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TEST REPORT

of

FCC Part 2 Subpart J, Part 22 Subpart C/H,
Part 24 Subpart E, Part 27 Subpart C and Part 90 Subpart R
IC RSS-130 Issue 2, RSS-132 Issue 4, RSS-133 Issue 6,
RSS-139 Issue 4, 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 IC: LG ELECTRONICS INC.
Manufacturer	:	LG Electronics Inc.
Date of Receipt	:	2023.12.13
Date of Test(s)	:	2023.12.13 ~ 2024.04.01
Date of Issue	:	2024.04.01

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.
3) This test report cannot be reproduced, except in full, without prior written permission of the Company.
4) The data marked ※ in this report was provided by the customer and may affect the validity of the test results.
We are responsible for all the information of this test report except for the data(※) provided by the customer.

Tested by: Murphy 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

All SGS services are rendered in accordance with the applicable SGS conditions of service available on request and accessible at http://www.sgs.com/en/Terms-and-Conditions.aspx.

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1.2. Details of Applicant

FCC Applicant : LG Electronics USA
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	WCDMA Ⅱ, Ⅴ: 24 dBm LTE Band 2, 4, 5, 7, 12, 13, 17, 25, 26, 66, 71: 23 dBm		
Frequency Range	WCDMA Ⅱ: 1 850 ㎒ ~ 1 910 ㎒ WCDMA Ⅴ: 824 ㎒ ~ 849 ㎒ LTE Band 2: 1 850 ㎒ ~ 1 910 ㎒ LTE Band 4: 1 710 ㎒ ~ 1 755 ㎒ LTE Band 5: 824 ㎒ ~ 849 ㎒ LTE Band 7: 2 500 ㎒ ~ 2 570 ㎒ LTE Band 12: 699 ㎒ ~ 716 ㎒	LTE Band 13: 777 ㎒ ~ 787 ㎒ LTE Band 17: 704 ㎒ ~ 716 ㎒ LTE Band 25: 1 850 ㎒ ~ 1 915 ㎒ LTE Band 26 (Only FCC): 814 ㎒ ~ 824 ㎒ LTE Band 26: 824 ㎒ ~ 849 ㎒ LTE Band 66: 1 710 ㎒ ~ 1 780 ㎒ LTE Band 71: 663 ㎒ ~ 698 ㎒	
Uplink CA	2A-12A, 12A-66A		
Modulation Technique	QPSK, 16QAM, 64QAM, 256QAM		
Antenna Type	Ant. 1: PIFA Antenna	Ant. 2: PIFA Antenna	Ant. 3: PIFA Antenna
Antenna Gain※	Refer to the clause 1.14		
H/W Version	Rev.D		
S/W Version	IN25XA03		
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. 06, 2023	Annual	Oct. 06, 2024
Spectrum Analyzer	R&S	FSV30	103453	Oct. 31, 2023	Annual	Oct. 31, 2024
Spectrum Analyzer	Agilent	N9020A	MY53421758	Sep. 01, 2023	Annual	Sep. 01, 2024
Mobile Test Unit	R&S	CMW 500	144034	Feb. 28, 2024	Annual	Feb. 28, 2025
Communication Analyzer	Anritsu	MT8821C	6262192291	Feb. 08, 2024	Annual	Feb. 08, 2025
Power Meter	Anritsu	ML2495A	1223004	May 30, 2023	Annual	May 30, 2024
Power Sensor	Anritsu	MA2411B	1207272	May 30, 2023	Annual	May 30, 2024
Temperature Chamber	ESPEC CORP.	SH-662	93000533	Jun. 02, 2023	Annual	Jun. 02, 2024
Low Pass Filter	Mini-Circuits	NLP-1200+	V 8979400903-1	May 16, 2023	Annual	May 16, 2024
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-6SS	21	Jun. 01, 2023	Annual	Jun. 01, 2024
High Pass Filter	Wainwright Instrument GmbH	WHNX7.5/26.5G-6SS	11	Oct. 17, 2023	Annual	Oct. 17, 2024
BRIDGE COUPLER	MARKI MICROWAVE INC	CBR16-0012	1542	May 16, 2023	Annual	May 16, 2024
Directional Coupler	KRYTAR	152613	122660	Jul. 13, 2023	Annual	Jul. 13, 2024
DC Power Supply	Agilent	U8002A	MY49030063	Jan. 17, 2024	Annual	Jan. 17, 2025
Preamplifier	H.P.	8447F	2944A03909	Aug. 04, 2023	Annual	Aug. 04, 2024
Preamplifier	R&S	SCU 18F	101058	Dec. 07, 2023	Annual	Dec. 07, 2024
Preamplifier	MITEQ Inc.	JS44-18004000-35-8P	1546891	Oct. 06, 2023	Annual	Oct. 06, 2024
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
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	MA4640/536/383 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	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	RADIALL	TESTPRO 3	182287	Oct. 14, 2023	Semi-Annual	Apr. 14, 2024
Coaxial Cable	RADIALL	TESTPRO 3	182288	Oct. 14, 2023	Semi-Annual	Apr. 14, 2024
Coaxial Cable	RADIALL	TESTPRO 3	182291	Oct. 14, 2023	Semi-Annual	Apr. 14, 2024

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, 22, 24, 27 and 90 / IC RSS-Gen Issue 5, RSS-130 Issue 2, RSS-132 Issue 4, RSS-133 Issue 6, RSS-139 Issue 4 and RSS-199 Issue 4			
Section in FCC	**Section in IC**	**Test Item(s)**	**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) §90.635(b)	RSS-130 Issue 2 4.6 RSS-132 Issue 4 5.4 RSS-133 Issue 6 6.4 RSS-139 Issue 4 5.5 RSS-199 Issue 4 5.5	E.R.P. / E.I.R.P.	Complied[1)]
§22.917(a) §24.238(a) §27.53(c)(2) §27.53(f) §27.53(g) §27.53(h)(1) §27.53(m)(4) §90.691(a)	RSS-130 Issue 2 4.7 RSS-132 Issue 4 5.5 RSS-133 Issue 6 6.5 RSS-139 Issue 4 5.6 RSS-199 Issue 4 5.6	Radiated Spurious Emissions	Complied
§2.1046	RSS-Gen Issue 5 6.12	Conducted Output Power	Complied[1)]
§2.1049	RSS-Gen Issue 5 6.7	Occupied Bandwidth	Complied[1)]
§22.913(d) §24.232(d) §27.50(d)(5)	RSS-130 Issue 2 4.6 RSS-132 Issue 4 5.4 RSS-133 Issue 6 6.4 RSS-139 Issue 4 5.5 RSS-199 Issue 4 5.5	Peak-Average Ratio	Complied[1)]
§22.917(a) §24.238(a) §27.53(c)(2) §27.53(g) §27.53(h)(1) §27.53(m)(4) §90.691(a)	RSS-130 Issue 2 4.7 RSS-132 Issue 4 5.5 RSS-133 Issue 6 6.5 RSS-139 Issue 4 5.6 RSS-199 Issue 4 5.6	Spurious Emission at Antenna Terminal	Complied[1)]
§22.917(a) §24.238(a) §27.53(c)(2) §27.53(c)(4) §27.53(g) §27.53(h)(1) §27.53(m)(4) §90.691(a)	RSS-130 Issue 2 4.7 RSS-132 Issue 4 5.5 RSS-133 Issue 6 6.5 RSS-139 Issue 4 5.6 RSS-199 Issue 4 5.6	Band Edge and Emission Mask	Complied[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 6 6.3 RSS-139 Issue 4 5.4 RSS-199 Issue 4 5.4	Frequency Stability	Complied[1)]

Note;

1) The test items of inter band CA were cover by LTE single carrier due to the CA power is reduced according to 3GPP MPR.

