



Radio Test Report

Report No.: STS2601137W02

Issued for

SEEWORLD Technology Co., Ltd

4th Floor, No.121, Kecheng Building, Science Road,
Luogang District, Guangzhou, Guangdong Province, China

Product Name: Long standby Tracker

Brand Name: N/A

Model Name: W21L

Series Model: EF533, W21L-E, W21L-U, W21L-X

FCC ID: 2AWTV-W21L

Test Standard: 47 CFR Part 2, 24(E), 27,90

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**TEST RESULT CERTIFICATION**

Applicant's Name.....: SEEWORLD Technology Co.,ltd
Address.....: 4th Floor, No.121, Kecheng Building, Science Road, Luogang District, Guangzhou, Guangdong Province, China
Manufacturer's Name.....: SEEWORLD Technology Co.,ltd
Address.....: 4th Floor, No.121, Kecheng Building, Science Road, Luogang District, Guangzhou, Guangdong Province, China
Product description
Product Name.....: Long standby Tracker
Brand Name.....: N/A
Model Name.....: W21L
Series Model.....: EF533, W21L-E, W21L-U, W21L-X
Test Standards.....: 47 CFR Part 2, 24(E), 27,90
Test Procedure.....: KDB 971168 D01 v03r01, ANSI C63.26 2015

This device described above has been tested by STS, the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.
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Date of Test.....:
Date of receipt of test item.....: 13 Jan. 2026
Date (s) of performance of tests : 13 Jan. 2026~06 Mar. 2026
Date of Issue.....: 06 Mar. 2026
Test Result.....: Pass

Testing Engineer :

(Lenon Hou)

Technical Manager :

(Skylar Li)

Authorized Signatory :

(Bovey Yang)





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**Revision History**

Rev.	Issue Date	Report No.	Effect Page	Contents
00	06 Mar. 2026	STS2601137W02	ALL	Initial Issue

**1.SUMMARY OF TEST RESULTS**

Test procedures according to the technical standards:

The radiated emission testing was performed according to the procedures of KDB 971168 D01 v03r01 and ANSI C63.26(2015)

Test Description	FCC Rules	Band	Test Limit	Test Result
Conducted Output Power	2.1046	/	Reporting Only	PASS
Transmitter Radiated Power	22.913	B5, B26	ERP < 7 Watt	PASS
	24.232(c)	B2, B25	EIRP < 2Watt	
	27.50(b)	B13	ERP < 3 Watt	
	27.50(c)	B12, B17	ERP < 3 Watt	
	27.50(d)	B4, B66	EIRP < 1Watt	
	90.635(b)	B26	ERP < 100Watt	
Peak-to-Average Ratio	22.913(d)	B5, B26	< 13 dB	PASS
	24.232(d)	B2, B25, B35, B36		
	27.50	B4, B12, B13, B17, B66		
Occupied Bandwidth	2.1049	/	Reporting Only	PASS
Frequency Stability	2.1055	/	< 2.5 ppm	PASS
	22.355	B5, B26		
	24.235	B2, B25		
	27.54	B4, B12, B13, B17, B66		
	90.213	B26		
Spurious Emission at Antenna Terminals	2.1051	/	< 43+10log10(P[Watts])	PASS
	22.917	B5, B26		
	24.238(a)	B2, B25		
	27.53(c)	B13		



	27.53(g)	B12, B17		
	27.53(h)	B4, B66		
	90.543(e)	B14		
	90.691	B26		
Band Edge	2.1051	/	Please refer to standard	PASS
	22.917	B5, B26		
	24.238(a)	B2, B25		
	27.53(c)	B13		
	27.53(g)	B12, B17		
	27.53(h)	B4, B66		
	90.691	B26		
Field Strength of Spurious Radiation	2.1053	/	< 43+10log10(P[Watts])	PASS
	22.917	B5, B26		
	24.238(a)	B2, B25		
	27.53(c)	B13		
	27.53(g)	B12, B17		
	27.53(h)	B4, B66		
	90.691	B26		



1.1 INTRODUCTION

TEST FACTORY

SHENZHEN STS TEST SERVICES CO., LTD

Add. : 101, Building B, Zhuoke Science Park, No.190 Chongqing Road, ZhanChengShequ, Fuhai Sub-District, Bao'an District, Shenzhen, Guang Dong, China

FCC test Firm Registration Number: 625569

IC test Firm Registration Number: 12108A

A2LA Certificate No.: 4338.01

MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %.

No.	Item	Uncertainty
1	RF output power, conducted	$\pm 0.751\text{dB}$
2	Unwanted Emissions, conducted	$\pm 2.888\text{dB}$
3	All emissions, radiated 30M-1GHz	$\pm 2.52\text{dB}$
4	All emissions, radiated 1G-18GHz	$\pm 3.48\text{dB}$
5	All emissions, radiated >18GHz	$\pm 4.18\text{dB}$
6	Conducted Emission (9KHz-150KHz)	$\pm 2.48\text{dB}$
7	Conducted Emission (150KHz-30MHz)	$\pm 2.52\text{dB}$
8	Occupied Channel Bandwidth	$\pm 3.6\%$
9	Peak-to-Average Ratio	$\pm 0.845\text{dB}$



2. GENERAL INFORMATION

2.1 TECHNICAL SPECIFICATIONS AND REGULATIONS

2.1.1 PRODUCT DESCRIPTION

A major technical description of EUT is described as following:

Product Name	Long standby Tracker
Trade Name	N/A
Model Name	W21L
Series Model	EF533, W21L-E, W21L-U, W21L-X
Model Difference	Only the model names are different
Frequency Bands	TX: NB IoT Band 2:1850~1910MHz NB IoT Band 4:1710~1755MHz NB IoT Band 5:824~849MHz NB IoT Band 12:699~716MHz NB IoT Band 13:777~787MHz NB IoT Band 17: 704-716 MHz NB IoT Band 25:1850~1915MHz NB IoT Band 26 Part 90:814~824MHz NB IoT Band 26 Part 22:824-849 MHz NB IoT Band 66:1710~1780MHz RX: NB IoT Band 2:1930 ~1990MHz NB IoT Band 4:2110~2155MHz NB IoT Band 5:869~894MHz NB IoT Band 12:729~746MHz NB IoT Band 13:746~756MHz NB IoT Band 17: 734-746 MHz NB IoT Band 25:1930~1995MHz NB IoT Band 26 Part 90:859~869MHz NB IoT Band 26 Part 22:869-894MHz NB IoT Band 66:2110~2200MHz
SIM Card	Only support single SIM Card.
Antenna	PIFA
Antenna gain	NB IoT B2:-1.85 dBi NB IoT B4:-2.55 dBi NB IoT B5:-2.56 dBi NB IoT B12:-2.4 dBi NB IoT B13:-2.4 dBi NB IoT B17:-2.4 dBi NB IoT B25:-1.85 dBi NB IoT B26:-2.4 dBi NB IoT B66:-2.55 dBi
Rating	Input: 5VDC
Battery	Rated Voltage: 3.0V Charge Limit Voltage: 4.2V Capacity: 5000mAh
Adapter	N/A
Extreme Vol. Limits	DC 4.5V ~ DC 5.5V (Normal: DC 5V)



Extreme Temp. Tolerance	0°C~40°C
Hardware version number	N/A
Software version number	N/A

Note: The antenna information refer the manufacturer provide report, applicable only to the tested sa-mple identified in the report.



2.1.2 RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for filing to comply with the 47 CFR Part 2, 24(E), 27.

2.1.3 SPECIAL ACCESSORIES

The battery and the charger, earphone supplied by the applicant were used as accessories and being tested with eut intended for fcc grant together.

2.1.4 EUT CONFIGURATION

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

2.1.5 EUT EXERCISE

The Transmitter was operated in the maximum output power mode through Communication Tester. The TX frequency was fixed which was for the purpose of the measurements.



2.1.6 MEASUREMENT INSTRUMENTS

RF Radiation Test Equipment					
Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Calibrated Until
Temperature & Humidity	TP502V4-P	Toprie	N/A	2025.10.09	2026.10.08
Wireless Communications Test Set	R&S	CMW 500	117239	2025.09.26	2026.09.25
Signal Generator	Agilent	83752A	3610A02740	2025.03.20	2026.03.19
				2026.02.04	2027.02.03
Pre-Amplifier(0.1M-3GHz)	EM	EM330	060665	2025.02.22	2026.02.21
				2026.02.05	2027.02.04
Pre-Amplifier (1G-18GHz)	SKET	LNPA-01018G-45	SK2018080901	2025.09.25	2026.09.24
Pre-Amplifier(18G-40GHz)	SKET	LNPA_1840-50	SK2018101801	2025.02.22	2026.02.21
				2026.02.04	2027.02.03
Positioning Controller	MF	MF-7802	MF-780208587	N/A	N/A
Signal Analyzer	R&S	FSV 40-N	101823	2025.09.26	2026.09.25
Switch Control Box	N/A	N/A	N/A	N/A	N/A
Filter Box	BALUN Technology	SU319E	BL-SZ1530051	N/A	N/A
Video Controller	SKET	FCS C-3	N/A	N/A	N/A
Bilog Antenna	TESEQ	CBL6111D	45873	2025.09.21	2026.09.20
Horn Antenna	SCHWARZBECK	BBHA 9120D	9120D-1314	2025.09.27	2027.09.26
Bilog Antenna	TESEQ	CBL6111D	34678	2025.09.27	2027.09.26
Horn Antenna	SCHWARZBECK	BBHA 9120D	02014	2025.09.27	2027.09.26
Horn Antenna	A-INFOMW	LB-180400-KF	J211020657	2025.09.27	2027.09.26
Antenna Mast	MF	MFA-440H	N/A	N/A	N/A
Turn Table	MF	N/A	N/A	N/A	N/A
AC Power Source	APC	KDF-11010G	F214050035	N/A	N/A
DC Power Supply	Zhaoxin	RXN 605D	20R605D11010081	N/A	N/A
Test SW	EMC Test Software	25.5 en			
	EZ-EMC	Ver.STSLAB-03A1 RE			
RF Connected Test Equipment					
Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Calibrated Until
Temperature & Humidity	TP502V4-P	Toprie	N/A	2025.10.09	2026.10.08
Wireless Communications Test Set	R&S	CMW 500	131428	2025.02.22	2026.02.21
				2026.02.04	2027.02.03
Signal Analyzer	Agilent	N9020A	MY52440124	2025.02.22	2026.02.21
				2026.02.04	2027.02.03
RF Automatic Test System	Maiwei	MW200-SFCB	N/A	N/A	N/A
Temperature & Humidity Test Chamber	Safety test	AG80L	171200018	2025.02.22	2026.02.21
				2026.02.04	2027.02.03
Programmable Power Supply	Agilent	E3642A	MY40002025	2025.09.26	2026.09.25
POWER DIVIDER	eastsheep	PD-0.5/0.6-2S	N/A	2025.02.25	2026.02.24
				2026.02.24	2027.02.23
Test SW	MTS 8200	2.0.0.0			



2.1.8 MEASUREMENT RESULTS EXPLANATION EXAMPLE

For all conducted test items:

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

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

Offset = RF Cable Loss + Attenuator Factor.

3. CONDUCTED OUTPUT POWER&RADIATED POWER AND EFFECTIVE ISOTROPIC RADIATED POWER

3.1 DESCRIPTION OF THE CONDUCTED OUTPUT POWER MEASUREMENT

3.1.1 MEASUREMENT METHOD

CONDUCTED OUTPUT POWER:

A system simulator was used to establish communication with the eut. Its parameters were set to force the eut transmitting at maximum output power. The measured power in the radio frequency on the transmitter output terminals shall be reported.

Configuration follows KDB 971168 D01 v03r01.

C63.26 2015 Section 5.2.5.5.

In many cases, RF output power limits are specified in terms of the ERP or the EIRP. Typically, ERP is specified when the operating frequency is less than or equal to 1 GHz and EIRP is specified when the operating frequency is greater than 1 GHz. Both are defined as the product of the power supplied to the antenna and its gain (relative to a dipole antenna in the case of ERP, and relative to an isotropic antenna in the case of EIRP); however, when working in decibels (i.e., logarithmic scale), the ERP and EIRP represent the sum of the transmit antenna gain (in dBd or dBi, respectively) and the conducted RF output power (expressed in dB relative to watts or milliwatts). The relevant equation for determining the maximum ERP or EIRP from the measured RF output power is given in Equation (1) as follows:

(1) $ERP \text{ or } EIRP = P_{Meas} + GT$

$ERP = EIRP - 2.15$

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

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

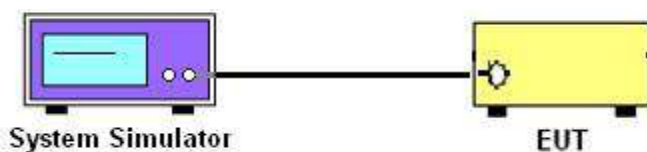
For devices utilizing multiple antennas, see 6.4 for guidance with respect to determining the effective array transmit antenna gain term to be used in the above equation.

The following equations demonstrate the mathematical relationship between ERP and EIRP:

a) $ERP = EIRP - 2.15$, where ERP and EIRP are expressed in consistent units.

b) $EIRP = ERP + 2.15$, where ERP and EIRP are expressed in consistent units.

3.1.2 TEST SETUP



3.1.3 TEST PROCEDURES

1. The transmitter output port was connected to system simulator.
2. Set EUT at maximum power through the system simulator.
3. Select lowest/middle/highest channels for each band and different modulation.
4. Measure and record the power level from the system simulator.



3.1.4 TEST RESULTS

NB-IoT Band 2 Maximum Average Power [dBm]										
Mode	Subcarrier Space (KHz)	UL Channel	Modulation	RB Configure	Conduction AVG Power(dBm)	Ant Gain(dBi)	EIRP (dBm)	EIRP Limit(W)	EIRP Limit(dBm)	Verdict
Band 2 Standalone	3.75	Lowest	BPSK	1@0	22.76	-1.85	20.91	2.00	33.01	PASS
			BPSK	1@47	22.71	-1.85	20.86	2.00	33.01	PASS
			QPSK	1@0	22.79	-1.85	20.94	2.00	33.01	PASS
			QPSK	1@47	22.72	-1.85	20.87	2.00	33.01	PASS
		Middle	BPSK	1@0	22.74	-1.85	20.89	2.00	33.01	PASS
			BPSK	1@47	22.63	-1.85	20.78	2.00	33.01	PASS
			QPSK	1@0	22.68	-1.85	20.83	2.00	33.01	PASS
			QPSK	1@47	22.61	-1.85	20.76	2.00	33.01	PASS
		Highest	BPSK	1@0	22.54	-1.85	20.69	2.00	33.01	PASS
			BPSK	1@47	22.58	-1.85	20.73	2.00	33.01	PASS
			QPSK	1@0	22.60	-1.85	20.75	2.00	33.01	PASS
			QPSK	1@47	22.56	-1.85	20.71	2.00	33.01	PASS
	15	Lowest	BPSK	1@0	22.87	-1.85	21.02	2.00	33.01	PASS
			BPSK	1@11	22.92	-1.85	21.07	2.00	33.01	PASS
			QPSK	1@0	22.91	-1.85	21.06	2.00	33.01	PASS
			QPSK	1@11	22.90	-1.85	21.05	2.00	33.01	PASS
		Middle	QPSK	12@0	20.82	-1.85	18.97	2.00	33.01	PASS
			BPSK	1@0	22.74	-1.85	20.89	2.00	33.01	PASS
			BPSK	1@11	22.74	-1.85	20.89	2.00	33.01	PASS
			QPSK	1@0	22.70	-1.85	20.85	2.00	33.01	PASS
			QPSK	1@11	22.68	-1.85	20.83	2.00	33.01	PASS
		Highest	QPSK	12@0	20.75	-1.85	18.90	2.00	33.01	PASS
			BPSK	1@0	22.65	-1.85	20.80	2.00	33.01	PASS
			BPSK	1@11	22.65	-1.85	20.80	2.00	33.01	PASS
			QPSK	1@0	22.63	-1.85	20.78	2.00	33.01	PASS
			QPSK	1@11	22.61	-1.85	20.76	2.00	33.01	PASS
			QPSK	12@0	20.61	-1.85	18.76	2.00	33.01	PASS



