

TEST REPORT

FCC MPE Test for ADXD
Certification

APPLICANT
ADVANCED RF TECHNOLOGIES, INC

REPORT NO.
HCT-RF-1912-FC024-R1

DATE OF ISSUE
January 21, 2020

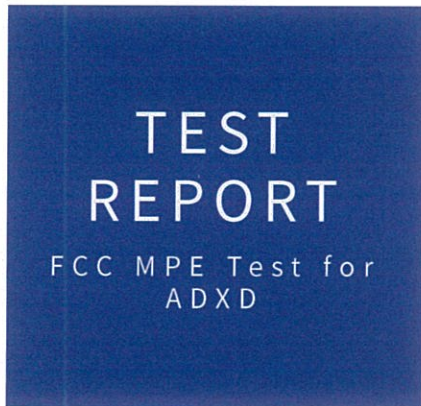
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FCC ID
N52-ADXD

Applicant **ADVANCED RF TECHNOLOGIES, INC**
3116 WEST VANOWEN STREET, BURBANK, CA 91505, USA

Eut Type
Model Name
DAS
ADXD

This test results were applied only to the test methods required by the standard.

Tested by
Kyung Soo Kang

(signature)

Technical Manager
Sang Jun Lee

(signature)

HCT CO., LTD.

Soo Chan Lee
SooChan Lee / CEO

REVISION HISTORY

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

Revision No.	Date of Issue	Description
0	December 26, 2019	Initial Release
1	January 21, 2020	Added the Uplink results.

The result shown in this test report refer only to the sample(s) tested unless otherwise stated.

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 LTE 20 MHz (Uplink)

Max Peak output Power at antenna input terminal	-34.000	dBm
Max Peak output Power at antenna input terminal	0.00040	mW
Prediction distance	60.00	cm
Prediction frequency	673.000	MHz
Antenna Gain(typical)	3.700	dBi
Antenna Gain(numeric)	2.344	-
Power density at prediction frequency(S)	0.000000021	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	0.4487	mW/cm ²

- 600 MHz LTE 20 MHz (Downlink)

Max Peak output Power at antenna input terminal	34.000	dBm
Max Peak output Power at antenna input terminal	2511.89	mW
Prediction distance	60.00	cm
Prediction frequency	627.00	MHz
Antenna Gain(typical)	3.700	dBi
Antenna Gain(numeric)	2.344	-
Power density at prediction frequency(S)	0.1302	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	0.4180	mW/cm ²

- Lower 700 MHz ⇄ LTE 10 MHz (Uplink)

Max Peak output Power at antenna input terminal	-34.000	dBm
Max Peak output Power at antenna input terminal	0.00040	mW
Prediction distance	60.00	cm
Prediction frequency	703.00	MHz
Antenna Gain(typical)	3.900	dBi
Antenna Gain(numeric)	2.455	-
Power density at prediction frequency(S)	0.000000022	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	0.4687	mW/cm ²

- Lower 700 MHz ⇄ LTE 10 MHz (Downlink)

Max Peak output Power at antenna input terminal	34.000	dBm
Max Peak output Power at antenna input terminal	2511.89	mW
Prediction distance	60.00	cm
Prediction frequency	733.00	MHz
Antenna Gain(typical)	3.900	dBi
Antenna Gain(numeric)	2.455	-
Power density at prediction frequency(S)	0.1363	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	0.4887	mW/cm ²

- Upper 700 MHz ⇄ LTE 10 MHz (Uplink)

Max Peak output Power at antenna input terminal	-34.000	dBm
Max Peak output Power at antenna input terminal	0.00040	mW
Prediction distance	60.00	cm
Prediction frequency	781.00	MHz
Antenna Gain(typical)	3.900	dBi
Antenna Gain(numeric)	2.455	-
Power density at prediction frequency(S)	0.000000022	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	0.5207	mW/cm ²

- Upper 700 MHz ⇄ LTE 10 MHz (Downlink)

Max Peak output Power at antenna input terminal	34.000	dBm
Max Peak output Power at antenna input terminal	2511.89	mW
Prediction distance	60.00	cm
Prediction frequency	751.00	MHz
Antenna Gain(typical)	3.900	dBi
Antenna Gain(numeric)	2.455	-
Power density at prediction frequency(S)	0.1363	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	0.5007	mW/cm ²

- ESMR ㄱLTE 5 MHz (Uplink)

Max Peak output Power at antenna input terminal	-34.000	dBm
Max Peak output Power at antenna input terminal	0.00040	mW
Prediction distance	60.00	cm
Prediction frequency	819.50	MHz
Antenna Gain(typical)	4.000	dBi
Antenna Gain(numeric)	2.512	-
Power density at prediction frequency(S)	0.000000022	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	0.5463	mW/cm ²

