

TEST REPORT

CERTIFICATE OF CONFORMITY

Standard: 47 CFR FCC Part 22
47 CFR FCC Part 24
47 CFR FCC Part 27
47 CFR FCC Part 90
47 CFR FCC Part 2

Report No.: RFBCKS-WTW-P25020597-1

FCC ID: NKR-DLSAWI13WW

Product: WNC LPWA Module

Brand: WNC

Model No.: DLSA-WI13-WW

Received Date: 2025/2/21

Test Date: 2025/2/26 ~ 2025/4/7

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Applicant: WNC Corporation

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Designation Number (1): 788550 / TW0003

FCC Registration /

Designation Number (2): 281270 / TW0032

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, Date:

2025/7/21

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Prepared by : Gina Liu / Specialist

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Release Control Record

Issue No.	Description	Date Issued
RFBCKS-WTW-P25020597-1	Original release.	2025/7/21

1 Certificate

Product: WNC LPWA Module

Brand: WNC

Test Model: DLSA-WI13-WW

Sample Status: Engineering sample

Applicant: WNC Corporation

Test Date: 2025/2/26 ~ 2025/4/7

Standard: 47 CFR FCC Part 22
47 CFR FCC Part 24
47 CFR FCC Part 27
47 CFR FCC Part 90
47 CFR FCC Part 2

Measurement procedure: ANSI/TIA/EIA-603-E 2016
ANSI C63.26-2015
KDB 971168 D01 Power Meas License Digital Systems v03r01
KDB 971168 D02 Misc Rev Approv License Devices v02r02

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

2 Summary of Test Results

47 CFR FCC Part 22 47 CFR FCC Part 24 47 CFR FCC Part 27 47 CFR FCC Part 90 47 CFR FCC Part 2			
Standard / Clause	Test Item	Result	Remark
FCC 47 CFR Part 2.1046 FCC 47 CFR Part 22.913 (a) FCC 47 CFR Part 24.232 (c) FCC 47 CFR Part 27.50(d) FCC 47 CFR Part 27.50(c) FCC 47 CFR Part 27.50(b) FCC 47 CFR Part 27.1507 FCC 47 CFR Part 90.635(b) FCC 47 CFR Part 90.542(a)	Effective Radiated Power and Equivalent Isotropically Radiated Power	Pass	Meet the requirement of limit.
FCC 47 CFR Part 2.1047	Modulation Characteristics	Pass	Meet the requirement of limit.
FCC 47 CFR Part 22.913 (d) FCC 47 CFR Part 24.232 (d) FCC 47 CFR Part 27.50(d)	Peak to Average Ratio	Pass	Meet the requirement of limit.
FCC 47 CFR Part 2.1049	Bandwidth	Pass	Meet the requirement of limit.
FCC 47 CFR Part 2.1051 FCC 47 CFR Part 22.917 FCC 47 CFR Part 24.238 FCC 47 CFR Part 27.53(h) FCC 47 CFR Part 27.53(g) FCC 47 CFR Part 27.53(c)(f) FCC 47 CFR Part 27.1509 FCC 47 CFR Part 90.691 FCC 47 CFR Part 90.543(e)(f)	Conducted Spurious Emissions	Pass	Meet the requirement of limit.
FCC 47 CFR Part 2.1053 FCC 47 CFR Part 22.917 FCC 47 CFR Part 24.238 FCC 47 CFR Part 27.53(h) FCC 47 CFR Part 27.53(g) FCC 47 CFR Part 27.53(c)(f) FCC 47 CFR Part 27.1509 FCC 47 CFR Part 90.691 FCC 47 CFR Part 90.543(e)(f)	Radiated Spurious Emissions below 1GHz	Pass	Minimum passing margin is -36.27dB at 159.01 MHz
FCC 47 CFR Part 2.1053 FCC 47 CFR Part 22.917 FCC 47 CFR Part 24.238 FCC 47 CFR Part 27.53(h) FCC 47 CFR Part 27.53(g) FCC 47 CFR Part 27.53(c)(f) FCC 47 CFR Part 27.1509 FCC 47 CFR Part 90.691 FCC 47 CFR Part 90.543(e)(f)	Radiated Spurious Emissions above 1GHz	Pass	Minimum passing margin is -1.16 dB at 1420.00MHz

47 CFR FCC Part 22
 47 CFR FCC Part 24
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 47 CFR FCC Part 90
 47 CFR FCC Part 2

Standard / Clause	Test Item	Result	Remark
FCC 47 CFR Part 2.1055 FCC 47 CFR Part 22.355 FCC 47 CFR Part 24.235 FCC 47 CFR Part 27.54 FCC 47 CFR Part 90.213	Frequency Stability	Pass	Meet the requirement of limit.

Note: Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Specification	Expanded Uncertainty (k=2) (±)
Effective Radiated Power and Equivalent Isotropically Radiated Power	-	1.371 dB
Peak to Average Ratio	-	0.920 dB
Bandwidth	-	960 Hz
Conducted Spurious Emissions	-	2.12 dB
Radiated Spurious Emissions below 1GHz	9 kHz ~ 30 MHz	2.44 dB
	30 MHz ~ 1 GHz	2.02 dB
Radiated Spurious Emissions above 1GHz	1 GHz ~ 18 GHz	1.01 dB
	18 GHz ~ 40 GHz	1.15 dB
Frequency Stability	-	0.176 ppm

The other instruments specified are routine verified to remain within the calibrated levels, no measurement uncertainty is required to be calculated.

2.2 Supplementary Information

There is not any deviation from the test standards for the test method, and no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	WNC LPWA Module
Brand	WNC
Test Model	DLSA-WI13-WW
Status of EUT	Engineering sample
Power Supply Rating	3.8Vdc

Note:

1. EUT Overview

Band / Bandwidth	TX Frequency Range (MHz)	Max. EIRP Power		Emission Designator	
		BPSK	QPSK	3.75k	15k
Stand-alone					
NB-IoT Band 2	1850.2-1909.8	368.978 mW (25.67dBm)	367.282 mW (25.65dBm)	109KG7D	189KG7D
NB-IoT Band 4	1710.2-1754.8	365.595 mW (25.63dBm)	360.579 mW (25.57dBm)	107KG7D	189KG7D
NB-IoT Band 25	1850.2-1914.8	366.438 mW (25.64dBm)	362.243 mW (25.59dBm)	108KG7D	189KG7D
NB-IoT Band 66	1710.2-1779.5	378.443 mW (25.78dBm)	375.837 mW (25.75dBm)	109KG7D	190KG7D
In-Band					
NB-IoT Band 2 (Channel Bandwidth 3MHz)	1851.5-1908.5	358.922 mW (25.55dBm)	353.997 mW (25.49dBm)	-	-
NB-IoT Band 2 (Channel Bandwidth 5MHz)	1852.5-1907.5	354.813 mW (25.50dBm)	355.631 mW (25.51dBm)	-	-
NB-IoT Band 2 (Channel Bandwidth 10MHz)	1855.0-1905.0	363.915 mW (25.61dBm)	359.749 mW (25.56dBm)	-	-
NB-IoT Band 2 (Channel Bandwidth 15MHz)	1857.5-1902.5	361.410 mW (25.58dBm)	355.631 mW (25.51dBm)	-	-
NB-IoT Band 2 (Channel Bandwidth 20MHz)	1860.0-1900.0	363.078 mW (25.60dBm)	360.579 mW (25.57dBm)	-	-
NB-IoT Band 4 (Channel Bandwidth 3MHz)	1711.5-1753.5	355.631 mW (25.51dBm)	353.997 mW (25.49dBm)	-	-
NB-IoT Band 4 (Channel Bandwidth 5MHz)	1712.5-1752.5	353.183 mW (25.48dBm)	352.371 mW (25.47dBm)	-	-
NB-IoT Band 4 (Channel Bandwidth 10MHz)	1715.0-1750.0	358.096 mW (25.54dBm)	356.451 mW (25.52dBm)	-	-
NB-IoT Band 4 (Channel Bandwidth 15MHz)	1717.5-1747.5	358.096 mW (25.54dBm)	350.752 mW (25.45dBm)	-	-
NB-IoT Band 4 (Channel Bandwidth 20MHz)	1720.0-1745.0	353.183 mW (25.48dBm)	351.560 mW (25.46dBm)	-	-
NB-IoT Band 25 (Channel Bandwidth 3MHz)	1851.5-1913.5	356.451 mW (25.52dBm)	357.273 mW (25.53dBm)	-	-
NB-IoT Band 25 (Channel Bandwidth 5MHz)	1852.5-1912.5	356.451 mW (25.52dBm)	352.371 mW (25.47dBm)	-	-
NB-IoT Band 25 (Channel Bandwidth 10MHz)	1855.0-1910.0	357.273 mW (25.53dBm)	358.096 mW (25.54dBm)	-	-
NB-IoT Band 25 (Channel Bandwidth 15MHz)	1857.5-1907.5	362.243 mW (25.59dBm)	351.560 mW (25.46dBm)	-	-
NB-IoT Band 25 (Channel Bandwidth 20MHz)	1860.0-1905.0	361.410 mW (25.58dBm)	349.945 mW (25.44dBm)	-	-
NB-IoT Band 66 (Channel Bandwidth 3MHz)	1711.5-1778.5	370.681 mW (25.69dBm)	363.078 mW (25.60dBm)	-	-
NB-IoT Band 66 (Channel Bandwidth 5MHz)	1712.5-1777.5	374.111 mW (25.73dBm)	369.828 mW (25.68dBm)	-	-
NB-IoT Band 66 (Channel Bandwidth 10MHz)	1715.0-1775.0	373.250 mW (25.72dBm)	360.579 mW (25.57dBm)	-	-
NB-IoT Band 66 (Channel Bandwidth 15MHz)	1717.5-1772.5	363.915 mW (25.61dBm)	370.681 mW (25.69dBm)	-	-
NB-IoT Band 66 (Channel Bandwidth 20MHz)	1720.0-1770.0	370.681 mW (25.69dBm)	371.535 mW (25.70dBm)	-	-

Band / Bandwidth	TX Frequency Range (MHz)	Max. EIRP Power		Emission Designator	
		BPSK	QPSK	3.75k	15k
Guard-Band					
NB-IoT Band 2 (Channel Bandwidth 3MHz)	1851.5-1908.5	356.451 mW (25.52dBm)	357.273 mW (25.53dBm)	-	-
NB-IoT Band 2 (Channel Bandwidth 5MHz)	1852.5-1907.5	360.579 mW (25.57dBm)	356.451 mW (25.52dBm)	-	-
NB-IoT Band 2 (Channel Bandwidth 10MHz)	1855.0-1905.0	356.451 mW (25.52dBm)	356.451 mW (25.52dBm)	-	-
NB-IoT Band 2 (Channel Bandwidth 15MHz)	1857.5-1902.5	362.243 mW (25.59dBm)	353.997 mW (25.49dBm)	-	-
NB-IoT Band 2 (Channel Bandwidth 20MHz)	1860.0-1900.0	364.754 mW (25.62dBm)	353.183 mW (25.48dBm)	-	-
NB-IoT Band 4 (Channel Bandwidth 3MHz)	1711.5-1753.5	352.371 mW (25.47dBm)	351.560 mW (25.46dBm)	-	-
NB-IoT Band 4 (Channel Bandwidth 5MHz)	1712.5-1752.5	361.410 mW (25.58dBm)	354.813 mW (25.50dBm)	-	-
NB-IoT Band 4 (Channel Bandwidth 10MHz)	1715.0-1750.0	353.997 mW (25.49dBm)	354.813 mW (25.50dBm)	-	-
NB-IoT Band 4 (Channel Bandwidth 15MHz)	1717.5-1747.5	358.096 mW (25.54dBm)	350.752 mW (25.45dBm)	-	-
NB-IoT Band 4 (Channel Bandwidth 20MHz)	1720.0-1745.0	353.183 mW (25.48dBm)	353.183 mW (25.48dBm)	-	-
NB-IoT Band 25 (Channel Bandwidth 3MHz)	1851.5-1913.5	358.096 mW (25.54dBm)	355.631 mW (25.51dBm)	-	-
NB-IoT Band 25 (Channel Bandwidth 5MHz)	1852.5-1912.5	362.243 mW (25.59dBm)	355.631 mW (25.51dBm)	-	-
NB-IoT Band 25 (Channel Bandwidth 10MHz)	1855.0-1910.0	358.096 mW (25.54dBm)	351.560 mW (25.46dBm)	-	-
NB-IoT Band 25 (Channel Bandwidth 15MHz)	1857.5-1907.5	358.922 mW (25.55dBm)	350.752 mW (25.45dBm)	-	-
NB-IoT Band 25 (Channel Bandwidth 20MHz)	1860.0-1905.0	361.410 mW (25.58dBm)	355.631 mW (25.51dBm)	-	-
NB-IoT Band 66 (Channel Bandwidth 3MHz)	1711.5-1778.5	372.392 mW (25.71dBm)	368.129 mW (25.66dBm)	-	-
NB-IoT Band 66 (Channel Bandwidth 5MHz)	1712.5-1777.5	370.681 mW (25.69dBm)	367.282 mW (25.65dBm)	-	-
NB-IoT Band 66 (Channel Bandwidth 10MHz)	1715.0-1775.0	368.978 mW (25.67dBm)	369.828 mW (25.68dBm)	-	-
NB-IoT Band 66 (Channel Bandwidth 15MHz)	1717.5-1772.5	374.111 mW (25.73dBm)	369.828 mW (25.68dBm)	-	-
NB-IoT Band 66 (Channel Bandwidth 20MHz)	1720.0-1770.0	370.681 mW (25.69dBm)	368.129 mW (25.66dBm)	-	-

Band / Bandwidth	TX Frequency Range (MHz)	Max. ERP Power		Emission Designator	
		BPSK	QPSK	3.75k	15k
Stand-alone					
NB-IoT Band 5	824.2-848.8	258.821 mW (24.13dBm)	258.226 mW (24.12dBm)	105KG7D	189KG7D
NB-IoT Band 8	897.7-900.3	249.459 mW (23.97dBm)	248.886 mW (23.96dBm)	106KG7D	189KG7D
NB-IoT Band 12	699.2-715.8	207.970 mW (23.18dBm)	207.491 mW (23.17dBm)	105KG7D	188KG7D
NB-IoT Band 13	777.2-786.8	206.063 mW (23.14dBm)	204.174 mW (23.10dBm)	106KG7D	188KG7D
NB-IoT Band 14	788.2-797.8	212.814 mW (23.28dBm)	209.411 mW (23.21dBm)	105KG7D	189KG7D
NB-IoT Band 17	704.2-715.8	188.365 mW (22.75dBm)	187.932 mW (22.74dBm)	105KG7D	188KG7D
NB-IoT Band 26 (Part 22)	824.2-848.8	268.534 mW (24.29dBm)	263.633 mW (24.21dBm)	106KG7D	188KG7D
NB-IoT Band 26 (Part 90)	814.7-823.3	263.027 mW (24.20dBm)	264.850 mW (24.23dBm)	106KG7D	188KG7D
NB-IoT Band 85	698.2-715.8	210.378 mW (23.23dBm)	206.063 mW (23.14dBm)	105KG7D	188KG7D
In-Band					
NB-IoT Band 5 (Channel Bandwidth 3MHz)	825.5-847.5	251.768 mW (24.01dBm)	251.768 mW (24.01dBm)	-	-
NB-IoT Band 5 (Channel Bandwidth 5MHz)	826.5-846.5	250.611 mW (23.99dBm)	255.270 mW (24.07dBm)	-	-
NB-IoT Band 5 (Channel Bandwidth 10MHz)	829.0-844.0	255.270 mW (24.07dBm)	253.513 mW (24.04dBm)	-	-
NB-IoT Band 8 (Channel Bandwidth 3MHz)	899.0	240.991 mW (23.82dBm)	237.684 mW (23.76dBm)	-	-
NB-IoT Band 12 (Channel Bandwidth 3MHz)	700.5-714.5	204.174 mW (23.10dBm)	200.909 mW (23.03dBm)	-	-
NB-IoT Band 12 (Channel Bandwidth 5MHz)	701.5-713.5	201.837 mW (23.05dBm)	202.768 mW (23.07dBm)	-	-
NB-IoT Band 12 (Channel Bandwidth 10MHz)	704.0-711.0	203.236 mW (23.08dBm)	203.236 mW (23.08dBm)	-	-
NB-IoT Band 13 (Channel Bandwidth 5MHz)	779.5-784.5	199.526 mW (23.00dBm)	201.837 mW (23.05dBm)	-	-
NB-IoT Band 13 (Channel Bandwidth 10MHz)	782.0	199.986 mW (23.01dBm)	199.986 mW (23.01dBm)	-	-
NB-IoT Band 14 (Channel Bandwidth 5MHz)	790.5-795.5	207.014 mW (23.16dBm)	202.768 mW (23.07dBm)	-	-
NB-IoT Band 14 (Channel Bandwidth 10MHz)	793.0	200.447 mW (23.02dBm)	199.526 mW (23.00dBm)	-	-
NB-IoT Band 17 (Channel Bandwidth 5MHz)	706.5-713.5	184.077 mW (22.65dBm)	183.231 mW (22.63dBm)	-	-
NB-IoT Band 17 (Channel Bandwidth 10MHz)	709.0-711.0	185.353 mW (22.68dBm)	184.077 mW (22.65dBm)	-	-
NB-IoT Band 26 (Part 22) (Channel Bandwidth 3MHz)	825.5-847.5	259.418 mW (24.14dBm)	258.226 mW (24.12dBm)	-	-
NB-IoT Band 26 (Part 22) (Channel Bandwidth 5MHz)	826.5-846.5	263.027 mW (24.20dBm)	260.016 mW (24.15dBm)	-	-
NB-IoT Band 26 (Part 22) (Channel Bandwidth 10MHz)	829-844	259.418 mW (24.14dBm)	256.448 mW (24.09dBm)	-	-
NB-IoT Band 26 (Part 22) (Channel Bandwidth 15MHz)	831.5-841.5	257.040 mW (24.10dBm)	256.448 mW (24.09dBm)	-	-
NB-IoT Band 26 (Part 90) (Channel Bandwidth 3MHz)	815.5-822.5	258.226 mW (24.12dBm)	261.818 mW (24.18dBm)	-	-
NB-IoT Band 26 (Part 90) (Channel Bandwidth 5MHz)	816.5-821.5	257.040 mW (24.10dBm)	257.040 mW (24.10dBm)	-	-
NB-IoT Band 26 (Part 90) (Channel Bandwidth 10MHz)	819.0	257.632 mW (24.11dBm)	254.683 mW (24.06dBm)	-	-

Band / Bandwidth	TX Frequency Range (MHz)	Max. ERP Power		Emission Designator	
		BPSK	QPSK	3.75k	15k
NB-IoT Band 85 (Channel Bandwidth 5MHz)	700.5-713.5	203.236 mW (23.08dBm)	199.986 mW (23.01dBm)	-	-
NB-IoT Band 85 (Channel Bandwidth 10MHz)	703.0-711.0	207.970 mW (23.18dBm)	201.837 mW (23.05dBm)	-	-
Guard-Band					
NB-IoT Band 5 (Channel Bandwidth 3MHz)	825.5-847.5	255.270 mW (24.07dBm)	254.097 mW (24.05dBm)	-	-
NB-IoT Band 5 (Channel Bandwidth 5MHz)	826.5-846.5	252.348 mW (24.02dBm)	251.768 mW (24.01dBm)	-	-
NB-IoT Band 5 (Channel Bandwidth 10MHz)	829.0-844.0	255.270 mW (24.07dBm)	252.348 mW (24.02dBm)	-	-
NB-IoT Band 8 (Channel Bandwidth 3MHz)	899.0	242.103 mW (23.84dBm)	238.232 mW (23.77dBm)	-	-
NB-IoT Band 12 (Channel Bandwidth 3MHz)	700.5-714.5	204.174 mW (23.10dBm)	204.174 mW (23.10dBm)	-	-
NB-IoT Band 12 (Channel Bandwidth 5MHz)	701.5-713.5	203.236 mW (23.08dBm)	204.644 mW (23.11dBm)	-	-
NB-IoT Band 12 (Channel Bandwidth 10MHz)	704.0-711.0	203.236 mW (23.08dBm)	201.837 mW (23.05dBm)	-	-
NB-IoT Band 13 (Channel Bandwidth 5MHz)	779.5-784.5	202.302 mW (23.06dBm)	199.986 mW (23.01dBm)	-	-
NB-IoT Band 13 (Channel Bandwidth 10MHz)	782.0	202.768 mW (23.07dBm)	197.242 mW (22.95dBm)	-	-
NB-IoT Band 14 (Channel Bandwidth 5MHz)	790.5-795.5	207.014 mW (23.16dBm)	200.447 mW (23.02dBm)	-	-
NB-IoT Band 14 (Channel Bandwidth 10MHz)	793.0	198.609 mW (22.98dBm)	203.236 mW (23.08dBm)	-	-
NB-IoT Band 17 (Channel Bandwidth 5MHz)	706.5-713.5	183.231 mW (22.63dBm)	182.810 mW (22.62dBm)	-	-
NB-IoT Band 17 (Channel Bandwidth 10MHz)	709.0-711.0	183.654 mW (22.64dBm)	185.353 mW (22.68dBm)	-	-
NB-IoT Band 26 (Part 22) (Channel Bandwidth 3MHz)	825.5-847.5	263.027 mW (24.20dBm)	257.632 mW (24.11dBm)	-	-
NB-IoT Band 26 (Part 22) (Channel Bandwidth 5MHz)	826.5-846.5	264.241 mW (24.22dBm)	259.418 mW (24.14dBm)	-	-
NB-IoT Band 26 (Part 22) (Channel Bandwidth 10MHz)	829-844	259.418 mW (24.14dBm)	260.615 mW (24.16dBm)	-	-
NB-IoT Band 26 (Part 22) (Channel Bandwidth 15MHz)	831.5-841.5	261.818 mW (24.18dBm)	256.448 mW (24.09dBm)	-	-
NB-IoT Band 26 (Part 90) (Channel Bandwidth 3MHz)	815.5-822.5	256.448 mW (24.15dBm)	259.418 mW (24.14dBm)	-	-
NB-IoT Band 26 (Part 90) (Channel Bandwidth 5MHz)	816.5-821.5	256.448 mW (24.09dBm)	260.615 mW (24.16dBm)	-	-
NB-IoT Band 26 (Part 90) (Channel Bandwidth 10MHz)	819.0	256.448 mW (24.09dBm)	258.821 mW (24.13dBm)	-	-
NB-IoT Band 85 (Channel Bandwidth 5MHz)	700.5-713.5	202.302 mW (23.06dBm)	201.837 mW (23.05dBm)	-	-
NB-IoT Band 85 (Channel Bandwidth 10MHz)	703.0-711.0	203.236 mW (23.08dBm)	201.837 mW (23.05dBm)	-	-

2. The above EUT information is declared by manufacturer and for more detailed features description, please refers to the manufacturer's specifications or user's manual.

3.2 Antenna Description of EUT

1. The antenna information is listed as below.

Type		Dipole									
Connector		RP-SMA									
Antenna gain (dBi)											
NB-IoT Band											
2	4	5	8	12	13	14	17	25	26	66	85
2.03	2.03	2.63	2.63	1.63	1.63	1.63	1.63	2.03	2.63	2.03	1.63

* Detail antenna specification please refer to antenna datasheet and/or antenna measurement report.

