

TEST REPORT

of

FCC Part 2 Subpart J, Part 22 Subpart C/H,
Part 24 Subpart E, Part 27 Subpart C Part 90 Subpart R/S
IC RSS-130 Issue 2, RSS-132 Issue 4, RSS-133 Issue 7,
RSS-139 Issue 4, RSS-140 Issue 1, RSS-192 Issue 5,
RSS-198 Issue 1, RSS-199 Issue 4 and RSS-Gen Issue 5

FCC ID: BEJTFGMEIBBCD1

IC Certification: 2703H-TFGMEIBBCD1

Equipment Under Test : Telematics
Model Name : TFGMEIBBCD1
Variant Model Name(s) : Refer to the page 4
Applicant : FCC: LG Electronics USA, Inc.
: IC: LG ELECTRONICS INC.
Manufacturer : LG Electronics Inc.
Date of Receipt : 2024.12.04
Date of Test(s) : 2025.01.05 ~ 2025.01.08
Date of Issue : 2025.02.12

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

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- 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:



Dave Kim

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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Phone No. : +82 31 688 0901

Fax No. : +82 31 688 0921

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 : Heejae Cho

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

1.4. Description of EUT

Kind of Product		Telematics	
Model Name		TFGMEIBBCD1	
Variant Model Names		TFGMEIBBCD2, TFGMEIBBCD3	
Serial Number		Radiated: 351015130065751	
Power Supply		DC 13.5 V	
Rated Power		WCDMA II, V: 24 dB m WCDMA IV: 23.5 dB m LTE Band 2, 7, 13, 14, 26: 24 dB m LTE Band 5, 12: 24.2 dB m LTE Band 4, 66: 23.5 dB m NR Band 2, 5, 7, 12, 13, 14, 25, 26, 71: 24 dB m NR Band 41: 25 dB m NR Band 66: 23.5 dB m NR Band 77, 78: 25 dB m	
Frequency Range	Port 1	WCDMA II: 1 850 MHz ~ 1 910 MHz WCDMA IV: 1 710 MHz ~ 1 755 MHz WCDMA V: 824 MHz ~ 849 MHz LTE Band 2: 1 850 MHz ~ 1 910 MHz LTE Band 4: 1 710 MHz ~ 1 755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 7: 2 500 MHz ~ 2 570 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 13: 777 MHz ~ 787 MHz LTE Band 14: 788 MHz ~ 798 MHz LTE Band 26(FCC Only): 814 MHz ~ 824 MHz LTE Band 26: 824 MHz ~ 849 MHz LTE Band 66: 1 710 MHz ~ 1 780 MHz NR Band 2: 1 850 MHz ~ 1 910 MHz NR Band 5: 824 MHz ~ 849 MHz NR Band 7: 2 500 MHz ~ 2 570 MHz	NR Band 12: 699 MHz ~ 716 MHz NR Band 13: 777 MHz ~ 787 MHz NR Band 14: 788 MHz ~ 798 MHz NR Band 25: 1 850 MHz ~ 1 915 MHz NR Band 26(FCC Only): 814 MHz ~ 824 MHz NR Band 26: 824 MHz ~ 849 MHz NR Band 41(FCC): 2 496 MHz ~ 2 690 MHz NR Band 41(IC): 2 500 MHz ~ 2 690 MHz NR Band 66: 1 710 MHz ~ 1 780 MHz NR Band 71: 663 MHz ~ 698 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
	Port 2	NR Band 41(FCC): 2 496 MHz ~ 2 690 MHz NR Band 41(IC): 2 500 MHz ~ 2 690 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		Internal: Planar Inverted F Antenna External Antenna: Metal Antenna	
Antenna Gain*		Refer to the clause 1.11	
H/W Version		Rev.F	
S/W Version		SW176	
FVIN		SW176	

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	Agilent	N9020A	MY53421758	Sep. 10, 2024	Annual	Sep. 10, 2025
Spectrum Analyzer	Agilent	N9030A	US51350132	Nov. 29, 2024	Annual	Nov. 29, 2025
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
Low Pass Filter	Mini-Circuits	NLP-1200+	V 8979400903-2	Feb. 04, 2025	Annual	Feb. 04, 2026
High Pass Filter	Wainwright Instrument GmbH	WHKX10-900-1000-18000-40SS	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	WLKX10-3555-4500-26500-40CD	1	Oct. 29, 2024	Annual	Oct. 29, 2025
High Pass Filter	Wainwright Instrument GmbH	WHNX7.5/26.5G-6SS	11	Oct. 16, 2024	Annual	Oct. 16, 2025
DC Power Supply	Agilent	U8002A	MY49030063	Jan. 23, 2025	Annual	Jan. 23, 2026
Preamplifier	H.P.	8447F	2944A03909	Aug. 09, 2024	Annual	Aug. 09, 2025
Preamplifier	R&S	SCU18	102218	Mar. 08, 2024	Annual	Mar. 08, 2025
Test Receiver	R&S	ESU 26	100109	Jan. 13, 2025	Annual	Jan. 13, 2026
Loop Antenna	Schwarzbeck Mess-Elektronik	FMZB 1519	1519-039	Aug. 21, 2023	Biennial	Aug. 21, 2025
Bilog Antenna	Schwarzbeck Mess-Elektronik	VULB 9163	9163-396	Apr. 02, 2024	Biennial	Apr. 02, 2026
Horn Antenna	R&S	HF906	100326	Feb. 19, 2024	Annual	Feb. 19, 2025
Antenna Master	Innco systems GmbH	MA4640-XP-ET	MA4640/536/383 30516/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	CO3000/963/383 30516/L	N.C.R.	N/A	N.C.R.
Anechoic Chamber	SY Corporation	L × W × H (9.6 m × 6.4 m × 6.6 m)	N/A	N.C.R.	N/A	N.C.R.
Coaxial Cable	SENSORVIEW	NMST-13A26-NMST-5 m	TPC2402190004	Oct. 04, 2024	Semi-Annual	Apr. 04, 2025
Coaxial Cable	SENSORVIEW	NMST-13A26-NMST-10 m	TPC2402190001	Oct. 04, 2024	Semi-Annual	Apr. 04, 2025

