

TEST REPORT

of

FCC Part 2 Subpart J, Part 22 Subpart C/H,
Part 24 Subpart E and Part 27 Subpart C,
IC RSS-130 Issue 2, RSS-132 Issue 3, RSS-133 Issue 6,
RSS-139 Issue 3 and RSS-Gen Issue 5

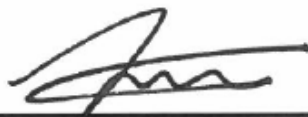
FCC ID: BEJT TAG11NE
IC Certification: 2703H-TTAG11NE

1. Equipment Under Test : Telematics
2. Model Name : TTA19ANE BN
3. Variant Model Name(s) : Refer to page 4
4. FCC Applicant : LG Electronics USA
5. IC Applicant : LG ELECTRONICS INC.
6. Manufacturer : LG Electronics Inc.
7. Date of Receipt : 2020.06.02
8. Date of Test(s) : 2020.07.06 ~ 2020.07.22
9. Date of Issue : 2020.08.25

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.

Tested by:


Nancy Park

Technical
Manager:


Jungmin Yang

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>.

Phone No. : +82 31 688 0901

Fax No. : +82 31 688 0921

1.2. Details of Applicant

FCC Applicant : LG Electronics USA

FCC Address : 1000 Sylvan Avenue, 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 : Han, Kyung-su

Phone No. : +1 201 472 2623

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	TTA19ANEBN
Variant Model Names	TTA19ANENN, TTA20ANEBN, TTA20ANENN, TTA20BNEBN, TTA20BNENN
Model Serial Number	01518-5006831731
Power Supply	DC 12 V
Rated Power	GSM 850: 33 dBm GSM 1900: 30 dBm WCDMA II, V: 23 dBm WCDMA IV: 22.7 dBm LTE Band 2, 5, 12, 13: 23 dBm LTE Band 4: 22.7 dBm
Frequency Range	GSM 850: 824 MHz ~ 849 MHz GSM 1900: 1 850 MHz ~ 1 910 MHz WCDMA II: 1 850 MHz ~ 1 910 MHz WCDMA IV: 1 710 MHz ~ 1 755 MHz WCDMA V: 824 MHz ~ 849 MHz LTE Band 2: 1 850 MHz ~ 1 910 MHz LTE Band 4: 1 710 MHz ~ 1 755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 13: 777 MHz ~ 787 MHz
Emission Designator	GSM 850: 244KGXW (Voice) / 243KG7W (EDGE) GSM 1900: 243KGXW (Voice) / 243KG7W (EDGE) WCDMA II: 4M15F9W WCDMA IV: 4M14F9W WCDMA V: 4M13F9W LTE Band 2 (1.4 MHz): 1M10G7D (QPSK) / 1M10W7D (16QAM) LTE Band 2 (3 MHz): 2M76G7D (QPSK) / 2M75W7D (16QAM) LTE Band 2 (5 MHz): 4M51G7D (QPSK) / 4M51W7D (16QAM) LTE Band 2 (10 MHz): 9M01G7D (QPSK) / 8M99W7D (16QAM) LTE Band 2 (15 MHz): 13M5G7D (QPSK) / 13M5W7D (16QAM) LTE Band 2 (20 MHz): 18M1G7D (QPSK) / 18M1W7D (16QAM) LTE Band 4 (1.4 MHz): 1M10G7D (QPSK) / 1M10W7D (16QAM) LTE Band 4 (3 MHz): 2M75G7D (QPSK) / 2M75W7D (16QAM) LTE Band 4 (5 MHz): 4M51G7D (QPSK) / 4M51W7D (16QAM) LTE Band 4 (10 MHz): 9M01G7D (QPSK) / 9M00W7D (16QAM) LTE Band 4 (15 MHz): 13M5G7D (QPSK) / 13M5W7D (16QAM) LTE Band 4 (20 MHz): 18M1G7D (QPSK) / 18M1W7D (16QAM) LTE Band 5 (1.4 MHz): 1M10G7D (QPSK) / 1M10W7D (16QAM) LTE Band 5 (3 MHz): 2M75G7D (QPSK) / 2M75W7D (16QAM) LTE Band 5 (5 MHz): 4M51G7D (QPSK) / 4M51W7D (16QAM) LTE Band 5 (10 MHz): 9M02G7D (QPSK) / 9M01W7D (16QAM) LTE Band 12 (1.4 MHz): 1M10G7D (QPSK) / 1M09W7D (16QAM) LTE Band 12 (3 MHz): 2M75G7D (QPSK) / 2M75W7D (16QAM) LTE Band 12 (5 MHz): 4M52G7D (QPSK) / 4M51W7D (16QAM) LTE Band 12 (10 MHz): 9M00G7D (QPSK) / 9M00W7D (16QAM) LTE Band 13 (5 MHz): 4M54G7D (QPSK) / 4M54W7D (16QAM) LTE Band 13 (10 MHz): 9M00G7D (QPSK) / 9M01W7D (16QAM)
Modulation Technique	QPSK, 16QAM, GMSK, 8PSK
H/W Version	CCM Rev.E, VIM Rev.C
S/W Version	V4.58