3.3 Test Mode Applicability and Tested Channel Detail

Pre-Scan:	EUT can be used in the following ways: X-axis/ Y-axis/ Z-axis. Pre-scan these ways and find the worst case as a representative test condition. This device was tested under all bandwidths, RB configurations, operation mode and modulations. The worst case was found in BPSK modulation and stand-alone mode, except in NB-IoT Band 26 (Part 90), where the worst case occurs with QPSK modulation. Therefore, only EIRP/ERP, modulation characteristics, bandwidth and peak to average ratio items had been tested under QPSK and BPSK mode, the other items were performed under worst-case modulation mode only. Therefore, only EIRP/ERP test item had been tested under stand-alone, in-band and guard-band operation modes, the other items were performed under stand-alone mode only. For radiated spurious emissions, choose the maximum EIRP/ERP power and 1RB offset worst case for final test.
Worst Case:	X-axis/ Y-axis/ Z-axis Worst Condition: Z-axis (90 angle)

For NB-IoT Band 2

Test Item	Tested Channel		Channel Bandwidth	Sub-carrier	Modulation	Mode
EIRP	Standalone	18602 (1850.20 MHz)	-	3.75 kHz	BPSK, QPSK	1RB Half RB Full RB
		18900 (1880.00 MHz) 19198 (1909.80 MHz)	-	15 kHz	BPSK, QPSK	1RB Half RB Full RB
	In-Band	18615 (1851.50 MHz) 18900 (1880.00 MHz) 19185 (1908.50 MHz)	3 MHz	3.75 kHz	BPSK, QPSK	1RB Half RB Full RB
				15 kHz	BPSK, QPSK	1RB Half RB Full RB
		18625 (1852.50 MHz) 18900 (1880.00 MHz) 19175 (1907.50 MHz)	5 MHz	3.75 kHz	BPSK, QPSK	1RB Half RB Full RB
				15 kHz	BPSK, QPSK	1RB Half RB Full RB
		18650 (1855.00 MHz) 18900 (1880.00 MHz) 19150 (1905.00 MHz)	10 MHz	3.75 kHz	BPSK, QPSK	1RB Half RB Full RB
				15 kHz	BPSK, QPSK	1RB Half RB Full RB
		18675 (1857.50 MHz) 18900 (1880.00 MHz) 19125 (1902.50 MHz)	15 MHz	3.75 kHz	BPSK, QPSK	1RB Half RB Full RB
				15 kHz	BPSK, QPSK	1RB Half RB Full RB
		18700 (1860.00 MHz) 18900 (1880.00 MHz) 19100 (1900.00 MHz)	20 MHz	3.75 kHz	BPSK, QPSK	1RB Half RB Full RB
				15 kHz	BPSK, QPSK	1RB Half RB Full RB

Test Item	Tested Channel		Channel Bandwidth	Sub-carrier	Modulation	Mode
EIRP	Guard-Band	18615 (1851.50 MHz) 18900 (1880.00 MHz) 19185 (1908.50 MHz)	3 MHz	3.75 kHz	BPSK, QPSK	1RB Half RB Full RB
				15 kHz	BPSK, QPSK	1RB Half RB Full RB
		18625 (1852.50 MHz) 18900 (1880.00 MHz) 19175 (1907.50 MHz)	5 MHz	3.75 kHz	BPSK, QPSK	1RB Half RB Full RB
				15 kHz	BPSK, QPSK	1RB Half RB Full RB
		18650 (1855.00 MHz) 18900 (1880.00 MHz) 19150 (1905.00 MHz)	10 MHz	3.75 kHz	BPSK, QPSK	1RB Half RB Full RB
				15 kHz	BPSK, QPSK	1RB Half RB Full RB
		18675 (1857.50 MHz) 18900 (1880.00 MHz) 19125 (1902.50 MHz)	15 MHz	3.75 kHz	BPSK, QPSK	1RB Half RB Full RB
				15 kHz	BPSK, QPSK	1RB Half RB Full RB
		18700 (1860.00 MHz) 18900 (1880.00 MHz) 19100 (1900.00 MHz)	20 MHz	3.75 kHz	BPSK, QPSK	1RB Half RB Full RB
				15 kHz	BPSK, QPSK	1RB Half RB Full RB
Modulation Characteristics	Standalone	18900 (1880.00 MHz)	-	-	BPSK, QPSK	Full RB
Peak to Average Ratio	Standalone	18602 (1850.20 MHz)	-	3.75 kHz	BPSK, QPSK	1 RB
		18900 (1880.00 MHz) 19198 (1909.80 MHz)	-	15 kHz	BPSK, QPSK	1 RB
Occupied Bandwidth	Standalone	18602 (1850.20 MHz)	-	3.75 kHz	BPSK, QPSK	Full RB
		18900 (1880.00 MHz) 19198 (1909.80 MHz)	-	15 kHz	BPSK, QPSK	Full RB
Conducted Spurious Emissions	Standalone	18602 (1850.20 MHz)	-	3.75 kHz	BPSK, QPSK	1 RB Full RB
		18900 (1880.00 MHz) 19198 (1909.80 MHz)	-	15 kHz	BPSK, QPSK	1 RB Full RB
Radiated Spurious Emissions below 1GHz	Standalone	18900 (1880.00 MHz)	-	15 kHz	BPSK	1 RB
Radiated Spurious Emissions above 1GHz	Standalone	18602 (1850.20 MHz) 18900 (1880.00 MHz) 19198 (1909.80 MHz)	-	15 kHz	BPSK	1 RB
Frequency Stability	Standalone	18602 (1850.20 MHz) 19198 (1909.80 MHz)	-	15 kHz	BPSK	Full RB

For NB-IoT Band 4

Test Item	Tested Channel		Channel Bandwidth	Sub-carrier	Modulation	Mode
EIRP	Standalone	19952 (1710.20 MHz)	-	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
		20175 (1732.50 MHz) 20398 (1754.80 MHz)		15 kHz	BPSK, QPSK	1 RB Half RB Full RB
	In-Band	19965 (1711.50 MHz) 20175 (1732.50 MHz) 20385 (1753.50 MHz)	3 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		19975 (1712.50 MHz) 20175 (1732.50 MHz) 20375 (1752.50 MHz)	5 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		20000 (1715.00 MHz) 20175 (1732.50 MHz) 20350 (1750.00 MHz)	10 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		20025 (1717.50 MHz) 20175 (1732.50 MHz) 20325 (1747.50 MHz)	15 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		20050 (1720.00 MHz) 20175 (1732.50 MHz) 20300 (1745.00 MHz)	20 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB

Test Item	Tested Channel		Channel Bandwidth	Sub-carrier	Modulation	Mode
EIRP	Guard-Band	19965 (1711.50 MHz) 20175 (1732.50 MHz) 20385 (1753.50 MHz)	3 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		19975 (1712.50 MHz) 20175 (1732.50 MHz) 20375 (1752.50 MHz)	5 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		20000 (1715.00 MHz) 20175 (1732.50 MHz) 20350 (1750.00 MHz)	10 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		20025 (1717.50 MHz) 20175 (1732.50 MHz) 20325 (1747.50 MHz)	15 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		20050 (1720.00 MHz) 20175 (1732.50 MHz) 20300 (1745.00 MHz)	20 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
Modulation Characteristics	Standalone	20175 (1732.50 MHz)	-	-	BPSK, QPSK	Full RB
Peak to Average Ratio	Standalone	19952 (1710.20 MHz)	-	3.75 kHz	BPSK, QPSK	1 RB
		20175 (1732.50 MHz) 20398 (1754.80 MHz)	-	15 kHz	BPSK, QPSK	1 RB
Occupied Bandwidth	Standalone	19952 (1710.20 MHz)	-	3.75 kHz	BPSK, QPSK	Full RB
		20175 (1732.50 MHz) 20398 (1754.80 MHz)	-	15 kHz	BPSK, QPSK	Full RB
Conducted Spurious Emissions	Standalone	19952 (1710.20 MHz)	-	3.75 kHz	BPSK, QPSK	1 RB Full RB
		20175 (1732.50 MHz) 20398 (1754.80 MHz)	-	15 kHz	BPSK, QPSK	1 RB Full RB
Radiated Spurious Emissions below 1GHz	Standalone	20175 (1732.50 MHz)	-	15 kHz	BPSK	1 RB
Radiated Spurious Emissions above 1GHz	Standalone	19952 (1710.20 MHz) 20175 (1732.50 MHz) 20398 (1754.80 MHz)	-	15 kHz	BPSK	1 RB
Frequency Stability	Standalone	19952 (1710.20 MHz) 20398 (1754.80 MHz)	-	15 kHz	BPSK	Full RB

For NB-IoT Band 5

Test Item	Tested Channel		Channel Bandwidth	Sub-carrier	Modulation	Mode
EIRP	Standalone	20402 (824.20 MHz) 20525 (836.50 MHz) 20648 (848.80 MHz)	-	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
			-	15 kHz	BPSK, QPSK	1 RB Half RB Full RB
	In-Band	20415 (825.50 MHz) 20525 (836.50 MHz) 20635 (847.50 MHz)	3 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		20425 (826.50 MHz) 20525 (836.50 MHz) 20625 (846.50 MHz)	5 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		20450 (829.00 MHz) 20525 (836.50 MHz) 20600 (844.00 MHz)	10 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
	Guard-Band	20415 (825.50 MHz) 20525 (836.50 MHz) 20635 (847.50 MHz)	3 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		20425 (826.50 MHz) 20525 (836.50 MHz) 20625 (846.50 MHz)	5 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		20450 (829.00 MHz) 20525 (836.50 MHz) 20600 (844.00 MHz)	10 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
Modulation Characteristics	Standalone	20525 (836.50 MHz)	-	-	BPSK, QPSK	Full RB
Peak to Average Ratio	Standalone	20402 (824.20 MHz) 20525 (836.50 MHz) 20648 (848.80 MHz)	-	3.75 kHz	BPSK, QPSK	1 RB
			-	15 kHz	BPSK, QPSK	1 RB
Occupied Bandwidth	Standalone	20402 (824.20 MHz) 20525 (836.50 MHz) 20648 (848.80 MHz)	-	3.75 kHz	BPSK, QPSK	Full RB
			-	15 kHz	BPSK, QPSK	Full RB

Test Item	Tested Channel		Channel Bandwidth	Sub-carrier	Modulation	Mode
Conducted Spurious Emissions	Standalone	20402 (824.20 MHz)	-	3.75 kHz	BPSK, QPSK	1 RB Full RB
		20525 (836.50 MHz) 20648 (848.80 MHz)	-	15 kHz	BPSK, QPSK	1 RB Full RB
Radiated Spurious Emissions below 1GHz	Standalone	20525 (836.50 MHz)	-	15 kHz	BPSK	1 RB
Radiated Spurious Emissions above 1GHz	Standalone	20402 (824.20 MHz) 20525 (836.50 MHz) 20648 (848.80 MHz)	-	15 kHz	BPSK	1 RB
Frequency Stability	Standalone	20402 (824.20 MHz) 20648 (848.80 MHz)	-	15 kHz	BPSK	Full RB

For NB-IoT Band 8

Test Item	Tested Channel		Channel Bandwidth	Sub-carrier	Modulation	Mode
ERP	Standalone	21627 (897.70 MHz) 21640 (899.00 MHz) 21653 (900.30 MHz)	-	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
			-	15 kHz	BPSK, QPSK	1 RB Half RB Full RB
	In-Band	21640 (899.00 MHz)	10 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
	Guard-Band	21640 (899.00 MHz)	10 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
Modulation Characteristics	Standalone	21640 (899.00 MHz)	-	-	BPSK, QPSK	Full RB
Peak to Average Ratio	Standalone	21627 (897.70 MHz) 21640 (899.00 MHz) 21653 (900.30 MHz)	-	3.75 kHz	BPSK, QPSK	1 RB
			-	15 kHz	BPSK, QPSK	1 RB
Occupied Bandwidth	Standalone	21627 (897.70 MHz) 21640 (899.00 MHz) 21653 (900.30 MHz)	-	3.75 kHz	BPSK, QPSK	Full RB
			-	15 kHz	BPSK, QPSK	Full RB
Conducted Spurious Emissions	Standalone	21627 (897.70 MHz) 21640 (899.00 MHz) 21653 (900.30 MHz)	-	3.75 kHz	BPSK, QPSK	1 RB Full RB
			-	15 kHz	BPSK, QPSK	1 RB Full RB
Radiated Spurious Emissions below 1GHz	Standalone	21640 (899.00 MHz)	-	15 kHz	BPSK	1 RB
Radiated Spurious Emissions above 1GHz	Standalone	21627 (897.70 MHz) 21640 (899.00 MHz) 21653 (900.30 MHz)	-	15 kHz	BPSK	1 RB
Frequency Stability	Standalone	21627 (897.70 MHz) 21653 (900.30 MHz)	-	15 kHz	BPSK	Full RB

For NB-IoT Band 12

Test Item	Tested Channel		Channel Bandwidth	Sub-carrier	Modulation	Mode
ERP	Standalone	23012 (699.20 MHz) 23095 (707.50 MHz) 23178 (715.80 MHz)	-	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
			-	15 kHz	BPSK, QPSK	1 RB Half RB Full RB
	In-Band	23025 (700.50 MHz) 23095 (707.50 MHz) 23165 (714.50 MHz)	3 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		23035 (701.50 MHz) 23095 (707.50 MHz) 23155 (713.50 MHz)	5 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		23060 (704.00 MHz) 23095 (707.50 MHz) 23130 (711.00 MHz)	10 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
	Guard-Band	23025 (700.50 MHz) 23095 (707.50 MHz) 23165 (714.50 MHz)	3 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		23035 (701.50 MHz) 23095 (707.50 MHz) 23155 (713.50 MHz)	5 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		23060 (704.00 MHz) 23095 (707.50 MHz) 23130 (711.00 MHz)	10 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB

Test Item	Tested Channel		Channel Bandwidth	Sub-carrier	Modulation	Mode
Modulation Characteristics	Standalone	23095 (707.50 MHz)	-	-	BPSK, QPSK	Full RB
Peak to Average Ratio	Standalone	23012 (699.20 MHz)	-	3.75 kHz	BPSK, QPSK	1 RB
		23095 (707.50 MHz)	-	15 kHz	BPSK, QPSK	1 RB
		23178 (715.80 MHz)	-	15 kHz	BPSK, QPSK	1 RB
Occupied Bandwidth	Standalone	23012 (699.20 MHz)	-	3.75 kHz	BPSK, QPSK	Full RB
		23095 (707.50 MHz)	-	15 kHz	BPSK, QPSK	Full RB
		23178 (715.80 MHz)	-	15 kHz	BPSK, QPSK	Full RB
Conducted Spurious Emissions	Standalone	23012 (699.20 MHz)	-	3.75 kHz	BPSK, QPSK	1 RB
		23095 (707.50 MHz)	-	15 kHz	BPSK, QPSK	Full RB
		23178 (715.80 MHz)	-	15 kHz	BPSK, QPSK	1 RB
Radiated Spurious Emissions below 1GHz	Standalone	23095 (707.50 MHz)	-	15 kHz	BPSK	1 RB
Radiated Spurious Emissions above 1GHz	Standalone	23012 (699.20 MHz)	-	15 kHz	BPSK	1 RB
		23095 (707.50 MHz)	-	15 kHz	BPSK	1 RB
		23178 (715.80 MHz)	-	15 kHz	BPSK	1 RB
Frequency Stability	Standalone	23012 (699.20 MHz)	-	15 kHz	BPSK	Full RB
		23178 (715.80 MHz)	-	15 kHz	BPSK	Full RB

For NB-IoT Band 13

Test Item	Tested Channel		Channel Bandwidth	Sub-carrier	Modulation	Mode
ERP	Standalone	23182 (777.20 MHz) 23230 (782.00 MHz) 23278 (786.80 MHz)	-	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
			-	15 kHz	BPSK, QPSK	1 RB Half RB Full RB
	In-Band	23205 (779.50 MHz) 23230 (782.00 MHz) 23255 (784.50 MHz)	5 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		23230 (782.00 MHz)	10 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
	Guard-Band	23205 (779.50 MHz) 23230 (782.00 MHz) 23255 (784.50 MHz)	5 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		23230 (782.00 MHz)	10 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
Modulation Characteristics	Standalone	23230 (782.00 MHz)	-	-	BPSK, QPSK	Full RB
Peak to Average Ratio	Standalone	23182 (777.20 MHz) 23230 (782.00 MHz) 23278 (786.80 MHz)	-	3.75 kHz	BPSK, QPSK	1 RB
			-	15 kHz	BPSK, QPSK	1 RB
Occupied Bandwidth	Standalone	23182 (777.20 MHz) 23230 (782.00 MHz) 23278 (786.80 MHz)	-	3.75 kHz	BPSK, QPSK	Full RB
			-	15 kHz	BPSK, QPSK	Full RB
Conducted Spurious Emissions	Standalone	23182 (777.20 MHz) 23230 (782.00 MHz) 23278 (786.80 MHz)	-	3.75 kHz	BPSK, QPSK	1 RB Full RB
			-	15 kHz	BPSK, QPSK	1 RB Full RB
Radiated Spurious Emissions below 1GHz	Standalone	23230 (782.00 MHz)	-	15 kHz	BPSK	1 RB
Radiated Spurious Emissions above 1GHz	Standalone	23182 (777.20 MHz) 23230 (782.00 MHz) 23278 (786.80 MHz)	-	15 kHz	BPSK	1 RB
Frequency Stability	Standalone	23182 (777.20 MHz) 23278 (786.80 MHz)	-	15 kHz	BPSK	Full RB

For NB-IoT Band 14

Test Item	Tested Channel		Channel Bandwidth	Sub-carrier	Modulation	Mode
ERP	Standalone	23282 (788.20 MHz) 23300 (793.00 MHz) 23378 (797.80 MHz)	-	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
			-	15 kHz	BPSK, QPSK	1 RB Half RB Full RB
	In-Band	23305 (790.50 MHz) 23300 (793.00 MHz) 23355 (795.50 MHz)	5 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		23300 (793.00 MHz)	10 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
	Guard-Band	23305 (790.50 MHz) 23300 (793.00 MHz) 23355 (795.50 MHz)	5 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		23300 (793.00 MHz)	10 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
Modulation Characteristics	Standalone	23300 (793.00 MHz)	-	-	BPSK, QPSK	Full RB
Peak to Average Ratio	Standalone	23282 (788.20 MHz) 23300 (793.00 MHz) 23378 (797.80 MHz)	-	3.75 kHz	BPSK, QPSK	1 RB
			-	15 kHz	BPSK, QPSK	1 RB
Occupied Bandwidth	Standalone	23282 (788.20 MHz) 23300 (793.00 MHz) 23378 (797.80 MHz)	-	3.75 kHz	BPSK, QPSK	Full RB
			-	15 kHz	BPSK, QPSK	Full RB
Conducted Spurious Emissions	Standalone	23282 (788.20 MHz) 23300 (793.00 MHz) 23378 (797.80 MHz)	-	3.75 kHz	BPSK, QPSK	1 RB Full RB
			-	15 kHz	BPSK, QPSK	1 RB Full RB
Radiated Spurious Emissions below 1GHz	Standalone	23300 (793.00 MHz)	-	15 kHz	BPSK	1 RB
Radiated Spurious Emissions above 1GHz	Standalone	23282 (788.20 MHz) 23300 (793.00 MHz) 23378 (797.80 MHz)	-	15 kHz	BPSK	1 RB
Frequency Stability	Standalone	23282 (788.20 MHz) 23378 (797.80 MHz)	-	15 kHz	BPSK	Full RB

For NB-IoT Band 17

Test Item	Tested Channel		Channel Bandwidth	Sub-carrier	Modulation	Mode
ERP	Standalone	23732 (704.20 MHz) 23790 (710.00 MHz) 23848 (715.80 MHz)	-	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
			-	15 kHz	BPSK, QPSK	1 RB Half RB Full RB
	In-Band	23755 (706.50 MHz) 23790 (710.00 MHz) 23825 (713.50 MHz)	5 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		23780 (709.00 MHz) 23790 (710.00 MHz) 23800 (711.00 MHz)	10 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
	Guard-Band	23755 (706.50 MHz) 23790 (710.00 MHz) 23825 (713.50 MHz)	5 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		23780 (709.00 MHz) 23790 (710.00 MHz) 23800 (711.00 MHz)	10 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
Modulation Characteristics	Standalone	23790 (710.00 MHz)	-	-	BPSK, QPSK	Full RB
Peak to Average Ratio	Standalone	23732 (704.20 MHz) 23790 (710.00 MHz) 23848 (715.80 MHz)	-	3.75 kHz	BPSK, QPSK	1 RB
			-	15 kHz	BPSK, QPSK	1 RB
Occupied Bandwidth	Standalone	23732 (704.20 MHz) 23790 (710.00 MHz) 23848 (715.80 MHz)	-	3.75 kHz	BPSK, QPSK	Full RB
			-	15 kHz	BPSK, QPSK	Full RB
Conducted Spurious Emissions	Standalone	23732 (704.20 MHz) 23790 (710.00 MHz) 23848 (715.80 MHz)	-	3.75 kHz	BPSK, QPSK	1 RB Full RB
			-	15 kHz	BPSK, QPSK	1 RB Full RB
Radiated Spurious Emissions below 1GHz	Standalone	23790 (710.00 MHz)	-	15 kHz	BPSK	1 RB
Radiated Spurious Emissions above 1GHz	Standalone	23732 (704.20 MHz) 23790 (710.00 MHz) 23848 (715.80 MHz)	-	15 kHz	BPSK	1 RB
Frequency Stability	Standalone	23732 (704.20 MHz) 23848 (715.80 MHz)	-	15 kHz	BPSK	Full RB

For NB-IoT Band 25

Test Item	Tested Channel		Channel Bandwidth	Sub-carrier	Modulation	Mode
EIRP	Standalone	26042 (1850.20 MHz)	-	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
		26365 (1882.50 MHz) 26688 (1914.80 MHz)		15 kHz	BPSK, QPSK	1 RB Half RB Full RB
	In-Band	26055 (1851.50 MHz) 26365 (1882.50 MHz) 26675 (1913.50 MHz)	3 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		26065 (1852.50 MHz) 26365 (1882.50 MHz) 26665 (1912.50 MHz)	5 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		26090 (1855.00 MHz) 26365 (1882.50 MHz) 26640 (1910.00 MHz)	10 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		26115 (1857.50 MHz) 26365 (1882.50 MHz) 26615 (1907.50 MHz)	15 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		26140 (1860.00 MHz) 26365 (1882.50 MHz) 26590 (1905.00 MHz)	20 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB

Test Item	Tested Channel		Channel Bandwidth	Sub-carrier	Modulation	Mode
EIRP	Guard-Band	26055 (1851.50 MHz) 26365 (1882.50 MHz) 26675 (1913.50 MHz)	3 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		26065 (1852.50 MHz) 26365 (1882.50 MHz) 26665 (1912.50 MHz)	5 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		26090 (1855.00 MHz) 26365 (1882.50 MHz) 26640 (1910.00 MHz)	10 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		26115 (1857.50 MHz) 26365 (1882.50 MHz) 26615 (1907.50 MHz)	15 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		26140 (1860.00 MHz) 26365 (1882.50 MHz) 26590 (1905.00 MHz)	20 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
Modulation Characteristics	Standalone	26365 (1882.50 MHz)	-	-	BPSK, QPSK	Full RB
Peak to Average Ratio	Standalone	26042 (1850.20 MHz)	-	3.75 kHz	BPSK, QPSK	1 RB
		26365 (1882.50 MHz) 26688 (1914.80 MHz)	-	15 kHz	BPSK, QPSK	1 RB
Occupied Bandwidth	Standalone	26042 (1850.20 MHz)	-	3.75 kHz	BPSK, QPSK	Full RB
		26365 (1882.50 MHz) 26688 (1914.80 MHz)	-	15 kHz	BPSK, QPSK	Full RB
Conducted Spurious Emissions	Standalone	26042 (1850.20 MHz)	-	3.75 kHz	BPSK, QPSK	1 RB Full RB
		26365 (1882.50 MHz) 26688 (1914.80 MHz)	-	15 kHz	BPSK, QPSK	1 RB Full RB
Radiated Spurious Emissions below 1GHz	Standalone	26365 (1882.50 MHz)	-	15 kHz	BPSK	1 RB
Radiated Spurious Emissions above 1GHz	Standalone	26042 (1850.20 MHz) 26365 (1882.50 MHz) 26688 (1914.80 MHz)	-	15 kHz	BPSK	1 RB
Frequency Stability	Standalone	26042 (1850.20 MHz) 26688 (1914.80 MHz)	-	15 kHz	BPSK	Full RB

For NB-IoT Band 26 (Part 22)

Test Item	Tested Channel		Channel Bandwidth	Sub-carrier	Modulation	Mode
ERP	Standalone	26792 (824.20 MHz) 26915 (836.50 MHz) 27038 (848.80 MHz)	-	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
			-	15 kHz	BPSK, QPSK	1 RB Half RB Full RB
	In-Band	26805 (825.50 MHz) 26915 (836.50 MHz) 27025 (847.50 MHz)	3 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		26815 (826.50 MHz) 26915 (836.50 MHz) 27015 (846.50 MHz)	5 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		26840 (829.00 MHz) 26915 (836.50 MHz) 26990 (844.00 MHz)	10 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		26865 (831.50 MHz) 26915 (836.50 MHz) 26965 (841.50 MHz)	15 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
	Guard-Band	26805 (825.50 MHz) 26915 (836.50 MHz) 27025 (847.50 MHz)	3 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		26815 (826.50 MHz) 26915 (836.50 MHz) 27015 (846.50 MHz)	5 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB

Test Item	Tested Channel		Channel Bandwidth	Sub-carrier	Modulation	Mode
ERP	Guard-Band	26840 (829.00 MHz) 26915 (836.50 MHz) 26990 (844.00 MHz)	10 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
		15 kHz		BPSK, QPSK	1 RB Half RB Full RB	
		26865 (831.50 MHz) 26915 (836.50 MHz) 26965 (841.50 MHz)	15 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
Modulation Characteristics	Standalone	26915 (836.50 MHz)	-	-	BPSK, QPSK	Full RB
Peak to Average Ratio	Standalone	26792 (824.20 MHz) 26915 (836.50 MHz)	-	3.75 kHz	BPSK, QPSK	1 RB
		27038 (848.80 MHz)	-	15 kHz	BPSK, QPSK	1 RB
Occupied Bandwidth	Standalone	26792 (824.20 MHz) 26915 (836.50 MHz)	-	3.75 kHz	BPSK, QPSK	Full RB
		27038 (848.80 MHz)	-	15 kHz	BPSK, QPSK	Full RB
Conducted Spurious Emissions	Standalone	26792 (824.20 MHz) 26915 (836.50 MHz)	-	3.75 kHz	BPSK, QPSK	1 RB Full RB
		27038 (848.80 MHz)	-	15 kHz	BPSK, QPSK	1 RB Full RB
Radiated Spurious Emissions below 1GHz	Standalone	26915 (836.50 MHz)	-	15 kHz	BPSK	1 RB
Radiated Spurious Emissions above 1GHz	Standalone	26792 (824.20 MHz) 26915 (836.50 MHz) 27038 (848.80 MHz)	-	15 kHz	BPSK	1 RB
Frequency Stability	Standalone	26792 (824.20 MHz) 27038 (848.80 MHz)	-	15 kHz	BPSK	Full RB

For NB-IoT Band 26 (Part 90)

Test Item	Tested Channel		Channel Bandwidth	Sub-carrier	Modulation	Mode
ERP	Standalone	26697 (814.70 MHz) 26740 (819.00 MHz) 26783 (823.30 MHz)	-	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
			-	15 kHz	BPSK, QPSK	1 RB Half RB Full RB
	In-Band	26705 (815.50 MHz) 26740 (819.00 MHz) 26775 (822.50 MHz)	3 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		26715 (816.50 MHz) 26740 (819.00 MHz) 26765 (821.50 MHz)	5 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		26740 (819.00 MHz)	10 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
	Guard-Band	26705 (815.50 MHz) 26740 (819.00 MHz) 26775 (822.50 MHz)	3 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		26715 (816.50 MHz) 26740 (819.00 MHz) 26765 (821.50 MHz)	5 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		26740 (819.00 MHz)	10 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB

Test Item	Tested Channel		Channel Bandwidth	Sub-carrier	Modulation	Mode
Modulation Characteristics	Standalone	26740 (819.00 MHz)	-	-	BPSK, QPSK	Full RB
Occupied Bandwidth	Standalone	26697 (814.70 MHz)	-	3.75 kHz	BPSK, QPSK	Full RB
		26740 (819.00 MHz) 26783 (823.30 MHz)	-	15 kHz	BPSK, QPSK	Full RB
Conducted Spurious Emissions	Standalone	26697 (814.70 MHz)	-	3.75 kHz	BPSK, QPSK	1 RB Full RB
		26740 (819.00 MHz) 26783 (823.30 MHz)	-	15 kHz	BPSK, QPSK	1 RB Full RB
Radiated Spurious Emissions below 1GHz	Standalone	26740 (819.00 MHz)	-	15 kHz	BPSK	1 RB
Radiated Spurious Emissions above 1GHz	Standalone	26697 (814.70 MHz) 26740 (819.00 MHz) 26783 (823.30 MHz)	-	15 kHz	BPSK	1 RB
Frequency Stability	Standalone	26697 (814.70 MHz) 26783 (823.30 MHz)	-	15 kHz	BPSK	Full RB

For NB-IoT Band 66

Test Item	Tested Channel		Channel Bandwidth	Sub-carrier	Modulation	Mode
EIRP	Standalone	131974 (1710.20 MHz) 132322 (1745.00 MHz) 132670 (1779.50 MHz)	-	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
			-	15 kHz	BPSK, QPSK	1 RB Half RB Full RB
	In-Band	131989 (1711.50 MHz) 132322 (1745.00 MHz) 132657 (1778.50 MHz)	3 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		131997 (1712.50 MHz) 132322 (1745.00 MHz) 132647 (1777.50 MHz)	5 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		132022 (1715.00 MHz) 132322 (1745.00 MHz) 132622 (1775.00 MHz)	10 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		132047 (1717.50 MHz) 132322 (1745.00 MHz) 132597 (1772.50 MHz)	15 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		132072 (1720.00 MHz) 132322 (1745.00 MHz) 132572 (1770.00 MHz)	20 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB

Test Item	Tested Channel		Channel Bandwidth	Sub-carrier	Modulation	Mode
EIRP	Guard-Band	131989 (1711.50 MHz) 132322 (1745.00 MHz) 132657 (1778.50 MHz)	3 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		131997 (1712.50 MHz) 132322 (1745.00 MHz) 132647 (1777.50 MHz)	5 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		132022 (1715.00 MHz) 132322 (1745.00 MHz) 132622 (1775.00 MHz)	10 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		132047 (1717.50 MHz) 132322 (1745.00 MHz) 132597 (1772.50 MHz)	15 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		132072 (1720.00 MHz) 132322 (1745.00 MHz) 132572 (1770.00 MHz)	20 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
Modulation Characteristics	Standalone	132322 (1745.00 MHz)	-	-	BPSK, QPSK	Full RB
Peak to Average Ratio	Standalone	131974 (1710.20 MHz) 132322 (1745.00 MHz) 132670 (1779.50 MHz)	-	3.75 kHz	BPSK, QPSK	1 RB
			-	15 kHz	BPSK, QPSK	1 RB
Occupied Bandwidth	Standalone	131974 (1710.20 MHz) 132322 (1745.00 MHz) 132670 (1779.50 MHz)	-	3.75 kHz	BPSK, QPSK	Full RB
			-	15 kHz	BPSK, QPSK	Full RB
Conducted Spurious Emissions	Standalone	131974 (1710.20 MHz) 132322 (1745.00 MHz) 132670 (1779.50 MHz)	-	3.75 kHz	BPSK, QPSK	1 RB Full RB
			-	15 kHz	BPSK, QPSK	1 RB Full RB
Radiated Spurious Emissions below 1GHz	Standalone	132322 (1745.00 MHz)	-	15 kHz	BPSK	1 RB
Radiated Spurious Emissions above 1GHz	Standalone	131974 (1710.20 MHz) 132322 (1745.00 MHz) 132670 (1779.50 MHz)	-	15 kHz	BPSK	1 RB
Frequency Stability	Standalone	131974 (1710.20 MHz) 132670 (1779.50 MHz)	-	15 kHz	BPSK	Full RB

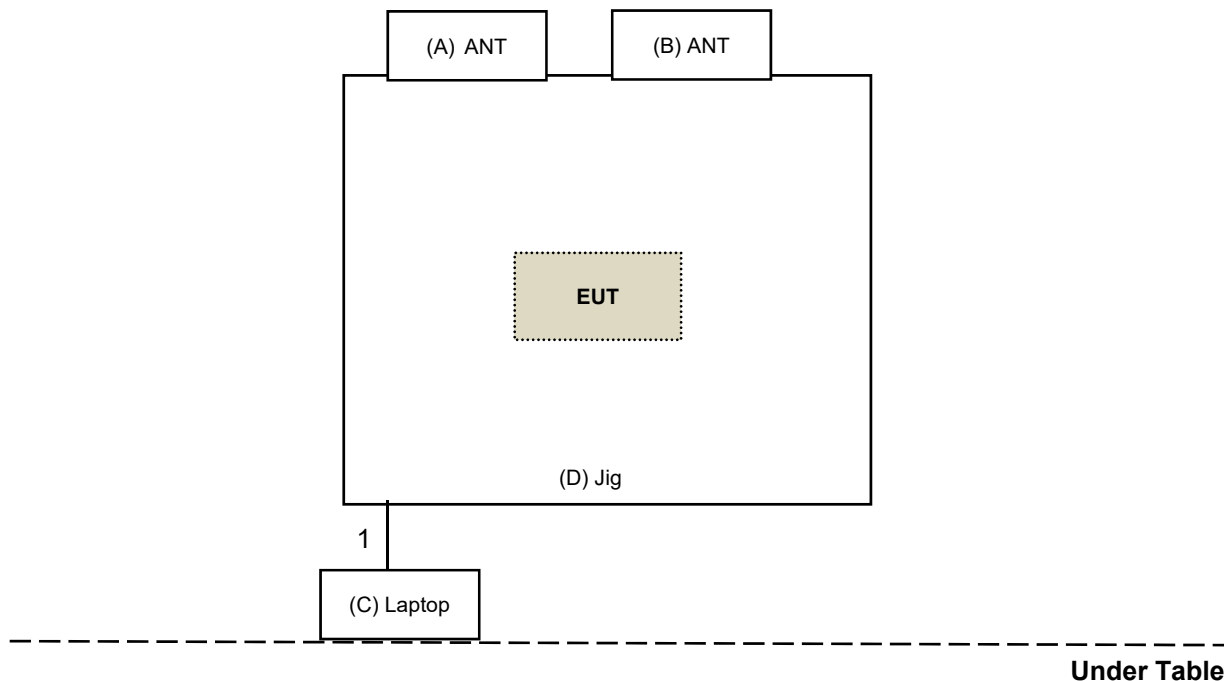
For NB-IoT Band 85

Test Item	Tested Channel		Channel Bandwidth	Sub-carrier	Modulation	Mode
ERP	Standalone	134004 (698.20 MHz) 134092 (707.00 MHz) 134180 (715.80 MHz)	-	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
			-	15 kHz	BPSK, QPSK	1 RB Half RB Full RB
	In-Band	134027 (700.50 MHz) 134092 (707.00 MHz) 134157 (713.50 MHz)	5 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		134052 (703.00 MHz) 134092 (707.00 MHz) 134132 (711.00 MHz)	10 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
	Guard-Band	134027 (700.50 MHz) 134092 (707.00 MHz) 134157 (713.50 MHz)	5 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		134052 (703.00 MHz) 134092 (707.00 MHz) 134132 (711.00 MHz)	10 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
Modulation Characteristics	Standalone	134092 (707.00 MHz)	-	-	BPSK, QPSK	Full RB
Peak to Average Ratio	Standalone	134004 (698.20 MHz) 134092 (707.00 MHz) 134180 (715.80 MHz)	-	3.75 kHz	BPSK, QPSK	1 RB
			-	15 kHz	BPSK, QPSK	1 RB
Occupied Bandwidth	Standalone	134004 (698.20 MHz) 134092 (707.00 MHz) 134180 (715.80 MHz)	-	3.75 kHz	BPSK, QPSK	Full RB
			-	15 kHz	BPSK, QPSK	Full RB
Conducted Spurious Emissions	Standalone	134004 (698.20 MHz) 134092 (707.00 MHz) 134180 (715.80 MHz)	-	3.75 kHz	BPSK, QPSK	1 RB Full RB
			-	15 kHz	BPSK, QPSK	1 RB Full RB
Radiated Spurious Emissions below 1GHz	Standalone	134092 (707.00 MHz)	-	15 kHz	BPSK	1 RB
Radiated Spurious Emissions above 1GHz	Standalone	134004 (698.20 MHz) 134092 (707.00 MHz) 134180 (715.80 MHz)	-	15 kHz	BPSK	1 RB
Frequency Stability	Standalone	134004 (698.20 MHz) 134180 (715.80 MHz)	-	15 kHz	BPSK	Full RB

3.4 Test Program Used and Operation Descriptions

There is no need to controlling software during the test, and the EUT can be paired with the Radio Communication Analyzer to test the connection when it is powered on.

3.5 Connection Diagram of EUT and Peripheral Devices



3.6 Configuration of Peripheral Devices and Cable Connections

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A	ANT	RFLINK	RF21.S00940A	N/A	N/A	Supplied by applicant
B	ANT	RFLINK	RF21.S00940A	N/A	N/A	Supplied by applicant
C	Laptop	Lenovo	L440	R9-0GFJKK	N/A	Provided by Lab
D	Jig	N/A	N/A	N/A	N/A	Supplied by applicant

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1	USB typeC Cable	1	0.9	Yes	No	Supplied by applicant

4 Test Instruments

The calibration interval of the all test instruments are 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.1 Effective Radiated Power and Equivalent Isotropically Radiated Power

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
PXA Signal Analyzer KEYSIGHT	N9030B	MY57140488	2025/3/11	2026/3/10
Radio Communication Analyzer Anritsu	MT8821C	6201462755	2024/3/13	2025/3/12
Wideband Radio Communication Tester R&S	CMW500	152443	2024/8/7	2025/8/6
Software BV	ADT_RF Test Software V6.6.5.4	N/A	N/A	N/A

Notes:

1. The test was performed in Oven room.
2. Tested Date: 2025/3/8 ~ 2025/3/14

4.2 Modulation Characteristics

Refer to section 4.1 to get information of the instruments.

4.3 Peak to Average Ratio

Refer to section 4.1 to get information of the instruments.

4.4 Bandwidth

Refer to section 4.1 to get information of the instruments.

4.5 Conducted Spurious Emissions

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
PXA Signal Analyzer KEYSIGHT	N9030B	MY57140953	2024/8/1	2025/7/31
		MY57140488	2025/3/11	2026/3/10
Radio Communication Analyzer Anritsu	MT8821C	6261806803	2025/2/19	2026/2/18
Wideband Radio Communication Tester R&S	CMW500	152443	2024/8/7	2025/8/6
Software BV	ADT_RF Test Software V6.6.5.4	N/A	N/A	N/A

Notes:

1. The test was performed in Oven room.
2. Tested Date: 2025/3/8 ~ 2025/4/7

4.6 Radiated Spurious Emissions below 1GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	NA	NA	NA
Antenna Tower Max-Full	MFT-151SS-0.5T	NA	NA	NA
Turn Table Max-Full	MF-7802BS	NA	NA	NA
Turn Table Controller Max-Full	MF-7802BS	MF780208674	NA	NA
EMI Test Receiver R&S	ESR3	102782	2024/12/10	2025/12/9
Signal & Spectrum Analyzer R&S	FSW43	101866	2024/3/26	2025/3/25
Loop Antenna TESEQ	HLA 6121	45745	2024/8/21	2025/8/20
Loop Antenna Electro-Metrics	EM-6879	264	2025/3/6	2026/3/5
Preamplifier EMCI	EMC001340	980201	2024/9/24	2025/9/23
RF Coaxial Cable EMCI	5D-NM-BM	140901	2024/9/24	2025/9/23
Preamplifier EMCI	EMC330N	980782	2025/1/14	2026/1/13
Bi_Log Antenna Schwarzbeck	VULB 9168	9168-1213	2024/10/14	2025/10/13
RF Coaxial Cable EMCI	EMCCFD400-NM-NM-500	201233	2025/1/14	2026/1/13
RF Coaxial Cable EMCI	EMCCFD400-NM-NM- 3000	201235	2025/1/14	2026/1/13
RF Coaxial Cable EMCI	EMCCFD400-NM-NM- 9000	201236(with PAD)	2025/1/14	2026/1/13

Notes:

1. The test was performed in WM - 966 chamber 8.
2. Tested Date: 2025/3/3

4.7 Radiated Spurious Emissions above 1GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	NA	NA	NA
Antenna Tower Max-Full	MFT-151SS-0.5T	NA	NA	NA
Turn Table Max-Full	MF-7802BS	NA	NA	NA
Turn Table Controller Max-Full	MF-7802BS	MF780208674	NA	NA
EMI Test Receiver R&S	ESR3	102782	2024/12/10	2025/12/9
Signal & Spectrum Analyzer R&S	FSW43	101866	2024/3/26	2025/3/25
Loop Antenna TESEQ	HLA 6121	45745	2024/8/21	2025/8/20
Loop Antenna Electro-Metrics	EM-6879	264	2025/3/6	2026/3/5
Preamplifier EMCI	EMC001340	980201	2024/9/24	2025/9/23
RF Coaxial Cable EMCI	5D-NM-BM	140901	2024/9/24	2025/9/23
Horn Antenna RFSPIN	DRH18-E	210103A18E	2024/12/26	2025/12/25
Preamplifier EMCI	EMC118A45SE	980808	2024/12/26	2025/12/25
RF Coaxial Cable EMCI	EMC104-SM-SM-1000	210102	2025/1/14	2026/1/13
RF Coaxial Cable EMCI	EMC104-SM-SM-3000	201231	2025/1/14	2026/1/13
RF Coaxial Cable EMCI	EMC104-SM-SM-9000	201243	2025/1/14	2026/1/13
Preamplifier EMCI	EMC184045SE	980788	2025/1/14	2026/1/13
Horn Antenna Schwarzbeck	BBHA 9170	9170-1049	2024/11/10	2025/11/9
RF Coaxial Cable EMCI	EMC101G-KM-KM-5000	201261	2025/1/14	2026/1/13
RF Coaxial Cable EMCI	EMC101G-KM-KM-3000	201258	2025/1/14	2026/1/13
RF Coaxial Cable EMCI	EMC101G-KM-KM-2000	201254	2025/1/14	2026/1/13

Notes:

1. The test was performed in WM - 966 chamber 8.
2. Tested Date: 2025/2/26 ~ 2025/3/11

4.8 Frequency Stability

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
3-channel DC power supply JIN YIH Technology	ODP3033	ODP30332128138	N/A	N/A
Digital Multimeter Fluke	87-III	70360742	2024/7/5	2025/7/4
Signal and spectrum analyzer R&S	FSV3044	101105	2025/2/25	2026/2/24
Software BV	ADT_RF Test Software V6.6.5.4	N/A	N/A	N/A
Temperature & Humidity Chamber TERCHY	HRM-120RF	931022	2025/1/9	2026/1/8
Radio Communication Analyzer Anritsu	MT8821C	6201462755	2024/3/13	2025/3/12

Notes:

1. The test was performed in Oven room.
2. Tested Date: 2025/3/12

5 Limits of Test Items

5.1 Effective Radiated Power and Equivalent Isotropically Radiated Power

For NB-IoT Band 2, NB-IoT Band 25:

Mobile and portable stations are limited to 2 watts EIRP.

For NB-IoT Band 4, NB-IoT Band 66:

Fixed, mobile, and portable (hand-held) [stations](#) operating in the 1710-1755 MHz band and mobile and portable [stations](#) operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt [EIRP](#).

For NB-IoT Band 5, NB-IoT Band 26 (Part 22):

The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 watts.

For NB-IoT Band 8:

Mobile, control and auxiliary test stations must not exceed 10 watts ERP.

For NB-IoT Band 12, NB-IoT Band 85:

Portable [stations](#) (hand-held devices) in the 600 MHz uplink band and the 698-746 MHz band, and fixed and [mobile stations](#) in the 600 MHz uplink band are limited to 3 watts ERP.

For NB-IoT Band 13:

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.

For NB-IoT Band 14:

Control stations and mobile stations transmitting in the 758-768 MHz band and the 788-798 MHz band are limited to 30 watts ERP.

For NB-IoT Band 17:

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

For NB-IoT Band 26 (Part 90):

The maximum output power of the transmitter for mobile stations is 100 watts (20 dBw) ERP.

5.2 Modulation Characteristics

A curve or equivalent data which shows that the equipment will meet the modulation requirements of the rules under which the equipment is to be licensed.

5.3 Peak to Average Ratio

In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13 dB.

5.4 Bandwidth

According to FCC 47 CFR part 2.1049, the occupied bandwidth, that 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% of the total mean power radiated by a given emission.

5.5 Conducted Spurious Emissions

For NB-IoT Band 2, NB-IoT Band 5, NB-IoT Band 25, NB-IoT Band 26 (Part 22):

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB. The emission limit equal to -13 dBm.

For NB-IoT Band 4:

According to FCC 47 CFR part 27.53(h), for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 MHz bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log(P)$ dB. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

For NB-IoT Band 8:

According to FCC 47 CFR part 27.1509(a), the power of any emission outside a licensee's frequency band of operation shall be attenuated below the transmitter power (P) by at least $43 + 10 \log(P)$ dB. The limit of emission is equal to -13 dBm. Compliance with the provisions of paragraphs (a) and (b) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the licensee's band, a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

For NB-IoT Band 12, NB-IoT Band 85:

According to FCC 47 CFR part 27.53(g), for operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log(P)$ dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

For NB-IoT Band 13:

According to FCC 47 CFR part 27.53(c)(2), for on any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least $43 + 10 \log(P)$ dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

According to FCC 47 CFR part 27.53(c)(4) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than $65 + 10 \log(P)$ dB in a 6.25 kHz band segment, for mobile and portable stations.

For operations in the 775-788 MHz, emissions in the band 1559-1610 MHz shall be limited to -70 dBW/MHz (EIRP). The limit of emissions is equal to -40 dBm.

For NB-IoT Band 14:

According to FCC 47 CFR part 90.543 (e), for operations in the 758-768 MHz and the 788-798 MHz bands, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:

(1) On all frequencies between 769-775 MHz and 799-805 MHz, by a factor not less than $65 + 10 \log(P)$ dB in a 6.25 kHz band segment, for mobile and portable stations.

(2) On any frequency between 775-788 MHz, above 805 MHz, and below 758 MHz, by at least $43 + 10 \log(P)$ dB.

According to FCC 47 CFR part 90.543 (f), for operations in the 758-775 MHz and 788-805 MHz bands, all emissions including harmonics in the band 1559-1610 MHz shall be limited to -70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and -80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth.

For NB-IoT Band 17:

According to FCC 47 CFR part 27.53(g), for operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log(P)$ dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

For NB-IoT Band 26 (Part 90):

According to FCC 47 CFR part 90.691 shall be tested the emission masks. For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least $116 \log_{10}(f/6.1)$ decibels or $50 + 10 \log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.

For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

For §90.691(a), RBW = 300 Hz for offset less than 37.5 kHz from channel edge and RBW = 100 kHz for offsets greater than 37.5 kHz is allowed.

For NB-IoT Band 66:

According to FCC 47 CFR part 27.53(h), for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 MHz bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log(P)$ dB. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

5.6 Radiated Spurious Emissions below 1GHz

For NB-IoT Band 2, NB-IoT Band 5, NB-IoT Band 25, NB-IoT Band 26 (Part 22):

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB. The emission limit equal to -13 dBm.

For NB-IoT Band 4:

According to FCC 47 CFR part 27.53(h), for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log(P)$ dB. The limit of emission is equal to -13 dBm.

For NB-IoT Band 8:

According to FCC 47 CFR part 27.1509(a), the power of any emission outside a licensee's frequency band of operation shall be attenuated below the transmitter power (P) by at least $43 + 10 \log(P)$ dB. The limit of emission is equal to -13 dBm.

For NB-IoT Band 12, NB-IoT Band 85:

According to FCC 47 CFR part 27.53(g), for operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log(P)$ dB. The limit of emissions is equal to -13 dBm.

For NB-IoT Band 13:

According to FCC 47 CFR part 27.53(c)(2), for on any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least $43 + 10 \log(P)$ dB. The limit of emissions is equal to -13 dBm.

For operations in the 775-788 MHz, emissions in the band 1559-1610 MHz shall be limited to -70 dBW/MHz (EIRP). The limit of emissions is equal to -40 dBm.

For NB-IoT Band 14:

According to FCC 47 CFR part 90.543 (e), for operations in the 758-768 MHz and the 788-798 MHz bands, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log(P)$ dB.

For NB-IoT Band 17:

According to FCC 47 CFR part 27.53(g), for operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log(P)$ dB. The limit of emissions is equal to -13 dBm.

For NB-IoT Band 26 (Part 90):

For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

For §90.691(a), RBW = 100 kHz for offset greater than 37.5 kHz from channel edge is allowed.

For NB-IoT Band 66:

According to FCC 47 CFR part 27.53(h), for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log(P)$ dB. The limit of emission is equal to -13 dBm.

5.7 Radiated Spurious Emissions above 1GHz

For NB-IoT Band 2, NB-IoT Band 5, NB-IoT Band 25, NB-IoT Band 26 (Part 22):

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB. The emission limit equal to -13 dBm.

For NB-IoT Band 4:

According to FCC 47 CFR part 27.53(h), for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log(P)$ dB. The limit of emission is equal to -13 dBm.

For NB-IoT Band 8:

According to FCC 47 CFR part 27.1509(a), the power of any emission outside a licensee's frequency band of operation shall be attenuated below the transmitter power (P) by at least $43 + 10 \log(P)$ dB. The limit of emission is equal to -13 dBm.

For NB-IoT Band 12, NB-IoT Band 85:

According to FCC 47 CFR part 27.53(g), for operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log(P)$ dB. The limit of emissions is equal to -13 dBm.

For NB-IoT Band 13:

According to FCC 47 CFR part 27.53(c)(2), for on any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least $43 + 10 \log(P)$ dB. The limit of emissions is equal to -13 dBm.

For operations in the 775-788 MHz, emissions in the band 1559-1610 MHz shall be limited to -70 dBW/MHz (EIRP). The limit of emissions is equal to -40 dBm.

For NB-IoT Band 14:

According to FCC 47 CFR part 90.543 (e), for operations in the 758-768 MHz and the 788-798 MHz bands, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log(P)$ dB.

According to FCC 47 CFR part 90.543 (f), for operations in the 758-775 MHz and 788-805 MHz bands, all emissions including harmonics in the band 1559-1610 MHz shall be limited to -70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and -80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth.

For NB-IoT Band 17:

According to FCC 47 CFR part 27.53(g), for operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log(P)$ dB. The limit of emissions is equal to -13 dBm.

For NB-IoT Band 26 (Part 90):

For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

For §90.691(a), RBW = 100 kHz for offset greater than 37.5 kHz from channel edge is allowed.

For NB-IoT Band 66:

According to FCC 47 CFR part 27.53(h), for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log(P)$ dB. The limit of emission is equal to -13 dBm.

5.8 Frequency Stability

For NB-IoT Band 5, NB-IoT Band 26 (Part 90):

1.5 ppm is for base and fixed station. 2.5 ppm is for mobile station.

For NB-IoT Band 2, NB-IoT Band 4, NB-IoT Band 8, NB-IoT Band 12, NB-IoT Band 13, NB-IoT Band 17, NB-IoT Band 25, NB-IoT Band 26 (Part 22), NB-IoT Band 66, NB-IoT Band 85:

The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation (authorized frequency block).

NB-IoT Band 14:

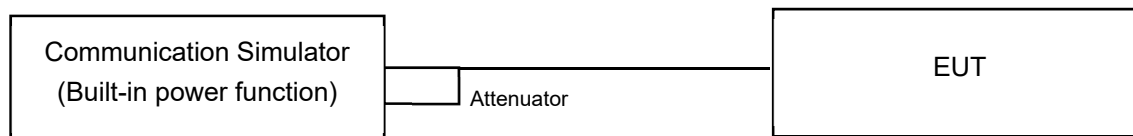
The frequency stability of mobile, portable and control transmitters operating in the wideband segment must be 1.25 parts per million or better when AFC is locked to a base station, and 5 parts per million or better when AFC is not locked.

6 Test Arrangements

6.1 Effective Radiated Power and Equivalent Isotropically Radiated Power

6.1.1 Test Setup

Conducted Power Measurement:



6.1.2 Test Procedure

Conducted Power Measurement:

The EUT is configured by emulator to set data modulation and maximum power using WWAN technology. The average (rms) power measurement was performed on emulator and power value was measured from power function on emulator. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

Maximum EIRP / ERP

The relevant equation for determining the maximum ERP or EIRP from the measured RF output power is given in Equation as follows:

$$\text{EIRP} = P_{\text{Meas}} + G_T$$

$$\text{ERP} = P_{\text{Meas}} + G_T - 2.15$$

where

ERP or EIRP effective radiated power or equivalent isotropically radiated power, respectively

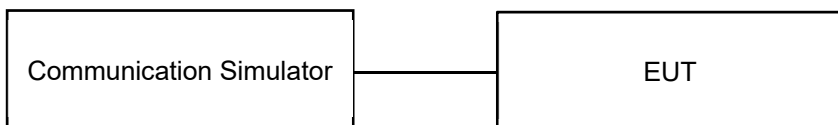
(expressed in the same units as P_{Meas} , e.g., dBm or dBW)

P_{Meas} measured transmitter output power or PSD, in dBm or dBW

G_T gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP)

6.2 Modulation Characteristics

6.2.1 Test Setup

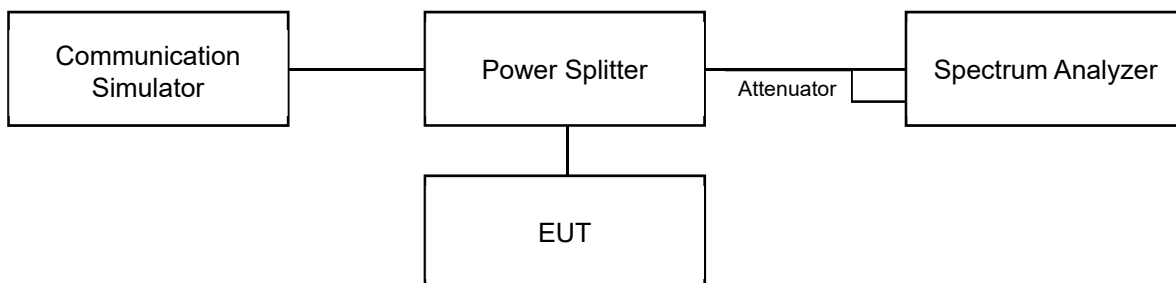


6.2.2 Test Procedure

Connect the EUT to Communication Simulator via the antenna connector, the frequency band is set as EUT supported Modulation and Channels, the EUT output is matched with 50 ohm load, the waveform quality and constellation of the EUT was tested.

6.3 Peak to Average Ratio

6.3.1 Test Setup

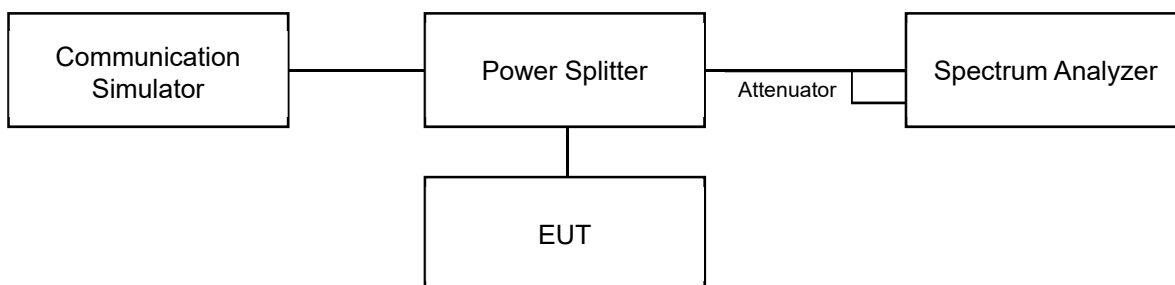


6.3.2 Test Procedure

- Set resolution/measurement bandwidth $\geq$ signal's occupied bandwidth;
- Set the number of counts to a value that stabilizes the measured CCDF curve;
- Record the maximum PAPR level associated with a probability of 0.1%.

