

TEST REPORT

of

FCC Part 2 Subpart J and Part 27 Subpart C
IC RSS-192 Issue 5, RSS-198 Issue 1,
RSS-199 Issue 4 and RSS-Gen Issue 5

FCC ID: BEJTM16FNNABM0
IC Certification: 2703H-TM16FNNABM0

Equipment Under Test : Telematics Module
Model Name : TM16FNNABM0
Variant Model Name(s) : -
Applicant : FCC: LG Electronics USA, Inc.
: IC: LG ELECTRONICS INC.
Manufacturer : LG Electronics Inc.
Date of Receipt : 2023.12.13
Date of Test(s) : 2023.12.13 ~ 2024.10.18
Date of Issue : 2024.10.18

In the configuration tested, the EUT complied with the standards specified above. This test report does not assure KOLAS accreditation.

- 1) The results of this test report are effective only to the items tested.
- 2) The SGS Korea is not responsible for the sampling, the results of this test report apply to the sample as received.
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We are responsible for all the information of this test report except for the data(※) provided by the customer.

Tested by:



Hahyun Sung

Technical
Manager:



Jinhyoung Cho

SGS Korea Co., Ltd. Gunpo Laboratory

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1. General Information

1.1. Testing Laboratory

SGS Korea Co., Ltd. (Gunpo Laboratory)

- 10-2, LS-ro 182beon-gil, Gunpo-si, Gyeonggi-do, Korea, 15807
- 4, LS-ro 182beon-gil, Gunpo-si, Gyeonggi-do, Korea, 15807
- Designation number: KR0150

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1.2. Details of Applicant

FCC Applicant : LG Electronics USA, Inc.

FCC Address : 111 Sylvan Avenue, North Building, Englewood Cliffs, New Jersey, United States, 07632

IC Applicant : LG ELECTRONICS INC.

IC Address : 222, LG-ro, Jinwi-myeon, Pyeongtaek-si, Gyeonggi-do, Korea (Republic of), 451-713

Contact Person : Kim, David

Phone No. : +1 201 470 2696

1.3. Details of Manufacturer

Company : LG Electronics Inc.

Address : 128, Yeoui-daero, Yeongdeungpo-gu, Seoul, Republic of Korea, 07336

1.4. Description of EUT

Kind of Product	Telematics Module		
Model Name	TM16FNNABM0		
Serial Number	Conducted: FCC_04 Radiated: FCC Rad_02		
Power Supply	DC 4.10 V		
Rated Power	NR Band 41, 77, 78: 23 dBm NR Band 48: 22 dBm		
Frequency Range	NR Band 41(FCC): 2 496 MHz ~ 2 690 MHz NR Band 41(IC): 2 500 MHz ~ 2 690 MHz NR Band 48(IC): 3 550 MHz ~ 3 700 MHz NR Band 77(FCC): 3 450 MHz ~ 3 550 MHz NR Band 77(FCC): 3 700 MHz ~ 3 980 MHz NR Band 78(FCC): 3 450 MHz ~ 3 550 MHz NR Band 78(FCC): 3 700 MHz ~ 3 800 MHz NR Band 77(IC): 3 450 MHz ~ 3 900 MHz NR Band 77(IC): 3 900 MHz ~ 3 980 MHz NR Band 78(IC): 3 450 MHz ~ 3 800 MHz		
Modulation Technique	BPSK, QPSK, 16QAM, 64QAM, 256QAM		
Antenna Type	Ant. 1: PIFA	Ant. 2: PIFA	Ant. 3: PIFA
Antenna Gain*	Refer to the clause 1.14		
H/W Version	Rev.D		
S/W Version	IN25XA06		
FVIN	N/A		

1.5. Test Equipment List

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Interval	Cal. Due
Signal Generator	R&S	SMA100B	106887	Oct. 11, 2024	Annual	Oct. 11, 2025
Spectrum Analyzer	R&S	FSV30	103453	Oct. 31, 2023	Annual	Oct. 31, 2024
Spectrum Analyzer	R&S	FSW43	100637	Apr. 08, 2024	Annual	Apr. 08, 2025
Spectrum Analyzer	Agilent	N9020A	MY53421758	Sep. 10, 2024	Annual	Sep. 10, 2025
Spectrum Analyzer	Agilent	N9030A	US51350132	Nov. 27, 2023	Annual	Nov. 27, 2024
Communication test station	Anritsu	MT8000A	6261949671	Oct. 11, 2024	Annual	Oct. 11, 2025
Communication Analyzer	Anritsu	MT8821C	6262192291	Feb. 08, 2024	Annual	Feb. 08, 2025
Power Meter	Anritsu	ML2495A	1223004	May 29, 2024	Annual	May 29, 2025
Power Sensor	Anritsu	MA2411B	1207272	May 29, 2024	Annual	May 29, 2025
Temperature Chamber	ESPEC CORP.	SH-662	93000533	Jun. 04, 2024	Annual	Jun. 04, 2025
Low Pass Filter	Mini-Circuits	NLP-1200+	V 8979400903-1	May 17, 2024	Annual	May 17, 2025
High Pass Filter	Wainwright Instrument GmbH	WHKX10-900-1000-18000-4 0SS	7	Feb. 27, 2024	Annual	Feb. 27, 2025
High Pass Filter	Wainwright Instrument GmbH	WHKX3.0/18G-10SS	21	Jun. 07, 2024	Annual	Jun. 07, 2025
High Pass Filter	Wainwright Instrument GmbH	WHNX7.5/26.5G-6SS	11	Oct. 16, 2024	Annual	Oct. 16, 2025
High Pass Filter	Wainwright Instrument GmbH	WLKX10-3555-4500-26500 -40CD	1	Nov. 03, 2023	Annual	Nov. 03, 2024
Power Splitter	Weinschel	1534	499	Nov. 03, 2023	Annual	Nov. 03, 2024
BRIDGE COUPLER	MARKI MICROWAVE INC	CBR16-0012	1542	May 13, 2024	Annual	May 13, 2025
Directional Coupler	KRYTAR	152613	122660	Jul. 09, 2024	Annual	Jul. 09, 2025
Directional Coupler	KRYTAR	152613	122661	Feb. 27, 2024	Annual	Feb. 27, 2025
DC Power Supply	Agilent	U8002A	MY49030063	Jan. 17, 2024	Annual	Jan. 17, 2025
Preamplifier	H.P.	8447F	2944A03909	Aug. 09, 2024	Annual	Aug. 09, 2025
Preamplifier	R&S	SCU 18F	101058	Dec. 07, 2023	Annual	Dec. 07, 2024
Preamplifier	MITEQ Inc.	JS44-18004000-35-8P	1546891	Oct. 14, 2024	Annual	Oct. 14, 2025
Test Receiver	R&S	ESU26	100109	Jan. 16, 2024	Annual	Jan. 16, 2025
Loop Antenna	Schwarzbeck Mess-Elektronik	FMZB 1519	1519-039	Aug. 21, 2023	Biennial	Aug. 21, 2025
Bilog Antenna	Schwarzbeck Mess-Elektronik	VULB9163	9163-437	May 31, 2023	Biennial	May 31, 2025
Bilog Antenna	Schwarzbeck Mess-Elektronik	VULB9163	9163-396	Apr. 02, 2024	Biennial	Apr. 02, 2026
Horn Antenna	R&S	HF906	100326	Feb. 19, 2024	Annual	Feb. 19, 2025
Horn Antenna	Schwarzbeck Mess-Elektronik	BBHA 9170	9170-540	Dec. 05, 2023	Annual	Dec. 05, 2024
Antenna Master	Innco systems GmbH	MA4640-XP-ET	MA4640/536/3833 0516/L	N.C.R.	N/A	N.C.R.
Turn Table	Innco systems GmbH	DS 1200S	N/A	N.C.R.	N/A	N.C.R.
Controller	Innco systems GmbH	CONTROLLER CO3000-4P	CO3000/963/3833 0516/L	N.C.R.	N/A	N.C.R.
Anechoic Chamber	SY Corporation	L x W x H (9.6 m x 6.4 m x 6.6 m)	N/A	N.C.R.	N/A	N.C.R.
Coaxial Cable	RFONE	MWX221-NMSNMS (4 m)	J1023142	Oct. 04, 2023	Semi-Annual	Apr. 04, 2024
Coaxial Cable	Qualwave Inc.	QA500-18-NN-10 (10 m)	22200114	Oct. 04, 2023	Semi-Annual	Apr. 04, 2024
Coaxial Cable	RFONE	NMST-13A26-NMST-5 m	TPC2402190004	Oct. 04, 2024	Semi-Annual	Apr. 04, 2025
Coaxial Cable	Qualwave Inc.	NMST-13A26-NMST-10 m	TPC2402190001	Oct. 04, 2024	Semi-Annual	Apr. 04, 2025
Coaxial Cable	RADIAL	TESTPRO 3	182287	Oct. 11, 2024	Semi-Annual	Apr. 11, 2025
Coaxial Cable	RADIAL	TESTPRO 3	182288	Oct. 11, 2024	Semi-Annual	Apr. 11, 2025
Coaxial Cable	RADIAL	TESTPRO 3	182291	Oct. 11, 2024	Semi-Annual	Apr. 11, 2025

Note;

- For equipment listed above that has a calibration date or calibration due date that falls within the test date range, care was taken to ensure that this equipment was used after the calibration date and before the calibration due date.

1.6. Summary of Test Results

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 2 and 27 IC RSS-Gen Issue 5, RSS-192 Issue 5, RSS-198 Issue 1 and RSS-199 Issue 4			
Section(s) in FCC	Section(s) in IC	Test Item	Result
§2.1046 §27.50(h)(2) §27.50(j)(3) §27.50(k)(3)	RSS-192 Issue 5 5.5 RSS-198 Issue 1 5.5 RSS-199 Issue 4 5.5	E.R.P. / E.I.R.P.	Pass
§27.53(l)(2) §27.53(m)(4) §27.53(n)(2)	RSS-192 Issue 5 5.6 RSS-198 Issue 1 5.6 RSS-199 Issue 4 5.6	Spurious Radiated Emission	Pass
§2.1046	RSS-Gen Issue 5 6.12	Conducted Output Power	Pass
§2.1049	RSS-Gen Issue 5 6.7	Occupied Bandwidth	Pass
§27.50(d)(5) §27.50(j)(4) §27.50(k)(4)	RSS-192 Issue 5 5.5 RSS-198 Issue 1 5.5 RSS-199 Issue 4 5.5	Peak-Average Ratio	Pass
§27.53(l)(2) §27.53(m)(4) §27.53(n)(2)	RSS-192 Issue 5 5.6 RSS-198 Issue 1 5.6 RSS-199 Issue 4 5.6	Spurious Emission at Antenna Terminal	Pass
§27.53(l)(2) §27.53(m)(4) §27.53(n)(2)	RSS-192 Issue 5 5.6 RSS-198 Issue 1 5.6 RSS-199 Issue 4 5.6	Band Edge and Emission Mask	Pass
§2.1055 §27.54	RSS-Gen Issue 5 6.11 RSS-192 Issue 5 5.4 RSS-198 Issue 1 5.4 RSS-199 Issue 4 5.4	Frequency Stability	Pass

1.7. Device Capabilities

This device contains the following capabilities.

FCC 5G NR Band 78 (3 450 MHz ~ 3 550 MHz) is covered by 5G NR Band 77 (3 450 MHz ~ 3 550 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth. Therefore test data provided in this report covers 5G NR Band 78 as well as Band 77.

FCC 5G NR Band 78 (3 700 MHz ~ 3 800 MHz) is covered by 5G NR Band 77 (3 700 MHz ~ 3 980 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth. Therefore test data provided in this report covers 5G NR Band 78 as well as Band 77.

IC 5G NR Band 78 (3 450 MHz ~ 3 800 MHz) is covered by 5G NR Band 77 (3 450 MHz ~ 3 900 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth. Therefore test data provided in this report covers 5G NR Band 78 as well as Band 77.

1.8. Sample Calculation for Offset

Where relevant, the following sample calculation is provided:

1.8.1. Conducted Test

Offset value (dB) = Directional Coupler (dB) + Cable loss (dB)

1.8.2. Radiation test

- E.I.R.P. (dB m) = Measured level (dB μ V) + Antenna factor (dB/m) + Cable loss (dB) + 20 Log D - 104.8;
where D is the measurement distance in meters.
- E.R.P. (dB m) = E.I.R.P. (dB m) - 2.15 (dB)

1.9. Manufacturer Declaration

The EUT has three antennas, antennas 1 and 2 are the main antennas, and antenna 3 can be switched to the main antenna 1. Antennas 1 and 3 are use the same module output port and are operated by switching. The EUT can be transmitted simultaneously to antennas 1 and 2 in TX diversity and MIMO modes. MIMO mode is supporting only CP-OFDM mode on LTE Band 48, NR Band 48, 77 and 78. TX diversity mode is supporting DFT-S-OFDM and CP-OFDM on NR Band 77.

