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Fujitsu Network Communications TEST REPORT

SCOPE OF WORK
EMC TESTING – TRI-BAND RU FOR NORTH AMERICA

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EMC TEST REPORT
(FULL COMPLIANCE)

Report Number:	104509072LEX-003
Project Number:	G104509072
Report Issue Date:	3/15/2021
Product Tested:	Tri-Band RU for North America
Model Number:	TB 5G RU
Standards:	Title 47 CFR Part 90 Title 47 CFR Part 27

Tested by:
Intertek Testing Services NA, Inc.
731 Enterprise Dr.
Lexington, KY 40510
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Client:
Fujitsu Network Communications
2801 Telcom Pkwy
Richardson, TX 75082
USA

Report prepared by

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Report reviewed by

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1 Introduction and Conclusion

The tests indicated below were performed on the product described in section 6 The remaining test sections are the verbatim text from the actual data sheets used during the investigation. No additions, deviations, or exclusions have been made from the standard(s) unless specifically noted.

Based on the results of our investigation, we have concluded the product tested **complies** with the requirements of the standard(s) indicated. The results obtained in this test report pertain only to the item(s) tested. Intertek does not make any claims of compliance for samples or variants which were not tested.

2 Test Summary for Band n29 (717 – 728MHz)

FCC Rule	Test Method	Test Description	Measured Value	Limit	Results
27.5(c)(2)	ANSI C63.26: 2015 Section 5.1	Frequency Ranges	**5MHz BW Setting** 719.5 – 725.5MHz **10MHz BW Setting** 722 – 723MHz	717 – 728MHz	Pass
2.1033(c)(4)	---	Modulation Type	QPSK, 16QAM, 64QAM, and 256QAM	Digital	Pass
27.50(c)(3)	ANSI C63.26: 2015 Section 5.2.4.2	Output Power	52.78dBm[1]	1000W/MHz ERP (60dBm)	Pass
---	---	Peak to Average Power Ratio	7.55dB	13dB	Pass
2.1049 (h)	ANSI C63.26: 2015 Section 5.4.4	99% Emission Bandwidth	**5MHz BW Setting** 4.52MHz **10MHz BW Setting** 9.36MHz	Stays within block	Pass
---	---	26dB Down Emission Bandwidth	**5MHz BW Setting** 4.88MHz **10MHz BW Setting** 9.84MHz	Stays within block	Pass
27.54	ANSI C63.26: 2015 Section 5.6	Frequency Stability	Stays within block 0.0083ppm	Stays within block[2]	Pass
27.53(g)	ANSI C63.26: 2015 Section 5.7	Conducted Spurious Emissions	2.1676GHz, -13.949dBm	-13dBm/100kHz [3]	Pass[4]
27.53(g)	ANSI C63.26: 2015 Section 5.5	Radiated Spurious Emissions	52.36MHz, 48.32dbuV/m	-13dBm ERP 82.25dBuV/m @ 3m	Pass

1 Conducted RMS Measurement. ERP is dependent on the antenna gain used in final installation and is not known at the time of this report.
2 A limit 1.5ppm was used during the testing in order to indicate that the emission would stay within the block.
3 See KDB 662911 D01 Section 3 (a)(i) for summing emissions using a factor of $10\log_{10}(N_{ant})$ for "N" antenna ports.
4 Based on 100kHz RBW. In the 100kHz immediately outside the frequency block a RBW of 30kHz was used per FCC Part 27.53(g)

3 Test Summary for Band n71 (617 – 652MHz)

FCC Rule	Test Method	Test Description	Measured Value	Limit	Results
27.5(l)	ANSI C63.26: 2015 Section 5.1	Frequency Ranges	**5MHz BW Setting** 619.5 – 649.5MHz **10MHz BW Setting** 622 – 647MHz **20MHz BW Setting** 627 – 642MHz **NB-IoT** 617.3075 – 651.6925MHz	617 - 652MHz	**Pass**
2.1033(c)(4)	---	Modulation Type	QPSK, 16QAM, 64QAM, and 256QAM	Digital	**Pass**
27.50(c)(3)	ANSI C63.26: 2015 Section 5.2.4.2	Output Power	51.78dBm[5]	1000W/MHz ERP (60dBm)	**Pass**
---	---	Peak to Average Power Ratio	**5MHz BW Setting** 7.74dB **10MHz BW Setting** 7.80dB **20MHz BW Setting** 7.96dB **NB-IoT** 8.01dB	13dB	**Pass**
2.1049(h)	ANSI C63.26: 2015 Section 5.4.4	99% Emission Bandwidth	**5MHz BW Setting** 4.52MHz **10MHz BW Setting** 9.36MHz **20MHz BW Setting** 19.12MHz **NB-IoT** 173.6kHz	Stays within block	**Pass**
---	---	26dB Down Emission Bandwidth	**5MHz BW Setting** 4.88MHz **10MHz BW Setting** 9.84MHz **20MHz BW Setting** 20.24MHz **NB-IoT** 189.7kHz	Stays within block	**Pass**
27.54	ANSI C63.26: 2015 Section 5.6	Frequency Stability	Stays within block 0.0063042ppm	Stays within block[6]	**Pass**
27.53(g)	ANSI C63.26: 2015 Section 5.7	Conducted Spurious Emissions	652MHz, -13.37dBm	-13dBm [7]	**Pass**[8]
27.53(g)	ANSI C63.26: 2015 Section 5.5	Radiated Spurious Emissions	53.118MHz, 48.04dBm	-13dBm ERP 82.25dBuV/m @ 3m	**Pass**

5 Conducted RMS Measurement. ERP is dependent on the antenna gain used in final installation and is not known at the time of this report.
6 A limit 1.5ppm was used during the testing in order to indicate that the emission would stay within the block.
7 See KDB 662911 D01 Section 3 (a)(i) for summing emissions using a factor of $10\log_{10}(N_{ant})$ for "N" antenna ports.
8 Based on 100kHz RBW. In the 100kHz immediately outside the frequency block a RBW of 30kHz was used per FCC Part 27.53(g)

4 Test Summary for Band n26 (862 - 869MHz)

FCC Rule	Test Method	Test Description	Measured Value	Limit	Results
90.613 90.614(b)	ANSI C63.26: 2015 Section 5.1	Frequency Ranges	**5MHz BW Setting** 862.0125 – 868.975MHz	862 – 869MHz	**Pass**
2.1033(c)(4)	---	Modulation Type	QPSK, 16QAM, 64QAM, and 256QAM	Digital	**Pass**
90.205(k) 90.635(a)	ANSI C63.26: 2015 Section 5.2.4.2	Output Power	47.62dBm[9]	1000W ERP (60dBm)	**Pass**
90.205(k) 90.635(a)	ANSI C63.26: 2015 Section 5.2.3.4	Peak to Average Power Ratio	7.86dB	13dB	**Pass**
90.209(b)(7) 2.1049(h)	ANSI C63.26: 2015 Section 5.4.4	99% Emission Bandwidth	**5MHz BW Setting** 4.52MHz **NB-IoT** 173.6kHz	Stays within block	**Pass**
---	---	26dB Down Emission Bandwidth	**5MHz BW Setting** 4.90MHz **NB-IoT** 189kHz	Stays within block	**Pass**
90.213(a)	ANSI C63.26: 2015 Section 5.6	Frequency Stability	0.0069324ppm	1.5ppm	**Pass**
90.210 90.691	ANSI C63.26: 2015 Section 5.7	Conducted Spurious Emissions	869MHz, -15.79dBm	-13dBm [10]	**Pass**[11]
90.210 90.691	ANSI C63.26: 2015 Section 5.5	Radiated Spurious Emissions	51.66MHz, 46.57dBuV/m	-13dBm ERP 82.25dBuV/m @ 3m	**Pass**

9 Conducted RMS Measurement. ERP is dependent on the antenna gain used in final installation and is not known at the time of this report.
10 See KDB 662911 D01 Section 3 (a)(i) for summing emissions using a factor of $10\log_{10}(N_{ant})$ for "N" antenna ports.
11 Based on 100kHz RBW. In the 50kHz immediately outside the frequency block a RBW of 1% of the emission bandwidth was used.

