

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: BEJTLHOBDNN0B

IC Certification: 2703H-TLHOBDNN0B

Equipment Under Test : Car Telematics Device
Model Name : TLHOBDNN0B2
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 : 2021.06.03
Date of Test(s) : 2021.06.04 ~ 2021.08.03
Date of Issue : 2021.08.04

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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Report Number: F690501-RF-RTL002425

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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 : Kim, Dae-woong

Phone No. : +1 201 266 2215

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	Car Telematics Device
Model Name	TLHOBDDNN0B2
Variant Model Name	TLHOBDDNN0B1
Approved Module	FCC ID: BEJTM03LNNNAHD0 IC Certification: 2703H-TM03LNNNAHD0
Serial Number	353342700000291, 353342700000309
Power Supply	DC 13.2 V
Rated Power	WCDMA II, V: 23 dBm LTE Band 2, 4, 5, 12: 23 dBm
Frequency Range	WCDMA II: 1 850 MHz ~ 1 910 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
Modulation Technique	QPSK, 16QAM
Antenna Type	Planar Inverted F Antenna
Antenna Gain *	699 MHz ~ 716 MHz: -2.85 dBi 824 MHz ~ 849 MHz: 0.32 dBi 1 710 MHz ~ 1 780 MHz: 2.86 dBi 1 850 MHz ~ 1 910 MHz: 2.83 dBi
H/W Version	Rev.C1
S/W Version	V3.6_20210526

1.5. Test Equipment List

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Interval	Cal. Due
Signal Generator	R&S	SMR40	100272	Jun. 16, 2021	Annual	Jun. 16, 2022
Signal Generator	R&S	SMBV100A	255834	May 31, 2021	Annual	May 31, 2022
Spectrum Analyzer	R&S	FSV30	103210	Dec. 07, 2020	Annual	Dec. 07, 2021
Mobile Test Unit	R&S	CMW500	144034	Feb. 22, 2021	Annual	Feb. 22, 2022
High Pass Filter	Wainwright Instrument GmbH	WHKX10-900-1000-18000-40SS	7	Mar. 08, 2021	Annual	Mar. 08, 2022
High Pass Filter	Wainwright Instrument GmbH	WHKX2.2/12.75G-10SS	8	Mar. 04, 2021	Annual	Mar. 04, 2022
High Pass Filter	Wainwright Instrument GmbH	WHK3.0/18G-10SS	21	Jun. 04, 2021	Annual	Jun. 04, 2022
High Pass Filter	Wainwright Instrument GmbH	WHK7.5/26.5G-6SS	11	May 17, 2021	Annual	May 17, 2022
DC Power Supply	Agilent	U8002A	MY49030063	Feb. 02, 2021	Annual	Feb. 02, 2022
Preamplifier	H.P.	8447F	2944A03909	Aug. 06, 2020	Annual	Aug. 06, 2021
Preamplifier	R&S	SCU-18	10117	Jun. 09, 2021	Annual	Jun. 09, 2022
Preamplifier	TESTEK	TK-PA1840H	130016	Jan. 07, 2021	Annual	Jan. 07, 2022
Test Receiver	R&S	ESU26	100109	Feb. 19, 2021	Annual	Feb. 19, 2022
Loop Antenna	Schwarzbeck Mess-Elektronik	FMZB 1519	1519-039	Aug. 22, 2019	Biennial	Aug. 22, 2021
Bilog Antenna	Schwarzbeck Mess-Elektronik	VULB9163	01126	Dec. 22, 2020	Biennial	Dec. 22, 2022
Horn Antenna	R&S	HF906	100326	Feb. 04, 2021	Annual	Feb. 04, 2022
Horn Antenna	Schwarzbeck Mess-Elektronik	BBHA 9170	9170-540	Nov. 26, 2020	Annual	Nov. 26, 2021
Antenna Master	Innco systems GmbH	MA4640-XP-ET	MA4640/536/3 8330516/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	CO3000/963/3 8330516/L	N.C.R.	N/A	N.C.R.
Anechoic Chamber	SY Corporation	L × W × H (9.6 m × 6.4 m × 6.6 m)	N/A	N.C.R.	N/A	N.C.R.
Coaxial Cable	RFONE	MWX221-NMSNMS (4 m)	J1023142	Jul. 05, 2021	Semi-annual	Jan. 05, 2022
Coaxial Cable	RFONE	PL520-NMNM-10M (10 m)	20200324001	Jul. 05, 2021	Semi-annual	Jan. 05, 2022