6.4 Bandwidth

6.4.1 Test Setup



6.4.2 Test Procedure

For the 26 dBc bandwidth measurement method, please refer to section 5.4.3 of ANSI C63.26.

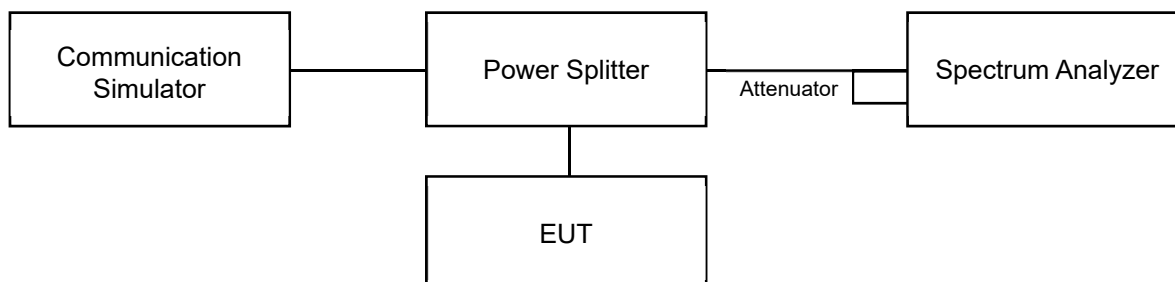
- The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the spectrum analyzer shall be wide enough to see sufficient roll off of the signal to make the measurement.
- The nominal RBW shall be in the range of 1% to 5% of the anticipated OBW, and the VBW shall be set $\geq 3 \times$ RBW.
- Set the reference level of the instrument as required to prevent the signal amplitude from exceeding the maximum spectrum analyzer input mixer level for linear operation. See guidance provided in 4.2.3.
- The dynamic range of the spectrum analyzer at the selected RBW shall be more than 10 dB below the target “-X dB” requirement, i.e., if the requirement calls for measuring the -26 dB OBW, the spectrum analyzer noise floor at the selected RBW shall be at least 36 dB below the reference level.
- Set spectrum analyzer detection mode to peak, and the trace mode to max hold.
- Determine the following reference values: Set the EUT to transmit a modulated signal. Allow the trace to stabilize. Set the spectrum analyzer marker to the highest level of the displayed trace (this is the reference value).
- Determine the “-X dB amplitude” as equal to (Reference Value - X). Alternatively, this calculation can be performed on the spectrum analyzer using the delta-marker measurement function.
- Place two markers, one at the lowest and the other at the highest frequency of the envelope of the spectral display such that each marker is at or slightly below the “-X dB amplitude” determined in step f). If a marker is below this “-X dB amplitude” value it should be as close as possible to this value. The OBW is the positive frequency difference between the two markers.
- The OBW shall be reported by providing plot(s) of the measuring instrument display, to include markers depicting the relevant frequency and amplitude information (e.g., marker table). The frequency and amplitude axis and scale shall be clearly labeled. Tabular data may be reported in addition to the plot(s).

For the occupied bandwidth measurement method, please refer to section 5.4.4 of ANSI C63.26.

- a. The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the spectrum analyzer shall be wide enough to see sufficient roll off of the signal to make the measurement.
- b. The nominal RBW shall be in the range of 1% to 5% of the anticipated OBW, and the VBW shall be set $\geq 3 \times$ RBW.
- c. Set the reference level of the instrument as required to prevent the signal amplitude from exceeding the maximum spectrum analyzer input mixer level for linear operation. See guidance provided in 4.2.3.
- d. The dynamic range of the spectrum analyzer at the selected RBW shall be more than 10 dB below the target “-X dB” requirement, i.e., if the requirement calls for measuring the -26 dB OBW, the spectrum analyzer noise floor at the selected RBW shall be at least 36 dB below the reference level.
- e. Set spectrum analyzer detection mode to peak, and the trace mode to max hold.
- f. Determine the reference value by either of the following:
 - g. 1) Set the EUT to transmit a modulated signal. Allow the trace to stabilize. Set the spectrum analyzer marker to the highest level of the displayed trace (this is the reference value).
 - h. 2) Set the EUT to transmit an unmodulated carrier. Set the spectrum analyzer marker to the level of the carrier.
- i. Determine the “-X dB amplitude” as equal to (Reference Value - X). Alternatively, this calculation can be performed on the spectrum analyzer using the delta-marker measurement function.
- j. If the reference value was determined using an unmodulated carrier, turn the EUT modulation on, then either clear the existing trace or start a new trace on the spectrum analyzer and allow the new trace to stabilize. Otherwise the trace from step f) shall be used for step i).
- k. Place two markers, one at the lowest and the other at the highest frequency of the envelope of the spectral display such that each marker is at or slightly below the “-X dB amplitude” determined in step f). If a marker is below this “-X dB amplitude” value it should be as close as possible to this value. The OBW is the positive frequency difference between the two markers. The spectral envelope can cross the “-X dB amplitude” at multiple points. The lowest or highest frequency shall be selected as the frequencies that are the farthest away from the center frequency at which the spectral envelope crosses the “-X dB amplitude.”
- l. The OBW shall be reported by providing plot(s) of the measuring instrument display, to include markers depicting the relevant frequency and amplitude information (e.g., marker table). The frequency and amplitude axis and scale shall be clearly labeled. Tabular data may be reported in addition to the plot(s).

6.5 Conducted Spurious Emissions

6.5.1 Test Setup



6.5.2 Test Procedure

- Measurement refer to ANSI C63.26 section 5.7.
- All measurements were done at 3 channels: low, middle and high operational frequency range.
- Measuring frequency range is from 9 kHz up to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower. 20 dB attenuation pad is connected with spectrum.
- The fundamental frequency above 1 GHz, the spectrum set RBW = 1 MHz, VBW = 3 MHz, Detector = Average.
- The fundamental frequency below 1 GHz, the spectrum set RBW $\geq$ 100 kHz, VBW $\geq$ 3 x RBW, Detector = Average.
- Measuring frequency band edge, narrow RBW (no less than 1% of the OBW) is used for conducted emission measurement.

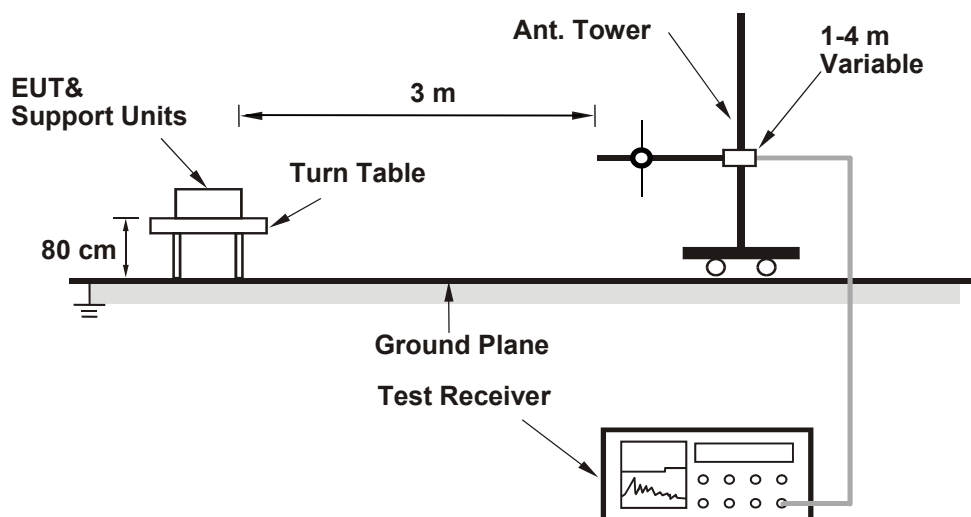
For Emission Mask:

- Measurement refer to ANSI C63.26 section 5.7.
- All measurements were done at 2 channels: low and high operational frequency range.
- According to FCC 47 CFR part 90.691(a), the spectrum set RBW = 300 Hz for offset less than 37.5 kHz from channel edge and RBW = 100 kHz for offsets greater than 37.5 kHz is allowed.
- Record the maximum power value test plot.

6.6 Radiated Spurious Emissions below 1GHz

6.6.1 Test Setup

For radiated emission 30 MHz to 1 GHz



For the actual test configuration, please refer to the attached file (Test Setup Photo).

6.6.2 Test Procedure

The EUT is configured by emulator to set data modulation and maximum power using WWAN technology.

- In the semi-anechoic chamber, EUT placed on the 0.8 m (below or equal 1 GHz) height of turn table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1 m to 4 m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- Perform a field strength measurement and record the worse read value, is the field strength value via a spectrum reading obtained corrected for antenna factor, cable loss and pre-amplifier factor and then mathematically convert the measured field strength level to EIRP/ERP level.
- Following C63.26 section 5.5 and 5.2.7
- $EIRP (dBm) = E (dB\mu V/m) + 20\log(D) - 104.8$; where D is the measurement distance (in the far field region) in m.
- $ERP (dBm) = E (dB\mu V/m) + 20\log(D) - 104.8 - 2.15$; where D is the measurement distance (in the far field region) in m.

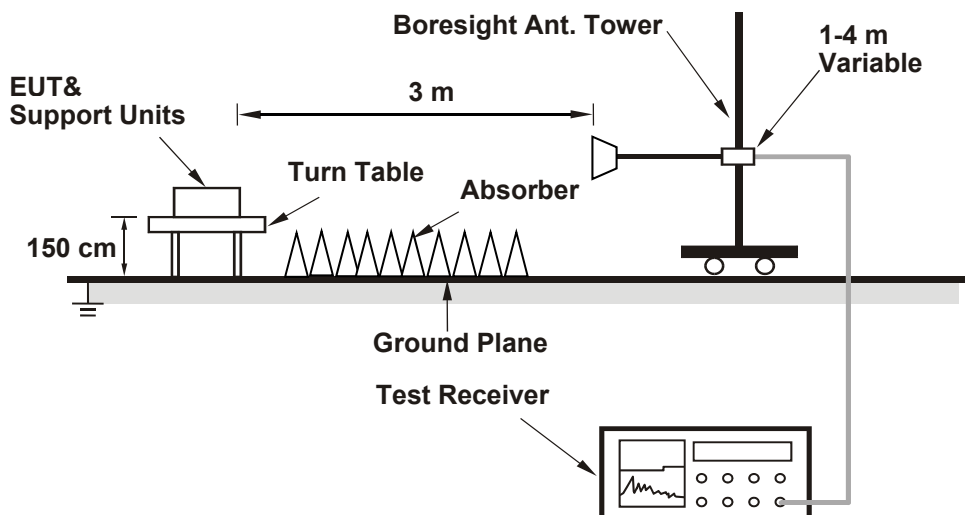
Note:

- The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz/3 MHz.
- The emission levels were against the limit of frequency range 9 kHz ~ 30 MHz:
The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.

6.7 Radiated Spurious Emissions above 1GHz

6.7.1 Test Setup

For radiated emission above 1 GHz



For the actual test configuration, please refer to the attached file (Test Setup Photo).

6.7.2 Test Procedure

The EUT is configured by emulator to set data modulation and maximum power using WWAN technology.

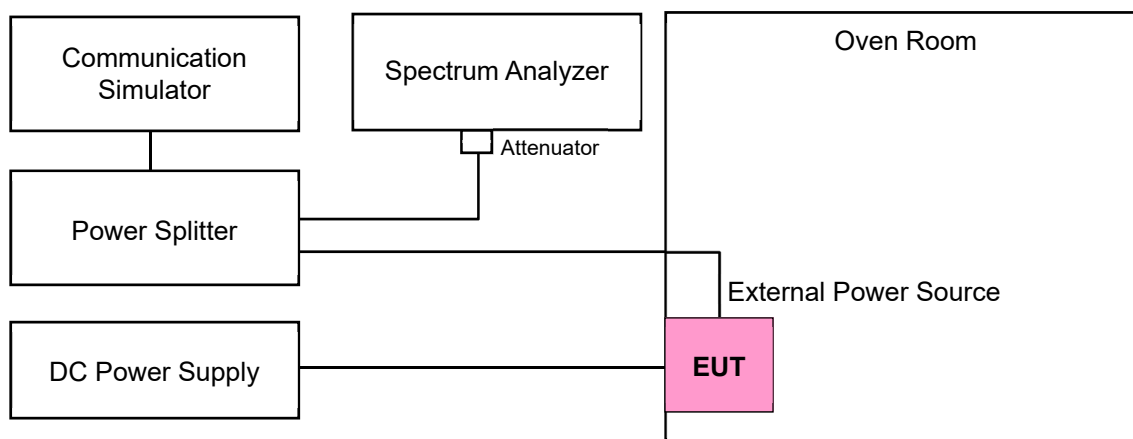
- In the semi-anechoic chamber, EUT placed on the 1.5 m height of turn table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1 m to 4 m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- Perform a field strength measurement and record the worse read value, is the field strength value via a spectrum reading obtained corrected for antenna factor, cable loss and pre-amplifier factor and then mathematically convert the measured field strength level to EIRP/ERP level.
- Following C63.26 section 5.5 and 5.2.7
- $EIRP (dBm) = E (dB\mu V/m) + 20\log(D) - 104.8$; where D is the measurement distance (in the far field region) in m.
- $ERP (dBm) = E (dB\mu V/m) + 20\log(D) - 104.8 - 2.15$; where D is the measurement distance (in the far field region) in m.

Note:

- The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz/3 MHz. Set detector = average.

6.8 Frequency Stability

6.8.1 Test Setup



6.8.2 Test Procedure

The EUT is configured by emulator to set data modulation and maximum power using WWAN technology.

- Device is placed at the oven room. The oven room could control the temperatures and humidity. Power warm up is at least 15 min and power applied should perform before recording frequency error.
- EUT is connected the external power supply to control the DC input power. The test voltage range is from minimum to maximum working voltage. Each step shall be record the frequency error rate.
- The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the $\pm 0.5^{\circ}\text{C}$ during the measurement testing. The each temperature step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.

Note: The frequency error was recorded frequency error from the communication simulator.

7 Test Results of Test Item

7.1 Effective Radiated Power and Equivalent Isotropically Radiated Power

Input Power:	3.8 Vdc	Environmental Conditions:	22°C, 75% RH	Tested By:	Match Tsui
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7.1.1 NB-IoT Band 2 Stand-alone

NB-IoT Band 2					
Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 18602	CH 18900	CH 19198
			1850.2 MHz	1880 MHz	1909.8 MHz
3.75k BPSK	1	0	23.55	23.01	23.1
	1	47	23.52	23.03	23.16
3.75k QPSK	1	0	23.42	22.97	23.05
	1	47	23.36	22.93	23.06
15k BPSK	1	0	23.52	23.47	23.64
	1	11	23.48	23.49	23.63
15k QPSK	1	0	23.5	23.45	23.6
	1	11	23.51	23.54	23.62
	6	0	22.93	22.94	23.14
	6	6	23.08	23.1	23.22
	12	0	22.53	22.44	22.68

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
3.75k BPSK	23.01	23.55	25.04	25.58	33.01
3.75k QPSK	22.93	23.42	24.96	25.45	33.01
15k BPSK	23.47	23.64	25.5	25.67	33.01
15k QPSK	22.44	23.62	24.47	25.65	33.01

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

In-Band

NB-IoT Band 2 3M					
Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 18615	CH 18900	CH 19185
			1851.5 MHz	1880 MHz	1908.5 MHz
3.75k BPSK	1	0	23.38	22.81	22.93
	1	47	23.46	22.93	22.99
3.75k QPSK	1	0	23.25	22.91	22.91
	1	47	23.16	22.82	23.01
15k BPSK	1	0	23.42	23.39	23.52
	1	11	23.38	23.3	23.52
15k QPSK	1	0	23.35	23.37	23.4
	1	11	23.33	23.38	23.46
	6	0	22.86	22.81	23
	6	6	22.93	22.97	23.08
	12	0	22.41	22.31	22.48

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
3.75k BPSK	22.81	23.46	24.84	25.49	33.01
3.75k QPSK	22.82	23.25	24.85	25.28	33.01
15k BPSK	23.3	23.52	25.33	25.55	33.01
15k QPSK	22.31	23.46	24.34	25.49	33.01

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

NB-IoT Band 2 5M

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 18625	CH 18900	CH 19175
			1852.5 MHz	1880 MHz	1907.5 MHz
3.75k BPSK	1	0	23.42	22.81	22.94
	1	47	23.45	22.84	23
3.75k QPSK	1	0	23.32	22.83	22.98
	1	47	23.17	22.78	22.88
15k BPSK	1	0	23.46	23.31	23.47
	1	11	23.32	23.42	23.46
15k QPSK	1	0	23.31	23.38	23.41
	1	11	23.37	23.48	23.43
	6	0	22.75	22.86	22.94
	6	6	22.99	22.95	23.06
	12	0	22.39	22.35	22.54

Output Power

Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
3.75k BPSK	22.81	23.45	24.84	25.48	33.01
3.75k QPSK	22.78	23.32	24.81	25.35	33.01
15k BPSK	23.31	23.47	25.34	25.50	33.01
15k QPSK	22.35	23.48	24.38	25.51	33.01

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

NB-IoT Band 2 10M

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 18650	CH 18900	CH 19150
			1855 MHz	1880 MHz	1905 MHz
3.75k BPSK	1	0	23.35	22.85	22.94
	1	47	23.33	22.95	23.05
3.75k QPSK	1	0	23.31	22.85	22.85
	1	47	23.2	22.75	23.01
15k BPSK	1	0	23.38	23.29	23.57
	1	11	23.36	23.29	23.58
15k QPSK	1	0	23.36	23.3	23.43
	1	11	23.37	23.35	23.53
	6	0	22.86	22.79	22.96
	6	6	22.99	23	23.16
	12	0	22.39	22.33	22.62

Output Power

Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
3.75k BPSK	22.85	23.35	24.88	25.38	33.01
3.75k QPSK	22.75	23.31	24.78	25.34	33.01
15k BPSK	23.29	23.58	25.32	25.61	33.01
15k QPSK	22.33	23.53	24.36	25.56	33.01

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

NB-IoT Band 2 15M

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 18675	CH 18900	CH 19125
			1857.5 MHz	1880 MHz	1902.5 MHz
3.75k BPSK	1	0	23.47	22.91	22.94
	1	47	23.32	22.85	23.1
3.75k QPSK	1	0	23.26	22.83	22.88
	1	47	23.2	22.82	22.87
15k BPSK	1	0	23.41	23.34	23.45
	1	11	23.33	23.36	23.55
15k QPSK	1	0	23.42	23.28	23.41
	1	11	23.42	23.38	23.48
	6	0	22.75	22.8	23
	6	6	22.99	22.9	23.02
	12	0	22.38	22.34	22.6

Output Power

Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
3.75k BPSK	22.85	23.47	24.88	25.5	33.01
3.75k QPSK	22.82	23.26	24.85	25.29	33.01
15k BPSK	23.33	23.55	25.36	25.58	33.01
15k QPSK	22.34	23.48	24.37	25.51	33.01

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

NB-IoT Band 2 20M					
Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 18700	CH 18900	CH 19100
			1860 MHz	1880 MHz	1900 MHz
3.75k BPSK	1	0	23.49	22.84	22.91
	1	47	23.36	22.95	23.08
3.75k QPSK	1	0	23.31	22.8	22.95
	1	47	23.21	22.88	22.87
15k BPSK	1	0	23.47	23.37	23.57
	1	11	23.42	23.38	23.53
15k QPSK	1	0	23.34	23.26	23.54
	1	11	23.41	23.46	23.42
	6	0	22.88	22.74	22.95
	6	6	22.91	22.96	23.15
	12	0	22.37	22.27	22.59

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
3.75k BPSK	22.84	23.49	24.87	25.52	33.01
3.75k QPSK	22.8	23.31	24.83	25.34	33.01
15k BPSK	23.37	23.57	25.4	25.6	33.01
15k QPSK	22.27	23.54	24.3	25.57	33.01

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

Guard-Band

NB-IoT Band 2 3M					
Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 18615	CH 18900	CH 19185
			1851.5 MHz	1880 MHz	1908.5 MHz
3.75k BPSK	1	0	23.36	22.95	22.93
	1	47	23.34	22.93	23.01
3.75k QPSK	1	0	23.36	22.82	22.99
	1	47	23.31	22.83	22.98
15k BPSK	1	0	23.42	23.33	23.46
	1	11	23.29	23.35	23.49
15k QPSK	1	0	23.35	23.25	23.41
	1	11	23.35	23.35	23.5
	6	0	22.79	22.83	23.07
	6	6	22.9	23.05	23.09
	12	0	22.41	22.35	22.59

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
3.75k BPSK	22.93	23.36	24.96	25.39	33.01
3.75k QPSK	22.82	23.36	24.85	25.39	33.01
15k BPSK	23.29	23.49	25.32	25.52	33.01
15k QPSK	22.35	23.5	24.38	25.53	33.01

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

NB-IoT Band 2 5M

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 18625	CH 18900	CH 19175
			1852.5 MHz	1880 MHz	1907.5 MHz
3.75k BPSK	1	0	23.47	22.89	23
	1	47	23.36	22.93	22.97
3.75k QPSK	1	0	23.23	22.78	22.87
	1	47	23.27	22.8	22.99
15k BPSK	1	0	23.33	23.35	23.51
	1	11	23.37	23.34	23.54
15k QPSK	1	0	23.34	23.4	23.49
	1	11	23.46	23.45	23.47
	6	0	22.73	22.86	23.06
	6	6	22.97	22.99	23.12
	12	0	22.45	22.24	22.55

Output Power

Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
3.75k BPSK	22.89	23.47	24.92	25.5	33.01
3.75k QPSK	22.78	23.27	24.81	25.3	33.01
15k BPSK	23.33	23.54	25.36	25.57	33.01
15k QPSK	22.24	23.49	24.27	25.52	33.01

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

NB-IoT Band 2 10M

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 18650	CH 18900	CH 19150
			1855 MHz	1880 MHz	1905 MHz
3.75k BPSK	1	0	23.48	22.88	23
	1	47	23.45	22.97	22.99
3.75k QPSK	1	0	23.29	22.85	22.97
	1	47	23.24	22.83	22.9
15k BPSK	1	0	23.34	23.3	23.45
	1	11	23.4	23.32	23.49
15k QPSK	1	0	23.35	23.3	23.46
	1	11	23.42	23.38	23.49
	6	0	22.77	22.84	23.07
	6	6	22.96	22.9	23.05
	12	0	22.45	22.27	22.58

Output Power

Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
3.75k BPSK	22.88	23.48	24.91	25.51	33.01
3.75k QPSK	22.83	23.29	24.86	25.32	33.01
15k BPSK	23.3	23.49	25.33	25.52	33.01
15k QPSK	22.27	23.49	24.3	25.52	33.01

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

NB-IoT Band 2 15M

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 18675	CH 18900	CH 19125
			1857.5 MHz	1880 MHz	1902.5 MHz
3.75k BPSK	1	0	23.49	22.95	22.95
	1	47	23.43	22.94	23.07
3.75k QPSK	1	0	23.3	22.86	22.97
	1	47	23.23	22.87	22.99
15k BPSK	1	0	23.39	23.3	23.56
	1	11	23.33	23.33	23.49
15k QPSK	1	0	23.42	23.38	23.41
	1	11	23.44	23.43	23.46
	6	0	22.74	22.8	23.05
	6	6	22.94	23.02	23.05
	12	0	22.34	22.36	22.57

Output Power

Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
3.75k BPSK	22.94	23.49	24.97	25.52	33.01
3.75k QPSK	22.86	23.3	24.89	25.33	33.01
15k BPSK	23.3	23.56	25.33	25.59	33.01
15k QPSK	22.34	23.46	24.37	25.49	33.01

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

NB-IoT Band 2 20M					
Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 18700	CH 18900	CH 19100
			1860 MHz	1880 MHz	1900 MHz
3.75k BPSK	1	0	23.46	22.83	22.96
	1	47	23.44	22.94	23.11
3.75k QPSK	1	0	23.35	22.8	22.93
	1	47	23.27	22.86	22.95
15k BPSK	1	0	23.43	23.3	23.59
	1	11	23.35	23.31	23.48
15k QPSK	1	0	23.31	23.31	23.45
	1	11	23.44	23.39	23.42
	6	0	22.78	22.84	23.07
	6	6	23	22.9	23.06
	12	0	22.43	22.36	22.61

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
3.75k BPSK	22.83	23.46	24.86	25.49	33.01
3.75k QPSK	22.8	23.35	24.83	25.38	33.01
15k BPSK	23.3	23.59	25.33	25.62	33.01
15k QPSK	22.36	23.45	24.39	25.48	33.01

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

7.1.2 NB-IoT Band 4

Stand-alone

NB-IoT Band 4					
Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 19952	CH 20175	CH 20398
			1710.2 MHz	1732.5 MHz	1754.8 MHz
3.75k BPSK	1	0	22.98	22.89	23.01
	1	47	22.94	22.92	22.94
3.75k QPSK	1	0	22.98	22.96	22.91
	1	47	23.01	22.85	22.89
15k BPSK	1	0	23.45	23.45	23.57
	1	11	23.6	23.48	23.47
15k QPSK	1	0	23.54	23.48	23.5
	1	11	23.49	23.49	23.54
	6	0	23.11	23.07	23.08
	6	6	23.26	23.15	23.12
	12	0	22.53	22.33	22.39

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
3.75k BPSK	22.89	23.01	24.92	25.04	30.00
3.75k QPSK	22.85	23.01	24.88	25.04	30.00
15k BPSK	23.45	23.6	25.48	25.63	30.00
15k QPSK	22.33	23.54	24.36	25.57	30.00

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

In-Band

NB-IoT Band 4 3M					
Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 19965	CH 20175	CH 20385
			1711.5 MHz	1732.5 MHz	1753.5 MHz
3.75k BPSK	1	0	22.8	22.8	22.86
	1	47	22.75	22.85	22.86
3.75k QPSK	1	0	22.8	22.79	22.85
	1	47	22.82	22.8	22.81
15k BPSK	1	0	23.26	23.35	23.44
	1	11	23.48	23.41	23.29
15k QPSK	1	0	23.46	23.38	23.45
	1	11	23.29	23.41	23.36
	6	0	22.99	22.91	22.92
	6	6	23.1	22.97	23.05
	12	0	22.37	22.27	22.27

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
3.75k BPSK	22.75	22.86	24.78	24.89	30.00
3.75k QPSK	22.79	22.85	24.82	24.88	30.00
15k BPSK	23.26	23.48	25.29	25.51	30.00
15k QPSK	22.27	23.46	24.3	25.49	30.00