1.6. Summary of Test Results

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 2, 22, 24, 27 and 90 / IC RSS-Gen Issue 5, RSS-130 Issue 2, RSS-132 Issue 4, RSS-133 Issue 7, RSS-139 Issue 4, RSS-140 Issue 1, 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 §22.913(a)(5) §24.232(c) §27.50(b)(9), §27.50(c)(9)(10) §27.50(d)(4), §27.50(h)(2) §27.50(j)(3), §27.50(k)(3) §90.542(a)(6), §90.635(b)	RSS-130 Issue 2 4.6 RSS-132 Issue 4 5.4 RSS-133 Issue 7 5.5 RSS-139 Issue 4 5.5 RSS-140 Issue 1 4.3 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 ²⁾³⁾
§22.917(a) §24.238(a) §27.53(c)(2), §27.53(f) §27.53(g), §27.53(h)(1) §27.53(l)(2), §27.53(m)(4) §27.53(n)(2) §90.543(e), §90.543(f) §90.691(a)	RSS-130 Issue 2 4.7 RSS-132 Issue 4 5.5 RSS-133 Issue 7 5.6 RSS-139 Issue 4 5.6 RSS-140 Issue 1 4.4 RSS-192 Issue 5 5.6 RSS-198 Issue 1 5.6 RSS-199 Issue 4 5.6	Radiated Spurious Emissions	Pass ²⁾
§2.1046	RSS-Gen Issue 5 6.12	Conducted Output Power	Pass ¹⁾
§2.1049	RSS-Gen Issue 5 6.7	Occupied Bandwidth	Pass ¹⁾
§22.913(d) §24.232(d) §27.50(d)(5) §27.50(j)(4) §27.50(k)(4)	RSS-130 Issue 2 4.6 RSS-132 Issue 4 5.4 RSS-133 Issue 7 5.5 RSS-139 Issue 4 5.6 RSS-140 Issue 1 4.3 RSS-192 Issue 5 5.5 RSS-198 Issue 1 5.5 RSS-199 Issue 4 5.5	Peak-Average Ratio	Pass ¹⁾
§22.917(a) §24.238(a) §27.53(c)(2), §27.53(g) §27.53(h)(1), §27.53(l)(2), §27.53(m)(4), §27.53(n)(2) §90.543(e), §90.691(a)	RSS-130 Issue 2 4.7 RSS-132 Issue 4 5.5 RSS-133 Issue 7 5.6 RSS-139 Issue 4 5.6 RSS-140 Issue 1 4.4 RSS-192 Issue 5 5.6 RSS-198 Issue 1 5.6 RSS-199 Issue 4 5.6	Spurious Emission at Antenna Terminal	Pass ¹⁾
§22.917(a) §24.238(a) §27.53(c)(2), §27.53(g) §27.53(h)(1), §27.53(l)(2) §27.53(m)(4), §27.53(n)(2) §90.543(e), §90.691(a)	RSS-130 Issue 2 4.7 RSS-132 Issue 4 5.5 RSS-133 Issue 7 5.6 RSS-139 Issue 4 5.6 RSS-140 Issue 1 4.4 RSS-192 Issue 5 5.6 RSS-198 Issue 1 5.6 RSS-199 Issue 4 5.6	Band Edge and Emission Mask	Pass ¹⁾
§2.1055 §22.355 §24.235 §27.54 §90.213(a)	RSS-Gen Issue 5 6.11 RSS-130 Issue 2 4.5 RSS-132 Issue 4 5.3 RSS-133 Issue 7 5.4 RSS-139 Issue 4 5.4 RSS-140 Issue 1 4.2 RSS-192 Issue 5 5.4 RSS-198 Issue 1 5.4 RSS-199 Issue 4 5.4	Frequency Stability	Pass ¹⁾

Note;

- 1) The test items were used the results from original test report.
- 2) This product is a C2PC case due to the addition of antenna. So only radiation test was performed and the rules for E.R.P. / E.I.R.P. and spurious radiated emission were satisfied.
- 3) The E.R.P. / E.I.R.P. was calculated or measured only when the antenna gain increased between the original and additional antennas among external antennas.

