MICROWAVE RADIO COMMUNICATIONS

101 Billerica Ave., Bldg. 6
N. Billerica, MA 01862-1256
Tel: (978) 671-5700
Fax: (978) 671-5800

WARNING!
THIS EQUIPMENT IF HANDLED IMPROPERLY WILL POSE A RADIATION HAZARD

Microwave Radio Communications Inc. in compliance with RF exposure limits set forth in OET Bulletin 65, Edition 97-01 utilizes this page for the intent of expressing our concerns to the user of this equipment STRATA 2 GHz Transmitter High Power Unit (HPU) that there exists a radiation hazard with improper use of this equipment.

The STRATA transmitter with rated 12-WATT (Psat) RF Power output is designed as an intentional radiator, as such, this device has been designed to produce and emit radiation into an isotropic antenna for the purpose of delivering a digital or FM modulated signal to an appropriate receiving device.

Due to the low output power of this device in and of itself it poses no such hazard until connected properly and securely to a properly matched antenna. Therefore it is necessary for the equipment operator to be made aware of the safe operating parameters of this device. Below is a chart based on the distance in centimeters vs. antenna gain. The RF exposure based on 1mw/cm^2 clearly expresses the calculated safe distance from a radiator relative to antenna gain. This prediction also uses a power level at 5Watts typical for digital modulated applications.

In the case of an antenna with a concentrated beam such as a parabolic antenna, the caution to exposure levels would be relative to antenna gain and distance only with in the radiation pattern of the parabola. Notwithstanding, radiation exposure due to antenna inefficiency (side lobe and front to back emission) although severely reduced should be calculated. A case-by-case analysis of each antenna that is to be utilized with this device should be investigated.

The intent of this document is to bring awareness to the operator of this device the potential for hazardous RF exposure limits if improperly used. Microwave Radio Communications Inc. cautions the user to contact our customer service department to receive exposure data or the antenna manufacturer to receive the radiation pattern of the antenna if not purchased through Microwave Radio Communications Inc.

Equation from page 18 of OET bulletin65, edition 97-01

where: S = power density

P = power input to the 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

$$S = \frac{PG}{4\pi R^2}$$

Radiation Limit for Mobile Transmitter at 5WATT (+37dBm)

MPE Based on Antenna Gain

mW/cm^2	(Max Allowable Antenna Gain
7.162	4.89 dBi)
1.559	11.4933
0.8774	13.99
0.5615	15.93
0.3899	17.5
0.2865	18.85
0.219	20.01
0.14	21.95
0.0974	23.53
0.07162	24.87
0.0548	26.033
0.04333	27.05
0.03509	27.97

Distance cm	35	75	100	125	150	175	200	250	300	350	400	450	500

RF radiation exposure levels below 1Mw/cm^2 are permissible levels in accordance with OET Bulletin 65, Edition 97-01.

The above graph depicts permissible levels at required safe distances from the isotropic radiator. The incremental gain of the radiator can be increased in accordance with the distance of the human body removed from the radiator by the corresponding distance in centimeters. As can be observed, the distances are marginal but notice should be observed never the less.