

Maximum Permissible Exposure (MPE) & Exposure evaluation

Report identification number: 1-1679/21-01-03 MPE (FCC_ISED)

Certification numbers and labeling requirements	
FCC ID	2AWXTAIRGRMP70803
ISED number	27453-AIRGMP70803
HVIN (Hardware Version Identification Number)	AIRGMP70803-1
PMN (Product Marketing Name)	AIR Gigaray 70/80
FVIN (Firmware Version Identification Number)	AIRGMP70803-1F
HMN (Host Marketing Name)	-/-

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EUT technologies:

Technologies:	Max. EIRP
AIR Base Station 69.5 – 71 GHz	43 dBm on 3 transmitters

Prediction of MPE limit at given distance - FCC

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S = PG / 4\pi R^2$$

where: S = Power density
 P = Power input to the antenna
 G = Antenna gain
 R = Distance to the center of radiation of the antenna
 PG = Output Power including antenna gain

The table below is excerpted from Table 1B of 47 CFR 1.1310 titled "Limits for Maximum Permissible Exposure (MPE), Limits for General Population/Uncontrolled Exposure"

Frequency Range (MHz)	Power Density (mW/cm ²)	Averaging Time (minutes)
300 -1500	f/1500	30
1500 - 100000	1.0	30

where f = Frequency (MHz)

Prediction: worst case

Technologies:		AIR Gigaray	
	Frequency (MHz)	69500-71000	
PG	Declared max power (EIRP)	47.7	dBm
R	Distance	0.7	m
S	MPE limit for uncontrolled exposure	1	mW/cm ²
	Calculated Power density:	0.9563	mW/cm ²
	Calculated percentage of Limit:	95.63%	

This prediction demonstrates the following:

The minimum distances in the table above are required in the antenna far field.

Prediction of MPE limit at given distance - ISED

RSS-102, general limitations for E- and H- Field

Reference levels for general public (uncontrolled environment) exposure to time-varying electric and magnetic fields

According to: RSS 102-ISSUE 05		
Frequency Range (MHz)	Power density (W/m ²)	Reference Period (minutes)
0.003-10	--	Instantaneous*
0.1-10	--	6**
1.1-10	--	6**
10-20	2	6
20-48	$8.944 / f^{0.5}$	6
48-300	1.291	6
300-6000	$0.02619 \times f^{0.6834}$	6
6000-15000	10	6
15000-150000	10	$616000 / f^{1.2}$
150000-300000	$6.67 \times 10^{-5} \times f$	$616000 / f^{1.2}$
Note: f is frequency in MHz. * Based on nerve stimulation (NS). ** Based on specific absorption rate (SAR).		

Prediction: worst case

		AIR Gigaray	
	Frequency	69500-71000	MHz
R	Distance	0.7	m
PG	Maximum EIRP	47.7	dBm
PG	Maximum EIRP	58.9	W
S	Power density	9.6	W/m ²
	Exclusion Limit from above:	10.00	W/m ²
	Calculated percentage of Limit:	95.63%	

This prediction demonstrates the following:

The minimum distances in the table above are required in the antenna far field.