

Maximum Permissible Exposure (MPE) & Exposure evaluation

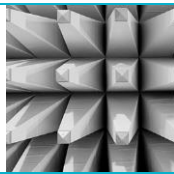
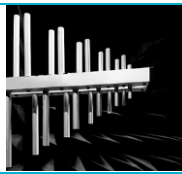
Report identification number: 1-0716/15-01-10

| Certification numbers and labeling requirements | |
|---|---------------------------------------|
| FCC ID | ROJ-AVIATOR |
| IC number | 6200B-AVIATOR |
| HVIN (Hardware Version Identification Number) | AVIATOR200/300/350 |
| PMN (Product Marketing Name) | Aviator 200, Aviator 300, Aviator 350 |
| 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:

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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 350 | HGA-6000 | 39.4 | 12 | 1 | 104.81 |
| Aviator 350 | HGA-6500 | 39.4 | 12 | 1 | 104.81 |
| Aviator 350 | HGA-7000 | 39.4 | 12 | 1 | 104.81 |
| Aviator 350 | HGA-7001 | 39.4 | 8.8 | 1 | 72.51 |
| Aviator 350 | CMA-2102 | 39.4 | 9 | 1 | 74.20 |
| Aviator 350 | CMA-2102SB | 39.4 | 9 | 1 | 74.20 |
| Aviator 350 | AMT-50 | 39.4 | 12 | 1 | 104.81 |
| Aviator 350 | AMT-3800 | 39.4 | 10 | 1 | 83.25 |
| Aviator 350 | AMT-700 | 39.4 | 13.5 | 1 | 124.56 |
| | | | | | |
| Aviator 300 | AMT-3500 | 39.4 | 6 | 1 | 52.53 |
| Aviator 300 | IGA-5001 | 39.4 | 7.6 | 1 | 63.15 |
| Aviator 300 | IGA-5006 | 39.4 | 7.8 | 1 | 64.62 |
| | | | | | |
| Aviator 200 | LGA-3000 | 39.4 | 2 | 1 | 33.14 |
| Aviator 200 | LGA-3002 | 39.4 | 0 | 1 | 26.33 |

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 350 | HGA-6000 | 39.4 | 12 | 4.098 | 163.72 |
| Aviator 350 | HGA-6500 | 39.4 | 12 | 4.098 | 163.72 |
| Aviator 350 | HGA-7000 | 39.4 | 12 | 4.098 | 163.72 |
| Aviator 350 | HGA-7001 | 39.4 | 8.8 | 4.098 | 113.27 |
| Aviator 350 | CMA-2102 | 39.4 | 9 | 4.098 | 115.91 |
| Aviator 350 | CMA-2102SB | 39.4 | 9 | 4.098 | 115.91 |
| Aviator 350 | AMT-50 | 39.4 | 12 | 4.098 | 163.72 |
| Aviator 350 | AMT-3800 | 39.4 | 10 | 4.098 | 130.05 |
| Aviator 350 | AMT-700 | 39.4 | 13.5 | 4.098 | 194.58 |
| | | | | | |
| Aviator 300 | AMT-3500 | 39.4 | 6 | 4.098 | 82.06 |
| Aviator 300 | IGA-5001 | 39.4 | 7.6 | 4.098 | 98.65 |
| Aviator 300 | IGA-5006 | 39.4 | 7.8 | 4.098 | 100.95 |
| | | | | | |
| Aviator 200 | LGA-3000 | 39.4 | 2 | 4.098 | 51.77 |
| Aviator 200 | LGA-3002 | 39.4 | 0 | 4.098 | 41.13 |

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