1.7. Sample Calculation for Offset

Where relevant, the following sample calculation is provided:

1.7.1. Conducted Test

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

1.7.2. Radiation test

- E.I.R.P. (dB m) = Measured level (dBμV) + 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. Device Capabilities

This device contains the following capabilities;

LTE Band 2 (1 850 ㎒ ~ 1 910 ㎒) is covered by LTE Band 25 (1 850 ㎒ ~ 1 915 ㎒) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth. Therefore test data provided in this report covers LTE Band 2 as well as Band 25.

LTE Band 4 (1 710 ㎒ ~ 1 755 ㎒) is covered by LTE Band 66 (1 710 ㎒ ~ 1 780 ㎒) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth. Therefore test data provided in this report covers LTE Band 4 as well as Band 66.

LTE Band 5 (824 ㎒ ~ 849 ㎒) is covered by LTE Band 26 (824 ㎒ ~ 849 ㎒) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth. Therefore test data provided in this report covers LTE Band 5 as well as Band 26.

LTE Band 17 (704 ㎒ ~ 716 ㎒) is covered by LTE Band 12 (699 ㎒ ~ 716 ㎒) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth. Therefore test data provided in this report covers LTE Band 17 as well as Band 12.

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. Each antenna can’t transmit simultaneously.

1.10. Worst Case Configuration and Mode

WCDMA mode, the worst-case is based on the conducted output power measurement investigation results. Output power measurements were measured on RMC, HSDPA, HSUPA, HSPA+ and DC-HSDPA modulation. All testing was performed using RMC and HSDPA modulations, except radiated spurious emission and emission at antenna terminal were tested only RMC 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.

LTE mode, the worst-case is based on the conducted output power measurement investigation results. Output power measurements were measured on QPSK, 16QAM, 64QAM and 256QAM modulations.
All testing was performed using QPSK, 16QAM and 256QAM modulations. 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 in QPSK. 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.

1.11. Measurement Configuration

WCDMA

Test Items	Band	Test Channel			Modulation		
		Low	Mid	High	RMC	HSUPA	HSDPA
Conducted Output Power	Band Ⅱ	V	V	V	V	V	V
	Band Ⅴ	V	V	V	V	V	V
Frequency Stability	Band Ⅱ	-	V	-	V	-	-
	Band Ⅴ	-	V	-	V	-	-
Occupied Bandwidth	Band Ⅱ	-	V	-	V	-	V
	Band Ⅴ	-	V	-	V	-	V
Peak to Average Ratio	Band Ⅱ	V	V	V	V	-	V
	Band Ⅴ	V	V	V	V	-	V
Band Edge	Band Ⅱ	V	-	V	V	-	V
	Band Ⅴ	V	-	V	V	-	V
Spurious at antenna terminal & Radiated Spurious Emissions	Band Ⅱ	V	V	V	V	-	-
	Band Ⅴ	V	V	V	V	-	-

LTE

Test Items	Band	Test Channel			Bandwidth (MHz)						Modulation				RB #		
		Low	Mid	High	1.4	3	5	10	15	20	QPSK	16QAM	64QAM	256QAM	1	Half	Full
Conducted Output Power	25/2	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V
	66/4	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V
	*26/5 Part 22	V	V	V	V	V	V	V	V		V	V	V	V	V	V	V
	7	V	V	V			V	V	V	V	V	V	V	V	V	V	V
	*12/17	V	V	V	V	V	V	V			V	V	V	V	V	V	V
	13	V	V	V			V	V			V	V	V	V	V	V	V
	26 Part 90	V	V	V	V	V	V	V	V		V	V	V	V	V	V	V
	71	V	V	V			V	V	V	V	V	V	V	V	V	V	V
Frequency Stability	25/2	-	V	-	–	–	V	–	–	–	V	–	–	–	–	–	V
	66/4	-	V	-	–	–	V	–	–	–	V	–	–	–	–	–	V
	*26/5 Part 22	-	V	-	–	–	V	–	–		V	–	–	–	–	–	V
	7	-	V	-			V	–	–	–	V	–	–	–	–	–	V
	*12/17	-	V	-	–	–	V	–			V	–	–	–	–	–	V
	13	-	V	-			V	–			V	–	–	–	–	–	V
	26 Part 90	-	V	-	–	–	V	–	–		V	–	–	–	–	–	V
	71	-	V	-			V	–	–	–	V	–	–	–	–	–	V
Occupied Bandwidth	25/2	-	V	-	V	V	V	V	V	V	V	V	–	–	–	–	V
	66/4	-	V	-	V	V	V	V	V	V	V	V	–	–	–	–	V
	*26/5 Part 22	-	V	-	V	V	V	V	V		V	V	–	–	–	–	V
	7	-	V	-			V	V	V	V	V	V	–	–	–	–	V
	*12/17	-	V	-	V	V	V	V			V	V	–	–	–	–	V
	13	-	V	-			V	V			V	V	–	–	–	–	V
	26 Part 90	-	V	-	V	V	V	V	V		V	V	–	–	–	–	V
	71	-	V	-			V	V	V	V	V	V	–	–	–	–	V
Peak-to-Average Ratio	25/2	V	V	V	V	V	V	V	V	V	–	–	–	V	–	–	V
	66/4	V	V	V	V	V	V	V	V	V	–	–	–	V	–	–	V
	*26/5 Part 22	V	V	V	V	V	V	V	V		–	–	–	V	–	–	V
	7	V	V	V			V	V	V	V	–	–	–	V	–	–	V
	*12/17	V	V	V	V	V	V	V			–	–	–	V	–	–	V
	13	V	V	V			V	V			–	–	–	V	–	–	V
	26 Part 90	V	V	V	V	V	V	V	V		–	–	–	V	–	–	V
	71	V	V	V			V	V	V	V	–	–	–	V	–	–	V

Test Items	Band	Test Channel			Bandwidth (MHz)						Modulation				RB #		
		Low	Mid	High	1.4	3	5	10	15	20	QPSK	16QAM	64QAM	256QAM	1	Half	Full
Band edge	25/2	V	V	V	V	V	V	V	V	V	V	V	–	–	V	–	V
	66/4	V	V	V	V	V	V	V	V	V	V	V	–	–	V	–	V
	*26/5 Part 22	V	V	V	V	V	V	V	V		V	V	–	–	V	–	V
	7	V	V	V			V	V	V	V	V	V	–	–	V	–	V
	*12/17	V	V	V	V	V	V	V			V	V	–	–	V	–	V
	13	V	V	V			V	V			V	V	–	–	V	–	V
	26 Part 90	V	V	V	V	V	V	V	V		V	V	–	–	V	–	V
	71	V	V	V			V	V	V	V	V	V	–	–	V	–	V
Spurious at antenna terminal & Radiated Spurious Emissions	25/2	V	V	V	Worst case												
	66/4	V	V	V	Worst case												
	*26/5 Part 22	V	V	V	Worst case												
	7	V	V	V	Worst case												
	*12/17	V	V	V	Worst case												
	13	V	V	V	Worst case												
	26 Part 90	V	V	V	Worst case												
	71	V	V	V	Worst case												

*B5 is not supported 15M bandwidth.
*B17 is not supported 1.4M/3M bandwidth.

Uplink CA

Test Items	Band	Test Channel			Bandwidth (MHz)						Modulation				RB #		
		Low	Mid	High	1.4	3	5	10	15	20	QPSK	16QAM	64QAM	256QAM	1	Half	Full
Radiated Spurious Emissions	2A-12A	V	V	V	Worst Case												
	12A-66A	V	V	V	Worst Case												

1.12. Measurement Uncertainty

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

Parameter		Uncertainty
Conducted 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.