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 and 27 / IC RSS-Gen Issue 5, RSS-130 Issue 2, RSS-132 Issue 3, RSS-133 Issue 6 and RSS-139 Issue 3			
Section(s) in FCC	Section(s) in IC	Test Item	Result
§22.913(a)(5) §24.232(c) §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(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(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(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) The test items were used the results from the approved module.

1.7. Test Report Revision

Revision	Report Number	Date of Issue	Description
0	F690501-RF-RTL002425	2021.08.04	Initial

1.8. Sample Calculation for Offset

Where relevant, the following sample calculation is provided:

1.8.1. 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)

1.9. Measurement Uncertainty

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

Parameter		Uncertainty
Radiated Emission, 9 kHz to 30 MHz	H	± 3.66 dB
	V	± 3.66 dB
Radiated Emission, below 1 GHz	H	± 4.90 dB
	V	± 4.82 dB
Radiated Emission, above 1 GHz	H	± 3.62 dB
	V	± 3.64 dB

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

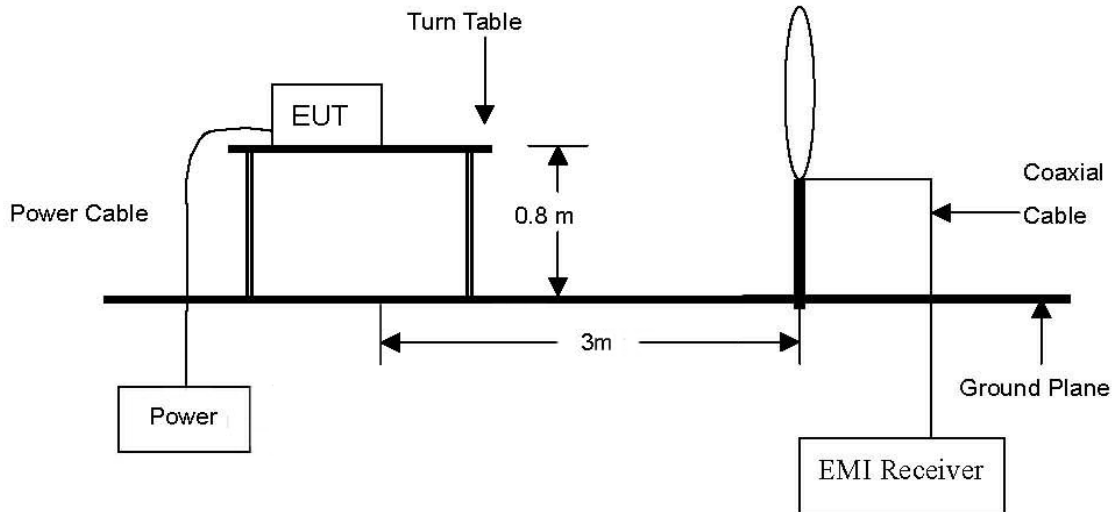
1.10. Information of Variant Model

Model Name		Description
Basic Model	TLHOBDDNN0B2	D-Class AMP condition
Variant Model	TLHOBDDNN0B1	Same RF module and circuit to basic model, Except below - Buffer AMP condition - De-populated to BUB (Backup battery) part