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

NB-IoT Band 4 5M

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 19975	CH 20175	CH 20375
			1712.5 MHz	1732.5 MHz	1752.5 MHz
3.75k BPSK	1	0	22.87	22.72	22.95
	1	47	22.83	22.87	22.81
3.75k QPSK	1	0	22.85	22.9	22.77
	1	47	22.88	22.74	22.83
15k BPSK	1	0	23.26	23.37	23.39
	1	11	23.45	23.35	23.3
15k QPSK	1	0	23.39	23.35	23.44
	1	11	23.31	23.29	23.36
	6	0	22.91	22.9	22.88
	6	6	23.06	23.07	23.02
	12	0	22.45	22.16	22.34

Output Power

Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
3.75k BPSK	22.72	22.95	24.75	24.98	30.00
3.75k QPSK	22.74	22.9	24.77	24.93	30.00
15k BPSK	23.26	23.45	25.29	25.48	30.00
15k QPSK	22.16	23.44	24.19	25.47	30.00

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

NB-IoT Band 4 10M

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 20000	CH 20175	CH 20350
			1715 MHz	1732.5 MHz	1750 MHz
3.75k BPSK	1	0	22.83	22.82	22.92
	1	47	22.88	22.73	22.74
3.75k QPSK	1	0	22.78	22.84	22.84
	1	47	22.9	22.79	22.73
15k BPSK	1	0	23.29	23.37	23.47
	1	11	23.51	23.43	23.42
15k QPSK	1	0	23.49	23.38	23.41
	1	11	23.31	23.35	23.43
	6	0	22.93	22.88	23.02
	6	6	23.19	22.99	23
	12	0	22.46	22.28	22.23

Output Power

Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
3.75k BPSK	22.73	22.92	24.76	24.95	30.00
3.75k QPSK	22.73	22.9	24.76	24.93	30.00
15k BPSK	23.29	23.51	25.32	25.54	30.00
15k QPSK	22.23	23.49	24.26	25.52	30.00

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

NB-IoT Band 4 15M

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 20025	CH 20175	CH 20325
			1717.5 MHz	1732.5 MHz	1747.5 MHz
3.75k BPSK	1	0	22.82	22.81	22.9
	1	47	22.79	22.79	22.77
3.75k QPSK	1	0	22.88	22.83	22.82
	1	47	22.87	22.7	22.83
15k BPSK	1	0	23.25	23.34	23.43
	1	11	23.51	23.29	23.27
15k QPSK	1	0	23.35	23.31	23.42
	1	11	23.34	23.31	23.34
	6	0	22.94	22.87	22.89
	6	6	23.17	23.05	23.05
	12	0	22.48	22.13	22.19

Output Power

Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
3.75k BPSK	22.77	22.9	24.8	24.93	30.00
3.75k QPSK	22.7	22.88	24.73	24.91	30.00
15k BPSK	23.25	23.51	25.28	25.54	30.00
15k QPSK	22.13	23.42	24.16	25.45	30.00

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

NB-IoT Band 4 20M

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 20050	CH 20175	CH 20300
			1720 MHz	1732.5 MHz	1745 MHz
3.75k BPSK	1	0	22.92	22.75	22.9
	1	47	22.78	22.87	22.74
3.75k QPSK	1	0	22.91	22.91	22.79
	1	47	22.93	22.65	22.8
15k BPSK	1	0	23.38	23.32	23.39
	1	11	23.45	23.28	23.27
15k QPSK	1	0	23.41	23.43	23.37
	1	11	23.35	23.31	23.36
	6	0	23.01	22.88	22.98
	6	6	23.18	23.08	23.03
	12	0	22.42	22.18	22.34

Output Power

Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
3.75k BPSK	22.74	22.92	24.77	24.95	30.00
3.75k QPSK	22.65	22.93	24.68	24.96	30.00
15k BPSK	23.27	23.45	25.3	25.48	30.00
15k QPSK	22.18	23.43	24.21	25.46	30.00

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

Guard-Band

NB-IoT Band 4 3M					
Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 19965	CH 20175	CH 20385
			1711.5 MHz	1732.5 MHz	1753.5 MHz
3.75k BPSK	1	0	22.8	22.78	22.94
	1	47	22.88	22.87	22.77
3.75k QPSK	1	0	22.8	22.84	22.86
	1	47	22.82	22.72	22.82
15k BPSK	1	0	23.36	23.4	23.41
	1	11	23.44	23.35	23.4
15k QPSK	1	0	23.43	23.31	23.35
	1	11	23.42	23.3	23.4
	6	0	22.98	22.87	22.97
	6	6	23.12	23.06	23.04
	12	0	22.4	22.13	22.31

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
3.75k BPSK	22.77	22.94	24.8	24.97	30.00
3.75k QPSK	22.72	22.86	24.75	24.89	30.00
15k BPSK	23.35	23.44	25.38	25.47	30.00
15k QPSK	22.13	23.43	24.16	25.46	30.00

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

NB-IoT Band 4 5M

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 19975	CH 20175	CH 20375
			1712.5 MHz	1732.5 MHz	1752.5 MHz
3.75k BPSK	1	0	22.79	22.7	22.83
	1	47	22.88	22.8	22.76
3.75k QPSK	1	0	22.83	22.9	22.84
	1	47	22.91	22.67	22.7
15k BPSK	1	0	23.25	23.26	23.37
	1	11	23.55	23.4	23.35
15k QPSK	1	0	23.47	23.34	23.41
	1	11	23.39	23.34	23.37
	6	0	23.02	22.91	22.98
	6	6	23.1	23.04	22.93
	12	0	22.33	22.14	22.24

Output Power

Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
3.75k BPSK	22.7	22.88	24.73	24.91	30.00
3.75k QPSK	22.67	22.91	24.7	24.94	30.00
15k BPSK	23.25	23.55	25.28	25.58	30.00
15k QPSK	22.14	23.47	24.17	25.5	30.00

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

NB-IoT Band 4 10M

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 20000	CH 20175	CH 20350
			1715 MHz	1732.5 MHz	1750 MHz
3.75k BPSK	1	0	22.79	22.71	22.91
	1	47	22.89	22.79	22.86
3.75k QPSK	1	0	22.91	22.86	22.77
	1	47	22.82	22.75	22.83
15k BPSK	1	0	23.34	23.32	23.42
	1	11	23.46	23.39	23.33
15k QPSK	1	0	23.47	23.35	23.3
	1	11	23.42	23.44	23.42
	6	0	23.03	22.94	22.92
	6	6	23.18	23	22.97
	12	0	22.33	22.17	22.31

Output Power

Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
3.75k BPSK	22.71	22.91	24.74	24.94	30.00
3.75k QPSK	22.75	22.91	24.78	24.94	30.00
15k BPSK	23.32	23.46	25.35	25.49	30.00
15k QPSK	22.17	23.47	24.2	25.5	30.00

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

NB-IoT Band 4 15M

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 20025	CH 20175	CH 20325
			1717.5 MHz	1732.5 MHz	1747.5 MHz
3.75k BPSK	1	0	22.86	22.74	22.93
	1	47	22.87	22.79	22.76
3.75k QPSK	1	0	22.79	22.76	22.85
	1	47	22.81	22.79	22.8
15k BPSK	1	0	23.28	23.26	23.48
	1	11	23.55	23.39	23.36
15k QPSK	1	0	23.36	23.32	23.4
	1	11	23.38	23.43	23.45
	6	0	23.06	22.95	23.03
	6	6	23.08	23.02	22.95
	12	0	22.4	22.21	22.26

Output Power

Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
3.75k BPSK	22.74	22.93	24.77	24.96	30.00
3.75k QPSK	22.76	22.85	24.79	24.88	30.00
15k BPSK	23.26	23.55	25.29	25.58	30.00
15k QPSK	22.21	23.45	24.24	25.48	30.00

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

NB-IoT Band 4 20M

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 20050	CH 20175	CH 20300
			1720 MHz	1732.5 MHz	1745 MHz
3.75k BPSK	1	0	22.92	22.76	22.81
	1	47	22.88	22.86	22.74
3.75k QPSK	1	0	22.78	22.9	22.71
	1	47	22.92	22.68	22.81
15k BPSK	1	0	23.26	23.31	23.42
	1	11	23.45	23.32	23.35
15k QPSK	1	0	23.45	23.3	23.39
	1	11	23.43	23.31	23.45
	6	0	22.95	23.02	23.02
	6	6	23.07	23.09	23.04
	12	0	22.45	22.27	22.27

Output Power

Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
3.75k BPSK	22.74	22.92	24.77	24.95	30.00
3.75k QPSK	22.68	22.92	24.71	24.95	30.00
15k BPSK	23.26	23.45	25.29	25.48	30.00
15k QPSK	22.27	23.45	24.3	25.48	30.00

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

7.1.3 NB-IoT Band 5

Stand-alone

NB-IoT Band 5					
Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 20402	CH 20525	CH 20648
			824.2 MHz	836.5 MHz	848.8 MHz
3.75k BPSK	1	0	23.61	23.12	23.59
	1	47	23.64	23.13	23.64
3.75k QPSK	1	0	23.57	23.12	23.53
	1	47	23.54	23.64	23.61
15k BPSK	1	0	23.57	23.49	23.55
	1	11	23.5	23.65	23.56
15k QPSK	1	0	23.6	23.61	23.53
	1	11	23.59	23.57	23.57
	6	0	23.07	23.05	23.01
	6	6	23.12	23.2	23.15
	12	0	22.41	22.41	22.52

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
3.75k BPSK	23.12	23.64	23.6	24.12	38.45
3.75k QPSK	23.12	23.64	23.6	24.12	38.45
15k BPSK	23.49	23.65	23.97	24.13	38.45
15k QPSK	22.41	23.61	22.89	24.09	38.45

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

In-Band

NB-IoT Band 5 3M					
Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 20415	CH 20525	CH 20635
			825.5 MHz	836.5 MHz	847.5 MHz
3.75k BPSK	1	0	23.43	23.05	23.4
	1	47	23.5	22.96	23.53
3.75k QPSK	1	0	23.38	23.01	23.45
	1	47	23.46	23.51	23.43
15k BPSK	1	0	23.39	23.41	23.48
	1	11	23.34	23.48	23.48
15k QPSK	1	0	23.53	23.53	23.4
	1	11	23.52	23.47	23.46
	6	0	22.87	22.95	22.92
	6	6	22.92	23.02	23.07
	12	0	22.24	22.31	22.42

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
3.75k BPSK	22.96	23.53	23.44	24.01	38.45
3.75k QPSK	23.01	23.51	23.49	23.99	38.45
15k BPSK	23.34	23.48	23.82	23.96	38.45
15k QPSK	22.24	23.53	22.72	24.01	38.45

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

ERP (dBm) = EIRP (dBm) - 2.15

NB-IoT Band 5 5M

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 20425	CH 20525	CH 20625
			826.5 MHz	836.5 MHz	846.5 MHz
3.75k BPSK	1	0	23.45	23.04	23.51
	1	47	23.44	22.93	23.45
3.75k QPSK	1	0	23.43	23.07	23.41
	1	47	23.44	23.59	23.51
15k BPSK	1	0	23.39	23.35	23.37
	1	11	23.37	23.49	23.49
15k QPSK	1	0	23.54	23.42	23.36
	1	11	23.51	23.45	23.48
	6	0	22.88	22.89	22.83
	6	6	23.02	23.09	23.06
	12	0	22.33	22.29	22.36

Output Power

Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
3.75k BPSK	22.93	23.51	23.41	23.99	38.45
3.75k QPSK	23.07	23.59	23.55	24.07	38.45
15k BPSK	23.35	23.49	23.83	23.97	38.45
15k QPSK	22.29	23.54	22.77	24.02	38.45

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

ERP (dBm) = EIRP (dBm) - 2.15

NB-IoT Band 5 10M

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 20450	CH 20525	CH 20600
			829 MHz	836.5 MHz	844 MHz
3.75k BPSK	1	0	23.41	22.95	23.5
	1	47	23.49	23.02	23.44
3.75k QPSK	1	0	23.38	23.07	23.45
	1	47	23.44	23.51	23.53
15k BPSK	1	0	23.48	23.39	23.37
	1	11	23.31	23.59	23.48
15k QPSK	1	0	23.49	23.56	23.4
	1	11	23.48	23.42	23.39
	6	0	22.91	22.94	22.9
	6	6	23.01	23.09	22.95
	12	0	22.32	22.32	22.37

Output Power

Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
3.75k BPSK	22.95	23.5	23.43	23.98	38.45
3.75k QPSK	23.07	23.53	23.55	24.01	38.45
15k BPSK	23.31	23.59	23.79	24.07	38.45
15k QPSK	22.32	23.56	22.8	24.04	38.45

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

ERP (dBm) = EIRP (dBm) - 2.15

Guard-Band

NB-IoT Band 5 3M					
Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 20415	CH 20525	CH 20635
			825.5 MHz	836.5 MHz	847.5 MHz
3.75k BPSK	1	0	23.51	23.03	23.46
	1	47	23.58	23.01	23.46
3.75k QPSK	1	0	23.47	23.05	23.34
	1	47	23.38	23.57	23.41
15k BPSK	1	0	23.45	23.33	23.4
	1	11	23.37	23.59	23.44
15k QPSK	1	0	23.55	23.56	23.33
	1	11	23.43	23.45	23.42
	6	0	22.91	22.86	22.85
	6	6	23.01	23.04	22.98
	12	0	22.36	22.27	22.46

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
3.75k BPSK	23.01	23.58	23.49	24.06	38.45
3.75k QPSK	23.05	23.57	23.53	24.05	38.45
15k BPSK	23.33	23.59	23.81	24.07	38.45
15k QPSK	22.27	23.56	22.75	24.04	38.45

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

ERP (dBm) = EIRP (dBm) - 2.15

NB-IoT Band 5 5M

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 20425	CH 20525	CH 20625
			826.5 MHz	836.5 MHz	846.5 MHz
3.75k BPSK	1	0	23.43	22.92	23.44
	1	47	23.54	23.04	23.5
3.75k QPSK	1	0	23.39	23.01	23.46
	1	47	23.47	23.49	23.45
15k BPSK	1	0	23.51	23.3	23.36
	1	11	23.42	23.53	23.42
15k QPSK	1	0	23.46	23.5	23.46
	1	11	23.53	23.52	23.5
	6	0	23	22.97	22.85
	6	6	23.01	23.1	23.01
	12	0	22.35	22.34	22.34

Output Power

Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
3.75k BPSK	22.92	23.54	23.4	24.02	38.45
3.75k QPSK	23.01	23.49	23.49	23.97	38.45
15k BPSK	23.3	23.53	23.78	24.01	38.45
15k QPSK	22.34	23.53	22.82	24.01	38.45

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

ERP (dBm) = EIRP (dBm) - 2.15

NB-IoT Band 5 10M

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 20450	CH 20525	CH 20600
			829 MHz	836.5 MHz	844 MHz
3.75k BPSK	1	0	23.41	23.04	23.42
	1	47	23.59	22.93	23.55
3.75k QPSK	1	0	23.52	23.05	23.46
	1	47	23.34	23.48	23.5
15k BPSK	1	0	23.4	23.41	23.39
	1	11	23.3	23.53	23.44
15k QPSK	1	0	23.42	23.44	23.36
	1	11	23.54	23.47	23.41
	6	0	23.02	22.87	22.88
	6	6	22.93	23.02	23.04
	12	0	22.35	22.27	22.35

Output Power

Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
3.75k BPSK	22.93	23.59	23.41	24.07	38.45
3.75k QPSK	23.05	23.52	23.53	24	38.45
15k BPSK	23.3	23.53	23.78	24.01	38.45
15k QPSK	22.27	23.54	22.75	24.02	38.45

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

ERP (dBm) = EIRP (dBm) - 2.15

7.1.4 NB-IoT Band 8

Stand-alone

NB-IoT Band 8					
Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 21627	CH 21640	CH 21653
			897.7 MHz	899 MHz	900.3 MHz
3.75k BPSK	1	0	22.93	22.84	23.47
	1	47	22.98	22.96	23.41
3.75k QPSK	1	0	22.86	22.87	23.4
	1	47	22.9	22.9	23.33
15k BPSK	1	0	23.45	23.41	23.42
	1	11	23.49	23.44	23.47
15k QPSK	1	0	23.48	23.35	23.43
	1	11	23.4	23.35	23.42
	6	0	22.82	22.76	22.81
	6	6	22.93	22.91	22.95
	12	0	22.31	22.19	22.41

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
3.75k BPSK	22.84	23.47	23.32	23.95	40.00
3.75k QPSK	22.86	23.4	23.34	23.88	40.00
15k BPSK	23.41	23.49	23.89	23.97	40.00
15k QPSK	22.19	23.48	22.67	23.96	40.00

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

ERP (dBm) = EIRP (dBm) - 2.15

In-Band

NB-IoT Band 8 3M			
Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)
			CH 21640
			899MHz
3.75k BPSK	1	0	22.65
	1	47	22.9
3.75k QPSK	1	0	22.77
	1	47	22.78
15k BPSK	1	0	23.34
	1	11	23.26
15k QPSK	1	0	23.28
	1	11	23.24
	6	0	22.7
	6	6	22.71
	12	0	22.03

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
3.75k BPSK	22.65	22.9	23.13	23.38	40.00
3.75k QPSK	22.77	22.78	23.25	23.26	40.00
15k BPSK	23.26	23.34	23.74	23.82	40.00
15k QPSK	22.03	23.28	22.51	23.76	40.00

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

ERP (dBm) = EIRP (dBm) - 2.15

Guard-Band

NB-IoT Band 8 3M			
Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)
			CH 21640
			899MHz
3.75k BPSK	1	0	22.72
	1	24	22.84
3.75k QPSK	1	0	22.7
	1	24	22.8
15k BPSK	1	0	23.22
	1	24	23.36
15k QPSK	1	0	23.29
	1	24	23.18
	1	49	22.67
	25	0	22.78
	25	12	22.13

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
3.75k BPSK	22.72	22.84	23.2	23.32	40.00
3.75k QPSK	22.7	22.8	23.18	23.28	40.00
15k BPSK	23.22	23.36	23.7	23.84	40.00
15k QPSK	22.13	23.29	22.61	23.77	40.00

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

ERP (dBm) = EIRP (dBm) - 2.15

7.1.5 NB-IoT Band 12

Stand-alone

NB-IoT Band 12					
Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 23012	CH 23095	CH 23178
			699.2 MHz	707.5 MHz	715.8 MHz
3.75k BPSK	1	0	23.19	23.09	23.15
	1	47	23.19	23.1	23.19
3.75k QPSK	1	0	23.16	23.03	23.12
	1	47	23.21	22.94	23.14
15k BPSK	1	0	23.7	23.59	23.65
	1	11	23.66	23.63	23.63
15k QPSK	1	0	23.65	23.57	23.69
	1	11	23.51	23.55	23.59
	6	0	23.05	23.06	23.14
	6	6	23.24	23.18	23.2
	12	0	22.46	22.51	22.28

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
3.75k BPSK	23.09	23.19	22.57	22.67	44.77
3.75k QPSK	22.94	23.21	22.42	22.69	44.77
15k BPSK	23.59	23.7	23.07	23.18	44.77
15k QPSK	22.28	23.69	21.76	23.17	44.77

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

ERP (dBm) = EIRP (dBm) - 2.15

In-Band

NB-IoT Band 12 3M					
Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 23025	CH 23095	CH 23165
			700.5 MHz	707.5 MHz	714.5 MHz
3.75k BPSK	1	0	23.03	22.89	23
	1	47	23.1	23.04	23.05
3.75k QPSK	1	0	23.04	22.9	23.02
	1	47	23.1	22.74	23.08
15k BPSK	1	0	23.62	23.53	23.51
	1	11	23.59	23.48	23.47
15k QPSK	1	0	23.55	23.51	23.53
	1	11	23.32	23.38	23.5
	6	0	22.87	23	23.04
	6	6	23.15	23.07	23.08
	12	0	22.29	22.35	22.16

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
3.75k BPSK	22.89	23.1	22.37	22.58	44.77
3.75k QPSK	22.74	23.1	22.22	22.58	44.77
15k BPSK	23.47	23.62	22.95	23.1	44.77
15k QPSK	22.16	23.55	21.64	23.03	44.77

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

ERP (dBm) = EIRP (dBm) - 2.15

NB-IoT Band 12 5M

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 23035	CH 23095	CH 23155
			701.5 MHz	707.5 MHz	713.5 MHz
3.75k BPSK	1	0	23.1	22.93	23.07
	1	47	23.07	23	23.06
3.75k QPSK	1	0	23.04	22.88	23.03
	1	47	23.06	22.76	23.07
15k BPSK	1	0	23.56	23.47	23.55
	1	11	23.51	23.57	23.45
15k QPSK	1	0	23.51	23.39	23.59
	1	11	23.35	23.48	23.48
	6	0	22.94	23.01	22.98
	6	6	23.06	23.06	23.05
	12	0	22.28	22.35	22.1

Output Power

Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
3.75k BPSK	22.93	23.1	22.41	22.58	44.77
3.75k QPSK	22.76	23.07	22.24	22.55	44.77
15k BPSK	23.45	23.57	22.93	23.05	44.77
15k QPSK	22.1	23.59	21.58	23.07	44.77

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

ERP (dBm) = EIRP (dBm) - 2.15

NB-IoT Band 12 10M

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 23060	CH 23095	CH 23130
			704 MHz	707.5 MHz	711 MHz
3.75k BPSK	1	0	23.05	22.98	23.04
	1	47	23.05	22.94	23.07
3.75k QPSK	1	0	22.98	22.9	22.97
	1	47	23.08	22.8	23.02
15k BPSK	1	0	23.6	23.54	23.47
	1	11	23.48	23.51	23.52
15k QPSK	1	0	23.45	23.51	23.6
	1	11	23.44	23.44	23.54
	6	0	22.94	22.96	22.95
	6	6	23.04	23.1	23.14
	12	0	22.36	22.39	22.14

Output Power

Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
3.75k BPSK	22.94	23.07	22.42	22.55	44.77
3.75k QPSK	22.8	23.08	22.28	22.56	44.77
15k BPSK	23.47	23.6	22.95	23.08	44.77
15k QPSK	22.14	23.6	21.62	23.08	44.77

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

ERP (dBm) = EIRP (dBm) - 2.15

Guard-Band

NB-IoT Band 12 3M					
Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 23025	CH 23095	CH 23165
			700.5 MHz	707.5 MHz	714.5 MHz
3.75k BPSK	1	0	23.06	23.04	23.1
	1	47	23.09	22.95	23.07
3.75k QPSK	1	0	22.98	22.93	23.04
	1	47	23.16	22.8	23.04
15k BPSK	1	0	23.62	23.39	23.51
	1	11	23.57	23.52	23.57
15k QPSK	1	0	23.54	23.38	23.62
	1	11	23.31	23.43	23.51
	6	0	22.88	22.86	23.02
	6	6	23.04	22.99	23.04
	12	0	22.31	22.41	22.18

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
3.75k BPSK	22.95	23.1	22.43	22.58	44.77
3.75k QPSK	22.8	23.16	22.28	22.64	44.77
15k BPSK	23.39	23.62	22.87	23.1	44.77
15k QPSK	22.18	23.62	21.66	23.1	44.77

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

ERP (dBm) = EIRP (dBm) - 2.15

NB-IoT Band 12 5M

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 23035	CH 23095	CH 23155
			701.5 MHz	707.5 MHz	713.5 MHz
3.75k BPSK	1	0	23.06	23.04	23.06
	1	47	23.02	22.97	23.01
3.75k QPSK	1	0	23.07	22.86	23.05
	1	47	23.07	22.89	22.94
15k BPSK	1	0	23.52	23.47	23.55
	1	11	23.6	23.46	23.55
15k QPSK	1	0	23.6	23.37	23.63
	1	11	23.44	23.39	23.54
	6	0	22.88	22.89	23.01
	6	6	23.09	23.02	23.07
	12	0	22.29	22.35	22.16

Output Power

Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
3.75k BPSK	22.97	23.06	22.45	22.54	44.77
3.75k QPSK	22.86	23.07	22.34	22.55	44.77
15k BPSK	23.46	23.6	22.94	23.08	44.77
15k QPSK	22.16	23.63	21.64	23.11	44.77

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

ERP (dBm) = EIRP (dBm) - 2.15

NB-IoT Band 12 10M

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 23060	CH 23095	CH 23130
			704 MHz	707.5 MHz	711 MHz
3.75k BPSK	1	0	23.08	22.91	23.09
	1	47	23.01	22.97	23.03
3.75k QPSK	1	0	23.02	22.85	23.07
	1	47	23.08	22.76	23.07
15k BPSK	1	0	23.58	23.39	23.6
	1	11	23.46	23.57	23.46
15k QPSK	1	0	23.51	23.51	23.57
	1	11	23.32	23.35	23.53
	6	0	22.98	22.96	23.02
	6	6	23.04	23.01	23.04
	12	0	22.4	22.45	22.15

Output Power

Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
3.75k BPSK	22.91	23.09	22.39	22.57	44.77
3.75k QPSK	22.76	23.08	22.24	22.56	44.77
15k BPSK	23.39	23.6	22.87	23.08	44.77
15k QPSK	22.15	23.57	21.63	23.05	44.77

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

ERP (dBm) = EIRP (dBm) - 2.15

7.1.6 NB-IoT Band 13

Stand-alone

NB-IoT Band 13					
Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 23182	CH 23230	CH 23278
			777.2 MHz	782 MHz	786.8 MHz
3.75k BPSK	1	0	23.16	23.1	23.14
	1	47	23.19	23.12	23.16
3.75k QPSK	1	0	23.05	23.15	23.13
	1	47	23.23	23.07	23.2
15k BPSK	1	0	23.63	23.6	23.57
	1	11	23.55	23.66	23.58
15k QPSK	1	0	23.56	23.59	23.61
	1	11	23.55	23.46	23.62
	6	0	23	23.08	23.03
	6	6	23.21	23.13	23.17
	12	0	22.46	22.3	22.49

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
3.75k BPSK	23.1	23.19	22.58	22.67	44.77
3.75k QPSK	23.05	23.23	22.53	22.71	44.77
15k BPSK	23.55	23.66	23.03	23.14	44.77
15k QPSK	22.3	23.62	21.78	23.10	44.77

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

ERP (dBm) = EIRP (dBm) - 2.15

In-Band

NB-IoT Band 13 5M					
Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 23205	CH 23230	CH 23255
			779.5 MHz	782 MHz	784.5 MHz
3.75k BPSK	1	0	22.99	23.01	23.06
	1	47	23.02	23.04	23.03
3.75k QPSK	1	0	22.94	23	23.04
	1	47	23.13	22.94	23.13
15k BPSK	1	0	23.46	23.5	23.37
	1	11	23.48	23.52	23.49
15k QPSK	1	0	23.51	23.44	23.44
	1	11	23.49	23.32	23.57
	6	0	22.86	22.97	22.87
	6	6	23.07	22.97	22.98
	12	0	22.33	22.21	22.34