1.13. Test Report Revision

Revision	Report Number	Date of Issue	Description
0	F690501-RF-RTL004925	2024.04.01	Initial

1.14. Antenna Information

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

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

Note;

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

1.15. Emission Designator and Max Power

WCDMA

Band	Modulation	Low Freq. (㎒)	Upper Freq. (㎒)	Conducted Power (㏈m)	Worst Ant. Gain (㏈i)	E.R.P. / E.I.R.P. Average (㏈m)	E.R.P. / E.I.R.P. Average (W)	Emission Designator
WCDMA Ⅱ	RMC	1 852.4	1 907.6	23.47	1.86	25.33	0.341	4M30F9W
	HSDPA			22.55		24.41	0.276	4M29F9W
WCDMA Ⅴ	RMC	826.4	846.6	23.85	-2.43	19.27	0.085	4M14F9W
	HSDPA			22.83		18.25	0.067	4M17F9W

LTE

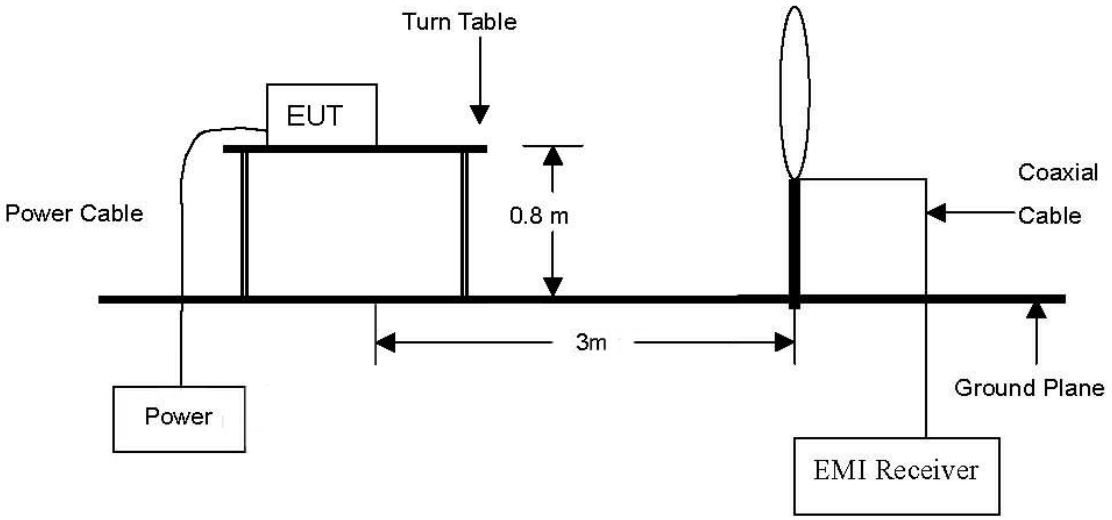
Band	Band width (MHz)	Modulation	Low Freq. (MHz)	Upper Freq. (MHz)	Conducted Average (dB m)	Worst Ant. Gain (dB i)	E.R.P. / E.I.R.P. Average (dB m)	E.R.P. / E.I.R.P. Average (W)	Emission Designator
25/2	1.4	QPSK	1 850.7	1 914.3	23.29	1.86	25.15	0.327	1M10G7D
		16QAM			22.83		24.69	0.294	1M10D7D
	3	QPSK	1 851.5	1 913.5	23.48		25.34	0.342	2M68G7D
		16QAM			22.83		24.69	0.294	2M70D7D
	5	QPSK	1 852.5	1 912.5	23.35		25.21	0.332	4M51G7D
		16QAM			22.75		24.61	0.289	4M50D7D
	10	QPSK	1 855	1 910	23.35		25.21	0.332	8M91G7D
		16QAM			22.78		24.64	0.291	8M93D7D
	15	QPSK	1 857.5	1 907.5	23.42		25.28	0.337	13M5G7D
		16QAM			22.29		24.15	0.260	13M5D7D
	20	QPSK	1 860	1 905	23.49		25.35	0.343	17M9G7D
		16QAM			22.74		24.60	0.288	17M9D7D
66/4	1.4	QPSK	1 710.7	1 779.3	23.03	1.37	24.40	0.275	1M10G7D
		16QAM			22.27		23.64	0.231	1M10D7D
	3	QPSK	1 711.5	1 778.5	22.93		24.30	0.269	2M70G7D
		16QAM			22.25		23.62	0.230	2M70D7D
	5	QPSK	1 712.5	1 777.5	22.89		24.26	0.267	4M50G7D
		16QAM			22.27		23.64	0.231	4M48D7D
	10	QPSK	1 715	1 775	22.90		24.27	0.267	8M93G7D
		16QAM			22.35		23.72	0.236	8M95D7D
	15	QPSK	1 717.5	1 772.5	22.90		24.27	0.267	13M5G7D
		16QAM			22.35		23.72	0.236	13M4D7D
	20	QPSK	1 720	1 770	23.12		24.49	0.281	17M9G7D
		16QAM			22.10		23.47	0.222	18M0D7D
26/5 Part 22	1.4	QPSK	824.7	848.3	23.38	-2.43	18.80	0.076	1M09G7D
		16QAM			22.58		18.00	0.063	1M10D7D
	3	QPSK	825.5	847.5	23.43		18.85	0.077	2M69G7D
		16QAM			22.72		18.14	0.065	2M68D7D
	5	QPSK	826.5	846.5	23.36		18.78	0.076	4M50G7D
		16QAM			22.81		18.23	0.067	4M50D7D
	10	QPSK	829	844	23.41		18.83	0.076	8M95G7D
		16QAM			22.62		18.04	0.064	8M93D7D
26 Part 22	15	QPSK	831.5	841.5	23.54		18.96	0.079	13M5G7D
		16QAM			22.58		18.00	0.063	13M5D7D
7	5	QPSK	2 502.5	2 567.5	23.29	2.79	26.08	0.406	4M53G7D
		16QAM			22.27		25.06	0.321	4M52D7D
	10	QPSK	2 505	2 565	23.32		26.11	0.408	8M95G7D
		16QAM			22.25		25.04	0.319	8M97D7D
	15	QPSK	2 507.5	2 562.5	23.36		26.15	0.412	13M5G7D
		16QAM			22.33		25.12	0.325	13M5D7D
	20	QPSK	2 510	2 560	23.41		26.20	0.417	18M0G7D
		16QAM			22.12		24.91	0.310	17M9D7D

Band	Band width (MHz)	Modulation	Low Freq. (MHz)	Upper Freq. (MHz)	Conducted Average (dB m)	Worst Ant. Gain (dB i)	E.R.P. / E.I.R.P. Average (dB m)	E.R.P. / E.I.R.P. Average (W)	Emission Designator
12	1.4	QPSK	699.7	715.3	23.51	-1.20	20.16	0.104	1M10G7D
		16QAM			22.86		19.51	0.089	1M11D7D
	3	QPSK	700.5	714.5	23.40		20.05	0.101	2M69G7D
		16QAM			22.79		19.44	0.088	2M69D7D
12/17	5	QPSK	701.5	713.5	23.50		20.15	0.104	4M51G7D
		16QAM			22.84		19.49	0.089	4M52D7D
	10	QPSK	704	711	23.54		20.19	0.104	8M93G7D
		16QAM			22.88		19.53	0.090	8M95D7D
13	5	QPSK	779.5	784.5	23.43	-3.16	18.12	0.065	4M48G7D
		16QAM			22.76		17.45	0.056	4M52D7D
	10	QPSK	782		23.52		18.21	0.066	8M93G7D
		16QAM			22.69		17.38	0.055	8M97D7D
26 Part 90	1.4	QPSK	814.7	823.3	23.30	-2.43	18.72	0.074	1M10G7D
		16QAM			22.67		18.09	0.064	1M10D7D
	3	QPSK	815.5	822.5	23.28		18.70	0.074	2M69G7D
		16QAM			22.70		18.12	0.065	2M70D7D
	5	QPSK	816.5	821.5	23.28		18.70	0.074	4M52G7D
		16QAM			22.66		18.08	0.064	4M51D7D
	10	QPSK	819		23.31		18.73	0.075	8M95G7D
		16QAM			22.59		18.01	0.063	8M95D7D
	15	QPSK	821.5		23.06		18.48	0.070	13M5G7D
		16QAM			22.49		17.91	0.062	13M5D7D
71	5	QPSK	665.5	695.5	23.24	-1.60	19.49	0.089	4M51G7D
		16QAM			22.21		18.46	0.070	4M52D7D
	10	QPSK	668	693	23.21		19.46	0.088	8M93G7D
		16QAM			22.76		19.01	0.080	8M93D7D
	15	QPSK	670.5	690.5	23.24		19.49	0.089	13M4G7D
		16QAM			22.55		18.80	0.076	13M5D7D
	20	QPSK	673	688	23.39		19.64	0.092	17M9G7D
		16QAM			22.40		18.65	0.073	17M9D7D

