TEST REPORT

FCC MPE Test for SDRC-17
Certification

APPLICANT
ADRF KOREA, Inc.

REPORT NO.
HCT-RF-2407-FC035

DATE OF ISSUE
July 23, 2024

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Applicant	**ADRF KOREA, Inc.** 5-5, Mojeon-Ri, Backsa-Myun, Icheon-Citi, Kyunggi-Do, Korea
Product Name Model Name	REPEATER SDRC-17
FCC ID	N52-SDRC-17
Date of Test	Downlink :17 dBm Uplink : 22 dBm
Location of Test	■ Permanent Testing Lab ☐ On Site Testing (Address: 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Republic of Korea)
Test Standard Used	CFR 47 Part 2.1091
Test Results	PASS

REVISION HISTORY

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

Revision No.	Date of Issue	Description
0	July 23, 2024	Initial Release

Notice

Content

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.

The results shown in this test report only apply to the sample(s), as received, provided by the applicant, unless otherwise stated.
The test results have only been applied with the test methods required by the standard(s).

The laboratory is not accredited for the test results marked *.
Information provided by the applicant is marked **.
Test results provided by external providers are marked ***.

When confirmation of authenticity of this test report is required, please contact www.hct.co.kr

The test results in this test report are not associated with the ((KS Q) ISO/IEC 17025) accreditation by KOLAS (Korea Laboratory Accreditation Scheme) / A2LA (American Association for Laboratory Accreditation) that are under the ILAC (International Laboratory Accreditation Cooperation) Mutual Recognition Agreement (MRA).

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

3. RESULTS

3.1 MPE calculation for standalone operations(YAGI Antenna)

[Uplink]

- Lower 700 MHz –

Max output power at antenna input terminal	23.00	dBm
Max output power at antenna input terminal	199.53	mW
Prediction distance	55.00	cm
Prediction frequency	708.836	MHz
Antenna gain (typical)	10.00	dBi
Antenna gain (numeric)	10.00	-
Power density at prediction frequency (S)	0.0525	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	0.4726	mW/cm^2

- Upper 700 MHz –

Max output power at antenna input terminal	23.00	dBm
Max output power at antenna input terminal	199.53	mW
Prediction distance	55.00	cm
Prediction frequency	781.170	MHz
Antenna gain (typical)	10.00	dBi
Antenna gain (numeric)	10.00	-
Power density at prediction frequency (S)	0.0525	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	0.5208	mW/cm^2

- Cellular –

Max output power at antenna input terminal	23.00	dBm
Max output power at antenna input terminal	199.53	mW
Prediction distance	55.00	cm
Prediction frequency	831.150	MHz
Antenna gain (typical)	10.00	dBi
Antenna gain (numeric)	10.00	-
Power density at prediction frequency (S)	0.0525	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	0.5541	mW/cm^2

- AWS-1 -

Max output Power at antenna input terminal	23.00	dBm
Max output Power at antenna input terminal	199.53	mW
Prediction distance	55.00	cm
Prediction frequency	1 750.230	MHz
Antenna Gain(typical)	11.00	dBi
Antenna Gain(numeric)	12.59	-
Power density at prediction frequency (S)	0.0661	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm^2

- Broadband PCS -

Max output Power at antenna input terminal	23.00	dBm
Max output Power at antenna input terminal	199.53	mW
Prediction distance	55.00	cm
Prediction frequency	1 899.790	MHz
Antenna Gain(typical)	11.00	dBi
Antenna Gain(numeric)	12.59	-
Power density at prediction frequency (S)	0.0661	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm^2

Band	MPE Ratio	SUM	
Lower 700 MHz	0.1111	0.4387	≤ 1
Upper 700 MHz	0.1008		
Cellular	0.0947		
AWS-1	0.0661		
Broadband PCS	0.0661		

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

3.2 MPE calculation for standalone operations(OMNI Antenna)

[Downlink]

- Lower 700 MHz –

Max output power at antenna input terminal	18.00	dBm
Max output power at antenna input terminal	63.10	mW
Prediction distance	20.00	cm
Prediction frequency	739.484	MHz
Antenna gain (typical)	2.60	dBi
Antenna gain (numeric)	1.82	-
Power density at prediction frequency (S)	0.0228	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	0.4930	mW/cm^2

- Upper 700 MHz –

Max output power at antenna input terminal	18.00	dBm
Max output power at antenna input terminal	63.10	mW
Prediction distance	20.00	cm
Prediction frequency	751.962	MHz
Antenna gain (typical)	2.60	dBi
Antenna gain (numeric)	1.82	-
Power density at prediction frequency (S)	0.0228	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	0.5013	mW/cm^2

- Cellular –

Max output power at antenna input terminal	18.00	dBm
Max output power at antenna input terminal	63.10	mW
Prediction distance	20.00	cm
Prediction frequency	879.050	MHz
Antenna gain (typical)	3.90	dBi
Antenna gain (numeric)	2.45	-
Power density at prediction frequency (S)	0.0308	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	0.5860	mW/cm^2

- AWS-1 -

Max output Power at antenna input terminal	18.00	dBm
Max output Power at antenna input terminal	63.10	mW
Prediction distance	20.00	cm
Prediction frequency	2 150.230	MHz
Antenna Gain(typical)	5.40	dBi
Antenna Gain(numeric)	3.47	-
Power density at prediction frequency (S)	0.0435	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm^2

- Broadband PCS -

Max output Power at antenna input terminal	18.00	dBm
Max output Power at antenna input terminal	63.10	mW
Prediction distance	20.00	cm
Prediction frequency	1 968.350	MHz
Antenna Gain(typical)	5.40	dBi
Antenna Gain(numeric)	3.47	-
Power density at prediction frequency (S)	0.0435	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm^2

Band	MPE Ratio	SUM	
Lower 700 MHz	0.0463	0.2315	≤ 1
Upper 700 MHz	0.0456		
Cellular	0.0526		
AWS-1	0.0435		
Broadband PCS	0.0435		

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