- ESMR ㄱLTE 5 MHz (Downlink)

Max Peak output Power at antenna input terminal	34.000	dBm
Max Peak output Power at antenna input terminal	2511.89	mW
Prediction distance	60.00	cm
Prediction frequency	864.50	MHz
Antenna Gain(typical)	4.000	dBi
Antenna Gain(numeric)	2.512	-
Power density at prediction frequency(S)	0.1395	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	0.5763	mW/cm ²

- Cellular 4G LTE 20 MHz (Uplink)

Max Peak output Power at antenna input terminal	-34.000	dBm
Max Peak output Power at antenna input terminal	0.00040	mW
Prediction distance	60.00	cm
Prediction frequency	834.00	MHz
Antenna Gain(typical)	4.000	dBi
Antenna Gain(numeric)	2.512	-
Power density at prediction frequency(S)	0.000000022	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	0.5560	mW/cm ²

- Cellular 4G LTE 20 MHz (Downlink)

Max Peak output Power at antenna input terminal	34.000	dBm
Max Peak output Power at antenna input terminal	2511.89	mW
Prediction distance	60.00	cm
Prediction frequency	879.00	MHz
Antenna Gain(typical)	4.000	dBi
Antenna Gain(numeric)	2.512	-
Power density at prediction frequency(S)	0.1395	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	0.5860	mW/cm ²

- AWS-1 LTE 20 MHz (Uplink)

Max Peak output Power at antenna input terminal	-34.000	dBm
Max Peak output Power at antenna input terminal	0.00040	mW
Prediction distance	60.00	cm
Prediction frequency	1723.84	MHz
Antenna Gain(typical)	3.900	dBi
Antenna Gain(numeric)	2.455	-
Power density at prediction frequency(S)	0.000000022	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm ²

- AWS-1 LTE 20 MHz (Downlink)

Max Peak output Power at antenna input terminal	38.000	dBm
Max Peak output Power at antenna input terminal	6309.57	mW
Prediction distance	60.00	cm
Prediction frequency	2 141.28	MHz
Antenna Gain(typical)	4.600	dBi
Antenna Gain(numeric)	2.884	-
Power density at prediction frequency(S)	0.4022	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm ²

- Broadband PCS 4G LTE 20 MHz (Uplink)

Max Peak output Power at antenna input terminal	-34.000	dBm
Max Peak output Power at antenna input terminal	0.00040	mW
Prediction distance	60.00	cm
Prediction frequency	1864.14	MHz
Antenna Gain(typical)	4.800	dBi
Antenna Gain(numeric)	3.020	-
Power density at prediction frequency(S)	0.000000027	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm ²

- Broadband PCS 4G LTE 20 MHz (Downlink)

Max Peak output Power at antenna input terminal	38.000	dBm
Max Peak output Power at antenna input terminal	6309.57	mW
Prediction distance	60.00	cm
Prediction frequency	1 940.00	MHz
Antenna Gain(typical)	4.800	dBi
Antenna Gain(numeric)	3.020	-
Power density at prediction frequency(S)	0.4212	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm ²

- WCS 4G LTE 10 MHz (Uplink)

Max Peak output Power at antenna input terminal	-34.000	dBm
Max Peak output Power at antenna input terminal	0.00040	mW
Prediction distance	60.00	cm
Prediction frequency	2310.00	MHz
Antenna Gain(typical)	4.900	dBi
Antenna Gain(numeric)	3.090	-
Power density at prediction frequency(S)	0.000000027	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm ²

- WCS 4G LTE 10 MHz (Downlink)

Max Peak output Power at antenna input terminal	38.000	dBm
Max Peak output Power at antenna input terminal	6309.57	mW
Prediction distance	60.00	cm
Prediction frequency	2 355.00	MHz
Antenna Gain(typical)	4.900	dBi
Antenna Gain(numeric)	3.090	-
Power density at prediction frequency(S)	0.4310	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm ²

- BRS/EBS 5G NR 80 MHz (Uplink)

Max Peak output Power at antenna input terminal	-34.000	dBm
Max Peak output Power at antenna input terminal	0.00040	mW
Prediction distance	60.00	cm
Prediction frequency	2560.33	MHz
Antenna Gain(typical)	4.700	dBi
Antenna Gain(numeric)	2.951	-
Power density at prediction frequency(S)	0.000000026	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm ²

- BRS/EBS 5G NR 80 MHz (Downlink)

Max Peak output Power at antenna input terminal	38.000	dBm
Max Peak output Power at antenna input terminal	6309.57	mW
Prediction distance	60.00	cm
Prediction frequency	2 565.55	MHz
Antenna Gain(typical)	4.700	dBi
Antenna Gain(numeric)	2.951	-
Power density at prediction frequency(S)	0.4116	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm ²