

TEST REPORT



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1. Report No : DRTFCC2308-0117

2. Customer

- Name (FCC) : LG Electronics USA, Inc. / Name (IC) : LG ELECTRONICS INC.
- Address (FCC) : 111 Sylvan Avenue North Building Englewood Cliffs New Jersey United States 07632
Address (IC) : 222, LG-ro, Jinwi-myeon Pyeongtaek-si, Gyeonggi-do 451-713 Korea (Republic Of)

3. Use of Report : FCC & IC Class II Permissive Change

4. Product Name / Model Name : NAD module / TM15FNNATY0

FCC ID : BEJTM15FNNATY0

IC : 2703H-TM15FNNATY0

5. FCC Regulation(s): Part 22, 24, 27

IC Standard(s): RSS-Gen Issue 5, 130 Issue 2, 132 Issue 4, 133 Issue 6, 139 Issue 4

Test Method used: KDB971168 D01v03, ANSI/TIA-603-E-2016, ANSI C63.26-2015

6. Date of Test : 2023.04.13 ~ 2023.06.26

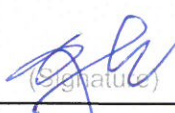
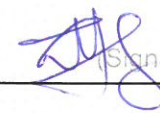
7. Location of Test : Permanent Testing Lab On Site Testing

8. Testing Environment : See appended test report.

9. Test Result : Refer to the attached Test Result

The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

This test report is not related to KOLAS accreditation.

Affirmation	Tested by	Technical Manager
	Name : JaeHyeok Bang 	Name : JaeJin Lee 

2023 . 08 . 24 .

Dt&C Co., Ltd.

If this report is required to confirmation of authenticity, please contact to report@dtnc.net

Test Report Version

Test Report No.	Date	Description	Revised by	Reviewed by
DRTFCC2308-0117	Aug. 24, 2023	Initial issue	JaeHyeok Bang	JaeJin Lee

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1. GENERAL INFORMATION

FCC Classification	PCS Licensed Transmitter (PCB)
FCC ID	BEJTM15FNNATY0
IC	2703H-TM15FNNATY0
Product Name	NAD module
Model Name	TM15FNNATY0
Add Model Name	-
PMN(Product Marketing Name)	TM15FNNATY0
FVIN(Firmware Version Identification Number)	5G.NAD.06a
EUT Serial Number	No specified
Supplying power	DC 3.90 V
Waveform	CP-OFDM, DFT-S-OFDM
Modulation type	$\pi/2$ BPSK, QPSK, 16QAM, 64QAM, 256QAM
Channel Bandwidth(MHz)	NR Band n12: 15, 10, 5 NR Band n5: 20, 15, 10, 5 NR Band n66: 40, 20, 15, 10, 5 NR Band n2: 20, 15, 10, 5
Antenna Information	Antenna Type: Sharkfin Antenna Gain(Including path loss between conducted test feeding point and antenna terminal): -0.9 dBi (n12), -0.7 dBi (n5), 0.1 dBi (n66), -0.9 dBi (n2)

NR Frequency Band	Channel Bandwidth (MHz)	Modulation	TX Frequency (MHz)	ERP	
				Max power (dBm)	Max power (W)
n12	15	$\pi/2$ BPSK	706.5 ~ 708.5	13.32	0.021
n12	15	QPSK	706.5 ~ 708.5	13.08	0.020
n12	15	16QAM	706.5 ~ 708.5	12.40	0.017
n12	15	64QAM	706.5 ~ 708.5	10.91	0.012
n12	15	256QAM	706.5 ~ 708.5	10.28	0.011
n12	10	$\pi/2$ BPSK	704 ~ 711	13.30	0.021
n12	10	QPSK	704 ~ 711	13.37	0.022
n12	10	16QAM	704 ~ 711	12.37	0.017
n12	10	64QAM	704 ~ 711	10.78	0.012
n12	10	256QAM	704 ~ 711	10.04	0.010
n12	5	$\pi/2$ BPSK	701.5 ~ 713.5	14.09	0.026
n12	5	QPSK	701.5 ~ 713.5	13.77	0.024
n12	5	16QAM	701.5 ~ 713.5	12.74	0.019
n12	5	64QAM	701.5 ~ 713.5	11.12	0.013
n12	5	256QAM	701.5 ~ 713.5	10.76	0.012
n5	20	$\pi/2$ BPSK	834 ~ 839	15.87	0.039
n5	20	QPSK	834 ~ 839	16.04	0.040
n5	20	16QAM	834 ~ 839	14.88	0.031
n5	20	64QAM	834 ~ 839	12.93	0.020
n5	20	256QAM	834 ~ 839	12.62	0.018
n5	15	$\pi/2$ BPSK	831.5 ~ 841.5	15.81	0.038
n5	15	QPSK	831.5 ~ 841.5	15.89	0.039
n5	15	16QAM	831.5 ~ 841.5	14.90	0.031
n5	15	64QAM	831.5 ~ 841.5	13.24	0.021
n5	15	256QAM	831.5 ~ 841.5	13.26	0.021
n5	10	$\pi/2$ BPSK	829 ~ 844	15.93	0.039
n5	10	QPSK	829 ~ 844	15.79	0.038
n5	10	16QAM	829 ~ 844	15.12	0.033
n5	10	64QAM	829 ~ 844	13.47	0.022
n5	10	256QAM	829 ~ 844	13.41	0.022
n5	5	$\pi/2$ BPSK	826.5 ~ 846.5	16.50	0.045
n5	5	QPSK	826.5 ~ 846.5	16.57	0.045
n5	5	16QAM	826.5 ~ 846.5	15.51	0.036
n5	5	64QAM	826.5 ~ 846.5	13.95	0.025
n5	5	256QAM	826.5 ~ 846.5	13.54	0.023

NR Frequency Band	Channel Bandwidth (MHz)	Modulation	TX Frequency (MHz)	EIRP	
				Max power (dBm)	Max power (W)
n66	40	$\pi/2$ BPSK	1 730 ~ 1 760	18.61	0.073
n66	40	QPSK	1 730 ~ 1 760	18.57	0.072
n66	40	16QAM	1 730 ~ 1 760	17.55	0.057
n66	40	64QAM	1 730 ~ 1 760	16.12	0.041
n66	40	256QAM	1 730 ~ 1 760	15.43	0.035
n66	20	$\pi/2$ BPSK	1 720 ~ 1 770	18.30	0.068
n66	20	QPSK	1 720 ~ 1 770	18.33	0.068
n66	20	16QAM	1 720 ~ 1 770	17.16	0.052
n66	20	64QAM	1 720 ~ 1 770	15.65	0.037
n66	20	256QAM	1 720 ~ 1 770	15.26	0.034
n66	15	$\pi/2$ BPSK	1 717.5 ~ 1 772.5	17.92	0.062
n66	15	QPSK	1 717.5 ~ 1 772.5	17.87	0.061
n66	15	16QAM	1 717.5 ~ 1 772.5	16.83	0.048
n66	15	64QAM	1 717.5 ~ 1 772.5	15.62	0.036
n66	15	256QAM	1 717.5 ~ 1 772.5	14.71	0.030
n66	10	$\pi/2$ BPSK	1 715 ~ 1 775	17.85	0.061
n66	10	QPSK	1 715 ~ 1 775	17.61	0.058
n66	10	16QAM	1 715 ~ 1 775	16.63	0.046
n66	10	64QAM	1 715 ~ 1 775	15.20	0.033
n66	10	256QAM	1 715 ~ 1 775	15.32	0.034
n66	5	$\pi/2$ BPSK	1 712.5 ~ 1 777.5	17.87	0.061
n66	5	QPSK	1 712.5 ~ 1 777.5	17.52	0.056
n66	5	16QAM	1 712.5 ~ 1 777.5	17.16	0.052
n66	5	64QAM	1 712.5 ~ 1 777.5	15.05	0.032
n66	5	256QAM	1 712.5 ~ 1 777.5	13.91	0.025
n2	20	$\pi/2$ BPSK	1 860 ~ 1 900	20.13	0.103
n2	20	QPSK	1 860 ~ 1 900	19.84	0.096
n2	20	16QAM	1 860 ~ 1 900	19.94	0.099
n2	20	64QAM	1 860 ~ 1 900	19.76	0.095
n2	20	256QAM	1 860 ~ 1 900	15.29	0.034
n2	15	$\pi/2$ BPSK	1 857.5 ~ 1 902.5	19.79	0.095
n2	15	QPSK	1 857.5 ~ 1 902.5	19.30	0.085
n2	15	16QAM	1 857.5 ~ 1 902.5	19.33	0.086
n2	15	64QAM	1 857.5 ~ 1 902.5	19.65	0.092
n2	15	256QAM	1 857.5 ~ 1 902.5	19.41	0.087
n2	10	$\pi/2$ BPSK	1 855 ~ 1 905	20.06	0.101
n2	10	QPSK	1 855 ~ 1 905	19.77	0.095
n2	10	16QAM	1 855 ~ 1 905	19.34	0.086
n2	10	64QAM	1 855 ~ 1 905	17.63	0.058
n2	10	256QAM	1 855 ~ 1 905	18.09	0.064
n2	5	$\pi/2$ BPSK	1 852.5 ~ 1 907.5	20.12	0.103
n2	5	QPSK	1 852.5 ~ 1 907.5	20.02	0.100
n2	5	16QAM	1 852.5 ~ 1 907.5	19.58	0.091
n2	5	64QAM	1 852.5 ~ 1 907.5	18.22	0.066
n2	5	256QAM	1 852.5 ~ 1 907.5	17.15	0.052

2. INTRODUCTION

2.1. EUT DESCRIPTION

This device supports the following capabilities:

Multi-Band LTE, LTE up-link carrier aggregation and 5G NR(FR1)

5G NR supports SCS 15 kHz for FDD Band and SCS 30 kHz for TDD Band.