1.7. Sample Calculation for Offset

Where relevant, the following sample calculation is provided:

1.7.1. 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)

1.8. Measurement Uncertainty

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

Parameter	Uncertainty	
Radiated Emission, 9 kHz to 30 MHz	H	3.40 dB
	V	3.40 dB
Radiated Emission, below 1 GHz	H	4.60 dB
	V	5.00 dB
Radiated Emission, above 1 GHz	H	3.60 dB
	V	3.60 dB

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

1.9. Test Report Revision

Revision	Report Number	Date of Issue	Description
0	F690501-RF-RTL005702	2025.01.17	Initial
1	F690501-RF-RTL005702-1	2025.02.12	Updated terminology in test report

1.10. Manufacturer Declaration

The EUT supports two ports and LTE, WCDMA and 5G NR FDD bands support only port 1.
The 5G NR TDD (n41, n77, n78) band supports both port 1 and port 2.

Port 1 supports only 5G NR TDD bands with MIMO mode and MIMO mode supports only CP-OFDM Modulation.

The additional antennas are BT1UG[85846853] and BT1FG[85846852].
The only difference between the additional antennas BT1UG[85846853] and BT1FG[85846852] is the declaration of minimum separation distance. Both antennas have identical electrical characteristics and antenna gain.

1.11. Antenna Information

SISO

Band	Operating Frequency (MHz)	Antenna Peak Gain (dB i)	
		External	
		Original [84933920]	Additional [85846853] [85846852]
NR 7 LTE 7	2 500 ~ 2 570	<u>5.99</u>	-2.70
NR 12 LTE 12	699 ~ 716	<u>-1.05</u>	-1.30
NR 13 LTE 13	777 ~ 787	<u>-0.53</u>	-1.70
NR 14 LTE 14	788 ~ 798	<u>-0.53</u>	-1.70
NR 25/2 LTE 2 WCDMA II	1 850 ~ 1 915	<u>5.12</u>	0.80
NR 26 LTE 26	814 ~ 824	<u>0.37</u>	-2.20
WCDMA V NR 26/5 LTE 26/5	824 ~ 849	<u>0.37</u>	-2.20
NR 66 LTE 66/4	1 710 ~ 1 780	<u>5.54</u>	1.20
WCDMA IV	1 710 ~ 1 755	<u>5.19</u>	1.20
NR 71	663 ~ 698	<u>0.37</u>	-1.50
NR 41 FCC	2 496 ~ 2 690	0.09	<u>5.10</u>
NR 41 IC	2 500 ~ 2 690	0.09	<u>5.10</u>
NR 77/78 Low Band FCC	3 450 ~ 3 550	<u>3.24</u>	1.80
NR 77/78 High Band FCC	3 700 ~ 3 980	<u>3.24</u>	1.20
NR 77/78 Low Band IC	3 450 ~ 3 900	<u>3.24</u>	1.80
NR 77 High Band IC	3 900 ~ 3 980	<u>3.24</u>	1.20

MIMO

Operating Frequency (MHz)		Antenna type	Antenna Peak Gain (dB i)	
			External	
			Original [84933920]	Additional [85846853] [85846852]
NR 41 FCC	2 496 ~ 2 690	Port 1	5.99	-3.00
		Port 2	0.09	5.10
		Port 1 + port 2 ¹⁾	<u>6.54</u>	4.97
NR 41 IC	2 500 ~ 2 690	Port 1	5.99	-3.00
		Port 2	0.09	5.10
		Port 1 + port 2 ¹⁾	<u>6.54</u>	4.97
NR 77/78 Low Band FCC	3 450 ~ 3 550	Port 1	6.29	-2.30
		Port 2	3.24	1.80
		Port 1 + port 2 ¹⁾	<u>7.91</u>	3.00
NR 77/78 High Band FCC	3 700 ~ 3 980	Port 1	6.29	0.20
		Port 2	3.24	1.20
		Port 1 + port 2 ¹⁾	<u>7.91</u>	3.72
NR 77/78 Low Band IC	3 450 ~ 3 900	Port 1	6.29	0.20
		Port 2	3.24	1.80
		Port 1 + port 2 ¹⁾	<u>7.91</u>	4.05
NR 77 High Band IC	3 900 ~ 3 980	Port 1	6.29	0.20
		Port 2	3.24	1.20
		Port 1 + port 2 ¹⁾	<u>7.91</u>	3.72

Remark;

- Port 1 means secondary cell and Port 2 means primary cell.

1) According to KDB 662911 D01 Multiple Transmitter Output v02r01 F)2)d)(i),
Port 1 + Port 2 Antenna Gain = $10 * \log[(10^{G_1/20} + 10^{G_2/20})^2 / N_{ANT}]$

Where,

G_1 = antenna gain of port 1,

G_2 = antenna gain of port 2,

N_{ANT} = the number of antennas

1.12. E.R.P. / E.I.R.P. and Radiated Emissions Test Case

The E.R.P. / E.I.R.P. was calculated or measured only when the antenna gain increased between the original and additional antennas among external antennas.

