**APPLICANT**: Ptek
**FCC ID**: ML9FM250E

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**TEST REPORT CONTAINING**:



**EXHIBITS CONTAINING**:

## GENERAL INFORMATION REQUIRED FOR TYPE ACCEPTANCE

2.1033(c)(1) Ptek will manufacture the FM250E in
2.1033(c)(2) quantity, for use under FCC RULES PART 74.801, LOW POWER AUXILIARY STATIONS.

Ptek
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San Jose, Ca. 95124
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2.1033 TECHNICAL DESCRIPTION

(c)(3) Instruction book. The instruction manual is included as Exhibit 6A-6H.

(c)(4) Type of Emission: 130K0F3E

Bn = 2M + 2DK
M = 20000
D = 45kHz(Peak Deviation)
K = 1
Bn = 2(20k) + 2(45k)(1) = 130k

ALLOWED AUTHORIZED BANDWIDTH = 200kHz.
74.861(e)(5)

(c)(5) Frequency Range: Part 74: 723-735 MHz
TEST FREQ = 729.00 MHz.

(c)(6) Power Range and Controls:UNIT has no controls.

(c)(7) Maximum Output Power Rating: .020 Watts into 50 ohms resistive load.

(c)(8) DC Voltages and Current into Final Amplifier:

FINAL AMPLIFIER ONLY
9.0V BATTERY
Vce = 9.0 Volts
Ice = 28 mA.

(c)(9) Tune-up procedure. The tune-up procedure is given in page 4A-4B.

(c)(10) Complete Circuit Diagrams: The circuit diagram is included as EXHIBIT # 3A-3C. The block diagram is included as EXHIBIT #2.

2.1033(c)11) Photo or Drawing of Label and sketch of location:
See EXHIBIT # 1.

2.1033(c)12) Photos of Equipment:
See EXHIBIT #'S 8A-10B.

(c)(13) Description of all circuitry and devices provided for determining and stabilizing frequency.

Description of any circuits or devices employed for suppression of spurious radiation, for limiting modulation, and for limiting power.

This circuitry is described on page 5.

Limiting Modulation:
The transmitter audio circuitry is contained in IC101, IC102 and IC103.

Limiting Power:
There is no provision for limiting power.

(13) Digital modulation. This unit does not use digital modulation.

2.1033(c)(14) The data required by 2.1046 through 2.1057 is submitted below.

2.1046 RF power output.

RF power measured is:
OUTPUT POWER: .020 WATTS

R.F. POWER OUTPUT TEST PROCEDURE


2.1047(a)(b) Modulation characteristics:

AUDIO FREQUENCY RESPONSE

The audio frequency response was measured in accordance with TIA/EIA Specification 603. The audio frequency response curve is shown on the next page.

AUDIO LOW PASS FILTER

The audio low pass filter is not required in this unit.

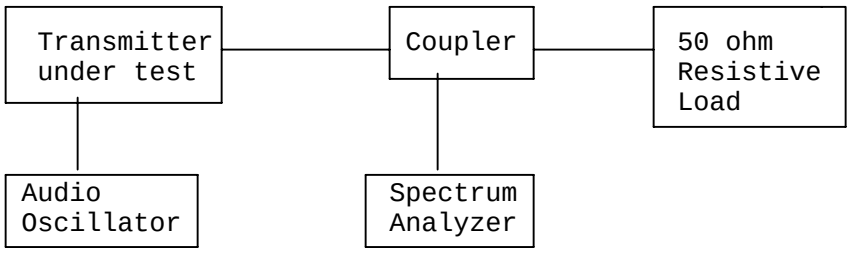
2.1049(c) Occupied Bandwidth:

Data in the plots show that all sidebands between 50 & 100% for the authorized bandwidth are attenuated by at least 25dB. From 100 to 250% of the authorize3d bandwidth they are attenuated by at least 35dB and beyond 250% 43 log(Po) dB. The plot shows the transmitter modulated with 15000 Hz(the highest modulation frequency), adjusted for 50% modulation plus 16 dB. The spectrum analyzer was set with the unmodulated carrier at the top of the screen. The test procedure diagram and occupied bandwidth plots follow.