2.2. TESTING ENVIRONMENT

Ambient Condition	
▪ Temperature	+21 °C ~ +26 °C
▪ Relative Humidity	42 % ~ 46 %

2.3. MEASURING INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.

2.4. MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with requirements of ANSI C 63.4-2014. All measurement uncertainty values are shown with a coverage factor of $k = 2$ to indicate a 95 % level of confidence.

Parameter	Measurement uncertainty
Radiated Disturbance (Below 1 GHz)	4.8 dB (The confidence level is about 95 %, $k = 2$)
Radiated Disturbance (1 GHz ~ 18 GHz)	5.0 dB (The confidence level is about 95 %, $k = 2$)
Radiated Disturbance (Above 18 GHz)	5.2 dB (The confidence level is about 95 %, $k = 2$)

2.5. TEST FACILITY

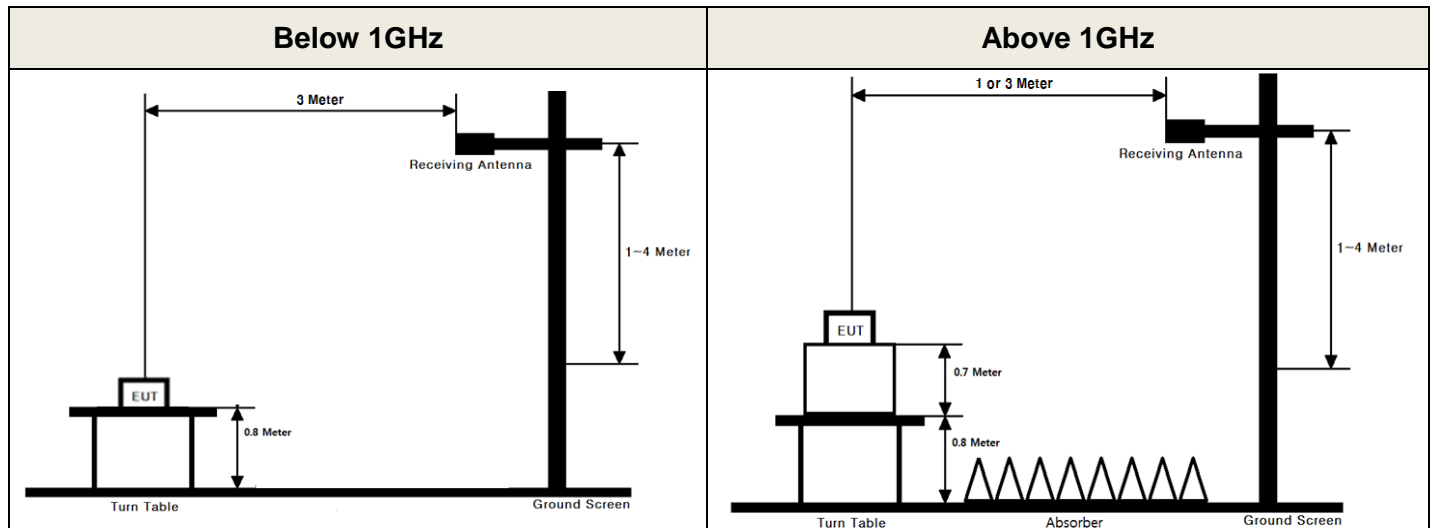
Dt&C Co., Ltd.	
The 3 m test site and conducted measurement facility used to collect the radiated data are located at the 42, Yurim-ro, 154beon-gil, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea 17042.	
The test site complies with the requirements of Part 2.948 according to ANSI C63.4-2014.	
- FCC & IC MRA Designation No. : KR0034	
- ISED#: 5740A	
www.dtnc.net	
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3. DESCRIPTION OF TESTS

3.1. Maximum Output Power

ERP & EIRP (Effective Radiated Power & Equivalent Isotropic Radiated Power)

Test Set-up



These measurements were performed at 3 m test site. The equipment under test is placed on a non-conductive table 0.8 or 1.5-meters above a turntable which is flush with the ground plane and 3 meters from the receive antenna. For measurements above 1GHz absorbers are placed on the floor between the turn table and the antenna mast in such a way so as to maximize the reduction of reflections. For measurements below 1 GHz, the absorbers are removed.

Test Procedure

- ANSI/TIA-603-E-2016 - Section 2.2.17
- KDB971168 D01v03 - Section 5.2.2
- ANSI C63.26-2015 – Section 5.2.4.4.1

Test setting

1. Set span to 2 x to 3 x the OBW.
2. Set RBW = 1 % to 5 % of the OBW.
3. Set VBW \geq 3 x RBW.
4. Set number of points in sweep \geq 2 x span / RBW.
5. Sweep time:
 - 1) Set = auto-couple, or
 - 2) Set \geq [10 \times (number of points in sweep) \times (transmission period)] for single sweep (automation-compatible) measurement. Transmission period is the on and off time of the transmitter.
6. Detector = power averaging (rms).
7. If the EUT can be configured to transmit continuously, then set the trigger to free run.
8. If the EUT cannot be configured to transmit continuously, then use a sweep trigger with the level set to enable triggering only on full power bursts and configure the EUT to transmit at full power for the entire duration of each sweep. Verify that the sweep time is less than or equal to the transmission burst duration. Time gating can also be used under similar constraints (i.e., configured such that measurement data is collected only during active full-power transmissions).

9. Trace average at least 100 traces in power averaging (rms) mode if sweep is set to auto-couple. To accurately determine the average power over multiple symbols, it can be necessary to increase the number of traces to be averaged above 100 or, if using a manually configured sweep time, increase the sweep time.
10. Compute the power by integrating the spectrum across the OBW of the signal using the instrument's band or channel power measurement function, with the band/channel limits set equal to the OBW band edges. If the instrument does not have a band or channel power function, then sum the spectrum levels (in linear power units) at intervals equal to the RBW extending across the entire OBW of the spectrum.

The receiver antenna height and turntable rotations were adjusted for the highest reading on the receive spectrum analyzer.

A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. The conducted power at the terminal of the substitute antenna is measured.

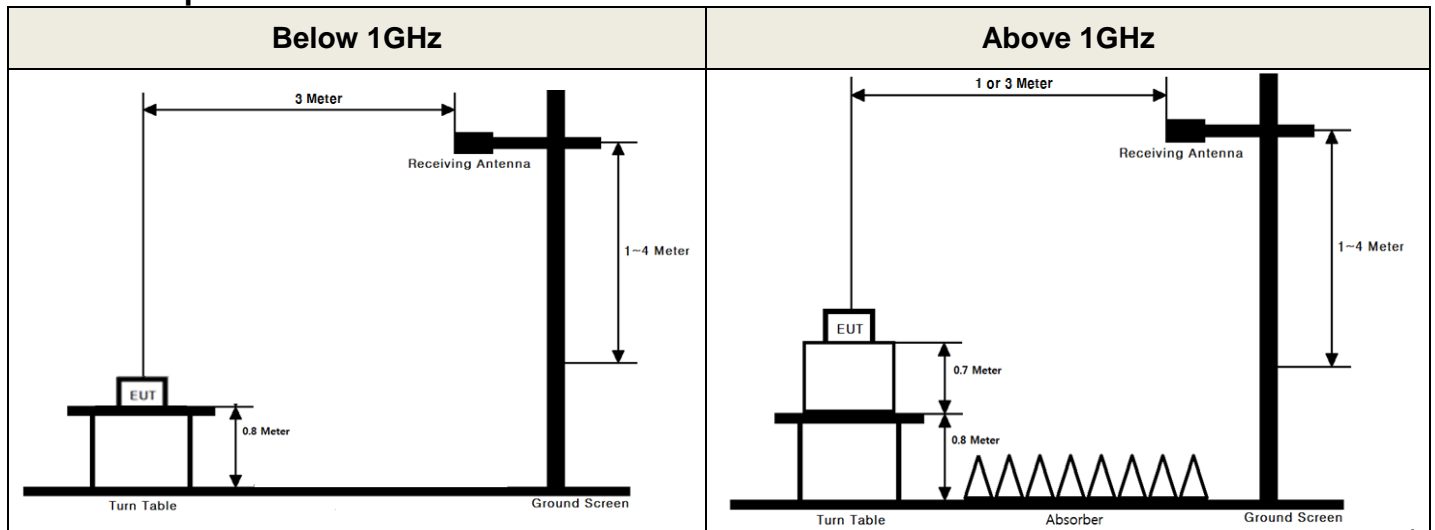
The ERP/EIRP is calculated using the following formula:

ERP/EIRP = The conducted power at the substitute antenna's terminal [dBm] + Substitute Antenna gain [dBd for ERP , dBi for EIRP]

For readings above 1 GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn antenna and an isotropic antenna are taken into consideration.

3.2. UNDESIRABLE EMISSIONS

Test Set-up



These measurements were performed at 3 test site. The equipment under test is placed on a non-conductive table 0.8 or 1.5 meters above a turntable which is flush with the ground plane and 3 meters from the receive antenna. For measurements above 1 GHz absorbers are placed on the floor between the turn table and the antenna mast in such a way so as to maximize the reduction of reflections. For measurements below 1 GHz, the absorbers are removed.