NB-IoT Band 4 Maximum Average Power [dBm]										
Mode	Subcarrier Space (KHz)	UL Channel	Modulation	RB Configuration	Conduction AVG Power(dBm)	Ant Gain(dBi)	EIRP (dBm)	EIRP Limit(W)	EIRP Limit(dBm)	Verdict
Standalone	3.75	Lowest	BPSK	1@0	23.06	-2.55	20.51	1.00	30.00	PASS
			BPSK	1@47	22.99	-2.55	20.44	1.00	30.00	PASS
			QPSK	1@0	23.02	-2.55	20.47	1.00	30.00	PASS
			QPSK	1@47	22.95	-2.55	20.40	1.00	30.00	PASS
		Middle	BPSK	1@0	23.22	-2.55	20.67	1.00	30.00	PASS
			BPSK	1@47	23.18	-2.55	20.63	1.00	30.00	PASS
			QPSK	1@0	23.23	-2.55	20.68	1.00	30.00	PASS
			QPSK	1@47	23.16	-2.55	20.61	1.00	30.00	PASS
		Highest	BPSK	1@0	23.35	-2.55	20.80	1.00	30.00	PASS
			BPSK	1@47	23.28	-2.55	20.73	1.00	30.00	PASS
			QPSK	1@0	23.36	-2.55	20.81	1.00	30.00	PASS
			QPSK	1@47	23.29	-2.55	20.74	1.00	30.00	PASS
	15	Lowest	BPSK	1@0	23.06	-2.55	20.51	1.00	30.00	PASS
			BPSK	1@11	23.05	-2.55	20.50	1.00	30.00	PASS
			QPSK	1@0	23.02	-2.55	20.47	1.00	30.00	PASS
			QPSK	1@11	22.99	-2.55	20.44	1.00	30.00	PASS
		Middle	QPSK	12@0	21.05	-2.55	18.50	1.00	30.00	PASS
			BPSK	1@0	23.26	-2.55	20.71	1.00	30.00	PASS
			BPSK	1@11	23.24	-2.55	20.69	1.00	30.00	PASS
			QPSK	1@0	23.21	-2.55	20.66	1.00	30.00	PASS
			QPSK	1@11	23.23	-2.55	20.68	1.00	30.00	PASS
		Highest	QPSK	12@0	21.19	-2.55	18.64	1.00	30.00	PASS
			BPSK	1@0	23.37	-2.55	20.82	1.00	30.00	PASS
			BPSK	1@11	23.32	-2.55	20.77	1.00	30.00	PASS
			QPSK	1@0	23.36	-2.55	20.81	1.00	30.00	PASS
			QPSK	1@11	23.35	-2.55	20.80	1.00	30.00	PASS
			QPSK	12@0	21.29	-2.55	18.74	1.00	30.00	PASS



NB-IoT Band 5 Maximum Average Power [dBm]										
Mode	Subcarrier Space (KHz)	UL Channel	Modulation	RB Configuration	Conduction AVG Power(dBm)	Ant Gain(dBi)	ERP (dBm)	ERP Limit(W)	ERP Limit(dBm)	Verdict
Standalone	3.75	Lowest	BPSK	1@0	23.18	-2.56	18.47	7.00	38.45	PASS
			BPSK	1@47	23.11	-2.56	18.40	7.00	38.45	PASS
			QPSK	1@0	23.18	-2.56	18.47	7.00	38.45	PASS
			QPSK	1@47	23.13	-2.56	18.42	7.00	38.45	PASS
		Middle	BPSK	1@0	23.17	-2.56	18.46	7.00	38.45	PASS
			BPSK	1@47	23.10	-2.56	18.39	7.00	38.45	PASS
			QPSK	1@0	23.15	-2.56	18.44	7.00	38.45	PASS
			QPSK	1@47	23.14	-2.56	18.43	7.00	38.45	PASS
		Highest	BPSK	1@0	23.16	-2.56	18.45	7.00	38.45	PASS
			BPSK	1@47	23.11	-2.56	18.40	7.00	38.45	PASS
			QPSK	1@0	23.18	-2.56	18.47	7.00	38.45	PASS
			QPSK	1@47	23.15	-2.56	18.44	7.00	38.45	PASS
	15	Lowest	BPSK	1@0	22.40	-2.56	17.69	7.00	38.45	PASS
			BPSK	1@11	22.42	-2.56	17.71	7.00	38.45	PASS
			QPSK	1@0	22.40	-2.56	17.69	7.00	38.45	PASS
			QPSK	1@11	22.37	-2.56	17.66	7.00	38.45	PASS
		Middle	QPSK	12@0	21.22	-2.56	16.51	7.00	38.45	PASS
			BPSK	1@0	22.25	-2.56	17.54	7.00	38.45	PASS
			BPSK	1@11	22.25	-2.56	17.54	7.00	38.45	PASS
			QPSK	1@0	22.25	-2.56	17.54	7.00	38.45	PASS
			QPSK	1@11	22.27	-2.56	17.56	7.00	38.45	PASS
		Highest	QPSK	12@0	21.20	-2.56	16.49	7.00	38.45	PASS
			BPSK	1@0	22.14	-2.56	17.43	7.00	38.45	PASS
			BPSK	1@11	22.15	-2.56	17.44	7.00	38.45	PASS
			QPSK	1@0	22.21	-2.56	17.50	7.00	38.45	PASS
			QPSK	1@11	23.16	-2.56	18.45	7.00	38.45	PASS
			QPSK	12@0	21.25	-2.56	16.54	7.00	38.45	PASS



NB-IoT Band 12 Maximum Average Power [dBm]										
Mode	Subcarrier Space (KHz)	UL Channel	Modulation	RB Configuration	Conduction AVG Power(dBm)	Ant Gain(dBi)	ERP (dBm)	ERP Limit(W)	ERP Limit(dBm)	Verdict
Standalone	3.75	Lowest	BPSK	1@0	23.14	-2.40	18.59	3.00	34.77	PASS
			BPSK	1@47	23.06	-2.40	18.51	3.00	34.77	PASS
			QPSK	1@0	23.10	-2.40	18.55	3.00	34.77	PASS
			QPSK	1@47	23.06	-2.40	18.51	3.00	34.77	PASS
		Middle	BPSK	1@0	23.13	-2.40	18.58	3.00	34.77	PASS
			BPSK	1@47	23.10	-2.40	18.55	3.00	34.77	PASS
			QPSK	1@0	23.18	-2.40	18.63	3.00	34.77	PASS
			QPSK	1@47	23.12	-2.40	18.57	3.00	34.77	PASS
		Highest	BPSK	1@0	23.10	-2.40	18.55	3.00	34.77	PASS
			BPSK	1@47	23.02	-2.40	18.47	3.00	34.77	PASS
			QPSK	1@0	23.07	-2.40	18.52	3.00	34.77	PASS
			QPSK	1@47	23.00	-2.40	18.45	3.00	34.77	PASS
	15	Lowest	BPSK	1@0	23.15	-2.40	18.60	3.00	34.77	PASS
			BPSK	1@11	23.18	-2.40	18.63	3.00	34.77	PASS
			QPSK	1@0	22.97	-2.40	18.42	3.00	34.77	PASS
			QPSK	1@11	23.14	-2.40	18.59	3.00	34.77	PASS
		Middle	QPSK	12@0	21.25	-2.40	16.70	3.00	34.77	PASS
			BPSK	1@0	22.77	-2.40	18.22	3.00	34.77	PASS
			BPSK	1@11	23.21	-2.40	18.66	3.00	34.77	PASS
			QPSK	1@0	22.74	-2.40	18.19	3.00	34.77	PASS
			QPSK	1@11	23.20	-2.40	18.65	3.00	34.77	PASS
		Highest	QPSK	12@0	21.24	-2.40	16.69	3.00	34.77	PASS
			BPSK	1@0	23.06	-2.40	18.51	3.00	34.77	PASS
			BPSK	1@11	23.02	-2.40	18.47	3.00	34.77	PASS
			QPSK	1@0	23.05	-2.40	18.50	3.00	34.77	PASS
			QPSK	1@11	23.04	-2.40	18.49	3.00	34.77	PASS
			QPSK	12@0	21.19	-2.40	16.64	3.00	34.77	PASS



NB-IoT Band 13 Maximum Average Power [dBm]										
Mode	Subcarrier Space (KHz)	UL Channel	Modulation	RB Configure	Conduction AVG Power(dBm)	Ant Gain(dBi)	ERP (dBm)	ERP Limit(W)	ERP Limit(dBm)	Verdict
Standalone	3.75	Lowest	BPSK	1@0	23.17	-2.40	18.62	3.00	34.77	PASS
			BPSK	1@47	23.09	-2.40	18.54	3.00	34.77	PASS
			QPSK	1@0	23.24	-2.40	18.69	3.00	34.77	PASS
			QPSK	1@47	23.20	-2.40	18.65	3.00	34.77	PASS
		Middle	BPSK	1@0	23.27	-2.40	18.72	3.00	34.77	PASS
			BPSK	1@47	23.25	-2.40	18.70	3.00	34.77	PASS
			QPSK	1@0	23.30	-2.40	18.75	3.00	34.77	PASS
			QPSK	1@47	23.24	-2.40	18.69	3.00	34.77	PASS
		Highest	BPSK	1@0	23.07	-2.40	18.52	3.00	34.77	PASS
			BPSK	1@47	23.02	-2.40	18.47	3.00	34.77	PASS
			QPSK	1@0	23.07	-2.40	18.52	3.00	34.77	PASS
			QPSK	1@47	23.00	-2.40	18.45	3.00	34.77	PASS
	15	Lowest	BPSK	1@0	23.12	-2.40	18.57	3.00	34.77	PASS
			BPSK	1@11	23.16	-2.40	18.61	3.00	34.77	PASS
			QPSK	1@0	23.17	-2.40	18.62	3.00	34.77	PASS
			QPSK	1@11	23.16	-2.40	18.61	3.00	34.77	PASS
			QPSK	12@0	21.23	-2.40	16.68	3.00	34.77	PASS
		Middle	BPSK	1@0	23.37	-2.40	18.82	3.00	34.77	PASS
			BPSK	1@11	23.41	-2.40	18.86	3.00	34.77	PASS
			QPSK	1@0	23.39	-2.40	18.84	3.00	34.77	PASS
			QPSK	1@11	23.38	-2.40	18.83	3.00	34.77	PASS
			QPSK	12@0	21.37	-2.40	16.82	3.00	34.77	PASS
		Highest	BPSK	1@0	23.14	-2.40	18.59	3.00	34.77	PASS
			BPSK	1@11	23.16	-2.40	18.61	3.00	34.77	PASS
			QPSK	1@0	23.16	-2.40	18.61	3.00	34.77	PASS
			QPSK	1@11	23.26	-2.40	18.71	3.00	34.77	PASS
			QPSK	12@0	21.19	-2.40	16.64	3.00	34.77	PASS



NB-IoT Band 17 Maximum Average Power [dBm]										
Mode	Subcarrier Space (KHz)	UL Channel	Modulation	RB Configure	Conduction AVG Power(dBm)	Ant Gain(dBi)	ERP (dBm)	ERP Limit(W)	ERP Limit(dBm)	Verdict
Standalone	3.75	Lowest	BPSK	1@0	23.11	-2.40	18.56	3.00	34.77	PASS
			BPSK	1@47	23.06	-2.40	18.51	3.00	34.77	PASS
			QPSK	1@0	23.19	-2.40	18.64	3.00	34.77	PASS
			QPSK	1@47	23.14	-2.40	18.59	3.00	34.77	PASS
		Middle	BPSK	1@0	23.14	-2.40	18.59	3.00	34.77	PASS
			BPSK	1@47	23.12	-2.40	18.57	3.00	34.77	PASS
			QPSK	1@0	23.16	-2.40	18.61	3.00	34.77	PASS
			QPSK	1@47	23.11	-2.40	18.56	3.00	34.77	PASS
		Highest	BPSK	1@0	23.08	-2.40	18.53	3.00	34.77	PASS
			BPSK	1@47	23.04	-2.40	18.49	3.00	34.77	PASS
			QPSK	1@0	23.10	-2.40	18.55	3.00	34.77	PASS
			QPSK	1@47	23.04	-2.40	18.49	3.00	34.77	PASS
	15	Lowest	BPSK	1@0	22.82	-2.40	18.27	3.00	34.77	PASS
			BPSK	1@11	23.16	-2.40	18.61	3.00	34.77	PASS
			QPSK	1@0	22.72	-2.40	18.17	3.00	34.77	PASS
			QPSK	1@11	23.16	-2.40	18.61	3.00	34.77	PASS
			QPSK	12@0	21.28	-2.40	16.73	3.00	34.77	PASS
		Middle	BPSK	1@0	22.62	-2.40	18.07	3.00	34.77	PASS
			BPSK	1@11	23.21	-2.40	18.66	3.00	34.77	PASS
			QPSK	1@0	22.98	-2.40	18.43	3.00	34.77	PASS
			QPSK	1@11	23.19	-2.40	18.64	3.00	34.77	PASS
			QPSK	12@0	21.21	-2.40	16.66	3.00	34.77	PASS
		Highest	BPSK	1@0	22.55	-2.40	18.00	3.00	34.77	PASS
			BPSK	1@11	23.14	-2.40	18.59	3.00	34.77	PASS
			QPSK	1@0	23.13	-2.40	18.58	3.00	34.77	PASS
			QPSK	1@11	23.13	-2.40	18.58	3.00	34.77	PASS
			QPSK	12@0	21.18	-2.40	16.63	3.00	34.77	PASS



NB-IoT Band 25 Maximum Average Power [dBm]										
Mode	Subcarrier Space (KHz)	UL Channel	Modulation	RB Configure	Conduction AVG Power(dBm)	Ant Gain(dBi)	EIRP (dBm)	EIRP Limit(W)	EIRP Limit(dBm)	Verdict
Standalone	3.75	Lowest	BPSK	1@0	22.74	-1.85	20.89	2.00	33.01	PASS
			BPSK	1@47	22.70	-1.85	20.85	2.00	33.01	PASS
			QPSK	1@0	22.71	-1.85	20.86	2.00	33.01	PASS
			QPSK	1@47	22.73	-1.85	20.88	2.00	33.01	PASS
		Middle	BPSK	1@0	22.67	-1.85	20.82	2.00	33.01	PASS
			BPSK	1@47	22.60	-1.85	20.75	2.00	33.01	PASS
			QPSK	1@0	22.68	-1.85	20.83	2.00	33.01	PASS
			QPSK	1@47	22.61	-1.85	20.76	2.00	33.01	PASS
		Highest	BPSK	1@0	22.59	-1.85	20.74	2.00	33.01	PASS
			BPSK	1@47	22.55	-1.85	20.70	2.00	33.01	PASS
			QPSK	1@0	22.60	-1.85	20.75	2.00	33.01	PASS
			QPSK	1@47	22.55	-1.85	20.70	2.00	33.01	PASS
	15	Lowest	BPSK	1@0	22.84	-1.85	20.99	2.00	33.01	PASS
			BPSK	1@11	22.84	-1.85	20.99	2.00	33.01	PASS
			QPSK	1@0	22.89	-1.85	21.04	2.00	33.01	PASS
			QPSK	1@11	22.88	-1.85	21.03	2.00	33.01	PASS
			QPSK	12@0	20.81	-1.85	18.96	2.00	33.01	PASS
		Middle	BPSK	1@0	22.66	-1.85	20.81	2.00	33.01	PASS
			BPSK	1@11	22.75	-1.85	20.90	2.00	33.01	PASS
			QPSK	1@0	22.74	-1.85	20.89	2.00	33.01	PASS
			QPSK	1@11	22.71	-1.85	20.86	2.00	33.01	PASS
			QPSK	12@0	20.73	-1.85	18.88	2.00	33.01	PASS
		Highest	BPSK	1@0	22.64	-1.85	20.79	2.00	33.01	PASS
			BPSK	1@11	22.63	-1.85	20.78	2.00	33.01	PASS
			QPSK	1@0	22.63	-1.85	20.78	2.00	33.01	PASS
			QPSK	1@11	22.62	-1.85	20.77	2.00	33.01	PASS
			QPSK	12@0	20.61	-1.85	18.76	2.00	33.01	PASS



