0	21.96	22.12	24.27	40.6	38.45	-16.33
				1	0	23.16	23.32	25.47	40.6	38.45	-15.13
	20625	846.5	16QAM	1	24	23.15	23.31	25.46	40.6	38.45	-15.14
	20020	0.0.0		12	6	22.04	22.20	24.35	40.6	38.45	-16.25
				25	0	21.99	22.15	24.30	40.6	38.45	-16.3



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LTE Band 5

Antenna gain	(dBi)	0.16									
			LTE Band 5	_Uplink	frequen	cy band : 824	to 849 MHz				
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	IC EIRP Limit (dBm)	ERP Limit (dBm)	Margin (dB)
				1	0	23.95	24.11	26.26	40.6	38.45	-14.34
	20450	829	QPSK	1	49	23.81	23.97	26.12	40.6	38.45	-14.48
	20430	027	QF 3K	25	12	23.05	23.21	25.36	40.6	38.45	-15.24
				50	0	23.03	23.19	25.34	40.6	38.45	-15.26
				1	0	24.07	24.23	26.38	40.6	38.45	-14.22
	20525	836.5	QPSK	1	49	23.88	24.04	26.19	40.6	38.45	-14.41
	20323	030.3	QI JIX	25	12	23.03	23.19	25.34	40.6	38.45	-15.26
			<u> </u>	50	0	23.03	23.19	25.34	40.6	38.45	-15.26
		20600 844	QPSK	1	0	24.06	24.22	26.37	40.6	38.45	-14.23
	20600			1	49	23.88	24.04	26.19	40.6	38.45	-14.41
	20600			25	12	23.08	23.24	25.39	40.6	38.45	-15.21
10				50	0	23.02	23.18	25.33	40.6	38.45	-15.27
10				1	0	23.06	23.22	25.37	40.6	38.45	-15.23
	20450	829	16QAM	1	49	22.94	23.10	25.25	40.6	38.45	-15.35
	20430	027	100/1111	25	12	21.97	22.13	24.28	40.6	38.45	-16.32
				50	0	21.97	22.13	24.28	40.6	38.45	-16.32
				1	0	23.47	23.63	25.78	40.6	38.45	-14.82
	20525	836.5	16QAM	1	49	23.30	23.46	25.61	40.6	38.45	-14.99
	20525 836.5	030.3	100/1111	25	12	22.13	22.29	24.44	40.6	38.45	-16.16
				50	0	22.03	22.19	24.34	40.6	38.45	-16.26
				1	0	23.43	23.59	25.74	40.6	38.45	-14.86
	20600	844	16QAM	1	49	23.38	23.54	25.69	40.6	38.45	-14.91
	20000	011		25	12	22.14	22.30	24.45	40.6	38.45	-16.15
				50	0	22.04	22.20	24.35	40.6	38.45	-16.25



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LTE Band 7

Antenna gain (dBi)

2.11

LTE Band 7_Uplink frequency band : 2500 to 2570 MHz												
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)			
				1	0	24.29	26.40	33	-6.6			
	20775	2502.5	QPSK	1	24	24.23	26.34	33	-6.66			
	20113	2502.5	QF 3K	12	6	23.29	25.40	33	-7.6			
				25	0	23.25	25.36	33	-7.64			
				1	0	24.21	26.32	33	-6.68			
	21100	2535	QPSK	1	24	24.20	26.31	33	-6.69			
	21100	2000	QI 3K	12	6	23.22	25.33	33	-7.67			
	21375 2567.5			25	0	23.24	25.35	33	-7.65			
		2567.5	QPSK	1	0	24.15	26.26	33	-6.74			
				1	24	24.07	26.18	33	-6.82			
	21373	2507.5		12	6	23.15	25.26	33	-7.74			
5				25	0	23.14	25.25	33	-7.75			
3				1	0	23.39	25.50	33	-7.5			
	20775	2502.5	16QAM	1	24	23.38	25.49	33	-7.51			
	20773	2302.3	TOQAM	12	6	22.35	24.46	33	-8.54			
				25	0	22.24	24.35	33	-8.65			
				1	0	23.43	25.54	33	-7.46			
	21100	2525	16QAM	1	24	23.45	25.56	33	-7.44			
	21100 2535 21375 2567.5	2333	TOCAM	12	6	22.26	24.37	33	-8.63			
			25	0	22.24	24.35	33	-8.65				
			1	0	23.39	25.50	33	-7.5				
		2567.5	16QAM	1	24	23.27	25.38	33	-7.62			
	21373	2301.J	IUQAIVI	12	6	22.09	24.20	33	-8.8			
				25	0	22.12	24.23	33	-8.77			

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LTE Band 7

Antenna gain (dBi) 2.11

LTE Band 7_Uplink frequency band : 2500 to 2570 MHz												
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)			
				1	0	24.26	26.37	33	-6.63			
	20800	2505	QPSK	1	49	24.14	26.25	33	-6.75			
	20000	2505	QF 3K	25	12	23.28	25.39	33	-7.61			
				50	0	23.24	25.35	33	-7.65			
				1	0	24.23	26.34	33	-6.66			
	21100	2535	QPSK	1	49	24.09	26.20	33	-6.8			
	21100	100 2535	QPSK	25	12	23.25	25.36	33	-7.64			
	21350 256			50	0	23.20	25.31	33	-7.69			
		2565	QPSK	1	0	24.15	26.26	33	-6.74			
				1	49	23.98	26.09	33	-6.91			
	21330	2303		25	12	23.15	25.26	33	-7.74			
10				50	0	23.14	25.25	33	-7.75			
10				1	0	23.39	25.50	33	-7.5			
	20800	2505	16QAM	1	49	23.46	25.57	33	-7.43			
	20000	2505	TOCAIVI	25	12	22.17	24.28	33	-8.72			
				50	0	22.27	24.38	33	-8.62			
				1	0	23.46	25.57	33	-7.43			
	21100	2525	16QAM	1	49	23.20	25.31	33	-7.69			
	21100 2535	2000	TOQAW	25	12	22.30	24.41	33	-8.59			
				50	0	22.23	24.34	33	-8.66			
			1	0	23.20	25.31	33	-7.69				
		2565	16QAM	1	49	23.22	25.33	33	-7.67			
	21350	2000	TOUAIVI	25	12	22.22	24.33	33	-8.67			
				50	0	22.15	24.26	33	-8.74			



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LTF Band 7

Antenna gain (	(dBi)	2.11							
		LTE Band	d 7_Uplink frequ	uency b	and : 25	00 to 2570 MH:	Z		
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	24.32	26.43	33	-6.57
	20825	2507.5	QPSK	1	74	24.13	26.24	33	-6.76
	20025	2007.0	UFSK	36	19	23.24	25.35	33	-7.65
				75	0	23.23	25.34	33	-7.66
				1	0	24.34	26.45	33	-6.55
	21100	2535	QPSK	1	74	24.06	26.17	33	-6.83
	21100	2030	QPSK	36	19	23.24	25.35	33	-7.65
				75	0	23.26	25.37	33	-7.63
				1	0	24.28	26.39	33	-6.61
	21375	2562.5	QPSK	1	74	24.03	26.14	33	-6.86
	21373	2302.3	UPSK	36	19	23.20	25.31	33	-7.69
15				75	0	23.21	25.32	33	-7.68
13				1	0	23.46	25.57	33	-7.43
	20825	2507.5	16QAM	1	74	23.47	25.58	33	-7.42
	20023	2507.5	TOQAIVI	36	19	22.25	24.36	33	-8.64
				75	0	22.22	24.33	33	-8.67
				1	0	23.83	25.94	33	-7.06
	21100	2535	16QAM	1	74	23.44	25.55	33	-7.45
	21100		TOQAIVI	36	19	22.30	24.41	33	-8.59
				75	0	22.30	24.41	33	-8.59
				1	0	23.49	25.60	33	-7.4
	21375	2562.5	16QAM	1	74	23.28	25.39	33	-7.61
	21373	2002.0	TOUAIVI	36	19	22.18	24.29	33	-8.71

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22.18

24.29

33

-8.71



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LTE Band 7

Antenna gain	(dBi)	2.11							
		LTE Band	d 7_Uplink freq	uency b	and : 25	00 to 2570 MH	Z		
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	24.42	26.53	33	-6.47
	20850	2510	QPSK	1	99	24.18	26.29	33	-6.71
	20000	2310	QF3K	50	25	23.30	25.41	33	-7.59
				100	0	23.27	25.38	33	-7.62
				1	0	24.36	26.47	33	-6.53
	21100	2535	QPSK	1	99	24.06	26.17	33	-6.83
	21100	2000	QF3K	50	25	23.23	25.34	33	-7.66
				100	0	23.19	25.30	33	-7.7
				1	0	24.24	26.35	33	-6.65
	21350	2560	ODSK	1	99	23.83	25.94	33	-7.06
	21330	2300	QPSK	50	25	23.20	25.31	33	-7.69
20				100	0	23.20	25.31	33	-7.69
20				1	0	23.75	25.86	33	-7.14
	20850	2510	16QAM	1	99	23.42	25.53	33	-7.47
	20030	2310	TOQAM	50	25	22.35	24.46	33	-8.54
				100	0	22.26	24.37	33	-8.63
				1	0	23.36	25.47	33	-7.53
	21100 2535 21350 2560	2525	16QAM	1	99	23.28	25.39	33	-7.61
		2000	ΙΟΦΑΙΝΙ	50	25	22.24	24.35	33	-8.65
			100	0	22.20	24.31	33	-8.69	
			1	0	23.48	25.59	33	-7.41	
		16QAM	1	99	23.06	25.17	33	-7.83	
	21330	2500	TOUAIVI	50	25	22.21	24.32	33	-8.68

100

0

22.20

24.31

33

-8.69



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LTE Band 12

Antenna gain (dBi) 0.09

Antenna gain	(uDI)	0.09	LTE Band 12	2_Uplink	frequer	ncy band : 699	to 716 MHz				
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	IC EIRP Limit (dBm)	ERP Limit (dBm)	Margin (dB)
				1	0	23.93	24.02	26.17	36.99	34.77	-10.75
	23017	699.7	QPSK	1	5	23.89	23.98	26.13	36.99	34.77	-10.79
	23017	099.7	UPSK	3	2	23.93	24.02	26.17	36.99	34.77	-10.75
				6	0	22.92	23.01	25.16	36.99	34.77	-11.76
				1	0	23.91	24.00	26.15	36.99	34.77	-10.77
	23095	707.5	QPSK	1	5	23.93	24.02	26.17	36.99	34.77	-10.75
	23093	707.5	QF3K	3	2	23.99	24.08	26.23	36.99	34.77	-10.69
				6	0	22.94	23.03	25.18	36.99	34.77	-11.74
			QPSK	1	0	23.82	23.91	26.06	36.99	34.77	-10.86
	22172	715 5		1	5	23.82	23.91	26.06	36.99	34.77	-10.86
	23173 715.5	715.5	UPSK	3	2	23.88	23.97	26.12	36.99	34.77	-10.8
1.4		23173 715.5		6	0	22.81	22.90	25.05	36.99	34.77	-11.87
1.4				1	0	22.90	22.99	25.14	36.99	34.77	-11.78
	23017	699.7	16QAM	1	5	22.95	23.04	25.19	36.99	34.77	-11.73
	23017	077.1	TOQAW	3	2	23.02	23.11	25.26	36.99	34.77	-11.66
				6	0	21.91	22.00	24.15	36.99	34.77	-12.77
				1	0	23.09	23.18	25.33	36.99	34.77	-11.59
	23095	707.5	16∩ <b>Λ</b> Μ	1	5	23.06	23.15	25.30	36.99	34.77	-11.62
	23073	707.5	TOCAM	16QAM					34.77	-11.63	
				6	0	22.02	22.11	24.26	36.99	34.77	-12.66
				1	0	23.23	23.32	25.47	36.99	34.77	-11.45
	23173	715.5	16QAM	1	5	23.28	23.37	25.52	36.99	34.77	-11.4
	23173	713.3	TOQAM	3	2	22.94	23.03	25.18	36.99	34.77	-11.74
				6	0	22.00	22.09	24.24	36.99	34.77	-12.68



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LTE Band 12

Antonna gain (dDi) 0.00

Antenna gain	(UDI)	0.09	LTE D		•	1 1 (00	. 74/17:					
			LTE Band 12	_Uplink	trequer	ncy band : 699	to 716 MHz					
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	IC EIRP Limit (dBm)	ERP Limit (dBm)	Margin (dB)	
				1	0	24.00	24.09	26.24	36.99	34.77	-10.68	
	23025	700.5	QPSK	1	14	23.95	24.04	26.19	36.99	34.77	-10.73	
	23025	700.5	QF3K	8	4	23.08	23.17	25.32	36.99	34.77	-11.6	
				15	0	23.03	23.12	25.27	36.99	34.77	-11.65	
				1	0	24.02	24.11	26.26	36.99	34.77	-10.66	
	23095	707.5	QPSK	1	14	24.00	24.09	26.24	36.99	34.77	-10.68	
	23073	707.5	QF3K	8	4	23.06	23.15	25.30	36.99	34.77	-11.62	
			15	0	23.00	23.09	25.24	36.99	34.77	-11.68		
	23165 714.5	23165 714.5			1	0	23.89	23.98	26.13	36.99	34.77	-10.79
			QPSK	1	14	23.84	23.93	26.08	36.99	34.77	-10.84	
			714.5	/14.5	QI SK	8	4	22.97	23.06	25.21	36.99	34.77
3					15	0	22.93	23.02	25.17	36.99	34.77	-11.75
3				1	0	23.47	23.56	25.71	36.99	34.77	-11.21	
	23025	700.5	16QAM	1	14	23.08	23.17	25.32	36.99	34.77	-11.6	
	23023	700.3	TOCAM	8	4	22.05	22.14	24.29	36.99	34.77	-12.63	
				15	0	21.95	22.04	24.19	36.99	34.77	-12.73	
				1	0	23.22	23.31	25.46	36.99	34.77	-11.46	
	23095	707.5	16QAM	1	14	23.27	23.36	25.51	36.99	34.77	-11.41	
	23073	707.3	TOCAM	8	4	21.97	22.06	24.21	36.99	34.77	-12.71	
				15	0	22.03	22.12	24.27	36.99	34.77	-12.65	
				1	0	23.30	23.39	25.54	36.99	34.77	-11.38	
	23165	714.5	16QAM	1	14	23.32	23.41	25.56	36.99	34.77	-11.36	
	23103	7 14.3	TOUAIN	8	4	22.02	22.11	24.26	36.99	34.77	-12.66	
				15	0	21.91	22.00	24.15	36.99	34.77	-12.77	



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LTE Band 12

Antenna gain (dBi) 0.09

Antenna gain (	(uDI)	0.09	LTE Band 12	2_Uplink	frequer	ncy band : 699	to 716 MHz					
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	IC EIRP Limit (dBm)	ERP Limit (dBm)	Margin (dB)	
				1	0	24.00	24.09	26.24	36.99	34.77	-10.68	
	23035	701.5	QPSK	1	24	24.06	24.15	26.30	36.99	34.77	-10.62	
	23033	701.5	UPSK	12	6	23.01	23.10	25.25	36.99	34.77	-11.67	
				25	0	22.97	23.06	25.21	36.99	34.77	-11.71	
				1	0	24.02	24.11	26.26	36.99	34.77	-10.66	
	23095	707.5	QPSK	1	24	23.94	24.03	26.18	36.99	34.77	-10.74	
	23093	707.5	UPSK	12	6	23.06	23.15	25.30	36.99	34.77	-11.62	
			25	0	23.01	23.10	25.25	36.99	34.77	-11.67		
	23155 713.5	155 713.5		1	0	23.93	24.02	26.17	36.99	34.77	-10.75	
			QPSK	1	24	23.89	23.98	26.13	36.99	34.77	-10.79	
			713.5	/13.5	QF 3N	12	6	22.96	23.05	25.20	36.99	34.77
5				25	0	22.94	23.03	25.18	36.99	34.77	-11.74	
J				1	0	23.00	23.09	25.24	36.99	34.77	-11.68	
	23035	701.5	16∩ <b>Λ</b> Μ	1	24	22.90	22.99	25.14	36.99	34.77	-11.78	
	23033	701.5	TOQAW	12	6	22.07	22.16	24.31	36.99	34.77	-12.61	
				25	0	21.97	22.06	24.21	36.99	34.77	-12.71	
				1	0	23.10	23.19	25.34	36.99	34.77	-11.58	
	23095	707.5	160AM	1	24	23.04	23.13	25.28	36.99	34.77	-11.64	
	23093	707.5	TOQAW	12 6 22.96 23.05 25.20 36.99  25 0 22.94 23.03 25.18 36.99  1 0 23.00 23.09 25.24 36.99  1 24 22.90 22.99 25.14 36.99  12 6 22.07 22.16 24.31 36.99  25 0 21.97 22.06 24.21 36.99  1 0 23.10 23.19 25.34 36.99  1 0 23.10 23.19 25.34 36.99  1 24 23.04 23.13 25.28 36.99  1 2 6 22.06 22.15 24.30 36.99  25 0 21.98 22.07 24.22 36.99			34.77	-12.62				
				25	0	21.98	22.07	24.22	36.99	34.77	-12.7	
				1	0	23.43	23.52	25.67	36.99	34.77	-11.25	
	23155	713.5	16QAM	1	24	23.37	23.46	25.61	36.99	34.77	-11.31	
	23133	713.3	TOUAIVI	12	6	22.02	22.11	24.26	36.99	34.77	-12.66	
				25	0	21.95	22.04	24.19	36.99	34.77	-12.73	

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LTE Band 12

Antenna gain (dBi) 0.09

Antenna gain (	(42.)	0.09	LTE Band 12	2_Uplink	frequer	ncy band : 699	to 716 MHz				
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	IC EIRP Limit (dBm)	ERP Limit (dBm)	Margin (dB)
				1	0	24.05	24.14	26.29	36.99	34.77	-10.63
	23060	704	QPSK	1	49	23.97	24.06	26.21	36.99	34.77	-10.71
	23000	704	QF3K	25	12	23.12	23.21	25.36	36.99	34.77	-11.56
				50	0	23.08	23.17	25.32	36.99	34.77	-11.6
				1	0	24.03	24.12	26.27	36.99	34.77	-10.65
	23095	707.5	QPSK	1	49	23.94	24.03	26.18	36.99	34.77	-10.74
	23073	23073 /07.3	QI JIK	25	12	23.06	23.15	25.30	36.99	34.77	-11.62
				50	0	23.01	23.10	25.25	36.99	34.77	-11.67
	23130 71	130 711		1	0	23.98	24.07	26.22	36.99	34.77	-10.7
			QPSK	1	49	23.87	23.96	26.11	36.99	34.77	-10.81
			QPSK	25	12	23.01	23.10	25.25	36.99	34.77	-11.67
10				50	0	22.98	23.07	25.22	36.99	34.77	-11.7
10				1	0	23.23	23.32	25.47	36.99	34.77	-11.45
	23060	704	16QAM	1	49	23.24	23.33	25.48	36.99	34.77	-11.44
	20000	701	1001111	25	12	22.13	22.22	24.37	36.99	34.77	-12.55
				50	0	22.10	22.19	24.34	36.99	34.77	-12.58
				1	0	23.24	23.33	25.48	36.99	34.77	-11.44
	23095	707.5	16OAM	1	49	23.21	23.30	25.45	36.99	34.77	-11.47
	20070	707.0	16()AM			21.96	22.05	24.20	36.99	34.77	-12.72
			25 12 21.96 22.05 24.20 36.99 50 0 21.99 22.08 24.23 36.99				36.99	34.77	-12.69		
				1	0	23.41	23.50	25.65	36.99	34.77	-11.27
	23130	711	16QAM	1	49	23.36	23.45	25.60	36.99	34.77	-11.32
	20100	, , , ,	1001111	25	12	21.99	22.08	24.23	36.99	34.77	-12.69
				50	0	21.97	22.06	24.21	36.99	34.77	-12.71