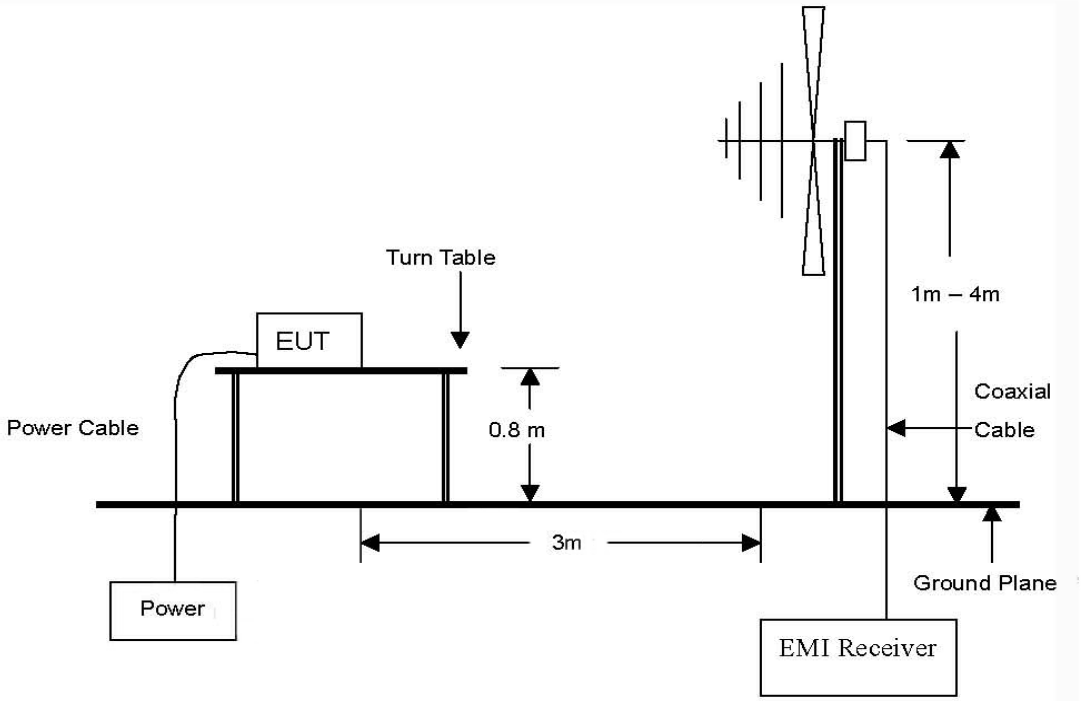
2. E.R.P. / E.I.R.P. & Radiated Spurious Emissions

2.1. Test setup

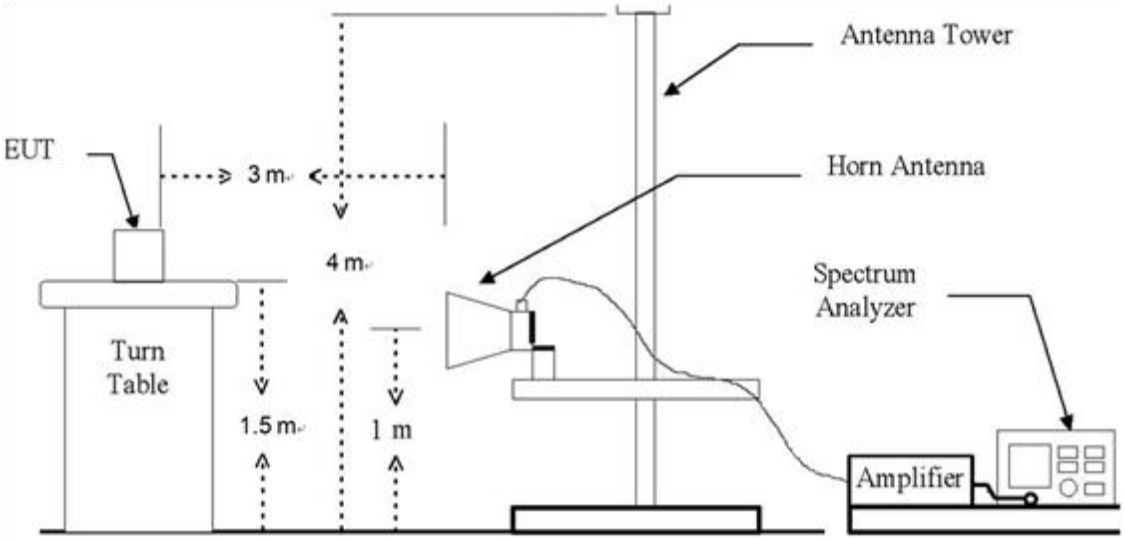
The diagram below shows the test setup that is utilized to make the measurements for emission from 9 ㎑ to 30 ㎒.



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



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



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 ㎒, 776-788 ㎒, and 805–806 ㎒ bands and fixed stations transmitting in the 787-788 ㎒ and 805-806 ㎒ bands are limited to 30 watts ERP.

- §27.50(c)(9), control and mobile stations in the 698–746 ㎒ band are limited to 30 watts ERP.

- §27.50(c)(10), portable stations (hand-held devices) in the 600 ㎒ uplink band and the 698-746 ㎒ band, and fixed and mobile stations in the 600 ㎒ 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 ㎒ band and mobile and portable stations operating in the 1 695-1 710 ㎒ and 1 755-1 780 ㎒ 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.

- §90.635(b), the maximum output power of the transmitter for mobile stations is 100 watts (20 ㏈W).

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 6
6.4, the equivalent isotropically radiated power (e.i.r.p.) for transmitters shall not exceed the limits given in SRSP-510. Mobile stations and hand-held portables are limited to 2 watts maximum e.i.r.p. The equipment shall employ means to limit the power to the minimum necessary for successful communication.

- 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 ㎒

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

- 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-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 dBm / 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 + 10log(P) ㎧.

- §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) ㎧.

- §27.53(c)(2), on any frequency outside the 776-788 ㎒ band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) ㎧.

- §27.53(f), For operations in the 746-758 ㎒, 775-788 ㎒, and 805-806 ㎒ bands, emissions in the band 1 559-1 610 ㎒ shall be limited to -70 ㎧ W/㎒ equivalent isotropically radiated power (EIRP) for wideband signals, and -80 ㎧ W EIRP for discrete emissions of less than 700 ㎐ 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) ㎧.

- §27.53(h)(1), for operations in the 1 695-1 710 ㎒, 1 710-1 755 ㎒, 1 755-1 780 ㎒, 1 915-1 920 ㎒, 1 995-2 000 ㎒, 2 000-2 020 ㎒, 2 110-2 155 ㎒, 2 155-2 180 ㎒, 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) ㎧.

- §27.53(m)(4), for mobile digital stations, the attenuation factor shall be not less than 40 + 10 $\log_{10}$ (P) ㎧ on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 $\log_{10}$ (P) ㎧ on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 $\log_{10}$ (P) ㎧ on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that 43 + 10 $\log_{10}$ (P) ㎧ on all frequencies between 2 490.5 ㎒ and 2 496 ㎒ and 55 + 10 $\log_{10}$ (P) ㎧ at or below 2 490.5 ㎒. Mobile Satellite Service licensees operating on frequencies below 2 495 ㎒ 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.