5 Client Information

This product was tested at the request of the following:

Client Information	
Client Name:	Fujitsu Network Communications
Address:	2801 Telcom Pkwy Richardson, TX 75082 USA
Contact:	Corey Dayton
Telephone:	1(972)479-2199
Email:	Corey.dayton@us.fujitsu.com
Manufacturer Information	
Manufacturer Name:	Fujitsu Network Communications
Manufacturer Address:	2801 Telcom Pkwy Richardson, TX 75082 USA

6 Description of Equipment under Test and Variant Models

Equipment Under Test	
Product Name	Tri-Band RU for North America
Model Number	TB 5G RU
Serial Number	00018
Receive Date	2/8/2021
Test Start Date	2/8/2021
Test End Date	3/5/2021
Transmit Bands Supported	N26 (862 – 869MHz) N29 (717 – 728MHz) N71 (617 – 652MHz)
Modulation Types Supported	QPSK, 16QAM, 64QAM, 256QAM, NB-IoT
Device Received Condition	Good
Test Sample Type	Production
Rated Voltage	36 – 58VDC 36.5A 1300W
Software Used By EUT	0209
Description of Equipment Under Test (provided by client)	
The product under test was the Tri-Band RU for North America. It is a radio head unit supporting the 5GNR bands n26, n29, and n71. The Tri-Band RU for North America has 4 transmit ports that can operate in a correlated fashion. In addition, NB-IoT operation is supported in bands n26 and n71 (standalone, inband, and guardband). Refer to the tables below for a description of the channel bandwidths supported. Photos of the device are included in a separate document.	

6.1 Variant Models:

There were no variant models covered by this evaluation.

6.2 Supported Transmit Bands and Carrier Bandwidths (5G-NR):

5G-NR operation was supported in bands n26, n29, and n71 in the downlink direction only. The table below outlines the specific bandwidths supported for QPSK, 16QAM, 64QAM, and 256QAM modulations. Testing was performed on the carrier frequencies as shown in the table.

Transmit Band	Carriers configuration	Center Freq. MHz
	Supported Bandwidths	Carrier (MHz)
N26 (862 –869MHz)	5MHz	864.5
	5MHz	865.5
	5MHz	866.5
N29 (717 – 728MHz)	5MHz	719.5
	5MHz	722.5
	5MHz	725.5
	10MHz	722
	10MHz	725.5
	10MHz	723
N71 (617 – 652MHz)	5MHz	619.5
	5MHz	634.5
	5MHz	649.5
	10MHz	622
	10MHz	634.5
	10MHz	647
	20MHz	627
	20MHz	634.5
	20MHz	642

6.3 Supported Transmit Bands and Carrier Bandwidths (NB-IoT):

For band n26 NB-IoT operation is supported in the guardband, inband with the 5G-NR signal, and in standalone operation. For band n71 NB-IoT operation is supported in the guardband as well as inband with the 5G-NR signal. The table below outlines the specific bands in which NB-IoT is supported as well as the specific test channels used.

NB-IoT operation is not supported for band n29.

Transmit Band	Carriers configuration	Center Freq. MHz
	Supported Bandwidths	Carrier (MHz)
N26 (862 –869MHz)	180kHz	862.125MHz
	180kHz	868.875MHz
N71 (617 – 652MHz)	180kHz	617.3075MHz
	180kHz	641.6925MHz
	180kHz	651.6925MHz

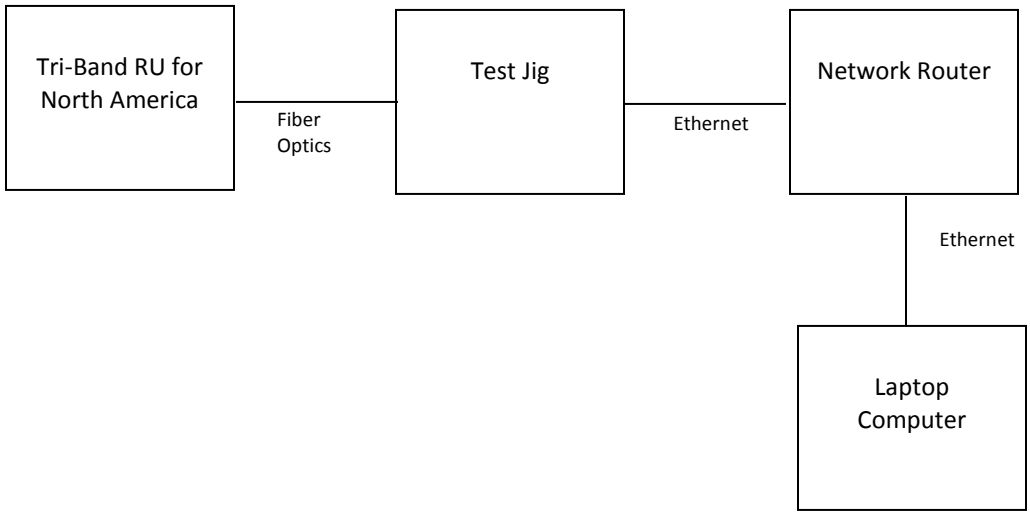
7 System Setup and Method

No.	Descriptions of EUT Exercising
1	A laptop computer was used to send test commands to the Tri-Band RU for North America that forced it to transmit the appropriate signal. Block diagrams are shown below for the conducted and radiated setups as well as for the connections to the test jig and computer. For conducted antenna port measurements three of the ports were terminated with 100W 50 Ohm terminators. The fourth port was connected to a spectrum analyzer or power meter through appropriate attenuation to protect the measurement equipment. For the radiated tests all four antenna ports were terminated with 100W 50Ohm terminators.

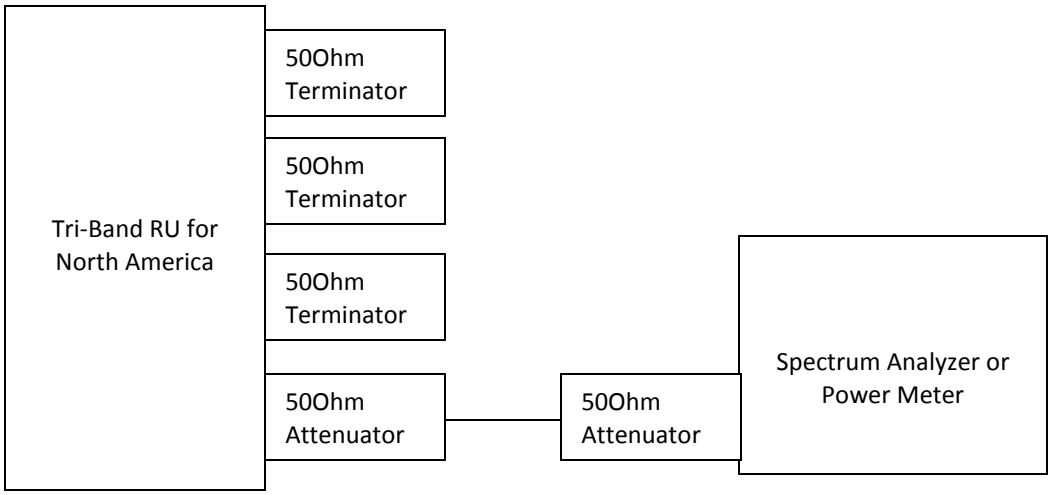
Cables					
Qty	**Description**	**Length**	**Shielding**	**Ferrites**	**Termination**
1	DC Input Cable	10ft	Yes	None	-48VDC Power Source
1	Single Mode Fiber Optic Cable	50ft	None	None	Test Jig
1	AISG Cable	20ft	Yes	None	Un-Terminated