NB-IoT Band 26 Maximum Average Power [dBm]										
Mode	Subcarrier Space (KHz)	UL Channel	Modulation	RB Configure	Conduction AVG Power(dBm)	Ant Gain(dBi)	ERP (dBm)	ERP Limit(W)	ERP Limit(dBm)	Verdict
Standalone	3.75	Lowest	BPSK	1@0	23.16	-2.40	18.61	100.00	50.00	PASS
			BPSK	1@47	23.14	-2.40	18.59	100.00	50.00	PASS
			QPSK	1@0	23.18	-2.40	18.63	100.00	50.00	PASS
			QPSK	1@47	23.11	-2.40	18.56	100.00	50.00	PASS
		Middle	BPSK	1@0	23.17	-2.40	18.62	100.00	50.00	PASS
			BPSK	1@47	23.09	-2.40	18.54	100.00	50.00	PASS
			QPSK	1@0	23.13	-2.40	18.58	100.00	50.00	PASS
			QPSK	1@47	23.09	-2.40	18.54	100.00	50.00	PASS
		Highest	BPSK	1@0	23.20	-2.40	18.65	100.00	50.00	PASS
			BPSK	1@47	23.11	-2.40	18.56	100.00	50.00	PASS
			QPSK	1@0	23.18	-2.40	18.63	100.00	50.00	PASS
			QPSK	1@47	23.13	-2.40	18.58	100.00	50.00	PASS
	15	Lowest	BPSK	1@0	22.17	-2.40	17.62	100.00	50.00	PASS
			BPSK	1@11	23.19	-2.40	18.64	100.00	50.00	PASS
			QPSK	1@0	22.70	-2.40	18.15	100.00	50.00	PASS
			QPSK	1@11	23.23	-2.40	18.68	100.00	50.00	PASS
			QPSK	12@0	21.28	-2.40	16.73	100.00	50.00	PASS
		Middle	BPSK	1@0	22.33	-2.40	17.78	100.00	50.00	PASS
			BPSK	1@11	22.39	-2.40	17.84	100.00	50.00	PASS
			QPSK	1@0	22.38	-2.40	17.83	100.00	50.00	PASS
			QPSK	1@11	22.39	-2.40	17.84	100.00	50.00	PASS
			QPSK	12@0	21.20	-2.40	16.65	100.00	50.00	PASS
		Highest	BPSK	1@0	22.19	-2.40	17.64	100.00	50.00	PASS
			BPSK	1@11	23.13	-2.40	18.58	100.00	50.00	PASS
			QPSK	1@0	23.14	-2.40	18.59	100.00	50.00	PASS
			QPSK	1@11	22.19	-2.40	17.64	100.00	50.00	PASS
			QPSK	12@0	21.21	-2.40	16.66	100.00	50.00	PASS



NB-IoT Band 66 Maximum Average Power [dBm]										
Mode	Subcarrier Space (KHz)	UL Channel	Modulation	RB Configure	Conduction AVG Power(dBm)	Ant Gain(dBi)	EIRP (dBm)	EIRP Limit(W)	EIRP Limit(dBm)	Verdict
Standalone	3.75	Lowest	BPSK	1@0	23.28	-2.55	20.73	1.00	30.00	PASS
			BPSK	1@47	23.08	-2.55	20.53	1.00	30.00	PASS
			QPSK	1@0	23.14	-2.55	20.59	1.00	30.00	PASS
			QPSK	1@47	23.07	-2.55	20.52	1.00	30.00	PASS
		Middle	BPSK	1@0	23.27	-2.55	20.72	1.00	30.00	PASS
			BPSK	1@47	23.28	-2.55	20.73	1.00	30.00	PASS
			QPSK	1@0	23.26	-2.55	20.71	1.00	30.00	PASS
			QPSK	1@47	23.29	-2.55	20.74	1.00	30.00	PASS
		Highest	BPSK	1@0	23.26	-2.55	20.71	1.00	30.00	PASS
			BPSK	1@47	23.17	-2.55	20.62	1.00	30.00	PASS
			QPSK	1@0	23.24	-2.55	20.69	1.00	30.00	PASS
			QPSK	1@47	23.17	-2.55	20.62	1.00	30.00	PASS
	15	Lowest	BPSK	1@0	23.26	-2.55	20.71	1.00	30.00	PASS
			BPSK	1@11	23.12	-2.55	20.57	1.00	30.00	PASS
			QPSK	1@0	23.13	-2.55	20.58	1.00	30.00	PASS
			QPSK	1@11	23.13	-2.55	20.58	1.00	30.00	PASS
			QPSK	12@0	21.07	-2.55	18.52	1.00	30.00	PASS
		Middle	BPSK	1@0	23.27	-2.55	20.72	1.00	30.00	PASS
			BPSK	1@11	23.37	-2.55	20.82	1.00	30.00	PASS
			QPSK	1@0	23.37	-2.55	20.82	1.00	30.00	PASS
			QPSK	1@11	23.34	-2.55	20.79	1.00	30.00	PASS
			QPSK	12@0	21.31	-2.55	18.76	1.00	30.00	PASS
		Highest	BPSK	1@0	23.36	-2.55	20.81	1.00	30.00	PASS
			BPSK	1@11	23.37	-2.55	20.82	1.00	30.00	PASS
			QPSK	1@0	23.38	-2.55	20.83	1.00	30.00	PASS
			QPSK	1@11	23.38	-2.55	20.83	1.00	30.00	PASS
			QPSK	12@0	21.29	-2.55	18.74	1.00	30.00	PASS

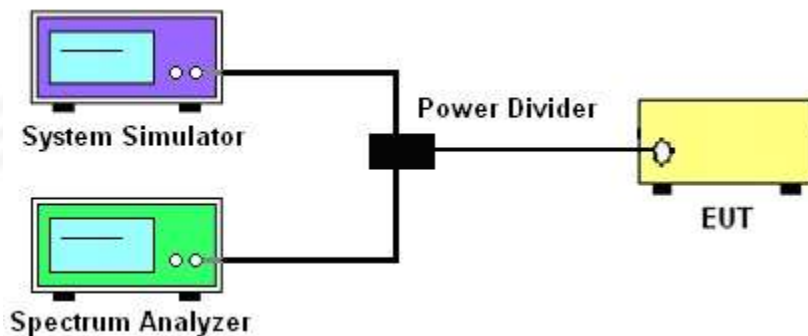
4. PEAK-TO-AVERAGE RATIO

4.1 DESCRIPTION OF THE CONDUCTED OUTPUT POWER MEASUREMENT

4.1.1 MEASUREMENT METHOD

Use one of the procedures presented in 4.1.3 to measure the total peak power and record as PPk. Use one of the applicable procedures presented 4.1.3 to measure the total average power and record as PAvg. Both the peak and average power levels must be expressed in the same logarithmic units (e.g., dBm). Determine the PAPR from:
 $PAPR\ (dB) = PPk\ (dBm) - PAvg\ (dBm)$.

4.1.2 TEST SETUP



4.1.3 TEST PROCEDURES

1. The testing follows FCC KDB 971168 D01 v03r01 Section 5.7 and ANSI C63.26 2015 Section 5.2.6.
2. The EUT was connected to spectrum and system simulator via a power divider
3. Select lowest, middle, and highest channels for each band and different modulation.
4. Set the test probe and measure the peak and average power of the spectrum analyzer
5. Record the deviation as Peak to Average Ratio.

4.1.4 TEST RESULTS

Note: The test data please reference to attachment "STS2601137W02_Appendix NB-IOT".

5. OCCUPIED BANDWIDTH

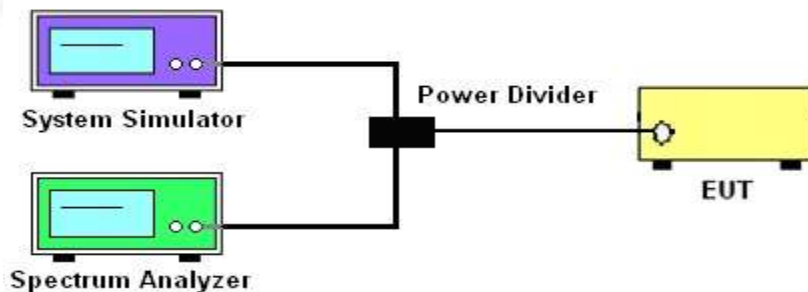
5.1 DESCRIPTION OF OCCUPIED BANDWIDTH MEASUREMENT

5.1.1 MEASUREMENT METHOD

1. The occupied bandwidth is the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5% of the total mean transmitted power.

2. The 26 db emission bandwidth is defined as the frequency range between two points, one above and one below the carrier frequency, at which the spectral density of the emission is attenuated 26 db below the maximum in-band spectral density of the modulated signal. spectral density (power per unit bandwidth) is to be measured with a detector of resolution bandwidth equal to approximately 1.0% of the emission bandwidth.

5.1.2 TEST SETUP



5.1.3 TEST PROCEDURES

1. The testing follows FCC KDB 971168 D01 v03r01 Section 4.2 and 4.3.
2. The EUT was connected to spectrum and system simulator via a power divider
3. Select lowest, middle, and highest channels for each band and different modulation.
4. Set the test probe and measure the Occupied Bandwidth of the spectrum analyzer
5. Measure and record the Occupied Bandwidth from the Spectrum Analyzer.

5.1.4 MEASUREMENT RESULT

Note: The test data please reference to attachment “STS2601137W02_Appendix NB-IOT”.



6. CONDUCTED BAND EDGE

6.1 DESCRIPTION OF CONDUCTED BAND EDGE MEASUREMENT

6.1.1 MEASUREMENT METHOD

1. §22.917(a)

For operations in the 824 – 849 MHz band, the FCC limit is $43 + 10\log_{10}(P[\text{Watts}])$ dB below the transmitter power $P(\text{Watts})$ in a 100kHz bandwidth. However, in the 1MHz 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.

2. §24.238 (a)

For operations in the 1850-1910 and 1930-1990 MHz band, the FCC limit is $43 + 10\log_{10}(P[\text{Watts}])$ dB below the transmitter power $P(\text{Watts})$ in a 1MHz bandwidth. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed

3. §27.53 (h)

For operations in the 1710 – 1755 MHz band, the FCC limit is $43 + 10\log_{10}(P[\text{Watts}])$ dB below the transmitter power $P(\text{Watts})$ in a 1 MHz bandwidth. However, in the 1MHz 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.

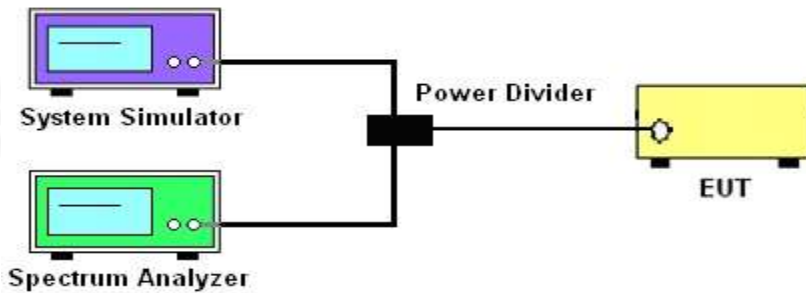
4. §27.53(m)(4)

For operations in the 2500 MHz ~ 2570 MHz band this section, the attenuation factor shall be not less than $40 + 10 \log (P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log (P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log (P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that $43 + 10 \log (P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log (P)$ dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

5. §27.53 (g)

For operations in the 698 -746 MHz band, the FCC limit is $43 + 10\log_{10}(P[\text{Watts}])$ dB below the transmitter power $P(\text{Watts})$ in a 100 kHz bandwidth. 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.

6.1.2 TEST SETUP



6.1.3 TEST PROCEDURES

1. The testing FCC KDB 971168 D01 v03r01 Section 6.0 and ANSI C63.26 2015 Section 5.7.
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The band edges of low and high channels for the highest RF powers were measured. Set RBW $\geq 1\%$ EBW in the 1MHz band immediately outside and adjacent to the band edge.
4. Set spectrum analyzer with RMS/AVG detector.
5. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
6. The limit line is derived from $43 + 10\log(P)$ dB below the transmitter power P(Watts)
 $= P(W) - [43 + 10\log(P)]$ (dB)
 $= [30 + 10\log(P)]$ (dBm) - $[43 + 10\log(P)]$ (dB)
 $= -13$ dBm.

Band 7:

$$\begin{aligned}
 &= P(W) - [55 + 10\log(P)] \text{ (dB)} \\
 &= [30 + 10\log(P)] \text{ (dBm)} - [55 + 10\log(P)] \text{ (dB)} \\
 &= -25 \text{ dBm.}
 \end{aligned}$$

6.1.4 MEASUREMENT RESULT

Note: The test data please reference to attachment "STS2601137W02_Appendix NB-IOT".

7. CONDUCTED SPURIOUS EMISSION

7.1 DESCRIPTION OF CONDUCTED SPURIOUS EMISSION MEASUREMENT

7.1.1 MEASUREMENT METHOD

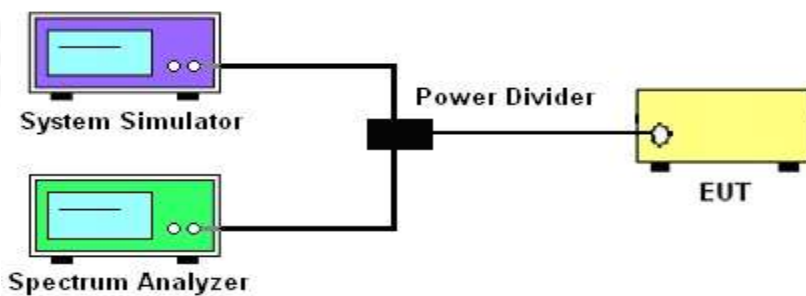
The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least $43 + 10 \log (P)$ dB.

For Band 7:

The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least $55 + 10 \log (P)$ dB.

It is measured by means of a calibrated spectrum analyzer and scanned from 30 MHz up to a frequency including its 10th harmonic.

7.1.2 TEST SETUP



7.1.3 TEST PROCEDURES

1. The testing FCC KDB 971168 D01 v03r01 Section 6.0 and ANSI C63.26 2015 Section 5.7.
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement
4. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
5. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
6. The limit line is derived from $43 + 10\log(P)$ dB below the transmitter power P(Watts)
 $= P(W) - [43 + 10\log(P)] \text{ (dB)} = [30 + 10\log(P)] \text{ (dBm)} - [43 + 10\log(P)] \text{ (dB)}$
 $= -13\text{dBm}.$
For Band 7: $P(W) - [43 + 10\log(P)] \text{ (dB)} = -25\text{dBm}$

7.1.4 TEST RESULTS

Note: The test data please reference to attachment "STS2601137W02_Appendix NB-IOT".

8. RADIATED SPURIOUS EMISSION

8.1 DESCRIPTION OF RADIATED SPURIOUS EMISSION

8.1.1 MEASUREMENT METHOD

The radiated spurious emission was measured by substitution method according to ANSI C63.26 2015. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least $43 + 10 \log (P)$ dB. For Band 7 The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least $55 + 10 \log (P)$ dB. The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

8.1.2 TEST SETUP

The procedure of radiated spurious emissions is as follows:

a) Pre-calibration With pre-calibration method, the Radiated Spurious Emissions(RSE) is calculated as, $RSE = Rx (dBuV) + CL (dB) + SA (dB) + Gain (dBi) - 107 (dBuV \text{ to } dBm)$ The SA is calibrated using following setup.

