

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 3, RSS-133 Issue 6,
RSS-139 Issue 3, RSS-140 Issue 1,
RSS-199 Issue 3 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 3
Applicant : FCC: LG Electronics USA
IC: LG ELECTRONICS INC.
Manufacturer : LG Electronics Inc.
Date of Receipt : 2022.07.22
Date of Test(s) : 2022.07.25 ~ 2023.03.09
Date of Issue : 2023.03.13

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:

Teo 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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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 : Cho, Hee-jae
 Phone No. : +1 201 470 2696

1.3. Details of Manufacturer

Company : LG Electronics Inc.
 Address : 10, Magokjungang 10-ro, Gangseo-gu, Seoul, Korea, 07796

1.4. Description of EUT

Kind of Product	Telematics
Model Name	TFGMEIBBCD1
Variant Model Names	TFGMEIBBCD2, TFGMEIBBCD3
Serial Number	Conducted: 351015130056680 Radiated: 351015130065751
Power Supply	DC 13.5 V
Rated Power	NR Band 2, 5, 7, 12, 13, 14, 25, 26, 71: 24 dB m NR Band 66: 23.5 dB m
Frequency Range	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 66: 1 710 MHz ~ 1 780 MHz NR Band 71: 663 MHz ~ 698 MHz
Modulation Technique	BPSK, QPSK, 16QAM, 64QAM
Antenna Type	Internal: Planar Inverted F Antenna External: Metal Antenna
Antenna Gain*	Refer to the clause 1.19
H/W Version	REV.D
S/W Version	SW168
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. 13, 2022	Annual	Oct. 13, 2023
Signal Generator	R&S	SMBV100A	255834	May 25, 2022	Annual	May 25, 2023
Spectrum Analyzer	R&S	FSV30	103210	Dec. 07, 2022	Annual	Dec. 07, 2023
Spectrum Analyzer	Agilent	N9020A	MY53421758	Aug. 26, 2022	Annual	Aug. 26, 2023
Spectrum Analyzer	Agilent	N9030A	US51350132	Nov. 16, 2022	Annual	Nov. 16, 2023
Mobile Test Unit	R&S	CMW 500	144034	Feb. 17, 2023	Annual	Feb. 17, 2024
Communication test station	Anritsu	MT8000A	6261949671	Oct. 12, 2022	Annual	Oct. 12, 2023
Communication Analyzer	Anritsu	MT8821C	6262192291	Oct. 11, 2022	Annual	Oct. 11, 2023
Power Meter	Anritsu	ML2495A	1223004	Nov. 29, 2022	Annual	Nov. 29, 2023
Power Sensor	Anritsu	MA2411B	1207272	May 27, 2022	Annual	May 27, 2023
Temperature Chamber	ESPEC CORP.	SH-662	93000533	Jun. 02, 2022	Annual	Jun. 02, 2023
Low Pass Filter	Mini-Circuits	NLP-1200+	V 8979400903-1	May 13, 2022	Annual	May 13, 2023
High Pass Filter	Wainwright Instrument GmbH	WHKX10-900-1000-18000-40SS	7	Mar. 02, 2023	Annual	Mar. 02, 2024
High Pass Filter	Wainwright Instrument GmbH	WHKX2.2/12.75G-10SS	8	Mar. 02, 2023	Annual	Mar. 02, 2024
High Pass Filter	Wainwright Instrument GmbH	WHKX3.0/18G-6SS	21	Jun. 09, 2022	Annual	Jun. 09, 2023
High Pass Filter	Wainwright Instrument GmbH	WHNX7.5/26.5G-6SS	11	Oct. 24, 2022	Annual	Oct. 24, 2023
BRIDGE COUPLER	MARKI MICROWAVE INC	CBR16-0012	1542	May 06, 2022	Annual	May 06, 2023
Directional Coupler	KRYTAR	152613	122660	Jul. 06, 2022	Annual	Jul. 06, 2023
DC Power Supply	Agilent	U8002A	MY49030063	Jan. 20, 2023	Annual	Jan. 20, 2024
Preamplifier	H.P.	8447F	2944A03909	Aug. 04, 2022	Annual	Aug. 04, 2023
Preamplifier	R&S	SCU 18	10117	Jun. 13, 2022	Annual	Jun. 13, 2023
Preamplifier	TESTEK	TK-PA1840H	130016	Jan. 11, 2023	Annual	Jan. 11, 2024
Test Receiver	R&S	ESCI 7	100911	Feb. 24, 2023	Annual	Feb. 24, 2024
Loop Antenna	Schwarzbeck Mess-Elektronik	FMZB 1519	1519-039	Aug. 23, 2021	Biennial	Aug. 23, 2023
Bilog Antenna	Schwarzbeck Mess-Elektronik	VULB9163	01126	Feb. 09, 2023	Annual	Feb. 09, 2024
Horn Antenna	R&S	HF906	100326	Feb. 28, 2023	Annual	Feb. 28, 2024
Horn Antenna	R&S	HF907	102270	Mar. 09, 2023	Annual	Mar. 09, 2024
Horn Antenna	Schwarzbeck Mess-Elektronik	BBHA 9170	9170-540	Nov. 30, 2022	Annual	Nov. 30, 2023
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 x W x H (9.6 m x 6.4 m x 6.6 m)	N/A	N.C.R.	N/A	N.C.R.
Coaxial Cable	RFONE	MWX221-NMSNMS (4 m)	J1023142	Oct. 04, 2022	Semi-Annual	Apr. 04, 2023
Coaxial Cable	Qualwave Inc.	QA500-18-NN-10 (10 m)	22200114	Oct. 04, 2022	Semi-Annual	Apr. 04, 2023
Coaxial Cable	RADIALL	TESTPRO 3	182287	Feb. 18, 2023	Semi-Annual	Aug. 18, 2023
Coaxial Cable	RADIALL	TESTPRO 3	182288	Feb. 18, 2023	Semi-Annual	Aug. 18, 2023
Coaxial Cable	RADIALL	TESTPRO 3	182291	Feb. 18, 2023	Semi-Annual	Aug. 18, 2023

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 3, RSS-133 Issue 6, RSS-139 Issue 3, RSS-140 Issue 1 and RSS-199 Issue 3			
Section(s) in FCC	Section(s) in IC	Test Item	Result
§2.1046 §22.913(a)(5) §24.232(c) §27.50(b)(10) §27.50(c)(10) §27.50(d)(4) §27.50(h)(2) §90.542(a)(6) §90.635(b)	RSS-130 Issue 2 4.6 RSS-132 Issue 3 5.4 RSS-133 Issue 6 6.4 RSS-139 Issue 3 6.5 RSS-140 Issue 1 4.3 RSS-199 Issue 3 4.4	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) §90.543(e) §90.543(f) §90.691(a)	RSS-130 Issue 2 4.7 RSS-132 Issue 3 5.5 RSS-133 Issue 6 6.5 RSS-139 Issue 3 6.6 RSS-140 Issue 1 4.4 RSS-199 Issue 3 4.5	Radiated Spurious Emissions	Complied ¹⁾
§2.1046	RSS-Gen Issue 5 6.12	Conducted Output Power	Complied ²⁾
§2.1049	RSS-Gen Issue 5 6.7	Occupied Bandwidth	Complied ²⁾
§22.913(d) §24.232(d) §27.50(d)(5)	RSS-130 Issue 2 4.6 RSS-132 Issue 3 5.4 RSS-133 Issue 6 6.4 RSS-139 Issue 3 6.5 RSS-140 Issue 1 4.3 RSS-199 Issue 3 4.4	Peak-Average Ratio	Complied ²⁾
§22.917(a) §24.238(a) §27.53(c)(2) §27.53(g) §27.53(h)(1) §27.53(m)(4) §90.543(e) §90.691(a)	RSS-130 Issue 2 4.7 RSS-132 Issue 3 5.5 RSS-133 Issue 6 6.5 RSS-139 Issue 3 6.6 RSS-140 Issue 1 4.4 RSS-199 Issue 3 4.5	Spurious Emission at Antenna Terminal	Complied ²⁾
§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) §90.543(e) §90.691(a)	RSS-130 Issue 2 4.7 RSS-132 Issue 3 5.5 RSS-133 Issue 6 6.5 RSS-139 Issue 3 6.6 RSS-140 Issue 1 4.4 RSS-199 Issue 3 4.5	Band Edge	Complied ²⁾
§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 3 5.3 RSS-133 Issue 6 6.3 RSS-139 Issue 3 6.4 RSS-140 Issue 1 4.2 RSS-199 Issue 3 4.3	Frequency Stability	Complied ²⁾

Note;

- 1) The EUT has two antennas (external, internal) and each antenna operated by one module.
- 2) The EUT uses same module with TM05FNNAGM0, so only spot check was performed for radiated spurious emissions and the rule was satisfied.

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 (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. Introduction of Test Data Reuse

This report referenced from the FCC ID: BEJTM05FNNAGM0 and IC Certification: 2703H-TM05FNNAGM0. The applicant takes full responsibility that the test data as referenced in this report represent compliance for this FCC ID and IC Certification.

1.9. Difference

Model name	Description
TM05FNNAGM0	- Reference model - Single modular
TFGMEIBBCD1	- Host equipment - Same to reference model except below - With external case - Internal antenna

1.10. Spot Check Data

After confirming through preliminary radiated emissions in the band within a margin of 5 dB range that the performance of the FCC ID: BEJTM05FNNAGM0 and IC Certification: 2703H-TM05FNNAGM0 remains representative of FCC ID: BEJTFGMEIBBCD1 and IC Certification: 2703H-TFGMEIBBCD1. The test data of FCC ID: BEJTM05FNNAGM0 and IC Certification: 2703H-TM05FNNAGM0 being submitted for this application to cover NR features.

Band	Test item	Frequency (MHz)	Limit	Original model	Spot check model	Deviation (dB)	Remark
				TM05FNNAGM0	TFGMEIBBCD1		
				FCC ID: BEJTM05FNNAGM0 IC Certification: 2703H-TM05FNNAGM0	FCC ID: BEJTFGMEIBBCD1 IC Certification: 2703H-TFGMEIBBCD1		
n13	Radiated Spurious Emissions	782	-40 dB m	-43.29 dB m	-45.83 dB m	-2.54	GPS Band
n66	Radiated Spurious Emissions	1 712.5	-13 dB m	-14.98 dB m	-15.07 dB m	-0.09	-

Note;

Comparison of two models, upper deviation is within 3 dB range and all test results are under FCC/IC technical limits.

