FCC OET 65 and IC RSS 102 MPE Value Calculations

The purpose of this report is to document the Maximum Permissible Exposure (MPE) value for the IRU 600 low band product.

Manufacturer:	Aviat Networks
Equipment Category:	Microwave Fixed Link
Equipment Name:	IRU 600
FCC ID:	VK6-IRU600LB2
IC ID:	4469A-IRU600LB2
Report Date:	21-NOV-2011

1. Introduction

FCC OET Bulletin 65 defines guidelines and limits for Maximum Permissible Exposure (MPE) in terms of electric and magnetic field strength and power density for transmitters operating at frequencies between 300 kHz and 100 GHz.

Industry Canada RSS 102 defines the RF exposure compliance requirements for radio communications apparatus in all frequency bands.

This report documents the MPE value (distance) for the IRU 600 low band system which is spot tuned to either 5440 or 5470MHz.

This product has a FCC ID: VK6-IRU600LB
This product has an IC ID: 4469A-IRU600LB2

2. References

[1] FCC OET Bulletin 65 edition 97-01

[2] IC RSS 102 issue 4

3. Formula and limit.

From OET 65 [1] the formula for calculating the maximum permissible exposure is:

$S = PG/4\pi R^2$ (1)

MPE limit for uncontrolled exposure at prediction frequency = 1 mW/cm^2

Re-arranging the above formula to calculate R:

$R = \sqrt{(PG/4\pi S)}$ (2)

It should be noted the RSS-102 [2] clause 3.1.1, SAR measurement 3GHz – 6GHz, points the reader towards the FCC published procedures for ensuring compliance and thus this report serves both sets of requirements.

4. Input values

P = power input to antenna = 30dBm or 1000mW
G = Antenna gain = 45.9dBi or 38904 numeric
S = MPE limit for uncontrolled exposure = 1mW/cm^2

R = Distance to the centre of the antenna (cm)

5. Calculating distance to antenna

Using formula (2) from above:

$R = \sqrt{((1000 \times 38904)/4\pi)}$

R = 1760 cm

It should be noted that this distance contains zero margin so the distance cannot be any shorter than this.

In order to guarantee some margin a distance of 1800cm is proposed and using formula (1) from above, this gives an exposure level of:

$S = 1000 \times 38904/4\pi 1800^2$

S = 0.956 mW/cm^2

i.e. a compliance margin of 0.0434 mW/cm^2

6. Conclusion

The recommended minimum distance from the centre of the antenna to ensure exposure below the limit specified in both OET Bulletin 65 [1] and RSS 102 [2] is 1800cm.