TEST REPORT

of

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

FCC ID: BEJTM05GAJN

Equipment Under Test	:	Car AVN
Model Name	:	TM05GAJN
Applicant	:	LG Electronics USA
Manufacturer	:	LG Electronics Inc.
Date of Receipt	:	2018.09.21
Date of Test(s)	:	2018.09.27 ~ 2019.05.23
Date of Issue	:	2019.06.13

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

Tested By: **Nancy Park** **Date:** **2019.06.13**

Technical Manager: **Jungmin Yang** **Date:** **2019.06.13**

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1. General Information

1.1. Testing Laboratory

SGS Korea Co., Ltd. (Gunpo Laboratory)
- 10-2, LS-ro 182beon-gil, Gunpo-si, Gyeonggi-do, Korea, 15807
- 4, LS-ro 182beon-gil, Gunpo-si, Gyeonggi-do, Korea, 15807
- Designation number: KR0150

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

Applicant : LG Electronics USA
Address : 1000 Sylvan Avenue, Englewood Cliffs, New Jersey, United States, 07632
Contact Person : Han, Kyung-su
Phone No. : +2 201 472 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	Car AVN
Model Name	TM05GAJN
Power Supply	DC 12 V
Frequency Range	GSM 850: 824 ㎒ ~ 849 ㎒ GSM 1 900: 1 850 ㎒ ~ 1 910 ㎒ WCDMA 2: 1 850 ㎒ ~ 1 910 ㎒ WCDMA 4: 1 710 ㎒ ~ 1 755 ㎒ WCDMA 5: 824 ㎒ ~ 849 ㎒ LTE Band 2: 1 850 ㎒ ~ 1 910 ㎒ LTE Band 4: 1 710 ㎒ ~ 1 755 ㎒ LTE Band 5: 824 ㎒ ~ 849 ㎒ LTE Band 7: 2 500 ㎒ ~ 2 570 ㎒ LTE Band 12: 699 ㎒ ~ 716 ㎒ LTE Band 26: 814 ㎒ ~ 849 ㎒

1.5. Test Report Revision

Revision	Report number	Date of Issue	Description
0	F690501/RF-RTL013910	2019.06.04	Initial
0	F690501/RF-RTL013910-1	2019.06.13	Corrected Final Antenna gain of LTE 12

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 (㎒)	Electric Field Strength(V/m)	Magnetic Field Strength (A/m)	Power Density (㎽/㎠)	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
300-1 500	-	-	**f/1500**	**30**
1 500-100 000	-	-	**1.0**	**30**

2.1.1. Friis transmission formula: Pd = (Pout*G)/(4*pi*R^2)

Where Pd = power density in ㎽/㎠

Pout = output power to antenna in ㎽

G = gain of antenna in linear scale

Pi = 3.1416

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

Pd the limit of MPE, 1 ㎽/㎠. 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.

2.1.2. Test Result of RF Exposure Evaluation

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

2.1.3. Test Information of Cable Loss and Antenna Gain

Test Item	Frequency Range (㎒)	Cable Loss (㏈)	Antenna Gain of EUT (㏈i)	Final Antenna Gain (㏈i)
GSM 850	824 ~ 849	-1.12	-2.45	-3.57
GSM 1900	1 850 ~ 1 910	-1.12	1.13	0.01
WCDMA 2	1 850 ~ 1 910	-1.12	1.13	0.01
WCDMA 4	1 710 ~ 1 755	-1.12	1.45	0.33
WCDMA 5	824 ~ 849	-1.12	-2.45	-3.57
LTE 2	1 850 ~ 1 910	-1.12	1.13	0.01
LTE 4	1 710 ~ 1 755	-1.12	1.45	0.33
LTE 5	824 ~ 849	-1.12	-2.45	-3.57
LTE 7	2 500 ~ 2 570	-1.94	-0.63	-2.57
LTE 12	699 ~ 716	-0.76	-0.98	-1.74
LTE 26	814 ~ 849	-1.12	-2.45	-3.57

Note;

- Final Antenna Gain = Cable Loss (㏈) + Antenna Gain of EUT (㏈i)

