

**2.0 TESTS PERFORMED****2.1 Output Power****2.1.1 Equipment Used**

| Test Equipment |                                      | Asset # | Serial #   | Cal Date |
|----------------|--------------------------------------|---------|------------|----------|
| X              | Hewlett Packard Power Sensor         | 628     | 2552A49410 | 04/03    |
| X              | Hewlett Packard Power Meter M/N 437B | N/A     | 2949A02617 | 04/03    |
| X              | Narda 769-20 High Band Attenuator    | 284     | 03793      | C.P.U.   |
| X              | Narda 769-20 High Band Attenuator    | 471     | 02951      | C.P.U.   |

**2.1.2 Test Conditions**

The output power was measured with the OpenSky P800 Portable Radio placed on top of a wooded turntable located in Test Site A. The ambient temperature of the room was 20°C.

The OpenSky P800 Portable Radio has three modes of operation OTP, OCF and OCF talk around. The OTP mode of operation is a gaussian frequency shift keying TDMA modulation, which transmits from 806.0125MHz to 823.9875MHz. The OCF mode of operation is digital FM modulation, which transmits from 806.0125MHz to 823.9875MHz. The OCF Talk Around mode of operation is digital FM modulation that transmits from 851.0125MHz to 868.9875MHz.

The OpenSky P800 Portable Radio was configured to operate in all three modes of operation transmitting at the low, mid and high frequency of each band. The OpenSky P800 Portable Radio was set up and powered by a fully charged battery for the test.

The modes of operation and frequencies tested are as follows:

| OCF Mode |             | OTP Mode |             | OCF Talk Around |             |
|----------|-------------|----------|-------------|-----------------|-------------|
| Ch# 1    | 806.0125MHz | Ch# 1    | 806.0125MHz | Ch# 1           | 851.0125MHz |
| Ch# 415  | 816.3625MHz | Ch# 415  | 816.3625MHz | Ch# 415         | 861.3625MHz |
| Ch# 830  | 823.9875MHz | Ch# 830  | 823.9875MHz | Ch# 830         | 868.9875MHz |

### **2.1.3 Test Method**

The output power of the OpenSky P800 Portable Radio was measured at the high, middle, and low frequency channels. The output of the transmitter was connected to two attenuators. The attenuators were connected to a RF Power Meter.

Channel numbers 830, 415, and 1 were tested for the occupied bandwidth.

### **2.1.4 Results**

The M/A-Com OpenSky P800 Portable Radio met the Output Power requirements of FCC Part 90. See the attached data sheet for the output power.

### 2.1.5 Test Data

#### OUTPUT POWER MEASUREMENTS

**CUSTOMER: M/A-COM**

**DATE: 04/30/02 AND 05/14/02**

**EQUIPMENT: OPENSky P800 PORTABLE RADIO**

**TEST NUMBER: 3**

**TESTED BY: MANUEL MARTINEZ**

| FREQUENCY<br>MHz | MODE OF<br>OPERATION | PEAK<br>MEASURED<br>LEVEL<br>dBm | PEAK<br>MEASURED<br>LEVEL<br>W | LIMIT<br>W |
|------------------|----------------------|----------------------------------|--------------------------------|------------|
| 806.0125         | OCF                  | 34.62                            | 2.89                           | 3.0        |
| 816.3625         | OCF                  | 34.60                            | 2.88                           | 3.0        |
| 823.9875         | OCF                  | 34.65                            | 2.91                           | 3.0        |
| 806.0125         | OTP                  | 34.76                            | 2.99                           | 3.0        |
| 816.3625         | OTP                  | 34.65                            | 2.91                           | 3.0        |
| 823.9875         | OTP                  | 34.69                            | 2.94                           | 3.0        |
| 851.0125         | OCF Talk Around      | 34.70                            | 2.95                           | 3.0        |
| 861.3625         | OCF Talk Around      | 34.67                            | 2.93                           | 3.0        |
| 868.9875         | OCF Talk Around      | 34.73                            | 2.97                           | 3.0        |
|                  |                      |                                  |                                |            |
|                  |                      |                                  |                                |            |
|                  |                      |                                  |                                |            |

**NOTES:**

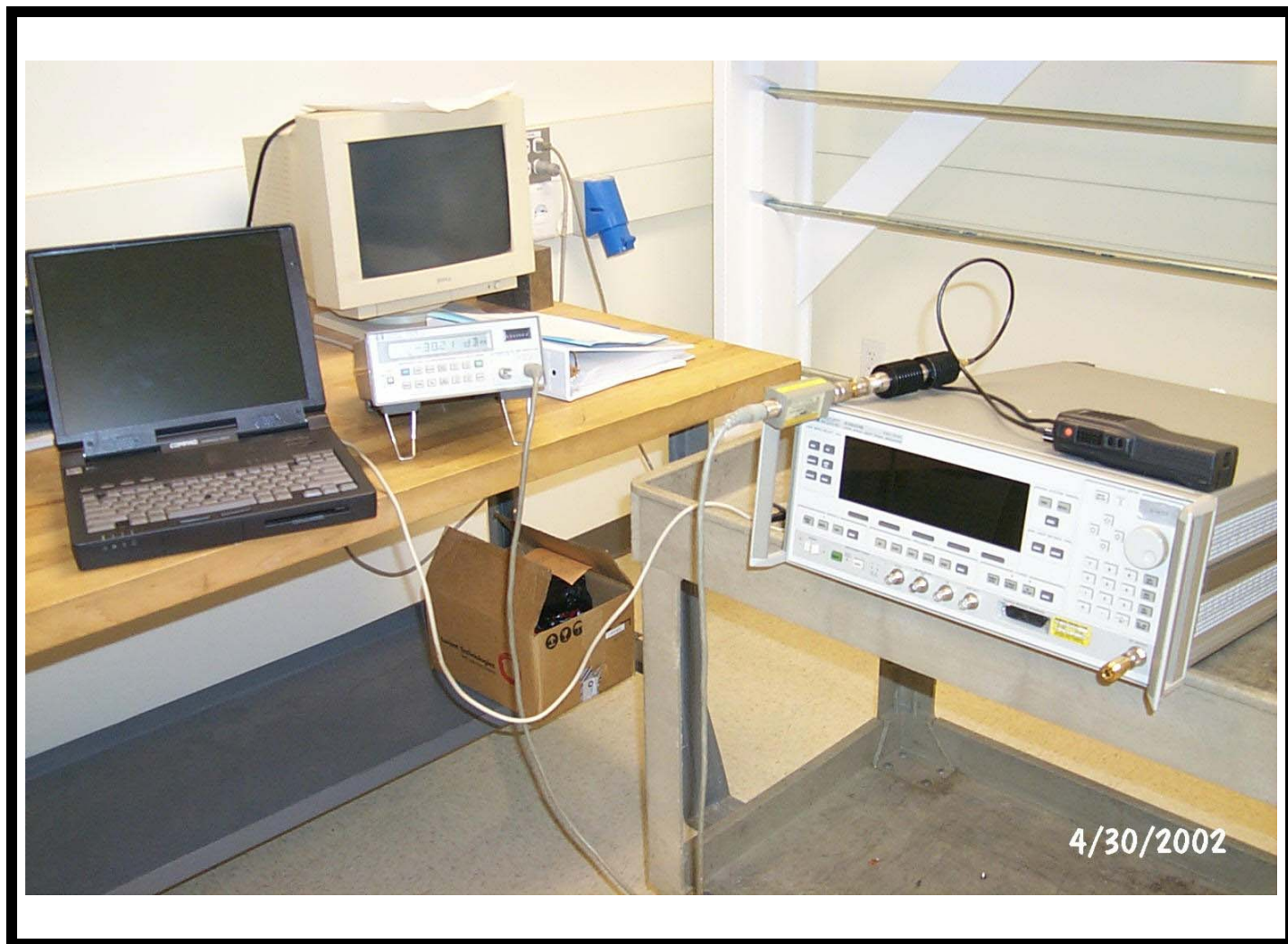
**2.1.6 Photographic Documentation**

**CUSTOMER: M/A-COM**

**EQUIPMENT: OPENSky P800 PORTABLE RADIO**

**DATE: 04/30/02 AND 05/14/02**

**TEST NUMBER: 3**



Photograph Description: Radiated set-up

**FORM CTS-PHOTO**

**2.2 Occupied Bandwidth****2.2.1 Equipment Used**

| Test Equipment |                                   | Asset # | Serial #   | Cal Date |
|----------------|-----------------------------------|---------|------------|----------|
| X              | H/P E4401 Spectrum Analyzer       | N/A     | 4895C76451 | 04/03    |
| X              | Narda 769-20 High Band Attenuator | 284     | 03793      | C.P.U.   |
| X              | Narda 769-20 High Band Attenuator | 471     | 02951      | C.P.U.   |

**2.2.2 Test Conditions**

The occupied bandwidth measurement was made with the OpenSky P800 Portable Radio placed on a turntable located in Test Site A. The output of the P-8001T was connected to a spectrum analyzer via a N-Type coax cable. The ambient temperature of the room was 20°C.

The OpenSky P800 Portable Radio was configured to operate in all three modes of operation transmitting at the low, mid and high frequency of each band. The OpenSky P800 Portable Radio was set up and powered by a fully charged battery for the test.

The modes of operation and frequencies tested are as follows:

| OCF Mode |             | OTP Mode |             | OCF Talk Around |             |
|----------|-------------|----------|-------------|-----------------|-------------|
| Ch# 1    | 806.0125MHz | Ch# 1    | 806.0125MHz | Ch# 1           | 851.0125MHz |
| Ch# 415  | 816.3625MHz | Ch# 415  | 816.3625MHz | Ch# 415         | 861.3625MHz |
| Ch# 830  | 823.9875MHz | Ch# 830  | 823.9875MHz | Ch# 830         | 868.9875MHz |

**2.2.3 Test Method**

The output of the OpenSky P800 Portable Radio was measured at the high, middle, and low frequency channels. The output of the transmitter was connected to two attenuators. The attenuators were connected to a RF Power Meter. See Figure 4 for test set-up.

**2.2.4 Results**

The M/A-Com OpenSky P800 Portable Radio met the Occupied Bandwidth of requirements of FCC Part 90. See the attached data sheet for the results.

## Test Setup

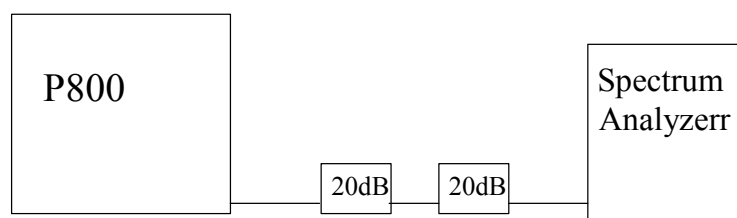
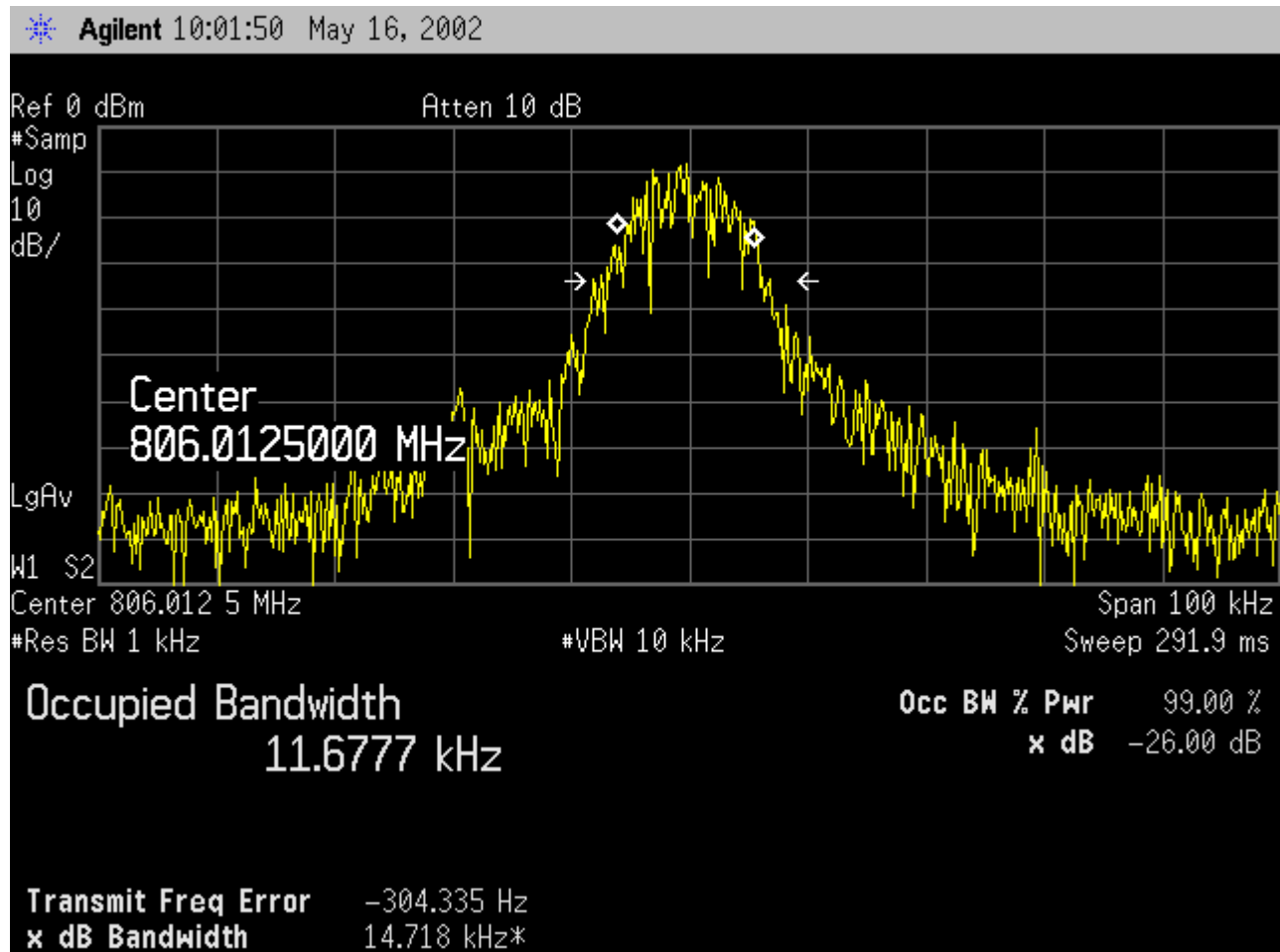
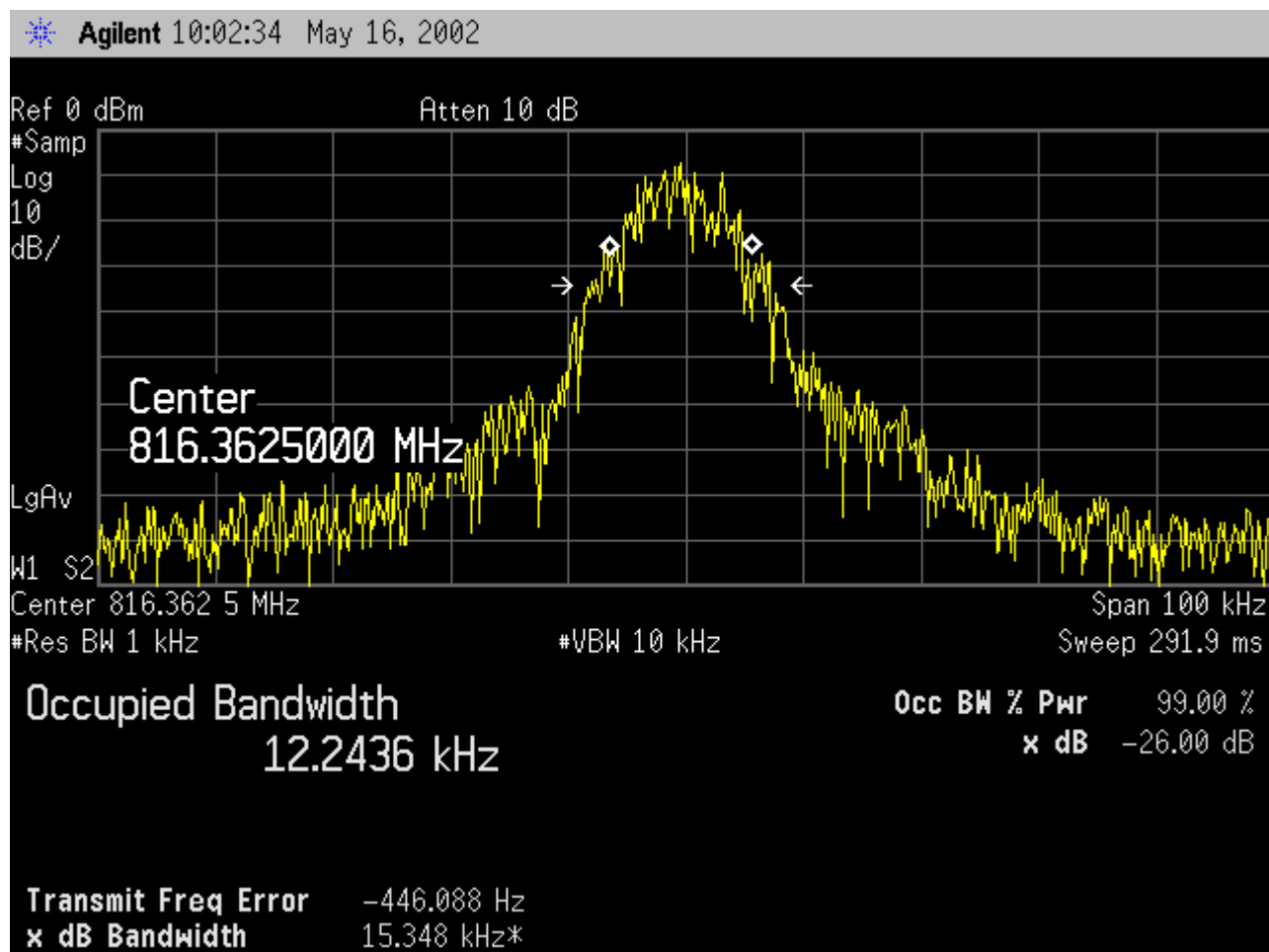


Figure 4

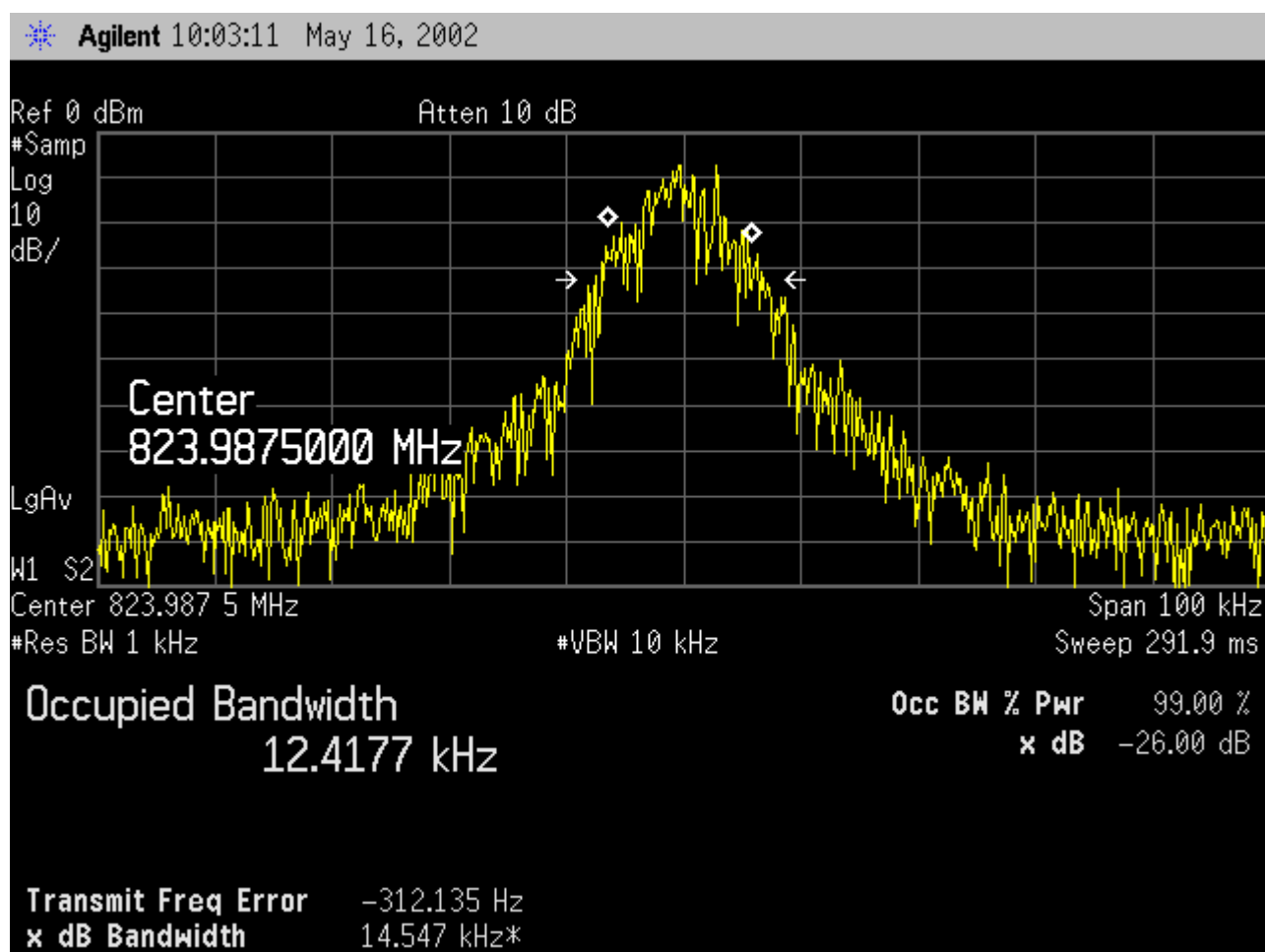
**2.2.5 Test Data****OCCUPIED BANDWIDTH****CUSTOMER: M/A-COM****EQUIPMENT: OPENSky P800 PORTABLE RADIO****TESTED BY: MANUEL MARTINEZ****DATE: 05/16/02****TEST NUMBER: 2****OPERATING MODE: NORMAL FULL POWER****TRANSMIT MODE – CHANNEL 1-OTP**

**OCCUPIED BANDWIDTH****CUSTOMER: M/A-COM****EQUIPMENT: OPENSky P800 PORTABLE RADIO****TESTED BY: MANUEL MARTINEZ****DATE: 05/16/02****TEST NUMBER: 2****OPERATING MODE: NORMAL FULL CHANNEL TRANSMIT  
MODE - CHANNEL 415- OTP**

**OCCUPIED BANDWIDTH**

**CUSTOMER:** M/A-COM  
**EQUIPMENT:** OPENSky P800 PORTABLE RADIO  
**TESTED BY:** MANUEL MARTINEZ

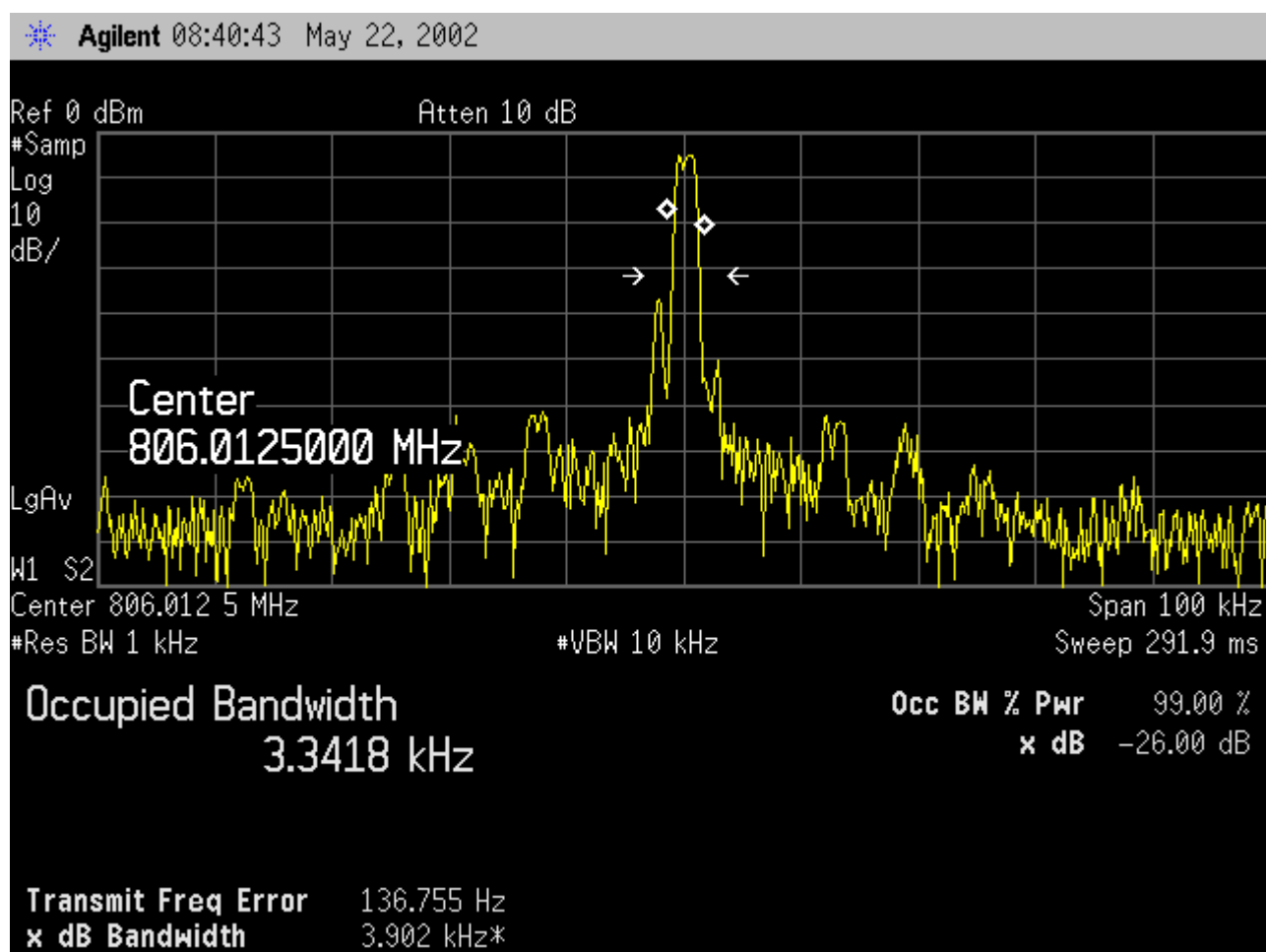
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**TEST NUMBER:** 2  
**OPERATING MODE:** NORMAL FULL POWER  
**TRANSMIT MODE - CHANNEL 830- OTP**

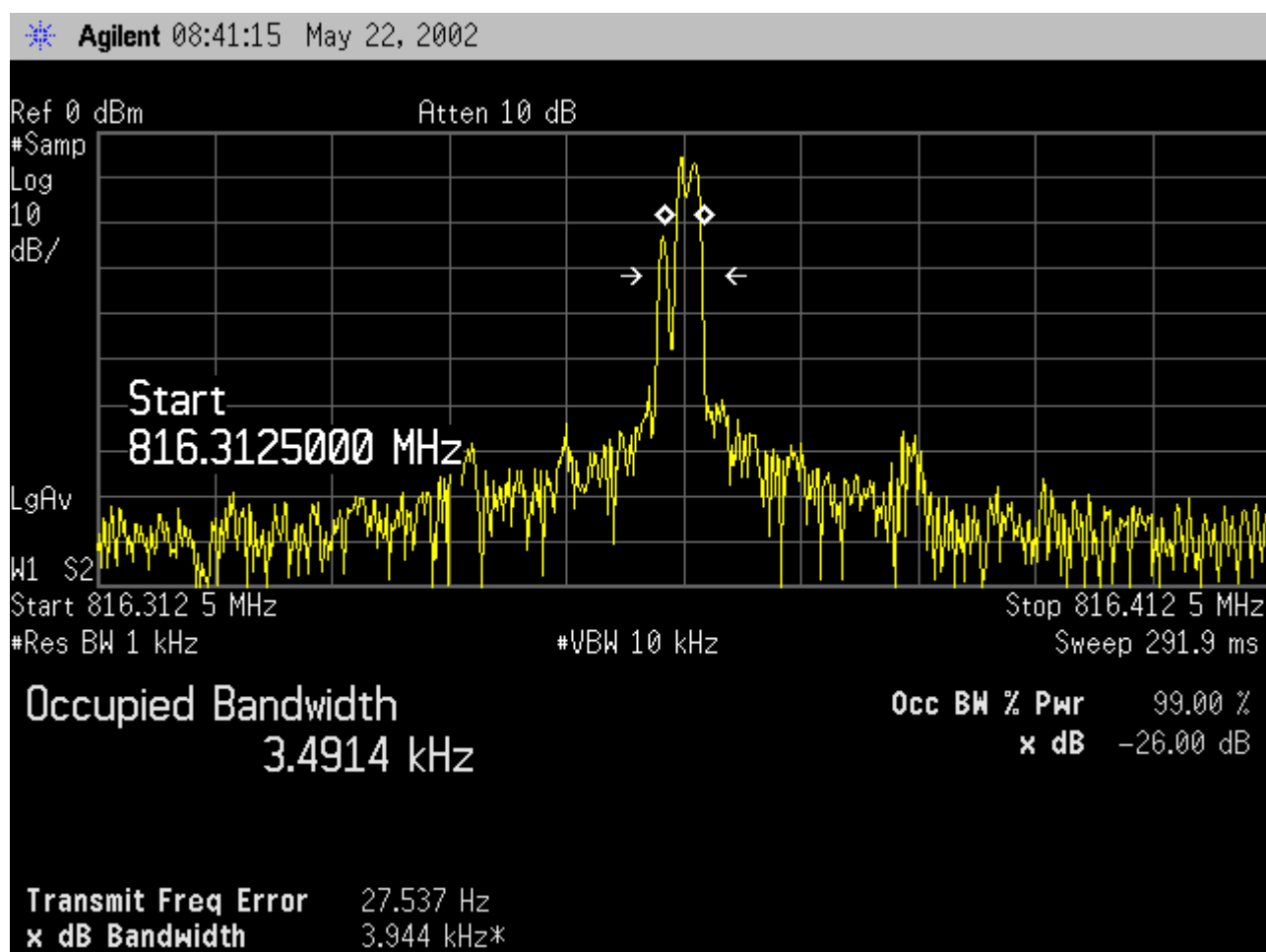


**OCCUPIED BANDWIDTH**

**CUSTOMER:** M/A-COM  
**EQUIPMENT:** OPENSky P800 PORTABLE RADIO  
**TESTED BY:** MANUEL MARTINEZ

**DATE:** 05/16/02  
**TEST NUMBER:** 2  
**OPERATING MODE:** NORMAL FULL POWER  
**TRANSMIT MODE – CHANNEL 1-OCF**

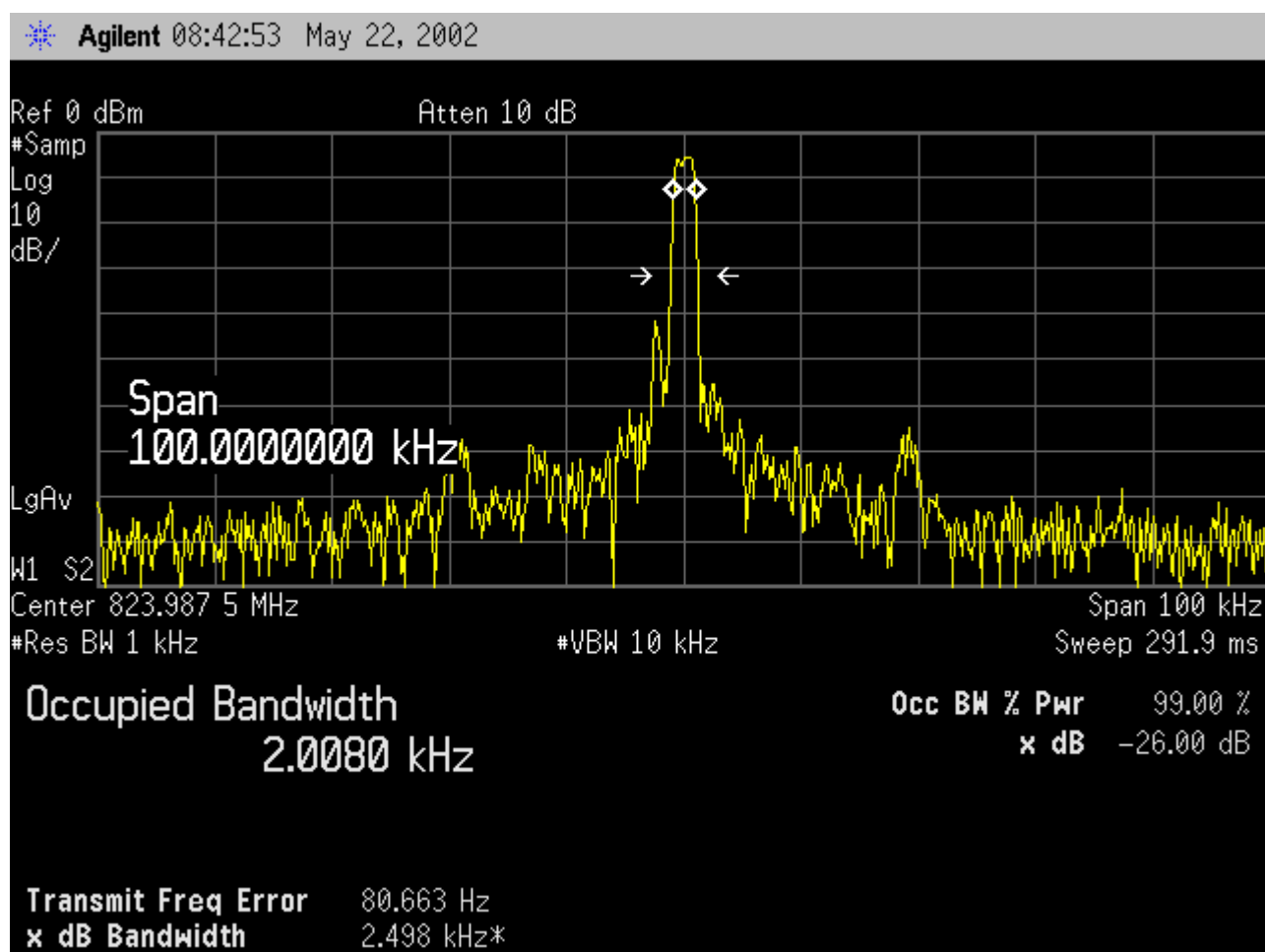


**OCCUPIED BANDWIDTH****CUSTOMER: M/A-COM****EQUIPMENT: OPENSky P800 PORTABLE RADIO****TESTED BY: MANUEL MARTINEZ****DATE: 05/16/02****TEST NUMBER: 2****OPERATING MODE: NORMAL FULL CHANNEL TRANSMIT  
MODE - CHANNEL 415- OCF**

