ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

Applicant:	Murata Electronics North America 3330 Cumberland Blvd SE #700, Atlanta, GA 30339
Manufacturer:	Murata Manufacturing Co. 1 Chome-10-1 Higashikotari, Nagaokakyo, Kyoto 617-0832, Japan
Product Name:	Type2GD
Brand Name:	Murata
Model No.:	LBAD0ZZ2GD
ISED PMN:	2GD
Report Number:	TERF2408002531ER
FCC ID	HSW-TY2GD
IC:	4492A-TY2GD
Date of EUT Received:	August 27, 2024
Date of Test:	August 28, 2024～October 16, 2024
Issue Date:	November 25, 2024

Approved By Marcus Tseng

Marcus Tseng

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 & 27C & 90S and ISED RSS-Gen, 130, 132, 133, 139.

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

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Revision History

Report Number	Revision	Description	Issue Date	Revised By	Remark
TERF2408002531ER	00	Original	Nov. 13, 2024	Candice Li	
TERF2408002531ER	01	Add the description for Section 4.1, item 3.	Nov. 25, 2024	Candice Li	

Note:

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

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1 GENERAL PRODUCT INFORMATION

1.1 Product Description

Product Name:	Type2GD
Brand Name:	Murata
Model No.:	LBAD0ZZ2GD
Hardware Version:	ES1
Firmware Version:	BF_CORE_02_01_00_02_42951
EUT Series No.:	358419510001498
Power Supply:	3.6 Vdc
Test Software (Name/Version)	Connect with callbox

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1.2 Frequency Range

CAT-M1 Band 2			
BW (MHz)	Operation Frequency (MHz)		
1.4	1850.7	-	1909.3
3	1851.5	-	1908.5
5	1852.5	-	1907.5
10	1855.0	-	1905.0
15	1857.5	-	1902.5
20	1860.0	-	1900.0

CAT-M1 Band 4			
BW (MHz)	Operation Frequency (MHz)		
1.4	1710.7	-	1754.3
3	1711.5	-	1753.5
5	1712.5	-	1752.5
10	1715.0	-	1750.0
15	1717.5	-	1747.5
20	1720.0	-	1745.0

CAT-M1 Band 5			
BW (MHz)	Operation Frequency (MHz)		
1.4	824.7	-	848.3
3	825.5	-	847.5
5	826.5	-	846.5
10	829.0	-	844.0

CAT-M1 Band 12			
BW (MHz)	Operation Frequency (MHz)		
1.4	699.7	-	715.3
3	700.5	-	714.5
5	701.5	-	713.5
10	704.0	-	711.0

CAT-M1 Band 13			
BW (MHz)	Operation Frequency (MHz)		
5	779.5	-	784.5
10	782.0		

CAT-M1 Band 17			
BW (MHz)	Operation Frequency (MHz)		
5	706.5	-	713.5
10	709.0	-	711.0

CAT-M1 Band 25			
BW (MHz)	Operation Frequency (MHz)		
1.4	1850.7	-	1914.3
3	1851.5	-	1913.5
5	1852.5	-	1912.5
10	1855.0	-	1910.0
15	1857.5	-	1907.5
20	1860.0	-	1905.0

CAT-M1 Band 26 Part 90			
BW (MHz)	Operation Frequency (MHz)		
1.4	814.7	-	823.3
3	815.5	-	822.5
5	816.5	-	821.5
10	819.0		

CAT-M1 Band 26			
BW (MHz)	Operation Frequency (MHz)		
1.4	824.7	-	848.3
3	825.5	-	847.5
5	826.5	-	846.5
10	829.0	-	844.0
15	831.5	-	841.5

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CAT-M1 Band 66			
BW (MHz)	Operation Frequency (MHz)		
1.4	1710.7	-	1779.3
3	1711.5	-	1778.5
5	1712.5	-	1777.5
10	1715.0	-	1775.0
15	1717.5	-	1772.5
20	1720.0	-	1770.0

Note: Operation frequency 814~824MHz is diabled in Canada.

1.3 Antenna Designation

Antenna Type	Part No.	Antenna Model No.
Omni-Directional	T6140XX-AGDPU-S	Ant0
Note: Transmission frequencies in this test report are only available by the above antenna(s).		

Type	Modulation	Frequency (MHz)			Peak Antenna Gain (dBi)
					Ant0
Omni-Directional	Band 2	1850	~	1910	2
	Band 4	1710	~	1755	2
	Band 5	824	~	849	2
	Band 12	699	~	716	2
	Band 13	777	~	787	2
	Band 17	704	~	716	2
	Band 25	1850	~	1915	2
	Band 26	824	~	849	2
	Band 26 Part 90	814	~	824	2
	Band 66	1710	~	1780	2

Note: Antenna information is provided by the applicant.

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

CAT-M1 Band	BW	Frequency		Modulation	ERP / EIRP (dBm)		(W)	99%	Type of Emission
2	1.4	1850.7	1909.3	QPSK	24.94	EIRP	**0.312**	1.0758	1M08G7D
				16QAM	24.38	EIRP	0.274	1.0769	1M08D7W
2	3	1851.5	1908.5	QPSK	24.69	EIRP	0.294	1.0758	1M08G7D
				16QAM	24.23	EIRP	0.265	1.0780	1M08D7W
2	5	1852.5	1907.5	QPSK	24.83	EIRP	0.304	1.0866	1M09G7D
				16QAM	25.15	EIRP	0.327	1.0779	1M08D7W
2	10	1855.0	1905.0	QPSK	24.81	EIRP	0.303	1.0861	1M09G7D
				16QAM	25.13	EIRP	0.326	1.0857	1M09D7W
2	15	1857.5	1902.5	QPSK	24.83	EIRP	0.304	1.082	1M08G7D
				16QAM	25.35	EIRP	**0.343**	1.081	1M08D7W
2	20	1860.0	1900.0	QPSK	24.85	EIRP	0.305	1.084	1M08G7D
				16QAM	25.16	EIRP	0.328	1.087	1M09D7W
CAT-M1 Band	BW	Frequency		Modulation	ERP / EIRP (dBm)		(W)	99%	Type of Emission
4	1.4	1710.7	1754.3	QPSK	25.06	EIRP	**0.321**	1.0774	1M08G7D
				16QAM	24.68	EIRP	0.294	1.0772	1M08D7W
4	3	1711.5	1753.5	QPSK	25.02	EIRP	0.318	1.0773	1M08G7D
				16QAM	24.60	EIRP	0.288	1.0771	1M08D7W
4	5	1712.5	1752.5	QPSK	24.92	EIRP	0.310	1.0859	1M09G7D
				16QAM	25.38	EIRP	0.345	1.0800	1M08D7W
4	10	1715.0	1750.0	QPSK	24.98	EIRP	0.315	1.0882	1M09G7D
				16QAM	25.31	EIRP	0.340	1.0860	1M09D7W
4	15	1717.5	1747.5	QPSK	25.05	EIRP	0.320	1.0859	1M09G7D
				16QAM	25.41	EIRP	**0.348**	1.0842	1M08D7W
4	20	1720.0	1745.0	QPSK	24.94	EIRP	0.312	1.0880	1M09G7D
				16QAM	25.28	EIRP	0.337	1.0836	1M08D7W
CAT-M1 Band	BW	Frequency		Modulation	ERP / EIRP (dBm)		(W)	99%	Type of Emission
5	1.4	824.7	848.3	QPSK	22.72	ERP	**0.187**	1.0772	1M08G7D
				16QAM	22.30	ERP	0.170	1.0773	1M08D7W
5	3	825.5	847.5	QPSK	22.43	ERP	0.175	1.0751	1M08G7D
				16QAM	22.07	ERP	0.161	1.0756	1M08D7W
5	5	826.5	846.5	QPSK	22.56	ERP	0.180	1.0819	1M08G7D
				16QAM	22.93	ERP	0.196	1.0806	1M08D7W
5	10	829.0	844.0	QPSK	22.56	ERP	0.180	1.0808	1M08G7D
				16QAM	22.97	ERP	**0.198**	1.0865	1M09D7W

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CAT-M1 Band	BW	Frequency		Modulation	ERP / EIRP (dBm)		(W)	99%	Type of Emission
12	1.4	699.7	715.3	QPSK	22.79	ERP	**0.190**	1.0733	1M07G7D
				16QAM	22.18	ERP	0.165	1.0746	1M07D7W
12	3	700.5	714.5	QPSK	22.68	ERP	0.185	1.0756	1M08G7D
				16QAM	22.10	ERP	0.162	1.0758	1M08D7W
12	5	701.5	713.5	QPSK	22.50	ERP	0.178	1.0823	1M08G7D
				16QAM	22.91	ERP	0.195	1.0792	1M08D7W
12	10	704.0	711.0	QPSK	22.53	ERP	0.179	1.0866	1M09G7D
				16QAM	23.02	ERP	**0.200**	1.0846	1M08D7W
CAT-M1 Band	BW	Frequency		Modulation	ERP / EIRP (dBm)		(W)	99%	Type of Emission
13	5	779.5	784.5	QPSK	22.62	ERP	0.183	1.0848	1M08G7D
				16QAM	22.98	ERP	**0.199**	1.0806	1M08D7W
13	10	782.0	782.0	QPSK	22.68	ERP	**0.185**	1.0785	1M08G7D
				16QAM	22.94	ERP	0.197	1.0865	1M09D7W
CAT-M1 Band	BW	Frequency		Modulation	ERP / EIRP (dBm)		(W)	99%	Type of Emission
25	1.4	1850.7	1914.3	QPSK	24.98	EIRP	**0.315**	1.0768	1M08G7D
				16QAM	24.50	EIRP	0.282	1.0780	1M08D7W
25	3	1851.5	1913.5	QPSK	24.93	EIRP	0.311	1.0772	1M08G7D
				16QAM	24.24	EIRP	0.265	1.0779	1M08D7W
25	5	1852.5	1912.5	QPSK	24.78	EIRP	0.301	1.0902	1M09G7D
				16QAM	25.17	EIRP	**0.329**	1.0805	1M08D7W
25	10	1855.0	1910.0	QPSK	24.77	EIRP	0.300	1.0802	1M08G7D
				16QAM	25.14	EIRP	0.327	1.0859	1M09D7W
25	15	1857.5	1907.5	QPSK	24.84	EIRP	0.305	1.0890	1M09G7D
				16QAM	25.16	EIRP	0.328	1.0848	1M08D7W
25	20	1860.0	1905.0	QPSK	24.83	EIRP	0.304	1.0865	1M09G7D
				16QAM	25.17	EIRP	**0.329**	1.0838	1M08D7W
CAT-M1 Band	BW	Frequency		Modulation	Conducted (dBm)		(W)	99%	Type of Emission
26 Part	1.4	814.7	823.3	QPSK	22.72	ERP	**0.187**	1.0772	1M08G7D
				16QAM	22.20	ERP	0.166	1.0788	1M08D7W
26 Part	3	815.5	822.5	QPSK	22.47	ERP	0.177	1.0740	1M07G7D
				16QAM	22.72	ERP	0.187	1.0769	1M08D7W
26 Part	5	816.5	821.5	QPSK	22.53	ERP	0.179	1.0835	1M08G7D
				16QAM	22.94	ERP	**0.197**	1.0801	1M08D7W
26 Part	10	819.0	819.0	QPSK	22.41	ERP	0.174	1.0724	1M07G7D
				16QAM	22.40	ERP	0.174	1.0826	1M08D7W

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CAT-M1 Band	BW	Frequency		Modulation	ERP / EIRP (dBm)		(W)	99%	Type of Emission
26	1.4	824.7	848.3	QPSK	22.80	ERP	**0.191**	1.0791	1M08G7D
				16QAM	22.33	ERP	0.171	1.0747	1M07D7W
26	3	825.5	847.5	QPSK	22.54	ERP	0.179	1.0725	1M07G7D
				16QAM	22.10	ERP	0.162	1.0757	1M08D7W
26	5	826.5	846.5	QPSK	22.63	ERP	0.183	1.0872	1M09G7D
				16QAM	22.94	ERP	0.197	1.0798	1M08D7W
26	10	829.0	844.0	QPSK	22.65	ERP	0.184	1.0818	1M08G7D
				16QAM	22.90	ERP	0.195	1.0863	1M09D7W
26	15	831.5	841.5	QPSK	22.63	ERP	0.183	1.0902	1M09G7D
				16QAM	23.00	ERP	**0.200**	1.0837	1M08D7W
CAT-M1 Band	BW	Frequency		Modulation	ERP / EIRP (dBm)		(W)	99%	Type of Emission
66	1.4	1710.7	1779.3	QPSK	25.16	EIRP	0.328	1.0740	1M07G7D
				16QAM	24.90	EIRP	0.309	1.0772	1M08D7W
66	3	1711.5	1778.5	QPSK	25.08	EIRP	0.322	1.0765	1M08G7D
				16QAM	24.68	EIRP	0.294	1.0785	1M08D7W
66	5	1712.5	1777.5	QPSK	25.14	EIRP	0.327	1.0827	1M08G7D
				16QAM	25.48	EIRP	0.353	1.0824	1M08D7W
66	10	1715.0	1775.0	QPSK	25.08	EIRP	0.322	1.0888	1M09G7D
				16QAM	25.47	EIRP	0.352	1.0844	1M08D7W
66	15	1717.5	1772.5	QPSK	25.17	EIRP	**0.329**	1.0801	1M08G7D
				16QAM	25.48	EIRP	0.353	1.0872	1M09D7W
66	20	1720.0	1770.0	QPSK	25.17	EIRP	**0.329**	1.0810	1M08G7D
				16QAM	25.51	EIRP	**0.356**	1.0859	1M09D7W

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1.5 Test Methodology of Applied Standards

FCC 47 CFR Part 2, 22H, 24E, 27C, Part 90.
ISED RSS-GEN Issue 5 Amendment 2 Feb. 2021
ISED RSS-130 Issue 2 Feb. 2019,
ISED RSS-132 Issue 4 Jan. 2023
ISED RSS-133 Issue 7,
ISED RSS-139 Issue 4 Amendment Oct. 2022
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 Designation number	IC CAB identifier
SGS Taiwan Ltd. Central RF Lab. (TAF code 3702)	No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan.	SAC 1	TW0027	TW3702
		SAC 2		
		SAC 3		
		Conduction 1		
		Conducted 1		
		Conducted 2		
		Conducted 3		
		Conducted 4		
		Conducted 5		
		Conducted 6		
	No.2, Keji 1st Rd., Guishan District, Taoyuan City, Taiwan 333	Conduction C	TW0028	
		SAC C		
		SAC D		
		SAC G		
		Conducted A		
		Conducted B		
		Conducted C		
		Conducted D		
		Conducted E		
		Conducted F		
		Conducted G		

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

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1.7 Special Accessories

No special accessories were used during testing.

1.8 Equipment Modifications

There was no modifications incorporated into the EUT.

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

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

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2 SYSTEM TEST CONFIGURATION

2.1 EUT Configuration

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

2.2 EUT Exercise

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

2.3 Test Procedure

2.3.1 Conducted Measurement at Antenna Port

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

2.3.2 Radiated Emissions (ERP/EIRP)

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

2.4 Measurement Results Explanation Example

For all conducted test items:
The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuation factor between EUT conducted port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly EUT RF output level.
Note:
The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

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2.5 Final Amplifier Voltage and Current Information:

CAT-M1 Band 2

Test mode	DC voltage (V)	DC current (mA)
CAT-M1 Band 2_20M QPSK	3.6	172

CAT-M1 Band 4

Test mode	DC voltage (V)	DC current (mA)
CAT-M1 Band 4_20M QPSK	3.6	153

LTE Band 5

Test mode	DC voltage (V)	DC current (mA)
LTE Band 5_10M QPSK	3.6	167

CAT-M1 Band 12

Test mode	DC voltage (V)	DC current (mA)
CAT-M1 Band 12_10M	3.6	168

CAT-M1 Band 13

Test mode	DC voltage (V)	DC current (mA)
CAT-M1 Band 13_10M	3.6	159

CAT-M1 Band 25

Test mode	DC voltage (V)	DC current (mA)
CAT-M1 Band 25_20M	3.6	166

CAT-M1 Band 26 for Part 90S

Test Mode	DC voltage (V)	DC current (mA)
CAT-M1 Band 26_10M	3.6	170

LTE Band 26

Test mode	DC voltage (V)	DC current (mA)
LTE Band 26_15M QPSK	3.6	159

CAT-M1 Band 66

Test mode	DC voltage (V)	DC current (mA)
CAT-M1 Band 66_20M	3.6	164

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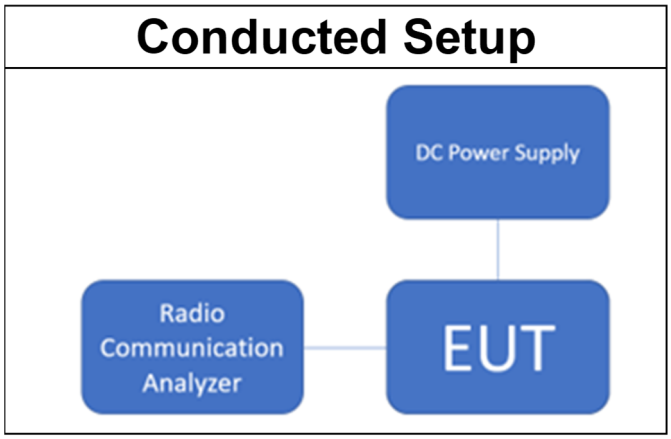
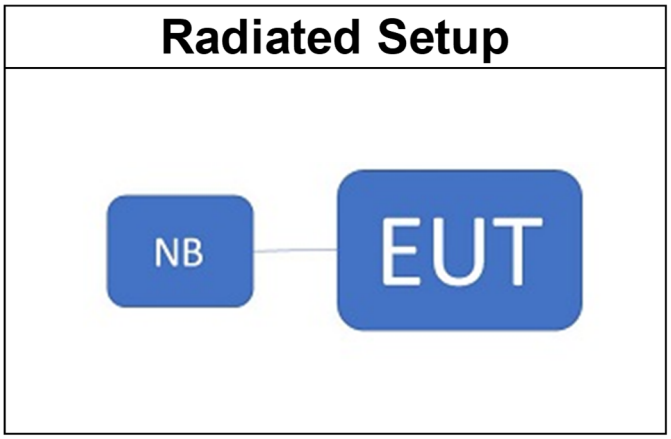
2.6 Test Configuration





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

2.6.1 Equipment used for test

Radiated Emission Test Site: SAC 3					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Notebook	Lenovo	L480	PF-1D07MD 19/08	N/A	N/A

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3 SUMMARY OF TEST RESULTS

FCC Rules	IC Rules	Description Of Test	Result
§2.1046(a)	RSS-GEN §6.12	RF Power Output	Compliant
§22.913(a)(5) §24.232(c) §27.50(b)(9)(10) §27.50(c)(9)(10) §27.50(d)(4) §90.635	RSS-130 §4.6 RSS-132 §5.4 RSS-133 §5.5 RSS-139 §5.5	ERP/ EIRP measurement	Compliant
§2.1049(h)	RSS-GEN §6.7	99% & 26dB Occuupied Bandwidth	Compliant
§2.1051 §22.917(a) §24.238(a) §27.50(c)(5) §27.53(c)(2),(4) §27.53(g) §27.53(h) §90.691	RSS-GEN §6.13 RSS-130 §4.7 RSS-132 §5.5 RSS-133 §5.6 RSS-139 §5.6	Out of Band Emissions at Antenna Terminals and Band Edge / Emission mask requirements	Compliant
§2.1053 §22.917(a) §24.238(a) §27.53(c)(2),(4) §27.50(c)(5) §27.53(f) §27.53(g) §27.53(h) §90.691(a)(1)(2)	RSS-GEN §6.13 RSS-130 §4.7 RSS-132 §5.5 RSS-133 §5.6 RSS-139 §5.6	Field Strength of Spurious Radiation	Compliant
§22.913(d) §24.232(d) §27.50(a)(1)(B) §27.50(d)(5)	RSS-130 §4.6.1 RSS-132 §5.4 RSS-133 §5.5 RSS-139 §5.5	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 §5.4 RSS-139 §5.4	Frequency Stability	Compliant

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4 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.
3. The LTE power of B17 is the same as that of B12, so the test items will be covered by B12.