1.11. Reference Detail

Reference applicant that contains the reused reference data in the individual test reports:

Equipment class	Reference FCC ID and IC Certification	Application type	Reference test report number	Exhibit type	Variant test report number	Data reuse
PCB	FCC ID: BEJTM05FNNAGM0 IC Certification: 2703H-TM05FNNAGM0	Original grant	F690501-RF-RTL003820-1 (LTE)	Test report	F690501-RF-RTL003895 (LTE)	All
			F690501-RF-RTL003821-1 (NR)		F690501-RF-RTL003896 (NR)	
			F690501-RF-RTL003822-1 (Inter CA)		F690501-RF-RTL003897 (Inter CA)	
			F690501-RF-RTL003823-1 (WCDMA)		F690501-RF-RTL003898 (WCDMA)	
			F690501-RF-RTL003824-1 (intra CA)		F690501-RF-RTL003899 (intra CA)	
			F690501-RF-RTL003825-1 (NR n41)		F690501-RF-RTL003900 (NR n41)	
			F690501-RF-RTL003827-1 (FCC_NR n77/78)		F690501-RF-RTL003902 (FCC_NR n77/78)	
			F690501-RF-RTL003828-1 (IC_NR n77/78)		F690501-RF-RTL003903 (IC_NR n77/78)	

1.12. Device Capabilities

This device contains the following capabilities;

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

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

1.13. 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.
 The EUT has two antennas (external, internal) and each antenna operated by one module.
 The EUT's internal and external antennas do not transmit simultaneously.

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

1.14. ENDC Configuration

NR Band	SCS (kHz)	Bandwidth (MHz)	Waveform	Modulation	ENDC LTE Band
n2	15	5, 10, 15, 20	DFTS OFDM, CP OFDM	BPSK, QPSK, 16QAM, 64QAM	5, 12, 13, 14
n5	15	5, 10, 15, 20			2, 7, 66
n7	15	5, 10, 15, 20			5, 12
n12	15	5, 10, 15			2, 66
n13	15	5, 10			66
n25	15	5, 10, 15, 20			12
n66	15	5, 10, 15, 20, 40			5, 12, 13, 14
n71	15	5, 10, 15, 20			2, 7, 66

1.15. Worst Case Configuration and Mode

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

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

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

The peak to average ratio were tested only 64QAM 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.

1.16. Measurement Configuration

Test Items	Band	Test Channel			Bandwidth (MHz)												Modulation DFTS-OFDM				Modulation CP-OFDM			RB #			
		Low	Mid	High	5	10	15	20	25	30	40	50	60	80	90	100	BPSK	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM	1	Half	Full	
Conducted Output Power	n7	V	V	V	V	V	V	V									V	V	V	V	V	V	V	V	V	V	V
	n12	V	V	V	V	V	V										V	V	V	V	V	V	V	V	V	V	V
	n13	V	V	V	V	V											V	V	V	V	V	V	V	V	V	V	V
	n14	V	V	V	V	V											V	V	V	V	V	V	V	V	V	V	V
	n25/2	V	V	V	V	V	V	V									V	V	V	V	V	V	V	V	V	V	V
	n26/5 part 22	V	V	V	V	V	V	V									V	V	V	V	V	V	V	V	V	V	V
	n26 part 22	V	V	V	V	V											V	V	V	V	V	V	V	V	V	V	V
	n66	V	V	V	V	V	V				V						V	V	V	V	V	V	V	V	V	V	V
n71	V	V	V	V	V	V	V									V	V	V	V	V	V	V	V	V	V	V	
Frequency Stability	n7	-	V	-	V	-	-	-									-	V	-	-	-	-	-	-	-	-	V
	n12	-	V	-	V	-	-	-									-	V	-	-	-	-	-	-	-	-	V
	n13	-	V	-	V	-											-	V	-	-	-	-	-	-	-	-	V
	n14	-	V	-	V	-											-	V	-	-	-	-	-	-	-	-	V
	n25/2	-	V	-	V	-	-	-									-	V	-	-	-	-	-	-	-	-	V
	n26/5 part 22	-	V	-	V	-	-	-									-	V	-	-	-	-	-	-	-	-	V
	n26 part 22		V		V	-											-	V	-	-	-	-	-	-	-	-	V
	n66	-	V	-	V	-	-	-			-						-	V	-	-	-	-	-	-	-	-	V
n71	-	V	-	V	-	-	-									-	V	-	-	-	-	-	-	-	-	V	
Occupied Bandwidth	n7	-	V	-	V	V	V										V	V	V	-	V	V	-	-	-	V	
	n12	-	V	-	V	V											V	V	V	-	V	V	-	-	-	V	
	n13	-	V	-	V	V											V	V	V	-	V	V	-	-	-	V	
	n14	-	V	-	V	V											V	V	V	-	V	V	-	-	-	V	
	n25/2	-	V	-	V	V	V										V	V	V	-	V	V	-	-	-	V	
	n26/5 part 22	-	V	-	V	V	V										V	V	V	-	V	V	-	-	-	V	
	n26 part 22	-	V	-	V	V											V	V	V	-	V	V	-	-	-	V	
	n66	-	V	-	V	V	V				V						V	V	V	-	V	V	-	-	-	V	
n71	-	V	-	V	V	V										V	V	V	-	V	V	-	-	-	V		
Peak-to-Average Ratio	n7	V	V	V	V	V	V										-	-	-	V	-	-	V	-	-	V	
	n12	V	V	V	V	V											-	-	-	V	-	-	V	-	-	V	
	n13	V	V	V	V												-	-	-	V	-	-	V	-	-	V	
	n14	V	V	V	V												-	-	-	V	-	-	V	-	-	V	
	n25/2	V	V	V	V	V	V										-	-	-	V	-	-	V	-	-	V	
	n26/5 part 22	V	V	V	V	V	V										-	-	-	V	-	-	V	-	-	V	
	n26 part 22	V	V	V	V												-	-	-	V	-	-	V	-	-	V	
	n66	V	V	V	V	V	V				V						-	-	-	V	-	-	V	-	-	V	
n71	V	V	V	V	V	V										-	-	-	V	-	-	V	-	-	V		
Band edge	n7	V	-	V	V	V	V										-	V	V	-	V	V	-	V	-	V	
	n12	V	-	V	V	V											-	V	V	-	V	V	-	V	-	V	
	n13	V	-	V	V												-	V	V	-	V	V	-	V	-	V	
	n14	V	-	V	V												-	V	V	-	V	V	-	V	-	V	
	n25/2	V	-	V	V	V	V										-	V	V	-	V	V	-	V	-	V	
	n26/5 part 22	V	-	V	V	V	V										-	V	V	-	V	V	-	V	-	V	
	n26 part 22	V	-	V	V												-	V	V	-	V	V	-	V	-	V	
	n66	V	-	V	V	V	V				V						-	V	V	-	V	V	-	V	-	V	
n71	V	-	V	V	V	V										-	V	V	-	V	V	-	V	-	V		
Spurious at antenna terminal & Radiated Spurious Emissions	n7	V	V	V	Worst case																						
	n12	V	V	V	Worst case																						
	n13	V	V	V	Worst case																						
	n14	V	V	V	Worst case																						
	n25/2	V	V	V	Worst case																						
	n26/5 part 22	V	V	V	Worst case																						
	n26 part 22				Worst case																						
	n66	V	V	V	Worst case																						
n71	V	V	V	Worst case																							

ENDC

Test Items	NR Band	Test Channel			Bandwidth (MHz)										Modulation DFTS-OFDM				Modulation CP-OFDM			RB #				
		Low	Mid	High	5	10	15	20	25	30	40	50	60	80	90	100	BPSK	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM	1	Half	Full
Conducted Output Power	n2	V	V	V	V	V	V	V									V	V	-	-	-	-	-	V	-	-
	n5	V	V	V	V	V	V	V									V	V	-	-	-	-	-	V	-	-
	n7	V	V	V	V	V	V	V									V	V	-	-	-	-	-	V	-	-
	n12	V	V	V	V	V	V										V	V	-	-	-	-	-	V	-	-
	n13	V	V	V	V	V											V	V	-	-	-	-	-	V	-	-
	n25	V	V	V	V	V	V	V									V	V	-	-	-	-	-	V	-	-
	n66	V	V	V	V	V	V	V			V						V	V	-	-	-	-	-	V	-	-
n71	V	V	V	V	V	V	V									V	V	-	-	-	-	-	V	-	-	
Spurious Radiated Emission	n2	V	V	V	Worst case																					
	n5	V	V	V	Worst case																					
	n7	V	V	V	Worst case																					
	n12	V	V	V	Worst case																					
	n13	V	V	V	Worst case																					
	n25	V	V	V	Worst case																					
	n66	V	V	V	Worst case																					
n71	V	V	V	Worst case																						

Note;

- All measurement was performed with 1RB or FULL RB or both, we chosen RB condition for each test items as worst case.

Radiated Emission Test

NR Band	SCS (kHz)	Bandwidth (MHz)	Modulation	Resource Block Allocation
				RBs allocated
n7	15	5	DFTS OFDM - QPSK	1
n12	15	15	DFTS OFDM - QPSK	1
n13	15	10	DFTS OFDM - QPSK	1
n14	15	10	DFTS OFDM - QPSK	1
n25/2	15	10	DFTS OFDM - QPSK	1
n26/5_Part 22	15	10	DFTS OFDM - QPSK	1
n26_Part 90	15	10	DFTS OFDM - QPSK	1
n66	15	5	DFTS OFDM - QPSK	1
n71	15	15	DFTS OFDM - QPSK	1

ENDC

NR Band	SCS (kHz)	Bandwidth (MHz)	Modulation	Resource Block Allocation
				RBs allocated
5A-n2A	15	5-15	DFTS OFDM - BPSK	1
7A-n5A	15	20-15	DFTS OFDM - BPSK	1
5A-n7A	15	5-20	DFTS OFDM - BPSK	1
66A-n12A	15	15-15	DFTS OFDM - QPSK	1
66A-n13A	15	15-5	DFTS OFDM - BPSK	1
12A-n25A	15	10-15	DFTS OFDM - BPSK	1
5A-n66A	15	5-40	DFTS OFDM - BPSK	1
66A-n71A	15	15-10	DFTS OFDM - BPSK	1

1.17. Measurement Uncertainty

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

Parameter	Uncertainty	
RF Output Power	0.32 dB	
Occupied Bandwidth	3.90 kHz	
Conducted Spurious Emissions	0.61 dB	
Peak to Average Ratio	0.60 dB	
Frequency Stability	5.97 kHz	
Radiated Emission, 9 kHz to 30 MHz	H	3.40 dB
	V	3.40 dB
Radiated Emission, below 1 GHz	H	4.50 dB
	V	5.10 dB
Radiated Emission, above 1 GHz	H	3.70 dB
	V	3.90 dB

