Nemko Test Report:	2L0369RUS1
Applicant:	M P H Industries 316 East 9th Street Owensboro, Ky 42303
Equipment Under Test: (E.U.T.)	BEE III 990713
In Accordance With:	**FCC Part 90, Subpart I**
Tested By:	Nemko Dallas Inc. 802 N. Kealy Lewisville, TX 75057-3136
Authorized By:	 Tom Tidwell, Wireless Group Manager
Date:	8/20/02
Total Number of Pages:	17

Table of Contents

Section 1. Summary of Test Results

Manufacturer: M P H Industries

Model No.: BEE III 990713

Serial No.: BEN713000002

General: **All measurements are traceable to national standards.**

These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with FCC Part 90, Subpart I.

☒ New Submission ☒ Production Unit

☐ Class II Permissive Change ☐ Pre-Production Unit

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

THE FOLLOWING DEVIATIONS FROM, ADDITIONS TO, OR EXCLUSIONS FROM THE TEST SPECIFICATIONS HAVE BEEN MADE. NONE
See " Summary of Test Data".

Summary Of Test Data

RF Power Output	2.1046	Complies
Occupied Bandwidth	2.1049	Complies
Spurious Emissions at Antenna Terminals	2.1051	Complies
Field Strength of Spurious Emissions	2.1053	Complies
Frequency Stability	2.1055	Complies

Footnotes:

.

Section 2. General Equipment Specification

Transmitter

Supply Voltage Input:	13.6 Vdc
Frequency Range:	24.15 GHz +/- 100 MHz
Tunable Bands:	N/A

Type(s) of Modulation:

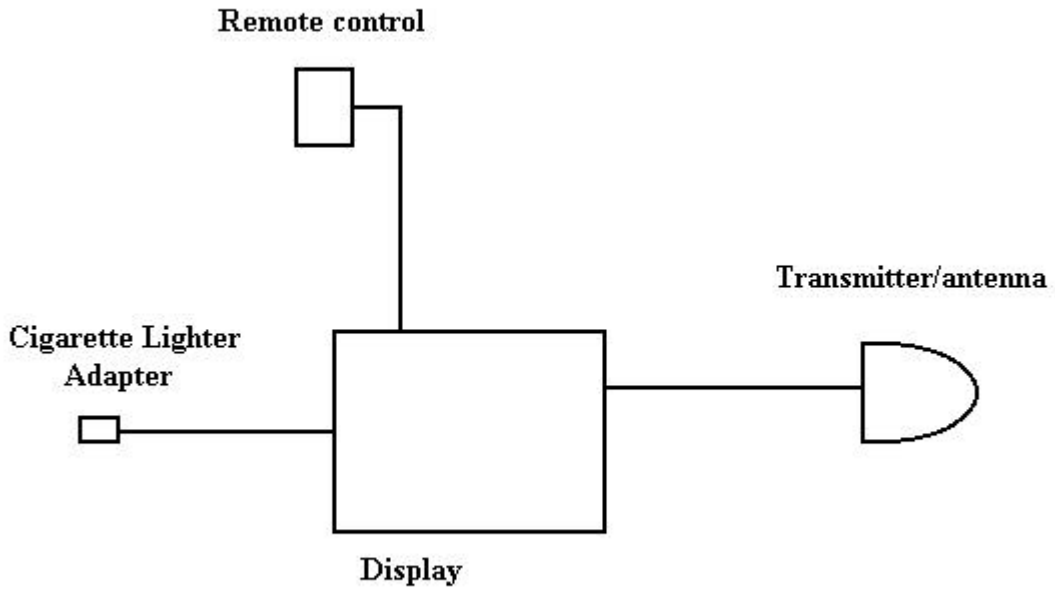
F3E (Voice)	F1D	F2D	D7W (QAM)	NON
☐	☐	☐	☐	☒

RF Power Output (rated):	40 mW
Duty Cycle:	None
Channel Spacing(s):	Single channel
Operator Selection of Operating Frequency:	None
Power Output Adjustment Capability:	None

System Description

The BEE III is a radar system for police use.

System Diagram



Section 3. RF Power Output

NAME OF TEST: RF Power Output	PARA. NO.: 2.1046
TESTED BY: David Light	DATE: 8/8/2002

Minimum Standard: ± 1 dB

Measurement Results: Complies.