- §90.691(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 ㎑, 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 ㎑.

(2) For any frequency removed from the EA licensee's frequency block greater than 37.5 ㎑, 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 ㎑.

IC

- RSS-130 Issue 2

4.7.1, the unwanted emissions in any 100 ㎑ 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 (㏈ W), by at least 43 + 10 $\log_{10}$ p (watts), ㏈. However, in the 100 ㎑ band immediately outside of the equipment's frequency block range, a resolution bandwidth of 30 ㎑ 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 ㎒ and 777-787 ㎒ shall also comply with the following restrictions:

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

(i) 76 + 10 log10 p (watts), ㏈, for base and fixed equipment, and

(ii) 65 + 10 log10 p (watts), ㏈, for mobile and portable equipment.

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

- RSS-132 Issue 4

5.5, Equipment shall meet the unwanted emission limits specified below.
(i) In the first 1.0 ㎒ 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 (㏈ W) by at least 43 + 10 log(p) ㏈.

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

- RSS-133 Issue 6

6.5, Equipment shall comply with the limits in (i) and (ii) below.

(i) In the 1.0 ㎒ bands immediately outside and adjacent to the equipment's operating frequency block, the emission power per any 1 % of the emission bandwidth shall be attenuated (in ㏈) below the transmitter output power P (㏈ W) by at least 43 + 10 $\log_{10}$ p(watts).

(ii) After the first 1.0 ㎒, the emission power in any 1 ㎒ bandwidth shall be attenuated (in ㏈) below the transmitter output power P (㏈ W) by at least 43 + 10 $\log_{10}$ p(watts). If the measurement is performed using 1 % of the emission bandwidth, power integration over 1.0 ㎒ is required.

- 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 lmit**
≤1 ㎒	-13 ㏈m/(1% of OB)*
>1 ㎒	-13 ㏈m

* OB is the occupied 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 ㏈m/㎒ in the frequency range greater than (B+5) ㎒ 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 (㎒)			
	0-1	1-5	5-B	>B
10 ㎒, 20 ㎒, 30 ㎒ and 40 ㎒	-13 ㏈m/1% of B	-10 ㏈m/㎒	-13 ㏈m/㎒	-25 ㏈m/㎒
> 40 ㎒	-13 ㏈m/400 ㎑	-10 ㏈m/㎒	-13 ㏈m/㎒	-25 ㏈m/㎒

- 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 ㎒ 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 ㎒ band, a resolution bandwidth of 1 ㎒ 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 ㎒, 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 (㎒)	Unwanted emission limit
≤1	-13 ㏈m/(1% of OB*)
>1	-13 ㏈m/㎒

* 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 (㎒)	Unwanted emission limit
0-1	-10 ㏈m/(2% of OB*)
1-5	-10 ㏈m/㎒
5-X**	-13 ㏈m/㎒
≥X	-25 ㏈m/㎒

* OB is the occupied bandwidth
** X is 6 ㎒ 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 ㏈m/㎒ on all frequencies between 2 490.5 ㎒ and 2 496 ㎒, and -25 ㏈m/㎒ at or below 2 490.5 ㎒.

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:

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

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 ㎧W or ㎧m);
P_{Meas} = measured transmitter output power or PSD, in ㎧m or ㎧W;
G_T = gain of the transmitting antenna, in ㎧d (ERP) or ㎧i (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 ㎑ for emissions below 1 ㎓ and 1 ㎒ for emissions above 1 ㎓, VBW ≥ 3 x 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) ℃
Relative humidity : 47 % R.H.

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

WCDMA

Band	Frequency (㎒)	Maximum Conducted Power (㏈m)	Maximum Conducted Power (W)	Worst Antenna Gain (㏈i)	Maximum E.I.R.P. (㏈m)	Maximum E.I.R.P. (W)	Maximum E.R.P. (㏈m)	Maximum E.R.P. (W)	Limit
WCDMA Ⅱ	1 850 ~ 1 910	23.47	0.222	1.86	25.33	0.341			2 W E.I.R.P.
WCDMA Ⅴ	824 ~ 849	23.85	0.243	-2.43	21.42	0.139	19.27	0.085	7 W E.R.P.

LTE

Band	Frequency (㎒)	Maximum Conducted Power (㏈m)	Maximum Conducted Power (W)	Worst Antenna Gain (㏈i)	Maximum E.I.R.P. (㏈m)	Maximum E.I.R.P. (W)	Maximum E.R.P. (㏈m)	Maximum E.R.P. (W)	Limit
25/2	1 850 ~ 1 910	23.49	0.223	1.86	25.35	0.343			2 W E.I.R.P.
66/4	1 710 ~ 1 780	23.12	0.205	1.37	24.49	0.281			1 W E.I.R.P.
26/5 Part 22	824 ~ 849	23.54	0.226	-2.43	21.11	0.129	18.96	0.079	7 W E.R.P.
7	2 500 ~ 2 570	23.41	0.219	2.79	26.20	0.417			2 W E.I.R.P.
12/17	699 ~ 716	23.54	0.226	-1.20	22.34	0.171	20.19	0.104	30 W E.R.P.
13	777 ~ 787	23.52	0.225	-3.16	20.36	0.109	18.21	0.066	30 W E.R.P.
26 Part 90	814 ~ 824	23.31	0.214	-2.43	20.88	0.122	18.73	0.075	100 W
71	663 ~ 698	23.39	0.218	-1.60	21.79	0.151	19.64	0.092	3 W E.R.P

Remark;

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

2.4.2. Radiated spurious emissions

- Ant. 1_Below 3 ㎓

WCDMA Ⅱ

Frequency (㎒)	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 (1 852.4 ㎒)									
Below 1 000.00	Not detected	–	–	–	–	–	–	–	–
Above 1 000.00	Not detected	–	–	–	–	–	–	–	–
Middle Channel (1 880 ㎒)									
Below 1 000.00	Not detected	–	–	–	–	–	–	–	–
Above 1 000.00	Not detected	–	–	–	–	–	–	–	–
High Channel (1 907.6 ㎒)									
Below 1 000.00	Not detected	–	–	–	–	–	–	–	–
Above 1 000.00	Not detected	–	–	–	–	–	–	–	–

WCDMA Ⅴ

Frequency (㎒)	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)
Low Channel (826.4 ㎒)									
Below 1 000.00	Not detected	–	–	–	–	–	–	–	–
Above 1 000.00	Not detected	–	–	–	–	–	–	–	–
Middle Channel (836.6 ㎒)									
Below 1 000.00	Not detected	–	–	–	–	–	–	–	–
Above 1 000.00	Not detected	–	–	–	–	–	–	–	–
High Channel (846.6 ㎒)									
Below 1 000.00	Not detected	–	–	–	–	–	–	–	–
Above 1 000.00	Not detected	–	–	–	–	–	–	–	–

LTE band 25/2 (20 ㎒ - QPSK)

Frequency (㎒)	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 (1 860.0 ㎒)									
Below 1 000.00	Not detected	–	–	–	–	–	–	–	–
Above 1 000.00	Not detected	–	–	–	–	–	–	–	–
Middle Channel (1 882.5 ㎒)									
Below 1 000.00	Not detected	–	–	–	–	–	–	–	–
Above 1 000.00	Not detected	–	–	–	–	–	–	–	–
High Channel (1 905.0 ㎒)									
Below 1 000.00	Not detected	–	–	–	–	–	–	–	–
Above 1 000.00	Not detected	–	–	–	–	–	–	–	–

LTE band 66/4 (20 ㎒ - QPSK)

