



Nemko Test Report: 5L0185MPE1

Applicant: Electronic Systems Technology

**Equipment Under Test:
(E.U.T.)** 192MHP Data Radio

In Accordance With: **MPE Requirements Of The FCC Part 1**

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A handwritten signature in blue ink, appearing to read 'Tom Tidwell'.

Tom Tidwell, Frontline Manager

Date: 27 October 2005

Total Number of Pages: 12

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Section 1. Summary of Test Results

Test Rationale

This testing was patterned after testing done in FCC/OET document ASD-9601, "Measurements of Environmental Electromagnetic Fields at Amateur Radio Stations" and OET Bulletin 65 Edition 97-01, "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields.

Emissions were measured using an isotropic field probe. The relationship between the electric field and the power density is expressed as:

$$S = E^2/3770$$

where

S = power density (mW/cm²)

E = electric field strength (V/m)

This equation is given on page 9 of OET Bulletin 65.

The probe reads directly in V/m.

Conclusion

In the configuration tested, the E.U.T. **complies** with the requirements of MPE Requirements of the FCC Part 1.

THIS TEST REPORT RELATES ONLY TO THE ITEM(S) TESTED.

THE FOLLOWING DEVIATIONS FROM, ADDITIONS TO, OR EXCLUSIONS FROM THE TEST SPECIFICATION HAVE BEEN MADE.

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EQUIPMENT: 192 MHP

Section 2. Equipment Under Test (E.U.T.)

Manufacturer: ESTEEM

Model No.: 192MHP

Serial No.: MHP-12002



Production Unit



Pre-Production Unit

Description of E.U.T.

The 192MHP is a licensed wireless data transceiver operating in the frequency band 154 - 170 MHz. There are various antennas used with the 192MHP radio. Maximum rf output power of the transmitter is 30 watts peak power at the antenna port.

Antennas for 192MHP:

EST P/N.	Antenna Type	Gain	Installation Type
AA20M	Omni-Directional 5/8 wave	3 dB	Outdoor Fixed
AA202M	Directional (Yagi)	7.1 dB	Outdoor Fixed
AA19M	Omni-Directional ¼ wave	0 dB (unity)	Mobile - Vehicle Magnetic mount
AA20M	Omni-Directional 5/8 wave	3 dB	Mobile – Fixed permanent mount w/21” radials
AA191	Omni-Directional 5/8 wave	3 dB	Mobile - Vehicle Permanent mount

All antennas above that are marked “Outdoor Fixed” are to be permanently mounted to an outdoor structure. RF Exposure for these antennas is determined at the time of licensing.

All antennas above that are marked as “Mobile...” are to be mounted outdoors on either a permanent structure or a vehicle. The minimum separation distance is 50 cm.

The test data in this report is intended to demonstrate that the General Population RF Exposure limits are not exceeded with the worst-case mobile antenna at a distance of 50 cm.