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.
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LTE Band 13

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Antenna gain	(dBi)	1.48											
			LTE Band 13	3_Uplink	c frequer	ncy band : 777	to 787 MHz						
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	IC EIRP Limit (dBm)	ERP Limit (dBm)	Margin (dB)		
				1	0	23.50	24.98	27.13	36.99	34.77	-9.79		
	23205	779.5	QPSK	1	24	23.83	25.31	27.46	36.99	34.77	-9.46		
	23203	117.5	QF3K	12	6	23.01	24.49	26.64	36.99	34.77	-10.28		
				25	0	22.97	24.45	26.60	36.99	34.77	-10.32		
				1	0	24.08	25.56	27.71	36.99	34.77	-9.21		
	23230	782	QPSK	1	24	23.97	25.45	27.60	36.99	34.77	-9.32		
	23230	702	QI JK	12	6	23.09	24.57	26.72	36.99	34.77	-10.2		
				25	0	23.04	24.52	26.67	36.99	34.77	-10.25		
				1	0	23.92	25.40	27.55	36.99	34.77	-9.37		
	23255	784 5	QPSK	1	24	23.87	25.35	27.50	36.99	34.77	-9.42		
	23255 784.5	784.5	/84.5	704.0	QPSK -	12	6	23.06	24.54	26.69	36.99	34.77	-10.23
5		23255 784.5		25	0	22.95	24.43	26.58	36.99	34.77	-10.34		
				1	0	22.70	24.18	26.33	36.99	34.77	-10.59		
	23205	779.5	16QAM	1	24	23.16	24.64	26.79	36.99	34.77	-10.13		
	20200	777.0	10 27 1111	12	6	21.98	23.46	25.61	36.99	34.77	-11.31		
				25	0	21.96	23.44	25.59	36.99	34.77	-11.33		
				1	0	23.17	24.65	26.80	36.99	34.77	-10.12		
	23230	782	16QAM	1	24	23.16	24.64	26.79	36.99	34.77	-10.13		
	20200	7.02		12	6	22.13	23.61	25.76	36.99	34.77	-11.16		
				25	0	22.11	23.59	25.74	36.99	34.77	-11.18		
				1	0	23.00	24.48	26.63	36.99	34.77	-10.29		
	23255	784.5	16QAM	1	24	22.95	24.43	26.58	36.99	34.77	-10.34		
	23255	784.5		12	6	22.11	23.59	25.74	36.99	34.77	-11.18		
				25	0	22.01	23.49	25.64	36.99	34.77	-11.28		

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LTE Band 13

Antenna gain (dRi) 1 48

Antenna gain	(dDI)	1.40			_						
			LTE Band 13	3_Uplink	(treque	ncy band : 777	to 787 MHz				
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	IC EIRP Limit (dBm)	ERP Limit (dBm)	Margin (dB)
				1	0	23.70	25.18	27.33	36.99	34.77	-9.59
	23230	782	QPSK	1	49	23.89	25.37	27.52	36.99	34.77	-9.4
	23230	702	UFSK	25	12	23.10	24.58	26.73	36.99	34.77	-10.19
10				50	0	23.05	24.53	26.68	36.99	34.77	-10.24
10				1	0	22.98	24.46	26.61	36.99	34.77	-10.31
	23230	782	16QAM	1	49	23.25	24.73	26.88	36.99	34.77	-10.04
	23230	102	TOUAIVI	25	12	22.10	23.58	25.73	36.99	34.77	-11.19
				50	0	22.06	23.54	25.69	36.99	34.77	-11.23



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LTE Band 25

Antenna gain (dBi) 1.09

Antenna gain	(ubi)	1.09 LTF Band	25_Uplink freq	iuency ł	and : 18	850 to 1915 MH	7		
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	21.81	22.90	33	-10.1
	26047	1850.7	QPSK	1	5	21.64	22.73	33	-10.27
	20047	1830.7	QP3K	3	2	21.90	22.99	33	-10.01
				6	0	20.85	21.94	33	-11.06
				1	0	21.88	22.97	33	-10.03
	26365	1882.5	QPSK	1	5	21.94	23.03	33	-9.97
	20303	1002.3	QI SK	3	2	21.93	23.02	33	-9.98
				6	0	21.00	22.09	33	-10.91
				1	0	22.00	23.09	33	-9.91
	26683 1914.3	1014 3	QPSK	1	5	21.97	23.06	33	-9.94
	20003	.83 1914.3	QI SIK	3	2	21.98	23.07	33	-9.93
1.4		1914.3		6	0	20.93	22.02	33	-10.98
1.4				1	0	21.10	22.19	33	-10.81
	26047	1850.7	16QAM	1	5	20.91	22.00	33	-11
	20047	1030.7	100/11/1	3	2	21.02	22.11	33	-10.89
				6	0	19.93	21.02	33	-11.98
				1	0	20.98	22.07	33	-10.93
	26365	1882.5	16QAM	1	5	21.06	22.15	33	-10.85
	20303	1002.5	TOQAM	3	2	20.99	22.08	33	-10.92
				6	0	20.11	21.20	33	-11.8
			1	0	21.34	22.43	33	-10.57	
	26683	1914 3	16QAM	1	5	21.36	22.45	33	-10.55
	26683 1914.3	1717.3	IOQAIVI	3	2	21.05	22.14	33	-10.86
				6	0	20.00	21.09	33	-11.91

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LTE Band 25

Antenna gain (dRi) 1 00

Antenna gain	LTE Band 25_Uplink frequency band : 1850 to 1915 MHz								
		LIE Band	zo_upiirik ired	uency t	Janu : 18	000 (U 1910 IVIF	Z		
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	22.01	23.10	33	-9.9
	26055	1851.5	QPSK	1	14	21.74	22.83	33	-10.17
	20000	1001.0	QF3K	8	4	21.00	22.09	33	-10.91
				15	0	20.97	22.06	33	-10.94
				1	0	22.01	23.10	33	-9.9
	26365	1882.5	QPSK	1	14	22.13	23.22	33	-9.78
	20303	1002.3	QF3K	8	4	21.11	22.20	33	-10.8
		++		15	0	21.08	22.17	33	-10.83
	26675 1913.5			1	0	22.10	23.19	33	-9.81
		1913.5	ODSK	1	14	22.05	23.14	33	-9.86
		QPSK	8	4	21.09	22.18	33	-10.82	
3		1913.5		15	0	21.04	22.13	33	-10.87
3				1	0	20.64	21.73	33	-11.27
	26055	1851.5	16QAM	1	14	20.87	21.96	33	-11.04
	20000	1001.0	TOCAIVI	8	4	19.97	21.06	33	-11.94
				15	0	19.78	20.87	33	-12.13
				1	0	20.91	22.00	33	-11
	26365	1882.5	16QAM	1	14	20.77	21.86	33	-11.14
	20300	1002.3	TOUAIVI	8	4	20.16	21.25	33	-11.75
				15	0	20.12	21.21	33	-11.79
				1	0	21.40	22.49	33	-10.51
	26475	1012 5	16QAM	1	14	21.27	22.36	33	-10.64
	26675 1913.	0.6171	TOUAIVI	8	4	20.09	21.18	33	-11.82
				15	0	20.09	21.18	33	-11.82



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LTE Band 25

Antenna gain (dBi) 1.09

Antenna gain	(dDI)	LTE Band	25_Uplink freq	uency k	oand : 18	350 to 1915 MH	lz		
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	22.09	23.18	33	-9.82
	26065	1852.5	QPSK	1	24	21.86	22.95	33	-10.05
	20003	1002.0	QF 3K	12	6	21.01	22.10	33	-10.9
				25	0	20.93	22.02	33	-10.98
				1	0	22.02	23.11	33	-9.89
	26365	1882.5	QPSK	1	24	22.05	23.14	33	-9.86
	20305 1882.5	QI SK	12	6	21.12	22.21	33	-10.79	
			25	0	21.06	22.15	33	-10.85	
				1	0	21.80	22.89	33	-10.11
	26665	1012 5	QPSK	1	24	22.05	23.14	33	-9.86
	26665 1912.5	1712.5	Q1 310	12	6	21.10	22.19	33	-10.81
5	26665 1912.5			25	0	21.09	22.18	33	-10.82
3				1	0	21.00	22.09	33	-10.91
	26065	1852.5	16QAM	1	24	20.93	22.02	33	-10.98
	20003	1032.3	IOQAM	12	6	19.97	21.06	33	-11.94
				25	0	19.95	21.04	33	-11.96
				1	0	20.91	22.00	33	-11
	26365	1882.5	16QAM	1	24	20.68	21.77	33	-11.23
	20303	1002.3	TOQAM	12	6	20.16	21.25	33	-11.75
				25	0	20.10	21.19	33	-11.81
				1	0	21.23	22.32	33	-10.68
	26665	1912.5	16QAM	1	24	21.31	22.40	33	-10.6
	20003	1712.0	IOQAW	12	6	20.08	21.17	Limit (dBm)  33 33 33 33 33 33 33 33 33 33 33 33 3	-11.83
				25	0	20.11	21.20	33	-11.8



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LTE Band 25

Antenna gain (dRi) 1 00

Antenna gain	(ubi)	1.09	OF Unlink from	u iopovi k	opd . 10	DEO + 0 101E MIL	_		
		LIE Band	25_Uplink free	uency t	oana : 18	350 to 1915 MH	Z		
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	21.99	23.08	33	-9.92
	26090	1855	ODSK	1	49	21.83	22.92	33	-10.08
	20090	1000	QF3K	25	12	21.06	22.15	33	-10.85
				50	0	21.03	22.12	33	-10.88
				1	0	22.21	23.30	33	-9.7
	26365	1882.5	ODSK	1	49	22.14	23.23	33	-9.77
	20303	1002.5	QF 3K	25	12	21.08	22.17	33	-10.83
				50	0	21.23	22.32	33	-10.68
				1	0	22.31	23.40	33	-9.6
	26640 191	1010	ODSK	1	49	22.16	23.25	33	-9.75
	20040	26640 1910	QI SK	25	12	21.11	22.20	33	-10.8
10		1910		50	0	21.11	22.20	33	-10.8
10				1	0	21.36	22.45	33	-10.55
	26090	1855	16∩AM	1	49	21.16	22.25	33	-10.75
	20070	1033	TOQAM	25	12	19.92	21.01	33	-11.99
				50	0	19.94	21.03	33	-11.97
				1	0	20.57	21.66	33	-11.34
	26365	1882.5	160AM	1	49	21.41	22.50	33	-10.5
	20303	0.2001	TOQAM	25	12	20.13	21.22	33	-11.78
	26640 1010			50	0	20.13	21.22	33	-11.78
				1	0	21.13	22.22	33	-10.78
		1010	1 49 21.83 25 12 21.06 50 0 21.03  1 0 22.21 1 49 22.14 25 12 21.08 50 0 21.23  1 0 22.31 1 0 22.31 1 0 22.31 1 49 22.16 25 12 21.11 50 0 21.11 50 0 21.11 50 0 21.11 50 0 21.16 25 12 19.92 50 0 19.94 2.5 12 19.92 50 0 19.94 2.5 12 20.13 50 0 20.13 1 0 21.13 1 0 21.13 1 0 21.13	21.10	33	-11.9			
	26640 1910		TOUAIVI	25	12	19.98	21.07	33	-11.93
				50	0	20.14	21.23	33	-11.77

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LTE Band 25

Antenna gain (dBi) 1.09

LTE Band 25_Uplink frequency band : 1850 to 1915 MHz										
ETE Dana 25_Opinik irequency band 1 1000 to 1713 wirz										
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)	
		1857.5	QPSK	1	0	22.22	23.31	33	-9.69	
	2/115			1	74	21.98	23.07	33	-9.93	
	26115			36	19	21.07	22.16	33	-10.84	
				75	0	20.11	21.20	33	-11.8	
				1	0	22.23	23.32	33	-9.68	
	26365	1882.5	QPSK	1	74	22.15	23.24	33	-9.76	
		1002.5	QPSK	36	19	21.09	22.18	33	-10.82	
				75	0	21.11	22.20	33	-10.8	
	26615			1 0 22.21				33	-9.7	
		1907.5	QPSK 36 19 21.18	22.05	23.14	33	-9.86			
		1707.3		36	19	21.18	22.27	33	-10.73	
15				75	0	21.14	22.23	33	-10.77	
13	26115	1857.5	16QAM	1	0	21.70	22.79	33	-10.21	
				1	74	21.42	22.51	33	-10.49	
				36	19	20.07	21.16	33	-11.84	
				75	0	20.07	21.16	33	-11.84	
	26365			1	0	20.72	21.81	33 -11.1	-11.19	
		1882.5	16QAM	1	74	21.43	22.52	33	-10.48	
		1002.5	TOCAIVI	36	19	20.17	21.26	33	-11.74	
				75	0	19.19	20.28	33	-12.72	
	26615			1	0	21.42	22.51	33	-10.49	
		1907.5	16QAM	1	74	21.24	22.33	33	-10.67	
			TOUAIVI	36	19	20.03	21.12	33	-11.88	
				75	0	20.13	21.22	33	-11.78	



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LTE Band 25

Antenna gain (dBi) 1.09

LTE Band 25_Uplink frequency band : 1850 to 1915 MHz									
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
		1860	QPSK	1	0	22.22	23.31	33	-9.69
	26140			1	99	21.96	23.05	33	-9.95
				50	25	21.26	22.35	33	-10.65
				100	0	21.12	22.21	33	-10.79
				1	0	22.22	23.31	33	-9.69
	26365	1882.5	ODSK	1	99	22.13	23.22	33	-9.78
			QF3K	50	25	21.35	22.44	33	-10.56
				100	0	21.15	22.24	33	-10.76
	26590			1	0	22.20	23.29	33	-10.56
		1905	OPSK     50     25     21.35       100     0     21.15       1     0     22.20       1     99     21.97       50     25     21.28       100     0     21.06	21.97	23.06	33	-9.94		
				50	25	21.28	22.37	33	-10.63
20				100	0		22.15	33	-10.85
20	26140	1860	16QAM	1	0	21.36	22.45	33	-10.55
				1	99	21.14	22.23	33	-10.77
				50	25	20.00	21.09	33	-11.91
				100	0	20.11	21.20	33	-11.8
	26365			1	0	21.31	22.40	33	-10.6
		1882.5	16QAM	1	99	21.00	22.09	33	-10.91
		1002.3	TOQAIVI	50	25	20.16	21.25	33	-11.75
				100	0	20.17	21.26	33	-11.74
	26590			1	0	21.39	22.48	33	-10.52
		1905	16QAM	1	99	21.20	22.29	33	-10.71
			IOQAWI	50	25	20.05	21.14	33	-11.86
				100	0	20.04	21.13	33	-11.87



LTE Band 26

Antenna gain (dRi) 0.72 Report No.: E2/2018/70116 Page 72 of 437

LTE Band 26_Uplink frequency band : 824 to 849 MHz											
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	IC EIRP Limit (dBm)	ERP Limit (dBm)	Margin (dB)
			QPSK	1	0	23.87	24.59	26.74	40.6	38.45	-13.86
	26797	824.7		1	5	23.88	24.60	26.75	40.6	38.45	-13.85
	20171	024.7		3	2	23.93	24.65	26.80	40.6	38.45	-13.8
				6	0	22.92	23.64	25.79	40.6	38.45	-14.81
			QPSK	1	0	24.00	24.72	26.87	40.6	38.45	-13.73
	26915	836.5		1	5	23.96	24.68	26.83	40.6	38.45	-13.77
				3	2	24.02	24.74	26.89	40.6	38.45	-13.71
				6	0	23.00	23.72	25.87	40.6	38.45	-14.73
				1	0	23.88	24.60	26.75	40.6	38.45	-13.85
	27033	848.3	QPSK	1	5	23.85	24.57	26.72	40.6	38.45	-13.88
				3	2	23.94	24.66	26.81	40.6	38.45	-13.79
1.4				6	0	22.95	23.67	25.82	40.6	38.45	-14.78
1.4	26797	824.7	16QAM	1	0	23.11	23.83	25.98	40.6	38.45	-14.62
				1	5	23.01	23.73	25.88	40.6	38.45	-14.72
				3	2	23.00	23.72	25.87	40.6	38.45	-14.73
				6	0	21.95	22.67	24.82	40.6	38.45	-15.78
	26915	836.5	16QAM	1	0	23.27	23.99	26.14	40.6	38.45	-14.46
				1	5	23.21	23.93	26.08	40.6	38.45	-14.52
				3	2	23.09	23.81	25.96	40.6	38.45	-14.64
				6	0	22.07	22.79	24.94	40.6	38.45	-15.66
	27033	848.3	16QAM	1	0	23.31	24.03	26.18	40.6	38.45	-14.42
				1	5	23.37	24.09	26.24	40.6	38.45	-14.36
				3	2	23.02	23.74	25.89	40.6	38.45	-14.71
				6	0	22.02	22.74	24.89	40.6	38.45	-15.71

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LTE Band 26

Antenna gain (dBi) 0.72

Antenna gain (	(uDi)	0.72	LTE Band 26	5_Uplink	frequer	ncy band : 824	to 849 MHz				
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	IC EIRP Limit (dBm)	ERP Limit (dBm)	Margin (dB)
				1	0	24.14	24.86	27.01	40.6	38.45	-13.59
	26805	825.5	QPSK	1	14	24.13	24.85	27.00	40.6	38.45	-13.6
	20003	020.0	QF3K	8	4	23.11	23.83	25.98	40.6	38.45	-14.62
				15	0	23.11	23.83	25.98	40.6	38.45	-14.62
				1	0	23.97	24.69	26.84	40.6	38.45	-13.76
	26915 836.5	024 E	QPSK	1	14	23.95	24.67	26.82	40.6	38.45	-13.78
		030.0	UPSK	8	4	23.10	23.82	25.97	40.6	38.45	-14.63
				15	0	23.14	23.86	26.01	40.6	38.45	-14.59
		7025 847.5	QPSK	1	0	24.04	24.76	26.91	40.6	38.45	-13.69
	27025			1	14	24.01	24.73	26.88	40.6	38.45	-13.72
	27023			8	4	23.10	23.82	25.97	40.6	38.45	-14.63
3				15	0	23.07	23.79	25.94	40.6	38.45	-14.66
3				1	0	23.24	23.96	26.11	40.6	38.45	-14.49
	26805	825.5	16QAM	1	14	23.19	23.91	26.06	40.6	38.45	-14.54
	20000	623.3	TOQAW	8	4	22.24	22.96	25.11	40.6	38.45	-15.49
				15	0	22.16	22.88	25.03	40.6	38.45	-15.57
				1	0	23.17	23.89	26.04	40.6	38.45	-14.56
	26915	836.5	16QAM	1	14	23.08	23.80	25.95	40.6	38.45	-14.65
	20913	030.3	TOUAIVI	8	4	22.11	22.83	24.98	40.6	38.45	-15.62
				15	0	22.05	22.77	24.92	40.6	38.45	-15.68
				1	0	23.21	23.93	26.08	40.6	38.45	-14.52
	27025	047.5	14000	1	14	23.33	24.05	26.20	40.6	38.45	-14.4
	27025	847.5	16QAM —	8	4	22.14	22.86	25.01	40.6	38.45	-15.59
				15	0	22.09	22.81	24.96	40.6	38.45	-15.64