Frequency (㎒)	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 (1 720.0 ㎒)									
Below 1 000.00	Not detected	–	–	–	–	–	–	–	–
Above 1 000.00	Not detected	–	–	–	–	–	–	–	–
Middle Channel (1 745.0 ㎒)									
Below 1 000.00	Not detected	–	–	–	–	–	–	–	–
Above 1 000.00	Not detected	–	–	–	–	–	–	–	–
High Channel (1 770.0 ㎒)									
Below 1 000.00	Not detected	–	–	–	–	–	–	–	–
Above 1 000.00	Not detected	–	–	–	–	–	–	–	–

LTE band 26/5_Part 22 (15 ㎒ - QPSK)

Frequency (㎒)	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)
Low Channel (831.5 ㎒)									
2 514.61	52.67	H	28.46	-34.35	46.78	-97.41	-50.63	-13	37.63
2 514.46	52.97	V	28.46	-34.35	47.08	-97.41	-50.33	-13	37.33
Above 2 600.00	Not detected	–	–	–	–	–	–	–	–
High Channel (841.5 ㎒)									
2 544.35	52.67	H	28.58	-33.85	47.40	-97.41	-50.01	-13	37.01
2 544.58	52.57	V	28.58	-33.84	47.31	-97.41	-50.10	-13	37.10
Above 2 600.00	Not detected	–	–	–	–	–	–	–	–

LTE band 7 (20 ㎒ - QPSK)

Frequency (㎒)	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 (2 510.0 ㎒)									
Below 1 000.00	Not detected	–	–	–	–	–	–	–	–
Above 1 000.00	Not detected	–	–	–	–	–	–	–	–
Middle Channel (2 535.0 ㎒)									
Below 1 000.00	Not detected	–	–	–	–	–	–	–	–
Above 1 000.00	Not detected	–	–	–	–	–	–	–	–
High Channel (2 560.0 ㎒)									
Below 1 000.00	Not detected	–	–	–	–	–	–	–	–
Above 1 000.00	Not detected	–	–	–	–	–	–	–	–

LTE band 12/17 (10 ㎒ - QPSK)

Frequency (㎒)	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)
Low Channel (704.0 ㎒)									
2 098.97	64.96	H	27.90	-33.67	59.19	-97.41	-38.22	-13	25.22
2 098.80	65.89	V	27.90	-33.68	60.11	-97.41	-37.30	-13	24.30
Above 2 100.00	Not detected	–	–	–	–	–	–	–	–
Middle Channel (707.5 ㎒)									
2 109.25	63.52	H	27.84	-33.83	57.53	-97.41	-39.88	-13	26.88
2 109.30	64.57	V	27.84	-33.83	58.58	-97.41	-38.83	-13	25.83
Above 2 200.00	Not detected	–	–	–	–	–	–	–	–
High Channel (711.0 ㎒)									
2 119.84	63.27	H	27.78	-34.03	57.02	-97.41	-40.39	-13	27.39
2 119.86	64.35	V	27.78	-34.03	58.10	-97.41	-39.31	-13	26.31
Above 2 200.00	Not detected	–	–	–	–	–	–	–	–

LTE band 13 (10 ㎒ - QPSK)

Frequency (㎒)	Measured Level (dBμV)	Ant. Pol.	AF (dB/m)	AMP+CL (dB)	E (dBμV/m)	CF (dB)	E.R.P./ E.I.R.P. (dB m)	Limit (dB m)	Margin (dB)
Middle Channel (782.0 ㎒)									
1 572.66	45.64	H	25.29	-36.38	34.55	-95.26	-60.71	-40	20.71
1 572.96	47.37	V	25.29	-36.38	36.28	-95.26	-58.98	-40	18.98
2 359.15	51.77	H	28.18	-33.69	46.26	-97.41	-51.15	-13	38.15
2 359.22	48.02	V	28.18	-33.68	42.52	-97.41	-54.89	-13	41.89
Above 2 400.00	Not detected	–	–	–	–	–	–	–	–

LTE band 26_Part 90 (10 ㎒ - QPSK)

Frequency (㎒)	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 (819.0 ㎒)									
Below 1 000.00	Not detected	–	–	–	–	–	–	–	–
Above 1 000.00	Not detected	–	–	–	–	–	–	–	–

LTE band 71 (10 ㎒ - QPSK)

Frequency (㎒)	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)
Low Channel (668.0 ㎒)									
1 363.67	44.85	H	25.03	-37.48	32.40	-97.41	-65.01	-13	52.01
1 363.79	45.02	V	25.03	-37.48	32.57	-97.41	-64.84	-13	51.84
2 045.76	65.78	H	27.79	-34.50	59.07	-97.41	-38.34	-13	25.34
2 045.56	55.71	V	27.79	-34.49	49.01	-97.41	-48.40	-13	35.40
Above 2 100.00	Not detected	–	–	–	–	–	–	–	–
Middle Channel (680.5 ㎒)									
1 378.78	50.45	H	25.06	-37.58	37.93	-97.41	-59.48	-13	46.48
1 378.83	49.85	V	25.06	-37.58	37.33	-97.41	-60.08	-13	47.08
2 068.28	65.11	H	27.84	-34.15	58.80	-97.41	-38.61	-13	25.61
2 068.23	54.97	V	27.84	-34.15	48.66	-97.41	-48.75	-13	35.75
Above 2 100.00	Not detected	–	–	–	–	–	–	–	–
High Channel (693.0 ㎒)									
1 393.82	46.67	H	25.09	-37.49	34.27	-97.41	-63.14	-13	50.14
1 393.99	45.90	V	25.09	-37.49	33.50	-97.41	-63.91	-13	50.91
2 090.75	64.80	H	27.88	-33.79	58.89	-97.41	-38.52	-13	25.52
2 090.85	56.65	V	27.88	-33.78	50.75	-97.41	-46.66	-13	33.66
Above 2 100.00	Not detected	–	–	–	–	–	–	–	–

- Ant. 3_Below 3 ㎓

WCDMA Ⅱ

Frequency (㎒)	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 (1 852.4 ㎒)									
Below 1 000.00	Not detected	–	–	–	–	–	–	–	–
Above 1 000.00	Not detected	–	–	–	–	–	–	–	–
Middle Channel (1 880 ㎒)									
Below 1 000.00	Not detected	–	–	–	–	–	–	–	–
Above 1 000.00	Not detected	–	–	–	–	–	–	–	–
High Channel (1 907.6 ㎒)									
Below 1 000.00	Not detected	–	–	–	–	–	–	–	–
Above 1 000.00	Not detected	–	–	–	–	–	–	–	–

WCDMA Ⅴ

Frequency (㎒)	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)
Low Channel (826.4 ㎒)									
Below 1 000.00	Not detected	–	–	–	–	–	–	–	–
Above 1 000.00	Not detected	–	–	–	–	–	–	–	–
Middle Channel (836.6 ㎒)									
Below 1 000.00	Not detected	–	–	–	–	–	–	–	–
Above 1 000.00	Not detected	–	–	–	–	–	–	–	–
High Channel (846.6 ㎒)									
Below 1 000.00	Not detected	–	–	–	–	–	–	–	–
Above 1 000.00	Not detected	–	–	–	–	–	–	–	–

LTE band 25/2 (20 ㎒ - QPSK)

Frequency (㎒)	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 (1 860.0 ㎒)									
Below 1 000.00	Not detected	–	–	–	–	–	–	–	–
Above 1 000.00	Not detected	–	–	–	–	–	–	–	–
Middle Channel (1 882.5 ㎒)									
Below 1 000.00	Not detected	–	–	–	–	–	–	–	–
Above 1 000.00	Not detected	–	–	–	–	–	–	–	–
High Channel (1 905.0 ㎒)									
Below 1 000.00	Not detected	–	–	–	–	–	–	–	–
Above 1 000.00	Not detected	–	–	–	–	–	–	–	–

LTE band 66/4 (20 ㎒ - QPSK)

