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ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT





FCC Applicant: Motive Technologies, Inc.

55 Hawthorne St., Suite 400, San Francisco, CA 94105

FCC Manufacturer: Quanta Computer Inc.

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

33377, Taiwan

ISED Applicant: Motive Technologies, Inc.

55 Hawthorne St., Suite 400, San Francisco, CA 94105

ISED Manufacturer: Quanta Computer Inc.

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

33377, Taiwan

Product Name: Asset Gateway

Brand Name: Motive

FCC Model No.: AG-55

AG-55B **ISED Model No.:**

Model Difference: N/A

Report Number: TERF2207001194ER

FCC ID 2AQM7-AG55B

IC: 24516-AG55B

Issue Date: Sep. 05, 2022

Date of Test: Aug. 03, 2022

Date of EUT Received: Jul. 21, 2022

Approved By

We hereby certify that:

The above equipment was tested by SGS Taiwan Ltd. Central RF Lab The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI ANSI C63.26-2015 and the energy emitted by the sample EUT comply with FCC rule part 2, 22H & 24E & 27 C & 90S and ISED RSS-Gen, 130, 132, 133, 139.

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

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

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台灣檢驗科技股份有限公司

t (886-2) 2299-3279

f (886-2) 2298-0488

www.sgs.com.tw



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Revision History										
Report Number	Revision	Description	Issue Date	Revised By	Remark					
TERF2207001194ER	00	Original.	Sep. 05, 2022	Yami Kuo						

Note:

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

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GENERAL PRODUCT INFORMATION

1.1 **Product Description**

Product Name:	Asset Gateway
Brand Name:	Motive
FCC Model No.:	AG-55
ISED Model No.:	AG-55B
Model Difference:	N/A
Hardware Version:	N/A
Firmware Version:	N/A
EUT Series No.:	ATY-TKR-KKQ
Power Supply:	3.6Vdc from Rechargeable Li-polymer Battery
Test Software (Name/Version)	N/A(link MT8821C)

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1.2 **Frequency Range**

1.2.1 **NB IoT**

NB IoT Band	Subcar- rier Spac- ing (kHz)	Operation Frequency (MHz)					
2	3.75	1850.1		1909.9			
2	15	1050.1	-	1909.9			
4	3.75	1710.1		1754.9			
4	15	1710.1	-	1754.9			
5	3.75	824.1		848.9			
5	15	024.1	-	U 1 U.3			
12	3.75	699.1		715.9			
12	15	099.1	-	7 15.9			
	3.75						
13	15	777.1	-	786.9			
	15						
26	3.75	824.1		040 0			
26	15	0∠4. I	-	848.9			
26 Part 90	3.75	814.1	-	823.9			



1.4

3

5

10

5

10

12

13

699.7

700.5

701.5

704.0

779.5

782

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1.2.2	Cat. M1								
M1 Band	BW (MHz)	Operation F	reque	ncy (MHz)	M1 Band	BW (MHz)	Operation	r Frequer	ncy (MHz)
	1.4	1850.7	-	1909.3		1.4	824.7	-	848.3
	3	1851.5	-	1908.5		3	825.5	-	847.5
2	5	1852.5	-	1907.5	26	5	826.5	-	846.5
2	10	1855.0	-	1905.0		10	829.0	-	844.0
	15	1857.5	-	1902.5		15	831.5	-	841.5
	20	1860.0	-	1900.0		1.4	814.7	-	823.3
	1.4	1710.7	-	1754.3	26 Dor#00	3	815.5	-	822.5
	3	1711.5	-	1753.5	26 Part90	5	816.5	-	821.5
4	5	1712.5	-	1752.5		10		819.0	
4	10	1715.0	-	1750.0					
	15	1717.5	-	1747.5					
	20	1720.0	-	1745.0					
	1.4	824.7	-	848.3					
_	3	825.5	-	847.5					
5	5	826.5	-	846.5					
	10	829.0	-	844.0					

715.3

714.5

713.5

711.0

784.5

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Antenna Designation 1.3

Antenna Type	Supplier	Antenna Part No.	Main / Aux	Note
Monopole	INPAQ	WA-F-LTE8-03-005-B	Main	Ant 1

Operating Free	Ant 1 Peak Antenna Gain (dBi)			
LTE-Band 2	1850.1	~	1909.9	5.36
LTE-Band 4	1710.1	~	1754.9	4.30
LTE-Band 5	824.1	~	848.9	-1.63
LTE-Band 12	699.1	~	715.9	-0.36
LTE-Band 13	777.1	~	786.9	0.18
LTE-Band 26	824.1	~	848.9	-1.63
LTE-Band 26 Part 90	814.1	~	823.9	-1.68

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

1.4.1 **NB IoT**

NB IoT Band	Modulation	ERP/EIRP (dBm)		(W)	99% BW (kHz)	Type of Emission
2	BPSK	28.31	EIRP	0.678	229.00	229KG7D
2	QPSK	28.33	EIRP	0.681	222.32	222KG7D
NB IoT Band	Modulation	ERP/E		(W)	99% BW (kHz)	Type of Emission
4	BPSK	27.12	EIRP	0.515	230.08	230KG7D
4	QPSK	27.25	EIRP	0.531	222.91	223KG7D
NB IoT Band	Modulation	ERP / E (dBm		(W)	99% BW (kHz)	Type of Emission
5	BPSK	21.22	ERP	0.132	223.60	224KG7D
5	QPSK	21.01	ERP	0.126	221.84	222KG7D
NB IoT Band	Modulation	ERP/EIRP (dBm)		(W)	99% BW (kHz)	Type of Emission
12	BPSK	23.32	ERP	0.215	223.32	223KG7D
12	QPSK	23.30	ERP	0.214	225.64	226KG7D

NB IoT Band	Modulation	ERP/EIRP (dBm)		(W)	99% BW (kHz)	Type of Emission
13	BPSK	23.12	ERP	0.205	224.10	224KG7D
13	QPSK	23.05	ERP	0.202	221.54	222KG7D
NB IoT Band	Modulation	ERP / E		(W)	99% BW (kHz)	Type of Emission
26	BPSK	21.48	ERP	0.141	224.12	224KG7D
26	QPSK	21.45	ERP	0.140	221.00	221KG7D
NB IoT Band	Modulation	ERP/EIRP (dBm)		(W)	99% BW (kHz)	Type of Emission
26 Part90	BPSK	21.13 ERP		0.130	276.90	277KG7D
26 Part90	QPSK	21.11	ERP	0.129	276.20	276KG7D

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1.4.2 Cat. M1

		1.7.2	Ou								
M1	BW	Modulation	ERP /		(W)	99%	Type of	M1	BW	Modulation	ERP /
Band			(dB		` ,		Emission	Band			(dB
2	1.4	QPSK	27.98	EIRP	0.628	1.0926	1M09G7D	12	1.4	QPSK	23.03
		16QAM	27.90	EIRP	0.617	1.1023	1M10D7W			16QAM	22.50
2	3	QPSK	27.99	EIRP	0.630	1.2203	1M22G7D	12	3	QPSK	23.01
	Ľ	16QAM	27.73	EIRP	0.593	1.1997	1M20D7W	12	Ŭ	16QAM	22.67
2	5	QPSK	27.99	EIRP	0.630	1.4435	1M44G7D	12	5	QPSK	23.07
	Ů	16QAM	28.63	EIRP	0.729	1.2842	1M28D7W	12	3	16QAM	23.45
2	10	QPSK	27.72	EIRP	0.592	1.9901	1M99G7D	12	10	QPSK	23.01
	10	16QAM	28.62	EIRP	0.728	2.6042	2M60D7W	12	10	16QAM	23.52
2	15	QPSK	27.99	EIRP	0.630	2.300	2M30G7D	M1	BW	Modulation	ERP /
	10	16QAM	28.72	EIRP	0.745	2.293	2M29D7W	Band	J.,		(dB
2	20	QPSK	28.57	EIRP	0.719	3.325	3M33G7D	13	5	QPSK	23.39
	20	16QAM	28.57	EIRP	0.719	2.763	2M76D7W			16QAM	23.90
M1	BW	Modulation	ERP /		(W)	99%	Type of	13	10	QPSK	23.45
Band	J		(dB				Emission			16QAM	23.93
4	1.4	QPSK	26.89	EIRP	0.489	1.0986	1M10G7D	M1	BW	Modulation	ERP /
		16QAM	26.77	EIRP	0.475	1.1017	1M10D7W	Band			(dB
4	3	QPSK	26.91	EIRP	0.491	1.2129	1M21G7D	26	1.4	QPSK	20.94
'	Ľ	16QAM	26.65	EIRP	0.462	1.1868	1M19D7W			16QAM	20.66
4	5	QPSK	26.98	EIRP	0.499	1.3107	1M31G7D	26	3	QPSK	20.92
	Ĭ	16QAM	27.59	EIRP	0.574	1.2488	1M25D7W			16QAM	20.53
4	10	QPSK	26.73	EIRP	0.471	2.0659	2M07G7D	26	5	QPSK	21.12
7	10	16QAM	27.44	EIRP	0.555	2.0817	2M08D7W		Ů	16QAM	21.46
4	15	QPSK	26.96	EIRP	0.497	2.324	2M32G7D	26	10	QPSK	20.86
4	13	16QAM	26.92	EIRP	0.492	2.284	2M28D7W	20	10	16QAM	21.55
4	20	QPSK	26.97	EIRP	0.498	2.716	2M72G7D	26	15	QPSK	20.95
7	20	16QAM	26.98	EIRP	0.499	2.357	2M36D7W		10	16QAM	21.50
M1	BW	Modulation	ERP /		(W)	99%	Type of	M1	BW	Modulation	ERP /
Band	J		(dB		, ,		Emission	Band			(dB
5	1.4	QPSK	21.15	ERP	0.130	1.0964	1M10G7D	26	1.4	QPSK	20.80
		16QAM	20.92	ERP	0.124	1.0985	1M10D7W	Part 90		16QAM	20.61
5	3	QPSK	21.08	ERP	0.128	1.2042	1M20G7D	26	3	QPSK	20.79
	ّ	16QAM	20.90	ERP	0.123	1.1805	1M18D7W	Part 90	Ů	16QAM	20.10
5	5	QPSK	21.21	ERP	0.132	1.7009	1M70G7D	26	5	QPSK	20.91
	Ŭ	16QAM	21.74	ERP	0.149	1.2383	1M24D7W	Part 90		16QAM	21.37
5	10	QPSK	21.08	ERP	0.128	2.2606	2M26G7D	26	10	QPSK	20.77
Ŭ	10	16QAM	21.73	ERP	0.149	2.5460	2M55D7W	Part 90	10	16QAM	21.35
		·									

M1	DW	MILLE	ERP /	EIRP	0.40	000/	Type of
Band	BW	Modulation	(dB	m)	(W)	99%	Emission
40	1.4	QPSK	23.03	ERP	0.201	1.0975	1M10G7D
12	1.4	16QAM	22.50	ERP	0.178	1.0978	1M10D7W
40	3	QPSK	23.01	ERP	0.200	1.2173	1M22G7D
12	3	16QAM	22.67	ERP	0.185	1.1856	1M19D7W
40	-	QPSK	23.07	ERP	0.203	1.3468	1M35G7D
12	5	16QAM	23.45	ERP	0.221	1.2886	1M29D7W
40	10	QPSK	23.01	ERP	0.200	2.3087	2M31G7D
12	10	16QAM	23.52	ERP	0.225	2.5362	2M54D7W
M1	BW	Modulation	ERP /	EIRP	(W)	99%	Type of
Band	DVV		(dB	m)	, ,		Emission
13	5	QPSK	23.39	ERP	0.218	1.3430	1M34G7D
IJ	3	16QAM	23.90	ERP	0.245	1.2718	1M27D7W
13	10	QPSK	23.45	ERP	0.221	1.9668	1M97G7D
	10	16QAM	23.93	ERP	0.247	2.0518	2M05D7W
M1	BW	Modulation	ERP /	EIRP	(W)	99%	Type of
Band	DVV		(dB				Emission
26	1.4	QPSK	20.94	ERP	0.124	1.0962	1M10G7D
20	1	16QAM	20.66	ERP	0.116	1.0994	1M10D7W
26	3	QPSK	20.92	ERP	0.124	1.2490	1M25G7D
20	3	16QAM	20.53	ERP	0.113	1.1830	1M18D7W
26	5	QPSK	21.12	ERP	0.129	1.3587	1M36G7D
20]	16QAM	21.46	ERP	0.140	1.2934	1M29D7W
26	10	QPSK	20.86	ERP	0.122	2.5778	2M58G7D
20	10	16QAM	21.55	ERP	0.143	2.5495	2M55D7W
26	15	QPSK	20.95	ERP	0.124	2.355	2M36G7D
20	15	16QAM	21.50	ERP	0.141	2.377	2M38D7W
M1	BW	Modulation	ERP /	EIRP	(W)	99%	Type of
Band	DVV	Modulation	(dB	Sm)	` '	99%	Emission
26	1.4	QPSK	20.80	ERP	0.120	1.0974	1M10G7D
Part 90	1.4	16QAM	20.61	ERP	0.115	1.0980	1M10D7W
26	2	QPSK	20.79	ERP	0.120	1.2675	1M27G7D
Part 90	3	16QAM	20.10	ERP	0.102	1.3861	1M39D7W
		QPSK	20.91	ERP	0.123	1.3541	1M35G7D
26			04.07	ERP	0.137	1.3285	1M33D7W
26 Part 90	5	16QAM	21.37	LIXE	0.101	1.0200	111100007111
	10	16QAM QPSK	20.77	ERP	0.137	2.5316	2M53G7D

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1.5 Test Methodology of Applied Standards

FCC 47 CFR Part 2, 22H, 24E, 27C, Part 90.

ISED RSS-130 Issue 2 Feb. 2019,

ISED RSS-132 Issue 3 Jan. 2013

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

ANSI C63.26-2015

KDB971168 D01 Power Meas license Digital System v03r01

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

1.6 **Test Facility**

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

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

1.7 **Special Accessories**

No special accessories were used during testing.

Equipment Modifications

There was no modifications incorporated into the EUT.

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

Radiated emission below 30MHz is measured in a 9m*6m*6m semi-anechoic chamber. the measurements correspond to those obtained at an open-field test site.

There is a comparison data of both open-field test site and semi-Anechoic chamber, and the result came out very similar.