Measurement Data: Tx 24.150 GHz

Measured	16.5 dBm @ nominal supply voltage
Measured	16.3 dBm @ +15% supply voltage
Measured	15.8 dBm @ -15% supply voltage
Rated	16 dBm

Measurement Conditions:

Temperature:	22	°C
Humidity:	40	%

Measurement Uncertainty: +/- 1.6 dB

Test Equipment Used: 1464-1043-1474

Section 4. Occupied Bandwidth

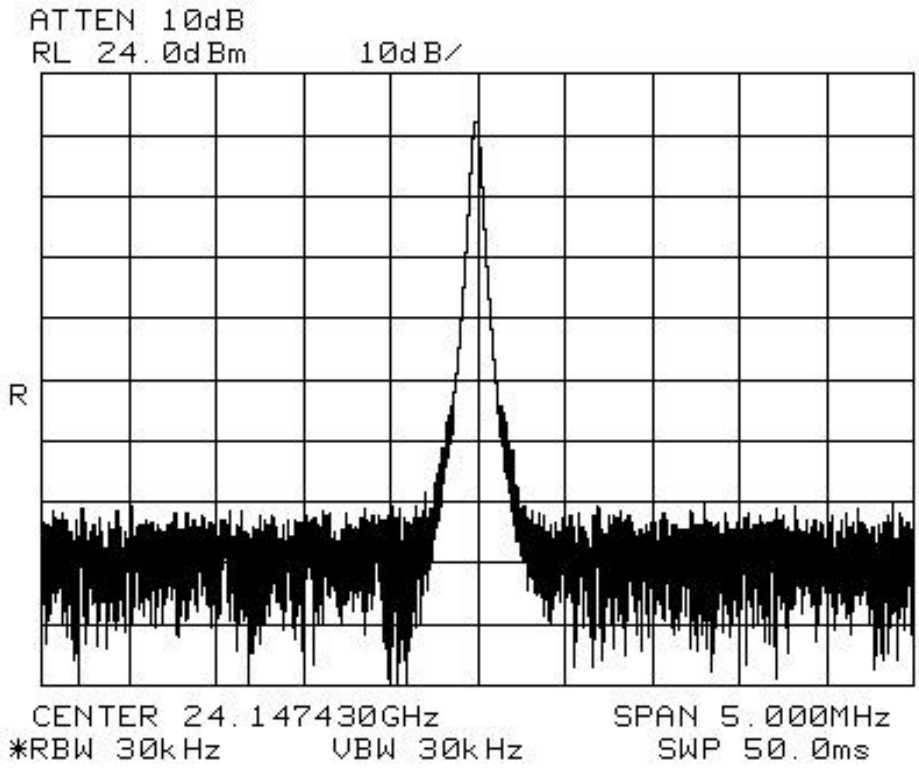
NAME OF TEST: Occupied Bandwidth	PARA. NO.: 2.1049
TESTED BY: David Light	DATE:8/8/2002

Measurement Results: Complies.

Measurement Data: See attached data

Measurement Conditions: Temperature: 22 °C
Humidity: 40 %

Measurement Uncertainty: +/-



Section 5. Spurious Emissions at Antenna Terminals

NAME OF TEST: Spurious Emissions @ Antenna Terminals	PARA. NO.: 2.1051
TESTED BY: David Light	DATE:8/8/2002

Measurement Results: Complies.

Measurement Data:

Frequency of Emission (GHz)	Emission Level (dBm)
72.34	-36.7
96.46	-39.7

The spectrum was searched up to 100 GHz. All emissions within 20 dB of the specification limit were reported.

Measurement Conditions: Temperature: 22 °C
Humidity: 40 %

Measurement Uncertainty: **+/-1.7 dB**

Test Equipment Used: **989-1464-1046-1043-987-986**

Section 6. Field Strength of Spurious Emissions

NAME OF TEST: Field Strength of Spurious Emissions	PARA. NO.: 2.1053
TESTED BY: David Light	DATE: 8/19/2002

Measurement Results: Complies.

Measurement Data: No emissions detected.