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LTE Band 26

Antonna gain (dRi)

Antenna gain (	(uDI)	0.72	LTE Band 26	_Uplink	frequer	ncy band : 824	to 849 MHz				
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	IC EIRP Limit (dBm)	ERP Limit (dBm)	Margin (dB)
				1	0	24.09	24.81	26.96	40.6	38.45	-13.64
	26815	826.5	QPSK	1	24	24.06	24.78	26.93	40.6	38.45	-13.67
	20815	820.3	UPSK	12	6	23.13	23.85	26.00	40.6	38.45	-14.6
				25	0	23.10	23.82	25.97	40.6	38.45	-14.63
				1	0	24.10	24.82	26.97	40.6	38.45	-13.63
	26915 836.5	934 F	QPSK	1	24	24.06	24.78	26.93	40.6	38.45	-13.67
	20915 830	030.3	QF3K	12	6	23.13	23.85	26.00	40.6	38.45	-14.6
				25	0	23.10	23.82	25.97	40.6	38.45	-14.63
		015 846.5	QPSK	1	0	24.05	24.77	26.92	40.6	38.45	-13.68
	27015			1	24	24.02	24.74	26.89	40.6	38.45	-13.71
	27013			12	6	23.11	23.83	25.98	40.6	38.45	-14.62
5				25	0	23.07	23.79	25.94	40.6	38.45	-14.66
J				1	0	23.50	24.22	26.37	40.6	38.45	-14.23
	26815	826.5	16QAM	1	24	23.38	24.10	26.25	40.6	38.45	-14.35
	20013	020.5	IOQAW	12	6	22.10	22.82	24.97	40.6	38.45	-15.63
				25	0	22.12	22.84	24.99	40.6	38.45	-15.61
				1	0	23.35	24.07	26.22	40.6	38.45	-14.38
	26915	836.5	16QAM	1	24	23.25	23.97	26.12	40.6	38.45	-14.48
	20713	030.3	TOQAW	12	6	22.07	22.79	24.94	40.6	38.45	-15.66
				25	0	22.05	22.77	24.92	40.6	38.45	-15.68
				1	0	23.50	24.22	26.37	40.6	38.45	-14.23
	27015	846 5	16QAM <b>-</b>	1	24	23.40	24.12	26.27	40.6	38.45	-14.33
	27010	27015 846.5		12	6	22.12	22.84	24.99	40.6	38.45	-15.61
				25	0	22.03	22.75	24.90	40.6	38.45	-15.7

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LTE Band 26

Antonna gain (dRi)

Antenna gain	(aBI)	0.72			_						
			LTE Band 26	_Uplink	frequer	ncy band : 824	to 849 MHz				
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	IC EIRP Limit (dBm)	ERP Limit (dBm)	Margin (dB)
				1	0	24.10	24.82	26.97	40.6	38.45	-13.63
	26840	829	QPSK	1	49	23.99	24.71	26.86	40.6	38.45	-13.74
	20040	029	UPSK	25	12	23.14	23.86	26.01	40.6	38.45	-14.59
				50	0	23.07	23.79	25.94	40.6	38.45	-14.66
				1	0	24.06	24.78	26.93	40.6	38.45	-13.67
	26915 836.5	024 E	QPSK	1	49	23.97	24.69	26.84	40.6	38.45	-13.76
	26915 836.5	030.3	QF3N	25	12	23.11	23.83	25.98	40.6	38.45	-14.62
				50	0	23.09	23.81	25.96	40.6	38.45	-14.64
		844	QPSK	1	0	24.13	24.85	27.00	40.6	38.45	-13.6
	26990			1	49	23.95	24.67	26.82	40.6	38.45	-13.78
	20770			25	12	23.14	23.86	26.01	40.6	38.45	-14.59
10				50	0	23.11	23.83	25.98	40.6	38.45	-14.62
10				1	0	23.24	23.96	26.11	40.6	38.45	-14.49
	26840	829	16QAM	1	49	22.96	23.68	25.83	40.6	38.45	-14.77
	20010	027	10071111	25	12	22.11	22.83	24.98	40.6	38.45	-15.62
				50	0	22.13	22.85	25.00	40.6	38.45	-15.6
				1	0	23.15	23.87	26.02	40.6	38.45	-14.58
	26915	836.5	16QAM	1	49	23.10	23.82	25.97	40.6	38.45	-14.63
	20710	000.0	10071111	25	12	22.12	22.84	24.99	40.6	38.45	-15.61
				50	0	22.05	22.77	24.92	40.6	38.45	-15.68
				1	0	23.50	24.22	26.37	40.6	38.45	-14.23
	26990	844	16QAM	1	49	23.36	24.08	26.23	40.6	38.45	-14.37
	207.70	· · ·		25	12	22.16	22.88	25.03	40.6	38.45	-15.57
				50	0	22.12	22.84	24.99	40.6	38.45	-15.61



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LTE Band 26

Antenna gain (dBi) 0.72

Antenna gain (	(uDi)	0.72	LTE Band 26	_Uplink	frequer	ncy band : 824	to 849 MHz				
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	IC EIRP Limit (dBm)	ERP Limit (dBm)	Margin (dB)
				1	0	24.11	24.83	26.98	40.6	38.45	-13.62
	26865	831.5	QPSK	1	74	23.92	24.64	26.79	40.6	38.45	-13.81
	20000	031.0	UPSK	36	19	23.14	23.86	26.01	40.6	38.45	-14.59
				75	0	23.09	23.81	25.96	40.6	38.45	-14.64
				1	0	24.21	24.93	27.08	40.6	38.45	-13.52
	26915	836.5	QPSK	1	74	23.95	24.67	26.82	40.6	38.45	-13.78
	20915 630.3	030.3	QI JIX	36	19	23.14	23.86	26.01	40.6	38.45	-14.59
				75	0	23.10	23.82	25.97	40.6	38.45	-14.63
		6965 841.5	QPSK	1	0	24.23	24.95	27.10	40.6	38.45	-13.5
	26965			1	74	23.97	24.69	26.84	40.6	38.45	-13.76
	20703			36	19	23.18	23.90	26.05	40.6	38.45	-14.55
15				75	0	23.16	23.88	26.03	40.6	38.45	-14.57
15				1	0	23.37	24.09	26.24	40.6	38.45	-14.36
	26865	831.5	16QAM	1	74	23.18	23.90	26.05	40.6	38.45	-14.55
	20003	001.0	100/1111	36	19	22.11	22.83	24.98	40.6	38.45	-15.62
				75	0	22.13	22.85	25.00	40.6	38.45	-15.6
				1	0	23.44	24.16	26.31	40.6	38.45	-14.29
	26915	836.5	16QAM	1	74	23.20	23.92	26.07	40.6	38.45	-14.53
	20713	030.3	100/1111	36	19	22.17	22.89	25.04	40.6	38.45	-15.56
				75	0	22.17	22.89	25.04	40.6	38.45	-15.56
				1	0	23.46	24.18	26.33	40.6	38.45	-14.27
	26965	841.5	16QAM	1	74	23.48	24.20	26.35	40.6	38.45	-14.25
	20703	26965 841.5		36	19	22.14	22.86	25.01	40.6	38.45	-15.59
				75	0	22.14	22.86	25.01	40.6	38.45	-15.59



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## LTE Band 26 for Part 90S

Antenna gain (dBi) 0.72

Antenna gain	(4.2.)	Part 90S_LTE	Band 26_Uplir	nk frequ	ency ba	nd : 814 to 824	MHz		
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	ERP / EIRP Average (dBm)	ERP / EIRP Limit (dBm)	Margin (dB)
				1	0	23.94	24.66	50	-25.34
	26697	814.7	QPSK	1	5	23.88	24.60	50	-25.4
	20077	014.7	QI SK	3	2	23.87	24.59	50	-25.41
				6	0	22.87	23.59	50	-26.41
				1	0	24.03	24.75	50	-25.25
	26740	819	QPSK	1	5	23.97	24.69	50	-25.31
	26783 823.3	017	QF 3K	3	2	23.99	24.71	50	-25.29
				6	0	23.01	23.73	50	-26.27
		823.3	QPSK	1	0	23.90	24.62	50	-25.38
				1	5	23.87	24.59	50	-25.41
				3	2	23.98	24.70	50	-25.3
1.4				6	0	22.92	23.64	50	-26.36
1.4				1	0	22.89	23.61	50	-26.39
	26697	814.7	16QAM	1	5	22.84	23.56	50	-26.44
	20097	014.7	TOQAM	3	2	22.98	23.70	50	-26.3
				6	0	21.98	22.70	50	-27.3
				1	0	23.20	23.92	50	-26.08
	26740	819	16QAM	1	5	23.05	23.77	50	-26.23
	20740	019	TOUAIVI	3	2	23.01	23.73	50	-26.27
	0/700			6	0	22.10	22.82	50	-27.18
				1	0	23.40	24.12	50	-25.88
		ດລາ	1/0414	1	5	23.38	24.10	50	-25.9
	26783	823.3	16QAM	3	2	22.91	23.63	50	-26.37
				6	0	21.93	22.65	50	-27.35



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### LTE Band 26 for Part 90S

Antenna gain (dBi) 0.72

Antenna gain	,	Part 90S_LTE	Band 26_Uplir	nk frequ	ency ba	nd : 814 to 824	MHz		
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	ERP / EIRP Average (dBm)	ERP / EIRP Limit (dBm)	Margin (dB)
				1	0	24.05	24.77	50	-25.23
	26705	815.5	QPSK	1	14	23.99	24.71	50	-25.29
	20703	010.0	QPSK	8	4	23.02	23.74	50	-26.26
				15	0	22.99	23.71	50	-26.29
				1	0	24.03	24.75	50	-25.25
	26740	819	QPSK	1	14	23.95	24.67	50	-25.33
	20740	019	QF3K	8	4	23.09	23.81	50	-26.19
				15	0	23.02	23.74	50	-26.26
				1	0	24.01	24.73	50	-25.27
	26775 822.5	022 E	QPSK	1	14	23.96	24.68	50	-25.32
		QI SK	8	4	23.05	23.77	50	-26.23	
3				15	0	23.00	23.72	50	-26.28
3				1	0	23.10	23.82	50	-26.18
	26705	815.5	16QAM	1	14	23.05	23.77	50	-26.23
	20703	013.3	TOQAM	8	4	22.06	22.78	50	-27.22
				15	0	21.96	22.68	50	-27.32
				1	0	23.40	24.12	50	-25.88
	26740	010	16QAM	1	14	23.43	24.15	50	-25.85
	26740 819	019	TOUAIVI	8	4	22.08	22.80	50	-27.2
				15	0	22.12	22.84	50	-27.16
				1	0	23.12	23.84	50	-26.16
	26775	022 E	16QAM	1	14	23.14	23.86	50	-26.14
	26775 822.5	TOUAIVI	8	4	22.04	22.76	50	-27.24	
				15	0	22.05	22.77	50	-27.23

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## LTE Band 26 for Part 90S

Antenna gain (dBi) 0.72

Antenna gain	(4.2.)	Part 90S_LTE	Band 26_Uplir	nk frequ	ency ba	nd : 814 to 824	MHz		
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	ERP / EIRP Average (dBm)	ERP / EIRP Limit (dBm)	Margin (dB)
				1	0	24.08	24.80	50	-25.2
	26715	816.5	QPSK	1	24	23.96	24.68	50	-25.32
	20/13	010.5	QF 3K	12	6	23.00	23.72	50	-26.28
				25	0	22.94	23.66	50	-26.34
				1	0	24.00	24.72	50	-25.28
	26740	819	QPSK	1	24	23.97	24.69	50	-25.31
	20740	017	QF 3K	12	6	23.09	23.81	50	-26.19
			25	0	23.06	23.78	50	-26.22	
				1	0	23.97	24.69	50	-25.31
	26765 821.5	Q21 5	QPSK	1	24	23.89	24.61	50	-25.39
		021.5	QI SK	12	6	23.03	23.75	50	-26.25
5				25	0	23.03	23.75	50	-26.25
3				1	0	23.28	24.00	50	-26
	26715	816.5	16QAM	1	24	23.20	23.92	50	-26.08
	20713	010.5	TOQAM	12	6	22.02	22.74	50	-27.26
				25	0	21.93	22.65	50	-27.35
				1	0	23.29	24.01	50	-25.99
	26740	010	16QAM	1	24	23.15	23.87	50	-26.13
	26740 819 26765 821.5	019	TOCAM	12	6	22.10	22.82	50	-27.18
				25	0	22.08	22.80	50	-27.2
			1	0	22.97	23.69	50	-26.31	
		16QAM	1	24	22.92	23.64	50	-26.36	
	20703	021.3	TOUAIVI	12	6	22.09	22.81	50	-27.19
				25	0	22.03	22.75	50	-27.25

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# LTE Band 26 for Part 90S

Antenna gain (dBi) 0.72

Part 90S LTE Band 26 Uplink frequency band : 814 to 824 MHz											
Part 90S_LTE Band 26_Uplink frequency band : 814 to 824 MHz											
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	ERP / EIRP Average (dBm)	ERP / EIRP Limit (dBm)	Margin (dB)		
				1	0	24.09	24.81	50	-25.19		
	26740	819	QPSK	1	49	23.94	24.66	50	-25.34		
	20740	019	QF3K	25	12	23.12	23.84	50	-26.16		
10				50	0	23.09	23.81	50	-26.19		
10				1	0	23.25	23.97	50	-26.03		
	26740	819	16QAM	1	49	23.14	23.86	50	-26.14		
	20740	019	TOUAIVI	25	12	22.10	22.82	50	-27.18		
				50	0	22.10	22.82	50	-27.18		

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LTE Band 30

Antenna gain (dRi) n 05

Antenna gain	(uBi)	0.95				2051 2045 141			
		LIE Band	30_Uplink fred	uency t	oand : 23	305 to 2315 MF	Z		
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	23.04	23.99	24	-0.01
	27685	2307.5	QPSK	1	24	23.04	23.99	24	-0.01
	27003	2307.3	QF3K	12	6	22.66	23.61	24	-0.39
				25	0	22.64	23.59	24	-0.41
				1	0	23.01	23.96	24	-0.04
	27710	2310	QPSK	1	24	23.04	23.99	24	-0.01
	27735 2312.5	2310	QF3K	12	6	22.67	23.62	24	-0.38
				25	0	22.63	23.58	24	-0.42
		2312.5	QPSK	1	0	23.00	23.95	24	-0.05
				1	24	23.00	23.95	24	-0.05
				12	6	22.68	23.63	24	-0.37
5				25	0	22.71	23.66	24	-0.34
3				1	0	22.94	23.89	24	-0.11
	27685	2307.5	16QAM	1	24	22.86	23.81	24	-0.19
	27003	2307.3	TOCAM	12	6	21.67	22.62	24	-1.38
				25	0	21.67	22.62	24	-1.38
				1	0	22.91	23.86	24	-0.14
	27710	2310	16QAM	1	24	22.87	23.82	24	-0.18
	2//10	2310	TOCAM	12	6	21.63	22.58	24	-1.42
				25	0	21.59	22.54	24	-1.46
				1	0	22.90	23.85	24	-0.15
	27735	2312.5	16QAM	1	24	22.93	23.88	24	-0.12
	21133	2312.3	TOQAWI	12	6	21.78	22.73	24	-1.27
				25	0	21.71	22.66	24	-1.34

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LTE Band 30

Antenna gain (	(dBi)	0.95									
LTE Band 30_Uplink frequency band : 2305 to 2315 MHz											
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)		
				1	0	23.00	23.95	24	-0.05		
	27710	2310	QPSK	1	49	23.01	23.96	24	-0.04		
	21110	2310	QF3K	25	12	22.66	23.61	24	-0.39		
10				50	0	22.61	23.56	24	-0.44		
10				1	0	22.89	23.84	24	-0.16		
	27710	2310	16QAM	1	49	22.80	23.75	24	-0.25		
	21110	2310	TOUAIVI	25	12	21.70	22.65	24	-1.35		
				50	0	21.63	22.58	24	-1.42		

### **EIRP Power Density**

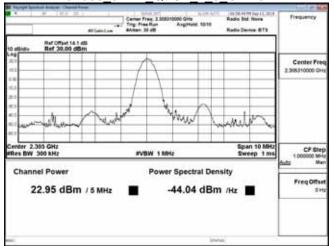
LTE Band 30_Conducted Power Density (dBm/5MHz)										
BW 5MHz 10MHz BW 5MHz 10MHz										
Modulation	QPSK	16QAM	QPSK	16QAM	Modulation	QPSK	16QAM	QPSK	16QAV	
Lowest CH	22.95	22.84			Lowest CH	23.90	23.79			
Middle CH	22.92	22.89	22.93	22.86	Middle CH	23.87	23.84	23.88	23.81	
Hishest CH	22.93	22.89			Hishest CH	23.88	23.84			
					Antenna Gain		0.95	5		
Limit 250mW / 5MHz = 24dBm / 5MHz										

<sup>\*</sup>Refer to next page for plots

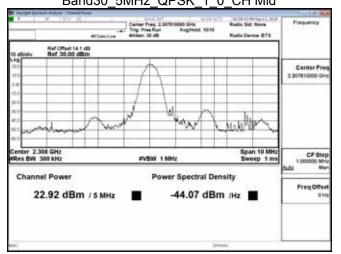


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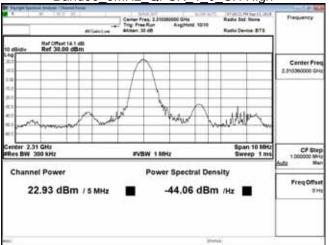
#### Band30 5MHz QPSK 1 0 CH Low