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SYSTEM TEST CONFIGURATION

2.1 **EUT Configuration**

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

2.2 **EUT Exercise**

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

2.3 **Test Procedure**

2.3.1 Conducted Measurement at Antenna Port

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

2.3.2 Radiated Emissions (ERP/EIRP)

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

2.4 **Measurement Results Explanation Example**

For all conducted test items:

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

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

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

2.5.1 **NB IoT**

Band 2

Test mode	DC voltage (V)	DC current (mA)
Band 2_3.75K	3.6	167.000
Band 2_15K	3.6	154.000

Band 4

Test mode	DC voltage (V)	DC current (mA)
Band 4_3.75K	3.6	174.000
Band 4_15K	3.6	162.000

Band 5

Test mode	DC voltage (V)	DC current (mA)
Band 5_3.75K	3.6	163.000
Band 5_15K	3.6	194.000

Band 12

Test mode	DC voltage (V)	DC current (mA)
Band 12_3.75K	3.6	192.000
Band 12_15K	3.6	207.000

Band 13

Test mode	DC voltage (V)	DC current (mA)
Band 13_3.75K	3.6	173.000
Band 13_15K	3.6	184.000

Band 26

Test mode	DC voltage (V)	DC current (mA)
Band 26_3.75K	3.6	183.000
Band 26_15K	3.6	192.000

Band 26 Part90

Test mode	DC voltage (V)	DC current (mA)
Band 26_Part90_3.75K	3.6	194.000
Band 26_Part90_15K	3.6	186.000

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2.5.2 Cat M1

M1 Band 2

Test mode	DC voltage (V)	DC current (mA)
M1 Band 2_1.4M QPSK	3.6	168.000
M1 Band 2_1.4M 16QAM	3.6	156.000
M1 Band 2_3M QPSK	3.6	165.000
M1 Band 2_3M 16QAM	3.6	201.000
M1 Band 2_5M QPSK	3.6	195.000
M1 Band 2_5M 16QAM	3.6	193.000
M1 Band 2_10M QPSK	3.6	203.000
M1 Band 2_10M 16QAM	3.6	184.000
M1 Band 2_15M QPSK	3.6	176.000
M1 Band 2_15M 16QAM	3.6	186.000
M1 Band 2_20M QPSK	3.6	169.000
M1 Band 2_20M 16QAM	3.6	187.000

M1 Band 4

Test mode	DC voltage (V)	DC current (mA)
M1 Band 4_1.4M QPSK	3.6	175.000
M1 Band 4_1.4M 16QAM	3.6	183.000
M1 Band 4_3M QPSK	3.6	162.000
M1 Band 4_3M 16QAM	3.6	195.000
M1 Band 4_5M QPSK	3.6	183.000
M1 Band 4_5M 16QAM	3.6	187.000
M1 Band 4_10M QPSK	3.6	179.000
M1 Band 4_10M 16QAM	3.6	166.000
M1 Band 4_15M QPSK	3.6	182.000
M1 Band 4_15M 16QAM	3.6	194.000
M1 Band 4_20M QPSK	3.6	198.000
M1 Band 4_20M 16QAM	3.6	178.000

M1 Band 5

Test mode

	3 - 3 - ()	, ,
M1 Band 5_1.4M QPSK	3.6	212.000
M1 Band 5_1.4M 16QAM	3.6	198.000
M1 Band 5_3M QPSK	3.6	189.000
M1 Band 5_3M 16QAM	3.6	185.000
M1 Band 5_5M QPSK	3.6	219.000
M1 Band 5_5M 16QAM	3.6	192.000
M1 Band 5_10M QPSK	3.6	185.000
M1 Band 5_10M 16QAM	3.6	174.000
	•	_

M1 Band 12

Test mode	DC voltage (V)	DC current (mA)
M1 Band 5_1.4M QPSK	3.6	199.000
M1 Band 5_1.4M 16QAM	3.6	168.000
M1 Band 5_3M QPSK	3.6	185.000
M1 Band 5_3M 16QAM	3.6	184.000
M1 Band 5_5M QPSK	3.6	193.000
M1 Band 5_5M 16QAM	3.6	178.000
M1 Band 5_10M QPSK	3.6	162.000
M1 Band 5_10M 16QAM	3.6	181.000
M1 Band 5_10M 64QAM	3.6	197.000

M1 Band 13

	Test mode	DC voltage (V)	DC current (mA)
M	1 Band 13_5M QPSK	3.6	186.000
M	1 Band 13_5M 16QAM	3.6	189.000
M	1 Band 13_10M QPSK	3.6	175.000
M	1 Band 13_10M 16QAM	3.6	192.000

M1 Band 26

Test mode	DC voltage (V)	DC current (mA)
M1 Band 26_1.4M QPSK	3.6	185.000
M1 Band 26_1.4M 16QAM	3.6	196.000
M1 Band 26_3M QPSK	3.6	168.000
M1 Band 26_3M 16QAM	3.6	178.000
M1 Band 26_5M QPSK	3.6	182.000
M1 Band 26_5M 16QAM	3.6	194.000
M1 Band 26_10M QPSK	3.6	173.000
M1 Band 26_10M 16QAM	3.6	169.000
M1 Band 26_15M QPSK	3.6	171.000
M1 Band 26_15M 16QAM	3.6	193.000

M1 Band 26 for Part 90S

WIT Dally 20 101 Fall 30	•	
Test Mode	DC voltage (V)	DC current (mA)
M1 Band 26_1.4M QPSK	3.6	195.000
M1 Band 26_1.4M 16QAM	3.6	192.000
M1 Band 26_3M QPSK	3.6	186.000
M1 Band 26_3M 16QAM	3.6	187.000
M1 Band 26_5M QPSK	3.6	177.000
M1 Band 26_5M 16QAM	3.6	196.000
M1 Band 26_10M QPSK	3.6	183.000
M1 Band 26_10M 16QAM	3.6	181.000

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DC voltage (V)

DC current (mA)

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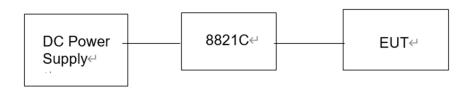
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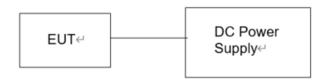
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Test Configuration 2.6

2.6.1 **Conducted Emission at the Antenna Port**



2.6.2 **Radiated Emission**



Remote Side ←



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

2.6.3 **Equipment used for test**

Item	Equipment	Mfr/Brand	Model/ Type No.	Series No.	Data Cable	Power Cord
1.	Radio Communication Analyer	Anritsu	MT8821C	6261786084	Shielded	Un-shielded
2.	DC Power Supply	Agilent	E3640A	MY52410006	N/A	N/A

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SUMMARY OF TEST RESULTS

FCC Rules	IC Rules	Description Of Test	Result	Note
§2.1046(a)	RSS-GEN §6.12	RF Power Output	Compliant	S
§22.913(a)(5) §24.232(c) §27.50(c)(10) §27.50(d)(4) §27.50(b)(10) §90.635(b)	RSS-130 §4.6 RSS-132 §5.4 RSS-133 §6.4 RSS-139 §6.5	ERP/ EIRP measure- ment	Compliant	
§2.1049(h)	RSS-GEN §6.7	99% & 26dB Oc- cuupied Bandwidth	Compliant	
\$2.1051 \$22.917(a)(b) \$24.238(a) \$27.53(g) \$27.53(c) \$27.53(h) \$90.691(a)(1)	RSS-GEN §6.13 RSS-130 §4.7 RSS-132 §5.5 RSS-133 §6.5 RSS-139 §6.6	Out of Band Emissions at Antenna Terminals and Band Edge / Emission mask requirements	Compliant	
§2.1053 §22.917(a) §24.238(a) §27.53(f) §27.53(g) §27.53(h) §90.691(a)(2)	RSS-GEN §6.13 RSS-130 §4.7 RSS-132 §5.5 RSS-133 §6.5 RSS-139 §6.6	Field Strength of Spurious Radiation	Compliant	S
§24.232(d) §27.50((B)	RSS-130 §4.6.1 RSS-132 §5.4 RSS-133 §6.4 RSS-139 §6.4	Peak to Average Ratio	Compliant	
§2.1055(a)(1) §22.355 §24.235 §27.54	RSS-130 §4.5 RSS-132 §5.3 RSS-133 §6.3 RSS-139 §6.5	Frequency Stability	Compliant	

- 1. N/S Indicates whether item(s) being newly tested [N] or spot checked [S].
- 2. Items other than newly tested [N] are leveraged from test report ER/2019/80104.
- The test data in the test report number ER/2019/80104 of the authorized FCC ID: 2AQM7-AG55 and certified IC: 24516-AG55 are fully referenced in this report.

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DESCRIPTION OF TEST MODES

4.1 The Worst Test Modes and Configuration

- 1. The EUT has been tested under operating condition.
- 2. The field strength of radiated emission was measured as the EUT positioned in different orthogonal planes (E1/E2/H) based on actual usage of the EUT to pre-scan the emissions for determining the worst case scenario.

4.2 **NB IoT**

NB IoT	Ra	diat	ed
Modes	En	nissi	on
Wioues	E 1	E2	Н
B2	ı	٧	-
B4	ı	٧	-
B5	ı	٧	-
B12	ı	٧	-
B13	ı	٧	-
B17	ı	٧	-
B25	ı	٧	-
B26	•	٧	-
B26 Part 90	ı	٧	-
B30	-	٧	-
B38	•	٧	-
B41	-	٧	-
B66	-	٧	-
B85	-	٧	-

NB IoT	Test Items	Subcarrier		Modulation		Test		
Modes	i est itemis	3.75	15	BPSK	QPSK	L	M	Н
	EIRP	V	V	V	V	٧	٧	٧
	Occupied Bandwidth	V	V	V	V	٧	٧	٧
	Band Edge Compliance	V	V	V	V	٧	-	٧
B2	Peak-To-Average Ratio	V	V	V	V	٧	٧	٧
	Frequency Stability	V	V	V	V	-	٧	-
	Conducted Spurious Emission	V	V	V	V	٧	V	٧
	Radiated Spurious Emission	V	-	٧		٧	V	٧

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NB IoT	Took House	Subc	arrier	Modu	lation		Test	
Modes	Test Items	3.75	15	BPSK	QPSK	L	M	Н
	EIRP	V	V	V	V	٧	٧	٧
	Occupied Bandwidth	V	V	V	V	٧	٧	٧
	Band Edge Compliance	V	V	V	V	٧	-	٧
B4	Peak-To-Average Ratio	V	V	V	V	٧	٧	٧
	Frequency Stability	V	V	V	V	-	٧	-
	Conducted Spurious Emission	V	V	V	V	٧	٧	٧
	Radiated Spurious Emission	V	-	V	-	٧	٧	٧
NB IoT	Test Items	Subc	arrier	Modu	lation		Test	
Modes	rest items	3.75	15	BPSK	QPSK	L	M	Н
	EIRP	V	V	V	V	٧	٧	٧
	Occupied Bandwidth	V	V	V	V	٧	٧	٧
	Band Edge Compliance	V	V	V	V	٧	-	٧
B5	Peak-To-Average Ratio	V	V	V	V	٧	٧	٧
	Frequency Stability	V	V	V	V	-	٧	-
	Conducted Spurious Emission	V	V	V	V	٧	٧	٧
[Radiated Spurious Emission	V	-	V	-	٧	V	V
	: 1.0.0.1.0.1.0.1.0.1.0.1.0.1.0.1.0.1.0.1	٧						-
NB IoT	·		arrier	Modu	lation		Test	
NB IoT Modes	Test Items			Modu BPSK	lation QPSK	L	_	Н
-	Test Items EIRP	3.75 V	arrier 15	BPSK V	QPSK V	٧	Test M V	H V
-	Test Items EIRP Occupied Bandwidth	3.75 V	15 V	BPSK V V	QPSK V	V	Test	H V
-	Test Items EIRP Occupied Bandwidth Band Edge Compliance	3.75 V V	arrier 15 V V V	BPSK V V	QPSK V V	V V V	Test M V	H
-	Test Items EIRP Occupied Bandwidth	3.75 V V V	arrier 15 V V V V	BPSK V V V V	QPSK V V V	V	Test M V V -	H V
Modes	Test Items EIRP Occupied Bandwidth Band Edge Compliance Peak-To-Average Ratio Frequency Stability	3.75 V V V V	arrier 15 V V V V V	BPSK V V V V V	V V V V	V V V	Test M V V - V	H
Modes	Test Items EIRP Occupied Bandwidth Band Edge Compliance Peak-To-Average Ratio	3.75 V V V	arrier 15 V V V V	BPSK V V V V V V V	QPSK V V V	V V V	Test M V V -	H
Modes	Test Items EIRP Occupied Bandwidth Band Edge Compliance Peak-To-Average Ratio Frequency Stability	3.75 V V V V	arrier 15 V V V V V	BPSK V V V V V	V V V V	V V V -	Test M V V - V	H
Modes	Test Items EIRP Occupied Bandwidth Band Edge Compliance Peak-To-Average Ratio Frequency Stability Conducted Spurious Emission Radiated Spurious Emission	Subc 3.75 V V V V V V V	arrier 15 V V V V V	BPSK V V V V V V V V V V	V V V V	V V V - V	Test M V V - V V V	H V V V - V
Modes B12	EIRP Occupied Bandwidth Band Edge Compliance Peak-To-Average Ratio Frequency Stability Conducted Spurious Emission	Subc 3.75 V V V V V V V	arrier 15 V V V V V V -	BPSK V V V V V V V V V V	V V V V V V -	V V V - V	Test M V V - V V V V	H V V V - V
Modes B12 NB IoT	EIRP Occupied Bandwidth Band Edge Compliance Peak-To-Average Ratio Frequency Stability Conducted Spurious Emission Radiated Spurious Emission Test Items EIRP	Subc 3.75 V V V V V Subc	arrier 15 V V V V V arrier	BPSK V V V V V V Modu	V V V V V I total	V V V - V	Test M V V V V V V Test	H V V V - V
Modes B12 NB IoT	EIRP Occupied Bandwidth Band Edge Compliance Peak-To-Average Ratio Frequency Stability Conducted Spurious Emission Radiated Spurious Emission Test Items EIRP Occupied Bandwidth	Subc 3.75 V V V V V Subc 3.75 V	arrier	BPSK V V V V V Modu BPSK V V	QPSK	V V V V V V V V V V V V V V V V V V V	Test M V V - V V V Test	H
B12 NB IoT Modes	EIRP Occupied Bandwidth Band Edge Compliance Peak-To-Average Ratio Frequency Stability Conducted Spurious Emission Radiated Spurious Emission Test Items EIRP Occupied Bandwidth Band Edge Compliance	Subc 3.75 V V V V V Subc 3.75 V V V V V V V V V V V V V	arrier	BPSK V V V V V Modu BPSK V V V	QPSK V	V V V V V V V V V V	N	H
Modes B12 NB IoT	EIRP Occupied Bandwidth Band Edge Compliance Peak-To-Average Ratio Frequency Stability Conducted Spurious Emission Radiated Spurious Emission Test Items EIRP Occupied Bandwidth Band Edge Compliance Peak-To-Average Ratio	Subc 3.75 V V V V Subc 3.75 V V V V V V V V V V V V V	arrier	BPSK V V V V V Modu BPSK V V V	QPSK V	V V V V V V V V V V V V V V V V V V V	N	H
B12 NB IoT Modes	EIRP Occupied Bandwidth Band Edge Compliance Peak-To-Average Ratio Frequency Stability Conducted Spurious Emission Radiated Spurious Emission Test Items EIRP Occupied Bandwidth Band Edge Compliance Peak-To-Average Ratio Frequency Stability	Subc 3.75 V V V V V Subc 3.75 V V V V V V V V V V V V V	arrier	BPSK V V V V V Modu BPSK V V V V V V V V V V V V V V V V V V V	QPSK V	V V V V V V V V V V C C C C C C C C C C	N	H V V V V V V V V V V V V V V V V V V V
B12 NB IoT Modes	EIRP Occupied Bandwidth Band Edge Compliance Peak-To-Average Ratio Frequency Stability Conducted Spurious Emission Radiated Spurious Emission Test Items EIRP Occupied Bandwidth Band Edge Compliance Peak-To-Average Ratio	Subc 3.75 V V V V Subc 3.75 V V V V V V V V V V V V V	arrier	BPSK V V V V V Modu BPSK V V V	QPSK V	V V V V V V V V V V	N	H