1.10. ENDC Configuration

NR Band	SCS (kHz)	Bandwidth (MHz)	Waveform	Modulation	ENDC LTE Band
n77	30	20, 30, 40, 50, 60, 70, 80, 90, 100	DFT-S OFDM, CP OFDM	BPSK, QPSK, 16QAM, 64QAM, 256QAM	2, 5, 7, 12, 13, 25, 66
n78	30	20, 30, 40, 50, 60, 70, 80, 90, 100			2, 7, 12, 25, 66

1.11. Worst Case Configuration and Mode

The worst-case is based on the conducted output power measurement investigation results. All testing was performed using BPSK, QPSK, 16QAM, 64QAM and 256QAM modulations. If both SA and NSA were supported, SA was tested as worst case and NSA was tested only radiated spurious emission for worst conducted output power combination.

On ENDC mode, only radiated spurious emission were tested as worst case for worst conducted output power combination.

However, the spurious radiated emission and spurious at antenna terminal were only performed on bandwidth and RB offset (with RB size 1) with the highest conducted power.

The peak to average ratio were tested only 256QAM modulation as worst case.

The radiation test of the EUT was investigated in three orthogonal orientations X, Y, and Z, and the worst case data is reported.

1.12. Measurement Configuration

Ant. 2

Test Items	Band	Test Channel			Bandwidth (MHz)														Modulation DFT-S-OFDM					Modulation CP-OFDM				RB #		
		Low	Mid	High	5	10	15	20	25	30	40	50	60	70	80	90	100	BPSK	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	1	Half	Full	
Conducted Output Power	n48	V	V	V				V		V	V							V	V	V	V	V	V	V	V	V	V	V	V	V
	n77/78	V	V	V				V		V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V
Frequency Stability	n48	-	V	-				V		-	-							-	V	-	-	-	-	-	-	-	-	-	-	V
	n77/78	-	V	-				V		-	-	-	-	-	-	-	-		V	-	-	-	-	-	-	-	-	-	-	V
Occupied Bandwidth	n48	V	V	V				V		V	V							V	V	V	-	-	V	V	-	-	-	-	-	V
	n77/78	V	V	V				V		V	V	V	V	V	V	V	V	V	V	V	-	-	V	V	-	-	-	-	-	V
Peak-to-Average Ratio	n48	V	V	V				V		V	V							V	V	V	V	V	V	V	V	V	-	-	-	V
	n77/78	V	V	V				V		V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	-	-	-	V
Band edge	n48	V	V	V				V		V	V							-	V	V	-	-	V	V	-	-	V	-	-	V
	n77/78	V	-	V				V		V	V	V	V	V	V	V	V	V	-	V	-	-	V	V	-	-	V	-	-	V
Spurious at antenna terminal & Radiated Spurious Emissions	n48	V	V	V	Worst case																									
	n77/78	V	V	V	Worst case																									

ENDC

Test Items	Band	Test Channel			Bandwidth (MHz)														Modulation DFT-S-OFDM					Modulation CP-OFDM				RB #		
		Low	Mid	High	5	10	15	20	25	30	40	50	60	70	80	90	100	BPSK	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	1	Half	Full	
Conducted Output Power	n77/78	V	V	V				V		V	V	V	V	V	V	V	V	V	V	-	-	-	-	-	-	-	V	-	-	
Spurious Radiated Emission	n77/78	V	V	V	Worst case																									

Switching

Test Items	Band	Test Channel			Bandwidth (MHz)														Modulation DFT-S-OFDM					Modulation CP-OFDM				RB #			
		Low	Mid	High	5	10	15	20	25	30	40	50	60	70	80	90	100	BPSK	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	1	Half	Full		
Conducted Output Power	n41	V	V	V				V		V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	
	n48	V	V	V				V		V	V							V	V	V	V	V	V	V	V	V	V	V	V	V	
	n77/78	V	V	V				V		V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	
Frequency Stability	n41	-	V	-				V		-	-	-	-	-	-	-	-	-	V	-	-	-	-	-	-	-	-	-	-	V	
	n48	-	V	-				V		-	-							-	V	-	-	-	-	-	-	-	-	-	-	V	
	n77/78	-	V	-				V		-	-	-	-	-	-	-	-	-	V	-	-	-	-	-	-	-	-	-	-	V	
Occupied Bandwidth	n41	-	V	-				V		V	V	V	V	V	V	V	V	V	V	V	-	-	V	V	-	-	-	-	-	V	
	n48	V	V	V				V		V	V							V	V	V	-	-	V	V	-	-	-	-	-	V	
	n77/78	V	V	V				V		V	V	V	V	V	V	V	V	V	V	V	-	-	V	V	-	-	-	-	-	V	
Peak-to-Average Ratio	n41	V	V	V				V		V	V	V	V	V	V	V	V	-	-	-	-	V	-	-	-	V	-	-	-	V	
	n48	V	V	V				V		V	V							V	V	V	V	V	V	V	V	V	-	-	-	V	
	n77/78	V	V	V				V		V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	-	-	-	V	
Band edge	n41	V	-	V				V		V	V	V	V	V	V	V	V	V	-	V	-	-	V	V	-	-	V	-	-	V	
	n48	V	V	V				V		V	V							V	V	V	-	-	V	V	-	-	V	-	-	V	
	n77/78	V	-	V				V		V	V	V	V	V	V	V	V	-	V	V	-	-	V	V	-	-	V	-	-	V	
Spurious at antenna terminal & Radiated Spurious Emissions	n41	V	V	V	Worst case																										
	n48	V	V	V	Worst case																										
	n77/78	V	V	V	Worst case																										

ENDC

Test Items	Band	Test Channel			Bandwidth (MHz)														Modulation DFT-S-OFDM					Modulation CP-OFDM				RB #			
		Low	Mid	High	5	10	15	20	25	30	40	50	60	70	80	90	100	BPSK	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	1	Half	Full		
Conducted Output Power	n77/78	V	V	V				V		V	V	V	V	V	V	V	V	V	V	-	-	-	-	-	-	-	V	-	-		
Spurious Radiated Emission	n77/78	V	V	V	Worst case																										

Note;

- All measurement was performed with 1RB or FULL RB or both, we chosen RB condition for each test items as worst case.
- Ant.1 and Ant.3 operate by switching between each other, and switching above refers to operation on Ant.1 and Ant.3 ports.

Radiated Emission Test

Ant. 2

NR Band	SCS (kHz)	Bandwidth (MHz)	Modulation	Resource Block Allocation
				RBs allocated
n48_IC	30	40	DFT-S OFDM - BPSK	1
n77/78 Low Band_FCC	30	100	DFT-S OFDM - BPSK	1
n77/78 High Band_FCC	30	100	DFT-S OFDM - BPSK	1
n77/78 Low Band_IC	30	100	DFT-S OFDM - BPSK	1
n77 High Band_IC	30	80	DFT-S OFDM - BPSK	1

ENDC

NR Band	SCS (kHz)	Bandwidth (MHz)	Modulation	Resource Block Allocation
				RBs allocated
2A-n77/78A Low Band_FCC	30	20-100	DFT-S OFDM - BPSK	1
2A-n77/78A High Band_FCC	30	20-100	DFT-S OFDM - BPSK	1
2A-n77/78A Low Band_IC	30	20-100	DFT-S OFDM - BPSK	1
2A-n77A High Band_IC	30	20-80	DFT-S OFDM - BPSK	1

Switching

NR Band	SCS (kHz)	Bandwidth (MHz)	Modulation	Resource Block Allocation
				RBs allocated
n41_FCC	30	100	DFT-S OFDM - BPSK	1
n41_IC	30	100	DFT-S OFDM - BPSK	1
n48_IC	30	40	DFT-S OFDM - BPSK	1
n77/78 Low Band_FCC	30	50	DFT-S OFDM - QPSK	1
n77/78 High Band_FCC	30	50	DFT-S OFDM - BPSK	1
n77/78 Low Band_IC	30	50	DFT-S OFDM - QPSK	1
n77 High Band_IC	30	50	DFT-S OFDM - QPSK	1

ENDC

NR Band	SCS (kHz)	Bandwidth (MHz)	Modulation	Resource Block Allocation
				RBs allocated
5A-n77/78A Low Band_FCC	30	3-50	DFT-S OFDM - BPSK	1
7A-n77/78A High Band_FCC	30	20-50	DFT-S OFDM - BPSK	1
12A-n77/78A Low Band_IC	30	10-50	DFT-S OFDM - QPSK	1
13A-n77 High Band_IC	30	10-50	DFT-S OFDM - QPSK	1

1.13. Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

Parameter	Uncertainty	
RF Output Power	0.33 dB	
Occupied Bandwidth	0.05 MHz	
Conducted Spurious Emissions	0.99 dB	
Peak to Average Ratio	0.66 dB	
Frequency Stability	116 Hz	
Radiated Emission, 9 kHz to 30 MHz	H	3.60 dB
	V	3.60 dB
Radiated Emission, below 1 GHz	H	4.60 dB
	V	4.90 dB
Radiated Emission, above 1 GHz	H	3.90 dB
	V	3.80 dB

All measurement uncertainty values are shown with a coverage factor of $k=2$ to indicate a 95 % level of confidence.

1.14. Test Report Revision

Revision	Report Number	Date of Issue	Description
0	F690501-RF-RTL005485	2024.10.18	Initial

1.15. Antenna Information

Ant. No.	Ant. Type	Frequency Range	Support Band		
			LTE	NR	WCDMA
Ant. 1	PIFA	Below 3 GHz, Above 3 GHz	2, 4, 5, 7, 12, 13, 17, 25, 26, 38, 42, 48, 66, 71	2, 5, 7, 12, 25, 41, 66, 71, 48, 77, 78	II, V
Ant. 2	PIFA	Above 3 GHz	42, 48	48, 77, 78	
Ant. 3	PIFA	Below 3 GHz, Above 3 GHz	2, 4, 5, 7, 12, 13, 17, 25, 26, 38, 42, 48, 66, 71	2, 5, 7, 12, 25, 41, 66, 71, 48, 77, 78	II, V
Ant.1 + Ant. 2	PIFA	Above 3 GHz		48, 77, 78	

Note;

- Ant. 1 and Ant. 3 are in switching.

Band	Operating Frequency (MHz)	Antenna Peak Gain (dB i)			
		Ant. 1	Ant. 2	Ant. 3	Ant. 1 + Ant. 2
LTE 25/2 WCDMA II NR 25/2	1 850 ~ 1 915	<u>1.86</u>		-0.32	
LTE 66/4 NR 66	1 710 ~ 1 780	<u>1.37</u>		-0.03	
LTE 26/5 WCDMA V NR 5	824 ~ 849	<u>-2.43</u>		-3.16	
LTE 7 NR 7	2 500 ~ 2 570	0.92		<u>2.79</u>	
LTE 12/17 NR 12	699 ~ 716	-3.98		<u>-1.20</u>	
LTE 13	777 ~ 787	-4.60		<u>-3.16</u>	
LTE 26	814 ~ 824	<u>-2.43</u>		-3.16	
LTE 38	2 570 ~ 2 620	0.92		<u>2.79</u>	
LTE 42	3 450 ~ 3 600	-0.66	-1.37	<u>0.96</u>	
LTE 48	3 550 ~ 3 700	-0.66	-1.37	<u>0.96</u>	
NR 48	3 550 ~ 3 700	-0.66	-1.37	<u>0.96</u>	<u>2.00</u>
LTE 71 NR 71	663 ~ 698	-2.45		<u>-1.60</u>	
NR 41	2 496 ~ 2 690	0.92		<u>2.79</u>	
NR 77	3 450 ~ 3 550	0.34	0.12	<u>1.58</u>	<u>3.24</u>
	3 700 ~ 3 980	0.34	0.12	<u>1.58</u>	<u>3.24</u>
NR 78	3 450 ~ 3 550	0.34	0.12	<u>1.58</u>	<u>3.24</u>
	3 700 ~ 3 800	0.34	0.12	<u>1.58</u>	<u>3.24</u>

Note;

Antenna gains were compared between antennas and mark the worst gain of each band.