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

1.18. Test Report Revision

Revision	Report Number	Date of Issue	Description
0	F690501-RF-RTL003896	2023.03.13	Initial

1.19. Antenna Information

Band	Operating Frequency (MHz)	Antenna Peak Gain (dB i)	
		External	Internal
NR 7	2 500 ~ 2 570	5.99	2.50
NR 12	699 ~ 716	-1.05	0.58
NR 13	777 ~ 787	-0.53	0.44
NR 14	788 ~ 798	-0.53	0.44
NR 25/2	1 850 ~ 1 915	5.12	2.23
NR 26	814 ~ 824	0.37	0.75
NR 26/5	824 ~ 849	0.37	0.75
NR 66	1 710 ~ 1 780	5.54	3.15
NR 71	663 ~ 698	0.37	0.58

1.20. Emission Designator and Max Power

- Internal Antenna

NR Band	Band width (MHz)	Modulation		Low Freq. (MHz)	Upper Freq. (MHz)	Conducted Average (dB m)	Ant. Gain (dB i)	E.I.R.P. Average (dB m)	E.I.R.P. Average (W)	Emission Designator			
n7	5	DFTS-OFDM	BPSK	2 502.5	2 567.5	23.93	2.50	26.43	0.440	4M48G7D			
			QPSK			24.05		26.55	0.452	4M50G7D			
			16QAM			22.88		25.38	0.345	4M49D7D			
		CP-OFDM	QPSK			22.49		24.99	0.316	4M49G7D			
			16QAM			21.88		24.38	0.274	4M51D7D			
			BPSK			23.83		26.33	0.430	8M93G7D			
	10	DFTS-OFDM	QPSK	2 505	2 565	23.85		26.35	0.432	8M93G7D			
			16QAM			22.69		25.19	0.330	8M93D7D			
			CP-OFDM			QPSK		22.33	24.83	0.304	9M29G7D		
		16QAM	21.77			24.27		0.267	9M27D7D				
		15	DFTS-OFDM			BPSK		2 507.5	2 562.5	23.94	26.44	0.441	13M5G7D
						QPSK				23.95	26.45	0.442	13M5G7D
	16QAM			22.89	25.39	0.346				13M5D7D			
	CP-OFDM		QPSK	22.50	25.00	0.316				14M2G7D			
			16QAM	21.88	24.38	0.274				14M1D7D			
			BPSK	23.95	26.45	0.442				17M9G7D			
	20	DFTS-OFDM	QPSK	2 510	2 560	24.01		26.51	0.448	17M9G7D			
			16QAM			22.91		25.41	0.348	17M9D7D			
			CP-OFDM			QPSK		22.49	24.99	0.316	18M9G7D		
		16QAM	22.04			24.54		0.284	18M9D7D				

NR Band	Band width (MHz)	Modulation		Low Freq. (MHz)	Upper Freq. (MHz)	Conducted Average (dB m)	Ant. Gain (dB i)	E.R.P. Average (dB m)	E.R.P. Average (W)	Emission Designator			
n12	5	DFTS-OFDM	BPSK	701.5	713.5	24.65	0.58	23.08	0.203	4M49G7D			
			QPSK			24.60		23.03	0.201	4M49G7D			
			16QAM			23.55		21.98	0.158	4M48D7D			
		CP-OFDM	QPSK			23.20		21.63	0.146	4M50G7D			
			16QAM			22.70		21.13	0.130	4M50D7D			
			BPSK			24.57		23.00	0.200	8M91G7D			
	10	DFTS-OFDM	QPSK	704	711	24.56		22.99	0.199	8M93G7D			
			16QAM			23.49		21.92	0.156	8M95D7D			
			CP-OFDM			QPSK		23.03	21.46	0.140	9M31G7D		
		16QAM	22.58			21.01		0.126	9M27D7D				
		15	DFTS-OFDM			BPSK		706.5	708.5	24.78	23.21	0.209	13M5G7D
						QPSK				24.79	23.22	0.210	13M4G7D
	16QAM			23.76	22.19	0.166				13M5D7D			
	CP-OFDM		QPSK	23.24	21.67	0.147				14M2G7D			
			16QAM	22.84	21.27	0.134				14M1D7D			

NR Band	Band width (MHz)	Modulation		Low Freq. (MHz)	Upper Freq. (MHz)	Conducted Average (dB m)	Ant. Gain (dB i)	E.R.P. Average (dB m)	E.R.P. Average (W)	Emission Designator
n13	5	DFTS-OFDM	BPSK	779.5	784.5	24.70	0.44	22.99	0.199	4M50G7D
			QPSK			24.65		22.94	0.197	4M49G7D
			16QAM			23.56		21.85	0.153	4M48D7D
		CP-OFDM	QPSK			23.01		21.30	0.135	4M50G7D
			16QAM			22.44		20.73	0.118	4M51D7D
			BPSK			24.76		23.05	0.202	8M89G7D
	10	DFTS-OFDM	QPSK	782	782	24.78		23.07	0.203	8M93G7D
			16QAM			23.16		21.45	0.140	8M91D7D
			BPSK			22.92		21.21	0.132	9M27G7D
		CP-OFDM	QPSK			22.44		20.73	0.118	9M25D7D
			16QAM							

NR Band	Band width (MHz)	Modulation		Low Freq. (MHz)	Upper Freq. (MHz)	Conducted Average (dB m)	Ant. Gain (dB i)	E.R.P. Average (dB m)	E.R.P. Average (W)	Emission Designator
n14	5	DFTS-OFDM	BPSK	790.5	795.5	24.61	0.44	22.90	0.195	4M49G7D
			QPSK			24.73		23.02	0.200	4M48G7D
			16QAM			23.63		21.92	0.156	4M48D7D
		CP-OFDM	QPSK			23.18		21.47	0.140	4M51G7D
			16QAM			22.69		20.98	0.125	4M49D7D
			BPSK			24.55		22.84	0.192	8M91G7D
	10	DFTS-OFDM	QPSK	793	793	24.90		23.19	0.208	8M93G7D
			16QAM			24.08		22.37	0.173	8M95D7D
			BPSK			23.03		21.32	0.136	9M29G7D
		CP-OFDM	QPSK			22.54		20.83	0.121	9M27D7D
			16QAM							

NR Band	Band width (MHz)	Modulation		Low Freq. (MHz)	Upper Freq. (MHz)	Conducted Average (dB m)	Ant. Gain (dB i)	E.I.R.P. Average (dB m)	E.I.R.P. Average (W)	Emission Designator
n25/2	5	DFTS-OFDM	BPSK	1 852.5	1 912.5	23.47	2.23	25.70	0.372	4M49G7D
			QPSK			23.49		25.72	0.373	4M49G7D
			16QAM			22.43		24.66	0.292	4M48D7D
		CP-OFDM	QPSK			22.01		24.24	0.265	4M51G7D
			16QAM			21.55		23.78	0.239	4M50D7D
			BPSK			23.60		25.83	0.383	8M93G7D
	10	DFTS-OFDM	QPSK	1 855	1 910	23.67		25.90	0.389	8M93G7D
			16QAM			22.68		24.91	0.310	8M93D7D
			BPSK			22.10		24.33	0.271	9M29G7D
		CP-OFDM	QPSK			21.57		23.80	0.240	9M27D7D
			16QAM			23.66		25.89	0.388	13M5G7D
			BPSK			23.61		25.84	0.384	13M6G7D
	15	DFTS-OFDM	QPSK	1 857.5	1 907.5	22.63		24.86	0.306	13M5D7D
			16QAM			22.21		24.44	0.278	14M2G7D
			BPSK			21.70		23.93	0.247	14M1D7D
		CP-OFDM	QPSK			23.60		25.83	0.383	17M9G7D
			16QAM			23.59		25.82	0.382	17M8G7D
			BPSK			22.59		24.82	0.303	17M9D7D
	20	DFTS-OFDM	QPSK	1 860	1 905	22.10		24.33	0.271	18M9G7D
			16QAM			21.66		23.89	0.245	18M9D7D
			BPSK							
		CP-OFDM	QPSK							
			16QAM							

NR Band	Band width (MHz)	Modulation		Low Freq. (MHz)	Upper Freq. (MHz)	Conducted Average (dB m)	Ant. Gain (dB i)	E.R.P. Average (dB m)	E.R.P. Average (W)	Emission Designator
		DFTS-OFDM	CP-OFDM							
n26/5 part 22	5	DFTS-OFDM	BPSK	826.5	846.5	24.29	0.75	22.89	0.195	4M47G7D
			QPSK			24.32		22.92	0.196	4M49G7D
			16QAM			23.35		21.95	0.157	4M48D7D
		CP-OFDM	QPSK			22.89		21.49	0.141	4M49G7D
			16QAM			22.38		20.98	0.125	4M51D7D
			10			DFTS-OFDM		BPSK	829	844
	QPSK	24.55		23.15	0.207			8M93G7D		
	16QAM	23.50		22.10	0.162			8M93D7D		
	CP-OFDM	QPSK		22.94	21.54	0.143		9M29G7D		
		16QAM		22.45	21.05	0.127		9M27D7D		
		15		DFTS-OFDM	BPSK	831.5		841.5		
	QPSK		24.54		23.14				0.206	13M5G7D
	16QAM		23.37		21.97				0.157	13M5D7D
	CP-OFDM		QPSK	22.99	21.59				0.144	14M1G7D
			16QAM	22.46	21.06				0.128	14M1D7D
			20	DFTS-OFDM	BPSK				834	839
	QPSK	24.45			23.05	0.202		17M9G7D		
	16QAM	23.34			21.94	0.156		17M9D7D		
	CP-OFDM	QPSK		22.98	21.58	0.144		18M9G7D		
		16QAM		22.37	20.97	0.125		18M9D7D		

NR Band	Band width (MHz)	Modulation		Low Freq. (MHz)	Upper Freq. (MHz)	Conducted Average (dB m)	Ant. Gain (dB i)	E.R.P. Average (dB m)	E.R.P. Average (W)	Emission Designator
		DFTS-OFDM	CP-OFDM							
n26 part 90	5	DFTS-OFDM	BPSK	816.5	821.5	24.43	0.75	23.03	0.201	4M49G7D
			QPSK			24.37		22.97	0.198	4M48G7D
			16QAM			23.51		22.11	0.163	4M49D7D
		CP-OFDM	QPSK			22.97		21.57	0.144	4M52G7D
			16QAM			22.42		21.02	0.126	4M51D7D
			10			DFTS-OFDM		BPSK	819	819
	QPSK	24.47		23.07	0.203			8M91G7D		
	16QAM	23.44		22.04	0.160			8M95D7D		
	CP-OFDM	QPSK		22.93	21.53	0.142		9M27G7D		
		16QAM		22.54	21.14	0.130		9M25D7D		