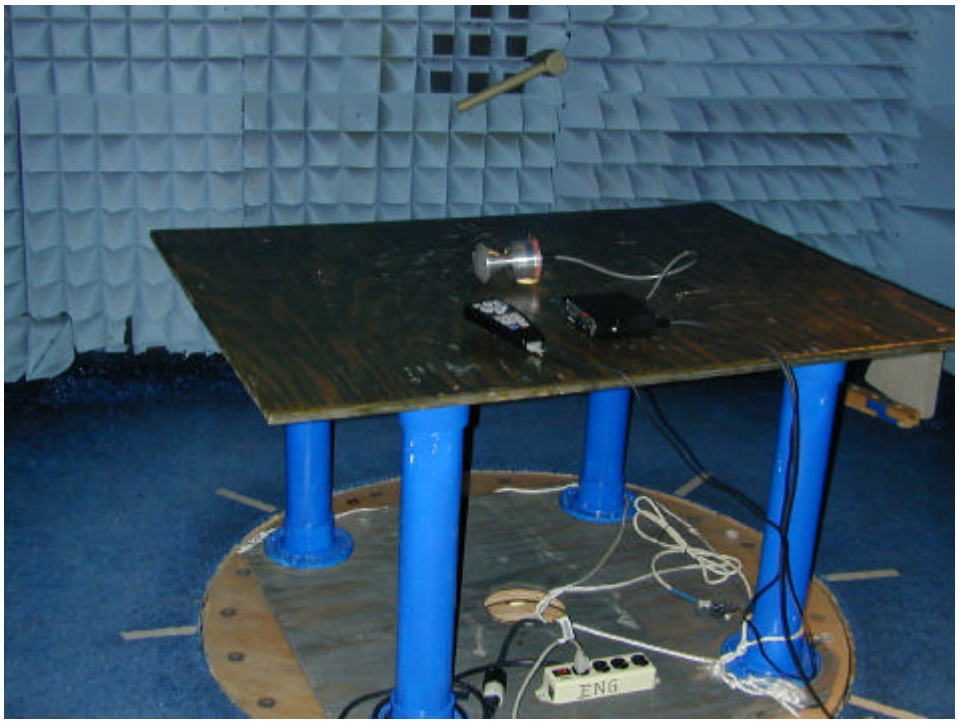
The spectrum was searched up to 100 GHz. All emissions within 20 dB of the specification limit were reported.

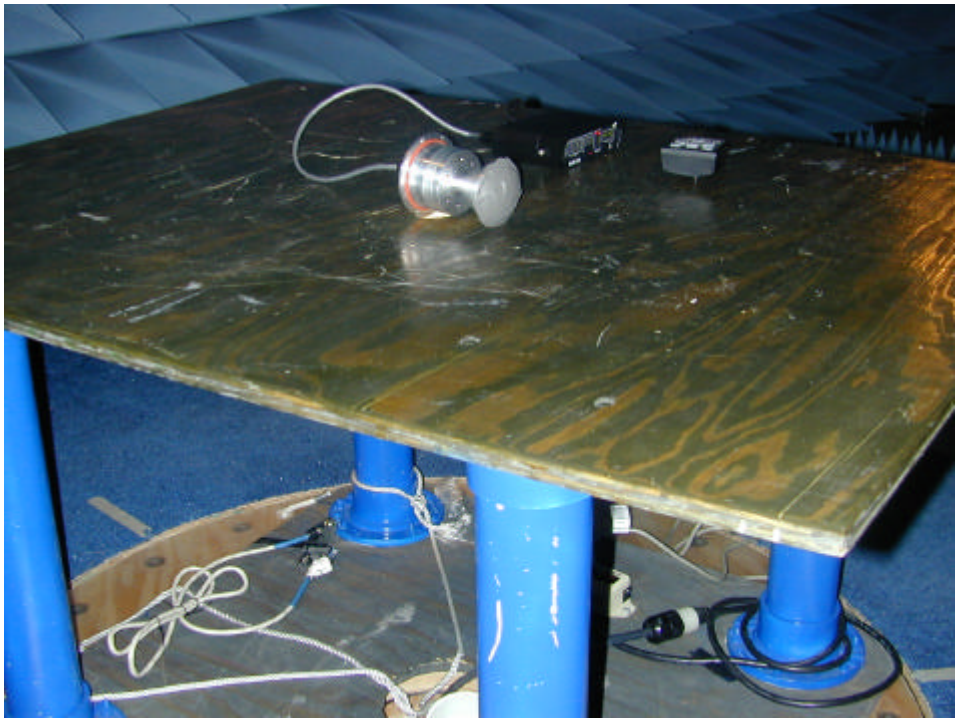
Measurement Conditions: Temperature: 22 °C
Humidity: 40 %

Test equipment used: 1464-987-990-984-989-986-985

Measurement Uncertainty: **+/-1.7 dB**

Photographs of Test Setup





Section 7. Frequency Stability

NAME OF TEST: Frequency Stability	PARA. NO.: 2.1055
TESTED BY: David Light	DATE: 8/9/2002

Measurement Results: Complies.