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NB IoT	Took Home	Subc	arrier	Modu	dulation		Test	
Modes	Test Items	3.75	15	BPSK	QPSK	L	M	Н
	EIRP	V	V	V	V	٧	٧	٧
	Occupied Bandwidth	V	V	V	V	٧	٧	٧
	Band Edge Compliance	V	V	V	V	٧	-	٧
B14	Peak-To-Average Ratio	V	V	V	V	٧	٧	٧
	Frequency Stability	V	V	V	V	-	٧	-
	Conducted Spurious Emission	V	V	V	V	٧	٧	٧
	Radiated Spurious Emission	V	-	V	-	٧	٧	٧
NB IoT	Test Items	Subc	arrier	Modu	lation		Test	
Modes	restitents	3.75	15	BPSK	QPSK	L	M	Н
	EIRP	V	V	V	V	٧	٧	٧
	Occupied Bandwidth	V	V	V	V	٧	٧	٧
	Band Edge Compliance	V	V	V	V	٧	-	٧
B17	Peak-To-Average Ratio	V	V	V	V	٧	٧	٧
	Frequency Stability	V	V	V	V	-	٧	
	Conducted Spurious Emission	V	V	V	V	٧	٧	٧
	Radiated Spurious Emission	V	-	V	-	٧	٧	٧
	-							
NB IoT	Tost Itams	Subc	arrier	Modu	lation		Test	
NB IoT Modes	Test Items	Subc 3.75	arrier 15	Modu BPSK	lation QPSK	L	Test M	Н
-	EIRP	3.75 V	15	BPSK V	QPSK V	٧	M	H V
-	EIRP Occupied Bandwidth	3.75 V	15	BPSK V	QPSK V	V	M	H V
-	EIRP Occupied Bandwidth Band Edge Compliance	3.75 V V	15 V V	BPSK V V	QPSK V V	V V V	M	H
-	EIRP Occupied Bandwidth	3.75 V V V	15 V V V	BPSK V V V V	QPSK V V V	V	M V V - V	H V
Modes	EIRP Occupied Bandwidth Band Edge Compliance Peak-To-Average Ratio Frequency Stability	3.75 V V V V	V V V V	BPSK V V V V V	QPSK V V V V	V V V -	M	H
Modes	EIRP Occupied Bandwidth Band Edge Compliance Peak-To-Average Ratio Frequency Stability Conducted Spurious Emission	3.75	15 V V V	BPSK V V V V V V V	QPSK V V V	V V V - V	M	H
Modes	EIRP Occupied Bandwidth Band Edge Compliance Peak-To-Average Ratio Frequency Stability	3.75 V V V V	V V V V	BPSK V V V V V V V V V V	V V V V V V -	V V V -	M	H
Modes	EIRP Occupied Bandwidth Band Edge Compliance Peak-To-Average Ratio Frequency Stability Conducted Spurious Emission Radiated Spurious Emission	3.75 V V V V V V	V V V V	BPSK V V V V V V V V V V	QPSK V V V V	V V V - V	M	H V V V - V
Modes B25	EIRP Occupied Bandwidth Band Edge Compliance Peak-To-Average Ratio Frequency Stability Conducted Spurious Emission	3.75 V V V V V V	15 V V V V V	BPSK V V V V V V V V V V	V V V V V V -	V V V - V	M	H V V V - V
Modes B25 NB IoT	EIRP Occupied Bandwidth Band Edge Compliance Peak-To-Average Ratio Frequency Stability Conducted Spurious Emission Radiated Spurious Emission Test Items EIRP	3.75 V V V V V Subc	15 V V V V V - arrier 15	BPSK V V V V V Modu BPSK V	QPSK V	V V V V V V V V V V V V V V V V V V V	M	H V V V - V
Modes B25 NB IoT	EIRP Occupied Bandwidth Band Edge Compliance Peak-To-Average Ratio Frequency Stability Conducted Spurious Emission Radiated Spurious Emission Test Items EIRP Occupied Bandwidth	3.75 V V V V V Subc 3.75 V	15 V V V V - arrier 15 V	BPSK V V V V V Modu BPSK V V	QPSK	V V V V V V V V V V V V V V V V V V V	M	H
B25 NB IoT Modes	EIRP Occupied Bandwidth Band Edge Compliance Peak-To-Average Ratio Frequency Stability Conducted Spurious Emission Radiated Spurious Emission Test Items EIRP Occupied Bandwidth Band Edge Compliance	3.75 V V V V V Subc 3.75 V	15 V V V V - arrier 15 V V	BPSK V V V V V Modu BPSK V V	QPSK V	V V V V V V V V V V V V V V V V V V V	M	H
Modes B25 NB IoT	EIRP Occupied Bandwidth Band Edge Compliance Peak-To-Average Ratio Frequency Stability Conducted Spurious Emission Radiated Spurious Emission Test Items EIRP Occupied Bandwidth Band Edge Compliance Peak-To-Average Ratio	3.75 V V V V V Subc 3.75 V V	15 V V V V - arrier 15 V V	BPSK V V V V V Modu BPSK V V V	QPSK V	V V V V V V V V V V V V V V V V V V V	M	H
B25 NB IoT Modes	EIRP Occupied Bandwidth Band Edge Compliance Peak-To-Average Ratio Frequency Stability Conducted Spurious Emission Radiated Spurious Emission Test Items EIRP Occupied Bandwidth Band Edge Compliance Peak-To-Average Ratio Frequency Stability	3.75	15 V V V V V arrier 15 V V V V	BPSK V V V V V Modu BPSK V V V V V V V V V V V V V V V V V V V	V	V V V V V V V V V C C C C C C C C C C C	M	H V V V V V V V V V V V V V V V V V V V
B25 NB IoT Modes	EIRP Occupied Bandwidth Band Edge Compliance Peak-To-Average Ratio Frequency Stability Conducted Spurious Emission Radiated Spurious Emission Test Items EIRP Occupied Bandwidth Band Edge Compliance Peak-To-Average Ratio	3.75 V V V V V Subc 3.75 V V	15 V V V V - arrier 15 V V	BPSK V V V V V Modu BPSK V V V	QPSK V	V V V V V V V V V V V V V V V V V V V	M	H

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NB IoT	l lest Items -		arrier	Modu	lation		Test	
Modes			15	BPSK	QPSK	L	M	Η
	EIRP	V	V	V	V	٧	٧	٧
	Occupied Bandwidth	V	V	V	V	٧	٧	٧
B26	Band Edge Compliance	V	V	V	V	٧	-	٧
Part 90	Peak-To-Average Ratio	V	V	V	V	٧	٧	٧
1 all 30	Frequency Stability	V	V	V	V	•	٧	-
	Conducted Spurious Emission	V	V	V	V	٧	٧	٧
	Radiated Spurious Emission	V	-	V	ı	٧	٧	٧

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4.3 Cat M1

M1 Band 2

IVI I Dallu Z					
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/ 0,5 RB Offest
	18625 to 19175	18625, 18900, 19175	5MHz	QPSK, 16QAM	1 RB/ 0,5 RB Offest
EIRP	18650 to 19150	18650, 18900, 19150	10MHz	QPSK, 16QAM	1 RB/ 0,5 RB Offest
	18675 to 19125	18675, 18900, 19125	15MHz	QPSK, 16QAM	1 RB/ 0,5 RB Offest
	18700 to 19100	18700, 18900, 19100	20MHz	QPSK, 16QAM	1 RB/ 0,5 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/ 0,5 RB Offest Full RB
BAND EDGE	18625 to 19175	18625, 19175	5MHz	QPSK,	1 RB/ 0,5 RB Offest Full RB
B/WB EBGE	18650 to 19150	18650, 19150	10MHz	QPSK,	1 RB/ 0,5 RB Offest Full RB
	18675 to 19125	18675, 19125	15MHz	QPSK,	1 RB/ 0,5 RB Offest Full RB
	18700 to 19100	18700, 19100	20MHz	QPSK,	1 RB/ 0,5 RB Offest Full RB
	18607 to 19193	18607, 18900, 19193	1.4MHz	QPSK,	1 RB, 0 RB Offest
	18615 to 19185	18615, 18900, 19185	3MHz	QPSK,	1 RB, 0 RB Offest
CONDCUDETED	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	18675 to 19125	18675, 18900, 19125	15MHz	16QAM	1 RB, 0 RB Offest

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M1 Band 4

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/ 0,5 RB Offest
	19975 to 20375	19975, 20175, 20375	5MHz	QPSK, 16QAM	1 RB/ 0,5 RB Offest
EIRP	20000 to 20350	20000, 20175, 20350	10MHz	QPSK, 16QAM	1 RB/ 0,5 RB Offest
	20025 to 20325	20025, 20175, 20325	15MHz	QPSK, 16QAM	1 RB/ 0,5 RB Offest
	20050 to 20300	20050, 20175, 20300	20MHz	QPSK, 16QAM	1 RB/ 0,5 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
RATIO	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/ 0,5 RB Offest Full RB
	19975 to 20375	19975, 20375	5MHz	QPSK,	1 RB/ 0,4 RB Offest Full RB
BAND EDGE	20000 to 20350	20000, 20350	10MHz	QPSK,	1 RB/ 0,5 RB Offest Full RB
	20025 to 20325	20025, 20325	15MHz	QPSK,	1 RB/ 0,5 RB Offest Full RB
	20050 to 20300	20050, 20300	20MHz	QPSK,	1 RB/ 0,5 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
CONDCUDETED	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 EMIS- SION	19975 to 20375	19975, 20175, 20375	15MHz	16QAM	1 RB, 5 RB Offest

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M1 Band 5

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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	20415 to 20635	20415, 20525, 20635	3MHz	QPSK, 16QAM	1 RB/ 0,5 RB Offest
ERF	20425 to 20625	20425, 20525, 20625	5MHz	QPSK, 16QAM	1 RB/ 0,5 RB Offest
	20450 to 20600	20450, 20525, 20600	10MHz	QPSK, 16QAM	1 RB/ 0,5 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
DAND EDGE	20415 to 20635	20415, 20635	3MHz	QPSK,	1 RB/ 0,5 RB Offest Full RB
BAND EDGE	20425 to 20625	20425, 20625	5MHz	QPSK,	1 RB/ 0,5 RB Offest Full RB
	20450 to 20600	20450, 20600	10MHz	QPSK,	1 RB/ 0,5 RB Offest Full RB
	20470 to 20643	20470, 20525, 20643	1.4MHz	QPSK,	1 RB, 0 RB Offest
CONDCUDETED	20415 to 20635	20415, 20525, 20635	3MHz	QPSK,	1 RB, 0 RB Offest
EMISSION	20425 to 20625	20425, 20525, 20625	5MHz	QPSK,	1 RB, 0 RB Offest
	20450 to 20600	20450, 20525, 20600	10MHz	QPSK,	1 RB, 0 RB Offest
RADIATED EMIS- SION	20425 to 20625	20425, 20525, 20625	5MHz	16QAM	1 RB, 0 RB Offest

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M1 Band 12

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
ERP	23025 to 23165	23025, 23095, 23165	3MHz	QPSK, 16QAM	1 RB/ 0,5 RB Offest
ERF	23035 to 23155	23035, 23095, 23155	5MHz	QPSK, 16QAM	1 RB/ 0,5 RB Offest
	23060 to 23130	23060, 23095, 23130	10MHz	QPSK, 16QAMM	1 RB/ 0,5 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 AVER-	23025 to 23165	23025, 23095, 23165	3MHz	16QAM	Full RB
AGE 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/ 0,5 RB Offest Full RB
BAND EDGE	23035 to 23155	23035, 23095, 23155	5MHz	QPSK,	1 RB/ 0,5 RB Offest Full RB
	23060 to 23130	23060, 23095, 23130	10MHz	QPSK,	1 RB/ 0,5 RB Offest Full RB
CONDCU-	23017 to 23173	23017, 23095, 23173	1.4MHz	QPSK,	1 RB, 0 RB Offest
DETED EMIS-	23025 to 23165	23025, 23095, 23165	3MHz	QPSK,	1 RB, 0 RB Offest
	23035 to 23155	23035, 23095, 23155	5MHz	QPSK,	1 RB, 0 RB Offest
SION	23060 to 23130	23060, 23095, 23130	10MHz	QPSK,	1 RB, 0 RB Offest
RADIATED EMISSION	23060 to 23130	23060, 23095, 23130	10MHz	16QAM	1 RB, 5 RB Offest

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M1 Band 13

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TEST ITEM	AVAILABLE CHAN- NEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
ERP	23205 to 23255	23205, 23230, 23255	5MHz	QPSK, 16QAM	1 RB/ 0,5 RB Offest
ERF	23230	23230	10MHz	QPSK, 16QAM	1 RB/ 0,5 RB Offest
FREQUENCY STA- BILITY	23230	23230	10MHz	QPSK,	Full RB
OCCUPIED BAND-	23205 to 23255	23205, 23230, 23255	5MHz	QPSK, 16QAM	Full RB
WIDTH	23230	23230	10MHz	QPSK, 16QAM	Full RB
PEAK TO AVERAGE	23205 to 23255	23205, 23230, 23255	5MHz	16QAM	Full RB
RATIO	23230	23230	10MHz	16QAM	Full RB
BAND EDGE	23205 to 23255	23205, 23255	5MHz	QPSK,	1 RB/ 0,5 RB Offest Full RB
BAND EDGE	23230	23230	10MHz	QPSK,	1 RB/ 0,5 RB Offest Full RB
CONDCUDETED	23205 to 23255	23205, 23230, 23255	5MHz	QPSK,	1 RB, 0 RB Offest
EMISSION	23230	23230	10MHz	QPSK,	1 RB, 0 RB Offest
RADIATED EMIS- SION	23230	23230	10MHz	16QAM	1 RB/ 0 RB Offest

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M1 Band 26 MODE

TEST ITEM	AVAILABLE	TESTED	CHANNEL	MODUL ATION	MODE
IESTITEW	CHANNEL	CHANNEL	BANDWIDTH	MODULATION	MODE
	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/ 0,5 RB Offest
ERP	26815 to 27015	26815, 26915, 27015	5MHz	QPSK, 16QAM,	1 RB/ 0,5 RB Offest
	26840 to 26990	26840, 26915, 26990	10MHz	QPSK, 16QAM,	1 RB/ 0,5 RB Offest
	26865 to 26965	26865, 26915, 26965	15MHz	QPSK, 16QAM,	1 RB/ 0,5 RB Offest
FREQUENCY STABIL- ITY	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
VVIDITI	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 RA-	26805 to 27025	26805, 26915, 27025	3MHz	16QAM	Full RB
TIO	26815 to 27015	26815, 26915, 27015	5MHz	16QAM	Full RB
110	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/ 0,5 RB Offest Full RB
BAND EDGE	26815 to 27015	26815, 26915, 27015	5MHz	QPSK,	1 RB/ 0,5 RB Offest Full RB
	26840 to 26990	26840, 26915, 26990	10MHz	QPSK,	1 RB/ 0,5 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
CONDCUDETED EMIS-	26805 to 27025	26805, 26915, 27025	3MHz	QPSK,	1 RB, 0 RB Offest
SION	26815 to 27015	26815, 26915, 27015	5MHz	QPSK,	1 RB, 0 RB Offest
SION	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	26840 to 26990	26840, 26915, 26990	10MHz	16QAM	1 RB, 0 RB Offest

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M1 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	26705 to 26775	26705, 26740, 26775	3MHz	QPSK, 16QAM	1 RB/ 0,5 RB Offest
ERP	26715 to 26765	26715, 26740, 26765	5MHz	QPSK, 16QAM	1 RB/ 0,5 RB Offest
	26740	26740	10MHz	QPSK, 16QAM	1 RB/ 0,5 RB Offest
FREQUENCY STABIL- ITY	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 RA-	26705 to 26775	26705, 26740, 26775	3MHz	16QAM	Full RB
TIO	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/ 0,5 RB Offest Full RB
EMISSION MASK	26715 to 26765	26715, 26740, 26765	5MHz	QPSK,	1 RB/ 0,5 RB Offest Full RB
	26740	26740	10MHz	QPSK,	1 RB/ 0,5 RB Offest Full RB
	26697 to 26783	26697, 26740, 26783	1.4MHz	QPSK,	1 RB, 0 RB Offest
CONDCUDETED EMIS-	26705 to 26775	26705, 26740, 26775	3MHz	QPSK,	1 RB, 0 RB Offest
SION	26715 to 26765	26715, 26740, 26765	5MHz	QPSK,	1 RB, 0 RB Offest
	26740	26740	10MHz	QPSK,	1 RB, 0 RB Offest
RADIATED EMISSION	26715 to 26765	26715, 26740, 26765	5MHz	16QAM	1 RB, 5 RB Offest

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MEASUREMENT UNCERTAINTY

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

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

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

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MEASUREMENT EQUIPMENT USED

6.1 **Conducted Measurement**

Conducted Emission (measured at antenna port) Test Site										
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.					
Radio Communication Analyer	Anritsu	MT8821C	6261786084	01/09/2019	01/08/2020					
DC Power Supply	Agilent	E3640A	MY52410006	12/04/2018	12/03/2019					
Attenuator	Mini-Circuit	BW-S10W2+	4	01/02/2019	01/01/2020					
DC Block	Mini-Circuits	BLK-18-S+	1	01/02/2019	01/01/2020					
Splitter	RF-LAMBAD	RFLT2W1G1 8G	11-JSPF412- 018	01/02/2019	01/01/2020					

6.2 **Radiated Measurement**

ERP, EIRP MEASUREMENT EQUIPMENT List 966 Chamber										
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.					
Bi-log Antenna	SCHWAZBECK	VULB9168	378	01/04/2019	01/03/2020					
Horn Antenna	Schwarzbeck	BBHA9120D	603	04/24/2019	04/23/2020					
Horn Antenna	Schwarzbeck	BBHA9170	184	12/27/2018	12/26/2019					
Horn Antenna	Schwarzbeck	BBHA9170	185	08/07/2019	08/06/2020					
Horn Antenna	Schwarzbeck	BBHA9120D	D803	12/24/2018	12/23/2019					
Bi-log Antenna	TESEO	CBL 6112D	35242 & AT-N0555	01/10/2019	01/09/2020					
PXA Spectrum Ana- lyzer	Agilent	N9030A	MY53120760	04/22/2019	04/21/2020					
Pre-Amplifier	EMC Instruments	EMC184045B	980135	01/02/2019	01/01/2020					
Pre-Amplifier	EMC Instruments	EMC051825	980152	01/02/2019	01/01/2020					
Pre-Amplifier	HP	8447D	2944A09469	01/02/2019	01/01/2020					
Filter 800-1000	Micro-Tronics	EWT	M1	01/02/2019	01/01/2020					
Filter 1700-2000	Micro-Tronics	EWT	M3	01/02/2019	01/01/2020					
1GHz High Pass Filter	Micro-Tronics	HPM50108	32	01/02/2019	01/01/2020					
2GHz High Pass Fil- ter	Micro-Tronics	HPM50110	36	01/02/2019	01/01/2020					
Coaxial Cable	Huber Suhner	succoflex 102	MY2622/2	01/02/2019	01/02/2020					
Coaxial Cable	Huber Suhner	succoflex 104A	800086/4a	01/02/2019	01/02/2020					
Coaxial Cable	Huber Suhner	EMC 104-SM-SM- 2000	160123	01/02/2019	01/02/2020					

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MAXIMUM OUTPUT POWER

7.1 Standard Applicable

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

7.2 FCC ERP/EIRP LIMIT

According to FCC §2.1046

FCC 22.913(a)

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

FCC 24.232(c)

Mobile and portable stations are limited to 2 W EIRP.