Test Items				Max. Output Power										
Band	Test Channel			Bandwidth (MHz)						Modulation		RB #		
	L	M	H	1.4	3	5	10	15	20	QPSK	16QAM	1	Half	Full
2	v	v	v	v	v	v	v	v	v	v	v	v	v	v
4	v	v	v	v	v	v	v	v	v	v	v	v	v	v
5	v	v	v	v	v	v	v	-	-	v	v	v	v	v
12	v	v	v	v	v	v	v	-	-	v	v	v	v	v
13	v	v	v	-	-	v	v	-	-	v	v	v	v	v
25	v	v	v	v	v	v	v	v	v	v	v	v	v	v
26	v	v	v	v	v	v	v	v	-	v	v	v	v	v
26 P90	v	v	v	v	v	v	v	-	-	v	v	v	v	v
66	v	v	v	v	v	v	v	v	v	v	v	v	v	v
Test Items				Freqency Stability										
2	-	v	-	-	-	-	v	-	-	v	-	-	-	v
4	-	v	-	-	-	-	v	-	-	v	-	-	-	v
5	-	v	-	-	-	-	v	-	-	v	-	-	-	v
12	-	v	-	-	-	-	v	-	-	v	-	-	-	v
13	-	v	-	-	-	-	v	-	-	v	-	-	-	v
25	-	v	-	-	-	-	v	-	-	v	-	-	-	v
26	-	v	-	-	-	-	v	-	-	v	-	-	-	v
26 P90	-	v	-	-	-	-	v	-	-	v	-	-	-	v
66	-	v	-	-	-	-	v	-	-	v	-	-	-	v
71	-	v	-	-	-	-	v	-	-	v	-	-	-	v
Test Items				26dB and 99% Bandwidth										
Band	Test Channel			Bandwidth (MHz)						Modulation		RB #		
	L	M	H	1.4	3	5	10	15	20	QPSK	16QAM	1	Half	Full
2	v	v	v	v	v	v	v	v	v	v	v	-	-	v
4	v	v	v	v	v	v	v	v	v	v	v	-	-	v
5	v	v	v	v	v	v	v	-	-	v	v	-	-	v
12	v	v	v	v	v	v	v	-	-	v	v	-	-	v
13	v	v	v	-	-	v	v	-	-	v	v	-	-	v
25	v	v	v	v	v	v	v	v	v	v	v	-	-	v
26	v	v	v	v	v	v	v	v	-	v	v	-	-	v
26 P90	v	v	v	v	v	v	v	-	-	v	v	-	-	v
66	v	v	v	v	v	v	v	v	v	v	v	-	-	v
Test Items				Peak-to-Av erage Ratio										
2	v	v	v	v	v	v	v	v	v	v	v	-	-	v
4	v	v	v	v	v	v	v	v	v	v	v	-	-	v
5	v	v	v	v	v	v	v	-	-	v	v	-	-	v
12	v	v	v	v	v	v	v	-	-	v	v	-	-	v
13	v	v	v	-	-	v	v	-	-	v	v	-	-	v
25	v	v	v	v	v	v	v	v	v	v	v	-	-	v
26	v	v	v	v	v	v	v	v	-	v	v	-	-	v
26 P90	v	v	v	v	v	v	v	-	-	v	v	-	-	v
66	v	v	v	v	v	v	v	v	v	v	v	-	-	v

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Test Items	Band Edge													
Band	Test Channel			Bandwidth (MHz)						Modulation		RB #		
	L	M	H	1.4	3	5	10	15	20	QPSK	16QAM	1	Half	Full
2	v	-	v	v	v	v	v	v	v	v	-	v	v	v
4	v	-	v	v	v	v	v	v	v	v	-	v	v	v
5	v	-	v	v	v	v	v	-	-	v	-	v	v	v
12	v	-	v	v	v	v	v	-	-	v	-	v	v	v
13	v	-	v	-	-	v	v	-	-	v	-	v	v	v
25	v	-	v	v	v	v	v	v	v	v	-	v	v	v
26	v	-	v	v	v	v	v	v	-	v	-	v	v	v
26 P90	v	-	v	v	v	v	v	-	-	v	-	v	v	v
66	v	-	v	v	v	v	v	v	v	v	-	v	v	v
Test Items	Conducted Emission													
2	v	v	v	v	v	v	v	v	v	v	-	v	-	-
4	v	v	v	v	v	v	v	v	v	v	-	v	-	-
5	v	v	v	v	v	v	v	-	-	v	-	v	-	-
12	v	v	v	v	v	v	v	-	-	v	-	v	-	-
13	v	v	v	-	-	v	v	-	-	v	-	v	-	-
25	v	v	v	v	v	v	v	v	v	v	-	v	-	-
26	v	v	v	v	v	v	v	v	-	v	-	v	-	-
26 P90	v	v	v	v	v	v	v	-	-	v	-	v	-	-
66	v	v	v	v	v	v	v	v	v	v	-	v	-	-

Test Items	Radiated Emission													
Band	Test Channel			Bandwidth (MHz)						Modulation		RB #		
	L	M	H	1.4	3	5	10	15	20	QPSK	16QAM	1	Half	Full
2	v	v	v	-	-	-	-	v	-	-	v	v	-	-
4	v	v	v	-	-	-	-	v	-	-	v	v	-	-
5	v	v	v	-	-	-	v	-	-	-	v	v	-	-
12	v	v	v	-	-	-	v	-	-	-	v	v	-	-
13	v	v	v	-	-	v	-	-	-	-	v	v	-	-
25	v	v	v	-	-	-	-	-	v	-	v	v	-	-
26	v	v	v	-	-	-	-	v	-	-	v	v	-	-
26 P90	v	v	v	-	-	v	-	-	-	-	v	v	-	-
66	v	v	v	-	-	-	-	-	v	-	v	v	-	-

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5 MEASUREMENT UNCERTAINTY

Test Items	Uncertainty		
RF Power Output	+/-	0.97	dB
ERP/ EIRP measurement	+/-	2.15	dB
	+/-	2.15	dB
Emission Bandwidth	+/-	1.38	Hz
Out of Band Emissions at Antenna Terminals and Band Edge	+/-	0.77	dB
Peak to Average Ratio	+/-	0.97	dB
Frequency Stability vs. Temperature	+/-	1.48	Hz
Frequency Stability vs. Voltage	+/-	1.48	Hz
Temperature	+/-	0.6	°C
Humidity	+/-	3	%
DC / AC Power Source	+/-	1	%

Radiated Spurious Emission Measurement Uncertainty				
Polarization: Vertical	**+/-**	**1.89**	**dB**	9kHz~30MHz
	+/-	**4.15**	**dB**	30MHz - 1000MHz
	+/-	**3.43**	**dB**	1GHz - 18GHz
	+/-	**3.86**	**dB**	18GHz - 40GHz
Polarization: Horizontal	**+/-**	**1.89**	**dB**	9kHz~30MHz
	+/-	**4.02**	**dB**	30MHz - 1000MHz
	+/-	**3.43**	**dB**	1GHz - 18GHz
	+/-	**3.86**	**dB**	18GHz - 40GHz
Radiated Spurious Emission	**+/-**	**2**	**dB**	33GHz-50GHz
	+/-	**1.59**	**dB**	50GHz-60GHz
	+/-	**1.7**	**dB**	60GHz-90GHz
	+/-	**1.64**	**dB**	90GHz-140GHz
	+/-	**3.83**	**dB**	140GHz-220GHz

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

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6 MEASUREMENT EQUIPMENT USED

6.1 Conducted Measurement

Conducted Emission Test Site: Conducted 3					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Attenuator	Mini-Circuits	BW-S10W2+	12	12/12/2023	12/11/2024
DC Block	Mini-Circuits	BLK-18-S+	12	12/12/2023	12/11/2024
DC Power Supply	Gwinstek	SPS-3610	GEW902152	01/18/2024	01/17/2025
Spectrum Analyzer	KEYSIGHT	N9010A	MY57120290	04/10/2024	04/09/2025
Radio Communication Analyzer	Anritsu	MT8821C	6261786084	01/16/2024	01/15/2025
Splitter	RF-LAMBDA	RFLT2W1G18G	11-JSPF412-018	12/12/2023	12/11/2024
Temperature Chamber	Giant Force	GTH-150-40-CP-AR	MAA0512-018	06/05/2024	06/04/2025
Test Software	SGS	Radio Test Software	Ver. 21	N.C.R	N.C.R

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6.2 Radiated Measurement

Radiated Emission Test Site: SAC 3					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
1.3G High Pass Filter	Woken	WHKX10-1066	20	12/12/2023	12/11/2024
3.1G High Pass Filter	Woken	WFIL-H3100-18000F-01	WRGBAFWC2B6	12/12/2023	12/11/2024
Band Reject Filter 1700-2000	EWT	EWT-54-0038	M1	12/12/2023	12/11/2024
Band Reject Filter 635-920	Titan	T04N63592050S01	23040703-4	12/12/2023	12/11/2024
Bi-log Antenna	SCHWARZBECK	VULB9168	1208	07/17/2024	07/16/2025
Bi-log Antenna	SCHWARZBECK	VULB9168	378	08/09/2024	08/08/2025
Coaxial Cables	EMCI+Huber Suhner	EMC107-SM-SM-1000 +SUCOFLEX 104PEA +EMC107-SM-SM-1500 +SUCOFLEX 106	RX Cable 9K-18G (221110+MY4251/4PEA+221106+76096/6)	08/30/2024	08/29/2025
Coaxial Cables	Huber Suhner	SUCOFLEX 102	RX Cable 18G-40G MY2630/2+805062/2	08/30/2024	08/29/2025
Coaxial Cables	Huber Suhner	SUCOFLEX 102+SUCOFLEX 106	TX Cable 30M-40G 23051/2+76096/6+22962/2	08/30/2024	08/29/2025
EXA Spectrum Analyzer	KEYSIGHT	N9010B	MY63440386	02/06/2024	02/05/2025
Horn Antenna	RF SPIN	DRH0844	LE2D05A0844	07/10/2024	07/09/2025
Horn Antenna	SCHWARZBECK	BBHA9120D	1441	09/23/2024	09/22/2025
Horn Antenna	SCHWARZBECK	BBHA9120D	603	05/15/2024	05/14/2025
Horn Antenna	SCHWARZBECK	BBHA9170	184	12/28/2023	12/27/2024
Network Analyzer	Anritsu	MS4644A	1216312	12/07/2023	12/06/2024
Pre-Amplifier	EMCI	EMC118A45SEE	980868	08/30/2024	08/29/2025
Pre-Amplifier	EMCI	EMC184045SEE	9080939	08/30/2024	08/29/2025
Pre-Amplifier	HP	8447D	2944A07676	08/30/2024	08/29/2025
Radio Communication Analyzer	Anritsu	MT8821C	6262044751	10/31/2023	10/30/2024
Site Cal	SGS	SAC 3	N/A	08/30/2024	08/29/2025
Test Software	Audix	e3	Ver. 9.210616	N.C.R	N.C.R

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

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7 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.

FCC 90.635(b)

Mobile station is limited to 100W ERP

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 transmitter output power shall be measured in terms of average power. The equivalent radiated power (e.r.p.) shall not exceed 7 watts for mobile equipment and 3 watts for portable equipment.

The effective isotropic radiated power (e.i.r.p.) shall not exceed the limits specified in SRSP-503 for base station equipment.

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RSS-133 §5.5

The maximum power spectral density of the equipment, measured in terms of average values, shall comply with the limits specified in table 2. These limits are either specified in terms of equivalent isotropically radiated power (e.i.r.p.) or TRP for the purpose of certification and may not apply to all deployment scenarios. Consult SRSP-510 for more deployment details in the bands 1850-1915 MHz and 1930-1995 MHz. AAS equipment with eight antenna elements or less can demonstrate compliance with the e.i.r.p limit specified for non-AAS equipment in table 2, instead of the TRP limit.

Table 2: Maximum power spectral density of equipment

Equipment type	Maximum power spectral density
Non-AAS fixed station and base station	3280 W/MHz e.i.r.p
AAS fixed station and base station	46 dBm/MHz TRP
Subscriber equipment	2 W /channel bandwidth e.i.r.p

RSS-139 §5.5

The maximum output power of the equipment shall comply with the limits specified below. In the tables, maximum power refers to the equivalent isotropically radiated power (e.i.r.p.) or total radiated power (TRP), measured in terms of average values.

The limits in this RSS are specified for the purpose of certification and may not apply to all deployment scenarios. Consult SRSP-513 and SRSP-519 for more details on the bands 2110-2180 MHz and 2180-2200 MHz respectively.

Table 3: Maximum power of equipment in the band 1710-1780 MHz	
Equipment type	**Maximum power**
Fixed station and base station	30 dBm e.i.r.p./channel bandwidth
Subscriber equipment	30 dBm e.i.r.p./channel bandwidth

Table 4: Maximum power of equipment in the band 2110-2180 MHz	
Equipment type	**Maximum power**
Non-AAS fixed station and base station	65 dBm e.i.r.p./MHz
AAS fixed station and base station	46 dBm TRP/MHz
Subscriber equipment	30 dBm e.i.r.p./channel bandwidth

Table 5: Maximum power of equipment in the band 2180-2200 MHz	
Equipment type	Maximum power
Non-AAS base station	65 dBm e.i.r.p./MHz
AAS base station	46 dBm TRP/MHz

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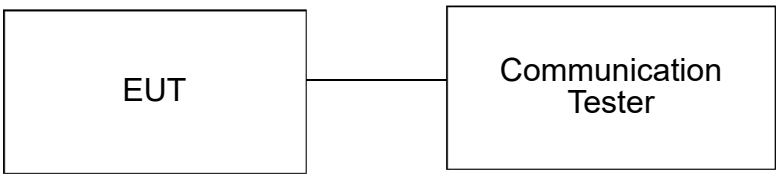
7.3 Test Set-up



Note: *Measurement setup for testing on Antenna connector*

7.4 Output Power Measurement Applicable Guideance

The transmitter output was connected to a communication tester. Transmitter output was read off the communication tester in dBm. The power output at the transmitter antenna port was determined by the communication tester reading.

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

Antenna gain (dBi) 2

CAT-M1 Band 2_Uplink frequency band : 1850 to 1910 MHz										
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB allocation	RB Start	Index	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
1.4	18607	1850.7	QPSK	1	0	0	22.94	**24.94**	33	-8.06
				6	0	0	20.17	22.17	33	-10.83
	18900	1880	QPSK	1	0	0	22.86	24.86	33	-8.14
				6	0	0	21.28	23.28	33	-9.72
	19193	1909.3	QPSK	1	5	0	22.68	24.68	33	-8.32
				6	0	0	21.10	23.10	33	-9.90
	18607	1850.7	16QAM	1	0	0	21.22	23.22	33	-9.78
				6	0	0	21.22	23.22	33	-9.78
	18900	1880	16QAM	1	0	0	22.28	24.28	33	-8.72
				6	0	0	21.16	23.16	33	-9.84
	19193	1909.3	16QAM	1	5	0	22.38	**24.38**	33	-8.62
				6	0	0	21.24	23.24	33	-9.76

Antenna gain (dBi) 2

CAT-M1 Band 2_Uplink frequency band : 1850 to 1910 MHz										
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB allocation	RB Start	Index	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
3	18615	1851.5	QPSK	1	0	0	22.66	24.66	33	-8.34
				6	0	0	21.03	23.03	33	-9.97
	18900	1880	QPSK	1	0	0	22.60	24.60	33	-8.40
				6	0	0	21.03	23.03	33	-9.97
	19185	1908.5	QPSK	1	5	1	22.69	**24.69**	33	-8.31
				6	0	1	20.96	22.96	33	-10.04
	18615	1851.5	16QAM	1	0	0	22.11	24.11	33	-8.89
				6	0	0	21.06	23.06	33	-9.94
	18900	1880	16QAM	1	0	0	22.09	24.09	33	-8.91
				6	0	0	21.01	23.01	33	-9.99
	19185	1908.5	16QAM	1	5	1	22.23	**24.23**	33	-8.77
				6	0	1	21.05	23.05	33	-9.95

Antenna gain (dBi) 2

CAT-M1 Band 2_Uplink frequency band : 1850 to 1910 MHz										
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB allocation	RB Start	Index	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
5	18625	1852.5	QPSK	1	0	0	22.81	24.81	33	-8.19
				6	0	0	22.11	24.11	33	-8.89
	18900	1880	QPSK	1	0	0	22.77	24.77	33	-8.23
				6	0	0	22.13	24.13	33	-8.87
	19175	1907.5	QPSK	1	5	3	22.83	**24.83**	33	-8.17
				6	0	3	22.03	24.03	33	-8.97
	18625	1852.5	16QAM	1	0	0	23.15	**25.15**	33	-7.85
				6	0	0	21.02	23.02	33	-9.98
	18900	1880	16QAM	1	0	0	23.03	25.03	33	-7.97
				6	0	0	21.01	23.01	33	-9.99
	19175	1907.5	16QAM	1	5	3	23.15	**25.15**	33	-7.85
				6	0	3	21.03	23.03	33	-9.97

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Antenna gain (dBi) 2

CAT-M1 Band 2_Uplink frequency band : 1850 to 1910 MHz										
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB allocation	RB Start	Index	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
10	18650	1855	QPSK	1	0	0	22.55	24.55	33	-8.45
				6	0	0	22.03	24.03	33	-8.97
	18900	1880	QPSK	1	0	0	22.74	24.74	33	-8.26
				6	0	0	22.14	24.14	33	-8.86
	19150	1905	QPSK	1	5	7	22.81	**24.81**	33	-8.19
				6	0	7	22.10	24.10	33	-8.90
	18650	1855	16QAM	1	0	0	23.02	25.02	33	-7.98
				6	0	0	21.12	23.12	33	-9.88
	18900	1880	16QAM	1	0	0	23.03	25.03	33	-7.97
				6	0	0	21.06	23.06	33	-9.94
	19150	1905	16QAM	1	5	7	23.13	**25.13**	33	-7.87
				6	0	7	21.02	23.02	33	-9.98

Antenna gain (dBi) 2

CAT-M1 Band 2_Uplink frequency band : 1850 to 1910 MHz										
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB allocation	RB Start	Index	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
15	18675	1857.5	QPSK	1	0	0	22.79	24.79	33	-8.21
				6	0	0	22.64	24.64	33	-8.36
	18900	1880	QPSK	1	0	0	22.83	**24.83**	33	-8.17
				6	0	0	22.74	24.74	33	-8.26
	19125	1902.5	QPSK	1	5	11	22.82	24.82	33	-8.18
				6	0	11	22.66	24.66	33	-8.34
	18675	1857.5	16QAM	1	0	0	23.35	**25.35**	33	-7.65
				6	0	0	22.78	24.78	33	-8.22
	18900	1880	16QAM	1	0	0	23.31	25.31	33	-7.69
				6	0	0	22.68	24.68	33	-8.32
	19125	1902.5	16QAM	1	5	11	23.05	25.05	33	-7.95
				6	0	11	22.64	24.64	33	-8.36