1) According to KDB 662911 D01 Multiple Transmitter Output v02r01 F)2)d(i),
Port 1 + Port 2 Antenna Gain = $10 * \log[(10^{G_1/10} + 10^{G_2/10})^2 / N_{ANT}]$

Where,

G_1 = antenna gain of port 1,
 G_2 = antenna gain of port 2,
 N_{ANT} = the number of antennas

1.16. Emission Designator and Max Power

Ant. 2

NR Band	Band width (MHz)	Modulation		Low Freq. (MHz)	Upper Freq. (MHz)	Conducted Average (dB m)	Ant. Gain (dB i)	E.I.R.P. Average (dB m)	E.I.R.P. Average (W)	Emission Designator
n48 IC	20	DFT-S OFDM	BPSK	3 560.01	3 690.00	21.59	-1.37	20.22	0.105	18M0G7D
			QPSK			21.52		20.15	0.104	17M9G7D
			16QAM			20.02		18.65	0.073	17M9D7D
		CP OFDM	QPSK			20.15		18.78	0.076	18M3G7D
			16QAM			19.36		17.99	0.063	18M3D7D
			16QAM			21.54		20.17	0.104	26M8G7D
	30	DFT-S OFDM	BPSK	3 565.02	3 684.99	21.35		19.98	0.100	26M9G7D
			QPSK			19.91		18.54	0.071	26M9D7D
			16QAM			19.75		18.38	0.069	27M9G7D
		CP OFDM	QPSK			19.08		17.71	0.059	27M9D7D
			16QAM			21.69		20.32	0.108	36M0G7D
			16QAM			21.53		20.16	0.104	36M0G7D
	40	DFT-S OFDM	BPSK	3 570.00	3 679.98	19.99		18.62	0.073	36M0D7D
			QPSK			20.29		18.92	0.078	38M2G7D
			16QAM			19.47		18.10	0.065	38M1D7D
		CP OFDM	QPSK							
			16QAM							
			16QAM							

NR Band	Band width (MHz)	Modulation		Low Freq. (MHz)	Upper Freq. (MHz)	Conducted Average (dB m)	Ant. Gain (dB i)	E.I.R.P. Average (dB m)	E.I.R.P. Average (W)	Emission Designator
n77/78 Low Band FCC	20	DFT-S OFDM	BPSK	3 460.02	3 540.00	23.26	0.12	23.38	0.218	17M9G7D
			QPSK			23.20		23.32	0.215	17M9G7D
			16QAM			22.12		22.24	0.167	17M9D7D
		CP OFDM	QPSK			22.12		22.24	0.167	18M3G7D
			16QAM			21.33		21.45	0.140	18M3D7D
			30			DFT-S OFDM		BPSK	3 465.00	3 534.99
	QPSK	23.55		23.67	0.233			26M8G7D		
	16QAM	22.37		22.49	0.177			26M9D7D		
	CP OFDM	QPSK		22.30	22.42	0.175		27M5G7D		
		16QAM		21.48	21.60	0.145		27M5D7D		
		40		DFT-S OFDM	BPSK	3 470.01		3 529.98		
	QPSK		23.45		23.57				0.228	35M8G7D
	16QAM		21.90		22.02				0.159	35M7D7D
	CP OFDM		QPSK	21.90	22.02				0.159	38M0G7D
			16QAM	21.01	21.13				0.130	38M0D7D
			50	DFT-S OFDM	BPSK				3 475.02	3 525.00
	QPSK	23.46			23.58	0.228		45M8G7D		
	16QAM	22.14			22.26	0.168		45M8D7D		
	CP OFDM	QPSK		22.29	22.41	0.174		47M5G7D		
		16QAM		21.42	21.54	0.143		47M6D7D		
		60		DFT-S OFDM	BPSK	3 480.00		3 519.99		
	QPSK		23.36		23.48				0.223	57M9G7D
	16QAM		21.97		22.09				0.162	58M1D7D
	CP OFDM		QPSK	22.08	22.20				0.166	57M8G7D
			16QAM	21.35	21.47				0.140	57M9D7D
			70	DFT-S OFDM	BPSK				3 485.01	3 514.98
	QPSK	23.40			23.52	0.225		64M5G7D		
	16QAM	22.08			22.20	0.166		64M5D7D		
	CP OFDM	QPSK		22.05	22.17	0.165		67M4G7D		
		16QAM		21.21	21.33	0.136		67M7D7D		
		80		DFT-S OFDM	BPSK	3 490.02		3 510.00		
	QPSK		23.38		23.50				0.224	77M4G7D
	16QAM		22.03		22.15				0.164	77M0D7D
	CP OFDM		QPSK	22.09	22.21				0.166	77M5G7D
			16QAM	21.28	21.40				0.138	77M5D7D
			90	DFT-S OFDM	BPSK				3 495.00	3 504.99
	QPSK	23.47			23.59	0.229		86M7G7D		
	16QAM	22.14			22.26	0.168		87M0D7D		
	CP OFDM	QPSK		22.15	22.27	0.169		87M6G7D		
		16QAM		21.95	22.07	0.161		87M4D7D		
		100		DFT-S OFDM	BPSK	3 500.01		3 500.01		
	QPSK		22.54		22.66				0.185	96M5G7D
	16QAM		22.14		22.26				0.168	96M5D7D
	CP OFDM		QPSK	21.99	22.11				0.163	97M5G7D
			16QAM	21.40	21.52				0.142	97M5D7D

NR Band	Band width (MHz)	Modulation		Low Freq. (MHz)	Upper Freq. (MHz)	Conducted Average (dB m)	Ant. Gain (dB i)	E.I.R.P. Average (dB m)	E.I.R.P. Average (W)	Emission Designator
n77/78 High Band FCC	20	DFT-S OFDM	BPSK	3 710.01	3 969.99	23.65	0.12	23.77	0.238	17M9G7D
			QPSK			23.66		23.78	0.239	17M9G7D
			16QAM			22.33		22.45	0.176	17M9D7D
		CP OFDM	QPSK			22.30		22.42	0.175	18M3G7D
			16QAM			21.48		21.60	0.145	18M3D7D
			16QAM			23.61		23.73	0.236	26M8G7D
	30	DFT-S OFDM	BPSK	3 715.02	3 964.98	23.66		23.78	0.239	26M9G7D
			QPSK			22.43		22.55	0.180	26M9D7D
			16QAM			22.48		22.60	0.182	27M6G7D
		CP OFDM	QPSK			21.62		21.74	0.149	27M5D7D
			16QAM			23.62		23.74	0.237	35M9G7D
			16QAM			23.66		23.78	0.239	35M8G7D
	40	DFT-S OFDM	BPSK	3 720.00	3 960.00	22.31		22.43	0.175	35M8D7D
			QPSK			22.45		22.57	0.181	37M9G7D
			16QAM			21.49		21.61	0.145	38M0D7D
		CP OFDM	QPSK			23.63		23.75	0.237	45M8G7D
			QPSK			23.66		23.78	0.239	45M9G7D
			16QAM			22.29		22.41	0.174	45M8D7D
	50	DFT-S OFDM	BPSK	3 725.01	3 954.99	22.51		22.63	0.183	47M5G7D
			QPSK			21.66		21.78	0.151	47M6D7D
			16QAM			23.63		23.75	0.237	57M9G7D
		CP OFDM	BPSK			23.65		23.77	0.238	58M0G7D
			QPSK			22.41		22.53	0.179	58M1D7D
			16QAM			22.36		22.48	0.177	57M8G7D
	60	DFT-S OFDM	BPSK	3 730.02	3 949.98	21.66		21.78	0.151	58M0D7D
			QPSK			23.62		23.74	0.237	64M3G7D
			QPSK			23.65		23.77	0.238	64M3G7D
		CP OFDM	16QAM			22.36		22.48	0.177	64M5D7D
			QPSK			22.28		22.40	0.174	67M4G7D
			16QAM			21.62		21.74	0.149	67M7D7D
	70	DFT-S OFDM	BPSK	3 735.00	3 945.00	23.63		23.75	0.237	77M2G7D
			QPSK			23.66		23.78	0.239	77M2G7D
			16QAM			22.36		22.48	0.177	77M2D7D
		CP OFDM	QPSK			22.33		22.45	0.176	77M5G7D
			16QAM			21.58		21.70	0.148	77M7D7D
			16QAM			23.66		23.78	0.239	86M9G7D
	90	DFT-S OFDM	BPSK	3 745.02	3 934.98	23.63		23.75	0.237	86M7G7D
			QPSK			22.43		22.55	0.180	87M0D7D
			16QAM			22.38		22.50	0.178	87M4G7D
		CP OFDM	QPSK			21.72		21.84	0.153	87M4D7D
			16QAM			23.75		23.87	0.244	96M5G7D
			QPSK			23.73		23.85	0.243	96M5G7D
	100	DFT-S OFDM	BPSK	3 750.00	3 930.00	22.64		22.76	0.189	96M5D7D
			QPSK			22.71		22.83	0.192	97M5G7D
			16QAM			21.97		22.09	0.162	97M5D7D
		CP OFDM	QPSK							
			16QAM							
			16QAM							

NR Band	Band width (MHz)	Modulation		Low Freq. (MHz)	Upper Freq. (MHz)	Conducted Average (dB m)	Ant. Gain (dB i)	E.I.R.P. Average (dB m)	E.I.R.P. Average (W)	Emission Designator
n77/78 Low Band IC	20	DFT-S OFDM	BPSK	3 460.02	3 889.98	23.39	0.12	23.51	0.224	18M0G7D
			QPSK			23.33		23.45	0.221	18M0G7D
			16QAM			22.58		22.70	0.186	17M9D7D
		CP OFDM	QPSK			22.08		22.20	0.166	18M3G7D
			16QAM			21.75		21.87	0.154	18M3D7D
			16QAM			23.47		23.59	0.229	27M2G7D
	30	DFT-S OFDM	BPSK	3 465.00	3 885.00	23.44		23.56	0.227	27M4G7D
			QPSK			22.17		22.29	0.169	27M3D7D
			16QAM			22.08		22.20	0.166	28M3G7D
		CP OFDM	QPSK			21.29		21.41	0.138	28M2D7D
			16QAM			23.46		23.58	0.228	36M0G7D
			16QAM			23.36		23.48	0.223	36M0G7D
	40	DFT-S OFDM	BPSK	3 470.01	3 879.99	22.16		22.28	0.169	36M1D7D
			QPSK			22.04		22.16	0.164	38M2G7D
			16QAM			21.34		21.46	0.140	38M2D7D
		CP OFDM	QPSK			23.71		23.83	0.242	46M1G7D
			QPSK			23.71		23.83	0.242	46M1G7D
			16QAM			22.56		22.68	0.185	46M2D7D
	50	DFT-S OFDM	BPSK	3 475.02	3 874.98	22.29		22.41	0.174	47M9G7D
			QPSK			21.69		21.81	0.152	47M9D7D
			16QAM			23.46		23.58	0.228	58M0G7D
		CP OFDM	BPSK			23.39		23.51	0.224	58M3G7D
			QPSK			22.08		22.20	0.166	58M3D7D
			16QAM			22.08		22.20	0.166	58M1G7D
	60	DFT-S OFDM	BPSK	3 480.00	3 870.00	21.35		21.47	0.140	58M1D7D
			QPSK			23.58		23.70	0.234	64M5G7D
			QPSK			23.50		23.62	0.230	64M5G7D
		CP OFDM	16QAM			22.10		22.22	0.167	64M6D7D
			QPSK			22.14		22.26	0.168	68M0G7D
			16QAM			21.31		21.43	0.139	67M8D7D
	70	DFT-S OFDM	BPSK	3 485.01	3 864.99	23.45		23.57	0.228	77M4G7D
			QPSK			23.50		23.62	0.230	77M4G7D
			16QAM			22.20		22.32	0.171	77M5D7D
		CP OFDM	QPSK			22.07		22.19	0.166	78M0G7D
			16QAM			21.32		21.44	0.139	77M8D7D
			16QAM			23.49		22.61	0.182	87M4G7D
	80	DFT-S OFDM	BPSK	3 490.02	3 859.98	23.58		23.70	0.234	87M0G7D
			QPSK			22.20		22.32	0.171	87M2D7D
			16QAM			22.17		22.29	0.169	88M1G7D
		CP OFDM	QPSK			21.43		21.55	0.143	87M9D7D
			16QAM			23.71		23.83	0.242	96M7G7D
			QPSK			23.44		23.56	0.227	96M7G7D
	90	DFT-S OFDM	BPSK	3 495.00	3 855.00	22.23		22.35	0.172	96M9D7D
			QPSK			22.01		22.13	0.163	98M1G7D
			16QAM			21.43		21.55	0.143	97M9D7D
		CP OFDM	BPSK			23.71		23.83	0.242	96M7G7D
			QPSK			23.44		23.56	0.227	96M7G7D
			16QAM			22.23		22.35	0.172	96M9D7D
	100	DFT-S OFDM	BPSK	3 500.01	3 849.99	22.01		22.13	0.163	98M1G7D
			QPSK			21.43		21.55	0.143	97M9D7D
			16QAM			23.71		23.83	0.242	96M7G7D
		CP OFDM	BPSK			23.44		23.56	0.227	96M7G7D
			QPSK			22.23		22.35	0.172	96M9D7D
			16QAM			22.01		22.13	0.163	98M1G7D