NR Band	Band width (MHz)	Modulation		Low Freq. (MHz)	Upper Freq. (MHz)	Conducted Average (dB m)	Ant. Gain (dB i)	E.I.R.P. Average (dB m)	E.I.R.P. Average (W)	Emission Designator
n66	5	DFTS-OFDM	BPSK	1 712.5	1 777.5	22.82	3.15	25.97	0.395	4M50G7D
			QPSK			22.95		26.10	0.407	4M48G7D
			16QAM			21.72		24.87	0.307	4M49D7D
		CP-OFDM	QPSK			21.14		24.29	0.269	4M50G7D
			16QAM			20.71		23.86	0.243	4M50D7D
			10			DFTS-OFDM		BPSK	1 715	1 775
	QPSK	22.82		25.97	0.395			8M93G7D		
	16QAM	21.73		24.88	0.308			8M93D7D		
	CP-OFDM	QPSK		21.24	24.39	0.275		9M29G7D		
		16QAM		20.81	23.96	0.249		9M27D7D		
		15		DFTS-OFDM	BPSK	1 717.5		1 772.5		
	QPSK		22.92		26.07				0.405	13M5G7D
	16QAM		21.82		24.97				0.314	13M5D7D
	CP-OFDM		QPSK	21.30	24.45				0.279	14M2G7D
			16QAM	20.91	24.06				0.255	14M1D7D
			20	DFTS-OFDM	BPSK				1 720	1 770
	QPSK	22.95			26.10	0.407		17M9G7D		
	16QAM	21.94			25.09	0.323		17M9D7D		
	CP-OFDM	QPSK		21.44	24.59	0.288		18M9G7D		
		16QAM		20.91	24.06	0.255		18M9D7D		
		40		DFTS-OFDM	BPSK	1 730		1 760		
	QPSK		22.92		26.07				0.405	38M9G7D
	16QAM		21.94		25.09				0.323	38M8D7D
	CP-OFDM		QPSK	21.48	24.63				0.290	38M8G7D
16QAM			20.90	24.05	0.254		38M8D7D			

NR Band	Band width (MHz)	Modulation		Low Freq. (MHz)	Upper Freq. (MHz)	Conducted Average (dB m)	Ant. Gain (dB i)	E.R.P. Average (dB m)	E.R.P. Average (W)	Emission Designator
n71	5	DFTS-OFDM	BPSK	665.5	695.5	24.46	0.58	22.89	0.195	4M49G7D
			QPSK			24.44		22.87	0.194	4M49G7D
			16QAM			23.39		21.82	0.152	4M48D7D
		CP-OFDM	QPSK			22.98		21.41	0.138	4M50G7D
			16QAM			22.37		20.8	0.120	4M49D7D
			10			DFTS-OFDM		BPSK	668	693
	QPSK	24.33		22.76	0.189			8M93G7D		
	16QAM	23.33		21.76	0.150			8M93D7D		
	CP-OFDM	QPSK		22.94	21.37	0.137		9M29G7D		
		16QAM		22.29	20.72	0.118		9M27D7D		
		15		DFTS-OFDM	BPSK	670.5		690.5		
	QPSK		24.51		22.94				0.197	13M5G7D
	16QAM		23.49		21.92				0.156	13M5D7D
	CP-OFDM		QPSK	22.97	21.4				0.138	14M2G7D
			16QAM	22.40	20.83				0.121	14M1D7D
			20	DFTS-OFDM	BPSK				673	688
	QPSK	24.46			22.89	0.195		17M8G7D		
	16QAM	23.47			21.9	0.155		17M9D7D		
	CP-OFDM	QPSK		22.86	21.29	0.135		18M9G7D		
		16QAM		22.40	20.83	0.121		18M9D7D		

- External Antenna

NR Band	Band width (MHz)	Modulation		Low Freq. (MHz)	Upper Freq. (MHz)	Conducted Average (dB m)	Ant. Gain (dB i)	E.I.R.P. Average (dB m)	E.I.R.P. Average (W)	Emission Designator
n7	5	DFTS-OFDM	BPSK	2 502.5	2 567.5	23.93	5.99	29.92	0.982	4M48G7D
			QPSK			24.05		30.04	1.009	4M50G7D
			16QAM			22.88		28.87	0.771	4M49D7D
		CP-OFDM	QPSK			22.49		28.48	0.705	4M49G7D
			16QAM			21.88		27.87	0.612	4M51D7D
			10			DFTS-OFDM		BPSK	2 505	2 565
	QPSK	23.85		29.84	0.964			8M93G7D		
	16QAM	22.69		28.68	0.738			8M93D7D		
	CP-OFDM	QPSK		22.33	28.32	0.679		9M29G7D		
		16QAM		21.77	27.76	0.597		9M27D7D		
		15		DFTS-OFDM	BPSK	2 507.5		2 562.5		
	QPSK		23.95		29.94				0.986	13M5G7D
	16QAM		22.89		28.88				0.773	13M5D7D
	CP-OFDM		QPSK	22.50	28.49				0.706	14M2G7D
			16QAM	21.88	27.87				0.612	14M1D7D
			20	DFTS-OFDM	BPSK				2 510	2 560
	QPSK	24.01			30.00	1.000		17M9G7D		
	16QAM	22.91			28.90	0.776		17M9D7D		
	CP-OFDM	QPSK		22.49	28.48	0.705		18M9G7D		
		16QAM		22.04	28.03	0.635		18M9D7D		

NR Band	Band width (MHz)	Modulation		Low Freq. (MHz)	Upper Freq. (MHz)	Conducted Average (dB m)	Ant. Gain (dB i)	E.R.P. Average (dB m)	E.R.P. Average (W)	Emission Designator
n12	5	DFTS-OFDM	BPSK	701.5	713.5	24.65	-1.05	21.45	0.140	4M49G7D
			QPSK			24.60		21.40	0.138	4M49G7D
			16QAM			23.55		20.35	0.108	4M48D7D
		CP-OFDM	QPSK			23.20		20.00	0.100	4M50G7D
			16QAM			22.70		19.50	0.089	4M50D7D
			10			DFTS-OFDM		BPSK	704	711
	QPSK	24.56		21.36	0.137			8M93G7D		
	16QAM	23.49		20.29	0.107			8M95D7D		
	CP-OFDM	QPSK		23.03	19.83	0.096		9M31G7D		
		16QAM		22.58	19.38	0.087		9M27D7D		
		15		DFTS-OFDM	BPSK	706.5		708.5		
	QPSK		24.79		21.59				0.144	13M4G7D
	16QAM		23.76		20.56				0.114	13M5D7D
	CP-OFDM		QPSK	23.24	20.04				0.101	14M2G7D
			16QAM	22.84	19.64				0.092	14M1D7D

NR Band	Band width (MHz)	Modulation		Low Freq. (MHz)	Upper Freq. (MHz)	Conducted Average (dB m)	Ant. Gain (dB i)	E.R.P. Average (dB m)	E.R.P. Average (W)	Emission Designator
n13	5	DFTS-OFDM	BPSK	779.5	784.5	24.70	-0.53	22.02	0.159	4M50G7D
			QPSK			24.65		21.97	0.157	4M49G7D
			16QAM			23.56		20.88	0.122	4M48D7D
		CP-OFDM	QPSK			23.01		20.33	0.108	4M50G7D
			16QAM			22.44		19.76	0.095	4M51D7D
			10			DFTS-OFDM		BPSK	782	782
	QPSK	24.78		22.10	0.162			8M93G7D		
	16QAM	23.16		20.48	0.112			8M91D7D		
	CP-OFDM	QPSK		22.92	20.24	0.106		9M27G7D		
		16QAM		22.44	19.76	0.095		9M25D7D		

NR Band	Band width (MHz)	Modulation		Low Freq. (MHz)	Upper Freq. (MHz)	Conducted Average (dB m)	Ant. Gain (dB i)	E.R.P. Average (dB m)	E.R.P. Average (W)	Emission Designator
n14	5	DFTS-OFDM	BPSK	790.5	795.5	24.61	-0.53	21.93	0.156	4M49G7D
			QPSK			24.73		22.05	0.160	4M48G7D
			16QAM			23.63		20.95	0.124	4M48D7D
		CP-OFDM	QPSK			23.18		20.50	0.112	4M51G7D
			16QAM			22.69		20.01	0.100	4M49D7D
			10			DFTS-OFDM		BPSK	793	793
	QPSK	24.90		22.22	0.167			8M93G7D		
	16QAM	24.08		21.40	0.138			8M95D7D		
	CP-OFDM	QPSK		23.03	20.35	0.108		9M29G7D		
		16QAM		22.54	19.86	0.097		9M27D7D		

NR Band	Band width (MHz)	Modulation		Low Freq. (MHz)	Upper Freq. (MHz)	Conducted Average (dB m)	Ant. Gain (dB i)	E.I.R.P. Average (dB m)	E.I.R.P. Average (W)	Emission Designator
n25/2	5	DFTS-OFDM	BPSK	1 852.5	1 912.5	23.47	5.12	28.59	0.723	4M49G7D
			QPSK			23.49		28.61	0.726	4M49G7D
			16QAM			22.43		27.55	0.569	4M48D7D
		CP-OFDM	QPSK			22.01		27.13	0.516	4M51G7D
			16QAM			21.55		26.67	0.465	4M50D7D
			10			DFTS-OFDM		BPSK	1 855	1 910
	QPSK	23.67		28.79	0.757			8M93G7D		
	16QAM	22.68		27.80	0.603			8M93D7D		
	CP-OFDM	QPSK		22.10	27.22	0.527		9M29G7D		
		16QAM		21.57	26.69	0.467		9M27D7D		
		15		DFTS-OFDM	BPSK	1 857.5		1 907.5		
	QPSK		23.61		28.73				0.746	13M6G7D
	16QAM		22.63		27.75				0.596	13M5D7D
	CP-OFDM		QPSK	22.21	27.33				0.541	14M2G7D
			16QAM	21.70	26.82				0.481	14M1D7D
			20	DFTS-OFDM	BPSK				1 860	1 905
	QPSK	23.59			28.71	0.743		17M8G7D		
	16QAM	22.59			27.71	0.590		17M9D7D		
	CP-OFDM	QPSK		22.10	27.22	0.527		18M9G7D		
		16QAM		21.66	26.78	0.476		18M9D7D		