FCC 27.50 (b)

- (9) Control stations and mobile stations transmitting in the 746-757 MHz, 776-788 MHz, and 805-806 MHz bands are limited to 30 watts ERP.
- (10) Portable stations (hand-held devices) transmitting in the 746-757 MHz, 776-788 MHz, and 805-806 MHz bands are limited to 3 watts ERP.

FCC 27.50(c)

- (9) Control and mobile stations in the 698-746 MHz band are limited to 30 watts ERP.
- (10) Portable stations (hand-held devices) are limited to 3 watts ERP.

FCC 27.50(d)

- (4) Mobile, and portable (hand-held) stations operating in the 1710-1755 MHz, 1695-1710 MHz and 1755-1780 MHz bands are limited to 1W EIRP.
- (7) Mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band are limited to 2 watts EIRP.

FCC 90.635(b)

Mobile station is limited to 100W ERP

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RSS-130 §4.6

The e.r.p. shall not exceed 3 watts for mobile equipment, fixed subscriber equipment and portable equipment operating in the Band 617-652 and 663-698MHz.

RSS-132 §5.4

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

RSS-133 §6.4

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

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

RSS-139 §6.5

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

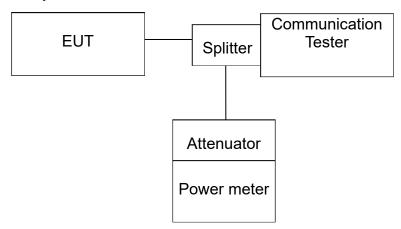
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7.3 **Test Set-up**



Note: Measurement setup for testing on Antenna connector

7.4 **Output Power Measurement Applicable Guideance**

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

The Procedure of KDB941225 (SAR Measurement Procedures for 3G devices. (WCDMA/HSPA) was used for EUT and Base station setting. RMC 12.2kps is used for this testing, and KDB 971168 D01 Power Meas License Digital System as the supplemental test methodology to adjust the proper setting obtaining the measurement results.WAll bands conducted average power is obtained from the simulator telecommunication test set.

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

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.

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7.6 Measurement Result

7.6.1 **NB IoT**

Gain: 5.36

Odin.	0.00		. == .:= . = =								
	LTE NB-IoT Band 2										
Channel	Freq.	Modulation	Subcarrier Spacing	N	Measure	Result					
Channel	(MHz)	Modulation	(kHz)	N _{tones}	Power(dBm)	EIRP(dBm)					
		BPSK	3.75	1@0	22.72	28.08					
		DI OIC	5.75	1@47	22.68	28.04					
18601	1850.1	BPSK	15	1@11	22.95	28.31					
10001	1030.1			1@0	22.97	28.33					
		QPSK	15	1@11	22.95	28.31					
				12@0	21.27	26.63					
		BPSK 3.75	3 75	1@0	22.77	28.13					
			3.75	1@47	22.66	28.02					
18900	1880	BPSK	15	1@11	22.94	28.3					
10900	1000	1000		1@0	22.88	28.24					
		QPSK	15	1@11	22.93	28.29					
				12@0	21.3	26.66					
		BPSK	3.75	1@0	22.66	28.02					
		DESK	3.73	1@47	22.64	28					
19199	1909.9	BPSK	15	1@11	22.59	27.95					
19199	1909.9			1@0	22.6	27.96					
		QPSK	15	1@11	22.62	27.98					
				12@0	21.04	26.4					

Gain: 4.3

	LTE NB-IoT Band 4														
Channel	Freq.	Modulation	Subcarrier Spacing	N	Measure Result										
Chamilei	(MHz)	Modulation	(kHz)	N _{tones}	Power(dBm)	EIRP(dBm)									
		BPSK	3.75	1@0	22.49	26.79									
		DI OIX	5.75	1@47	22.59	26.89									
19951	1710.1	BPSK	15	1@11	22.82	27.12									
19951	17 10.1			1@0	22.86	27.16									
		QPSK	15	1@11	22.95	27.25									
				12@0	21.2	25.5									
		BPSK	BPSK 3.75	1@0	22.53	26.83									
			3.73	1@47	22.42	26.72									
20175	4700 E	4700 E	4720 E	4720 E	1720 E	1722 F	1720 E	1722 5	1722 E	1732.5	BPSK	15	1@11	22.52	26.82
20175	1732.3			1@0	22.59	26.89									
		QPSK	15	1@11	22.54	26.84									
				12@0	21.03	25.33									
		BPSK	3.75	1@0	22.41	26.71									
		BESK	3.75	1@47	22.38	26.68									
20399	1754.9	BPSK	15	1@11	22.71	27.01									
20399	1734.9			1@0	22.66	26.96									
		QPSK	15	1@11	22.67	26.97									
				12@0	20.94	25.24									

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Gain: -1.63

	LTE NB-loT Band 5																
Channel	Freq.	Modulation	Subcarrier Spacing	N _{tones}	Measure	Result											
Chamilei	(MHz)	Wodulation	(kHz)	■tones	Power(dBm)	EIRP(dBm)											
		BPSK	3.75	1@0	22.55	20.92											
		DI OK	5.75	1@47	22.43	20.8											
20401	824.1	BPSK	15	1@11	22.38	20.75											
20401	024.1			1@0	22.39	20.76											
		QPSK	15	1@11	22.46	20.83											
				12@0	20.88	19.25											
		BPSK	BPSK 3.75	1@0	22.55	20.92											
			5.75	1@47	22.57	20.94											
20525	836.5	836.5	836.5	836.5	836.5	836.5	836.5 E	936 5	936.5	936 5	926 E	026 E	BPSK	15	1@11	22.66	21.03
20323										1@0	22.61	20.98					
		QPSK	15	1@11	22.54	20.91											
				12@0	21.06	19.43											
		BPSK	3.75	1@0	22.51	20.88											
		DESK	3.73	1@47	22.61	20.98											
20649	848.9	BPSK	15	1@11	22.85	21.22											
20049	040.9			1@0	22.64	21.01											
		QPSK	15	1@11	22.63	21											
	_			12@0	21.03	19.4											

-0.36 Gain:

	LTE NB-IoT Band 12														
Channel	Freq.	Modulation	Subcarrier Spacing	N _{tones}	Measure Result										
Chamilei	(MHz)	Modulation	(kHz)	™tones	Power(dBm)	EIRP(dBm)									
		BPSK	3.75	1@0	23.12	22.76									
		DI OK	5.75	1@47	23.19	22.83									
23011	699.1	BPSK	15	1@11	23.68	23.32									
23011	033.1			1@0	23.56	23.2									
		QPSK	15	1@11	23.66	23.3									
				12@0	21.88	21.52									
		BDCK	BPSK 3.75	1@0	23.07	22.71									
		DI SIX	0.70	1@47	23.19	22.83									
23095	707.5	707.5	707.5	707.5	707.5	707.5	707.5	707.5	707.5	707.5	BPSK	15	1@11	23.38	23.02
25055	101.5			1@0	23.44	23.08									
		QPSK	15	1@11	23.51	23.15									
				12@0	21.78	21.42									
		BPSK	3.75	1@0	23.09	22.73									
		DI OK	5.75	1@47	23.33	22.97									
23179	715.9	BPSK	15	1@11	23.26	22.9									
23119	110.0			1@0	23.31	22.95									
		QPSK	15	1@11	23.28	22.92									
				12@0	21.55	21.19									

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Gain: 0.18

			LTE NB-IoT Band 13			
Channel	Freq.	Modulation	Subcarrier Spacing	N	Measure	Result
Chamilei	(MHz)	Modulation	(kHz)	N _{tones}	Power(dBm)	EIRP(dBm)
		BPSK	3.75	1@0	22.94	23.12
		DI SIX	5.75	1@47	22.87	23.05
23181	777.1	BPSK	15	1@11	22.83	23.01
20101	111.1			1@0	22.87	23.05
		QPSK	15	1@11	22.85	23.03
				12@0	21.13	21.31
		BPSK	3.75	1@0	22.78	22.96
	782	DI SIX	5.75	1@47	22.71	22.89
23230		BPSK	15	1@11	22.76	22.94
23230				1@0	22.79	22.97
		QPSK	15	1@11	22.78	22.96
				12@0	21.13 22.78 22.71 22.76 22.79	21.23
		BPSK	3.75	1@0	22.59	22.77
		DESK	3.73	1@47	22.61	22.79
23279	786.9	BPSK	15	1@11	22.62	22.8
23219	700.9			1@0	22.62	22.8
		QPSK	15	1@11	22.61	22.79
				12@0	20.88	21.06

Gain: -1.63

			LTE NB-loT Band 26			
Channel	Freq.	Modulation	Subcarrier Spacing	N _{tones}	Measure	Result
Chamilei	(MHz)	Modulation	(kHz)	■tones	Power(dBm)	EIRP(dBm)
		BPSK	3.75	1@0	22.41	20.78
		DI OIX	5.19	1@47	22.47	20.84
26791	824.1	BPSK	15	1@11	22.78	21.15
20791	024.1			1@0	22.79	21.16
		QPSK	15	1@11	22.81	21.18
				12@0	20.95	19.32
		BPSK	3.75	1@0	22.52	20.89
	836.5	DI SIX	3.73	1@47	22.58	20.95
26915		BPSK	15	1@11	22.86	21.23
20313	000.0			1@0	22.84	21.21
		QPSK	15	1@11	22.88	21.25
				12@0	21.09	19.46
		BPSK	3.75	1@0	22.67	21.04
		DI OK	5.75	1@47	22.59	20.96
27039	848.9	BPSK	15	1@11	23.11	21.48
21039	040.9			1@0	23.07	21.44
		QPSK	15	1@11	23.08	21.45
				12@0	21.23	19.6

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7.6.2 **Cat M1**

Antenna g	jain (dBi)	5.36								
			ı	//1 Band 2_Uplin	nk frequency ba	nd : 1850 to 19	10 MHz			
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB allocation	RB Start	Index	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	0	22.12	27.48	33	-5.52
	18607	1850.7	QPSK	1	5	0	22.34	27.70	33	-5.3
				6	0	0	20.45	25.81	33	-7.19
				1	0	0	22.53	27.89	33	-5.11
	18900	1880	QPSK	1	5	0	22.62	27.98	33	-5.02
				6	0	0	20.48	25.84	33	-7.16
			QPSK	1	0	0	22.24	27.60	33	-5.4
	19193	1909.3		1	5	0	22.32	27.68	33	-5.32
1.4				6	0	0	20.32	25.68	33	-7.32
1.4				1	0	0	22.31	27.67	33	-5.33
	18607	1850.7	16QAM	1	5	0	22.54	27.90	33	-5.1
				6	0	0	20.59	25.95	33	-7.32 -5.33 -5.1 -7.05
				1	0	0	22.37	27.73	33	-5.27
	18900	1880	16QAM	1	5	0	22.42	27.78	33	-5.22
_				6	0	0	20.61	25.97	33	-7.03
				1	0	0	22.32	27.68	33	-5.32
	19193	1909.3	16QAM	1	5	0	22.48	27.84	33	-7.16 -5.4 -5.32 -7.32 -5.33 -5.1 -7.05 -5.27 -5.22 -7.03 -5.32 -5.16
				6	0	0	20.46	25.82	33	-7.18

Antenna g	gain (dBi)	5.36								
				M1 Band 2_Uplir	nk frequency ba	nd : 1850 to 19	10 MHz			
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB allocation	RB Start	Index	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	0	22.47	27.83	33	-5.17
	18615	1851.5	QPSK	1	5	0	22.51	27.87	33	-5.13
				6	0	0	20.55	25.91	33	-7.09
	18900			1	0	0	22.52	27.88	33	-5.12
		1880	QPSK	1	5	0	22.63	27.99	33	-5.01
				6	0	0	20.64	26.00	33	-7
			3.5 QPSK	1	0	1	22.46	27.82	33	-5.18
	19185	1908.5		1	5	1	22.58	27.94	33	-5.06
3				6	0	1	20.49	25.85	33	-7.15
3				1	0	0	21.78	27.14	33	-5.86
	18615	1851.5	16QAM	1	5	0	21.86	27.22	33	-5.18 -5.06 -7.15 -5.86 -5.78
				6	0	0	20.64	26.00	33	-7
				1	0	0	22.07	27.43	33	-5.57
	18900	1880	16QAM	1	5	0	22.13	27.49	33	-5.51
				6	0	0	20.65	26.01	33	-6.99
				1	0	1	22.24	27.60	33	-5.4
	19185	1908.5	16QAM	1	5	1	22.37	27.73	33	-5.27
				6	0	1	20.55	25.91	33	-7.09

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Antenna g	jain (dBi)	5.36								
				//1 Band 2_Uplir	nk frequency ba	nd : 1850 to 19	10 MHz			
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB allocation	RB Start	Index	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	0	22.43	27.79	33	-5.21
	18625	1852.5	QPSK	1	5	0	22.52	27.88	33	-5.12
				6	0	0	21.49	26.85	33	-6.15
				1	0	0	22.55	27.91	33	-5.09
	18900	1880	QPSK	1	5	0	22.63	27.99	33	-5.01
				6	0	0	21.46	26.82	33	-6.18
				1	0	3	22.59	27.95	33	-5.05
	19175	1907.5	QPSK	1	5	3	22.62	27.98	33	-5.02
5				6	0	3	21.52	26.88	33	-6.12
5				1	0	0	23.21	28.57	33	-4.43
	18625	1852.5	16QAM	1	5	0	23.27	28.63	33	-4.37
				6	0	0	20.70	26.06	33	-6.94
				1	0	0	23.13	28.49	33	-4.51
	18900	1880	16QAM	1	5	0	23.22	28.58	33	-4.42
				6	0	0	20.78	26.14	33	-6.86
				1	0	3	23.19	28.55	33	-4.45
	19175	1907.5	16QAM	1	5	3	23.24	28.60	33	-4.4
				6	0	3	20.66	26.02	33	-6.98

Antenna g	jain (dBi)	5.36								
				//1 Band 2_Uplir	nk frequency ba	and : 1850 to 19	10 MHz			
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB allocation	RB Start	Index	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	0	22.22	27.58	33	-5.42
	18650	1855	QPSK	1	5	0	22.35	27.71	33	-5.29
				6	0	0	21.54	26.90	33	-6.1
				1	0	0	22.21	27.57	33	-5.43
	18900	1880	QPSK	1	5	0	22.36	27.72	33	-5.28
				6	0	0	21.63	26.99	33	-6.01
		1905	1905 QPSK	1	0	7	22.28	27.64	33	-5.36
	19150			1	5	7	22.19	27.55	33	-5.45
10				6	0	7	21.45	26.81	33	-6.19
10				1	0	0	23.11	28.47	33	-4.53
	18650	1855	16QAM	1	5	0	23.13	28.49	33	-4.51
				6	0	0	20.73	26.09	33	-6.91
				1	0	0	23.23	28.59	33	-4.41
	18900	1880	16QAM	1	5	0	23.26	28.62	33	-4.38
				6	0	0	20.64	26.00	33	-7
				1	0	7	23.11	28.47	33	-4.53
	19150	1905	16QAM	1	5	7	23.22	28.58	33	-4.42
				6	0	7	20.68	26.04	33	-6.96