Test Procedure

- ANSI/TIA-603-E-2016 - Section 2.2.12
- KDB971168 D01v03 - Section 6
- ANSI C63.26-2015 – Section 5.5

Test setting

1. RBW = 100 kHz for below 1 GHz and 1 MHz for above 1 GHz / VBW \geq 3 X RBW
2. Detector = RMS & Trace mode = Max hold
3. Sweep time = Auto couple
4. Number of sweep point \geq 2 X span / RBW
5. The trace was allowed to stabilize

The receive antenna height and turntable rotations were adjusted for the highest reading on the receive spectrum analyzer.

For radiated power measurements below 1 GHz, a half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same spectrum analyzer reading.

For radiated power measurements above 1 GHz, a Horn antenna was substituted in place of the EUT. This Horn antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same spectrum analyzer reading. The difference between the gain of the horn and an isotropic antenna are taken into consideration.

This measurement was performed with the EUT oriented in 3 orthogonal axis.

4. LIST OF TEST EQUIPMENT

Type	Manufacturer	Model	Cal.Date (yy/mm/dd)	Next.Cal. Date (yy/mm/dd)	S/N
Spectrum Analyzer	Agilent Technologies	N9020A	23/06/23	24/06/23	US47360812
DC power supply	SM techno	SDP30-5D	23/06/23	24/06/23	305DNF079
Multimeter	FLUKE	17B+	22/12/16	23/12/16	36390701WS
Radio Communication Analyzer	KEYSIGHT	E7515B	23/06/23	24/06/23	MY60192461
Thermohygrometer	BODYCOM	BJ5478	22/12/16	23/12/16	120612-2
Signal Generator	Rohde Schwarz	SMBV100A	22/12/16	23/12/16	255571
Signal Generator	ANRITSU	MG3695C	22/12/16	23/12/16	173501
Resistive Divider	Clear Microwave	D240	22/09/27	23/09/27	1
Loop Antenna	ETS-Lindgren	6502	22/04/22	24/04/22	203480
Bilog Antenna	Schwarzbeck	VULB 9160	22/12/16	23/12/16	3362
Dipole Antenna	Schwarzbeck	UHA 9105	22/12/16	24/12/16	2262
HORN ANT	ETS	3117	22/12/16	23/12/16	00140394
HORN ANT	A.H.Systems	SAS-574	23/06/23	24/06/23	155
PreAmplifier	H.P	8447D	22/12/16	23/12/16	2944A07774
PreAmplifier	Agilent	8449B	22/12/16	23/12/16	3008A02108
PreAmplifier	A.H.Systems Inc.	PAM-1840VH	23/06/23	24/06/23	163
High-pass filter	Wainwright	WHKX12-935-1000-15000-40SS	22/12/16	23/12/16	7
High-pass filter	Wainwright	WHKX10-2838-3300-18000-60SS	22/12/16	23/12/16	2
High-pass filter	Wainwright	WHKX6-6320-8000-26500-40CC	22/12/16	23/12/16	2
Cable	HUBER+SUHNER	SUCOFLEX100	23/01/04	24/01/04	M-1
Cable	HUBER+SUHNER	SUCOFLEX100	23/01/04	24/01/04	M-2
Cable	Junkosah	MWX241/B	23/01/04	24/01/04	M-3
Cable	Junkosah	MWX221	23/01/04	24/01/04	M-4
Cable	Junkosah	MWX221	23/01/04	24/01/04	M-5
Cable	DTNC	Cable	23/01/04	24/01/04	M-6
Cable	JUNFLON	J12J101757-00	23/01/04	24/01/04	M-7
Cable	HUBER+SUHNER	SUCOFLEX104	23/01/04	24/01/04	M-8
Cable	HUBER+SUHNER	SUCOFLEX106	23/01/04	24/01/04	M-9
Cable	DTNC	Cable	23/01/04	24/01/04	RFC-102

Note1: The measurement antennas were calibrated in accordance to the requirements of ANSI C63.5-2017.

Note2: The cable is not a regular calibration item, so it has been calibrated by Dt&C itself.

5. SUMMARY OF TEST RESULTS

FCC Part Section(s)	RSS Section(s)	Test Description	Test Limit	Test Condition	Status Note 1
27.50(c.9)	RSS-130 [4.6]	Radiated Output Power (n12)	For mobile equipment: < 30 Watts max. ERP	Radiated	C
22.913(a.5)	RSS-132 [5.4]	Radiated Output Power (n5)	For mobile equipment: < 7 Watts max. ERP		C
27.50(d.4)	RSS-139 [5.5]	Radiated Output Power (B66)	For mobile equipment: < 1 Watts max. EIRP		C
24.232(c)	RSS-133 [6.4]	Radiated Output Power (n2)	For mobile equipment: < 2 Watts max. EIRP		C
2.1053 22.917(a) 24.238(a) 27.53(g) 27.53(h)	RSS-130 [4.7] RSS-132 [5.5] RSS-133 [6.5] RSS-139 [5.6]	Undesirable Emissions	> 43 + 10log ₁₀ (P) dB for all out-of-band emissions		C
Note 1: C=Comply NC=Not Comply NT=Not Tested NA=Not Applicable Note 2: This test item was performed in three orthogonal EUT positions and the worst case data was reported.					

6. SAMPLE CALCULATION

A. Emission Designator

- 1) The EUT was placed on a turntable with 0.8 meter height for frequency below 1GHz and 1.5 meter height for frequency above 1 GHz respectively above ground.
- 2) The EUT was set 3 meters from the receiving antenna mounted on the antenna tower.
- 3) During the test, the turn table is rotated until the maximum signal is found.
- 4) Record the field strength meter's level. (ex. Spectrum reading level is -8.5 dBm)
- 5) Replace the EUT with dipole/Horn antenna that is connected to a calibrated signal generator.
- 6) Increase the signal generator output till the field strength meter's level is equal to the item (4).
(ex. Signal generator level is -18.04 dBm)
- 7) The gain of the cable and amplifier between the signal generator and terminals of substituted antenna is 46.92 dB at test frequency.
- 8) Record the level at substituted antenna terminal. (ex. 28.88dBm)
- 9) The result is calculated as below;

$$\text{EIRP(dBm)} = \text{LEVLE@ANTENNA TERMINAL} + \text{TX Antenna Gain (dBi)}$$

$$\text{ERP(dBm)} = \text{LEVLE@ANTENNA TERMINAL} + \text{TX Antenna Gain (dBd)}$$

$$\text{Where, TX Antenna Gain (dBd)} = \text{TX Antenna Gain (dBi)} - 2.15 \text{ dB}$$

7. TEST DATA

7.1. ERP&EIRP

- Test Notes

- 1) This is device was tested under all bandwidths, modulations and RB configurations and the worst case data are reported in the below table.

7.1.1. NR Band n12

Channel Bandwidth (MHz)	Frequency (MHz)	Modulation	RB Size/ Offset	Ant Pol (H/V)	Level at Antenna Terminal(dBm)	Substitute Antenna Gain(dBd)	ERP (dBm)	ERP (W)
15	706.5	$\pi/2$ BPSK	1/39	V	14.63	-1.31	13.32	0.021
		QPSK		V	14.39	-1.31	13.08	0.020
		16QAM		V	13.51	-1.31	12.20	0.017
		64QAM		V	12.22	-1.31	10.91	0.012
		256QAM		V	11.59	-1.31	10.28	0.011
	707.5	$\pi/2$ BPSK	1/39	V	14.39	-1.32	13.07	0.020
		QPSK		V	14.04	-1.32	12.72	0.019
		16QAM		V	13.72	-1.32	12.40	0.017
		64QAM		V	12.03	-1.32	10.71	0.012
		256QAM		V	9.57	-1.32	8.25	0.007
	708.5	$\pi/2$ BPSK	1/39	V	13.97	-1.33	12.64	0.018
		QPSK		V	13.93	-1.33	12.60	0.018
		16QAM		V	13.24	-1.33	11.91	0.016
		64QAM		V	11.95	-1.33	10.62	0.012
		256QAM		V	11.05	-1.33	9.72	0.009
10	704	$\pi/2$ BPSK	1/26	V	14.58	-1.28	13.30	0.021
		QPSK		V	14.65	-1.28	13.37	0.022
		16QAM		V	13.65	-1.28	12.37	0.017
		64QAM		V	12.06	-1.28	10.78	0.012
		256QAM		V	10.31	-1.28	9.03	0.008
	707.5	$\pi/2$ BPSK	1/26	V	13.97	-1.32	12.65	0.018
		QPSK		V	13.80	-1.32	12.48	0.018
		16QAM		V	12.91	-1.32	11.59	0.014
		64QAM		V	11.21	-1.32	9.89	0.010
		256QAM		V	11.36	-1.32	10.04	0.010
	711	$\pi/2$ BPSK	1/26	V	13.46	-1.36	12.10	0.016
		QPSK		V	13.50	-1.36	12.14	0.016
		16QAM		V	12.75	-1.36	11.39	0.014
		64QAM		V	11.52	-1.36	10.16	0.010
		256QAM		V	10.54	-1.36	9.18	0.008
5	701.5	$\pi/2$ BPSK	1/12	V	15.35	-1.26	14.09	0.026
		QPSK		V	15.03	-1.26	13.77	0.024
		16QAM		V	14.00	-1.26	12.74	0.019
		64QAM		V	12.38	-1.26	11.12	0.013
		256QAM		V	12.02	-1.26	10.76	0.012
	707.5	$\pi/2$ BPSK	1/12	V	14.02	-1.32	12.70	0.019
		QPSK		V	14.30	-1.32	12.98	0.020
		16QAM		V	13.18	-1.32	11.86	0.015
		64QAM		V	11.45	-1.32	10.13	0.010
		256QAM		V	10.84	-1.32	9.52	0.009
	713.5	$\pi/2$ BPSK	1/12	V	13.89	-1.39	12.50	0.018
		QPSK		V	13.18	-1.39	11.79	0.015
		16QAM		V	12.64	-1.39	11.25	0.013
		64QAM		V	11.06	-1.39	9.67	0.009
		256QAM		V	10.63	-1.39	9.24	0.008

