

# TEST REPORT

FCC MPE Test for RF2217d-D1A  
Class II Permissive Change

**APPLICANT**  
SAMSUNG Electronics Co., Ltd.

**REPORT NO.**  
HCT-RF-2112-FC024

**DATE OF ISSUE**  
December 15, 2021

**Tested by**  
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<b>TEST REPORT</b> FCC MPE Test for RF2217d-D1A	<b>REPORT NO.</b> HCT-RF-2112-FC024
	<b>DATE OF ISSUE</b> December 15, 2021
	<b>Additional Model</b> -

<b>Applicant</b>	<b>SAMSUNG Electronics Co., Ltd.</b> 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea
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<b>Eut Type</b>	RRU(RF2217d)
<b>Model Name</b>	RF2217d-D1A

<b>FCC ID</b>	A3LRF2217D-D1A
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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	December 15, 2021	Initial Release

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.

If this report is required to confirmation of authenticity, please contact to [www.hct.co.kr](http://www.hct.co.kr)

## 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 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 MPE calculation for standalone operations

##### 5G NR n2, 5 MHz 1 Carrier

Max Average output Power at antenna input terminal	26.00	dBm
Max Average output Power at antenna input terminal	398.11	mW
Prediction distance	24.00	cm
Prediction frequency	1930.00	MHz
Antenna gain (typical)	8.000	dBi
Antenna gain (numeric)	6.310	-
Power density at prediction frequency( S)	0.3470	mW/cm <sup>2</sup>
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm <sup>2</sup>

##### 5G NR n2, 10 MHz 1 Carrier

Max Average output Power at antenna input terminal	26.00	dBm
Max Average output Power at antenna input terminal	398.11	mW
Prediction distance	24.00	cm
Prediction frequency	1930.00	MHz
Antenna gain (typical)	8.000	dBi
Antenna gain (numeric)	6.310	-
Power density at prediction frequency( S)	0.3470	mW/cm <sup>2</sup>
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm <sup>2</sup>

**5G NR n2, 15 MHz 1 Carrier**

Max Average output Power at antenna input terminal	26.00	dBm
Max Average output Power at antenna input terminal	398.11	mW
Prediction distance	24.00	cm
Prediction frequency	1930.00	MHz
Antenna gain (typical)	8.000	dBi
Antenna gain (numeric)	6.310	-
Power density at prediction frequency( S)	0.3470	mW/cm <sup>2</sup>
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm <sup>2</sup>

**5G NR n2, 20 MHz 1 Carrier**

Max Average output Power at antenna input terminal	26.00	dBm
Max Average output Power at antenna input terminal	398.11	mW
Prediction distance	24.00	cm
Prediction frequency	1930.00	MHz
Antenna gain (typical)	8.000	dBi
Antenna gain (numeric)	6.310	-
Power density at prediction frequency( S)	0.3470	mW/cm <sup>2</sup>
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm <sup>2</sup>

**5G NR n5, 5 MHz 1 Carrier**

Max Average output Power at antenna input terminal	26.00	dBm
Max Average output Power at antenna input terminal	398.11	mW
Prediction distance	24.00	cm
Prediction frequency	869.00	MHz
Antenna gain (typical)	7.500	dBi
Antenna gain (numeric)	5.623	-
Power density at prediction frequency( S)	0.3093	mW/cm <sup>2</sup>
MPE limit for uncontrolled exposure at prediction frequency	0.5793	mW/cm <sup>2</sup>

**5G NR n5, 10 MHz 1 Carrier**

Max Average output Power at antenna input terminal	26.00	dBm
Max Average output Power at antenna input terminal	398.11	mW
Prediction distance	24.00	cm
Prediction frequency	869.00	MHz
Antenna gain (typical)	7.500	dBi
Antenna gain (numeric)	5.623	-
Power density at prediction frequency( S)	0.3093	mW/cm <sup>2</sup>
MPE limit for uncontrolled exposure at prediction frequency	0.5793	mW/cm <sup>2</sup>

**5G NR n2 5 MHz 1 Carrier + 5G NR n2 5 MHz 1 Carrier [2 Carrier] (Contiguous)**

Max Average output Power at antenna input terminal	26.00	dBm
Max Average output Power at antenna input terminal	398.11	mW
Prediction distance	24.00	cm
Prediction frequency	1930.00	MHz
Antenna gain (typical)	8.000	dBi
Antenna gain (numeric)	6.310	-
Power density at prediction frequency( S)	0.3470	mW/cm <sup>2</sup>
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm <sup>2</sup>

**5G NR n2 5 MHz 1 Carrier + 5G NR n2 10 MHz 1 Carrier [2 Carrier] (Contiguous)**

Max Average output Power at antenna input terminal	26.00	dBm
Max Average output Power at antenna input terminal	398.11	mW
Prediction distance	24.00	cm
Prediction frequency	1930.00	MHz
Antenna gain (typical)	8.000	dBi
Antenna gain (numeric)	6.310	-
Power density at prediction frequency( S)	0.3470	mW/cm <sup>2</sup>
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm <sup>2</sup>