Antenna gain (dBi) 2

CAT-M1 Band 2_Uplink frequency band : 1850 to 1910 MHz										
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB allocation	RB Start	Index	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
20	18700	1860	QPSK	1	0	0	22.80	24.80	33	-8.20
				6	0	0	22.81	24.81	33	-8.19
	18900	1880	QPSK	1	0	0	22.67	24.67	33	-8.33
				6	0	0	22.64	24.64	33	-8.36
	19100	1900	QPSK	1	5	15	22.85	**24.85**	33	-8.15
				6	0	15	22.68	24.68	33	-8.32
	18700	1860	16QAM	1	0	0	23.15	25.15	33	-7.85
				6	0	0	22.72	24.72	33	-8.28
	18900	1880	16QAM	1	0	0	23.12	25.12	33	-7.88
				6	0	0	22.65	24.65	33	-8.35
	19100	1900	16QAM	1	5	15	23.16	**25.16**	33	-7.84
				6	0	15	22.70	24.70	33	-8.30

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Antenna gain (dBi) 2

CAT-M1 Band 4_Uplink frequency 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)
1.4	19957	1710.7	QPSK	1	0	0	22.85	24.85	30	-5.15
				6	0	0	21.36	23.36	30	-6.64
	20175	1732.5	QPSK	1	0	0	23.06	**25.06**	30	-4.94
				6	0	0	21.30	23.30	30	-6.70
	20393	1754.3	QPSK	1	5	0	22.75	24.75	30	-5.25
				6	0	0	21.32	23.32	30	-6.68
	19957	1710.7	16QAM	1	0	0	22.37	24.37	30	-5.63
				6	0	0	21.35	23.35	30	-6.65
	20175	1732.5	16QAM	1	0	0	22.41	24.41	30	-5.59
				6	0	0	21.35	23.35	30	-6.65
	20393	1754.3	16QAM	1	5	0	22.68	**24.68**	30	-5.32
				6	0	0	21.35	23.35	30	-6.65

Antenna gain (dBi) 2

CAT-M1 Band 4_Uplink frequency 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)
3	19965	1711.5	QPSK	1	0	0	22.89	24.89	30	-5.11
				6	0	0	21.26	23.26	30	-6.74
	20175	1732.5	QPSK	1	0	0	23.02	**25.02**	30	-4.98
				6	0	0	21.35	23.35	30	-6.65
	20385	1753.5	QPSK	1	5	1	22.78	24.78	30	-5.22
				6	0	1	21.27	23.27	30	-6.73
	19965	1711.5	16QAM	1	0	0	22.31	24.31	30	-5.69
				6	0	0	21.41	23.41	30	-6.59
	20175	1732.5	16QAM	1	0	0	22.14	24.14	30	-5.86
				6	0	0	21.24	23.24	30	-6.76
	20385	1753.5	16QAM	1	5	1	22.60	**24.60**	30	-5.40
				6	0	1	21.29	23.29	30	-6.71

Antenna gain (dBi) 2

CAT-M1 Band 4_Uplink frequency 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)
5	19975	1712.5	QPSK	1	0	0	22.84	24.84	30	-5.16
				6	0	0	22.21	24.21	30	-5.79
	20175	1732.5	QPSK	1	0	0	22.87	24.87	30	-5.13
				6	0	0	22.14	24.14	30	-5.86
	20375	1752.5	QPSK	1	5	3	22.92	**24.92**	30	-5.08
				6	0	3	22.15	24.15	30	-5.85
	19975	1712.5	16QAM	1	0	0	23.32	25.32	30	-4.68
				6	0	0	21.30	23.30	30	-6.70
	20175	1732.5	16QAM	1	0	0	23.26	25.26	30	-4.74
				6	0	0	21.25	23.25	30	-6.75
	20375	1752.5	16QAM	1	5	3	23.38	**25.38**	30	-4.62
				6	0	3	21.21	23.21	30	-6.79

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Antenna gain (dBi) 2

CAT-M1 Band 4_Uplink frequency 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)
10	20000	1715	QPSK	1	0	0	22.83	24.83	30	-5.17
				6	0	0	22.30	24.30	30	-5.70
	20175	1732.5	QPSK	1	0	0	22.98	**24.98**	30	-5.02
				6	0	0	22.25	24.25	30	-5.75
	20350	1750	QPSK	1	5	7	22.91	24.91	30	-5.09
				6	0	7	22.26	24.26	30	-5.74
	20000	1715	16QAM	1	0	0	23.31	**25.31**	30	-4.69
				6	0	0	21.29	23.29	30	-6.71
	20175	1732.5	16QAM	1	0	0	23.23	25.23	30	-4.77
				6	0	0	21.26	23.26	30	-6.74
	20350	1750	16QAM	1	5	7	23.26	25.26	30	-4.74
				6	0	7	21.26	23.26	30	-6.74

Antenna gain (dBi) 2

CAT-M1 Band 4_Uplink frequency 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)
15	20025	1717.5	QPSK	1	0	0	22.82	24.82	30	-5.18
				6	0	0	22.82	24.82	30	-5.18
	20175	1732.5	QPSK	1	0	0	22.95	24.95	30	-5.05
				6	0	0	22.84	24.84	30	-5.16
	20325	1747.5	QPSK	1	5	11	23.05	**25.05**	30	-4.95
				6	0	11	22.78	24.78	30	-5.22
	20025	1717.5	16QAM	1	0	0	23.41	**25.41**	30	-4.59
				6	0	0	22.92	24.92	30	-5.08
	20175	1732.5	16QAM	1	0	0	23.35	25.35	30	-4.65
				6	0	0	22.76	24.76	30	-5.24
	20325	1747.5	16QAM	1	5	11	23.26	25.26	30	-4.74
				6	0	11	22.81	24.81	30	-5.19

Antenna gain (dBi) 2

CAT-M1 Band 4_Uplink frequency 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)
20	20050	1720	QPSK	1	0	0	22.90	24.90	30	-5.10
				6	0	0	22.89	24.89	30	-5.11
	20175	1732.5	QPSK	1	0	0	22.88	24.88	30	-5.12
				6	0	0	22.73	24.73	30	-5.27
	20300	1745	QPSK	1	5	15	22.94	**24.94**	30	-5.06
				6	0	15	22.81	24.81	30	-5.19
	20050	1720	16QAM	1	0	0	23.28	**25.28**	30	-4.72
				6	0	0	22.82	24.82	30	-5.18
	20175	1732.5	16QAM	1	0	0	22.27	24.27	30	-5.73
				6	0	0	22.79	24.79	30	-5.21
	20300	1745	16QAM	1	5	15	23.27	25.27	30	-4.73
				6	0	15	22.81	24.81	30	-5.19

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Antenna gain (dBi) 2

M1 Band 5_Uplink frequency band : 824 to 849 MHz											
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB allocation	RB Start	Index	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	ERP Limit (dBm)	Margin (dB)
1.4	20407	824.7	QPSK	1	0	0	22.54	22.39	24.54	38.45	-16.06
				6	0	0	20.95	20.80	22.95	38.45	-17.65
	20525	836.5	QPSK	1	0	0	22.87	22.72	**24.87**	38.45	-15.73
				6	0	0	20.91	20.76	22.91	38.45	-17.69
	20643	848.3	QPSK	1	5	0	22.53	22.38	24.53	38.45	-16.07
				6	0	0	20.96	20.81	22.96	38.45	-17.64
	20407	824.7	16QAM	1	0	0	22.10	21.95	24.10	38.45	-16.50
				6	0	0	21.17	21.02	23.17	38.45	-17.43
	20525	836.5	16QAM	1	0	0	22.07	21.92	24.07	38.45	-16.53
				6	0	0	21.19	21.04	23.19	38.45	-17.41
	20643	848.3	16QAM	1	5	0	22.45	22.30	**24.45**	38.45	-16.15
				6	0	0	20.08	19.93	22.08	38.45	-18.52

Antenna gain (dBi) 2

M1 Band 5_Uplink frequency band : 824 to 849 MHz											
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB allocation	RB Start	Index	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	ERP Limit (dBm)	Margin (dB)
3	20415	825.5	QPSK	1	0	0	22.58	22.43	**24.58**	38.45	-16.02
				6	0	0	21.01	20.86	23.01	38.45	-17.59
	20525	836.5	QPSK	1	0	0	20.81	20.66	22.81	38.45	-17.79
				6	0	0	21.02	20.87	23.02	38.45	-17.58
	20635	847.5	QPSK	1	5	1	22.52	22.37	24.52	38.45	-16.08
				6	0	1	20.99	20.84	22.99	38.45	-17.61
	20415	825.5	16QAM	1	0	0	21.87	21.72	23.87	38.45	-16.73
				6	0	0	20.91	20.76	22.91	38.45	-17.69
	20525	836.5	16QAM	1	0	0	22.01	21.86	24.01	38.45	-16.59
				6	0	0	20.92	20.77	22.92	38.45	-17.68
	20635	847.5	16QAM	1	5	1	22.22	22.07	**24.22**	38.45	-16.38
				6	0	1	20.90	20.75	22.90	38.45	-17.70

Antenna gain (dBi) 2

M1 Band 5_Uplink frequency band : 824 to 849 MHz											
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB allocation	RB Start	Index	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	ERP Limit (dBm)	Margin (dB)
5	20425	826.5	QPSK	1	0	0	22.54	22.39	24.54	38.45	-16.06
				6	0	0	22.00	21.85	24.00	38.45	-16.60
	20525	836.5	QPSK	1	0	0	22.71	22.56	**24.71**	38.45	-15.89
				6	0	0	21.96	21.81	23.96	38.45	-16.64
	20625	846.5	QPSK	1	5	3	22.65	22.50	24.65	38.45	-15.95
				6	0	3	21.94	21.79	23.94	38.45	-16.66
	20425	826.5	16QAM	1	0	0	23.01	22.86	25.01	38.45	-15.59
				6	0	0	20.86	20.71	22.86	38.45	-17.74
	20525	836.5	16QAM	1	0	0	23.00	22.85	25.00	38.45	-15.60
				6	0	0	20.89	20.74	22.89	38.45	-17.71
	20625	846.5	16QAM	1	5	3	23.08	22.93	**25.08**	38.45	-15.52
				6	0	3	20.92	20.77	22.92	38.45	-17.68

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Antenna gain (dBi) 2

M1 Band 5_Uplink frequency band : 824 to 849 MHz											
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB allocation	RB Start	Index	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	ERP Limit (dBm)	Margin (dB)
10	20450	829	QPSK	1	0	0	22.58	22.43	24.58	38.45	-16.02
				6	0	0	22.12	21.97	24.12	38.45	-16.48
	20525	836.5	QPSK	1	0	0	22.71	22.56	**24.71**	38.45	-15.89
				6	0	0	22.11	21.96	24.11	38.45	-16.49
	20600	844	QPSK	1	5	7	22.66	22.51	24.66	38.45	-15.94
				6	0	7	22.07	21.92	24.07	38.45	-16.53
	20450	829	16QAM	1	0	0	23.05	22.90	25.05	38.45	-15.55
				6	0	0	20.87	20.72	22.87	38.45	-17.73
	20525	836.5	16QAM	1	0	0	23.12	22.97	**25.12**	38.45	-15.48
				6	0	0	20.99	20.84	22.99	38.45	-17.61
	20600	844	16QAM	1	5	7	22.99	22.84	24.99	38.45	-15.61
				6	0	7	20.92	20.77	22.92	38.45	-17.68

Antenna gain (dBi) 2

CAT-M1 Band 12_Uplink frequency 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)	ERP Limit (dBm)	Margin (dB)
1.4	23017	699.7	QPSK	1	0	0	22.60	22.45	24.60	34.77	-12.32
				6	0	0	21.05	20.90	23.05	34.77	-13.87
	23095	707.5	QPSK	1	0	0	22.94	22.79	**24.94**	34.77	-11.98
				6	0	0	20.97	20.82	22.97	34.77	-13.95
	23173	715.3	QPSK	1	5	0	22.46	22.31	24.46	34.77	-12.46
				6	0	0	21.05	20.90	23.05	34.77	-13.87
	23017	699.7	16QAM	1	0	0	22.15	22.00	24.15	34.77	-12.77
				6	0	0	20.99	20.84	22.99	34.77	-13.93
	23095	707.5	16QAM	1	0	0	22.11	21.96	24.11	34.77	-12.81
				6	0	0	21.10	20.95	23.10	34.77	-13.82
	23173	715.5	16QAM	1	5	0	22.33	22.18	**24.33**	34.77	-12.59
				6	0	0	21.17	21.02	23.17	34.77	-13.75

Antenna gain (dBi) 2

CAT-M1 Band 12_Uplink frequency 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)	ERP Limit (dBm)	Margin (dB)
3	23025	700.5	QPSK	1	0	0	22.63	22.48	24.63	34.77	-12.29
				6	0	0	21.00	20.85	23.00	34.77	-13.92
	23095	707.5	QPSK	1	0	0	22.83	22.68	**24.83**	34.77	-12.09
				6	0	0	21.07	20.92	23.07	34.77	-13.85
	23165	714.5	QPSK	1	5	1	22.47	22.32	24.47	34.77	-12.45
				6	0	1	20.95	20.80	22.95	34.77	-13.97
	23025	700.5	16QAM	1	0	0	22.01	21.86	24.01	34.77	-12.91
				6	0	0	20.90	20.75	22.90	34.77	-14.02
	23095	707.5	16QAM	1	0	0	21.97	21.82	23.97	34.77	-12.95
				6	0	0	20.97	20.82	22.97	34.77	-13.95
	23165	714.5	16QAM	1	5	1	22.25	22.10	**24.25**	34.77	-12.67
				6	0	1	20.87	20.72	22.87	34.77	-14.05

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Antenna gain (dBi) 2

CAT-M1 Band 12_Uplink frequency 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)	ERP Limit (dBm)	Margin (dB)
5	23035	701.5	QPSK	1	0	0	22.61	22.46	24.61	34.77	-12.31
				6	0	0	22.25	22.10	24.25	34.77	-12.67
	23095	707.5	QPSK	1	0	0	22.65	22.50	**24.65**	34.77	-12.27
				6	0	0	22.06	21.91	24.06	34.77	-12.86
	23155	713.5	QPSK	1	5	3	22.64	22.49	24.64	34.77	-12.28
				6	0	3	21.89	21.74	23.89	34.77	-13.03
	23035	701.5	16QAM	1	0	0	23.06	22.91	**25.06**	34.77	-11.86
				6	0	0	20.93	20.78	22.93	34.77	-13.99
	23095	707.5	16QAM	1	0	0	23.01	22.86	25.01	34.77	-11.91
				6	0	0	20.90	20.75	22.90	34.77	-14.02
	23155	713.5	16QAM	1	5	3	22.95	22.80	24.95	34.77	-11.97
				6	0	3	20.90	20.75	22.90	34.77	-14.02

Antenna gain (dBi) 2

CAT-M1 Band 12_Uplink frequency 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)	ERP Limit (dBm)	Margin (dB)
10	23060	704	QPSK	1	0	0	22.68	22.53	**24.68**	34.77	-12.24
				6	0	0	22.16	22.01	24.16	34.77	-12.76
	23095	707.5	QPSK	1	0	0	22.67	22.52	24.67	34.77	-12.25
				6	0	0	22.08	21.93	24.08	34.77	-12.84
	23130	711	QPSK	1	5	7	22.61	22.46	24.61	34.77	-12.31
				6	0	7	22.10	21.95	24.10	34.77	-12.82
	23060	704	16QAM	1	0	0	23.04	22.89	25.04	34.77	-11.88
				6	0	0	21.03	20.88	23.03	34.77	-13.89
	23095	707.5	16QAM	1	0	0	23.17	23.02	**25.17**	34.77	-11.75
				6	0	0	21.06	20.91	23.06	34.77	-13.86
	23130	711	16QAM	1	5	7	22.97	22.82	24.97	34.77	-11.95
				6	0	7	20.82	20.67	22.82	34.77	-14.10

Antenna gain (dBi) 2

CAT-M1 Band 13_Uplink frequency 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)	ERP Limit (dBm)	Margin (dB)
5	23205	779.5	QPSK	1	0	0	22.63	22.48	24.63	34.77	-12.29
				6	0	0	22.04	21.89	24.04	34.77	-12.88
	23230	782	QPSK	1	0	0	22.75	22.60	24.75	34.77	-12.17
				6	0	0	22.12	21.97	24.12	34.77	-12.80
	23255	784.5	QPSK	1	5	3	22.77	22.62	**24.77**	34.77	-12.15
				6	0	3	22.09	21.94	24.09	34.77	-12.83
	23205	779.5	16QAM	1	0	0	23.10	22.95	25.10	34.77	-11.82
				6	0	0	20.97	20.82	22.97	34.77	-13.95
	23230	782	16QAM	1	0	0	23.13	22.98	**25.13**	34.77	-11.79
				6	0	0	20.98	20.83	22.98	34.77	-13.94
	23255	784.5	16QAM	1	5	3	23.09	22.94	25.09	34.77	-11.83
				6	0	3	20.93	20.78	22.93	34.77	-13.99

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Antenna gain (dBi) 2

CAT-M1 Band 13_Uplink frequency 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)	ERP Limit (dBm)	Margin (dB)
10	23230	782	QPSK	1	0	0	22.83	22.68	**24.83**	34.77	-12.09
				6	0	0	22.19	22.04	24.19	34.77	-12.73
	23230	782	16QAM	1	0	0	23.09	22.94	**25.09**	34.77	-11.83
				6	0	0	21.05	20.90	23.05	34.77	-13.87
	/	/	/	/	/	/	/	/	/	/	/
				/	/	/	/	/	/	/	/

Antenna gain (dBi) 2

M1 Band 25_Uplink frequency band : 1850 to 1915 MHz										
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Index	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
3	26055	1851.5	QPSK	1	0	0	22.62	24.62	33	-8.38
				6	0	0	21.00	23.00	33	-10.00
	26365	1882.5	QPSK	1	0	0	22.93	**24.93**	33	-8.07
				6	0	0	21.05	23.05	33	-9.95
	26675	1913.5	QPSK	1	5	1	22.63	24.63	33	-8.37
				6	0	1	21.01	23.01	33	-9.99
	26055	1851.5	16QAM	1	0	0	22.06	24.06	33	-8.94
				6	0	0	21.01	23.01	33	-9.99
	26365	1882.5	16QAM	1	0	0	22.05	24.05	33	-8.95
				6	0	0	21.01	23.01	33	-9.99
	26675	1913.5	16QAM	1	5	1	22.24	**24.24**	33	-8.76
				6	0	1	20.89	22.89	33	-10.11

M1 Band 25_Uplink frequency band : 1850 to 1915 MHz										
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Index	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
5	26065	1852.5	QPSK	1	0	0	22.71	24.71	33	-8.29
				6	0	0	22.18	24.18	33	-8.82
	26365	1882.5	QPSK	1	0	0	22.78	**24.78**	33	-8.22
				6	0	0	22.14	24.14	33	-8.86
	26665	1912.5	QPSK	1	5	3	22.75	24.75	33	-8.25
				6	0	3	20.01	22.01	33	-10.99
	26065	1852.5	16QAM	1	0	0	23.06	25.06	33	-7.94
				6	0	0	21.04	23.04	33	-9.96
	26365	1882.5	16QAM	1	0	0	23.17	**25.17**	33	-7.83
				6	0	0	21.01	23.01	33	-9.99
	26665	1912.5	16QAM	1	5	3	23.07	25.07	33	-7.93
				6	0	3	21.03	23.03	33	-9.97