7.1.2. NR Band n5

Channel Bandwidth (MHz)	Frequency (MHz)	Modulation	RB Size/ Offset	Ant Pol (H/V)	Level at Antenna Terminal(dBm)	Substitute Antenna Gain(dBd)	ERP (dBm)	ERP (W)
20	834	$\pi/2$ BPSK	1/53	V	17.31	-1.44	15.87	0.039
		QPSK		V	17.48	-1.44	16.04	0.040
		16QAM		V	16.32	-1.44	14.88	0.031
		64QAM		V	14.31	-1.44	12.87	0.019
		256QAM		V	14.06	-1.44	12.62	0.018
	836.5	$\pi/2$ BPSK	1/53	V	16.71	-1.44	15.27	0.034
		QPSK		V	16.50	-1.44	15.06	0.032
		16QAM		V	15.94	-1.44	14.50	0.028
		64QAM		V	14.09	-1.44	12.65	0.018
		256QAM		V	12.01	-1.44	10.57	0.011
	839	$\pi/2$ BPSK	1/53	V	16.36	-1.45	14.91	0.031
		QPSK		V	16.46	-1.45	15.01	0.032
		16QAM		V	15.73	-1.45	14.28	0.027
		64QAM		V	14.38	-1.45	12.93	0.020
		256QAM		V	13.13	-1.45	11.68	0.015
15	831.5	$\pi/2$ BPSK	1/39	V	17.25	-1.44	15.81	0.038
		QPSK		V	17.33	-1.44	15.89	0.039
		16QAM		V	16.34	-1.44	14.90	0.031
		64QAM		V	14.68	-1.44	13.24	0.021
		256QAM		V	13.41	-1.44	11.97	0.016
	836.5	$\pi/2$ BPSK	1/39	V	16.77	-1.44	15.33	0.034
		QPSK		V	16.65	-1.44	15.21	0.033
		16QAM		V	15.81	-1.44	14.37	0.027
		64QAM		V	14.60	-1.44	13.16	0.021
		256QAM		V	14.70	-1.44	13.26	0.021
	841.5	$\pi/2$ BPSK	1/39	V	16.92	-1.45	15.47	0.035
		QPSK		V	16.94	-1.45	15.49	0.035
		16QAM		V	15.93	-1.45	14.48	0.028
		64QAM		V	14.09	-1.45	12.64	0.018
		256QAM		V	14.20	-1.45	12.75	0.019
10	829	$\pi/2$ BPSK	1/26	V	17.36	-1.43	15.93	0.039
		QPSK		V	17.16	-1.43	15.73	0.037
		16QAM		V	16.55	-1.43	15.12	0.033
		64QAM		V	14.84	-1.43	13.41	0.022
		256QAM		V	13.09	-1.43	11.66	0.015
	836.5	$\pi/2$ BPSK	1/26	V	16.27	-1.44	14.83	0.030
		QPSK		V	16.12	-1.44	14.68	0.029
		16QAM		V	15.72	-1.44	14.28	0.027
		64QAM		V	14.40	-1.44	12.96	0.020
		256QAM		V	11.53	-1.44	10.09	0.010
	844	$\pi/2$ BPSK	1/26	V	17.23	-1.45	15.78	0.038
		QPSK		V	17.24	-1.45	15.79	0.038
		16QAM		V	16.34	-1.45	14.89	0.031
		64QAM		V	14.92	-1.45	13.47	0.022
		256QAM		V	14.86	-1.45	13.41	0.022

Channel Bandwidth (MHz)	Frequency (MHz)	Modulation	RB Size/ Offset	Ant Pol (H/V)	Level at Antenna Terminal(dBm)	Substitute Antenna Gain(dBd)	ERP (dBm)	ERP (W)
5	826.5	$\pi/2$ BPSK	1/12	V	16.86	-1.43	15.43	0.035
		QPSK		V	16.59	-1.43	15.16	0.033
		16QAM		V	16.17	-1.43	14.74	0.030
		64QAM		V	14.81	-1.43	13.38	0.022
		256QAM		V	14.56	-1.43	13.13	0.021
	836.5	$\pi/2$ BPSK	1/12	V	16.33	-1.44	14.89	0.031
		QPSK		V	16.71	-1.44	15.27	0.034
		16QAM		V	15.50	-1.44	14.06	0.025
		64QAM		V	14.08	-1.44	12.64	0.018
		256QAM		V	12.82	-1.44	11.38	0.014
	846.5	$\pi/2$ BPSK	1/12	V	17.96	-1.46	16.50	0.045
		QPSK		V	18.03	-1.46	16.57	0.045
		16QAM		V	16.97	-1.46	15.51	0.036
		64QAM		V	15.41	-1.46	13.95	0.025
		256QAM		V	15.00	-1.46	13.54	0.023

7.1.3. NR Band n66

Channel Bandwidth (MHz)	Frequency (MHz)	Modulation	RB Size/ Offset	Ant Pol (H/V)	Level at Antenna Terminal(dBm)	Substitute Antenna Gain(dBi)	EIRP (dBm)	EIRP (W)
40	1 730	$\pi/2$ BPSK	1/108	H	12.86	5.75	18.61	0.073
		QPSK		H	12.82	5.75	18.57	0.072
		16QAM		H	11.80	5.75	17.55	0.057
		64QAM		H	10.37	5.75	16.12	0.041
		256QAM		H	8.38	5.75	14.13	0.026
	1 745	$\pi/2$ BPSK	1/108	H	11.87	5.60	17.47	0.056
		QPSK		H	11.69	5.60	17.29	0.054
		16QAM		H	10.95	5.60	16.55	0.045
		64QAM		H	9.17	5.60	14.77	0.030
		256QAM		H	7.92	5.60	13.52	0.022
	1 760	$\pi/2$ BPSK	1/108	H	12.41	5.42	17.83	0.061
		QPSK		H	12.48	5.42	17.90	0.062
		16QAM		H	11.82	5.42	17.24	0.053
		64QAM		H	9.82	5.42	15.24	0.033
		256QAM		H	10.01	5.42	15.43	0.035
20	1 720	$\pi/2$ BPSK	1/53	H	12.44	5.86	18.30	0.068
		QPSK		H	12.47	5.86	18.33	0.068
		16QAM		H	11.30	5.86	17.16	0.052
		64QAM		H	9.79	5.86	15.65	0.037
		256QAM		H	8.82	5.86	14.68	0.029
	1 745	$\pi/2$ BPSK	1/53	H	11.35	5.60	16.95	0.050
		QPSK		H	11.70	5.60	17.30	0.054
		16QAM		H	10.78	5.60	16.38	0.043
		64QAM		H	9.64	5.60	15.24	0.033
		256QAM		H	9.50	5.60	15.10	0.032
	1 770	$\pi/2$ BPSK	1/53	H	12.28	5.29	17.57	0.057
		QPSK		H	12.44	5.29	17.73	0.059
		16QAM		H	11.65	5.29	16.94	0.049
		64QAM		H	10.12	5.29	15.41	0.035
		256QAM		H	9.97	5.29	15.26	0.034
15	1 717.5	$\pi/2$ BPSK	1/39	H	11.50	5.89	17.39	0.055
		QPSK		H	11.59	5.89	17.48	0.056
		16QAM		H	10.61	5.89	16.50	0.045
		64QAM		H	8.98	5.89	14.87	0.031
		256QAM		H	8.77	5.89	14.66	0.029
	1 745	$\pi/2$ BPSK	1/39	H	11.68	5.60	17.28	0.053
		QPSK		H	11.50	5.60	17.10	0.051
		16QAM		H	10.45	5.60	16.05	0.040
		64QAM		H	9.77	5.60	15.37	0.034
		256QAM		H	9.11	5.60	14.71	0.030
	1 772.5	$\pi/2$ BPSK	1/39	H	12.66	5.26	17.92	0.062
		QPSK		H	12.61	5.26	17.87	0.061
		16QAM		H	11.57	5.26	16.83	0.048
		64QAM		H	10.36	5.26	15.62	0.036
		256QAM		H	8.26	5.26	13.52	0.022