**OCCUPIED BANDWIDTH**

**CUSTOMER:** M/A-COM  
**EQUIPMENT:** OPENSky P800 PORTABLE RADIO  
**TESTED BY:** MANUEL MARTINEZ

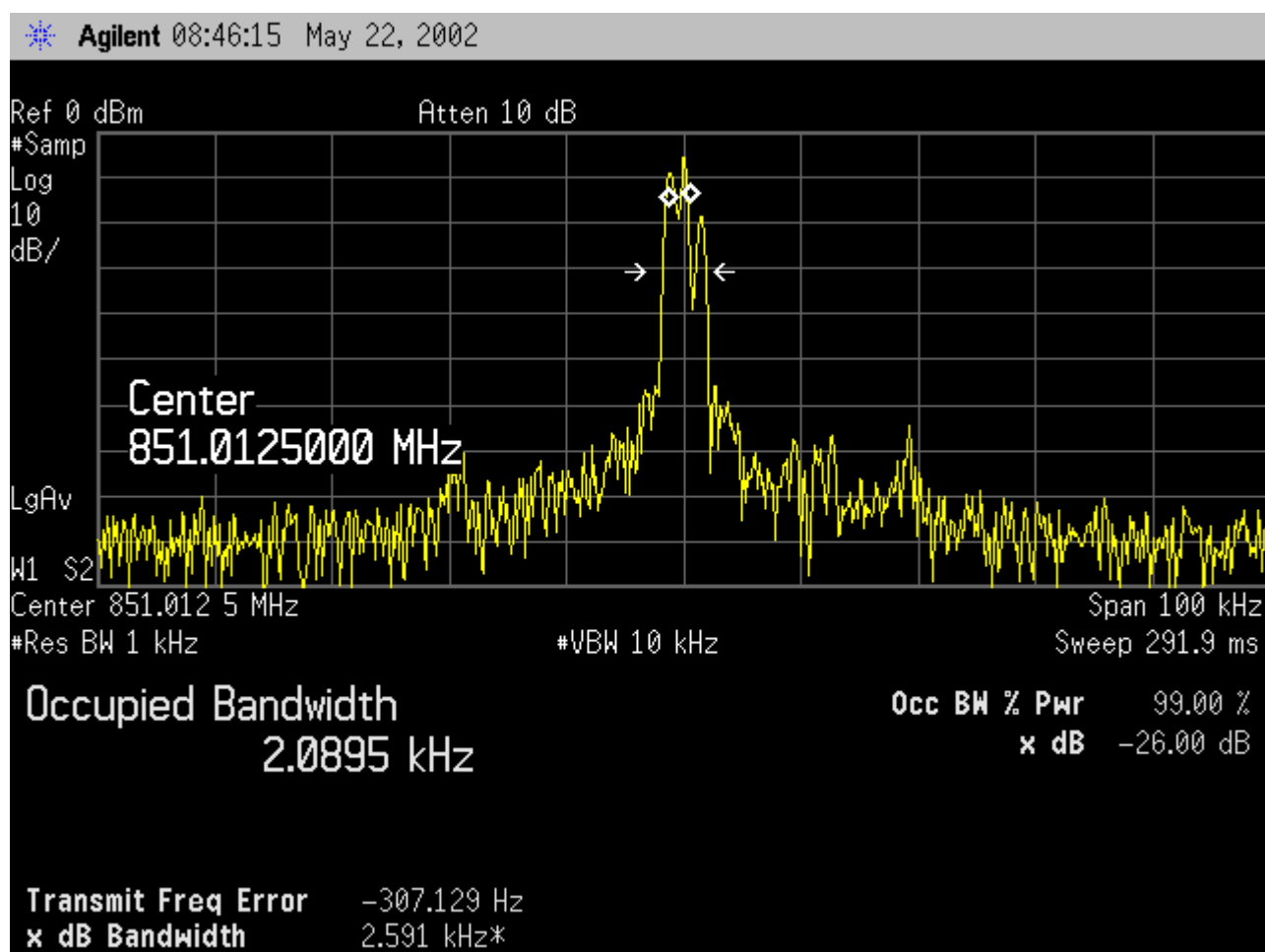
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**TEST NUMBER:** 2  
**OPERATING MODE:** NORMAL FULL POWER  
**TRANSMIT MODE - CHANNEL 830- OCF**



**OCCUPIED BANDWIDTH**

**CUSTOMER:** M/A-COM  
**EQUIPMENT:** OPENSky P800 PORTABLE RADIO  
**TESTED BY:** MANUEL MARTINEZ

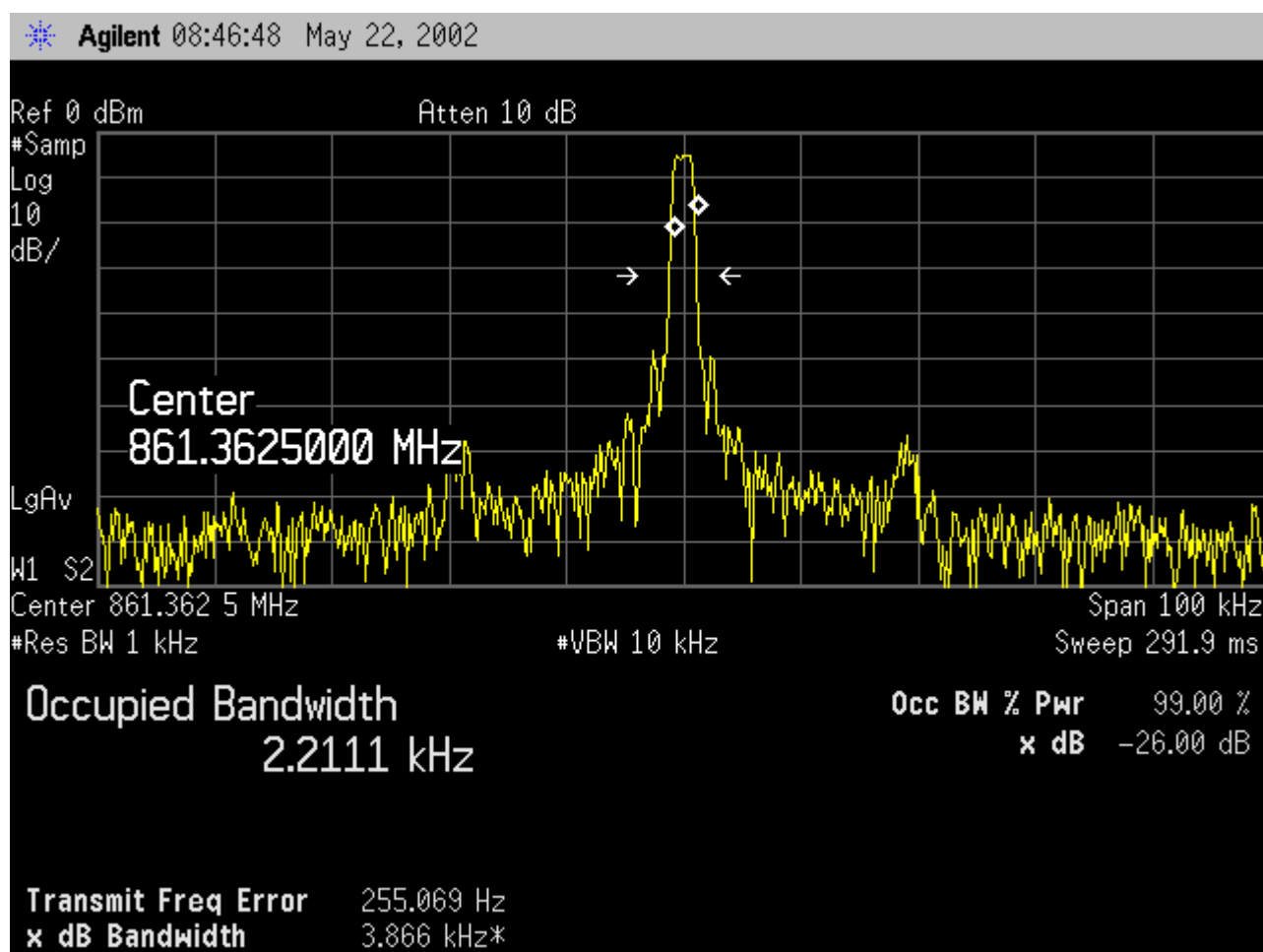
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**TEST NUMBER:** 2  
**OPERATING MODE:** NORMAL FULL POWER  
**TRANSMIT MODE – CHANNEL 1-OCF TALK AROUND**



**OCCUPIED BANDWIDTH**

**CUSTOMER:** M/A-COM  
**EQUIPMENT:** OPENSky P800 PORTABLE RADIO  
**TESTED BY:** MANUEL MARTINEZ

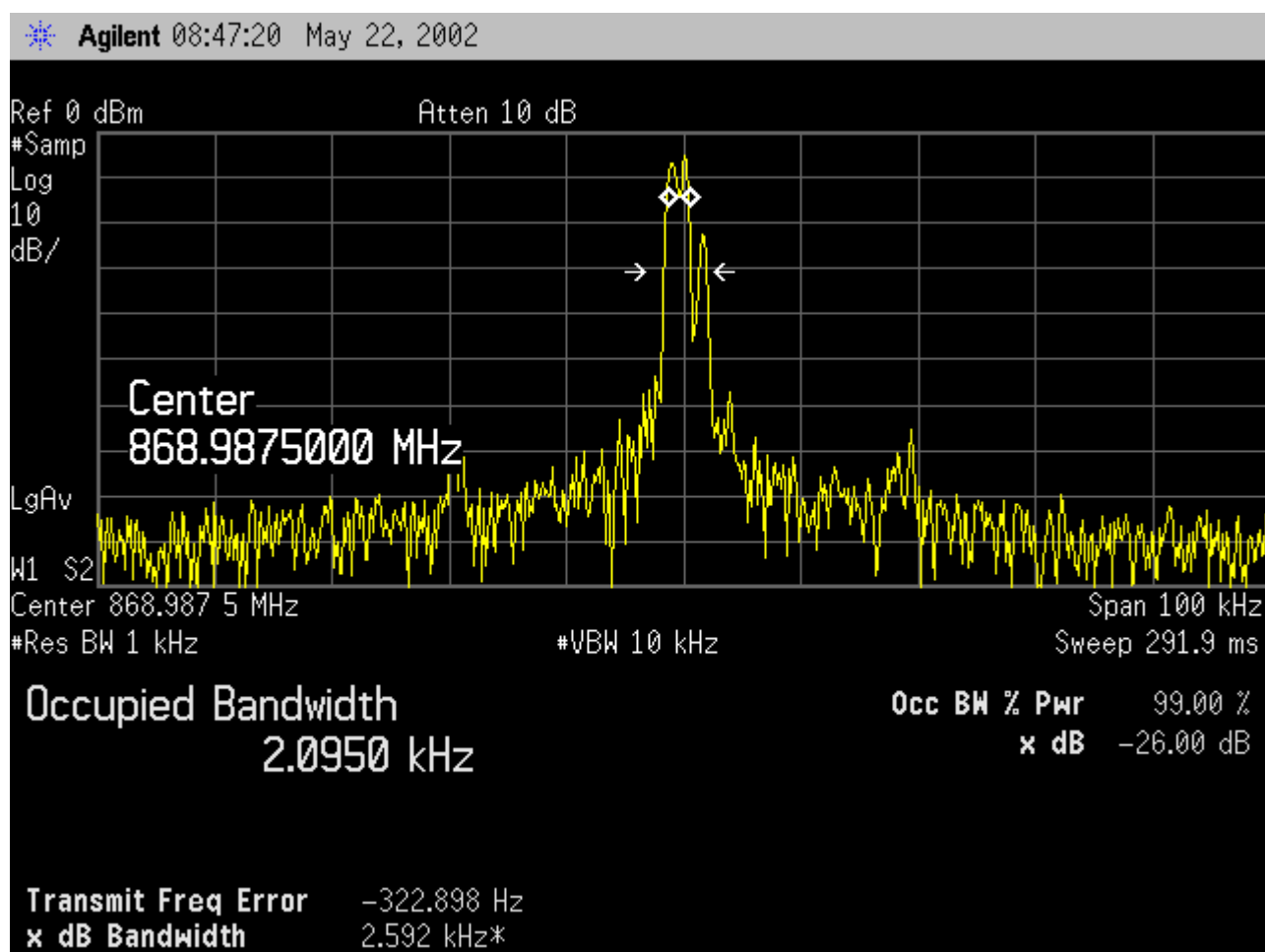
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**TEST NUMBER:** 2  
**OPERATING MODE:** NORMAL FULL CHANNEL TRANSMIT  
**MODE - CHANNEL 415- OCF TALK AROUND**



**TEST SERVICES****OCCUPIED BANDWIDTH**

**CUSTOMER:** M/A-COM  
**EQUIPMENT:** OPENSky P800 PORTABLE RADIO  
**TESTED BY:** MANUEL MARTINEZ

**DATE:** 05/16/02  
**TEST NUMBER:** 2  
**OPERATING MODE:** NORMAL FULL POWER  
**TRANSMIT MODE - CHANNEL 830- OCF TALK AROUND**



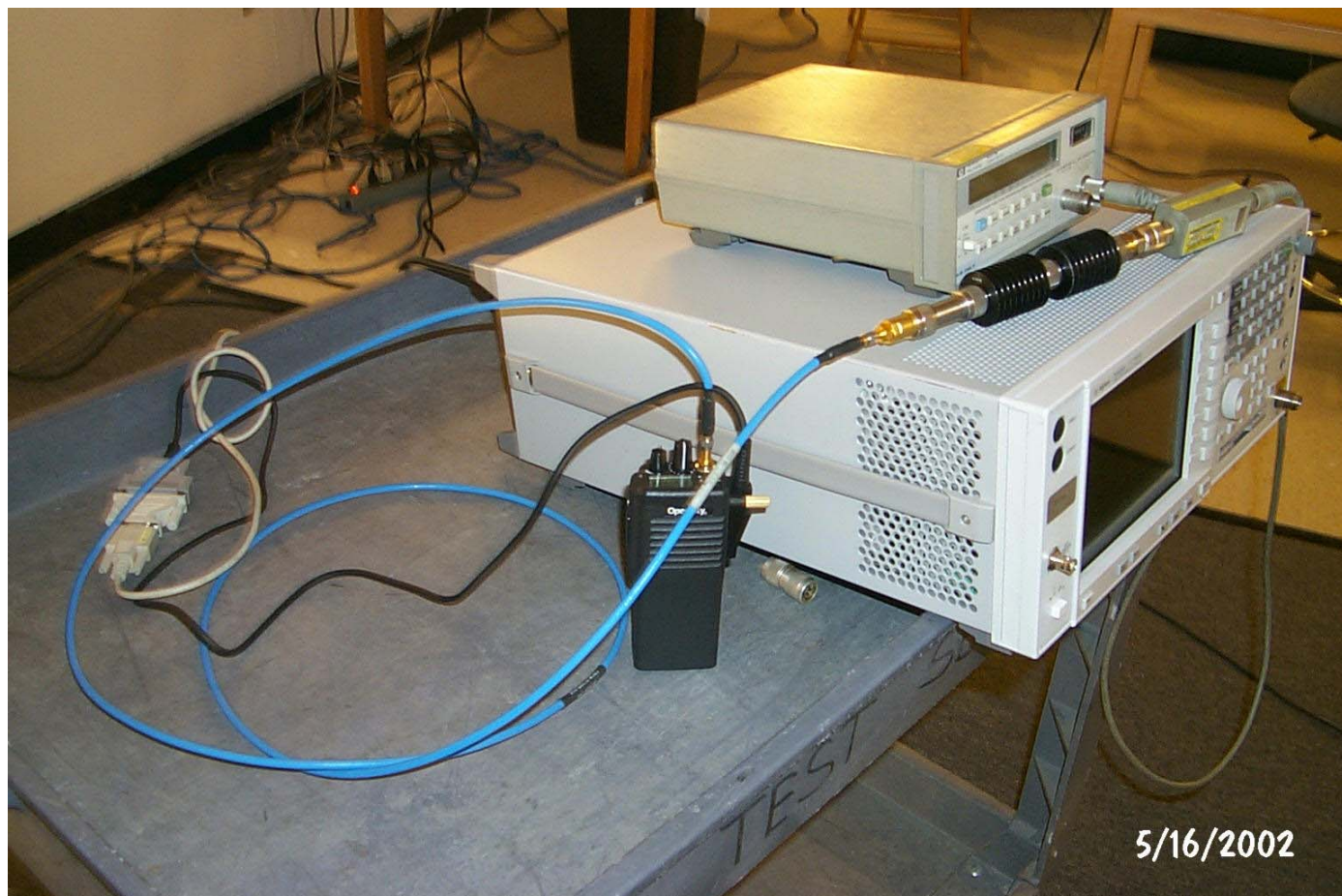
**2.2.6 Photographic Documentation**

**CUSTOMER: M/A-COM**

**EQUIPMENT: OPENSky P800 PORTABLE RADIO**

**DATE: 04/22/02 AND 05/16/02**

**TEST NUMBER: 2**



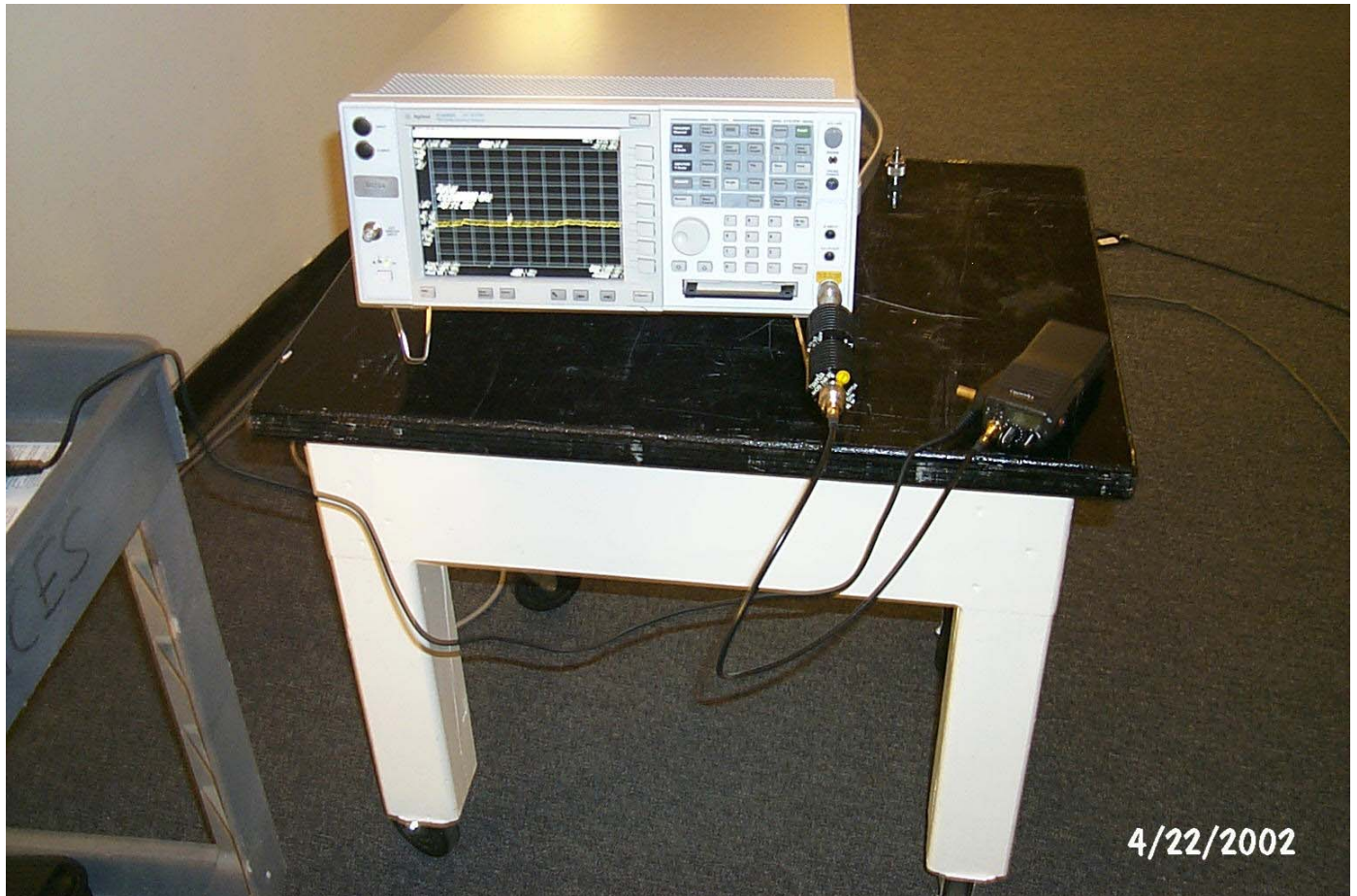
**Photographic Documentation**

**CUSTOMER: M/A-COM**

**EQUIPMENT: OPENSky P800 PORTABLE RADIO**

**DATE: 04/22/02 AND 05/16/02**

**TEST NUMBER: 2**



Photograph Description: Radiated set-up

**FORM CTS-PHOTO**

**2.3 Emission Mask****2.3.1 Equipment Used**

| Test Equipment |                                   | Asset # | Serial #   | Cal Date |
|----------------|-----------------------------------|---------|------------|----------|
| X              | H/P E4401 Spectrum Analyzer       | N/A     | 4895C76451 | 04/03    |
| X              | Narda 769-20 High Band Attenuator | 284     | 03793      | C.P.U.   |
| X              | Narda 769-20 High Band Attenuator | 471     | 02951      | C.P.U.   |

**2.3.2 Test Conditions**

The Emission Mask was measured with the OpenSky P800 Portable Radio placed on top of a wooded turntable located in Test Site A. The ambient temperature of the room was 20°C.

The OpenSky P800 Portable Radio was configured to operate in all three modes of operation transmitting at the low, mid and high frequency of each band. The OpenSky P800 Portable Radio was set up and powered by a fully charged battery for the test.

The modes of operation and frequencies tested are as follows:

| OCF Mode |             | OTP Mode |             | OCF Talk Around |             |
|----------|-------------|----------|-------------|-----------------|-------------|
| Ch# 1    | 806.0125MHz | Ch# 1    | 806.0125MHz | Ch# 1           | 851.0125MHz |
| Ch# 415  | 816.3625MHz | Ch# 415  | 816.3625MHz | Ch# 415         | 861.3625MHz |
| Ch# 830  | 823.9875MHz | Ch# 830  | 823.9875MHz | Ch# 830         | 868.9875MHz |

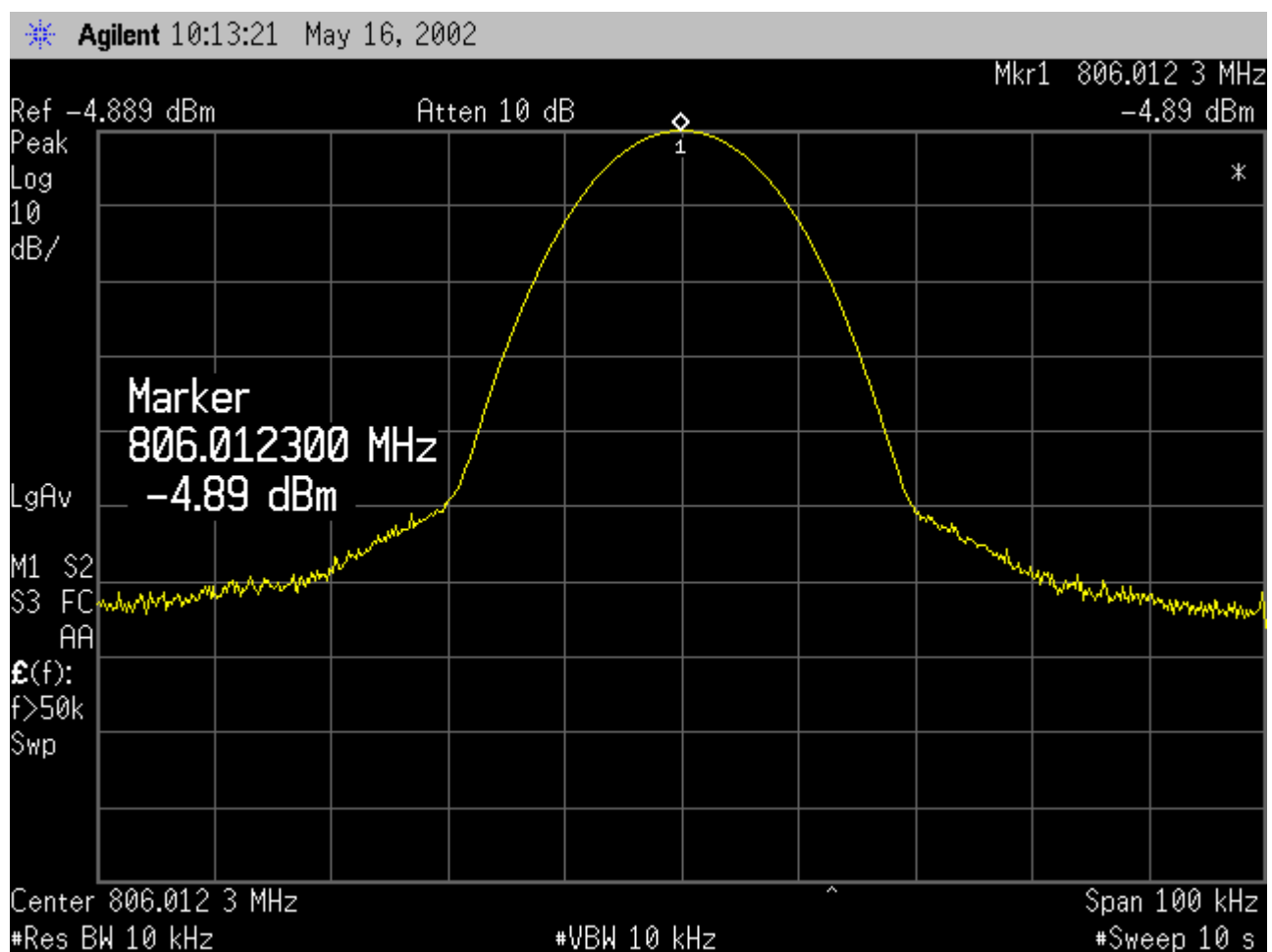
**2.3.3 Test Method**

The output of the OpenSky P800 Portable Radio was connected to a spectrum analyzer via a N-Type cable and 40dB of attenuation. The P800 was set up to transmit with out modulation the power level of transmission was recorded and the spectrum analyzers reference level was see to that power level. The P800 was then set to transmit with the desired modulation and frequency scan of the transmitted signal was saved and compared to the appropriate emission mask.

The output of the OpenSky radio was compared to the Emissions Mask H of FCC Part 90.210.

**2.3.4 Results**

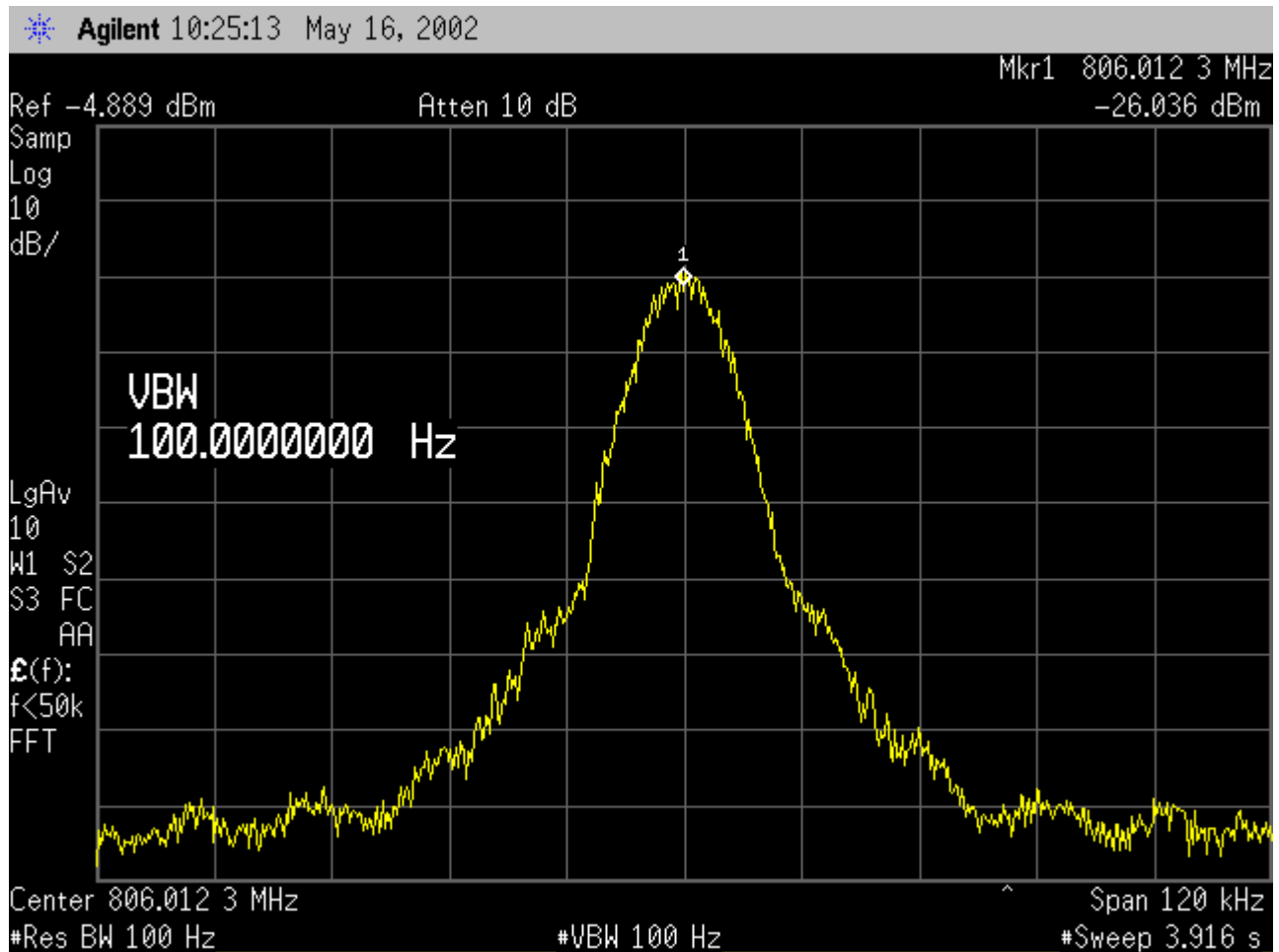
The M/A-Com OpenSky P800 Portable Radio met the requirements of FCC Part 90.210 Emissions Mask H.