Frequency (㎒)	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 (1 720.0 ㎒)									
Below 1 000.00	Not detected	–	–	–	–	–	–	–	–
Above 1 000.00	Not detected	–	–	–	–	–	–	–	–
Middle Channel (1 745.0 ㎒)									
Below 1 000.00	Not detected	–	–	–	–	–	–	–	–
Above 1 000.00	Not detected	–	–	–	–	–	–	–	–
High Channel (1 770.0 ㎒)									
Below 1 000.00	Not detected	–	–	–	–	–	–	–	–
Above 1 000.00	Not detected	–	–	–	–	–	–	–	–

LTE band 26/5_Part 22 (15 ㎒ - QPSK)

Frequency (㎒)	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)
Low Channel (831.5 ㎒)									
1 332.85	49.97	H	25.03	-36.63	38.37	-97.41	-59.04	-13	46.04
1 332.77	51.84	V	25.03	-36.62	40.25	-97.41	-57.16	-13	44.16
1 676.19	52.84	H	26.27	-36.19	42.92	-97.41	-54.49	-13	41.49
1 676.33	52.79	V	26.27	-36.19	42.87	-97.41	-54.54	-13	41.54
2 514.56	47.69	H	28.46	-34.35	41.80	-97.41	-55.61	-13	42.61
2 514.68	45.27	V	28.46	-34.35	39.38	-97.41	-58.03	-13	45.03
Above 2 600.00	Not detected	–	–	–	–	–	–	–	–
High Channel (841.5 ㎒)									
1 332.87	50.80	H	25.03	-36.63	39.20	-97.41	-58.21	-13	45.21
1 332.82	50.44	V	25.03	-36.62	38.85	-97.41	-58.56	-13	45.56
1 696.34	53.63	H	26.63	-36.26	44.00	-97.41	-53.41	-13	40.41
1 696.35	54.31	V	26.63	-36.26	44.68	-97.41	-52.73	-13	39.73
2 544.47	50.53	H	28.58	-33.84	45.27	-97.41	-52.14	-13	39.14
2 544.35	46.83	V	28.58	-33.85	41.56	-97.41	-55.85	-13	42.85
Above 2 600.00	Not detected	–	–	–	–	–	–	–	–

LTE band 7 (20 ㎒ - QPSK)

Frequency (㎒)	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 (2 510.0 ㎒)									
5 020.31	40.76	H	33.40	-28.82	45.34	-95.26	-49.92	-25	24.92
5 020.02	37.24	V	33.40	-28.82	41.82	-95.26	-53.44	-25	28.44
7 530.19	42.74	H	36.04	-27.42	51.36	-95.26	-43.90	-25	18.90
7 530.26	44.06	V	36.04	-27.42	52.68	-95.26	-42.58	-25	17.58
Above 7 600.00	Not detected	–	–	–	–	–	–	–	–
Middle Channel (2 535.0 ㎒)									
5 070.24	41.48	H	33.44	-29.64	45.28	-95.26	-49.98	-25	24.98
5 070.28	38.74	V	33.44	-29.64	42.54	-95.26	-52.72	-25	27.72
7 605.36	41.14	H	36.00	-27.55	49.59	-95.26	-45.67	-25	20.67
7 605.07	41.16	V	36.00	-27.55	49.61	-95.26	-45.65	-25	20.65
Above 7 700.00	Not detected	–	–	–	–	–	–	–	–
High Channel (2 560.0 ㎒)									
5 120.30	38.34	H	33.54	-29.94	41.94	-95.26	-53.32	-25	28.32
5 120.31	36.15	V	33.54	-29.94	39.75	-95.26	-55.51	-25	30.51
7 680.23	37.68	H	35.94	-26.51	47.11	-95.26	-48.15	-25	23.15
7 680.32	35.82	V	35.94	-26.52	45.24	-95.26	-50.02	-25	25.02
Above 7 700.00	Not detected	–	–	–	–	–	–	–	–

LTE band 12/17 (10 ㎒ - QPSK)

Frequency (㎒)	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)
Low Channel (704.0 ㎒)									
1 399.26	60.86	H	25.10	-37.45	48.51	-97.41	-48.90	-13	35.90
1 399.15	63.11	V	25.10	-37.45	50.76	-97.41	-46.65	-13	33.65
2 098.67	59.21	H	27.90	-33.68	53.43	-97.41	-43.98	-13	30.98
2 098.63	54.92	V	27.90	-33.68	49.14	-97.41	-48.27	-13	35.27
Above 2 100.00	Not detected	–	–	–	–	–	–	–	–
Middle Channel (707.5 ㎒)									
1 406.11	61.00	H	25.11	-37.43	48.68	-97.41	-48.73	-13	35.73
1 406.17	64.55	V	25.11	-37.43	52.23	-97.41	-45.18	-13	32.18
2 109.28	58.75	H	27.84	-33.83	52.76	-97.41	-44.65	-13	31.65
2 109.30	52.80	V	27.84	-33.83	46.81	-97.41	-50.60	-13	37.60
Above 2 200.00	Not detected	–	–	–	–	–	–	–	–
High Channel (711.0 ㎒)									
1 413.15	59.74	H	25.13	-37.40	47.47	-97.41	-49.94	-13	36.94
1 413.26	64.16	V	25.13	-37.40	51.89	-97.41	-45.52	-13	32.52
2 119.77	58.56	H	27.78	-34.02	52.32	-97.41	-45.09	-13	32.09
2 119.74	52.22	V	27.78	-34.02	45.98	-97.41	-51.43	-13	38.43
Above 2 200.00	Not detected	–	–	–	–	–	–	–	–

LTE band 13 (10 ㎒ - QPSK)

Frequency (㎒)	Measured Level (dBμV)	Ant. Pol.	AF (dB/m)	AMP+CL (dB)	E (dBμV/m)	CF (dB)	E.R.P./ E.I.R.P. (dB m)	Limit (dB m)	Margin (dB)
Middle Channel (782.0 ㎒)									
1 572.87	49.63	H	25.29	-36.38	38.54	-95.26	-56.72	-40	16.72
1 572.96	47.66	V	25.29	-36.38	36.57	-95.26	-58.69	-40	18.69
2 359.21	54.05	H	28.18	-33.68	48.55	-97.41	-48.86	-13	35.86
2 359.24	52.85	V	28.18	-33.68	47.35	-97.41	-50.06	-13	37.06
Above 2 400.00	Not detected	–	–	–	–	–	–	–	–

LTE band 26_Part 90 (10 ㎒ - QPSK)

Frequency (㎒)	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 (819.0 ㎒)									
2 470.19	47.88	H	28.28	-33.21	42.95	-97.41	-54.46	-13	41.46
2 470.32	44.71	V	28.28	-33.20	39.79	-97.41	-57.62	-13	44.62
Above 2 500.00	Not detected	–	–	–	–	–	–	–	–

LTE band 71 (10 ㎒ - QPSK)

Frequency (㎒)	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)
Low Channel (668.0 ㎒)									
1 333.76	49.62	H	25.03	-36.66	37.99	-97.41	-59.42	-13	46.42
1 332.67	47.28	V	25.03	-36.62	35.69	-97.41	-61.72	-13	48.72
1 363.85	55.08	H	25.03	-37.48	42.63	-97.41	-54.78	-13	41.78
1 363.85	54.40	V	25.03	-37.48	41.95	-97.41	-55.46	-13	42.46
2 045.73	62.00	H	27.79	-34.50	55.29	-97.41	-42.12	-13	29.12
2 045.62	66.62	V	27.79	-34.50	59.91	-97.41	-37.50	-13	24.50
Above 2 100.00	Not detected	–	–	–	–	–	–	–	–
Middle Channel (680.5 ㎒)									
1 332.85	50.86	H	25.03	-36.63	39.26	-97.41	-58.15	-13	45.15
1 332.65	47.72	V	25.03	-36.62	36.13	-97.41	-61.28	-13	48.28
1 378.87	59.79	H	25.06	-37.58	47.27	-97.41	-50.14	-13	37.14
1 378.98	57.70	V	25.06	-37.58	45.18	-97.41	-52.23	-13	39.23
2 068.27	62.83	H	27.84	-34.15	56.52	-97.41	-40.89	-13	27.89
2 068.23	60.33	V	27.84	-34.15	54.02	-97.41	-43.39	-13	30.39
Above 2 100.00	Not detected	–	–	–	–	–	–	–	–
High Channel (693.0 ㎒)									
1 332.98	50.77	H	25.03	-36.63	39.17	-97.41	-58.24	-13	45.24
1 333.16	46.21	V	25.03	-36.64	34.60	-97.41	-62.81	-13	49.81
1 393.82	62.54	H	25.09	-37.49	50.14	-97.41	-47.27	-13	34.27
1 394.02	57.54	V	25.09	-37.49	45.14	-97.41	-52.27	-13	39.27
2 090.63	58.66	H	27.88	-33.79	52.75	-97.41	-44.66	-13	31.66
2 090.77	56.18	V	27.88	-33.79	50.27	-97.41	-47.14	-13	34.14
Above 2 100.00	Not detected	–	–	–	–	–	–	–	–