1.5. Test Equipment List

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Interval	Cal. Due
Signal Generator	Agilent	E8257D	MY51501169	Nov. 21, 2019	Annual	Nov. 21, 2020
Spectrum Analyzer	R&S	FSV30	103210	Dec. 05, 2019	Annual	Dec. 05, 2020
Mobile Test Unit	R&S	CMW500	144034	Feb. 28, 2020	Annual	Feb. 28, 2021
High Pass Filter	Wainwright Instrument GmbH	WHKX10-900-1000-18000-40SS	7	Mar. 04, 2020	Annual	Mar. 04, 2021
High Pass Filter	Wainwright Instrument GmbH	WHKX1.5/15G-6SS	4	Jun. 11, 2020	Annual	Jun. 11, 2021
High Pass Filter	Wainwright Instrument GmbH	WHKX2.2/12.75G-10S	8	Mar. 04, 2020	Annual	Mar. 04, 2021
High Pass Filter	Wainwright Instrument GmbH	WHK3.0/18G-10SS	344	May 18, 2020	Annual	May 18, 2021
DC Power Supply	Agilent	U8002A	MY50060028	Mar. 03, 2020	Annual	Mar. 03, 2021
Preamplifier	H.P.	8447F	2944A03909	Aug. 07, 2019	Annual	Aug. 07, 2020
Preamplifier	R&S	SCU 18	10117	Jun. 10, 2020	Annual	Jun. 10, 2021
Preamplifier	MITEQ Inc.	JS44-18004000-35-8P	1546891	May 08, 2020	Annual	May 08, 2021
Test Receiver	R&S	ESU26	100109	Feb. 18, 2020	Annual	Feb. 18, 2021
Loop Antenna	Schwarzbeck Mess-Elektronik	FMZB 1519	1519-039	Aug. 22, 2019	Biennial	Aug. 22, 2021
Bilog Antenna	Schwarzbeck Mess-Elektronik	VULB9163	396	Mar. 21, 2019	Biennial	Mar. 21, 2021
Horn Antenna	R&S	HF906	100326	Feb. 14, 2020	Annual	Feb. 14, 2021
Horn Antenna	Schwarzbeck Mess-Elektronik	BBHA9170	BBHA9170223	Sep. 10, 2018	Biennial	Sep. 10, 2020
Antenna Master	Innco systems GmbH	MA4640-XP-ET	MA4640/536/38330516/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	CO3000/963/38330516/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 6.4 m)	N/A	N.C.R.	N/A	N.C.R.
Coaxial Cable	RFONE	PL520-NMNM-4M (4 m)	20200324001	May 06, 2020	Semi-annual	Nov. 06, 2020
Coaxial Cable	RFONE	PL520-NMNM-10M (10 m)	20200324001	May 06, 2020	Semi-annual	Nov. 06, 2020

► Support Equipment

Description	Manufacturer	Model	Serial Number
N/A	-	-	-

1.6. Summary of Test Results

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 2, 22, 24 and 27 / IC part RSS-130 Issue 2, RSS-132 Issue 3, RSS-133 Issue 6, RSS-139 Issue 3 and RSS-Gen Issue 5			
Section in FCC	Section in IC	Test Item	Result
§22.913(a)(5) §24.232(c) §27.50(b)(10) §27.50(c)(10) §27.50(d)(4)	RSS-130 Issue 2 4.6 RSS-132 Issue 3 5.4 RSS-133 Issue 6 6.4 RSS-139 Issue 3 6.5	RF Radiated Output Power	N/A ¹⁾
§22.917(a) §24.238(a) §27.53(c)(2) §27.53(g) §27.53(h)(1)	RSS-130 Issue 2 4.7 RSS-132 Issue 3 5.5 RSS-133 Issue 6 6.5 RSS-139 Issue 3 6.6	Spurious Radiated Emission	Complied
§2.1046	RSS-Gen Issue 5 6.12	Conducted Output Power	N/A ¹⁾
§2.1049	RSS-Gen Issue 5 6.7	Occupied Bandwidth	N/A ¹⁾
§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	Peak-Average Ratio	N/A ¹⁾
§22.917(a) §24.238(a) §27.53(c)(2) §27.53(g) §27.53(h)(1)	RSS-130 Issue 2 4.7 RSS-132 Issue 3 5.5 RSS-133 Issue 6 6.5 RSS-139 Issue 3 6.6	Spurious Emission at Antenna Terminal	N/A ¹⁾
§22.917(a) §24.238(a) §27.53(c)(2) §27.53(g) §27.53(h)(1)	RSS-130 Issue 2 4.7 RSS-132 Issue 3 5.5 RSS-133 Issue 6 6.5 RSS-139 Issue 3 6.6	Band Edge	N/A ¹⁾
§2.1055 §22.355 §24.235 §27.54	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	Frequency Stability	N/A ¹⁾