Channel Bandwidth (MHz)	Frequency (MHz)	Modulation	RB Size/ Offset	Ant Pol (H/V)	Level at Antenna Terminal(dBm)	Substitute Antenna Gain(dBi)	EIRP (dBm)	EIRP (W)
10	1 715	$\pi/2$ BPSK	1/25	H	11.71	5.91	17.62	0.058
		QPSK		H	11.34	5.91	17.25	0.053
		16QAM		H	10.48	5.91	16.39	0.044
		64QAM		H	8.71	5.91	14.62	0.029
		256QAM		H	9.41	5.91	15.32	0.034
	1 745	$\pi/2$ BPSK	1/25	H	11.18	5.60	16.78	0.048
		QPSK		H	11.37	5.60	16.97	0.050
		16QAM		H	10.41	5.60	16.01	0.040
		64QAM		H	8.41	5.60	14.01	0.025
		256QAM		H	8.64	5.60	14.24	0.027
	1 775	$\pi/2$ BPSK	1/25	H	12.62	5.23	17.85	0.061
		QPSK		H	12.38	5.23	17.61	0.058
		16QAM		H	11.40	5.23	16.63	0.046
		64QAM		H	9.97	5.23	15.20	0.033
		256QAM		H	9.91	5.23	15.14	0.033
5	1 712.5	$\pi/2$ BPSK	1/12	H	10.24	5.94	16.18	0.041
		QPSK		H	10.08	5.94	16.02	0.040
		16QAM		H	9.48	5.94	15.42	0.035
		64QAM		H	8.15	5.94	14.09	0.026
		256QAM		H	6.80	5.94	12.74	0.019
	1 745	$\pi/2$ BPSK	1/12	H	11.29	5.60	16.89	0.049
		QPSK		H	11.20	5.60	16.80	0.048
		16QAM		H	10.35	5.60	15.95	0.039
		64QAM		H	9.19	5.60	14.79	0.030
		256QAM		H	8.31	5.60	13.91	0.025
	1 777.5	$\pi/2$ BPSK	1/12	H	12.67	5.20	17.87	0.061
		QPSK		H	12.32	5.20	17.52	0.056
		16QAM		H	11.96	5.20	17.16	0.052
		64QAM		H	9.85	5.20	15.05	0.032
		256QAM		H	8.23	5.20	13.43	0.022

7.1.4. NR Band n2

Channel Bandwidth (MHz)	Frequency (MHz)	Modulation	RB Size/ Offset	Ant Pol (H/V)	Level at Antenna Terminal(dBm)	Substitute Antenna Gain(dBi)	EIRP (dBm)	EIRP (W)
20	1 860	$\pi/2$ BPSK	1/53	V	15.82	4.31	20.13	0.103
		QPSK		V	15.53	4.31	19.84	0.096
		16QAM		V	15.63	4.31	19.94	0.099
		64QAM		V	15.45	4.31	19.76	0.095
		256QAM		V	10.98	4.31	15.29	0.034
	1 880	$\pi/2$ BPSK	1/53	V	15.46	4.26	19.72	0.094
		QPSK		V	15.24	4.26	19.50	0.089
		16QAM		V	15.53	4.26	19.79	0.095
		64QAM		V	15.07	4.26	19.33	0.086
		256QAM		V	10.94	4.26	15.20	0.033
	1 900	$\pi/2$ BPSK	1/53	V	14.94	4.20	19.14	0.082
		QPSK		V	14.53	4.20	18.73	0.075
		16QAM		V	14.71	4.20	18.91	0.078
		64QAM		V	15.03	4.20	19.23	0.084
		256QAM		V	10.59	4.20	14.79	0.030
15	1 857.5	$\pi/2$ BPSK	1/39	V	15.47	4.32	19.79	0.095
		QPSK		V	14.98	4.32	19.30	0.085
		16QAM		V	15.01	4.32	19.33	0.086
		64QAM		V	15.33	4.32	19.65	0.092
		256QAM		V	15.09	4.32	19.41	0.087
	1 880	$\pi/2$ BPSK	1/39	V	15.13	4.26	19.39	0.087
		QPSK		V	14.92	4.26	19.18	0.083
		16QAM		V	14.37	4.26	18.63	0.073
		64QAM		V	14.04	4.26	18.30	0.068
		256QAM		V	15.02	4.26	19.28	0.085
	1 902.5	$\pi/2$ BPSK	1/39	V	14.47	4.21	18.68	0.074
		QPSK		V	13.50	4.21	17.71	0.059
		16QAM		V	13.73	4.21	17.94	0.062
		64QAM		V	11.98	4.21	16.19	0.042
		256QAM		V	10.17	4.21	14.38	0.027
10	1 855	$\pi/2$ BPSK	1/26	V	13.48	4.33	17.81	0.060
		QPSK		V	13.89	4.33	18.22	0.066
		16QAM		V	12.79	4.33	17.12	0.052
		64QAM		V	11.56	4.33	15.89	0.039
		256QAM		V	11.08	4.33	15.41	0.035
	1 880	$\pi/2$ BPSK	1/26	V	14.12	4.26	18.38	0.069
		QPSK		V	14.02	4.26	18.28	0.067
		16QAM		V	12.84	4.26	17.10	0.051
		64QAM		V	11.62	4.26	15.88	0.039
		256QAM		V	10.12	4.26	14.38	0.027
	1 905	$\pi/2$ BPSK	1/26	V	15.84	4.22	20.06	0.101
		QPSK		V	15.55	4.22	19.77	0.095
		16QAM		V	15.12	4.22	19.34	0.086
		64QAM		V	13.41	4.22	17.63	0.058
		256QAM		V	13.87	4.22	18.09	0.064

Channel Bandwidth (MHz)	Frequency (MHz)	Modulation	RB Size/ Offset	Ant Pol (H/V)	Level at Antenna Terminal(dBm)	Substitute Antenna Gain(dBi)	EIRP (dBm)	EIRP (W)	
5	1 852.5	$\pi/2$ BPSK	1/12	V	13.80	4.33	18.13	0.065	
		QPSK		V	14.24	4.33	18.57	0.072	
		16QAM		V	12.96	4.33	17.29	0.054	
		64QAM		V	11.33	4.33	15.66	0.037	
		256QAM		V	9.95	4.33	14.28	0.027	
	1 880	1 880	$\pi/2$ BPSK	1/12	V	14.65	4.26	18.91	0.078
			QPSK		V	13.78	4.26	18.04	0.064
			16QAM		V	13.30	4.26	17.56	0.057
			64QAM		V	11.98	4.26	16.24	0.042
			256QAM		V	9.75	4.26	14.01	0.025
	1 907.5	1 907.5	$\pi/2$ BPSK	1/12	V	15.89	4.23	20.12	0.103
			QPSK		V	15.79	4.23	20.02	0.100
			16QAM		V	15.35	4.23	19.58	0.091
			64QAM		V	13.99	4.23	18.22	0.066
			256QAM		V	12.92	4.23	17.15	0.052

7.2. UNDESIRABLE EMISSIONS (Radiated)

- Test Notes

- 1) This device was tested under all bandwidths, modulations and RB configurations and the worst case data are reported.
- 2) ENDC mode operation were investigated and the worst case configuration results are reported.
- 3) The frequency spectrum is examined from 9 kHz to the 10th harmonic of the fundamental frequency of the transmitter.
No other spurious and harmonic emissions were reported greater than listed emissions.
- 4) Limit Calculation for $n2/66/12/5 = 43 + 10 \log_{10} (P[\text{Watts}])$

7.2.1. NR Band n12

Channel Bandwidth (MHz)	Frequency (MHz)	Modulation	RB size/offset	Freq.(MHz)	Ant Pol (H/V)	Level at Antenna Terminal(dBm)	Substitute Antenna Gain(dBd)	Result (dBm)	Limit (dBm)	Margin (dB)		
15	706.5	π/2 BPSK	1/39	1 413.00	H	-48.12	3.16	-44.96	-13.00	31.96		
				2 119.52	H	-59.21	3.21	-56.00	-13.00	43.00		
				2 825.80	V	-62.46	4.62	-57.84	-13.00	44.84		
				4 238.69	H	-63.97	7.20	-56.77	-13.00	43.77		
		QPSK	1/39	1 412.95	H	-48.13	3.16	-44.97	-13.00	31.97		
				2 119.46	H	-59.01	3.21	-55.80	-13.00	42.80		
				2 826.12	V	-64.17	4.62	-59.55	-13.00	46.55		
		16QAM	1/39	4 238.93	H	-65.19	7.20	-57.99	-13.00	44.99		
				1 413.06	H	-48.31	3.16	-45.15	-13.00	32.15		
				2 119.55	H	-59.94	3.21	-56.73	-13.00	43.73		
		64QAM	1/39	2 825.97	V	-63.11	4.62	-58.49	-13.00	45.49		
				4 238.88	H	-62.39	7.20	-55.19	-13.00	42.19		
				1 413.00	H	-48.30	3.16	-45.14	-13.00	32.14		
		256QAM	1/39	2 119.47	H	-61.65	3.21	-58.44	-13.00	45.44		
				2 825.82	V	-63.78	4.62	-59.16	-13.00	46.16		
				4 239.07	H	-65.32	7.20	-58.12	-13.00	45.12		
				1 413.04	H	-49.03	3.16	-45.87	-13.00	32.87		
						2 119.49	H	-63.51	3.21	-60.30	-13.00	47.30
						2 826.25	V	-64.62	4.62	-60.00	-13.00	47.00
						4 238.57	H	-67.11	7.20	-59.91	-13.00	46.91