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Antenna g	gain (dBi)	5.36								
			ı	M1 Band 2_Uplir	nk frequency ba	nd : 1850 to 19	10 MHz			
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB allocation	RB Start	Index	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	0	22.39	27.75	33	-5.25
	18675	1857.5	QPSK	1	5	0	22.43	27.79	33	-5.21
				6	0	0	22.55	27.91	33	-5.09
	18900			1	0	0	22.36	27.72	33	-5.28
		1880	QPSK	1	5	0	22.63	27.99	33	-5.01
				6	0	0	22.51	27.87	33	-5.13
				1	0	11	22.37	27.73	33	-5.27
	19125	1902.5	QPSK	1	5	11	22.35	27.71	33	-5.29
15				6	0	11	22.58	27.94	33	-5.06
13				1	0	0	23.05	28.41	33	-4.59
	18675	1857.5	16QAM	1	5	0	23.14	28.50	33	-4.5
				6	0	0	22.77	28.13	33	-4.87
				1	0	0	23.16	28.52	33	-4.48
	18900	1880	16QAM	1	5	0	23.36	28.72	33	-4.28
				6	0	0	22.71	28.07	33	-4.93
				1	0	11	23.19	28.55	33	-4.45
	19125	1902.5	16QAM	1	5	11	23.09	28.45	33	-4.55
				6	0	11	22.67	28.03	33	-4.97

Antenna g	gain (dBi)	5.36								
				//1 Band 2_Uplir	nk frequency ba	ınd : 1850 to 19	10 MHz			
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB allocation	RB Start	Index	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	0	23.21	28.57	33	-4.43
	18700	1860	QPSK	1	5	0	22.41	27.77	33	-5.23
				6	0	0	22.56	27.92	33	-5.08
				1	0	0	22.34	27.70	33	-5.3
	18900	1880	QPSK	1	5	0	22.41	27.77	33	-5.23
				6	0	0	22.57	27.93	33	-5.07
		1900		1	0	15	22.36	27.72	33	-5.28
	19100		900 QPSK	1	5	15	22.41	27.77	33	-5.23
20				6	0	15	22.58	27.94	33	-5.06
20				1	0	0	23.08	28.44	33	-4.56
	18700	1860	16QAM	1	5	0	23.15	28.51	33	-4.49
				6	0	0	22.79	28.15	33	-4.85
				1	0	0	23.18	28.54	33	-4.46
	18900	1880	16QAM	1	5	0	23.21	28.57	33	-4.43
				6	0	0	22.80	28.16	33	-4.84
				1	0	15	23.13	28.49	33	-4.51
	19100	1900	16QAM	1	5	15	23.12	28.48	33	-4.52
				6	0	15	22.57	27.93	33	-5.07

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Antenna g	gain (dBi)	4.3											
				M1 Band 4_U	Jplink frequen	cy band : 1710 t	to 1755 MHz						
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB allocation	RB Start	Index	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)			
				1	0	0	22.08	26.38	30	-3.62			
	19957	1710.7	QPSK	1	5	0	22.29	26.59	30	-3.41			
				6	0	0	20.41	24.71	30	-5.29			
				1	0	0	22.51	26.81	30	-3.19			
	20175	1732.5	QPSK	1	5	0	22.59	26.89	30	-3.11			
				6	0	0	20.51	24.81	30	-5.19			
		1754.3	.3 QPSK	QPSK	QPSK	1	0	0	22.23	26.53	30	-3.47	
	20393					QPSK	QPSK	QPSK	1	5	0	22.38	26.68
1.4				6	0	0	20.41	24.71	30	-5.29			
1.4				1	0	0	22.28	26.58	30	-3.42			
	19957	1710.7	16QAM	1	5	0	22.47	26.77	30	-3.23			
				6	0	0	20.54	24.84	30	-5.16			
				1	0	0	22.34	26.64	30	-3.36			
	20175	1732.5	16QAM	16QAM	16QAM	16QAM	1	5	0	22.47	26.77	30	-3.23
				6	0	0	20.68	24.98	30	-5.02			
			1.3 16QAM	1	0	0	22.28	26.58	30	-3.42			
	20393	1754.3		1	5	0	22.41	26.71	30	-3.29			
				6	0	0	20.41	24.71	30	-5.29			

Antenna g	gain (dBi)	4.3														
				M1 Band 4_U	Jplink frequen	cy band : 1710 t	to 1755 MHz									
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB allocation	RB Start	Index	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)						
				1	0	0	22.45	26.75	30	-3.25						
	19965	1711.5	QPSK	1	5	0	22.57	26.87	30	-3.13						
				6	0	0	20.51	24.81	30	-5.19						
				1	0	0	22.56	26.86	30	-3.14						
	20175	1732.5	QPSK	1	5	0	22.61	26.91	30	-3.09						
				6	0	0	20.60	24.90	30	-5.1						
		1753.5	753.5 QPSK	QPSK	QPSK	1	0	1	22.41	26.71	30	-3.29				
	20385					QPSK	QPSK	QPSK	QPSK	1	5	1	22.55	26.85	30	-3.15
3					6	0	1	20.41	24.71	30	-5.29					
				1	0	0	21.86	26.16	30	-3.84						
	19965	1711.5	16QAM	16QAM	16QAM	16QAM	16QAM	1	5	0	21.92	26.22	30	-3.78		
				6	0	0	20.66	24.96	30	-5.04	ĺ					
							1	0	0	22.10	26.40	30	-3.6	ĺ		
	20175	1732.5	16QAM	1	5	0	22.19	26.49	30	-3.51	İ					
				6	0	0	20.71	25.01	30	-4.99						
				1	0	1	22.21	26.51	30	-3.49						
	20385	1753.5	16QAM	16QAM	16QAM	16QAM	1	5	1	22.35	26.65	30	-3.35			
				6	0	1	20.58	24.88	30	-5.12						

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Antenna g	jain (dBi)	4.3											
	· · · · ·			M1 Band 4_l	Jplink frequen	cy band : 1710	to 1755 MHz						
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB allocation	RB Start	Index	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)			
				1	0	0	22.43	26.73	30	-3.27			
	19975	1712.5	QPSK	1	5	0	22.51	26.81	30	-3.19			
				6	0	0	21.54	25.84	30	-4.16			
				1	0	0	22.51	26.81	30	-3.19			
	20175	1732.5	QPSK	1	5	0	22.68	26.98	30	-3.02			
				6	0	0	21.42	25.72	30	-4.28			
		1752.5	5 QPSK	QPSK	QPSK	1	0	3	22.52	26.82	30	-3.18	
	20375					QPSK	QPSK	QPSK	1	5	3	22.67	26.97
5				6	0	3	21.47	25.77	30	-4.23			
3				1	0	0	23.18	27.48	30	-2.52			
	19975	1712.5	16QAM	1	5	0	23.21	27.51	30	-2.49			
				6	0	0	20.68	24.98	30	-5.02			
			16QAM	16QAM			1	0	0	23.15	27.45	30	-2.55
	20175	1732.5			1	5	0	23.29	27.59	30	-2.41		
				6	0	0	20.67	24.97	30	-5.03			
				1	0	3	23.14	27.44	30	-2.56			
	20375	1752.5	16QAM	1	5	3	23.22	27.52	30	-2.48			
				6	0	3	20.69	24.99	30	-5.01			

Antenna g	gain (dBi)	4.3													
				M1 Band 4_l	Jplink frequen	cy band : 1710 t	to 1755 MHz								
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB allocation	RB Start	Index	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)					
				1	0	0	22.33	26.63	30	-3.37					
	20000	1715	QPSK	1	5	0	22.43	26.73	30	-3.27					
				6	0	0	21.55	25.85	30	-4.15					
				1	0	0	22.24	26.54	30	-3.46					
	20175	1732.5	QPSK	1	5	0	22.35	26.65	30	-3.35					
				6	0	0	21.57	25.87	30	-4.13					
		1750	QPSK	1	0	7	22.31	26.61	30	-3.39					
	20375			QPSK	QPSK	QPSK	QPSK	QPSK	1	5	7	22.24	26.54	30	-3.46
10				6	0	7	21.53	25.83	30	-4.17					
10				1	0	0	23.05	27.35	30	-2.65					
	20000	1715	16QAM	1	5	0	23.14	27.44	30	-2.56					
			IOQAW	6	0	0	20.68	24.98	30	-5.02					
			16QAM	1	0	0	23.12	27.42	30	-2.58					
	20175	1732.5		16QAM	16QAM	16QAM	16QAM	1	5	0	23.05	27.35	30	-2.65	
				6	0	0	20.57	24.87	30	-5.13					
				1	0	7	22.99	27.29	30	-2.71					
	20375	1750	16QAM	1	5	7	23.03	27.33	30	-2.67					
				6	0	7	20.57	24.87	30	-5.13					

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Antenna g	jain (dBi)	4.3											
				M1 Band 4_l	Jplink frequen	cy band : 1710	to 1755 MHz						
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB allocation	RB Start	Index	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)			
				1	0	0	22.21	26.51	30	-3.49			
	20025	1717.5	QPSK	1	5	0	22.43	26.73	30	-3.27			
				6	0	0	22.66	26.96	30	-3.04			
				1	0	0	22.27	26.57	30	-3.43			
	20175	1732.5	QPSK	1	5	0	22.41	26.71	30	-3.29			
				6	0	0	22.43	26.73	30	-3.27			
		1747.5	QPSK	QPSK	QPSK	1	0	11	22.41	26.71	30	-3.29	
	20325					QPSK	QPSK	QPSK	1	5	11	22.55	26.85
15				6	0	11	22.47	26.77	30	-3.23			
10				1	0	0	22.25	26.55	30	-3.45			
	20025	1717.5	16QAM	1	5	0	22.47	26.77	30	-3.23			
				6	0	0	22.62	26.92	30	-3.08			
			16QAM	16QAM	16QAM		1	0	0	22.31	26.61	30	-3.39
	20175	1732.5				1	5	0	22.47	26.77	30	-3.23	
				6	0	0	22.45	26.75	30	-3.25			
				1	0	11	22.46	26.76	30	-3.24			
	20325	1747.5	16QAM	1	5	11	22.42	26.72	30	-3.28			
				6	0	11	22.53	26.83	30	-3.17			

Antenna g	jain (dBi)	4.3												
				M1 Band 4_U	Jplink frequen	cy band : 1710 t	to 1755 MHz							
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB allocation	RB Start	Index	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)				
				1	0	0	22.44	26.74	30	-3.26				
	20050	1720	QPSK	1	5	0	22.53	26.83	30	-3.17				
				6	0	0	22.61	26.91	30	-3.09				
				1	0	0	22.59	26.89	30	-3.11				
	20175	1732.5	QPSK	1	5	0	22.67	26.97	30	-3.03				
				6	0	0	22.58	26.88	30	-3.12				
-		1745	15 QPSK	QPSK	1	0	15	22.55	26.85	30	-3.15			
	20300				QPSK	QPSK	QPSK	QPSK	1	5	15	22.43	26.73	30
20				6	0	15	22.45	26.75	30	-3.25				
20				1	0	0	22.42	26.72	30	-3.28				
	20050	1720	16QAM	1	5	0	22.59	26.89	30	-3.11				
				6	0	0	22.68	26.98	30	-3.02				
				1	0	0	22.54	26.84	30	-3.16				
	20175	1732.5	16QAM	16QAM	16QAM	1	5	0	22.63	26.93	30	-3.07		
				6	0	0	22.61	26.91	30	-3.09				
			5 16QAM	1	0	15	22.49	26.79	30	-3.21				
	20300	1745		1	5	15	22.54	26.84	30	-3.16				
				6	0	15	22.52	26.82	30	-3.18				

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Antenna g	gain (dBi)	-1.63										
				M1 Band 5	_Uplink freque	ncy band : 824 t	o 849 MHz					
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB allocation	RB Start	Index	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)	
				1	0	0	22.57	18.79	20.94	38.45	-17.51	
	20407	824.7	QPSK	1	5	0	22.55	18.77	20.92	38.45	-17.53	
				6	0	0	20.69	16.91	19.06	38.45	-19.39	
				1	0	0	22.61	18.83	20.98	38.45	-17.47	
	20525	836.5	QPSK	1	5	0	22.78	19.00	21.15	38.45	-17.3	
				6	0	0	22.73	18.95	21.10	38.45	-17.35	
					1	0	0	22.76	18.98	21.13	38.45	-17.32
	20643	848.3	QPSK	1	5	0	22.62	18.84	20.99	38.45	-17.46	
1.4				6	0	0	20.78	17.00	19.15	38.45	-19.3	
1.4				1	0	0	22.55	18.77	20.92	38.45	-17.53	
	20407	824.7	16QAM	1	5	0	22.16	18.38	20.53	38.45	-17.92	
				6	0	0	20.79	17.01	19.16	38.45	-19.29	
				1	0	0	22.25	18.47	20.62	38.45	-17.83	
	20525	836.5	16QAM	1	5	0	22.46	18.68	20.83	38.45	-17.62	
				6	0	0	20.86	17.08	19.23	38.45	-19.22	
				1	0	0	22.26	18.48	20.63	38.45	-17.82	
	20643	848.3	16QAM	1	5	0	22.12	18.34	20.49	38.45	-17.96	
				6	0	0	20.94	17.16	19.31	38.45	-19.14	

Antenna g	jain (dBi)	-1.63									
				M1 Band 5	_Uplink freque	ncy band : 824 t	to 849 MHz				
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB allocation	RB Start	Index	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	0	22.57	18.79	20.94	38.45	-17.51
	20415	825.5	QPSK	1	5	0	22.61	18.83	20.98	38.45	-17.47
				6	0	0	20.69	16.91	19.06	38.45	-19.39
				1	0	0	22.69	18.91	21.06	38.45	-17.39
	20525	836.5	QPSK	1	5	0	22.65	18.87	21.02	38.45	-17.43
				6	0	0	20.76	16.98	19.13	38.45	-19.32
	20635	847.5		1	0	1	22.65	18.87	21.02	38.45	-17.43
			QPSK	QPSK	QPSK	1	5	1	22.71	18.93	21.08
3				6	0	1	20.78	17.00	19.15	38.45	-19.3
				1	0	0	22.14	18.36	20.51	38.45	-17.94
	20415	825.5	16QAM	1	5	0	22.27	18.49	20.64	38.45	-17.81
				6	0	0	20.77	16.99	19.14	38.45	-19.31
				1	0	0	22.13	18.35	20.50	38.45	-17.95
	20525	836.5	16QAM	1	5	0	22.24	18.46	20.61	38.45	-17.84
				6	0	0	20.84	17.06	19.21	38.45	-19.24
				1	0	1	22.49	18.71	20.86	38.45	-17.59
	20635	847.5	16QAM	1	5	1	22.53	18.75	20.90	38.45	-17.55
				6	0	1	20.94	17.16	19.31	38.45	-19.14

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Antenna g	gain (dBi)	-1.63												
		·	·	M1 Band 5	_Uplink freque	ncy band : 824 t	to 849 MHz							
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB allocation	RB Start	Index	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)			
				1	0	0	22.65	18.87	21.02	38.45	-17.43			
	20425	826.5	QPSK	1	5	0	22.81	19.03	21.18	38.45	-17.27			
				6	0	0	21.71	17.93	20.08	38.45	-18.37			
				1	0	0	22.84	19.06	21.21	38.45	-17.24			
	20525	836.5	QPSK	1	5	0	22.67	18.89	21.04	38.45	-17.41			
				6	0	0	21.75	17.97	20.12	38.45	-18.33			
	20625	846.5	QPSK	1	0	3	22.72	18.94	21.09	38.45	-17.36			
				QPSK	QPSK	QPSK	QPSK	1	5	3	22.78	19.00	21.15	38.45
5				6	0	3	21.65	17.87	20.02	38.45	-18.43			
				1	0	0	23.28	19.50	21.65	38.45	-16.8			
	20425	826.5	16QAM	1	5	0	23.16	19.38	21.53	38.45	-16.92			
				6	0	0	20.83	17.05	19.20	38.45	-19.25			
				1	0	0	23.24	19.46	21.61	38.45	-16.84			
	20525	836.5	16QAM	1	5	0	23.32	19.54	21.69	38.45	-16.76			
				6	0	0	20.81	17.03	19.18	38.45	-19.27			
				1	0	3	23.37	19.59	21.74	38.45	-16.71			
	20625	846.5	5 16QAM	1	5	3	23.21	19.43	21.58	38.45	-16.87			
				6	0	3	21.01	17.23	19.38	38.45	-19.07			