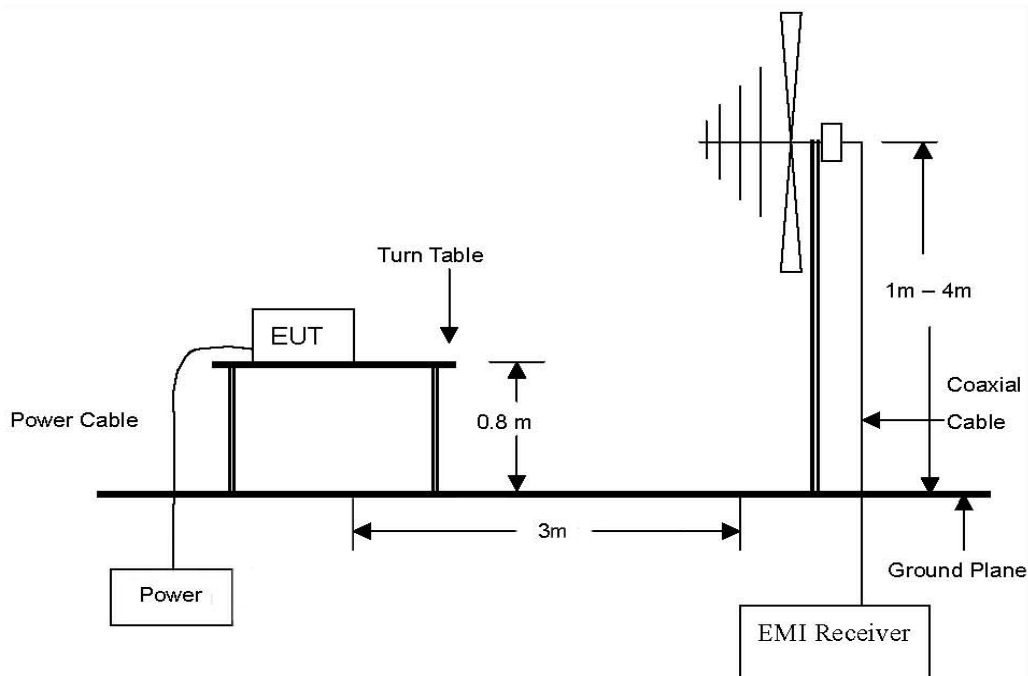
2. Spurious Radiated Emission

2.1. Test Setup

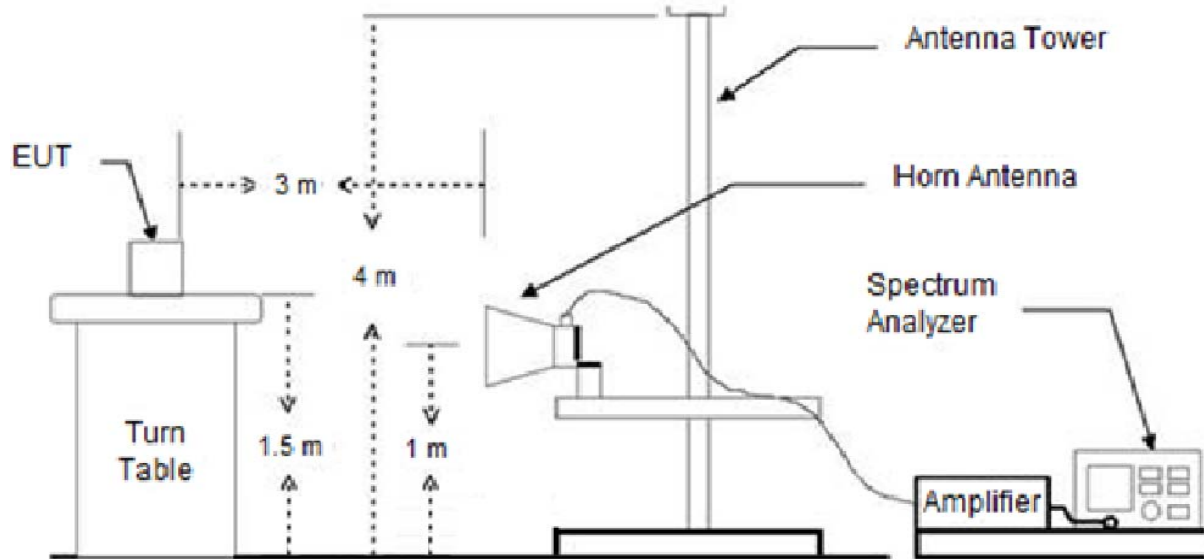
The diagram below shows the test setup that is utilized to make the measurements for emission from 9 kHz to 30 MHz.