NR Band	Band width (MHz)	Modulation		Low Freq. (MHz)	Upper Freq. (MHz)	Conducted Average (dB m)	Ant. Gain (dB i)	E.I.R.P. Average (dB m)	E.I.R.P. Average (W)	Emission Designator
n77 High Band IC	20	DFT-S OFDM	BPSK	3 910.02	3 969.99	23.62	0.12	23.74	0.237	17M9G7D
			QPSK			23.66		23.78	0.239	17M9G7D
			16QAM			22.33		22.45	0.176	17M9D7D
		CP OFDM	QPSK			22.30		22.42	0.175	18M3G7D
			16QAM			21.48		21.60	0.145	18M3D7D
			16QAM			23.73		23.85	0.243	26M9G7D
	30	DFT-S OFDM	BPSK	3 915.00	3 964.98	23.73		23.85	0.243	26M9G7D
			QPSK			22.46		22.58	0.181	26M9D7D
			16QAM			22.48		22.60	0.182	27M9G7D
		CP OFDM	QPSK			21.62		21.74	0.149	27M9D7D
			16QAM			23.67		23.79	0.239	36M1G7D
			16QAM			23.65		23.77	0.238	36M1G7D
	40	DFT-S OFDM	BPSK	3 920.01	3 960.00	22.45		22.57	0.181	36M7D7D
			QPSK			22.43		22.55	0.180	38M1G7D
			16QAM			21.57		21.69	0.148	38M3D7D
		CP OFDM	QPSK			23.78		23.90	0.245	46M1G7D
			16QAM			23.76		23.88	0.244	45M9G7D
			16QAM			22.65		22.77	0.189	46M0D7D
	50	DFT-S OFDM	BPSK	3 925.02	3 954.99	22.61		22.73	0.187	47M7G7D
			QPSK			21.77		21.89	0.155	47M9D7D
			16QAM			23.63		23.75	0.237	58M0G7D
		CP OFDM	QPSK			23.62		23.74	0.237	58M0G7D
			16QAM			22.41		22.53	0.179	58M1D7D
			16QAM			22.36		22.48	0.177	58M1G7D
	60	DFT-S OFDM	BPSK	3 930.00	3 949.98	21.66		21.78	0.151	58M1D7D
			QPSK			23.73		23.85	0.243	64M5G7D
			16QAM			23.71		23.83	0.242	64M5G7D
		CP OFDM	QPSK			22.52		22.64	0.184	64M5D7D
			16QAM			22.28		22.40	0.174	67M6G7D
			16QAM			21.60		21.72	0.149	67M7D7D
	70	DFT-S OFDM	BPSK	3 935.01	3 945.00	23.78		23.90	0.245	77M2G7D
			QPSK			23.66		23.78	0.239	77M2G7D
			16QAM			22.36		22.48	0.177	77M0D7D
		CP OFDM	QPSK			22.33		22.45	0.176	77M4G7D
			16QAM			21.56		21.68	0.147	77M4D7D
			16QAM							

Switching

NR Band	Band width (MHz)	Modulation		Low Freq. (MHz)	Upper Freq. (MHz)	Conducted Average (dB m)	Worst Ant. Gain (dB i)	E.I.R.P. Average (dB m)	E.I.R.P. Average (W)	Emission Designator
n41 FCC	20	DFT-S OFDM	BPSK	2 506.02	2 679.99	23.83	2.79	26.62	0.459	17M9G7D
			QPSK			24.02		26.81	0.480	17M9G7D
			16QAM			22.57		25.36	0.344	17M9D7D
		CP OFDM	QPSK			22.56		25.35	0.343	17M9G7D
			16QAM			21.84		24.63	0.290	18M3D7D
	30	DFT-S OFDM	BPSK	2 511.00	2 674.98	24.28		27.07	0.509	26M8G7D
			QPSK			24.20		26.99	0.500	26M9G7D
			16QAM			22.75		25.54	0.358	26M9D7D
		CP OFDM	QPSK			22.69		25.48	0.353	27M5G7D
			16QAM			21.92		24.71	0.296	27M5D7D
	40	DFT-S OFDM	BPSK	2 516.01	2 670.00	24.25		27.04	0.506	35M9G7D
			QPSK			24.18		26.97	0.498	35M7G7D
			16QAM			22.65		25.44	0.350	35M7D7D
		CP OFDM	QPSK			22.55		25.34	0.342	37M8G7D
			16QAM			21.80		24.59	0.288	38M0D7D
	50	DFT-S OFDM	BPSK	2 521.02	2 664.99	24.31		27.10	0.513	45M7G7D
			QPSK			24.25		27.04	0.506	45M7G7D
			16QAM			22.75		25.54	0.358	45M7D7D
		CP OFDM	QPSK			22.60		25.39	0.346	47M5G7D
			16QAM			21.87		24.66	0.292	47M5D7D
	60	DFT-S OFDM	BPSK	2 526.00	2 659.98	24.05		26.84	0.483	57M8G7D
			QPSK			24.00		26.79	0.478	57M9G7D
			16QAM			22.60		25.39	0.346	58M1D7D
		CP OFDM	QPSK			22.55		25.34	0.342	57M9G7D
			16QAM			21.81		24.60	0.288	57M9D7D
	70	DFT-S OFDM	BPSK	2 531.01	2 655.00	24.02		26.81	0.480	64M3G7D
			QPSK			23.89		26.68	0.466	64M2G7D
			16QAM			22.71		25.50	0.355	64M3D7D
		CP OFDM	QPSK			22.48		25.27	0.337	67M4G7D
			16QAM			21.76		24.55	0.285	67M4D7D
	80	DFT-S OFDM	BPSK	2 536.02	2 649.99	24.03		26.82	0.481	77M0G7D
			QPSK			23.85		26.64	0.461	77M0G7D
			16QAM			22.52		25.31	0.340	77M0D7D
		CP OFDM	QPSK			22.59		25.38	0.345	77M4G7D
			16QAM			21.95		24.74	0.298	77M5D7D
	90	DFT-S OFDM	BPSK	2 541.00	2 644.98	24.00		26.79	0.478	86M7G7D
			QPSK			23.93		26.72	0.470	86M5G7D
			16QAM			23.17		25.96	0.394	86M9D7D
		CP OFDM	QPSK			22.16		24.95	0.313	87M4G7D
			16QAM			21.54		24.33	0.271	87M4D7D
	100	DFT-S OFDM	BPSK	2 546.01	2 640.00	24.50		27.29	0.536	96M5G7D
			QPSK			24.46		27.25	0.531	96M3G7D
			16QAM			23.08		25.87	0.386	96M3D7D
		CP OFDM	QPSK			22.71		25.50	0.355	97M5G7D
			16QAM			22.16		24.95	0.313	97M5D7D

NR Band	Band width (MHz)	Modulation		Low Freq. (MHz)	Upper Freq. (MHz)	Conducted Average (dB m)	Worst Ant. Gain (dB i)	E.I.R.P. Average (dB m)	E.I.R.P. Average (W)	Emission Designator
n41 IC	20	DFT-S OFDM	BPSK	2 510.01	2 679.99	23.67	2.79	26.46	0.443	17M9G7D
			QPSK			23.92		26.71	0.469	17M9G7D
			16QAM			22.29		25.08	0.322	17M9D7D
		CP OFDM	QPSK			22.13		24.92	0.310	18M2G7D
			16QAM			21.49		24.28	0.268	18M2D7D
			16QAM			23.71		26.50	0.447	26M8G7D
	30	DFT-S OFDM	BPSK	2 515.02	2 674.98	23.65		26.44	0.441	26M8G7D
			QPSK			22.45		25.24	0.334	26M9D7D
			16QAM			22.10		24.89	0.308	27M5G7D
		CP OFDM	QPSK			21.51		24.30	0.269	27M5D7D
			16QAM			23.71		26.50	0.447	35M8G7D
			QPSK			23.60		26.39	0.436	35M8G7D
	40	DFT-S OFDM	16QAM	2 520.00	2 670.00	22.45		25.24	0.334	35M7D7D
			QPSK			22.05		24.84	0.305	37M9G7D
			16QAM			21.42		24.21	0.264	38M0D7D
		CP OFDM	QPSK			24.13		26.92	0.492	45M7G7D
			BPSK			24.07		26.86	0.485	45M9G7D
			16QAM			22.75		25.54	0.358	45M7D7D
	50	DFT-S OFDM	QPSK	2 525.01	2 664.99	22.56		25.35	0.343	47M5G7D
			16QAM			21.78		24.57	0.286	47M6D7D
		CP OFDM	QPSK			23.93		26.72	0.470	57M7G7D
			BPSK			23.87		26.66	0.463	57M9G7D
			16QAM			22.56		25.35	0.343	57M9D7D
			16QAM			22.55		25.34	0.342	57M9G7D
	60	DFT-S OFDM	16QAM	2 530.02	2 659.98	21.77		24.56	0.286	57M8D7D
			QPSK			23.97		26.76	0.474	64M3G7D
			BPSK			23.87		26.66	0.463	64M2G7D
		CP OFDM	16QAM			22.71		25.50	0.355	64M3D7D
			QPSK			22.48		25.27	0.337	67M4G7D
			16QAM			21.76		24.55	0.285	67M4D7D
	70	DFT-S OFDM	BPSK	2 535.00	2 655.00	23.97		26.76	0.474	77M0G7D
			QPSK			23.88		26.67	0.465	77M2G7D
			16QAM			22.66		25.45	0.351	77M0D7D
		CP OFDM	QPSK			22.59		25.38	0.345	77M4G7D
			16QAM			21.95		24.74	0.298	77M5D7D
			16QAM			24.14		26.93	0.493	86M7G7D
	90	DFT-S OFDM	QPSK	2 545.02	2 644.98	24.10		26.89	0.489	86M7G7D
			16QAM			23.17		25.96	0.394	86M9D7D
			16QAM			22.70		25.49	0.354	87M4G7D
		CP OFDM	QPSK			22.23		25.02	0.318	87M4D7D
			16QAM			24.47		27.26	0.532	96M5G7D
			BPSK			24.46		27.25	0.531	96M3G7D
	100	DFT-S OFDM	16QAM	2 550.00	2 640.00	23.17		25.96	0.394	96M3D7D
			QPSK			22.84		25.63	0.366	97M5G7D
			16QAM			22.23		25.02	0.318	97M5D7D
		CP OFDM	QPSK							
			16QAM							
			16QAM							

NR Band	Band width (MHz)	Modulation		Low Freq. (MHz)	Upper Freq. (MHz)	Conducted Average (dB m)	Worst Ant. Gain (dB i)	E.I.R.P. Average (dB m)	E.I.R.P. Average (W)	Emission Designator
n48 IC	20	DFT-S OFDM	BPSK	3 560.01	3 690.00	22.47	0.96	23.43	0.220	17M9G7D
			QPSK			22.46		23.42	0.220	17M9G7D
			16QAM			21.31		22.27	0.169	17M9D7D
		CP OFDM	QPSK			21.03		21.99	0.158	18M3G7D
			16QAM			20.42		21.38	0.137	18M3D7D
	30	DFT-S OFDM	BPSK	3 565.02	3 684.99	22.58		23.54	0.226	26M8G7D
			QPSK			22.55		23.51	0.224	26M9G7D
			16QAM			21.37		22.33	0.171	26M9D7D
		CP OFDM	QPSK			21.16		22.12	0.163	27M9G7D
			16QAM			20.57		21.53	0.142	27M9D7D
	40	DFT-S OFDM	BPSK	3 570.00	3 679.98	22.59		23.55	0.226	35M9G7D
			QPSK			22.56		23.52	0.225	35M8G7D
			16QAM			21.42		22.38	0.173	35M8D7D
		CP OFDM	QPSK			21.09		22.05	0.160	38M0G7D
			16QAM			20.50		21.46	0.140	37M9D7D