**2.3.5 Test Data****EMISSION MASK****CUSTOMER: M/A-COM****EQUIPMENT: OPENSky P800 PORTABLE RADIO****TESTED BY: MANUEL MARTINEZ****DATE: 05/16/02****TEST NUMBER: 6****OPERATING MODE: NORMAL FULL POWER****TRANSMIT MODE – CHANNEL 1**

## EMISSION MASK

**CUSTOMER:** M/A-COM  
**EQUIPMENT:** OPENSky P800 PORTABLE RADIO  
**TESTED BY:** MANUEL MARTINEZ

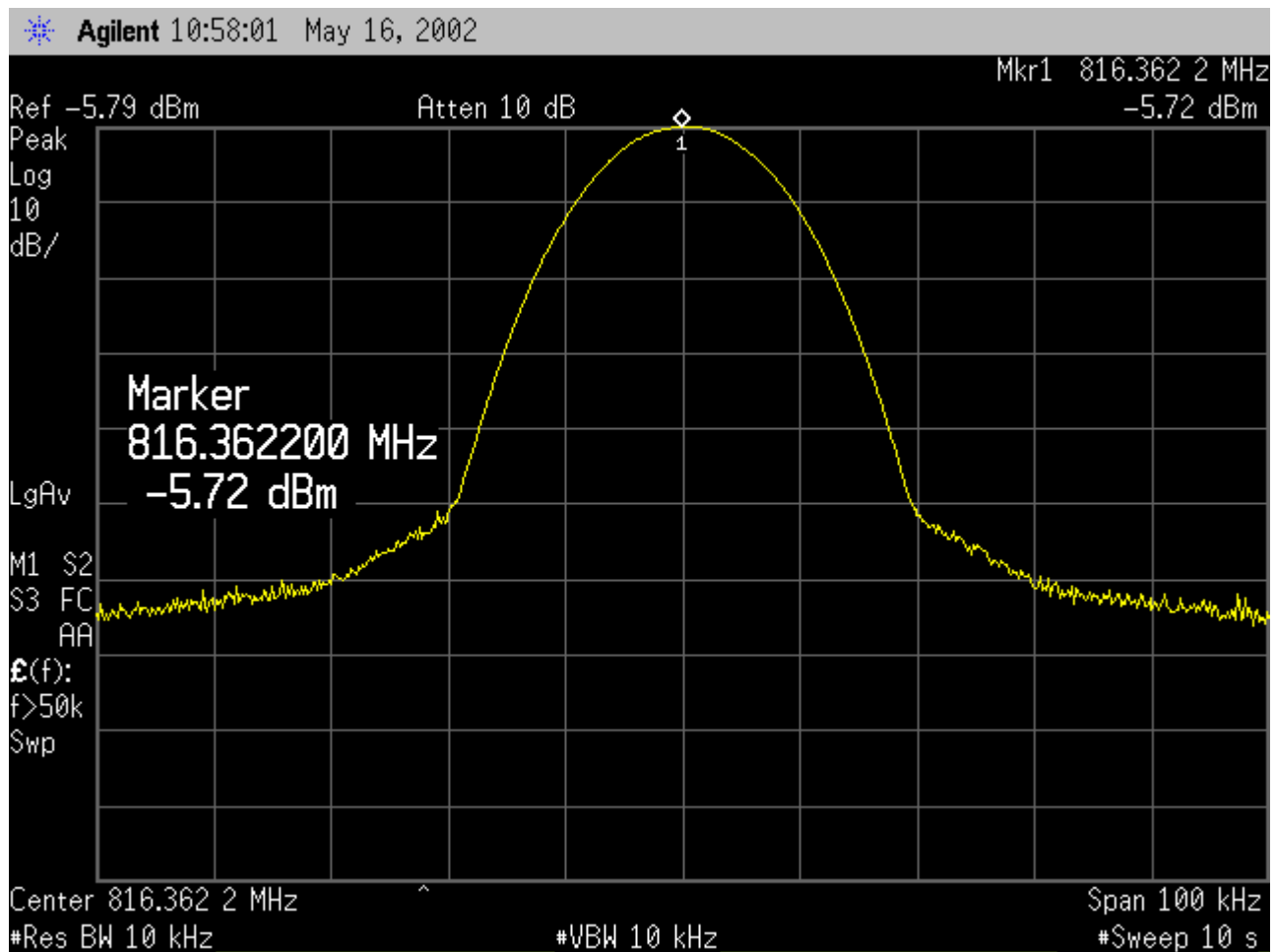
**DATE:** 05/16/02  
**TEST NUMBER:** 6  
**OPERATING MODE:** NORMAL FULL POWER  
**TRANSMIT MODE – CHANNEL 1-OTP**

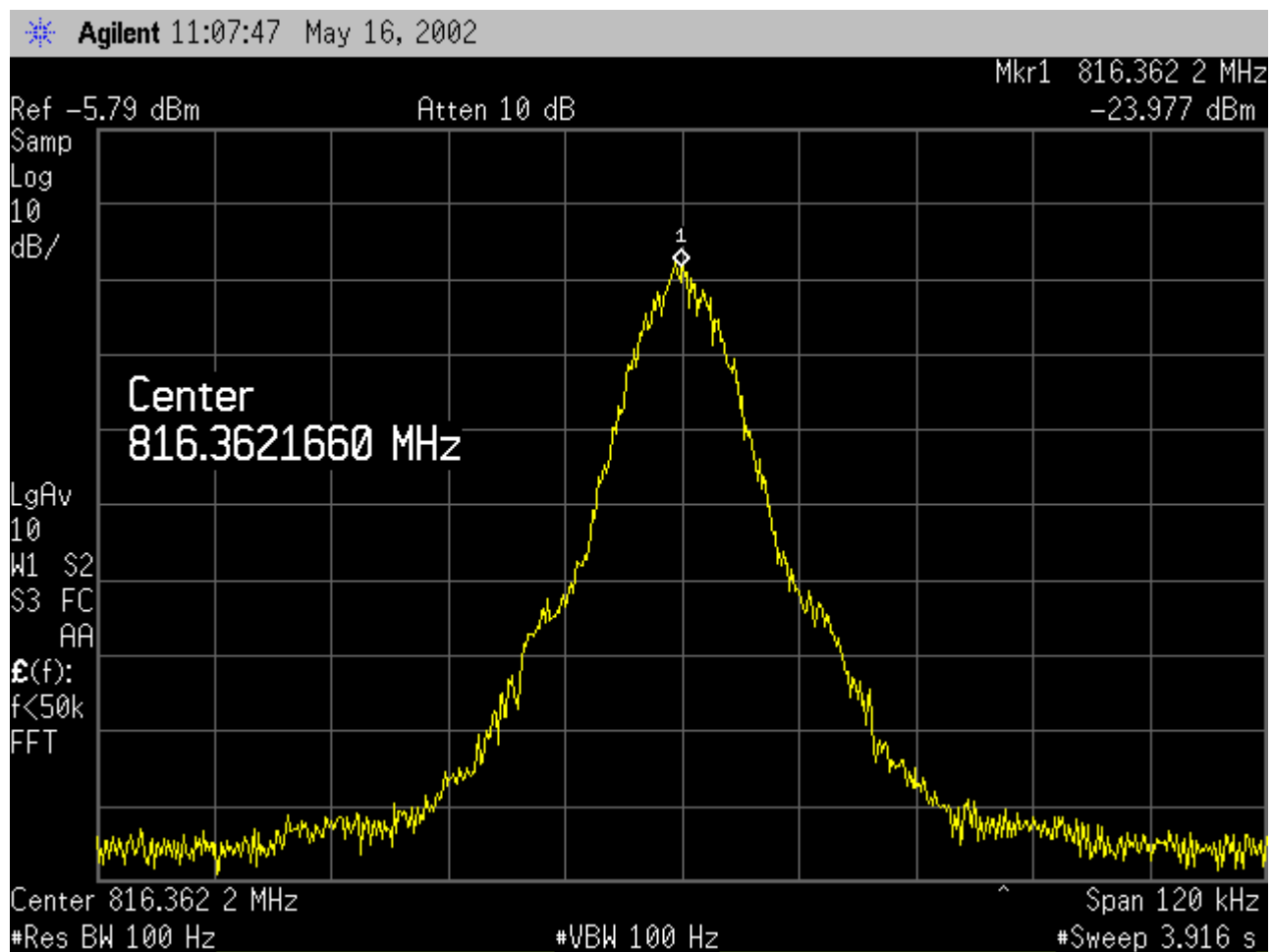


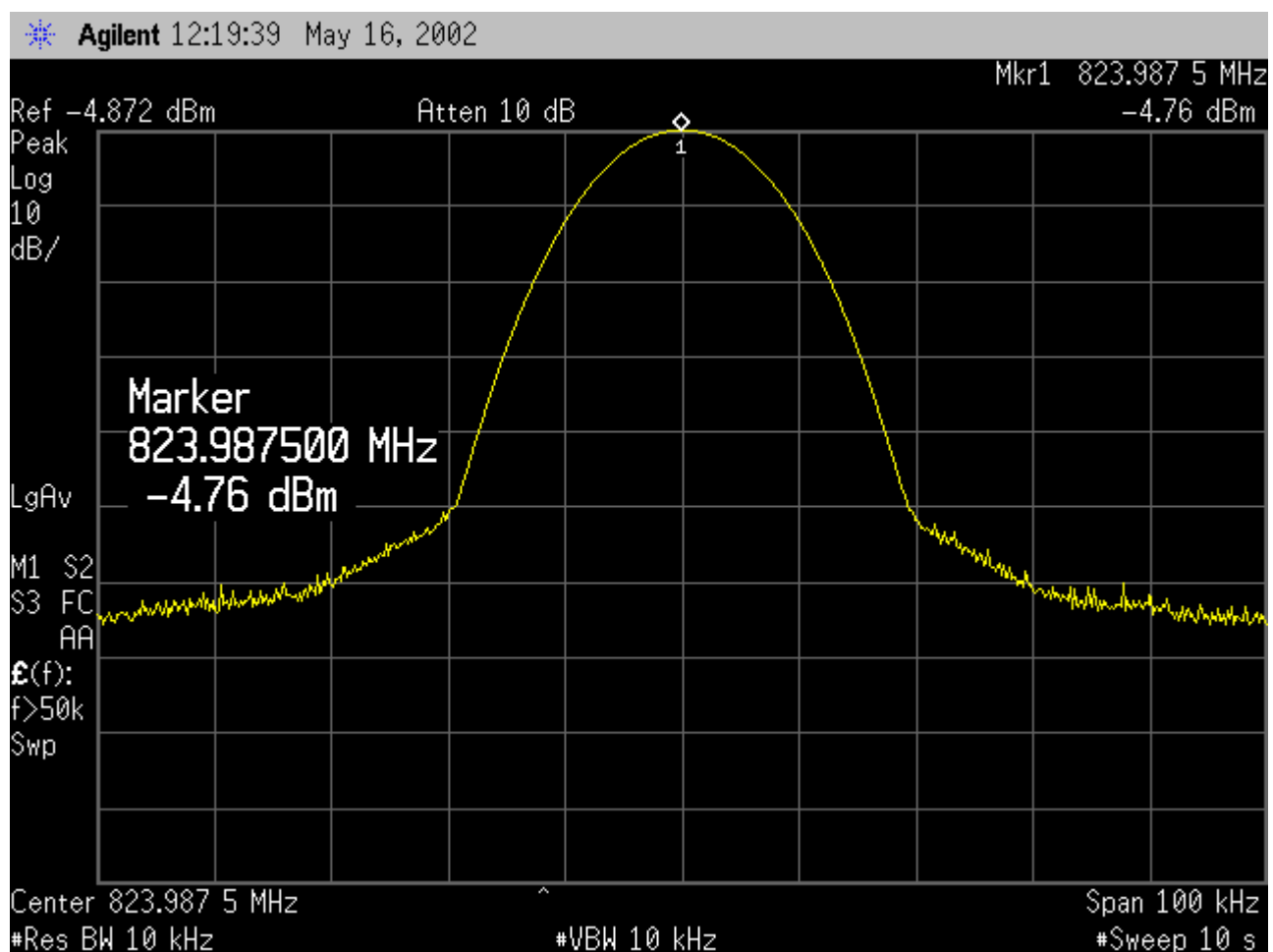
### EMISSION MASK

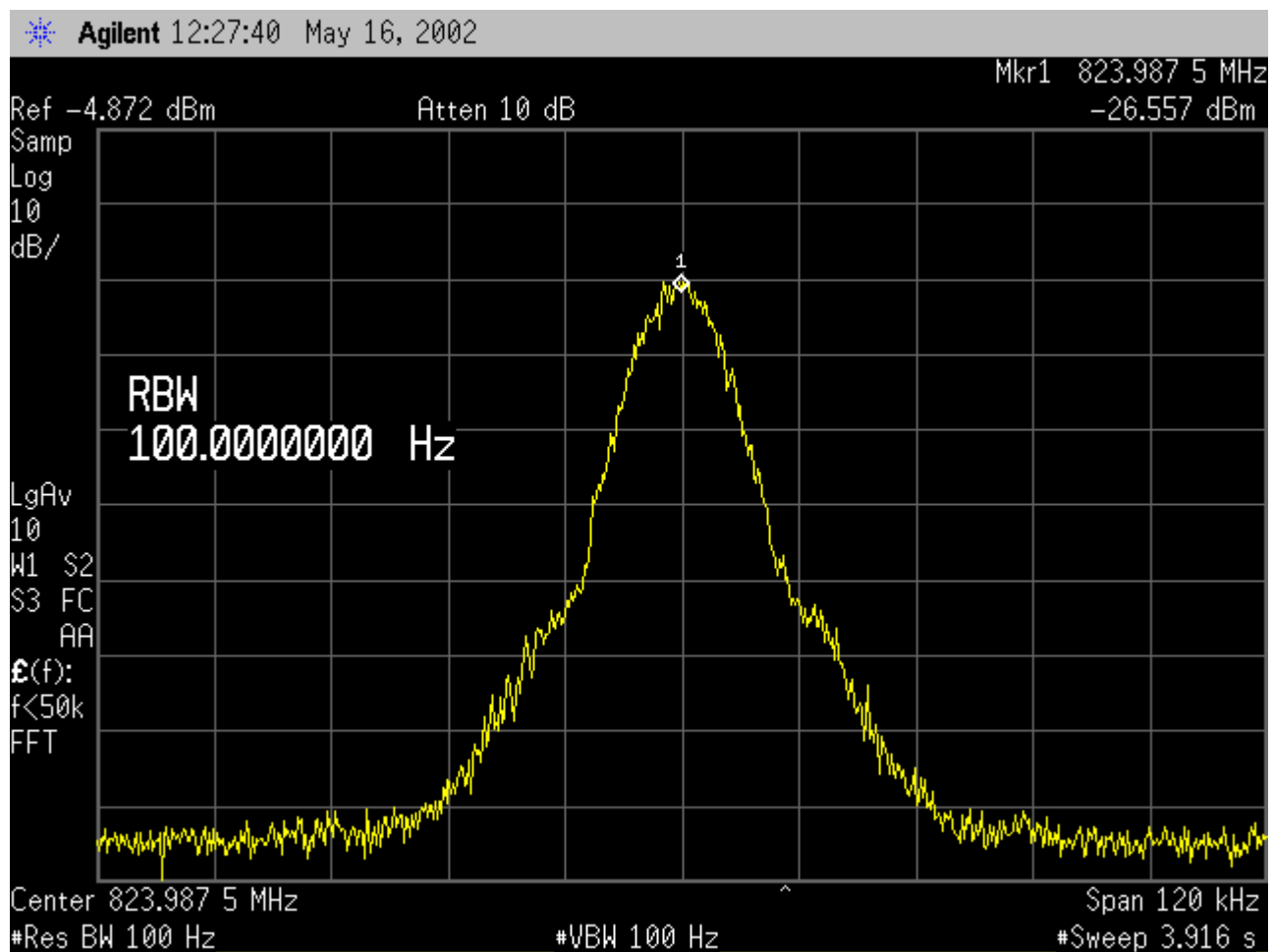
**CUSTOMER:** M/A-COM  
**EQUIPMENT:** OPENSky P800 PORTABLE RADIO  
**TESTED BY:** MANUEL MARTINEZ

**DATE:** 05/16/02  
**TEST NUMBER:** 6  
**OPERATING MODE:** NORMAL FULL POWER  
**TRANSMIT MODE – CHANNEL 415-OTP**



**EMISSION MASK****CUSTOMER: M/A-COM****EQUIPMENT: OPENSky P800 PORTABLE RADIO****TESTED BY: MANUEL MARTINEZ****DATE: 05/16/02****TEST NUMBER: 6****OPERATING MODE: NORMAL FULL POWER****TRANSMIT MODE – CHANNEL 415-OTP**

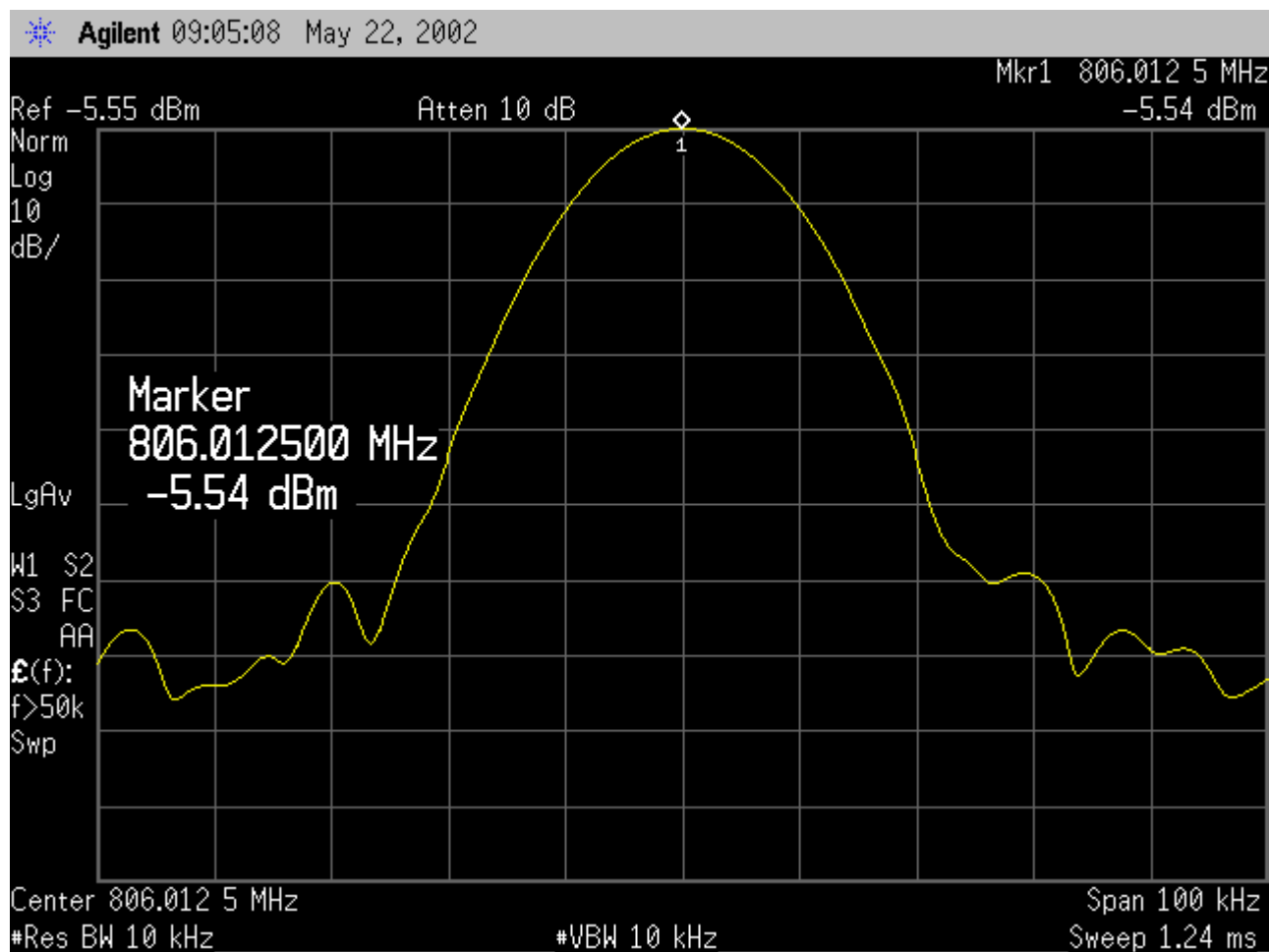
**EMISSION MASK****CUSTOMER: M/A-COM****EQUIPMENT: OPENSky P800 PORTABLE RADIO****TESTED BY: MANUEL MARTINEZ****DATE: 05/16/02****TEST NUMBER: 6****OPERATING MODE: NORMAL FULL POWER****TRANSMIT MODE – CHANNEL 830-OTP**

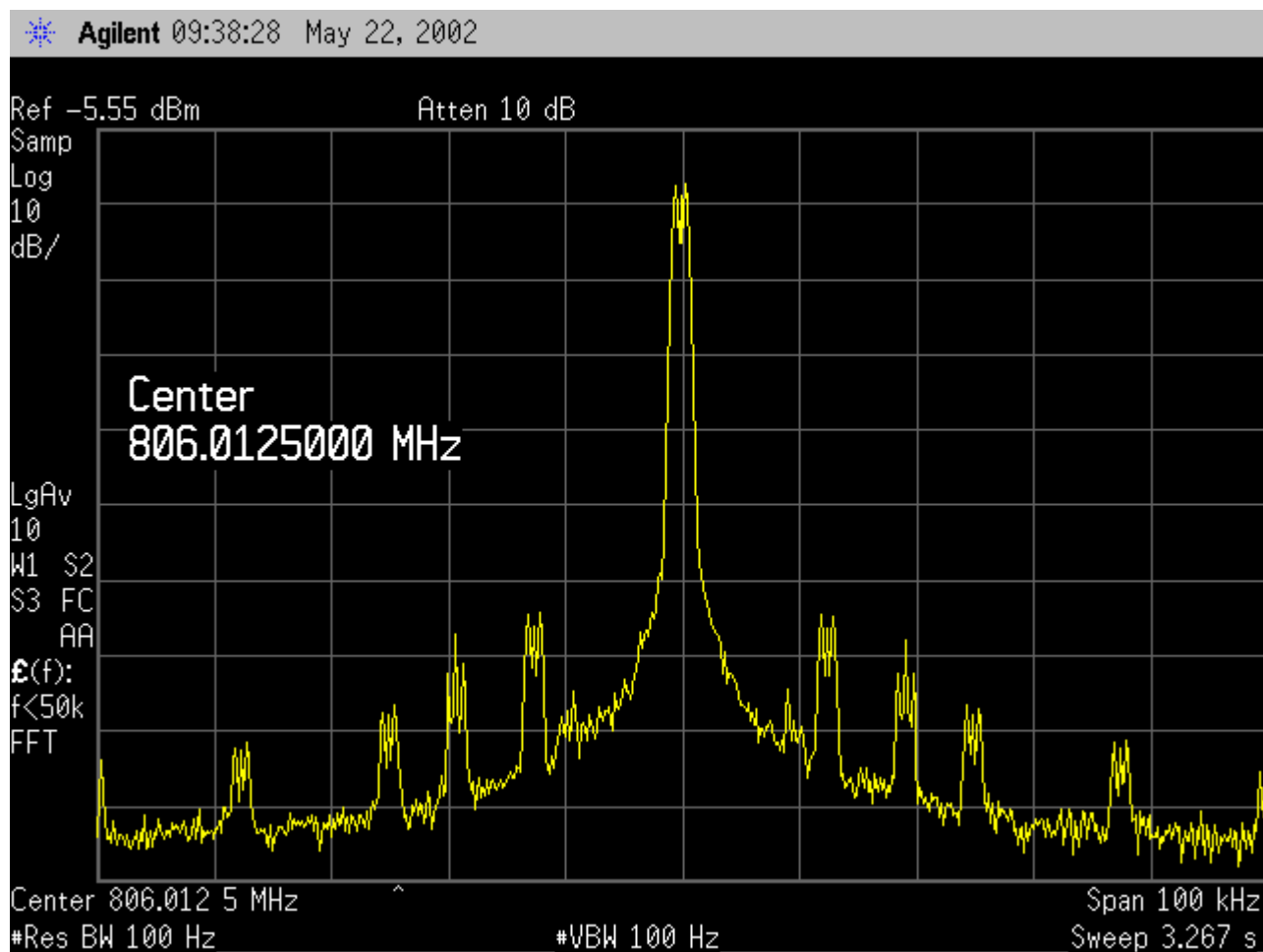
**EMISSION MASK****CUSTOMER: M/A-COM****EQUIPMENT: OPENSky P800 PORTABLE RADIO****TESTED BY: MANUEL MARTINEZ****DATE: 05/16/02****TEST NUMBER: 6****OPERATING MODE: NORMAL FULL POWER****TRANSMIT MODE – CHANNEL 830-OTP**

### EMISSION MASK

**CUSTOMER:** M/A-COM  
**EQUIPMENT:** OPENSky P800 PORTABLE RADIO  
**TESTED BY:** MANUEL MARTINEZ

**DATE:** 05/16/02  
**TEST NUMBER:** 6  
**OPERATING MODE:** NORMAL FULL POWER  
**TRANSMIT MODE – CHANNEL 1-OCF**

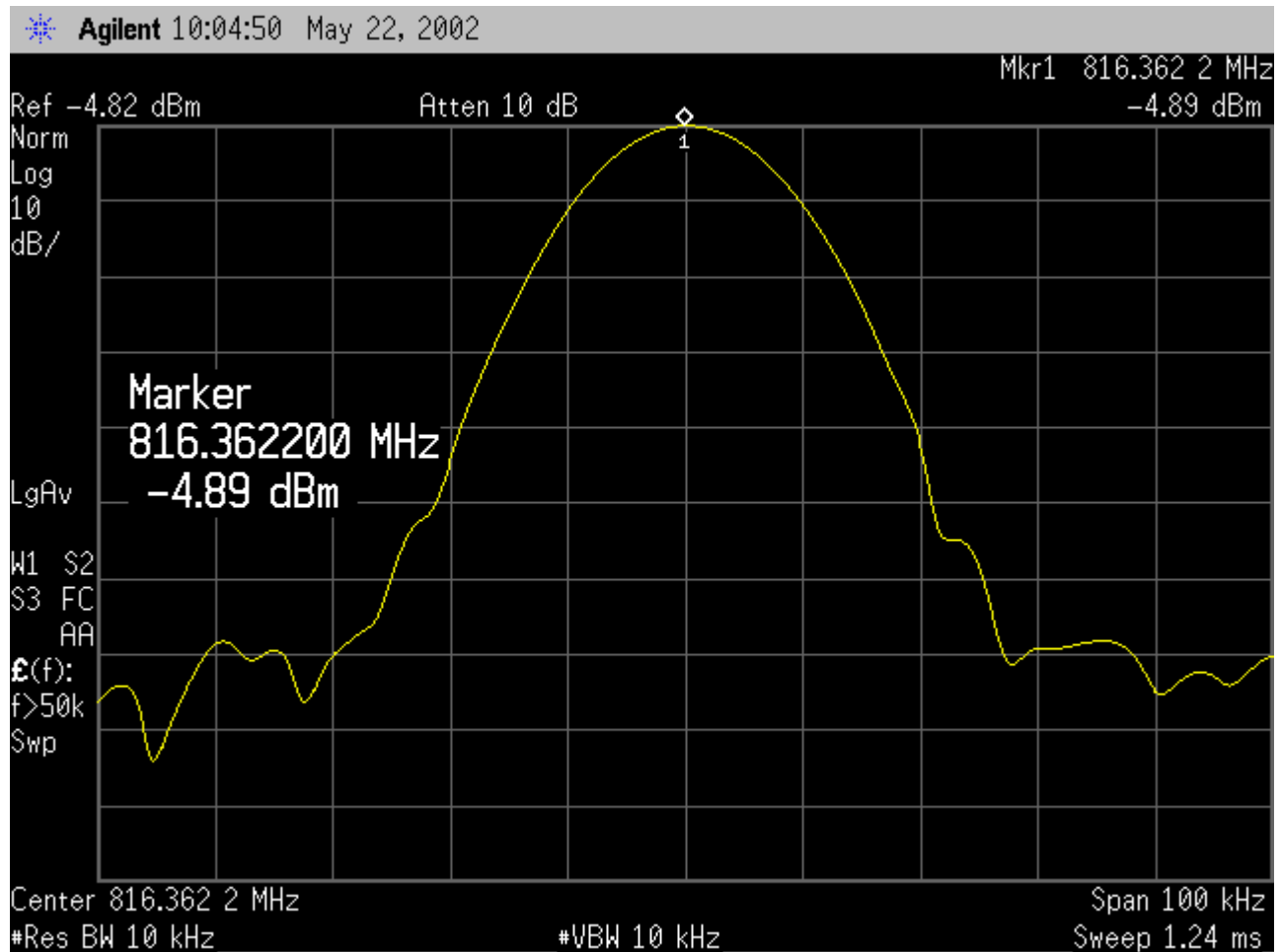


**EMISSION MASK****CUSTOMER: M/A-COM****EQUIPMENT: OPENSky P800 PORTABLE RADIO****TESTED BY: MANUEL MARTINEZ****DATE: 05/16/02****TEST NUMBER: 6****OPERATING MODE: NORMAL FULL POWER****TRANSMIT MODE – CHANNEL 1-OCF**

