

## 5.7. MPE Evaluation

### 5.7.1. Limit

According to §1.1310 and §2.1091 MPE evaluation 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 <sup>2</sup> )	Averaging time (minutes)
0.3 - 1.34.....	614	1.63	*(100)	30
1.34 - 30.....	824/f	2.19/f	*(180/ f <sup>2</sup> )	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

### 5.7.2. Maximum Permissible Exposure Prediction

Prediction of MPE limit at a given distance

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

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

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.

Note:

1. Manufacturer declared that the maximum antenna gain is 3.0 dBi.
2. Manufacturer declared that the nearest distance between human and the EUT is 0.25m.
3. Only record worst case data.

**AWS- Downlink Middle Channel**

Max Peak output Power at antenna input terminal	25.01	dBm
Max Peak output Power at antenna input terminal	317.0	mW
Prediction distance	25	cm
Prediction frequency	2132.5	MHz
Antenna Gain(typical)	3.00	dBi
Antenna Gain(numeric)	2.00	
Power density at prediction frequency( S)	0.081	mW/cm <sup>2</sup>
MPE limit for uncontrolled exposure at prediction frequency	1.000	mW/cm <sup>2</sup>

**AWS Uplink Middle Channel**

Max Peak output Power at antenna input terminal	23.01	dBm
Max Peak output Power at antenna input terminal	200.0	mW
Prediction distance	25	cm
Prediction frequency	1732.5	MHz
Antenna Gain(typical)	3.00	dBi
Antenna Gain(numeric)	2.00	
Power density at prediction frequency( S)	0.051	mW/cm <sup>2</sup>
MPE limit for uncontrolled exposure at prediction frequency	1.000	mW/cm <sup>2</sup>

**5.7.3 Test Results**

The power density level worst case at 25 cm downlink middle Channel is 0.081mW/cm<sup>2</sup> (AWS), which is below the uncontrolled exposure limit for AWS band.