NR Band	Band width (MHz)	Modulation		Low Freq. (MHz)	Upper Freq. (MHz)	Conducted Average (dB m)	Worst Ant. Gain (dB i)	E.I.R.P. Average (dB m)	E.I.R.P. Average (W)	Emission Designator
n77/78 Low Band FCC	20	DFT-S OFDM	BPSK	3 460.02	3 540.00	23.34	1.58	24.92	0.310	17M9G7D
			QPSK			23.30		24.88	0.308	17M9G7D
			16QAM			22.22		23.80	0.240	17M9D7D
		CP OFDM	QPSK			21.85		23.43	0.220	18M2G7D
			16QAM			21.25		22.83	0.192	18M3D7D
	30	DFT-S OFDM	BPSK	3 465.00	3 534.99	23.46		25.04	0.319	26M8G7D
			QPSK			23.46		25.04	0.319	26M9G7D
			16QAM			22.21		23.79	0.239	26M8D7D
		CP OFDM	QPSK			22.05		23.63	0.231	27M5G7D
			16QAM			21.47		23.05	0.202	27M5D7D
	40	DFT-S OFDM	BPSK	3 470.01	3 529.98	23.54		25.12	0.325	35M9G7D
			QPSK			23.50		25.08	0.322	35M8G7D
			16QAM			22.30		23.88	0.244	35M8D7D
		CP OFDM	QPSK			21.99		23.57	0.228	38M0G7D
			16QAM			21.41		22.99	0.199	38M0D7D
	50	DFT-S OFDM	BPSK	3 475.02	3 525.00	23.52		25.10	0.324	45M8G7D
			QPSK			23.56		25.14	0.327	45M9G7D
			16QAM			22.20		23.78	0.239	45M8D7D
		CP OFDM	QPSK			22.02		23.60	0.229	47M6G7D
			16QAM			21.40		22.98	0.199	47M6D7D
	60	DFT-S OFDM	BPSK	3 480.00	3 519.99	23.16		24.74	0.298	58M0G7D
			QPSK			23.15		24.73	0.297	58M0G7D
			16QAM			22.06		23.64	0.231	58M0D7D
		CP OFDM	QPSK			21.76		23.34	0.216	58M0G7D
			16QAM			21.28		22.86	0.193	58M0D7D
	70	DFT-S OFDM	BPSK	3 485.01	3 514.98	23.38		24.96	0.313	64M5G7D
			QPSK			23.41		24.99	0.316	64M5G7D
			16QAM			21.95		23.53	0.225	64M3D7D
		CP OFDM	QPSK			21.84		23.42	0.220	67M7G7D
			16QAM			21.22		22.80	0.191	67M7D7D
	80	DFT-S OFDM	BPSK	3 490.02	3 510.00	23.31		24.89	0.308	77M2G7D
			QPSK			23.30		24.88	0.308	77M4G7D
			16QAM			21.99		23.57	0.228	77M2D7D
		CP OFDM	QPSK			21.85		23.43	0.220	77M7G7D
			16QAM			21.25		22.83	0.192	77M7D7D
	90	DFT-S OFDM	BPSK	3 495.00	3 504.99	23.31		24.89	0.308	86M9G7D
			QPSK			23.31		24.89	0.308	86M7G7D
			16QAM			22.16		23.74	0.237	86M9D7D
		CP OFDM	QPSK			21.88		23.46	0.222	87M6G7D
			16QAM			21.39		22.97	0.198	87M6D7D
	100	DFT-S OFDM	BPSK	3 500.01	3 500.01	23.29		24.87	0.307	96M5G7D
			QPSK			23.26		24.84	0.305	96M3G7D
			16QAM			22.00		23.58	0.228	96M3D7D
		CP OFDM	QPSK			21.87		23.45	0.221	97M9G7D
			16QAM			21.26		22.84	0.192	97M7D7D

NR Band	Band width (MHz)	Modulation		Low Freq. (MHz)	Upper Freq. (MHz)	Conducted Average (dB m)	Worst Ant. Gain (dB i)	E.I.R.P. Average (dB m)	E.I.R.P. Average (W)	Emission Designator
n77/78 High Band FCC	20	DFT-S OFDM	BPSK	3 710.01	3 969.99	22.96	1.58	24.54	0.284	17M9G7D
			QPSK			22.95		24.53	0.284	17M9G7D
			16QAM			21.86		23.44	0.221	17M9D7D
		CP OFDM	QPSK			21.55		23.13	0.206	18M3G7D
			16QAM			20.94		22.52	0.179	18M3D7D
	30	DFT-S OFDM	BPSK	3 715.02	3 964.98	23.14		24.72	0.296	26M8G7D
			QPSK			23.15		24.73	0.297	26M9G7D
			16QAM			21.96		23.54	0.226	26M9D7D
		CP OFDM	QPSK			21.72		23.30	0.214	27M5G7D
			16QAM			21.15		22.73	0.187	27M5D7D
	40	DFT-S OFDM	BPSK	3 720.00	3 960.00	23.20		24.78	0.301	35M8G7D
			QPSK			23.19		24.77	0.300	35M7G7D
			16QAM			22.10		23.68	0.233	35M7D7D
		CP OFDM	QPSK			21.79		23.37	0.217	37M9G7D
			16QAM			21.20		22.78	0.190	38M0D7D
	50	DFT-S OFDM	BPSK	3 725.01	3 954.99	23.34		24.92	0.310	45M8G7D
			QPSK			23.29		24.87	0.307	45M8G7D
			16QAM			22.07		23.65	0.232	45M9D7D
		CP OFDM	QPSK			21.79		23.37	0.217	47M5G7D
			16QAM			21.25		22.83	0.192	47M7D7D
	60	DFT-S OFDM	BPSK	3 730.02	3 949.98	22.77		24.35	0.272	57M9G7D
			QPSK			22.76		24.34	0.272	57M9G7D
			16QAM			21.51		23.09	0.204	58M1D7D
		CP OFDM	QPSK			21.40		22.98	0.199	58M0G7D
			16QAM			20.97		22.55	0.180	58M0D7D
	70	DFT-S OFDM	BPSK	3 735.00	3 945.00	22.78		24.36	0.273	64M3G7D
			QPSK			22.79		24.37	0.274	64M5G7D
			16QAM			21.47		23.05	0.202	64M5D7D
		CP OFDM	QPSK			21.30		22.88	0.194	67M6G7D
			16QAM			20.70		22.28	0.169	67M6D7D
	80	DFT-S OFDM	BPSK	3 740.01	3 939.99	22.85		24.43	0.277	77M2G7D
			QPSK			22.86		24.44	0.278	77M2G7D
			16QAM			21.59		23.17	0.207	77M2D7D
		CP OFDM	QPSK			21.30		22.88	0.194	77M5G7D
			16QAM			20.73		22.31	0.170	77M5D7D
	90	DFT-S OFDM	BPSK	3 745.02	3 934.98	22.99		24.57	0.286	87M0G7D
			QPSK			23.03		24.61	0.289	86M7G7D
			16QAM			21.76		23.34	0.216	87M0D7D
		CP OFDM	QPSK			21.64		23.22	0.210	87M6G7D
			16QAM			21.15		22.73	0.187	87M6D7D
	100	DFT-S OFDM	BPSK	3 750.00	3 930.00	23.09		24.67	0.293	96M5G7D
			QPSK			23.06		24.64	0.291	96M3G7D
			16QAM			21.92		23.50	0.224	96M3D7D
		CP OFDM	QPSK			21.78		23.36	0.217	97M7G7D
			16QAM			21.20		22.78	0.190	97M5D7D

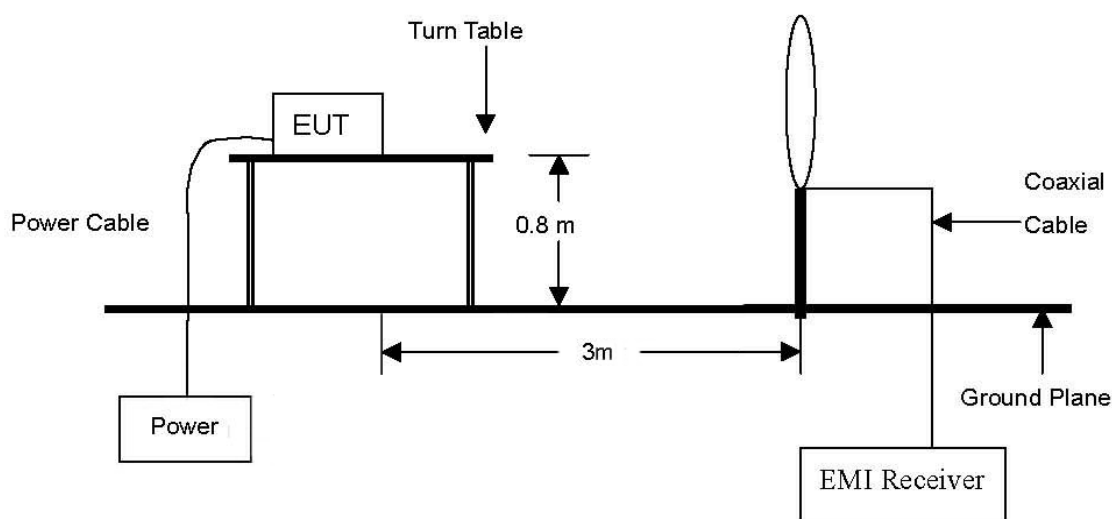
NR Band	Band width (MHz)	Modulation		Low Freq. (MHz)	Upper Freq. (MHz)	Conducted Average (dB m)	Worst Ant. Gain (dB i)	E.I.R.P. Average (dB m)	E.I.R.P. Average (W)	Emission Designator
n77/78 Low Band IC	20	DFT-S OFDM	BPSK	3 460.02	3 889.98	23.20	1.58	24.78	0.301	17M9G7D
			QPSK			23.19		24.77	0.300	17M9G7D
			16QAM			22.08		23.66	0.232	17M9D7D
		CP OFDM	QPSK			21.69		23.27	0.212	18M3G7D
			16QAM			21.14		22.72	0.187	18M3D7D
	30	DFT-S OFDM	BPSK	3 465.00	3 885.00	23.25		24.83	0.304	26M9G7D
			QPSK			23.25		24.83	0.304	26M9G7D
			16QAM			22.17		23.75	0.237	26M9D7D
		CP OFDM	QPSK			21.82		23.40	0.219	27M9G7D
			16QAM			21.29		22.87	0.194	27M9D7D
	40	DFT-S OFDM	BPSK	3 470.01	3 879.99	23.32		24.90	0.309	35M9G7D
			QPSK			23.31		24.89	0.308	35M9G7D
			16QAM			22.10		23.68	0.233	35M8D7D
		CP OFDM	QPSK			21.83		23.41	0.219	38M0G7D
			16QAM			21.27		22.85	0.193	37M9D7D
	50	DFT-S OFDM	BPSK	3 475.02	3 874.98	23.48		25.06	0.321	45M8G7D
			QPSK			23.50		25.08	0.322	45M9G7D
			16QAM			22.32		23.90	0.245	45M8D7D
		CP OFDM	QPSK			22.06		23.64	0.231	47M5G7D
			16QAM			21.37		22.95	0.197	47M7D7D
	60	DFT-S OFDM	BPSK	3 480.00	3 870.00	23.12		24.70	0.295	57M9G7D
			QPSK			23.12		24.70	0.295	58M1G7D
			16QAM			22.02		23.60	0.229	58M1D7D
		CP OFDM	QPSK			21.71		23.29	0.213	58M0G7D
			16QAM			21.24		22.82	0.191	58M1D7D
	70	DFT-S OFDM	BPSK	3 485.01	3 864.99	23.38		24.96	0.313	64M5G7D
			QPSK			23.38		24.96	0.313	64M5G7D
			16QAM			22.14		23.72	0.236	64M5D7D
		CP OFDM	QPSK			21.86		23.44	0.221	67M7G7D
			16QAM			21.28		22.86	0.193	67M6D7D
	80	DFT-S OFDM	BPSK	3 490.02	3 859.98	23.32		24.90	0.309	77M2G7D
			QPSK			23.34		24.92	0.310	77M4G7D
			16QAM			21.95		23.53	0.225	77M4D7D
		CP OFDM	QPSK			21.85		23.43	0.220	77M7G7D
			16QAM			21.23		22.81	0.191	77M7D7D
	90	DFT-S OFDM	BPSK	3 495.00	3 855.00	23.22		24.80	0.302	87M0G7D
			QPSK			23.20		24.78	0.301	86M7G7D
			16QAM			22.15		23.73	0.236	87M2D7D
		CP OFDM	QPSK			21.87		23.45	0.221	87M6G7D
			16QAM			21.37		22.95	0.197	87M6D7D
	100	DFT-S OFDM	BPSK	3 500.01	3 849.99	23.26		24.84	0.305	96M7G7D
			QPSK			23.29		24.87	0.307	96M5G7D
			16QAM			22.20		23.78	0.239	96M5D7D
		CP OFDM	QPSK			21.86		23.44	0.221	97M5G7D
			16QAM			21.29		22.87	0.194	97M7D7D