## EMISSION MASK

**CUSTOMER:** M/A-COM  
**EQUIPMENT:** OPENSky P800 PORTABLE RADIO  
**TESTED BY:** MANUEL MARTINEZ

**DATE:** 05/16/02  
**TEST NUMBER:** 6  
**OPERATING MODE:** NORMAL FULL POWER  
**TRANSMIT MODE – CHANNEL 415-OCF**



## EMISSION MASK

**CUSTOMER: M/A-COM**

**EQUIPMENT: OPENSky P800 PORTABLE RADIO**

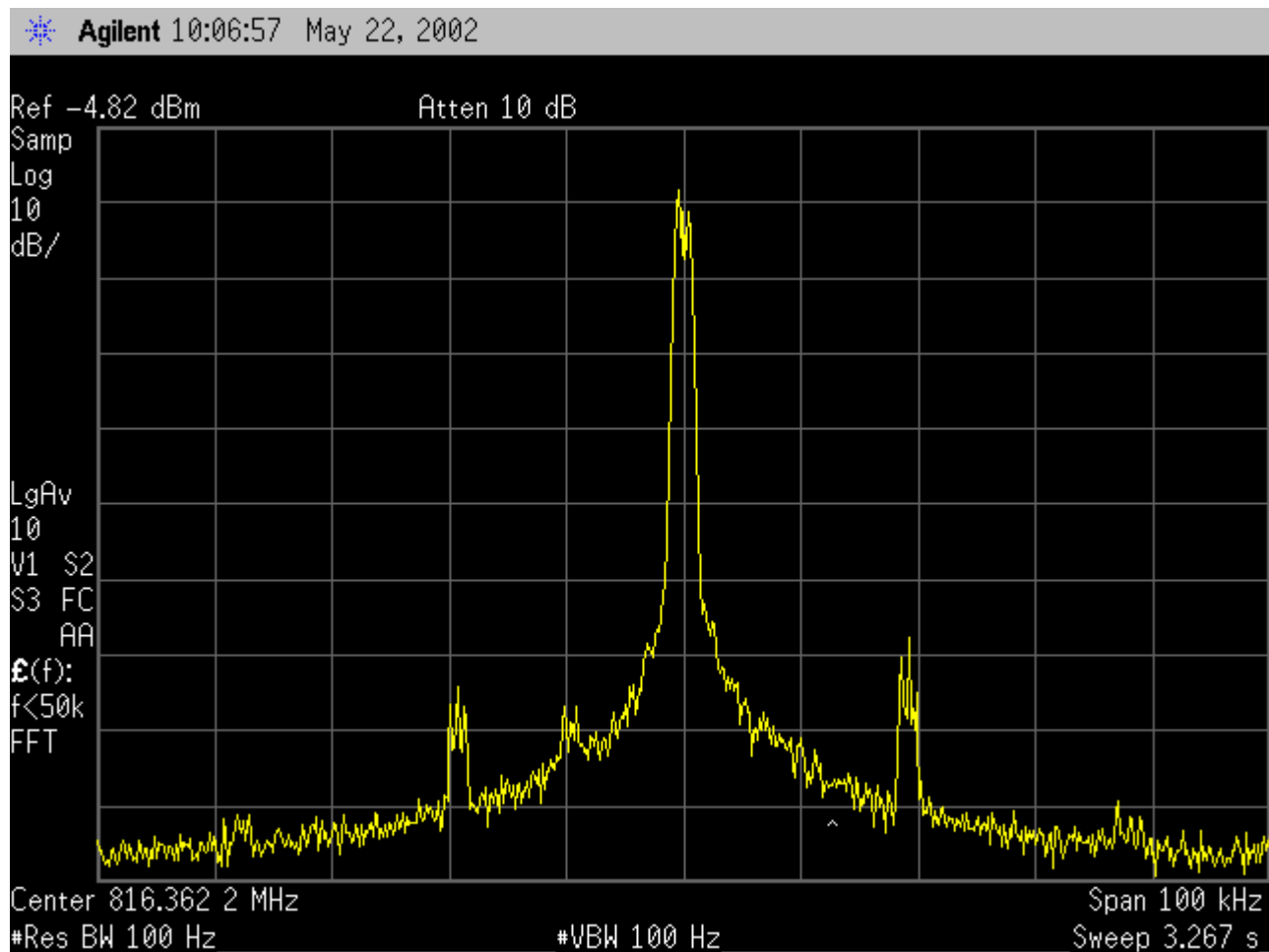
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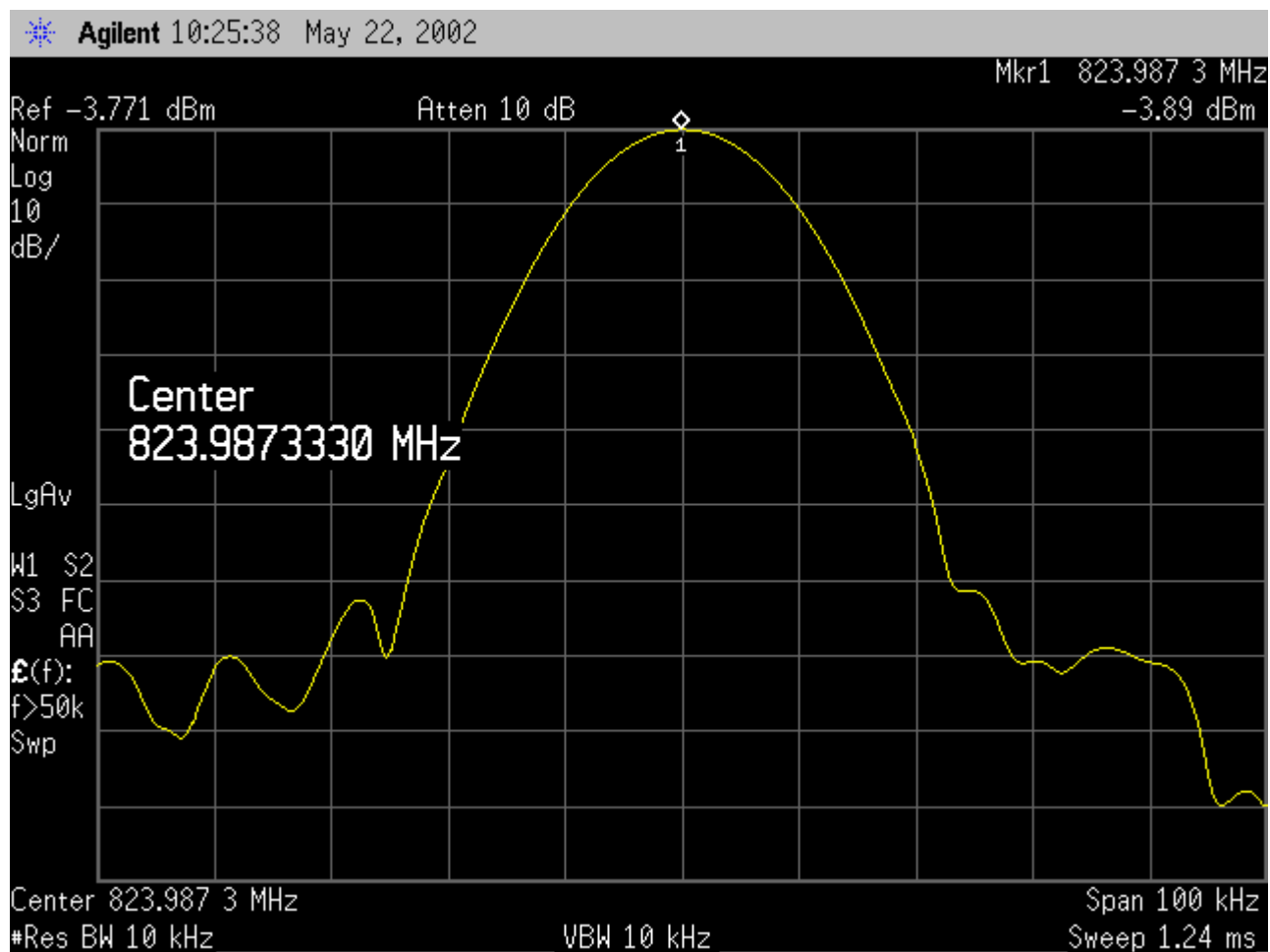
**DATE: 05/16/02**

**TEST NUMBER: 6**

**OPERATING MODE: NORMAL FULL POWER**

**TRANSMIT MODE – CHANNEL 415-OCF**

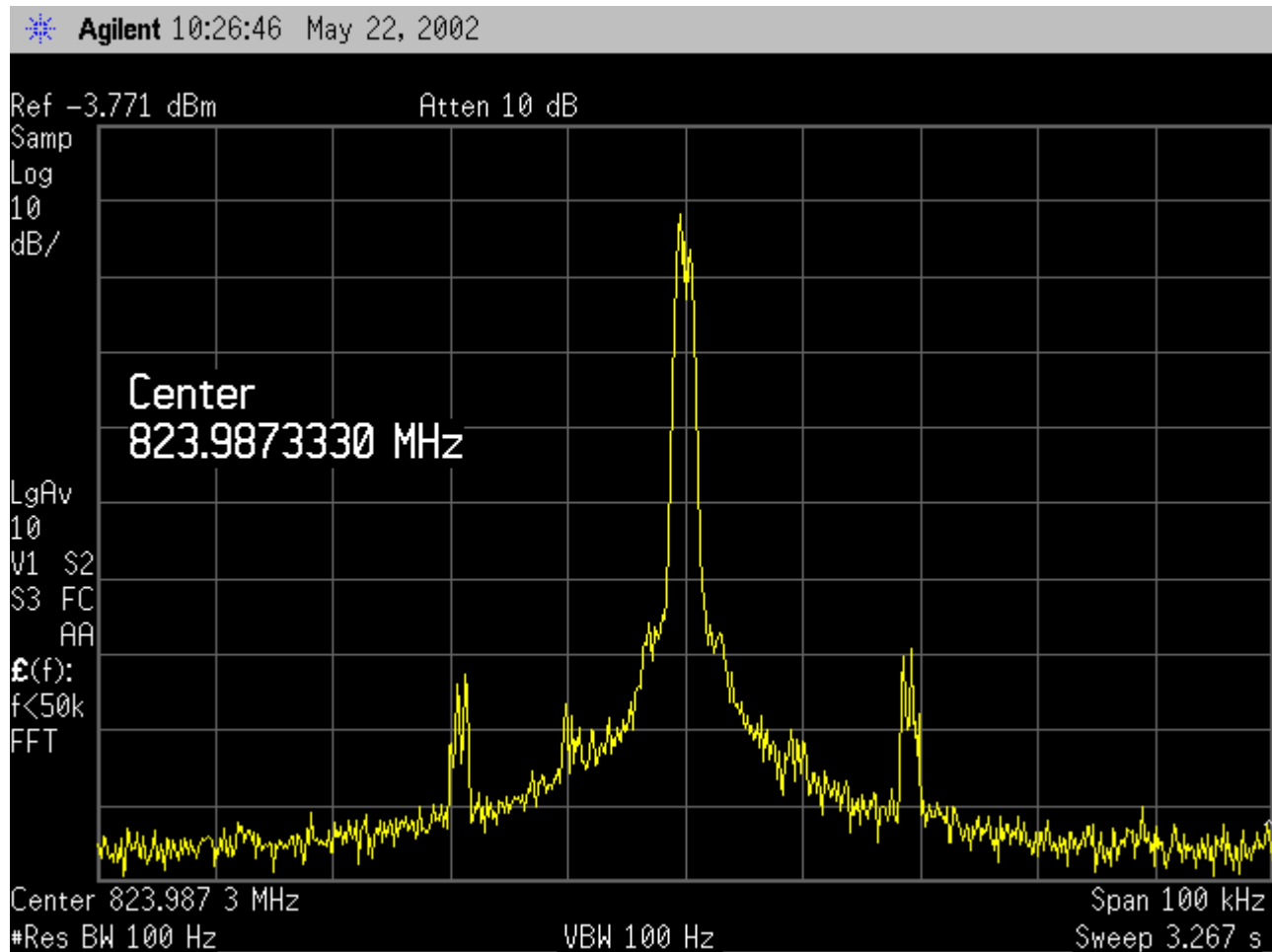


**EMISSION MASK****CUSTOMER: M/A-COM****EQUIPMENT: OPENSky P800 PORTABLE RADIO****TESTED BY: MANUEL MARTINEZ****DATE: 05/16/02****TEST NUMBER: 6****OPERATING MODE: NORMAL FULL POWER****TRANSMIT MODE – CHANNEL 8305-OCF**

### EMISSION MASK

**CUSTOMER:** M/A-COM  
**EQUIPMENT:** OPENSky P800 PORTABLE RADIO  
**TESTED BY:** MANUEL MARTINEZ

**DATE:** 05/16/02  
**TEST NUMBER:** 6  
**OPERATING MODE:** NORMAL FULL POWER  
**TRANSMIT MODE – CHANNEL 830-OCF**



## EMISSION MASK

**CUSTOMER: M/A-COM**

**EQUIPMENT: OPENSky P800 PORTABLE RADIO**

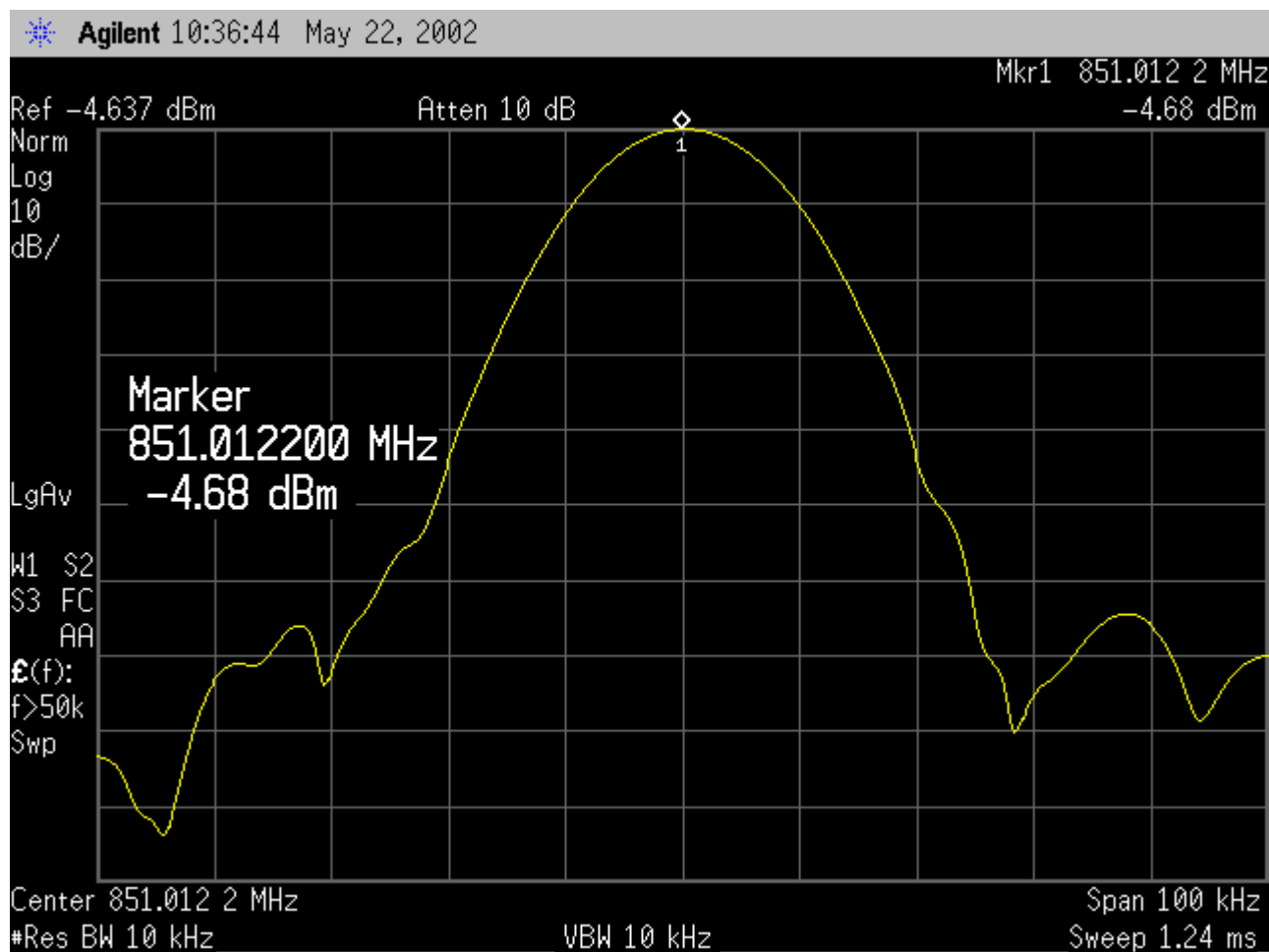
**TESTED BY: MANUEL MARTINEZ**

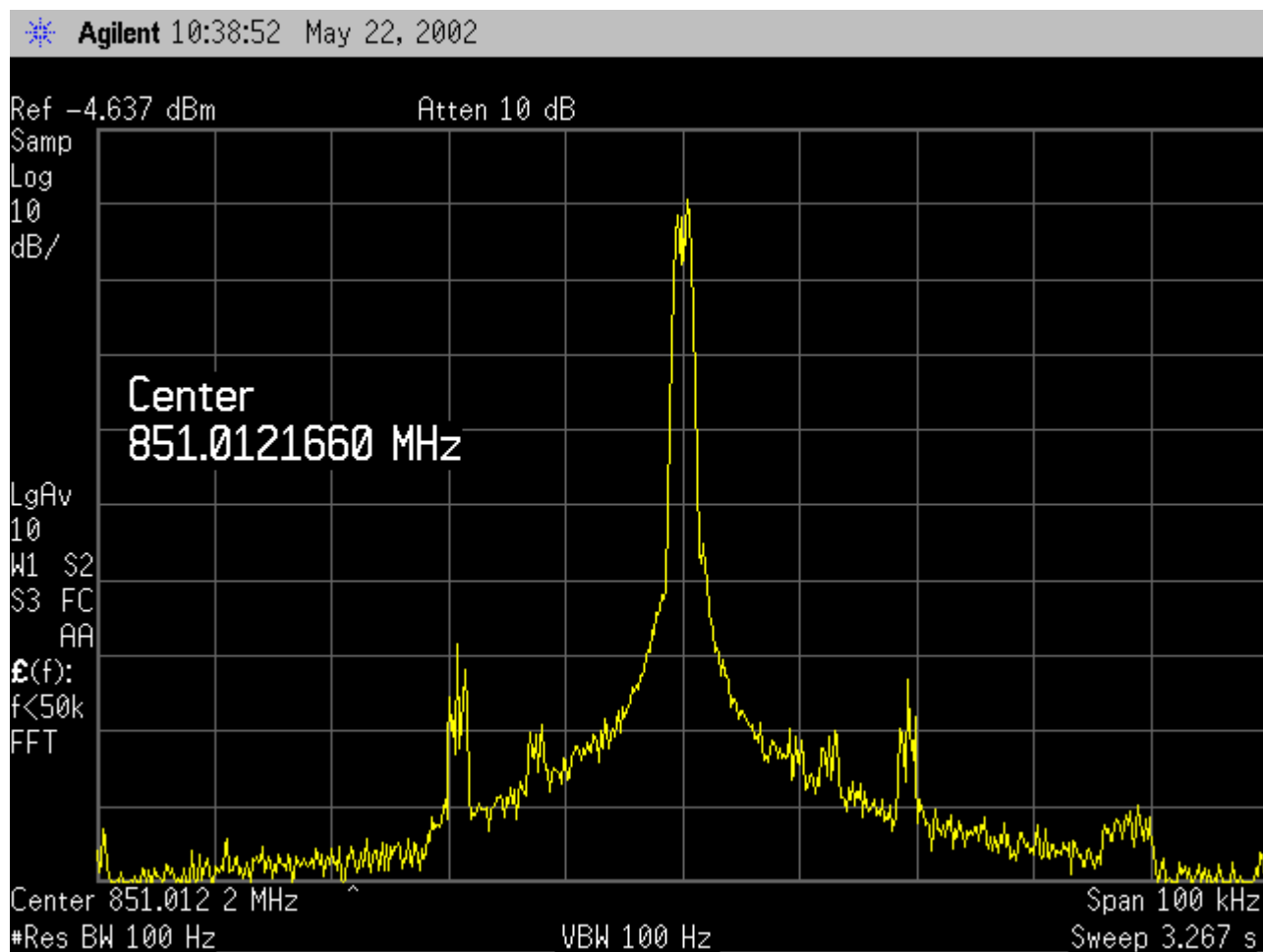
**DATE: 05/16/02**

**TEST NUMBER: 6**

**OPERATING MODE: NORMAL FULL POWER**

**TRANSMIT MODE – CHANNEL 1-OCF TALK AROUND**



**EMISSION MASK****CUSTOMER: M/A-COM****EQUIPMENT: OPENSky P800 PORTABLE RADIO****TESTED BY: MANUEL MARTINEZ****DATE: 05/16/02****TEST NUMBER: 6****OPERATING MODE: NORMAL FULL POWER****TRANSMIT MODE – CHANNEL 1-OCF TALK AROUND**

### EMISSION MASK

**CUSTOMER: M/A-COM**

**EQUIPMENT: OPENSky P800 PORTABLE RADIO**

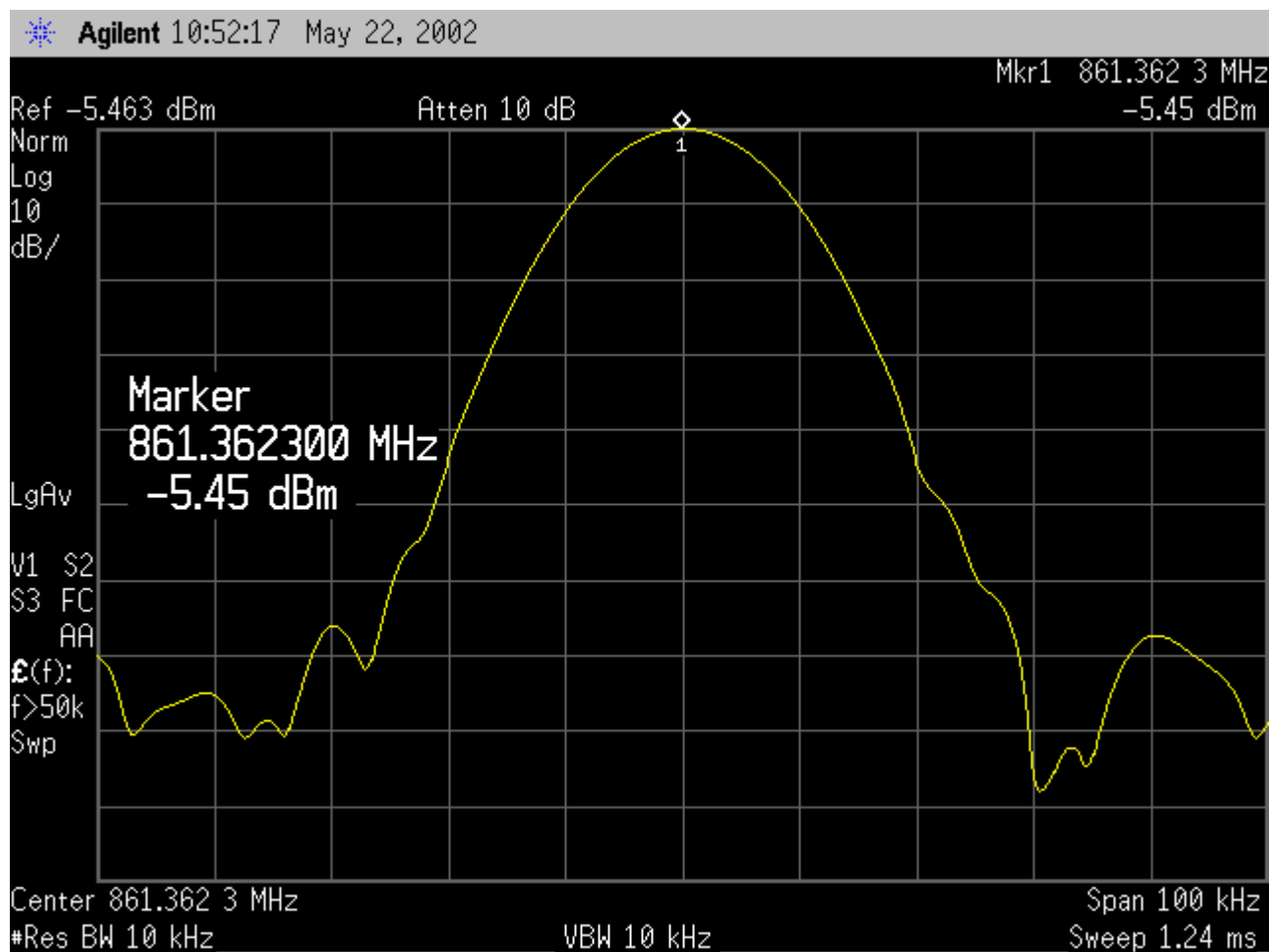
**TESTED BY: MANUEL MARTINEZ**

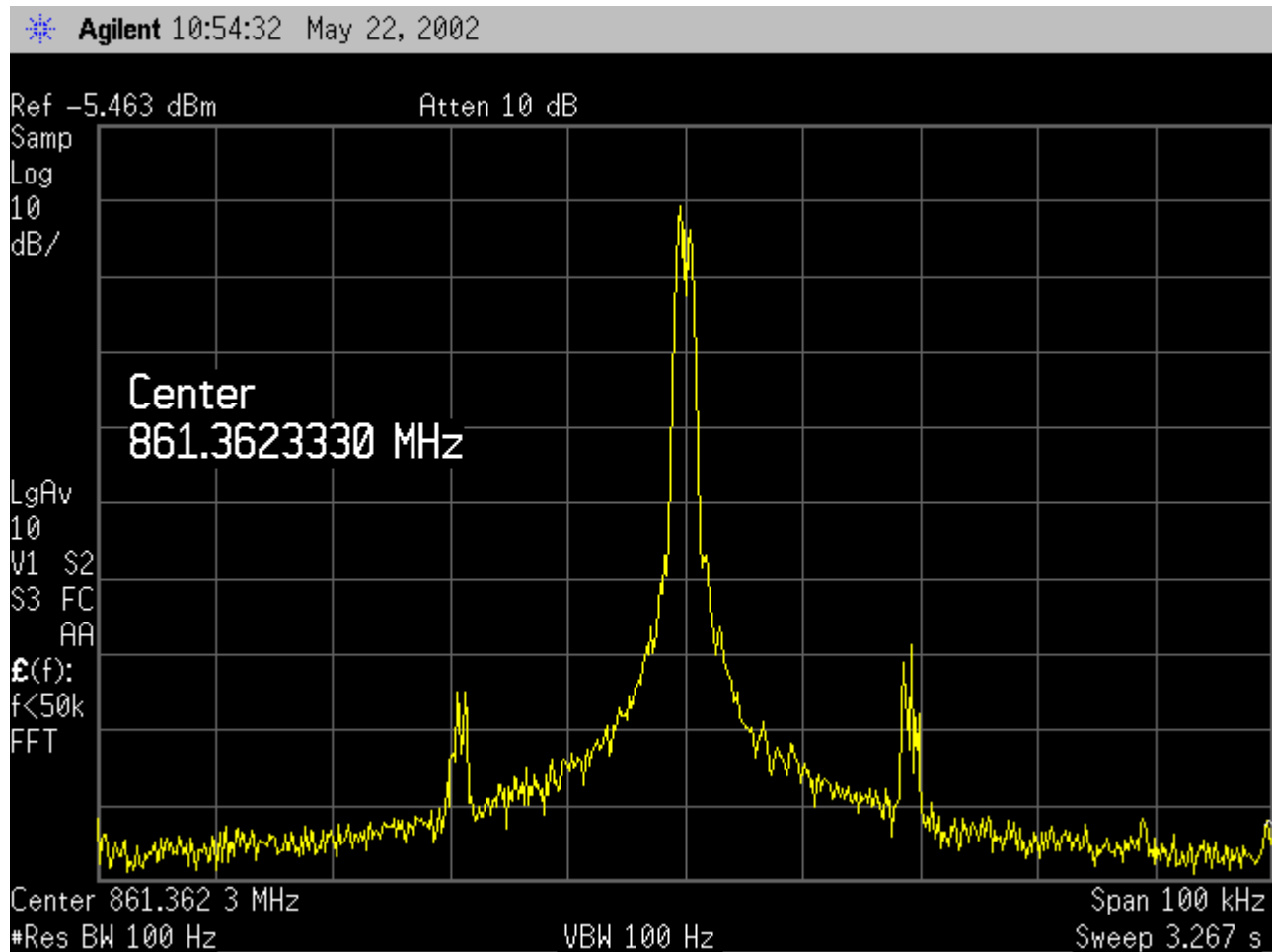
**DATE: 05/16/02**

**TEST NUMBER: 6**

**OPERATING MODE: NORMAL FULL POWER**

**TRANSMIT MODE – CHANNEL 415-OCF TALK AROUND**



**EMISSION MASK****CUSTOMER: M/A-COM****EQUIPMENT: OPENSky P800 PORTABLE RADIO****TESTED BY: MANUEL MARTINEZ****DATE: 05/16/02****TEST NUMBER: 6****OPERATING MODE: NORMAL FULL POWER****TRANSMIT MODE – CHANNEL 415-OCF TALK AROUND**