Support Equipment			
Description	**Manufacturer**	**Model Number**	**Serial Number**
Test Jig	Fujitsu Network Communications	TA22452-B101	JIG001
Network Router	Allied Telesis	AT-FS708	A043G1050000030
Laptop Computer	Fujitsu	Lifebook S	48416

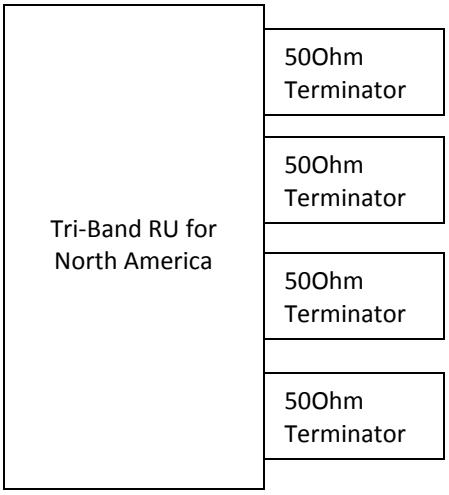
7.1 EUT Block Diagram:



7.2 Block Diagram for Conducted Antenna Port Tests:



7.3 Block Diagram for Radiated Tests:



7.4 Test Equipment Used (Conducted Antenna Port Tests):

Description	Asset	Manufacturer	Model	Cal Date	Cal Due
Vector Signal Generator	3884	Rohde&Schwarz	SMBV100A	9/22/2020	9/22/2021
Wideband Power Sensor	4022	Rohde&Schwarz	NRP-Z81	9/22/2020	9/22/2021
Spectrum Analyzer	3065	Rohde&Schwarz	FSP3	9/22/2020	9/22/2021
Spectrum Analyzer	3720	Rohde&Schwarz	FSEK0	10/13/2020	10/13/2021
Spectrum Analyzer	3981	Rohde&Schwarz	FSU8	9/22/2020	9/22/2021
Environmental Chamber	3581	Thermotron	Chamber 6	8/6/2020	8/6/2021
-48VDC Power Source	3389	Power Ten	P636-60125	Verify at Time of Use	Verify at Time of Use
Variable Power Supply	2399	Marconi	RHM200D50	Verify at Time of Use	Verify at Time of Use
Multimeter	3547	Fluke	115	8/5/2020	8/5/2021
Attenuator	Not Labeled	Bird	SA6S5W-10	Verify at Time of Use	Verify at Time of Use
Attenuator	0249	CentricRF	C18N1005-20	Verify at Time of Use	Verify at Time of Use
Power Divider	1799	Weinschel	1594	Verify at Time of Use	Verify at Time of Use
Network Analyzer	2538	Agilent	8753ES	2/8/2020	2/8/2021
High Pass Filter	7026	Wainwright	WHKX-12-1028.5-1100-18000-40SS	Verify at Time of Use	Verify at Time of Use

7.5 Test Equipment Used (Radiated Tests):

Description	Asset	Manufacturer	Model	Cal Date	Cal Due
EMI Test Receiver	3900	Rohde&Schwarz	ESU40	10/5/2020	10/5/2021
Magnetic Loop Antenna	2366	ETS	6502	7/17/2020	7/17/2021
Bilog Antenna (JB6)	7085	SunAR	JB6	9/4/2020	9/4/2021
Horn Antenna	4001	ETS	3117	1/26/2021	1/26/2022
System Controller	4096	ETS Lindgren	2090	Verify at Time of Use	Verify at Time of Use
System Controller	3957	Sunol Sciences	SC99V	Verify at Time of Use	Verify at Time of Use
Coaxial Cable	3074			12/21/2020	12/21/2021
3m Cable Preamplifier	3918	Rohde&Schwarz	TS-PR18	12/21/2020	12/21/2021
Coaxial Cable	2588			12/21/2020	12/21/2021
Coaxial Cable	2593			12/21/2020	12/21/2021
Coaxial Cable	2592			12/21/2020	12/21/2021
Coaxial Cable	3339			12/21/2020	12/21/2021

7.6 Software Utilized:

Name	Manufacturer	Version
EMC32	Rohde&Schwarz	Version 9.15.02
TILE7	ETS Lindgren	Version 7.0.6.545
GPIBShot	Rohde&Schwarz	Version 2.7.2
Power Viewer Plus	Rohde&Schwarz	Version 6.1

8 Measurement Procedures and Determination of Worst Case Modes

The occupied bandwidth, conducted spurious emissions, frequency stability and conducted band edge measurements were all performed with the Tri-Band RU for North America connected to a spectrum analyzer. Measurements were performed per the procedures outlined in ANSI C63.26: 2015. See the summary tables for specific references to the appropriate sections that were used.

The output power and peak / average power ratio measurements were performed with the Tri-Band RU for North America connected to a wideband power meter. This power meter used a complementary cumulative distribution function (CCDF) for the peak / average power ratio measurements since the signals being measured were "noise-like".

Frequency stability measurements were performed with the Tri-Band RU for North America transmitting an un-modulated carrier wave signal which is the preferred method described in ANSI C63.26: 2015.

The four transmit ports onboard the Tri-Band RU for North America were identical so all conducted measurements were performed on one port only. Pretesting was performed across all four ports and port A produced the highest output power in QPSK operation (see table below). Therefore, Port A was used for all conducted antenna port measurements.

TX Band	Modulation	BW Setting	Channel	Avg. Power (dBm) Port A	Avg. Power (dBm) Port B	Avg. Power (dBm) Port C	Avg. Power (dBm) Port D
Band n26	QPSK	5MHz	Mid	41.44	41.12	41.37	41.29
Band n29	QPSK	5MHz	Mid	46.78	46.71	46.67	46.77
Band n71	QPSK	5MHz	Mid	43.66	43.21	43.18	43.62

Pre-Test output power study across all four conducted ports

Per KDB662911D01 for MIMO operation, a factor of $10\log_{10}(N_{ant})$ for "N" antenna ports was added to the conducted measurements in order to account for the multiple transmit ports. For 4 correlated output ports this factor was 6dB.

For conducted spurious emission measurements, testing was performed with all bandwidth and modulations supported. The worst case of these were included in the report (QPSK modulation)

For radiated spurious emission measurements, testing was performed with the bandwidth setting and modulation that produced the highest output power. For all bands this was the 5MHz setting and QPSK modulation. The frequency spectrum was investigated from 9kHz to at least 10 times the highest frequency used or generated in the device.