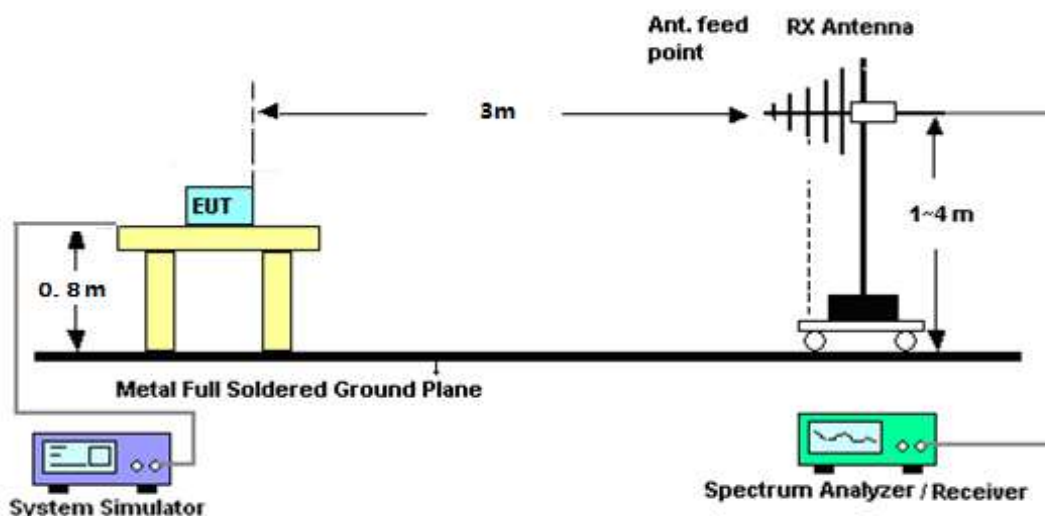
b) EUT was placed on 1.5 m non-conductive stand at a 3 m test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 m from the test item for emission measurements. The height of receiving antenna is 0.8m. The test setup refers to figure below. Detected emissions were maximized at each frequency by rotating the test item and adjusting the receiving antenna polarization. The radiated emission measurements of all non-harmonic and harmonics of the transmit frequency through the 10th harmonic measured with peak detector and 1MHz bandwidth.

Radiated emissions measurements were made only at the upper, middle, and lower carrier frequencies It was decided that measurements at these three carrier frequencies would be sufficient to demonstrate compliance with emissions limits because it was seen that all the significant spurs occur well outside the band and no radiation was seen from a carrier in one block of any band into any of the other blocks.

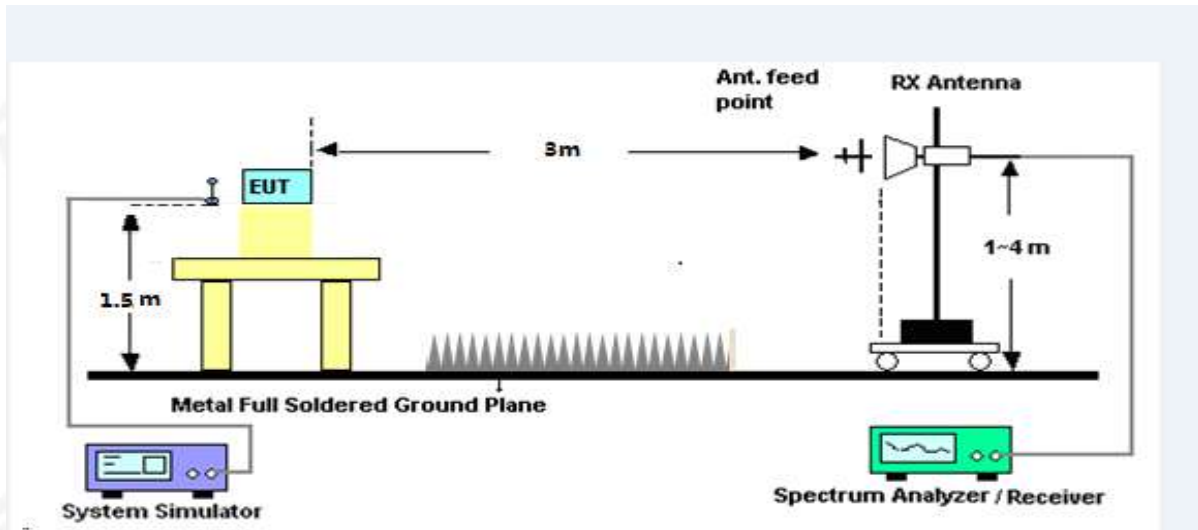
The substitution method is used. Substitution values at each frequency are measured before and saved to the test software. A "reference path loss" is established and the ARpl is the attenuation of "reference path loss", and including the gain of receive antenna, the gain of the preamplifier, the cable loss and the air loss. The measurement results are obtained as described below:

Power=PMea+ARpl

For radiated test from 30MHz to 1GHz



For radiated test from above 1GHz



8.1.3 TEST PROCEDURES

1. The testing FCC KDB 971168 D01 Section 7 and ANSI C63.26 2015 Section 5.5.
2. The EUT was placed on a rotatable wooden table with 1.5 meter above ground.
3. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
4. The table was rotated 360 degrees to determine the position of the highest spurious emission.
5. The height of the receiving antenna is varied between one meter and four meters to search the maximum spurious emission for both horizontal and vertical polarizations
6. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
7. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
8. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
9. Taking the record of output power at antenna port.
10. Repeat step 7 to step 8 for another polarization.
11. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

The limit line is derived from $43 + 10\log(P)\text{dB}$ below the transmitter power $P(\text{Watts})$
 $= P(\text{W}) - [43 + 10\log(P)] (\text{dB})$
 $= [30 + 10\log(P)] (\text{dBm}) - [43 + 10\log(P)] (\text{dB})$
 $= -13\text{dBm}$

For Band 7:

The limit line is derived from $55 + 10\log(P)\text{dB}$ below the transmitter power $P(\text{Watts})$
 $= [30 + 10\log(P)] (\text{dBm}) - [55 + 10\log(P)] (\text{dB})$
 $= -25\text{dBm}$

$\text{EIRP (dBm)} = \text{S.G. Power} - \text{Tx Cable Loss} + \text{Tx Antenna Gain}$

$\text{ERP (dBm)} = \text{EIRP} - 2.15$



8.1.4 TEST RESULTS

NB-IoT Band 2 / QPSK / 3.75KHz /1@0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3699.99	-34.26	12.60	12.93	-34.59	-13.00	-21.59	H
5550.79	-34.00	13.10	17.11	-38.01	-13.00	-25.01	H
7400.65	-32.27	11.50	22.20	-42.97	-13.00	-29.97	H
3699.99	-34.76	12.60	12.93	-35.09	-13.00	-22.09	V
5550.79	-33.95	13.10	17.11	-37.96	-13.00	-24.96	V
7400.65	-31.80	11.50	22.20	-42.50	-13.00	-29.50	V
NB-IoT Band 2 / QPSK / 3.75KHz /1@0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3759.76	-34.44	12.60	12.93	-34.77	-13.00	-21.77	H
5639.38	-34.01	13.10	17.11	-38.02	-13.00	-25.02	H
7520.25	-32.52	11.50	22.20	-43.22	-13.00	-30.22	H
3759.76	-35.03	12.60	12.93	-35.36	-13.00	-22.36	V
5639.38	-34.21	13.10	17.11	-38.22	-13.00	-25.22	V
7520.25	-32.59	11.50	22.20	-43.29	-13.00	-30.29	V
NB-IoT Band 2 / QPSK / 3.75KHz /1@0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3819.02	-34.78	12.60	12.93	-35.11	-13.00	-22.11	H
5730.34	-35.78	13.10	17.11	-39.79	-13.00	-26.79	H
7639.53	-33.89	11.50	22.20	-44.59	-13.00	-31.59	H
3819.02	-34.70	12.60	12.93	-35.03	-13.00	-22.03	V
5730.34	-34.29	13.10	17.11	-38.30	-13.00	-25.30	V
7639.53	-32.80	11.50	22.20	-43.50	-13.00	-30.50	V



NB-IoT Band 2 / QPSK / 15KHz / 1@0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3699.91	-33.74	12.60	12.93	-34.07	-13.00	-21.07	H
5551.11	-34.04	13.10	17.11	-38.05	-13.00	-25.05	H
7400.92	-32.66	11.50	22.20	-43.36	-13.00	-30.36	H
3700.18	-35.44	12.60	12.93	-35.77	-13.00	-22.77	V
5551.13	-34.40	13.10	17.11	-38.41	-13.00	-25.41	V
7400.39	-32.01	11.50	22.20	-42.71	-13.00	-29.71	V
NB-IoT Band 2 / QPSK / 15KHz / 1@0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3759.78	-35.01	12.60	12.93	-35.34	-13.00	-22.34	H
5638.95	-33.73	13.10	17.11	-37.74	-13.00	-24.74	H
7520.38	-33.07	11.50	22.20	-43.77	-13.00	-30.77	H
3759.82	-34.75	12.60	12.93	-35.08	-13.00	-22.08	V
5639.58	-34.19	13.10	17.11	-38.20	-13.00	-25.20	V
7519.97	-32.31	11.50	22.20	-43.01	-13.00	-30.01	V
NB-IoT Band 2 / QPSK / 15KHz / 1@0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3819.05	-34.79	12.60	12.93	-35.12	-13.00	-22.12	H
5730.30	-35.43	13.10	17.11	-39.44	-13.00	-26.44	H
7639.98	-33.14	11.50	22.20	-43.84	-13.00	-30.84	H
3818.98	-34.99	12.60	12.93	-35.32	-13.00	-22.32	V
5730.17	-33.47	13.10	17.11	-37.48	-13.00	-24.48	V
7639.36	-32.33	11.50	22.20	-43.03	-13.00	-30.03	V



NB-IoT Band 2 / BPSK / 3.75KHz /1@0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3699.75	-34.63	12.60	12.93	-34.96	-13.00	-21.96	H
5550.97	-33.56	13.10	17.11	-37.57	-13.00	-24.57	H
7400.94	-31.62	11.50	22.20	-42.32	-13.00	-29.32	H
3700.37	-34.90	12.60	12.93	-35.23	-13.00	-22.23	V
5550.48	-33.35	13.10	17.11	-37.36	-13.00	-24.36	V
7400.42	-31.83	11.50	22.20	-42.53	-13.00	-29.53	V
NB-IoT Band 2 / BPSK / 3.75KHz /1@0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3759.77	-34.49	12.60	12.93	-34.82	-13.00	-21.82	H
5639.21	-33.96	13.10	17.11	-37.97	-13.00	-24.97	H
7520.50	-32.97	11.50	22.20	-43.67	-13.00	-30.67	H
3759.69	-35.85	12.60	12.93	-36.18	-13.00	-23.18	V
5639.54	-33.95	13.10	17.11	-37.96	-13.00	-24.96	V
7520.36	-32.45	11.50	22.20	-43.15	-13.00	-30.15	V
NB-IoT Band 2 / BPSK / 3.75KHz /1@0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3819.26	-34.49	12.60	12.93	-34.82	-13.00	-21.82	H
5730.16	-35.66	13.10	17.11	-39.67	-13.00	-26.67	H
7639.88	-33.87	11.50	22.20	-44.57	-13.00	-31.57	H
3818.63	-35.43	12.60	12.93	-35.76	-13.00	-22.76	V
5730.23	-33.73	13.10	17.11	-37.74	-13.00	-24.74	V
7639.40	-33.63	11.50	22.20	-44.33	-13.00	-31.33	V



NB-IoT Band 2 / BPSK / 15KHz / 1@0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3699.96	-35.00	12.60	12.93	-35.33	-13.00	-22.33	H
5550.77	-33.36	13.10	17.11	-37.37	-13.00	-24.37	H
7400.54	-31.50	11.50	22.20	-42.20	-13.00	-29.20	H
3700.03	-34.03	12.60	12.93	-34.36	-13.00	-21.36	V
5550.71	-33.23	13.10	17.11	-37.24	-13.00	-24.24	V
7400.85	-31.13	11.50	22.20	-41.83	-13.00	-28.83	V
NB-IoT Band 2 / BPSK / 15KHz / 1@0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3760.03	-34.72	12.60	12.93	-35.05	-13.00	-22.05	H
5639.49	-33.78	13.10	17.11	-37.79	-13.00	-24.79	H
7519.78	-33.75	11.50	22.20	-44.45	-13.00	-31.45	H
3759.73	-36.54	12.60	12.93	-36.87	-13.00	-23.87	V
5639.68	-33.73	13.10	17.11	-37.74	-13.00	-24.74	V
7520.31	-32.92	11.50	22.20	-43.62	-13.00	-30.62	V
NB-IoT Band 2 / BPSK / 15KHz / 1@0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3819.05	-33.67	12.60	12.93	-34.00	-13.00	-21.00	H
5730.11	-36.21	13.10	17.11	-40.22	-13.00	-27.22	H
7639.59	-34.40	11.50	22.20	-45.10	-13.00	-32.10	H
3819.40	-35.45	12.60	12.93	-35.78	-13.00	-22.78	V
5730.44	-33.73	13.10	17.11	-37.74	-13.00	-24.74	V
7639.35	-34.01	11.50	22.20	-44.71	-13.00	-31.71	V



NB-IoT Band 4 / QPSK / 3.75KHz /1@0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3420.05	-33.91	12.90	12.56	-33.57	-13.00	-20.57	H
5129.72	-34.65	13.10	16.32	-37.87	-13.00	-24.87	H
6840.49	-34.09	12.33	21.13	-42.89	-13.00	-29.89	H
3420.05	-34.98	12.90	12.56	-34.64	-13.00	-21.64	V
5129.72	-35.22	13.10	16.32	-38.44	-13.00	-25.44	V
6840.49	-31.80	12.33	21.13	-40.60	-13.00	-27.60	V
NB-IoT Band 2 / QPSK / 3.75KHz /1@0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3464.53	-34.66	12.90	12.56	-34.32	-13.00	-21.32	H
5197.35	-35.19	13.10	16.32	-38.41	-13.00	-25.41	H
6930.24	-33.58	12.33	21.13	-42.38	-13.00	-29.38	H
3464.53	-35.18	12.90	12.56	-34.84	-13.00	-21.84	V
5197.35	-35.45	13.10	16.32	-38.67	-13.00	-25.67	V
6930.24	-32.93	12.33	21.13	-41.73	-13.00	-28.73	V
NB-IoT Band 4 / QPSK / 3.75KHz /1@0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3510.15	-33.98	12.90	12.56	-33.64	-13.00	-20.64	H
5264.77	-34.34	13.10	16.32	-37.56	-13.00	-24.56	H
7018.97	-32.56	12.33	21.13	-41.36	-13.00	-28.36	H
3510.15	-36.27	12.90	12.56	-35.93	-13.00	-22.93	V
5264.77	-34.02	13.10	16.32	-37.24	-13.00	-24.24	V
7018.97	-33.60	12.33	21.13	-42.40	-13.00	-29.40	V



NB-IoT Band 4 / QPSK / 15KHz / 1@0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3420.08	-33.79	12.90	12.56	-33.45	-13.00	-20.45	H
5129.75	-34.54	13.10	16.32	-37.76	-13.00	-24.76	H
6840.38	-33.70	12.33	21.13	-42.50	-13.00	-29.50	H
3420.46	-35.60	12.90	12.56	-35.26	-13.00	-22.26	V
5129.53	-35.73	13.10	16.32	-38.95	-13.00	-25.95	V
6840.58	-31.33	12.33	21.13	-40.13	-13.00	-27.13	V
NB-IoT Band 4 / QPSK / 15KHz / 1@0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3464.28	-34.51	12.90	12.56	-34.17	-13.00	-21.17	H
5197.31	-35.08	13.10	16.32	-38.30	-13.00	-25.30	H
6930.41	-34.16	12.33	21.13	-42.96	-13.00	-29.96	H
3464.62	-34.52	12.90	12.56	-34.18	-13.00	-21.18	V
5197.16	-36.14	13.10	16.32	-39.36	-13.00	-26.36	V
6930.21	-33.57	12.33	21.13	-42.37	-13.00	-29.37	V
NB-IoT Band 4 / QPSK / 15KHz / 1@0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3510.01	-33.73	12.90	12.56	-33.39	-13.00	-20.39	H
5264.60	-33.67	13.10	16.32	-36.89	-13.00	-23.89	H
7018.62	-33.35	12.33	21.13	-42.15	-13.00	-29.15	H
3509.71	-36.18	12.90	12.56	-35.84	-13.00	-22.84	V
5264.83	-34.29	13.10	16.32	-37.51	-13.00	-24.51	V
7019.07	-33.79	12.33	21.13	-42.59	-13.00	-29.59	V