ULCA_2A-12A_Ant. 1_Below 3 ㎓

Frequency (㎒)	Measured Level (dBμV)	Ant. Pol.	AF (dB/m)	AMP+CL (dB)	E (dBμV/m)	CF (dB)	E.R.P. / E.I.R.P. (dB m)	Limit (dB m)	Margin (dB)
LTE B2 20 ㎒ Low channel 1RB, QPSK									
Below 1 000.00	Not detected	–	–	–	–	–	–	–	–
Above 1 000.00	Not detected	–	–	–	–	–	–	–	–
LTE B12 10 ㎒ Low channel 1RB, QPSK									
3 042.45	53.15	H	30.10	-31.83	51.42	-97.41	-45.99	-13	32.99
3 042.68	47.42	V	30.10	-31.81	45.71	-97.41	-51.70	-13	38.70
Above 3 100.00	Not detected	–	–	–	–	–	–	–	–
LTE B2 20 ㎒ Middle channel 1RB, QPSK									
Below 1 000.00	Not detected	–	–	–	–	–	–	–	–
Above 1 000.00	Not detected	–	–	–	–	–	–	–	–
LTE B12 10 ㎒ Middle channel 1RB, QPSK									
3 039.07	54.27	H	30.10	-32.10	52.27	-97.41	-45.14	-13	32.14
3 038.99	48.32	V	30.10	-32.11	46.31	-97.41	-51.10	-13	38.10
Above 3 100.00	Not detected	–	–	–	–	–	–	–	–
LTE B2 20 ㎒ High channel 1RB, QPSK									
Below 1 000.00	Not detected	–	–	–	–	–	–	–	–
Above 1 000.00	Not detected	–	–	–	–	–	–	–	–
LTE B12 10 ㎒ High channel 1RB, QPSK									
3 035.40	54.35	H	30.10	-32.39	52.06	-97.41	-45.35	-13	32.35
3 035.57	48.70	V	30.10	-32.38	46.42	-97.41	-50.99	-13	37.99
Above 3 100.00	Not detected	–	–	–	–	–	–	–	–

ULCA_12A-66A_Ant. 1_Below 3 ㎓

Frequency (㎒)	Measured Level (dBμV)	Ant. Pol.	AF (dB/m)	AMP+CL (dB)	E (dBμV/m)	CF (dB)	E.R.P. / E.I.R.P. (dB m)	Limit (dB m)	Margin (dB)
LTE B12 10 ㎒ Low channel 1RB, QPSK									
3 135.20	48.94	H	30.27	-32.31	46.90	-95.26	-48.36	-13	35.36
3 135.11	47.58	V	30.27	-32.30	45.55	-97.41	-51.86	-13	38.86
Above 3 200.00	Not detected	–	–	–	–	–	–	–	–
LTE B66 20 ㎒ Low channel 1RB, QPSK									
Below 1 000.00	Not detected	–	–	–	–	–	–	–	–
Above 1 000.00	Not detected	–	–	–	–	–	–	–	–
LTE B12 10 ㎒ Middle channel 1RB, QPSK									
3 160.10	50.11	H	30.36	-32.26	48.21	-97.41	-49.20	-13	36.20
3 161.17	47.64	V	30.37	-32.18	45.83	-97.41	-51.58	-13	38.58
Above 3 200.00	Not detected	–	–	–	–	–	–	–	–
LTE B66 20 ㎒ Middle channel 1RB, QPSK									
Below 1 000.00	Not detected	–	–	–	–	–	–	–	–
Above 1 000.00	Not detected	–	–	–	–	–	–	–	–
Frequency (㎒)	**Measured Level (dBμV)**	**Ant. Pol.**	**AF (dB/m)**	**AMP+CL (dB)**	**E (dBμV/m)**	**CF (dB)**	**E.R.P. / E.I.R.P. (dB m)**	**Limit (dB m)**	**Margin (dB)**
LTE B12 10 ㎒ High channel 1RB, QPSK									
3 185.09	51.95	H	30.51	-31.71	50.75	-97.41	-46.66	-13	33.66
3 185.27	47.84	V	30.51	-31.72	46.63	-97.41	-50.78	-13	37.78
Above 3 200.00	Not detected	–	–	–	–	–	–	–	–
LTE B66 20 ㎒ High channel 1RB, QPSK									
Below 1 000.00	Not detected	–	–	–	–	–	–	–	–
Above 1 000.00	Not detected	–	–	–	–	–	–	–	–

ULCA_2A-12A_Ant. 3_Below 3 ㎓

Frequency (㎒)	Measured Level (dBμV)	Ant. Pol.	AF (dB/m)	AMP+CL (dB)	E (dBμV/m)	CF (dB)	E.R.P. / E.I.R.P. (dB m)	Limit (dB m)	Margin (dB)
LTE B2 20 ㎒ Low channel 1RB, QPSK									
3 257.44	43.85	H	30.83	-32.75	41.93	-95.26	-53.33	-13	40.33
3 257.25	46.91	V	30.83	-32.75	44.99	-95.26	-50.27	-13	37.27
Above 3 300.00	Not detected	–	–	–	–	–	–	–	–
LTE B12 10 ㎒ Low channel 1RB, QPSK									
3 042.75	48.58	H	30.10	-31.80	46.88	-97.41	-50.53	-13	37.53
3 042.66	46.90	V	30.10	-31.81	45.19	-97.41	-52.22	-13	39.22
Above 3 100.00	Not detected	–	–	–	–	–	–	–	–
LTE B2 20 ㎒ Middle channel 1RB, QPSK									
3 277.16	44.19	H	30.91	-32.93	42.17	-95.26	-53.09	-13	40.09
3 277.40	45.89	V	30.91	-32.93	43.87	-95.26	-51.39	-13	38.39
Above 3 300.00	Not detected	–	–	–	–	–	–	–	–
LTE B12 10 ㎒ Middle channel 1RB, QPSK									
3 039.01	49.57	H	30.10	-32.10	47.57	-97.41	-49.84	-13	36.84
3 039.17	48.13	V	30.10	-32.09	46.14	-97.41	-51.27	-13	38.27
Above 3 100.00	Not detected	–	–	–	–	–	–	–	–
LTE B2 20 ㎒ High channel 1RB, QPSK									
3 297.35	42.38	H	30.99	-32.89	40.48	-95.26	-54.78	-13	41.78
3 297.32	45.32	V	30.99	-32.89	43.42	-95.26	-51.84	-13	38.84
Above 3 300.00	Not detected	–	–	–	–	–	–	–	–
LTE B12 10 ㎒ High channel 1RB, QPSK									
3 035.58	48.55	H	30.10	-32.38	46.27	-97.41	-51.14	-13	38.14
3 035.46	47.94	V	30.10	-32.39	45.65	-97.41	-51.76	-13	38.76
Above 3 100.00	Not detected	–	–	–	–	–	–	–	–