Grayhill Incorporated

EZCom-LP
900 MHz Digital Radio

FCC ID#: NMAEZCOMLPP

MPE Calculation
Portable OCU Unit

TITLE: Grayhill MPE CALCULATION		L.S. RESEARCH, Inc. WIRELESS PRODUCT DEVELOPMENT	W66 N220 COMMERCE COURT CEDARBURG, WI 53012, USA (262)-375-4400 FAX: (262)-375-6731 email: eng@lsr.com, http://www.lsr.com	
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1.0 SCOPE

This report demonstrates the Maximum Permissible Exposure (MPE) Calculation required for an Intentional Radiator equipment authorization.

2.0 REVISION CONTROL

DATE	CHANGES	REVISION
03/10/03	ORIGINAL RELEASE	0.0
03/19/03	ADD CALCULATIONS FOR MOBILE UNITS, CHANGE PRESENTATION FORMAT	0.1

3.0 APPLICABLE DOCUMENTS

[1] “Code of Federal Regulations Title 47, Volume 1, Sec. 1.1310 Radiofrequency radiation exposure limits” ***47CFR1.1310,*** Revised as of October 1, 2001, Page 297-298.

[2] “Code of Federal Regulations Title 47, Volume 1, Sec. 2.1091 Radiofrequency radiation exposure evaluation: mobile devices.” ***47CFR2.1091,*** Revised as of October 1, 2001, Page 588-589.

[3] “Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields”, Supplement C, OET Bulletin 65, Edition 97-01

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4.0 MAXIMUM PERMISSIBLE EXPOSURE CALCULATIONS

Calculation 1

Portable unit with 0 dBi helical antenna and 10 cm separation.

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

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

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

Maximum peak output power at antenna input terminal:	27.0	(dBm)
Maximum peak output power at antenna input terminal:	501.19	(mW)
Antenna gain(typical):	0.0	(dBi)
Maximum antenna gain:	1.00	(numeric)
Prediction distance:	10	(cm)
Prediction frequency:	915	(MHz)
MPE limit for uncontrolled exposure at prediction frequency:	0.61	(mW/cm^2)
Power density at prediction frequency:	0.40	(mW/cm^2)
Maximum allowable antenna gain:	1.85	(dBi)

Margin of Compliance at 10cm = 1.83 dB