

TEST REPORT

FCC MPE Test for ADXV
Class II Permissive Change

APPLICANT
ADRF KOREA, Inc.

REPORT NO.
HCT-RF-2301-FC088-R1

DATE OF ISSUE
March 15, 2023

Tested by
Sang Su Lee



Technical Manager
Jong Seok Lee



HCT CO., LTD.
BongJai Huh
BongJai Huh / CEO

HCT CO., LTD.

74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si,
Gyeonggi-do, 17383 KOREA
Tel. +82 31 634 6300 Fax. +82 31 645 6401



HCT Co., Ltd.

74, Seocheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 17383 KOREA
Tel. +82 31 634 6300 Fax. +82 31 645 6401

TEST REPORT FCC MPE Test for ADXV	REPORT NO. HCT-RF-2301-FC088-R1
	DATE OF ISSUE March 15, 2023
	Additional Model -

Applicant	ADRF KOREA, Inc. 5-5, Mojeon-Ri, Backsa-Myun, Icheon-Citi, Kyunggi-Do, Korea
Eut Type Model Name	DAS ADXV
FCC ID	N52-ADXV

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	February 09, 2023	Initial Release
1	March 15, 2023	- Added notes on the antenna gain and separation distance to data tables.

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

- Lower 700 MHz – LTE 10 MHz (Downlink), [Antenna gain: 3.9 dBi, Separation distance: 100 cm]

Max Peak output Power at antenna input terminal	33.50	dBm
Max Peak output Power at antenna input terminal	2 238.72	mW
Prediction distance	100.00	cm
Prediction frequency	728.00	MHz
Antenna Gain(typical)	3.90	dBi
Antenna Gain(numeric)	2.455	-
Power density at prediction frequency(S)	0.0437	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	0.4853	mW/cm ²

- Lower 700 MHz – 5G NR 10 MHz (Downlink), [Antenna gain: 3.9 dBi, Separation distance: 100 cm]

Max Peak output Power at antenna input terminal	33.50	dBm
Max Peak output Power at antenna input terminal	2 238.72	mW
Prediction distance	100.00	cm
Prediction frequency	728.00	MHz
Antenna Gain(typical)	3.90	dBi
Antenna Gain(numeric)	2.455	-
Power density at prediction frequency(S)	0.0437	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	0.4853	mW/cm ²

- Upper 700 MHz – LTE 10 MHz (Downlink), [Antenna gain: 3.9 dBi, Separation distance: 100 cm]

Max Peak output Power at antenna input terminal	33.50	dBm
Max Peak output Power at antenna input terminal	2 238.72	mW
Prediction distance	100.00	cm
Prediction frequency	746.00	MHz
Antenna Gain(typical)	3.90	dBi
Antenna Gain(numeric)	2.455	-
Power density at prediction frequency(S)	0.0437	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	0.4973	mW/cm ²

- Upper 700 MHz – 5G NR 10 MHz (Downlink), [Antenna gain: 3.9 dBi, Separation distance: 100 cm]

Max Peak output Power at antenna input terminal	33.50	dBm
Max Peak output Power at antenna input terminal	2 238.72	mW
Prediction distance	100.00	cm
Prediction frequency	746.00	MHz
Antenna Gain(typical)	3.90	dBi
Antenna Gain(numeric)	2.455	-
Power density at prediction frequency(S)	0.0437	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	0.4973	mW/cm ²

- ESMR – 5G NR 5 MHz (Downlink), [Antenna gain: 3.9 dBi, Separation distance: 100 cm]

Max Peak output Power at antenna input terminal	33.50	dBm
Max Peak output Power at antenna input terminal	2 238.72	mW
Prediction distance	100.00	cm
Prediction frequency	862.00	MHz
Antenna Gain(typical)	3.90	dBi
Antenna Gain(numeric)	2.455	-
Power density at prediction frequency(S)	0.0437	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	0.5747	mW/cm ²

- Cellular – 5G NR 20 MHz (Downlink), [Antenna gain: 3.9 dBi, Separation distance: 100 cm]

Max Peak output Power at antenna input terminal	33.50	dBm
Max Peak output Power at antenna input terminal	2 238.72	mW
Prediction distance	100.00	cm
Prediction frequency	869.00	MHz
Antenna Gain(typical)	3.90	dBi
Antenna Gain(numeric)	2.455	-
Power density at prediction frequency(S)	0.0437	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	0.5793	mW/cm ²

- AWS – 5G NR 60 MHz (Downlink), [Antenna gain: 3.9 dBi, Separation distance: 100 cm]

Max Peak output Power at antenna input terminal	37.50	dBm
Max Peak output Power at antenna input terminal	5 623.41	mW
Prediction distance	100.00	cm
Prediction frequency	2 110.00	MHz
Antenna Gain(typical)	3.90	dBi
Antenna Gain(numeric)	2.455	-
Power density at prediction frequency(S)	0.1098	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm ²

- Broadband PCS – 5G NR 60 MHz (Downlink), [Antenna gain: 3.9 dBi, Separation distance: 100 cm]