## EMISSION MASK

**CUSTOMER: M/A-COM**

**EQUIPMENT: OPENSky P800 PORTABLE RADIO**

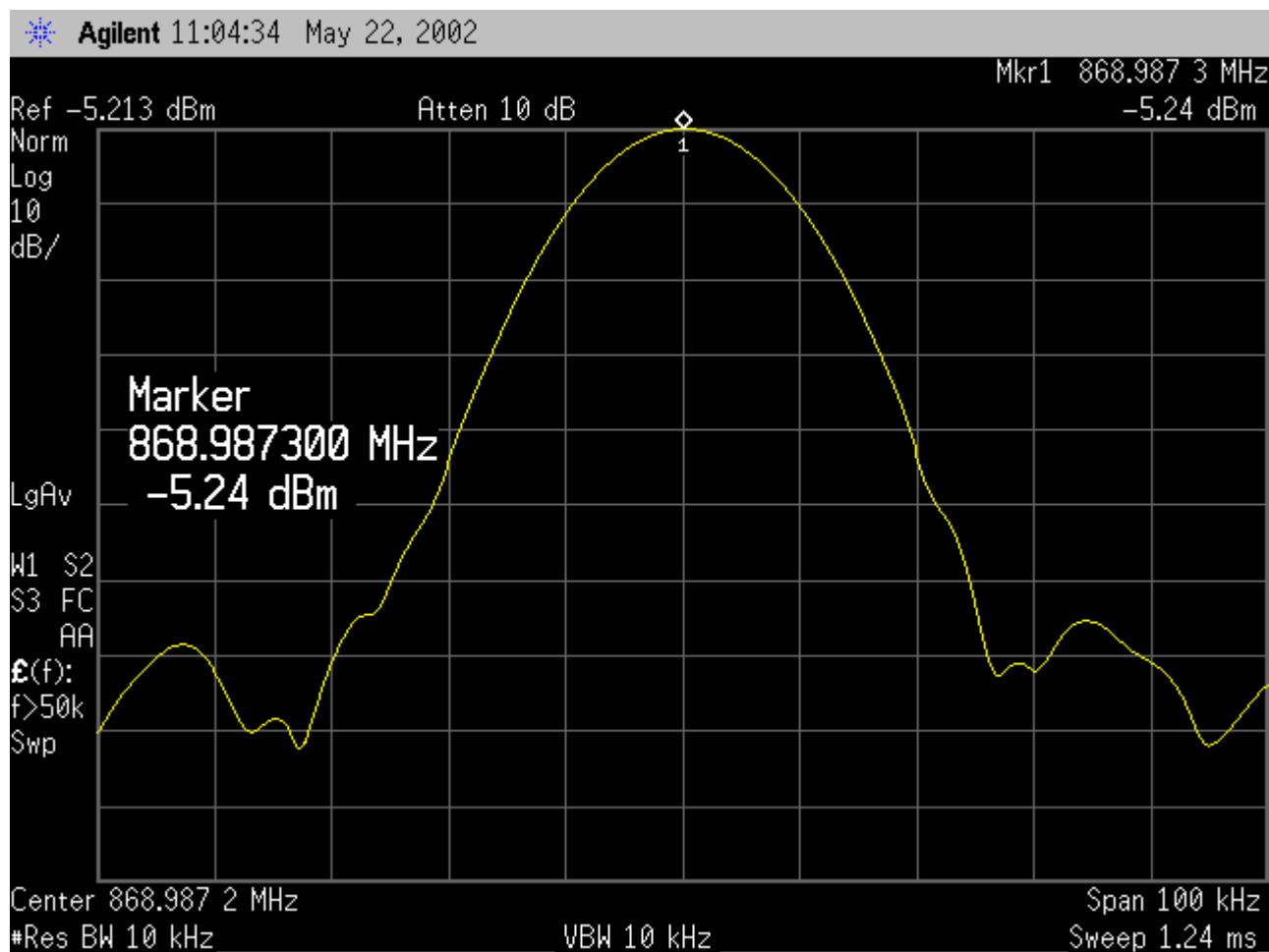
**TESTED BY: MANUEL MARTINEZ**

**DATE: 05/16/02**

**TEST NUMBER: 6**

**OPERATING MODE: NORMAL FULL POWER**

**TRANSMIT MODE – CHANNEL 830-OCF TALK AROUND**



### EMISSION MASK

**CUSTOMER: M/A-COM**

**EQUIPMENT: OPENSky P800 PORTABLE RADIO**

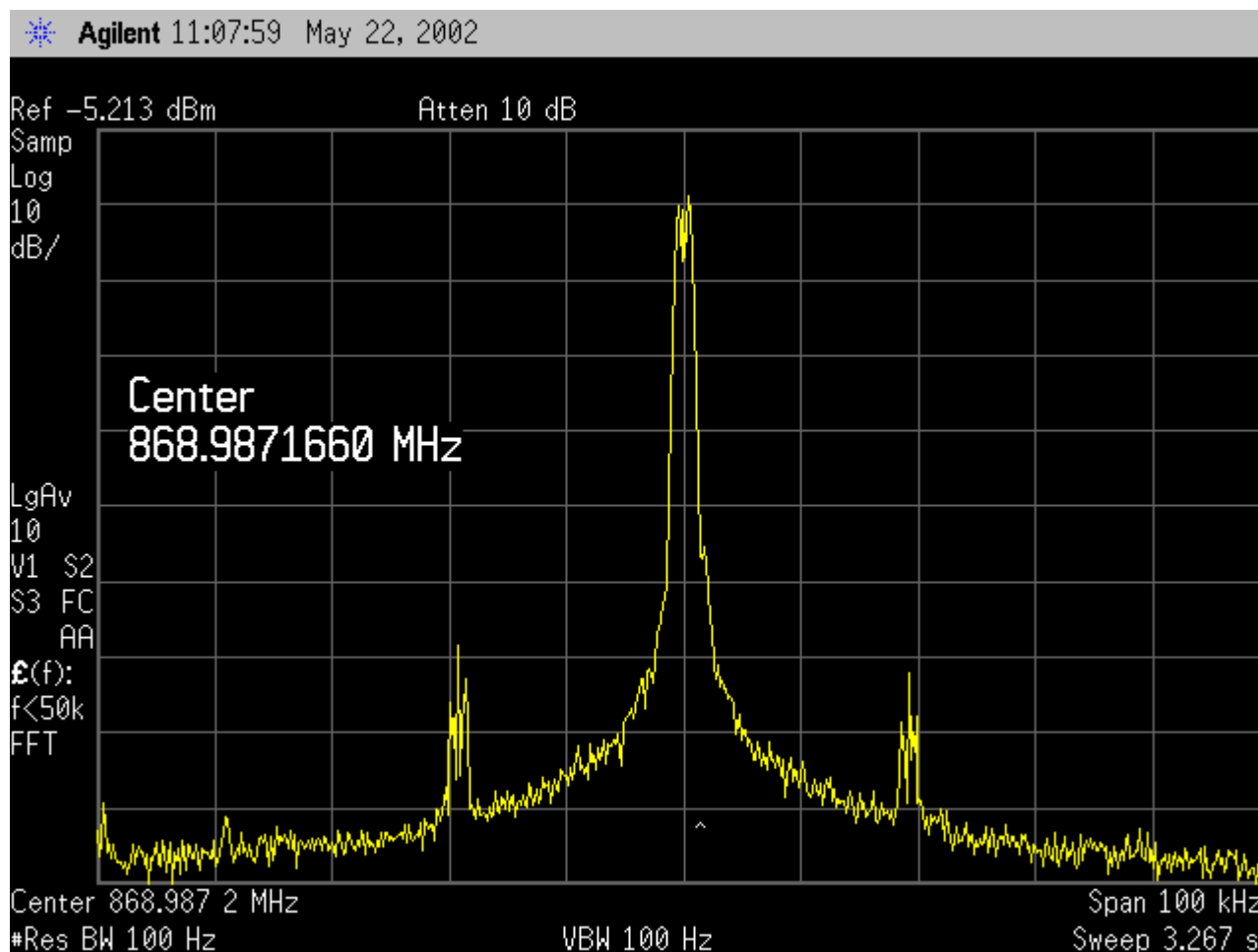
**TESTED BY: MANUEL MARTINEZ**

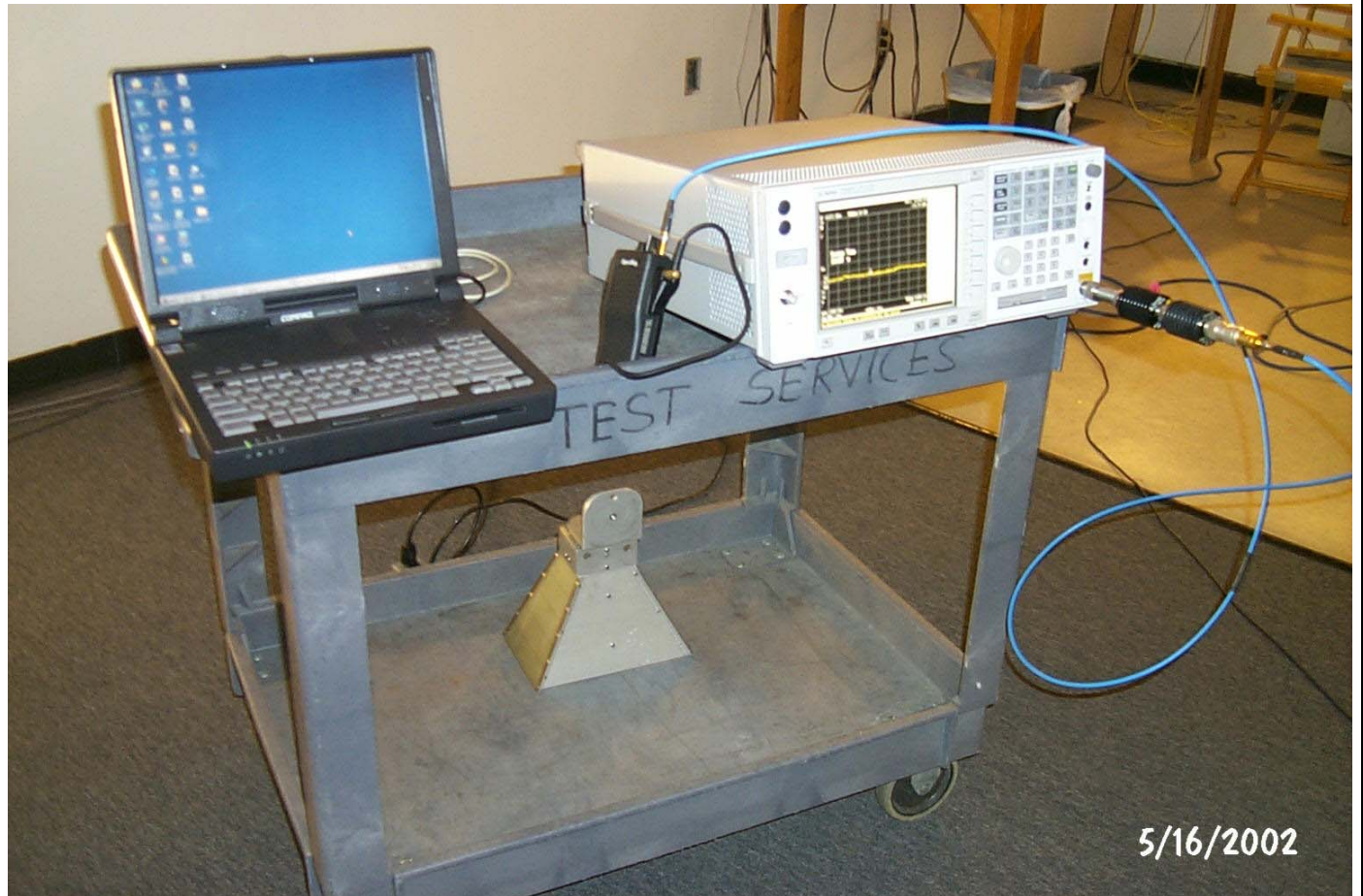
**DATE: 05/16/02**

**TEST NUMBER: 6**

**OPERATING MODE: NORMAL FULL POWER**

**TRANSMIT MODE – CHANNEL 830-OCF TALK AROUND**



**2.3.6 Photographic Documentation****CUSTOMER: M/A-COM****EQUIPMENT: OPENSky P800 PORTABLE RADIO****DATE: 05/14/02 AND 05/16/02****TEST NUMBER: 6**Photograph Description: Radiated set-up**FORM CTS-PHOTO**

## 2.4 Conducted Spurious at the Antenna Terminals

### 2.4.1 Equipment Used

| Test Equipment |                                   | Asset # | Serial #   | Cal Date |
|----------------|-----------------------------------|---------|------------|----------|
| X              | H/P E4401 Spectrum Analyzer       | N/A     | 4895C76451 | 04/03    |
| X              | Narda 769-20 High Band Attenuator | 284     | 03793      | C.P.U.   |
| X              | Narda 769-20 High Band Attenuator | 471     | 02951      | C.P.U.   |

### 2.4.2 Test Conditions

The conducted spurious emission at the antenna terminals was measured with the OpenSky P800 Portable Radio placed on top of a wooded turntable located in Test Site A. See Figure 5 for the test setup.

The OpenSky P800 Portable Radio was configured to operate in all three modes of operation transmitting at the low, mid and high frequency of each band. The OpenSky P800 Portable Radio was set up and powered by a fully charged battery for the test.

The modes of operation and frequencies tested are as follows:

| OCF Mode |             | OTP Mode |             | OCF Talk Around |             |
|----------|-------------|----------|-------------|-----------------|-------------|
| Ch# 1    | 806.0125MHz | Ch# 1    | 806.0125MHz | Ch# 1           | 851.0125MHz |
| Ch# 415  | 816.3625MHz | Ch# 415  | 816.3625MHz | Ch# 415         | 861.3625MHz |
| Ch# 830  | 823.9875MHz | Ch# 830  | 823.9875MHz | Ch# 830         | 868.9875MHz |

### 2.4.3 Test Method

The output of the OpenSky P800 Portable Radio was connected to a spectrum analyzer via a N-Type cable and 40dB of attenuation. The P800 was set up to transmit with the desired modulation and maximum power. Two frequency scans were performed, 4MHz to 1GHz and 1GHz to 9GHz. The output of the OpenSky radio was compared to Part 90.210 Emission Mask H paragraph 5. *“The power of any emission must be below the unmodulated carrier power (P). On any frequency removed from the center frequency of the authorized bandwidth by more than 25kHz, At least  $43 + 10\log(P)$ ”.*

### 2.4.4 Results

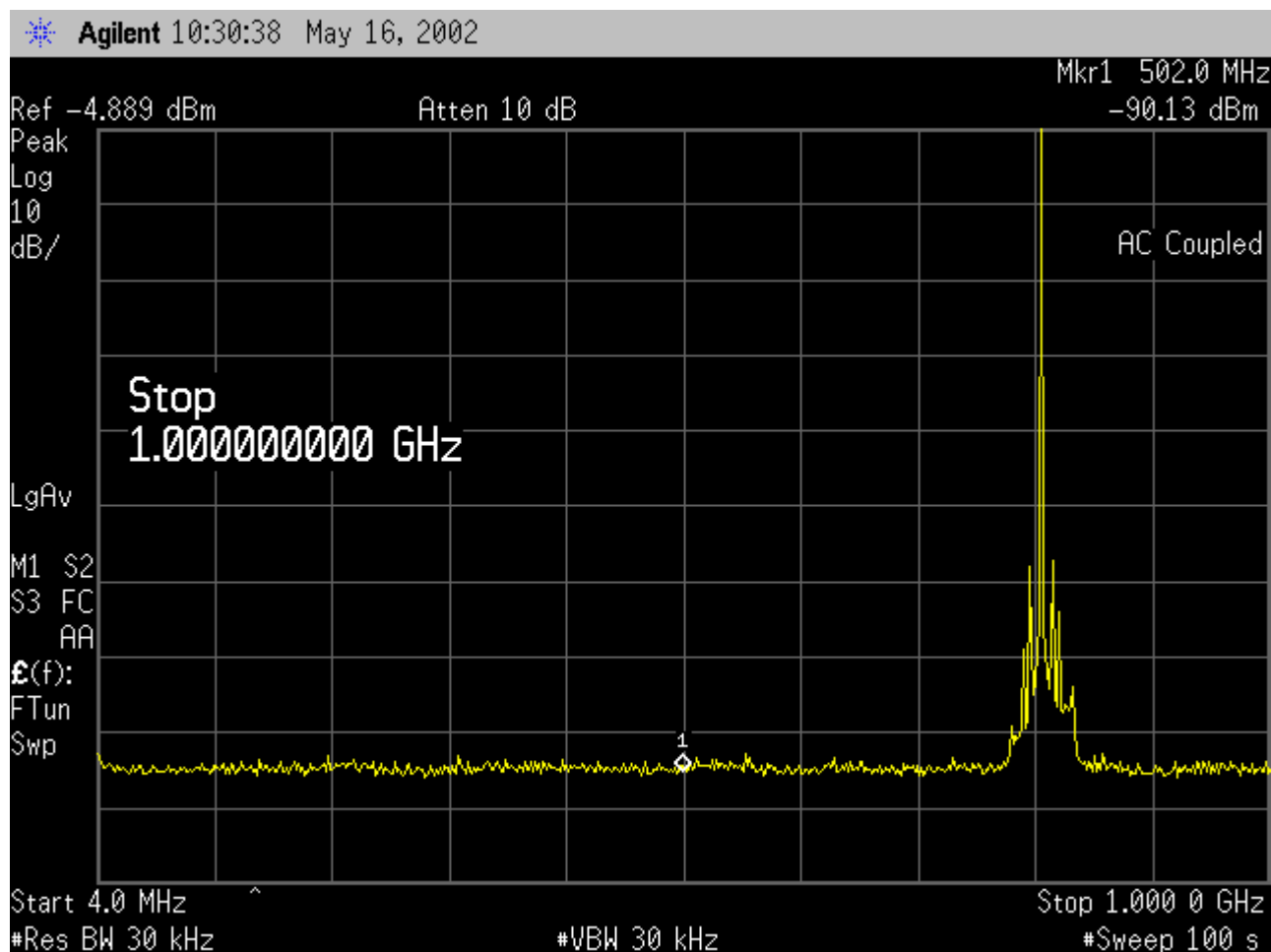
The M/A-Com OpenSky P800 Portable Radio met the requirements of Part 90.210 Emissions Mask H paragraph 5.

## 2.4.5 Test Data

### CONDUCTED SPURIOUS

**CUSTOMER:** M/A-COM  
**EQUIPMENT:** OPENSky P800 PORTABLE RADIO  
**TESTED BY:** MANUEL MARTINEZ

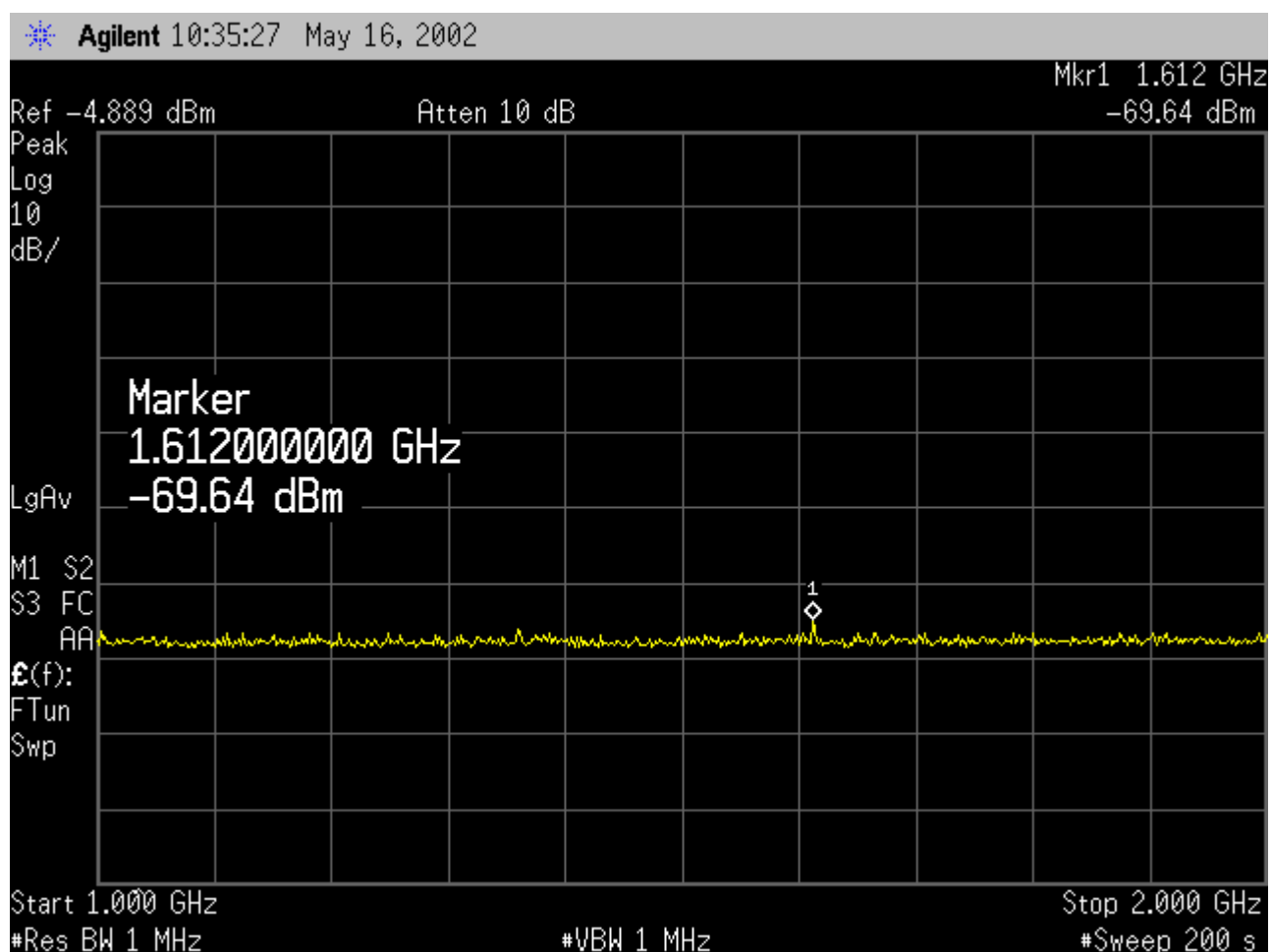
**DATE:** 05/16/02  
**TEST NUMBER:** 1  
**OPERATING MODE:** NORMAL FULL POWER  
**TRANSMIT MODE – CHANNEL 1-OTP**



**CONDUCTED SPURIOUS**

**CUSTOMER:** M/A-COM  
**EQUIPMENT:** OPENSky P800 PORTABLE RADIO  
**TESTED BY:** MANUEL MARTINEZ

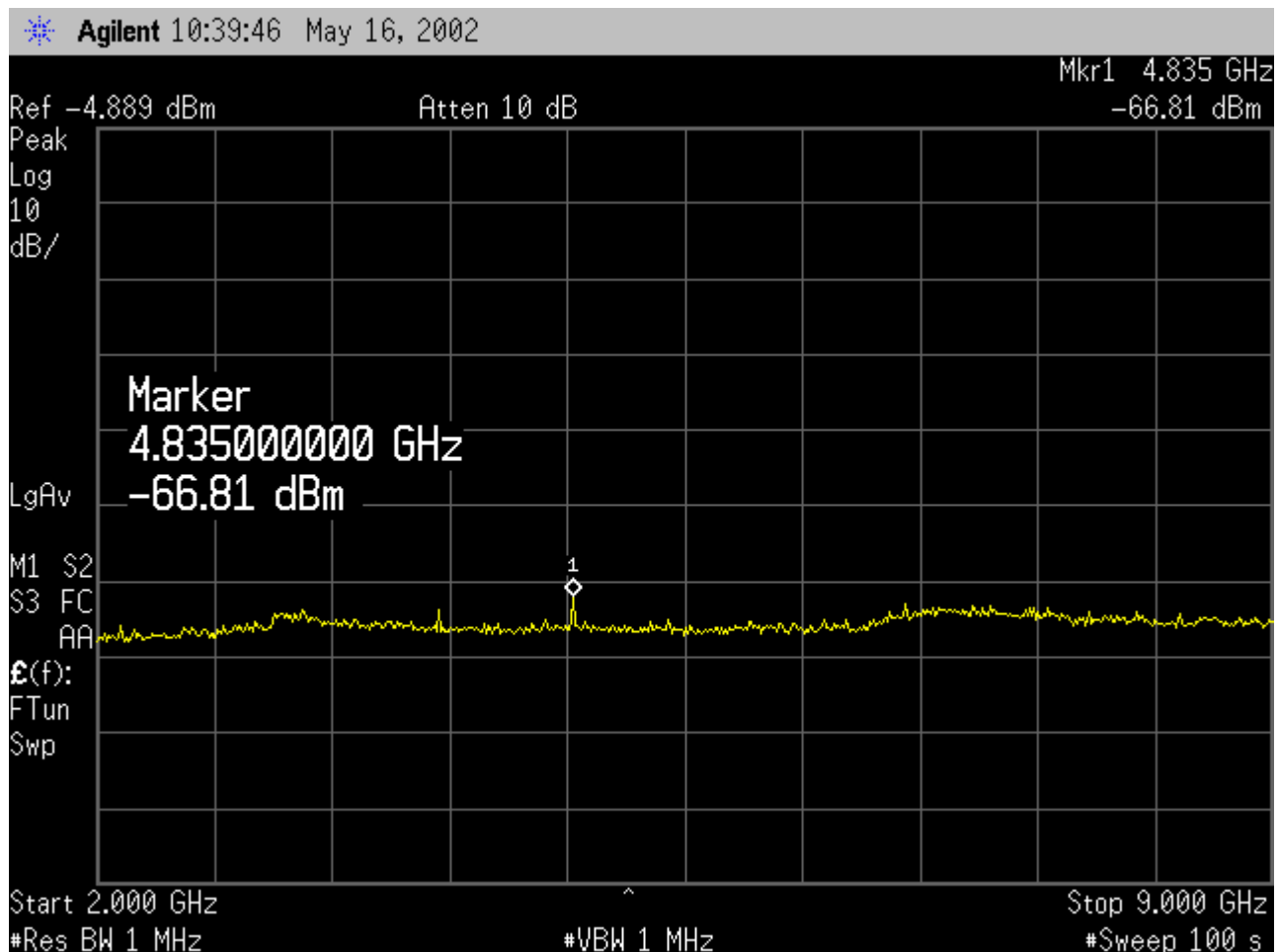
**DATE:** 05/16/02  
**TEST NUMBER:** 1  
**OPERATING MODE:** NORMAL FULL POWER  
**TRANSMIT MODE – CHANNEL 1-OTP**



### CONDUCTED SPURIOUS

**CUSTOMER:** M/A-COM  
**EQUIPMENT:** OPENSky P800 PORTABLE RADIO  
**TESTED BY:** MANUEL MARTINEZ

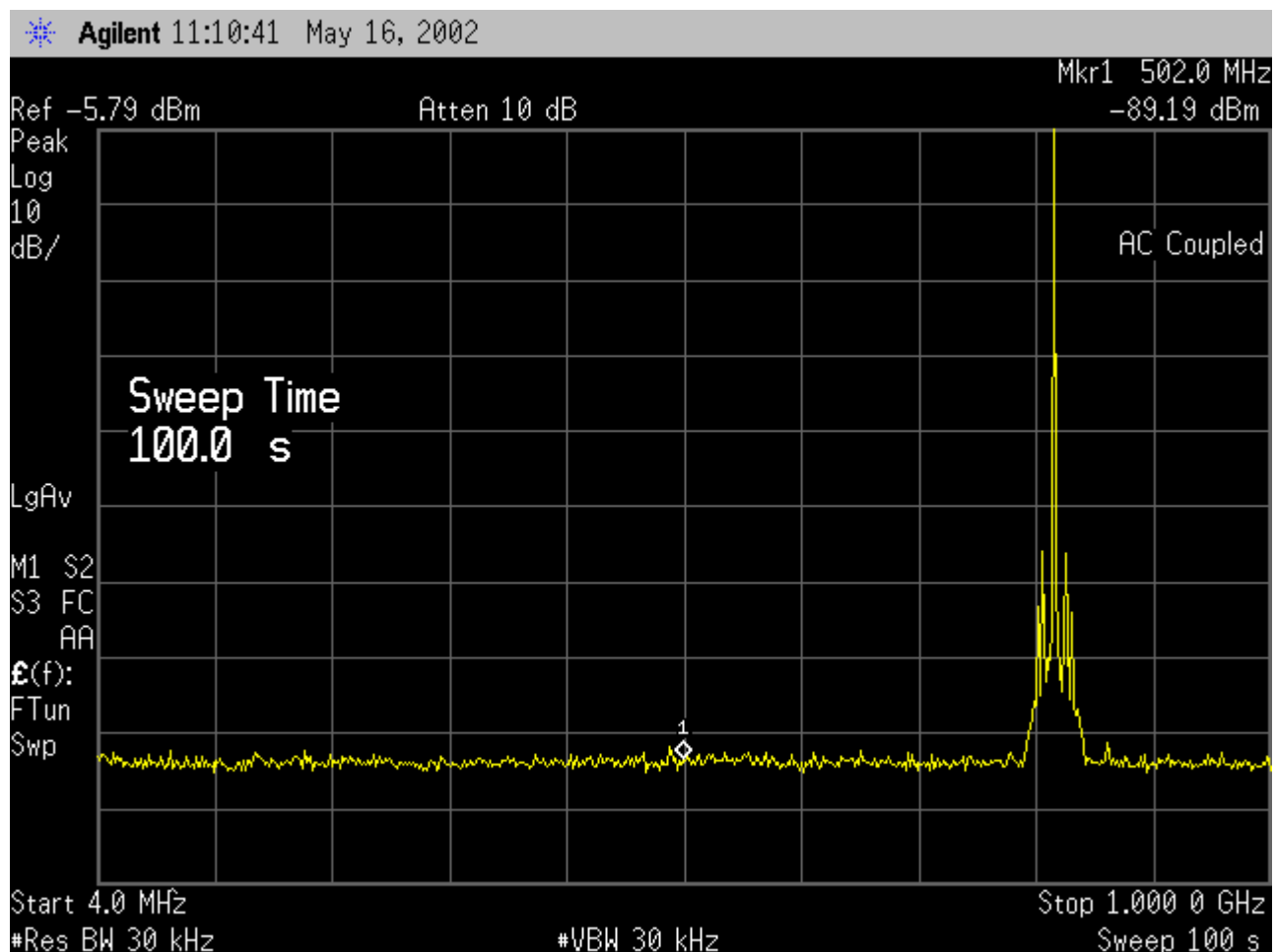
**DATE:** 05/16/02  
**TEST NUMBER:** 1  
**OPERATING MODE:** NORMAL FULL POWER  
**TRANSMIT MODE – CHANNEL 1-OTP**