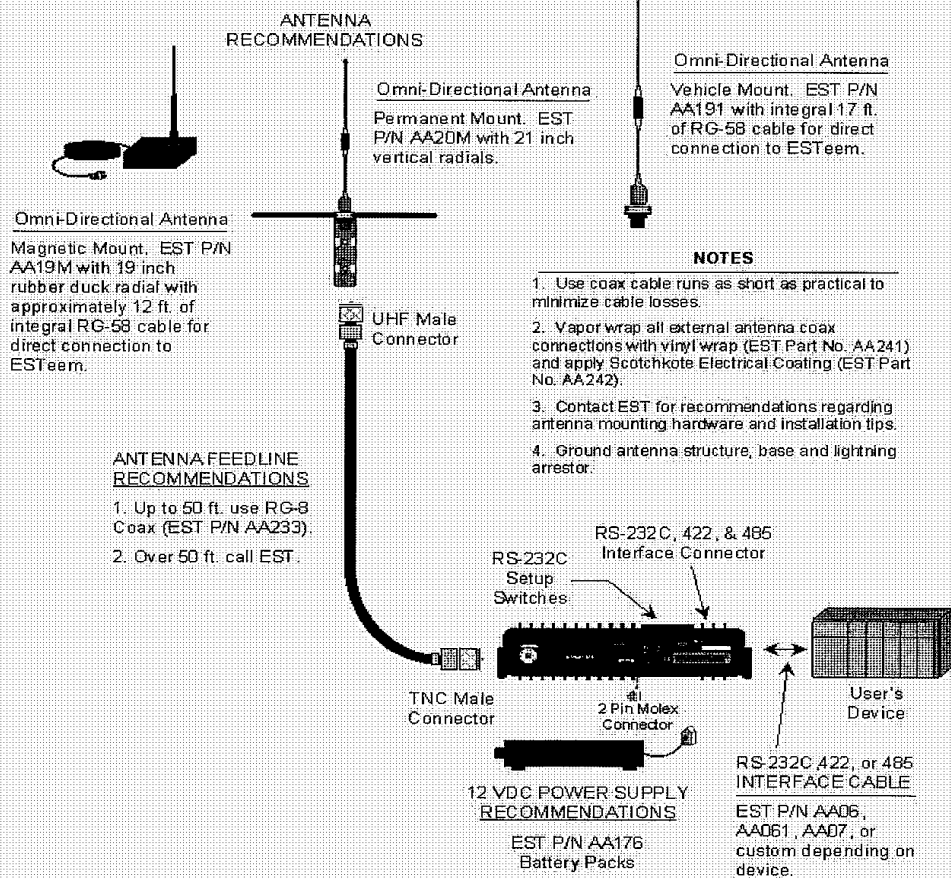
EQUIPMENT: 192 MHP

Description Of Operation and Installation

ESTEEM

**CHAPTER 6
ANTENNA SETUPS**

**Model 192MHP
Mobile Hardware Diagram**



EQUIPMENT: 192 MHP

Section 3. Equipment Configuration

Equipment Configuration List:

Item	Description	Model No.	Serial.	Rev.
(A)	192 MHP Transceiver	192MHP	MHP12002	NONE

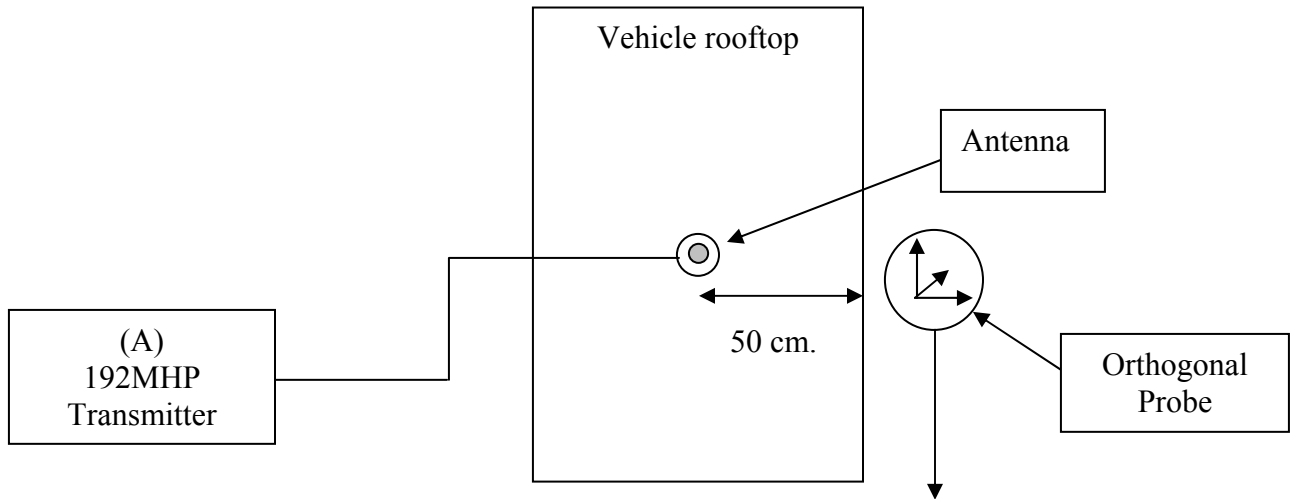
Inter-connection Cables:

Item	Description	Length
(1)	RG-58 coaxial cable	12 ft.

EQUIPMENT: 192 MHP

Configuration of the Equipment Under Test (E.U.T)

The 192MHP is set to maximum rf output (30 watts) continuous transmission.



EQUIPMENT: 192 MHP

Section 4. Test Results

Transmit antenna: AA191M

Test #1

MEASURE- MENT DISTANCE (cm)	MEASURED ELECTRIC FIELD (V/m)	MEASURED POWER DENSITY (mW/cm ²)	MAX. ALLOWABLE EXPOSURE TIME (minutes)	FCC UNCONTROLLED EXPOSURE POWER DENSITY LIMITS (mW/cm ²)	AVERAGING TIME (minutes)
50	20.8	0.11	Not limited	0.2	No averaging

Note: The peak power density was measured at a distance of 50 centimeters with the transmitter configured as below.

RF Frequency: 160 MHz

RF transmit power: 30 watts peak measured at antenna port.

Modulation: None

Transmit duty cycle: Continuous transmit, 100% duty cycle

Measurement was made 360 degrees around the antenna at a constant distance of 50 cm. The height of the measurement probe was also varied to obtain the worst-case reading.

EQUIPMENT: 192 MHP

Section 5. Test Equipment

Nemko ID	Description	Manufacturer Model Number	Serial Number	Calibratio n Date	Calibratio n Due
1128	Isotropic field probe	Amplifier Research FP2000	16701	10/14/05	10/14/06

Section 6. Photographs



Width of compact car – 1.2 meters (47”) from roof edge to edge

EQUIPMENT: 192 MHP



Distance from center of antenna to edge of roof – 60 cm.

EQUIPMENT: 192 MHP



Antenna in center of roof