2.1.4. Output Power into Antenna & RF Exposure Evaluation Distance

GSM 850
- Maximum tune up tolerance

Frequency Range (㎒)	Output Average Power to Antenna (dB m)	Final Antenna Gain (dB i)	Power Density at 20 ㎝ (㎽/㎠)	Limits (㎽/㎠)
824 ~ 849	34	-3.57	0.219 649	0.55

GSM 1 900
- Maximum tune up tolerance

Frequency Range (㎒)	Output Average Power to Antenna (dB m)	Final Antenna Gain (dB i)	Power Density at 20 ㎝ (㎽/㎠)	Limits (㎽/㎠)
1 850 ~ 1 910	30.5	0.01	0.223 733	1

WCDMA Band 2
- Maximum tune up tolerance

Frequency Range (㎒)	Output Average Power to Antenna (dB m)	Final Antenna Gain (dB i)	Power Density at 20 ㎝ (㎽/㎠)	Limits (㎽/㎠)
1 850 ~ 1 910	25	0.01	0.063 057	1

WCDMA Band 4
- Maximum tune up tolerance

Frequency Range (㎒)	Output Average Power to Antenna (dB m)	Final Antenna Gain (dB i)	Power Density at 20 ㎝ (㎽/㎠)	Limits (㎽/㎠)
1 710 ~ 1 755	25	0.33	0.067 878	1

WCDMA Band 5
- Maximum tune up tolerance

Frequency Range (㎒)	Output Average Power to Antenna (dB m)	Final Antenna Gain (dB i)	Power Density at 20 ㎝ (㎽/㎠)	Limits (㎽/㎠)
824 ~ 849	25	-3.57	0.027 652	0.55

LTE Band 2
- Maximum tune up tolerance

Frequency Range (㎒)	Output Average Power to Antenna (dB m)	Final Antenna Gain (dB i)	Power Density at 20 ㎝ (㎽/㎠)	Limits (㎽/㎠)
1 850 ~ 1 910	25	0.01	0.063 057	1

LTE Band 4
- Maximum tune up tolerance

Frequency Range (㎒)	Output Average Power to Antenna (dB m)	Final Antenna Gain (dB i)	Power Density at 20 ㎝ (㎽/㎠)	Limits (㎽/㎠)
1 710 ~ 1 755	25	0.33	0.067 878	1

LTE Band 5
- Maximum tune up tolerance

Frequency Range (㎒)	Output Average Power to Antenna (dB m)	Final Antenna Gain (dB i)	Power Density at 20 ㎝ (㎽/㎠)	Limits (㎽/㎠)
824 ~ 849	25	-3.57	0.027 652	0.55

LTE Band 7
- Maximum tune up tolerance

Frequency Range (㎒)	Output Average Power to Antenna (dB m)	Final Antenna Gain (dB i)	Power Density at 20 ㎝ (㎽/㎠)	Limits (㎽/㎠)
2 500 ~ 2 570	25	-2.57	0.034 812	1

LTE Band 12
- Maximum tune up tolerance

Frequency Range (㎒)	Output Average Power to Antenna (dB m)	Final Antenna Gain (dB i)	Power Density at 20 ㎝ (㎽/㎠)	Limits (㎽/㎠)
699 ~ 716	25	-1.74	0.042 143	0.47

LTE Band 26
- Maximum tune up tolerance

Frequency Range (㎒)	Output Average Power to Antenna (dB m)	Final Antenna Gain (dB i)	Power Density at 20 ㎝ (㎽/㎠)	Limits (㎽/㎠)
814 ~ 849	25	-3.57	0.027 652	0.54

Note;

- The power density Pd (5th column) at a distance of 20 ㎝ calculated from the friis transmission formula is far below the limit of 1 ㎽/㎠.
- This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.
- This equipment should be installed and operated with minimum 20 ㎝ between the radiator and your body.
- The antenna gain of this transmitter is less than 6 dBi and must not be collocated or operating in conjunction with any other antenna or transmitter unless authorized to do so by the FCC.

- End of the Test Report -