NR Band	Band width (MHz)	Modulation		Low Freq. (MHz)	Upper Freq. (MHz)	Conducted Average (dB m)	Worst Ant. Gain (dB i)	E.I.R.P. Average (dB m)	E.I.R.P. Average (W)	Emission Designator
n77 High Band IC	20	DFT-S OFDM	BPSK	3 910.02	3 969.99	23.19	1.58	24.77	0.300	17M9G7D
			QPSK			23.18		24.76	0.299	17M9G7D
			16QAM			22.07		23.65	0.232	17M9D7D
		CP OFDM	QPSK			21.68		23.26	0.212	18M3G7D
			16QAM			21.13		22.71	0.187	18M3D7D
	30	DFT-S OFDM	BPSK	3 915.00	3 964.98	23.21		24.79	0.301	26M8G7D
			QPSK			23.19		24.77	0.300	26M9G7D
			16QAM			22.11		23.69	0.234	26M9D7D
		CP OFDM	QPSK			21.76		23.34	0.216	27M9G7D
			16QAM			21.23		22.81	0.191	27M9D7D
	40	DFT-S OFDM	BPSK	3 920.01	3 960.00	23.22		24.80	0.302	35M9G7D
			QPSK			23.27		24.85	0.305	35M8G7D
			16QAM			21.91		23.49	0.223	35M8D7D
		CP OFDM	QPSK			21.69		23.27	0.212	37M9G7D
			16QAM			21.11		22.69	0.186	37M9D7D
	50	DFT-S OFDM	BPSK	3 925.02	3 954.99	23.45		25.03	0.318	45M8G7D
			QPSK			23.47		25.05	0.320	45M9G7D
			16QAM			22.29		23.87	0.244	45M8D7D
		CP OFDM	QPSK			22.03		23.61	0.230	47M6G7D
			16QAM			21.42		23.00	0.200	47M7D7D
	60	DFT-S OFDM	BPSK	3 930.00	3 949.98	23.06		24.64	0.291	57M9G7D
			QPSK			23.04		24.62	0.290	57M9G7D
			16QAM			21.97		23.55	0.226	58M1D7D
		CP OFDM	QPSK			21.69		23.27	0.212	58M0G7D
			16QAM			21.22		22.80	0.191	58M1D7D
	70	DFT-S OFDM	BPSK	3 935.01	3 945.00	23.38		24.96	0.313	64M3G7D
			QPSK			23.38		24.96	0.313	64M5G7D
			16QAM			22.14		23.72	0.236	64M5D7D
		CP OFDM	QPSK			21.86		23.44	0.221	67M7G7D
			16QAM			21.28		22.86	0.193	67M6D7D
	80	DFT-S OFDM	BPSK	3 939.99	3 939.99	23.23		24.81	0.303	77M0G7D
			QPSK			23.22		24.80	0.302	77M2G7D
			16QAM			21.88		23.46	0.222	77M0D7D
		CP OFDM	QPSK			21.78		23.36	0.217	77M4G7D
			16QAM			21.16		22.74	0.188	77M4D7D

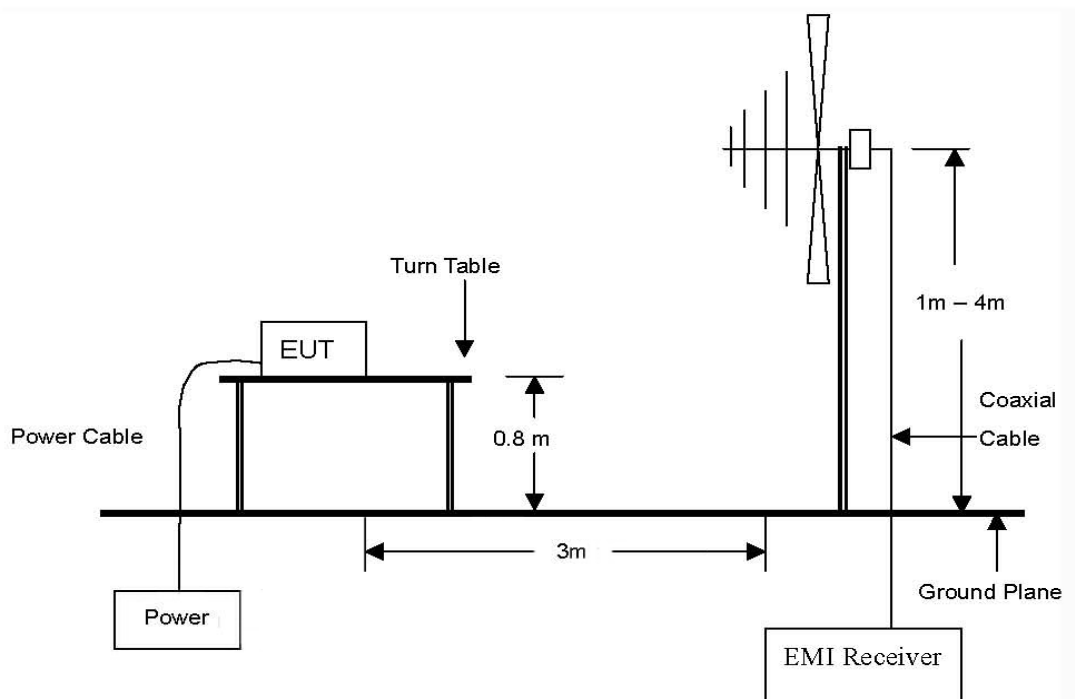
2. E.R.P. / E.I.R.P. & Radiated Spurious Emissions

2.1. Test setup

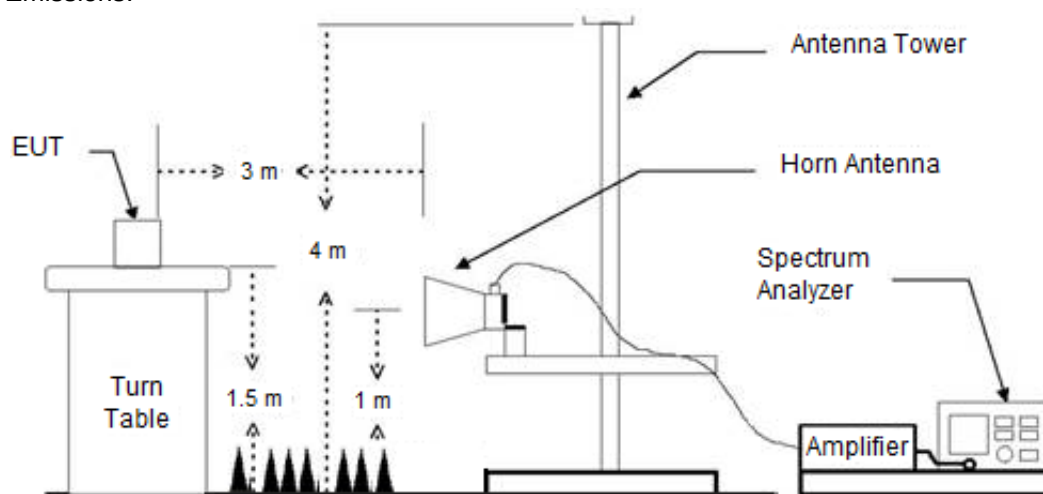
The diagram below shows the test setup that is utilized to make the measurements for emission from 9 kHz to 30 MHz.



The diagram below shows the test setup that is utilized to make the measurements for emission from 30 MHz to 1 GHz Emissions.



The diagram below shows the test setup that is utilized to make the measurements for emission from 1 GHz to 40 GHz Emissions.



2.2. Limit

2.2.1. Limit of E.R.P. / E.I.R.P.

FCC

- §27.50(h)(2), Mobile and other user stations. Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.

- §27.50(j)(3), Mobile and portable stations are limited to 1 Watt EIRP. Mobile and portable stations operating in these bands must employ a means for limiting power to the minimum necessary for successful communications.

- §27.50(k)(3), Mobile devices are limited to 1Watt (30 dBm) EIRP. Mobile devices operating in these bands must employ a means for limiting power to the minimum necessary for successful communications.

IC

- RSS-192 Issue 5

5.5, the maximum output power of the equipment measured in terms of average values shall comply with the limits specified in table 1.

Table 1 : Maximum power of equipment

Equipment type	Maximum Power
Non-AAS: base station (outdoor), fixed P-P station, P-MP hub station	68 dBm e.i.r.p./5 MHz
AAS: base station (outdoor), P-MP hub station	47 dBm TRP/5 MHz
Indoor base station	39 dBm TRP/channel bandwidth
Fixed subscriber equipment	39 dBm e.i.r.p./channel bandwidth
Subscriber equipment other than fixed subscriber equipment	30 dBm e.i.r.p./channel bandwidth

- RSS-198 Issue 1

5.5, the maximum power spectral density per antenna (considering all radiation patterns) of the equipment, measured in terms of average values, shall comply with the limits specified in table 1.

Table 1 : Maximum power spectral density of equipment

Equipment type	Maximum power spectral density (per antenna)
Outdoor base station, fixed service equipment	37 dBm/MHz e.i.r.p.
Indoor base station	20 dBm/MHz e.i.r.p.
Fixed subscriber equipment	20 dBm/MHz e.i.r.p.
Subscriber equipment other than fixed subscriber equipment	30 dBm /channel bandwidth e.i.r.p.

- RSS-199 Issue 4

5.5, the maximum output power of the equipment shall comply with the limits specified in table 3. In this table, maximum power refers to the equivalent isotropically radiated power (e.i.r.p.) or total radiated power (TRP), measured in terms of average values.

Subscriber equipment other than fixed subscriber equipment shall not exceed an e.i.r.p of 2W per channel bandwidth.

Fixed subscriber equipment shall not exceed the following:

- I. conducted power of 2W per channel bandwidth for all ports
- II. e.i.r.p of 40 W per channel bandwidth

The maximum power limits for fixed station and base station are provided in Table 3. The limits in this RSS are specified for the purpose of certification and may not apply to all deployment scenarios. Consult SRSP-517 for more deployment details in the band 2 500-2 690 MHz.

Table 3: Maximum power of fixed station and base station in the band 2 500-2 690 MHz

Equipment type	Maximum power
Non-AAS fixed station and base station	e.i.r.p of 1 640 W / MHz
AAS fixed station and base station	TRP of 43 dB m / MHz

2.2.2. Limit of Radiated Spurious Emissions

FCC

- §27.53(l)(2), for mobile operations in the 3 700-3 980 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed -13 dBm /MHz. Compliance with this paragraph (l)(2) is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be either one percent of the emission bandwidth of the fundamental emission of the transmitter or 350 kHz. In the bands between 1 and 5 MHz removed from the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be 500 kHz. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

- §27.53(m)(4), for mobile digital stations, the attenuation factor shall be not less than $40 + 10 \log_{10} (P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log_{10} (P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log_{10} (P)$ 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 than $43 + 10 \log_{10} (P)$ dB on all frequencies between 2 490.5 MHz and 2 496 MHz and $55 + 10 \log_{10} (P)$ dB at or below 2 490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2 495 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.

- §27.53(n)(2), for mobile operations in the 3 450-3 550 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed -13 dBm /MHz.. Compliance with this paragraph (n)(2) is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed, but limited to a maximum of 200 kHz. In the bands between 1 and 5 MHz removed from the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be 500 kHz. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

IC

- RSS-192 Issue 5

5.6, unwanted emissions shall be measured in terms of average values when the transmitter is operating at the manufacturer's rated power and modulated as specified in RSS-Gen.

Equipment shall meet the unwanted emission limits, specified below, outside each frequency block group. For each channel bandwidth supported by the equipment under test, the unwanted emissions shall be measured and reported for two channel frequencies: one located as close as possible to the low end and one located as close as possible to the high end of the equipment's operating frequency range.

If the transmitter is designed for multi-carrier operation, the tests shall be carried out using both the maximum and minimum number of carriers intended for the equipment.

5.6.3, subscriber equipment shall have the TRP or conducted power (per antenna), where applicable, of unwanted emission not exceeding the following:

a. the limits in table 6

b. a limit of -30 dBm/MHz in the frequency range greater than (B+5) MHz from the edge of the frequency band

Table 6: Unwanted emission limits for subscriber equipment

Frequency block group (B)	Offset frequency from the edge of the frequency block group (MHz)			
	0-1	1-5	5-B	>B
10 MHz, 20 MHz, 30 MHz and 40 MHz	-13 dBm/1% of B	-10 dBm/MHz	-13 dBm/MHz	-25 dBm/MHz
> 40 MHz	-13 dBm/400 kHz	-10 dBm/MHz	-13 dBm/MHz	-25 dBm/MHz

- RSS-198 Issue 1

5.6, unwanted emissions shall be measured in term of average value when the transmitter is operating at the manufacturer's rated power and modulated as specified in RSS-Gen.