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
3.75k BPSK	22.99	23.06	22.47	22.54	44.77
3.75k QPSK	22.94	23.13	22.42	22.61	44.77
15k BPSK	23.37	23.52	22.85	23	44.77
15k QPSK	22.21	23.57	21.69	23.05	44.77

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

ERP (dBm) = EIRP (dBm) - 2.15

NB-IoT Band 13 10M

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)
			CH 23230
			782 MHz
3.75k BPSK	1	0	23.04
	1	47	22.92
3.75k QPSK	1	0	23.07
	1	47	22.87
15k BPSK	1	0	23.53
	1	11	23.52
15k QPSK	1	0	23.53
	1	11	23.36
	6	0	22.99
	6	6	22.97
	12	0	22.24

Output Power

Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
3.75k BPSK	22.92	23.04	22.4	22.52	44.77
3.75k QPSK	22.87	23.07	22.35	22.55	44.77
15k BPSK	23.52	23.53	23	23.01	44.77
15k QPSK	22.24	23.53	21.72	23.01	44.77

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

ERP (dBm) = EIRP (dBm) - 2.15

Guard-Band

NB-IoT Band 13 5M					
Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 23205	CH 23230	CH 23255
			779.5 MHz	782 MHz	784.5 MHz
3.75k BPSK	1	0	23.11	22.95	22.95
	1	47	23.01	23.03	23.01
3.75k QPSK	1	0	22.94	22.95	23.04
	1	47	23.13	22.93	23.12
15k BPSK	1	0	23.58	23.51	23.42
	1	11	23.43	23.56	23.44
15k QPSK	1	0	23.38	23.53	23.53
	1	11	23.41	23.27	23.49
	6	0	22.93	22.94	22.93
	6	6	23.03	22.93	23.01
	12	0	22.31	22.2	22.3

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
3.75k BPSK	22.95	23.11	22.43	22.59	44.77
3.75k QPSK	22.93	23.13	22.41	22.61	44.77
15k BPSK	23.42	23.58	22.9	23.06	44.77
15k QPSK	22.2	23.53	21.68	23.01	44.77

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

ERP (dBm) = EIRP (dBm) - 2.15

NB-IoT Band 13 10M

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)
			CH 23230
			782 MHz
3.75k BPSK	1	0	23.01
	1	47	23.07
3.75k QPSK	1	0	22.99
	1	47	22.98
15k BPSK	1	0	23.53
	1	11	23.59
15k QPSK	1	0	23.47
	1	11	23.39
	6	0	22.9
	6	6	23.01
	12	0	22.17

Output Power

Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
3.75k BPSK	23.01	23.07	22.49	22.55	44.77
3.75k QPSK	22.98	22.99	22.46	22.47	44.77
15k BPSK	23.53	23.59	23.01	23.07	44.77
15k QPSK	22.17	23.47	21.65	22.95	44.77

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

ERP (dBm) = EIRP (dBm) - 2.15

7.1.7 NB-IoT Band 14

Stand-alone

NB-IoT Band 14					
Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 23282	CH 23300	CH 23378
			788.2 MHz	793 MHz	797.8 MHz
3.75k BPSK	1	0	23.16	23.08	23.16
	1	47	23.14	23.07	23.11
3.75k QPSK	1	0	23.02	23.03	23.17
	1	47	23.16	23.01	23.08
15k BPSK	1	0	23.6	23.65	23.8
	1	11	23.58	23.63	23.7
15k QPSK	1	0	23.63	23.63	23.73
	1	11	23.63	23.66	23.65
	6	0	23.11	23.02	23.18
	6	6	23.16	23.23	23.24
	12	0	22.35	22.5	22.56

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
3.75k BPSK	23.07	23.16	22.55	22.64	34.77
3.75k QPSK	23.01	23.17	22.49	22.65	34.77
15k BPSK	23.58	23.8	23.06	23.28	34.77
15k QPSK	22.35	23.73	21.83	23.21	34.77

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

ERP (dBm) = EIRP (dBm) - 2.15

In-Band

NB-IoT Band 14 5M					
Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 23305	CH 23300	CH 23355
			790.5 MHz	793MHz	795.5 MHz
3.75k BPSK	1	0	23.08	22.9	22.97
	1	47	23.03	22.94	22.95
3.75k QPSK	1	0	22.83	22.83	23.05
	1	47	23.1	22.91	22.91
15k BPSK	1	0	23.47	23.46	23.68
	1	11	23.44	23.5	23.65
15k QPSK	1	0	23.49	23.52	23.59
	1	11	23.56	23.52	23.56
	6	0	22.96	22.97	23.03
	6	6	23.06	23.04	23.07
	12	0	22.21	22.31	22.46

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
3.75k BPSK	22.9	23.08	22.38	22.56	34.77
3.75k QPSK	22.83	23.1	22.31	22.58	34.77
15k BPSK	23.44	23.68	22.92	23.16	34.77
15k QPSK	22.21	23.59	21.69	23.07	34.77

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

ERP (dBm) = EIRP (dBm) - 2.15

NB-IoT Band 14 10M

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)
			CH 23300
			793MHz
3.75k BPSK	1	0	22.95
	1	47	22.92
3.75k QPSK	1	0	22.9
	1	47	22.92
15k BPSK	1	0	23.51
	1	11	23.54
15k QPSK	1	0	23.52
	1	11	23.51
	6	0	22.95
	6	6	23.17
	12	0	22.35

Output Power

Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
3.75k BPSK	22.92	22.95	22.4	22.43	34.77
3.75k QPSK	22.9	22.92	22.38	22.4	34.77
15k BPSK	23.51	23.54	22.99	23.02	34.77
15k QPSK	22.35	23.52	21.83	23	34.77

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

ERP (dBm) = EIRP (dBm) - 2.15

Guard-Band

NB-IoT Band 14 5M					
Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 23305	CH 23300	CH 23355
			790.5 MHz	793MHz	795.5 MHz
3.75k BPSK	1	0	22.99	22.97	23.04
	1	47	23.01	22.87	22.91
3.75k QPSK	1	0	22.94	22.92	23.1
	1	47	23.1	22.96	23.01
15k BPSK	1	0	23.43	23.57	23.68
	1	11	23.47	23.55	23.58
15k QPSK	1	0	23.53	23.54	23.54
	1	11	23.45	23.47	23.45
	6	0	22.97	22.86	23.02
	6	6	22.97	23.12	23.19
	12	0	22.3	22.36	22.39

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
3.75k BPSK	22.87	23.04	22.35	22.52	34.77
3.75k QPSK	22.92	23.1	22.4	22.58	34.77
15k BPSK	23.43	23.68	22.91	23.16	34.77
15k QPSK	22.3	23.54	21.78	23.02	34.77

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

ERP (dBm) = EIRP (dBm) - 2.15

NB-IoT Band 14 10M

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)
			CH 23300
			793MHz
3.75k BPSK	1	0	22.92
	1	47	23.02
3.75k QPSK	1	0	22.88
	1	47	22.92
15k BPSK	1	0	23.5
	1	11	23.46
15k QPSK	1	0	23.44
	1	11	23.6
	6	0	22.93
	6	6	23.03
	12	0	22.35

Output Power

Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
3.75k BPSK	22.92	23.02	22.4	22.5	44.77
3.75k QPSK	22.88	22.92	22.36	22.4	44.77
15k BPSK	23.46	23.5	22.94	22.98	44.77
15k QPSK	22.35	23.6	21.83	23.08	44.77

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)
ERP (dBm) = EIRP (dBm) - 2.15

7.1.8 NB-IoT Band 17

Stand-alone

NB-IoT Band 17					
Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 23732	CH 23790	CH 23848
			704.2 MHz	710 MHz	715.8 MHz
3.75k BPSK	1	0	22.65	23.22	23.2
	1	47	22.72	23.25	23.23
3.75k QPSK	1	0	22.71	23.23	23.17
	1	47	22.73	23.26	23.19
15k BPSK	1	0	23.07	23.25	23.15
	1	11	23.18	23.27	23.19
15k QPSK	1	0	23.25	23.25	23.21
	1	11	23.14	23.17	23.16
	6	0	22.47	22.49	22.5
	6	6	22.4	22.42	22.56
	12	0	21.54	21.57	21.77

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
3.75k BPSK	22.65	23.25	22.13	22.73	34.77
3.75k QPSK	22.71	23.26	22.19	22.74	34.77
15k BPSK	23.07	23.27	22.55	22.75	34.77
15k QPSK	21.54	23.25	21.02	22.73	34.77

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

ERP (dBm) = EIRP (dBm) - 2.15

In-Band

NB-IoT Band 17 5M					
Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 23755	CH 23790	CH 23825
			706.5 MHz	710 MHz	713.5 MHz
3.75k BPSK	1	0	22.59	23.03	23.01
	1	47	22.58	23.08	23.04
3.75k QPSK	1	0	22.52	23.12	23.01
	1	47	22.64	23.15	23.1
15k BPSK	1	0	22.87	23.17	23.01
	1	11	23.1	23.17	23.07
15k QPSK	1	0	23.13	23.1	23.09
	1	11	23.03	23.02	23.08
	6	0	22.35	22.4	22.34
	6	6	22.25	22.25	22.4
	12	0	21.49	21.41	21.64

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
3.75k BPSK	22.58	23.08	22.06	22.56	34.77
3.75k QPSK	22.52	23.15	22	22.63	34.77
15k BPSK	22.87	23.17	22.35	22.65	34.77
15k QPSK	21.41	23.13	20.89	22.61	34.77

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

ERP (dBm) = EIRP (dBm) - 2.15

NB-IoT Band 17 10M

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 23780	CH 23790	CH 23800
			709 MHz	710 MHz	711 MHz
3.75k BPSK	1	0	22.56	23.16	23.06
	1	47	22.64	23.06	23.13
3.75k QPSK	1	0	22.51	23.16	22.97
	1	47	22.56	23.11	23.04
15k BPSK	1	0	22.99	23.08	22.95
	1	11	23.13	23.2	22.99
15k QPSK	1	0	23.17	23.1	23.15
	1	11	23	23.11	22.98
	6	0	22.29	22.36	22.36
	6	6	22.35	22.32	22.46
	12	0	21.49	21.39	21.68

Output Power

Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
3.75k BPSK	22.56	23.16	22.04	22.64	34.77
3.75k QPSK	22.51	23.16	21.99	22.64	34.77
15k BPSK	22.95	23.2	22.43	22.68	34.77
15k QPSK	21.39	23.17	20.87	22.65	34.77

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

ERP (dBm) = EIRP (dBm) - 2.15

Guard-Band

NB-IoT Band 17 5M					
Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 23755	CH 23790	CH 23825
			706.5 MHz	710 MHz	713.5 MHz
3.75k BPSK	1	0	22.52	23.04	23.12
	1	47	22.57	23.13	23.13
3.75k QPSK	1	0	22.59	23.1	23.01
	1	47	22.66	23.12	23.03
15k BPSK	1	0	22.93	23.15	23.09
	1	11	23.12	23.14	23.01
15k QPSK	1	0	23.05	23.14	23.06
	1	11	22.99	23.05	23.06
	6	0	22.42	22.3	22.42
	6	6	22.24	22.34	22.41
	12	0	21.47	21.39	21.66

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
3.75k BPSK	22.52	23.13	22	22.61	34.77
3.75k QPSK	22.59	23.12	22.07	22.6	34.77
15k BPSK	22.93	23.15	22.41	22.63	34.77
15k QPSK	21.39	23.14	20.87	22.62	34.77

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

ERP (dBm) = EIRP (dBm) - 2.15

NB-IoT Band 17 10M

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 23780	CH 23790	CH 23800
			709 MHz	710 MHz	711 MHz
3.75k BPSK	1	0	22.45	23.09	23.02
	1	47	22.66	23.07	23.16
3.75k QPSK	1	0	22.64	23.05	23.06
	1	47	22.53	23.16	23.13
15k BPSK	1	0	22.98	23.07	23.08
	1	11	23.02	23.11	23.01
15k QPSK	1	0	23.2	23.07	23.15
	1	11	23.09	22.98	22.97
	6	0	22.37	22.4	22.3
	6	6	22.32	22.26	22.43
	12	0	21.47	21.38	21.65

Output Power

Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
3.75k BPSK	22.45	23.16	21.93	22.64	34.77
3.75k QPSK	22.53	23.16	22.01	22.64	34.77
15k BPSK	22.98	23.11	22.46	22.59	34.77
15k QPSK	21.38	23.2	20.86	22.68	34.77

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

ERP (dBm) = EIRP (dBm) - 2.15

7.1.9 NB-IoT Band 25

Stand-alone

NB-IoT Band 25					
Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 26042	CH 26365	CH 26688
			1850.2 MHz	1882.5 MHz	1914.8 MHz
3.75k BPSK	1	0	23.06	23.15	23.1
	1	47	23.08	23.16	23.11
3.75k QPSK	1	0	23.02	22.93	23.02
	1	47	23.02	22.98	23.11
15k BPSK	1	0	23.54	23.51	23.6
	1	11	23.56	23.53	23.61
15k QPSK	1	0	23.48	23.36	23.56
	1	11	23.47	23.43	23.54
	6	0	22.98	23.07	23.06
	6	6	23.14	23.13	23.24
	12	0	22.46	22.54	22.43

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
3.75k BPSK	23.06	23.16	25.09	25.19	33.01
3.75k QPSK	22.93	23.11	24.96	25.14	33.01
15k BPSK	23.51	23.61	25.54	25.64	33.01
15k QPSK	22.43	23.56	24.46	25.59	33.01

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

In-Band

NB-IoT Band 25 3M					
Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 26055	CH 26365	CH 26675
			1851.5 MHz	1882.5 MHz	1913.5 MHz
3.75k BPSK	1	0	22.86	22.97	23.05
	1	47	22.96	22.99	23
3.75k QPSK	1	0	22.97	22.84	22.93
	1	47	22.89	22.91	22.96
15k BPSK	1	0	23.39	23.45	23.49
	1	11	23.36	23.37	23.42
15k QPSK	1	0	23.37	23.25	23.5
	1	11	23.35	23.32	23.47
	6	0	22.92	22.92	22.86
	6	6	22.99	22.95	23.19
	12	0	22.33	22.43	22.34

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
3.75k BPSK	22.86	23.05	24.89	25.08	33.01
3.75k QPSK	22.84	22.97	24.87	25	33.01
15k BPSK	23.36	23.49	25.39	25.52	33.01
15k QPSK	22.33	23.5	24.36	25.53	33.01

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

NB-IoT Band 25 5M

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 26065	CH 26365	CH 26665
			1852.5 MHz	1882.5 MHz	1912.5 MHz
3.75k BPSK	1	0	23	23.02	22.9
	1	47	22.98	22.96	23.03
3.75k QPSK	1	0	22.86	22.78	22.86
	1	47	22.89	22.91	22.93
15k BPSK	1	0	23.44	23.34	23.45
	1	11	23.43	23.39	23.49
15k QPSK	1	0	23.42	23.23	23.44
	1	11	23.37	23.31	23.42
	6	0	22.86	22.93	22.97
	6	6	22.98	23.02	23.07
	12	0	22.4	22.45	22.32

Output Power

Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
3.75k BPSK	22.9	23.03	24.93	25.06	33.01
3.75k QPSK	22.78	22.93	24.81	24.96	33.01
15k BPSK	23.34	23.49	25.37	25.52	33.01
15k QPSK	22.32	23.44	24.35	25.47	33.01

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

NB-IoT Band 25 10M

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 26090	CH 26365	CH 26640
			1855 MHz	1882.5 MHz	1910 MHz
3.75k BPSK	1	0	22.97	23.03	23.01
	1	47	22.9	23.07	23.04
3.75k QPSK	1	0	22.84	22.76	22.96
	1	47	22.88	22.85	23.01
15k BPSK	1	0	23.48	23.35	23.46
	1	11	23.45	23.41	23.5
15k QPSK	1	0	23.29	23.25	23.51
	1	11	23.34	23.38	23.45
	6	0	22.81	23.01	22.94
	6	6	23	23.05	23.1
	12	0	22.37	22.36	22.26

Output Power

Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
3.75k BPSK	22.9	23.07	24.93	25.1	33.01
3.75k QPSK	22.76	23.01	24.79	25.04	33.01
15k BPSK	23.35	23.5	25.38	25.53	33.01
15k QPSK	22.26	23.51	24.29	25.54	33.01

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

NB-IoT Band 25 15M

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 26115	CH 26365	CH 26615
			1857.5 MHz	1882.5 MHz	1907.5 MHz
3.75k BPSK	1	0	22.91	23.08	22.93
	1	47	22.99	22.96	22.94
3.75k QPSK	1	0	22.95	22.85	22.89
	1	47	22.88	22.88	23
15k BPSK	1	0	23.36	23.31	23.41
	1	11	23.4	23.34	23.56
15k QPSK	1	0	23.43	23.16	23.39
	1	11	23.38	23.33	23.39
	6	0	22.84	22.87	22.9
	6	6	23.03	23.06	23.05
	12	0	22.32	22.4	22.28

Output Power

Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
3.75k BPSK	22.91	23.08	24.94	25.11	33.01
3.75k QPSK	22.85	23	24.88	25.03	33.01
15k BPSK	23.31	23.56	25.34	25.59	33.01
15k QPSK	22.28	23.43	24.31	25.46	33.01

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

NB-IoT Band 25 20M

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 26140	CH 26365	CH 26590
			1860 MHz	1882.5 MHz	1905 MHz
3.75k BPSK	1	0	22.95	22.95	22.99
	1	47	22.98	23.08	22.97
3.75k QPSK	1	0	22.92	22.74	22.85
	1	47	22.91	22.84	23.06
15k BPSK	1	0	23.38	23.32	23.5
	1	11	23.45	23.48	23.55
15k QPSK	1	0	23.41	23.17	23.41
	1	11	23.29	23.38	23.37
	6	0	22.85	22.92	22.94
	6	6	22.97	22.98	23.15
	12	0	22.41	22.41	22.35

Output Power

Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
3.75k BPSK	22.95	23.08	24.98	25.11	33.01
3.75k QPSK	22.74	23.06	24.77	25.09	33.01
15k BPSK	23.32	23.55	25.35	25.58	33.01
15k QPSK	22.35	23.41	24.38	25.44	33.01

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

Guard-Band

NB-IoT Band 25 3M					
Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 26055	CH 26365	CH 26675
			1851.5 MHz	1882.5 MHz	1913.5 MHz
3.75k BPSK	1	0	22.88	23.07	22.93
	1	47	22.99	23.03	23.01
3.75k QPSK	1	0	22.9	22.83	22.95
	1	47	22.86	22.9	22.98
15k BPSK	1	0	23.46	23.35	23.5
	1	11	23.51	23.34	23.51
15k QPSK	1	0	23.3	23.18	23.48
	1	11	23.31	23.33	23.45
	6	0	22.87	23.01	23
	6	6	22.94	22.98	23.04
	12	0	22.32	22.38	22.34

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
3.75k BPSK	22.88	23.07	24.91	25.1	33.01
3.75k QPSK	22.83	22.98	24.86	25.01	33.01
15k BPSK	23.34	23.51	25.37	25.54	33.01
15k QPSK	22.32	23.48	24.35	25.51	33.01

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

NB-IoT Band 25 5M

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 26065	CH 26365	CH 26665
			1852.5 MHz	1882.5 MHz	1912.5 MHz
3.75k BPSK	1	0	22.89	23.09	22.93
	1	47	22.97	23.07	22.97
3.75k QPSK	1	0	22.85	22.81	22.93
	1	47	22.88	22.78	23.03
15k BPSK	1	0	23.48	23.4	23.43
	1	11	23.44	23.39	23.56
15k QPSK	1	0	23.37	23.2	23.38
	1	11	23.34	23.36	23.48
	6	0	22.8	22.87	22.91
	6	6	23.04	22.97	23.17
	12	0	22.32	22.45	22.36

Output Power

Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
3.75k BPSK	22.89	23.09	24.92	25.12	33.01
3.75k QPSK	22.78	23.03	24.81	25.06	33.01
15k BPSK	23.39	23.56	25.42	25.59	33.01
15k QPSK	22.32	23.48	24.35	25.51	33.01

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

NB-IoT Band 25 10M

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 26090	CH 26365	CH 26640
			1855 MHz	1882.5 MHz	1910 MHz
3.75k BPSK	1	0	22.93	23.05	23.04
	1	47	22.94	23.04	23.05
3.75k QPSK	1	0	22.93	22.76	22.94
	1	47	22.91	22.91	22.93
15k BPSK	1	0	23.4	23.34	23.49
	1	11	23.42	23.46	23.51
15k QPSK	1	0	23.4	23.26	23.43
	1	11	23.31	23.3	23.42
	6	0	22.78	22.93	23.01
	6	6	22.95	23.06	23.16
	12	0	22.36	22.44	22.37

Output Power

Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
3.75k BPSK	22.93	23.05	24.96	25.08	33.01
3.75k QPSK	22.76	22.94	24.79	24.97	33.01
15k BPSK	23.34	23.51	25.37	25.54	33.01
15k QPSK	22.36	23.43	24.39	25.46	33.01

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

NB-IoT Band 25 15M

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 26115	CH 26365	CH 26615
			1857.5 MHz	1882.5 MHz	1907.5 MHz
3.75k BPSK	1	0	22.97	23.1	23.01
	1	47	23	23.03	22.97
3.75k QPSK	1	0	22.92	22.81	22.85
	1	47	22.89	22.84	23.04
15k BPSK	1	0	23.4	23.35	23.43
	1	11	23.37	23.35	23.52
15k QPSK	1	0	23.41	23.26	23.37
	1	11	23.42	23.35	23.39
	6	0	22.79	22.94	22.92
	6	6	22.97	22.97	23.07
	12	0	22.41	22.42	22.32

Output Power

Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
3.75k BPSK	22.97	23.1	25	25.13	33.01
3.75k QPSK	22.81	23.04	24.84	25.07	33.01
15k BPSK	23.35	23.52	25.38	25.55	33.01
15k QPSK	22.32	23.42	24.35	25.45	33.01

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

NB-IoT Band 25 20M

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 26140	CH 26365	CH 26590
			1860 MHz	1882.5 MHz	1905 MHz
3.75k BPSK	1	0	22.87	23.08	22.94
	1	47	22.94	22.99	22.91
3.75k QPSK	1	0	22.88	22.84	22.91
	1	47	22.83	22.88	22.97
15k BPSK	1	0	23.44	23.33	23.41
	1	11	23.45	23.41	23.55
15k QPSK	1	0	23.32	23.27	23.48
	1	11	23.3	23.34	23.37
	6	0	22.88	22.94	22.94
	6	6	22.95	23.03	23.08
	12	0	22.4	22.45	22.25

Output Power

Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
3.75k BPSK	22.87	23.08	24.9	25.11	33.01
3.75k QPSK	22.83	22.97	24.86	25	33.01
15k BPSK	23.33	23.55	25.36	25.58	33.01
15k QPSK	22.25	23.48	24.28	25.51	33.01

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

7.1.10 NB-IoT Band 26 (Part 22)

Stand-alone

NB-IoT Band 26					
Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 26792	CH 26915	CH 27038
			824.2 MHz	836.5 MHz	848.8 MHz
3.75k BPSK	1	0	23.68	23.68	23.63
	1	47	23.81	23.55	23.71
3.75k QPSK	1	0	23.73	23.57	23.65
	1	47	23.73	23.64	23.64
15k BPSK	1	0	23.65	23.56	23.65
	1	11	23.63	23.56	23.61
15k QPSK	1	0	23.67	23.61	23.7
	1	11	23.68	23.6	23.64
	6	0	23.05	23.06	23.13
	6	6	23.22	23.18	23.25
	12	0	22.42	22.43	22.58

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
3.75k BPSK	23.55	23.81	24.03	24.29	38.45
3.75k QPSK	23.57	23.73	24.05	24.21	38.45
15k BPSK	23.56	23.65	24.04	24.13	38.45
15k QPSK	22.42	23.7	22.9	24.18	38.45

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

ERP (dBm) = EIRP (dBm) - 2.15

In-Band

NB-IoT Band 26 3M					
Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 26805	CH 26915	CH 27025
			825.5 MHz	836.5 MHz	847.5 MHz
3.75k BPSK	1	0	23.52	23.5	23.48
	1	47	23.66	23.43	23.62
3.75k QPSK	1	0	23.64	23.42	23.5
	1	47	23.64	23.55	23.48
15k BPSK	1	0	23.47	23.36	23.55
	1	11	23.49	23.37	23.5
15k QPSK	1	0	23.62	23.51	23.5
	1	11	23.58	23.55	23.47
	6	0	22.97	22.92	22.95
	6	6	23.08	23.12	23.06
	12	0	22.36	22.31	22.49

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
3.75k BPSK	23.43	23.66	23.91	24.14	38.45
3.75k QPSK	23.42	23.64	23.9	24.12	38.45
15k BPSK	23.36	23.55	23.84	24.03	38.45
15k QPSK	22.31	23.62	22.79	24.1	38.45

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

ERP (dBm) = EIRP (dBm) - 2.15

NB-IoT Band 26 5M

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 26815	CH 26915	CH 27015
			826.5 MHz	836.5 MHz	846.5 MHz
3.75k BPSK	1	0	23.55	23.57	23.52
	1	47	23.72	23.36	23.54
3.75k QPSK	1	0	23.64	23.49	23.55
	1	47	23.67	23.57	23.44
15k BPSK	1	0	23.6	23.5	23.59
	1	11	23.53	23.49	23.53
15k QPSK	1	0	23.48	23.5	23.55
	1	11	23.63	23.47	23.45
	6	0	22.86	22.9	23.03
	6	6	23.07	23.13	23.19
	12	0	22.25	22.28	22.39

Output Power

Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
3.75k BPSK	23.36	23.72	23.84	24.2	38.45
3.75k QPSK	23.44	23.67	23.92	24.15	38.45
15k BPSK	23.49	23.6	23.97	24.08	38.45
15k QPSK	22.25	23.63	22.73	24.11	38.45

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

ERP (dBm) = EIRP (dBm) - 2.15

NB-IoT Band 26 10M

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 26840	CH 26915	CH 26990
			829 MHz	836.5 MHz	844 MHz
3.75k BPSK	1	0	23.55	23.52	23.46
	1	47	23.61	23.36	23.66
3.75k QPSK	1	0	23.61	23.49	23.51
	1	47	23.61	23.52	23.59
15k BPSK	1	0	23.5	23.42	23.49
	1	11	23.56	23.37	23.5
15k QPSK	1	0	23.56	23.53	23.51
	1	11	23.5	23.41	23.46
	6	0	22.86	23	22.99
	6	6	23.1	23.13	23.09
	12	0	22.27	22.38	22.48