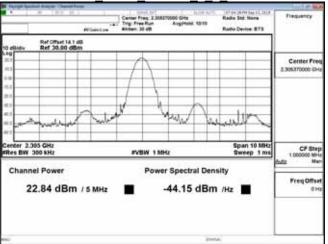
## Band30 5MHz QPSK 1 0 CH Mid



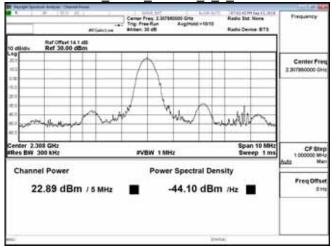
#### Band30 5MHz QPSK 1 0 CH High



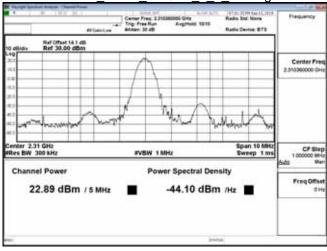
#### Band30 5MHz 16QAM 1 0 CH Low



#### Band30 5MHz 16QAM 1 0 CH Mid



#### Band30 5MHz 16QAM 1 0 CH High



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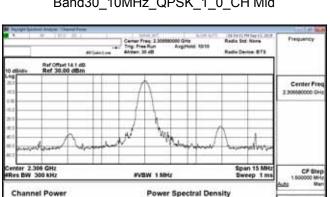
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22.93 dBm / 5 MHz

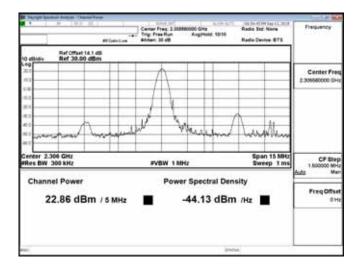
Band30\_10MHz\_QPSK\_1\_0\_CH Mid



-44.06 dBm /Hz

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Band30\_10MHz\_16QAM\_1\_0\_CH Mid



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LTE Band 38

**Duty Cycle Correction Factor** 

2.22 Antenna gain (dBi) 2.11

Antenna gain	( 1)	LTE Band	38_Uplink freq	uency k	oand : 25	570 to 2620 MH	lz		2.22
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	23.63	27.96	33	-5.04
	37775	2572.5	QPSK	1	24	23.59	27.92	33	-5.08
	37773	2072.0	QF3K	12	6	22.67	27.00	33	-6
				25	0	22.65	26.98	33	-6.02
				1	0	23.58	27.91	33	-5.09
	38000	2595	QPSK	1	24	23.58	27.91	33	-5.09
	30000	2070	QI OIK	12	6	22.74	27.07	33	-5.93
	38225 2617.5		25	0	22.70	27.03	33	-5.97	
			1	0	23.60	27.93	33	-5.07	
		2617 5	QPSK	1	24	23.61	27.94	33	-5.06
		2017.0	21 310	12	6	22.68	27.01	33	-5.99
5				25	0	22.64	26.97	33	-6.03
3				1	0	22.80	27.13	33	-5.87
	37775	2572.5	16QAM	1	24	22.77	27.10	33	-5.9
	31113	2372.3	TOQAM	12	6	21.72	26.05	33	-6.95
				25	0	21.69	26.02	33	-6.98
				1	0	22.83	27.16	33	-5.84
	38000	2595	16QAM	1	24	22.79	27.12	33	-5.88
	30000	2373	TOQAM	12	6	21.82	26.15	33	-6.85
	38225 2617.5		25	0	21.74	26.07	33	-6.93	
			1	0	22.80	27.13	33	-5.87	
		16QAM	1	24	22.83	27.16	33	-5.84	
		TOUAIVI	12	6	21.72	26.05	33	-6.95	
				25	0	21.66	25.99	33	-7.01



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LTE Band 38

Antenna gain (dRi) 2 11

Antenna gain	Antenna gain (dBi) 2.11  LTE Band 38_Uplink frequency band : 2570 to 2620 MHz											
		L ſ E Ban	d 38_Uplink fre	quency	band : 2	25/0 to 2620 M	HZ					
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)			
				1	0	23.60	27.93	33	-5.07			
	37800	2575	QPSK	1	49	23.44	27.77	33	-5.23			
	37600	2373	QF3K	25	12	22.64	26.97	33	-6.03			
				50	0	22.60	26.93	33	-6.07			
				1	0	23.62	27.95	33	-5.05			
	38000	2595	QPSK	1	49	23.59	27.92	33	-5.08			
	30000	2070		25	12	22.70	27.03	33	-5.97			
				50	0	22.67	27.00	33	-6			
	38200	2615	QPSK	1	0	23.58	27.91	33	-5.09			
				1	49	23.59	27.92	33	-5.08			
	30200			25	12	22.68	27.01	33	-5.99			
10				50	0	22.61	26.94	33	-6.06			
				1	0	22.85	27.18	33	-5.82			
	37800	2575	16QAM	1	49	22.71	27.04	33	-5.96			
	07000	2070	10071111	25	12	21.65	25.98	33	-7.02			
				50	0	21.62	25.95	33	-7.05			
				1	0	22.88	27.21	33	-5.79			
	38000	2595	16QAM	1	49	22.81	27.14	33	-5.86			
	00000	2070	10071111	25	12	21.78	26.11	33	-6.89			
				50	0	21.73	26.06	33	-6.94			
				1	0	22.73	27.06	33	-5.94			
	38200	2615	16QAM	1	49	22.74	27.07	33	-5.93			
	55255	2615	16QAM	25	12	21.75	26.08	33	-6.92			
				50	0	21.68	26.01	33	-6.99			

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### LTE Band 38

Antenna gain (dBi)

211

Antenna gain	LTE Band 38_Uplink frequency band : 2570 to 2620 MHz											
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)			
				1	0	23.68	28.01	33	-4.99			
	37825	2577.5	QPSK	1	74	23.45	27.78	33	-5.22			
	37023	2011.0	QF 3K	36	19	22.66	26.99	33	-6.01			
				75	0	22.60	26.93	33	-6.07			
				1	0	23.78	28.11	33	-4.89			
	38000	2595	QPSK	1	74	23.67	28.00	33	-5			
	30000	2373	QF 3K	36	19	22.73	27.06	33	-5.94			
				75	0	22.73	27.06	33	-5.94			
		2612.5	QPSK	1	0	23.67	28.00	33	-5			
	38175			1	74	23.60	27.93	33	-5.07			
				36	19	22.65	26.98	33	-6.02			
15				75	0	22.59	26.92	33	-6.08			
15				1	0	22.81	27.14	33	-5.86			
	37825	2577.5	16QAM	1	74	22.73	27.06	33	-5.94			
	37023	2377.3	TOCAM	36	19	21.63	25.96	33	-7.04			
				75	0	21.66	25.99	33	-7.01			
				1	0	22.98	27.31	33	-5.69			
	38000	2595	16QAM	1	74	22.80	27.13	33	-5.87			
	30000	2373	TOCAM	36	19	21.72	26.05	33	-6.95			
				75	0	21.75	26.08	33	-6.92			
				1	0	22.78	27.11	33	-5.89			
	38175	2412 5	140011	1	74	22.75	27.08	33	-5.92			
	301/3	2612.5	16QAM <b>–</b>	36	19	21.63	25.96	33	-7.04			
				75	0	21.66	25.99	33	-7.01			



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LTE Band 38

Antenna gain (dRi)

2 11

Antenna gain	Intenna gain (dBi) 2.11  LTE Band 38_Uplink frequency band : 2570 to 2620 MHz											
		LIE Ban	a 38_Uplink fre	quency	pand : 2			EIDD.				
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)			
				1	0	23.75	28.08	33	-4.92			
	37850	2580	QPSK	1	99	23.53	27.86	33	-5.14			
	37030	2300	QI SIX	50	25	22.64	26.97	33	-6.03			
				100	0	22.61	26.94	33	-6.06			
				1	0	23.78	28.11	33	-4.89			
	38000	2595	QPSK	1	99	23.63	27.96	33	-5.04			
		2373	QI SK	50	25	22.75	27.08	33	-5.92			
				100	0	22.74	27.07	33	-5.93			
		2610	QPSK	1	0	23.68	28.01	33	-4.99			
	38150			1	99	23.58	27.91	33	-5.09			
				50	25	22.60	26.93	33	-6.07			
20				100	0	22.61	26.94	33	-6.06			
20				1	0	22.89	27.22	33	-5.78			
	37850	2580	16QAM	1	99	22.71	27.04	33	-5.96			
	37030	2300	100/11/1	50	25	21.70	26.03	33	-6.97			
				100	0	21.68	26.01	33	-6.99			
				1	0	22.95	27.28	33	-5.72			
	38000	2595	16QAM	1	99	22.86	27.19	33	-5.81			
	30000	2070	10071111	50	25	21.76	26.09	33	-6.91			
				100	0	21.76	26.09	33	-6.91			
				1	0	22.83	27.16	33	-5.84			
	38150	2610	16QAM	1	99	22.78	27.11	33	-5.89			
	38150	2010	16QAM <b>–</b>	50	25	21.69	26.02	33	-6.98			
				100	0	21.67	26.00	33	-7			

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LTE Band 41

**Duty Cycle Correction Factor** 

Antenna gain (dBi) 2.11 2.26

Antenna gain	,	LTE Band	41_Uplink freq	uency l	oand : 24	196 to 2690 MF	lz		2.20
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	23.63	28.00	33	-5
	39675	2498.5	QPSK	1	24	23.60	27.97	33	-5.03
	390/3	2498.3	QPSK	12	6	22.72	27.09	33	-5.91
				25	0	22.63	27.00	33	-6
				1	0	23.68	28.05	33	-4.95
	40620	2593	QPSK	1	24	23.66	28.03	33	-4.97
	40020	2093		12	6	22.77	27.14	33	-5.86
				25	0	22.74	27.11	33	-5.89
	41565	2687.5	QPSK	1	0	23.63	28.00	33	-5
				1	24	23.57	27.94	33	-5.06
	41565			12	6	22.72	27.09	33	-5.91
5				25	0	22.66	27.03	33	-5.97
3				1	0	22.89	27.26	33	-5.74
	20/75	2400 5	1/0414	1	24	22.84	27.21	33	-5.79
	39675	2498.5	16QAM	12	6	21.73	26.10	33	-6.9
				25	0	21.70	26.07	33	-6.93
				1	0	22.87	27.24	33	-5.76
	40620	2593	16QAM	1	24	22.79	27.16	33	-5.84
	40020	2093	TOUAIVI	12	6	21.78	26.15	33	-6.85
				25	0	21.75	26.12	33	-6.88
				1	0	22.81	27.18	33	-5.82
	41565	2687.5	16QAM	1	24	22.79	27.16	33	-5.84
	41303	2687.5	TOCAM	12	6	21.72	26.09	33	-6.91
				25	0	21.67	26.04	33	-6.96



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LTE Band 41

Antenna gain (dBi) 2 11

Antenna gain	(ubi)	2.11 LTF Ran	d 41_Uplink fre	allenev	hand · 1	2406 to 2600 M	Ц		
		LIL Dall	u 41_opiilik ile	quency	Dariu . 2	1470 IO 2070 IVI	I IZ		
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	23.67	28.04	33	-4.96
	39700	2501	QPSK	1	49	23.50	27.87	33	-5.13
	39700	2301	QF3K	25	12	22.68	27.05	33	-5.95
				50	0	22.63	27.00	33	-6
				1	0	23.65	28.02	33	-4.98
	40620	2593	QPSK	1	49	23.56	27.93	33	-5.07
	10020	2070		25	12	22.67	27.04	33	-5.96
				50	0	22.67	27.04	33	-5.96
	41540	2685	QPSK	1	0	23.59	27.96	33	-5.04
				1	49	23.51	27.88	33	-5.12
				25	12	22.62	26.99	33	-6.01
10				50	0	22.62	26.99	33	-6.01
10				1	0	22.89	27.26	33	-5.74
	39700	2501	16QAM	1	49	22.76	27.13	33	-5.87
	37700	2501	100/1101	25	12	21.73	26.10	33	-6.9
				50	0	21.70	26.07	33	-6.93
				1	0	22.86	27.23	33	-5.77
	40620	2593	16QAM	1	49	22.73	27.10	33	-5.9
	40020	2070	10071101	25	12	21.72	26.09	33	-6.91
				50	0	21.71	26.08	33	-6.92
				1	0	22.86	27.23	33	-5.77
	41540	2685	16QAM	1	49	22.78	27.15	33	-5.85
	71070	2003	16QAM <b>–</b>	25	12	21.67	26.04	33	-6.96
				50	0	21.66	26.03	33	-6.97

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LTE Band 41

Antonna gain (dRi)

Antenna gain	Antenna gain (dBi) 2.11  LTE Band 41_Uplink frequency band : 2496 to 2690 MHz											
		LTE Ban	d 41_Uplink fre	quency	band: 2	2496 to 2690 M	Hz					
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)			
				1	0	23.74	28.11	33	-4.89			
	39725	2503.5	QPSK	1	74	23.51	27.88	33	-5.12			
	37723	2303.3	QI SK	36	19	22.64	27.01	33	-5.99			
				75	0	22.58	26.95	33	-6.05			
				1	0	23.73	28.10	33	-4.9			
	40620	2593	QPSK	1	74	23.62	27.99	33	-5.01			
	40020	2070		36	19	22.73	27.10	33	-5.9			
				75	0	22.65	27.02	33	-5.98			
	41515	2682.5	QPSK	1	0	23.71	28.08	33	-4.92			
				1	74	23.57	27.94	33	-5.06			
				36	19	22.63	27.00	33	-6			
15				75	0	22.62	26.99	33	-6.01			
15				1	0	22.90	27.27	33	-5.73			
	39725	2503.5	16QAM	1	74	22.68	27.05	33	-5.95			
	37723	2303.3	TOQAM	36	19	21.62	25.99	33	-7.01			
				75	0	21.64	26.01	33	-6.99			
				1	0	22.88	27.25	33	-5.75			
	40620	2593	16QAM	1	74	22.80	27.17	33	-5.83			
	40020	2373	TOQAM	36	19	21.69	26.06	33	-6.94			
				75	0	21.74	26.11	33	-6.89			
				1	0	22.84	27.21	33	-5.79			
	41515	2682 F	16∩ΔM	1	74	22.71	27.08	33	-5.92			
	TIJIJ	2682.5	16QAM <b>—</b>	36	19	21.64	26.01	33	-6.99			
				75	0	21.66	26.03	33	-6.97			



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LTE Band 41

Antenna gain (dRi) 2 11

Antenna gain	Antenna gain (dBi) 2.11  LTE Band 41_Uplink frequency band : 2496 to 2690 MHz											
		L l E Ban	d 41_Uplink fre	quency	band: 2	2496 to 2690 M	HZ					
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)			
				1	0	23.72	28.09	33	-4.91			
	39750	2506	QPSK	1	99	23.46	27.83	33	-5.17			
	37730	2500	QFSK	50	25	22.62	26.99	33	-6.01			
				100	0	22.60	26.97	33	-6.03			
				1	0	23.79	28.16	33	-4.84			
	40620	2593	QPSK	1	99	23.64	28.01	33	-4.99			
	40020	2070		50	25	22.74	27.11	33	-5.89			
				100	0	22.74	27.11	33	-5.89			
	41490	2680	QPSK	1	0	23.72	28.09	33	-4.91			
				1	99	23.51	27.88	33	-5.12			
	41470			50	25	22.69	27.06	33	-5.94			
20				100	0	22.65	27.02	33	-5.98			
20				1	0	22.90	27.27	33	-5.73			
	39750	2506	16QAM	1	99	22.67	27.04	33	-5.96			
	37730	2300	TOQAW	50	25	21.63	26.00	33	-7			
				100	0	21.65	26.02	33	-6.98			
				1	0	22.92	27.29	33	-5.71			
	40620	2593	16QAM	1	99	22.85	27.22	33	-5.78			
	40020	2070	TOCAM	50	25	21.78	26.15	33	-6.85			
				100	0	21.75	26.12	33	-6.88			
				1	0	22.89	27.26	33	-5.74			
	41490	2600	16∩∧\/	1	99	22.71	27.08	33	-5.92			
	41470	2680	16QAM <b>—</b>	50	25	21.71	26.08	33	-6.92			
				100	0	21.66	26.03	33	-6.97			

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LTE Band 66

Antenna gain (dRi) 1 92

Antenna gain	LTE Band 66_Uplink frequency band : 1710 to 1780 MHz										
		LIE Band	оо_оринк нес	uency (	Janu : T	7 10 (0 1780 WIF	Z				
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)		
				1	0	24.08	26.00	30	-4		
	131979	1710.7	QPSK	1	5	24.10	26.02	30	-3.98		
	131979	1710.7	UPSK	3	2	24.10	26.02	30	-3.98		
				6	0	23.12	25.04	30	-4.96		
				1	0	24.03	25.95	30	-4.05		
	132322	1745	QPSK	1	5	24.01	25.93	30	-4.07		
	132322	1743	UPSK	3	2	24.09	26.01	30	-3.99		
				6	0	23.01	24.93	30	-5.07		
	132665	1779.3	QPSK	1	0	23.95	25.87	30	-4.13		
				1	5	23.91	25.83	30	-4.17		
				3	2	23.99	25.91	30	-4.09		
1.4				6	0	22.91	24.83	30	-5.17		
1.1				1	0	23.49	25.41	30	-4.59		
	131979	1710.7	16QAM	1	5	23.48	25.40	30	-4.6		
	131979	1710.7	TOUAIVI	3	2	23.04	24.96	30	-5.04		
				6	0	22.08	24.00	30	-6		
				1	0	23.22	25.14	30	-4.86		
	132322	1745	16QAM	1	5	23.28	25.20	30	-4.8		
	132322	1743	TOQAM	3	2	23.13	25.05	30	-4.95		
				6	0	22.13	24.05	30	-5.95		
				1	0	23.29	25.21	30	-4.79		
	132665	1779.3	16QAM	1	5	23.31	25.23	30	-4.77		
	.02000	177710		3	2	22.97	24.89	30	-5.11		
				6	0	22.08	24.00	30	-6		

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LTE Band 66

Antenna gain (dRi) 1 92

Antenna gain	Intenna gain (dBi) 1.92  LTE Band 66_Uplink frequency band : 1710 to 1780 MHz											
		LTE Band	oo_upiink ired	uency i	band : 17	/ 10 to 1780 WIF	Z					
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)			
				1	0	24.17	26.09	30	-3.91			
	131987	1711.5	QPSK	1	14	24.07	25.99	30	-4.01			
	131907	1711.5	QF3K	8	4	23.17	25.09	30	-4.91			
				15	0	23.15	25.07	30	-4.93			
				1	0	24.04	25.96	30	-4.04			
	132322	1745	QPSK	1	14	24.02	25.94	30	-4.06			
	132322	1745	Q1 310	8	4	23.15	25.07	30	-4.93			
				15	0	23.10	25.02	30	-4.98			
	132657	1778.5	QPSK	1	0	24.07	25.99	30	-4.01			
				1	14	23.95	25.87	30	-4.13			
				8	4	23.06	24.98	30	-5.02			
3				15	0	23.04	24.96	30	-5.04			
3				1	0	23.29	25.21	30	-4.79			
	131987	1711.5	16QAM	1	14	23.26	25.18	30	-4.82			
	131707	1711.5	TOQAM	8	4	22.29	24.21	30	-5.79			
				15	0	22.23	24.15	30	-5.85			
				1	0	23.17	25.09	30	-4.91			
	132322	1745	16QAM	1	14	23.12	25.04	30	-4.96			
	132322	1740	TOQAM	8	4	22.20	24.12	30	-5.88			
				15	0	22.06	23.98	30	-6.02			
				1	0	23.17	25.09	30	-4.91			
	132657	1770 ⊑	16QAM	1	14	23.19	25.11	30	-4.89			
	132037	1778.5	TOUAIVI	8	4	22.12	24.04	30	-5.96			
				15	0	22.02	23.94	30	-6.06			