Channel Bandwidth (MHz)	Frequency (MHz)	Modulation	RB size/offset	Freq.(MHz)	Ant Pol (H/V)	Level at Antenna Terminal(dBm)	Substitute Antenna Gain(dBd)	Result (dBm)	Limit (dBm)	Margin (dB)	
15	707.5	π/2 BPSK	1/39	1 414.95	H	-42.83	3.17	-39.66	-13.00	26.66	
				2 122.31	H	-60.00	3.20	-56.80	-13.00	43.80	
				2 829.93	V	-62.48	4.64	-57.84	-13.00	44.84	
				4 244.85	H	-66.34	7.20	-59.14	-13.00	46.14	
		QPSK	1/39	1 414.87	H	-43.56	3.17	-40.39	-13.00	27.39	
				2 122.32	H	-60.46	3.20	-57.26	-13.00	44.26	
				2 830.03	V	-63.44	4.64	-58.80	-13.00	45.80	
				4 244.76	H	-65.16	7.20	-57.96	-13.00	44.96	
		16QAM	1/39	1 414.90	H	-44.38	3.17	-41.21	-13.00	28.21	
				2 122.30	H	-60.33	3.20	-57.13	-13.00	44.13	
				2 830.04	V	-62.96	4.64	-58.32	-13.00	45.32	
				4 244.97	H	-65.90	7.20	-58.70	-13.00	45.70	
		64QAM	1/39	1 414.88	H	-45.01	3.17	-41.84	-13.00	28.84	
				2 122.60	H	-62.27	3.20	-59.07	-13.00	46.07	
				2 830.25	V	-64.40	4.64	-59.76	-13.00	46.76	
				4 244.95	H	-66.94	7.20	-59.74	-13.00	46.74	
		256QAM	1/39	1 414.96	H	-45.77	3.17	-42.60	-13.00	29.60	
				2 122.43	H	-64.11	3.20	-60.91	-13.00	47.91	
				2 830.14	V	-64.85	4.64	-60.21	-13.00	47.21	
				4 244.63	H	-67.42	7.20	-60.22	-13.00	47.22	
		708.5	π/2 BPSK	1/39	1 416.89	H	-40.29	3.18	-37.11	-13.00	24.11
					2 125.50	H	-60.46	3.19	-57.27	-13.00	44.27
					2 834.08	V	-62.90	4.65	-58.25	-13.00	45.25
					4 250.95	H	-68.00	7.20	-60.80	-13.00	47.80
	QPSK		1/39	1 416.95	H	-40.65	3.19	-37.46	-13.00	24.46	
				2 125.28	H	-59.97	3.19	-56.78	-13.00	43.78	
				2 833.93	V	-62.66	4.65	-58.01	-13.00	45.01	
				4 250.92	H	-68.49	7.20	-61.29	-13.00	48.29	
	16QAM		1/39	1 417.08	H	-41.28	3.19	-38.09	-13.00	25.09	
				2 125.54	H	-60.76	3.19	-57.57	-13.00	44.57	
				2 833.83	V	-63.51	4.65	-58.86	-13.00	45.86	
				4 250.79	H	-69.24	7.20	-62.04	-13.00	49.04	
	64QAM		1/39	1 416.95	H	-42.91	3.19	-39.72	-13.00	26.72	
				2 125.46	H	-62.07	3.19	-58.88	-13.00	45.88	
				2 833.79	V	-64.11	4.65	-59.46	-13.00	46.46	
				4 251.05	H	-69.30	7.20	-62.10	-13.00	49.10	
256QAM	1/39		1 417.01	H	-44.05	3.19	-40.86	-13.00	27.86		
			2 125.39	H	-64.18	3.19	-60.99	-13.00	47.99		
			2 834.00	V	-65.56	4.65	-60.91	-13.00	47.91		
			4 251.03	H	-69.52	7.20	-62.32	-13.00	49.32		

Channel Bandwidth (MHz)	Frequency (MHz)	Modulation	RB size/offset	Freq.(MHz)	Ant Pol (H/V)	Level at Antenna Terminal(dBm)	Substitute Antenna Gain(dBd)	Result (dBm)	Limit (dBm)	Margin (dB)
5	701.5	π/2 BPSK	1/12	1 402.88	H	-39.95	3.08	-36.87	-13.00	23.87
				2 104.56	H	-61.10	3.24	-57.86	-13.00	44.86
				2 806.03	V	-62.96	4.55	-58.41	-13.00	45.41
				4 208.98	H	-64.60	7.21	-57.39	-13.00	44.39
		QPSK	1/12	1 402.97	H	-39.85	3.08	-36.77	-13.00	23.77
				2 104.49	H	-60.26	3.24	-57.02	-13.00	44.02
				2 805.97	V	-62.72	4.55	-58.17	-13.00	45.17
				4 208.79	H	-64.26	7.21	-57.05	-13.00	44.05
		16QAM	1/12	1 402.95	H	-40.53	3.08	-37.45	-13.00	24.45
				2 104.47	H	-61.86	3.24	-58.62	-13.00	45.62
				2 805.96	V	-63.28	4.55	-58.73	-13.00	45.73
				4 208.62	H	-65.75	7.21	-58.54	-13.00	45.54
		64QAM	1/12	1 403.06	H	-41.69	3.08	-38.61	-13.00	25.61
				2 104.69	H	-63.19	3.24	-59.95	-13.00	46.95
				2 806.16	V	-64.71	4.55	-60.16	-13.00	47.16
				4 208.07	H	-66.62	7.21	-59.41	-13.00	46.41
		256QAM	1/12	1 402.93	H	-44.15	3.08	-41.07	-13.00	28.07
				2 104.32	H	-64.82	3.24	-61.58	-13.00	48.58
				2 805.96	V	-65.00	4.55	-60.45	-13.00	47.45
				4 208.87	H	-67.37	7.21	-60.16	-13.00	47.16

7.2.2. NR Band n5

Channel Bandwidth (MHz)	Frequency (MHz)	Modulation	RB size/offset	Freq.(MHz)	Ant Pol (H/V)	Level at Antenna Terminal(dBm)	Substitute Antenna Gain(dBd)	Result (dBm)	Limit (dBm)	Margin (dB)
20	834	π/2 BPSK	1/53	1 668.20	H	-45.94	4.02	-41.92	-13.00	28.92
				2 502.21	H	-53.88	3.58	-50.30	-13.00	37.30
				3 336.17	H	-65.99	5.77	-60.22	-13.00	47.22
				4 170.38	V	-59.35	7.17	-52.18	-13.00	39.18
		QPSK	1/53	1 688.02	H	-45.67	3.95	-41.72	-13.00	28.72
				2 502.17	H	-54.62	3.58	-51.04	-13.00	38.04
				3 336.34	H	-65.28	5.77	-59.51	-13.00	46.51
				4 170.35	V	-60.66	7.17	-53.49	-13.00	40.49
		16QAM	1/53	1 668.03	H	-46.77	4.03	-42.74	-13.00	29.74
				2 502.16	H	-55.58	3.58	-52.00	-13.00	39.00
				3 336.25	H	-66.13	5.77	-60.36	-13.00	47.36
				4 170.14	V	-61.33	7.17	-54.16	-13.00	41.16
		64QAM	1/53	1 668.31	H	-48.57	4.02	-44.55	-13.00	31.55
				2 502.24	H	-58.29	3.58	-54.71	-13.00	41.71
				3 336.12	H	-66.94	5.77	-61.17	-13.00	48.17
				4 170.15	V	-63.56	7.17	-56.39	-13.00	43.39
		256QAM	1/53	1 668.19	H	-49.94	4.02	-45.92	-13.00	32.92
				2 502.10	H	-61.09	3.58	-57.51	-13.00	44.51
				3 336.27	H	-67.68	5.77	-61.91	-13.00	48.91
				4 170.53	V	-65.16	7.17	-57.99	-13.00	44.99
	836.5	π/2 BPSK	1/53	1 673.17	H	-48.78	4.01	-44.77	-13.00	31.77
				2 509.60	H	-54.88	3.64	-51.24	-13.00	38.24
				3 346.30	H	-65.84	5.81	-60.03	-13.00	47.03
				4 182.87	V	-64.45	7.19	-57.26	-13.00	44.26
		QPSK	1/53	1 673.28	H	-49.23	4.01	-45.22	-13.00	32.22
				2 509.71	H	-54.22	3.64	-50.58	-13.00	37.58
				3 346.43	H	-65.39	5.81	-59.58	-13.00	46.58
				4 182.77	V	-64.77	7.19	-57.58	-13.00	44.58
		16QAM	1/53	1 673.06	H	-49.84	4.01	-45.83	-13.00	32.83
				2 509.63	H	-55.24	3.64	-51.60	-13.00	38.60
				3 346.40	H	-65.91	5.81	-60.10	-13.00	47.10
				4 182.86	V	-64.93	7.19	-57.74	-13.00	44.74
		64QAM	1/53	1 673.23	H	-51.19	4.01	-47.18	-13.00	34.18
				2 509.82	H	-56.74	3.64	-53.10	-13.00	40.10
				3 346.23	H	-67.21	5.81	-61.40	-13.00	48.40
				4 182.96	V	-65.25	7.19	-58.06	-13.00	45.06
		256QAM	1/53	1 673.12	H	-52.55	4.01	-48.54	-13.00	35.54
				2 509.42	H	-60.07	3.64	-56.43	-13.00	43.43
				3 346.87	H	-67.54	5.82	-61.72	-13.00	48.72
				4 182.65	V	-67.01	7.19	-59.82	-13.00	46.82