Max Peak output Power at antenna input terminal	37.50	dBm
Max Peak output Power at antenna input terminal	5 623.41	mW
Prediction distance	100.00	cm
Prediction frequency	1 930.00	MHz
Antenna Gain(typical)	3.90	dBi
Antenna Gain(numeric)	2.455	-
Power density at prediction frequency(S)	0.1098	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm ²

- Lower 700 MHz – LTE 10 MHz (Downlink), [Antenna gain: 9.9 dBi, Separation distance: 200 cm]

Max Peak output Power at antenna input terminal	33.50	dBm
Max Peak output Power at antenna input terminal	2 238.72	mW
Prediction distance	200.00	cm
Prediction frequency	728.00	MHz
Antenna Gain(typical)	9.90	dBi
Antenna Gain(numeric)	9.772	-
Power density at prediction frequency(S)	0.0435	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	0.4853	mW/cm ²

- Lower 700 MHz – 5G NR 10 MHz (Downlink), [Antenna gain: 9.9 dBi, Separation distance: 200 cm]

Max Peak output Power at antenna input terminal	33.50	dBm
Max Peak output Power at antenna input terminal	2 238.72	mW
Prediction distance	200.00	cm
Prediction frequency	728.00	MHz
Antenna Gain(typical)	9.90	dBi
Antenna Gain(numeric)	9.772	-
Power density at prediction frequency(S)	0.0435	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	0.4853	mW/cm ²

- Upper 700 MHz – LTE 10 MHz (Downlink), [Antenna gain: 9.9 dBi, Separation distance: 200 cm]

Max Peak output Power at antenna input terminal	33.50	dBm
Max Peak output Power at antenna input terminal	2 238.72	mW
Prediction distance	200.00	cm
Prediction frequency	746.00	MHz
Antenna Gain(typical)	9.90	dBi
Antenna Gain(numeric)	9.772	-
Power density at prediction frequency(S)	0.0435	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	0.4973	mW/cm ²

- Upper 700 MHz – 5G NR 10 MHz (Downlink), [Antenna gain: 9.9 dBi, Separation distance: 200 cm]

Max Peak output Power at antenna input terminal	33.50	dBm
Max Peak output Power at antenna input terminal	2 238.72	mW
Prediction distance	200.00	cm
Prediction frequency	746.00	MHz
Antenna Gain(typical)	9.90	dBi
Antenna Gain(numeric)	9.772	-
Power density at prediction frequency(S)	0.0435	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	0.4973	mW/cm ²

- ESMR – 5G NR 5 MHz (Downlink), [Antenna gain: 9.9 dBi, Separation distance: 200 cm]

Max Peak output Power at antenna input terminal	33.50	dBm
Max Peak output Power at antenna input terminal	2 238.72	mW
Prediction distance	200.00	cm
Prediction frequency	862.00	MHz
Antenna Gain(typical)	9.90	dBi
Antenna Gain(numeric)	9.772	-
Power density at prediction frequency(S)	0.0435	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	0.5747	mW/cm ²

- Cellular – 5G NR 20 MHz (Downlink), [Antenna gain: 9.9 dBi, Separation distance: 200 cm]

Max Peak output Power at antenna input terminal	33.50	dBm
Max Peak output Power at antenna input terminal	2 238.72	mW
Prediction distance	200.00	cm
Prediction frequency	869.00	MHz
Antenna Gain(typical)	9.90	dBi
Antenna Gain(numeric)	9.772	-
Power density at prediction frequency(S)	0.0435	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	0.5793	mW/cm ²

- AWS – 5G NR 60 MHz (Downlink), [Antenna gain: 9.9 dBi, Separation distance: 200 cm]

Max Peak output Power at antenna input terminal	37.50	dBm
Max Peak output Power at antenna input terminal	5 623.41	mW
Prediction distance	200.00	cm
Prediction frequency	2 110.00	MHz
Antenna Gain(typical)	9.90	dBi
Antenna Gain(numeric)	9.772	-
Power density at prediction frequency(S)	0.1093	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm ²

- Broadband PCS – 5G NR 60 MHz (Downlink), [Antenna gain: 9.9 dBi, Separation distance: 200 cm]

Max Peak output Power at antenna input terminal	37.50	dBm
Max Peak output Power at antenna input terminal	5 623.41	mW
Prediction distance	200.00	cm
Prediction frequency	1 930.00	MHz
Antenna Gain(typical)	9.90	dBi
Antenna Gain(numeric)	9.772	-
Power density at prediction frequency(S)	0.1093	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm ²

- Lower 700 MHz – LTE 10 MHz (Downlink), [Antenna gain: 13.4 dBi, Separation distance: 300 cm]

Max Peak output Power at antenna input terminal	33.50	dBm
Max Peak output Power at antenna input terminal	2 238.72	mW
Prediction distance	300.00	cm
Prediction frequency	728.00	MHz
Antenna Gain(typical)	13.40	dBi
Antenna Gain(numeric)	21.878	-
Power density at prediction frequency(S)	0.0433	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	0.4853	mW/cm ²