NR Band	Band width (MHz)	Modulation		Low Freq. (MHz)	Upper Freq. (MHz)	Conducted Average (dB m)	Ant. Gain (dB i)	E.R.P. Average (dB m)	E.R.P. Average (W)	Emission Designator
		DFTS-OFDM	CP-OFDM							
n26/5 part 22	5	DFTS-OFDM	BPSK	826.5	846.5	24.29	0.37	22.51	0.178	4M47G7D
			QPSK			24.32		22.54	0.179	4M49G7D
			16QAM			23.35		21.57	0.144	4M48D7D
		CP-OFDM	QPSK			22.89		21.11	0.129	4M49G7D
			16QAM			22.38		20.60	0.115	4M51D7D
			DFTS-OFDM			BPSK		829	844	24.46
	QPSK	24.55	22.77	0.189	8M93G7D					
	16QAM	23.50	21.72	0.149	8M93D7D					
	CP-OFDM	QPSK	22.94	21.16	0.131	9M29G7D				
		16QAM	22.45	20.67	0.117	9M27D7D				
		DFTS-OFDM	BPSK	831.5	841.5	24.51				22.73
	QPSK	24.54	22.76			0.189		13M5G7D		
	16QAM	23.37	21.59			0.144		13M5D7D		
	CP-OFDM	QPSK	22.99			21.21		0.132	14M1G7D	
		16QAM	22.46			20.68		0.117	14M1D7D	
		DFTS-OFDM	BPSK			834		839	24.46	22.68
	QPSK	24.45	22.67	0.185	17M9G7D					
	16QAM	23.34	21.56	0.143	17M9D7D					
	CP-OFDM	QPSK	22.98	21.20	0.132				18M9G7D	
		16QAM	22.37	20.59	0.115				18M9D7D	

NR Band	Band width (MHz)	Modulation		Low Freq. (MHz)	Upper Freq. (MHz)	Conducted Average (dB m)	Ant. Gain (dB i)	E.R.P. Average (dB m)	E.R.P. Average (W)	Emission Designator
		DFTS-OFDM	CP-OFDM							
n26 part 90	5	DFTS-OFDM	BPSK	816.5	821.5	24.43	0.37	22.65	0.184	4M49G7D
			QPSK			24.37		22.59	0.182	4M48G7D
			16QAM			23.51		21.73	0.149	4M49D7D
		CP-OFDM	QPSK			22.97		21.19	0.132	4M52G7D
			16QAM			22.42		20.64	0.116	4M51D7D
			DFTS-OFDM			BPSK		819	819	24.46
	QPSK	24.47	22.69	0.186	8M91G7D					
	16QAM	23.44	21.66	0.147	8M95D7D					
	CP-OFDM	QPSK	22.93	21.15	0.130	9M27G7D				
		16QAM	22.54	20.76	0.119	9M25D7D				

NR Band	Band width (MHz)	Modulation		Low Freq. (MHz)	Upper Freq. (MHz)	Conducted Average (dB m)	Ant. Gain (dB i)	E.I.R.P. Average (dB m)	E.I.R.P. Average (W)	Emission Designator
n66	5	DFTS-OFDM	BPSK	1 712.5	1 777.5	22.82	5.54	28.36	0.685	4M50G7D
			QPSK			22.95		28.49	0.706	4M48G7D
			16QAM			21.72		27.26	0.532	4M49D7D
		CP-OFDM	QPSK			21.14		26.68	0.466	4M50G7D
			16QAM			20.71		26.25	0.422	4M50D7D
			10			DFTS-OFDM		BPSK	1 715	1 775
	QPSK	22.82		28.36	0.685			8M93G7D		
	16QAM	21.73		27.27	0.533			8M93D7D		
	CP-OFDM	QPSK		21.24	26.78	0.476		9M29G7D		
		16QAM		20.81	26.35	0.432		9M27D7D		
		15		DFTS-OFDM	BPSK	1 717.5		1 772.5		
	QPSK		22.92		28.46				0.701	13M5G7D
	16QAM		21.82		27.36				0.545	13M5D7D
	CP-OFDM		QPSK	21.30	26.84				0.483	14M2G7D
			16QAM	20.91	26.45				0.442	14M1D7D
			20	DFTS-OFDM	BPSK				1 720	1 770
	QPSK	22.95			28.49	0.706		17M9G7D		
	16QAM	21.94			27.48	0.560		17M9D7D		
	CP-OFDM	QPSK		21.44	26.98	0.499		18M9G7D		
		16QAM		20.91	26.45	0.442		18M9D7D		
		40		DFTS-OFDM	BPSK	1 730		1 760		
	QPSK		22.92		28.46				0.701	38M9G7D
	16QAM		21.94		27.48				0.560	38M8D7D
	CP-OFDM		QPSK	21.48	27.02				0.504	38M8G7D
16QAM			20.90	26.44	0.441		38M8D7D			

NR Band	Band width (MHz)	Modulation		Low Freq. (MHz)	Upper Freq. (MHz)	Conducted Average (dB m)	Ant. Gain (dB i)	E.R.P. Average (dB m)	E.R.P. Average (W)	Emission Designator
n71	5	DFTS-OFDM	BPSK	665.5	695.5	24.46	0.37	22.68	0.185	4M49G7D
			QPSK			24.44		22.66	0.185	4M49G7D
			16QAM			23.39		21.61	0.145	4M48D7D
		CP-OFDM	QPSK			22.98		21.20	0.132	4M50G7D
			16QAM			22.37		20.59	0.115	4M49D7D
			10			DFTS-OFDM		BPSK	668	693
	QPSK	24.33		22.55	0.180			8M93G7D		
	16QAM	23.33		21.55	0.143			8M93D7D		
	CP-OFDM	QPSK		22.94	21.16	0.131		9M29G7D		
		16QAM		22.29	20.51	0.112		9M27D7D		
		15		DFTS-OFDM	BPSK	670.5		690.5		
	QPSK		24.51		22.73				0.187	13M5G7D
	16QAM		23.49		21.71				0.148	13M5D7D
	CP-OFDM		QPSK	22.97	21.19				0.132	14M2G7D
			16QAM	22.40	20.62				0.115	14M1D7D
			20	DFTS-OFDM	BPSK				673	688
	QPSK	24.46			22.68	0.185		17M8G7D		
	16QAM	23.47			21.69	0.148		17M9D7D		
	CP-OFDM	QPSK		22.86	21.08	0.128		18M9G7D		
		16QAM		22.40	20.62	0.115		18M9D7D		

1.21. 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

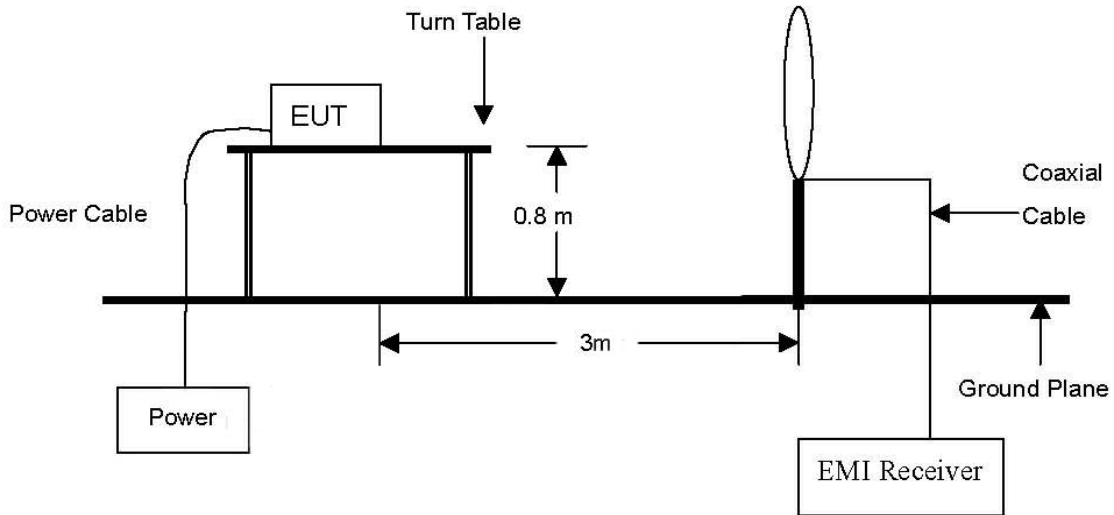
Note;

The all test items performed with basic model.

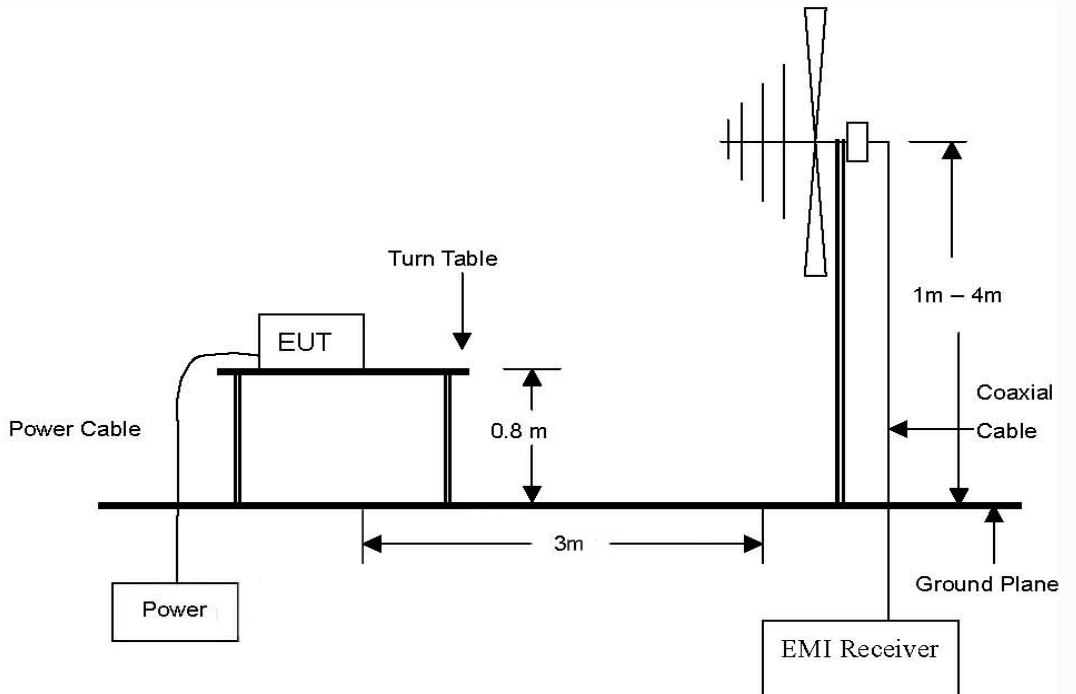
2. E.R.P. / E.I.R.P. & Radiated Spurious Emissions