Equipment shall meet the unwanted emission limits, specified below, outside each frequency block group. For each channel bandwidth supported by the equipment under test, the unwanted emissions shall be measured and reported for two channel frequencies: one located as close as possible to the low end and one located as close as possible to the high end of the equipment's operating frequency range.

5.6.1, the unwanted emission outside the frequency block group shall not exceed the TRP or total conducted power (sum of conducted power across all antenna connectors) limits as specified in table 2.

Table 2: Unwanted emission limits for all equipment

Offset frequency from the edge of the frequency block group (MHz)	Unwanted emission limits for all equipment
≤1	-13 dBm/1% OB*
>1	-13 dBm/MHz

*OB is the occupied bandwidth

5.6.2, for frequencies between 4 200 MHz and 4 400 MHz, the unwanted emission of outdoor base station, indoor base station and fixed service equipment shall not exceed a TRP or total conducted power (sum of conducted power across all antenna connectors) limit of -30 dBm/MHz.

- RSS-199 Issue 4

5.6, unwanted emissions shall be measured in terms of average values when the transmitter is operating at the manufacturer's rated power and modulated as specified in RSS-Gen.

Equipment shall meet the unwanted emission limits, specified below, outside each frequency block group. For each channel bandwidth supported by the equipment under test, the unwanted emissions shall be measured and reported for two channel frequencies: one located as close as possible to the low end and one located as close as possible to the high end of the equipment's operating frequency range.

For the unwanted emission limits, in the 1 MHz band immediately outside and adjacent to the frequency block group, the power shall be measured with a resolution bandwidth of at least 1% of the occupied bandwidth for fixed stations, base stations, and fixed subscriber equipment, and 2 % for subscriber equipment other than fixed subscriber equipment. Beyond this 1 MHz band, a resolution bandwidth of 1 MHz shall be used. A narrower resolution bandwidth can be used, provided that the measured power is integrated over the full required measurement bandwidth of 1 MHz, or 1 % or 2 % of the occupied bandwidth, as applicable.

For all equipment, the TRP or total conducted power (sum of conducted power across all antenna connectors), where applicable, of the unwanted emissions outside the frequency block or frequency block group shall not exceed the limits shown in the tables below.

Table 4: Unwanted emission limits for fixed station, base station and fixed subscriber equipment

Offset from the edge of the frequency block or frequency block group (MHz)	Unwanted emission limit
≤1	-13 dB m/(1% of OB*)
>1	-13 dB m/MHz

* OB is the occupied bandwidth

Table 5: Unwanted emission limits for subscriber equipment other than fixed subscriber equipment

Offset from the edge of the frequency block or frequency block group (MHz)	Unwanted emission limit
0-1	-10 dB m/(2% of OB*)
1-5	-10 dB m/MHz
5-X**	-13 dB m/MHz
≥X	-25 dB m/MHz

* OB is the occupied bandwidth

** X is 6 MHz or the equipment occupied bandwidth, whichever is greater

In addition to complying with the limits in table 5, subscriber equipment other than fixed subscriber equipment shall not exceed -13 dB m/MHz on all frequencies between 2 490.5 MHz and 2 496 MHz, and -25 dB m/MHz at or below 2 490.5 MHz.

2.3. Test Procedure

2.3.1. E.R.P. or E.I.R.P. from conducted RF output power

According to subclause 5.2.5.5 of ANSI C63.26-2015 E.R.P. and E.I.R.P. are defined as the product of the power supplied to the antenna and its gain.

The relevant equation for determining the E.R.P. or E.I.R.P. from the conducted RF output power measured using the guidance provided above is:

$$\text{E.R.P. or E.I.R.P.} = P_{\text{Meas}} + G_T$$

where:

E.R.P. or E.I.R.P. = effective radiated power or equivalent isotropically radiated power, respectively
(expressed in the same units as P_{Meas} , typically dBW or dBm);

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

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

2.3.2. Radiated Spurious Emissions

The test based on ANSI/TIA 603E: 2016 and ANSI C63.26-2015 and KDB 971168 D01 Power Meas License Digital Systems v03r01.

1. On a test site, the EUT shall be placed at 0.8 m or 1.5 m height on a turn table, and in the position close to normal use as declared by the applicant.
2. The test antenna shall be oriented initially for vertical polarization located 3 m from EUT to correspond to the fundamental frequency of the transmitter.
3. The output of the test antenna shall be connected to the measuring receiver and the peak detector is used for the measurement.
4. Radiated spurious emissions measurement method was set as follows:
RBW = 100 kHz for emissions below 1 GHz and 1 MHz for emissions above 1 GHz, VBW $\geq 3 \times$ RBW,
Detector = RMS, trace mode = max hold, per the guidelines of KDB 971168 D01 Power Meas License Digital Systems v03r01.
5. The transmitter shall be switched on, the measuring receiver shall be tuned to the frequency of the transmitter under test.
6. The test antenna shall be raised and lowered through the specified range of height until the maximum signal level is detected by the measuring receiver.
7. The transmitter shall be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.
8. The test antenna shall be raised and lowered again through the specified range of height until the maximum signal level is detected by the measuring receiver.
9. The maximum signal level detected by the measuring receiver shall be noted.
10. In necessary, the input attenuator setting on the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.
11. The test antenna shall be raised and lowered through the specified range of height to ensure that the maximum signal is received.
12. The measurement shall be repeated with the test antenna orientated for horizontal polarization.

2.4. Test Results

Ambient temperature : (23 ± 1) °C
Relative humidity : 47 % R.H.

2.4.1. E.R.P. / E.I.R.P.

Ant. 2

Band	Frequency (MHz)	Maximum Conducted Power (dB m)	Maximum Conducted Power (W)	Antenna Gain (dB i)	Maximum E.I.R.P. (dB m)	Maximum E.I.R.P. (W)	Maximum E.R.P. (dB m)	Maximum E.R.P. (W)	Limit
n48 IC	3 550 ~ 3 700	21.69	0.148	-1.37	20.32	0.108			30 dB m / E.I.R.P.
n77/78 Low band FCC	3 450 ~ 3 550	23.62	0.230	0.12	23.74	0.237			1 W E.I.R.P.
n77/78 High band FCC	3 700 ~ 3 980	23.75	0.237	0.12	23.87	0.244			1 W E.I.R.P.
n77/78 Low band IC	3 450 ~ 3 900	23.71	0.235	0.12	23.83	0.242			30 dB m / E.I.R.P.
n77 High band IC	3 900 ~ 3 980	23.78	0.239	0.12	23.90	0.245			30 dB m / E.I.R.P.

Switching

Band	Frequency (MHz)	Maximum Conducted Power (dB m)	Maximum Conducted Power (W)	Worst Antenna Gain (dB i)	Maximum E.I.R.P. (dB m)	Maximum E.I.R.P. (W)	Maximum E.R.P. (dB m)	Maximum E.R.P. (W)	Limit
n41 FCC	2 496 ~ 2 690	24.50	0.282	2.79	27.29	0.536			2 W E.I.R.P.
n41 IC	2 500 ~ 2 690	24.47	0.280	2.79	27.26	0.532			2 W E.I.R.P.
n48 IC	3 550 ~ 3 700	22.59	0.182	0.96	23.55	0.226			30 dB m / E.I.R.P.
n77/78 Low band FCC	3 450 ~ 3 550	23.56	0.218	1.58	25.14	0.327			1 W E.I.R.P.
n77/78 High band FCC	3 700 ~ 3 980	23.34	0.216	1.58	24.92	0.310			1 W E.I.R.P.
n77/78 Low band IC	3 450 ~ 3 900	23.50	0.224	1.58	25.08	0.322			30 dB m / E.I.R.P.
n77 High band IC	3 900 ~ 3 980	23.47	0.222	1.58	25.05	0.320			30 dB m / E.I.R.P.

Remark;

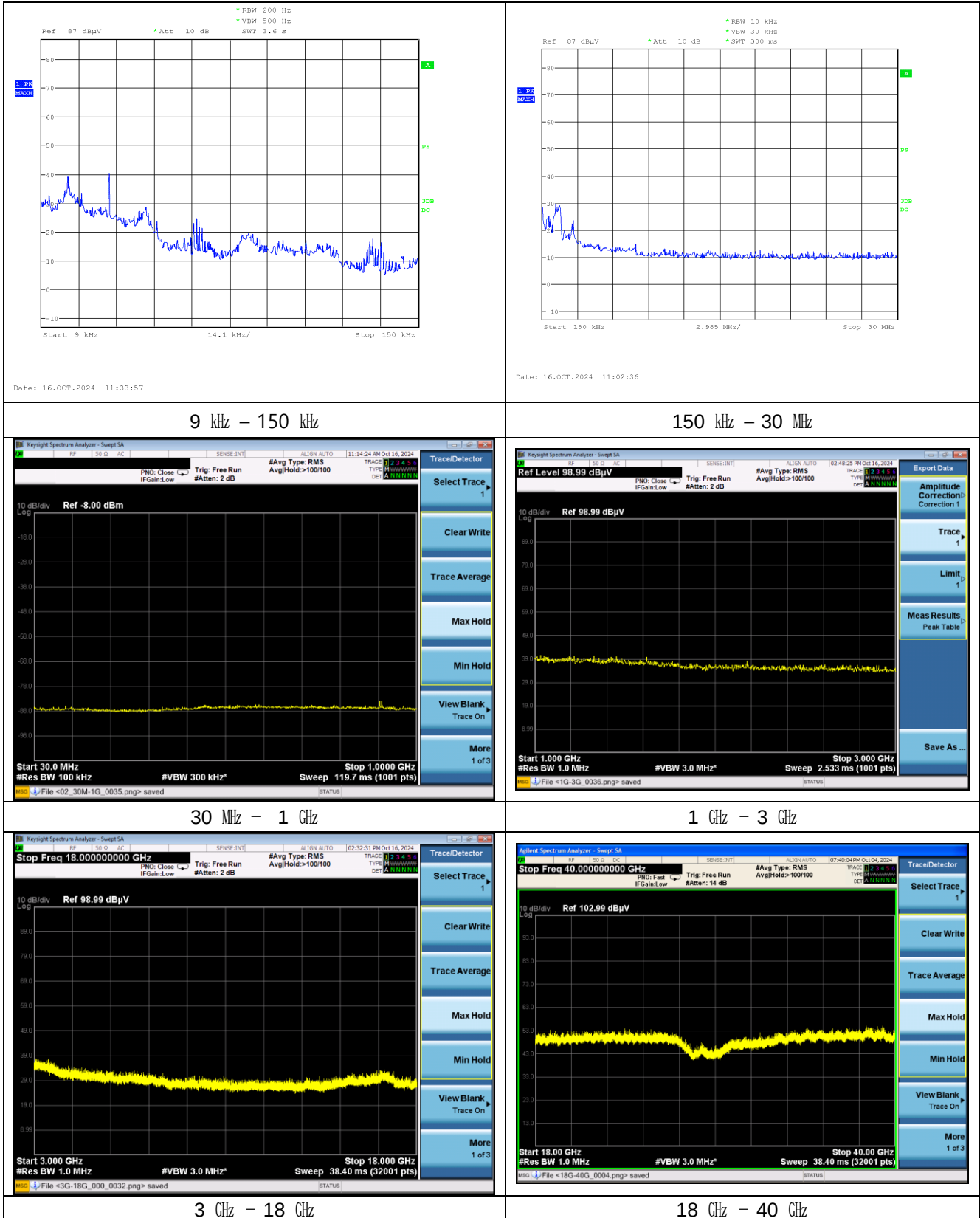
1. E.I.R.P. (dB m) = Maximum Conducted Power (dB m) + Antenna Gain (dB i)
2. E.R.P. (dB m) = E.I.R.P. (dB m) - 2.15 (dB); where E.R.P. and E.I.R.P. are expressed in consistent units.