Note;

1) This product is a C2PC case due to the change of filter. So only spurious radiated emission test was performed.

1.7. Information of Variant Models

TCP	Modem	MY	Vehicle(A/B)	Intenna	Network(E/F)	BUB	Region	Model Name
TT	A	19	A	N	E	B	N	TTA19ANEBN
TT	A	19	A	N	E	N	N	TTA19ANENN
TT	A	20	A	N	E	B	N	TTA20ANEBN
TT	A	20	A	N	E	N	N	TTA20ANENN
TT	A	20	B	N	E	B	N	TTA20BNEBN
TT	A	20	B	N	E	N	N	TTA20BNENN

MY (Manufacturing Year)	Vehicle Communication (A/B)	BUB
19: Y2019 20: Y2020	A: High/Low CAN Speed B: High CAN Speed CAN	B: Backup Battery N: Non-Backup Battery

1.8. Worst Case Selection

The radiated spurious emission was tested at the band with the lowest margin of GEN11NAN data.

Fundamental Frequency Range	Worst Case
824 ~ 849 MHz	GSM 850
1 710 ~ 1 755 MHz	LTE Band 4

1.9. Test Report Revision

Revision	Report Number	Date of Issue	Description
0	F690501-RF-RTL001026	2020.07.28	Initial
1	F690501-RF-RTL001026-1	2020.07.31	Deleted information of LTE Band 17 and modified some typo.
2	F690501-RF-RTL001026-2	2020.08.20	Modified information of variant models.
3	F690501-RF-RTL001026-3	2020.08.25	Modified incorrect information in section 1.8.

1.10. Sample Calculation for Offset

Where relevant, the following sample calculation is provided:

1.10.1. Radiation test

- E.I.R.P. (dB m) = Measured level (dB μ V) + Antenna factor (dB) + Cable loss (dB) + 20 Log D - 104.5; where D is the measurement distance in meters.
- E.R.P. (dB m) = E.I.R.P. (dB m) - 2.15 (dB)

1.11. Measurement Uncertainty

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

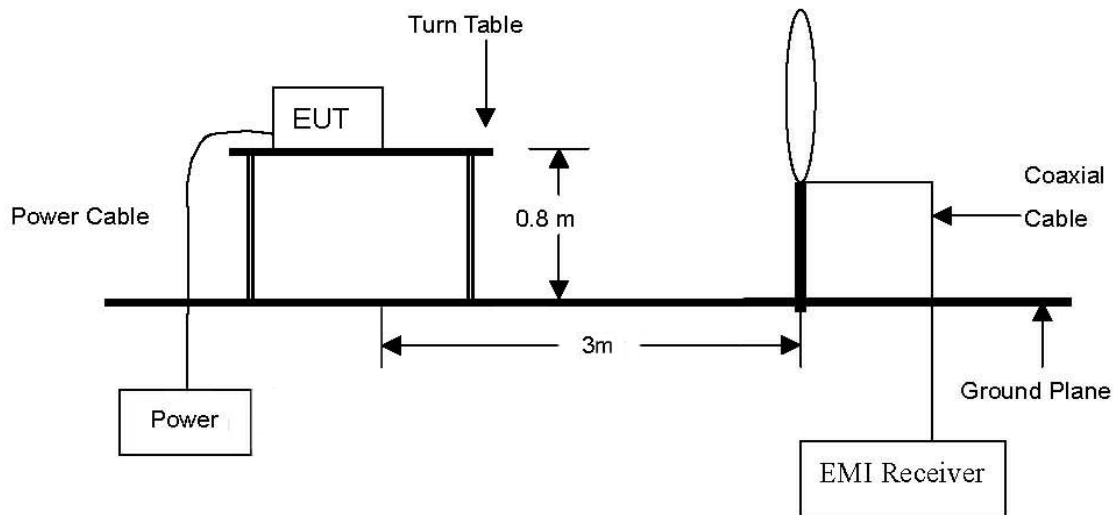
Parameter	Uncertainty
Radiated Emission, 9 kHz to 30 MHz	± 3.59 dB
Radiated Emission, below 1 GHz	± 5.88 dB
Radiated Emission, above 1 GHz	± 5.94 dB

Uncertainty figures are valid to a confidence level of 95 %.