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LTE Band 66

Antenna gain (dBi) 1.92									
		LTE Band	66_Uplink fred	juency ł	oand : 17	710 to 1780 MF	lz		
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	24.16	26.08	30	-3.92
	131997	1712.5	QPSK	1	24	24.11	26.03	30	-3.97
	131997	1/12.5	QP3K	12	6	23.17	25.09	30	-4.91
				25	0	23.19	25.11	30	-4.89
				1	0	24.16	26.08	30	-3.92
	132322	1745	QPSK	1	24	24.11	26.03	30	-3.97
	132322	1745		12	6	23.12	25.04	30	-4.96
				25	0	23.10	25.02	30	-4.98
	132647	1777.5	QPSK	1	0	24.08	26.00	30	-4
				1	24	23.95	25.87	30	-4.13
	132047			12	6	23.06	24.98	30	-5.02
5				25	0	23.04	24.96	30	-5.04
				1	0	23.37	25.29	30	-4.71
	131997	1712.5	16QAM	1	24	23.44	25.36	30	-4.64
	131777	1712.5	10071111	12	6	22.20	24.12	30	-5.88
				25	0	22.17	24.09	30	-5.91
				1	0	23.41	25.33	30	-4.67
	132322	1745	16QAM	1	24	23.29	25.21	30	-4.79
	132322	1743	10071101	12	6	22.12	24.04	30	-5.96
L				25	0	22.09	24.01	30	-5.99
				1	0	23.43	25.35	30	-4.65
	132647	1777 5	16QAM	1	24	23.32	25.24	30	-4.76
	132047	1777.5	TOQAM	12	6	22.06	23.98	30	-6.02
	.02017			25	0	22.06	23.98	30	-6.02



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LTE Band 66

Antenna gain (dRi) 1 02

Antenna gain	Antenna gain (dBi) 1.92  LTE Band 66_Uplink frequency band : 1710 to 1780 MHz											
		LIE Band	оо_оринк нес	uency t	Janu : T	/ 10 to 1/80 WH	Z					
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)			
				1	0	24.26	26.18	30	-3.82			
	132022	1715	QPSK	1	49	24.07	25.99	30	-4.01			
	132022	1713	QF 3K	25	12	23.21	25.13	30	-4.87			
				50	0	23.12	25.04	30	-4.96			
				1	0	24.15	26.07	30	-3.93			
	132322	1745	QPSK	1	49	23.95	25.87	30	-4.13			
	132322	1743	QI 3K	25	12	23.16	25.08	30	-4.92			
				50	0	23.14	25.06	30	-4.94			
		1775	QPSK	1	0	24.21	26.13	30	-3.87			
	122622			1	49	23.93	25.85	30	-4.15			
	132622			25	12	23.09	25.01	30	-4.99			
10				50	0	23.06	24.98	30	-5.02			
10				1	0	23.36	25.28	30	-4.72			
	132022	1715	16QAM	1	49	23.35	25.27	30	-4.73			
	132022	1713	TOQAIVI	25	12	22.29	24.21	30	-5.79			
				50	0	22.18	24.10	30	-5.9			
				1	0	23.33	25.25	30	-4.75			
	132322	1745	16QAM	1	49	23.11	25.03	30	-4.97			
	132322	1743	ToQAIVI	25	12	22.14	24.06	30	-5.94			
				50	0	22.13	24.05	30	-5.95			
				1	0	23.30	25.22	30	-4.78			
	132622	1775	16000	1	49	23.15	25.07	30	-4.93			
	132022	1773	16QAM <b>–</b>	25	12	22.14	24.06	30	-5.94			
				50	0	22.08	24.00	30	-6			

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LTE Band 66

Antenna dain (dRi) 1 02

Antenna gain	ntenna gain (dBi) 1.92  LTE Band 66_Uplink frequency band : 1710 to 1780 MHz										
		LIE Band	66_Uplink fred	uency k	oand : 17	/ 10 to 1/80 MH	Z				
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)		
				1	0	24.34	26.26	30	-3.74		
	132047	1717.5	QPSK	1	74	24.02	25.94	30	-4.06		
	132047	1717.5	QI SIK	36	19	23.18	25.10	30	-4.9		
				75	0	23.20	25.12	30	-4.88		
				1	0	24.33	26.25	30	-3.75		
	132322	1745	QPSK	1	74	24.09	26.01	30	-3.99		
	.52522	1743	QI OIX	36	19	23.18	25.10	30	-4.9		
				75	0	23.16	25.08	30	-4.92		
	132597	1772.5	QPSK	1	0	24.31	26.23	30	-3.77		
				1	74	23.99	25.91	30	-4.09		
				36	19	23.11	25.03	30	-4.97		
15				75	0	23.13	25.05	30	-4.95		
				1	0	23.33	25.25	30	-4.75		
	132047	1717.5	16QAM	1	74	23.37	25.29	30	-4.71		
	102017	1717.0	10071111	36	19	22.27	24.19	30	-5.81		
				75	0	22.22	24.14	30	-5.86		
				1	0	23.44	25.36	30	-4.64		
	132322	1745	16QAM	1	74	23.21	25.13	30	-4.87		
	132322	1710	10071111	36	19	22.16	24.08	30	-5.92		
				75	0	22.20	24.12	30	-5.88		
				1	0	23.43	25.35	30	-4.65		
	132597	1772.5	16QAM	1	74	23.38	25.30	30	-4.7		
	102077	1772.0	10011111	36	19	22.13	24.05	30	-5.95		
				75	0	22.13	24.05	30	-5.95		

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LTE Band 66

Antonna gain (dDi)

Antenna gain	(dBi)	1.92							
		LTE Band	66_Uplink fred	uency l	oand : 17	710 to 1780 MF	Z		-
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	24.38	26.30	30	-3.7
	132072	1720	QPSK	1	99	24.06	25.98	30	-4.02
	132072	1720	QI SK	50	25	23.21	25.13	30	-4.87
				100	0	23.22	25.14	30	-4.86
				1	0	24.26	26.18	30	-3.82
	132322	1745	QPSK	1	99	23.90	25.82	30	-4.18
	102022	1743	QI SIX	50	25	23.14	25.06	30	-4.94
				100	0	23.15	25.07	30	-4.93
			1770 QPSK	1	0	24.37	26.29	30	-3.71
	132572	1770		1	99	23.96	25.88	30	-4.12
	132372	1770		50	25	23.10	25.02	30	-4.98
20				100	0	23.11	25.03	30	-4.97
20				1	0	23.48	25.40	30	-4.6
	132072	1720	16QAM	1	99	23.18	25.10	30	-4.9
	132072	1720	TOQAW	50	25	22.21	24.13	30	-5.87
				100	0	22.21	24.13	30	-5.87
				1	0	23.42	25.34	30	-4.66
	132322	1745	16QAM	1	99	23.06	24.98	30	-5.02
	132322	1740	TOCAM	50	25	22.14	24.06	30	-5.94
				100	0	22.17	24.09	30	-5.91
				1	0	23.46	25.38	30	-4.62
	132572	1770	16QAM	1	99	23.41	25.33	30	-4.67
	132372	1770	TOUAIVI	50	25	22.16	24.08	30	-5.92
			100	0	22.13	24.05	30	-5.95	

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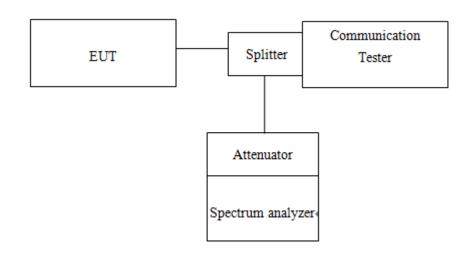
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### 8. OCCUPIED BANDWIDTH MEASUREMENT

## 8.1. Standard Applicable

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

### 8.2. Test Set-up



### 8.3. Measurement Procedure

### 99% &26dB Bandwidth with detector peak

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

### 99% Bandwidth with detector sample

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

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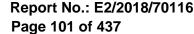
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## 8.4. Measurement Equipment Used

Conduc	Conducted Emission (measured at antenna port) Test Site								
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.				
TYPE		NUMBER	NUMBER	CAL.					
Spectrum Analyzer	Agilent	N9010A	MY51440113	2018/06/20	2019/06/19				
Radio Communication Analyer	Anritsu	MT8820C	6201107337	2018/06/15	2019/06/14				
DC Power Supply	Agilent	E3640A	MY53130054	2017/09/04	2018/09/03				
Attenuator	Marvelous	MVE2213-10	RF30	2017/12/26	2018/12/25				
Splitter	Woken	DOM35LW1 A2	RF36	2017/12/26	2018/12/25				





### 8.5. Measurement Result

Frog		999	% BW (MH	z)	26 dB BW (MHz)		
Freq. (MHz)	СН	WCDMA II	HSDPA II	HSUPA II	WCDMA II	HSDPA II	HSUPA II
1852.40	9262	4.1144	4.1153	4.1278	4.684	4.672	4.677
1880.00	9400	4.1176	4.1249	4.1222	4.690	4.688	4.655
1907.60	9538	4.1183	4.1057	4.1163	4.695	4.659	4.658

Freq.		999	% BW (MH	z)	26 dB BW (MHz)			
(MHz)	CH	WCDMA	HSDPA	HSUPA	WCDMA	HSDPA	HSUPA	
(IVII IZ)		V	V	V	V	V	V	
826.40	4132	4.1214	4.1342	4.1445	4.680	4.706	4.723	
836.60	4183	4.1242	4.1243	4.1326	4.693	4.711	4.724	
846.60	4233	4.1085	4.1154	4.1146	4.703	4.665	4.657	

L	LTE BAND 2 Channel bandwidth: 1.4MHz							
Freq.	СН	99% B\	N (MHz)	26 dB B	W (MHz)			
(MHz)	Сп	QPSK	16QAM	QPSK	16QAM			
1850.7	18607	1.0952	1.0978	1.240	1.243			
1880.0	18900	1.0953	1.0984	1.241	1.238			
1909.3	19193	1.0947	1.0979	1.234	1.248			

LTE BAND 2 Channel bandwidth: 3MHz							
Freq.	СН	99% BV	V (MHz)	26 dB B	W (MHz)		
(MHz)	СП	QPSK	16QAM	QPSK	16QAM		
1851.5	18615	2.6989	2.7016	2.998	3.016		
1880.0	18900	2.6988	2.7028	3.007	3.004		
1908.5	19185	2.6984	2.7045	2.996	3.003		

	LTE BAND 2 Channel bandwidth: 5MHz							
Freq.	СН	д. — 99% BW (MHz)		26 dB BW (MHz)				
(MHz)	CII	QPSK	16QAM	QPSK	16QAM			
1852.5	18625	4.4963	4.5017	4.978	4.993			
1880.0	18900	4.4964	4.5075	4.984	4.984			
1907.5	19175	4.5031	4.4990	4.976	4.974			

LTE BAND 2 Channel bandwidth: 10MHz							
Freq.	СН	99% BW (MHz)		26 dB BW (MHz)			
(MHz)	CII	QPSK	16QAM	QPSK	16QAM		
1855.0	18650	9.0024	8.9601	9.836	9.712		
1880.0	18900	9.0160	8.9610	9.797	9.747		
1905.0	19150	9.0039	8.9582	9.790	9.722		

LTE BAND 2 Channel bandwidth: 15MHz						
Freq.	СН	99% BW (MHz)		26 dB BW (MHz)		
(MHz)	CII	QPSK	16QAM	QPSK	16QAM	
1857.5	18675	13.466	13.453	14.63	14.65	
1880.0	18900	13.499	13.464	14.63	14.75	
1902.5	19125	13.465	13.461	14.75	14.65	

LTE BAND 2 Channel bandwidth: 20MHz							
Freq.	СН	99% BW (MHz)		26 dB BW (MHz)			
(MHz)	CII	QPSK	16QAM	QPSK	16QAM		
1860.0	18700	17.913	17.933	19.44	19.40		
1880.0	18900	17.951	17.956	19.49	19.35		
1900.0	19100	17.933	17.938	19.37	19.39		

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	LTE BAND 4 Channel bandwidth: 1.4MHz							
Freq.	СН	99% B\	W (MHz)	26 dB B	W (MHz)			
(MHz)	СП	QPSK	16QAM	QPSK	16QAM			
1710.7	19957	1.0916	1.0941	1.237	1.238			
1732.5	20175	1.0940	1.0945	1.233	1.239			
1754.3	20393	1.0925	1.0972	1.242	1.246			

LTE BAND 4 Channel bandwidth: 3MHz							
Freq.	СН	99% BV	V (MHz)	26 dB B	W (MHz)		
(MHz)	СП	QPSK	16QAM	QPSK	16QAM		
1711.5	19965	2.6987	2.7029	2.996	3.004		
1732.5	20175	2.7011	2.7019	2.986	2.999		
1753.5	20385	2.6996	2.7019	3.002	2.994		

LTE BAND 4 Channel bandwidth: 5MHz									
Freq.	СН	99% B	W (MHz)	26 dB B	W (MHz)				
(MHz)		QPSK	16QAM	QPSK	16QAM				
1712.5	19957	4.5087	4.5050	4.971	4.938				
1732.5	20175	4.5145	4.5074	4.961	4.961				
1752.5	20375	4.5164	4.5036	4.953	4.975				

LTE BAND 4 Channel bandwidth: 10MHz									
Freq.	СН	99% BV	V (MHz)	26 dB B	W (MHz)				
(MHz)	CH	QPSK	16QAM	QPSK	16QAM				
1715.0	20000	9.0095	8.9718	9.840	9.747				
1732.5	20175	9.0000	8.9695	9.817	9.805				
1750.0	20350	8.9974	8.9746	9.811	9.734				

LTE DAND A Channel handwidth, 1EMUz									
LTE BAND 4 Channel bandwidth: 15MHz									
Freq.	СН	99% B	W (MHz)	26 dB B	W (MHz)				
(MHz)		QPSK	16QAM	QPSK	16QAM				
1717.5	20025	13.478	13.491	14.64	14.67				
1732.5	20175	13.499	13.458	14.77	14.74				
1747.5	20325	13.492	13.482	14.70	14.65				

	LTE BAND 4 Channel bandwidth: 20MHz									
Freq.	СН	99% BV	V (MHz)	26 dB B	W (MHz)					
(MHz)	CH	QPSK	16QAM	QPSK	16QAM					
1720.0	20050	17.971	18.008	19.51	19.50					
1732.5	20175	17.931	17.941	19.47	19.59					
1745.0	20300	17.951	17.995	19.54	19.61					

LTE BAND 5 Channel bandwidth: 1.4MHz								
Freq.	СН	99% BW (MHz)		26 dB BW (MHz)				
(MHz)	Сп	QPSK	16QAM	QPSK	16QAM			
824.7	20407	1.0955	1.0981	1.234	1.238			
836.5	20525	1.0934	1.0964	1.235	1.240			
848.3	20643	1.0936	1.0968	1.237	1.238			

LTE BAND 5 Channel bandwidth: 3MHz									
Freq. CH (MHz)	СП	99% BW (MHz)		26 dB BW (MHz)					
	СП	QPSK	16QAM	QPSK	16QAM				
825.5	20415	2.7005	2.6980	2.989	3.006				
836.5	20525	2.7007	2.7024	3.005	3.021				
847.5	20635	2.7009	2.6990	2.999	2.998				

LTE BAND 5 Channel bandwidth: 5MHz								
Freq.	СН	99% B\	N (MHz)	26 dB B	W (MHz)			
(MHz)	CII	QPSK	16QAM	QPSK	16QAM			
826.5	20425	4.5011	4.5000	5.005	4.962			
836.5	20525	4.5016	4.4998	4.999	4.970			
846.5	20625	4.4954	4.5002	4.967	4.984			

LTE BAND 5 Channel bandwidth: 10MHz									
Freq.	СН	99% BV	V (MHz)	26 dB B	W (MHz)				
(MHz)		QPSK	16QAM	QPSK	16QAM				
829.0	20450	9.0111	8.9817	9.827	9.782				
836.5	20525	9.0064	8.9656	9.849	9.783				
844.0	20600	8.9844	8.9469	9.815	9.724				

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LTE BAND 7 Channel bandwidth: 5MHz									
Freq. CH	99% B'	99% BW (MHz) 26 dB BW (M							
(MHz)	СП	QPSK	16QAM	QPSK	16QAM				
2502.5	20775	4.5048	4.5082	4.978	4.979				
2535.0	21100	4.5017	4.5058	4.998	4.977				
2567.5	21425	4.5027	4.5043	4.986	4.993				

LTE BAND 7 Channel bandwidth: 10MHz									
Freq.	Freq. 99% BW (MHz)		26 dB B	W (MHz)					
(MHz)	СН	QPSK	16QAM	QPSK	16QAM				
2505.0	20800	8.9935	8.9622	9.865	9.731				
2535.0	21100	8.9836	8.9606	9.762	9.795				
2565.0	21400	8.9744	8.9418	9.820	9.765				

LTE BAND 7 Channel bandwidth: 15MHz								
Freq.	СН	99% B	W (MHz)	26 dB B	W (MHz)			
(MHz)	CII	QPSK	16QAM	QPSK	16QAM			
2507.5	20825	13.478	13.466	14.64	14.68			
2535.0	21100	13.489	13.463	14.71	14.73			
2562.5	21375	13.478	13.428	14.62	14.60			

LTE BAND 7 Channel bandwidth: 20MHz									
Freq.	СН	99% BW (MHz)		26 dB BW (MHz)					
(MHz)	CII	QPSK	16QAM	QPSK	16QAM				
2510.0	20850	17.939	17.930	19.45	19.30				
2535.0	21100	17.954	17.978	19.54	19.44				
2560.0	21350	17.880	17.905	19.35	19.35				

LTE BAND 12 Channel bandwidth: 1.4MHz								
Freq.		99% BW (MHz)		26 dB BW (MHz)				
(MHz)	СП	QPSK	16QAM	QPSK	16QAM			
699.7	23017	1.0939	1.0946	1.218	1.240			
707.5	23095	1.0950	1.0974	1.239	1.233			
715.3	23173	1.0958	1.0943	1.241	1.232			

LTE BAND 12 Channel bandwidth: 3MHz									
Freq.	СН	99% BV	V (MHz)	26 dB B	W (MHz)				
(MHz)		QPSK	16QAM	QPSK	16QAM				
700.5	23025	2.7027	2.7053	3.015	3.009				
707.5	23095	2.6994	2.6983	2.996	3.001				
714.5	23165	2.7019	2.6996	3.004	3.012				

LTE BAND 12 Channel bandwidth: 5MHz								
Freq.	Freq. CH	99% B\	N (MHz)	26 dB BW (MHz)				
(MHz)	СН	QPSK	16QAM	QPSK	16QAM			
701.5	23035	4.5114	4.5094	4.988	4.993			
707.5	23095	4.5004	4.5006	4.986	4.961			
713.5	23155	4.5085	4.5088	4.984	4.955			