Measurement Data: See attached data

Measurement Conditions: Temperature: 22 °C
Humidity: 40 %

Measurement Uncertainty: +/- **1 x 10^{-7} ppm**

Dallas Headquarters:
802 N. Kealy
Lewisville, TX 75057
Tel: (972) 436-9600
Fax: (972) 436-2667

Frequency Stability

Client: MPH W.O.# 2L0369

EUT: BEE III S/N: BEN713000002

Date: 8/9/2002 Tech: Light

Test Equipment used: 283-1036

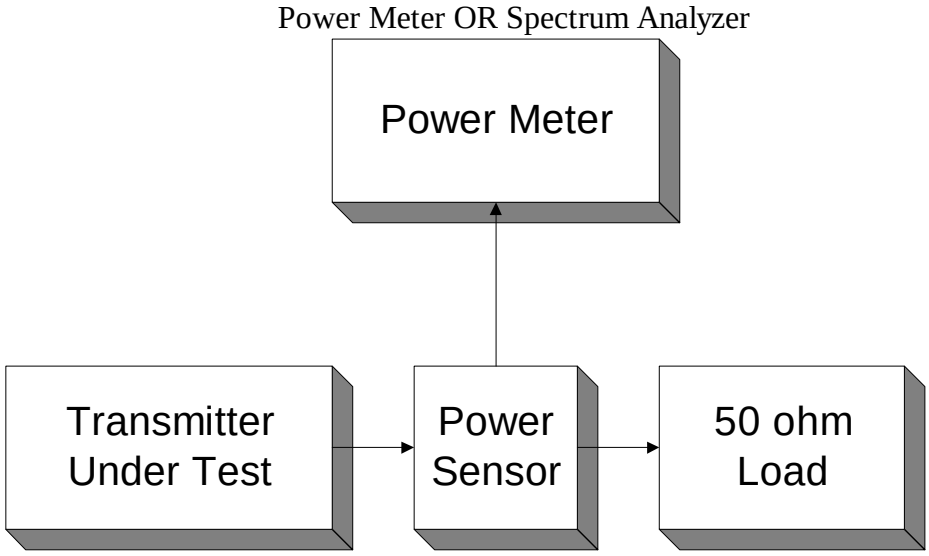
Temperature	Voltage	Frequency Error
20 °C	13.6 Vdc (Nominal)	+2.23 MHz
20 °C	11.6 Vdc	+2.19 MHz
20 °C	15.6 Vdc	+2.18 MHz
10 °C	Nominal	+22 MHz
0 °C	Nominal	+22.3 MHz
-10 °C	Nominal	+33.3 MHz
-20 °C	Nominal	+35.1 MHz
-30 °C	Nominal	+40.5 MHz
30 °C	Nominal	+8.8 MHz
40 °C	Nominal	+2.8 MHz
50 °C	Nominal	-2.8 MHz

