FCC part 15 testing for Grayhill Inc. Model: WM09STDB-0001

FCC ID: NMA-WM09STDB0001
731 conf # **EA173502**

- REMITTANCE ID NUMBER: **582457**
- AUTHORIZATION NUMBER: **145746**

GRANTEE: Grayhill Inc.
561 Hillgrove Avenue
LaGrange, IL 60525-5997
FRN: 0004277307

TEST SITE: Grayhill Inc.
561 Hillgrove Avenue
LaGrange, IL 60525-5997

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Radiometrics Midwest Corp.
12 E. Devonwood
Romeoville, IL 60446

FINAL TEST DATE: September 6th 2004
REPORT DATE: September 10th 2004
TEST ENGINEERS: Chris Anderson & Joe Strzelecki

RF Exposure Limits

The product manual states:

“In general antennas used with this radio device must be greater than 20 cm away from human exposure to ensure compliance with FCC RF exposure limitations. Specific antennas as listed in this manual are the only exceptions and only at the distances listed. Other antenna systems may be able to be accommodated but will require analysis and perhaps testing by Grayhill to ensure compliance with FCC RF exposure limitations.”

This section demonstrates the Maximum Permissible Exposure (MPE) Calculation required for an Intentional Radiator equipment authorization based on the worst case antenna permitted by the maximum EIRP rule.

The following MPE calculation is done assuming the highest gain antenna, the 10.41dBi patch antenna, and a distance of 20 cm

Transmitter power:	23.5	dBm
Coax loss:	0	dB
Max peak power at antenna input terminal:	23.5	dBm
Max peak power at antenna input terminal:	223.87	mW
Max transmit duty cycle:	50	%
(Max peak power)(duty cycle):	111.93	mW
Antenna gain:	11.51	dBi
Antenna gain:	14.16	numeric
Prediction distance:	20	cm
Prediction frequency:	915	MHz
MPE limit for uncontrolled exposure at prediction frequency:	0.61	mW/cm2
Power density at prediction frequency:	0.315	mW/cm2
Margin of compliance at 20 cm:	17.24	dB

For use in small devices which may be closer than 20cm to the human body, only the lower gain antennas are allowed. The worst case of these is the PCB printed dipole with a gain of 2.5dBi.