Antenna g	gain (dBi)	-1.63									
				M1 Band 5	_Uplink freque	ncy band : 824 t	to 849 MHz				
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB allocation	RB Start	Index	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	0	22.71	18.93	21.08	38.45	-17.37
	20450	829	QPSK	1	5	0	22.53	18.75	20.90	38.45	-17.55
				6	0	0	21.68	17.90	20.05	38.45	-18.4
				1	0	0	22.61	18.83	20.98	38.45	-17.47
	20525	836.5	QPSK	1	5	0	22.63	18.85	21.00	38.45	-17.45
				6	0	0	21.45	17.67	19.82	38.45	-18.63
				1	0	7	22.62	18.84	20.99	38.45	-17.46
	20600	844	QPSK	1	5	7	22.63	18.85	21.00	38.45	-17.45
10				6	0	7	21.76	17.98	20.13	38.45	-18.32
10				1	0	0	23.24	19.46	21.61	38.45	-16.84
	20450	829	16QAM	1	5	0	23.26	19.48	21.63	38.45	-16.82
				6	0	0	20.75	16.97	19.12	38.45	-19.33
				1	0	0	23.36	19.58	21.73	38.45	-16.72
	20525	836.5	16QAM	1	5	0	23.24	19.46	21.61	38.45	-16.84
				6	0	0	20.94	17.16	19.31	38.45	-19.14
				1	0	7	23.27	19.49	21.64	38.45	-16.81
	20600	844	16QAM	1	5	7	23.13	19.35	21.50	38.45	-16.95
				6	0	7	20.68	16.90	19.05	38.45	-19.4

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Antenna g	jain (dBi)	-0.36									
				M1 Band 12	2_Uplink freque	ency band : 699	to 716 MHz				
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB allocation	RB Start	Index	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	0	23.33	20.82	22.97	34.77	-11.8
	23017	699.7	QPSK	1	5	0	23.36	20.85	23.00	34.77	-11.77
				6	0	0	21.31	18.80	20.95	34.77	-13.82
				1	0	0	23.35	20.84	22.99	34.77	-11.78
	23095	707.5	QPSK	1	5	0	23.34	20.83	22.98	34.77	-11.79
				6	0	0	21.33	18.82	20.97	34.77	-13.8
				1	0	0	23.39	20.88	23.03	34.77	-11.74
	23173	715.5	QPSK	1	5	0	23.34	20.83	22.98	34.77	-11.79
1.4				6	0	0	21.32	18.81	20.96	34.77	-13.81
1.4				1	0	0	22.85	20.34	22.49	34.77	-12.28
	23017	699.7	16QAM	1	5	0	22.86	20.35	22.50	34.77	-12.27
				6	0	0	21.42	18.91	21.06	34.77	-13.71
				1	0	0	22.84	20.33	22.48	34.77	-12.29
	23095	707.5	16QAM	1	5	0	22.82	20.31	22.46	34.77	-12.31
				6	0	0	21.46	18.95	21.10	34.77	-13.67
				1	0	0	22.66	20.15	22.30	34.77	-12.47
	23173	715.5	16QAM	1	5	0	22.65	20.14	22.29	34.77	-12.48
				6	0	0	21.33	18.82	20.97	34.77	-13.8

Antenna g	jain (dBi)	-0.36									
				M1 Band 12	2_Uplink freque	ncy band : 699	to 716 MHz				
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB allocation	RB Start	Index	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	0	23.28	20.77	22.92	34.77	-11.85
	23025	700.5	QPSK	1	5	0	23.30	20.79	22.94	34.77	-11.83
				6	0	0	21.31	18.80	20.95	34.77	-13.82
				1	0	0	23.37	20.86	23.01	34.77	-11.76
	23095	707.5	QPSK	1	5	0	23.28	20.77	22.92	34.77	-11.85
				6	0	0	21.35	18.84	20.99	34.77	-13.78
		714.5	QPSK	1	0	1	23.12	20.61	22.76	34.77	-12.01
	23165			QPSK	QPSK	1	5	1	23.21	20.70	22.85
3				6	0	1	21.21	18.70	20.85	34.77	-13.92
				1	0	0	23.01	20.50	22.65	34.77	-12.12
	23025	700.5	16QAM	1	5	0	23.03	20.52	22.67	34.77	-12.1
				6	0	0	21.45	18.94	21.09	34.77	-13.68
				1	0	0	22.72	20.21	22.36	34.77	-12.41
	23095	707.5	16QAM	1	5	0	22.69	20.18	22.33	34.77	-12.44
				6	0	0	21.49	18.98	21.13	34.77	-13.64
			+	1	0	1	22.61	20.10	22.25	34.77	-12.52
	23165	714.5	16QAM	1	5	1	22.52	20.01	22.16	34.77	-12.61
				6	0	1	21.35	18.84	20.99	34.77	-13.78

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Antenna g	jain (dBi)	-0.36									
		•		M1 Band 12	2_Uplink freque	ency band : 699	to 716 MHz				
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB allocation	RB Start	Index	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	0	23.36	20.85	23.00	34.77	-11.77
	23035	701.5	QPSK	1	5	0	23.22	20.71	22.86	34.77	-11.91
				6	0	0	22.24	19.73	21.88	34.77	-12.89
				1	0	0	23.12	20.61	22.76	34.77	-12.01
	23095	707.5	QPSK	1	5	0	23.43	20.92	23.07	34.77	-11.7
				6	0	0	22.36	19.85	22.00	34.77	-12.77
				1	0	3	23.27	20.76	22.91	34.77	-11.86
	23155	713.5	QPSK	1	5	3	23.24	20.73	22.88	34.77	-11.89
5				6	0	3	22.32	19.81	21.96	34.77	-12.81
3				1	0	0	23.81	21.30	23.45	34.77	-11.32
	23035	701.5	16QAM	1	5	0	23.76	21.25	23.40	34.77	-11.37
				6	0	0	21.35	18.84	20.99	34.77	-13.78
				1	0	0	23.65	21.14	23.29	34.77	-11.48
	23095	707.5	16QAM	1	5	0	23.77	21.26	23.41	34.77	-11.36
				6	0	0	21.37	18.86	21.01	34.77	-13.76
				1	0	3	23.63	21.12	23.27	34.77	-11.5
	23155	713.5	16QAM	1	5	3	23.56	21.05	23.20	34.77	-11.57
				6	0	3	21.26	18.75	20.90	34.77	-13.87

Antenna g	gain (dBi)	-0.36									
				M1 Band 12	2_Uplink freque	ency band : 699	to 716 MHz				
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB allocation	RB Start	Index	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	0	23.37	20.86	23.01	34.77	-11.76
	23060	704	QPSK	1	5	0	23.28	20.77	22.92	34.77	-11.85
				6	0	0	22.36	19.85	22.00	34.77	-12.77
				1	0	0	23.24	20.73	22.88	34.77	-11.89
	23095	707.5	QPSK	1	5	0	23.26	20.75	22.90	34.77	-11.87
				6	0	0	22.25	19.74	21.89	34.77	-12.88
		=44		1	0	7	23.36	20.85	23.00	34.77	-11.77
	23130	711	QPSK	1	5	7	23.21	20.70	22.85	34.77	-11.92
10				6	0	7	22.25	19.74	21.89	34.77	-12.88
10				1	0	0	23.84	21.33	23.48	34.77	-11.29
	23060	704	16QAM	1	5	0	23.79	21.28	23.43	34.77	-11.34
				6	0	0	21.44	18.93	21.08	34.77	-13.69
				1	0	0	23.79	21.28	23.43	34.77	-11.34
	23095	707.5	16QAM	1	5	0	23.77	21.26	23.41	34.77	-11.36
				6	0	0	21.35	18.84	20.99	34.77	-13.78
				1	0	7	23.86	21.35	23.50	34.77	-11.27
	23130	711	16QAM	1	5	7	23.88	21.37	23.52	34.77	-11.25
				6	0	7	21.40	18.89	21.04	34.77	-13.73

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Antenna g	gain (dBi)	0.18									
				M1 Bar	nd 13_Uplink fr	equency band	: 777 to 787 MHz				
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB allocation	RB Start	Index	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	0	23.12	21.15	23.30	34.77	-11.47
	23205	779.5	QPSK	1	5	0	23.15	21.18	23.33	34.77	-11.44
				6	0	0	22.18	20.21	22.36	34.77	-12.41
				1	0	0	23.15	21.18	23.33	34.77	-11.44
	23230	782	QPSK	1	5	0	23.16	21.19	23.34	34.77	-11.43
				6	0	0	22.12	20.15	22.30	34.77	-12.47
				1	0	3	23.21	21.24	23.39	34.77	-11.38
	23255	784.5	QPSK	1	5	3	23.18	21.21	23.36	34.77	-11.41
5	l			6	0	3	22.16	20.19	22.34	34.77	-12.43
				1	0	0	23.72	21.75	23.90	34.77	-10.87
	23205	779.5	16QAM	1	5	0	23.68	21.71	23.86	34.77	-10.91
				6	0	0	21.29	19.32	21.47	34.77	-13.3
				1	0	0	23.66	21.69	23.84	34.77	-10.93
	23230	782	16QAM	1	5	0	23.69	21.72	23.87	34.77	-10.9
				6	0	0	21.28	19.31	21.46	34.77	-13.31
				1	0	3	23.69	21.72	23.87	34.77	-10.9
	23255	784.5	16QAM	1	5	3	23.63	21.66	23.81	34.77	-10.96
				6	0	3	21.06	19.09	21.24	34.77	-13.53

Antenna g	jain (dBi)	0.18									
				M1 Bar	nd 13_Uplink fi	equency band:	777 to 787 MHz				
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB allocation	RB Start	Index	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	0	23.22	21.25	23.40	34.77	-11.37
	23230	782	782 QPSK	1	5	0	23.27	21.30	23.45	34.77	-11.32
10				6	0	0	22.17	20.20	22.35	34.77	-12.42
10			16QAM	1	0	0	23.75	21.78	23.93	34.77	-10.84
	23230	782		16QAM	1	5	0	23.71	21.74	23.89	34.77
				6	0	0	21.34	19.37	21.52	34.77	-13.25

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Antenna g	jain (dBi)	-1.63									
				M1 Band 2	6_Uplink freque	ency band: 824	to 849 MHz				
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Index	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	0	22.52	18.74	20.89	38.45	-17.56
	26797	824.7	QPSK	1	5	0	22.48	18.70	20.85	38.45	-17.6
				6	0	0	20.61	16.83	18.98	38.45	-19.47
				1	0	0	22.51	18.73	20.88	38.45	-17.57
	26915	836.5	QPSK	1	5	0	22.53	18.75	20.90	38.45	-17.55
				6	0	0	20.58	16.80	18.95	38.45	-19.5
				1	0	0	22.55	18.77	20.92	38.45	-17.53
	27033	848.3	QPSK	1	5	0	22.57	18.79	20.94	38.45	-17.51
1.4				6	0	0	20.61	16.83	18.98	38.45	-19.47
1.7				1	0	0	22.28	18.50	20.65	38.45	-17.8
	26797	824.7	16QAM	1	5	0	22.22	18.44	20.59	38.45	-17.86
				6	0	0	20.79	17.01	19.16	38.45	-19.29
				1	0	0	22.25	18.47	20.62	38.45	-17.83
	26915	836.5	16QAM	1	5	0	22.26	18.48	20.63	38.45	-17.82
				6	0	0	20.74	16.96	19.11	38.45	-19.34
				1	0	0	22.24	18.46	20.61	38.45	-17.84
	27033	848.3	16QAM	1	5	0	22.29	18.51	20.66	38.45	-17.79
				6	0	0	20.78	17.00	19.15	38.45	-19.3

Antenna g	jain (dBi)	-1.63									
				M1 Band 2	6_Uplink freque	ency band: 824	to 849 MHz				
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Index	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	0	22.48	18.70	20.85	38.45	-17.6
	26805	825.5	QPSK	1	5	0	22.50	18.72	20.87	38.45	-17.58
				6	0	0	20.48	16.70	18.85	38.45	-19.6
				1	0	0	22.49	18.71	20.86	38.45	-17.59
	26915	836.5	QPSK	1	5	0	22.53	18.75	20.90	38.45	-17.55
				6	0	0	20.43	16.65	18.80	38.45	-19.65
				1	0	1	22.48	18.70	20.85	38.45	-17.6
	27025	847.5	QPSK	1	5	1	22.55	18.77	20.92	38.45	-17.53
3				6	0	1	20.49	16.71	18.86	38.45	-19.59
				1	0	0	22.16	18.38	20.53	38.45	-17.92
	26805	825.5	16QAM	1	5	0	22.13	18.35	20.50	38.45	-17.95
				6	0	0	20.72	16.94	19.09	38.45	-19.36
				1	0	0	22.11	18.33	20.48	38.45	-17.97
	26915	836.5	16QAM	1	5	0	22.13	18.35	20.50	38.45	-17.95
				6	0	0	20.68	16.90	19.05	38.45	-19.4
				1	0	1	22.13	18.35	20.50	38.45	-17.95
	27025	847.5	16QAM	1	5	1	22.14	18.36	20.51	38.45	-17.94
				6	0	1	20.73	16.95	19.10	38.45	-19.35

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Antenna g	gain (dBi)	-1.63									
		•		M1 Band 2	6_Uplink freque	ency band : 824	to 849 MHz				
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Index	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	0	22.48	18.70	20.85	38.45	-17.6
	26815	826.5	QPSK	1	5	0	22.67	18.89	21.04	38.45	-17.41
				6	0	0	21.47	17.69	19.84	38.45	-18.61
				1	0	0	22.64	18.86	21.01	38.45	-17.44
	26915	836.5	QPSK	1	5	0	22.70	18.92	21.07	38.45	-17.38
				6	0	0	21.50	17.72	19.87	38.45	-18.58
				1	0	3	22.73	18.95	21.10	38.45	-17.35
	27015	846.5	QPSK	1	5	3	22.75	18.97	21.12	38.45	-17.33
5				6	0	3	21.60	17.82	19.97	38.45	-18.48
				1	0	0	23.03	19.25	21.40	38.45	-17.05
	26815	826.5	16QAM	1	5	0	23.09	19.31	21.46	38.45	-16.99
				6	0	0	20.64	16.86	19.01	38.45	-19.44
				1	0	0	23.03	19.25	21.40	38.45	-17.05
	26915	836.5	16QAM	1	5	0	23.05	19.27	21.42	38.45	-17.03
				6	0	0	20.67	16.89	19.04	38.45	-19.41
				1	0	3	23.04	19.26	21.41	38.45	-17.04
	27015	846.5	16QAM	1	5	3	23.01	19.23	21.38	38.45	-17.07
				6	0	3	20.69	16.91	19.06	38.45	-19.39

Antenna g	gain (dBi)	-1.63									
				M1 Band 2	6_Uplink freque	ency band: 824	to 849 MHz				
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Index	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	0	22.46	18.68	20.83	38.45	-17.62
	26840	829	QPSK	1	5	0	22.40	18.62	20.77	38.45	-17.68
				6	0	0	21.39	17.61	19.76	38.45	-18.69
				1	0	0	22.47	18.69	20.84	38.45	-17.61
	26915	836.5	QPSK	1	5	0	22.49	18.71	20.86	38.45	-17.59
				6	0	0	21.56	17.78	19.93	38.45	-18.52
				1	0	7	22.47	18.69	20.84	38.45	-17.61
	26990	844	QPSK	1	5	7	22.43	18.65	20.80	38.45	-17.65
10				6	0	7	21.56	17.78	19.93	38.45	-18.52
10				1	0	0	23.18	19.40	21.55	38.45	-16.9
	26840	829	16QAM	1	5	0	23.15	19.37	21.52	38.45	-16.93
				6	0	0	20.83	17.05	19.20	38.45	-19.25
				1	0	0	23.11	19.33	21.48	38.45	-16.97
	26915	836.5	16QAM	1	5	0	23.17	19.39	21.54	38.45	-16.91
				6	0	0	20.89	17.11	19.26	38.45	-19.19
				1	0	7	23.08	19.30	21.45	38.45	-17
	26990	844	16QAM	1	5	7	23.15	19.37	21.52	38.45	-16.93
				6	0	7	20.82	17.04	19.19	38.45	-19.26