NB-IoT Band 4 / BPSK / 3.75KHz /1@0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3420.07	-33.62	12.90	12.56	-33.28	-13.00	-20.28	H
5129.81	-34.11	13.10	16.32	-37.33	-13.00	-24.33	H
6840.50	-33.97	12.33	21.13	-42.77	-13.00	-29.77	H
3420.49	-34.26	12.90	12.56	-33.92	-13.00	-20.92	V
5129.68	-34.93	13.10	16.32	-38.15	-13.00	-25.15	V
6840.82	-31.60	12.33	21.13	-40.40	-13.00	-27.40	V
NB-IoT Band 4 / BPSK / 3.75KHz /1@0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3464.34	-33.80	12.90	12.56	-33.46	-13.00	-20.46	H
5197.58	-35.39	13.10	16.32	-38.61	-13.00	-25.61	H
6930.55	-32.79	12.33	21.13	-41.59	-13.00	-28.59	H
3464.51	-34.39	12.90	12.56	-34.05	-13.00	-21.05	V
5197.31	-35.72	13.10	16.32	-38.94	-13.00	-25.94	V
6929.96	-32.21	12.33	21.13	-41.01	-13.00	-28.01	V
NB-IoT Band 4 / BPSK / 3.75KHz /1@0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3510.03	-34.72	12.90	12.56	-34.38	-13.00	-21.38	H
5264.96	-34.72	13.10	16.32	-37.94	-13.00	-24.94	H
7018.87	-31.92	12.33	21.13	-40.72	-13.00	-27.72	H
3510.12	-35.61	12.90	12.56	-35.27	-13.00	-22.27	V
5264.81	-33.58	13.10	16.32	-36.80	-13.00	-23.80	V
7019.26	-33.50	12.33	21.13	-42.30	-13.00	-29.30	V



NB-IoT Band 4 / BPSK / 15KHz / 1@0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3419.90	-33.94	12.90	12.56	-33.60	-13.00	-20.60	H
5129.34	-33.95	13.10	16.32	-37.17	-13.00	-24.17	H
6840.39	-33.70	12.33	21.13	-42.50	-13.00	-29.50	H
3419.94	-34.05	12.90	12.56	-33.71	-13.00	-20.71	V
5129.51	-34.69	13.10	16.32	-37.91	-13.00	-24.91	V
6840.42	-31.85	12.33	21.13	-40.65	-13.00	-27.65	V
NB-IoT Band 4 / BPSK / 15KHz / 1@0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3464.40	-33.36	12.90	12.56	-33.02	-13.00	-20.02	H
5197.44	-34.54	13.10	16.32	-37.76	-13.00	-24.76	H
6930.04	-33.60	12.33	21.13	-42.40	-13.00	-29.40	H
3464.56	-33.81	12.90	12.56	-33.47	-13.00	-20.47	V
5197.40	-35.65	13.10	16.32	-38.87	-13.00	-25.87	V
6930.22	-32.23	12.33	21.13	-41.03	-13.00	-28.03	V
NB-IoT Band 4 / BPSK / 15KHz / 1@0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3509.82	-34.14	12.90	12.56	-33.80	-13.00	-20.80	H
5265.02	-35.00	13.10	16.32	-38.22	-13.00	-25.22	H
7018.89	-31.16	12.33	21.13	-39.96	-13.00	-26.96	H
3509.91	-35.79	12.90	12.56	-35.45	-13.00	-22.45	V
5264.77	-33.67	13.10	16.32	-36.89	-13.00	-23.89	V
7018.48	-33.38	12.33	21.13	-42.18	-13.00	-29.18	V



NB-IoT Band 5 / QPSK / 3.75KHz /1@0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1647.98	-34.23	9.56	9.72	-34.39	-13.00	-21.39	H
2472.63	-34.45	10.50	10.86	-34.81	-13.00	-21.81	H
3296.75	-33.38	12.78	11.57	-32.17	-13.00	-19.17	H
1647.98	-35.64	9.56	9.72	-35.80	-13.00	-22.80	V
2472.63	-34.13	10.50	10.86	-34.49	-13.00	-21.49	V
3296.75	-33.03	12.78	11.57	-31.82	-13.00	-18.82	V
NB-IoT Band 5 / QPSK / 3.75KHz /1@0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1672.96	-34.88	9.56	9.72	-35.04	-13.00	-22.04	H
2509.66	-35.21	10.50	10.86	-35.57	-13.00	-22.57	H
3345.90	-33.08	12.78	11.57	-31.87	-13.00	-18.87	H
1672.96	-35.35	9.56	9.72	-35.51	-13.00	-22.51	V
2509.66	-33.84	10.50	10.86	-34.20	-13.00	-21.20	V
3345.90	-33.00	12.78	11.57	-31.79	-13.00	-18.79	V
NB-IoT Band 5 / QPSK / 3.75KHz /1@0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1697.16	-33.83	9.56	9.72	-33.99	-13.00	-20.99	H
2547.44	-34.66	10.50	10.86	-35.02	-13.00	-22.02	H
3394.83	-33.86	12.78	11.57	-32.65	-13.00	-19.65	H
1697.16	-35.99	9.56	9.72	-36.15	-13.00	-23.15	V
2547.44	-35.57	10.50	10.86	-35.93	-13.00	-22.93	V
3394.83	-32.12	12.78	11.57	-30.91	-13.00	-17.91	V



NB-IoT Band 5 / QPSK / 15KHz / 1@0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1647.98	-34.27	9.56	9.72	-34.43	-13.00	-21.43	H
2472.67	-34.93	10.50	10.86	-35.29	-13.00	-22.29	H
3296.50	-33.60	12.78	11.57	-32.39	-13.00	-19.39	H
1648.10	-35.16	9.56	9.72	-35.32	-13.00	-22.32	V
2472.67	-34.43	10.50	10.86	-34.79	-13.00	-21.79	V
3296.53	-33.80	12.78	11.57	-32.59	-13.00	-19.59	V
NB-IoT Band 5 / QPSK / 15KHz / 1@0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1672.85	-34.76	12.90	12.56	-34.42	-13.00	-21.42	H
2509.76	-35.80	13.10	16.32	-39.02	-13.00	-26.02	H
3345.89	-33.33	12.33	21.13	-42.13	-13.00	-29.13	H
1673.00	-35.40	12.90	12.56	-35.06	-13.00	-22.06	V
2509.69	-33.98	13.10	16.32	-37.20	-13.00	-24.20	V
3345.98	-32.86	12.33	21.13	-41.66	-13.00	-28.66	V
NB-IoT Band 5 / QPSK / 15KHz / 1@0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1696.93	-34.03	9.56	9.72	-34.19	-13.00	-21.19	H
2547.31	-35.24	10.50	10.86	-35.60	-13.00	-22.60	H
3394.70	-34.33	12.78	11.57	-33.12	-13.00	-20.12	H
1697.14	-36.39	9.56	9.72	-36.55	-13.00	-23.55	V
2547.29	-35.29	10.50	10.86	-35.65	-13.00	-22.65	V
3394.82	-32.45	12.78	11.57	-31.24	-13.00	-18.24	V



NB-IoT Band 5 / BPSK / 3.75KHz /1@0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1647.80	-33.67	9.56	9.72	-33.83	-13.00	-20.83	H
2472.35	-33.99	10.50	10.86	-34.35	-13.00	-21.35	H
3296.46	-33.73	12.78	11.57	-32.52	-13.00	-19.52	H
1647.97	-36.07	9.56	9.72	-36.23	-13.00	-23.23	V
2472.94	-33.60	10.50	10.86	-33.96	-13.00	-20.96	V
3296.98	-32.75	12.78	11.57	-31.54	-13.00	-18.54	V
NB-IoT Band 5 / BPSK / 3.75KHz /1@0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1672.74	-34.73	9.56	9.72	-34.89	-13.00	-21.89	H
2509.88	-35.20	10.50	10.86	-35.56	-13.00	-22.56	H
3346.01	-32.41	12.78	11.57	-31.20	-13.00	-18.20	H
1672.94	-35.42	9.56	9.72	-35.58	-13.00	-22.58	V
2509.89	-33.71	10.50	10.86	-34.07	-13.00	-21.07	V
3346.02	-32.40	12.78	11.57	-31.19	-13.00	-18.19	V
NB-IoT Band 5 / BPSK / 3.75KHz /1@0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1697.24	-32.95	9.56	9.72	-33.11	-13.00	-20.11	H
2547.37	-34.43	10.50	10.86	-34.79	-13.00	-21.79	H
3394.61	-33.94	12.78	11.57	-32.73	-13.00	-19.73	H
1697.20	-36.45	9.56	9.72	-36.61	-13.00	-23.61	V
2547.11	-35.92	10.50	10.86	-36.28	-13.00	-23.28	V
3394.73	-32.44	12.78	11.57	-31.23	-13.00	-18.23	V



NB-IoT Band 5 / BPSK / 15KHz / 1@0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1648.00	-33.62	9.56	9.72	-33.78	-13.00	-20.78	H
2472.83	-33.99	10.50	10.86	-34.35	-13.00	-21.35	H
3296.68	-33.60	12.78	11.57	-32.39	-13.00	-19.39	H
1648.08	-36.55	9.56	9.72	-36.71	-13.00	-23.71	V
2472.71	-33.33	10.50	10.86	-33.69	-13.00	-20.69	V
3296.59	-32.27	12.78	11.57	-31.06	-13.00	-18.06	V
NB-IoT Band 5 / BPSK / 15KHz / 1@0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1672.88	-34.46	9.56	9.72	-34.62	-13.00	-21.62	H
2509.30	-35.22	10.50	10.86	-35.58	-13.00	-22.58	H
3346.25	-32.61	12.78	11.57	-31.40	-13.00	-18.40	H
1672.70	-35.43	9.56	9.72	-35.59	-13.00	-22.59	V
2509.38	-33.39	10.50	10.86	-33.75	-13.00	-20.75	V
3345.76	-32.60	12.78	11.57	-31.39	-13.00	-18.39	V
NB-IoT Band 5 / BPSK / 15KHz / 1@0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1697.22	-33.12	9.56	9.72	-33.28	-13.00	-20.28	H
2547.61	-34.09	10.50	10.86	-34.45	-13.00	-21.45	H
3394.83	-33.77	12.78	11.57	-32.56	-13.00	-19.56	H
1697.12	-35.99	9.56	9.72	-36.15	-13.00	-23.15	V
2547.66	-35.88	10.50	10.86	-36.24	-13.00	-23.24	V
3394.66	-32.25	12.78	11.57	-31.04	-13.00	-18.04	V



NB-IoT Band 12 / QPSK / 3.75KHz /1@0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1398.51	-34.74	8.17	9.34	-35.91	-13.00	-22.91	H
2097.87	-35.95	9.53	10.42	-36.84	-13.00	-23.84	H
2796.85	-32.69	11.27	11.12	-32.54	-13.00	-19.54	H
1398.51	-35.93	8.17	9.34	-37.10	-13.00	-24.10	V
2097.87	-34.94	9.53	10.42	-35.83	-13.00	-22.83	V
2796.85	-33.00	11.27	11.12	-32.85	-13.00	-19.85	V
NB-IoT Band 12 / QPSK / 3.75KHz /1@0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1414.79	-35.06	8.17	9.34	-36.23	-13.00	-23.23	H
2123.20	-34.35	9.53	10.42	-35.24	-13.00	-22.24	H
2830.16	-32.93	11.27	11.12	-32.78	-13.00	-19.78	H
1414.79	-34.81	8.17	9.34	-35.98	-13.00	-22.98	V
2123.20	-34.61	9.53	10.42	-35.50	-13.00	-22.50	V
2830.16	-31.85	11.27	11.12	-31.70	-13.00	-18.70	V
NB-IoT Band 12 / QPSK / 3.75KHz /1@0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1431.58	-34.65	8.17	9.34	-35.82	-13.00	-22.82	H
2148.13	-34.40	9.53	10.42	-35.29	-13.00	-22.29	H
2863.58	-32.69	11.27	11.12	-32.54	-13.00	-19.54	H
1431.58	-35.70	8.17	9.34	-36.87	-13.00	-23.87	V
2148.13	-35.53	9.53	10.42	-36.42	-13.00	-23.42	V
2863.58	-32.07	11.27	11.12	-31.92	-13.00	-18.92	V



NB-IoT Band 12 / QPSK / 15KHz /1@0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1398.86	-34.70	8.17	9.34	-35.87	-13.00	-22.87	H
2097.86	-35.28	9.53	10.42	-36.17	-13.00	-23.17	H
2797.01	-33.30	11.27	11.12	-33.15	-13.00	-20.15	H
1398.25	-36.22	8.17	9.34	-37.39	-13.00	-24.39	V
2097.81	-34.99	9.53	10.42	-35.88	-13.00	-22.88	V
2797.05	-32.97	11.27	11.12	-32.82	-13.00	-19.82	V
NB-IoT Band 12 / QPSK / 15KHz /1@0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1414.87	-34.78	8.17	9.34	-35.95	-13.00	-22.95	H
2123.12	-33.72	9.53	10.42	-34.61	-13.00	-21.61	H
2829.89	-33.41	11.27	11.12	-33.26	-13.00	-20.26	H
1414.97	-35.64	8.17	9.34	-36.81	-13.00	-23.81	V
2123.23	-34.21	9.53	10.42	-35.10	-13.00	-22.10	V
2830.09	-32.25	11.27	11.12	-32.10	-13.00	-19.10	V
NB-IoT Band 12 / QPSK / 15KHz /1@0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1431.23	-34.58	8.17	9.34	-35.75	-13.00	-22.75	H
2148.19	-34.56	9.53	10.42	-35.45	-13.00	-22.45	H
2863.50	-32.36	11.27	11.12	-32.21	-13.00	-19.21	H
1431.52	-34.89	8.17	9.34	-36.06	-13.00	-23.06	V
2148.14	-35.09	9.53	10.42	-35.98	-13.00	-22.98	V
2863.88	-32.40	11.27	11.12	-32.25	-13.00	-19.25	V



NB-IoT Band 12 / BPSK / 3.75KHz /1@0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1398.40	-35.48	8.17	9.34	-36.65	-13.00	-23.65	H
2097.91	-35.96	9.53	10.42	-36.85	-13.00	-23.85	H
2796.54	-32.96	11.27	11.12	-32.81	-13.00	-19.81	H
1398.49	-36.32	8.17	9.34	-37.49	-13.00	-24.49	V
2097.76	-34.79	9.53	10.42	-35.68	-13.00	-22.68	V
2797.04	-33.79	11.27	11.12	-33.64	-13.00	-20.64	V
NB-IoT Band 12 / BPSK / 3.75KHz /1@0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1414.84	-35.62	8.17	9.34	-36.79	-13.00	-23.79	H
2123.00	-34.79	9.53	10.42	-35.68	-13.00	-22.68	H
2829.78	-33.37	11.27	11.12	-33.22	-13.00	-20.22	H
1415.07	-34.32	8.17	9.34	-35.49	-13.00	-22.49	V
2123.34	-33.85	9.53	10.42	-34.74	-13.00	-21.74	V
2829.95	-31.95	11.27	11.12	-31.80	-13.00	-18.80	V
NB-IoT Band 12 / BPSK / 3.75KHz /1@0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1431.68	-34.26	8.17	9.34	-35.43	-13.00	-22.43	H
2148.36	-35.17	9.53	10.42	-36.06	-13.00	-23.06	H
2863.67	-32.47	11.27	11.12	-32.32	-13.00	-19.32	H
1431.57	-35.48	8.17	9.34	-36.65	-13.00	-23.65	V
2148.17	-35.34	9.53	10.42	-36.23	-13.00	-23.23	V
2863.79	-32.42	11.27	11.12	-32.27	-13.00	-19.27	V



NB-IoT Band 12 / BPSK / 15KHz / 1@0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1398.30	-34.64	8.17	9.34	-35.81	-13.00	-22.81	H
2097.75	-35.30	9.53	10.42	-36.19	-13.00	-23.19	H
2796.97	-32.89	11.27	11.12	-32.74	-13.00	-19.74	H
1398.71	-36.53	8.17	9.34	-37.70	-13.00	-24.70	V
2097.55	-34.87	9.53	10.42	-35.76	-13.00	-22.76	V
2796.76	-33.49	11.27	11.12	-33.34	-13.00	-20.34	V
NB-IoT Band 12 / BPSK / 15KHz / 1@0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1414.37	-35.08	8.17	9.34	-36.25	-13.00	-23.25	H
2123.33	-34.91	9.53	10.42	-35.80	-13.00	-22.80	H
2830.42	-32.77	11.27	11.12	-32.62	-13.00	-19.62	H
1414.74	-34.67	8.17	9.34	-35.84	-13.00	-22.84	V
2123.22	-34.08	9.53	10.42	-34.97	-13.00	-21.97	V
2830.36	-32.32	11.27	11.12	-32.17	-13.00	-19.17	V
NB-IoT Band 12 / BPSK / 15KHz / 1@0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1431.58	-34.96	8.17	9.34	-36.13	-13.00	-23.13	H
2148.04	-35.28	9.53	10.42	-36.17	-13.00	-23.17	H
2863.57	-32.55	11.27	11.12	-32.40	-13.00	-19.40	H
1432.01	-36.29	8.17	9.34	-37.46	-13.00	-24.46	V
2147.96	-34.60	9.53	10.42	-35.49	-13.00	-22.49	V
2863.58	-31.83	11.27	11.12	-31.68	-13.00	-18.68	V



