HCT CO.,LTD.

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FCC MPE REPORT

Certification

Applicant Name:
LG Electronics Inc.

Address:
222, LG-ro, Jinwi-myeon, Pyeongtaek-si, Gyeonggi-do,451-713, Korea

Date of Issue:
October 10, 2018
Test Site/Location:
HCT CO., LTD., 74,Seoicheon-ro 578beon-gil,Majang-myeo,Icheon-si, Gyeonggi-do, 17383, Rep. of KOREA
Report No.: HCT-RF-1810-FI013

FCC ID:	**BEJIL7SF**
APPLICANT:	**LG Electronics Inc.**

According to the Evaluation report, all of the data contained herein is reused from the reference FCC ID : BEJIL7SB report.

Model:	IL7SF
EUT Type:	Silverbox RADIO ASM-RECEIVER
Frequency Range:	2402 MHz - 2480 MHz (Bluetooth)
	2412 MHz - 2462 MHz (2.4 GHz Band)
	5180 MHz - 5825 MHz (5 GHz Band)

The measurements shown in this report were made in accordance with the procedures specified in §2.947. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them.

HCT CO., LTD. Certifies that no party to this application has subject to a denial of Federal benefits that includes FCC benefits pursuant to section 5301 of the Anti-Drug Abuse Act of 1998,21 U.S. C.853(a)

Report prepared by : Se Wook Park
Engineer of Telecommunication testing center

Approved by : Jong Seok Lee
Manager of Telecommunication testing center

Version

TEST REPORT NO.	DATE	DESCRIPTION
HCT-RF-1810-FI013	October 10, 2018	- First Approval Report

RF Exposure Statement

1. LIMITS

According to §1.1310 and §2.1091 RF exposure is calculated.

(B) Limits for General Population/Uncontrolled Exposures

Frequency range (MHz)	Electric field Strength (V/m)	Magnetic field Strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
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 - 1500	.....	.....	f/1500	30
1500 - 100.000	.....	.....	1.0	30

F = frequency in MHz
* = Plane-wave equivalent power density

2. MAXIMUM PERMISSIBLE EXPOSURE Prediction

Prediction of MPE limit at a given distance

$S = PG/4\pi R^2$

S = Power density
P = power input to antenna
G = power gain of the antenna in the direction of interest relative to an isotropic radiator
R = distance to the center of radiation of the antenna

3. RESULTS

3-1. Bluetooth

Average output Power at antenna input terminal	6.500	dBm
Average output Power at antenna input terminal	4.467	mW
Prediction distance	20.000	cm
Prediction frequency	2 402 ~ 2 480	MHz
Antenna Gain(typical)	5.400	dBi
Antenna Gain(numeric)	3.467	-
Power density at prediction frequency(S)	0.00308	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	1.000	mW/cm^2

2.1091

EIRP	11.900	(dBm)
ERP	9.75	(dBm)
ERP	0.009	(W)
ERP Limit	3.00	(W)
MARGIN	25.02	(dB)

3-2. WLAN DTS Band (802.11b,g,n) SISO Internal Antenna

Average output Power at antenna input terminal	18.000	dBm
Average output Power at antenna input terminal	63.096	mW
Prediction distance	20.000	cm
Prediction frequency	2 412 ~ 2 462	MHz
Antenna Gain(typical)	5.400	dBi
Antenna Gain(numeric)	3.467	-
Power density at prediction frequency(S)	0.04352	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	1.000	mW/cm^2

2.1091

EIRP	23.400	(dBm)
ERP	21.25	(dBm)
ERP	0.133	(W)
ERP Limit	3.00	(W)
MARGIN	13.52	(dB)

3-3. WLAN DTS Band (802.11b,g,n) SISO External Antenna

Average output Power at antenna input terminal	18.000	dBm
Average output Power at antenna input terminal	63.096	mW
Prediction distance	20.000	cm
Prediction frequency	2 412 ~ 2 462	MHz
Antenna Gain(typical)	1.200	dBi
Antenna Gain(numeric)	1.318	-
Power density at prediction frequency(S)	0.01655	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	1.000	mW/cm^2

2.1091

EIRP	19.200	(dBm)
ERP	17.05	(dBm)
ERP	0.051	(W)
ERP Limit	3.00	(W)
MARGIN	17.72	(dB)

3-4. WLAN DTS Band (802.11b,g,n) MIMO

Average output Power at antenna input terminal	21.000	dBm
Average output Power at antenna input terminal	125.893	mW
Prediction distance	20.000	cm
Prediction frequency	2 412 ~ 2 462	MHz
Antenna Gain(typical)	5.400	dBi
Antenna Gain(numeric)	3.467	-
Power density at prediction frequency(S)	0.08684	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	1.000	mW/cm^2

2.1091

EIRP	26.400	(dBm)
ERP	24.25	(dBm)
ERP	0.266	(W)
ERP Limit	3.00	(W)
MARGIN	10.52	(dB)

3-5. UNII Band 3(802.11a,n,ac) SISO Internal Antenna

Average output Power at antenna input terminal	21.500	dBm
Average output Power at antenna input terminal	141.254	mW
Prediction distance	20.000	cm
Prediction frequency	5 745 ~ 5 825	MHz
Antenna Gain(typical)	5.400	dBi
Antenna Gain(numeric)	3.467	-
Power density at prediction frequency(S)	0.09744	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	1.000	mW/cm^2

2.1091

EIRP	26.900	(dBm)
ERP	24.75	(dBm)
ERP	0.299	(W)
ERP Limit	3.00	(W)
MARGIN	10.02	(dB)

3-6. UNII Band 2C (802.11a,n,ac) SISO External Antenna

Average output Power at antenna input terminal	20.500	dBm
Average output Power at antenna input terminal	112.202	mW
Prediction distance	20.000	cm
Prediction frequency	5 500 ~ 5 720	MHz
Antenna Gain(typical)	1.400	dBi
Antenna Gain(numeric)	1.380	-
Power density at prediction frequency(S)	0.03081	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	1.000	mW/cm^2

2.1091

EIRP	21.900	(dBm)
ERP	19.75	(dBm)
ERP	0.094	(W)
ERP Limit	3.00	(W)
MARGIN	15.02	(dB)

3-7. UNII Band 3 (802.11a,n,ac) MIMO

Average output Power at antenna input terminal	23.000	dBm
Average output Power at antenna input terminal	199.526	mW
Prediction distance	20.000	cm
Prediction frequency	5 745 ~ 5 825	MHz
Antenna Gain(typical)	5.400	dBi
Antenna Gain(numeric)	3.467	-
Power density at prediction frequency(S)	0.13764	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	1.000	mW/cm^2

2.1091

EIRP	28.400	(dBm)
ERP	26.25	(dBm)
ERP	0.422	(W)
ERP Limit	3.00	(W)
MARGIN	8.52	(dB)

-> Worst Case: Simultaneous MPE 20cm is

BT (0.00308 mW/cm^2) + 2.4G WLAN (0.08684 mW/cm^2) = 0.08992 < 1

BT (0.00308 mW/cm^2) + 5G WLAN (0.13764 mW/cm^2)= 0.14072 < 1

BT (0.00308 mW/cm^2) + 2.4G WLAN (0.08684 mW/cm^2) + 5G WLAN (0.13764 mW/cm^2) = 0.22756 < 1