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Antenna g	jain (dBi)	-1.63									
		•		M1 Band 2	6_Uplink freque	ency band : 824	to 849 MHz				
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Index	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	0	22.49	18.71	20.86	38.45	-17.59
	26865	831.5	QPSK	1	5	0	22.46	18.68	20.83	38.45	-17.62
				6	0	0	22.53	18.75	20.90	38.45	-17.55
				1	0	0	22.48	18.70	20.85	38.45	-17.6
	26915	836.5	QPSK	1	5	0	22.44	18.66	20.81	38.45	-17.64
				6	0	0	22.56	18.78	20.93	38.45	-17.52
				1	0	11	22.41	18.63	20.78	38.45	-17.67
	26965	841.5	QPSK	1	5	11	22.47	18.69	20.84	38.45	-17.61
15				6	0	11	22.58	18.80	20.95	38.45	-17.5
15				1	0	0	23.05	19.27	21.42	38.45	-17.03
	26865	831.5	16QAM	1	5	0	23.02	19.24	21.39	38.45	-17.06
				6	0	0	22.75	18.97	21.12	38.45	-17.33
				1	0	0	23.01	19.23	21.38	38.45	-17.07
	26915	836.5	16QAM	1	5	0	23.02	19.24	21.39	38.45	-17.06
				6	0	0	22.85	19.07	21.22	38.45	-17.23
				1	0	11	23.13	19.35	21.50	38.45	-16.95
	26965	841.5	16QAM	1	5	11	23.10	19.32	21.47	38.45	-16.98
				6	0	11	22.67	18.89	21.04	38.45	-17.41

Antenna g	gain (dBi)	-1.68									
				Part 90S_N	11 Band 26_Upl	ink frequency b	and : 814 to 824	MHz			
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Index	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	0	22.45	18.62	20.77	50	-29.23
	26697	814.7	QPSK	1	5	0	22.41	18.58	20.73	50	-29.27
				6	0	0	20.47	16.64	18.79	50	-31.21
				1	0	0	22.44	18.61	20.76	50	-29.24
	26740	819	QPSK	1	5	0	22.38	18.55	20.70	50	-29.3
				6	0	0	20.48	16.65	18.80	50	-31.2
				1	0	0	22.48	18.65	20.80	50	-29.2
	26783	823.3	QPSK	1	5	0	22.42	18.59	20.74	50	-29.26
1.4			•	6	0	0	20.45	16.62	18.77	50	-31.23
1.4				1	0	0	22.27	18.44	20.59	50	-29.41
	26697	814.7	16QAM	1	5	0	22.26	18.43	20.58	50	-29.42
				6	0	0	20.61	16.78	18.93	50	-31.07
				1	0	0	22.24	18.41	20.56	50	-29.44
	26740	819	16QAM	1	5	0	22.29	18.46	20.61	50	-29.39
				6	0	0	20.58	16.75	18.90	50	-31.1
				1	0	0	22.28	18.45	20.60	50	-29.4
	26783	823.3	16QAM	1	5	0	22.23	18.40	20.55	50	-29.45
				6	0	0	20.54	16.71	18.86	50	-31.14

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Antenna g	gain (dBi)	-1.68									
				Part 90S_N	11 Band 26_Upl	ink frequency l	oand : 814 to 824	MHz			
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Index	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	0	22.43	18.60	20.75	50	-29.25
	26705	815.5	QPSK	1	5	0	22.42	18.59	20.74	50	-29.26
				6	0	0	20.49	16.66	18.81	50	-31.19
				1	0	0	22.44	18.61	20.76	50	-29.24
	26740	819	QPSK	1	5	0	22.45	18.62	20.77	50	-29.23
				6	0	0	20.48	16.65	18.80	50	-31.2
				1	0	1	22.47	18.64	20.79	50	-29.21
	26775	822.5	QPSK	1	5	1	22.43	18.60	20.75	50	-29.25
3				6	0	1	20.52	16.69	18.84	50	-31.16
3				1	0	0	21.77	17.94	20.09	50	-29.91
	26705	815.5	16QAM	1	5	0	21.72	17.89	20.04	50	-29.96
				6	0	0	20.55	16.72	18.87	50	-31.13
				1	0	0	21.74	17.91	20.06	50	-29.94
	26740	819	16QAM	1	5	0	21.78	17.95	20.10	50	-29.9
				6	0	0	20.59	16.76	18.91	50	-31.09
				1	0	1	21.78	17.95	20.10	50	-29.9
	26775	822.5	16QAM	1	5	1	21.75	17.92	20.07	50	-29.93
				6	0	1	20.55	16.72	18.87	50	-31.13

Antenna g	jain (dBi)	-1.68									
				Part 90S_N	//1 Band 26_Upl	ink frequency l	oand : 814 to 824	MHz			
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Index	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	0	22.55	18.72	20.87	50	-29.13
	26715	816.5	QPSK	1	5	0	22.43	18.60	20.75	50	-29.25
				6	0	0	21.35	17.52	19.67	50	-30.33
				1	0	0	22.53	18.70	20.85	50	-29.15
	26740	819	QPSK	1	5	0	22.42	18.59	20.74	50	-29.26
				6	0	0	21.36	17.53	19.68	50	-30.32
		821.5	5 QPSK	1	0	3	22.59	18.76	20.91	50	-29.09
	26765			1	5	3	22.45	18.62	20.77	50	-29.23
5			•	6	0	3	21.38	17.55	19.70	50	-30.3
				1	0	0	23.02	19.19	21.34	50	-28.66
	26715	816.5	16QAM	1	5	0	23.04	19.21	21.36	50	-28.64
				6	0	0	20.67	16.84	18.99	50	-31.01
				1	0	0	23.01	19.18	21.33	50	-28.67
	26740	819	16QAM	1	5	0	23.00	19.17	21.32	50	-28.68
				6	0	0	20.63	16.80	18.95	50	-31.05
				1	0	3	23.00	19.17	21.32	50	-28.68
	26765	821.5	16QAM	1	5	3	23.05	19.22	21.37	50	-28.63
				6	0	3	20.69	16.86	19.01	50	-30.99

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Antenna g	gain (dBi)	-1.68												
	Part 90S_M1 Band 26_Uplink frequency band : 814 to 824 MHz													
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Index	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)			
	26740			1	0	0	22.43	18.60	20.75	50	-29.25			
		819	QPSK	1	5	0	22.45	18.62	20.77	50	-29.23			
10				6	0	0	21.39	17.56	19.71	50	-30.29			
10		819		1	0	0	23.01	19.18	21.33	50	-28.67			
	26740		16QAM	16QAM	1	5	0	23.03	19.20	21.35	50	-28.65		
			•	6	0	0	20.84	17.01	19.16	50	-30.84			

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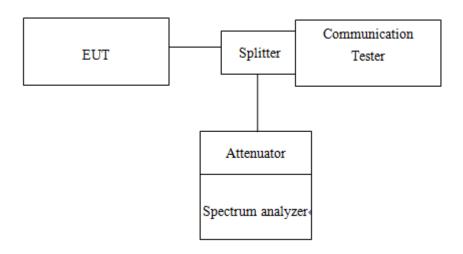
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OCCUPIED BANDWIDTH MEASUREMENT

8.1 Standard Applicable

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

8.2 **Test Set-up**



8.3 **Measurement Procedure**

99% &26dB Bandwidth with detector peak

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

99% Bandwidth with detector sample

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

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8.4 **Measurement Result**

8.4.1 NB IoT

		LT	E NB-IoT Band	12			
	Гто «		Subcarrier		Measure F	Result (kHz)	
Channel	Freq. (MHz)	Modulation	Spacing (kHz)	N _{tones}	26dB BW	99% BW	
		BPSK	3.75	1@0	307.400	229.00	
18601	1850.1	QPSK	15	1@0	256.000	210.38	
		QPSK	15	12@0	268.300	222.04	
		BPSK	3.75	1@0	308.300	227.65	
18900	1880	QPSK	15	1@0	261.200	211.19	
		QPSK	15	12@0	261.600	221.53	
		BPSK	3.75	1@0	279.400	224.62	
19199	1909.9	QPSK	15	1@0	257.600	208.13	
		QPSK	15	12@0	271.700	222.32	
		LT	E NB-IoT Band	4			
011	Freq.	Maril Laffee	Subcarrier		Measure F	Result (kHz)	
Channel	(MHz)	Modulation	Spacing (kHz)	N _{tones}	26dB BW	99% BW	
		BPSK	3.75	1@0	312.700	228.83	
19951	1710.1	QPSK	15	1@0	267.900	213.99	
		QPSK	15	12@0	278.900	222.40	
		BPSK	3.75	1@0	322.100	229.27	
20175	1732.5	QPSK	15	1@0	260.500	212.39	
		QPSK	15	12@0	266.400	222.91	
		BPSK	3.75	1@0	314.000	230.08	
20399	1754.9	QPSK	15	1@0	270.200	214.44	
		QPSK	15	12@0	267.400 222.65		
		LT	E NB-IoT Band	15			
Channel	Freq.	Modulation	Subcarrier	N	Measure F	Result (kHz	
Channe	(MHz)	Modulation	Spacing (kHz)	N _{tones}	26dB BW	99% BW	
		BPSK	3.75	1@0	273.900	221.73	
20401	824.1	QPSK	15	1@0	245.600	200.10	
		QPSK	15	12@0	273.000	220.77	
		BPSK	3.75	1@0	272.300	223.21	
20525	836.5	QPSK	15	1@0	254.000	198.88	
		QPSK	15	12@0	274.000	221.84	
		BPSK	3.75	1@0	268.300	223.60	
20649	848.9	QPSK	15	1@0	255.500	200.62	
		QPSK	15	12@0	271.500	218.98	

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		LTI	E NB-IoT Band	12								
Freq Subcarrier Measure Result (kH												
Channel	-	Modulation	Spacing	N _{tones}		, ,						
	(MHz)		(kHz)		26dB BW	99% BW						
		BPSK	3.75	1@0	277.700	223.32						
23011	699.1	QPSK	15	1@0	254.400	198.30						
		QPSK	15	12@0	268.300	219.48						
		BPSK	3.75	1@0	274.300	223.02						
23095	707.5	QPSK	15	1@0	244.300	195.39						
		QPSK	15	12@0	268.700	225.64						
		BPSK	3.75	1@0	270.400	217.93						
23719	715.9	QPSK	15	1@0	248.700	197.76						
		QPSK	15	12@0	279.800	217.28						
		LT	E NB-IoT Band	13								
	Freq.		Subcarrier		Measure F	Result (kHz)						
Channel	(MHz)	Modulation	Spacing (kHz)	N _{tones}	26dB BW	99% BW						
	777.1	BPSK	3.75	1@0	273.500	222.24						
23181		QPSK	15	1@0	256.200	201.23						
20101		QPSK	15	12@0	264.500	221.54						
		BPSK	3.75	1@0	280.800	218.61						
23230	782	QPSK	15	1@0	248.400	200.29						
		QPSK	15	12@0	275.400	219.85						
		BPSK	3.75	1@0	284.400	224.10						
23279	786.9	QPSK	15	1@0	254.000	200.11						
		QPSK	15	12@0	277.500	220.80						
			E NB-IoT Band									
	Freq.		Subcarrier		Measure F	Result (kHz)						
Channel	(MHz)	Modulation	Spacing (kHz)	N _{tones}	26dB BW	99% BW						
		BPSK	3.75	1@0	273.300	223.86						
26791	824.1	QPSK	15	1@0	251.900	199.12						
		QPSK	15	12@0	269.400	217.08						
		BPSK	3.75	1@0	273.900	223.61						
26915	836.5	QPSK	15	1@0	248.600	202.24						
		QPSK	15	12@0	268.400	221.00						
		BPSK	3.75	1@0	273.400	224.12						
27039	848.9	QPSK	15	1@0	255.500	201.88						
		QPSK			275.500	219.03						

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	LTE NB-IoT Band 26_Part90													
Channel	Freq.	Modulation	Subcarrier Spacing	N _{tones}	Measure Result (kHz									
Charmer	(MHz)	Wodulation	(kHz)	Ntones	26dB BW	99% BW								
		BPSK	3.75	1@0	224.290	275.10								
26691	814.1	QPSK	15	1@0	201.950	257.40								
		QPSK	15	12@0	219.280	272.30								
	819	BPSK	3.75	1@0	211.660	252.80								
26740		QPSK	15	1@0	199.620	250.60								
		QPSK	15	12@0	223.650	262.80								
		BPSK	3.75	1@0	224.160	276.90								
26789	823.9	QPSK	15	1@0	201.880	249.10								
		QPSK	15	12@0	222.780	276.20								

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8.4.2 Cat M1

0.4.2	Ca	LIVIT												
	M1 BAND 2 Channel bandwidth: 1.4MHz							M1 BAND 2 Channel bandwidth: 3MHz						
Freq.	СН	99% B\	V (MHz)	26 dB B	W (MHz)		Freq.	СН	99% BV	V (MHz)	26 dB E	BW (MHz)		
(MHz)	CIT	QPSK	16QAM	QPSK	16QAM		(MHz)	GH	QPSK	16QAM	QPSK	16QAM		
1850.7	18607	1.0919	1.0991	1.270	1.273		1851.5	18615	1.1829	1.1997	2.318	2.092		
1880.0	18900	1.0926	1.0999	1.286	1.281		1880.0	18900	1.1785	1.1843	2.572	1.459		
1909.3	19193	1.0916	1.1023	1.262	1.263		1908.5	19185	1.2203	1.1660	2.657	1.429		
	M1 BAN		nel bandwid					M1 BA		el bandwid				
Freq.	СН		V (MHz)		W (MHz)		Freq.	СН		V (MHz)		BW (MHz)		
(MHz)		QPSK	16QAM	QPSK	16QAM		(MHz)		QPSK	16QAM	QPSK	16QAM		
1852.5	18625	1.3331	1.2842	3.332	1.879		1855.0	18650	1.9901	2.6042	3.712	3.795		
1880.0	18900	1.4435	1.2694	2.987	1.725		1880.0	18900	1.9204	1.9928	3.799	3.754		
1907.5	19175	1.2742	1.2337	2.647	1.793		1905.0	19150	1.9864	1.9733	3.901	3.425		
									17.00					
_	M1 BAN		el bandwid		\A/ (\A \		_	M1 BAI		el bandwid		NA (
Freq.	СН		N (MHz)		W (MHz)		Freq.	CH		V (MHz)		BW (MHz)		
(MHz)	40075	QPSK	16QAM	QPSK	16QAM		(MHz)	40700	QPSK	16QAM	QPSK	16QAM		
1857.5	18675	2.245	2.293	5.650	3.262		1860.0	18700	3.325	2.763	6.135	4.145		
1880.0	18900	2.300	2.226	3.370	3.548		1880.0	18900	2.426	2.614	5.531	4.502		
1902.5	19125	2.107	1.974	3.837	3.857		1900.0	19100	2.535	2.383	3.816	3.829		
	M1 BAN		nel bandwid				M1 BAND 4 Channel bandwidth: 3MHz Freq. 99% BW (MHz) 26 dB BW (MHz)							
Freq.	CH		W (MHz)		BW (MHz)		Freq.	СН		. ,				
(MHz)	10057	QPSK	16QAM	QPSK	16QAM		(MHz)	40005	QPSK	16QAM	QPSK	16QAM		
1710.7	19957	1.0919	1.1017	1.273	1.283		1711.5	19965	1.1946	1.1868	2.671	1.816		
1732.5	20175	1.0986	1.0941	1.310	1.267		1732.5	20175	1.2129	1.1779	2.516	1.479		
1754.3	20393	1.0911	1.1003	1.262	1.266		1753.5	20385	1.2002	1.1594	2.543	2.178		
	M4 DAI	ND 4 Chan	nel bandwi	altha CNALL		_		M4 DA	ND 4 Chan	nel bandwid	IH-: 10141 I-			
- Fro a	IVIIDAI				Σ\Λ/ / \ ΛΙ⊔→\	_	From	IVIIDA				W (MHz)		
Freq. (MHz)	CH		W (MHz)		BW (MHz)		Freq. (MHz)	CH		W (MHz)				
1712.5	19975	QPSK 1.3107	16QAM 1.2239	QPSK 3.255	16QAM 1.587		1715.0	20000	QPSK 2.0659	16QAM 2.0817	QPSK 3.986	16QAM 3.383		
1732.5	20175	1.3003	1.2488	2.887	1.613		1732.5	20175	1.9888	1.9287	3.819	3.794		
1752.5	20375	1.2944	1.2165	3.018	1.548		1750.0	20350	1.8569	1.9931	3.582	3.794		
1702.0	20010	1.2344	1.2103	3.010	1.540		1700.0	20000	1.0503	1.9901	3.302	3.330		
	M1 BAN	JD 4 Chanr	nel bandwic	lth: 15MHz	,			M1 RA	ND 4 Chanr	nel bandwid	Ith: 20MHz			
Freq.		1	W (MHz)		BW (MHz)	-	Freq.			W (MHz)	26 dB BW (MHz)			
(MHz)	CH	QPSK	16QAM	QPSK	16QAM		(MHz)	CH	QPSK	16QAM	QPSK	16QAM		
1717.5	20025	2.324	2.155	4.055	3.680		1720.0	20050	2.441	2.187	5.081	3.101		
1732.5	20175	2.200	2.284	3.280	3.507		1732.5	20175	2.662	2.088	5.404	3.018		
1747.5	20325	2.218	1.931	3.511	3.715		1745.0	20300	2.716	2.357	3.898	3.736		
	<u> </u>					_		1						