### CONDUCTED SPURIOUS

**CUSTOMER:** M/A-COM  
**EQUIPMENT:** OPENSky P800 PORTABLE RADIO  
**TESTED BY:** MANUEL MARTINEZ

**DATE:** 05/16/02  
**TEST NUMBER:** 1  
**OPERATING MODE:** NORMAL FULL POWER  
**TRANSMIT MODE – CHANNEL 415-OTP**



## CONDUCTED SPURIOUS

CUSTOMER: M/A-COM

EQUIPMENT: OPENSky P800 PORTABLE RADIO

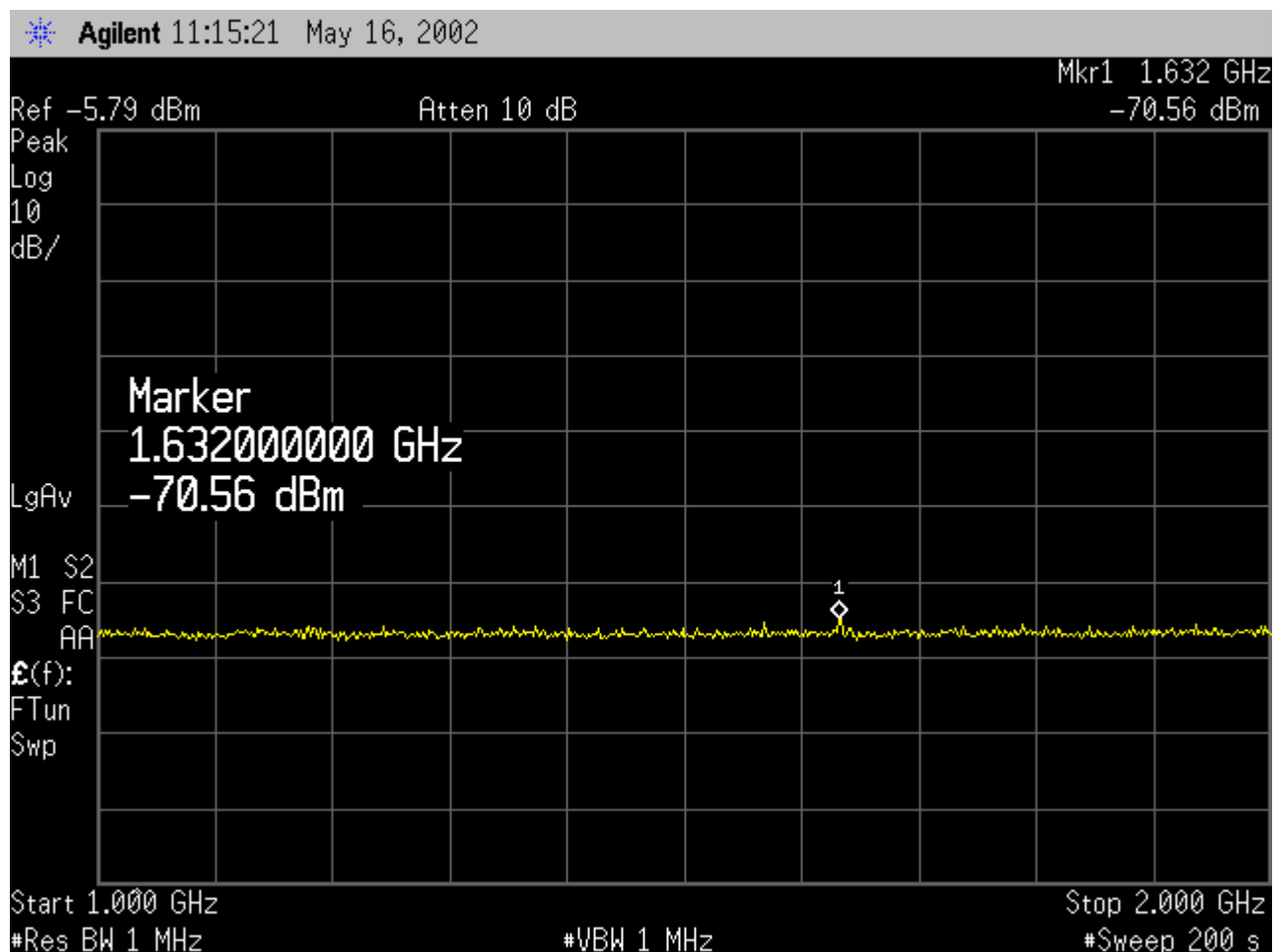
TESTED BY: MANUEL MARTINEZ

DATE: 05/16/02

TEST NUMBER: 1

OPERATING MODE: NORMAL FULL POWER

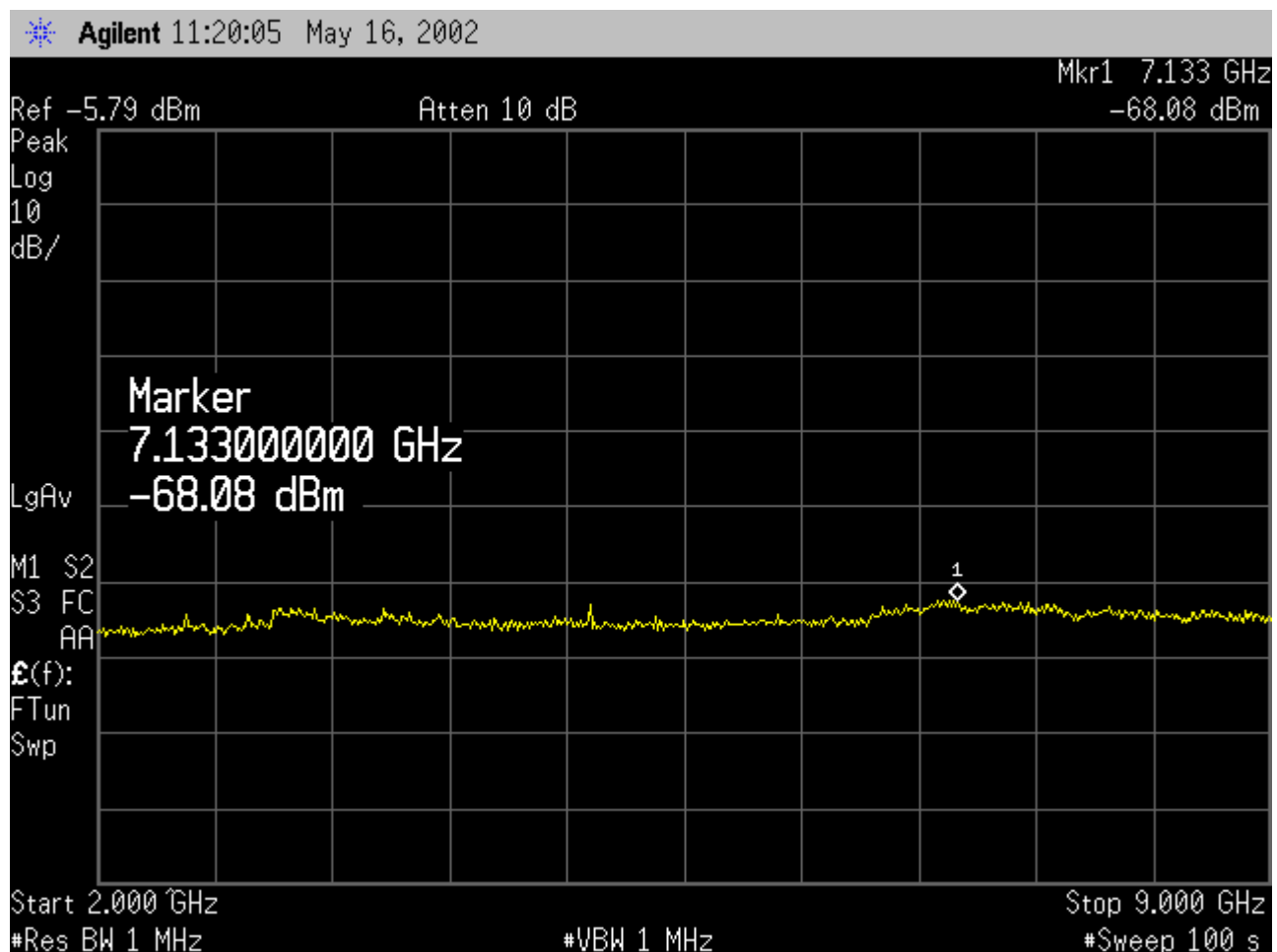
TRANSMIT MODE – CHANNEL 415-OTP



## CONDUCTED SPURIOUS

**CUSTOMER:** M/A-COM  
**EQUIPMENT:** OPENSky P800 PORTABLE RADIO  
**TESTED BY:** MANUEL MARTINEZ

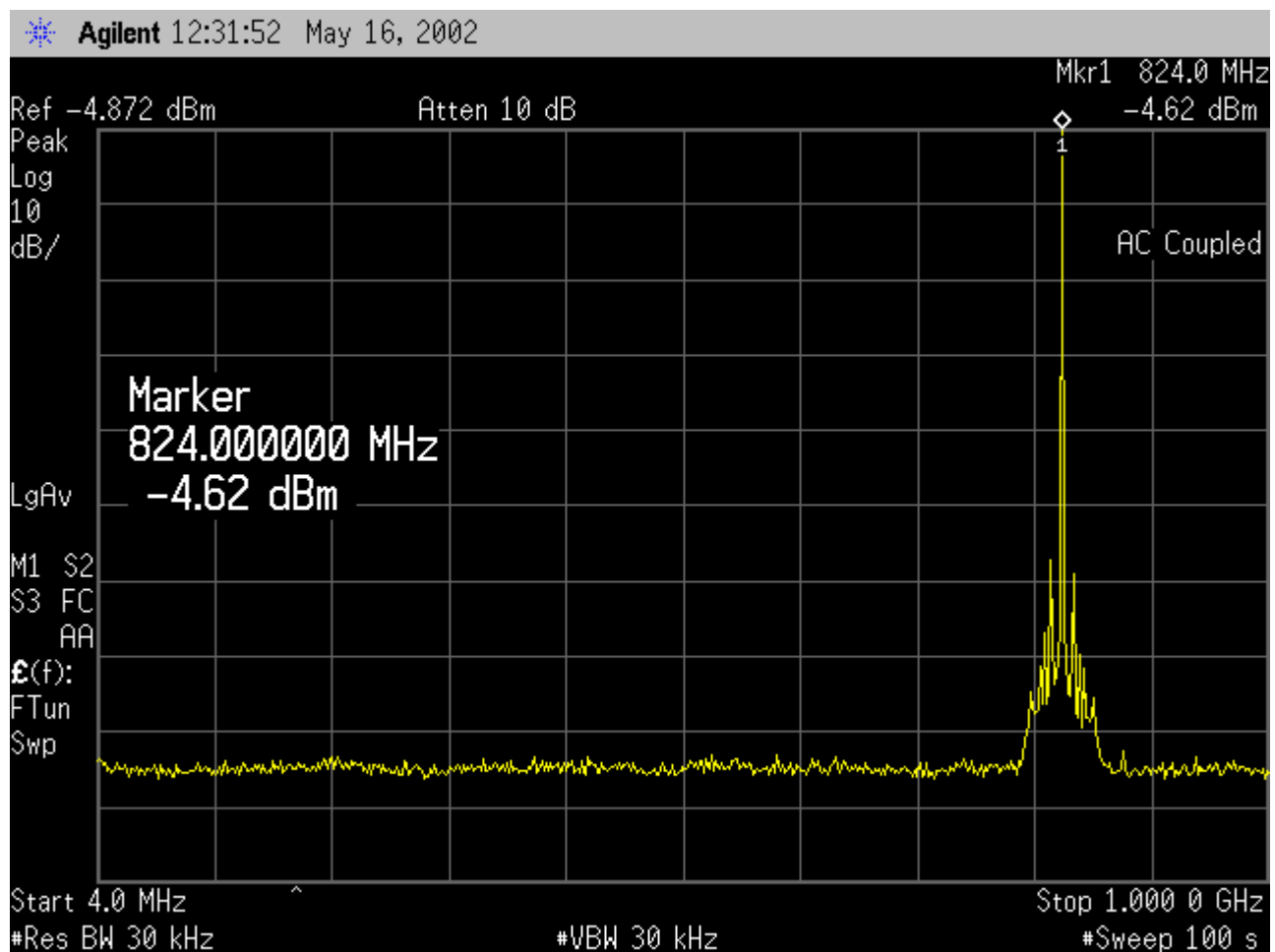
**DATE:** 05/16/02  
**TEST NUMBER:** 1  
**OPERATING MODE:** NORMAL FULL POWER  
**TRANSMIT MODE – CHANNEL 415-OTP**



**CONDUCTED SPURIOUS**

**CUSTOMER:** M/A-COM  
**EQUIPMENT:** OPENSky P800 PORTABLE RADIO  
**TESTED BY:** MANUEL MARTINEZ

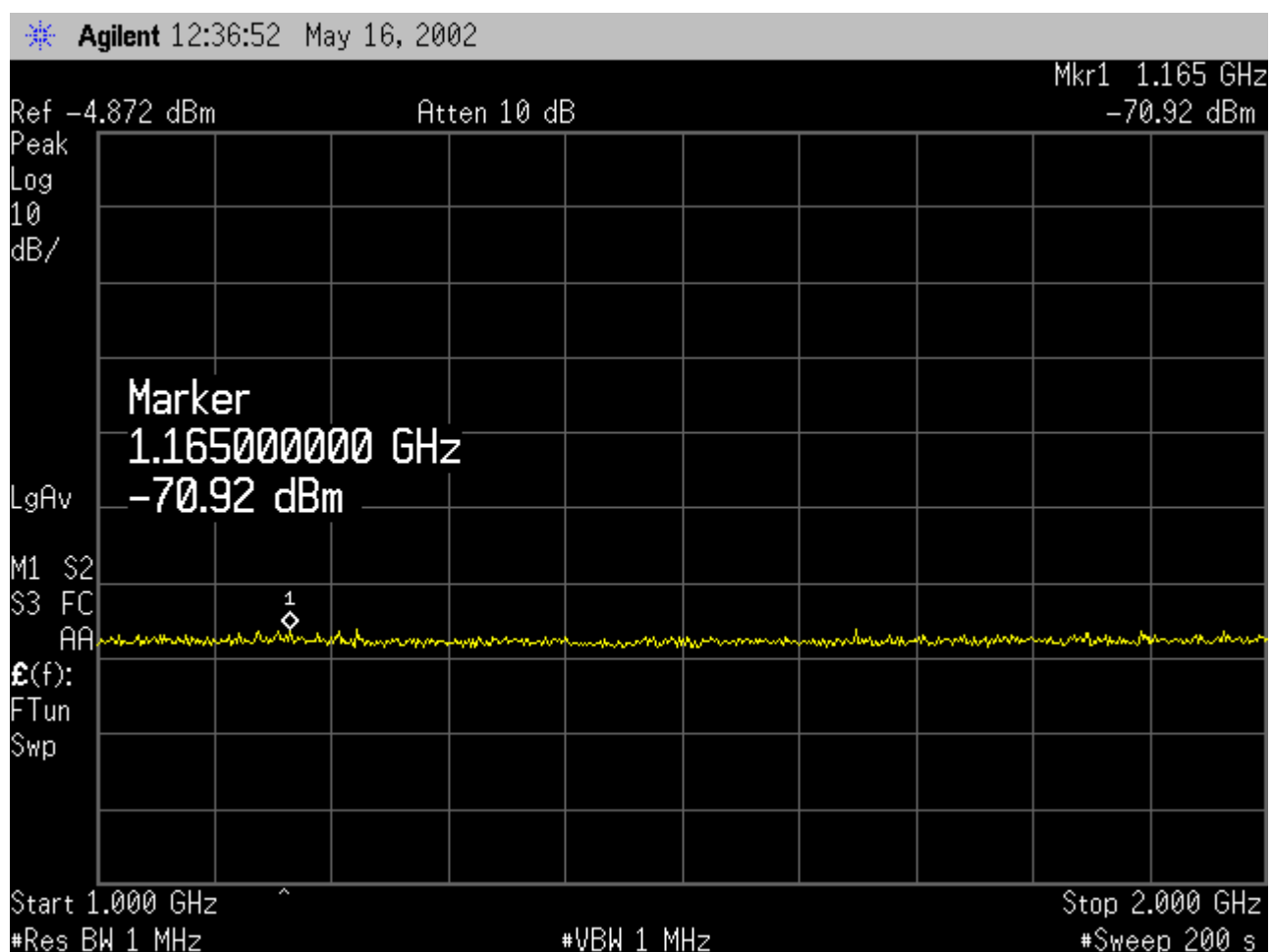
**DATE:** 05/16/02  
**TEST NUMBER:** 1  
**OPERATING MODE:** NORMAL FULL POWER  
**TRANSMIT MODE – CHANNEL 830-OTP**



## CONDUCTED SPURIOUS

CUSTOMER: M/A-COM  
EQUIPMENT: OPENSky P800 PORTABLE RADIO  
TESTED BY: MANUEL MARTINEZ

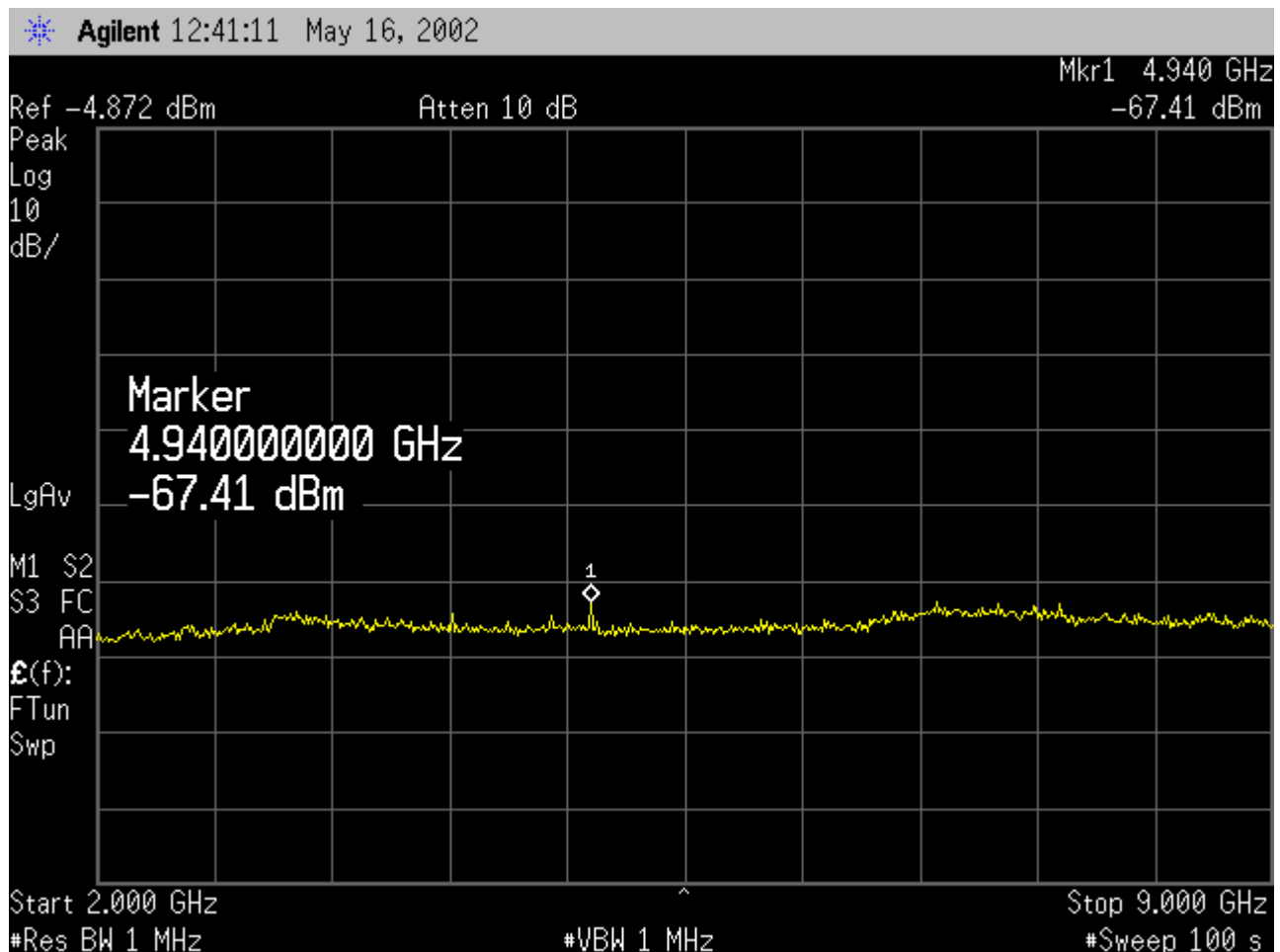
DATE: 05/16/02  
TEST NUMBER: 1  
OPERATING MODE: NORMAL FULL POWER  
TRANSMIT MODE – CHANNEL 830-OTP



## CONDUCTED SPURIOUS

**CUSTOMER:** M/A-COM  
**EQUIPMENT:** OPENSky P800 PORTABLE RADIO  
**TESTED BY:** MANUEL MARTINEZ

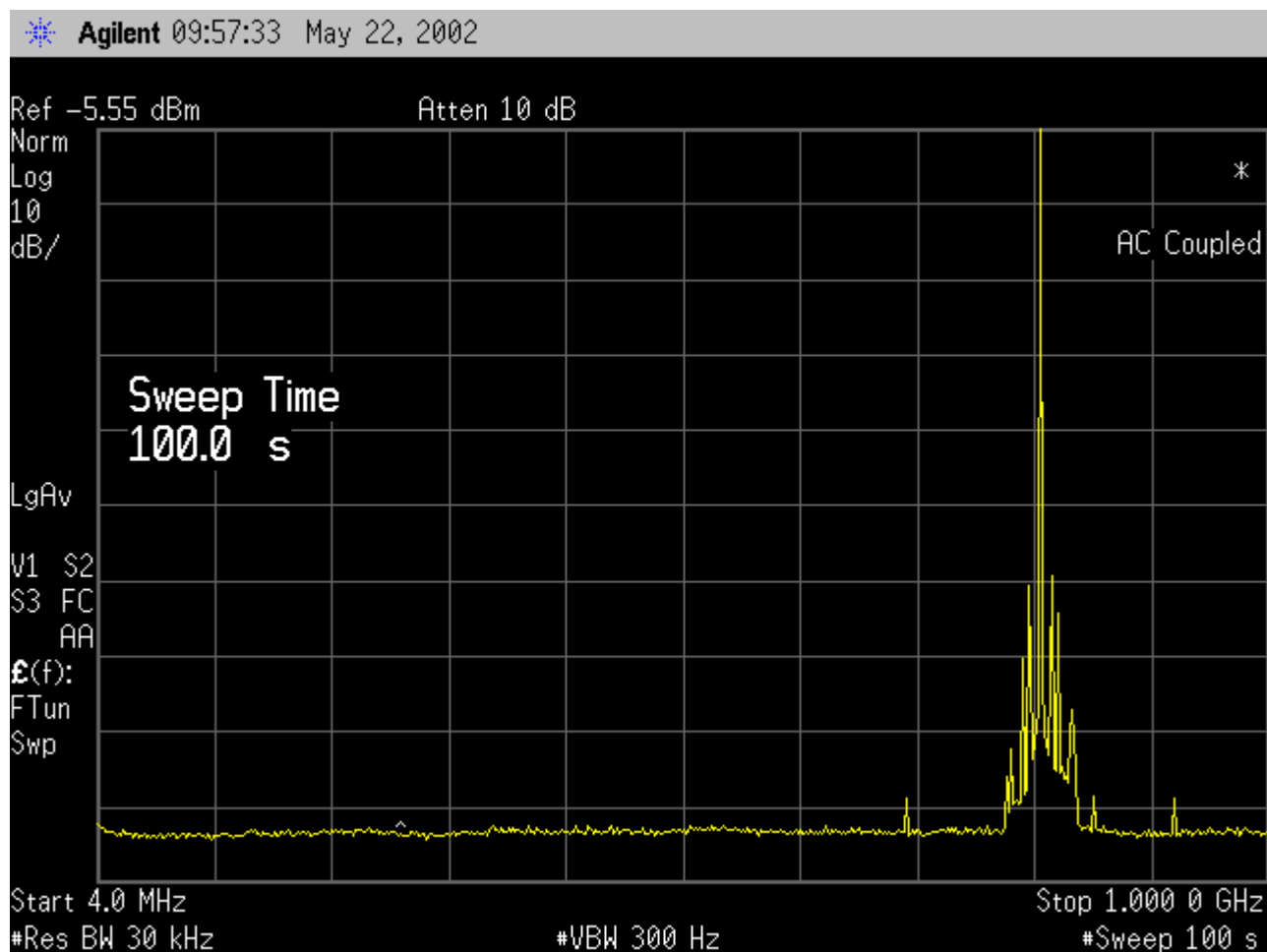
**DATE:** 05/16/02  
**TEST NUMBER:** 1  
**OPERATING MODE:** NORMAL FULL POWER  
**TRANSMIT MODE – CHANNEL 830-OTP**



## CONDUCTED SPURIOUS

**CUSTOMER:** M/A-COM  
**EQUIPMENT:** OPENSky P800 PORTABLE RADIO  
**TESTED BY:** MANUEL MARTINEZ

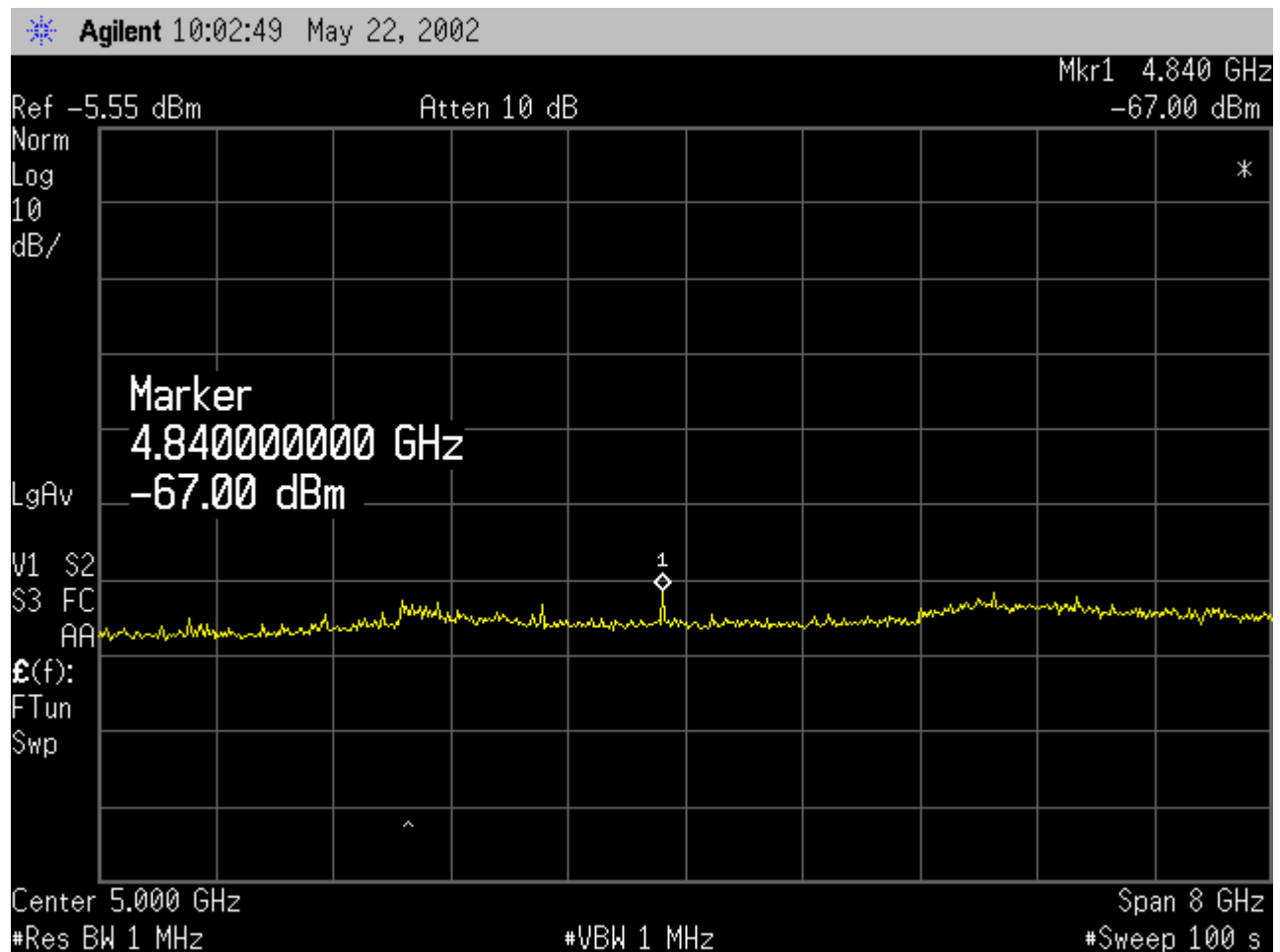
**DATE:** 05/16/02  
**TEST NUMBER:** 1  
**OPERATING MODE:** NORMAL FULL POWER  
**TRANSMIT MODE – CHANNEL 1-OCF**



**CONDUCTED SPURIOUS**

**CUSTOMER:** M/A-COM  
**EQUIPMENT:** OPENSky P800 PORTABLE RADIO  
**TESTED BY:** MANUEL MARTINEZ

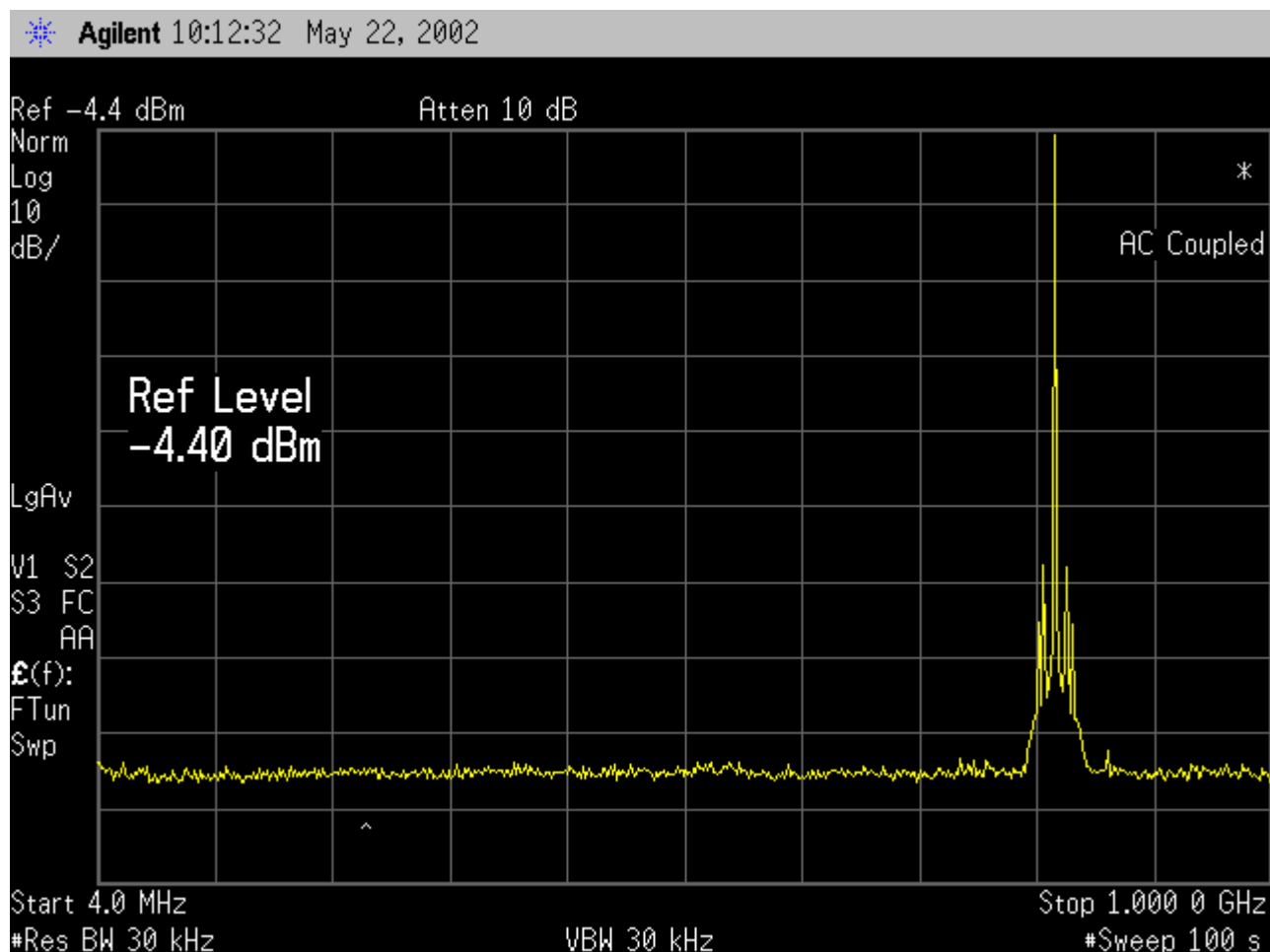
**DATE:** 05/16/02  
**TEST NUMBER:** 1  
**OPERATING MODE:** NORMAL FULL POWER  
**TRANSMIT MODE – CHANNEL 1-OCF**



## CONDUCTED SPURIOUS

**CUSTOMER:** M/A-COM  
**EQUIPMENT:** OPENSky P800 PORTABLE RADIO  
**TESTED BY:** MANUEL MARTINEZ

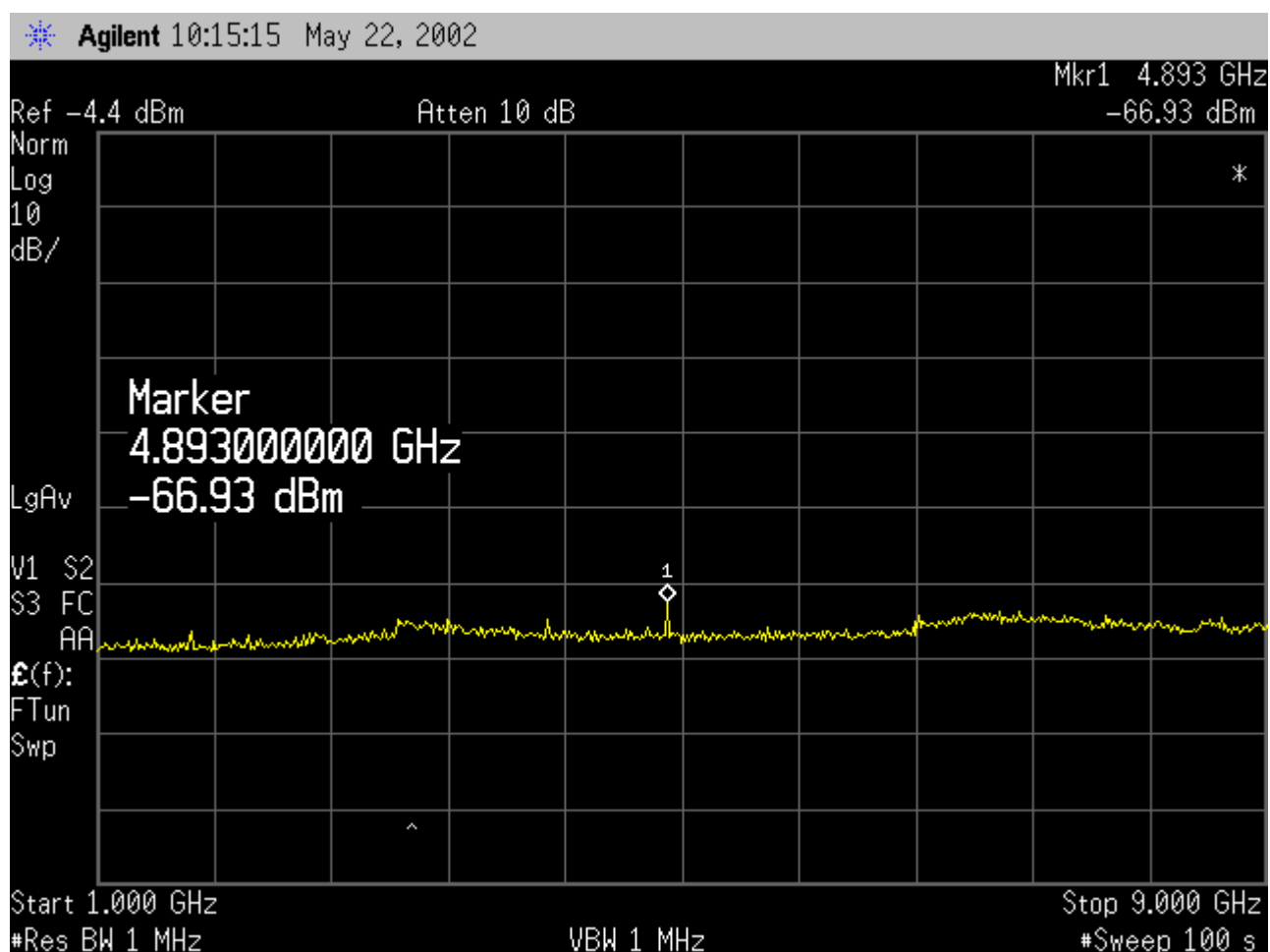
**DATE:** 05/16/02  
**TEST NUMBER:** 1  
**OPERATING MODE:** NORMAL FULL POWER  
**TRANSMIT MODE – CHANNEL 415-OCF**