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M1 Band 25_Uplink frequency band : 1850 to 1915 MHz										
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Index	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
10	26090	1855	QPSK	1	0	0	22.77	**24.77**	33	-8.23
				6	0	0	22.14	24.14	33	-8.86
	26365	1882.5	QPSK	1	0	0	22.77	**24.77**	33	-8.23
				6	0	0	22.12	24.12	33	-8.88
	26640	1910	QPSK	1	5	7	22.76	24.76	33	-8.24
				6	0	7	22.05	24.05	33	-8.95
	26090	1855	16QAM	1	0	0	22.16	24.16	33	-8.84
				6	0	0	21.09	23.09	33	-9.91
	26365	1882.5	16QAM	1	0	0	23.14	**25.14**	33	-7.86
				6	0	0	20.99	22.99	33	-10.01
	26640	1910	16QAM	1	5	7	23.11	25.11	33	-7.89
				6	0	7	20.92	22.92	33	-10.08

M1 Band 25_Uplink frequency band : 1850 to 1915 MHz										
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Index	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
15	26115	1857.5	QPSK	1	0	0	22.66	24.66	33	-8.34
				6	0	0	22.63	24.63	33	-8.37
	26365	1882.5	QPSK	1	0	0	22.84	**24.84**	33	-8.16
				6	0	0	22.75	24.75	33	-8.25
	26615	1907.5	QPSK	1	5	11	22.80	24.80	33	-8.20
				6	0	11	22.66	24.66	33	-8.34
	26115	1857.5	16QAM	1	0	0	23.14	25.14	33	-7.86
				6	0	0	22.71	24.71	33	-8.29
	26365	1882.5	16QAM	1	0	0	23.16	**25.16**	33	-7.84
				6	0	0	22.66	24.66	33	-8.34
	26615	1907.5	16QAM	1	5	11	23.14	25.14	33	-7.86
				6	0	11	22.56	24.56	33	-8.44

M1 Band 25_Uplink frequency band : 1850 to 1915 MHz										
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Index	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
20	26140	1860	QPSK	1	0	0	22.79	24.79	33	-8.21
				6	0	0	22.67	24.67	33	-8.33
	26365	1882.5	QPSK	1	0	0	22.72	24.72	33	-8.28
				6	0	0	22.73	24.73	33	-8.27
	26590	1905	QPSK	1	5	15	22.83	**24.83**	33	-8.17
				6	0	15	22.65	24.65	33	-8.35
	26140	1860	16QAM	1	0	0	23.17	**25.17**	33	-7.83
				6	0	0	22.74	24.74	33	-8.26
	26365	1882.5	16QAM	1	0	0	23.15	25.15	33	-7.85
				6	0	0	22.65	24.65	33	-8.35
	26590	1905	16QAM	1	5	15	23.16	25.16	33	-7.84
				6	0	15	22.68	24.68	33	-8.32

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Antenna gain (dBi) 2

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)	ERP Limit (dBm)	Margin (dB)
1.4	26697	814.7	QPSK	1	0	0	22.57	22.42	24.57	50	-27.58
				6	0	0	21.03	20.88	23.03	50	-29.12
	26740	819	QPSK	1	0	0	22.54	22.39	24.54	50	-27.61
				6	0	0	20.94	20.79	22.94	50	-29.21
	26783	823.3	QPSK	1	5	0	22.87	22.72	**24.87**	50	-27.28
				6	0	0	20.93	20.78	22.93	50	-29.22
	26697	814.7	16QAM	1	0	0	22.07	21.92	24.07	50	-28.08
				6	0	0	21.03	20.88	23.03	50	-29.12
	26740	819	16QAM	1	0	0	22.05	21.90	24.05	50	-28.10
				6	0	0	21.06	20.91	23.06	50	-29.09
	26783	823.3	16QAM	1	5	0	22.35	22.20	**24.35**	50	-27.80
				6	0	0	21.09	20.94	23.09	50	-29.06

Antenna gain (dBi) 2

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)	ERP Limit (dBm)	Margin (dB)
3	26705	815.5	QPSK	1	0	0	22.62	22.47	**24.62**	50	-27.53
				6	0	0	20.99	20.84	22.99	50	-29.16
	26740	819	QPSK	1	0	0	22.59	22.44	24.59	50	-27.56
				6	0	0	21.02	20.87	23.02	50	-29.13
	26775	822.5	QPSK	1	5	1	22.58	22.43	24.58	50	-27.57
				6	0	1	21.01	20.86	23.01	50	-29.14
	26705	815.5	16QAM	1	0	0	21.99	21.84	23.99	50	-28.16
				6	0	0	20.96	20.81	22.96	50	-29.19
	26740	819	16QAM	1	0	0	21.86	21.71	23.86	50	-28.29
				6	0	0	22.87	22.72	**24.87**	50	-27.28
	26775	822.5	16QAM	1	5	1	22.20	22.05	24.20	50	-27.95
				6	0	1	20.95	20.80	22.95	50	-29.20

Antenna gain (dBi) 2

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)	ERP Limit (dBm)	Margin (dB)
5	26715	816.5	QPSK	1	0	0	22.58	22.43	24.58	50	-27.57
				6	0	0	21.96	21.81	23.96	50	-28.19
	26740	819	QPSK	1	0	0	22.56	22.41	24.56	50	-27.59
				6	0	0	21.96	21.81	23.96	50	-28.19
	26765	821.5	QPSK	1	5	3	22.68	22.53	**24.68**	50	-27.47
				6	0	3	21.96	21.81	23.96	50	-28.19
	26715	816.5	16QAM	1	0	0	23.04	22.89	25.04	50	-27.11
				6	0	0	20.86	20.71	22.86	50	-29.29
	26740	819	16QAM	1	0	0	23.09	22.94	**25.09**	50	-27.06
				6	0	0	20.97	20.82	22.97	50	-29.18
	26765	821.5	16QAM	1	5	3	22.98	22.83	24.98	50	-27.17
				6	0	3	20.87	20.72	22.87	50	-29.28

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Antenna gain (dBi) 2

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)	ERP Limit (dBm)	Margin (dB)
10	26740	819	QPSK	1	0	0	22.71	22.56	**24.71**	50	-25.29
				6	0	0	22.07	21.92	24.07	50	-25.93
	26740	819	16QAM	1	0	0	22.98	22.83	**24.98**	50	-25.02
				6	0	0	20.95	20.80	22.95	50	-27.05
	/	/	/	/	/	/	/	/	/	/	/
				/	/	/	/	/	/	/	/

Antenna gain (dBi) 2

M1 Band 26_Uplink frequency 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)	ERP Limit (dBm)	Margin (dB)
1.4	26797	824.7	QPSK	1	0	0	22.52	22.37	24.52	38.45	-16.08
				6	0	0	21.07	20.92	23.07	38.45	-17.53
	26915	836.5	QPSK	1	0	0	22.95	22.80	**24.95**	38.45	-15.65
				6	0	0	21.03	20.88	23.03	38.45	-17.57
	27033	848.3	QPSK	1	5	0	22.53	22.38	24.53	38.45	-16.07
				6	0	0	21.10	20.95	23.10	38.45	-17.50
	26797	824.7	16QAM	1	0	0	22.05	21.90	24.05	38.45	-16.55
				6	0	0	20.95	20.80	22.95	38.45	-17.65
	26915	836.5	16QAM	1	0	0	22.07	21.92	24.07	38.45	-16.53
				6	0	0	20.95	20.80	22.95	38.45	-17.65
	27033	848.3	16QAM	1	5	0	22.48	22.33	**24.48**	38.45	-16.12
				6	0	0	21.05	20.90	23.05	38.45	-17.55

Antenna gain (dBi) 2

M1 Band 26_Uplink frequency 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)	ERP Limit (dBm)	Margin (dB)
3	26805	825.5	QPSK	1	0	0	22.57	22.42	24.57	38.45	-16.03
				6	0	0	20.87	20.72	22.87	38.45	-17.73
	26915	836.5	QPSK	1	0	0	22.69	22.54	**24.69**	38.45	-15.91
				6	0	0	21.01	20.86	23.01	38.45	-17.59
	27025	847.5	QPSK	1	5	1	22.54	22.39	24.54	38.45	-16.06
				6	0	1	20.99	20.84	22.99	38.45	-17.61
	26805	825.5	16QAM	1	0	0	21.96	21.81	23.96	38.45	-16.64
				6	0	0	20.98	20.83	22.98	38.45	-17.62
	26915	836.5	16QAM	1	0	0	21.89	21.74	23.89	38.45	-16.71
				6	0	0	20.89	20.74	22.89	38.45	-17.71
	27025	847.5	16QAM	1	5	1	22.25	22.10	**24.25**	38.45	-16.35
				6	0	1	21.08	20.93	23.08	38.45	-17.52

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Antenna gain (dBi) 2

M1 Band 26_Uplink frequency 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)	ERP Limit (dBm)	Margin (dB)
5	26815	826.5	QPSK	1	0	0	22.50	22.35	24.50	38.45	-16.10
				6	0	0	21.97	21.82	23.97	38.45	-16.63
	26915	836.5	QPSK	1	0	0	22.61	22.46	24.61	38.45	-15.99
				6	0	0	21.96	21.81	23.96	38.45	-16.64
	27015	846.5	QPSK	1	5	3	22.78	22.63	**24.78**	38.45	-15.82
				6	0	3	21.97	21.82	23.97	38.45	-16.63
	26815	826.5	16QAM	1	0	0	22.97	22.82	24.97	38.45	-15.63
				6	0	0	20.89	20.74	22.89	38.45	-17.71
	26915	836.5	16QAM	1	0	0	22.96	22.81	24.96	38.45	-15.64
				6	0	0	20.89	20.74	22.89	38.45	-17.71
	27015	846.5	16QAM	1	5	3	23.09	22.94	**25.09**	38.45	-15.51
				6	0	3	20.90	20.75	22.90	38.45	-17.70

Antenna gain (dBi) 2

M1 Band 26_Uplink frequency 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)	ERP Limit (dBm)	Margin (dB)
10	26840	829	QPSK	1	0	0	22.56	22.41	24.56	38.45	-13.89
				6	0	0	21.97	21.82	23.97	38.45	-14.48
	26915	836.5	QPSK	1	0	0	22.55	22.40	24.55	38.45	-13.90
				6	0	0	22.14	21.99	24.14	38.45	-14.31
	26990	844	QPSK	1	5	7	22.80	22.65	**24.80**	38.45	-13.65
				6	0	7	22.13	21.98	24.13	38.45	-14.32
	26840	829	16QAM	1	0	0	23.02	22.87	25.02	38.45	-13.43
				6	0	0	20.88	20.73	22.88	38.45	-15.57
	26915	836.5	16QAM	1	0	0	23.05	22.90	**25.05**	38.45	-13.40
				6	0	0	20.96	20.81	22.96	38.45	-15.49
	26990	844	16QAM	1	5	7	22.77	22.62	24.77	38.45	-13.68
				6	0	7	22.08	21.93	24.08	38.45	-14.37

Antenna gain (dBi) 2

M1 Band 26_Uplink frequency 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)	ERP Limit (dBm)	Margin (dB)
15	26865	831.5	QPSK	1	0	0	22.62	22.47	24.62	38.45	-13.83
				6	0	0	22.51	22.36	24.51	38.45	-13.94
	26915	836.5	QPSK	1	0	0	22.55	22.40	24.55	38.45	-13.90
				6	0	0	22.63	22.48	24.63	38.45	-13.82
	26965	841.5	QPSK	1	5	11	22.78	22.63	**24.78**	38.45	-13.67
				6	0	11	22.62	22.47	24.62	38.45	-13.83
	26865	831.5	16QAM	1	0	0	23.15	23.00	**25.15**	38.45	-13.30
				6	0	0	22.56	22.41	24.56	38.45	-13.89
	26915	836.5	16QAM	1	0	0	23.01	22.86	25.01	38.45	-13.44
				6	0	0	22.45	22.30	24.45	38.45	-14.00
	26965	841.5	16QAM	1	5	11	22.99	22.84	24.99	38.45	-13.46
				6	0	11	22.55	22.40	24.55	38.45	-13.90

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Antenna gain (dBi) 2

M1 Band 66_Uplink frequency band : 1710 to 1780 MHz										
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Index	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
1.4	131979	1710.7	QPSK	1	0	0	22.99	24.99	30	-5.01
				6	0	0	21.40	23.40	30	-6.60
	132322	1745	QPSK	1	0	0	23.16	**25.16**	30	-4.84
				6	0	0	21.27	23.27	30	-6.73
	132665	1779.3	QPSK	1	5	0	22.99	24.99	30	-5.01
				6	0	0	21.39	23.39	30	-6.61
	131979	1710.7	16QAM	1	0	0	22.51	24.51	30	-5.49
				6	0	0	21.56	23.56	30	-6.44
	132322	1745	16QAM	1	0	0	22.36	24.36	30	-5.64
				6	0	0	21.34	23.34	30	-6.66
	132665	1779.3	16QAM	1	5	0	22.90	**24.90**	30	-5.10
				6	0	0	21.56	23.56	30	-6.44

Antenna gain (dBi) 2

M1 Band 66_Uplink frequency band : 1710 to 1780 MHz										
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Index	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
3	131987	1711.5	QPSK	1	0	0	23.05	25.05	30	-4.95
				6	0	0	21.39	23.39	30	-6.61
	132322	1745	QPSK	1	0	0	22.89	24.89	30	-5.11
				6	0	0	21.21	23.21	30	-6.79
	132657	1778.5	QPSK	1	5	1	23.08	**25.08**	30	-4.92
				6	0	1	21.46	23.46	30	-6.54
	131987	1711.5	16QAM	1	0	0	22.34	24.34	30	-5.66
				6	0	0	21.52	23.52	30	-6.48
	132322	1745	16QAM	1	0	0	22.12	24.12	30	-5.88
				6	0	0	21.22	23.22	30	-6.78
	132657	1778.5	16QAM	1	5	1	21.49	23.49	30	-6.51
				6	0	1	22.68	**24.68**	30	-5.32

Antenna gain (dBi) 2

M1 Band 66_Uplink frequency band : 1710 to 1780 MHz										
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Index	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
5	131997	1712.5	QPSK	1	0	0	22.98	24.98	30	-5.02
				6	0	0	22.38	24.38	30	-5.62
	132322	1745	QPSK	1	0	0	22.81	24.81	30	-5.19
				6	0	0	22.17	24.17	30	-5.83
	132647	1777.5	QPSK	1	5	3	23.14	**25.14**	30	-4.86
				6	0	3	22.40	24.40	30	-5.60
	131997	1712.5	16QAM	1	0	0	23.48	**25.48**	30	-4.52
				6	0	0	21.44	23.44	30	-6.56
	132322	1745	16QAM	1	0	0	23.24	25.24	30	-4.76
				6	0	0	21.03	23.03	30	-6.97
	132647	1777.5	16QAM	1	5	3	23.47	25.47	30	-4.53
				6	0	3	21.28	23.28	30	-6.72

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Antenna gain (dBi) 2

M1 Band 66_Uplink frequency band : 1710 to 1780 MHz										
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Index	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
10	132022	1715	QPSK	1	0	0	22.98	24.98	30	-5.02
				6	0	0	22.45	24.45	30	-5.55
	132322	1745	QPSK	1	0	0	22.95	24.95	30	-5.05
				6	0	0	22.20	24.20	30	-5.80
	132622	1775	QPSK	1	5	7	23.08	**25.08**	30	-4.92
				6	0	7	22.54	24.54	30	-5.46
	132022	1715	16QAM	1	0	0	23.45	25.45	30	-4.55
				6	0	0	21.44	23.44	30	-6.56
	132322	1745	16QAM	1	0	0	23.20	25.20	30	-4.80
				6	0	0	21.21	23.21	30	-6.79
	132622	1775	16QAM	1	5	7	23.47	**25.47**	30	-4.53
				6	0	7	21.29	23.29	30	-6.71

Antenna gain (dBi) 2

M1 Band 66_Uplink frequency band : 1710 to 1780 MHz										
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Index	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
15	132047	1717.5	QPSK	1	0	0	23.03	25.03	30	-4.97
				6	0	0	22.97	24.97	30	-5.03
	132322	1745	QPSK	1	0	0	22.92	24.92	30	-5.08
				6	0	0	22.76	24.76	30	-5.24
	132597	1772.5	QPSK	1	5	11	23.17	**25.17**	30	-4.83
				6	0	11	23.09	25.09	30	-4.91
	132047	1717.5	16QAM	1	0	0	23.41	25.41	30	-4.59
				6	0	0	23.02	25.02	30	-4.98
	132322	1745	16QAM	1	0	0	23.30	25.30	30	-4.70
				6	0	0	22.85	24.85	30	-5.15
	132597	1772.5	16QAM	1	5	11	23.48	**25.48**	30	-4.52
				6	0	11	23.20	25.20	30	-4.80

Antenna gain (dBi) 2

M1 Band 66_Uplink frequency band : 1710 to 1780 MHz										
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Index	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
20	132072	1720	QPSK	1	0	0	23.13	25.13	30	-4.87
				6	0	0	22.99	24.99	30	-5.01
	132322	1745	QPSK	1	0	0	22.79	24.79	30	-5.21
				6	0	0	22.72	24.72	30	-5.28
	132572	1770	QPSK	1	5	15	23.12	25.12	30	-4.88
				6	0	15	23.17	**25.17**	30	-4.83
	132072	1720	16QAM	1	0	0	23.43	25.43	30	-4.57
				6	0	0	23.04	25.04	30	-4.96
	132322	1745	16QAM	1	0	0	23.19	25.19	30	-4.81
				6	0	0	22.76	24.76	30	-5.24
	132572	1770	16QAM	1	5	15	23.51	**25.51**	30	-4.49
				6	0	15	23.01	25.01	30	-4.99

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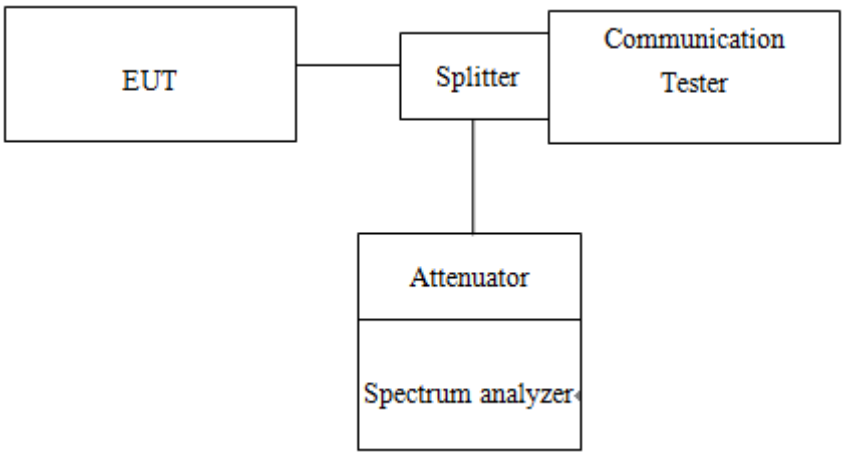
8 OCCUPIED BANDWIDTH MEASUREMENT