9 Occupied Bandwidth Data

TX Band	Modulation	BW Setting	Port	Channel	26dB BW	99% BW
Band n26	QPSK	5MHz	A	Low	4.90MHz	4.50MHz
				Mid	4.84MHz	4.50MHz
				High	4.82MHz	4.52MHz
Band n29	QPSK	10MHz	A	Low	9.84MHz	9.32MHz
				Mid	9.80MHz	9.36MHz
				High	9.84MHz	9.32MHz
		5MHz	A	Low	4.88MHz	4.50MHz
				Mid	4.88MHz	4.50MHz
				High	4.84MHz	4.52MHz
Band n71	QPSK	20MHz	A	Low	20.16MHz	19.04MHz
				Mid	20.24MHz	19.04MHz
				High	20.16MHz	19.04MHz
		10MHz	A	Low	9.80MHz	9.32MHz
				Mid	9.76MHz	9.32MHz
				High	9.80MHz	9.28MHz
		5MHz	A	Low	4.82MHz	4.48MHz
				Mid	4.84MHz	4.48MHz
				High	4.88MHz	4.50MHz

Bandwidth Data, QPSK

TX Band	Modulation	BW Setting	Port	Channel	26dB BW	99% BW
Band n26	16QAM	5MHz	A	Low	4.84MHz	4.50MHz
				Mid	4.86MHz	4.50MHz
				High	4.82MHz	4.50MHz
Band n29	16QAM	10MHz	A	Low	9.76MHz	9.24MHz
				Mid	9.72MHz	9.28MHz
				High	9.80MHz	9.24MHz
		5MHz	A	Low	4.82MHz	4.52MHz
				Mid	4.86MHz	4.52MHz
				High	4.84MHz	4.52MHz
Band n71	16QAM	20MHz	A	Low	20.00MHz	19.04MHz
				Mid	20.16MHz	19.04MHz
				High	20.00MHz	19.04MHz
		10MHz	A	Low	9.80MHz	9.28MHz
				Mid	9.76MHz	9.28MHz
				High	9.80MHz	9.28MHz
		5MHz	A	Low	4.86MHz	4.52MHz
				Mid	4.84MHz	4.50MHz
				High	4.84MHz	4.50MHz

Bandwidth Data, 16QAM

TX Band	Modulation	BW Setting	Port	Channel	26dB BW	99% BW
Band n26	64QAM	5MHz	A	Low	4.84MHz	4.48MHz
				Mid	4.84MHz	4.52MHz
				High	4.86MHz	4.50MHz
Band n29	64QAM	10MHz	A	Low	9.84MHz	9.32MHz
				Mid	9.76MHz	9.32MHz
				High	9.84MHz	9.32MHz
		5MHz	A	Low	4.84MHz	4.32MHz
				Mid	4.86MHz	4.30MHz
				High	4.84MHz	4.50MHz
Band n71	64QAM	20MHz	A	Low	20.08MHz	19.04MHz
				Mid	20.08MHz	19.04MHz
				High	20.08MHz	19.04MHz
		10MHz	A	Low	9.80MHz	9.32MHz
				Mid	9.80MHz	9.32MHz
				High	9.84MHz	9.32MHz
		5MHz	A	Low	4.84MHz	4.32MHz
				Mid	4.84MHz	4.48MHz
				High	4.84MHz	4.50MHz

Bandwidth Data, 64QAM

TX Band	Modulation	BW Setting	Port	Channel	26dB BW	99% BW
Band n26	256QAM	5MHz	A	Low	4.86MHz	4.50MHz
				Mid	4.84MHz	4.48MHz
				High	4.84MHz	4.50MHz
Band n29	256QAM	10MHz	A	Low	9.80MHz	9.28MHz
				Mid	9.84MHz	9.28MHz
				High	9.76MHz	9.32MHz
		5MHz	A	Low	4.84MHz	4.52MHz
				Mid	4.84MHz	4.50MHz
				High	4.84MHz	4.50MHz
Band n71	256QAM	20MHz	A	Low	20.16MHz	19.04MHz
				Mid	20.24MHz	19.12MHz
				High	20.16MHz	19.04MHz
		10MHz	A	Low	9.80MHz	9.36MHz
				Mid	9.84MHz	9.32MHz
				High	9.84MHz	9.32MHz
		5MHz	A	Low	4.84MHz	4.48MHz
				Mid	4.84MHz	4.50MHz
				High	4.86MHz	4.52MHz

Bandwidth Data, 256QAM

TX Band	Modulation	BW Setting	Port	Channel	26dB BW	99% BW
Band n26	NB-IoT	NB-IoT Only (GB)	A	Low	189.0kHz	173.6kHz
				High	189.0kHz	173.6kHz
Band n71	NB-IoT	NB-IoT Only (GB)	A	Low	189.0kHz	172.9kHz
				Mid	189.7kHz	173.6MHz
				High	189.0kHz	172.9kHz

Bandwidth Data, NB-IoT

10 Output Power and Peak / Average Ratio Data

TX Band	Modulation	BW Setting	Port	Channel	Peak (dBm)	Average (dBm)	10log(N ports) (dB)	Total Avg. Power Across all Ports (dBm)	CCDF (0.1%)
Band n26	QPSK	5MHz	A	Low	48.87	41.28	6	47.28	7.35
				Mid	48.97	41.44	6	47.44	7.23
				High	49.17	41.62	6	47.62	7.27
Band n29	QPSK	10MHz	A	Low	55.18	46.73	6	52.73	7.49
				Mid	54.98	46.60	6	52.60	7.55
				High	54.78	46.51	6	52.51	7.54
		5MHz	A	Low	54.38	46.71	6	52.71	7.33
				Mid	54.28	46.78	6	52.78	7.38
				High	54.38	46.66	6	52.66	7.42
Band n71	QPSK	20MHz	A	Low	53.08	44.14	6	50.14	7.83
				Mid	52.88	43.96	6	49.96	7.66
				High	55.38	44.89	6	50.89	7.98
		10MHz	A	Low	53.08	44.74	6	50.74	7.70
				Mid	51.78	43.68	6	49.68	7.65
				High	54.08	45.19	6	51.19	7.73
		5MHz	A	Low	52.78	44.79	6	50.79	7.68
				Mid	51.48	43.66	6	49.66	7.57
				High	54.28	46.05	6	52.05	7.71

Power Data, QPSK

TX Band	Modulation	BW Setting	Port	Channel	Peak (dBm)	Average (dBm)	10log(N ports) (dB)	Total Avg. Power Across all Ports (dBm)	CCDF (0.1%)
Band n26	16QAM	5MHz	A	Low	48.07	40.51	6	46.51	7.29
				Mid	48.07	40.52	6	46.52	7.26
				High	48.07	40.51	6	46.51	7.28
Band n29	16QAM	10MHz	A	Low	54.78	46.62	6	52.62	7.49
				Mid	54.68	46.58	6	52.58	7.47
				High	54.58	46.46	6	52.46	7.43
		5MHz	A	Low	54.48	46.74	6	52.74	7.26
				Mid	54.28	46.80	6	52.80	7.36
				High	54.48	46.68	6	52.68	7.39
Band n71	16QAM	20MHz	A	Low	52.58	43.63	6	49.63	7.65
				Mid	52.18	43.48	6	49.48	7.79
				High	54.38	44.50	6	50.50	7.94
		10MHz	A	Low	52.68	44.23	6	50.23	7.68
				Mid	51.28	43.20	6	49.20	7.58
				High	54.08	45.41	6	51.41	7.72
		5MHz	A	Low	52.78	44.73	6	50.73	7.57
				Mid	50.98	43.19	6	49.19	7.49
				High	53.98	45.78	6	51.78	7.65