2.1. Test setup

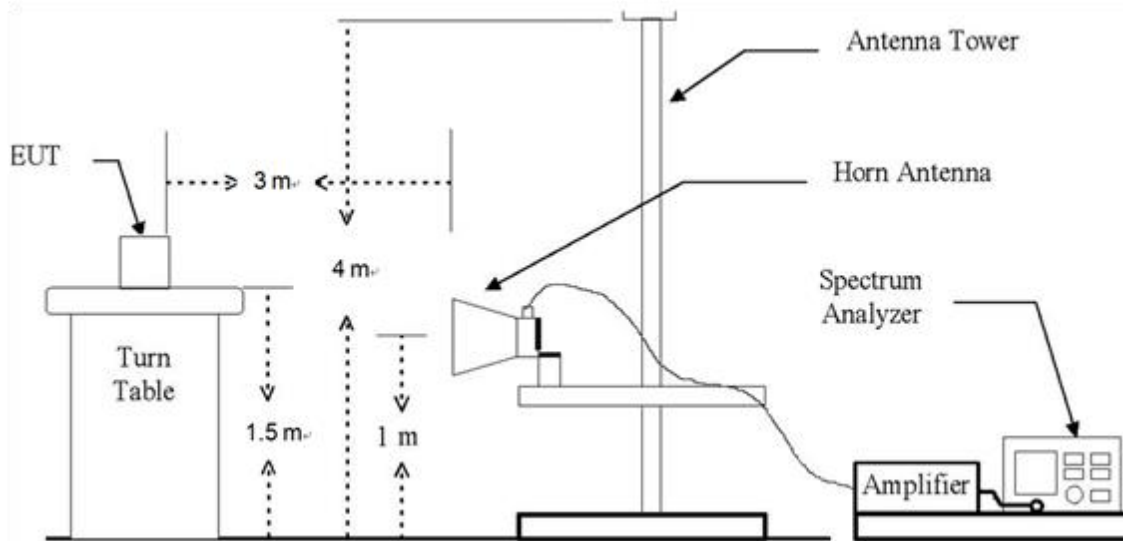
The diagram below shows the test setup that is utilized to make the measurements for emission from 9 kHz to 30 MHz.



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



The diagram below shows the test setup that is utilized to make the measurements for emission from 1 GHz to 27 GHz 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)(10), Portable stations (hand-held devices) transmitting in the 746-757 MHz, 776-788 MHz, and 805-806 MHz bands are limited to 3 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.
- §90.635(b), the maximum output power of the transmitter for mobile stations is 100 watts (20 dBW).
- §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.

IC**- RSS-130 Issue 2**

4.6.2, the e.r.p. shall not exceed 3 watts for mobile equipment, fixed subscriber equipment and portable equipment.

For base and fixed equipment other than fixed subscriber equipment, refer to SRSP-518 for the equivalent isotropically radiated power (e.i.r.p.) limits.

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 3

5.4, the transmitter output power shall be measured in terms of average power.

The equivalent isotropically radiated power (e.i.r.p.) for mobile equipment shall not exceed 11.5 watts.

Refer to SRSP-503 for base station e.i.r.p. limits.

- 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 3

6.5, the equivalent isotropically radiated power (e.i.r.p.) for mobile and portable transmitters shall not exceed one watt. The e.i.r.p. for fixed and base stations in the band 1 710-1 780 MHz shall not exceed one watt.

- 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.

Fixed and base station equipment shall comply with the e.r.p. limits in SRSP-540.

- RSS-199 Issue 3

4.4, the transmitter output power shall be measured in terms of average value.

For base station equipment, refer to SRSP-517 for the maximum permissible e.i.r.p.

For mobile subscriber equipment, the e.i.r.p. shall not exceed 2 W. For fixed subscriber equipment, the transmitter output power shall not exceed 2 W and the e.i.r.p. shall be limited to 40 W.

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)(2), 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(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 that $43 + 10 \log_{10} (P)$ 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.
- §90.691(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 $116 \text{Log}_{10} (f / 6.1)$ decibels or $50 + 10 \text{Log}_{10} (P)$ 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 $43 + 10 \text{Log}_{10} (P)$ 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.

- §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 (e)(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 (e)(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.

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 3

5.5, Mobile and base station equipment shall comply with the limits in (i) and (ii) 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 (in dB) below the transmitter output power P (dB W) by at least $43 + 10 \log_{10} p$ (watts).

(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 (in dB) below the transmitter output power P (dB W) by at least $43 + 10 \log_{10} p$ (watts). If the measurement is performed using 1 % of the occupied bandwidth, power integration over 100 kHz is required.

- RSS-133 Issue 6

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

(i) In the 1.0 MHz 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 dB) below the transmitter output power P (dB W) by at least $43 + 10 \log_{10} p$ (watts).

(ii) After the first 1.0 MHz, the emission power in any 1 MHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dB 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 MHz is required.

- RSS-139 Issue 3

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

(ii) After the first 1.0 MHz outside the equipment's smallest operating frequency block, which can contain the equipment's occupied bandwidth, the emission power in any 1 MHz bandwidth shall be attenuated below the transmitter output power P (in dB W) by at least $43 + 10 \log_{10} p$ (watts) dB.

- 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.

- RSS-199 Issue 3

4.5, In the 1 MHz band immediately outside and adjacent to the channel edge, the unwanted emission power shall be measured with a resolution bandwidth of at least 1% of the occupied bandwidth for base station and fixed subscriber equipment, and 2% for mobile subscriber equipment. Beyond the 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.

Equipment shall comply with the following unwanted emission limits:

for base station and fixed subscriber equipment, the power of any unwanted emissions measured as above shall be attenuated (in dB) below the transmitter power, P (dB W), by at least $43 + 10 \log_{10} p$ for mobile subscriber equipment, the power of any unwanted emissions measured as above shall be attenuated (in dB) below the transmitter power, P (dB W), by at least:

- i. $40 + 10 \log_{10} p$ from the channel edges to 5 MHz away
- ii. $43 + 10 \log_{10} p$ between 5 MHz and X MHz from the channel edges, and
- iii. $55 + 10 \log_{10} p$ at X MHz and beyond from the channel edges

In addition, the attenuation shall not be less than $43 + 10 \log_{10} p$ on all frequencies between 2 490.5 MHz and 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: Based on ANSI/TIA 603E: 2016 and ANSI C63.26-2015 and KDB 971168 D01 Power Meas License Digital Systems v03r01.

1. On a test site, the EUT shall be placed at 0.8 m or 1.5 m height on a turn table, and in the position close to normal use as declared by the applicant.
2. The test antenna shall be oriented initially for vertical polarization located 3 m from EUT to correspond to the fundamental frequency of the transmitter.
3. The output of the test antenna shall be connected to the measuring receiver and the peak detector is used for the measurement.
4. Radiated spurious emissions measurement method was set as follows:
RBW = 100 kHz for emissions below 1 GHz and 1 MHz for emissions above 1 GHz, VBW \geq 3 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) °C
 Relative humidity : 47 % R.H.

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

- Internal Antenna

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)	Output Power Limit
n7	2 500 ~ 2 570	24.05	0.254	2.50	26.55	0.452			2 W E.I.R.P.
n12	699 ~ 716	24.79	0.301	0.58	25.37	0.344	23.22	0.210	3 W E.R.P.
n13	777 ~ 787	24.78	0.301	0.44	25.22	0.333	23.07	0.203	7 W E.R.P.
n14	788 ~ 798	24.90	0.309	0.44	25.34	0.342	23.19	0.208	30 W E.R.P.
n25/2	1 850 ~ 1 915	23.67	0.233	2.23	25.90	0.389			2 W E.I.R.P.
n26/5 Part 22	824 ~ 849	24.55	0.285	0.75	25.30	0.339	23.15	0.207	7 W E.R.P.
n26 Part 90	814 ~ 824	24.47	0.280	0.75	25.22	0.333	23.07	0.203	100 W
n66	1 710 ~ 1 780	22.95	0.197	3.15	26.10	0.407			1 W E.I.R.P.
n71	663 ~ 698	24.51	0.282	0.58	25.09	0.323	22.94	0.197	3 W E.R.P.

- External Antenna

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)	Output Power Limit
n7	2 500 ~ 2 570	24.05	0.254	5.99	30.04	1.009			2 W E.I.R.P.
n12	699 ~ 716	24.79	0.301	-1.05	23.74	0.237	21.59	0.144	3 W E.R.P.
n13	777 ~ 787	24.78	0.301	-0.53	24.25	0.266	22.10	0.162	7 W E.R.P.
n14	788 ~ 798	24.90	0.309	-0.53	24.37	0.274	22.22	0.167	30 W E.R.P.
n25/2	1 850 ~ 1 915	23.67	0.233	5.12	28.79	0.757			2 W E.I.R.P.
n26/5 Part 22	824 ~ 849	24.55	0.285	0.37	24.92	0.310	22.77	0.189	7 W E.R.P.
n26 Part 90	814 ~ 824	24.47	0.280	0.37	24.84	0.305	22.69	0.186	100 W
n66	1 710 ~ 1 780	22.95	0.197	5.54	28.49	0.703			1 W E.I.R.P.
n71	663 ~ 698	24.51	0.282	0.37	24.88	0.308	22.73	0.187	3 W E.R.P.

