

Maximum Permissible Exposure (MPE) & Exposure evaluation

Report identification number: 1-0716/15-01-11

Certification numbers and labeling requirements	
FCC ID	ROJ-AVIATOR700
IC number	6200B-AVIATOR700
HVIN (Hardware Version Identification Number)	AVIATOR700
PMN (Product Marketing Name)	Aviator 700
FVIN (Firmware Version Identification Number)	-/-
HMN (Host Marketing Name)	-/-

This test report is electronically signed and valid without handwriting signature. For verification of the electronic signatures, the public keys can be requested at the testing laboratory.

Document authorized:

Thomas Vogler
Lab Manager
Radio Communications & EMC

EUT technologies:

Technologies:	Max. power:	Max. antenna gain:	Min. pathloss:
Aeronautical Satellite Terminal	39.4 dBm	see below	-- (if applicable)

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

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: minimum safety distance (worst case for each antenna)

Marketing Name	Antenna Type	Max Output Power / dBm	Max. Ant. Gain / dBic	MPE limit / mW/cm ²	minimum safety distance during operation / cm
Aviator 700	HGA-6000	39.4	12	1	104.81
Aviator 700	HGA-6500	39.4	12	1	104.81
Aviator 700	HGA-7000	39.4	12	1	104.81
Aviator 700	HGA-7001	39.4	8.8	1	72.51
Aviator 700	CMA-2102	39.4	9	1	74.20
Aviator 700	CMA-2102SB	39.4	9	1	74.20
Aviator 700	AMT-50	39.4	12	1	104.81
Aviator 700	AMT-3800	39.4	10	1	83.25
Aviator 700	AMT-700	39.4	13.5	1	124.56

Prediction of MPE limit - IC

RSS-102, Issue 5, Section 4 Table 4:

Power density at 1626 MHz = $0.02619 \cdot 1626^{0.6834} = 4.098 \text{ W/m}^2$

Prediction: minimum safety distance (worst case for each antenna)

Marketing Name	Antenna Type	Max Output Power / dBm	Max. Ant. Gain / dBic	MPE limit / W/m ²	minimum safety distance during operation / cm
Aviator 700	HGA-6000	39.4	12	4.098	163.72
Aviator 700	HGA-6500	39.4	12	4.098	163.72
Aviator 700	HGA-7000	39.4	12	4.098	163.72
Aviator 700	HGA-7001	39.4	8.8	4.098	113.27
Aviator 700	CMA-2102	39.4	9	4.098	115.91
Aviator 700	CMA-2102SB	39.4	9	4.098	115.91
Aviator 700	AMT-50	39.4	12	4.098	163.72
Aviator 700	AMT-3800	39.4	10	4.098	130.05
Aviator 700	AMT-700	39.4	13.5	4.098	194.58

Conclusion: Safety distance according to RSS-102 represents the worst case of both FCC and ISED requirements.