2.4.2. Radiated Spurious Emissions

- Ant. 1_Below 3 GHz

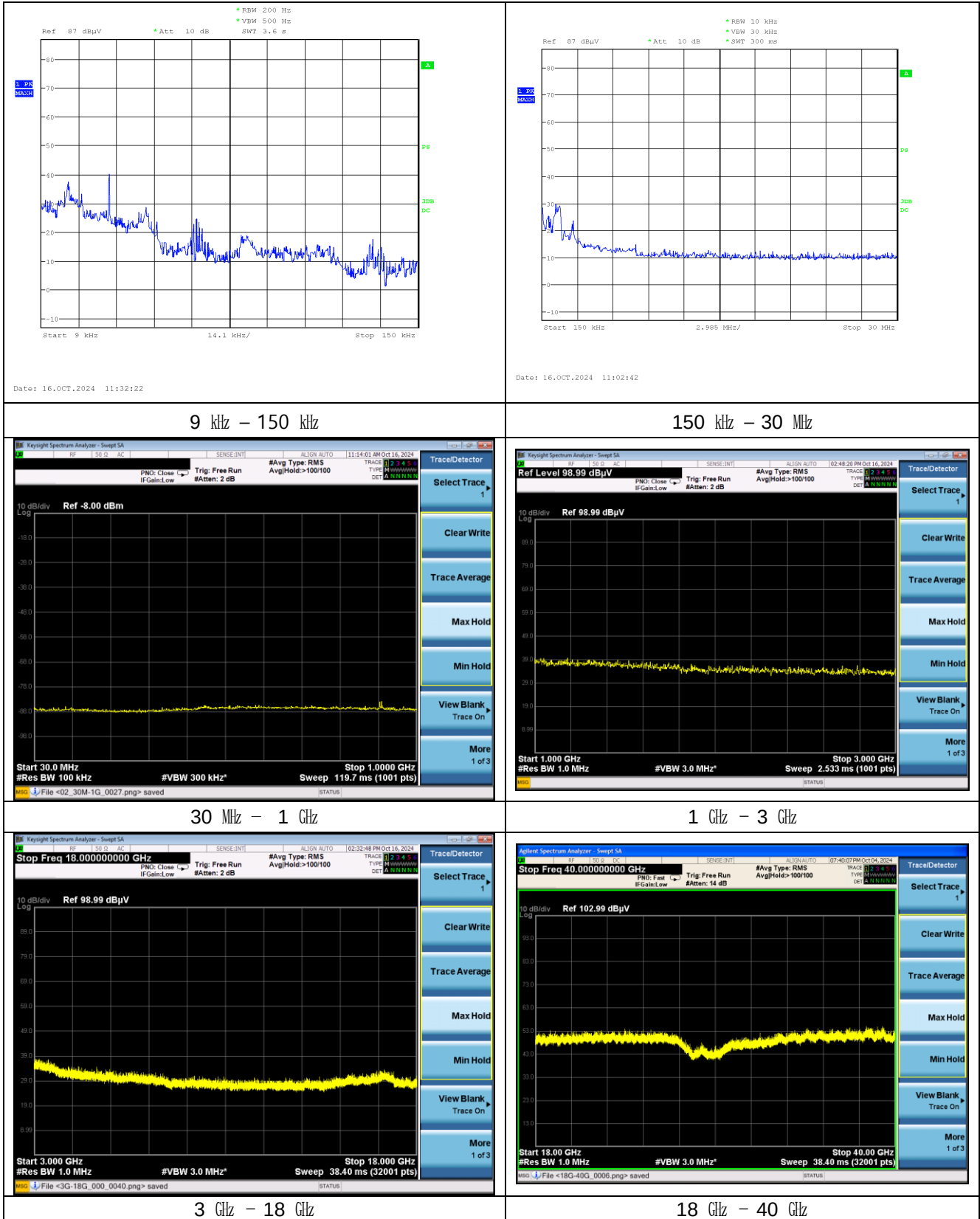
NR Band 41 (100 MHz - DFT-S-OFDM BPSK)_FCC

Frequency (MHz)	Measured Level (dBμV)	Ant. Pol.	AF (dB/m)	AMP+CL (dB)	E (dBμV/m)	CF (dB)	E.I.R.P. (dB m)	Limit (dB m)	Margin (dB)
Low Channel (2 546.01 MHz)									
Below 1 000.00	Not detected	-	-	-	-	-	-	-	-
Above 1 000.00	Not detected	-	-	-	-	-	-	-	-
Middle Channel (2 592.99 MHz)									
Below 1 000.00	Not detected	-	-	-	-	-	-	-	-
Above 1 000.00	Not detected	-	-	-	-	-	-	-	-
High Channel (2 640.00 MHz)									
Below 1 000.00	Not detected	-	-	-	-	-	-	-	-
Above 1 000.00	Not detected	-	-	-	-	-	-	-	-



NR Band 41 (100 MHz - DFT-S-OFDM BPSK) IC

Frequency (MHz)	Measured Level (dB μ V)	Ant. Pol.	AF (dB/m)	AMP+CL (dB)	E (dB μ V/m)	CF (dB)	E.I.R.P. (dB m)	Limit (dB m)	Margin (dB)
Low Channel (2 550.00 MHz)									
Below 1 000.00	Not detected	-	-	-	-	-	-	-	-
Above 1 000.00	Not detected	-	-	-	-	-	-	-	-
Middle Channel (2 595.00 MHz)									
Below 1 000.00	Not detected	-	-	-	-	-	-	-	-
Above 1 000.00	Not detected	-	-	-	-	-	-	-	-
High Channel (2 640.00 MHz)									
Below 1 000.00	Not detected	-	-	-	-	-	-	-	-
Above 1 000.00	Not detected	-	-	-	-	-	-	-	-



- Ant. 1_Above 3 GHz

NR Band 48 (40 MHz - DFT-S-OFDM BPSK) IC

Frequency (MHz)	Measured Level (dBμV)	Ant. Pol.	AF (dB/m)	AMP+CL (dB)	E (dBμV/m)	CF (dB)	E.I.R.P. (dB m)	Limit (dB m)	Margin (dB)
Low Channel (3 570.00 MHz)									
7 179.62	33.80	H	35.86	-29.14	40.52	-95.26	-54.74	-30	24.74
7 120.34	33.92	V	35.74	-29.14	40.52	-95.26	-54.74	-30	24.74
Above 7 200.00	Not detected	-	-	-	-	-	-	-	-
Middle Channel (3 624.99 MHz)									
7 236.00	33.88	H	35.97	-29.11	40.74	-95.26	-54.52	-30	24.52
7 246.08	33.71	V	35.99	-29.02	40.68	-95.26	-54.58	-30	24.58
Above 7 300.00	Not detected	-	-	-	-	-	-	-	-
High Channel (3 679.98 MHz)									
7 320.86	33.12	H	36.14	-29.13	40.13	-95.26	-55.13	-30	25.13
7 370.54	33.68	V	36.24	-29.05	40.87	-95.26	<u>-54.39</u>	-30	24.39
Above 7 400.00	Not detected	-	-	-	-	-	-	-	-

NR Band 77/78 Low Band (50 MHz - DFT-S-OFDM QPSK) FCC

Frequency (MHz)	Measured Level (dBμV)	Ant. Pol.	AF (dB/m)	AMP+CL (dB)	E (dBμV/m)	CF (dB)	E.I.R.P. (dB m)	Limit (dB m)	Margin (dB)
Low Channel (3 475.02 MHz)									
6 976.30	34.25	H	35.60	-29.16	40.69	-95.26	-54.57	-13	41.57
6 983.70	33.98	V	35.60	-29.15	40.43	-95.26	-54.83	-13	41.83
Above 7 000.00	Not detected	-	-	-	-	-	-	-	-
Middle Channel (3 500.01 MHz)									
7 031.50	33.45	H	35.60	-29.21	39.84	-95.26	-55.42	-13	42.42
6 962.60	33.41	V	35.60	-29.17	39.84	-95.26	-55.42	-13	42.42
Above 7 100.00	Not detected	-	-	-	-	-	-	-	-
High Channel (3 525.00 MHz)									
7 084.50	33.45	H	35.67	-29.20	39.92	-95.26	-55.34	-13	42.34
7 077.20	34.08	V	35.65	-29.20	40.53	-95.26	-54.73	-13	41.73
Above 7 100.00	Not detected	-	-	-	-	-	-	-	-

NR Band 77/78 High Band (50 MHz - DFT-S-OFDM BPSK)_FCC

Frequency (MHz)	Measured Level (dBμV)	Ant. Pol.	AF (dB/m)	AMP+CL (dB)	E (dBμV/m)	CF (dB)	E.I.R.P. (dB m)	Limit (dB m)	Margin (dB)
Low Channel (3 725.01 MHz)									
7 496.00	33.71	H	36.11	-29.08	40.74	-95.26	-54.52	-13	41.52
7 455.70	34.03	V	36.19	-28.93	41.29	-95.26	-53.97	-13	40.97
Above 7 500.00	Not detected	-	-	-	-	-	-	-	-
Middle Channel (3 840.00 MHz)									
7 635.50	34.73	H	36.00	-28.89	41.84	-95.26	-53.42	-13	40.42
7 645.70	33.79	V	36.00	-28.83	40.96	-95.26	-54.30	-13	41.30
Above 7 700.00	Not detected	-	-	-	-	-	-	-	-
High Channel (3 954.99 MHz)									
7 925.40	32.62	H	36.05	-28.30	40.37	-95.26	-54.89	-13	41.89
7 909.10	33.62	V	36.02	-28.31	41.33	-95.26	-53.93	-13	40.93
Above 8 000.00	Not detected	-	-	-	-	-	-	-	-

NR Band 77/78 Low Band (50 MHz - DFT-S-OFDM QPSK) IC

Frequency (MHz)	Measured Level (dBμV)	Ant. Pol.	AF (dB/m)	AMP+CL (dB)	E (dBμV/m)	CF (dB)	E.I.R.P. (dB m)	Limit (dB m)	Margin (dB)
Low Channel (3 475.02 MHz)									
6 999.20	33.20	H	35.60	-29.12	39.68	-95.26	-55.58	-30	25.58
6 947.90	33.35	V	35.60	-29.16	39.79	-95.26	-55.47	-30	25.47
Above 7 000.00	Not detected	-	-	-	-	-	-	-	-
Middle Channel (3 675.00 MHz)									
7 334.50	33.05	H	36.17	-29.09	40.13	-95.26	-55.13	-30	25.13
7 345.00	34.19	V	36.19	-29.07	41.31	-95.26	-53.95	-30	23.95
Above 7 400.00	Not detected	-	-	-	-	-	-	-	-
High Channel (3 874.98 MHz)									
7 761.80	33.18	H	36.00	-28.54	40.64	-95.26	-54.62	-30	24.62
7 775.00	33.02	V	36.00	-28.51	40.51	-95.26	-54.75	-30	24.75
Above 7 800.00	Not detected	-	-	-	-	-	-	-	-

NR Band 77 High Band (50 MHz - DFT-S-OFDM QPSK) IC

Frequency (MHz)	Measured Level (dBμV)	Ant. Pol.	AF (dB/m)	AMP+CL (dB)	E (dBμV/m)	CF (dB)	E.I.R.P. (dB m)	Limit (dB m)	Margin (dB)
Low Channel (3 925.02 MHz)									
7 826.80	33.58	H	36.00	-28.51	41.07	-95.26	-54.19	-13	41.19
7 842.30	33.61	V	36.00	-28.45	41.16	-95.26	-54.10	-13	41.10
Above 7 900.00	Not detected	-	-	-	-	-	-	-	-
Middle Channel (3 939.99 MHz)									
7 924.20	33.84	H	36.05	-28.31	41.58	-95.26	-53.68	-13	40.68
7 875.70	33.21	V	36.00	-28.39	40.82	-95.26	-54.44	-13	41.44
Above 8 000.00	Not detected	-	-	-	-	-	-	-	-
High Channel (3 954.99 MHz)									
7 930.40	33.02	H	36.06	-28.30	40.78	-95.26	-54.48	-13	41.48
7 929.00	33.99	V	36.06	-28.30	41.75	-95.26	<u>-53.51</u>	-13	40.51
Above 8 000.00	Not detected	-	-	-	-	-	-	-	-

- Ant. 2_Above 3 GHz

NR Band 48 (40 MHz - DFT-S-OFDM BPSK)_IC

Frequency (MHz)	Measured Level (dBμV)	Ant. Pol.	AF (dB/m)	AMP+CL (dB)	E (dBμV/m)	CF (dB)	E.I.R.P. (dB m)	Limit (dB m)	Margin (dB)
Low Channel (3 570.00 MHz)									
Below 1 000.00	Not detected	-	-	-	-	-	-	-	-
Above 1 000.00	Not detected	-	-	-	-	-	-	-	-
Middle Channel (3 624.99 MHz)									
Below 1 000.00	Not detected	-	-	-	-	-	-	-	-
Above 1 000.00	Not detected	-	-	-	-	-	-	-	-
High Channel (3 679.98 MHz)									
Below 1 000.00	Not detected	-	-	-	-	-	-	-	-
Above 1 000.00	Not detected	-	-	-	-	-	-	-	-