Power Data, 16QAM

TX Band	Modulation	BW Setting	Port	Channel	Peak (dBm)	Average (dBm)	10log(N ports) (dB)	Total Avg. Power Across all Ports (dBm)	CCDF (0.1%)
Band n26	64QAM	5MHz	A	Low	48.75	40.93	6	46.93	7.43
				Mid	48.67	41.09	6	47.09	7.31
				High	48.77	41.21	6	47.21	7.27
Band n29	64QAM	10MHz	A	Low	54.68	46.61	6	52.61	7.51
				Mid	54.68	46.53	6	52.53	7.48
				High	54.58	46.43	6	52.43	7.47
		5MHz	A	Low	54.78	47.00	6	53	7.33
				Mid	54.28	46.64	6	52.64	7.27
				High	53.88	45.98	6	51.98	7.33
Band n71	64QAM	20MHz	A	Low	52.48	43,56	6	49.56	7.75
				Mid	52.28	43.50	6	49.5	7.75
				High	54.38	44.53	6	50.53	7.88
		10MHz	A	Low	52.58	44.17	6	50.17	7.80
				Mid	51.28	43.20	6	49.2	7.57
				High	54.28	45.38	6	51.38	7.74
		5MHz	A	Low	52.78	44.70	6	50.7	7.63
				Mid	51.08	43.15	6	49.15	7.53
				High	53.98	45.73	6	51.73	7.74

Power Data, 64QAM

TX Band	Modulation	BW Setting	Port	Channel	Peak (dBm)	Average (dBm)	10log(N ports) (dB)	Total Avg. Power Across all Ports (dBm)	CCDF (0.1%)
Band n26	256QAM	5MHz	A	Low	48.67	40.98	6	46.98	7.30
				Mid	48.77	41.14	6	47.14	7.38
				High	48.87	41.27	6	47.27	7.33
Band n29	256QAM	10MHz	A	Low	54.78	46.61	6	52.61	7.51
				Mid	54.68	46.52	6	52.52	7.49
				High	54.68	46.44	6	52.44	7.47
		5MHz	A	Low	54.78	46.97	6	52.97	7.36
				Mid	54.28	46.61	6	52.61	7.29
				High	53.78	45.96	6	51.96	7.37
Band n71	256QAM	20MHz	A	Low	52.48	43.62	6	49.62	7.67
				Mid	52.48	43.55	6	49.55	7.64
				High	54.18	44.58	6	50.58	7.96
		10MHz	A	Low	52.68	44.19	6	50.19	7.77
				Mid	51.38	43.22	6	49.22	7.74
				High	54.48	45.39	6	51.39	7.71
		5MHz	A	Low	52.78	44.70	6	50.70	7.60
				Mid	51.08	43.14	6	49.14	7.54
				High	53.98	45.73	6	51.73	7.71

Power Data, 256QAM

TX Band	Modulation	BW Setting	Port	Channel	Peak (dBm)	Average (dBm)	10log(N ports) (dB)	Total Avg. Power Across all Ports (dBm)	CCDF (0.1%)
Band n26	NB-IOT	NB-IOT Only (GB)	A	Low	41.76	32.81	6	38.81	7.86
Band n71	NB-IOT	NB-IOT Only (GB)	A	Low	40.15	31.22	6	37.22	8.01
				Mid	39.15	30.29	6	36.29	7.89
				High	41.06	32.1	6	38.10	7.87

Power Data, NB-IoT

11 Frequency Stability Data

Transmit Band: n26
Operating Freqeuncy: 865,500,000 Hz
Reference Voltage: 48 VDC
Deviation Limit: 1.5 ppm

Voltage %	Voltage (VDC)	Temp (°C)	Measured Frequency (Hz)	Frequency Error (Hz)	Frequency Stability (ppm)	Limit (ppm)
100%	48	-40	865,500,006	6	0.0069324	1.50
100%	48	-30	865,500,003	3	0.0034662	1.50
100%	48	-20	865,500,006	6	0.0069324	1.50
100%	48	-10	865,500,006	6	0.0069324	1.50
100%	48	0	865,500,005	5	0.0057770	1.50
100%	48	10	865,500,006	6	0.0069324	1.50
100%	48	20	865,500,006	6	0.0069324	1.50
100%	48	30	865,500,005	5	0.0057770	1.50
100%	48	40	865,500,005	5	0.0057770	1.50
100%	48	50	865,500,006	6	0.0069324	1.50
100%	48	55	865,500,006	6	0.0069324	1.50
115%	55.2	20	865,500,006	6	0.0069324	1.50
85%	40.8	20	865,500,006	6	0.0069324	1.50
Manuf	58	20	865,500,006	6	0.0069324	1.50
Manuf	36	20	865,500,005	5	0.0057770	1.50

Frequency Stability, Band n26

Transmit Band:	n29	
Operating Freqeuncy:	722,500,000	Hz
Reference Voltage:	48	VDC
Deviation Limit:	1.5	ppm

Voltage %	Voltage (VDC)	Temp (°C)	Measured Frequency (Hz)	Frequency Error (Hz)	Frequency Stability (ppm)	Limit (ppm)
100%	48	-40	722,500,003	3	0.0041522	1.50
100%	48	-30	722,500,003	3	0.0041522	1.50
100%	48	-20	722,500,006	6	0.0083045	1.50
100%	48	-10	722,500,003	3	0.0041522	1.50
100%	48	0	722,500,005	5	0.0069204	1.50
100%	48	10	722,500,005	5	0.0069204	1.50
100%	48	20	722,500,005	5	0.0069204	1.50
100%	48	30	722,500,004	4	0.0055363	1.50
100%	48	40	722,500,004	4	0.0055363	1.50
100%	48	50	722,500,005	5	0.0069204	1.50
100%	48	55	722,500,004	4	0.0055363	1.50
115%	55.2	20	722,500,006	6	0.0083045	1.50
85%	40.8	20	722,500,006	6	0.0083045	1.50
Manuf	58	20	722,500,006	6	0.0083045	1.50
Manuf	36	20	722,500,006	6	0.0083045	1.50

Frequency Stability, Band n29

Transmit Band:	n71	
Operating Freqeuncy:	634,500,000	Hz
Reference Voltage:	48	VDC
Deviation Limit:	1.5	ppm

Voltage %	Voltage (VDC)	Temp (°C)	Measured Frequency (Hz)	Frequency Error (Hz)	Frequency Stability (ppm)	Limit (ppm)
100%	48	-40	634,500,003	3	0.0047281	1.50
100%	48	-30	634,500,003	3	0.0047281	1.50
100%	48	-20	634,500,003	3	0.0047281	1.50
100%	48	-10	634,500,003	3	0.0047281	1.50
100%	48	0	634,500,004	4	0.0063042	1.50
100%	48	10	634,500,004	4	0.0063042	1.50
100%	48	20	634,500,004	4	0.0063042	1.50
100%	48	30	634,500,003	3	0.0047281	1.50
100%	48	40	634,500,003	3	0.0047281	1.50
100%	48	50	634,500,003	3	0.0047281	1.50
100%	48	55	634,500,004	4	0.0063042	1.50
115%	55.2	20	634,500,003	3	0.0047281	1.50
85%	40.8	20	634,500,004	4	0.0063042	1.50
Manuf	58	20	634,500,003	3	0.0047281	1.50
Manuf	36	20	634,500,003	3	0.0047281	1.50

Frequency Stability, Band n71

12 Worst Case Conducted Spurious Emission Data

TX Band	Modulation	BW Setting	Channel	Spurious Frequency	RMS Amplitude (dBm)	10log(N ports) (dB)	Total RMS Across all Ports (dBm)	Limit (dBm)	Margin (dB)
Band n26	QPSK	5MHz	Low	2.593GHz	-33.802	6	-27.802	-13	14.802
			Mid	2.599GHz	-32.490	6	-26.490	-13	13.490
			High	2.599GHz	-29.952	6	-23.952	-13	10.952
Band n29	QPSK	5MHz	Low	2.166GHz	-31.348	6	-25.348	-13	12.348
			Mid	2.166GHz	-32.086	6	-26.086	-13	13.086
			High	2.178GHz	-33.337	6	-27.337	-13	14.337
Band n29	QPSK	10MHz	Low	2.166GHz	-22.159	6	-16.159	-13	3.159
			Mid	2.166GHz	-23.107	6	-17.107	-13	4.107
			High	2.166GHz	-22.322	6	-16.322	-13	3.322
Band n71	QPSK	5MHz	Low	1.854GHz	-25.840	6	-19.84	-13	6.840
			Mid	1.902GHz	-25.094	6	-19.094	-13	6.094
			High	1.950GHz	-22.517	6	-16.517	-13	3.517
Band n71	QPSK	10MHz	Low	1.866GHz	-26.900	6	-20.900	-13	7.900
			Mid	1.902GHz	-27.366	6	-21.366	-13	8.366
			High	1.944GHz	-24.208	6	-18.208	-13	5.208
Band n71	QPSK	20MHz	Low	1.878GHz	-29.079	6	-23.079	-13	10.079
			Mid	1.896GHz	-29.283	6	-23.283	-13	10.283
			High	1.938GHz	-29.567	6	-23.567	-13	10.567