Radiated spurious emissions were tested in the band with the lowest margin of previously data and selected respectively above 1 GHz and below 1 GHz.

Fundamental Frequency Range	Worst Case
Below 1 GHz	NR Band 13 (10 MHz – QPSK)
Above 1 GHz	NR Band 66 (5 MHz – QPSK)

1.13. Information of Variant Model

Model Name		Description
Basic Model	TFGMEIBBCD1	- Dual GNSS
Variant Models	TFGMEIBBCD2	- Same to RF module with basic model except following function - Single GNSS and Ultra-super cruise service doesn't supported
	TFGMEIBBCD3	- Same to RF module with basic model except following function - Single GNSS and Ultra-super cruise service doesn't supported - eUICC part is different with TFGMEIBBCD2

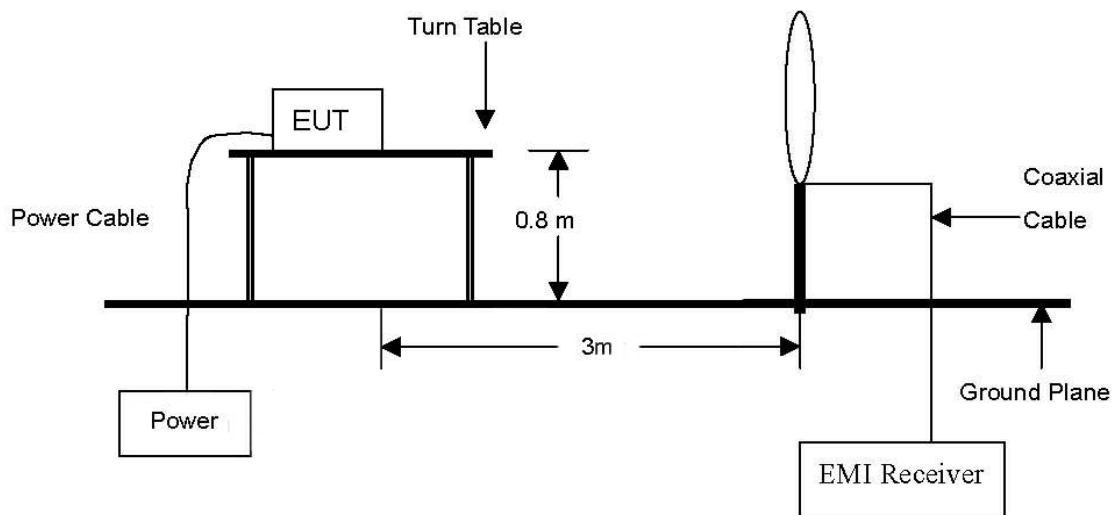
Note;

The all test items performed with basic model.

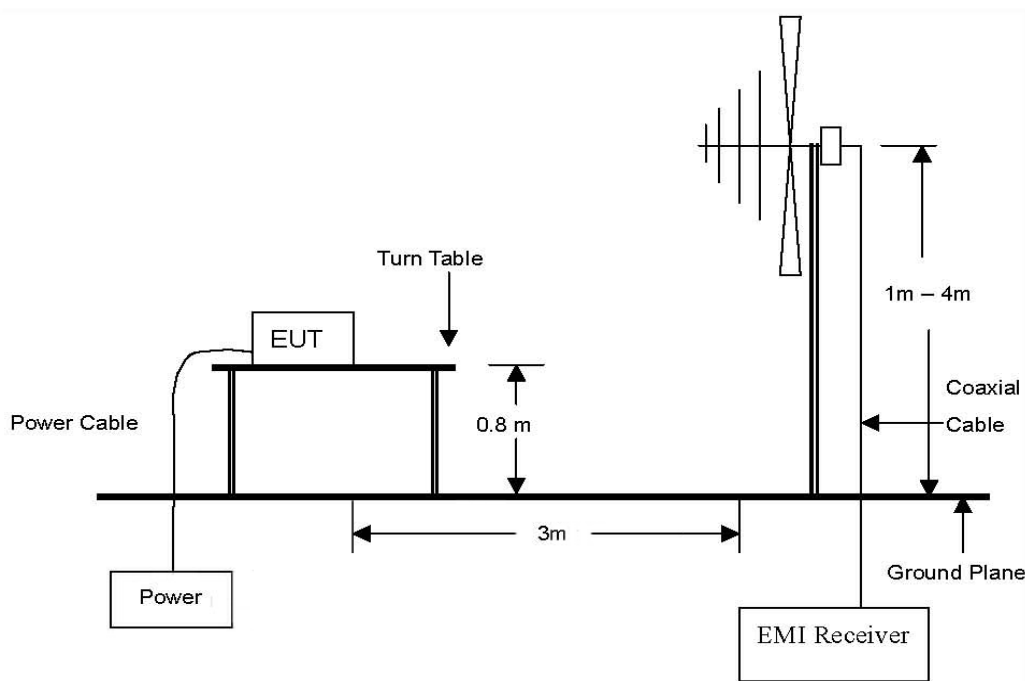
2. E.R.P. / E.I.R.P. & Radiated output power and Radiated Spurious Emissions

