

TEST REPORT

of

FCC CFR 47 part 1, 1.1307(b), 1.1310

FCC ID: BEJTM01LA-E

Equipment Under Test : Telematics Module
Model Name : TM01LA-E
Applicant : LG Electronics Inc.
Manufacturer : LG Electronics Inc.
Date of Receipt : 2017.04.28
Date of Test(s) : 2017.04.29 ~ 2017.05.02
Date of Issue : 2017.05.02

In the configuration tested, the EUT complied with the standards specified above.

Tested By:


Jungmin Yang

Date:

2017.05.02

Technical
Manager:


Hyunchae You

Date:

2017.05.02

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SGS Korea Co., Ltd. (Gunpo Laboratory) 4, LS-ro 182beon-gil, Gunpo-si, Gyeonggi-do, Korea, 15807 <http://www.sgsgroup.kr>

RTT5041-20(2015.10.01)(3)

Tel. +82 31 428 5700 / Fax. +82 31 427 2370

A4(210 mm x 297 mm)

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1. General information

1.1. Testing Laboratory

SGS Korea Co., Ltd. (Gunpo Laboratory)

- Wireless Div. 2FL, 10-2, LS-ro 182beon-gil, Gunpo-si, Gyeonggi-do, Korea, 15807

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

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1.2. Details of applicant

Applicant : LG Electronics Inc.

Address : 222 LG-ro Jinwi-myeon, Pyeongtaek-si, Gyeonggi-do, 17709, Korea

Contact Person : Park, Eui-Soon

Phone No. : +82 2 2033 1110

1.3. Description of EUT

Kind of Product	Telematics Module
Model Name	TM01LA-E
Power Supply	DC 12 V
Frequency Range	GSM 850: 824 MHz ~ 849 MHz WCDMA Band 5: 824 MHz ~ 849 MHz LTE Band 7: 2 500 MHz ~ 2 570 MHz
Antenna Type	Vehicle Dome Antenna
Antenna Gain	824 MHz ~ 849 MHz: 0.46 dB i, 2 500 MHz ~ 2 570 MHz: 3.29 dB i

1.4. Test report revision

Revision	Report number	Date of Issue	Description
0	F690501/RF-RTL011190	2017.05.02	Initial

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2. RF Exposure Evaluation

2.1. Environmental evaluation and exposure limit according to FCC CFR 47 part 1, 1.1307(b), 1.1310

LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency Range (MHz)	Electric Field Strength(V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Average Time
(A) Limits for Occupational/Controlled Exposure				
0.3 – 3.0	614	1.63	*100	6
3.0 – 30	1842/f	4.89/f	*900/f ²	6
30 – 300	61.4	0.163	1.0	6
300 – 1 500	-	-	f/300	6
1 500 – 100 000	-	-	5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3 – 1.34	614	1.63	*100	30
1.34 – 30	824/f	2.19/f	*180/f ²	30
30 – 300	27.5	0.073	0.2	30
<u>300 – 1 500</u>	-	-	<u>f/1500</u>	<u>30</u>
<u>1 500 – 100 000</u>	-	-	<u>1.0</u>	<u>30</u>

2.1.1. Friis transmission formula: $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2)$

Where P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

R = distance between observation point and center of the radiator in cm

P_d the limit of MPE, 1 mW/cm². If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.

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2.1.2. Test Result of RF Exposure Evaluation

Test Item : RF Exposure Evaluation Data
Test Mode : Normal Operation

2.1.3. Output Power into Antenna & RF Exposure Evaluation Distance

Power Class

- i) GSM
 - GSM850, Max TX power : 33.0 dB m (+0.5/- 2 dB)
- ii) WCDMA
 - WCDMA B5 850 MHz : 22.5 dB m (+/- 2 dB)
- iii) FDD LTE
 - LTE B7 2500 MHz mode : 23.5 dB m (+/- 2.7 dB)

GSM 850

- Maximum tune up tolerance

Channel	Channel Frequency (MHz)	Output Average Power to Antenna (dB m)	Antenna Gain (dB i)	Power Density at 20 cm (mW/cm ²)	Limits (mW/cm ²)
128	824.2	33.5	0.46	0.495 142	0.549 600

WCDMA Band 5

- Maximum tune up tolerance

Channel	Channel Frequency (MHz)	Output Average Power to Antenna (dB m)	Antenna Gain (dB i)	Power Density at 20 cm (mW/cm ²)	Limits (mW/cm ²)
4132	826.4	24.5	0.46	0.062 335	0.550 933

LTE Band 7

- Maximum tune up tolerance

Channel	Channel Frequency (MHz)	Output Average Power to Antenna (dB m)	Antenna Gain (dB i)	Power Density at 20 cm (mW/cm ²)	Limits (mW/cm ²)
21100	2 535.0	26.2	3.29	0.176 901	1

Note :

- The power density Pd (5th column) at a distance of 20 cm calculated from the friis transmission formula is far below the limit of 1 mW/cm².

- End of the Test Report -

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