Conducted Spurious Emissions, QPSK

TX Band	Modulation	BW Setting	Channel	Spurious Frequency	RMS Amplitude (dBm)	10log(N ports) (dB)	Total RMS Across all Ports (dBm)	Limit (dBm)	Margin (dB)
Band n26	16QAM	5MHz	Low	2.593GHz	-28.677	6	-22.677	-13	9.677
			Mid	2.599GHz	-30.641	6	-24.641	-13	11.641
			High	2.599GHz	-27.776	6	-21.776	-13	8.776
Band n29	16QAM	5MHz	Low	2.160GHz	-31.883	6	-25.883	-13	12.883
			Mid	2.166GHz	-31.044	6	-25.044	-13	12.044
			High	2.178GHz	-33.393	6	-27.393	-13	14.393
Band n29	16QAM	10MHz	Low	2.166GHz	-21.747	6	-15.747	-13	2.747
			Mid	2.166GHz	-21.689	6	-15.689	-13	2.689
			High	2.166GHz	-21.917	6	-15.917	-13	2.917
Band n71	16QAM	5MHz	Low	1.854GHz	-26.118	6	-20.118	-13	7.118
			Mid	1.902GHz	-25.105	6	-19.105	-13	6.105
			High	1.950GHz	-22.206	6	-16.206	-13	3.206
Band n71	16QAM	10MHz	Low	1.866GHz	-27.022	6	-21.022	-13	8.022
			Mid	1.902GHz	-27.325	6	-21.325	-13	8.325
			High	1.938GHz	-24.120	6	-18.120	-13	5.120
Band n71	16QAM	20MHz	Low	1.878GHz	-28.941	6	-22.941	-13	9.941
			Mid	1.896GHz	-29.813	6	-23.813	-13	10.813
			High	1.932GHz	-30.017	6	-24.017	-13	11.017

Conducted Spurious Emissions, 16QAM

TX Band	Modulation	BW Setting	Channel	Spurious Frequency	RMS Amplitude (dBm)	10log(N ports) (dB)	Total RMS Across all Ports (dBm)	Limit (dBm)	Margin (dB)
Band n26	64QAM	5MHz	Low	2.593GHz	-29.126	6	-23.126	-13	10.126
			Mid	2.599GHz	-30.090	6	-24.09	-13	11.09
			High	2.599GHz	-28.519	6	-22.519	-13	9.519
Band n29	64QAM	5MHz	Low	2.160GHz	-20.30	6	-14.300	-13	1.300
			Mid	2.166GHz	-19.949	6	-13.949	-13	0.949
			High	2.172GHz	-23.577	6	-17.577	-13	4.577
Band n29	64QAM	10MHz	Low	2.166GHz	-22.845	6	-16.845	-13	3.845
			Mid	2.166GHz	-21.939	6	-15.939	-13	2.939
			High	2.166GHz	-22.648	6	-16.648	-13	3.648
Band n71	64QAM	5MHz	Low	1.860GHz	-26.744	6	-20.744	-13	7.744
			Mid	1.902GHz	-24.361	6	-18.361	-13	5.361
			High	1.950GHz	-21.847	6	-15.847	-13	2.847
Band n71	64QAM	10MHz	Low	1.866GHz	-27.538	6	-21.538	-13	8.538
			Mid	1.902GHz	-27.121	6	-21.121	-13	8.121
			High	1.944GHz	-24.415	6	-18.415	-13	5.415
Band n71	64QAM	20MHz	Low	1.878GHz	-28.771	6	-22.771	-13	9.771
			Mid	1.896GHz	-30.147	6	-24.147	-13	11.147
			High	1.932GHz	-28.775	6	-22.775	-13	9.775

Conducted Spurious Emissions, 64QAM

TX Band	Modulation	BW Setting	Channel	Spurious Frequency	RMS Amplitude (dBm)	10log(N ports) (dB)	Total RMS Across all Ports (dBm)	Limit (dBm)	Margin (dB)
Band n26	256QAM	5MHz	Low	2.593GHz	-29.269	6	-23.269	-13	10.269
			Mid	2.5999GHz	-30.050	6	-24.050	-13	11.050
			High	2.599GHz	-28.453	6	-22.453	-13	9.453
Band n29	256QAM	5MHz	Low	2.160GHz	-20.48	6	-14.480	-13	1.480
			Mid	2.166GHz	-19.685	6	-13.685	-13	0.685
			High	2.172GHz	-24.232	6	-18.232	-13	5.232
Band n29	256QAM	10MHz	Low	2.166GHz	-22.384	6	-16.384	-13	3.384
			Mid	2.166GHz	-22.337	6	-16.337	-13	3.337
			High	2.166GHz	-22.535	6	-16.535	-13	3.535
Band n71	256QAM	5MHz	Low	1.860GHz	-25.649	6	-19.649	-13	6.649
			Mid	1.902GHz	-24.579	6	-18.579	-13	5.579
			High	1.950GHz	-22.321	6	-16.321	-13	3.321
Band n71	256QAM	10MHz	Low	1.866GHz	-27.052	6	-21.052	-13	8.052
			Mid	1.902GHz	-26.909	6	-20.909	-13	7.909
			High	1.938GHz	-24.777	6	-18.777	-13	5.777
Band n71	256QAM	20MHz	Low	1.878GHz	-29.507	6	-23.507	-13	10.507
			Mid	1.902GHz	-29.239	6	-23.239	-13	10.239
			High	1.932GHz	-29.564	6	-23.564	-13	10.564

Conducted Spurious Emissions, 256QAM

13 Worst Case Conducted Band Edge Emission Data

TX Band	Modulation	BW Setting	Channel	Band Edge Frequency	RMS Amplitude (dBm)	10log(N ports) (dB)	Total RMS Across all Ports (dBm)	Limit (dBm)	Margin (dB)
Band n26	QPSK	5MHz	Low	862MHz	-23.73	6	-17.73	-13	4.73
			High	869MHz	-21.79	6	-15.79	-13	2.79
Band n29	QPSK	5MHz	Low	717MHz	-22.24	6	-16.24	-13	3.24
			High	728MHz	-27.5	6	-21.50	-13	8.50
Band n29	QPSK	10MHz	Low	717MHz	-23.73	6	-17.73	-13	4.73
			High	728MHz	-29.57	6	-23.57	-13	10.57
Band n71	QPSK	5MHz	Low	617MHz	-22.43	6	-16.43	-13	3.43
			High	652MHz	-20.04	6	-14.04	-13	1.04
Band n71	QPSK	10MHz	Low	617MHz	-25.71	6	-19.71	-13	6.71
			High	652MHz	-19.37	6	-13.37	-13	0.37
Band n71	QPSK	20MHz	Low	617MHz	-26.74	6	-20.74	-13	7.74
			High	652MHz	-26.61	6	-20.61	-13	7.61