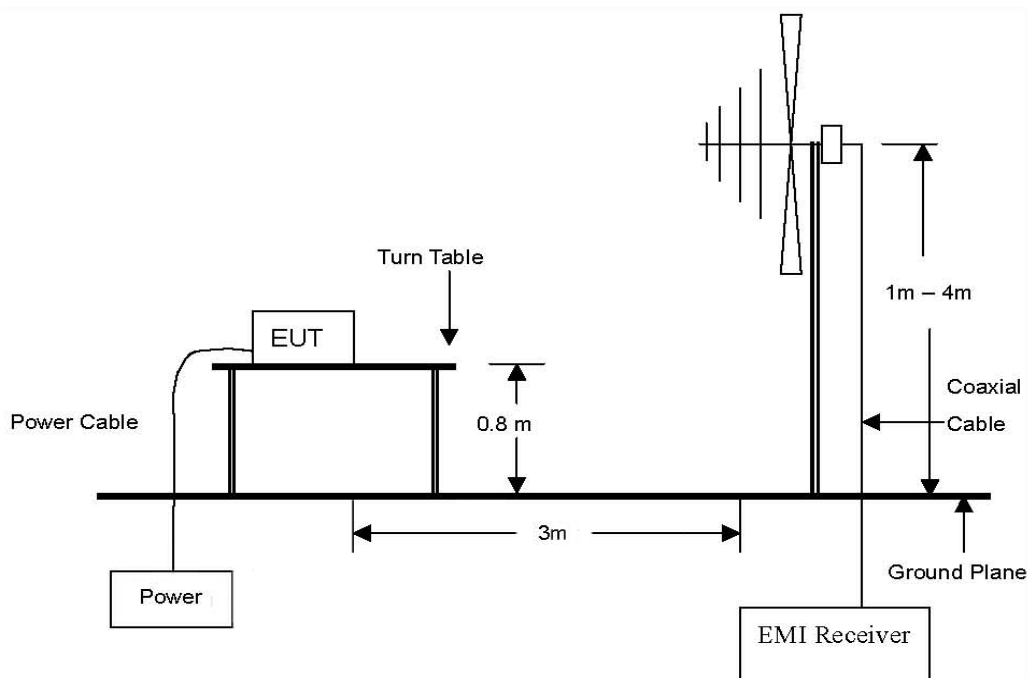
2. Spurious Radiated Emission

2.1. Test Setup

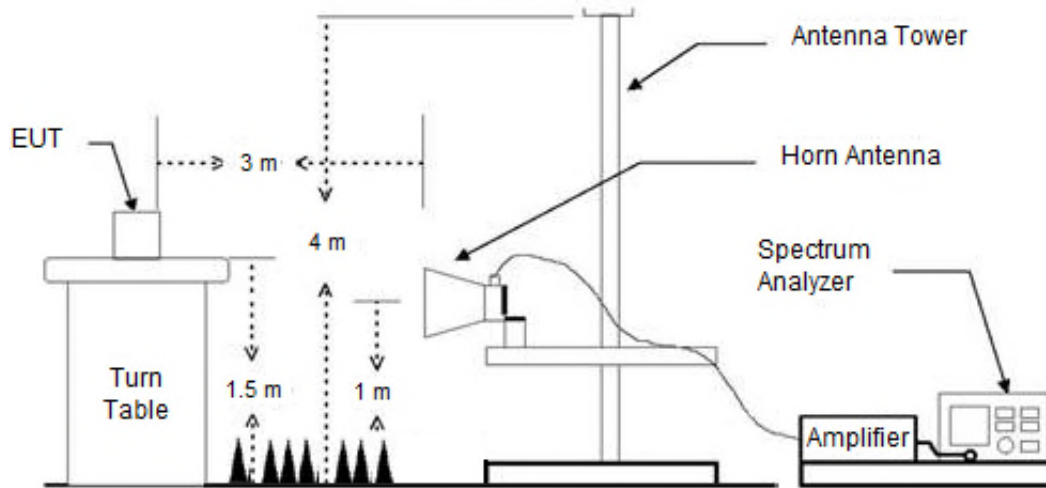
The diagram below shows the test setup that is utilized to make the measurements for emission from 9 kHz to 30 MHz.