8.1 Standard Applicable

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

8.2 Test Set-up



8.3 Measurement Procedure

99% &26dB Bandwidth with detector peak

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

99% Bandwidth with detector sample

The EUT's output RF connector was connected with a short cable to the spectrum analyzer, RBW was set to about 1% ~ 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 Resul

CAT-M1 BAND 2 Channel bandwidth: 1.4MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1850.7	18607	1.0745	1.0754	1.276	1.282
1880.0	18900	**1.0758**	1.0768	1.279	**1.288**
1909.3	19193	1.0739	**1.0769**	**1.280**	1.276

CAT-M1 BAND 2 Channel bandwidth: 3MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1851.5	18615	**1.0758**	1.0743	1.286	1.275
1880.0	18900	1.0735	1.0769	**1.295**	1.281
1908.5	19185	1.0755	**1.0780**	1.279	**1.292**

CAT-M1 BAND 2 Channel bandwidth: 5MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1852.5	18625	**1.0866**	**1.0779**	1.284	1.291
1880.0	18900	1.0774	1.0772	1.282	1.279
1907.5	19175	1.0777	**1.0779**	**1.301**	**1.294**

CAT-M1 BAND 2 Channel bandwidth: 10MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1855.0	18650	1.0729	1.0799	1.273	1.294
1880.0	18900	1.0736	1.0835	1.274	**1.296**
1905.0	19150	**1.0861**	**1.0857**	**1.294**	1.293

CAT-M1 BAND 2 Channel bandwidth: 15MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1857.5	18675	**1.0816**	**1.0811**	**1.300**	1.280
1880.0	18900	1.0790	1.0785	1.277	1.289
1902.5	19125	1.0733	**1.0811**	1.268	**1.295**

CAT-M1 BAND 2 Channel bandwidth: 20MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1860.0	18700	1.0740	1.0768	**1.292**	1.293
1880.0	18900	1.0764	**1.0869**	1.284	**1.313**
1900.0	19100	**1.0844**	1.0794	1.284	1.294

CAT-M1 BAND 4 Channel bandwidth: 1.4MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1710.7	19957	1.0734	**1.0772**	**1.284**	1.275
1732.5	20175	1.0745	1.0734	1.283	**1.285**
1754.3	20393	**1.0774**	1.0754	1.281	1.277

CAT-M1 BAND 4 Channel bandwidth: 3MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1711.5	19965	1.0758	1.0754	**1.286**	**1.297**
1732.5	20175	1.0747	1.0737	1.281	1.269
1753.5	20385	**1.0773**	**1.0771**	1.283	1.284

CAT-M1 BAND 4 Channel bandwidth: 5MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1712.5	19975	**1.0859**	**1.0800**	**1.289**	1.291
1732.5	20175	1.0816	1.0789	1.282	1.277
1752.5	20375	1.0760	1.0784	1.288	**1.302**

CAT-M1 BAND 4 Channel bandwidth: 10MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1715.0	20000	1.0730	1.0779	1.277	1.301
1732.5	20175	1.0758	**1.0860**	1.260	**1.302**
1750.0	20350	**1.0882**	1.0815	**1.302**	1.274

CAT-M1 BAND 4 Channel bandwidth: 15MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1717.5	20025	**1.0859**	**1.0842**	**1.297**	1.283
1732.5	20175	1.0768	1.0796	1.283	**1.295**
1747.5	20325	1.0728	1.0764	1.285	1.293

CAT-M1 BAND 4 Channel bandwidth: 20MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1720.0	20050	1.0794	1.0789	1.292	1.290
1732.5	20175	1.0736	**1.0836**	1.261	1.299
1745.0	20300	**1.0880**	1.0820	**1.293**	**1.302**

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CAT-M1 BAND 5 Channel bandwidth: 1.4MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
824.7	20407	1.0769	1.0739	**1.287**	1.279
836.5	20525	1.0738	**1.0773**	1.274	1.277
848.3	20643	**1.0772**	1.0763	1.281	**1.291**

CAT-M1 BAND 5 Channel bandwidth: 3MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
825.5	20415	**1.0751**	1.0755	1.289	1.288
836.5	20525	1.0745	**1.0756**	**1.292**	**1.293**
847.5	20635	1.0744	1.0747	1.285	1.284

CAT-M1 BAND 5 Channel bandwidth: 5MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
826.5	20425	1.0756	**1.0806**	**1.290**	**1.293**
836.5	20525	1.0802	1.0785	1.281	1.283
846.5	20625	**1.0819**	1.0783	1.279	1.282

CAT-M1 BAND 5 Channel bandwidth: 10MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
829.0	20450	1.0717	1.0798	1.285	**1.297**
836.5	20525	1.0769	1.0825	1.270	1.286
844.0	20600	**1.0808**	**1.0865**	**1.301**	1.294

CAT-M1 BAND 12 Channel bandwidth: 1.4MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
699.7	23017	**1.0733**	**1.0746**	**1.295**	1.277
707.5	23095	1.0727	1.0727	1.280	**1.279**
715.3	23173	1.0706	1.0745	1.279	1.275

CAT-M1 BAND 12 Channel bandwidth: 3MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
700.5	23025	**1.0756**	**1.0758**	**1.283**	1.281
707.5	23095	1.0753	1.0749	1.269	**1.300**
714.5	23165	1.0718	1.0744	1.277	1.278

CAT-M1 BAND 12 Channel bandwidth: 5MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
701.5	23035	1.0801	1.0791	1.292	1.286
707.5	23095	**1.0823**	**1.0792**	**1.293**	**1.295**
713.5	23155	1.0816	1.0768	1.292	1.289

CAT-M1 BAND 12 Channel bandwidth: 10MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
704.0	23060	1.0713	1.0788	1.244	**1.293**
707.5	23095	1.0727	**1.0846**	1.258	1.289
711.0	23130	**1.0866**	**1.0846**	**1.308**	1.292

CAT-M1 BAND 13 Channel bandwidth: 5MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
779.5	23205	1.0823	**1.0806**	**1.295**	1.292
782.0	23230	**1.0848**	1.0783	1.282	1.288
784.5	23255	1.0828	1.0800	1.279	**1.296**

CAT-M1 BAND 13 Channel bandwidth: 10MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
782.0	23230	**1.0785**	**1.0865**	**1.262**	**1.305**

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CAT-M1 BAND 25 Channel bandwidth: 1.4MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1850.7	26047	1.0752	1.0765	1.277	**1.298**
1882.5	26365	1.0764	1.0751	1.277	1.273
1914.3	26683	**1.0768**	**1.0780**	**1.279**	1.283

CAT-M1 BAND 25 Channel bandwidth: 3MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1851.5	26055	1.0738	1.0766	1.285	1.279
1882.5	26365	**1.0772**	1.0774	**1.290**	1.279
1913.5	26675	1.0748	**1.0779**	1.284	**1.289**

CAT-M1 BAND 25 Channel bandwidth: 5MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1852.5	26065	**1.0902**	1.0789	**1.296**	**1.300**
1882.5	26365	1.0782	**1.0805**	1.293	1.292
1912.5	26665	1.0845	1.0794	1.291	**1.300**

CAT-M1 BAND 25 Channel bandwidth: 10MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1855.0	26090	1.0728	1.0815	1.279	**1.303**
1882.5	26365	1.0729	**1.0859**	1.259	1.286
1910.0	26640	**1.0802**	1.0835	**1.294**	1.280

CAT-M1 BAND 25 Channel bandwidth: 15MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1857.5	26115	**1.0890**	**1.0848**	**1.298**	**1.295**
1882.5	26365	1.0766	1.0820	1.275	1.284
1907.5	26615	1.0738	1.0814	1.270	1.293

CAT-M1 BAND 25 Channel bandwidth: 20MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1860.0	26140	1.0794	1.0790	**1.316**	1.288
1882.5	26365	1.0736	**1.0838**	1.271	1.297
1905.0	26590	**1.0865**	1.0788	1.292	**1.304**

CAT-M1 BAND 26 for part 90S Channel bandwidth: 1.4MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
814.7	26697	1.0716	1.0717	1.283	**1.291**
819.0	26740	1.0743	1.0737	1.287	1.261
823.3	26783	**1.0772**	**1.0788**	**1.291**	1.282

CAT-M1 BAND 26 for part 90S Channel bandwidth: 3MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
815.5	26705	1.0739	1.0742	1.277	1.293
819.0	26740	1.0714	1.0737	**1.282**	1.293
822.5	26775	**1.0740**	**1.0769**	1.273	**1.297**

CAT-M1 BAND 26 for part 90S Channel bandwidth: 5MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
816.5	26715	1.0810	**1.0801**	1.274	1.285
819.0	26740	1.0787	1.0782	**1.292**	1.279
821.5	26765	**1.0835**	1.0766	**1.292**	**1.292**

CAT-M1 BAND 26 for part 90S Channel bandwidth: 10MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
819.0	26740	**1.0724**	**1.0826**	**1.269**	**1.298**

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CAT-M1 BAND 26 Channel bandwidth: 1.4MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
824.7	26797	**1.0791**	1.0743	1.279	1.279
836.5	26915	1.0755	**1.0747**	1.282	**1.290**
848.3	27033	1.0767	1.0726	**1.285**	1.287

CAT-M1 BAND 26 Channel bandwidth: 3MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
825.5	26805	1.0724	**1.0757**	1.281	1.276
836.5	26915	1.0723	1.0755	**1.284**	1.292
847.5	27025	**1.0725**	1.0754	1.274	**1.297**

CAT-M1 BAND 26 Channel bandwidth: 5MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
826.5	26815	**1.0872**	**1.0798**	**1.298**	1.286
836.5	26915	1.0801	1.0788	1.292	1.300
846.5	27015	1.0822	1.0763	1.279	**1.303**

CAT-M1 BAND 26 Channel bandwidth: 10MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
829.0	26840	1.0682	1.0796	1.279	**1.308**
836.5	26915	1.0723	**1.0863**	1.260	1.286
844.0	26990	**1.0818**	1.0852	**1.285**	1.286

CAT-M1 BAND 26 Channel bandwidth: 15MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
831.5	26865	**1.0902**	1.0810	1.288	1.305
836.5	26915	1.0786	**1.0837**	**1.289**	1.292
841.5	26965	1.0719	1.0814	1.271	**1.324**

CAT-M1 BAND 66 Channel bandwidth: 1.4MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1710.7	131979	1.0723	1.0754	1.279	1.276
1745.0	132322	**1.0740**	**1.0772**	**1.286**	1.274
1779.3	132665	1.0731	1.0761	1.270	**1.293**

CAT-M1 BAND 66 Channel bandwidth: 3MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1711.5	131987	1.0724	1.0766	1.286	1.280
1745.0	132322	**1.0765**	1.0775	**1.287**	**1.295**
1778.5	132657	1.0751	**1.0785**	1.275	1.274

CAT-M1 BAND 66 Channel bandwidth: 5MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1712.5	131997	**1.0827**	**1.0824**	**1.297**	1.296
1745.0	132322	1.0826	1.0796	1.287	1.299
1777.5	132647	1.0813	1.0819	1.290	**1.306**

CAT-M1 BAND 66 Channel bandwidth: 10MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1715.0	132022	1.0716	1.0793	1.279	1.298
1745.0	132322	1.0698	1.0843	1.268	**1.305**
1775.0	132622	**1.0888**	**1.0844**	**1.302**	1.288

CAT-M1 BAND 66 Channel bandwidth: 15MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1717.5	132047	1.0793	**1.0872**	**1.295**	1.287
1745.0	132322	**1.0801**	1.0797	1.286	1.299
1772.5	132597	1.0711	1.0761	1.282	**1.304**

CAT-M1 BAND 66 Channel bandwidth: 20MHz					
Freq. (MHz)	CH	99% BW (MHz)		26 dB BW (MHz)	
		QPSK	16QAM	QPSK	16QAM
1720.0	132072	**1.0810**	1.0797	**1.300**	1.285
1745.0	132322	1.0758	**1.0859**	1.265	1.292
1770.0	132572	1.0786	1.0790	1.291	**1.295**

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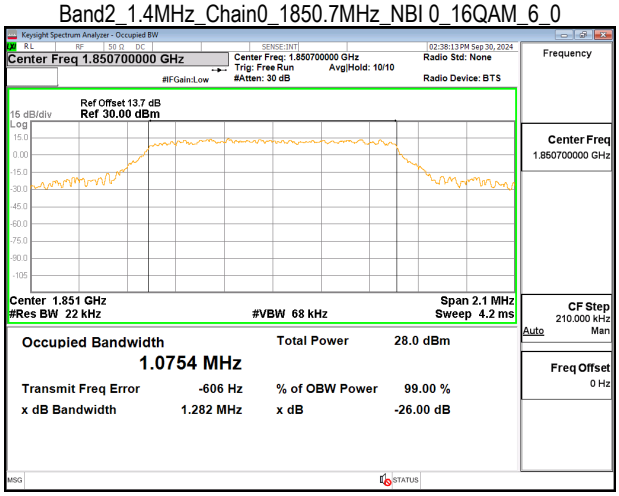
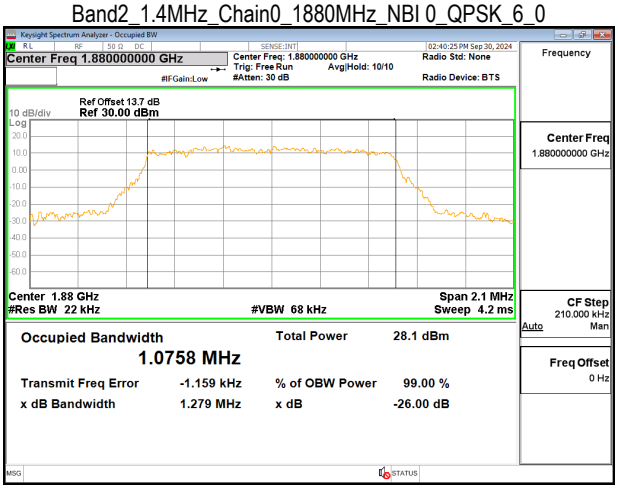
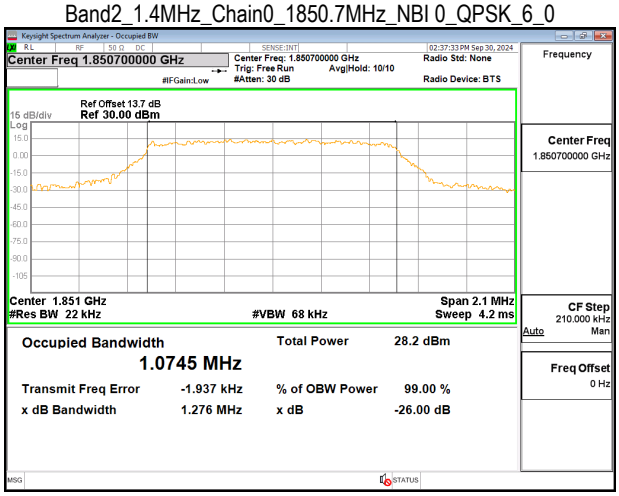
Band2_1.4MHz_Chain0_1850.7MHz_NBI 0_16QAM_6_0



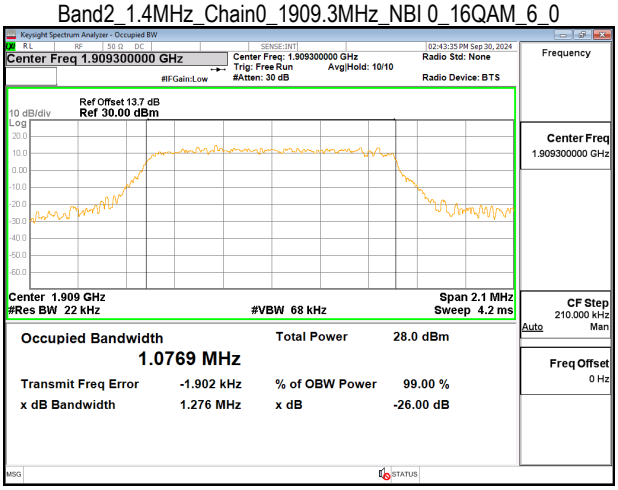
Band2_1.4MHz_Chain0_1880MHz_NBI 0_QPSK_6_0



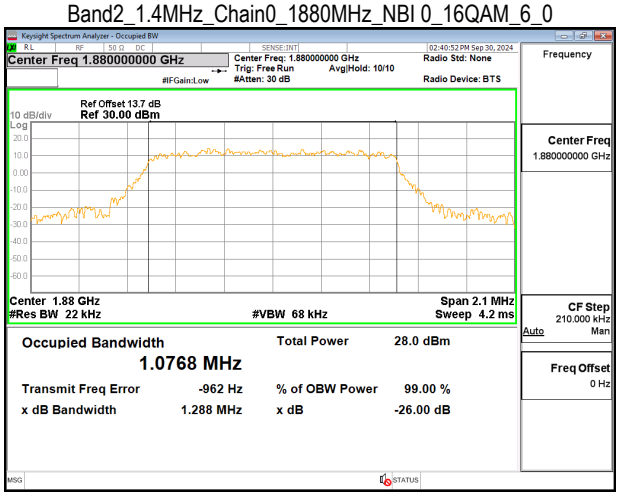
Band2_1.4MHz_Chain0_1850.7MHz_NBI 0_QPSK_6_0



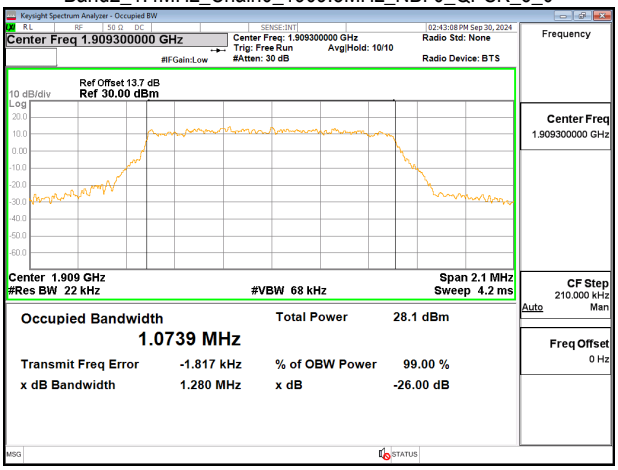
Band2_1.4MHz_Chain0_1909.3MHz_NBI 0_16QAM_6_0