Output Power

Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
3.75k BPSK	23.36	23.66	23.84	24.14	38.45
3.75k QPSK	23.49	23.61	23.97	24.09	38.45
15k BPSK	23.37	23.56	23.85	24.04	38.45
15k QPSK	22.27	23.56	22.75	24.04	38.45

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

ERP (dBm) = EIRP (dBm) - 2.15

NB-IoT Band 26 15M

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 26865	CH 26915	CH 26965
			831.5 MHz	836.5 MHz	841.5 MHz
3.75k BPSK	1	0	23.57	23.49	23.58
	1	47	23.62	23.4	23.53
3.75k QPSK	1	0	23.6	23.48	23.46
	1	47	23.55	23.46	23.55
15k BPSK	1	0	23.51	23.38	23.54
	1	11	23.43	23.48	23.55
15k QPSK	1	0	23.61	23.51	23.52
	1	11	23.58	23.52	23.44
	6	0	22.95	22.88	23.02
	6	6	23.07	23.13	23.13
	12	0	22.27	22.3	22.51

Output Power

Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
3.75k BPSK	23.4	23.62	23.88	24.1	38.45
3.75k QPSK	23.46	23.6	23.94	24.08	38.45
15k BPSK	23.38	23.55	23.86	24.03	38.45
15k QPSK	22.27	23.61	22.75	24.09	38.45

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

ERP (dBm) = EIRP (dBm) - 2.15

Guard-Band

NB-IoT Band 26 3M					
Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 26805	CH 26915	CH 27025
			825.5 MHz	836.5 MHz	847.5 MHz
3.75k BPSK	1	0	23.56	23.57	23.52
	1	47	23.72	23.39	23.58
3.75k QPSK	1	0	23.63	23.44	23.59
	1	47	23.57	23.54	23.46
15k BPSK	1	0	23.5	23.46	23.53
	1	11	23.52	23.49	23.48
15k QPSK	1	0	23.6	23.55	23.6
	1	11	23.48	23.49	23.59
	6	0	22.98	22.86	23.08
	6	6	23.13	23.07	23.1
	12	0	22.3	22.3	22.45

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
3.75k BPSK	23.39	23.72	23.87	24.2	38.45
3.75k QPSK	23.44	23.63	23.92	24.11	38.45
15k BPSK	23.46	23.53	23.94	24.01	38.45
15k QPSK	22.3	23.6	22.78	24.08	38.45

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

ERP (dBm) = EIRP (dBm) - 2.15

NB-IoT Band 26 5M

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 26815	CH 26915	CH 27015
			826.5 MHz	836.5 MHz	846.5 MHz
3.75k BPSK	1	0	23.53	23.56	23.53
	1	47	23.74	23.45	23.56
3.75k QPSK	1	0	23.66	23.37	23.47
	1	47	23.6	23.56	23.46
15k BPSK	1	0	23.6	23.39	23.55
	1	11	23.53	23.47	23.41
15k QPSK	1	0	23.57	23.51	23.54
	1	11	23.52	23.55	23.55
	6	0	23	22.93	22.95
	6	6	23.14	22.99	23.13
	12	0	22.35	22.38	22.49

Output Power

Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
3.75k BPSK	23.45	23.74	23.93	24.22	38.45
3.75k QPSK	23.37	23.66	23.85	24.14	38.45
15k BPSK	23.39	23.6	23.87	24.08	38.45
15k QPSK	22.35	23.57	22.83	24.05	38.45

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

ERP (dBm) = EIRP (dBm) - 2.15

NB-IoT Band 26 10M

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 26840	CH 26915	CH 26990
			829 MHz	836.5 MHz	844 MHz
3.75k BPSK	1	0	23.48	23.57	23.5
	1	47	23.66	23.46	23.56
3.75k QPSK	1	0	23.63	23.5	23.57
	1	47	23.68	23.51	23.47
15k BPSK	1	0	23.54	23.44	23.45
	1	11	23.55	23.41	23.52
15k QPSK	1	0	23.55	23.41	23.62
	1	11	23.56	23.51	23.56
	6	0	22.97	22.92	23
	6	6	23.17	23.09	23.12
	12	0	22.29	22.34	22.48

Output Power

Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
3.75k BPSK	23.46	23.66	23.94	24.14	38.45
3.75k QPSK	23.47	23.68	23.95	24.16	38.45
15k BPSK	23.41	23.55	23.89	24.03	38.45
15k QPSK	22.29	23.62	22.77	24.1	38.45

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

ERP (dBm) = EIRP (dBm) - 2.15

NB-IoT Band 26 15M

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 26865	CH 26915	CH 26965
			831.5 MHz	836.5 MHz	841.5 MHz
3.75k BPSK	1	0	23.48	23.57	23.55
	1	47	23.7	23.36	23.62
3.75k QPSK	1	0	23.61	23.5	23.59
	1	47	23.54	23.46	23.44
15k BPSK	1	0	23.45	23.44	23.59
	1	11	23.48	23.37	23.48
15k QPSK	1	0	23.53	23.56	23.54
	1	11	23.55	23.53	23.47
	6	0	22.89	22.97	22.93
	6	6	23.06	23	23.17
	12	0	22.33	22.24	22.4

Output Power

Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
3.75k BPSK	23.36	23.7	23.84	24.18	38.45
3.75k QPSK	23.44	23.61	23.92	24.09	38.45
15k BPSK	23.37	23.59	23.85	24.07	38.45
15k QPSK	22.24	23.56	22.72	24.04	38.45

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

ERP (dBm) = EIRP (dBm) - 2.15

7.1.11 NB-IoT Band 26 (Part 90)

Stand-alone

NB-IoT Band 26 1.4M					
Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 26697	CH 26740	CH 26783
			814.7 MHz	819 MHz	823.3 MHz
3.75k BPSK	1	0	23.66	23.67	23.69
	1	47	23.7	23.72	23.71
3.75k QPSK	1	0	23.65	23.65	23.7
	1	47	23.75	23.68	23.73
15k BPSK	1	0	23.62	23.71	23.64
	1	11	23.66	23.61	23.62
15k QPSK	1	0	23.56	23.73	23.67
	1	11	23.57	23.65	23.66
	6	0	23.04	23.11	23.13
	6	6	23.22	23.3	23.29
	12	0	22.49	22.28	22.5

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
3.75k BPSK	23.66	23.72	24.14	24.2	50.00
3.75k QPSK	23.65	23.75	24.13	24.23	50.00
15k BPSK	23.61	23.71	24.09	24.19	50.00
15k QPSK	22.28	23.73	22.76	24.21	50.00

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

ERP (dBm) = EIRP (dBm) - 2.15

In-Band

NB-IoT Band 26 3M					
Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 26705	CH 26740	CH 26775
			815.5 MHz	819 MHz	822.5 MHz
3.75k BPSK	1	0	23.55	23.49	23.64
	1	47	23.5	23.64	23.63
3.75k QPSK	1	0	23.54	23.52	23.61
	1	47	23.7	23.54	23.58
15k BPSK	1	0	23.53	23.64	23.47
	1	11	23.51	23.44	23.48
15k QPSK	1	0	23.36	23.58	23.56
	1	11	23.38	23.51	23.51
	6	0	22.91	22.93	22.97
	6	6	23.06	23.25	23.12
	12	0	22.32	22.09	22.33

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
3.75k BPSK	23.49	23.64	23.97	24.12	50.00
3.75k QPSK	23.52	23.7	24	24.18	50.00
15k BPSK	23.44	23.64	23.92	24.12	50.00
15k QPSK	22.09	23.58	22.57	24.06	50.00

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

ERP (dBm) = EIRP (dBm) - 2.15

NB-IoT Band 26 5M

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 26715	CH 26740	CH 26765
			816.5 MHz	819 MHz	821.5 MHz
3.75k BPSK	1	0	23.6	23.51	23.62
	1	47	23.51	23.61	23.51
3.75k QPSK	1	0	23.5	23.52	23.58
	1	47	23.61	23.5	23.62
15k BPSK	1	0	23.45	23.56	23.58
	1	11	23.55	23.45	23.48
15k QPSK	1	0	23.37	23.58	23.58
	1	11	23.47	23.58	23.55
	6	0	22.95	22.91	23.02
	6	6	23.09	23.19	23.18
	12	0	22.36	22.21	22.32

Output Power

Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
3.75k BPSK	23.51	23.62	23.99	24.1	50.00
3.75k QPSK	23.5	23.62	23.98	24.1	50.00
15k BPSK	23.45	23.58	23.93	24.06	50.00
15k QPSK	22.21	23.58	22.69	24.06	50.00

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

ERP (dBm) = EIRP (dBm) - 2.15

NB-IoT Band 26 10M

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)
			CH 26740
			819 MHz
3.75k BPSK	1	0	23.55
	1	47	23.63
3.75k QPSK	1	0	23.47
	1	47	23.58
15k BPSK	1	0	23.59
	1	11	23.53
15k QPSK	1	0	23.57
	1	11	23.54
	6	0	22.97
	6	6	23.2
	12	0	22.14

Output Power

Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
3.75k BPSK	23.55	23.63	24.03	24.11	50.00
3.75k QPSK	23.47	23.58	23.95	24.06	50.00
15k BPSK	23.53	23.59	24.01	24.07	50.00
15k QPSK	22.14	23.57	22.62	24.05	50.00

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

ERP (dBm) = EIRP (dBm) - 2.15

Guard-Band

NB-IoT Band 26 3M					
Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 26705	CH 26740	CH 26775
			815.5 MHz	819 MHz	822.5 MHz
3.75k BPSK	1	0	23.46	23.48	23.61
	1	47	23.5	23.67	23.53
3.75k QPSK	1	0	23.46	23.57	23.5
	1	47	23.58	23.62	23.62
15k BPSK	1	0	23.51	23.57	23.47
	1	11	23.59	23.46	23.48
15k QPSK	1	0	23.44	23.66	23.51
	1	11	23.5	23.49	23.47
	6	0	22.87	23.04	23.01
	6	6	23.16	23.15	23.2
	12	0	22.34	22.19	22.3

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
3.75k BPSK	23.46	23.67	23.94	24.15	50.00
3.75k QPSK	23.46	23.62	23.94	24.1	50.00
15k BPSK	23.46	23.59	23.94	24.07	50.00
15k QPSK	22.19	23.66	22.67	24.14	50.00

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

ERP (dBm) = EIRP (dBm) - 2.15

NB-IoT Band 26 5M

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 26715	CH 26740	CH 26765
			816.5 MHz	819 MHz	821.5 MHz
3.75k BPSK	1	0	23.55	23.47	23.53
	1	47	23.58	23.53	23.59
3.75k QPSK	1	0	23.6	23.49	23.57
	1	47	23.58	23.53	23.68
15k BPSK	1	0	23.43	23.54	23.45
	1	11	23.61	23.54	23.54
15k QPSK	1	0	23.4	23.6	23.59
	1	11	23.52	23.49	23.59
	6	0	22.9	23.06	23.07
	6	6	23.06	23.18	23.18
	12	0	22.33	22.23	22.38

Output Power

Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
3.75k BPSK	23.47	23.59	23.95	24.07	50.00
3.75k QPSK	23.49	23.68	23.97	24.16	50.00
15k BPSK	23.43	23.61	23.91	24.09	50.00
15k QPSK	22.23	23.6	22.71	24.08	50.00

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

ERP (dBm) = EIRP (dBm) - 2.15

NB-IoT Band 26 10M

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)
			CH 26740
			819 MHz
3.75k BPSK	1	0	23.47
	1	47	23.58
3.75k QPSK	1	0	23.57
	1	47	23.59
15k BPSK	1	0	23.61
	1	11	23.43
15k QPSK	1	0	23.65
	1	11	23.56
	6	0	23.04
	6	6	23.15
	12	0	22.12

Output Power

Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
3.75k BPSK	23.47	23.58	23.95	24.06	50.00
3.75k QPSK	23.57	23.59	24.05	24.07	50.00
15k BPSK	23.43	23.61	23.91	24.09	50.00
15k QPSK	22.12	23.65	22.6	24.13	50.00

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)
ERP (dBm) = EIRP (dBm) - 2.15

7.1.12 NB-IoT Band 66

Stand-alone

NB-IoT Band 66					
Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 131974	CH 132322	CH 132670
			1710.2 MHz	1745 MHz	1779.5 MHz
3.75k BPSK	1	0	23.03	22.92	23.15
	1	47	23.09	23	23.18
3.75k QPSK	1	0	23.02	22.97	23.22
	1	47	23.07	22.94	23.22
15k BPSK	1	0	23.54	23.44	23.74
	1	11	23.51	23.47	23.75
15k QPSK	1	0	23.6	23.44	23.72
	1	11	23.57	23.4	23.7
	6	0	23.11	23.07	23.17
	6	6	23.25	23.24	23.37
	12	0	22.66	22.4	22.78

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
3.75k BPSK	22.92	23.18	24.95	25.21	30.00
3.75k QPSK	22.94	23.22	24.97	25.25	30.00
15k BPSK	23.44	23.75	25.47	25.78	30.00
15k QPSK	22.4	23.72	24.43	25.75	30.00

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

In-Band

NB-IoT Band 66 3M					
Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 131987	CH 132322	CH 132657
			1711.5 MHz	1745 MHz	1778.5 MHz
3.75k BPSK	1	0	22.96	22.8	23.01
	1	47	22.96	22.91	23.09
3.75k QPSK	1	0	22.86	22.78	23.11
	1	47	22.99	22.82	23.02
15k BPSK	1	0	23.45	23.27	23.66
	1	11	23.36	23.37	23.6
15k QPSK	1	0	23.41	23.28	23.57
	1	11	23.5	23.31	23.57
	6	0	22.95	22.91	23.04
	6	6	23.1	23.04	23.32
	12	0	22.56	22.3	22.72

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
3.75k BPSK	22.8	23.09	24.83	25.12	30.00
3.75k QPSK	22.78	23.11	24.81	25.14	30.00
15k BPSK	23.27	23.66	25.3	25.69	30.00
15k QPSK	22.3	23.57	24.33	25.6	30.00

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

NB-IoT Band 66 5M

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 131997	CH 132322	CH 132647
			1712.5 MHz	1745 MHz	1777.5 MHz
3.75k BPSK	1	0	22.96	22.84	23
	1	47	22.94	22.88	23.1
3.75k QPSK	1	0	22.95	22.78	23.16
	1	47	23.01	22.87	23.09
15k BPSK	1	0	23.39	23.33	23.62
	1	11	23.32	23.34	23.7
15k QPSK	1	0	23.45	23.39	23.65
	1	11	23.42	23.24	23.65
	6	0	23.03	22.88	22.98
	6	6	23.11	23.13	23.3
	12	0	22.57	22.23	22.66

Output Power

Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
3.75k BPSK	22.84	23.1	24.87	25.13	30.00
3.75k QPSK	22.78	23.16	24.81	25.19	30.00
15k BPSK	23.32	23.7	25.35	25.73	30.00
15k QPSK	22.23	23.65	24.26	25.68	30.00

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

NB-IoT Band 66 10M

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 132022	CH 132322	CH 132622
			1715 MHz	1745 MHz	1775 MHz
3.75k BPSK	1	0	22.92	22.77	23.1
	1	47	22.99	22.81	23
3.75k QPSK	1	0	22.9	22.78	23.07
	1	47	23.02	22.75	23.03
15k BPSK	1	0	23.34	23.37	23.69
	1	11	23.43	23.35	23.66
15k QPSK	1	0	23.45	23.38	23.54
	1	11	23.45	23.27	23.51
	6	0	22.92	22.98	23.05
	6	6	23.11	23.07	23.25
	12	0	22.5	22.33	22.61

Output Power

Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
3.75k BPSK	22.77	23.1	24.8	25.13	30.00
3.75k QPSK	22.75	23.07	24.78	25.1	30.00
15k BPSK	23.34	23.69	25.37	25.72	30.00
15k QPSK	22.33	23.54	24.36	25.57	30.00

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

NB-IoT Band 66 15M

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 132047	CH 132322	CH 132597
			1717.5 MHz	1745 MHz	1772.5 MHz
3.75k BPSK	1	0	22.91	22.82	22.95
	1	47	22.93	22.89	23.03
3.75k QPSK	1	0	22.82	22.79	23.14
	1	47	22.99	22.88	23.06
15k BPSK	1	0	23.37	23.27	23.58
	1	11	23.33	23.36	23.56
15k QPSK	1	0	23.46	23.39	23.66
	1	11	23.43	23.28	23.52
	6	0	22.96	23.01	23.04
	6	6	23.12	23.12	23.24
	12	0	22.57	22.32	22.65

Output Power

Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
3.75k BPSK	22.82	23.03	24.85	25.06	30.00
3.75k QPSK	22.79	23.14	24.82	25.17	30.00
15k BPSK	23.27	23.58	25.3	25.61	30.00
15k QPSK	22.32	23.66	24.35	25.69	30.00

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

NB-IoT Band 66 20M

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 132072	CH 132322	CH 132572
			1720 MHz	1745 MHz	1770 MHz
3.75k BPSK	1	0	22.86	22.79	22.97
	1	47	22.9	22.87	23.02
3.75k QPSK	1	0	22.9	22.81	23.04
	1	47	22.94	22.83	23.04
15k BPSK	1	0	23.36	23.37	23.65
	1	11	23.41	23.41	23.66
15k QPSK	1	0	23.55	23.27	23.67
	1	11	23.38	23.26	23.65
	6	0	22.93	23	23.12
	6	6	23.19	23.17	23.17
	12	0	22.49	22.24	22.7

Output Power

Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
3.75k BPSK	22.79	23.02	24.82	25.05	30.00
3.75k QPSK	22.81	23.04	24.84	25.07	30.00
15k BPSK	23.36	23.66	25.39	25.69	30.00
15k QPSK	22.24	23.67	24.27	25.7	30.00

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

Guard-Band

NB-IoT Band 66 3M					
Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 131987	CH 132322	CH 132657
			1711.5 MHz	1745 MHz	1778.5 MHz
3.75k BPSK	1	0	22.95	22.86	23.02
	1	47	22.98	22.81	23.12
3.75k QPSK	1	0	22.88	22.8	23.09
	1	47	22.98	22.84	23.02
15k BPSK	1	0	23.49	23.37	23.68
	1	11	23.39	23.37	23.63
15k QPSK	1	0	23.4	23.28	23.63
	1	11	23.37	23.35	23.57
	6	0	22.95	22.98	23.06
	6	6	23.18	23.07	23.28
	12	0	22.6	22.32	22.73

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
3.75k BPSK	22.81	23.12	24.84	25.15	30.00
3.75k QPSK	22.8	23.09	24.83	25.12	30.00
15k BPSK	23.37	23.68	25.4	25.71	30.00
15k QPSK	22.32	23.63	24.35	25.66	30.00

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

NB-IoT Band 66 5M

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 131997	CH 132322	CH 132647
			1712.5 MHz	1745 MHz	1777.5 MHz
3.75k BPSK	1	0	22.88	22.85	23.1
	1	47	22.99	22.85	23.1
3.75k QPSK	1	0	22.82	22.79	23.15
	1	47	22.88	22.86	23.04
15k BPSK	1	0	23.38	23.33	23.57
	1	11	23.43	23.27	23.66
15k QPSK	1	0	23.52	23.29	23.62
	1	11	23.52	23.25	23.51
	6	0	23.06	22.97	23.04
	6	6	23.05	23.19	23.17
	12	0	22.5	22.28	22.58

Output Power

Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
3.75k BPSK	22.85	23.1	24.88	25.13	30.00
3.75k QPSK	22.79	23.15	24.82	25.18	30.00
15k BPSK	23.27	23.66	25.3	25.69	30.00
15k QPSK	22.28	23.62	24.31	25.65	30.00

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

NB-IoT Band 66 10M

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 132022	CH 132322	CH 132622
			1715 MHz	1745 MHz	1775 MHz
3.75k BPSK	1	0	22.86	22.75	22.95
	1	47	22.89	22.89	23.1
3.75k QPSK	1	0	22.91	22.82	23.11
	1	47	22.91	22.81	23.13
15k BPSK	1	0	23.49	23.31	23.64
	1	11	23.45	23.38	23.64
15k QPSK	1	0	23.43	23.29	23.65
	1	11	23.47	23.3	23.53
	6	0	22.94	22.93	22.97
	6	6	23.09	23.07	23.19
	12	0	22.46	22.33	22.59

Output Power

Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
3.75k BPSK	22.75	23.1	24.78	25.13	30.00
3.75k QPSK	22.81	23.13	24.84	25.16	30.00
15k BPSK	23.31	23.64	25.34	25.67	30.00
15k QPSK	22.33	23.65	24.36	25.68	30.00

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

NB-IoT Band 66 15M

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 132047	CH 132322	CH 132597
			1717.5 MHz	1745 MHz	1772.5 MHz
3.75k BPSK	1	0	22.97	22.86	22.96
	1	47	22.91	22.86	23.03
3.75k QPSK	1	0	22.93	22.84	23.02
	1	47	23	22.75	23.1
15k BPSK	1	0	23.46	23.26	23.65
	1	11	23.39	23.37	23.7
15k QPSK	1	0	23.48	23.33	23.56
	1	11	23.38	23.24	23.65
	6	0	22.98	22.94	23.07
	6	6	23.12	23.19	23.23
	12	0	22.53	22.24	22.58

Output Power

Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
3.75k BPSK	22.86	23.03	24.89	25.06	30.00
3.75k QPSK	22.75	23.1	24.78	25.13	30.00
15k BPSK	23.26	23.7	25.29	25.73	30.00
15k QPSK	22.24	23.65	24.27	25.68	30.00

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

NB-IoT Band 66 20M

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 132072	CH 132322	CH 132572
			1720 MHz	1745 MHz	1770 MHz
3.75k BPSK	1	0	22.89	22.85	23.04
	1	47	22.94	22.89	23.04
3.75k QPSK	1	0	22.97	22.79	23.06
	1	47	22.96	22.84	23.12
15k BPSK	1	0	23.44	23.25	23.66
	1	11	23.38	23.41	23.65
15k QPSK	1	0	23.51	23.33	23.63
	1	11	23.38	23.32	23.59
	6	0	23	22.96	23.12
	6	6	23.15	23.17	23.24
	12	0	22.47	22.24	22.7

Output Power

Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
3.75k BPSK	22.85	23.04	24.88	25.07	30.00
3.75k QPSK	22.79	23.12	24.82	25.15	30.00
15k BPSK	23.25	23.66	25.28	25.69	30.00
15k QPSK	22.24	23.63	24.27	25.66	30.00

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

7.1.13 NB-IoT Band 85

Stand-alone

NB-IoT Band 85					
Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 134004	CH 134092	CH 134180
			698.2 MHz	707 MHz	715.8 MHz
3.75k BPSK	1	0	23.17	23.03	23.55
	1	47	23.25	23.02	23.58
3.75k QPSK	1	0	23.19	22.97	23.66
	1	47	23.08	22.96	23.44
15k BPSK	1	0	23.75	23.61	23.69
	1	11	23.64	23.64	23.56
15k QPSK	1	0	23.62	23.58	23.63
	1	11	23.55	23.58	23.62
	6	0	23.08	23.08	23.13
	6	6	23.24	23.17	23.21
	12	0	22.59	22.41	22.51

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
3.75k BPSK	23.02	23.58	22.5	23.06	44.77
3.75k QPSK	22.96	23.66	22.44	23.14	44.77
15k BPSK	23.56	23.75	23.04	23.23	44.77
15k QPSK	22.41	23.63	21.89	23.11	44.77

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

ERP (dBm) = EIRP (dBm) - 2.15

In-Band

NB-IoT Band 85 5M					
Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 134027	CH 134092	CH 134157
			700.5 MHz	707 MHz	713.5 MHz
3.75k BPSK	1	0	23.02	22.88	23.35
	1	47	23.17	22.87	23.4
3.75k QPSK	1	0	23.14	22.88	23.53
	1	47	22.96	22.85	23.24
15k BPSK	1	0	23.6	23.41	23.49
	1	11	23.46	23.44	23.39
15k QPSK	1	0	23.42	23.52	23.43
	1	11	23.4	23.52	23.45
	6	0	22.88	22.96	23
	6	6	23.13	22.97	23.01
	12	0	22.5	22.28	22.34

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
3.75k BPSK	22.87	23.4	22.35	22.88	44.77
3.75k QPSK	22.85	23.53	22.33	23.01	44.77
15k BPSK	23.39	23.6	22.87	23.08	44.77
15k QPSK	22.28	23.52	21.76	23	44.77

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

ERP (dBm) = EIRP (dBm) - 2.15

NB-IoT Band 85 10M

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 134052	CH 134092	CH 134132
			703MHz	707 MHz	711MHz
3.75k BPSK	1	0	22.98	22.85	23.42
	1	47	23.13	22.89	23.38
3.75k QPSK	1	0	23.11	22.92	23.57
	1	47	22.97	22.77	23.37
15k BPSK	1	0	23.7	23.49	23.5
	1	11	23.46	23.56	23.43
15k QPSK	1	0	23.48	23.53	23.46
	1	11	23.48	23.52	23.51
	6	0	23.01	23	22.95
	6	6	23.09	23.06	23.09
	12	0	22.51	22.27	22.38

Output Power

Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
3.75k BPSK	22.85	23.42	22.33	22.9	44.77
3.75k QPSK	22.77	23.57	22.25	23.05	44.77
15k BPSK	23.43	23.7	22.91	23.18	44.77
15k QPSK	22.27	23.53	21.75	23.01	44.77

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

ERP (dBm) = EIRP (dBm) - 2.15

Guard-Band

NB-IoT Band 85 5M					
Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 134027	CH 134092	CH 134157
			700.5 MHz	707 MHz	713.5 MHz
3.75k BPSK	1	0	22.99	22.85	23.37
	1	47	23.06	22.94	23.48
3.75k QPSK	1	0	23.1	22.81	23.5
	1	47	22.9	22.77	23.27
15k BPSK	1	0	23.58	23.47	23.58
	1	11	23.47	23.58	23.44
15k QPSK	1	0	23.57	23.45	23.49
	1	11	23.42	23.53	23.43
	6	0	22.92	22.93	22.94
	6	6	23.09	23.11	23.05
	12	0	22.46	22.27	22.32

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
3.75k BPSK	22.85	23.48	22.33	22.96	44.77
3.75k QPSK	22.77	23.5	22.25	22.98	44.77
15k BPSK	23.44	23.58	22.92	23.06	44.77
15k QPSK	22.27	23.57	21.75	23.05	44.77