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



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



2.2. Limit

2.2.1. Limit of spurious radiated emission

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.

- §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.

IC

- 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-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.

2.3. Test procedure: Based on ANSI/TIA 603E: 2016 and ANSI C63.26-2015

1. On a test site, the EUT shall be placed at 80 cm height on a turn table, and in the position close to normal use as declared by the applicant.
2. The test antenna shall be oriented initially for vertical polarization located 3 m from EUT to correspond to the fundamental frequency of the transmitter.
3. The output of the test antenna shall be connected to the measuring receiver and the peak detector is used for the measurement.
4. The maximized power level is recorded using the spectrum analyzer "Channel Power" function with the integration band set to the emissions occupied bandwidth, RBW = 1-5 % of the OBW (not to exceed 1 MHz), VBW $\geq 3 \times$ RBW, Detector = power averaging (rms), sweep time = auto, trace average at least 100 traces in power averaging (rms) mode, per the guidelines of KDB 971168 D01 Power Meas License Digital Systems v03r01.
5. Radiated spurious emissions measurement method was set as follows:
RBW = 100 kHz for emissions below 1 GHz and 1 MHz for emissions above 1 GHz, VBW $\geq 3 \times$ RBW, Detector = RMS, trace mode = max hold, per the guidelines of ANSI C63.26-2015 and KDB 971168 D01 Power Meas License Digital Systems v03r01.
6. The transmitter shall be switched on, the measuring receiver shall be tuned to the frequency of the transmitter under test.
7. The test antenna shall be raised and lowered through the specified range of height until the maximum signal level is detected by the measuring receiver.
8. The transmitter shall be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.
9. The test antenna shall be raised and lowered again through the specified range of height until the maximum signal level is detected by the measuring receiver.
10. The maximum signal level detected by the measuring receiver shall be noted.
11. In necessary, the input attenuator setting on the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.
12. The test antenna shall be raised and lowered through the specified range of height to ensure that the maximum signal is received.
13. The measurement shall be repeated with the test antenna orientated for horizontal polarization.

2.4. Spurious Radiated Emission

GSM 850

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 (824.2 MHz)									
1 648.51	47.21	H	25.78	-40.48	32.51	-97.41	-64.90	-13	51.90
1 648.16	59.82	V	25.77	-40.48	45.11	-97.41	-52.30	-13	39.30
2 472.46	42.11	H	28.41	-38.54	31.98	-97.41	-65.43	-13	52.43
2 472.73	45.02	V	28.41	-38.54	34.89	-97.41	-62.52	-13	49.52
4 945.46	40.69	H	33.18	-35.93	37.94	-97.41	-59.47	-13	46.47
Middle Channel (836.6 MHz)									
1 673.13	53.59	H	26.36	-40.41	39.54	-97.41	-57.87	-13	44.87
1 673.09	58.67	V	26.35	-40.41	44.61	-97.41	-52.80	-13	39.80
2 509.53	43.53	H	28.30	-38.83	33.00	-97.41	-64.41	-13	51.41
2 509.39	47.52	V	28.30	-38.83	36.99	-97.41	-60.42	-13	47.42
4 182.85	43.06	H	32.00	-36.77	38.29	-97.41	-59.12	-13	46.12
4 183.02	50.11	V	32.00	-36.77	45.34	-97.41	-52.07	-13	39.07
High Channel (848.8 MHz)									
1 697.69	87.04	H	26.94	-40.39	73.59	-97.41	-23.82	-13	10.82
1 697.92	87.49	V	26.95	-40.39	74.05	-97.41	-23.36	-13	10.36
2 546.44	85.51	H	28.30	-38.79	75.02	-97.41	-22.39	-13	9.39
2 546.57	86.64	V	28.30	-38.79	76.15	-97.41	-21.26	-13	8.26
3 395.51	62.08	H	30.87	-37.65	55.30	-97.41	-42.11	-13	29.11
3 395.68	65.09	V	30.87	-37.65	58.31	-97.41	-39.10	-13	26.10
4 244.48	68.83	H	32.00	-36.66	64.17	-97.41	-33.24	-13	20.24
4 244.56	77.71	V	32.00	-36.66	73.05	-97.41	-24.36	-13	11.36
5 093.57	57.30	H	33.37	-35.64	55.03	-97.41	-42.38	-13	29.38
5 093.44	66.34	V	33.37	-35.64	64.07	-97.41	-33.34	-13	20.34
5 941.55	58.67	H	34.57	-34.77	58.47	-97.41	-38.94	-13	25.94
5 941.85	51.48	V	34.57	-34.77	51.28	-97.41	-46.13	-13	33.13
6 790.03	44.38	V	35.28	-33.48	46.18	-97.41	-51.23	-13	38.23
7 639.24	45.55	H	36.00	-34.58	46.97	-97.41	-50.44	-13	37.44
7 639.14	46.72	V	36.00	-34.58	48.14	-97.41	-49.27	-13	36.27