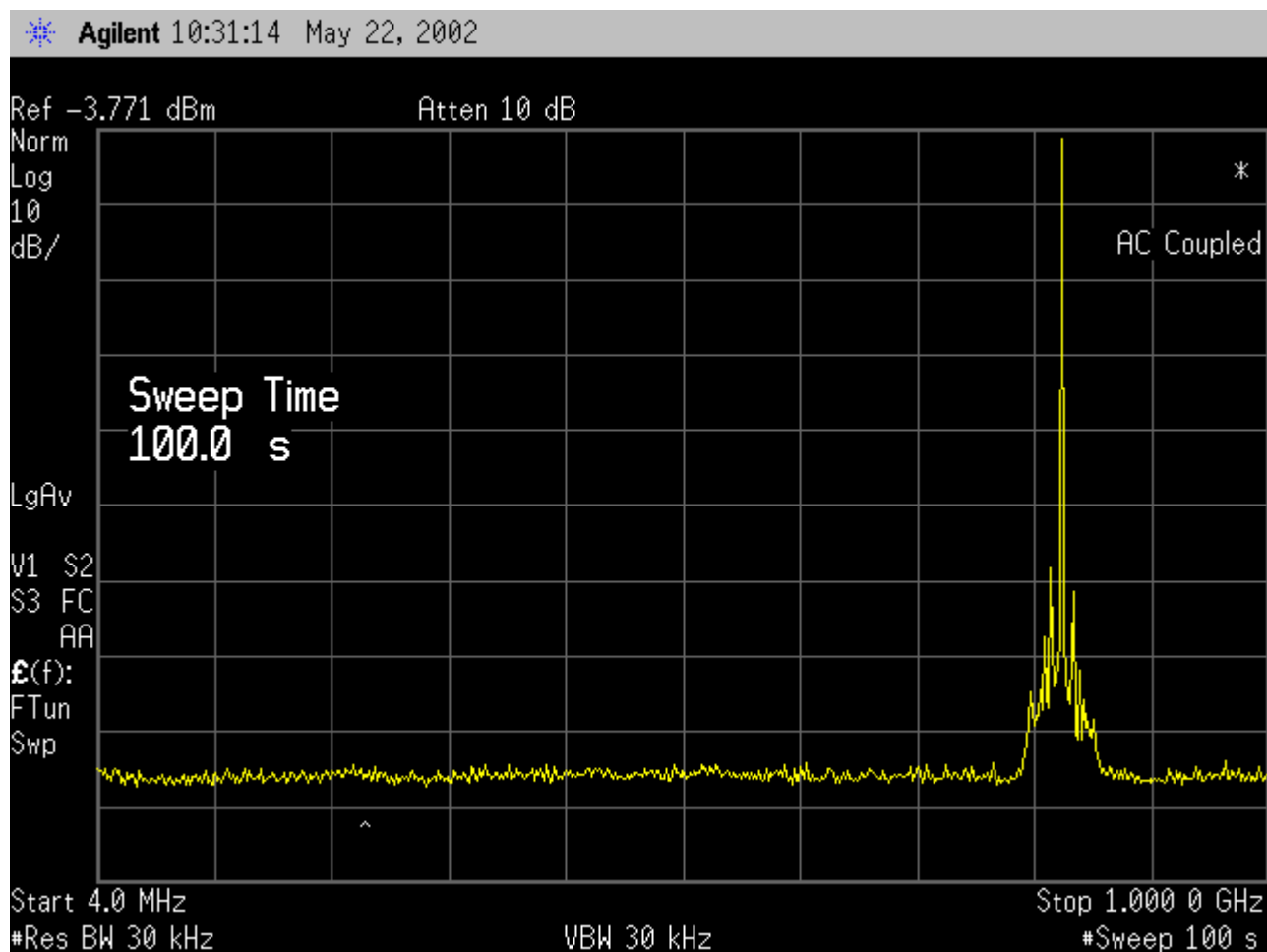


**CONDUCTED SPURIOUS**

**CUSTOMER:** M/A-COM  
**EQUIPMENT:** OPENSky P800 PORTABLE RADIO  
**TESTED BY:** MANUEL MARTINEZ

**DATE:** 05/16/02  
**TEST NUMBER:** 1  
**OPERATING MODE:** NORMAL FULL POWER  
**TRANSMIT MODE – CHANNEL 415-OCF**

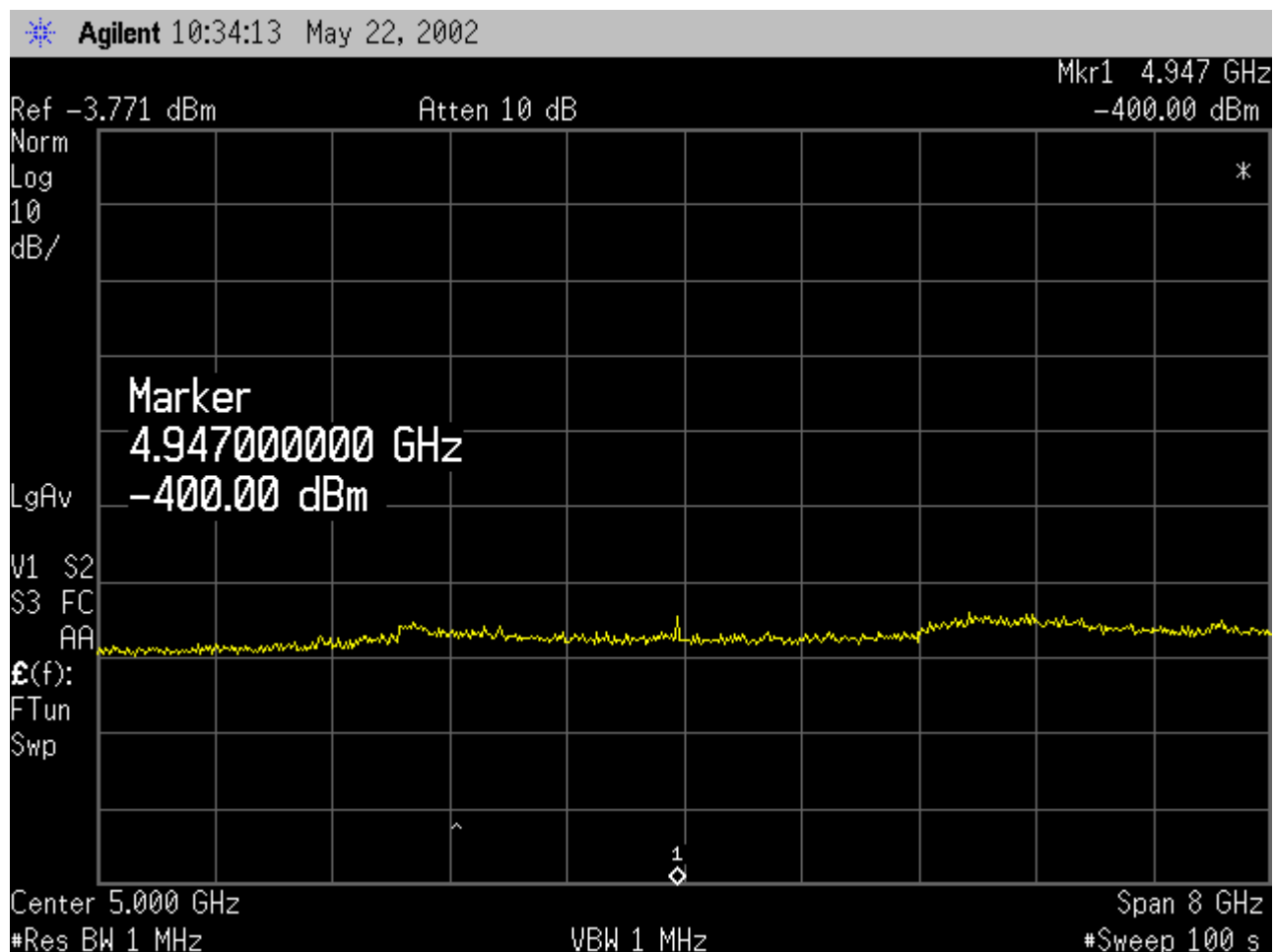


**CONDUCTED SPURIOUS****CUSTOMER: M/A-COM****EQUIPMENT: OPENSky P800 PORTABLE RADIO****TESTED BY: MANUEL MARTINEZ****DATE: 05/16/02****TEST NUMBER: 1****OPERATING MODE: NORMAL FULL POWER****TRANSMIT MODE – CHANNEL 830-OCF**

**TEST SERVICES****CONDUCTED SPURIOUS**

**CUSTOMER:** M/A-COM  
**EQUIPMENT:** OPENSky P800 PORTABLE RADIO  
**TESTED BY:** MANUEL MARTINEZ

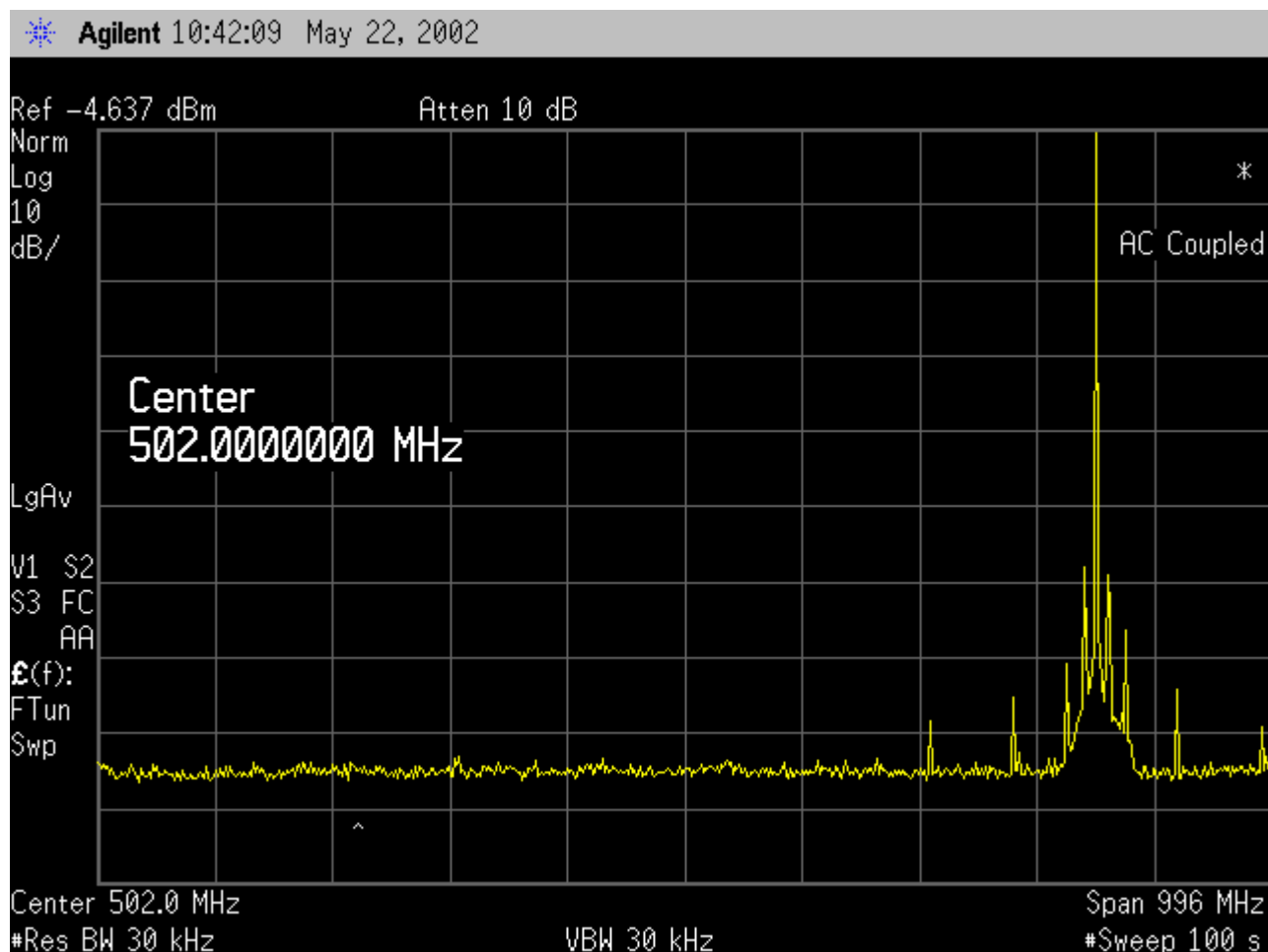
**DATE:** 05/16/02  
**TEST NUMBER:** 1  
**OPERATING MODE:** NORMAL FULL POWER  
**TRANSMIT MODE – CHANNEL 830-OCF**



## CONDUCTED SPURIOUS

**CUSTOMER:** M/A-COM  
**EQUIPMENT:** OPENSky P800 PORTABLE RADIO  
**TESTED BY:** MANUEL MARTINEZ

**DATE:** 05/16/02  
**TEST NUMBER:** 1  
**OPERATING MODE:** NORMAL FULL POWER  
**TRANSMIT MODE – CHANNEL 1-OCF TALK AROUND**



## TEST SERVICES

## CONDUCTED SPURIOUS

CUSTOMER: M/A-COM

EQUIPMENT: OPENSky P800 PORTABLE RADIO

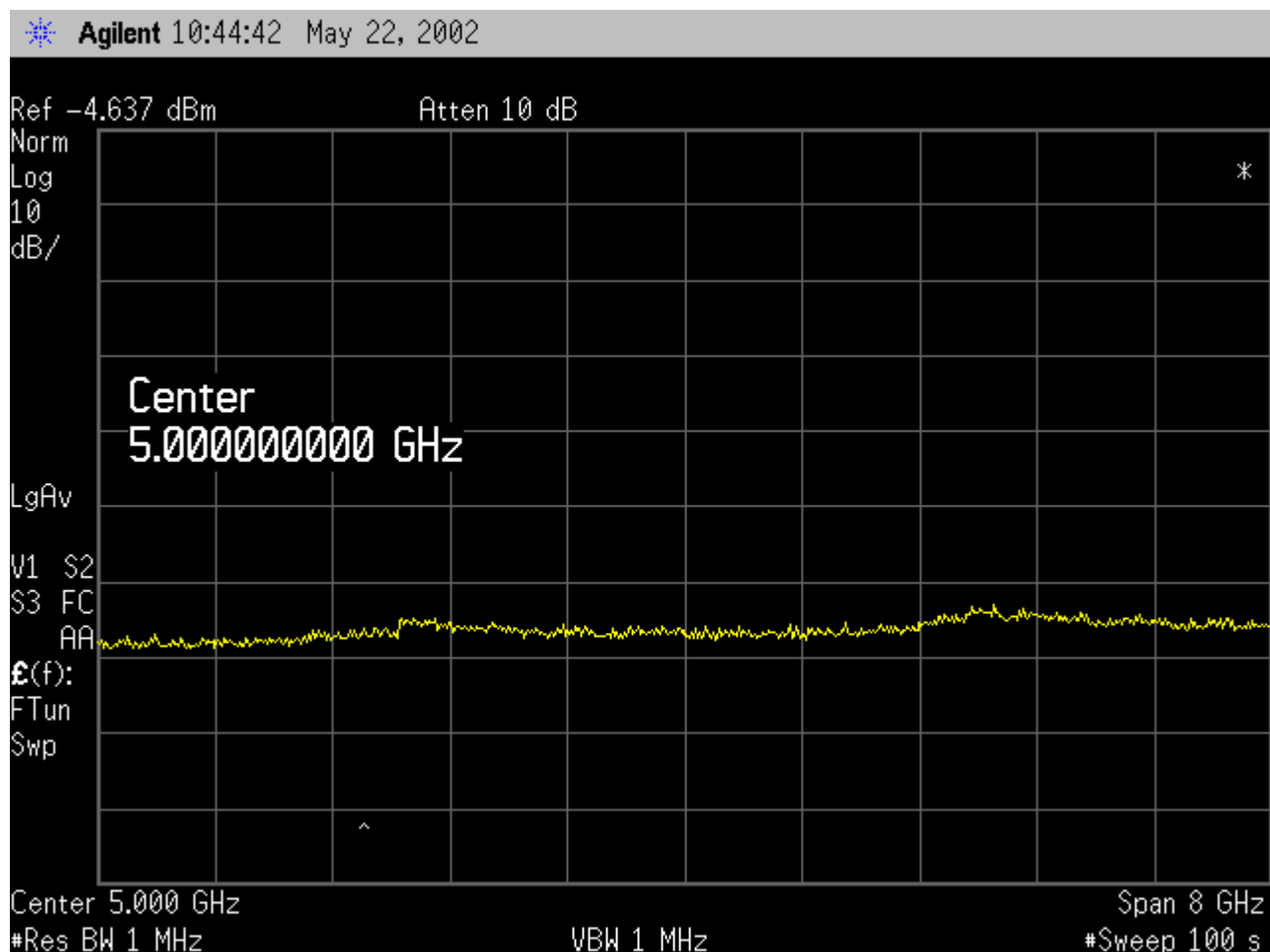
TESTED BY: MANUEL MARTINEZ

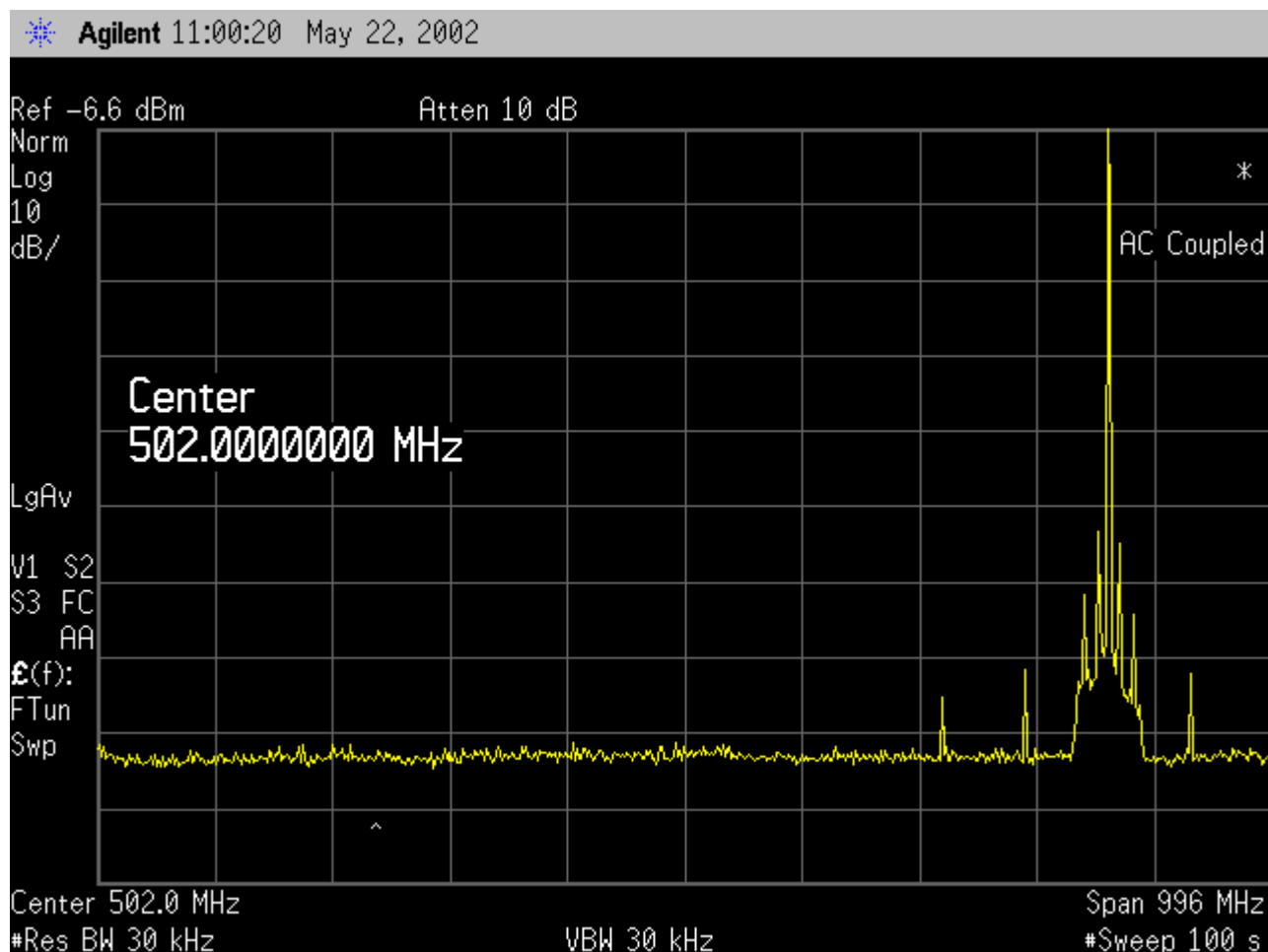
DATE: 05/16/02

TEST NUMBER: 1

OPERATING MODE: NORMAL FULL POWER

TRANSMIT MODE – CHANNEL 1-OCF TALK AROUND

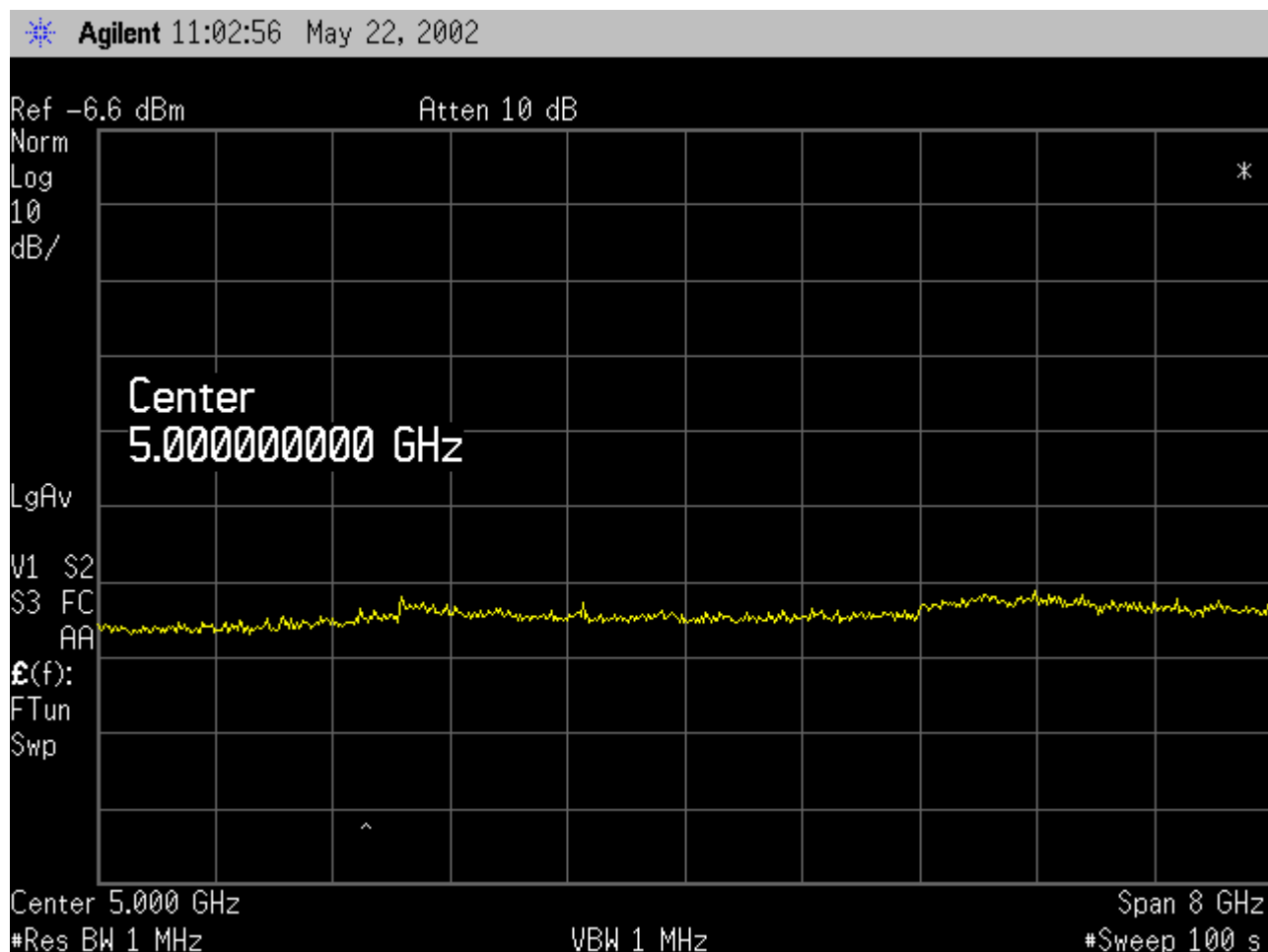


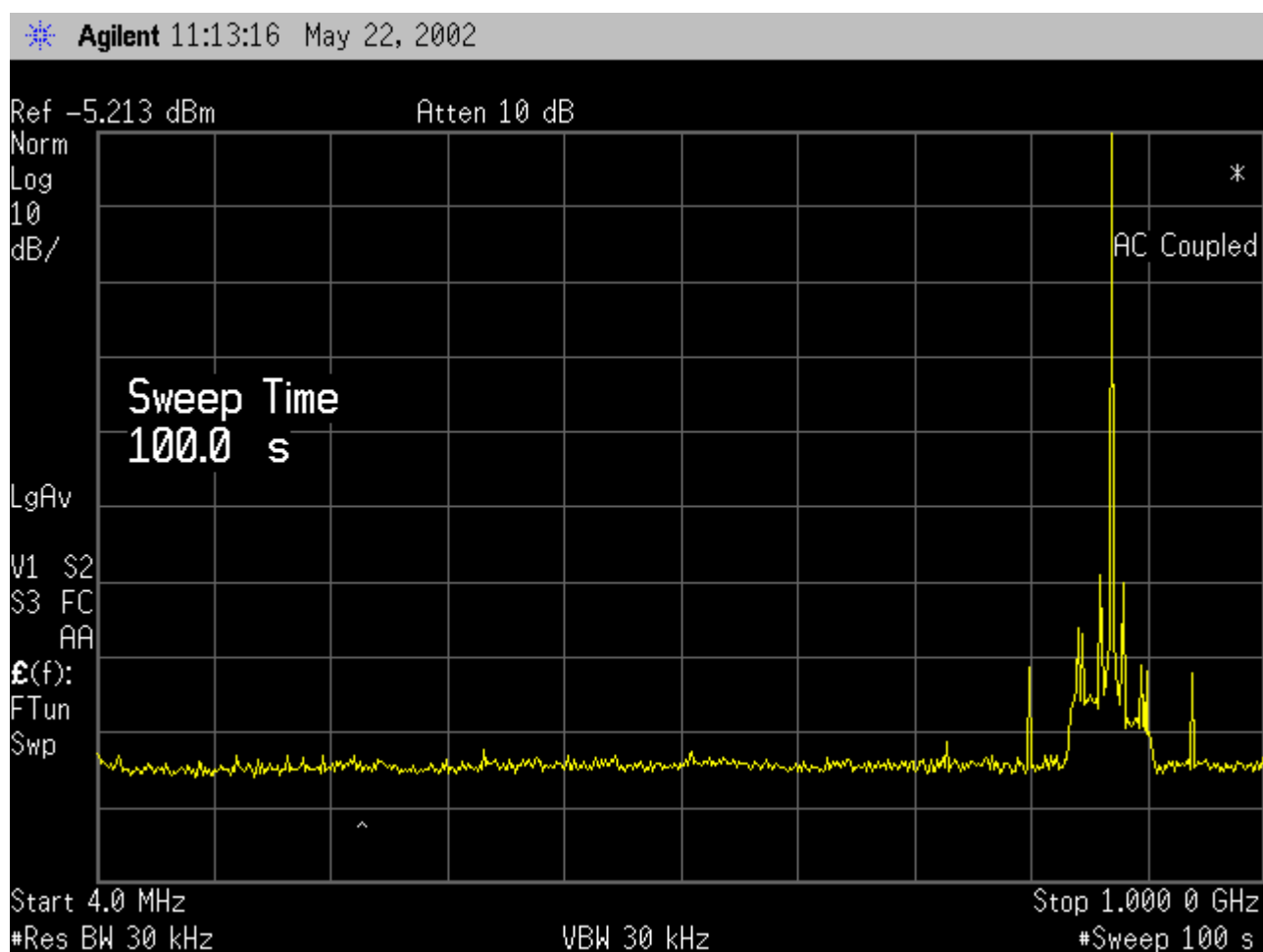
**TEST SERVICES****CONDUCTED SPURIOUS****CUSTOMER: M/A-COM****EQUIPMENT: OPENSky P800 PORTABLE RADIO****TESTED BY: MANUEL MARTINEZ****DATE: 05/16/02****TEST NUMBER: 1****OPERATING MODE: NORMAL FULL POWER****TRANSMIT MODE – CHANNEL 415-OCF TALK AROUND**

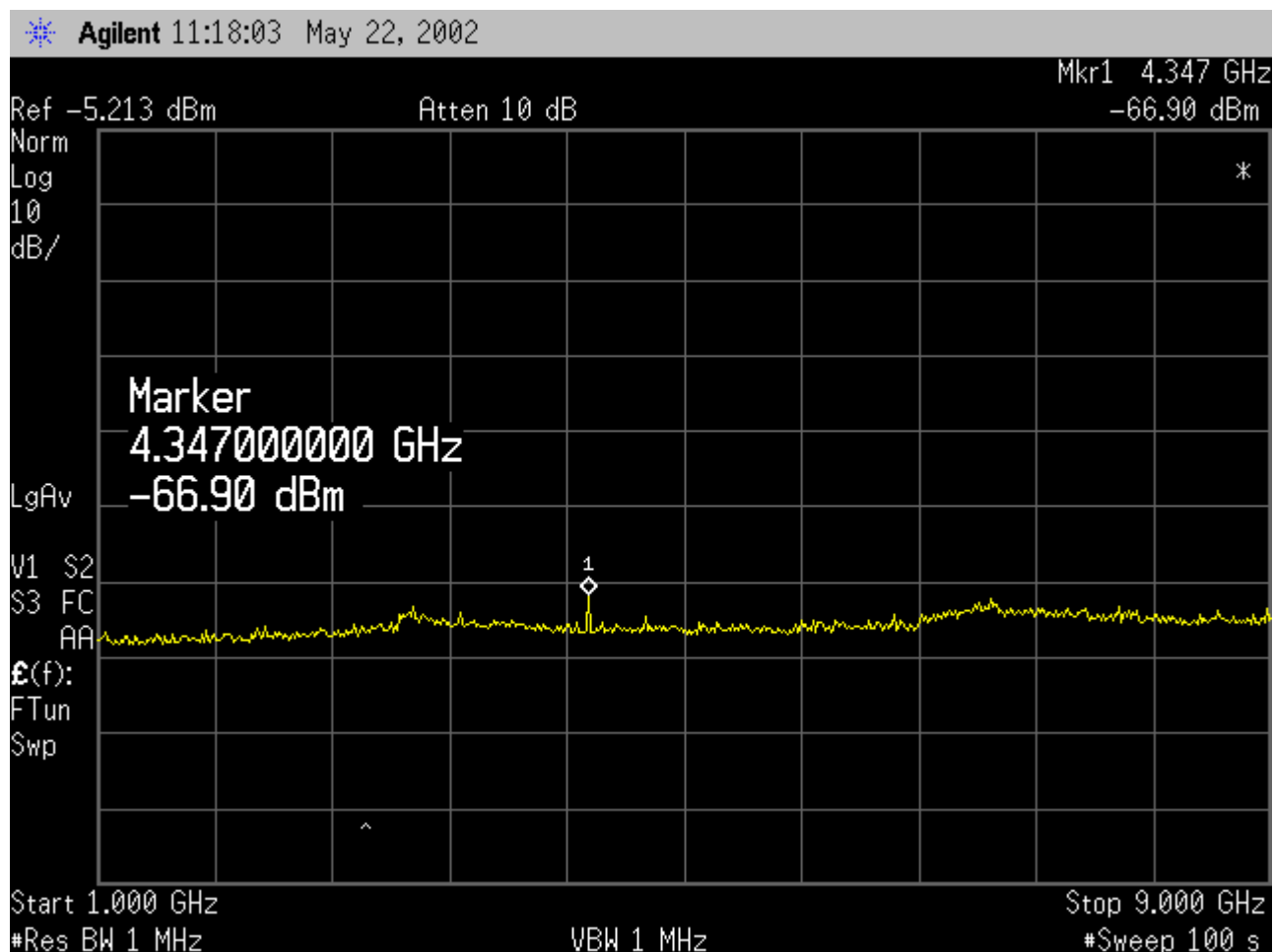
### CONDUCTED SPURIOUS

**CUSTOMER:** M/A-COM  
**EQUIPMENT:** OPENSky P800 PORTABLE RADIO  
**TESTED BY:** MANUEL MARTINEZ

**DATE:** 05/16/02  
**TEST NUMBER:** 1  
**OPERATING MODE:** NORMAL FULL POWER  
**TRANSMIT MODE – CHANNEL 415-OCF TALK AROUND**



**TEST SERVICES****CONDUCTED SPURIOUS****CUSTOMER: M/A-COM****EQUIPMENT: OPENSky P800 PORTABLE RADIO****TESTED BY: MANUEL MARTINEZ****DATE: 05/16/02****TEST NUMBER: 1****OPERATING MODE: NORMAL FULL POWER****TRANSMIT MODE – CHANNEL 830-OCF TALK AROUND**

**TEST SERVICES****CONDUCTED SPURIOUS****CUSTOMER: M/A-COM****EQUIPMENT: OPENSky P800 PORTABLE RADIO****TESTED BY: MANUEL MARTINEZ****DATE: 05/16/02****TEST NUMBER: 1****OPERATING MODE: NORMAL FULL POWER****TRANSMIT MODE – CHANNEL 830-OCF TALK AROUND**

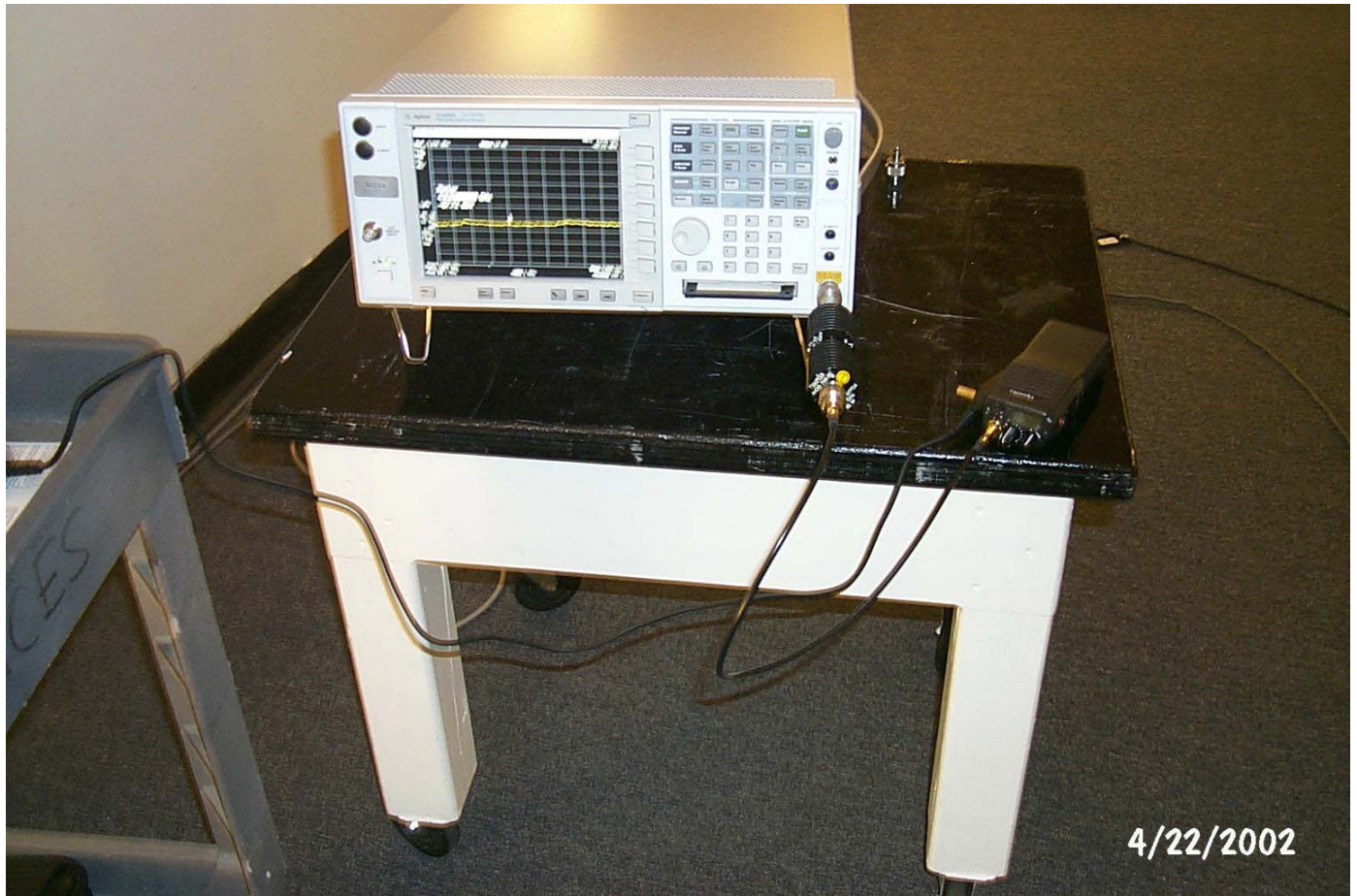
**2.4.6 Photographic Documentation**

**CUSTOMER: M/A-COM**

**EQUIPMENT: OPENSky P800 PORTABLE RADIO**

**DATE: 04/22/02 AND 05/16/02**

**TEST NUMBER: 1**



## TEST SERVICES

### Photographic Documentation

CUSTOMER: M/A-COM

EQUIPMENT: OPENSky P800 PORTABLE RADIO

DATE: 04/22/02 AND 05/16/02

TEST NUMBER: 1



Photograph Description: Radiated set-up

FORM CTS-PHOTO

## 2.5 Radiated Spurious Emissions

### 2.5.1 Equipment Used

| Test Equipment |                                   | Asset # | Serial #   | Cal Date |
|----------------|-----------------------------------|---------|------------|----------|
| X              | H/P E4401 Spectrum Analyzer       | N/A     | 4895C76451 | 04/03    |
| X              | EMCO 3115 Microwave Horn Antenna  | 376     | 2796       | 01/03    |
| X              | EMCO 3115 Microwave Horn Antenna  | 376     | 2796       | 01/03    |
| X              | EMCO 3120 Tuned Dipole Antenna B1 | 477     | 56         | 01/03    |
| X              | EMCO 3121 Tuned Dipole Antenna B2 | 478     | 176        | 01/03    |
| X              | EMCO 3121 Tuned Dipole Antenna B3 | 479     | 728        | 01/03    |

### 2.5.2 Test Conditions

Radiated spurious emission were measured with the OpenSky P800 Portable Radio placed on top of a wooded turntable located in Test Site A. The test procedure and setup of TIA/EIA 603A was followed. See Figure 6 for the test setup.

