TEST REPORT

FCC MPE Test for FIRE-78-8-UA

Certification

APPLICANT
ADRF KOREA, Inc.

REPORT NO.
HCT-RF-2204-FC002

DATE OF ISSUE
April 18, 2022

Tested by Sang Su Lee	*(signature)*	
Technical Manager Jong Seok Lee	*(signature)*	

HCT CO., LTD.
BongJai Huh

BongJai Huh   / CEO

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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 FIRE-78-8-UA
FCC ID	N52-FIRE-78-8-UA

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	April 18, 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/cm²)	Averaging time (minutes)
0.3 - 1.34……………………	614	1.63	*(100)	30
1.34 - 30………………………	824/f	2.19/f	*(180/ f²)	30
30 - 300………………………	27.5	0.073		30
300 - 1500……………………	…………	…………	0.2	30
1500 - 100.000………………	…………	…………	f/1500	30
			1.0	

   F = frequency in MHz

   * = Plane-wave equivalent power density

2. Maximum Permissible Exposure Prediction

Prediction of MPE limit at a given distance

S = PG/4πR²

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

- PS Narrowband –Uplink

Max Peak output Power at antenna input terminal	31.00	dBm
Max Peak output Power at antenna input terminal	1258.93	mW
Prediction distance	80.00	cm
Prediction frequency	799.00	MHz
Antenna Gain(typical)	8.00	dBi
Antenna Gain(numeric)	6.31	-
Power density at prediction frequency(S)	0.0988	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	0.5327	mW/cm^2

*Note: Antenna gain includes the cable loss value declared by the manufacturer.

Cable Loss: 7 dB for PS Narrowband

8 dB for NPSPAC+SMR

Final antenna gain: 15 dBi – 7 dB = 8 dBi for PS Narrowband

16 dBi – 8 dB = 8 dBi for NPSPAC+SMR

- NPSPAC+SMR –Uplink

Max Peak output Power at antenna input terminal	31.00	dBm
Max Peak output Power at antenna input terminal	1258.93	mW
Prediction distance	80.00	cm
Prediction frequency	806.00	MHz
Antenna Gain(typical)	8.00	dBi
Antenna Gain(numeric)	6.31	-
Power density at prediction frequency(S)	0.0988	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	0.5373	mW/cm^2

*Note: Antenna gain includes the cable loss value declared by the manufacturer.

Cable Loss: 7 dB for PS Narrowband

8 dB for NPSPAC+SMR

Final antenna gain: 15 dBi – 7 dB = 8 dBi for PS Narrowband

16 dBi – 8 dB = 8 dBi for NPSPAC+SMR

Simultaneous band emission conditions

[Uplink]

Band	MPE Ratio (Power density / Limit)	Sum of MPE Ratio	
PS Narrowband	0.1854	0.3692	≤ 1
NPSPAC+SMR	0.1838		

*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