2.1. Test Setup

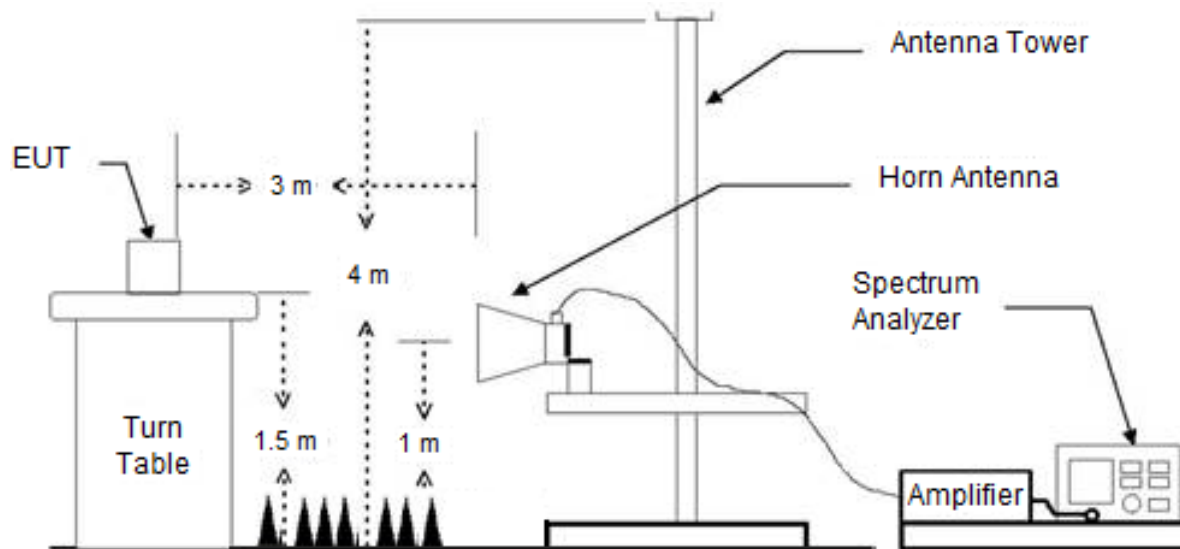
The diagram below shows the test setup that is utilized to make the measurements for emission from 9 kHz to 30 MHz.



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



The diagram below shows the test setup that is utilized to make the measurements for emission from 1 GHz to 20 GHz.



2.2. Limit

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

FCC

- §22.913(a)(5), the ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 watts.
- §24.232(c), mobile and portable stations are limited to 2 watts EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications.
- §27.50(b)(9), control stations and mobile stations transmitting in the 746-757 MHz, 776-788 MHz, and 805-806 MHz bands and fixed stations transmitting in the 787-788 MHz and 805-806 MHz bands are limited to 30 watts ERP.
- §27.50(c)(9), control and mobile stations in the 698-746 MHz band are limited to 30 watts ERP.
- §27.50(c)(10), portable stations (hand-held devices) in the 600 MHz uplink band and the 698-746 MHz band, and fixed and mobile stations in the 600 MHz uplink band are limited to 3 watts ERP.
- §27.50(d)(4), fixed, mobile, and portable (hand-held) stations operating in the 1 710-1 755 MHz band and mobile and portable stations operating in the 1 695-1 710 MHz and 1 755-1 780 MHz bands are limited to 1 watt EIRP.
- §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.
- §90.542(a)(6), Control stations and mobile stations transmitting in the 758-768 MHz band and the 788-798 MHz band are limited to 30 watts ERP.
- §90.635(b), the maximum output power of the transmitter for mobile stations is 100 watts (20 dBW).

IC

- RSS-130 Issue 2

4.6.3, the e.r.p. shall not exceed 30 watts for mobile equipment and outdoor fixed subscriber equipment. The e.r.p. shall not exceed 3 watts for portable equipment and indoor fixed subscriber equipment.

For base and fixed equipment other than fixed subscriber equipment, refer to SRSP-518 for the e.i.r.p. limits.

- RSS-132 Issue 4

5.4, the transmitter output power shall be measured in terms of average power. The equivalent radiated power (e.r.p.) shall not exceed 7 watts for mobile equipment and 3 watts for portable equipment. The effective isotropic radiated power (e.i.r.p.) shall not exceed the limits specified in SRSP-503 for base station equipment.

- RSS-133 Issue 7

5.5, The maximum power spectral density of the equipment, measured in terms of average values, shall comply with the limits specified in table 2. These limits are either specified in terms of equivalent isotropically radiated power (e.i.r.p.) or TRP for the purpose of certification and may not apply to all deployment scenarios. Consult SRSP-510 for more deployment details in the bands 1850-1915 MHz and 1930-1995 MHz.

AAS equipment with eight antenna elements or less can demonstrate compliance with the e.i.r.p limit specified for non-AAS equipment in table 2, instead of the TRP limit.