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

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(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.

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.

- 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 $43 + 10 \log_{10} p(\text{watts})$.

(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 $43 + 10 \log_{10} p(\text{watts})$. 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 $43 + 10 \log_{10} p(\text{watts})$ 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 $43 + 10 \log_{10} p(\text{watts})$ dB.

2.3. Test procedure: Based on ANSI/TIA 603E: 2016 and ANSI C63.26-2015, KDB 971168 D01 Power Meas License Digital Systems v03r01.

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. 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.
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.

WCDMA II

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 (1 852.4 MHz)									
3 707.70	46.47	H	32.13	-37.01	41.59	-95.26	-53.67	-13	40.67
3 707.60	43.64	V	32.13	-37.01	38.76	-95.26	-56.50	-13	43.50
5 560.22	46.79	H	34.00	-34.75	46.04	-95.26	-49.22	-13	36.22
5 555.00	42.92	V	34.00	-34.66	42.26	-95.26	-53.00	-13	40.00
7 406.56	40.61	H	36.19	-34.13	42.67	-95.26	-52.59	-13	39.59
Above 7 500.00	Not detected	-	-	-	-	-	-	-	-
Middle Channel (1 880.0 MHz)									
3 757.78	50.18	H	32.28	-37.19	45.27	-95.26	-49.99	-13	36.99
3 757.44	45.77	V	32.29	-37.19	40.87	-95.26	-54.39	-13	41.39
5 637.56	44.22	H	34.00	-34.73	43.49	-95.26	-51.77	-13	38.77
5 637.72	46.28	V	34.00	-34.73	45.55	-95.26	-49.71	-13	36.71
7 516.88	43.84	H	36.07	-34.21	45.70	-95.26	-49.56	-13	36.56
Above 7 600.00	Not detected	-	-	-	-	-	-	-	-
High Channel (1 907.6 MHz)									
3 812.88	42.79	H	32.17	-36.97	37.99	-95.26	-57.27	-13	44.27
3 816.50	47.60	V	32.17	-36.95	42.82	-95.26	-52.44	-13	39.44
5 720.06	46.99	H	34.00	-34.58	46.41	-95.26	-48.85	-13	35.85
5 725.32	47.03	V	34.00	-34.55	46.48	-95.26	-48.78	-13	35.78
7 625.68	42.78	H	35.95	-33.75	44.98	-95.26	-50.28	-13	37.28
Above 7 700.00	Not detected	-	-	-	-	-	-	-	-