Channel Bandwidth (MHz)	Frequency (MHz)	Modulation	RB size/offset	Freq.(MHz)	Ant Pol (H/V)	Level at Antenna Terminal(dBm)	Substitute Antenna Gain(dBd)	Result (dBm)	Limit (dBm)	Margin (dB)
20	839	π/2 BPSK	1/53	1 678.18	H	-43.88	3.99	-39.89	-13.00	26.89
				2 517.04	H	-56.36	3.70	-52.66	-13.00	39.66
				3 356.32	H	-65.90	5.84	-60.06	-13.00	47.06
				4 195.33	H	-62.25	7.20	-55.05	-13.00	42.05
		QPSK	1/53	1 678.32	H	-44.06	3.99	-40.07	-13.00	27.07
				2 517.29	H	-56.61	3.70	-52.91	-13.00	39.91
				3 356.50	H	-66.12	5.84	-60.28	-13.00	47.28
				4 195.37	V	-62.21	7.20	-55.01	-13.00	42.01
		16QAM	1/53	1 678.24	H	-44.86	3.99	-40.87	-13.00	27.87
				2 517.13	H	-57.76	3.70	-54.06	-13.00	41.06
				3 356.29	H	-67.36	5.84	-61.52	-13.00	48.52
				4 195.51	V	-62.83	7.20	-55.63	-13.00	42.63
		64QAM	1/53	1 678.15	H	-46.40	3.99	-42.41	-13.00	29.41
				2 517.26	H	-59.21	3.70	-55.51	-13.00	42.51
				3 356.39	H	-67.37	5.84	-61.53	-13.00	48.53
				4 195.41	V	-64.20	7.20	-57.00	-13.00	44.00
		256QAM	1/53	1 687.19	H	-53.31	3.96	-49.35	-13.00	36.35
				2 517.41	H	-62.67	3.70	-58.97	-13.00	45.97
				3 356.21	H	-68.07	5.84	-62.23	-13.00	49.23
				4 195.39	V	-66.30	7.20	-59.10	-13.00	46.10

Channel Bandwidth (MHz)	Frequency (MHz)	Modulation	RB size/offset	Freq.(MHz)	Ant Pol (H/V)	Level at Antenna Terminal(dBm)	Substitute Antenna Gain(dBd)	Result (dBm)	Limit (dBm)	Margin (dB)
5	846.5	π/2 BPSK	1/12	1 693.02	H	-45.73	3.94	-41.79	-13.00	28.79
				2 539.38	H	-54.91	3.88	-51.03	-13.00	38.03
				3 385.97	H	-65.72	5.91	-59.81	-13.00	46.81
				4 232.54	V	-62.68	7.20	-55.48	-13.00	42.48
		QPSK	1/12	1 693.02	H	-45.30	3.94	-41.36	-13.00	28.36
				2 539.54	H	-54.71	3.88	-50.83	-13.00	37.83
				3 386.03	H	-66.01	5.91	-60.10	-13.00	47.10
				4 232.47	V	-61.69	7.20	-54.49	-13.00	41.49
		16QAM	1/12	1 692.94	H	-45.76	3.94	-41.82	-13.00	28.82
				2 539.36	H	-55.75	3.87	-51.88	-13.00	38.88
				3 386.13	H	-66.18	5.91	-60.27	-13.00	47.27
				4 232.49	V	-63.31	7.20	-56.11	-13.00	43.11
		64QAM	1/12	1 693.04	H	-48.42	3.94	-44.48	-13.00	31.48
				2 539.43	H	-58.48	3.88	-54.60	-13.00	41.60
				3 385.90	H	-67.03	5.91	-61.12	-13.00	48.12
				4 232.48	V	-64.72	7.20	-57.52	-13.00	44.52
		256QAM	1/12	1 692.84	H	-50.25	3.94	-46.31	-13.00	33.31
				2 539.57	H	-59.82	3.88	-55.94	-13.00	42.94
				3 386.11	H	-67.54	5.91	-61.63	-13.00	48.63
				4 232.65	V	-65.49	7.20	-58.29	-13.00	45.29

7.2.3. NR Band n66

Channel Bandwidth (MHz)	Frequency (MHz)	Modulation	RB size/offset	Freq.(MHz)	Ant Pol (H/V)	Level at Antenna Terminal(dBm)	Substitute Antenna Gain(dBi)	Result (dBm)	Limit (dBm)	Margin (dB)
40	1 730	π/2 BPSK	1/108	3 460.24	H	-65.23	8.31	-56.92	-13.00	43.92
				5 190.42	H	-64.20	10.19	-54.01	-13.00	41.01
				6 920.32	H	-64.97	11.50	-53.47	-13.00	40.47
		QPSK	1/108	3 459.96	H	-64.61	8.31	-56.30	-13.00	43.30
				5 190.23	H	-62.42	10.19	-52.23	-13.00	39.23
				6 920.40	H	-65.10	11.50	-53.60	-13.00	40.60
		16QAM	1/108	3 460.05	H	-64.86	8.31	-56.55	-13.00	43.55
				5 190.18	H	-63.64	10.19	-53.45	-13.00	40.45
				6 920.42	H	-66.20	11.50	-54.70	-13.00	41.70
		64QAM	1/108	3 460.31	H	-65.43	8.31	-57.12	-13.00	44.12
				5 190.09	H	-64.50	10.19	-54.31	-13.00	41.31
				6 920.01	H	-67.19	11.50	-55.69	-13.00	42.69
	256QAM	1/108	3 460.31	H	-65.43	8.31	-57.12	-13.00	44.12	
			5 190.26	H	-66.40	10.19	-56.21	-13.00	43.21	
			6 920.80	H	-67.61	11.50	-56.11	-13.00	43.11	
	1 745	π/2 BPSK	1/108	3490.02	H	-57.34	8.44	-48.90	-13.00	35.90
				5 235.07	H	-67.46	10.22	-57.24	-13.00	44.24
				6 980.16	H	-66.93	11.56	-55.37	-13.00	42.37
		QPSK	1/108	3 490.24	H	-58.07	8.44	-49.63	-13.00	36.63
				5 235.19	H	-67.04	10.22	-56.82	-13.00	43.82
				6 980.22	H	-67.10	11.56	-55.54	-13.00	42.54
		16QAM	1/108	3 490.20	H	-58.26	8.44	-49.82	-13.00	36.82
				5 234.96	H	-67.61	10.22	-57.39	-13.00	44.39
				6 980.47	H	-66.94	11.56	-55.38	-13.00	42.38
64QAM		1/108	3 490.09	H	-66.41	8.44	-57.97	-13.00	44.97	
			5 235.06	H	-67.83	10.22	-57.61	-13.00	44.61	
			6 980.42	H	-67.31	11.56	-55.75	-13.00	42.75	
256QAM	1/108	3 490.16	H	-61.71	8.44	-53.27	-13.00	40.27		
		5 235.40	H	-68.23	10.22	-58.01	-13.00	45.01		
		6 980.43	H	-67.59	11.56	-56.03	-13.00	43.03		

Channel Bandwidth (MHz)	Frequency (MHz)	Modulation	RB size/offset	Freq.(MHz)	Ant Pol (H/V)	Level at Antenna Terminal(dBm)	Substitute Antenna Gain(dBd)	Result (dBm)	Limit (dBm)	Margin (dB)
40	1 760	π/2 BPSK	1/108	3 520.10	H	-64.15	8.47	-55.68	-13.00	42.68
				5 280.30	H	-64.67	10.21	-54.46	-13.00	41.46
				7 040.33	H	-64.68	11.64	-53.04	-13.00	40.04
		QPSK	1/108	3 520.14	H	-63.39	8.47	-54.92	-13.00	41.92
				5 280.37	H	-65.41	10.21	-55.20	-13.00	42.20
				7 040.24	H	-64.35	11.64	-52.71	-13.00	39.71
		16QAM	1/108	3 520.23	H	-64.23	8.47	-55.76	-13.00	42.76
				5 280.24	H	-64.63	10.21	-54.42	-13.00	41.42
				7 040.31	H	-65.26	11.64	-53.62	-13.00	40.62
		64QAM	1/108	3 520.01	H	-66.35	8.47	-57.88	-13.00	44.88
				5 280.02	H	-65.82	10.21	-55.61	-13.00	42.61
				7 040.27	H	-66.59	11.64	-54.95	-13.00	41.95
		256QAM	1/108	3 520.01	H	-65.20	8.47	-56.73	-13.00	43.73
				5 280.32	H	-66.93	10.21	-56.72	-13.00	43.72
				7 040.31	H	-67.40	11.64	-55.76	-13.00	42.76