Table 2: Maximum power spectral density of equipment

Equipment type	Maximum power spectral density
Non-AAS fixed station and base station	3280 W/MHz e.i.r.p
AAS fixed station and base station	46 dBm/MHz TRP
Subscriber equipment	2 W /channel bandwidth e.i.r.p

- RSS-139 Issue 4

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

Table 3: Maximum power of equipment in the band 1 710-1 780 MHz

Equipment type	Maximum power
Fixed station and base station	30 dB m e.i.r.p./ channel bandwidth
Subscriber equipment	30 dB m e.i.r.p./ channel bandwidth

- RSS-140 Issue 1

4.3, The equivalent radiated power (e.r.p.) for control and mobile equipment shall not exceed 30 W. The e.r.p. for portable equipment including handheld devices shall not exceed 3 W.

- 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

- §22.917(a), the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10\log(P)$ dB.
- §24.238(a), the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.
- §27.53(c)(2), on any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least $43 + 10 \log (P)$ dB.
- §27.53(f), For operations in the 746-758 MHz, 775-788 MHz, and 805-806 MHz bands, emissions in the band 1 559-1 610 MHz shall be limited to -70 dB W/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and -80 dB W EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.
- §27.53(g), the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log (P)$ dB.
- §27.53(h)(1), for operations in the 1 695-1 710 MHz, 1 710-1 755 MHz, 1 755-1 780 MHz, 1 915-1 920 MHz, 1 995-2 000 MHz, 2 000-2 020 MHz, 2 110-2 155 MHz, 2 155-2 180 MHz, and 2 180-2 200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10} (P)$ dB.
- §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(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.

- §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.

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

- (1) On all frequencies between 769-775 MHz and 799-805 MHz, by a factor not less than $76 + 10 \log (P)$ dB in a 6.25 kHz band segment, for base and fixed stations.
- (2) On all frequencies between 769-775 MHz and 799-805 MHz, by a factor not less than $65 + 10 \log (P)$ dB in a 6.25 kHz band segment, for mobile and portable stations.
- (3) On any frequency between 775-788 MHz, above 805 MHz, and below 758 MHz, by at least $43 + 10 \log (P)$ dB.
- (4) Compliance with the provisions of paragraphs I(1) and (2) of this section is based on the use of measurement instrumentation such that the reading taken with any resolution bandwidth setting should be adjusted to indicate spectral energy in a 6.25 kHz segment.
- (5) Compliance with the provisions of paragraph I(3) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of 30 kHz may be employed.

- §90.543(f), For operations in the 758-775 MHz and 788-805 MHz bands, all emissions including harmonics in the band 1 559-1 610 MHz shall be limited to -70 dB W/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and -80 dB W EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

- §90.691(a), out-of-band emission requirement shall apply only to the "outer" channels included in an EA license and to spectrum adjacent to interior channels used by incumbent licensees. The emission limits are as follows:

- (1) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least $116 \log_{10} (f / 6.1)$ decibels or $50 + 10 \log_{10} (P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.
- (2) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10} (P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

IC

- RSS-130 Issue 2

4.7.1, the unwanted emissions in any 100 kHz bandwidth on any frequency outside the low frequency edge and the high frequency edge of each frequency block range(s), shall be attenuated below the transmitter power, P (dB W), by at least $43 + 10 \log_{10} p$ (watts), dB. However, in the 100 kHz band immediately outside of the equipment's frequency block range, a resolution bandwidth of 30 kHz may be employed.

4.7.2, In addition to the limit outlined in section 4.7.1 above, equipment operating in the frequency bands 746-756 MHz and 777-787 MHz shall also comply with the following restrictions:

a) The power of any unwanted emissions in any 6.25 kHz bandwidth for all frequencies between 763-775 MHz and 793-806 MHz shall be attenuated below the transmitter power, P (dB W), by at least:

- (i) $76 + 10 \log_{10} p$ (watts), dB, for base and fixed equipment, and
- (ii) $65 + 10 \log_{10} p$ (watts), dB, for mobile and portable equipment.

b) The e.i.r.p. in the band 1 559-1 610 MHz shall not exceed -70 dB W/MHz for wideband signal and -80 dB W for discrete emission with bandwidth less than 700 Hz.

- RSS-132 Issue 4

5.5, Equipment shall meet the unwanted emission limits specified below.

(i) In the first 1.0 MHz band immediately outside and adjacent to each of the sub-bands specified in Section 5.1, the power of emissions per any 1 % of the occupied bandwidth shall be attenuated below the transmitter output power P (dB W) by at least $43 + 10 \log(p)$ dB.

(ii) After the first 1.0 MHz immediately outside and adjacent to each of the sub-bands, the power of emissions in any 100 kHz bandwidth shall be attenuated below the transmitter output power P (dB W) by at least $43 + 10 \log(p)$ dB. If the measurement is performed using 1 % of the occupied bandwidth, power integration over 100 kHz is required.

- RSS-133 Issue 7

5.6, Unwanted emissions shall be measured in terms of average values while 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 in table 3, 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 bands 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 (OBW). Beyond these 1 MHz bands, a resolution bandwidth of 1 MHz shall be used. A narrower resolution bandwidth may be used, provided that the measured power is integrated over the full required measurement bandwidth of 1 MHz, or 1% of the OBW, 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 table 3.

