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Customer Secret

TEST REPORT

FCC MPE Test for SDR-30-600
Certification

APPLICANT
ADRF KOREA, Inc.

REPORT NO.
HCT-RF-2007-FC020-R1

DATE OF ISSUE
23 July 2020

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Additional Model
-

Applicant	**ADRF KOREA, Inc.** 5-5, Mojeon-Ri, Backsa-Myun, Icheon-Citi, Kyunggi-Do, Korea
Eut Type Model Name	REPEATER SDR-30-600
FCC ID	N52-SDR-30-600

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	July 14, 2020	Initial Release
1	July 23, 2020	- Added the simultaneous band emission conditions.

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.

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

- 600 MHz Service – LTE 20 MHz (Uplink)

Max Peak output Power at antenna input terminal	30.50	dBm
Max Peak output Power at antenna input terminal	1122.02	mW
Prediction distance	70.00	cm
Prediction frequency	673.00	MHz
Antenna Gain(typical)	7.40	dBi
Antenna Gain(numeric)	5.50	-
Power density at prediction frequency(S)	0.1001	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	0.4487	mW/cm^2

- 600 MHz Service – LTE 20 MHz (Downlink)

Max Peak output Power at antenna input terminal	30.50	dBm
Max Peak output Power at antenna input terminal	1122.02	mW
Prediction distance	70.00	cm
Prediction frequency	627.00	MHz
Antenna Gain(typical)	7.40	dBi
Antenna Gain(numeric)	5.50	-
Power density at prediction frequency(S)	0.1001	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	0.4180	mW/cm^2

- 600 MHz Service – 5G NR 20 MHz (Uplink)

Max Peak output Power at antenna input terminal	30.50	dBm
Max Peak output Power at antenna input terminal	1122.02	mW
Prediction distance	70.00	cm
Prediction frequency	673.00	MHz
Antenna Gain(typical)	7.40	dBi
Antenna Gain(numeric)	5.50	-
Power density at prediction frequency(S)	0.1001	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	0.4487	mW/cm^2

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MPE limit for uncontrolled exposure at prediction frequency	0.4180	mW/cm^2

Simultaneous band emission conditions

[Uplink]

Band		MPE Ratio (Power density / Limit)	Sum of MPE Ratio	
600 MHz Service	4G LTE 20 MHz	0.2232	0.4627	≤ 1
	5G NR 20 MHz	0.2396		

*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

[Downlink]

Band		MPE Ratio (Power density / Limit)	Sum of MPE Ratio	
600 MHz Service	4G LTE 20 MHz	0.2232	0.4627	≤ 1
	5G NR 20 MHz	0.2396		

*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