Bandedge, QPSK

TX Band	Modulation	BW Setting	Channel	Band Edge Frequency	RMS Amplitude (dBm)	10log(N ports) (dB)	Total RMS Across all Ports (dBm)	Limit (dBm)	Margin (dB)
Band n26	16QAM	5MHz	Low	862MHz	-23.34	6	-17.34	-13	4.34
			High	869MHz	-21.9	6	-15.90	-13	2.90
Band n29	16QAM	5MHz	Low	717MHz	-22.92	6	-16.92	-13	3.92
			High	728MHz	-27.34	6	-21.34	-13	8.34
Band n29	16QAM	10MHz	Low	717MHz	-25.43	6	-19.43	-13	6.43
			High	728MHz	-31.01	6	-25.01	-13	12.01
Band n71	16QAM	5MHz	Low	617MHz	-22.46	6	-16.46	-13	3.46
			High	652MHz	-22.06	6	-16.06	-13	3.06
Band n71	16QAM	10MHz	Low	617MHz	-25.71	6	-19.71	-13	6.71
			High	652MHz	-22.93	6	-16.93	-13	3.93
Band n71	16QAM	20MHz	Low	617MHz	-27.07	6	-21.07	-13	8.07
			High	652MHz	-27.01	6	-21.01	-13	8.01

Bandedge, 16QAM

TX Band	Modulation	BW Setting	Channel	Band Edge Frequency	RMS Amplitude (dBm)	10log(N ports) (dB)	Total RMS Across all Ports (dBm)	Limit (dBm)	Margin (dB)
Band n26	64QAM	5MHz	Low	862MHz	-23.67	6	-17.67	-13	4.67
			High	869MHz	-23.06	6	-17.06	-13	4.06
Band n29	64QAM	5MHz	Low	717MHz	-23.2	6	-17.2	-13	4.20
			High	728MHz	-27.33	6	-21.33	-13	8.33
Band n29	64QAM	10MHz	Low	717MHz	-25.62	6	-19.62	-13	6.62
			High	728MHz	-29.56	6	-23.56	-13	10.56
Band n71	64QAM	5MHz	Low	617MHz	-22.71	6	-16.71	-13	3.71
			High	652MHz	-22.28	6	-16.28	-13	3.28
Band n71	64QAM	10MHz	Low	617MHz	-26.1	6	-20.1	-13	7.10
			High	652MHz	-19.44	6	-13.44	-13	0.44
Band n71	64QAM	20MHz	Low	617MHz	-27.39	6	-21.39	-13	8.39
			High	652MHz	-26.65	6	-20.65	-13	7.65

Bandedge, 64QAM

TX Band	Modulation	BW Setting	Channel	Band Edge Frequency	RMS Amplitude (dBm)	10log(N ports) (dB)	Total RMS Across all Ports (dBm)	Limit (dBm)	Margin (dB)
Band n26	256QAM	5MHz	Low	862MHz	-23.03	6	-17.03	-13	4.03
			High	869MHz	-23.29	6	-17.29	-13	4.29
Band n29	256QAM	5MHz	Low	717MHz	-22.56	6	-16.56	-13	3.56
			High	728MHz	-28.05	6	-22.05	-13	9.05
Band n29	256QAM	10MHz	Low	717MHz	-26.02	6	-20.02	-13	7.02
			High	728MHz	-29.67	6	-23.67	-13	10.67
Band n71	256QAM	5MHz	Low	617MHz	-22.67	6	-16.67	-13	3.67
			High	652MHz	-21.34	6	-15.34	-13	2.34
Band n71	256QAM	10MHz	Low	617MHz	-25.44	6	-19.44	-13	6.44
			High	652MHz	-22.69	6	-16.69	-13	3.69
Band n71	256QAM	20MHz	Low	617MHz	-27.79	6	-21.79	-13	8.79
			High	652MHz	-26.42	6	-20.42	-13	7.42

Bandedge, 256QAM

TX Band	Modulation	Configuration	Channel	Band Edge Frequency	RMS Amplitude (dBm)	10log(N ports) (dB)	Total RMS Across all Ports (dBm)	Limit (dBm)	Margin (dB)
Band n26	NB-IoT	Standalone	Low	862MHz	-21.12	6	-15.12	-13	2.12
			High	869MHz	-22.43	6	-16.43	-13	3.43
Band n71	NB-IoT	Guardband	Low	617MHz	-26.55	6	-20.55	-13	7.55
			High	652MHz	-25.86	6	-19.86	-13	6.86

Bandedge, NB-IoT

14 Worst Case Radiated Spurious Emissions Data

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
50.908889	44.83	82.25	37.42	120.000	320.4	H	118.0	15.7
52.040556	47.41	82.25	34.84	120.000	100.1	V	2.0	15.0
75.428333	45.25	82.25	37.00	120.000	213.5	H	265.0	15.5
1966.000000	45.32	82.25	36.93	1000.000	272.0	H	93.0	4.3
2409.500000	27.29	82.25	54.96	1000.000	248.0	V	335.0	5.4
3932.000000	39.16	82.25	43.09	1000.000	244.0	V	-1.0	8.3

Band n26, Low Channel

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
50.531667	42.22	82.25	40.03	120.000	332.7	H	118.0	15.8
51.663333	46.57	82.25	35.68	120.000	104.8	V	7.0	15.0
76.182778	43.41	82.25	38.84	120.000	183.2	H	252.0	15.6
1966.000000	45.38	82.25	36.87	1000.000	275.0	H	92.0	4.3
2419.500000	26.96	82.25	55.29	1000.000	377.0	V	204.0	5.3
3932.000000	37.71	82.25	44.54	1000.000	100.0	V	17.0	8.3
5898.500000	37.83	82.25	44.42	1000.000	294.0	H	347.0	11.7

Band n26, Mid Channel

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
52.741111	45.01	82.25	37.24	120.000	104.5	V	36.0	14.9
74.350556	42.08	82.25	40.17	120.000	230.9	H	116.0	15.5
84.912778	39.67	82.25	42.58	120.000	110.2	V	6.0	15.9
1966.000000	45.24	82.25	37.01	1000.000	278.0	H	90.0	4.3
3932.000000	35.64	82.25	46.61	1000.000	100.0	V	289.0	8.3
5898.500000	38.84	82.25	43.41	1000.000	151.0	H	181.0	11.7
6881.500000	32.05	82.25	50.20	1000.000	156.0	V	323.0	12.6

Band n26, High Channel

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
52.363889	48.32	82.25	33.93	120.000	99.9	V	2.0	14.9
75.805556	45.68	82.25	36.57	120.000	213.9	H	249.0	15.6
103.235000	34.00	82.25	48.25	120.000	105.1	V	81.0	19.8
136.538333	25.43	82.25	56.82	120.000	332.9	V	151.0	22.1
192.421111	28.74	82.25	53.51	120.000	100.0	H	75.0	20.6
1966.000000	46.02	82.25	36.23	1000.000	247.0	H	91.0	4.3
3932.000000	35.13	82.25	47.12	1000.000	331.0	V	36.0	8.3
5898.500000	36.60	82.25	45.65	1000.000	334.0	H	208.0	11.7
8847.500000	34.98	82.25	47.27	1000.000	118.0	H	20.0	15.3

Band n29, Low Channel

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
52.363889	48.14	82.25	34.11	120.000	100.5	V	0.0	14.9
75.590000	46.54	82.25	35.71	120.000	225.3	H	260.0	15.6
103.235000	34.57	82.25	47.68	120.000	105.2	V	83.0	19.8
191.774445	30.17	82.25	52.08	120.000	100.3	H	83.0	20.5
1966.000000	45.52	82.25	36.73	1000.000	260.0	H	92.0	4.3
2410.000000	27.12	82.25	55.13	1000.000	354.0	V	0.0	5.4
5898.500000	31.87	82.25	50.38	1000.000	336.0	H	111.0	11.7