Wireless Microphone transmitter:

Test procedure diagram

OCCUPIED BANDWIDTH MEASUREMENT




REQUIREMENT: PART 74: 200kHz EMISSION BANDWIDTH.

2.1051 Spurious emissions at antenna terminals (conducted): Not Applicable no antenna connector.

2.1053(a)(b) Field strength of spurious emissions:

NAME OF TEST: RADIATED SPURIOUS EMISSIONS

REQUIREMENTS: Emissions must be 43 +10log(Po) dB below the mean power output of the transmitter.

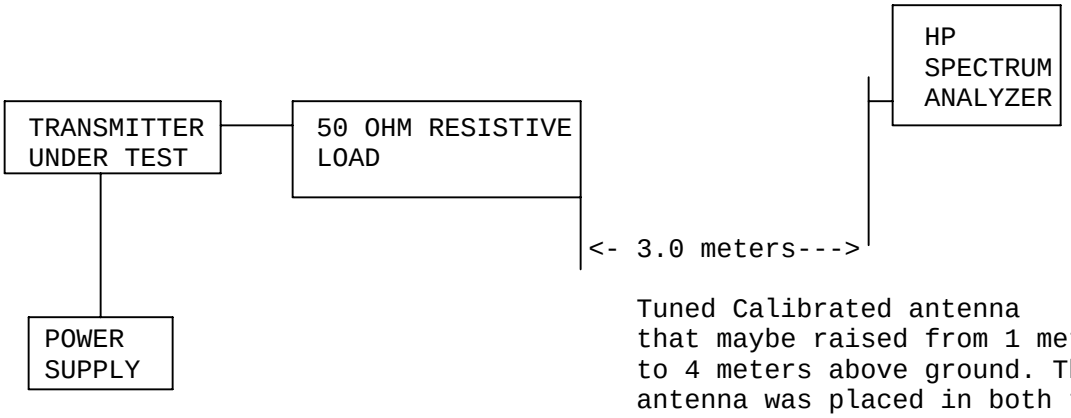
43 + 10 log(0.020) = 26.00 dB

TEST DATA:

[#$%FieldStrength_Table]

METHOD OF MEASUREMENT: The procedure used was TIA/EIA STANDARD 603. The spectrum was scanned from 30 to at least the tenth harmonic of the fundamental using a HP model 8566B spectrum analyzer and an appropriate antenna. Measurements were made at the open field test site of TIMCO ENGINEERING INC. located at 849 NW SR 45 Newberry, Florida 32669.

Method of Measuring Radiated Spurious Emissions




Equipment placed on rotating platform, 80 cm above ground.

Tuned Calibrated antenna that maybe raised from 1 meter to 4 meters above ground. The antenna was placed in both the horizontal and vertical planes.

2.1055 Frequency stability:
S74.861(e)(4)

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Temperature and voltage tests were performed to verify that the frequency remains within the .0050%,(50 ppm)(74.861 e.4) specification limit.

The test was conducted as follows: The transmitter was placed in the temperature chamber at 25 degrees C and allowed to stabilize for one hour. The transmitter was keyed ON for one minute during which four frequency readings were recorded at 15-second intervals. The worse case number was taken for temperature plotting. The assigned channel frequency was considered to be the reference frequency. The temperature was then reduced to -30 degrees C after which the transmitter was again allowed to stabilize for one hour. The transmitter was keyed ON for one minute, and again frequency readings were noted at 15-second intervals. The worst-case number was recorded for temperature plotting. This procedure was repeated in 10-degree increments up to + 50 degrees C.