NB-IoT Band 13 / QPSK / 3.75KHz /1@0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1553.86	-33.68	9.56	9.72	-33.84	-13.00	-20.84	H
2331.59	-34.19	10.50	10.86	-34.55	-13.00	-21.55	H
3108.67	-32.92	12.78	11.57	-31.71	-13.00	-18.71	H
1553.86	-35.10	9.56	9.72	-35.26	-13.00	-22.26	V
2331.59	-34.61	10.50	10.86	-34.97	-13.00	-21.97	V
3108.67	-32.44	12.78	11.57	-31.23	-13.00	-18.23	V
NB-IoT Band 13 / QPSK / 3.75KHz /1@0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1563.66	-34.35	9.56	9.72	-34.51	-40.00	5.49	H
2346.32	-34.05	10.50	10.86	-34.41	-13.00	-21.41	H
3128.35	-32.52	12.78	11.57	-31.31	-13.00	-18.31	H
1563.66	-36.45	9.56	9.72	-36.61	-40.00	3.39	V
2346.32	-34.96	10.50	10.86	-35.32	-13.00	-22.32	V
3128.35	-32.92	12.78	11.57	-31.71	-13.00	-18.71	V
NB-IoT Band 13 / QPSK / 3.75KHz /1@0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1574.35	-34.32	9.56	9.72	-34.48	-40.00	5.52	H
2360.44	-35.57	10.50	10.86	-35.93	-13.00	-22.93	H
3147.39	-33.69	12.78	11.57	-32.48	-13.00	-19.48	H
1574.35	-34.63	9.56	9.72	-34.79	-40.00	5.21	V
2360.44	-34.11	10.50	10.86	-34.47	-13.00	-21.47	V
3147.39	-31.92	12.78	11.57	-30.71	-13.00	-17.71	V



NB-IoT Band 13 / QPSK / 15KHz /1@0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1553.73	-33.90	9.56	9.72	-34.06	-13.00	-21.06	H
2331.65	-34.10	10.50	10.86	-34.46	-13.00	-21.46	H
3108.35	-31.99	12.78	11.57	-30.78	-13.00	-17.78	H
1554.22	-35.30	9.56	9.72	-35.46	-13.00	-22.46	V
2331.55	-34.16	10.50	10.86	-34.52	-13.00	-21.52	V
3108.86	-33.00	12.78	11.57	-31.79	-13.00	-18.79	V
NB-IoT Band 13 / QPSK / 15KHz /1@0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1563.57	-34.42	9.56	9.72	-34.58	-40.00	5.42	H
2345.89	-33.39	10.50	10.86	-33.75	-13.00	-20.75	H
3128.63	-32.60	12.78	11.57	-31.39	-13.00	-18.39	H
1563.65	-36.13	9.56	9.72	-36.29	-40.00	3.71	V
2346.52	-34.53	10.50	10.86	-34.89	-13.00	-21.89	V
3128.17	-32.76	12.78	11.57	-31.55	-13.00	-18.55	V
NB-IoT Band 13 / QPSK / 15KHz /1@0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1574.36	-34.72	9.56	9.72	-34.88	-40.00	5.12	H
2360.58	-35.27	10.50	10.86	-35.63	-13.00	-22.63	H
3147.71	-33.70	12.78	11.57	-32.49	-13.00	-19.49	H
1574.49	-34.94	9.56	9.72	-35.10	-40.00	4.90	V
2360.63	-33.66	10.50	10.86	-34.02	-13.00	-21.02	V
3147.35	-31.86	12.78	11.57	-30.65	-13.00	-17.65	V



NB-IoT Band 13 / BPSK / 3.75KHz /1@0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1553.59	-34.16	9.56	9.72	-34.32	-13.00	-21.32	H
2331.46	-33.81	10.50	10.86	-34.17	-13.00	-21.17	H
3108.49	-32.52	12.78	11.57	-31.31	-13.00	-18.31	H
1553.57	-35.42	9.56	9.72	-35.58	-13.00	-22.58	V
2332.02	-34.52	10.50	10.86	-34.88	-13.00	-21.88	V
3108.67	-32.62	12.78	11.57	-31.41	-13.00	-18.41	V
NB-IoT Band 13 / BPSK / 3.75KHz /1@0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1563.73	-34.38	9.56	9.72	-34.54	-40.00	5.46	H
2346.34	-34.85	10.50	10.86	-35.21	-13.00	-22.21	H
3128.25	-32.59	12.78	11.57	-31.38	-13.00	-18.38	H
1563.44	-36.78	9.56	9.72	-36.94	-40.00	3.06	V
2346.04	-35.07	10.50	10.86	-35.43	-13.00	-22.43	V
3128.06	-33.48	12.78	11.57	-32.27	-13.00	-19.27	V
NB-IoT Band 13 / BPSK / 3.75KHz /1@0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1574.09	-34.06	9.56	9.72	-34.22	-40.00	5.78	H
2360.49	-35.57	10.50	10.86	-35.93	-13.00	-22.93	H
3147.62	-33.66	12.78	11.57	-32.45	-13.00	-19.45	H
1574.67	-34.27	9.56	9.72	-34.43	-40.00	5.57	V
2360.70	-33.59	10.50	10.86	-33.95	-13.00	-20.95	V
3147.04	-31.73	12.78	11.57	-30.52	-13.00	-17.52	V



NB-IoT Band 13 / BPSK / 15KHz /1@0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1554.27	-34.36	9.56	9.72	-34.52	-13.00	-21.52	H
2331.47	-34.13	10.50	10.86	-34.49	-13.00	-21.49	H
3108.32	-33.38	12.78	11.57	-32.17	-13.00	-19.17	H
1554.01	-35.40	9.56	9.72	-35.56	-13.00	-22.56	V
2331.78	-34.36	10.50	10.86	-34.72	-13.00	-21.72	V
3108.69	-33.20	12.78	11.57	-31.99	-13.00	-18.99	V
NB-IoT Band 13 / BPSK / 15KHz /1@0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1563.54	-34.65	9.56	9.72	-34.81	-40.00	5.19	H
2346.33	-35.68	10.50	10.86	-36.04	-13.00	-23.04	H
3128.30	-32.41	12.78	11.57	-31.20	-13.00	-18.20	H
1563.45	-37.07	9.56	9.72	-37.23	-40.00	2.77	V
2346.04	-35.27	10.50	10.86	-35.63	-13.00	-22.63	V
3128.19	-33.56	12.78	11.57	-32.35	-13.00	-19.35	V
NB-IoT Band 13 / BPSK / 15KHz /1@0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1574.13	-34.18	9.56	9.72	-34.34	-40.00	5.66	H
2360.36	-35.41	10.50	10.86	-35.77	-13.00	-22.77	H
3147.67	-33.94	12.78	11.57	-32.73	-13.00	-19.73	H
1574.35	-34.80	9.56	9.72	-34.96	-40.00	5.04	V
2360.42	-34.08	10.50	10.86	-34.44	-13.00	-21.44	V
3147.39	-30.93	12.78	11.57	-29.72	-13.00	-16.72	V



NB-IoT Band 17 / QPSK / 3.75KHz /1@0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1407.84	-33.78	8.17	9.34	-34.95	-13.00	-21.95	H
2112.68	-35.78	9.53	10.42	-36.67	-13.00	-23.67	H
2816.87	-33.50	11.27	11.12	-33.35	-13.00	-20.35	H
1407.84	-35.34	8.17	9.34	-36.51	-13.00	-23.51	V
2112.68	-35.51	9.53	10.42	-36.40	-13.00	-23.40	V
2816.87	-33.11	11.27	11.12	-32.96	-13.00	-19.96	V
NB-IoT Band 17 / QPSK / 3.75KHz /1@0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1419.85	-34.61	8.17	9.34	-35.78	-13.00	-22.78	H
2129.72	-34.21	9.53	10.42	-35.10	-13.00	-22.10	H
2839.65	-32.89	11.27	11.12	-32.74	-13.00	-19.74	H
1419.85	-36.34	8.17	9.34	-37.51	-13.00	-24.51	V
2129.72	-33.86	9.53	10.42	-34.75	-13.00	-21.75	V
2839.65	-33.62	11.27	11.12	-33.47	-13.00	-20.47	V
NB-IoT Band 17 / QPSK / 3.75KHz /1@0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1431.71	-34.43	8.17	9.34	-35.60	-13.00	-22.60	H
2147.56	-35.91	9.53	10.42	-36.80	-13.00	-23.80	H
2863.70	-32.25	11.27	11.12	-32.10	-13.00	-19.10	H
1431.71	-35.68	8.17	9.34	-36.85	-13.00	-23.85	V
2147.56	-33.82	9.53	10.42	-34.71	-13.00	-21.71	V
2863.70	-31.88	11.27	11.12	-31.73	-13.00	-18.73	V



NB-IoT Band 17 / QPSK / 15KHz /1@0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1408.10	-33.82	8.17	9.34	-34.99	-13.00	-21.99	H
2112.67	-35.77	9.53	10.42	-36.66	-13.00	-23.66	H
2816.61	-33.58	11.27	11.12	-33.43	-13.00	-20.43	H
1407.62	-35.51	8.17	9.34	-36.68	-13.00	-23.68	V
2112.83	-35.46	9.53	10.42	-36.35	-13.00	-23.35	V
2816.61	-32.38	11.27	11.12	-32.23	-13.00	-19.23	V
NB-IoT Band 17 / QPSK / 15KHz /1@0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1420.13	-34.09	8.17	9.34	-35.26	-13.00	-22.26	H
2129.43	-34.79	9.53	10.42	-35.68	-13.00	-22.68	H
2839.79	-32.96	11.27	11.12	-32.81	-13.00	-19.81	H
1420.00	-36.10	8.17	9.34	-37.27	-13.00	-24.27	V
2130.01	-33.60	9.53	10.42	-34.49	-13.00	-21.49	V
2839.81	-33.94	11.27	11.12	-33.79	-13.00	-20.79	V
NB-IoT Band 17 / QPSK / 15KHz /1@0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1431.41	-34.10	8.17	9.34	-35.27	-13.00	-22.27	H
2147.84	-36.04	9.53	10.42	-36.93	-13.00	-23.93	H
2863.71	-32.40	11.27	11.12	-32.25	-13.00	-19.25	H
1431.73	-35.83	8.17	9.34	-37.00	-13.00	-24.00	V
2147.67	-33.53	9.53	10.42	-34.42	-13.00	-21.42	V
2863.47	-32.33	11.27	11.12	-32.18	-13.00	-19.18	V



NB-IoT Band 17 / BPSK / 3.75KHz /1@0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1407.97	-33.77	8.17	9.34	-34.94	-13.00	-21.94	H
2112.72	-35.95	9.53	10.42	-36.84	-13.00	-23.84	H
2817.10	-33.19	11.27	11.12	-33.04	-13.00	-20.04	H
1407.94	-35.25	8.17	9.34	-36.42	-13.00	-23.42	V
2112.71	-34.99	9.53	10.42	-35.88	-13.00	-22.88	V
2817.01	-32.62	11.27	11.12	-32.47	-13.00	-19.47	V
NB-IoT Band 17 / BPSK / 3.75KHz /1@0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1419.95	-34.19	8.17	9.34	-35.36	-13.00	-22.36	H
2130.00	-34.17	9.53	10.42	-35.06	-13.00	-22.06	H
2839.75	-32.74	11.27	11.12	-32.59	-13.00	-19.59	H
1419.82	-35.87	8.17	9.34	-37.04	-13.00	-24.04	V
2129.54	-34.24	9.53	10.42	-35.13	-13.00	-22.13	V
2839.66	-34.07	11.27	11.12	-33.92	-13.00	-20.92	V
NB-IoT Band 17 / BPSK / 3.75KHz /1@0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1431.77	-33.97	8.17	9.34	-35.14	-13.00	-22.14	H
2147.65	-35.65	9.53	10.42	-36.54	-13.00	-23.54	H
2863.54	-31.41	11.27	11.12	-31.26	-13.00	-18.26	H
1431.65	-36.11	8.17	9.34	-37.28	-13.00	-24.28	V
2147.67	-34.42	9.53	10.42	-35.31	-13.00	-22.31	V
2863.54	-31.36	11.27	11.12	-31.21	-13.00	-18.21	V



NB-IoT Band 17 / BPSK / 15KHz /1@0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1407.64	-33.71	8.17	9.34	-34.88	-13.00	-21.88	H
2112.87	-35.83	9.53	10.42	-36.72	-13.00	-23.72	H
2816.86	-32.82	11.27	11.12	-32.67	-13.00	-19.67	H
1407.80	-36.18	8.17	9.34	-37.35	-13.00	-24.35	V
2112.88	-34.80	9.53	10.42	-35.69	-13.00	-22.69	V
2816.82	-32.42	11.27	11.12	-32.27	-13.00	-19.27	V
NB-IoT Band 17 / BPSK / 15KHz /1@0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1419.80	-33.64	8.17	9.34	-34.81	-13.00	-21.81	H
2129.94	-34.17	9.53	10.42	-35.06	-13.00	-22.06	H
2839.75	-32.49	11.27	11.12	-32.34	-13.00	-19.34	H
1419.57	-36.48	8.17	9.34	-37.65	-13.00	-24.65	V
2129.71	-34.80	9.53	10.42	-35.69	-13.00	-22.69	V
2839.86	-34.12	11.27	11.12	-33.97	-13.00	-20.97	V
NB-IoT Band 17 / BPSK / 15KHz /1@0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1431.80	-33.96	8.17	9.34	-35.13	-13.00	-22.13	H
2147.72	-35.55	9.53	10.42	-36.44	-13.00	-23.44	H
2863.76	-31.22	11.27	11.12	-31.07	-13.00	-18.07	H
1431.84	-35.75	8.17	9.34	-36.92	-13.00	-23.92	V
2147.78	-33.68	9.53	10.42	-34.57	-13.00	-21.57	V
2863.74	-30.87	11.27	11.12	-30.72	-13.00	-17.72	V



NB-IoT Band 25 / QPSK / 3.75KHz /1@0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3701.00	-34.46	12.60	12.93	-34.79	-13.00	-21.79	H
5550.37	-35.42	13.10	17.11	-39.43	-13.00	-26.43	H
7400.67	-34.10	11.50	22.20	-44.80	-13.00	-31.80	H
3701.00	-36.22	12.60	12.93	-36.55	-13.00	-23.55	V
5550.37	-35.16	13.10	17.11	-39.17	-13.00	-26.17	V
7400.67	-32.68	11.50	22.20	-43.38	-13.00	-30.38	V
NB-IoT Band 25 / QPSK / 3.75KHz /1@0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3765.59	-35.08	12.60	12.93	-35.41	-13.00	-22.41	H
5647.66	-35.50	13.10	17.11	-39.51	-13.00	-26.51	H
7529.47	-33.27	11.50	22.20	-43.97	-13.00	-30.97	H
3765.59	-35.98	12.60	12.93	-36.31	-13.00	-23.31	V
5647.66	-34.42	13.10	17.11	-38.43	-13.00	-25.43	V
7529.47	-32.03	11.50	22.20	-42.73	-13.00	-29.73	V
NB-IoT Band 25 / QPSK / 3.75KHz /1@0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3829.28	-33.72	12.60	12.93	-34.05	-13.00	-21.05	H
5743.93	-34.62	13.10	17.11	-38.63	-13.00	-25.63	H
7659.46	-34.07	11.50	22.20	-44.77	-13.00	-31.77	H
3829.28	-35.16	12.60	12.93	-35.49	-13.00	-22.49	V
5743.93	-34.78	13.10	17.11	-38.79	-13.00	-25.79	V
7659.46	-33.01	11.50	22.20	-43.71	-13.00	-30.71	V