EDGE 850

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 (824.2 MHz)									
1 648.33	46.11	H	25.77	-40.48	31.40	-97.41	-66.01	-13	53.01
1 648.48	57.84	V	25.78	-40.48	43.14	-97.41	-54.27	-13	41.27
2 472.86	44.64	H	28.41	-38.54	34.51	-97.41	-62.90	-13	49.90
2 472.62	43.73	V	28.41	-38.54	33.60	-97.41	-63.81	-13	50.81
Middle Channel (836.6 MHz)									
1 673.55	52.85	H	26.37	-40.41	38.81	-97.41	-58.60	-13	45.60
1 673.41	62.59	V	26.36	-40.41	48.54	-97.41	-48.87	-13	35.87
2 509.65	44.31	H	28.30	-38.83	33.78	-97.41	-63.63	-13	50.63
2 509.34	45.82	V	28.30	-38.83	35.29	-97.41	-62.12	-13	49.12
4 182.79	45.11	H	32.00	-36.78	40.33	-97.41	-57.08	-13	44.08
4 182.93	50.34	V	32.00	-36.77	45.57	-97.41	-51.84	-13	38.84
High Channel (848.8 MHz)									
1 697.49	85.93	H	26.94	-40.39	72.48	-97.41	-24.93	-13	11.93
1 697.29	86.24	V	26.93	-40.39	72.78	-97.41	-24.63	-13	11.63
2 546.73	84.51	H	28.30	-38.79	74.02	-97.41	-23.39	-13	10.39
2 546.59	85.51	V	28.30	-38.79	75.02	-97.41	-22.39	-13	9.39
3 395.72	63.39	H	30.87	-37.65	56.61	-97.41	-40.80	-13	27.80
3 395.51	66.17	V	30.87	-37.65	59.39	-97.41	-38.02	-13	25.02
4 244.36	68.91	H	32.00	-36.66	64.25	-97.41	-33.16	-13	20.16
4 244.19	77.96	V	32.00	-36.66	73.30	-97.41	-24.11	-13	11.11
5 093.34	58.86	H	33.37	-35.64	56.59	-97.41	-40.82	-13	27.82
5 092.81	65.36	V	33.37	-35.64	63.09	-97.41	-34.32	-13	21.32
5 941.61	58.31	H	34.57	-34.77	58.11	-97.41	-39.30	-13	26.30
5 941.89	51.82	V	34.57	-34.77	51.62	-97.41	-45.79	-13	32.79
7 638.82	45.39	H	36.00	-34.58	46.81	-97.41	-50.60	-13	37.60
7 639.33	45.68	V	36.00	-34.58	47.10	-97.41	-50.31	-13	37.31

LTE band 4

- Modulation Signal: LTE band 4 (1.4 MHz – QPSK)

Frequency (MHz)	Measured Level (dBμV)	Ant. Pol.	AF (dB/m)	AMP+CL (dB)	E (dBμV/m)	CF (dB)	E.I.R.P. (dB m)	Limit (dB m)	Margin (dB)
Low Channel (1 710.7 MHz)									
3 420.54	54.24	H	31.02	-37.57	47.69	-95.26	-47.57	-13	34.57
3 420.31	58.11	V	31.02	-37.57	51.56	-95.26	-43.70	-13	30.70
5 130.66	48.81	H	33.46	-35.68	46.59	-95.26	-48.67	-13	35.67
5 130.82	58.02	V	33.46	-35.68	55.80	-95.26	-39.46	-13	26.46
Middle Channel (1 732.5 MHz)									
3 464.05	49.64	H	31.20	-37.40	43.44	-95.26	-51.82	-13	38.82
3 464.25	57.11	V	31.20	-37.39	50.92	-95.26	-44.34	-13	31.34
5 196.14	53.45	H	33.59	-35.66	51.38	-95.26	-43.88	-13	30.88
5 196.33	59.67	V	33.59	-35.66	57.60	-95.26	-37.66	-13	24.66
High Channel (1 754.3 MHz)									
3 507.59	46.62	H	31.18	-37.30	40.50	-95.26	-54.76	-13	41.76
3 507.77	54.39	V	31.18	-37.30	48.27	-95.26	-46.99	-13	33.99
5 261.52	55.31	H	33.72	-35.48	53.55	-95.26	-41.71	-13	28.71
5 261.67	59.78	V	33.72	-35.48	58.02	-95.26	-37.24	-13	24.24