**5G NR n2 5 MHz 1 Carrier + 5G NR n2 15 MHz 1 Carrier [2 Carrier] (Contiguous)**

Max Average output Power at antenna input terminal	26.00	dBm
Max Average output Power at antenna input terminal	398.11	mW
Prediction distance	24.00	cm
Prediction frequency	1930.00	MHz
Antenna gain (typical)	8.000	dBi
Antenna gain (numeric)	6.310	-
Power density at prediction frequency( S)	0.3470	mW/cm <sup>2</sup>
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm <sup>2</sup>

**5G NR n2 10 MHz 1 Carrier + 5G NR n2 10 MHz 1 Carrier [2 Carrier] (Contiguous)**

Max Average output Power at antenna input terminal	26.00	dBm
Max Average output Power at antenna input terminal	398.11	mW
Prediction distance	24.00	cm
Prediction frequency	1930.00	MHz
Antenna gain (typical)	8.000	dBi
Antenna gain (numeric)	6.310	-
Power density at prediction frequency( S)	0.3470	mW/cm <sup>2</sup>
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm <sup>2</sup>

**5G NR n2 5 MHz 1 Carrier + 5G NR n2 5 MHz 1 Carrier [2 Carrier] (Non-Contiguous)**

Max Average output Power at antenna input terminal	26.00	dBm
Max Average output Power at antenna input terminal	398.11	mW
Prediction distance	24.00	cm
Prediction frequency	1930.00	MHz
Antenna gain (typical)	8.000	dBi
Antenna gain (numeric)	6.310	-
Power density at prediction frequency( S)	0.3470	mW/cm <sup>2</sup>
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm <sup>2</sup>

**5G NR n2 5 MHz 1 Carrier + 5G NR n2 10 MHz 1 Carrier [2 Carrier] (Non-Contiguous)**

Max Average output Power at antenna input terminal	26.00	dBm
Max Average output Power at antenna input terminal	398.11	mW
Prediction distance	24.00	cm
Prediction frequency	1930.00	MHz
Antenna gain (typical)	8.000	dBi
Antenna gain (numeric)	6.310	-
Power density at prediction frequency( S)	0.3470	mW/cm <sup>2</sup>
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm <sup>2</sup>

**5G NR n2 5 MHz 1 Carrier + 5G NR n2 15 MHz 1 Carrier [2 Carrier] (Non-Contiguous)**

Max Average output Power at antenna input terminal	26.00	dBm
Max Average output Power at antenna input terminal	398.11	mW
Prediction distance	24.00	cm
Prediction frequency	1930.00	MHz
Antenna gain (typical)	8.000	dBi
Antenna gain (numeric)	6.310	-
Power density at prediction frequency( S)	0.3470	mW/cm <sup>2</sup>
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm <sup>2</sup>

**5G NR n2 10 MHz 1 Carrier + 5G NR n2 10 MHz 1 Carrier [2 Carrier] (Non-Contiguous)**

Max Average output Power at antenna input terminal	26.00	dBm
Max Average output Power at antenna input terminal	398.11	mW
Prediction distance	24.00	cm
Prediction frequency	1930.00	MHz
Antenna gain (typical)	8.000	dBi
Antenna gain (numeric)	6.310	-
Power density at prediction frequency( S)	0.3470	mW/cm <sup>2</sup>
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm <sup>2</sup>

**B2 LTE 5 MHz 1 Carrier**

Max Average output Power at antenna input terminal	26.00	dBm
Max Average output Power at antenna input terminal	398.11	mW
Prediction distance	24.00	cm
Prediction frequency	1930.00	MHz
Antenna gain (typical)	8.000	dBi
Antenna gain (numeric)	6.310	-
Power density at prediction frequency( S)	0.3470	mW/cm <sup>2</sup>
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm <sup>2</sup>

**B2 LTE 10 MHz 1 Carrier**

Max Average output Power at antenna input terminal	26.00	dBm
Max Average output Power at antenna input terminal	398.11	mW
Prediction distance	24.00	cm
Prediction frequency	1930.00	MHz
Antenna gain (typical)	8.000	dBi
Antenna gain (numeric)	6.310	-
Power density at prediction frequency( S)	0.3470	mW/cm <sup>2</sup>
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm <sup>2</sup>

**B2 LTE 15 MHz 1 Carrier**

Max Average output Power at antenna input terminal	26.00	dBm
Max Average output Power at antenna input terminal	398.11	mW
Prediction distance	24.00	cm
Prediction frequency	1930.00	MHz
Antenna gain (typical)	8.000	dBi
Antenna gain (numeric)	6.310	-
Power density at prediction frequency( S)	0.3470	mW/cm <sup>2</sup>
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm <sup>2</sup>

