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TEST REPORT

FCC MPE Test for RF2216d-D1A
Class II Permissive Change

APPLICANT
SAMSUNG Electronics Co., Ltd.

REPORT NO.
HCT-RF-2208-FC004

DATE OF ISSUE
August 12, 2022

Tested by
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Additional Model
-

Applicant	**SAMSUNG Electronics Co., Ltd.** 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea
Eut Type Model Name	RRU(RF2216d) RF2216d-D1A
FCC ID	A3LRF2216d-D1A

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	August 12, 2022	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

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^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 MPE calculation for standalone operations

5G NR n13 5 MHz 1 Carrier

Max Average output Power at antenna input terminal	24.98	dBm
Max Average output Power at antenna input terminal	314.77	mW
Prediction distance	24.00	cm
Prediction frequency	746.00	MHz
Antenna gain (typical)	7.50	dBi
Antenna gain (numeric)	5.62	-
Power density at prediction frequency(S)	0.2445	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	0.4973	mW/cm^2

5G NR n13 10 MHz 1 Carrier

Max Average output Power at antenna input terminal	24.98	dBm
Max Average output Power at antenna input terminal	314.77	mW
Prediction distance	24.00	cm
Prediction frequency	746.00	MHz
Antenna gain (typical)	7.50	dBi
Antenna gain (numeric)	5.62	-
Power density at prediction frequency(S)	0.2445	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	0.4973	mW/cm^2

LTE B13 + NB-IoT 10 MHz 1 Carrier

Max Average output Power at antenna input terminal	24.98	dBm
Max Average output Power at antenna input terminal	314.77	mW
Prediction distance	24.00	cm
Prediction frequency	746.00	MHz
Antenna gain (typical)	7.50	dBi
Antenna gain (numeric)	5.62	-
Power density at prediction frequency(S)	0.2445	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	0.4973	mW/cm^2

LTE B66 5 MHz 1 Carrier

Max Average output Power at antenna input terminal	24.98	dBm
Max Average output Power at antenna input terminal	314.77	mW
Prediction distance	24.00	cm
Prediction frequency	2 110.00	MHz
Antenna gain (typical)	8.00	dBi
Antenna gain (numeric)	6.310	-
Power density at prediction frequency(S)	0.2744	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm^2

LTE B66 20 MHz 1 Carrier

Max Average output Power at antenna input terminal	24.98	dBm
Max Average output Power at antenna input terminal	314.77	mW
Prediction distance	24.00	cm
Prediction frequency	2 110.00	MHz
Antenna gain (typical)	8.00	dBi
Antenna gain (numeric)	6.310	-
Power density at prediction frequency(S)	0.2744	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm^2

5G NR n66 5 MHz 1 Carrier

Max Average output Power at antenna input terminal	24.98	dBm
Max Average output Power at antenna input terminal	314.77	mW
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Prediction frequency	2 110.00	MHz
Antenna gain (typical)	8.00	dBi
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5G NR n66 20 MHz 1 Carrier

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Antenna gain (typical)	8.00	dBi
Antenna gain (numeric)	6.310	-
Power density at prediction frequency(S)	0.2744	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm^2

5G NR n66 5 MHz 1 Carrier + LTE B66 5 MHz 1 Carrier [2 Carrier] (Contiguous)

Max Average output Power at antenna input terminal	24.98	dBm
Max Average output Power at antenna input terminal	314.77	mW
Prediction distance	24.00	cm
Prediction frequency	2 110.00	MHz
Antenna gain (typical)	8.00	dBi
Antenna gain (numeric)	6.310	-
Power density at prediction frequency(S)	0.2744	mW/cm^2
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Max Average output Power at antenna input terminal	24.98	dBm
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MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm^2

5G NR n66 5 MHz 1 Carrier + LTE B66 5 MHz 1 Carrier [2 Carrier] (Non-Contiguous)

Max Average output Power at antenna input terminal	24.98	dBm
Max Average output Power at antenna input terminal	314.77	mW
Prediction distance	24.00	cm
Prediction frequency	2 110.00	MHz
Antenna gain (typical)	8.00	dBi
Antenna gain (numeric)	6.310	-
Power density at prediction frequency(S)	0.2744	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm^2

LTE B66 5 MHz 1 Carrier + LTE B66 5 MHz 1 Carrier [2 Carrier] (Non-Contiguous)

Max Average output Power at antenna input terminal	24.98	dBm
Max Average output Power at antenna input terminal	314.77	mW
Prediction distance	24.00	cm
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Antenna gain (typical)	8.00	dBi
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5G NR n66 20 MHz 1 Carrier + 5G NR n66 10 MHz 1 Carrier [2 Carrier] (Non-Contiguous)

Max Average output Power at antenna input terminal	24.98	dBm
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5G NR n66 20 MHz 1 Carrier + LTE B66 10 MHz 1 Carrier [2 Carrier] (Non-Contiguous)

Max Average output Power at antenna input terminal	24.98	dBm
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Power density at prediction frequency(S)	0.2744	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm^2

3.2 Simultaneous band emission conditions

Band	MPE Ratio (Power density / Limit)	Sum of MPE Ratio	
B13	0.4917	0.7661	≤ 1
B66	0.2744		

*Note
1. The result of each band was applied to the worst value.
2. MPE ratios are calculated as
[(Power density1 / MPE Limit) + [(Power density2 / MPE Limit) + …] ≤ 1