Section 8. Test Equipment List

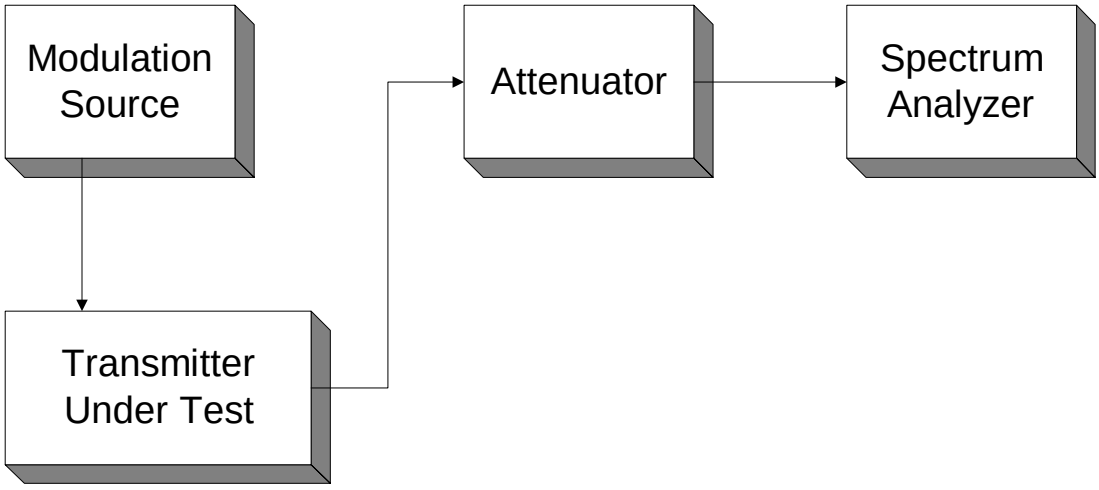
Nemko ID	Description	Manufacturer Model Number	Serial Number	Calibration Date	Calibration Due
283	Environmental Chamber with controller # 1189006	ENVIROTRONICS SH27 & 2030-22844	129010083	01/10/02	01/10/03
1039	CABLE, 8.5m	KTL RG223	N/A	03/05/02	03/05/03
1464	Spectrum analyzer	Hewlett Packard 8563E	3551A04428	01/02/01	01/03/03
987	HARMONIC MIXER	Hewlett Packard 5356D	2521A00583	01/00/00	N/A
990	HORN ANTENNA	MILLITECH NONE	NONE	CNR	N/A
984	HORN ANTENNA	MILLITECH NONE	NONE	CNR	N/A
989	HARMONIC MIXER	Hewlett Packard 11970U	2332A00116	01/00/00	N/A
986	HARMONIC MIXER	Hewlett Packard 11970V	2521A01222	01/00/00	N/A
985	HORN ANTENNA	MILLITECH NONE	NONE	CNR	N/A
1046	Flex cable 1m	Astrolab Inc. 32022-2-29094K-1M	N/A	01/18/02	01/18/03
1043	Flexable cable 1m	Astrolab Inc. 32027-2-29094K-1M	0	01/18/02	01/18/03
1474	20db Attenuator DC 18 Ghz	MCL Inc. BW-S20W2	NONE	CBU	N/A

ANNEX A - TEST DIAGRAMS

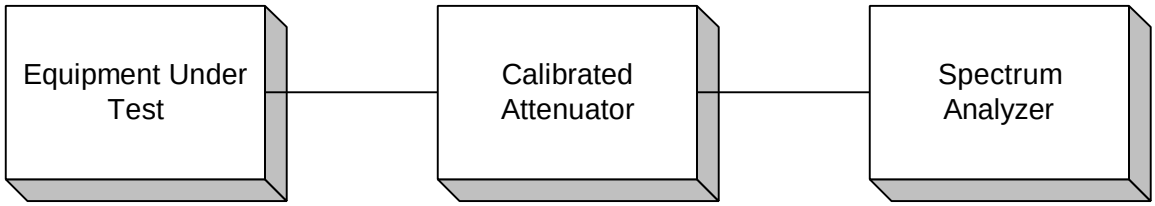
Para. No. 2.1046 – R.F. Power Output



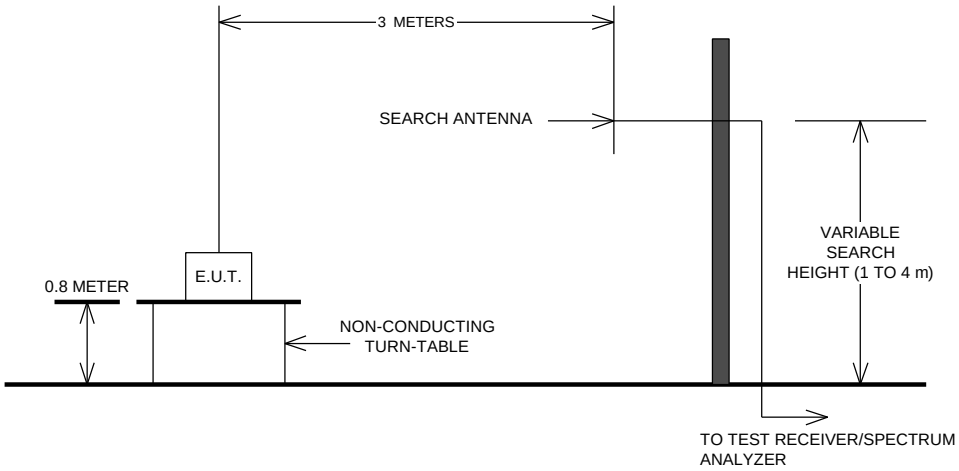
Para. No. 2.1049 - Occupied Bandwidth



Para. No. 2.1051 - Spurious Emissions at Antenna Terminals



Para. No. 2.1053 - Field Strength of Spurious Radiation



Para. No. 2.1055 - Frequency Stability