- Lower 700 MHz – 5G NR 10 MHz (Downlink), [Antenna gain: 13.4 dBi, Separation distance: 300 cm]

Max Peak output Power at antenna input terminal	33.50	dBm
Max Peak output Power at antenna input terminal	2 238.72	mW
Prediction distance	300.00	cm
Prediction frequency	728.00	MHz
Antenna Gain(typical)	13.40	dBi
Antenna Gain(numeric)	21.878	-
Power density at prediction frequency(S)	0.0433	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	0.4853	mW/cm ²

- Upper 700 MHz – LTE 10 MHz (Downlink), [Antenna gain: 13.4 dBi, Separation distance: 300 cm]

Max Peak output Power at antenna input terminal	33.50	dBm
Max Peak output Power at antenna input terminal	2 238.72	mW
Prediction distance	300.00	cm
Prediction frequency	746.00	MHz
Antenna Gain(typical)	13.40	dBi
Antenna Gain(numeric)	21.878	-
Power density at prediction frequency(S)	0.0433	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	0.4973	mW/cm ²

- Upper 700 MHz – 5G NR 10 MHz (Downlink), [Antenna gain: 13.4 dBi, Separation distance: 300 cm]

Max Peak output Power at antenna input terminal	33.50	dBm
Max Peak output Power at antenna input terminal	2 238.72	mW
Prediction distance	300.00	cm
Prediction frequency	746.00	MHz
Antenna Gain(typical)	13.40	dBi
Antenna Gain(numeric)	21.878	-
Power density at prediction frequency(S)	0.0433	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	0.4973	mW/cm ²

- ESMR – 5G NR 5 MHz (Downlink), [Antenna gain: 13.4 dBi, Separation distance: 300 cm]

Max Peak output Power at antenna input terminal	33.50	dBm
Max Peak output Power at antenna input terminal	2 238.72	mW
Prediction distance	300.00	cm
Prediction frequency	862.00	MHz
Antenna Gain(typical)	13.40	dBi
Antenna Gain(numeric)	21.878	-
Power density at prediction frequency(S)	0.0433	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	0.5747	mW/cm ²

- Cellular – 5G NR 20 MHz (Downlink), [Antenna gain: 13.4 dBi, Separation distance: 300 cm]

Max Peak output Power at antenna input terminal	33.50	dBm
Max Peak output Power at antenna input terminal	2 238.72	mW
Prediction distance	300.00	cm
Prediction frequency	869.00	MHz
Antenna Gain(typical)	13.40	dBi
Antenna Gain(numeric)	21.878	-
Power density at prediction frequency(S)	0.0433	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	0.5793	mW/cm ²

- AWS – 5G NR 60 MHz (Downlink), [Antenna gain: 13.4 dBi, Separation distance: 300 cm]

Max Peak output Power at antenna input terminal	37.50	dBm
Max Peak output Power at antenna input terminal	5 623.41	mW
Prediction distance	300.00	cm
Prediction frequency	2110.00	MHz
Antenna Gain(typical)	13.40	dBi
Antenna Gain(numeric)	21.878	-
Power density at prediction frequency(S)	0.1088	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm ²

- Broadband PCS – 5G NR 60 MHz (Downlink), [Antenna gain: 13.4 dBi, Separation distance: 300 cm]

Max Peak output Power at antenna input terminal	37.50	dBm
Max Peak output Power at antenna input terminal	5 623.41	mW
Prediction distance	300.00	cm
Prediction frequency	1930.00	MHz
Antenna Gain(typical)	13.40	dBi
Antenna Gain(numeric)	21.878	-
Power density at prediction frequency(S)	0.1088	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm ²

Simultaneous band emission conditions

Downlink, [Antenna gain: 3.9 dBi, Separation distance: 100 cm]

Band	MPE Ratio (Power density / Limit)	Sum of MPE Ratio	
Lower 700 MHz	0.0901	0.5492	≤ 1
Upper 700 MHz	0.0879		
ESMR	0.0761		
Cellular	0.0755		
AWS	0.1098		
PCS	0.1098		

Downlink, [Antenna gain: 9.9 dBi, Separation distance: 200 cm]

Band	MPE Ratio (Power density / Limit)	Sum of MPE Ratio	
Lower 700 MHz	0.0897	0.5466	≤ 1
Upper 700 MHz	0.0875		
ESMR	0.0757		
Cellular	0.0751		
AWS	0.1093		
PCS	0.1093		

Downlink, [Antenna gain: 13.4 dBi, Separation distance: 300 cm]

Band	MPE Ratio (Power density / Limit)	Sum of MPE Ratio	
Lower 700 MHz	0.0892	0.5441	≤ 1
Upper 700 MHz	0.0871		
ESMR	0.0754		
Cellular	0.0748		
AWS	0.1088		
PCS	0.1088		

***Note**

1. The result of each band was applied to the worst value.
2. MPE ratios are calculated as $[(\text{Power density1} / \text{MPE Limit}) + (\text{Power density2} / \text{MPE Limit}) + \dots] \leq 1$