LTE BAND 12 Channel bandwidth: 10MHz								
Freq.		99% BV	99% BW (MHz)		26 dB BW (MHz)			
(MHz)		QPSK	16QAM	QPSK	16QAM			
704.0	23060	9.0290	8.9641	9.790	9.747			
707.5	23095	8.9869	8.9258	9.777	9.714			
711.0	23130	8.9711	8.9480	9.827	9.785			

LTE BAND 13 Channel bandwidth: 5MHz									
Freq.	Freq. (MHz)	99% B'	W (MHz)	26 dB BW (MHz)					
(MHz)		QPSK	16QAM	QPSK	16QAM				
779.5	23205	4.4974	4.5015	4.956	4.967				
782.0	23230	4.5146	4.5112	5.019	4.952				
784.5	23255	4.4976	4.4954	4.969	4.930				

LTE BAND 13 Channel bandwidth: 10MHz										
Freq.	СН	99% BW (MHz)		26 dB BW (MHz)						
(MHz)	СП	QPSK	16QAM	QPSK	16QAM					
782.0	23230	8.995	8.948	9.791	9.721					

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LTE BAND 25 Channel bandwidth: 1.4MHz									
Freq.	Freq. (MHz) CH	99% BW (MHz)		26 dB BW (MHz)					
(MHz)		QPSK	16QAM	QPSK	16QAM				
1850.7	26047	1.0950	1.0954	1.235	1.245				
1882.5	26365	1.0931	1.0970	1.240	1.238				
1914.3	26683	1.0931	1.0970	1.234	1.238				

LTE BAND 25 Channel bandwidth: 3MHz									
Freq.	СН	99% BV	V (MHz)	26 dB B	W (MHz)				
(MHz)		QPSK	16QAM	QPSK	16QAM				
1851.5	26055	2.6981	2.6978	3.000	3.008				
1882.5	26365	2.6963	2.7000	2.976	3.010				
1913.5	26675	2.7001	2.7046	2.990	2.997				

ı	LTE BAND 25 Channel bandwidth: 5MHz									
	L	IE BAIN	D 25 Cha	nnei bandv	wath: Sivii	7 <u>Z</u>				
	Freq. CH	99% B\	99% BW (MHz)		26 dB BW (MHz)					
	(MHz)	СП	QPSK	16QAM	QPSK	16QAM				
	1852.5	26065	4.4941	4.5069	4.971	4.971				
	1882.5	26365	4.4957	4.5016	4.991	4.962				
	1912.5	26665	4.5019	4.4988	4.983	4.972				

LTE BAND 25 Channel bandwidth: 10MHz									
Freq.	СН	99% BV	V (MHz)	26 dB B	W (MHz)				
(MHz)	CH	QPSK	16QAM	QPSK	16QAM				
1855.0	26090	9.0017	8.9721	9.850	9.815				
1882.5	26365	8.9873	8.9664	9.813	9.763				
1910.0	26640	9.0073	8.9566	9.804	9.756				

LTE BAND 25 Channel bandwidth: 15MHz								
Freq.	Freq. (MHz) CH	99% B\	N (MHz)	26 dB BW (MHz)				
(MHz)		QPSK	16QAM	QPSK	16QAM			
1857.5	26115	13.453	13.452	14.67	14.60			
1882.5	26365	13.459	13.472	14.64	14.74			
1907.5	26615	13.475	13.454	14.66	14.65			

L	LTE BAND 25 Channel bandwidth: 20MHz							
Freq.	СН	99% BV	V (MHz)	26 dB B	W (MHz)			
(MHz)	СП	QPSK	16QAM	QPSK	16QAM			
1860.0	26140	17.8980	17.9450	19.44	19.50			
1882.5	26365	17.9170	17.9610	19.50	19.50			
1905.0	26590	17.9090	17.9210	19.44	19.39			

LTE BAND 26 Channel bandwidth: 1.4MHz								
Freq.	СН	99% B\	N (MHz)	26 dB B	W (MHz)			
(MHz)	СП	QPSK	16QAM	QPSK	16QAM			
824.7	26797	1.0945	1.0960	1.234	1.239			
836.5	26915	1.0945	1.0959	1.238	1.241			
848.3	27033	1.0946	1.0976	1.234	1.241			

LTE BAND 26 Channel bandwidth: 3MHz									
Freq.	СН	99% BV	V (MHz)	26 dB B	W (MHz)				
(MHz)	СП	QPSK	16QAM	QPSK	16QAM				
825.5	26805	2.6937	2.7045	2.981	3.006				
836.5	26915	2.7006	2.7025	2.999	3.016				
847.5	27025	2.6980	2.7045	3.010	3.001				

L	LTE BAND 26 Channel bandwidth: 5MHz								
Freq.	СН	99% B\	N (MHz)	26 dB B	W (MHz)				
(MHz)	CH	QPSK	16QAM	QPSK	16QAM				
826.5	26815	4.5005	4.5000	4.960	4.973				
836.5	26915	4.5007	4.5044	4.985	4.963				
846.5	27015	4.4957	4.4978	4.994	4.977				

LTE BAND 26 Channel bandwidth: 10MHz								
Freq.	СН	99% BV	V (MHz)	26 dB B	W (MHz)			
(MHz)	CII	QPSK	16QAM	QPSK	16QAM			
829.0	26840	8.9911	8.9715	9.807	9.771			
836.5	26915	9.0024	8.9573	9.778	9.788			
844.0	26990	8.9765	8.9453	9.795	9.722			

LTE BAND 26 Channel bandwidth: 15MHz								
Freq.	СН	99% B\	N (MHz)	26 dB B	W (MHz)			
(MHz)	CH	QPSK	16QAM	QPSK	16QAM			
831.5	26865	13.459	13.436	14.67	14.63			
836.5	26915	13.493	13.456	14.75	14.64			
841.5	26965	13.458	13.456	14.69	14.70			



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LTE E	BAND 26	for part 90S Channel bandwidth: 1.4MHz							
Freq.	СН	99% B	W (MHz)	26 dB B	W (MHz)				
(MHz)	СП	QPSK	16QAM	QPSK	16QAM				
814.7	26697	1.0945	1.0960	1.235	1.237				
819.0	26740	1.0942	1.0958	1.236	1.238				
823.3	26783	1.0953	1.0938	1.238	1.237				

LTE BAND 26 for part 90S Channel bandwidth: 3MHz								
Freq.	СН	99% BV	V (MHz)	26 dB B	W (MHz)			
(MHz)	CH	QPSK	16QAM	QPSK	16QAM			
815.5	26705	2.6997	2.7018	2.986	3.005			
819.0	26740	2.6991	2.7053	3.004	3.002			
822.5	26775	2.7032	2.7041	2.985	3.009			

LTE	BAND 26 for part 90S Channel bandwidth: 5MHz						
Freq.	СН	99% B	W (MHz)	26 dB B	W (MHz)		
(MHz)	CH	QPSK	16QAM	QPSK	16QAM		
816.5	26715	4.4926	4.4977	4.956	4.971		
819.0	26740	4.4917	4.4993	4.978	4.959		
821.5	26765	4.5091	4.5063	5.003	4.977		

LTE	LTE BAND 26 for part 90S Channel bandwidth: 10MHz									
Freq.	СН	99% BW (MHz)		26 dB BW (MHz)						
(MHz)	ИHz)	QPSK	16QAM	QPSK	16QAM					
819.0	26740	8.9892	8.9375	9.805	9.743					

1									
	L	LTE BAND 30 Channel bandwidth: 5MHz							
	Freq.	СН	99% B\	N (MHz)	26 dB B	W (MHz)			
	(MHz)	CH	QPSK	16QAM	QPSK	16QAM			
	2307.5	27685	4.5014	4.4983	4.995	4.947			
	2310.0	27710	4.4991	4.4992	4.985	4.963			
	2312.5	27735	4.4907	4.5022	4.987	4.983			

LTE BAND 30 Channel bandwidth: 10MHz								
Freq.	СН	99% BW (MHz)		26 dB BW (MHz)				
(MHz)	СП	QPSK	16QAM	16QAM	QPSK			
2310.0	27710	9.0141	8.9575	9.838	9.796			

LTE BAND 38 Channel bandwidth: 5MHz									
Freq.	СН	_	W (MHz)	_	W (MHz)				
(MHz)	СН	QPSK	16QAM	QPSK	16QAM				
2572.5	37775	4.5053	4.5050	4.997	4.966				
2595.0	38000	4.4980	4.5064	4.979	4.975				
2617.5	38225	4.5013	4.5006	4.927	4.982				

LTE BAND 38 Channel bandwidth: 10MHz								
Freq. CH	99% BV	V (MHz)	26 dB B	26 dB BW (MHz)				
(MHz)	СП	QPSK	16QAM	QPSK	16QAM			
2575.0	37800	8.9704	8.9631	9.752	9.706			
2595.0	38000	8.9791	8.9522	9.726	9.728			
2615.0	38200	8.9769	8.9563	9.764	9.760			

	LTE BAND 38 Channel bandwidth: 15MHz									
Freq. CH	99% BW (MHz)		26 dB BW (MHz)							
(MHz)	MHz)	QPSK	16QAM	QPSK	16QAM					
2577.5	37825	13.441	13.454	14.62	14.75					
2595.0	38000	13.467	13.475	14.54	14.76					
2612.5	38175	13.448	13.455	14.61	14.69					

	LTE BAND 38 Channel bandwidth: 20MHz								
Freq.	Freq. (MHz)	99% BW (MHz)		26 dB BW (MHz)					
(MHz)		QPSK	16QAM	QPSK	16QAM				
2580.0	37850	17.921	17.930	19.42	19.52				
2595.0	38000	17.930	17.883	19.37	19.42				
2610.0	38150	17.919	17.898	19.38	19.42				

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LTE BAND 41 Channel bandwidth: 5MHz								
Freq.	СН	99% B\	N (MHz)	26 dB B	W (MHz)			
(MHz)	СП	QPSK	16QAM	QPSK	16QAM			
2498.5	39675	4.4984	4.4970	4.948	4.951			
2593.0	40620	4.5045	4.5045	4.974	4.980			
2687.5	41565	4.4976	4.4997	4.968	4.918			

L	LTE BAND 41 Channel bandwidth: 10MHz									
Freq.	l. CII	99% BV	V (MHz)	26 dB B	W (MHz)					
(MHz)	СН	QPSK	16QAM	QPSK	16QAM					
2501.0	39700	8.9579	8.9533	9.725	9.763					
2593.0	40620	8.9792	8.9530	9.784	9.673					
2685.0	41540	8.9751	8.9703	9.743	9.744					

LTE BAND 41 Channel bandwidth: 15MHz								
Freq.	СН	99% B\	N (MHz)	26 dB B	W (MHz)			
(MHz)	CII	QPSK	16QAM	QPSK	16QAM			
2503.5	39725	13.479	13.467	14.52	14.71			
2593.0	40620	13.457	13.466	14.54	14.71			
2682.5	41515	13.443	13.469	14.56	14.62			

LTE BAND 41 Channel bandwidth: 20MHz								
Freq. CH	99% BW (MHz)		26 dB BW (MHz)					
(MHz)	CH	QPSK	16QAM	QPSK	16QAM			
2506.0	39750	17.906	17.912	19.32	19.34			
2593.0	40620	17.918	17.893	19.36	19.36			
2680.0	41490	17.919	17.944	19.30	19.40			

	LTE BAND 66 Channel bandwidth: 1.4MHz							
Freq.	СН	99% B'	W (MHz)	26 dB BW (MHz)				
(MHz)		QPSK	16QAM	QPSK	16QAM			
1710.7	131979	1.0958	1.0965	1.237	1.240			
1745.0	132322	1.0920	1.0975	1.235	1.234			
1779.3	132665	1.0946	1.0942	1.236	1.240			

	LTE BAND 66 Channel bandwidth: 3MHz								
Freq.	CH	99% BW (MHz)		26 dB BW (MHz)					
(MHz)	СН	QPSK	16QAM	QPSK	16QAM				
1711.5	131987	2.6993	2.7054	2.999	3.010				
1745.0	132322	2.7018	2.7011	2.987	3.006				
1778.5	132657	2.6991	2.7021	2.975	3.008				

	LTE BAND 66 Channel bandwidth: 5MHz									
Freq.	СН	99% B'	W (MHz)	26 dB B	W (MHz)					
(MHz)	CII	QPSK	16QAM	QPSK	16QAM					
1712.5	131997	4.5018	4.5003	4.977	4.970					
1745.0	132322	4.4991	4.5024	4.963	4.967					
1777.5	132647	4.5055	4.5050	4.976	5.005					

LTE BAND 66 Channel bandwidth: 10MHz								
Freq.	СН	99% BV	V (MHz)	26 dB B	W (MHz)			
(MHz)	CH	QPSK	16QAM	QPSK	16QAM			
1715.0	132022	8.9938	8.9616	9.843	9.760			
1745.0	132322	9.0091	8.9613	9.818	9.777			
1775.0	132622	9.0216	8.9701	9.786	9.749			

	LTE BAND 66 Channel bandwidth: 15MHz								
Freq. CH	99% BW (MHz)		26 dB BW (MHz)						
(MHz)	CII	QPSK	16QAM	QPSK	16QAM				
1717.5	132047	13.4740	13.4650	14.67	14.65				
1745.0	132322	13.4490	13.4680	14.69	14.71				
1772.5	132597	13.4890	13.4750	14.69	14.76				

LTE BAND 66 Channel bandwidth: 20MHz						
Freq.	СН	99% BW (MHz)		26 dB BW (MHz)		
(MHz)		QPSK	16QAM	QPSK	16QAM	
1720.0	132072	17.9810	18.0000	19.49	19.56	
1745.0	132322	17.9440	17.9250	19.50	19.42	
1770.0	132572	17.9560	17.9560	19.48	19.60	

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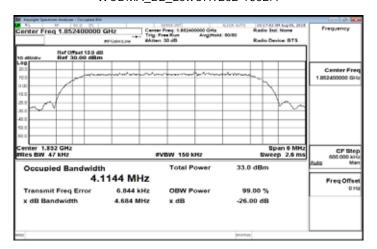
No.134,WuKungRoad,NewTaipeilndustrialPark,WukuDistrict,NewTaipeiCity,Taiwan24803/新北市五股區新北產業園區五工路 134 號

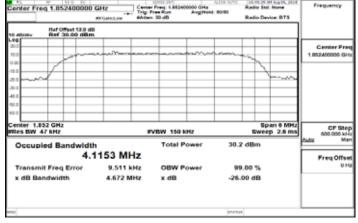


### WCDMA B2 LowCH9262-1852.4

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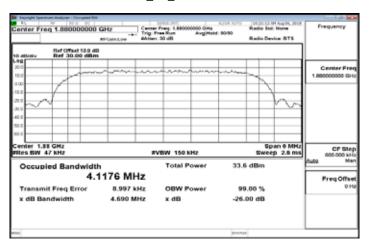
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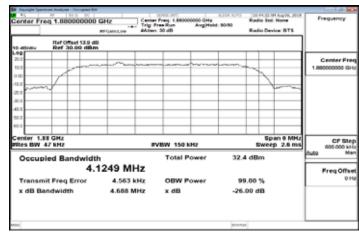




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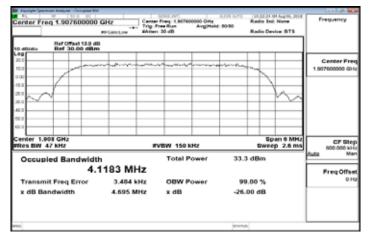
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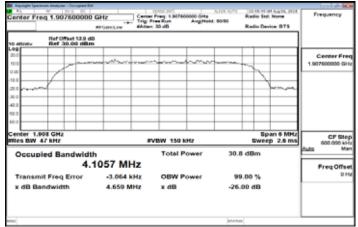




### WCDMA B2 HighCH9538-1907.6

HSDPA B2 HighCH9538-1907.6





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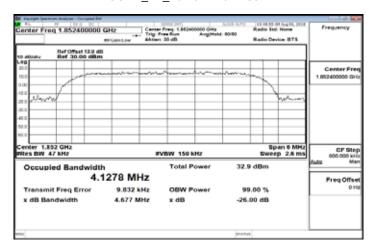
SGS Taiwan Ltd. No.134,WuKungRoad,NewTaipeiIndustrialPark,WukuDistrict,NewTaipeiCity,Taiwan24803/新北市五股區新北產業園區五工路 134 號

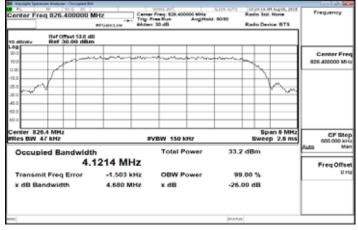


### HSUPA B2 LowCH9262-1852.4

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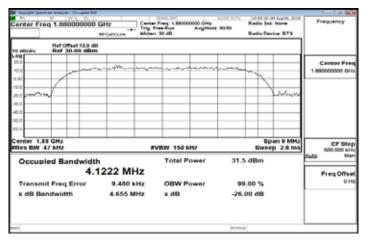
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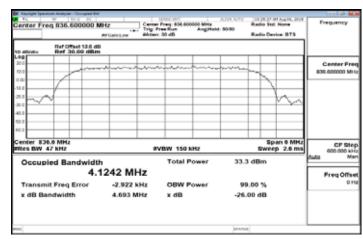




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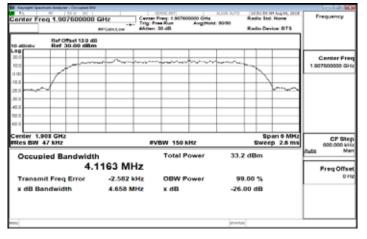
WCDMA B5 MidCH4183-836.6





### HSUPA B2 HighCH9538-1907.6

WCDMA B5 HighCH4233-846.6





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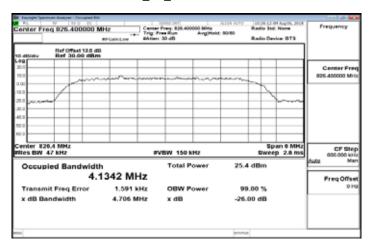
SGS Taiwan Ltd. No.134,WuKungRoad,NewTaipeiIndustrialPark,WukuDistrict,NewTaipeiCity,Taiwan24803/新北市五股區新北產業園區五工路 134 號

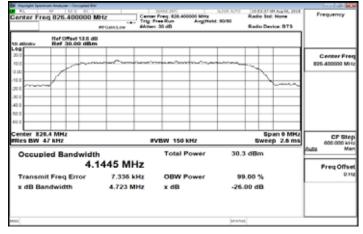


### HSDPA B5 LowCH4132-826.4

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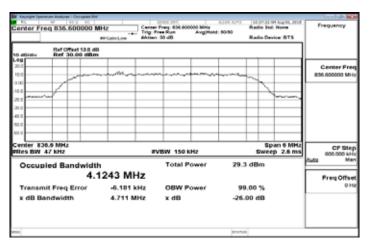
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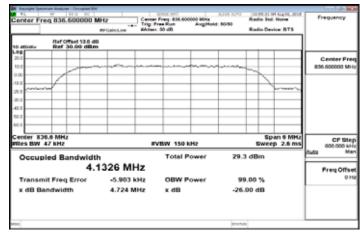