* 1.4 BW 1RB size / 0 Offset for B4

LTE band 4

- Modulation Signal: LTE band 4 (3 MHz – QPSK)

Frequency (MHz)	Measured Level (dBμV)	Ant. Pol.	AF (dB/m)	AMP+CL (dB)	E (dBμV/m)	CF (dB)	E.I.R.P. (dB m)	Limit (dB m)	Margin (dB)
Low Channel (1 711.5 MHz)									
3 420.33	54.22	H	31.02	-37.57	47.67	-95.26	-47.59	-13	34.59
3 420.61	58.09	V	31.02	-37.57	51.54	-95.26	-43.72	-13	30.72
5 130.85	48.61	H	33.46	-35.68	46.39	-95.26	-48.87	-13	35.87
5 130.43	58.13	V	33.46	-35.68	55.91	-95.26	-39.35	-13	26.35
Middle Channel (1 732.5 MHz)									
3 462.74	49.85	H	31.20	-37.40	43.65	-95.26	-51.61	-13	38.61
3 462.53	57.69	V	31.20	-37.40	51.49	-95.26	-43.77	-13	30.77
5 193.40	53.51	H	33.59	-35.66	51.44	-95.26	-43.82	-13	30.82
5 193.56	60.24	V	33.59	-35.66	58.17	-95.26	-37.09	-13	24.09
High Channel (1 753.5 MHz)									
3 504.58	45.85	H	31.19	-37.35	39.69	-95.26	-55.57	-13	42.57
3 504.46	55.61	V	31.19	-37.35	49.45	-95.26	-45.81	-13	32.81
5 256.67	54.30	H	33.71	-35.48	52.53	-95.26	-42.73	-13	29.73
5 256.35	59.42	V	33.71	-35.48	57.65	-95.26	-37.61	-13	24.61

* 3 BW 1RB size / 0 Offset for B4

LTE band 4

- Modulation Signal: LTE band 4 (5 MHz – QPSK)

Frequency (MHz)	Measured Level (dBμV)	Ant. Pol.	AF (dB/m)	AMP+CL (dB)	E (dBμV/m)	CF (dB)	E.I.R.P. (dB m)	Limit (dB m)	Margin (dB)
Low Channel (1 712.5 MHz)									
3 420.61	53.89	H	31.02	-37.57	47.34	-95.26	-47.92	-13	34.92
3 420.76	58.73	V	31.02	-37.57	52.18	-95.26	-43.08	-13	30.08
5 130.77	48.70	H	33.46	-35.68	46.48	-95.26	-48.78	-13	35.78
5 130.82	57.66	V	33.46	-35.68	55.44	-95.26	-39.82	-13	26.82
Middle Channel (1 732.5 MHz)									
3 460.76	50.75	H	31.20	-37.41	44.54	-95.26	-50.72	-13	37.72
3 460.65	57.86	V	31.20	-37.41	51.65	-95.26	-43.61	-13	30.61
5 191.06	53.31	H	33.58	-35.66	51.23	-95.26	-44.03	-13	31.03
5 190.98	59.66	V	33.58	-35.66	57.58	-95.26	-37.68	-13	24.68
High Channel (1 752.5 MHz)									
3 500.66	47.42	H	31.20	-37.39	41.23	-95.26	-54.03	-13	41.03
3 500.74	55.70	V	31.20	-37.39	49.51	-95.26	-45.75	-13	32.75
5 250.88	50.92	H	33.70	-35.49	49.13	-95.26	-46.13	-13	33.13
5 250.91	58.40	V	33.70	-35.49	56.61	-95.26	-38.65	-13	25.65

* 5 BW 1RB size / 0 Offset for B4

LTE band 4

- Modulation Signal: LTE band 4 (10 MHz – QPSK)