Table 3: Unwanted emission limits for all equipment

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

- RSS-139 Issue 4

5.6, Unwanted emissions shall be measured in terms of average values.

For all equipment, the TRP or total conducted power (sum of conducted power across all antenna connectors) of the unwanted emissions outside the frequency block or frequency block group shall not exceed the limits shown in table 6.

Table 6: Unwanted emission limits

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

* OB is the occupied bandwidth

- RSS-140 Issue 1

4.4, The power of any unwanted emission outside the bands 758-768 MHz and 788-798 MHz shall be attenuated below the transmitter output power P in dB W as follows, where p is the transmitter output power in watts:

a) For any frequency between 769-775 MHz and 799-806 MHz:

i) $76 + 10 \log(p)$, dB in a 6.25 kHz band for fixed and base station equipment

ii) $65 + 10 \log(p)$, dB in a 6.25 kHz band for mobile and portable/hand-held equipment

b) For any frequency between 775-788 MHz, above 806 MHz, and below 758 MHz: $43 + 10 \log(p)$, dB in a bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the frequency bands 758-768 MHz and 788-798 MHz, a resolution bandwidth of 30 kHz may be employed.

In addition, the equivalent isotropically radiated power (e.i.r.p.) of all emissions, including harmonics in the band 1 559-1 610 MHz, shall not exceed -70 dB W /MHz for wideband emissions, and -80 dB W /kHz for discrete emissions of less than 700 Hz bandwidth.

..

- 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 dB m/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.

2 496 MHz, and $55 + 10 \log_{10} p$ at or below 2 490.5 MHz.

In (a) and (b), p is the transmitter power measured in watts and X is 6 MHz or the equipment occupied bandwidth, whichever is greater.

2.3. Test Procedure

2.3.1. E.R.P. / 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 Output Power & 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. The maximized power level is recorded using the spectrum analyzer "Channel Power" function with the integration band set to the emissions occupied bandwidth, RBW = 1-5 % of the OBW (not to exceed 1 MHz), VBW ≥ 3 x RBW, Detector = power averaging (rms), sweep time = auto, trace average at least 100 traces in power averaging (rms) mode, per the guidelines of KDB 971168 D01 Power Meas License Digital Systems v03r01.
5. 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 ≥ 3 x RBW,
Detector = RMS, trace mode = max hold, per the guidelines of KDB 971168 D01 Power Meas License Digital Systems v03r01.
6. The transmitter shall be switched on, the measuring receiver shall be tuned to the frequency of the transmitter under test.
7. 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.
8. The transmitter shall be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.
9. 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.
10. The maximum signal level detected by the measuring receiver shall be noted.
11. In necessary, the input attenuator setting on the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.
12. The test antenna shall be raised and lowered through the specified range of height to ensure that the maximum signal is received.
13. 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. from conducted RF output power measurements

- Additional Antenna

WCDMA

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
WCDMA II	1 850 ~ 1 910	23.47	0.222	0.80	24.27	0.267			2 W E.I.R.P.
WCDMA IV	1 710 ~ 1 755	23.87	0.244	1.20	25.07	0.321			1 W E.I.R.P.
WCDMA V	824 ~ 849	24.05	0.254	-2.20	21.85	0.153	19.70	41.55	7 W E.R.P.

LTE

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
2	1 850 ~ 1 910	23.35	0.216	0.80	24.15	0.260			2 W E.I.R.P.
5	824 ~ 849	24.91	0.310	-2.20	22.71	0.187	20.56	0.114	7 W E.R.P.
7	2 500 ~ 2 570	24.33	0.271	-2.70	21.63	0.146			2 W E.I.R.P.
12	699 ~ 716	25.09	0.323	-1.30	23.79	0.239	21.64	0.146	30 W E.R.P.
13	777 ~ 787	24.75	0.299	-1.70	23.05	0.202	20.90	0.123	30 W E.R.P.
14	788 ~ 798	24.99	0.316	-1.70	23.29	0.213	21.14	0.130	30 W E.R.P.
26 Part 22	824 ~ 849	24.10	0.257	-2.20	21.90	0.155	19.75	0.094	7 W E.R.P.
26 Part 90	814 ~ 824	24.12	0.258	-2.20	21.92	0.156	19.77	0.095	100 W
66/4	1 710 ~ 1 780	23.32	0.215	1.20	24.52	0.283			1 W E.I.R.P.