WCDMA V

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 (826.4 MHz)									
1 650.60	49.41	H	25.81	-40.06	35.16	-97.41	-62.25	-13	49.25
1 654.06	49.66	V	25.84	-40.04	35.46	-97.41	-61.95	-13	48.95
2 477.00	60.94	H	28.35	-38.64	50.65	-97.41	-46.76	-13	33.76
2 481.26	58.03	V	28.34	-38.63	47.74	-97.41	-49.67	-13	36.67
Above 2 500.00	Not detected	-	-	-	-	-	-	-	-
Middle Channel (836.6 MHz)									
1 674.72	52.54	H	26.05	-39.95	38.64	-97.41	-58.77	-13	45.77
1 674.84	53.07	V	26.05	-39.95	39.17	-97.41	-58.24	-13	45.24
2 513.38	62.46	H	28.33	-38.46	52.33	-97.41	-45.08	-13	32.08
2 506.28	55.28	V	28.31	-38.52	45.07	-97.41	-52.34	-13	39.34
Above 2 600.00	Not detected	-	-	-	-	-	-	-	-
High Channel (846.6 MHz)									
1 694.68	54.78	H	26.25	-39.76	41.27	-97.41	-56.14	-13	43.14
1 695.70	50.81	V	26.26	-39.74	37.33	-97.41	-60.08	-13	47.08
2 537.44	61.60	H	28.37	-38.38	51.59	-97.41	-45.82	-13	32.82
2 543.42	52.03	V	28.39	-38.38	42.04	-97.41	-55.37	-13	42.37
Above 2 600.00	Not detected	-	-	-	-	-	-	-	-

LTE band 2 (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 (1 852.5 MHz)									
3 705.37	56.51	H	32.12	-37.03	51.60	-95.26	-43.66	-13	30.66
3 705.39	50.37	V	32.12	-37.03	45.46	-95.26	-49.80	-13	36.80
5 558.90	53.96	H	34.00	-34.73	53.23	-95.26	-42.03	-13	29.03
5 558.06	52.07	V	34.00	-34.71	51.36	-95.26	-43.90	-13	30.90
7 410.62	43.04	H	36.18	-34.17	45.05	-95.26	-50.21	-13	37.21
7 410.79	40.63	V	36.18	-34.17	42.64	-95.26	-52.62	-13	39.62
9 263.61	45.33	H	37.03	-32.30	50.06	-95.26	-45.20	-13	32.20
9 263.48	44.75	V	37.03	-32.30	49.48	-95.26	-45.78	-13	32.78
12 968.70	37.59	H	39.20	-28.35	48.44	-95.26	-46.82	-13	33.82
12 968.98	36.03	V	39.20	-28.35	46.88	-95.26	-48.38	-13	35.38
Above 13 000.00	Not detected	-	-	-	-	-	-	-	-
Middle Channel (1 880.0 MHz)									
3 760.36	56.40	H	32.28	-37.19	51.49	-95.26	-43.77	-13	30.77
3 760.41	52.06	V	32.28	-37.19	47.15	-95.26	-48.11	-13	35.11
5 640.67	52.18	H	34.00	-34.74	51.44	-95.26	-43.82	-13	30.82
5 640.60	56.37	V	34.00	-34.74	55.63	-95.26	-39.63	-13	26.63
7 520.79	48.16	H	36.06	-34.19	50.03	-95.26	-45.23	-13	32.23
7 520.79	47.47	V	36.06	-34.19	49.34	-95.26	-45.92	-13	32.92
9 400.79	49.25	H	37.40	-32.12	54.53	-95.26	-40.73	-13	27.73
9 400.96	48.47	V	37.40	-32.12	53.75	-95.26	-41.51	-13	28.51
13 161.49	39.86	H	39.12	-28.12	50.86	-95.26	-44.40	-13	31.40
13 161.23	40.82	V	39.12	-28.12	51.82	-95.26	-43.44	-13	30.44
Above 13 200.00	Not detected	-	-	-	-	-	-	-	-

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)
High Channel (1 907.5 MHz)									
3 815.47	48.84	H	32.17	-36.96	44.05	-95.26	-51.21	-13	38.21
3 815.52	48.18	V	32.17	-36.96	43.39	-95.26	-51.87	-13	38.87
5 723.03	48.45	H	34.00	-34.55	47.90	-95.26	-47.36	-13	34.36
5 722.99	48.58	V	34.00	-34.56	48.02	-95.26	-47.24	-13	34.24
7 630.04	46.90	V	35.94	-33.79	49.05	-95.26	-46.21	-13	33.21
7 631.02	43.29	H	35.94	-33.80	45.43	-95.26	-49.83	-13	36.83
9 538.24	50.67	V	37.50	-31.56	56.61	-95.26	-38.65	-13	25.65
9 538.47	50.16	H	37.50	-31.56	56.10	-95.26	-39.16	-13	26.16
13 353.76	42.71	V	39.61	-28.05	54.27	-95.26	-40.99	-13	27.99
13 353.91	41.84	V	39.61	-28.05	53.40	-95.26	-41.86	-13	28.86
Above 13 400.00	Not detected	-	-	-	-	-	-	-	-