Frequency (MHz)	Measured Level (dBμV)	Ant. Pol.	AF (dB/m)	AMP+CL (dB)	E (dBμV/m)	CF (dB)	E.I.R.P. (dB m)	Limit (dB m)	Margin (dB)
Low Channel (1 715.0 MHz)									
3 421.21	54.15	H	31.03	-37.57	47.61	-95.26	-47.65	-13	34.65
3 421.15	58.08	V	31.03	-37.57	51.54	-95.26	-43.72	-13	30.72
5 131.69	48.44	H	33.46	-35.68	46.22	-95.26	-49.04	-13	36.04
5 131.83	57.20	V	33.46	-35.68	54.98	-95.26	-40.28	-13	27.28
Middle Channel (1 732.5 MHz)									
3 456.21	52.50	H	31.20	-37.42	46.28	-95.26	-48.98	-13	35.98
3 456.15	57.22	V	31.20	-37.42	51.00	-95.26	-44.26	-13	31.26
5 184.13	51.47	H	33.57	-35.67	49.37	-95.26	-45.89	-13	32.89
5 184.32	59.16	V	33.57	-35.67	57.06	-95.26	-38.20	-13	25.20
High Channel (1 750.0 MHz)									
3 491.22	49.51	H	31.20	-37.38	43.33	-95.26	-51.93	-13	38.93
3 491.16	53.23	V	31.20	-37.38	47.05	-95.26	-48.21	-13	35.21
5 236.80	49.63	H	33.67	-35.53	47.77	-95.26	-47.49	-13	34.49
5 236.75	56.80	V	33.67	-35.54	54.93	-95.26	-40.33	-13	27.33

* 10 BW 1RB size / 0 Offset for B4

LTE band 4

- Modulation Signal: LTE band 4 (15 MHz – QPSK)

Frequency (MHz)	Measured Level (dBμV)	Ant. Pol.	AF (dB/m)	AMP+CL (dB)	E (dBμV/m)	CF (dB)	E.I.R.P. (dB m)	Limit (dB m)	Margin (dB)
Low Channel (1 717.5 MHz)									
3 421.87	53.83	H	31.03	-37.56	47.30	-95.26	-47.96	-13	34.96
3 421.69	58.76	V	31.03	-37.56	52.23	-95.26	-43.03	-13	30.03
5 132.48	49.62	H	33.46	-35.69	47.39	-95.26	-47.87	-13	34.87
5 132.51	57.77	V	33.47	-35.69	55.55	-95.26	-39.71	-13	26.71
Middle Channel (1 732.5 MHz)									
3 451.63	52.26	H	31.20	-37.44	46.02	-95.26	-49.24	-13	36.24
3 451.83	56.11	V	31.20	-37.44	49.87	-95.26	-45.39	-13	32.39
5 177.44	52.05	H	33.55	-35.68	49.92	-95.26	-45.34	-13	32.34
5 177.26	57.32	V	33.55	-35.68	55.19	-95.26	-40.07	-13	27.07
High Channel (1 747.5 MHz)									
3 481.51	50.44	H	31.20	-37.36	44.28	-95.26	-50.98	-13	37.98
3 481.44	50.48	V	31.20	-37.36	44.32	-95.26	-50.94	-13	37.94
5 222.30	49.81	H	33.64	-35.57	47.88	-95.26	-47.38	-13	34.38
5 222.68	56.69	V	33.65	-35.57	54.77	-95.26	-40.49	-13	27.49

* 15 BW 1RB size / 0 Offset for B4

LTE band 4

- Modulation Signal: LTE band 4 (20 MHz – QPSK)

Frequency (MHz)	Measured Level (dBμV)	Ant. Pol.	AF (dB/m)	AMP+CL (dB)	E (dBμV/m)	CF (dB)	E.I.R.P. (dB m)	Limit (dB m)	Margin (dB)
Low Channel (1 720.0 MHz)									
3 422.21	54.15	H	31.03	-37.56	47.62	-95.26	-47.64	-13	34.64
3 422.22	58.93	V	31.03	-37.56	52.40	-95.26	-42.86	-13	29.86
5 146.69	51.15	H	33.49	-35.71	48.93	-95.26	-46.33	-13	33.33
5 146.83	58.36	V	33.49	-35.71	56.14	-95.26	-39.12	-13	26.12
Middle Channel (1 732.5 MHz)									
3 447.13	51.68	H	31.18	-37.46	45.40	-95.26	-49.86	-13	36.86
3 447.45	55.13	V	31.18	-37.46	48.85	-95.26	-46.41	-13	33.41
5 184.43	52.22	H	33.57	-35.67	50.12	-95.26	-45.14	-13	32.14
5 184.22	59.00	V	33.57	-35.67	56.90	-95.26	-38.36	-13	25.36
High Channel (1 745.0 MHz)									
3 472.10	47.11	H	31.20	-37.36	40.95	-95.26	-54.31	-13	41.31
3 472.16	55.24	V	31.20	-37.36	49.08	-95.26	-46.18	-13	33.18
5 208.93	50.82	H	33.62	-35.62	48.82	-95.26	-46.44	-13	33.44
5 208.65	56.66	V	33.62	-35.62	54.66	-95.26	-40.60	-13	27.60

* 20 BW 1RB size / 0 Offset for B4

- End of the Test Report -