Band2_1.4MHz_Chain0_1880MHz_NBI 0_16QAM_6_0



Band2_1.4MHz_Chain0_1909.3MHz_NBI 0_QPSK_6_0



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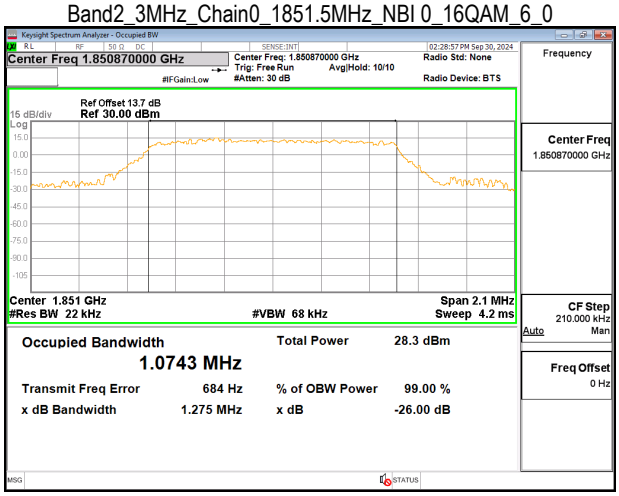
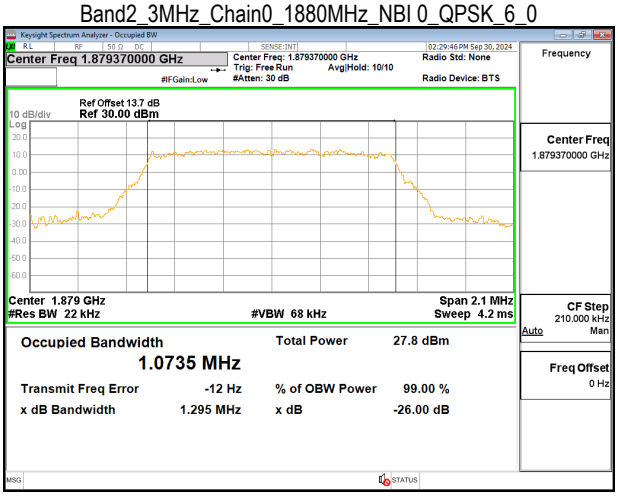
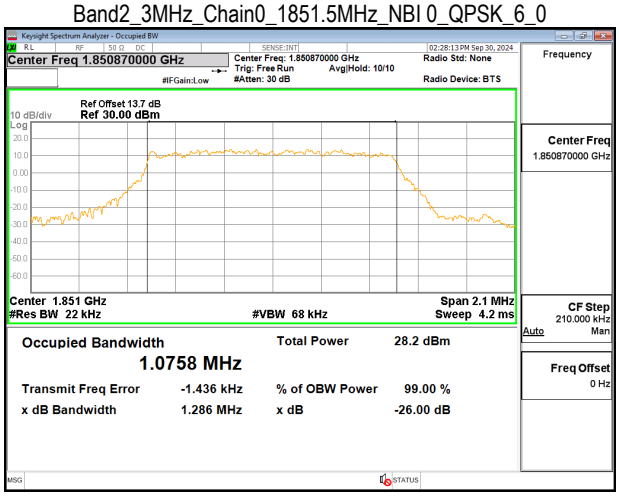
Band2_3MHz_Chain0_1851.5MHz_NBI 0_16QAM_6_0



Band2_3MHz_Chain0_1880MHz_NBI 0_QPSK_6_0



Band2_3MHz_Chain0_1851.5MHz_NBI 0_QPSK_6_0



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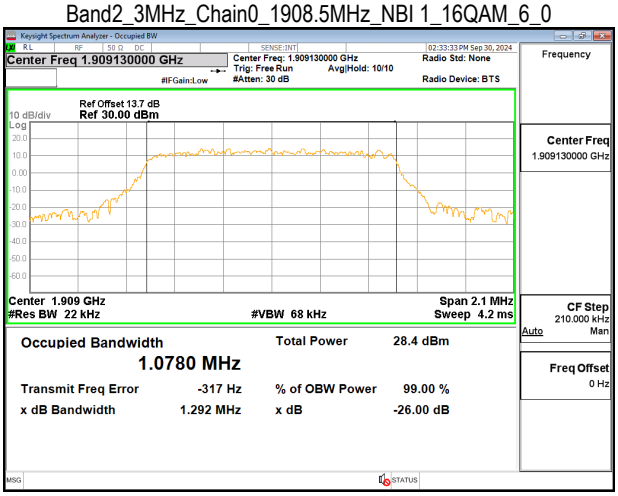
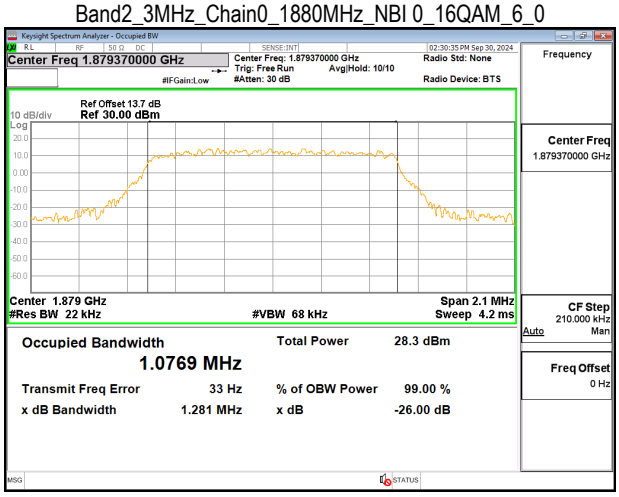
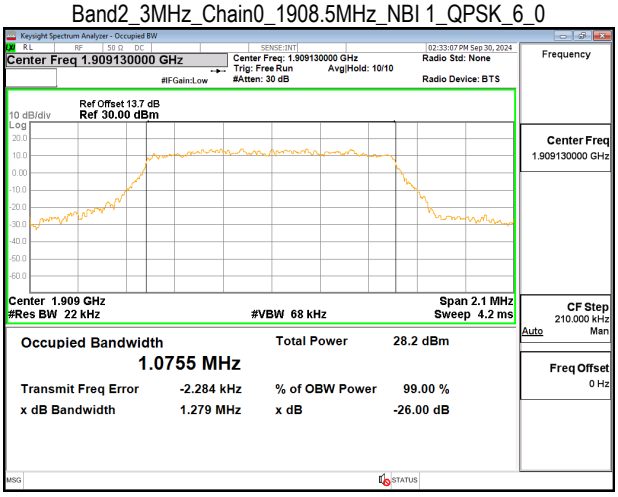


Band2_3MHz_Chain0_1880MHz_NBI 0_16QAM_6_0



Band2_3MHz_Chain0_1908.5MHz_NBI 1_QPSK_6_0



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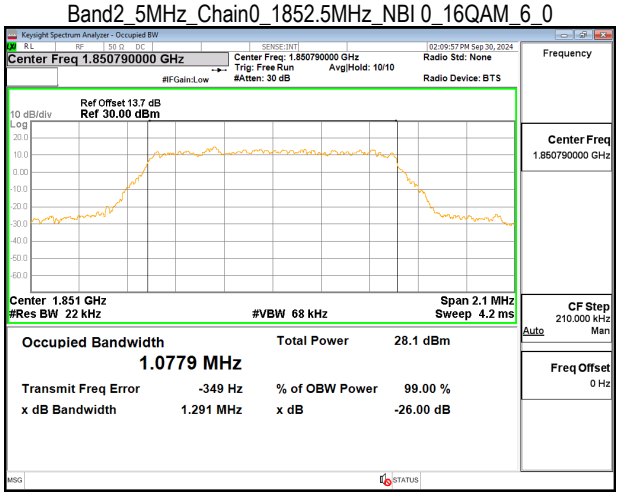
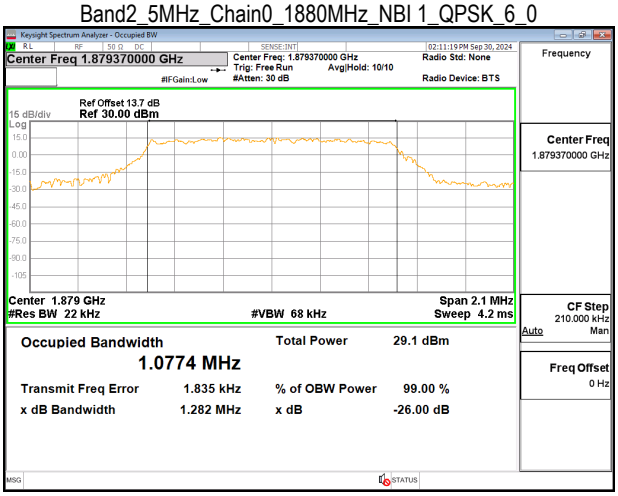
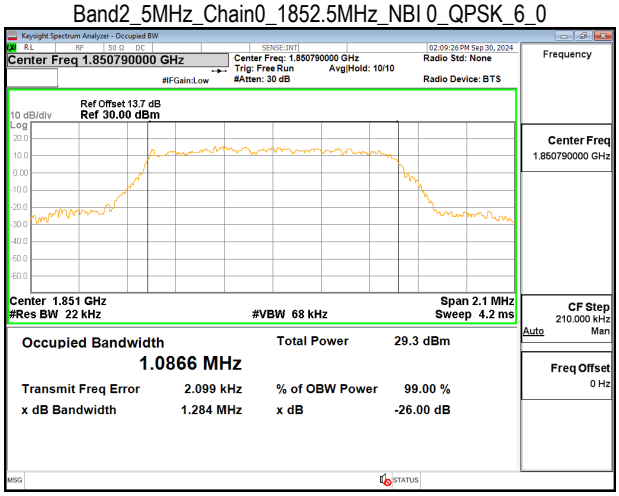
Band2_5MHz_Chain0_1852.5MHz_NBI 0_16QAM_6_0



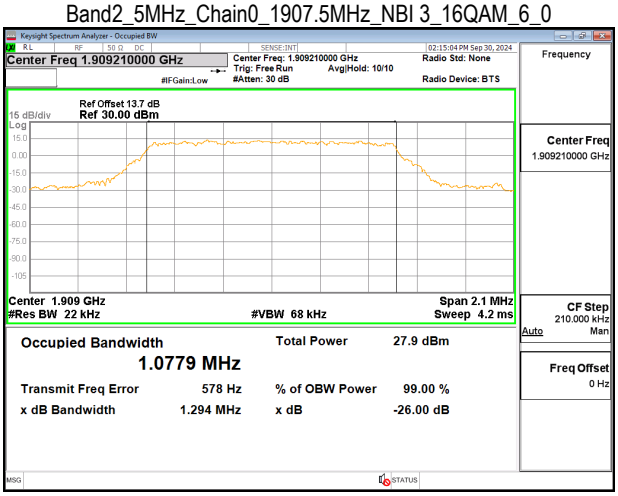
Band2_5MHz_Chain0_1880MHz_NBI 1_QPSK_6_0



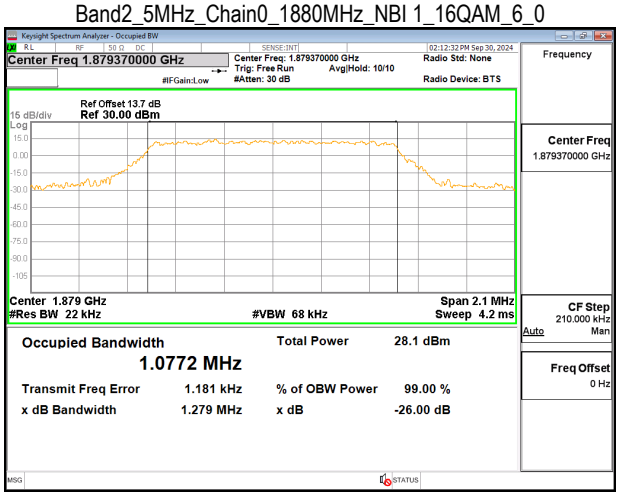
Band2_5MHz_Chain0_1852.5MHz_NBI 0_QPSK_6_0



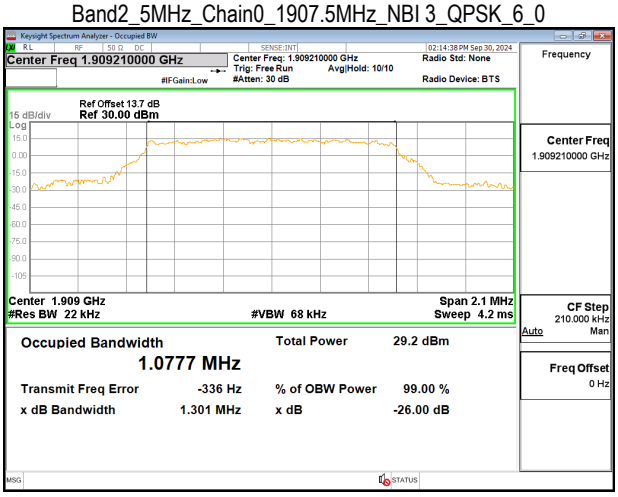
Band2_5MHz_Chain0_1907.5MHz_NBI 3_16QAM_6_0



Band2_5MHz_Chain0_1880MHz_NBI 1_16QAM_6_0



Band2_5MHz_Chain0_1907.5MHz_NBI 3_QPSK_6_0



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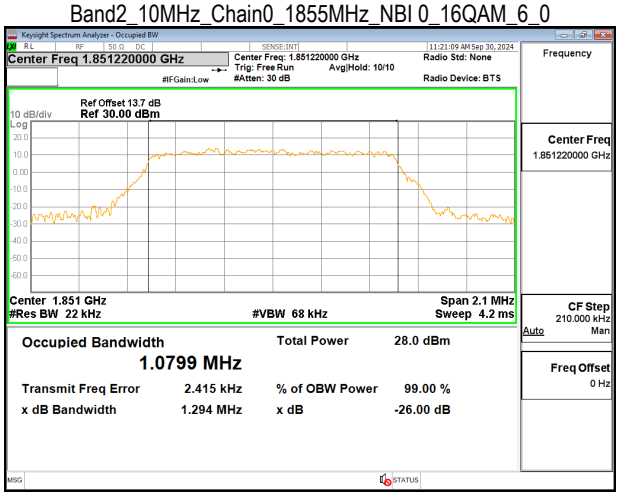
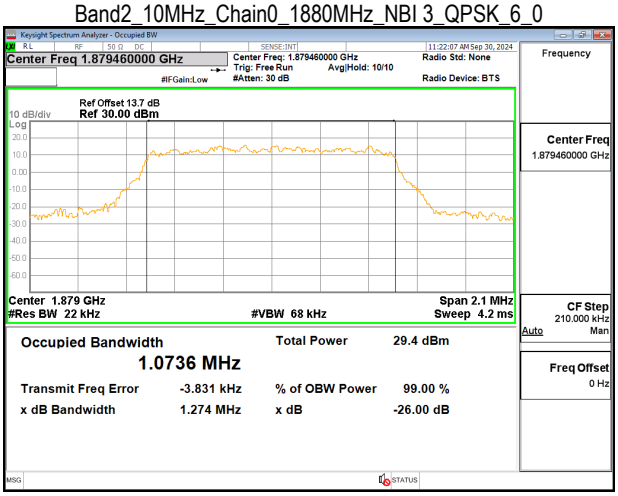
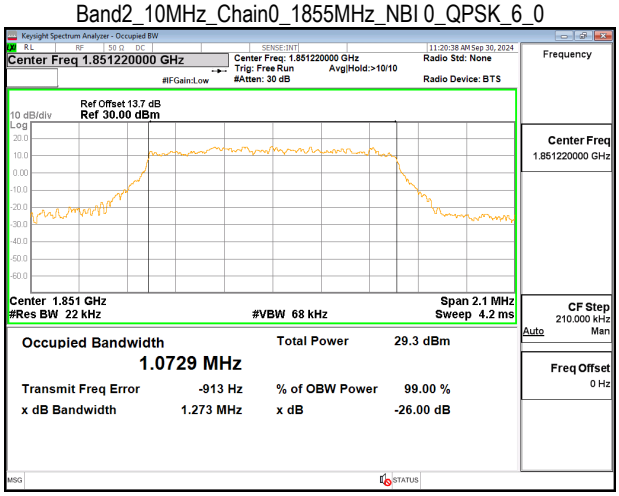
Band2_10MHz_Chain0_1855MHz_NBI 0_16QAM_6_0



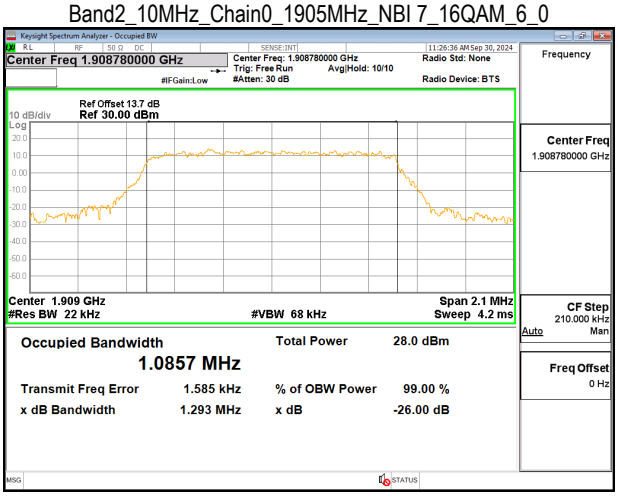
Band2_10MHz_Chain0_1880MHz_NBI 3_QPSK_6_0



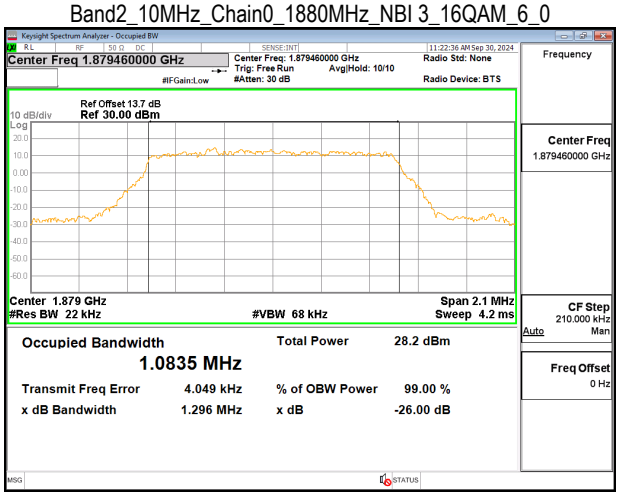
Band2_10MHz_Chain0_1855MHz_NBI 0_QPSK_6_0



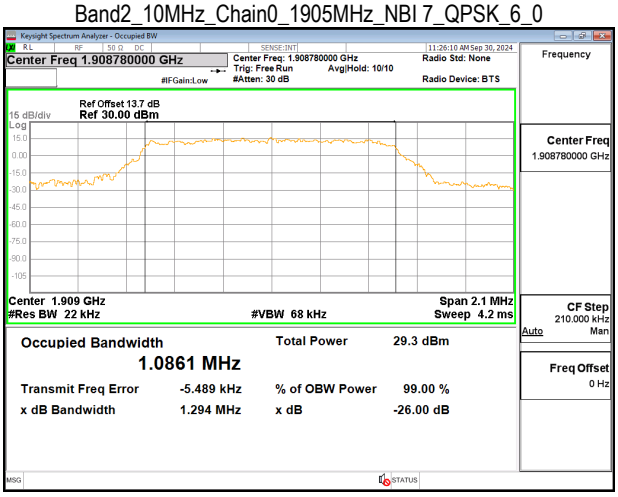
Band2_10MHz_Chain0_1905MHz_NBI 7_16QAM_6_0