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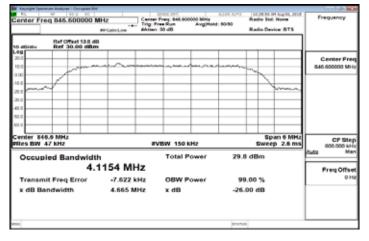
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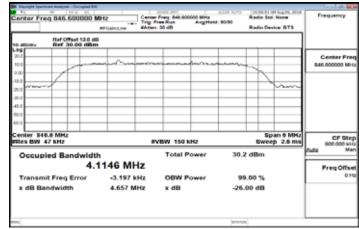




### HSDPA B5 HighCH4233-846.6

HSUPA B5 HighCH4233-846.6





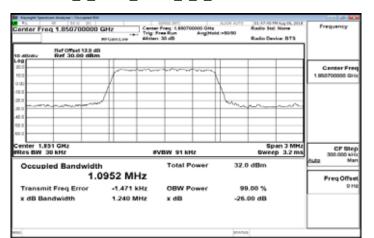
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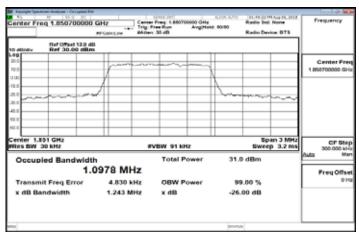


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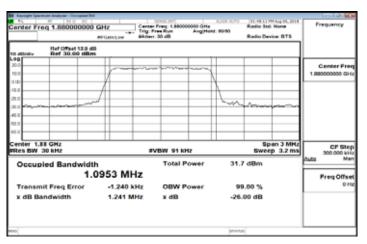
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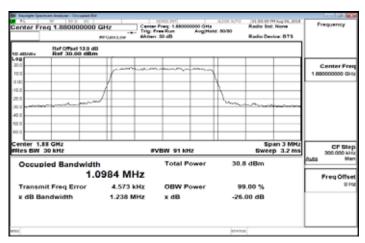
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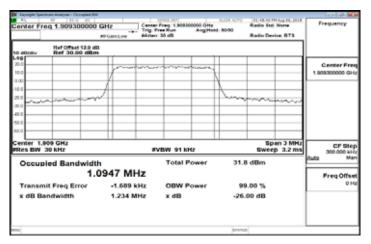
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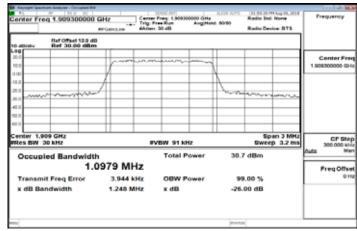
Band2 1 4MHz 16QAM 6 0 MidCH18900-1880



Band2 1 4MHz QPSK 6 0 HighCH19193-1909.3



Band2 1 4MHz 16QAM 6 0 HighCH19193-1909.3



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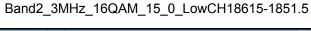
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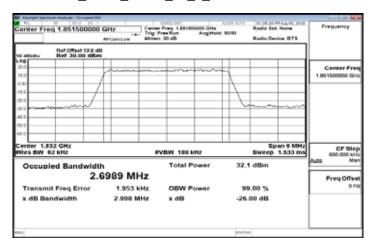
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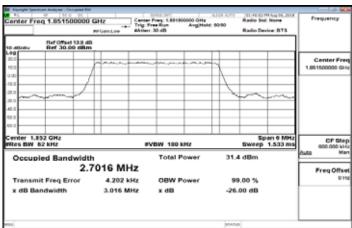


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Band2\_3MHz\_QPSK\_15\_0\_LowCH18615-1851.5

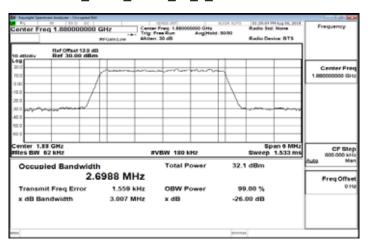






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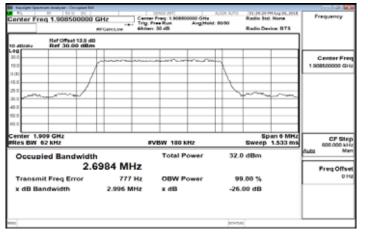
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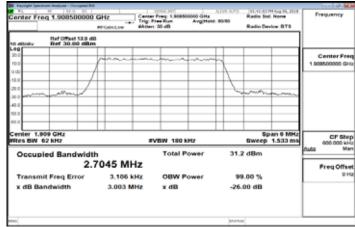




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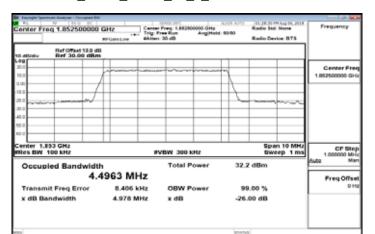
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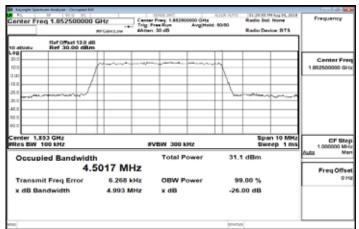


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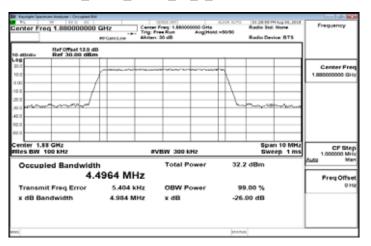
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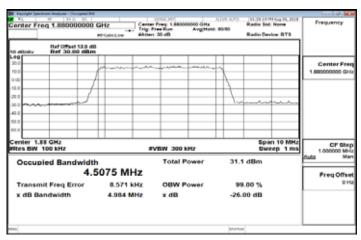
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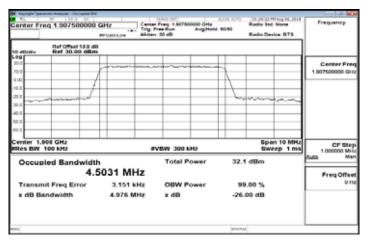
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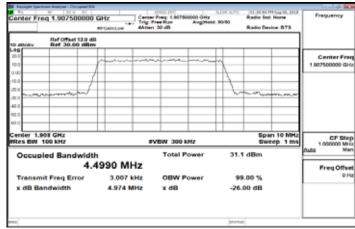
Band2\_5MHz\_16QAM\_25\_0\_MidCH18900-1880



Band2 5MHz QPSK 25 0 HighCH19175-1907.5



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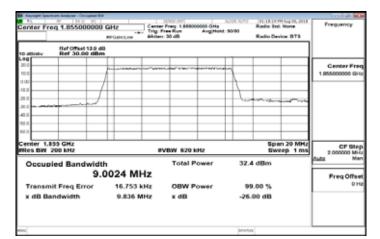
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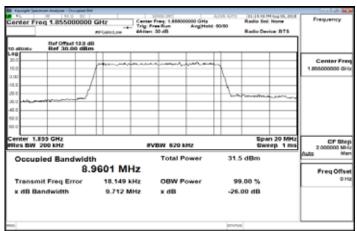


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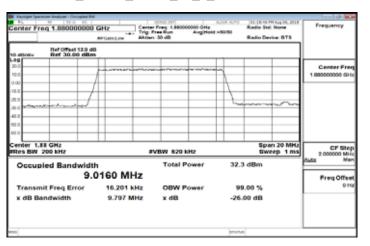
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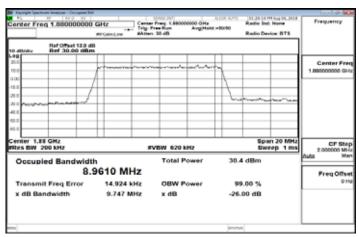
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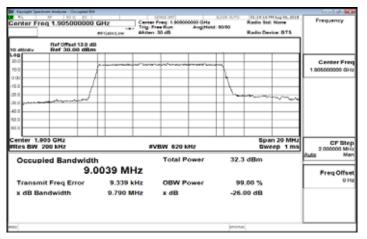
Band2 10MHz QPSK 50 0 MidCH18900-1880



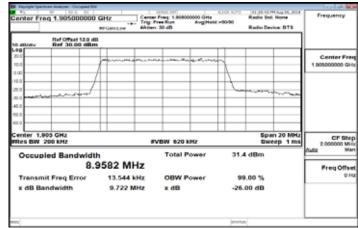
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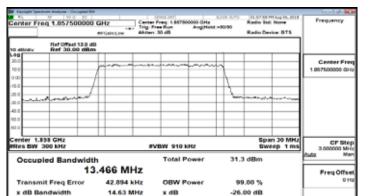
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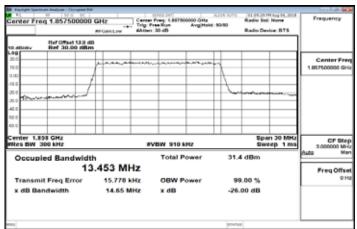


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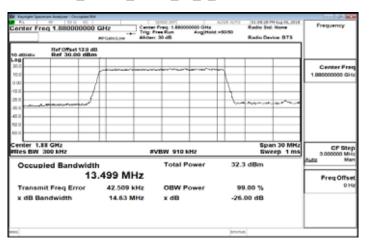
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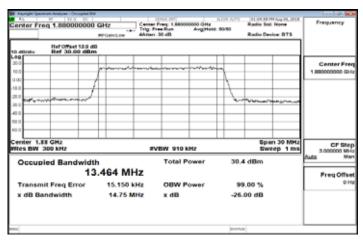
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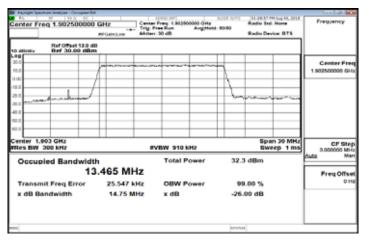
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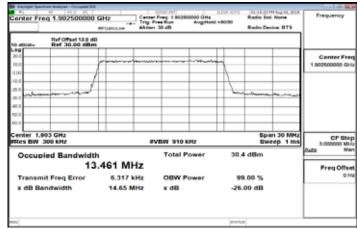
Band2 15MHz 16QAM 75 0 MidCH18900-1880



Band2 15MHz QPSK 75 0 HighCH19125-1902.5



Band2 15MHz 16QAM 75 0 HighCH19125-1902.5



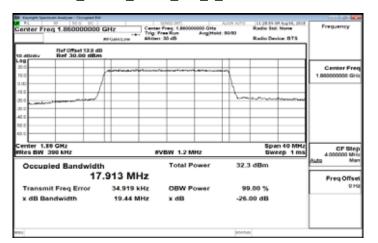
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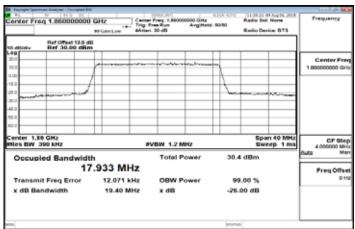


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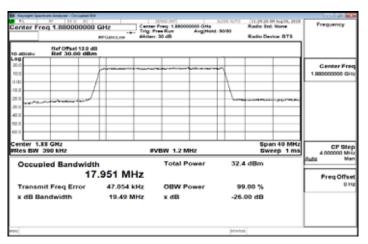
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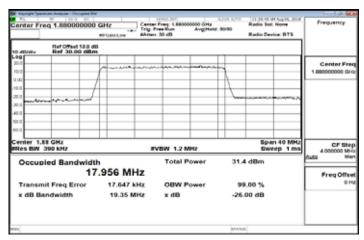
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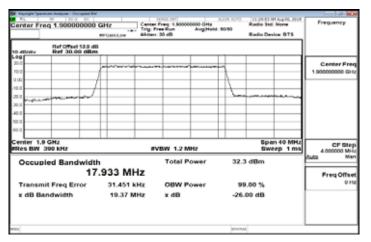
Band2 20MHz QPSK 100 0 MidCH18900-1880



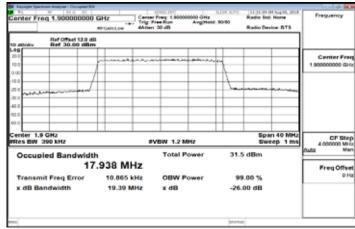
Band2 20MHz 16QAM 100 0 MidCH18900-1880



Band2 20MHz QPSK 100 0 HighCH19100-1900



Band2 20MHz 16QAM 100 0 HighCH19100-1900



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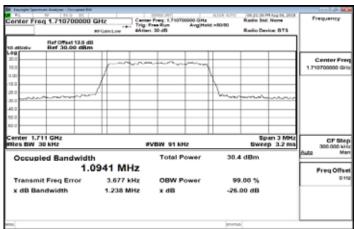


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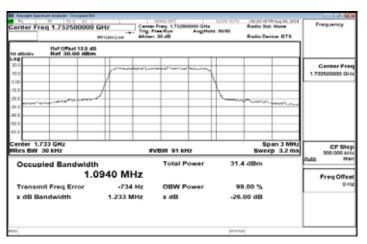
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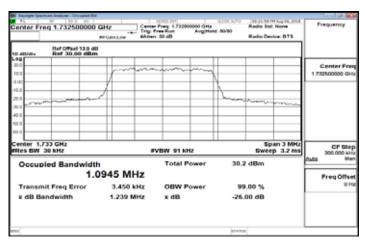
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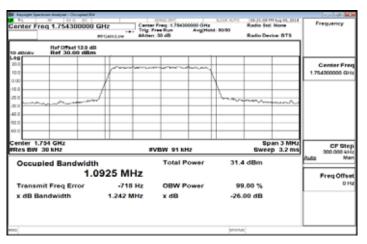
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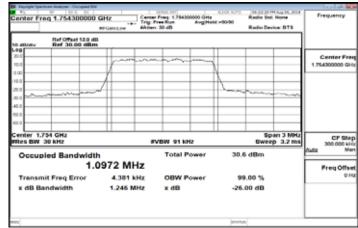
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Band4\_1\_4MHz\_QPSK\_6\_0\_HighCH20393-1754.3



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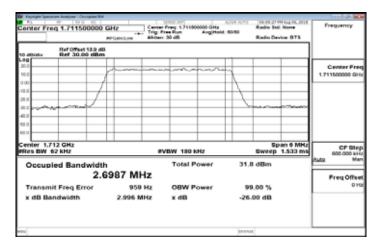
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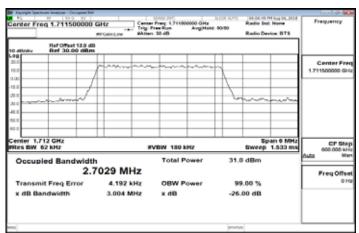


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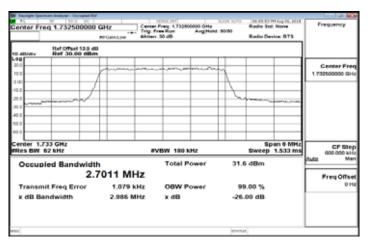
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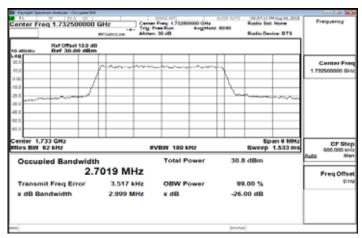
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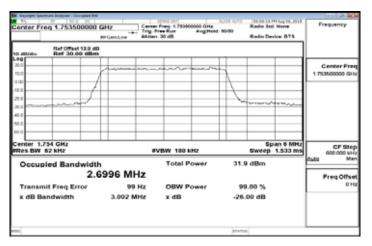
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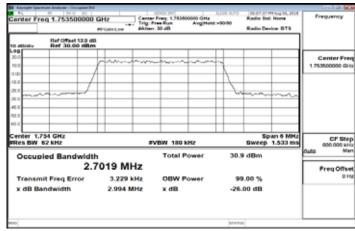
Band4\_3MHz\_16QAM\_15\_0\_MidCH20175-1732.5



Band4\_3MHz\_QPSK\_15\_0\_HighCH20385-1753.5



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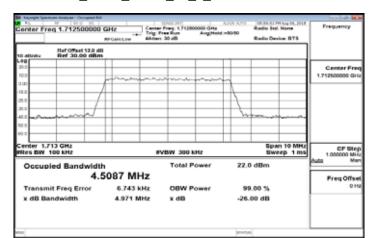
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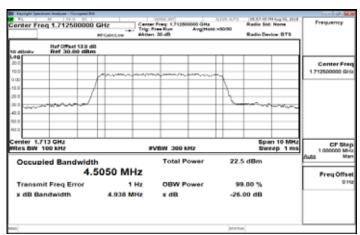


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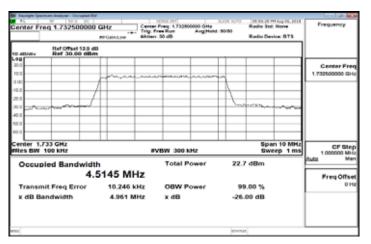
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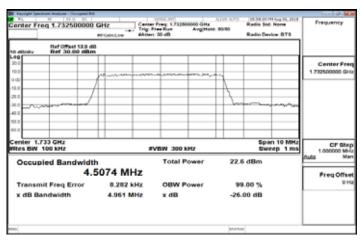
### Band4\_5MHz\_16QAM\_25\_0\_LowCH19975-1712.5



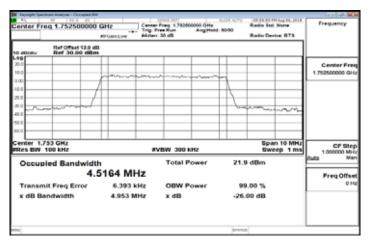
### Band4\_5MHz\_QPSK\_25\_0\_MidCH20175-1732.5



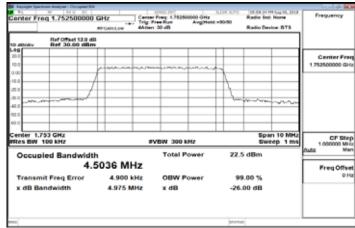
Band4\_5MHz\_16QAM\_25\_0\_MidCH20175-1732.5



### Band4\_5MHz\_QPSK\_25\_0\_HighCH20375-1752.5



Band4 5MHz 16QAM 25 0 HighCH20375-1752.5



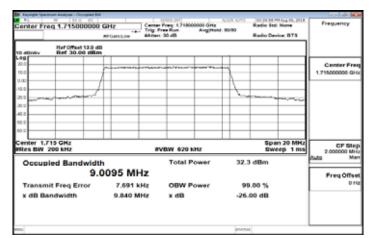
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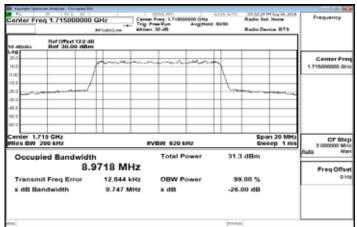