Remark;

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

2.4.2. Radiated Spurious Emissions

- Internal Antenna

NR Band 7 (5 MHz - DFTS-OFDM QPSK)

Frequency (MHz)	Measured Level (dB μ V)	Ant. Pol.	AF (dB/m)	AMP+CL (dB)	E (dB μ V/m)	CF (dB)	E.I.R.P. (dB m)	Limit (dB m)	Margin (dB)
Low Channel (2 502.5 MHz)									
5 009.16	47.19	H	33.00	-35.27	44.92	-95.26	-50.34	-25	25.34
5 008.97	48.45	V	33.00	-35.27	46.18	-95.26	-49.08	-25	24.08
6 383.66	51.24	H	34.60	-33.50	52.34	-95.26	-42.92	-25	17.92
6 384.12	52.24	V	34.60	-33.51	53.33	-95.26	-41.93	-25	16.93
7 513.42	42.25	H	35.90	-32.89	45.26	-95.26	-50.00	-25	25.00
7 513.56	41.45	V	35.90	-32.89	44.46	-95.26	-50.80	-25	25.80
Above 7 600.00	Not detected	-	-	-	-	-	-	-	-
Middle Channel (2 535 MHz)									
5 074.07	52.61	H	33.10	-35.32	50.39	-95.26	-44.87	-25	19.87
5 073.98	53.42	V	33.10	-35.32	51.20	-95.26	-44.06	-25	19.06
6 384.34	52.96	H	34.60	-33.51	54.05	-95.26	-41.21	-25	16.21
6 384.02	51.04	V	34.60	-33.51	52.13	-95.26	-43.13	-25	18.13
7 611.03	43.23	H	35.90	-32.61	46.52	-95.26	-48.74	-25	23.74
7 610.89	43.20	V	35.90	-32.61	46.49	-95.26	-48.77	-25	23.77
Above 7 700.00	Not detected	-	-	-	-	-	-	-	-
High Channel (2 567.5 MHz)									
5 139.00	59.74	H	33.28	-35.47	57.55	-95.26	-37.71	-25	12.71
5 138.84	57.28	V	33.28	-35.47	55.09	-95.26	-40.17	-25	15.17
6 384.24	50.42	H	34.60	-33.51	51.51	-95.26	-43.75	-25	18.75
6 383.69	49.24	V	34.60	-33.50	50.34	-95.26	-44.92	-25	19.92
7 708.52	41.89	H	36.00	-32.25	45.64	-95.26	-49.62	-25	24.62
7 708.43	42.23	V	36.00	-32.25	45.98	-95.26	-49.28	-25	24.28
Above 7 800.00	Not detected	-	-	-	-	-	-	-	-

NR Band 12 (15 MHz - DFTS-OFDM QPSK)

Frequency (MHz)	Measured Level (dB μ V)	Ant. Pol.	AF (dB/m)	AMP+CL (dB)	E (dB μ V/m)	CF (dB)	E.R.P. (dB m)	Limit (dB m)	Margin (dB)
Low Channel (706.5 MHz)									
6 383.93	50.98	H	34.60	-33.51	52.07	-97.41	-45.34	-13	32.34
6 383.98	51.35	V	34.60	-33.51	52.44	-97.41	-44.97	-13	31.97
Above 6 400.00	Not detected	-	-	-	-	-	-	-	-
Middle Channel (707.5 MHz)									
6 384.01	50.24	H	34.60	-33.51	51.33	-97.41	-46.08	-13	33.08
6 383.83	51.75	V	34.60	-33.51	52.84	-97.41	-44.57	-13	31.57
Above 6 400.00	Not detected	-	-	-	-	-	-	-	-
High Channel (708.5 MHz)									
6 384.05	50.72	H	34.60	-33.51	51.81	-97.41	-45.60	-13	32.60
6 384.24	51.64	V	34.60	-33.51	52.73	-97.41	-44.68	-13	31.68
Above 6 400.00	Not detected	-	-	-	-	-	-	-	-

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

Frequency (MHz)	Measured Level (dB μ V)	Ant. Pol.	AF (dB/m)	AMP+CL (dB)	E (dB μ V/m)	CF (dB)	E.R.P. / E.I.R.P. (dB m)	Limit (dB m)	Margin (dB)
Middle Channel (782 MHz)									
1 564.06	56.02	H	25.36	-38.75	42.63	-95.26	-52.63	-40	12.63
1 564.28	55.89	V	25.36	-38.75	42.50	-95.26	-52.76	-40	12.76
6 384.12	48.78	H	34.60	-33.51	49.87	-97.41	-47.54	-13	34.54
Above 6 400.00	Not detected	-	-	-	-	-	-	-	-

NR Band 14 (10 MHz - DFTS-OFDM QPSK)

Frequency (MHz)	Measured Level (dB μ V)	Ant. Pol.	AF (dB/m)	AMP+CL (dB)	E (dB μ V/m)	CF (dB)	E.R.P. / E.I.R.P. (dB m)	Limit (dB m)	Margin (dB)
Middle Channel (793 MHz)									
1 586.11	55.36	H	25.44	-38.65	42.15	-95.26	-53.11	-40	13.11
1 586.22	53.47	V	25.44	-38.65	40.26	-95.26	-55.00	-40	15.00
3 965.46	52.04	H	32.07	-36.20	47.91	-97.41	-49.50	-13	36.50
3 965.46	55.26	V	32.07	-36.20	51.13	-97.41	-46.28	-13	33.28
Above 4 000.00	Not detected	-	-	-	-	-	-	-	-

NR Band 25/2 (10 MHz - DFTS-OFDM QPSK)

Frequency (MHz)	Measured Level (dB μ V)	Ant. Pol.	AF (dB/m)	AMP+CL (dB)	E (dB μ V/m)	CF (dB)	E.I.R.P. (dB m)	Limit (dB m)	Margin (dB)
Low Channel (1 855 MHz)									
3 718.84	51.06	H	32.14	-36.63	46.57	-95.26	-48.69	-13	35.69
3 718.80	48.25	V	32.14	-36.62	43.77	-95.26	-51.49	-13	38.49
3 982.15	48.05	V	32.04	-36.39	43.70	-95.26	-51.56	-13	38.56
5 578.20	48.95	H	33.90	-34.00	48.85	-95.26	-46.41	-13	33.41
5 578.17	48.73	V	33.90	-34.00	48.63	-95.26	-46.63	-13	33.63
Above 5 600.00	Not detected	-	-	-	-	-	-	-	-
Middle Channel (1 882.5 MHz)									
3 773.82	52.81	H	32.10	-36.93	47.98	-95.26	-47.28	-13	34.28
3 773.90	51.96	V	32.10	-36.93	47.13	-95.26	-48.13	-13	35.13
3 982.75	48.06	V	32.03	-36.39	43.70	-95.26	-51.56	-13	38.56
5 660.85	45.53	H	33.90	-33.37	46.06	-95.26	-49.20	-13	36.20
5 660.82	49.37	V	33.90	-33.37	49.90	-95.26	-45.36	-13	32.36
Above 5 700.00	Not detected	-	-	-	-	-	-	-	-
High Channel (1 910 MHz)									
3 828.75	53.33	H	32.06	-36.34	49.05	-95.26	-46.21	-13	33.21
3 828.86	51.66	V	32.06	-36.33	47.39	-95.26	-47.87	-13	34.87
3 982.60	48.17	V	32.03	-36.39	43.81	-95.26	-51.45	-13	38.45
5 660.79	45.18	H	33.90	-33.37	45.71	-95.26	-49.55	-13	36.55
5 743.32	43.25	V	33.99	-33.61	43.63	-95.26	-51.63	-13	38.63
Above 5 800.00	Not detected	-	-	-	-	-	-	-	-

NR Band 26/5_Part 22 (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)
Low Channel (829 MHz)									
1 649.36	55.12	V	25.60	-38.68	42.04	-97.41	-55.37	-13	42.37
2 473.33	49.13	V	28.15	-36.81	40.47	-97.41	-56.94	-13	43.94
6 383.45	48.55	H	34.60	-33.51	49.64	-97.41	-47.77	-13	34.77
6 384.46	52.02	V	34.60	-33.51	53.11	-97.41	-44.30	-13	31.30
Above 6 400.00	Not detected	-	-	-	-	-	-	-	-
Middle Channel (836.5 MHz)									
1 664.27	53.98	V	25.77	-38.67	41.08	-97.41	-56.33	-13	43.33
2 496.12	48.23	V	28.11	-37.15	39.19	-97.41	-58.22	-13	45.22
6 383.45	48.32	H	34.60	-33.50	49.42	-97.41	-47.99	-13	34.99
6 384.46	51.99	V	34.60	-33.51	53.08	-97.41	-44.33	-13	31.33
Above 6 400.00	Not detected	-	-	-	-	-	-	-	-
High Channel (844 MHz)									
1 679.09	49.25	V	25.95	-38.68	36.52	-97.41	-60.89	-13	47.89
2 518.80	48.18	V	28.21	-36.94	39.45	-97.41	-57.96	-13	44.96
6 383.15	50.14	H	34.60	-33.50	51.24	-97.41	-46.17	-13	33.17
6 384.10	51.56	V	34.60	-33.51	52.65	-97.41	-44.76	-13	31.76
Above 6 400.00	Not detected	-	-	-	-	-	-	-	-

NR Band 26_Part 90 (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 (819 MHz)									
1 629.07	47.15	V	25.56	-38.62	34.09	-97.41	-63.32	-13	50.32
2 443.77	48.18	V	28.19	-36.32	40.05	-97.41	-57.36	-13	44.36
6 383.69	49.24	H	34.60	-33.50	50.34	-97.41	-47.07	-13	34.07
6 384.34	52.96	V	34.60	-33.51	54.05	-97.41	-43.36	-13	30.36
Above 6 400.00	Not detected	-	-	-	-	-	-	-	-

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

Frequency (MHz)	Measured Level (dB μ V)	Ant. Pol.	AF (dB/m)	AMP+CL (dB)	E (dB μ V/m)	CF (dB)	E.I.R.P. (dB m)	Limit (dB m)	Margin (dB)
Low Channel (1 712.5 MHz)									
3 982.85	47.74	V	32.03	-36.39	43.38	-95.26	-51.88	-13	38.88
6 384.14	56.94	V	34.60	-33.51	58.03	-95.26	-37.23	-13	24.23
Above 6 400.00	Not detected	-	-	-	-	-	-	-	-
Middle Channel (1 745 MHz)									
3 982.20	47.86	V	32.04	-36.39	43.51	-95.26	-51.75	-13	38.75
6 383.66	56.60	V	34.60	-33.50	57.70	-95.26	-37.56	-13	24.56
Above 6 400.00	Not detected	-	-	-	-	-	-	-	-
High Channel (1 777.5 MHz)									
3 982.95	47.63	V	32.03	-36.39	43.27	-95.26	-51.99	-13	38.99
6 384.34	52.96	V	34.60	-33.51	54.05	-95.26	-41.21	-13	28.21
Above 6 400.00	Not detected	-	-	-	-	-	-	-	-

NR band 71 (15 MHz - DFTS-OFDM QPSK)

