

Exposure of Humans to RF Fields

Analysis Performed By: Glen Westwell

Date of Test: 14 Nov. 2002

Maximum Permissible Exposure (MPE) Compliance Statement, FCC Radio Frequency Exposure Limit 1.1310 & Industry Canada RSS-102

Communications Components PCS Band Amplifiers

DAB-DAC-1819

The DAB-DAC-1819 amplifier has been tested and the performance characterized in accordance with the MPE requirements of FCC 47 CFR and Industry Canada RSS-102.

At an operating frequency of 1930-1990MHz the MPE limit for the General Population/Uncontrolled Exposure is $1\text{mW}/\text{cm}^2$. This device complies with this limit at the following line of sight distances from the antenna element:

DAB-DAC-1819 (80W) : 795cm

The analysis is provided below.

Power Density (S) = $\text{EIRP}/(4\pi R^2)$, Therefore, $R \geq \sqrt{\text{EIRP}/S \times 4\pi}$

Using this calculation:

Maximum Antenna Gain (typical installation) = 20dBi

Maximum output power (worst case) = 49dBm

$S = 1.0\text{mW}/\text{cm}^2$

EIRP = 69dBm or 7943.3W(max. worst case)

Therefore,

$R = 795\text{ cm}$

This minimum safe distance for the general population of 10m shall be stated in the installation & operators instruction manual under the RF Safety Exposure Warning Statement.

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