* 1RB size / 12 Offset

LTE band 4 (1.4 MHz – 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 (1 710.7 MHz)									
3 421.56	44.93	H	30.84	-37.68	38.09	-95.26	-57.17	-13	44.17
3 421.78	46.05	V	30.84	-37.68	39.21	-95.26	-56.05	-13	43.05
5 132.41	47.30	H	33.46	-35.58	45.18	-95.26	-50.08	-13	37.08
5 132.31	45.19	V	33.46	-35.58	43.07	-95.26	-52.19	-13	39.19
6 843.05	41.55	H	35.60	-33.78	43.37	-95.26	-51.89	-13	38.89
6 843.06	43.23	V	35.60	-33.78	45.05	-95.26	-50.21	-13	37.21
8 554.02	42.18	H	36.41	-32.92	45.67	-95.26	-49.59	-13	36.59
8 553.85	41.43	V	36.41	-32.92	44.92	-95.26	-50.34	-13	37.34
Above 8 600.00	Not detected	-	-	-	-	-	-	-	-
Middle Channel (1 732.5 MHz)									
3 465.31	50.58	H	30.96	-37.56	43.98	-95.26	-51.28	-13	38.28
3 465.29	51.75	V	30.96	-37.56	45.15	-95.26	-50.11	-13	37.11
5 197.89	48.14	H	33.60	-35.49	46.25	-95.26	-49.01	-13	36.01
5 197.79	51.32	V	33.60	-35.49	49.43	-95.26	-45.83	-13	32.83
6 930.38	46.05	H	35.60	-33.75	47.90	-95.26	-47.36	-13	34.36
6 930.31	49.17	V	35.60	-33.75	51.02	-95.26	-44.24	-13	31.24
8 663.02	47.24	H	36.65	-32.17	51.72	-95.26	-43.54	-13	30.54
8 662.94	48.79	V	36.65	-32.17	53.27	-95.26	-41.99	-13	28.99
Above 8 700.00	Not detected	-	-	-	-	-	-	-	-

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)
High Channel (1 754.3 MHz)									
3 508.43	44.45	H	31.13	-37.28	38.30	-95.26	-56.96	-13	43.96
3 508.93	44.90	V	31.14	-37.28	38.76	-95.26	-56.50	-13	43.50
5 263.21	47.37	H	33.75	-34.58	46.54	-95.26	-48.72	-13	35.72
5 263.09	45.99	V	33.75	-34.58	45.16	-95.26	-50.10	-13	37.10
7 017.53	43.80	V	35.50	-33.50	45.80	-95.26	-49.46	-13	36.46
7 017.57	46.73	H	35.50	-33.50	48.73	-95.26	-46.53	-13	33.53
8 772.55	39.50	V	37.05	-32.47	44.08	-95.26	-51.18	-13	38.18
8 772.23	41.01	H	37.04	-32.47	45.58	-95.26	-49.68	-13	36.68
Above 8 800.00	Not detected	-	-	-	-	-	-	-	-