Band2_10MHz_Chain0_1880MHz_NBI 3_16QAM_6_0



Band2_10MHz_Chain0_1905MHz_NBI 7_QPSK_6_0



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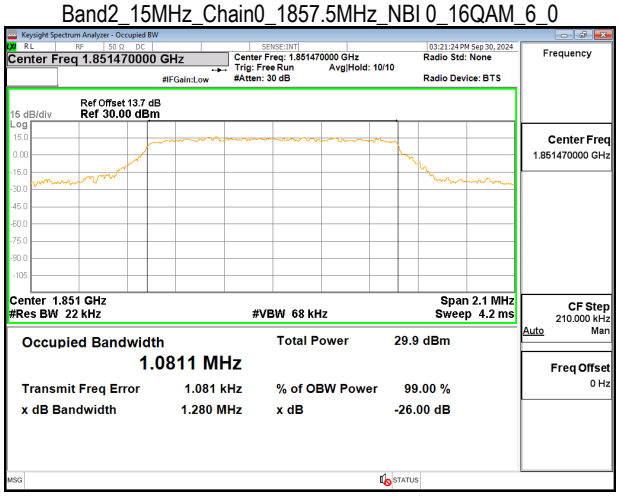
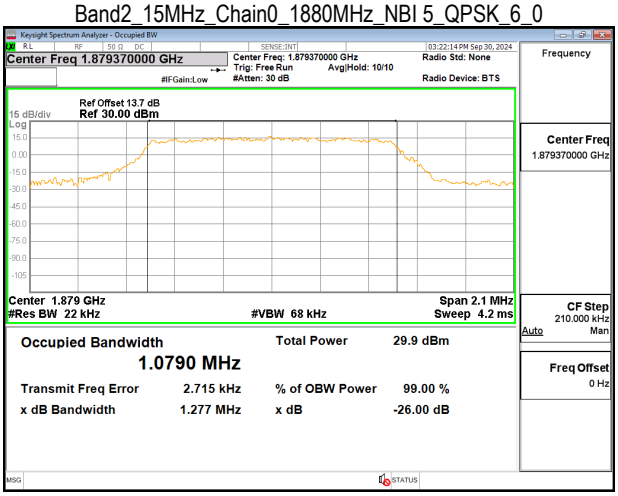
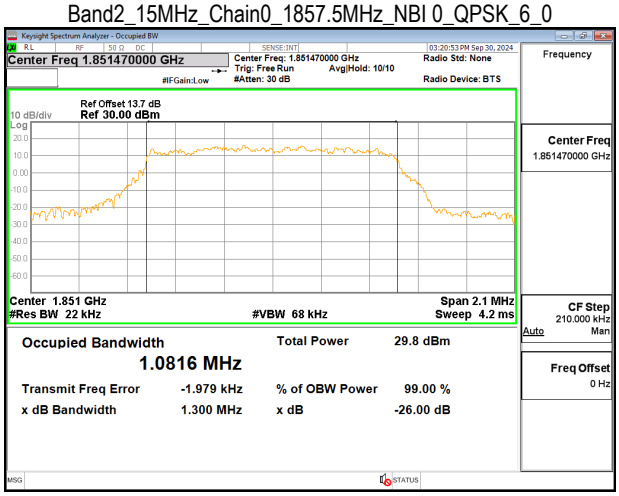
Band2_15MHz_Chain0_1857.5MHz_NBI 0_16QAM_6_0



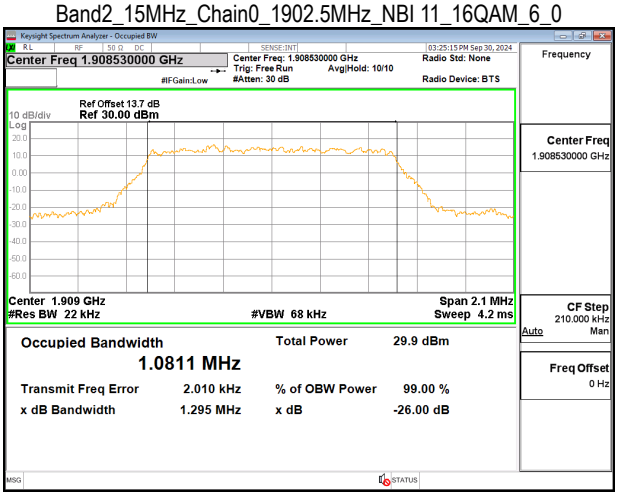
Band2_15MHz_Chain0_1880MHz_NBI 5_QPSK_6_0



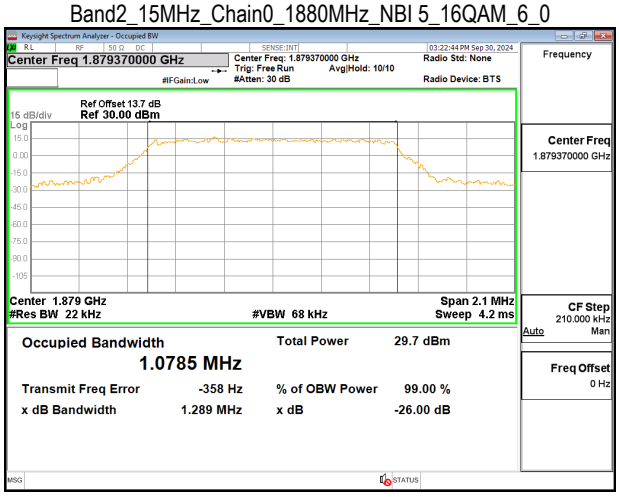
Band2_15MHz_Chain0_1857.5MHz_NBI 0_QPSK_6_0



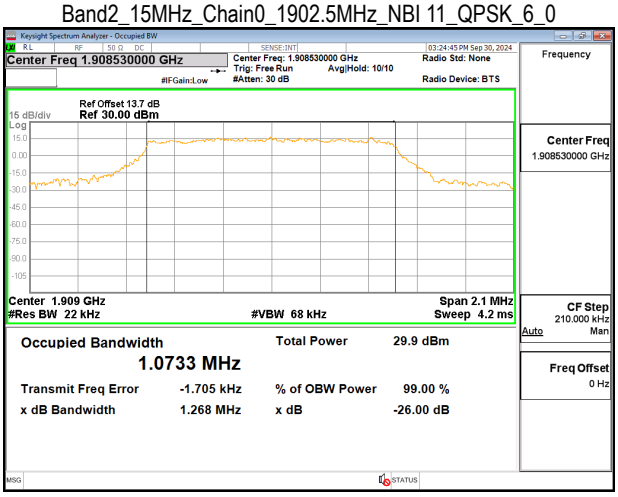
Band2_15MHz_Chain0_1902.5MHz_NBI 11_16QAM_6_0



Band2_15MHz_Chain0_1880MHz_NBI 5_16QAM_6_0



Band2_15MHz_Chain0_1902.5MHz_NBI 11_QPSK_6_0



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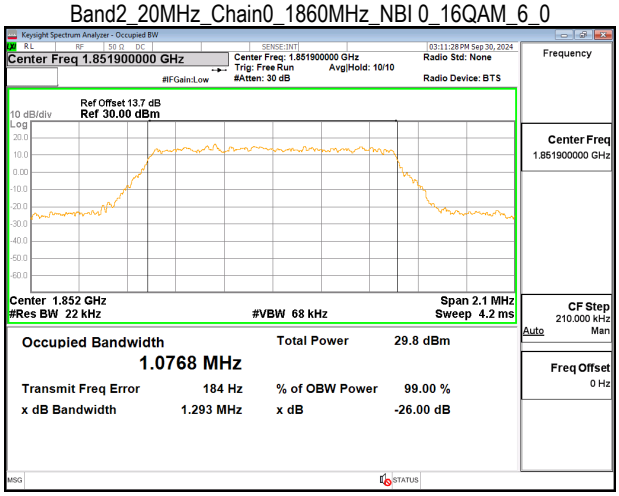
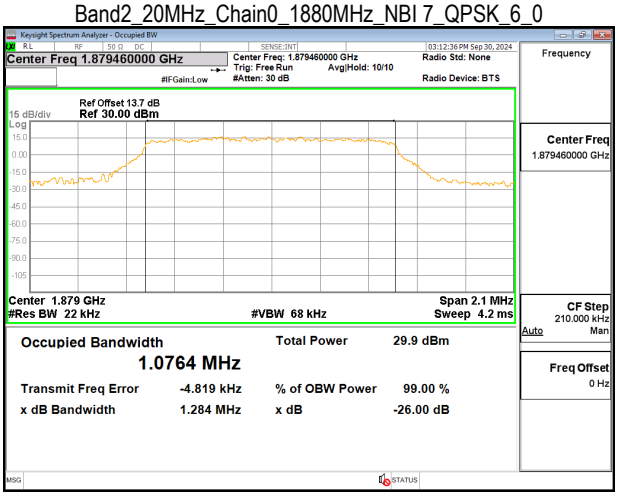
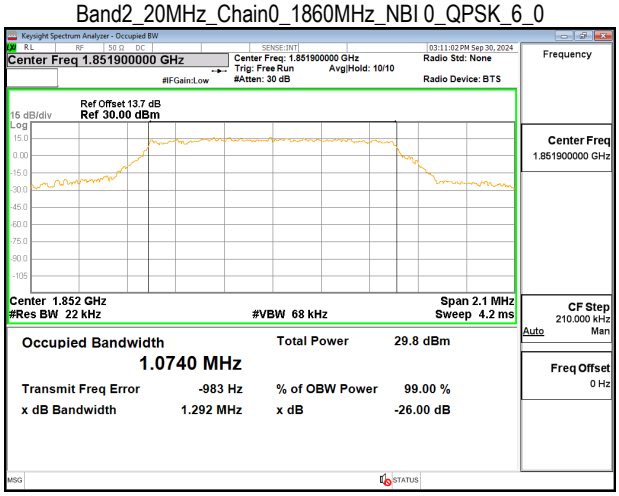
Band2_20MHz_Chain0_1860MHz_NBI 0_16QAM_6_0



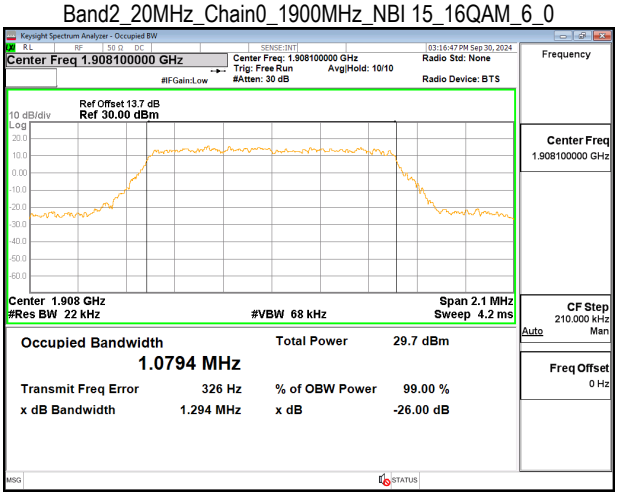
Band2_20MHz_Chain0_1880MHz_NBI 7_QPSK_6_0



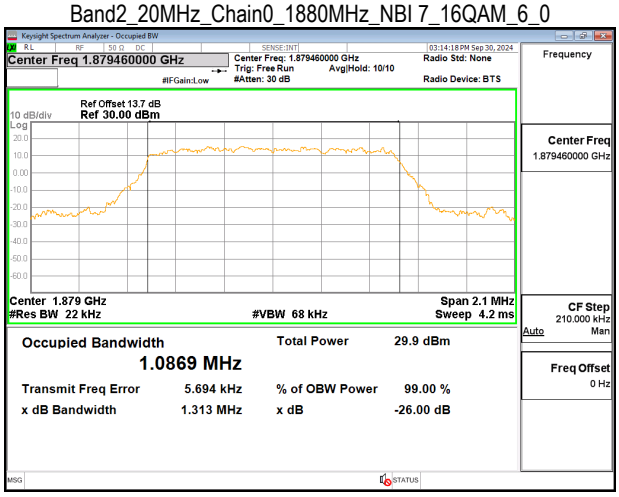
Band2_20MHz_Chain0_1860MHz_NBI 0_QPSK_6_0



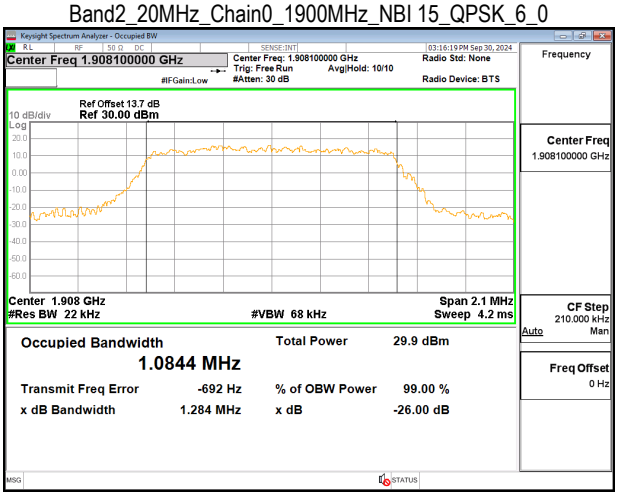
Band2_20MHz_Chain0_1900MHz_NBI 15_16QAM_6_0



Band2_20MHz_Chain0_1880MHz_NBI 7_16QAM_6_0



Band2_20MHz_Chain0_1900MHz_NBI 15_QPSK_6_0



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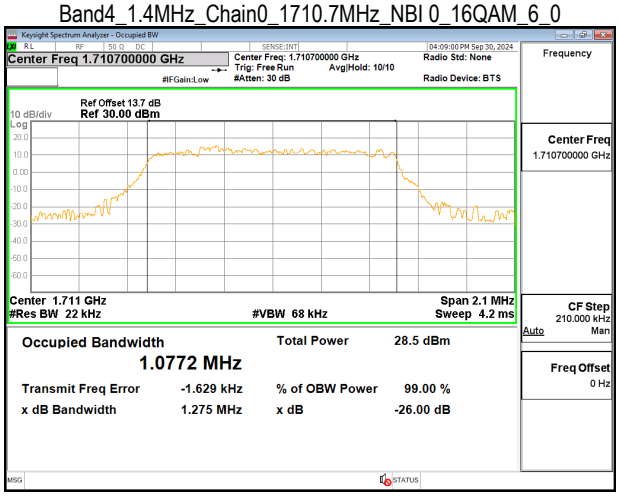
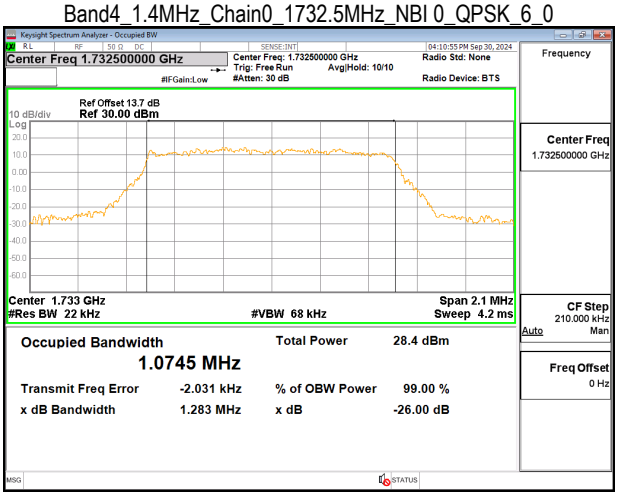
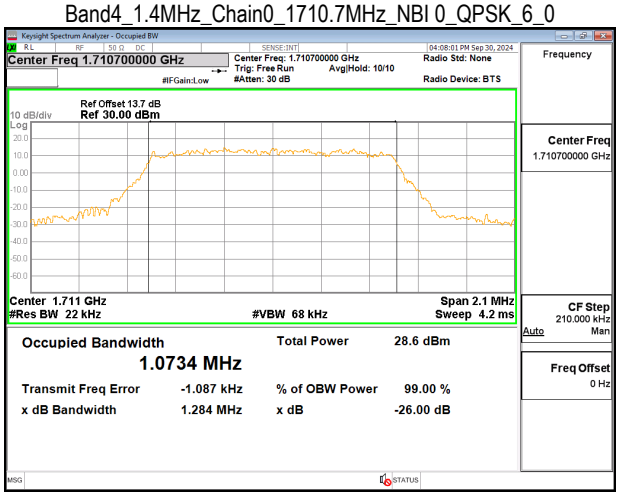
Band4_1.4MHz_Chain0_1710.7MHz_NBI 0_16QAM_6_0



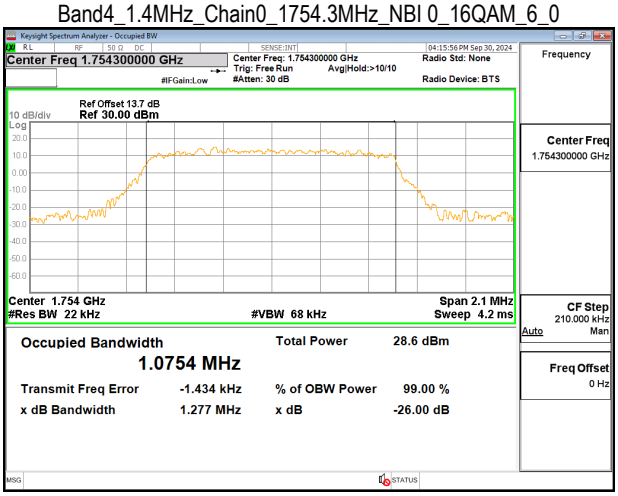
Band4_1.4MHz_Chain0_1732.5MHz_NBI 0_QPSK_6_0



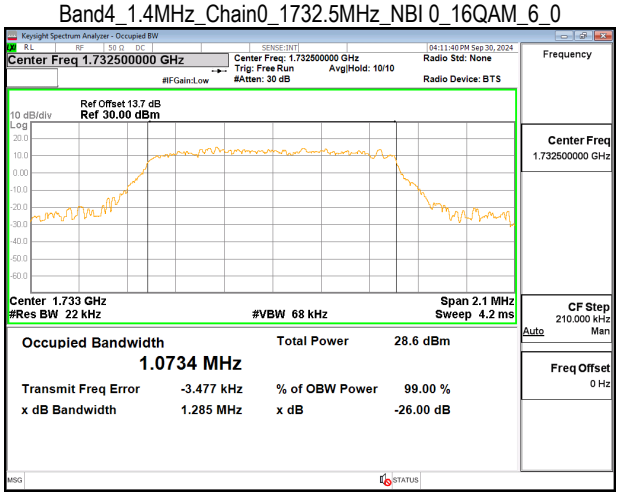
Band4_1.4MHz_Chain0_1710.7MHz_NBI 0_QPSK_6_0



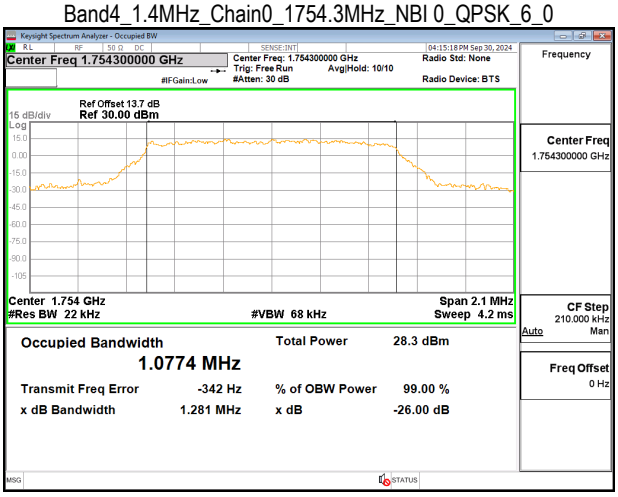
Band4_1.4MHz_Chain0_1754.3MHz_NBI 0_16QAM_6_0