7.2.4. NR Band n2

Channel Bandwidth (MHz)	Frequency (MHz)	Modulation	RB size/offset	Freq.(MHz)	Ant Pol (H/V)	Level at Antenna Terminal(dBm)	Substitute Antenna Gain(dBi)	Result (dBm)	Limit (dBm)	Margin (dB)	
20	1 860	π/2 BPSK	1/53	3 720.22	V	-56.12	8.32	-47.80	-13.00	34.80	
				5 580.07	V	-65.18	10.35	-54.83	-13.00	41.83	
				7 440.16	V	-63.83	12.08	-51.75	-13.00	38.75	
		QPSK	1/53	3 720.22	V	-56.89	8.32	-48.57	-13.00	35.57	
				5 580.48	V	-65.07	10.35	-54.72	-13.00	41.72	
				7 440.43	V	-63.84	12.08	-51.76	-13.00	38.76	
		16QAM	1/53	3 720.12	V	-57.41	8.32	-49.09	-13.00	36.09	
				5 580.16	V	-65.43	10.35	-55.08	-13.00	42.08	
				7 440.52	V	-64.57	12.08	-52.49	-13.00	39.49	
		64QAM	1/53	3 720.28	V	-58.52	8.32	-50.20	-13.00	37.20	
				5 580.20	V	-66.14	10.35	-55.79	-13.00	42.79	
				7 440.47	V	-65.46	12.08	-53.38	-13.00	40.38	
		256QAM	1/53	3 720.08	V	-59.93	8.32	-51.61	-13.00	38.61	
				5 580.09	V	-67.07	10.35	-56.72	-13.00	43.72	
				7 440.34	V	-66.00	12.08	-53.92	-13.00	40.92	
		1 880	π/2 BPSK	1/53	3 760.19	V	-51.03	8.32	-42.71	-13.00	29.71
					5 640.18	V	-63.55	10.44	-53.11	-13.00	40.11
					7 520.22	V	-62.74	12.18	-50.56	-13.00	37.56
	QPSK		1/53	3 760.17	V	-50.87	8.32	-42.55	-13.00	29.55	
				5 640.28	V	-63.81	10.44	-53.37	-13.00	40.37	
				7 520.32	V	-63.03	12.18	-50.85	-13.00	37.85	
	16QAM		1/53	3 760.15	V	-51.82	8.32	-43.50	-13.00	30.50	
				5 640.36	V	-64.47	10.44	-54.03	-13.00	41.03	
				7 520.47	V	-67.72	12.18	-55.54	-13.00	42.54	
	64QAM		1/53	3 760.12	V	-52.81	8.32	-44.49	-13.00	31.49	
				5 640.24	V	-65.30	10.44	-54.86	-13.00	41.86	
				7 520.41	V	-64.52	12.18	-52.34	-13.00	39.34	
	256QAM		1/53	3 760.15	V	-54.82	8.32	-46.50	-13.00	33.50	
				5 640.07	V	-66.41	10.44	-55.97	-13.00	42.97	
				7 520.35	V	-65.89	12.18	-53.71	-13.00	40.71	
	1 900		π/2 BPSK	1/53	3 800.19	V	-53.33	8.48	-44.85	-13.00	31.85
					5 700.04	V	-62.08	10.53	-51.55	-13.00	38.55
					7 600.27	V	-62.79	12.17	-50.62	-13.00	37.62
		QPSK	1/53	3 800.16	V	-53.72	8.48	-45.24	-13.00	32.24	
				5 700.24	V	-61.88	10.53	-51.35	-13.00	38.35	
				7 600.37	V	-62.73	12.17	-50.56	-13.00	37.56	
16QAM		1/53	3 800.10	V	-54.17	8.48	-45.69	-13.00	32.69		
			5 700.24	V	-62.24	10.53	-51.71	-13.00	38.71		
			7 600.34	V	-63.26	12.17	-51.09	-13.00	38.09		
64QAM		1/53	3 800.28	V	-55.02	8.48	-46.54	-13.00	33.54		
			5 700.18	V	-63.79	10.53	-53.26	-13.00	40.26		
			7 600.45	V	-64.43	12.17	-52.26	-13.00	39.26		
256QAM		1/53	3 800.17	V	-56.91	8.48	-48.43	-13.00	35.43		
			5 700.23	V	-65.17	10.53	-54.64	-13.00	41.64		
			7 600.43	V	-65.28	12.17	-53.11	-13.00	40.11		

ENDC MODE: NR n2 + LTE B5

Channel Bandwidth (MHz)	Frequency (MHz)	Modulation	RB size/offset	Freq.(MHz)	Ant Pol (H/V)	Level at Antenna Terminal(dBm)	Substitute Antenna Gain(dBi)	Result (dBm)	Limit (dBm)	Margin (dB)
20	1 860	π/2 BPSK	1/53	3 720.02	V	-59.84	8.32	-51.52	-13.00	38.52
				5 580.30	V	-66.12	10.35	-55.77	-13.00	42.77
				7 440.45	V	-63.56	12.08	-51.48	-13.00	38.48
		QPSK	1/53	3 720.16	V	-59.49	8.32	-51.17	-13.00	38.17
				5 580.25	V	-65.98	10.35	-55.63	-13.00	42.63
				7 440.12	V	-63.89	12.08	-51.81	-13.00	38.81
		16QAM	1/53	3 720.31	V	-59.96	8.32	-51.64	-13.00	38.64
				5 580.31	V	-65.83	10.35	-55.48	-13.00	42.48
				7 440.29	V	-63.87	12.08	-51.79	-13.00	38.79
		64QAM	1/53	3 720.17	V	-59.79	8.32	-51.47	-13.00	38.47
				5 580.34	V	-65.99	10.35	-55.64	-13.00	42.64
				7 440.63	V	-64.34	12.08	-52.26	-13.00	39.26
256QAM	1/53	3 720.06	V	-60.14	8.32	-51.82	-13.00	38.82		
		5 579.70	V	-66.63	10.35	-56.28	-13.00	43.28		
		7 440.27	V	-65.00	12.08	-52.92	-13.00	39.92		

ENDC MODE: NR n5 + LTE B2

Channel Bandwidth (MHz)	Frequency (MHz)	Modulation	RB size/offset	Freq.(MHz)	Ant Pol (H/V)	Level at Antenna Terminal(dBm)	Substitute Antenna Gain(dBd)	Result (dBm)	Limit (dBm)	Margin (dB)
5	846.5	π/2 BPSK	1/12	1 692.87	H	-47.79	3.94	-43.85	-13.00	30.85
				2 539.54	H	-57.82	3.88	-53.94	-13.00	40.94
				3 386.35	H	-67.02	5.91	-61.11	-13.00	48.11
				4 232.43	V	-65.90	7.20	-58.70	-13.00	45.70
		QPSK	1/12	1 693.04	H	-47.54	3.94	-43.60	-13.00	30.60
				2 539.47	H	-57.53	3.88	-53.65	-13.00	40.65
				3 386.17	H	-67.28	5.91	-61.37	-13.00	48.37
				4 232.42	V	-65.71	7.20	-58.51	-13.00	45.51
		16QAM	1/12	1 693.02	H	-47.15	3.94	-43.21	-13.00	30.21
				2 539.56	H	-56.61	3.88	-52.73	-13.00	39.73
				3 385.99	H	-67.01	5.91	-61.10	-13.00	48.10
				4 232.38	V	-65.65	7.20	-58.45	-13.00	45.45
		64QAM	1/12	1 693.00	H	-47.45	3.94	-43.51	-13.00	30.51
				2 539.38	H	-57.50	3.88	-53.62	-13.00	40.62
				3 385.57	H	-66.97	5.91	-61.06	-13.00	48.06
				4 232.23	V	-64.88	7.20	-57.68	-13.00	44.68
		256QAM	1/12	1 692.81	H	-49.30	3.94	-45.36	-13.00	32.36
				2 539.67	H	-57.69	3.88	-53.81	-13.00	40.81
				3 386.09	H	-66.75	5.91	-60.84	-13.00	47.84
				4 232.26	V	-65.58	7.20	-58.38	-13.00	45.38

ENDC MODE: NR n66 + LTE B5

Channel Bandwidth (MHz)	Frequency (MHz)	Modulation	RB size/offset	Freq.(MHz)	Ant Pol (H/V)	Level at Antenna Terminal(dBm)	Substitute Antenna Gain(dBi)	Result (dBm)	Limit (dBm)	Margin (dB)
40	1 730	π/2 BPSK	1/108	3 460.24	H	-65.78	8.31	-57.47	-13.00	44.47
				5 190.08	H	-66.51	10.19	-56.32	-13.00	43.32
				6 923.18	H	-66.41	11.50	-54.91	-13.00	41.91
		QPSK	1/108	3 460.47	H	-65.85	8.31	-57.54	-13.00	44.54
				5 190.30	H	-65.45	10.19	-55.26	-13.00	42.26
				6 920.35	H	-66.46	11.50	-54.96	-13.00	41.96
		16QAM	1/108	3 459.99	H	-65.61	8.31	-57.30	-13.00	44.30
				5 190.15	H	-65.31	10.19	-55.12	-13.00	42.12
				6 924.76	H	-66.50	11.50	-55.00	-13.00	42.00
		64QAM	1/108	3 460.14	H	-65.88	8.31	-57.57	-13.00	44.57
				5 190.20	H	-65.35	10.19	-55.16	-13.00	42.16
				6 918.31	H	-66.48	11.49	-54.99	-13.00	41.99
		256QAM	1/108	3 460.27	H	-66.04	8.31	-57.73	-13.00	44.73
				5 190.30	H	-65.29	10.19	-55.10	-13.00	42.10
				6 919.96	H	-66.52	11.50	-55.02	-13.00	42.02

ENDC MODE: NR n66 + LTE B14

Channel Bandwidth (MHz)	Frequency (MHz)	Modulation	RB size/offset	Freq.(MHz)	Ant Pol (H/V)	Level at Antenna Terminal(dBm)	Substitute Antenna Gain(dBi)	Result (dBm)	Limit (dBm)	Margin (dB)
40	1 730	π/2 BPSK	1/108	3 460.21	H	-65.07	8.31	-56.76	-13.00	43.76
				5 190.22	H	-66.10	10.19	-55.91	-13.00	42.91
				6 918.76	H	-66.28	11.49	-54.79	-13.00	41.79
		QPSK	1/108	3 460.14	H	-65.63	8.31	-57.32	-13.00	44.32
				5 189.86	H	-66.02	10.19	-55.83	-13.00	42.83
				6 917.05	H	-66.41	11.49	-54.92	-13.00	41.92
		16QAM	1/108	3 459.94	H	-65.61	8.31	-57.30	-13.00	44.30
				5 190.01	H	-65.80	10.19	-55.61	-13.00	42.61
				6 919.65	H	-66.41	11.50	-54.91	-13.00	41.91
		64QAM	1/108	3 459.99	H	-65.90	8.31	-57.59	-13.00	44.59
				5 190.08	H	-65.86	10.19	-55.67	-13.00	42.67
				6 919.87	H	-66.21	11.50	-54.71	-13.00	41.71
		256QAM	1/108	3 459.97	H	-65.87	8.31	-57.56	-13.00	44.56
				5 190.39	H	-65.94	10.19	-55.75	-13.00	42.75
				6 916.65	H	-66.48	11.49	-54.99	-13.00	41.99