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

ERP (dBm) = EIRP (dBm) - 2.15

NB-IoT Band 85 10M

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 134052	CH 134092	CH 134132
			703MHz	707 MHz	711MHz
3.75k BPSK	1	0	23.07	22.84	23.36
	1	47	23.06	22.94	23.43
3.75k QPSK	1	0	23.1	22.88	23.57
	1	47	22.89	22.85	23.3
15k BPSK	1	0	23.6	23.45	23.5
	1	11	23.55	23.48	23.41
15k QPSK	1	0	23.5	23.48	23.56
	1	11	23.39	23.52	23.56
	6	0	22.93	22.99	23.07
	6	6	23.09	23.02	23.16
	12	0	22.47	22.26	22.31

Output Power

Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
3.75k BPSK	22.84	23.43	22.32	22.91	44.77
3.75k QPSK	22.85	23.57	22.33	23.05	44.77
15k BPSK	23.41	23.6	22.89	23.08	44.77
15k QPSK	22.26	23.56	21.74	23.04	44.77

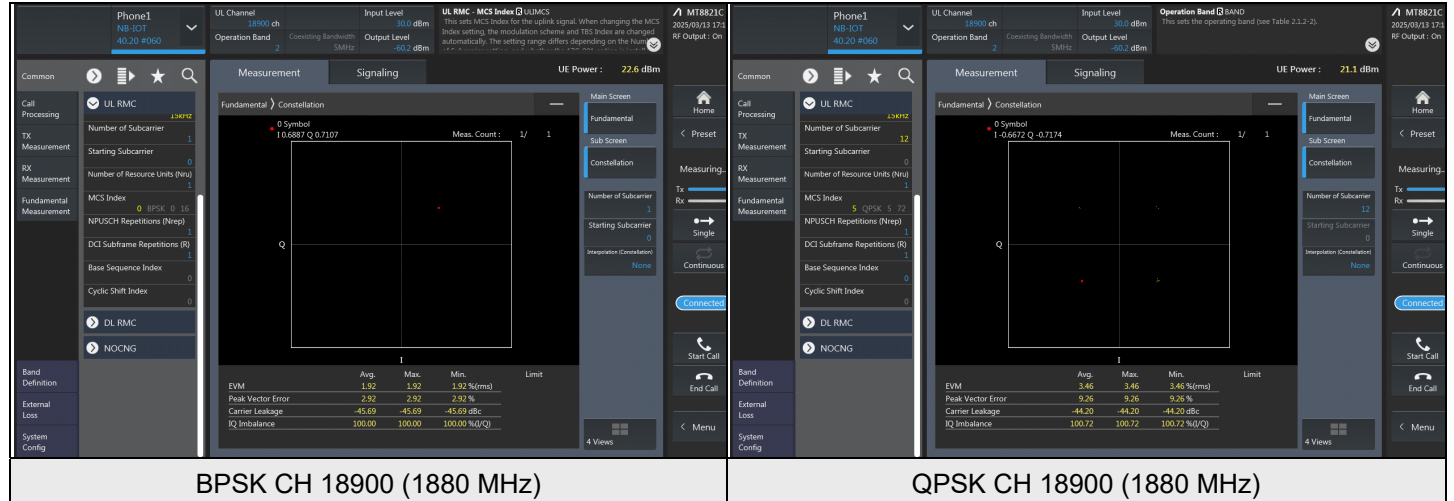
Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

ERP (dBm) = EIRP (dBm) - 2.15

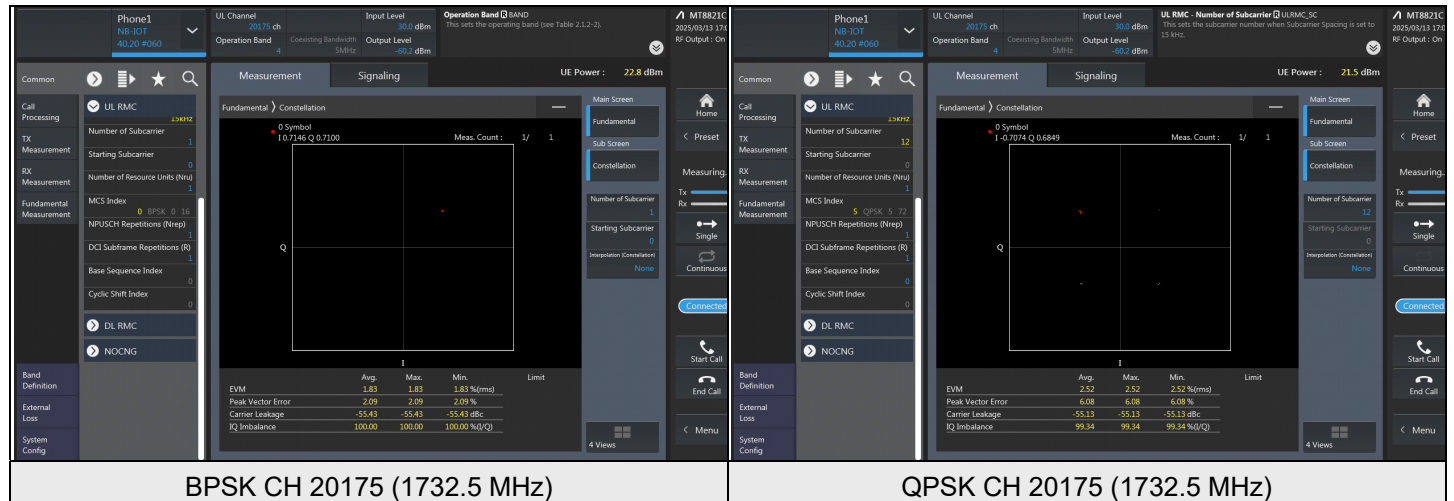
7.2 Modulation Characteristics

Input Power:	3.8 Vdc	Environmental Conditions:	22°C, 75% RH	Tested By:	Match Tsui
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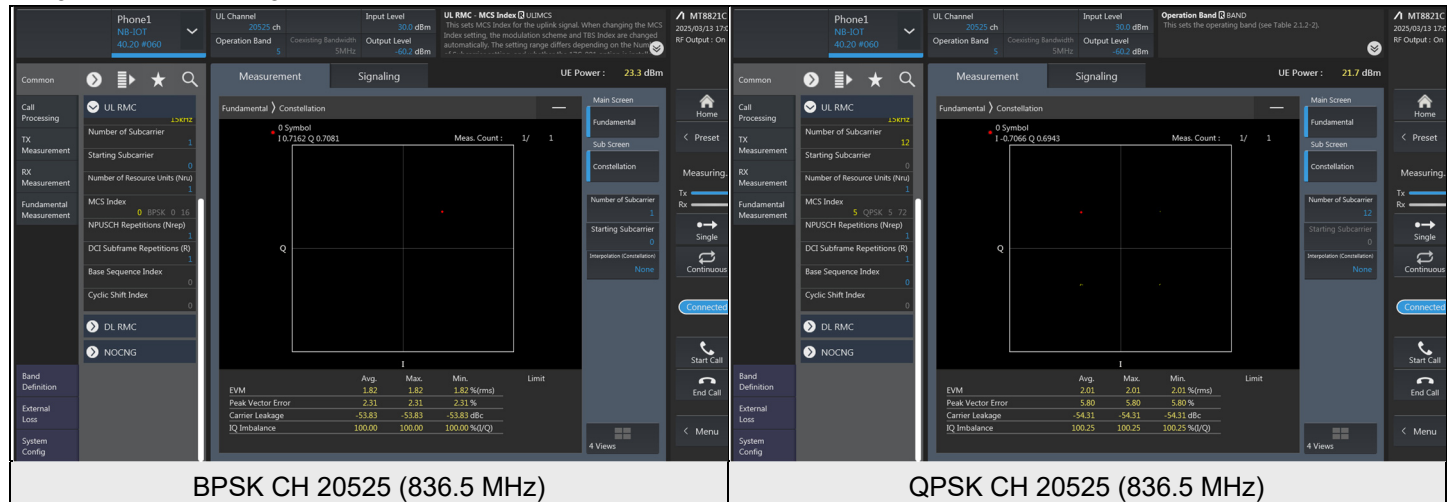
7.2.1 NB-IoT Band 2



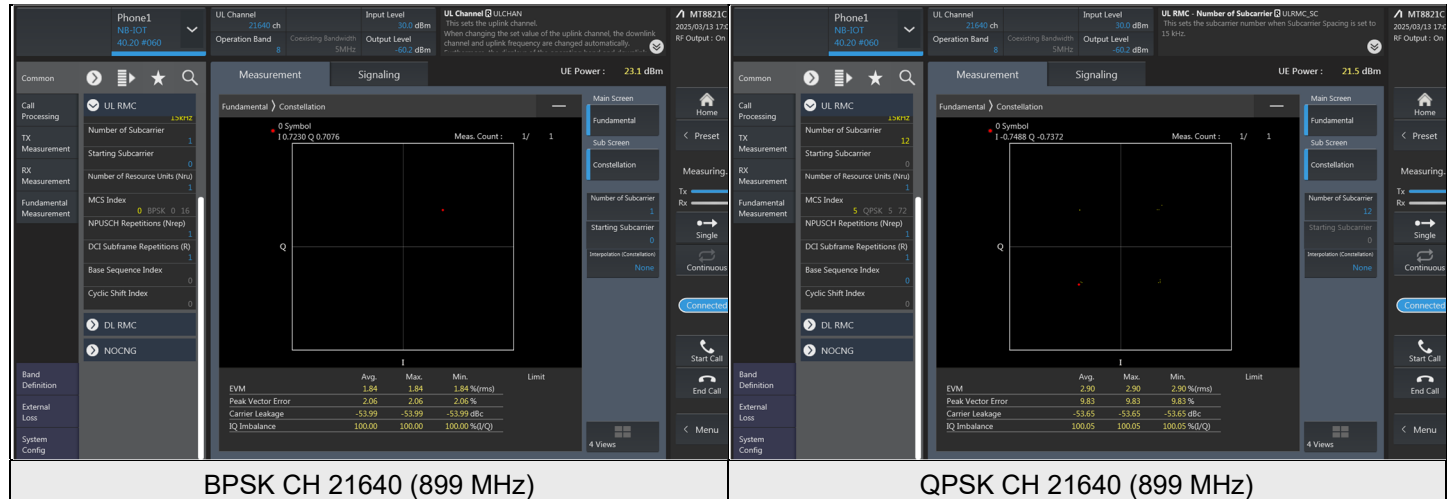
7.2.2 NB-IoT Band 4



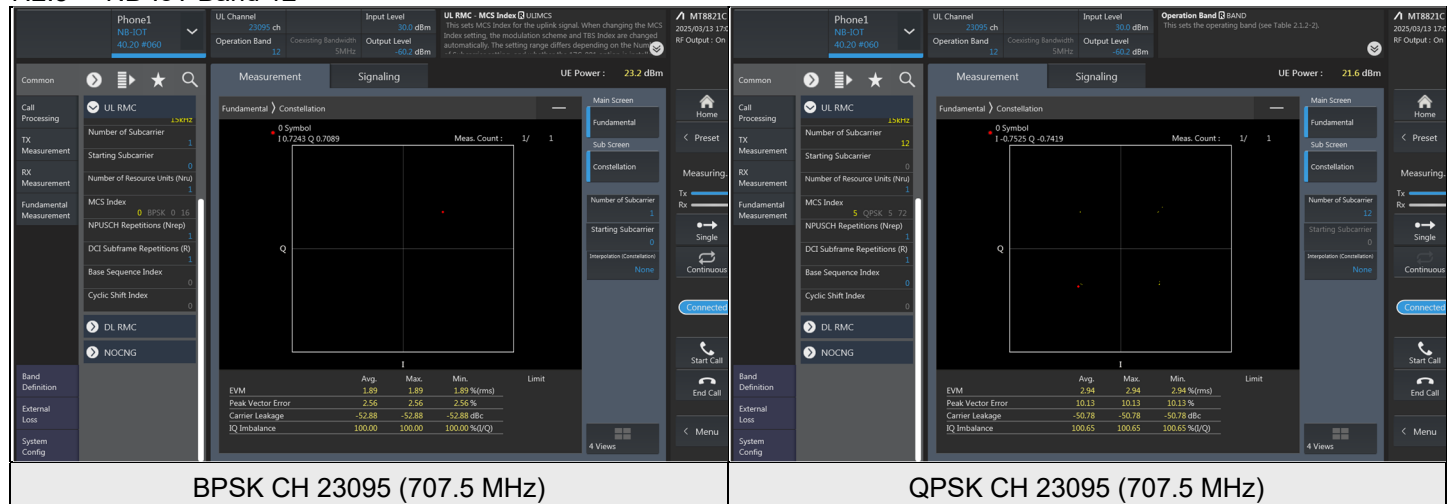
7.2.3 NB-IoT Band 5



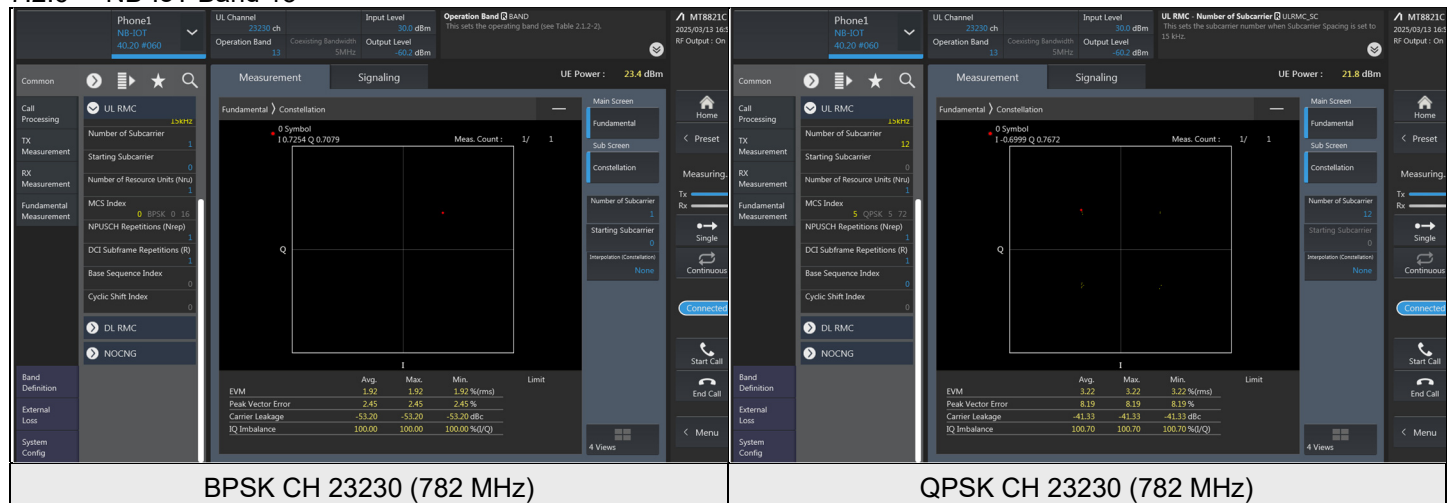
7.2.4 NB-IoT Band 8



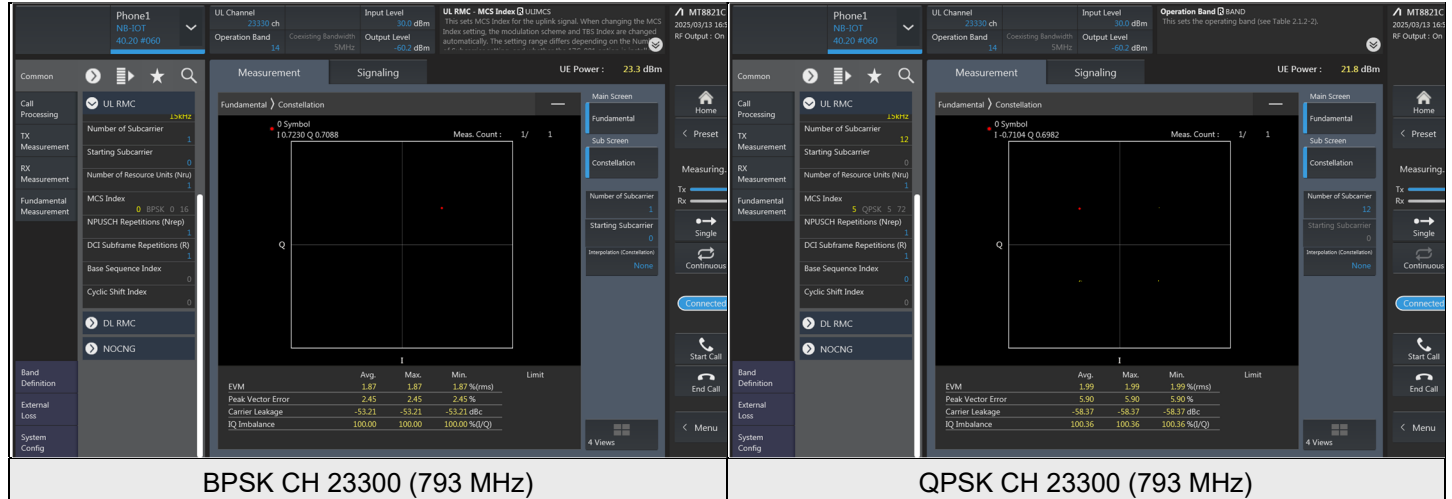
7.2.5 NB-IoT Band 12



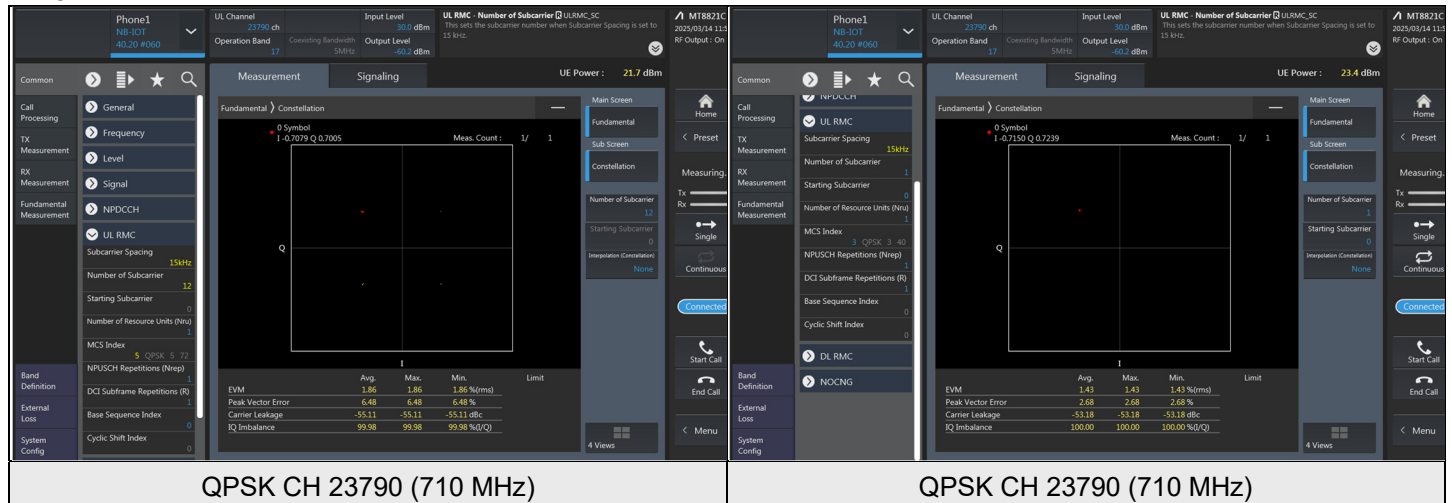
7.2.6 NB-IoT Band 13



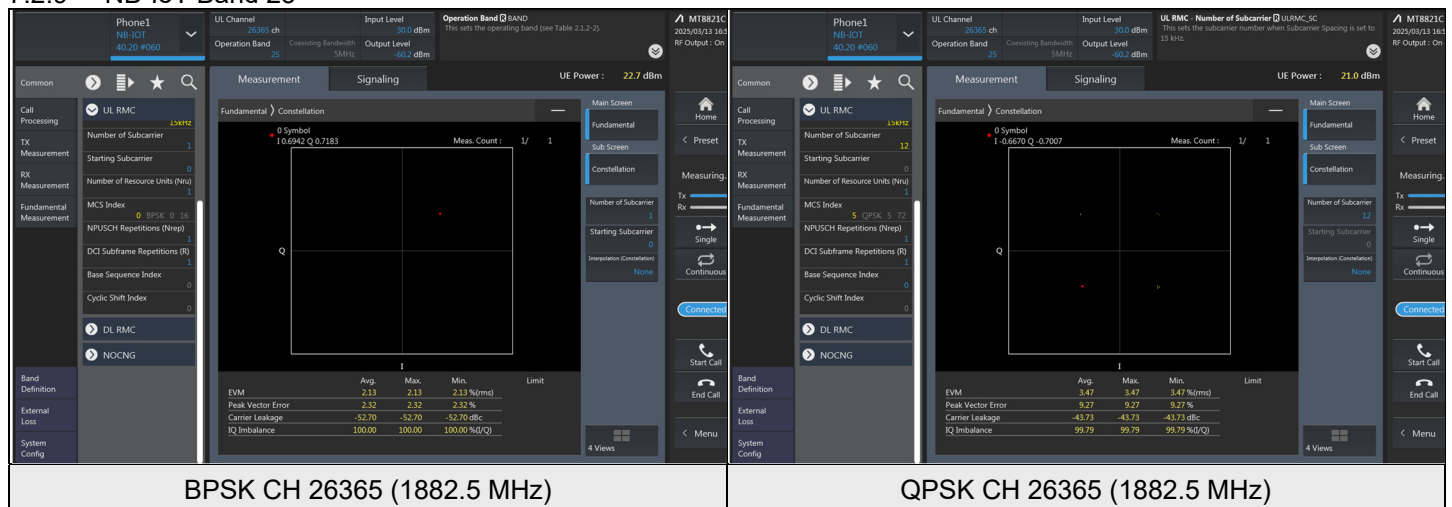
7.2.7 NB-IoT Band 14



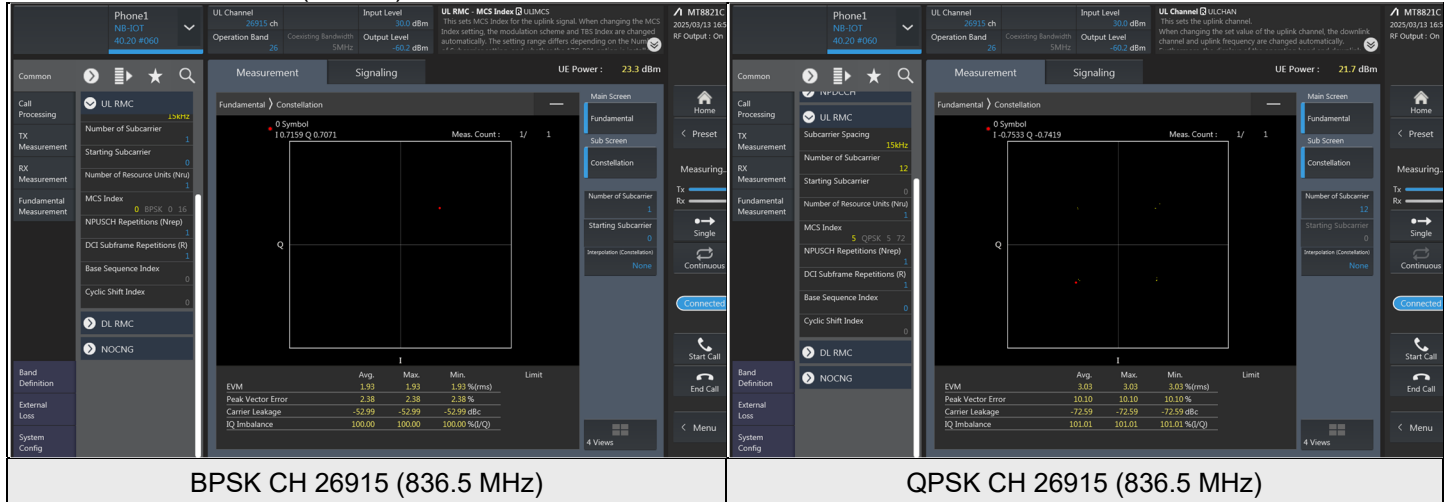
7.2.8 NB-IoT Band 17



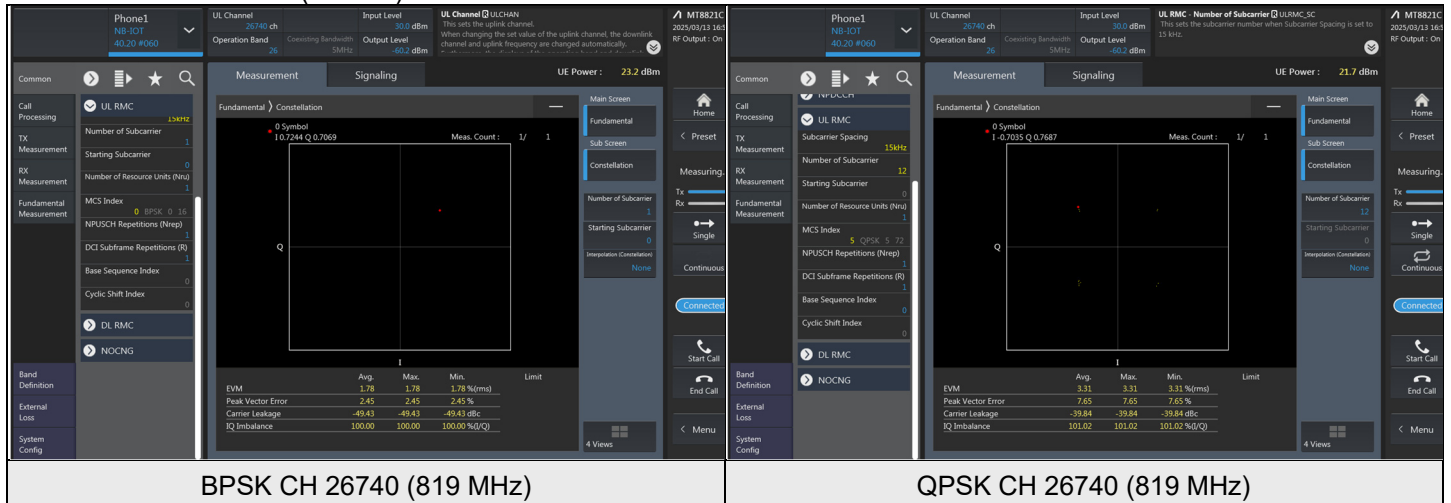
7.2.9 NB-IoT Band 25



7.2.10 NB-IoT Band 26 (Part 22)



7.2.11 NB-IoT Band 26 (Part 90)



7.2.12 NB-IoT Band 66