Band4_1.4MHz_Chain0_1732.5MHz_NBI 0_16QAM_6_0



Band4_1.4MHz_Chain0_1754.3MHz_NBI 0_QPSK_6_0



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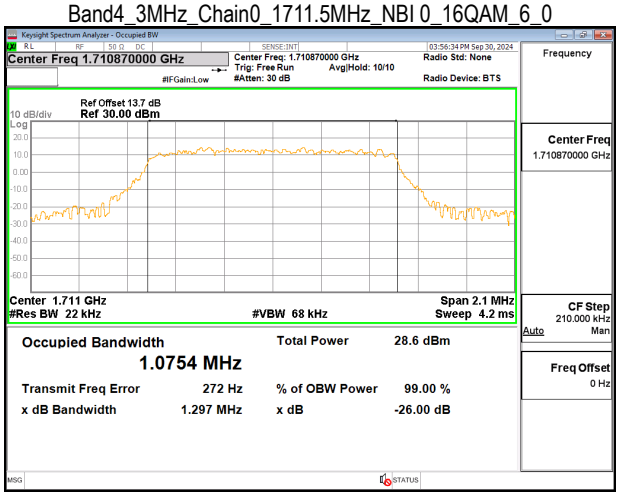
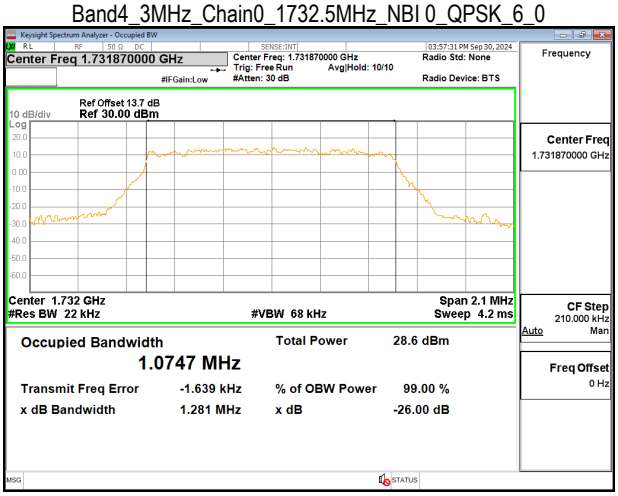
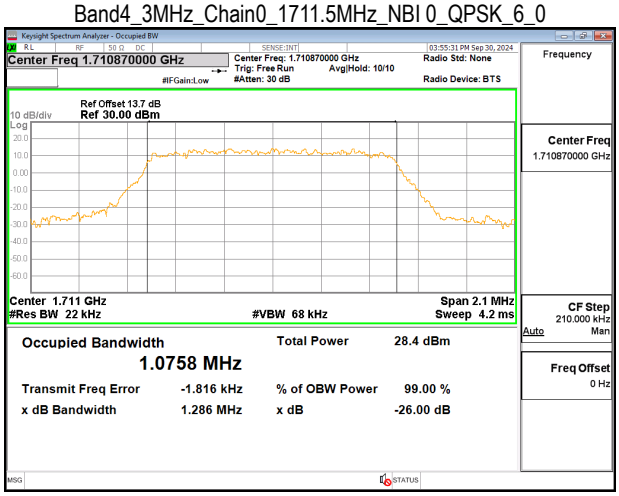
Band4_3MHz_Chain0_1711.5MHz_NBI 0_16QAM_6_0



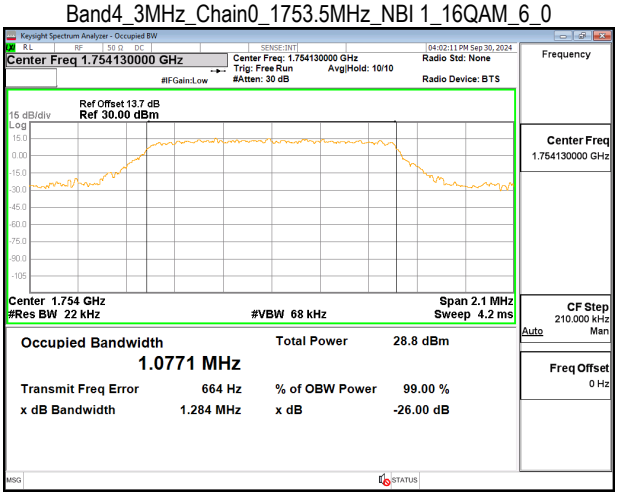
Band4_3MHz_Chain0_1732.5MHz_NBI 0_QPSK_6_0



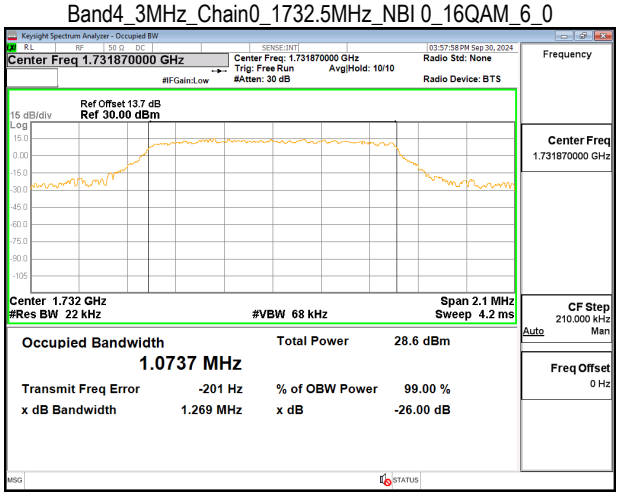
Band4_3MHz_Chain0_1711.5MHz_NBI 0_QPSK_6_0



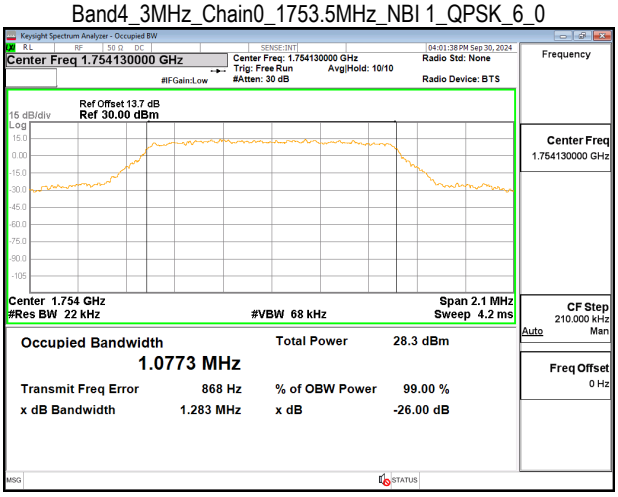
Band4_3MHz_Chain0_1753.5MHz_NBI 1_16QAM_6_0



Band4_3MHz_Chain0_1732.5MHz_NBI 0_16QAM_6_0



Band4_3MHz_Chain0_1753.5MHz_NBI 1_QPSK_6_0



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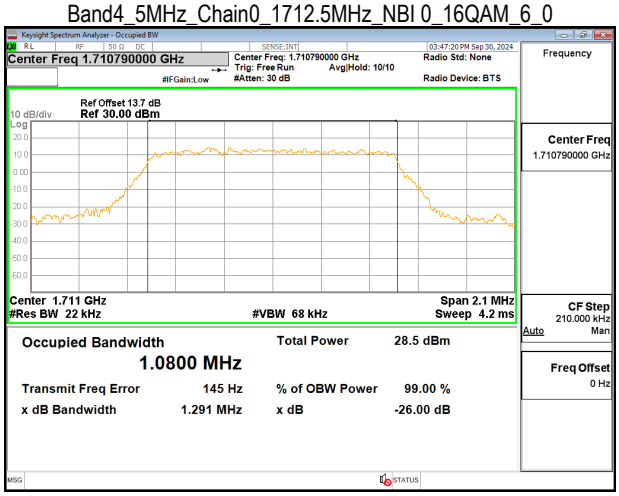
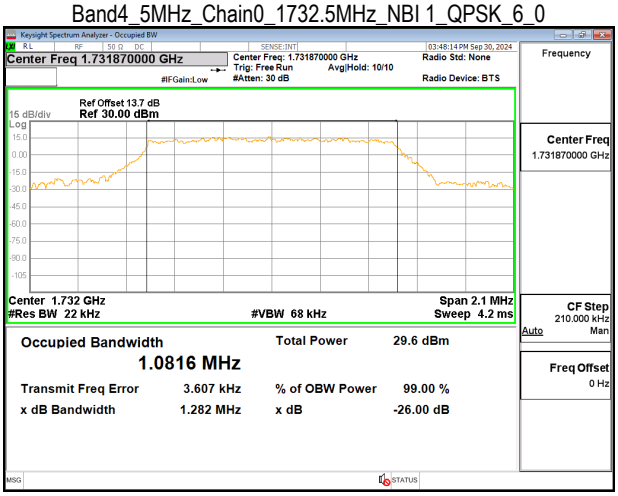
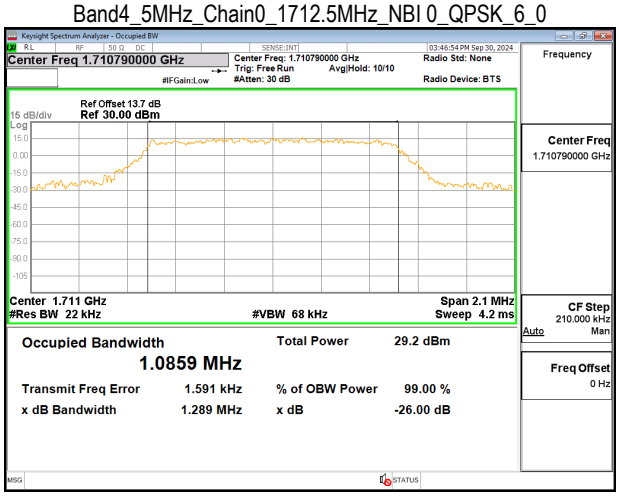
Band4_5MHz_Chain0_1712.5MHz_NBI 0_16QAM_6_0



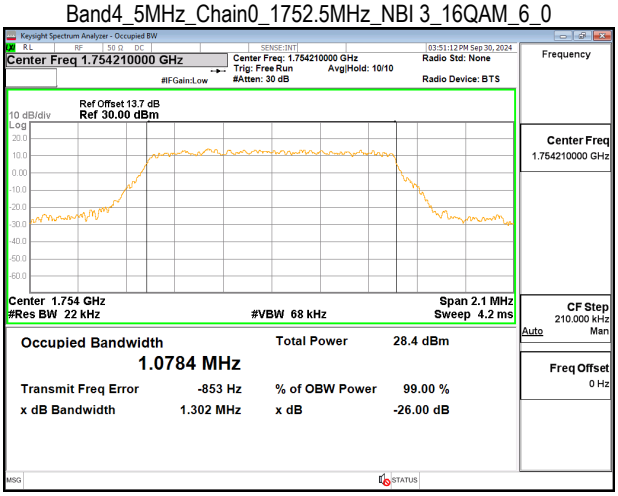
Band4_5MHz_Chain0_1732.5MHz_NBI 1_QPSK_6_0



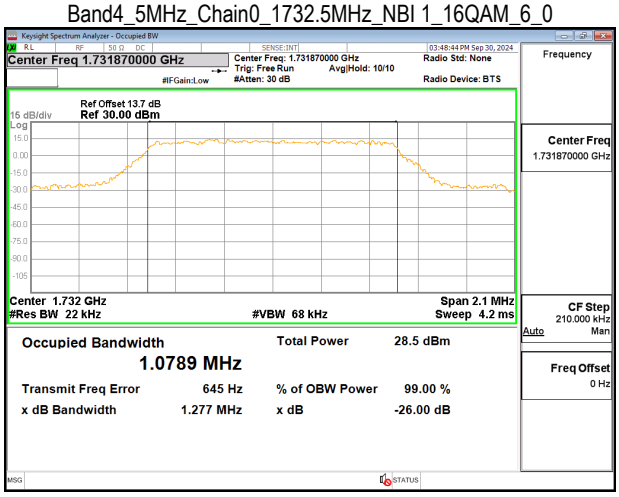
Band4_5MHz_Chain0_1712.5MHz_NBI 0_QPSK_6_0



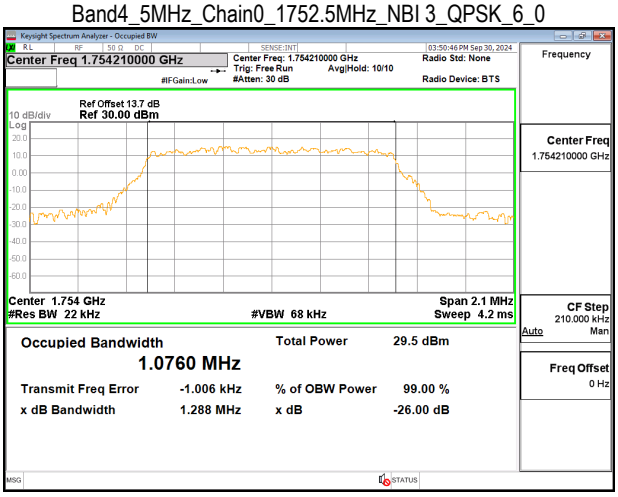
Band4_5MHz_Chain0_1752.5MHz_NBI 3_16QAM_6_0



Band4_5MHz_Chain0_1732.5MHz_NBI 1_16QAM_6_0



Band4_5MHz_Chain0_1752.5MHz_NBI 3_QPSK_6_0



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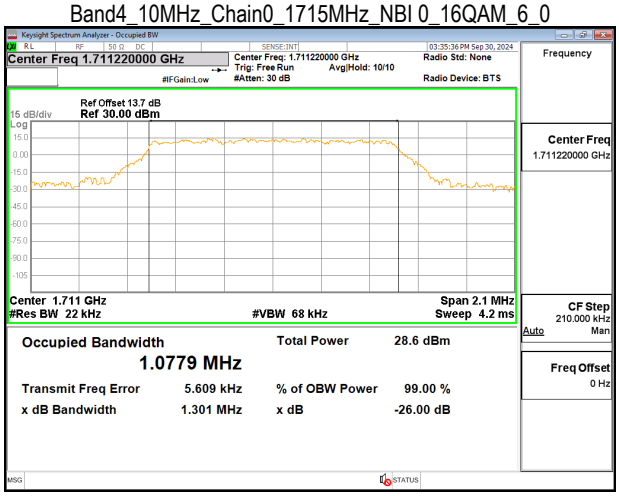
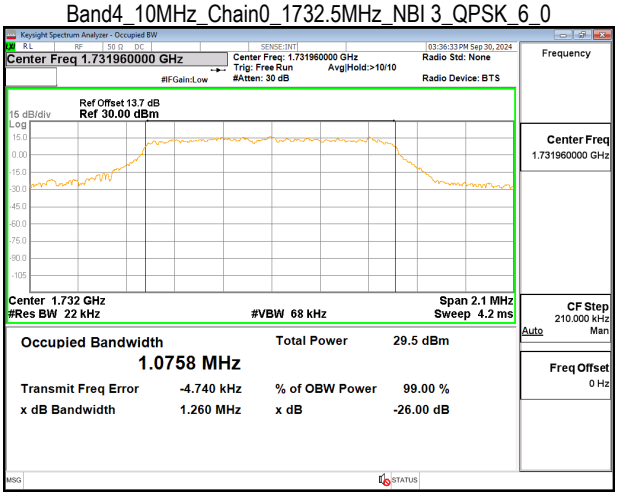
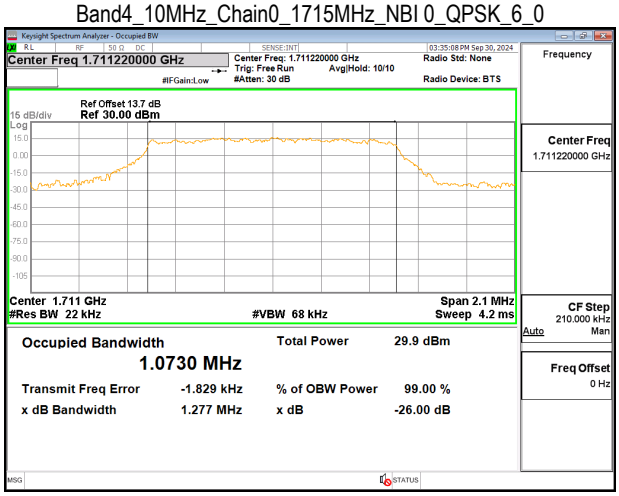
Band4_10MHz_Chain0_1715MHz_NBI 0_16QAM_6_0



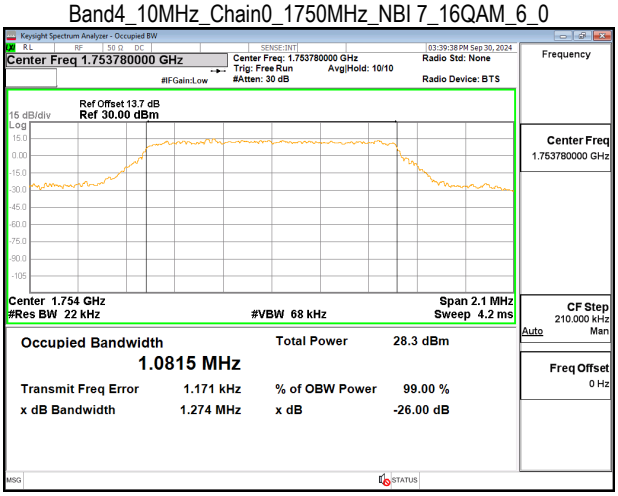
Band4_10MHz_Chain0_1732.5MHz_NBI 3_QPSK_6_0



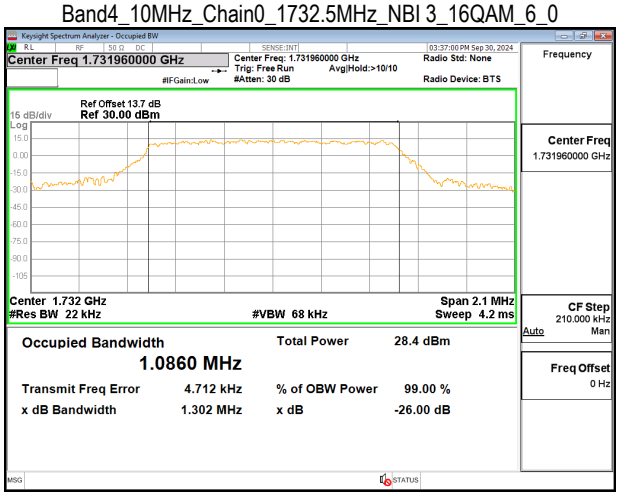
Band4_10MHz_Chain0_1715MHz_NBI 0_QPSK_6_0



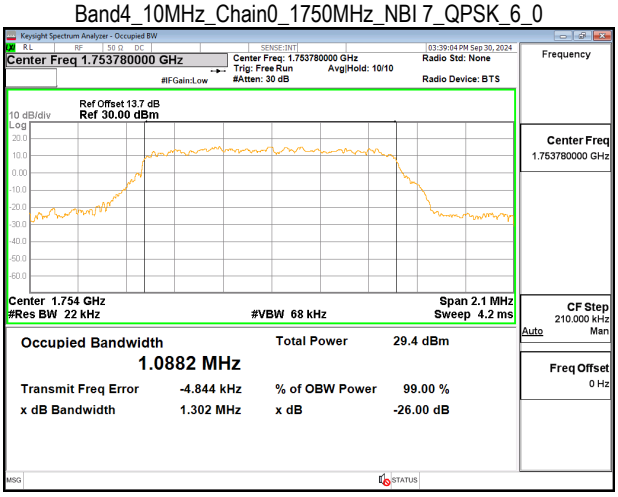
Band4_10MHz_Chain0_1750MHz_NBI 7_16QAM_6_0



Band4_10MHz_Chain0_1732.5MHz_NBI 3_16QAM_6_0



Band4_10MHz_Chain0_1750MHz_NBI 7_QPSK_6_0



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