Frequency (MHz)	Measured Level (dB μ V)	Ant. Pol.	AF (dB/m)	AMP+CL (dB)	E (dB μ V/m)	CF (dB)	E.R.P. (dB m)	Limit (dB m)	Margin (dB)
Low Channel (670.5 MHz)									
3 981.91	52.13	H	32.04	-36.39	47.78	-97.41	-49.63	-13	36.63
3 981.97	49.88	V	32.04	-36.39	45.53	-97.41	-51.88	-13	38.88
6 383.71	49.61	H	34.60	-33.50	50.71	-97.41	-46.70	-13	33.70
6 384.03	49.04	V	34.60	-33.51	50.13	-97.41	-47.28	-13	34.28
Above 6 400.00	Not detected	-	-	-	-	-	-	-	-
Middle Channel (680.5 MHz)									
1 347.36	50.65	V	25.10	-39.36	36.39	-97.41	-61.02	-13	48.02
4 041.97	48.76	H	31.92	-36.45	44.23	-97.41	-53.18	-13	40.18
4 042.00	46.13	V	31.92	-36.45	41.60	-97.41	-55.81	-13	42.81
6 383.86	48.47	H	34.60	-33.51	49.56	-97.41	-47.85	-13	34.85
6 383.82	49.85	V	34.60	-33.51	50.94	-97.41	-46.47	-13	33.47
Above 6 400.00	Not detected	-	-	-	-	-	-	-	-
High Channel (690.5 MHz)									
4 102.05	43.10	H	31.90	-36.20	38.80	-97.41	-58.61	-13	45.61
4 101.75	43.81	V	31.90	-36.20	39.51	-97.41	-57.90	-13	44.90
6 383.76	47.59	H	34.60	-33.51	48.68	-97.41	-48.73	-13	35.73
6 384.25	47.72	V	34.60	-33.51	48.81	-97.41	-48.60	-13	35.60
Above 6 400.00	Not detected	-	-	-	-	-	-	-	-

ENDC

5A-n2A (15 MHz - DFTS-OFDM BPSK)

Frequency (MHz)	Measured Level (dB μ V)	Ant. Pol.	AF (dB/m)	AMP+CL (dB)	E (dB μ V/m)	CF (dB)	E.I.R.P. (dB m)	Limit (dB m)	Margin (dB)
Low Channel (1 857.5 MHz)									
3 705.54	49.12	H	32.11	-36.61	44.62	-95.26	-50.64	-13	37.64
3 705.63	46.49	V	32.11	-36.61	41.99	-95.26	-53.27	-13	40.27
5 558.38	51.04	H	33.90	-34.16	50.78	-95.26	-44.48	-13	31.48
5 558.30	50.79	V	33.90	-34.16	50.53	-95.26	-44.73	-13	31.73
6 383.83	50.28	H	34.60	-33.51	51.37	-95.26	-43.89	-13	30.89
6 383.72	48.30	V	34.60	-33.50	49.40	-95.26	-45.86	-13	32.86
Above 6 400.00	Not detected	-	-	-	-	-	-	-	-
Middle Channel (1 880.0 MHz)									
3 705.50	47.35	H	32.11	-36.61	42.85	-95.26	-52.41	-13	39.41
3 750.68	46.53	V	32.20	-36.85	41.88	-95.26	-53.38	-13	40.38
5 625.85	46.85	H	33.90	-33.53	47.22	-95.26	-48.04	-13	35.04
5 625.75	48.86	V	33.90	-33.53	49.23	-95.26	-46.03	-13	33.03
6 384.01	51.14	H	34.60	-33.51	52.23	-95.26	-43.03	-13	30.03
6 384.12	49.20	V	34.60	-33.51	50.29	-95.26	-44.97	-13	31.97
Above 6 400.00	Not detected	-	-	-	-	-	-	-	-
High Channel (1 902.5 MHz)									
3 795.54	50.17	H	32.02	-36.70	45.49	-95.26	-49.77	-13	36.77
3 795.45	47.48	V	32.02	-36.70	42.80	-95.26	-52.46	-13	39.46
5 693.22	43.74	H	33.90	-33.49	44.15	-95.26	-51.11	-13	38.11
5 693.28	44.18	V	33.90	-33.49	44.59	-95.26	-50.67	-13	37.67
6 384.11	45.94	H	34.60	-33.51	47.03	-95.26	-48.23	-13	35.23
6 384.15	51.07	V	34.60	-33.51	52.16	-95.26	-43.10	-13	30.10
Above 6 400.00	Not detected	-	-	-	-	-	-	-	-

7A-n5A (15 MHz - DFTS-OFDM BPSK)

Frequency (MHz)	Measured Level (dB μ V)	Ant. Pol.	AF (dB/m)	AMP+CL (dB)	E (dB μ V/m)	CF (dB)	E.R.P. (dB m)	Limit (dB m)	Margin (dB)
Low Channel (831.5 MHz)									
6 384.04	45.99	H	34.60	-33.51	47.08	-97.41	-50.33	-13	37.33
6 383.52	50.28	V	34.60	-33.50	51.38	-97.41	-46.03	-13	33.03
Above 6 400.00	Not detected	-	-	-	-	-	-	-	-
Middle Channel (836.5 MHz)									
6 383.44	46.45	H	34.60	-33.50	47.55	-97.41	-49.86	-13	36.86
6 383.56	46.11	V	34.60	-33.50	47.21	-97.41	-50.20	-13	37.20
Above 6 400.00	Not detected	-	-	-	-	-	-	-	-
High Channel (841.5 MHz)									
6 383.96	47.25	H	34.60	-33.51	48.34	-97.41	-49.07	-13	36.07
6 383.70	45.97	V	34.60	-33.50	47.07	-97.41	-50.34	-13	37.34
Above 6 400.00	Not detected	-	-	-	-	-	-	-	-

5A-n7A (20 MHz - DFTS-OFDM BPSK)

Frequency (MHz)	Measured Level (dB μ V)	Ant. Pol.	AF (dB/m)	AMP+CL (dB)	E (dB μ V/m)	CF (dB)	E.I.R.P. (dB m)	Limit (dB m)	Margin (dB)
Low Channel (2 510 MHz)									
5 038.60	47.38	H	33.00	-35.22	45.16	-95.26	-50.10	-25	25.10
5 038.46	48.96	V	33.00	-35.22	46.74	-95.26	-48.52	-25	23.52
6 383.94	49.68	H	35.90	-32.72	44.46	-95.26	-50.80	-25	25.80
7 557.56	41.28	H	35.90	-32.72	45.21	-95.26	-50.05	-25	25.05
7 557.65	42.03	V	34.60	-33.51	50.77	-95.26	-44.49	-25	19.49
Above 7 600.00	Not detected	-	-	-	-	-	-	-	-
Middle Channel (2 535 MHz)									
5 088.39	55.81	H	33.15	-35.38	53.58	-95.26	-41.68	-25	16.68
5 088.62	56.99	V	33.15	-35.38	54.76	-95.26	-40.50	-25	15.50
6 383.74	49.28	H	34.60	-33.51	50.37	-95.26	-44.89	-25	19.89
7 632.73	42.34	H	35.90	-32.55	45.69	-95.26	-49.57	-25	24.57
7 632.50	42.43	V	35.90	-32.55	45.78	-95.26	-49.48	-25	24.48
Above 7 700.00	Not detected	-	-	-	-	-	-	-	-
High Channel (2 560 MHz)									
5 138.55	56.88	H	33.28	-35.47	54.69	-95.26	-40.57	-25	15.57
5 138.51	56.23	V	33.28	-35.47	54.04	-95.26	-41.22	-25	16.22
6 384.21	48.17	H	34.60	-33.51	49.26	-95.26	-46.00	-25	21.00
7 707.86	42.29	H	36.00	-32.25	46.04	-95.26	-49.22	-25	24.22
7 707.81	43.01	V	36.00	-32.25	46.76	-95.26	-48.50	-25	23.50
Above 7 800.00	Not detected	-	-	-	-	-	-	-	-

66A-n12A (15 MHz - DFTS-OFDM QPSK)

Frequency (MHz)	Measured Level (dB μ V)	Ant. Pol.	AF (dB/m)	AMP+CL (dB)	E (dB μ V/m)	CF (dB)	E.R.P. (dB m)	Limit (dB m)	Margin (dB)
Low Channel (706.5 MHz)									
6 384.16	47.51	H	34.60	-33.51	48.60	-97.41	-48.81	-13	35.81
Above 6 400.00	Not detected	-	-	-	-	-	-	-	-
Middle Channel (707.5 MHz)									
6 384.20	47.40	H	34.60	-33.51	48.49	-97.41	-48.92	-13	35.92
Above 6 400.00	Not detected	-	-	-	-	-	-	-	-
High Channel (708.5 MHz)									
6 383.98	49.67	H	34.60	-33.51	50.76	-97.41	<u>-46.65</u>	-13	33.65
Above 6 400.00	Not detected	-	-	-	-	-	-	-	-

66A-n13A (5 MHz - DFTS-OFDM BPSK)

Frequency (MHz)	Measured Level (dB μ V)	Ant. Pol.	AF (dB/m)	AMP+CL (dB)	E (dB μ V/m)	CF (dB)	E.R.P./E.I.R.P. (dB m)	Limit (dB m)	Margin (dB)
Low Channel (779.5 MHz)									
1 559.00	60.12	H	25.34	-38.78	46.68	-95.26	-48.58	-40	8.58
1 559.03	54.78	V	25.34	-38.78	41.34	-95.26	-53.92	-40	13.92
Above 1 600.00	Not detected	-	-	-	-	-	-	-	-
Middle Channel (782 MHz)									
1 563.84	58.97	H	25.36	-38.76	45.57	-95.26	-49.69	-40	9.69
1 563.94	52.91	V	25.36	-38.76	39.51	-95.26	-55.75	-40	15.75
Above 1 600.00	Not detected	-	-	-	-	-	-	-	-
High Channel (784.5 MHz)									
1 568.96	59.99	H	25.38	-38.73	46.64	-95.26	-48.62	-40	8.62
1 569.03	51.11	V	25.38	-38.73	37.76	-95.26	-57.50	-40	17.50
Above 1 600.00	Not detected	-	-	-	-	-	-	-	-

12A-n25A (15 MHz - DFTS-OFDM BPSK)

Frequency (MHz)	Measured Level (dB μ V)	Ant. Pol.	AF (dB/m)	AMP+CL (dB)	E (dB μ V/m)	CF (dB)	E.I.R.P. (dB m)	Limit (dB m)	Margin (dB)
Low Channel (1 857.5 MHz)									
5 551.87	48.77	V	33.90	-34.20	48.47	-95.26	-46.79	-13	33.79
Above 5 600.00	Not detected	-	-	-	-	-	-	-	-
Middle Channel (1 882.5 MHz)									
5 626.98	48.63	V	33.90	-33.52	49.01	-95.26	-46.25	-13	33.25
Above 5 700.00	Not detected	-	-	-	-	-	-	-	-
High Channel (1 907.5 MHz)									
5 701.90	43.56	V	33.90	-33.56	43.90	-95.26	-51.36	-13	38.36
Above 5 800.00	Not detected	-	-	-	-	-	-	-	-