* 1RB size / 3 Offset

LTE band 5 (1.4 MHz – 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 (824.7 MHz)									
1 649.64	53.73	H	25.80	-40.05	39.48	-97.41	-57.93	-13	44.93
1 649.54	52.82	V	25.80	-40.05	38.57	-97.41	-58.84	-13	45.84
2 474.12	55.79	H	28.35	-38.65	45.49	-97.41	-51.92	-13	38.92
2 474.42	54.24	V	28.35	-38.65	43.94	-97.41	-53.47	-13	40.47
Above 2 500.00	Not detected	-	-	-	-	-	-	-	-
Middle Channel (836.5 MHz)									
1 673.33	53.36	H	26.03	-39.96	39.43	-97.41	-57.98	-13	44.98
1 673.26	50.41	V	26.03	-39.96	36.48	-97.41	-60.93	-13	47.93
2 509.84	54.85	H	28.32	-38.49	44.68	-97.41	-52.73	-13	39.73
2 509.80	53.09	V	28.32	-38.49	42.92	-97.41	-54.49	-13	41.49
Above 2 600.00	Not detected	-	-	-	-	-	-	-	-
High Channel (848.3 MHz)									
1 696.81	63.62	H	26.27	-39.73	50.16	-97.41	-47.25	-13	34.25
1 696.88	56.44	V	26.27	-39.73	42.98	-97.41	-54.43	-13	41.43
2 545.26	54.11	H	28.39	-38.39	44.11	-97.41	-53.30	-13	40.30
2 545.28	52.78	V	28.39	-38.39	42.78	-97.41	-54.63	-13	41.63
Above 2 600.00	Not detected	-	-	-	-	-	-	-	-

* 1RB size / 3 Offset

LTE band 12 (1.4 MHz – 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 (699.7 MHz)									
1 399.52	62.61	H	25.30	-40.56	47.35	-97.41	-50.06	-13	37.06
1 399.48	65.43	V	25.30	-40.56	50.17	-97.41	-47.24	-13	34.24
2 099.34	64.61	H	27.70	-39.40	52.91	-97.41	-44.50	-13	31.50
2 099.48	61.71	V	27.70	-39.40	50.01	-97.41	-47.40	-13	34.40
Above 2 100.00	Not detected	-	-	-	-	-	-	-	-
Middle Channel (707.5 MHz)									
1 415.08	61.58	H	25.24	-40.53	46.29	-97.41	-51.12	-13	38.12
1 415.18	62.62	V	25.24	-40.53	47.33	-97.41	-50.08	-13	37.08
2 122.75	62.75	H	27.61	-39.21	51.15	-97.41	-46.26	-13	33.26
2 122.82	61.71	V	27.61	-39.21	50.11	-97.41	-47.30	-13	34.30
Above 2 200.00	Not detected	-	-	-	-	-	-	-	-
High Channel (715.3 MHz)									
1 430.76	67.45	H	25.18	-40.44	52.19	-97.41	-45.22	-13	32.22
1 430.59	61.15	V	25.18	-40.44	45.89	-97.41	-51.52	-13	38.52
2 145.67	61.31	H	27.52	-39.02	49.81	-97.41	-47.60	-13	34.60
2 146.28	59.36	V	27.51	-39.02	47.85	-97.41	-49.56	-13	36.56
Above 2 200.00	Not detected	-	-	-	-	-	-	-	-

* 1RB size / 3 Offset

Remark;

1. AF = Antenna Factor, CL = Cable Loss, CF = Conversion Factor.
2. E (dBμV/m) = Measured Level (dBμV) + Antenna Factor (dB/m) + Cable Loss (dB).
3. E.I.R.P. (dB m) = E (dBμV/m) + CF (dB).
4. E.R.P. (dB m) = E (dBμV/m) + CF (dB) - 2.15 (dB); where E.R.P. and E.I.R.P. are expressed in consistent units.
5. CF (dB) = 20 log D - 104.8; where D is the measurement distance in meters, According to ANSI C63.26-2015 5.2.7
6. The frequency spectrum is examined from 9 kHz to the 10th harmonic of the fundamental frequency of the transmitter. No other spurious and harmonic emissions were reported greater than listed emissions above table.

- End of the Test Report -