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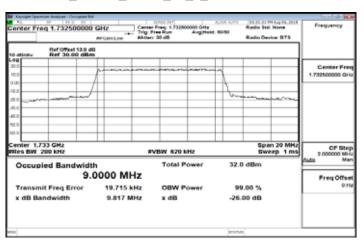
### Band4\_10MHz\_QPSK\_50\_0\_LowCH20000-1715



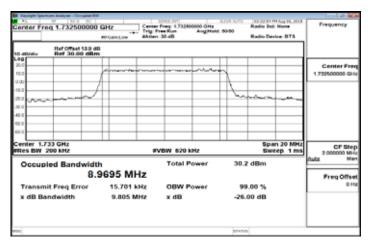
### Band4\_10MHz\_16QAM\_50\_0\_LowCH20000-1715



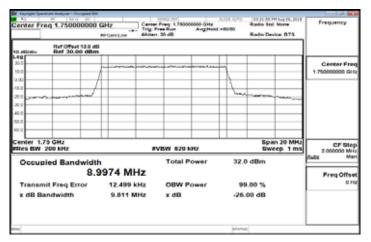
### Band4\_10MHz\_QPSK\_50\_0\_MidCH20175-1732.5



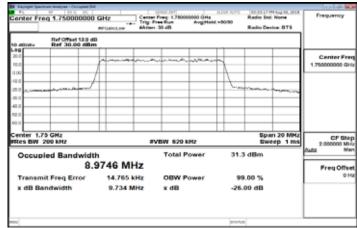
Band4\_10MHz\_16QAM\_50\_0\_MidCH20175-1732.5



### Band4\_10MHz\_QPSK\_50\_0\_HighCH20350-1750



Band4 10MHz 16QAM 50 0 HighCH20350-1750



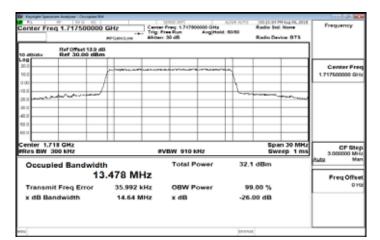
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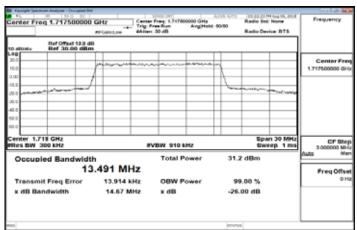


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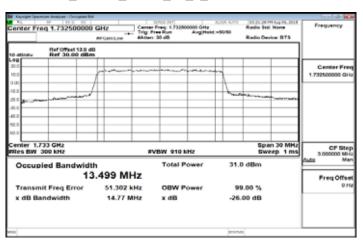
### Band4\_15MHz\_QPSK\_75\_0\_LowCH20025-1717.5



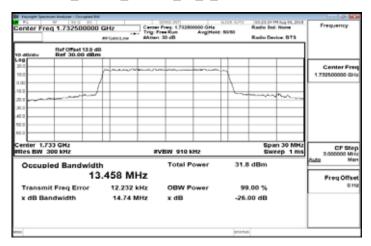
### Band4\_15MHz\_16QAM\_75\_0\_LowCH20025-1717.5



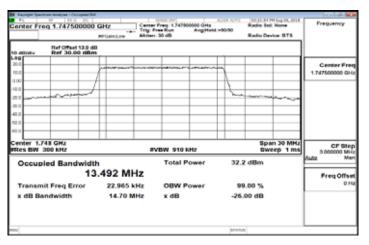
Band4\_15MHz\_QPSK\_75\_0\_MidCH20175-1732.5



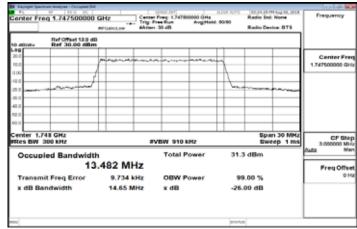
Band4\_15MHz\_16QAM\_75\_0\_MidCH20175-1732.5



Band4 15MHz QPSK 75 0 HighCH20325-1747.5



Band4 15MHz 16QAM 75 0 HighCH20325-1747.5



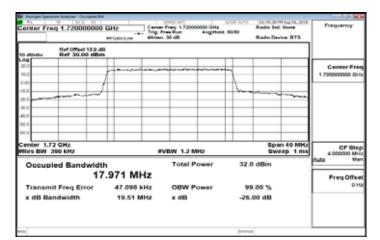
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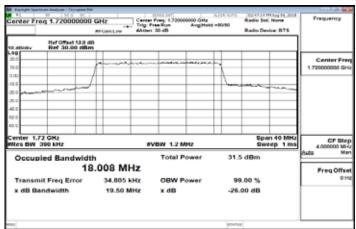


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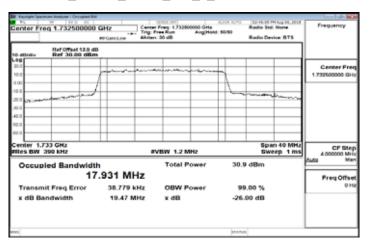
# Band4\_20MHz\_QPSK\_100\_0\_LowCH20050-1720



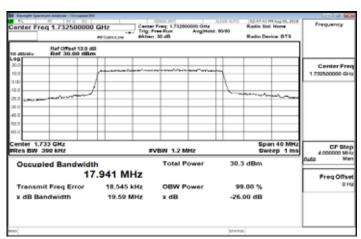
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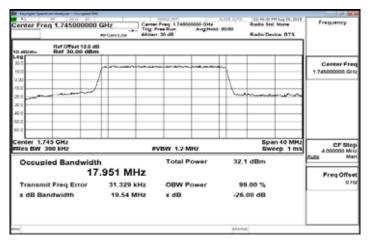
### Band4\_20MHz\_QPSK\_100\_0\_MidCH20175-1732.5



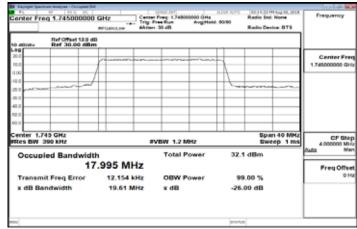
Band4\_20MHz\_16QAM\_100\_0\_MidCH20175-1732.5



#### Band4 20MHz QPSK 100 0 HighCH20300-1745



Band4 20MHz 16QAM 100 0 HighCH20300-1745



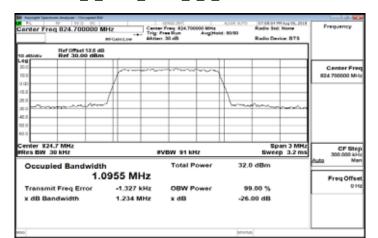
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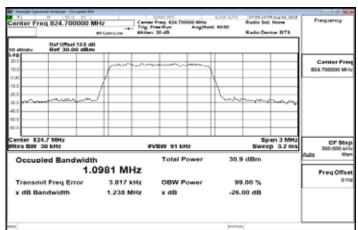


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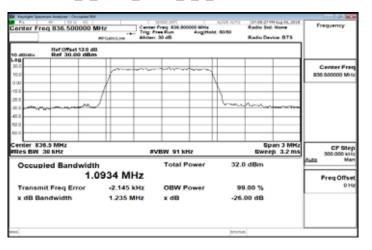
### Band5\_1\_4MHz\_QPSK\_6\_0\_LowCH20407-824.7



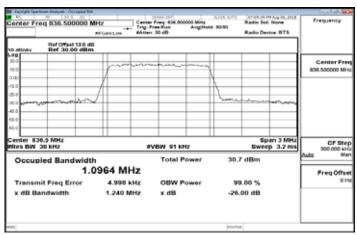
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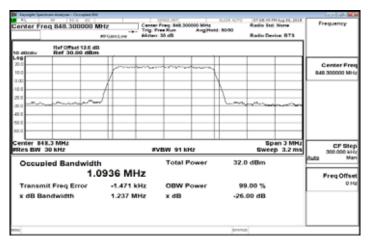
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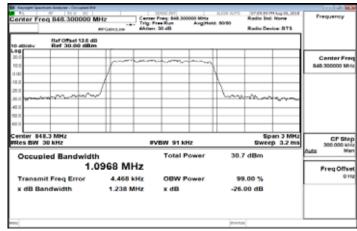
Band5\_1\_4MHz\_16QAM\_6\_0\_MidCH20525-836.5



Band5\_1\_4MHz\_QPSK\_6\_0\_HighCH20643-848.3



Band5 1 4MHz 16QAM 6 0 HighCH20643-848.3



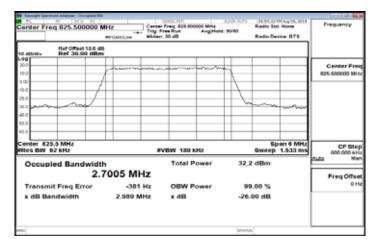
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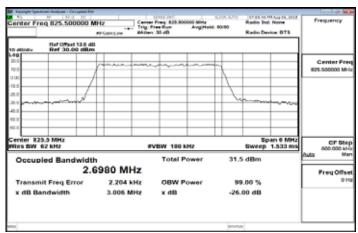


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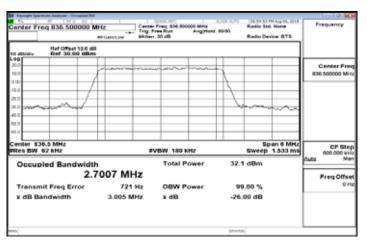
## Band5\_3MHz\_QPSK\_15\_0\_LowCH20415-825.5



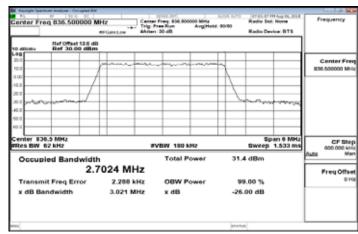
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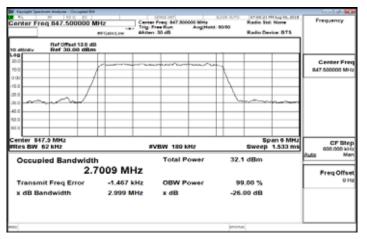
Band5\_3MHz\_QPSK\_15\_0\_MidCH20525-836.5



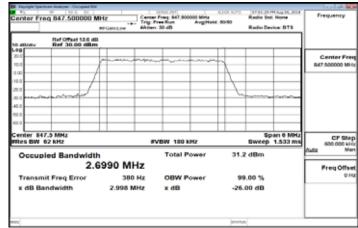
Band5\_3MHz\_16QAM\_15\_0\_MidCH20525-836.5



Band5 3MHz QPSK 15 0 HighCH20635-847.5



Band5 3MHz 16QAM 15 0 HighCH20635-847.5



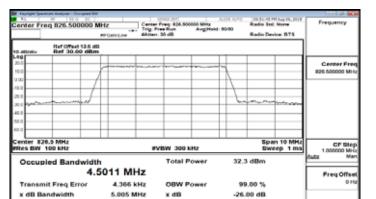
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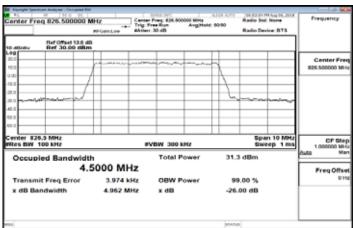


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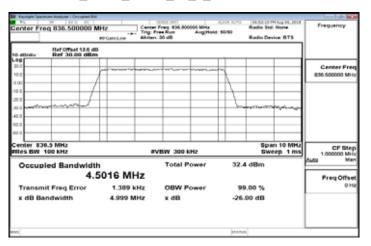
### Band5\_5MHz\_QPSK\_25\_0\_LowCH20425-826.5



### Band5\_5MHz\_16QAM\_25\_0\_LowCH20425-826.5



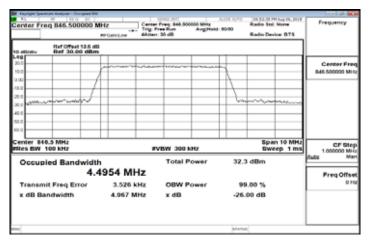
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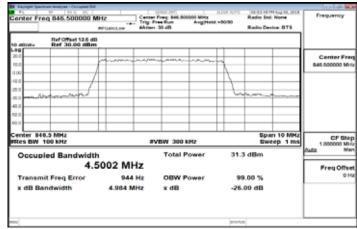
Band5\_5MHz\_16QAM\_25\_0\_MidCH20525-836.5



#### Band5 5MHz QPSK 25 0 HighCH20625-846.5



Band5 5MHz 16QAM 25 0 HighCH20625-846.5



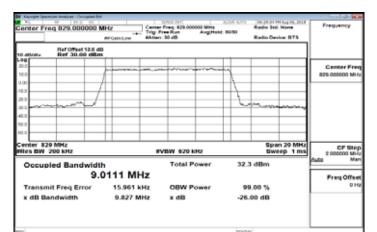
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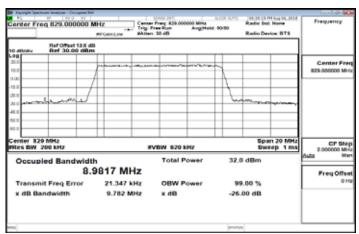


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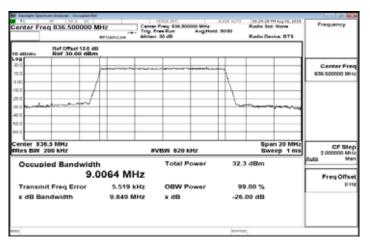
### Band5\_10MHz\_QPSK\_50\_0\_LowCH20450-829



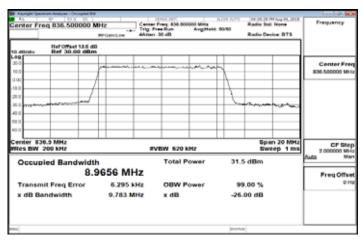
Band5\_10MHz\_16QAM\_50\_0\_LowCH20450-829



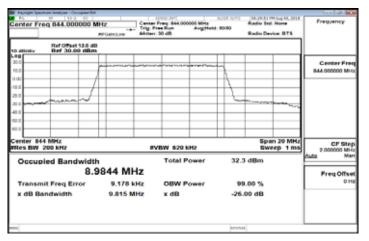
Band5\_10MHz\_QPSK\_50\_0\_MidCH20525-836.5



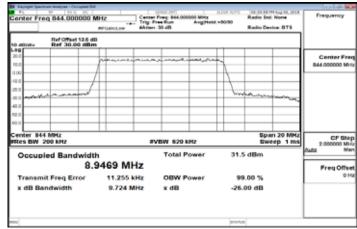
Band5\_10MHz\_16QAM\_50\_0\_MidCH20525-836.5



Band5\_10MHz\_QPSK\_50\_0\_HighCH20600-844



Band5 10MHz 16QAM 50 0 HighCH20600-844



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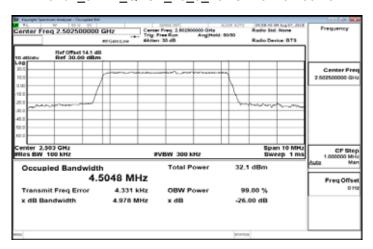
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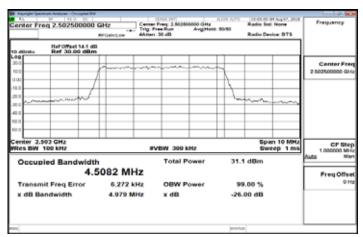


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Band7\_5MHz\_QPSK\_25\_0\_LowCH20775-2502.5

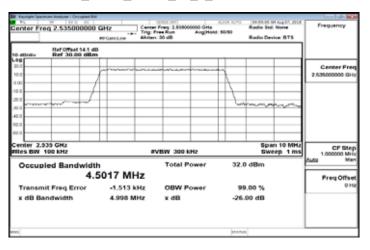


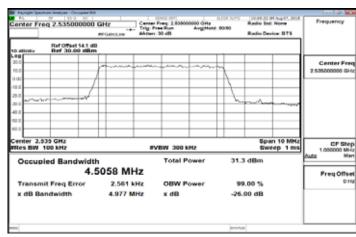




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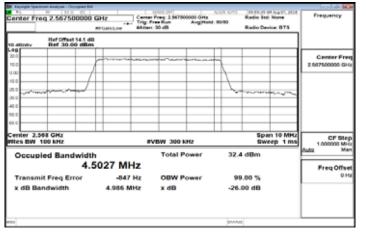
Band7\_5MHz\_16QAM\_25\_0\_MidCH21100-2535

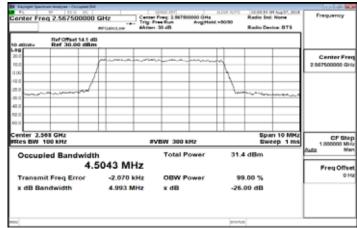




Band7 5MHz QPSK 25 0 HighCH21425-2567.5

Band7 5MHz 16QAM 25 0 HighCH21425-2567.5





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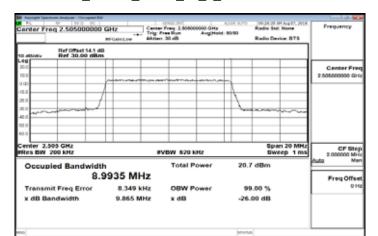
No.134,WuKungRoad,NewTaipeiIndustrialPark,WukuDistrict,NewTaipeiCity,Taiwan24803/新北市五股區新北產業園區五工路 134 號 SGS Taiwan Ltd.

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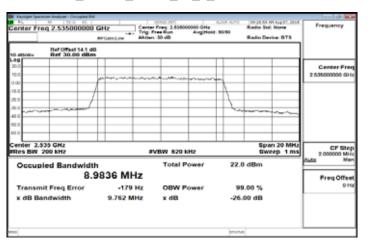
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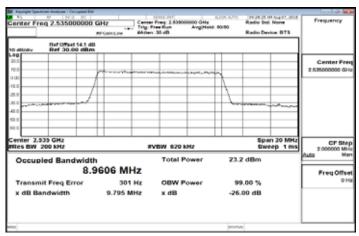
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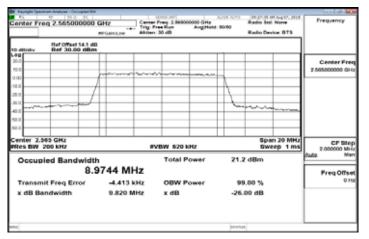
Band7\_10MHz\_QPSK\_50\_0\_MidCH21100-2535



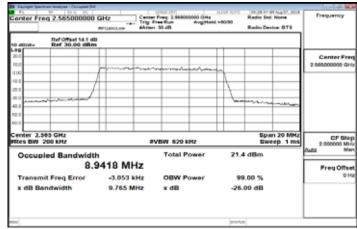
Band7\_10MHz\_16QAM\_50\_0\_MidCH21100-2535



Band7\_10MHz\_QPSK\_50\_0\_HighCH21400-2565



Band7 10MHz 16QAM 50 0 HighCH21400-2565



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