NB-IoT Band 25 / QPSK / 15KHz /1@0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3701.16	-34.35	12.60	12.93	-34.68	-13.00	-21.68	H
5550.20	-34.76	13.10	17.11	-38.77	-13.00	-25.77	H
7400.64	-34.72	11.50	22.20	-45.42	-13.00	-32.42	H
3700.69	-36.26	12.60	12.93	-36.59	-13.00	-23.59	V
5550.38	-34.35	13.10	17.11	-38.36	-13.00	-25.36	V
7400.59	-33.10	11.50	22.20	-43.80	-13.00	-30.80	V
NB-IoT Band 25 / QPSK / 15KHz /1@0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3766.01	-34.56	12.60	12.93	-34.89	-13.00	-21.89	H
5647.78	-34.88	13.10	17.11	-38.89	-13.00	-25.89	H
7529.82	-33.71	11.50	22.20	-44.41	-13.00	-31.41	H
3765.32	-36.20	12.60	12.93	-36.53	-13.00	-23.53	V
5647.70	-34.51	13.10	17.11	-38.52	-13.00	-25.52	V
7529.31	-32.43	11.50	22.20	-43.13	-13.00	-30.13	V
NB-IoT Band 25 / QPSK / 15KHz /1@0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3829.11	-33.18	12.60	12.93	-33.51	-13.00	-20.51	H
5743.62	-35.27	13.10	17.11	-39.28	-13.00	-26.28	H
7659.75	-33.79	11.50	22.20	-44.49	-13.00	-31.49	H
3829.22	-34.50	12.60	12.93	-34.83	-13.00	-21.83	V
5744.16	-34.62	13.10	17.11	-38.63	-13.00	-25.63	V
7659.66	-33.30	11.50	22.20	-44.00	-13.00	-31.00	V



NB-IoT Band 25 / BPSK / 3.75KHz /1@0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3700.90	-33.65	12.60	12.93	-33.98	-13.00	-20.98	H
5550.41	-35.96	13.10	17.11	-39.97	-13.00	-26.97	H
7400.71	-33.98	11.50	22.20	-44.68	-13.00	-31.68	H
3700.94	-35.99	12.60	12.93	-36.32	-13.00	-23.32	V
5549.99	-35.35	13.10	17.11	-39.36	-13.00	-26.36	V
7400.84	-32.19	11.50	22.20	-42.89	-13.00	-29.89	V
NB-IoT Band 25 / BPSK / 3.75KHz /1@0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3765.66	-35.06	12.60	12.93	-35.39	-13.00	-22.39	H
5647.58	-35.17	13.10	17.11	-39.18	-13.00	-26.18	H
7529.65	-32.56	11.50	22.20	-43.26	-13.00	-30.26	H
3765.58	-35.95	12.60	12.93	-36.28	-13.00	-23.28	V
5647.66	-34.50	13.10	17.11	-38.51	-13.00	-25.51	V
7529.48	-32.24	11.50	22.20	-42.94	-13.00	-29.94	V
NB-IoT Band 25 / BPSK / 3.75KHz /1@0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3829.25	-33.02	12.60	12.93	-33.35	-13.00	-20.35	H
5744.08	-34.62	13.10	17.11	-38.63	-13.00	-25.63	H
7658.98	-33.77	11.50	22.20	-44.47	-13.00	-31.47	H
3829.63	-34.88	12.60	12.93	-35.21	-13.00	-22.21	V
5744.33	-34.75	13.10	17.11	-38.76	-13.00	-25.76	V
7659.39	-33.21	11.50	22.20	-43.91	-13.00	-30.91	V



NB-IoT Band 25 / BPSK / 15KHz / 1@0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3700.88	-33.87	12.60	12.93	-34.20	-13.00	-21.20	H
5550.38	-35.69	13.10	17.11	-39.70	-13.00	-26.70	H
7401.03	-34.65	11.50	22.20	-45.35	-13.00	-32.35	H
3701.18	-35.60	12.60	12.93	-35.93	-13.00	-22.93	V
5550.76	-34.71	13.10	17.11	-38.72	-13.00	-25.72	V
7400.81	-32.76	11.50	22.20	-43.46	-13.00	-30.46	V
NB-IoT Band 25 / BPSK / 15KHz / 1@0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3765.29	-35.18	12.60	12.93	-35.51	-13.00	-22.51	H
5647.25	-35.41	13.10	17.11	-39.42	-13.00	-26.42	H
7529.26	-32.28	11.50	22.20	-42.98	-13.00	-29.98	H
3765.38	-36.38	12.60	12.93	-36.71	-13.00	-23.71	V
5648.06	-34.40	13.10	17.11	-38.41	-13.00	-25.41	V
7529.67	-32.60	11.50	22.20	-43.30	-13.00	-30.30	V
NB-IoT Band 25 / BPSK / 15KHz / 1@0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3829.58	-33.77	12.60	12.93	-34.10	-13.00	-21.10	H
5744.06	-34.69	13.10	17.11	-38.70	-13.00	-25.70	H
7659.60	-33.34	11.50	22.20	-44.04	-13.00	-31.04	H
3829.40	-34.39	12.60	12.93	-34.72	-13.00	-21.72	V
5743.98	-34.02	13.10	17.11	-38.03	-13.00	-25.03	V
7659.57	-33.49	11.50	22.20	-44.19	-13.00	-31.19	V



NB-IoT Band 26 / QPSK / 3.75KHz /1@0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1628.17	-34.72	9.56	9.72	-34.88	-13.00	-21.88	H
2442.35	-35.31	10.50	10.86	-35.67	-13.00	-22.67	H
3255.80	-33.66	12.78	11.57	-32.45	-13.00	-19.45	H
1628.17	-35.21	9.56	9.72	-35.37	-13.00	-22.37	V
2442.35	-33.96	10.50	10.86	-34.32	-13.00	-21.32	V
3255.80	-33.52	12.78	11.57	-32.31	-13.00	-19.31	V
NB-IoT Band 26 / QPSK / 3.75KHz /1@0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1663.03	-34.10	9.56	9.72	-34.26	-13.00	-21.26	H
2494.80	-34.04	10.50	10.86	-34.40	-13.00	-21.40	H
3325.69	-32.30	12.78	11.57	-31.09	-13.00	-18.09	H
1663.03	-36.03	9.56	9.72	-36.19	-13.00	-23.19	V
2494.80	-35.59	10.50	10.86	-35.95	-13.00	-22.95	V
3325.69	-32.80	12.78	11.57	-31.59	-13.00	-18.59	V
NB-IoT Band 26 / QPSK / 3.75KHz /1@0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1697.85	-33.72	9.56	9.72	-33.88	-13.00	-20.88	H
2546.70	-34.64	10.50	10.86	-35.00	-13.00	-22.00	H
3394.89	-34.13	12.78	11.57	-32.92	-13.00	-19.92	H
1697.85	-34.86	9.56	9.72	-35.02	-13.00	-22.02	V
2546.70	-35.17	10.50	10.86	-35.53	-13.00	-22.53	V
3394.89	-31.74	12.78	11.57	-30.53	-13.00	-17.53	V



NB-IoT Band 26 / QPSK / 15KHz /1@0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1628.14	-34.81	9.56	9.72	-34.97	-13.00	-21.97	H
2442.64	-35.27	10.50	10.86	-35.63	-13.00	-22.63	H
3255.60	-33.75	12.78	11.57	-32.54	-13.00	-19.54	H
1628.57	-35.18	9.56	9.72	-35.34	-13.00	-22.34	V
2442.25	-33.53	10.50	10.86	-33.89	-13.00	-20.89	V
3256.11	-32.92	12.78	11.57	-31.71	-13.00	-18.71	V
NB-IoT Band 26 / QPSK / 15KHz /1@0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1663.10	-34.06	12.90	12.56	-33.72	-13.00	-20.72	H
2494.68	-34.03	13.10	16.32	-37.25	-13.00	-24.25	H
3325.76	-31.77	12.33	21.13	-40.57	-13.00	-27.57	H
1663.15	-35.33	12.90	12.56	-34.99	-13.00	-21.99	V
2494.64	-35.38	13.10	16.32	-38.60	-13.00	-25.60	V
3325.78	-32.80	12.33	21.13	-41.60	-13.00	-28.60	V
NB-IoT Band 26 / QPSK / 15KHz /1@0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1697.83	-34.59	9.56	9.72	-34.75	-13.00	-21.75	H
2547.04	-34.58	10.50	10.86	-34.94	-13.00	-21.94	H
3394.58	-33.57	12.78	11.57	-32.36	-13.00	-19.36	H
1698.15	-35.20	9.56	9.72	-35.36	-13.00	-22.36	V
2546.84	-34.86	10.50	10.86	-35.22	-13.00	-22.22	V
3394.71	-32.06	12.78	11.57	-30.85	-13.00	-17.85	V



NB-IoT Band 26 / BPSK / 3.75KHz /1@0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1628.51	-34.94	9.56	9.72	-35.10	-13.00	-22.10	H
2442.48	-35.43	10.50	10.86	-35.79	-13.00	-22.79	H
3255.82	-33.22	12.78	11.57	-32.01	-13.00	-19.01	H
1628.14	-34.93	9.56	9.72	-35.09	-13.00	-22.09	V
2442.49	-34.22	10.50	10.86	-34.58	-13.00	-21.58	V
3255.87	-34.03	12.78	11.57	-32.82	-13.00	-19.82	V
NB-IoT Band 26 / BPSK / 3.75KHz /1@0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1663.34	-33.79	9.56	9.72	-33.95	-13.00	-20.95	H
2494.80	-33.58	10.50	10.86	-33.94	-13.00	-20.94	H
3325.86	-32.82	12.78	11.57	-31.61	-13.00	-18.61	H
1663.39	-35.32	9.56	9.72	-35.48	-13.00	-22.48	V
2494.69	-35.08	10.50	10.86	-35.44	-13.00	-22.44	V
3325.59	-33.45	12.78	11.57	-32.24	-13.00	-19.24	V
NB-IoT Band 26 / BPSK / 3.75KHz /1@0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1698.23	-33.33	9.56	9.72	-33.49	-13.00	-20.49	H
2546.69	-34.32	10.50	10.86	-34.68	-13.00	-21.68	H
3394.42	-34.21	12.78	11.57	-33.00	-13.00	-20.00	H
1697.59	-35.05	9.56	9.72	-35.21	-13.00	-22.21	V
2546.48	-35.39	10.50	10.86	-35.75	-13.00	-22.75	V
3394.71	-31.99	12.78	11.57	-30.78	-13.00	-17.78	V



NB-IoT Band 26 / BPSK / 15KHz /1@0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1628.21	-35.80	9.56	9.72	-35.96	-13.00	-22.96	H
2442.26	-35.07	10.50	10.86	-35.43	-13.00	-22.43	H
3255.80	-32.83	12.78	11.57	-31.62	-13.00	-18.62	H
1628.52	-34.59	9.56	9.72	-34.75	-13.00	-21.75	V
2442.35	-34.23	10.50	10.86	-34.59	-13.00	-21.59	V
3255.55	-33.90	12.78	11.57	-32.69	-13.00	-19.69	V
NB-IoT Band 26 / BPSK / 15KHz /1@0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1662.86	-33.13	9.56	9.72	-33.29	-13.00	-20.29	H
2494.36	-33.68	10.50	10.86	-34.04	-13.00	-21.04	H
3325.84	-33.57	12.78	11.57	-32.36	-13.00	-19.36	H
1662.80	-35.28	9.56	9.72	-35.44	-13.00	-22.44	V
2494.81	-34.94	10.50	10.86	-35.30	-13.00	-22.30	V
3325.33	-33.83	12.78	11.57	-32.62	-13.00	-19.62	V
NB-IoT Band 26 / BPSK / 15KHz /1@0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
1697.72	-33.93	9.56	9.72	-34.09	-13.00	-21.09	H
2546.45	-34.81	10.50	10.86	-35.17	-13.00	-22.17	H
3395.03	-33.88	12.78	11.57	-32.67	-13.00	-19.67	H
1697.81	-35.14	9.56	9.72	-35.30	-13.00	-22.30	V
2546.39	-35.68	10.50	10.86	-36.04	-13.00	-23.04	V
3394.91	-32.32	12.78	11.57	-31.11	-13.00	-18.11	V



NB-IoT Band 66 / QPSK / 3.75KHz /1@0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3420.24	-33.59	12.90	12.56	-33.25	-13.00	-20.25	H
5129.45	-34.95	13.10	16.32	-38.17	-13.00	-25.17	H
6840.32	-33.25	12.33	21.13	-42.05	-13.00	-29.05	H
3420.24	-35.66	12.90	12.56	-35.32	-13.00	-22.32	V
5129.45	-35.20	13.10	16.32	-38.42	-13.00	-25.42	V
6840.32	-32.06	12.33	21.13	-40.86	-13.00	-27.86	V
NB-IoT Band 2 / QPSK / 3.75KHz /1@0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3490.34	-33.95	12.90	12.56	-33.61	-13.00	-20.61	H
5234.02	-34.53	13.10	16.32	-37.75	-13.00	-24.75	H
6979.95	-33.96	12.33	21.13	-42.76	-13.00	-29.76	H
3490.34	-36.40	12.90	12.56	-36.06	-13.00	-23.06	V
5234.02	-35.56	13.10	16.32	-38.78	-13.00	-25.78	V
6979.95	-32.83	12.33	21.13	-41.63	-13.00	-28.63	V
NB-IoT Band 66 / QPSK / 3.75KHz /1@0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3559.81	-33.90	12.90	12.56	-33.56	-13.00	-20.56	H
5339.66	-35.81	13.10	16.32	-39.03	-13.00	-26.03	H
7119.69	-33.60	12.33	21.13	-42.40	-13.00	-29.40	H
3559.81	-35.17	12.90	12.56	-34.83	-13.00	-21.83	V
5339.66	-35.42	13.10	16.32	-38.64	-13.00	-25.64	V
7119.69	-33.25	12.33	21.13	-42.05	-13.00	-29.05	V



NB-IoT Band 66 / QPSK / 15KHz /1@0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3419.84	-34.18	12.90	12.56	-33.84	-13.00	-20.84	H
5129.31	-34.99	13.10	16.32	-38.21	-13.00	-25.21	H
6840.53	-33.48	12.33	21.13	-42.28	-13.00	-29.28	H
3420.01	-35.77	12.90	12.56	-35.43	-13.00	-22.43	V
5129.59	-35.71	13.10	16.32	-38.93	-13.00	-25.93	V
6840.32	-31.67	12.33	21.13	-40.47	-13.00	-27.47	V
NB-IoT Band 66 / QPSK / 15KHz /1@0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3490.39	-34.12	12.90	12.56	-33.78	-13.00	-20.78	H
5234.39	-35.02	13.10	16.32	-38.24	-13.00	-25.24	H
6979.64	-33.81	12.33	21.13	-42.61	-13.00	-29.61	H
3490.10	-36.81	12.90	12.56	-36.47	-13.00	-23.47	V
5233.73	-35.81	13.10	16.32	-39.03	-13.00	-26.03	V
6980.32	-32.39	12.33	21.13	-41.19	-13.00	-28.19	V
NB-IoT Band 66 / QPSK / 15KHz /1@0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3560.04	-34.63	12.90	12.56	-34.29	-13.00	-21.29	H
5339.66	-36.09	13.10	16.32	-39.31	-13.00	-26.31	H
7119.70	-33.29	12.33	21.13	-42.09	-13.00	-29.09	H
3559.73	-35.84	12.90	12.56	-35.50	-13.00	-22.50	V
5339.36	-35.36	13.10	16.32	-38.58	-13.00	-25.58	V
7119.41	-33.25	12.33	21.13	-42.05	-13.00	-29.05	V



