

# TEST REPORT

FCC MPE Test for IL7FB  
Certification

**APPLICANT**  
LG Electronics Inc.

**REPORT NO.**  
HCT-RF-2101-FC116-R1

**DATE OF ISSUE**  
February 5, 2021

**Tested by**  
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<b>TEST REPORT</b> FCC MPE Test for IL7FB	<b>REPORT NO.</b> HCT-RF-2101-FC116-R1
	<b>DATE OF ISSUE</b> February 05, 2021
	<b>Additional Model</b> -

<b>Applicant</b>	<b>LG Electronics Inc.</b> 222, LG-ro, Jinwi-myeon, Pyeongtaek-si, Gyeonggi-do, 451-713, Korea
<b>Eut Type Model Name</b>	Faceplate RADIO ASM-RECEIVER IL7FB
<b>FCC ID</b>	BEJIL7FB2
<b>Frequency range</b>	2 402 MHz ~ 2 480 MHz (Bluetooth) 2 412 MHz ~ 2 462 MHz (WLAN) 5 180 MHz ~ 5 825 MHz (UNII)

The result shown in this test report refer only to the sample(s) tested unless otherwise stated.  
This test results were applied only to the test methods required by the standard.

## REVISION HISTORY

The revision history for this test report is shown in table.

Revision No.	Date of Issue	Description
0	January 28, 2021	Initial Release
1	February 05, 2021	Revised the Worst case on page 11

### Engineering Statement:

The measurements shown in this report were made in accordance with the procedures indicated, and the emissions from this equipment were found to be within the limits applicable. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them. It is further stated that upon the basis of the measurements made, the equipment tested is capable of operation in accordance with the requirements of the FCC Rules under normal use and maintenance

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## RF Exposure Statement

### 1. Limit

According to § 1.1310, § 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 <sup>2</sup> )	Averaging time (minutes)
0.3 - 1.34.....	614	1.63	*(100)	30
1.34 - 30.....	824/f	2.19/f	*(180/ f <sup>2</sup> )	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 to 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	6.50	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)	4.80	dBi
Antenna Gain(numeric)	3.020	-
Power density at prediction frequency( S)	0.00268	mW/cm <sup>2</sup>
MPE limit for uncontrolled exposure at prediction frequency	1.00	mW/cm <sup>2</sup>

#### 2.1091

EIRP	11.30	(dBm)
ERP	9.15	(dBm)
ERP	0.008	(W)
ERP Limit	3.0	(W)
MARGIN	25.62	(dB)

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

Average output Power at antenna input terminal	19.00	dBm
Average output Power at antenna input terminal	79.433	mW
Prediction distance	20.000	cm
Prediction frequency	2 412 ~ 2 462	MHz
Antenna Gain(typical)	4.80	dBi
Antenna Gain(numeric)	3.020	-
Power density at prediction frequency( S)	0.04772	mW/cm <sup>2</sup>
MPE limit for uncontrolled exposure at prediction frequency	1.000	mW/cm <sup>2</sup>

**2.1091**

EIRP	23.80	(dBm)
ERP	21.65	(dBm)
ERP	0.146	(W)
ERP Limit	3.0	(W)
MARGIN	13.12	(dB)

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

Average output Power at antenna input terminal	18.00	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)	1.20	dBi
Antenna Gain(numeric)	1.318	-
Power density at prediction frequency( S)	0.01655	mW/cm <sup>2</sup>
MPE limit for uncontrolled exposure at prediction frequency	1.000	mW/cm <sup>2</sup>

#### 2.1091

EIRP	19.20	(dBm)
ERP	17.05	(dBm)
ERP	0.051	(W)
ERP Limit	3.0	(W)
MARGIN	17.72	(dB)

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

Average output Power at antenna input terminal	21.00	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)	4.80	dBi
Antenna Gain(numeric)	3.020	-
Power density at prediction frequency( S)	0.07564	mW/cm <sup>2</sup>
MPE limit for uncontrolled exposure at prediction frequency	1.000	mW/cm <sup>2</sup>

**2.1091**

EIRP	25.80	(dBm)
ERP	23.65	(dBm)
ERP	0.232	(W)
ERP Limit	3.0	(W)
MARGIN	11.12	(dB)



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

Average output Power at antenna input terminal	21.00	dBm
Average output Power at antenna input terminal	125.893	mW
Prediction distance	20.000	cm
Prediction frequency	5 745 ~ 5 825	MHz
Antenna Gain(typical)	5.40	dBi
Antenna Gain(numeric)	3.467	-
Power density at prediction frequency( S)	0.08684	mW/cm <sup>2</sup>
MPE limit for uncontrolled exposure at prediction frequency	1.00	mW/cm <sup>2</sup>

**2.1091**

EIRP	26.40	(dBm)
ERP	24.25	(dBm)
ERP	0.266	(W)
ERP Limit	3.0	(W)
MARGIN	10.52	(dB)

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

Average output Power at antenna input terminal	23.00	dBm
Average output Power at antenna input terminal	199.526	mW
Prediction distance	20.000	cm
Prediction frequency	5 500 ~ 5 720	MHz
Antenna Gain(typical)	1.40	dBi
Antenna Gain(numeric)	1.380	-
Power density at prediction frequency( S)	0.05479	mW/cm <sup>2</sup>
MPE limit for uncontrolled exposure at prediction frequency	1.00	mW/cm <sup>2</sup>

**2.1091**

EIRP	24.40	(dBm)
ERP	22.25	(dBm)
ERP	0.168	(W)
ERP Limit	3.0	(W)
MARGIN	12.52	(dB)

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

Average output Power at antenna input terminal	24.00	dBm
Average output Power at antenna input terminal	251.189	mW
Prediction distance	20.000	cm
Prediction frequency	5 745 ~ 5 825	MHz
Antenna Gain(typical)	5.40	dBi
Antenna Gain(numeric)	3.467	-
Power density at prediction frequency( S)	0.17327	mW/cm <sup>2</sup>
MPE limit for uncontrolled exposure at prediction frequency	1.00	mW/cm <sup>2</sup>

**2.1091**

EIRP	29.40	(dBm)
ERP	27.25	(dBm)
ERP	0.531	(W)
ERP Limit	3.0	(W)
MARGIN	7.52	(dB)

**Worst Case: Simultaneous MPE 20cm is**

BT (0.00268 / 1.00) + 5G WLAN (0.17327 / 1.00)= 0.17595 < 1