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M1 BAND 5 Channel bandwidth: 1.4MHz						M1 BAND 5 Channel bandwidth: 3MHz						
Freq.	OLL	99% B\	N (MHz)	26 dB B	W (MHz)	Freq.	011	99% B\	V (MHz)	26 dB E	BW (MHz)	
(MHz)	CH	QPSK	16QAM	QPSK	16QAM	(MHz)	CH	QPSK	16QAM	QPSK	16QAM	
824.7	20407	1.0929	1.0959	1.277	1.295	825.5	20415	1.1856	1.1805	2.236	1.470	
836.5	20525	1.0961	1.0904	1.285	1.276	836.5	20525	1.2042	1.1716	2.443	2.200	
848.3	20643	1.0964	1.0985	1.286	1.269	847.5	20635	1.1976	1.1719	2.633	1.453	
	M1 BAI	ND 5 Chan	nel bandwid	dth: 5MHz			M1 BA	ND 5 Chann	el bandwid	th: 10MHz		
Freq.	СН	99% B\	N (MHz)	26 dB B	W (MHz)	Freq.	СН	99% B\	V (MHz)	26 dB E	BW (MHz)	
(MHz)		QPSK	16QAM	QPSK	16QAM	(MHz)		QPSK	16QAM	QPSK	16QAM	
826.5	20425	1.3059	1.2282	2.844	1.561	829.0	20450	2.1334	2.0515	4.117	3.536	
836.5	20525	1.7009	1.2383	3.209	1.569	836.5	20525	2.2606	2.5460	4.113	3.841	
846.5	20625	1.3457	1.2377	2.896	1.456	844.0	20600	1.8906	2.1794	4.171	3.577	
	M1 BANI	0 12 Chanr	nel bandwid	lth: 1.4MHz	Z		M1 BAI	ND 12 Chan	nel bandwid	dth: 3MHz		
Freq.	СН	99% B\	N (MHz)	26 dB B	W (MHz)	Freq.	СН	99% BV	99% BW (MHz)		W (MHz)	
(MHz)		QPSK	16QAM	QPSK	16QAM	(MHz)		QPSK	16QAM	QPSK	16QAM	
699.7	23017	1.0975	1.0978	1.293	1.302	700.5	23025	1.2162	1.1856	2.181	1.465	
707.5	23095	1.0890	1.0957	1.272	1.280	707.5	23095	1.2173	1.1641	2.586	1.425	
715.3	23173	1.0933	1.0919	1.305	1.272	714.5	23165	1.1885	1.1657	2.548	1.437	
	M1 BAN		nel bandwi			M1 BAND 12 Channel bandwidth: 10MHz						
Freq.	СН		N (MHz)		W (MHz)	Freq.	СН	99% BV	` '		W (MHz)	
(MHz)		QPSK	16QAM	QPSK	16QAM	(MHz)		QPSK	16QAM	QPSK	16QAM	
701.5	23035	1.3336	1.2720	2.810	1.601	704.0	23060	2.3087	2.5362	3.980	3.715	
707.5	23095	1.3468	1.2886	3.061	2.409	707.5	23095	2.2743	2.0445	3.870	3.746	
713.5	23155	1.3073	1.2570	3.018	1.593	711.0	23130	1.8749	1.9477	4.200	3.584	
	M1 BAI	-	nnel bandw				M1 BAN	_	nel bandwid			
Freq.	СН		W (MHz)		BW (MHz)	Freq.	СН		V (MHz)	26 dB B	W (MHz)	
(MHz)		QPSK	16QAM	QPSK	16QAM	(MHz)		QPSK	16QAM	QPSK	16QAM	
779.5	23205	1.3430	1.2718	3.142	1.578	782.0	23230	1.967	2.052	3.608	3.819	
782.0	23230	1.3158	1.2597	2.996	1.640							
784.5	23255	1.3058	1.2527	2.515	1.556							

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M1 BAND 26 Channel bandwidth: 1.4MHz							M1 BAND 26 Channel bandwidth: 3MHz							
Freq.		99% B\	N (MHz)	26 dB B	W (MHz)	t	Freq.		99% BV	V (MHz)	26 dB E	BW (MHz)		
(MHz)	CH	QPSK	16QAM	QPSK	16QAM		(MHz)	CH	QPSK	16QAM	QPSK	16QAM		
824.7	26797	1.0944	1.0941	1.281	1.285	Ī	825.5	26805	1.2263	1.1827	2.923	1.441		
836.5	26915	1.0962	1.0994	1.287	1.295		836.5	26915	1.2490	1.1830	2.930	1.514		
848.3	27033	1.0962	1.0950	1.289	1.258		847.5	27025	1.2413	1.1687	3.050	1.444		
	M1 BAN		nnel bandwi	dth: 5MHz				M1 BAN		nel bandwid				
Freq.	СН	99% B\	N (MHz)	26 dB B	W (MHz)		Freq.	СН	99% BV	V (MHz)	26 dB E	BW (MHz)		
(MHz)	OH	QPSK	16QAM	QPSK	16QAM		(MHz)	OH	QPSK	16QAM	QPSK	16QAM		
826.5	26815	1.3587	1.2934	3.689	2.554		829.0	26840	1.9523	2.0630	3.840	4.033		
836.5	26915	1.3550	1.2877	3.135	1.589		836.5	26915	2.5778	2.5495	4.366	3.932		
846.5	27015	1.3375	1.2446	3.029	1.610		844.0	26990	1.8117	2.4210	3.354	4.055		
	M1 BAN		nel bandwid											
Freq.	СН		N (MHz)		W (MHz)									
(MHz)		QPSK	16QAM	QPSK	16QAM									
831.5	26865	2.310	2.120	4.354	4.171									
836.5	26915	2.355	2.294	4.441	4.541									
841.5	26965	2.235	2.377	4.523	3.976									
M1 BA	AND 26 fc		Channel b				M1 E	BAND 26		Channel b				
Freq.	СН	99% B	W (MHz)	26 dB BW (MHz)			Freq.	СН	99% BW (MHz)		26 dB BW (MHz)			
(MHz)		QPSK	16QAM	QPSK	16QAM		(MHz)		QPSK	16QAM	QPSK	16QAM		
814.7	26697	1.0964	1.0980	1.282	1.289		815.5	26705	1.2093	1.2118	2.903	2.742		
819.0	26740	1.0974	1.0964	1.279	1.286		819.0	26740	1.2188	1.2308	2.646	2.933		
823.3	26783	1.0961	1.0947	1.282	1.281		822.5	26775	1.2675	1.3861	2.876	2.844		
M1 E	M1 BAND 26 for part 90S Channel bandwidth: 5MHz						M1 B	SAND 26 f		Channel ba	andwidth: 1	10MHz		
Freq.	СН	99% B	W (MHz)	26 dB E	BW (MHz)		Freq.	СН	99% B\	V (MHz)	26 dB B	W (MHz)		
(MHz)		QPSK	16QAM	QPSK	16QAM		(MHz)		QPSK	16QAM	QPSK	16QAM		
816.5	26715	1.3541	1.2759	3.965	1.787		819.0	26740	2.5316	2.4742	4.311	4.577		
819.0	26740	1.3117	1.3285	3.005	2.900									
821.5	26765	1.3302	1.2685	3.068	1.580									

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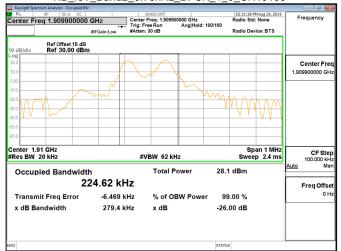
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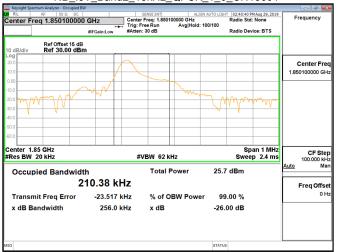
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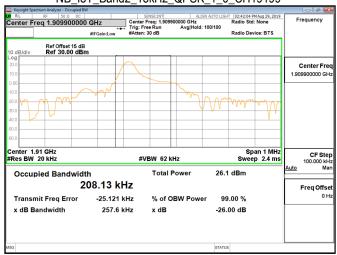
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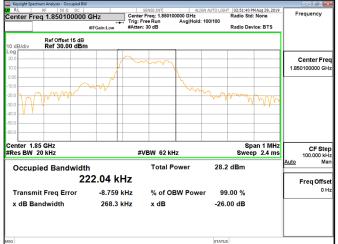
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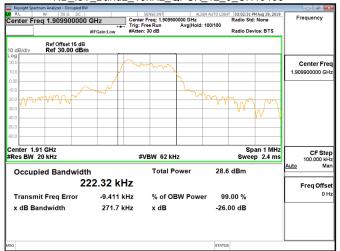
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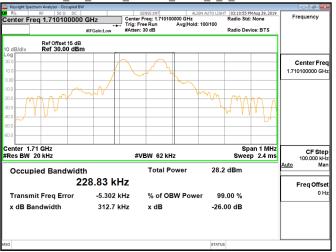
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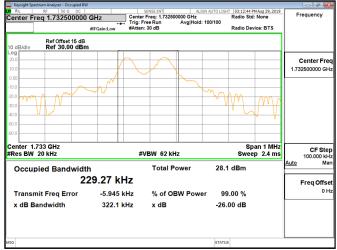
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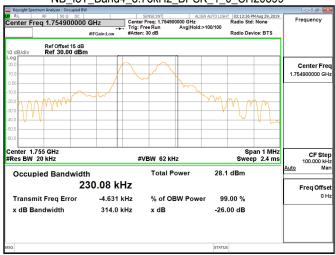
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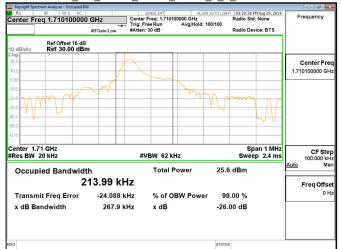
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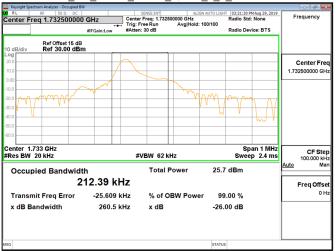


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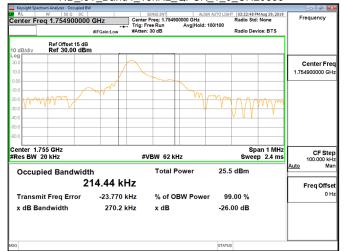
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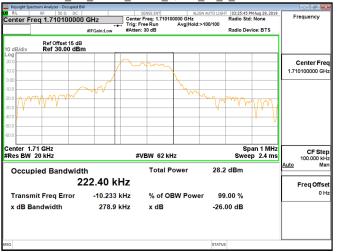
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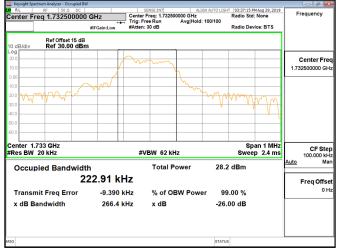
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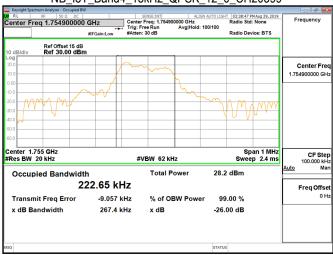
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NB IoT Band4 15kHz QPSK 12 0 CH20175



NB_loT_Band4_15kHz_QPSK_12_0_CH20399



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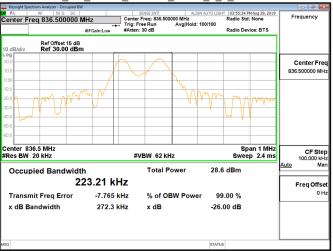


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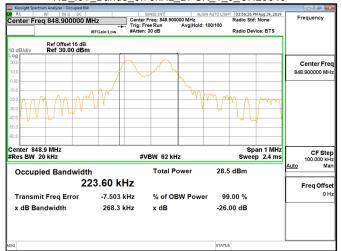
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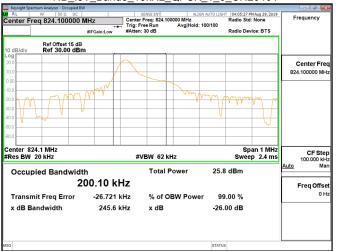
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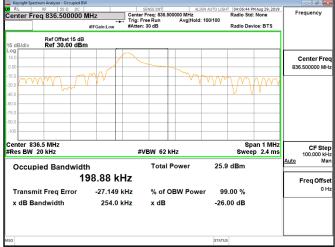
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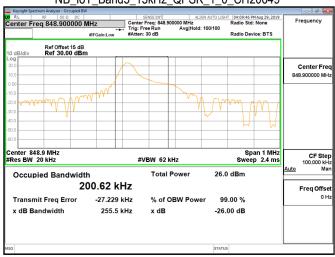
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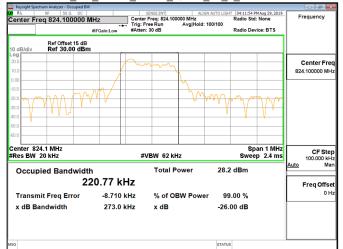
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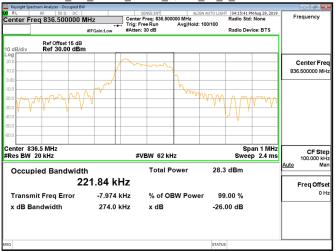


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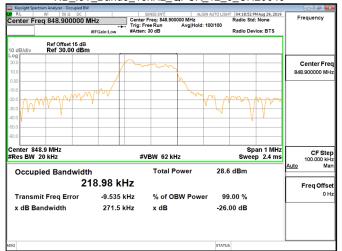
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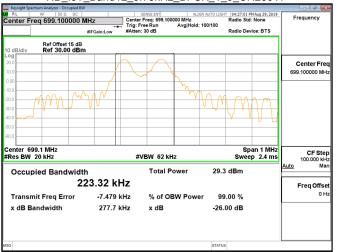
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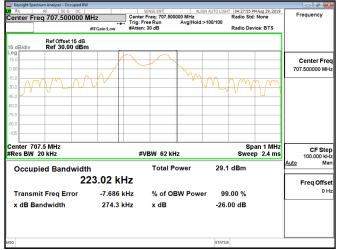
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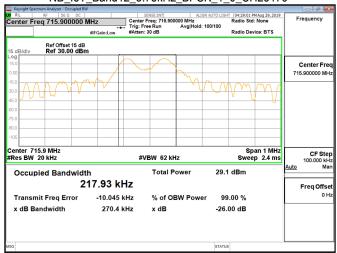
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NB_IoT_Band12_3.75kHz_BPSK_1_0_CH23095



NB_IoT_Band12_3.75kHz_BPSK_1_0_CH23179



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