**B2 LTE 20 MHz 1 Carrier**

Max Average output Power at antenna input terminal	26.00	dBm
Max Average output Power at antenna input terminal	398.11	mW
Prediction distance	24.00	cm
Prediction frequency	1930.00	MHz
Antenna gain (typical)	8.000	dBi
Antenna gain (numeric)	6.310	-
Power density at prediction frequency( S)	0.3470	mW/cm <sup>2</sup>
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm <sup>2</sup>

**B5 LTE 5 MHz 1 Carrier**

Max Average output Power at antenna input terminal	26.00	dBm
Max Average output Power at antenna input terminal	398.11	mW
Prediction distance	24.00	cm
Prediction frequency	869.00	MHz
Antenna gain (typical)	7.500	dBi
Antenna gain (numeric)	5.623	-
Power density at prediction frequency( S)	0.3093	mW/cm <sup>2</sup>
MPE limit for uncontrolled exposure at prediction frequency	0.5793	mW/cm <sup>2</sup>

**B5 LTE 10 MHz 1 Carrier**

Max Average output Power at antenna input terminal	26.00	dBm
Max Average output Power at antenna input terminal	398.11	mW
Prediction distance	24.00	cm
Prediction frequency	869.00	MHz
Antenna gain (typical)	7.500	dBi
Antenna gain (numeric)	5.623	-
Power density at prediction frequency( S)	0.3093	mW/cm <sup>2</sup>
MPE limit for uncontrolled exposure at prediction frequency	0.5793	mW/cm <sup>2</sup>

**B2 LTE 5 MHz 1 Carrier + B2 LTE 5 MHz 1 Carrier [2 Carrier] (Contiguous)**

Max Average output Power at antenna input terminal	26.00	dBm
Max Average output Power at antenna input terminal	398.11	mW
Prediction distance	24.00	cm
Prediction frequency	1930.00	MHz
Antenna gain (typical)	8.000	dBi
Antenna gain (numeric)	6.310	-
Power density at prediction frequency( S)	0.3470	mW/cm <sup>2</sup>
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm <sup>2</sup>

**B2 LTE 15 MHz 1 Carrier + B2 LTE 5 MHz 1 Carrier [2 Carrier] (Contiguous)**

Max Average output Power at antenna input terminal	26.00	dBm
Max Average output Power at antenna input terminal	398.11	mW
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Antenna gain (typical)	8.000	dBi
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Power density at prediction frequency( S)	0.3470	mW/cm <sup>2</sup>
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**5G NR n2 5 MHz 1 Carrier + B2 LTE 5 MHz 1 Carrier [2 Carrier] (Contiguous)**

Max Average output Power at antenna input terminal	26.00	dBm
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Max Average output Power at antenna input terminal	26.00	dBm
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Power density at prediction frequency( S)	0.3470	mW/cm <sup>2</sup>
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm <sup>2</sup>



**B2 LTE 5 MHz 1 Carrier + B2 LTE 5 MHz 1 Carrier [2 Carrier] (Non-Contiguous)**

Max Average output Power at antenna input terminal	26.00	dBm
Max Average output Power at antenna input terminal	398.11	mW
Prediction distance	24.00	cm
Prediction frequency	1930.00	MHz
Antenna gain (typical)	8.000	dBi
Antenna gain (numeric)	6.310	-
Power density at prediction frequency( S)	0.3470	mW/cm <sup>2</sup>
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm <sup>2</sup>

**B2 LTE 15 MHz 1 Carrier + B2 LTE 5 MHz 1 Carrier [2 Carrier] (Non-Contiguous)**

Max Average output Power at antenna input terminal	26.00	dBm
Max Average output Power at antenna input terminal	398.11	mW
Prediction distance	24.00	cm
Prediction frequency	1930.00	MHz
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Power density at prediction frequency( S)	0.3470	mW/cm <sup>2</sup>
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm <sup>2</sup>

**5G NR n2 5 MHz 1 Carrier + B2 LTE 5 MHz 1 Carrier [2 Carrier] (Non-Contiguous)**

Max Average output Power at antenna input terminal	26.00	dBm
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Power density at prediction frequency( S)	0.3470	mW/cm <sup>2</sup>
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm <sup>2</sup>

**5G NR n2 15 MHz 1 Carrier + B2 LTE 5 MHz 1 Carrier [2 Carrier] (Non-Contiguous)**

Max Average output Power at antenna input terminal	26.00	dBm
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MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm <sup>2</sup>

### 3.2 Simultaneous band emission conditions

Band	MPE Ratio (Power density / Limit)	Sum of MPE Ratio	
B2	0.5339	0.8809	≤ 1
B5	0.3470		

**\*Note**

1. The result of each band was applied to the worst value.
2. MPE ratios are calculated as  
$$[(\text{Power density}_1 / \text{MPE Limit}) + [(\text{Power density}_2 / \text{MPE Limit}) + \dots]] \leq 1$$