Band n29, Mid Channel

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
52.363889	47.97	82.25	34.28	120.000	100.0	V	2.0	14.9
75.590000	44.08	82.25	38.17	120.000	204.1	H	259.0	15.6
103.288889	37.72	82.25	44.53	120.000	104.9	V	101.0	19.8
191.343333	29.14	82.25	53.11	120.000	105.0	H	84.0	20.5
800.018333	44.93	82.25	37.32	120.000	142.6	V	10.0	34.4
1729.000000	24.14	82.25	58.11	1000.000	100.0	H	246.0	2.1
1966.000000	45.88	82.25	36.37	1000.000	278.0	H	100.0	4.3
2410.000000	26.60	82.25	55.65	1000.000	116.0	V	240.0	5.4
5898.500000	39.50	82.25	42.75	1000.000	247.0	H	140.0	11.7

Band n29, High Channel

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
51.986667	46.25	82.25	36.00	120.000	117.8	V	6.0	15.0
75.428333	47.63	82.25	34.62	120.000	237.8	H	259.0	15.5
103.288889	36.62	82.25	45.63	120.000	104.2	V	74.0	19.8
192.259445	29.34	82.25	52.91	120.000	105.1	H	74.0	20.6
800.018333	46.66	82.25	35.59	120.000	142.0	V	16.0	34.4
1966.000000	41.81	82.25	40.44	1000.000	280.0	H	92.0	4.3
2414.000000	26.96	82.25	55.29	1000.000	100.0	H	200.0	5.5
3932.000000	31.42	82.25	50.83	1000.000	410.0	H	297.0	8.5
5898.500000	36.36	82.25	45.89	1000.000	194.0	H	148.0	11.7

Band n71, Low Channel

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
51.986667	46.27	82.25	35.98	120.000	105.1	V	0.0	15.0
75.105000	47.26	82.25	34.99	120.000	214.0	H	254.0	15.5
103.288889	35.70	82.25	46.55	120.000	99.8	V	74.0	19.8
136.753889	25.39	82.25	56.86	120.000	261.2	V	182.0	22.1
192.690556	29.17	82.25	53.08	120.000	104.9	H	77.0	20.7
1857.000000	28.10	82.25	54.15	1000.000	137.0	H	181.0	3.7
1966.000000	44.50	82.25	37.75	1000.000	263.0	H	92.0	4.3
2413.000000	26.84	82.25	55.41	1000.000	100.0	V	157.0	5.4
3932.000000	31.11	82.25	51.14	1000.000	210.0	V	336.0	8.3
5898.500000	34.89	82.25	47.36	1000.000	158.0	H	122.0	11.7

Band n71, Mid Channel

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
51.986667	45.46	82.25	36.79	120.000	100.0	V	1.0	15.0
75.051111	44.22	82.25	38.03	120.000	213.8	H	238.0	15.5
103.288889	36.38	82.25	45.87	120.000	105.1	V	74.0	19.8
196.947778	28.58	82.25	53.67	120.000	178.1	V	8.0	21.1
1474.500000	32.37	82.25	49.88	1000.000	100.0	H	50.0	0.5
1966.000000	42.95	82.25	39.30	1000.000	264.0	H	96.0	4.3
2406.500000	26.78	82.25	55.47	1000.000	100.0	V	159.0	5.4
3932.000000	38.78	82.25	43.47	1000.000	142.0	V	188.0	8.3
5898.500000	33.31	82.25	48.94	1000.000	160.0	H	144.0	11.7

Band n71, High Channel

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
50.208333	44.94	82.25	37.31	120.000	320.2	H	83.0	15.9
52.741111	45.48	82.25	36.77	120.000	105.1	V	82.0	14.9
1474.500000	34.44	82.25	47.81	1000.000	139.0	H	66.0	0.5
1966.000000	44.27	82.25	37.98	1000.000	282.0	H	101.0	4.3
2413.500000	26.96	82.25	55.29	1000.000	100.0	V	190.0	5.4
3932.000000	34.33	82.25	47.92	1000.000	100.0	V	161.0	8.3
5898.500000	39.40	82.25	42.85	1000.000	246.0	H	172.0	11.7
6881.500000	38.56	82.25	43.69	1000.000	210.0	V	0.0	12.6

Band n26, NB-IOT, Low Channel

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
52.040556	46.18	82.25	36.07	120.000	100.0	V	8.0	15.0
1966.000000	44.26	82.25	37.99	1000.000	279.0	H	99.0	4.3
2414.000000	26.90	82.25	55.35	1000.000	222.0	V	250.0	5.4
3932.000000	36.68	82.25	45.57	1000.000	270.0	H	24.0	8.5
5898.500000	41.72	82.25	40.53	1000.000	253.0	H	169.0	11.7
6881.500000	38.42	82.25	43.83	1000.000	209.0	V	0.0	12.6

Band n26, NB-IOT, High Channel

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
53.118333	48.04	82.25	34.21	120.000	105.1	V	82.0	14.9
1474.500000	31.86	82.25	50.39	1000.000	100.0	H	47.0	0.5
1966.000000	42.12	82.25	40.13	1000.000	262.0	H	78.0	4.3
2415.000000	27.01	82.25	55.24	1000.000	126.0	H	196.0	5.5
2949.000000	31.34	82.25	50.91	1000.000	100.0	H	139.0	6.7
3932.000000	36.79	82.25	45.46	1000.000	100.0	V	160.0	8.3
5898.500000	40.21	82.25	42.04	1000.000	246.0	H	172.0	11.7

Band n71, NB-IOT, Low Channel

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
800.018333	43.75	82.25	38.50	120.000	141.8	V	9.0	34.4
849.218889	42.94	82.25	39.31	120.000	105.5	V	9.0	35.1
1474.500000	34.09	82.25	48.16	1000.000	100.0	H	54.0	0.5
1966.000000	42.96	82.25	39.29	1000.000	299.0	H	99.0	4.3
2438.000000	26.80	82.25	55.45	1000.000	100.0	V	188.0	5.5
3932.000000	33.92	82.25	48.33	1000.000	184.0	V	13.0	8.3
5898.000000	43.04	82.25	39.21	1000.000	310.0	H	147.0	11.7

Band n71, NB-IOT, Mid Channel

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
74.943333	39.43	82.25	42.82	120.000	230.9	H	298.0	15.5
849.165000	42.09	82.25	40.16	120.000	118.1	H	137.0	35.8
1897.000000	25.65	82.25	56.60	1000.000	184.0	V	349.0	3.8
1907.000000	25.46	82.25	56.79	1000.000	221.0	H	57.0	4.0
1966.000000	45.87	82.25	36.38	1000.000	297.0	H	103.0	4.3
2414.000000	26.89	82.25	55.36	1000.000	355.0	V	142.0	5.4
3932.000000	36.03	82.25	46.22	1000.000	187.0	V	19.0	8.3
5898.500000	37.22	82.25	45.03	1000.000	298.0	H	142.0	11.7

Band n71, NB-IOT, High Channel

15 ANNEX A: Occupied Bandwidth Plots

16 ANNEX B: Output Power Plots

17 ANNEX C: Conducted Spurious Emission Plots

18 ANNEX D: Conducted Band Edge Plots

19 ANNEX E: Radiated Spurious Emission Plots

20 Revision History

Revision Level	Date	Report Number	Prepared By	Reviewed By	Notes
0	3/15/2021	104509072LEX-003	BCT	BL	Original Issue