MEASUREMENT DATA:

Assigned Frequency (Ref. Frequency): 729.000 000

| TEMPERATURE °C | FREQUENCY MHz | PPM |
|---|---|---|
| -30 | 728.986 563 | -18.43 |
| -20 | 728.992 027 | -10.94 |
| -10 | 728.995 585 | - 6.06 |
| 0 | 728.997 954 | - 2.81 |
| 10 | 728.999 359 | - 0.88 |
| 20 | 728.999 942 | - 0.08 |
| 30 | 729.000 213 | + 0.29 |
| 40 | 729.000 472 | + 0.65 |
| 50 | 729.000 068 | + 1.47 |

25c END BATT. Volt(7.65)= 7.65VDC 729.000 117 + 0.11
25c END BATT. Volt(10.35)= 10.35VDC 729.000 102 + 0.07

RESULTS OF MEASUREMENTS: The maximum frequency variation over the temperature range was -18.43 to +1.47 ppm. The maximum frequency variation over the voltage range was +0.11 ppm.

# EMC Equipment List

| Device | Manufacturer | Model | Serial Number | Cal/Char Date | Due Date |
|---|---|---|---|---|---|
| 3/10-Meter OATS | TEI | N/A | N/A | Listed 3/26/01 | 3/26/04 |
| 3-Meter OATS | TEI | N/A | N/A | Listed 1/13/03 | 1/13/06 |
| AC Voltmeter | HP | 400FL | 2213A14499 | CAL 10/9/01 | 10/9/03 |
| Blue Tower Quasi-Peak Adapter | HP | 85650A | 2811A01279 | CAL 4/15/03 | 4/15/05 |
| Blue Tower RF Preselector | HP | 85685A | 2926A00983 | CAL 4/15/03 | 4/15/05 |
| Blue Tower Spectrum Analyzer | HP | 8568B | 2928A04729<br>2848A18049 | CAL 4/15/03 | 4/15/05 |
| Coaxial Cable #64 | Semflex Inc. | 60637 | Timco #64 | CHAR 1/24/02 | 1/24/04 |
| Dipole Antenna Kit | Electro-Metrics | TDA-30/1-4 | 152 | CAL 3/21/01 | 3/21/04 |
| Dipole Antenna Kit | Electro-Metrics | TDA-30/1-4 | 153 | CAL 9/26/02 | 9/26/05 |
| Frequency Counter | HP | 5385A | 2730A03025 | CAL 3/7/03 | 3/7/05 |
| Hygro-Thermometer | Extech | 445703 | 0602 | CAL 10/4/02 | 10/4/04 |
| Log-Periodic Antenna | Electro-Metrics | LPA-25 | 1122 | CAL 10/2/01 | 10/2/03 |
| Measuring Tape-7.5M | Kraftixx | 7.5M PROFI | | CHAR 2/1/02 | 2/1/04 |
| Modulation Analyzer | HP | 8901A | 3435A06868 | CAL 9/5/01 | 9/5/03 |
| Multimeter | Fluke | FLUKE-77-3 | 79510405 | CHAR 9/26/01 | 9/26/03 |
| Silver Tower Preamplifier | HP | 8449B | 3008A01075 | CHAR 1/28/02 | 1/28/04 |
| Silver Tower Quasi-Peak Adapter | HP | 85650A | 3303A01844 | CAL 10/14/02 | 10/14/04 |
| Silver Tower RF Preselector | HP | 85685A | 2620A00294 | CAL 10/14/02 | 10/14/04 |
| Silver Tower Spectrum Analyzer | HP | 8566B Opt 462 | 3552A22064<br>3638A08608 | CAL 10/14/02 | 10/14/04 |
| System One | Audio Precision | System One | SYS1-45868 | CHAR 4/25/02 | 4/25/04 |
| Tan Tower Preamplifier | HP | 8449B-H02 | 3008A00372 | CAL 9/23/03 | 9/23/05 |
| Tan Tower Quasi-Peak Adapter | HP | 85650A | 3303A01690 | CAL 9/23/03 | 9/23/05 |
| Tan Tower RF Preselector | HP | 85685A | 3221A01400 | CAL 9/23/03 | 9/23/05 |
| Tan Tower Spectrum Analyzer | HP | 8566B Opt 462 | 3138A07786<br>3144A20661 | CAL 9/23/03 | 9/23/05 |
| Temperature Chamber | Tenney Engineering | TTRC | 11717-7 | CHAR 1/22/02 | 1/22/04 |