5G NR_SISO

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
n7	2 500 ~ 2 570	24.05	0.254	-2.70	21.35	0.136			2 W E.I.R.P.
n12	699 ~ 716	24.79	0.301	-1.30	23.49	0.223	21.34	0.136	30 W E.R.P.
n13	777 ~ 787	24.78	0.301	-1.70	23.08	0.203	20.93	0.124	30 W E.R.P.
n14	788 ~ 798	24.90	0.309	-1.70	23.20	0.209	21.05	0.127	30 W E.R.P.
n25/2	1 850 ~ 1 915	23.67	0.233	0.80	24.47	0.280			2 W E.I.R.P.
n26/5 Part 22	824 ~ 849	24.55	0.285	-2.20	22.35	0.172	20.20	0.105	7 W E.R.P.
n26 Part 90	814 ~ 824	24.47	0.280	-2.20	22.27	0.169	20.12	0.103	100 W
n66	1 710 ~ 1 780	22.95	0.197	1.20	24.15	0.260			1 W E.I.R.P.
n71	663 ~ 698	24.51	0.282	-1.50	23.01	0.200	20.86	0.122	3 W E.R.P.
n41 FCC	2 496 ~ 2 690	25.99	0.397	5.10	31.09	1.285			2 W E.I.R.P.
n41 IC	2 500 ~ 2 690	25.99	0.397	5.10	31.09	1.285			2 W E.I.R.P.
n77/78 Low band FCC	3 450 ~ 3 550	25.37	0.344	1.80	27.17	0.521			1 W E.I.R.P.
n77/78 High band FCC	3 700 ~ 3 980	24.80	0.302	1.20	26.00	0.398			1 W E.I.R.P.
n77/78 Low band IC	3 450 ~ 3 900	25.43	0.349	1.80	27.23	0.528			30 dB m e.i.r.p./channel bandwidth
n77 High band IC	3 900 ~ 3 980	24.47	0.280	1.20	25.67	0.369			30 dB m /channel bandwidth e.i.r.p.

5G NR_MIMO

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
n41 FCC	2 496 ~ 2 690	26.27	0.424	4.97	31.24	1.330			2 W E.I.R.P.
n41 IC	2 500 ~ 2 690	25.99	0.397	4.97	30.96	1.247			2 W E.I.R.P.
n77/78 Low band FCC	3 450 ~ 3 550	25.96	0.394	3.00	28.96	0.787			1 W E.I.R.P.
n77/78 High band FCC	3 700 ~ 3 980	25.97	0.395	3.72	29.69	0.931			1 W E.I.R.P.
n77/78 Low band IC	3 450 ~ 3 900	25.49	0.354	4.05	29.54	0.899			30 dB m e.i.r.p./channel bandwidth
n77 High band IC	3 900 ~ 3 980	25.14	0.327	3.72	28.86	0.769			30 dB m /channel bandwidth 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.

2.5. Radiated Spurious Emissions

NR Band 13 (10 MHz - DFTS-OFDM QPSK)

Frequency (MHz)	Measured Level (dBμV)	Ant. Pol.	AF (dB/m)	AMP+CL (dB)	E (dBμV/m)	CF (dB)	E.R.P. (dB m)	Limit (dB m)	Margin (dB)
Middle Channel (782 MHz)									
2 346.30	56.04	H	28.18	-37.79	46.43	-97.41	-50.98	-13	37.98
2 346.10	60.39	V	28.18	-37.79	50.78	-97.41	-46.63	-13	33.63
3 910.52	55.64	H	32.30	-34.02	53.92	-97.41	-43.49	-13	30.49
3 910.62	54.85	V	32.30	-34.02	53.13	-97.41	-44.28	-13	31.28
Above 4 000.00	Not detected	-	-	-	-	-	-	-	-

NR band 66 (5 MHz - DFTS-OFDM QPSK)

Frequency (MHz)	Measured Level (dBμV)	Ant. Pol.	AF (dB/m)	CL+(AMP) (dB)	E (dBμV/m)	CF (dB)	E.I.R.P. (dB m)	Limit (dB m)	Margin (dB)
Low Channel (1 712.5 MHz)									
5 131.64	59.65	H	33.56	-31.56	61.65	-95.26	-33.61	-13	20.61
5 131.50	53.50	V	33.56	-31.57	55.49	-95.26	-39.77	-13	26.77
Above 5 200.00	Not detected	-	-	-	-	-	-	-	-
Middle Channel (1 745 MHz)									
5 228.80	58.26	H	33.76	-31.21	60.81	-95.26	-34.45	-13	21.45
5 228.96	52.59	V	33.76	-31.21	55.14	-95.26	-40.12	-13	27.12
Above 5 300.00	Not detected	-	-	-	-	-	-	-	-
High Channel (1 777.5 MHz)									
5 326.72	51.22	H	34.00	-31.22	54.00	-95.26	-41.26	-13	28.26
5 326.54	48.84	V	34.00	-31.22	51.62	-95.26	-43.64	-13	30.64
Above 5 400.00	Not detected	-	-	-	-	-	-	-	-

Remark;

1. AF = Antenna Factor, CL = Cable Loss, CF = Conversion Factor.
2. E (dBμV/m) = Measured Level (dBμV) + Antenna Factor (dB/m) + Cable Loss (dB) + AMP (dB).
3. E.I.R.P. (dB m) = E (dBμV/m) + CF (dB).
4. E.R.P. (dB m) = E (dBμV/m) + CF (dB) - 2.15 (dB); where E.R.P. and E.I.R.P. are expressed in consistent units.
5. CF (dB) = 20 log D - 104.8; where D is the measurement distance in meters, According to ANSI C63.26-2015 5.2.7
6. 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 above table.

- End of the Test Report -