NB-IoT Band 66 / BPSK / 3.75KHz /1@0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3420.31	-33.60	12.90	12.56	-33.26	-13.00	-20.26	H
5129.68	-34.63	13.10	16.32	-37.85	-13.00	-24.85	H
6840.03	-33.52	12.33	21.13	-42.32	-13.00	-29.32	H
3420.38	-35.73	12.90	12.56	-35.39	-13.00	-22.39	V
5129.14	-34.43	13.10	16.32	-37.65	-13.00	-24.65	V
6840.27	-32.27	12.33	21.13	-41.07	-13.00	-28.07	V
NB-IoT Band 66 / BPSK / 3.75KHz /1@0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3490.24	-33.75	12.90	12.56	-33.41	-13.00	-20.41	H
5234.31	-34.56	13.10	16.32	-37.78	-13.00	-24.78	H
6980.15	-34.26	12.33	21.13	-43.06	-13.00	-30.06	H
3490.45	-36.37	12.90	12.56	-36.03	-13.00	-23.03	V
5234.01	-35.87	13.10	16.32	-39.09	-13.00	-26.09	V
6979.55	-33.26	12.33	21.13	-42.06	-13.00	-29.06	V
NB-IoT Band 66 / BPSK / 3.75KHz /1@0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3560.04	-33.69	12.90	12.56	-33.35	-13.00	-20.35	H
5339.81	-36.19	13.10	16.32	-39.41	-13.00	-26.41	H
7119.93	-32.64	12.33	21.13	-41.44	-13.00	-28.44	H
3559.72	-35.54	12.90	12.56	-35.20	-13.00	-22.20	V
5339.51	-34.74	13.10	16.32	-37.96	-13.00	-24.96	V
7119.68	-33.22	12.33	21.13	-42.02	-13.00	-29.02	V



NB-IoT Band 66 / BPSK / 15KHz / 1@0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3420.12	-33.41	12.90	12.56	-33.07	-13.00	-20.07	H
5129.56	-33.67	13.10	16.32	-36.89	-13.00	-23.89	H
6840.01	-33.52	12.33	21.13	-42.32	-13.00	-29.32	H
3420.07	-36.47	12.90	12.56	-36.13	-13.00	-23.13	V
5129.37	-34.31	13.10	16.32	-37.53	-13.00	-24.53	V
6839.95	-32.84	12.33	21.13	-41.64	-13.00	-28.64	V
NB-IoT Band 66 / BPSK / 15KHz / 1@0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3490.51	-34.68	12.90	12.56	-34.34	-13.00	-21.34	H
5234.37	-33.85	13.10	16.32	-37.07	-13.00	-24.07	H
6979.87	-34.59	12.33	21.13	-43.39	-13.00	-30.39	H
3490.55	-36.41	12.90	12.56	-36.07	-13.00	-23.07	V
5234.20	-35.03	13.10	16.32	-38.25	-13.00	-25.25	V
6979.89	-33.25	12.33	21.13	-42.05	-13.00	-29.05	V
NB-IoT Band 66 / BPSK / 15KHz / 1@0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit (dBm)	Margin (dBm)	Polarity
3559.79	-33.18	12.90	12.56	-32.84	-13.00	-19.84	H
5339.64	-36.71	13.10	16.32	-39.93	-13.00	-26.93	H
7119.47	-33.30	12.33	21.13	-42.10	-13.00	-29.10	H
3560.01	-35.52	12.90	12.56	-35.18	-13.00	-22.18	V
5339.89	-35.06	13.10	16.32	-38.28	-13.00	-25.28	V
7119.45	-33.20	12.33	21.13	-42.00	-13.00	-29.00	V

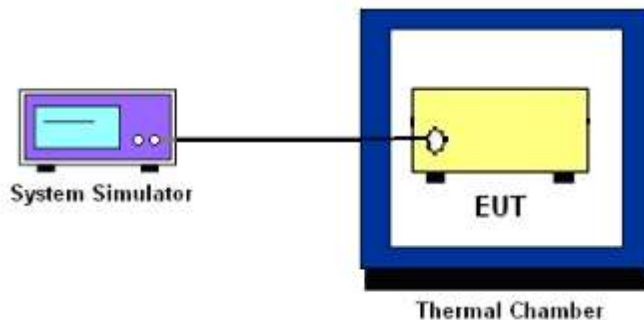
9. FREQUENCY STABILITY

9.1 DESCRIPTION OF FREQUENCY STABILITY MEASUREMENT

9.1.1 MEASUREMENT METHOD

The frequency stability shall be measured by variation of ambient temperature and variation of primary supply voltage to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within $\pm 0.00025\%$ ($\pm 2.5\text{ppm}$) of the center frequency.

9.1.2 TEST SETUP



9.1.3 TEST PROCEDURES FOR TEMPERATURE VARIATION

1. The EUT was set up in the thermal chamber and connected with the system simulator.
2. With power OFF, the temperature was decreased to -30°C and the EUT was stabilized before testing. Power was applied and the maximum change in frequency was recorded within one minute.
3. With power OFF, the temperature was raised in 10°C step up to 50°C . The EUT was stabilized at each step for at least half an hour. Power was applied and the maximum frequency change was recorded within one minute.

9.1.4 TEST PROCEDURES FOR VOLTAGE VARIATION

1. The testing follows FCC KDB 971168 D01v01r03 Section 9.
2. The EUT was placed in a temperature chamber at $25 \pm 5^{\circ}\text{C}$ and connected with the system simulator.
3. The power supply voltage to the EUT was varied from 85% to 115% of the nominal value measured at the input to the EUT.
4. The variation in frequency was measured for the worst case.



9.1.5 TEST RESULTS

NB-IoT Band 2 (QPSK) / 1880MHz / 3.75KHz/1@0					
Temperature (°C)	Voltage	Freq. Dev.	Freq. Dev.	Limit	Result
	(Volt)	(Hz)	(ppm)		
50	Normal Voltage	27.73	0.015	2.5ppm	PASS
40		21.79	0.012		
30		22.32	0.012		
20		35.25	0.019		
10		21.69	0.012		
0		33.51	0.018		
-10		29.39	0.016		
-20		12.99	0.007		
-30		17.96	0.010		
20	Maximum Voltage	34.94	0.019		
20	BEP	33.56	0.018		

NB-IoT Band 2 (QPSK) / 1880MHz / 15KHz/1@0					
Temperature (°C)	Voltage	Freq. Dev.	Freq. Dev.	Limit	Result
	(Volt)	(Hz)	(ppm)		
50	Normal Voltage	15.20	0.008	2.5ppm	PASS
40		15.28	0.008		
30		25.22	0.013		
20		17.47	0.009		
10		24.25	0.013		
0		32.47	0.017		
-10		18.12	0.010		
-20		11.54	0.006		
-30		29.37	0.016		
20	Maximum Voltage	35.81	0.019		
20	BEP	35.60	0.019		

NB-IoT Band 4 (QPSK) / 1732.5MHz / 3.75KHz/1@0					
Temperature (°C)	Voltage	Freq. Dev.	Freq. Dev.	Limit	Result
	(Volt)	(Hz)	(ppm)		
50	Normal Voltage	33.81	0.018	2.5ppm	PASS
40		32.89	0.017		
30		19.05	0.010		
20		19.63	0.010		
10		19.90	0.011		
0		29.23	0.016		
-10		27.61	0.015		
-20		24.19	0.013		
-30		18.39	0.010		
20	Maximum Voltage	24.20	0.013		
20	BEP	32.70	0.017		



NB-IoT Band 4 (QPSK) / 1732.5MHz /15KHz/1@0					
Temperature (°C)	Voltage	Freq. Dev.	Freq. Dev.	Limit	Result
	(Volt)	(Hz)	(ppm)		
50	Normal Voltage	13.26	0.007	2.5ppm	PASS
40		20.65	0.011		
30		29.68	0.016		
20		14.82	0.008		
10		25.18	0.013		
0		19.54	0.010		
-10		12.85	0.007		
-20		35.92	0.019		
-30		28.71	0.015		
20	Maximum Voltage	24.82	0.013		
20	BEP	13.68	0.007		

NB-IoT Band 5 (QPSK) / 836.5MHz / 3.75KHz/1@0					
Temperature (°C)	Voltage	Freq. Dev.	Freq. Dev.	Limit	Result
	(Volt)	(Hz)	(ppm)		
50	Normal Voltage	33.78	0.018	2.5ppm	PASS
40		35.04	0.019		
30		21.62	0.012		
20		26.05	0.014		
10		12.18	0.006		
0		33.82	0.018		
-10		15.37	0.008		
-20		20.65	0.011		
-30		33.99	0.018		
20	Maximum Voltage	24.63	0.013		
20	BEP	11.54	0.006		

NB-IoT Band 5 (QPSK) / 836.5MHz /15KHz/1@0					
Temperature (°C)	Voltage	Freq. Dev.	Freq. Dev.	Limit	Result
	(Volt)	(Hz)	(ppm)		
50	Normal Voltage	34.97	0.019	2.5ppm	PASS
40		26.85	0.014		
30		16.00	0.009		
20		16.12	0.009		
10		22.40	0.012		
0		32.94	0.018		
-10		29.06	0.015		
-20		20.40	0.011		
-30		20.86	0.011		
20	Maximum Voltage	35.65	0.019		
20	BEP	36.32	0.019		



NB-IoT Band 12 (QPSK) / 707.5MHz / 3.75KHz/1@0					
Temperature (°C)	Voltage	Freq. Dev.	Freq. Dev.	Limit	Result
	(Volt)	(Hz)	(ppm)		
50	Normal Voltage	26.23	0.014	2.5ppm	PASS
40		24.74	0.013		
30		34.20	0.018		
20		15.45	0.008		
10		26.45	0.014		
0		34.07	0.018		
-10		17.92	0.010		
-20		26.09	0.014		
-30		31.48	0.017		
20	Maximum Voltage	33.20	0.018		
20	BEP	27.48	0.015		

NB-IoT Band 12 (QPSK) / 707.5MHz /15KHz/1@0					
Temperature (°C)	Voltage	Freq. Dev.	Freq. Dev.	Limit	Result
	(Volt)	(Hz)	(ppm)		
50	Normal Voltage	28.79	0.015	2.5ppm	PASS
40		21.56	0.011		
30		23.16	0.012		
20		36.37	0.019		
10		13.77	0.007		
0		13.88	0.007		
-10		20.80	0.011		
-20		23.15	0.012		
-30		30.65	0.016		
20	Maximum Voltage	20.79	0.011		
20	BEP	33.81	0.018		

NB-IoT Band 13 (QPSK) / 782MHz / 3.75KHz/1@0					
Temperature (°C)	Voltage	Freq. Dev.	Freq. Dev.	Limit	Result
	(Volt)	(Hz)	(ppm)		
50	Normal Voltage	29.07	0.015	2.5ppm	PASS
40		20.74	0.011		
30		12.26	0.007		
20		33.59	0.018		
10		13.41	0.007		
0		33.57	0.018		
-10		22.26	0.012		
-20		31.03	0.017		
-30		12.97	0.007		
20	Maximum Voltage	13.53	0.007		
20	BEP	26.12	0.014		



NB-IoT Band 13 (QPSK) / 782MHz /15KHz/1@0					
Temperature (°C)	Voltage	Freq. Dev.	Freq. Dev.	Limit	Result
	(Volt)	(Hz)	(ppm)		
50	Normal Voltage	24.84	0.013	2.5ppm	PASS
40		28.99	0.015		
30		17.32	0.009		
20		11.75	0.006		
10		30.57	0.016		
0		33.77	0.018		
-10		25.52	0.014		
-20		25.85	0.014		
-30		24.88	0.013		
20	Maximum Voltage	32.52	0.017		
20	BEP	15.61	0.008		

NB-IoT Band 17 (QPSK) / 710MHz / 3.75KHz/1@0					
Temperature (°C)	Voltage	Freq. Dev.	Freq. Dev.	Limit	Result
	(Volt)	(Hz)	(ppm)		
50	Normal Voltage	19.54	0.010	2.5ppm	PASS
40		21.72	0.012		
30		22.16	0.012		
20		20.36	0.011		
10		28.42	0.015		
0		36.22	0.019		
-10		20.13	0.011		
-20		29.49	0.016		
-30		33.52	0.018		
20	Maximum Voltage	28.18	0.015		
20	BEP	19.42	0.010		

NB-IoT Band 17 (QPSK) / 710MHz /15KHz/1@0					
Temperature (°C)	Voltage	Freq. Dev.	Freq. Dev.	Limit	Result
	(Volt)	(Hz)	(ppm)		
50	Normal Voltage	21.67	0.012	2.5ppm	PASS
40		35.37	0.019		
30		26.23	0.014		
20		15.79	0.008		
10		22.01	0.012		
0		27.43	0.015		
-10		31.20	0.017		
-20		28.96	0.015		
-30		22.05	0.012		
20	Maximum Voltage	17.49	0.009		
20	BEP	27.76	0.015		



NB-IoT Band 25 (QPSK) / 1882.5MHz / 3.75KHz/1@0					
Temperature (°C)	Voltage	Freq. Dev.	Freq. Dev.	Limit	Result
	(Volt)	(Hz)	(ppm)		
50	Normal Voltage	31.56	0.017	2.5ppm	PASS
40		22.77	0.012		
30		12.07	0.006		
20		14.80	0.008		
10		32.82	0.017		
0		13.76	0.007		
-10		35.44	0.019		
-20		11.91	0.006		
-30		15.34	0.008		
20	Maximum Voltage	20.65	0.011		
20	BEP	19.23	0.010		

NB-IoT Band 25 (QPSK) / 1882.5MHz /15KHz/1@0					
Temperature (°C)	Voltage	Freq. Dev.	Freq. Dev.	Limit	Result
	(Volt)	(Hz)	(ppm)		
50	Normal Voltage	23.15	0.012	2.5ppm	PASS
40		28.27	0.015		
30		15.38	0.008		
20		16.60	0.009		
10		35.48	0.019		
0		17.42	0.009		
-10		28.50	0.015		
-20		21.62	0.011		
-30		16.19	0.009		
20	Maximum Voltage	25.76	0.014		
20	BEP	29.41	0.016		

NB-IoT Band 26 (QPSK) / 831.5MHz / 3.75KHz/1@0					
Temperature (°C)	Voltage	Freq. Dev.	Freq. Dev.	Limit	Result
	(Volt)	(Hz)	(ppm)		
50	Normal Voltage	31.62	0.017	2.5ppm	PASS
40		35.29	0.019		
30		21.85	0.012		
20		17.91	0.010		
10		26.22	0.014		
0		22.11	0.012		
-10		25.99	0.014		
-20		23.25	0.012		
-30		21.27	0.011		
20	Maximum Voltage	12.62	0.007		
20	BEP	28.10	0.015		



NB-IoT Band 26 (QPSK) / 831.5MHz /15KHz/1@0					
Temperature (°C)	Voltage	Freq. Dev.	Freq. Dev.	Limit	Result
	(Volt)	(Hz)	(ppm)		
50	Normal Voltage	13.77	0.007	2.5ppm	PASS
40		30.94	0.016		
30		22.52	0.012		
20		32.06	0.017		
10		34.16	0.018		
0		36.37	0.019		
-10		16.03	0.009		
-20		26.69	0.014		
-30		13.61	0.007		
20	Maximum Voltage	27.25	0.014	2.5ppm	PASS
20	BEP	13.94	0.007		

NB-IoT Band 66 (QPSK) / 1745MHz / 3.75KHz/1@0					
Temperature (°C)	Voltage	Freq. Dev.	Freq. Dev.	Limit	Result
	(Volt)	(Hz)	(ppm)		
50	Normal Voltage	33.17	0.018	2.5ppm	PASS
40		27.24	0.014		
30		26.72	0.014		
20		34.98	0.019		
10		15.73	0.008		
0		18.21	0.010		
-10		32.56	0.017		
-20		13.85	0.007		
-30		34.55	0.018		
20	Maximum Voltage	20.49	0.011	2.5ppm	PASS
20	BEP	26.86	0.014		

NB-IoT Band 66 (QPSK) / 1745MHz /15KHz/1@0					
Temperature (°C)	Voltage	Freq. Dev.	Freq. Dev.	Limit	Result
	(Volt)	(Hz)	(ppm)		
50	Normal Voltage	21.10	0.011	2.5ppm	PASS
40		35.81	0.019		
30		32.92	0.018		
20		25.06	0.013		
10		17.02	0.009		
0		18.52	0.010		
-10		12.71	0.007		
-20		21.49	0.011		
-30		30.75	0.016		
20	Maximum Voltage	22.17	0.012	2.5ppm	PASS
20	BEP	13.64	0.007		



APPENDIX-PHOTOS OF TEST SETUP

Note: See test photos in setup photo document for the actual connections between Product and support equipment.

*****END OF THE REPORT*****