The OpenSky P800 Portable Radio was configured to operate in all three modes of operation transmitting at the low, mid and high frequency of each band. The OpenSky P800 Portable Radio was set up and powered by a fully charged battery for the test.

The modes of operation and frequencies tested are as follows:

| OCF Mode |             | OTP Mode |             | OCF Talk Around |             |
|----------|-------------|----------|-------------|-----------------|-------------|
| Ch# 1    | 806.0125MHz | Ch# 1    | 806.0125MHz | Ch# 1           | 851.0125MHz |
| Ch# 415  | 816.3625MHz | Ch# 415  | 816.3625MHz | Ch# 415         | 861.3625MHz |
| Ch# 830  | 823.9875MHz | Ch# 830  | 823.9875MHz | Ch# 830         | 868.9875MHz |

### 2.5.3 Test Method

The test method of TIA/EIA 603A section 2.2.12 was followed for radiated spurious emissions. The P800 was placed on the turntable three meters from the receive antenna. A non-radiating load was placed on the P800. A emission scan was performed from 4 MHz to 9GHz. All spurious emissions were recorded and measured with substitution method listed in TIA/EIA 603A.

### 2.5.4 Results

The M/A-Com OpenSky P800 Portable Radio met the requirements for Radiated Spurious Emissions as required by FCC Part 2.933.

#### Radiated Spurious Test Setup

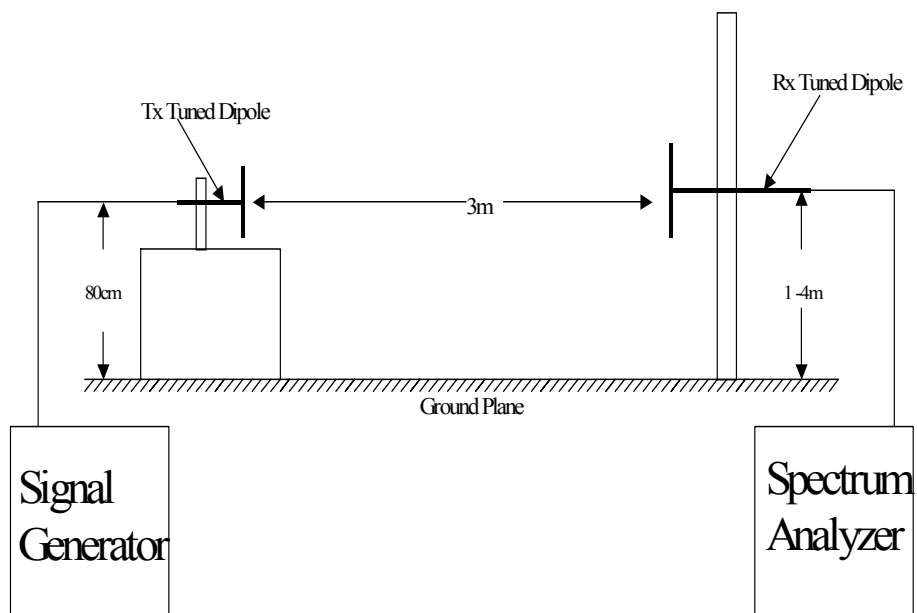


Figure 6

### 2.5.5 Test Data

CUSTOMER: M/A-COM

DATE: 05/30/02

EQUIPMENT: OPENSky P800 PORTABLE RADIO

TEST NUMBER: 7

#### RADIATED SPURIOUS EMISSION MEASUREMENTS (CHANNEL #1)

| FREQUENCY<br>MHz | Mode of<br>Operation | Output of<br>Sig. Gen.<br>-dBm | Cable Loss | Gain<br>dBi | EIRP<br>dBm | LIMIT<br>dBm |
|------------------|----------------------|--------------------------------|------------|-------------|-------------|--------------|
|                  |                      |                                |            |             |             |              |
| 1612.025         | OTP                  | 38                             | 2.1        | 7.0         | -28.0       | -8.6         |
| 2418.037         | OTP                  | 58                             | 0.7        | 7.4         | -49.9       | -8.6         |
| 3224.050         | OTP                  | 24                             | 0.8        | 8.2         | -15.0       | -8.6         |
| 4030.062         | OTP                  | 46                             | 1.8        | 7.7         | -36.5       | -8.6         |
| 4836.075         | OTP                  | 21                             | 2.9        | 9.2         | -8.9        | -8.6         |
| 5642.087         | OTP                  | 39                             | 3.0        | 8.8         | -27.2       | -8.6         |
| 6448.100         | OTP                  | 32                             | 5.1        | 10.0        | -16.9       | -8.6         |
| 7254.112         | OTP                  | N/A                            | 2.3        | 9.9         | N/A         | -8.6         |
| 8060.125         | OTP                  | N/A                            | 2.8        | 10.6        | N/A         | -8.6         |
|                  |                      |                                |            |             |             |              |
|                  |                      |                                |            |             |             |              |
|                  |                      |                                |            |             |             |              |

**CUSTOMER: M/A-COM****DATE: 05/30/02****EQUIPMENT: OPENSky P800 PORTABLE RADIO****TEST NUMBER: 7**

**RADIATED SPURIOUS EMISSION MEASUREMENTS  
(CHANNEL #415)**

| FREQUENCY<br>MHz | Mode of<br>Operation | Output of<br>Sig. Gen.<br>-dBm | Cable Loss | Gain<br>dBi | EIRP<br>dBm | LIMIT<br>dBm |
|------------------|----------------------|--------------------------------|------------|-------------|-------------|--------------|
|                  |                      |                                |            |             |             |              |
| 1632.725         | OTP                  | 42                             | 2.1        | 7.0         | -32.9       | -8.6         |
| 2449.087         | OTP                  | 39                             | 0.7        | 7.4         | -30.9       | -8.6         |
| 3265.450         | OTP                  | 29                             | 0.8        | 8.2         | -20.0       | -8.6         |
| 4081.810         | OTP                  | 29                             | 1.8        | 7.7         | -19.5       | -8.6         |
| 4898.173         | OTP                  | 25                             | 2.9        | 9.2         | -12.9       | -8.6         |
| 5714.535         | OTP                  | 31                             | 3.0        | 8.8         | -19.2       | -8.6         |
| 6530.897         | OTP                  | 35                             | 5.1        | 10.0        | -19.9       | -8.6         |
|                  |                      |                                |            |             |             |              |
|                  |                      |                                |            |             |             |              |
|                  |                      |                                |            |             |             |              |
|                  |                      |                                |            |             |             |              |
|                  |                      |                                |            |             |             |              |

**CUSTOMER: M/A-COM****DATE: 05/30/02****EQUIPMENT: OPENSky P800 PORTABLE RADIO****TEST NUMBER: 7**

**RADIATED SPURIOUS EMISSION MEASUREMENTS  
(CHANNEL #830)**

| FREQUENCY<br>MHz | Mode of<br>Operation | Output of<br>Sig. Gen.<br>-dBm | Cable Loss | Gain<br>dBi | EIRP<br>dBm | LIMIT<br>dBm |
|------------------|----------------------|--------------------------------|------------|-------------|-------------|--------------|
|                  |                      |                                |            |             |             |              |
| 1647.975         | OTP                  | 40                             | 2.1        | 7.0         | -30.9       | -8.6         |
| 2471.962         | OTP                  | 33                             | 0.7        | 7.4         | -24.9       | -8.6         |
| 3295.950         | OTP                  | 23                             | 0.8        | 8.2         | -14.0       | -8.6         |
| 4119.937         | OTP                  | 24                             | 1.8        | 7.7         | -14.5       | -8.6         |
| 4943.925         | OTP                  | 28                             | 2.9        | 9.2         | -15.9       | -8.6         |
| 5767.912         | OTP                  | 31                             | 3.0        | 8.8         | -19.2       | -8.6         |
| 6591.900         | OTP                  | 35                             | 5.1        | 10.0        | -19.9       | -8.6         |
|                  |                      |                                |            |             |             |              |
|                  |                      |                                |            |             |             |              |
|                  |                      |                                |            |             |             |              |
|                  |                      |                                |            |             |             |              |
|                  |                      |                                |            |             |             |              |

**CUSTOMER: M/A-COM****DATE: 05/30/02****EQUIPMENT: OPENSky P800 PORTABLE RADIO****TEST NUMBER: 7**

**RADIATED SPURIOUS EMISSION MEASUREMENTS  
(CHANNEL #1)**

| FREQUENCY<br>MHz | Mode of<br>Operation | Output of<br>Sig. Gen.<br>-dBm | Cable Loss | Gain<br>dBi | EIRP<br>dBm | LIMIT<br>dBm |
|------------------|----------------------|--------------------------------|------------|-------------|-------------|--------------|
|                  |                      |                                |            |             |             |              |
| 1612.025         | OCF                  | 32                             | 2.1        | 7.0         | -22.9       | -8.6         |
| 2418.037         | OCF                  | 55                             | 0.7        | 7.4         | -46.9       | -8.6         |
| 3224.050         | OCF                  | 34                             | 0.8        | 8.2         | -25.0       | -8.6         |
| 4030.062         | OCF                  | 29                             | 1.8        | 7.7         | -19.5       | -8.6         |
| 4836.075         | OCF                  | 33                             | 2.9        | 9.2         | -20.9       | -8.6         |
| 5642.087         | OCF                  | 40                             | 3.0        | 8.8         | -28.2       | -8.6         |
| 6448.100         | OCF                  | 55                             | 5.1        | 10.0        | -39.9       | -8.6         |
|                  |                      |                                |            |             |             |              |
|                  |                      |                                |            |             |             |              |
|                  |                      |                                |            |             |             |              |
|                  |                      |                                |            |             |             |              |
|                  |                      |                                |            |             |             |              |

# TEST SERVICES

CUSTOMER: M/A-COM

DATE: 05/30/02

EQUIPMENT: OPENSky P800 PORTABLE RADIO

TEST NUMBER: 7

## RADIATED SPURIOUS EMISSION MEASUREMENTS (CHANNEL #415)

| FREQUENCY<br>MHz | Mode of<br>Operation | Output of<br>Sig. Gen.<br>-dBm | Cable Loss | Gain<br>dBi | EIRP<br>dBm | LIMIT<br>dBm |
|------------------|----------------------|--------------------------------|------------|-------------|-------------|--------------|
|                  |                      |                                |            |             |             |              |
| 1632.725         | OCF                  | 34                             | 2.1        | 7.0         | -24.9       | -8.6         |
| 2449.087         | OCF                  | 50                             | 0.7        | 7.4         | -41.9       | -8.6         |
| 3265.450         | OCF                  | 31                             | 0.8        | 8.2         | -22.0       | -8.6         |
| 4081.810         | OCF                  | 31                             | 1.8        | 7.7         | -21.5       | -8.6         |
| 4898.173         | OCF                  | 36                             | 2.9        | 9.2         | -23.9       | -8.6         |
| 5714.535         | OCF                  | 34                             | 3.0        | 8.8         | -22.2       | -8.6         |
|                  |                      |                                |            |             |             |              |
|                  |                      |                                |            |             |             |              |
|                  |                      |                                |            |             |             |              |
|                  |                      |                                |            |             |             |              |
|                  |                      |                                |            |             |             |              |
|                  |                      |                                |            |             |             |              |

# TEST SERVICES

CUSTOMER: M/A-COM

DATE: 05/30/02

EQUIPMENT: OPENSky P800 PORTABLE RADIO

TEST NUMBER: 7

## RADIATED SPURIOUS EMISSION MEASUREMENTS (CHANNEL #830)

| FREQUENCY<br>MHz | Mode of<br>Operation | Output of<br>Sig. Gen.<br>-dBm | Cable Loss | Gain<br>dBi | EIRP<br>dBm | LIMIT<br>dBm |
|------------------|----------------------|--------------------------------|------------|-------------|-------------|--------------|
|                  |                      |                                |            |             |             |              |
| 1647.975         | OCF                  | 41                             | 2.1        | 7.0         | -31.9       | -8.6         |
| 2471.962         | OCF                  | 50                             | 0.7        | 7.4         | -41.9       | -8.6         |
| 3295.950         | OCF                  | 38                             | 0.8        | 8.2         | -29.0       | -8.6         |
| 4119.937         | OCF                  | 34                             | 1.8        | 7.7         | -24.5       | -8.6         |
| 4943.925         | OCF                  | 44                             | 2.9        | 9.2         | -31.9       | -8.6         |
| 5767.912         | OCF                  | 32                             | 3.0        | 8.8         | -20.2       | -8.6         |
|                  |                      |                                |            |             |             |              |
|                  |                      |                                |            |             |             |              |
|                  |                      |                                |            |             |             |              |
|                  |                      |                                |            |             |             |              |
|                  |                      |                                |            |             |             |              |
|                  |                      |                                |            |             |             |              |

**CUSTOMER: M/A-COM**

**DATE: 05/30/02**

**EQUIPMENT: OPENSky P800 PORTABLE RADIO**

**TEST NUMBER: 7**

### RADIATED SPURIOUS EMISSION MEASUREMENTS (CHANNEL #1)

| FREQUENCY<br>MHz | Mode of<br>Operation | Output of<br>Sig. Gen.<br>-dBm | Cable Loss | Gain<br>dBi | EIRP<br>dBm | LIMIT<br>dBm |
|------------------|----------------------|--------------------------------|------------|-------------|-------------|--------------|
|                  |                      |                                |            |             |             |              |
| 1702.025         | OCF Talk<br>Around   | 50                             | 2.1        | 7.0         | -40.9       | -8.6         |
| 2553.037         | OCF Talk<br>Around   | 35                             | 0.7        | 7.4         | -26.9       | -8.6         |
| 3404.050         | OCF Talk<br>Around   | 33                             | 0.8        | 8.2         | -24.0       | -8.6         |
| 4255.062         | OCF Talk<br>Around   | 35                             | 1.8        | 7.7         | -25.5       | -8.6         |
| 5106.075         | OCF Talk<br>Around   | 37                             | 2.9        | 9.2         | -24.9       | -8.6         |
| 5957.087         | OCF Talk<br>Around   | 33                             | 3.0        | 8.8         | -21.2       | -8.6         |
| 6808.100         | OCF Talk<br>Around   | 43                             | 5.1        | 10.0        | -27.9       | -8.6         |
| 7659.112         | OCF Talk<br>Around   | 53                             | 2.3        | 9.9         | -40.8       | -8.6         |
| 8510.125         | OCF Talk<br>Around   | 44                             | 2.8        | 10.6        | -30.6       | -8.6         |
|                  |                      |                                |            |             |             |              |
|                  |                      |                                |            |             |             |              |
|                  |                      |                                |            |             |             |              |

**TEST SERVICES****CUSTOMER: M/A-COM****DATE: 05/30/02****EQUIPMENT: OPENSky P800 PORTABLE RADIO****TEST NUMBER: 7**

**RADIATED SPURIOUS EMISSION MEASUREMENTS  
(CHANNEL #415)**

| FREQUENCY<br>MHz | Mode of<br>Operation | Output of<br>Sig. Gen.<br>-dBm | Cable Loss | Gain<br>dBi | EIRP<br>dBm | LIMIT<br>dBm |
|------------------|----------------------|--------------------------------|------------|-------------|-------------|--------------|
|                  |                      |                                |            |             |             |              |
| 1722.725         | OCF Talk<br>Around   | 51                             | 2.1        | 7.0         | -41.9       | -8.6         |
| 2584.087         | OCF Talk<br>Around   | 35                             | 0.7        | 7.4         | -26.9       | -8.6         |
| 3445.450         | OCF Talk<br>Around   | 32                             | 0.8        | 8.2         | -23.0       | -8.6         |
| 4306.812         | OCF Talk<br>Around   | 37                             | 1.8        | 7.7         | -27.5       | -8.6         |
| 5168.175         | OCF Talk<br>Around   | 36                             | 2.9        | 9.2         | -23.9       | -8.6         |
| 6029.537         | OCF Talk<br>Around   | 34                             | 3.0        | 8.8         | -22.2       | -8.6         |
| 6890.900         | OCF Talk<br>Around   | 43                             | 5.1        | 10.0        | -27.9       | -8.6         |
| 8613.625         | OCF Talk<br>Around   | 43                             | 2.8        | 10.6        | -29.6       | -8.6         |
|                  |                      |                                |            |             |             |              |
|                  |                      |                                |            |             |             |              |
|                  |                      |                                |            |             |             |              |

# TEST SERVICES

CUSTOMER: M/A-COM

DATE: 05/30/02

EQUIPMENT: OPENSky P800 PORTABLE RADIO

TEST NUMBER: 7

## RADIATED SPURIOUS EMISSION MEASUREMENTS (CHANNEL #830)

| FREQUENCY<br>MHz | Mode of<br>Operation | Output of<br>Sig. Gen.<br>-dBm | Cable Loss | Gain<br>dBi | EIRP<br>dBm | LIMIT<br>dBm |
|------------------|----------------------|--------------------------------|------------|-------------|-------------|--------------|
|                  |                      |                                |            |             |             |              |
| 1737.975         | OCF Talk<br>Around   | 52                             | 2.1        | 7.0         | -42.9       | -8.6         |
| 2606.962         | OCF Talk<br>Around   | 30                             | 0.7        | 7.4         | -21.9       | -8.6         |
| 3475.950         | OCF Talk<br>Around   | 40                             | 0.8        | 8.2         | -31.0       | -8.6         |
| 4344.937         | OCF Talk<br>Around   | 33                             | 1.8        | 7.7         | -23.5       | -8.6         |
| 5213.925         | OCF Talk<br>Around   | 36                             | 2.9        | 9.2         | -23.9       | -8.6         |
| 6082.912         | OCF Talk<br>Around   | 30                             | 3.0        | 8.8         | -18.2       | -8.6         |
| 6951.900         | OCF Talk<br>Around   | 40                             | 5.1        | 10.0        | -24.9       | -8.6         |
|                  |                      |                                |            |             |             |              |
|                  |                      |                                |            |             |             |              |
|                  |                      |                                |            |             |             |              |
|                  |                      |                                |            |             |             |              |
|                  |                      |                                |            |             |             |              |

**2.5.6 Photographic Documentation****CUSTOMER: M/A-COM****DATE: 05/30/02****EQUIPMENT: OPENSky P800 PORTABLE RADIO****TEST NUMBER: 7**Photograph Description: Radiated set-up**FORM CTS-PHOTO**

**2.6 Frequency Stability****2.6.1 Equipment Used**

| Test Equipment |                                                     | Asset # | Serial #  | Cal Date |
|----------------|-----------------------------------------------------|---------|-----------|----------|
| X              | H/P Frequency Counter 5340A                         | 139     | 214A08245 | 12/02    |
| X              | Cincinnati Sub Zero ZH-32-2H/AC Temperature Chamber | 544     | Z09712530 | 05/03    |
| X              | Narda 769-20 High Band Attenuator                   | 284     | 03793     | C.P.U.   |
| X              | H/P 8368A Signal Generator                          | 399     | 8965B0091 | 06/02    |
| X              | Narda 769-20 High Band Attenuator                   | 471     | 02951     | C.P.U.   |

**2.6.2 Test Conditions**

The Frequency Stability “Temperature” tests were performed with the OpenSky P800 Portable Radio placed inside a Temperature/Humidity Chamber.

The Frequency Stability “Voltage” tests were performed with the OpenSky P800 Portable Radio placed on top of a wooden turntable. The ambient temperature was 20°C.

The OpenSky P800 Portable Radio was configured to operate at the middle channel OCF mode.

**2.6.3 Test Method****Frequency Stability-Temperature**

The OpenSky P800 Portable Radio was placed inside a temperature/humidity chamber. The ambient temperature inside the chamber is computer controlled and varied from –30°C to +50° in 10° steps for this test. The temperature was initially set to 20°C and a reference measurement was taken. The ambient temperature was then dropped to –30°C and stepped up to +50°C in 10°C intervals. A measurement was taken every 10°C. The output of the OpenSky P800 Portable Radio was connected to a frequency counter via two 20dB attenuators and a N-Type coax cable. The P800 Radio was set to 816.3625 MHz (Channel 415) OCF Mode. See Figure 7 for test set-up. The temperature was measured by placing a thermal couple on the outside chassis of the P800 Radio. The P800 Portable Radio was turned off between each 10° step.

### Frequency Stability-Voltage

The OpenSky P800 Portable Radio was placed on top of a wooden table connected to a modified battery pack enclosure. The battery pack enclosure with exposed terminals (no cells) was connected to a DC supply. Testing was performed at 8VDC (above nominal), 7.3VDC (nominal), and 6.093VDC (battery end-point). The voltage variation test was performed at the high, middle, and low channels in the OCF Mode.

The modes of operation and frequencies tested are as follows:

| OCF Mode |             |
|----------|-------------|
| Ch# 1    | 806.0125MHz |
| Ch# 415  | 816.3625MHz |
| Ch# 830  | 823.9875MHz |

### 2.6.4 Results

The M/A-Com OpenSky P800 Portable Radio met the Frequency Stability requirements of FCC Part 90.213 and Part 2.995.

### Test Setup

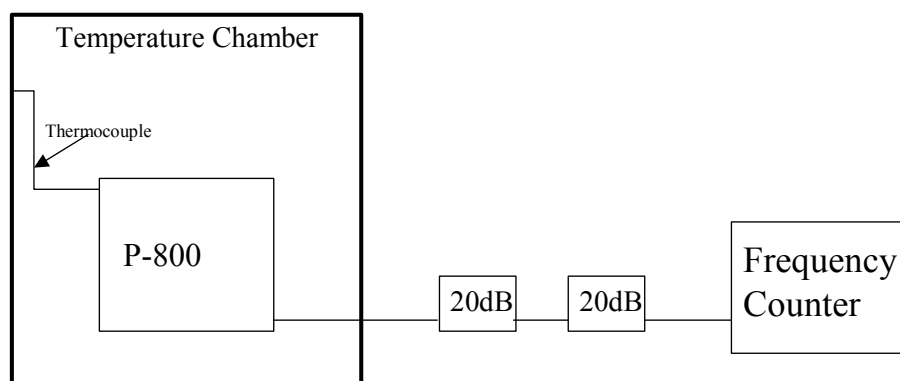


Figure 7

## 2.6.5 Test Data

### P800 Radio OTP Mode

#### Frequency Stability Test (Voltage)

|                | <b>CH001<br/>(806.0125 MHz)</b> | <b>CH 415<br/>(816.3625 MHz)</b> | <b>CH 830<br/>(823.9875 MHz)</b> |
|----------------|---------------------------------|----------------------------------|----------------------------------|
| <b>8.0 VDC</b> | 806.0123                        | 816.3627                         | 823.9878                         |
| <b>7.3 VDC</b> | 806.0125                        | 816.3627                         | 823.9878                         |
| <b>6.3 VDC</b> | 806.0127                        | 816.3628                         | 823.9878                         |

#### Frequency Stability Test (Temperature)

| <b>Temperature</b> | <b>Frequency (MHz) (823.9875 MHz)</b> |
|--------------------|---------------------------------------|
| -30°C              | 823.98733                             |
| -20°C              | 823.98744                             |
| -10°C              | 823.98742                             |
| 0°C                | 823.98742                             |
| 10°C               | 823.98753                             |
| 20°C               | 823.98778                             |
| 30°C               | 823.98798                             |
| 40°C               | 823.98828                             |
| 50°C               | 823.98850                             |

**P800 Radio OCF Mode****Frequency Stability Test (Voltage)**

|                 | <b>CH001<br/>(806.0125 MHz)</b> | <b>CH 415<br/>(816.3625 MHz)</b> | <b>CH 830<br/>(823.9875 MHz)</b> |
|-----------------|---------------------------------|----------------------------------|----------------------------------|
| <b>8.00 VDC</b> | 806.0123                        | 816.3624                         | 823.9873                         |
| <b>7.30 VDC</b> | 806.0123                        | 816.3623                         | 823.9873                         |
| <b>6.35 VDC</b> | 806.0123                        | 816.3622                         | 823.9872                         |

**Frequency Stability Test (Temperature)**

| <b>Temperature</b> | <b>Frequency (MHz) (823.9875 MHz)</b> |
|--------------------|---------------------------------------|
| -30°C              | 823.98761                             |
| -20°C              | 823.98756                             |
| -10°C              | 823.98760                             |
| 0°C                | 823.98760                             |
| 10°C               | 823.98760                             |
| 20°C               | 823.98758                             |
| 30°C               | 823.98755                             |
| 40°C               | 823.98746                             |
| 50°C               | 823.98732                             |

**2.6.6 Photographic Documentation****CUSTOMER: M/A-COM****EQUIPMENT: OPENSky P800 PORTABLE RADIO****DATE: 05/14/02****TEST NUMBER: 5**Photograph Description: Temperature test set-up**FORM CTS-PHOTO**

**2.7 Part 15 Radiated Electromagnetic Emissions****2.7.1 Equipment Used**

| Test Equipment |                                      | Asset # | Serial #   | Cal Date |
|----------------|--------------------------------------|---------|------------|----------|
| X              | Tektronix 496 Spectrum Analyzer      | 1       | B010559    | 10/02    |
| X              | H/P E4401 Spectrum Analyzer          | N/A     | 4895C76451 | 04/03    |
| X              | Rhode and Schwartz ESV Test Receiver | 15      | 875931049  | 09/02    |
| X              | Hewlett Packard 8447D Pre Amp        | 4       | 2727A06065 | 01/03    |
| X              | EMCO 3120 Tuned Dipole Antenna B1    | 477     | 56         | 01/03    |
| X              | EMCO 3121 Tuned Dipole Antenna B2    | 478     | 176        | 01/03    |
| X              | EMCO 3121 Tuned Dipole Antenna B3    | 479     | 728        | 01/03    |
| X              | EMCO 3115 Microwave Horn Antenna     | 376     | 2796       | 01/03    |

**2.7.2 Test Conditions**

The OpenSky P800 Portable Radio was set up on a wooden table 3 meters from a the receiving antenna within Open Area Test Site A.

The OpenSky P800 Portable Radio was configured to operate in stand-by mode of operation to maximize the emissions. The EUT was set up and powered by a fully charged battery for radiated emission tests. The worst case signals detected were recorded.

The OpenSky P800 Portable Radio was tested in two different configurations.

1. Standalone with  $\frac{1}{2}$  wave antenna.
2. Standalone with  $\frac{1}{4}$  wave antenna.

**2.7.3 Test Method**

The test method of ANSI-C63.4 was followed for Class B equipment. For the radiated emission measurements, a manual scan was performed from 30MHz to 10GHz. During this scan, the antenna, turntable and EUT's cable positions were manipulated to maximize the emission levels in a given frequency band displayed on the spectrum analyzer.

**2.7.4 Results**

The M/A-Com OpenSky P800 Portable Radio met the requirements for Radiated Emissions as required by FCC Part 15 Subpart B for Class B equipment.

### 2.7.5 Test Data

#### RADIATED E FIELD EMISSION MEASUREMENTS

**CUSTOMER:** M/A-COM

**DATE:** 05/15/02

**EQUIPMENT:** P800 S/N 14C CHANNEL 830 HALF

**TEST NUMBER:** 4

**WAVE ANTENNA**

**TESTED BY:** MANUEL MARTINEZ

**COUPLING DEVICE:** DIPOLE ANTENNAS

**OPERATING MODE:** OTP

**TEST SPEC:** FCC PART 15 AND 90 CLASS B

**BANDWIDTH:** [ X ] 100 kHz (PEAK)/120 kHz (QP)

**PROCEDURE:** ANSI C63.4

**OTHER (SPECIFY)**

**FREQUENCY RANGE:** [ X ] 30MHz – 10GHz

**ANTENNA DISTANCE:** [ X ] 3 METERS

[ ] 11.76 GHz – 12.7 GHz

[ ] 10 METERS

| FREQUENCY<br>MHz       | PEAK<br>MEASURED<br>LEVEL<br>-dBm | QUASI-<br>PEAK<br>MEASURED<br>LEVEL<br>dBuV | ANTENNA<br>HEIGHT<br>(METERS) | TURNTABLE<br>AZIMUTH<br>(DEGREES) | ANTENNA<br>H/V | ANTENNA<br>FAC/CABLE<br>LOSS dB | FIELD LEVEL<br>dBuV/m ✧ | LIMIT<br>dBuV/m<br>(QP) |
|------------------------|-----------------------------------|---------------------------------------------|-------------------------------|-----------------------------------|----------------|---------------------------------|-------------------------|-------------------------|
| 418.0                  | 84                                | --                                          | 1.2                           | 0                                 | V              | -3.3                            | 19.7                    | 46.0                    |
| 436.0                  | 86                                | --                                          | 1.2                           | 0                                 | V              | -2.8                            | 18.2                    | 46.0                    |
| 468.0                  | 84                                | --                                          | 1.2                           | 0                                 | V              | -2.1                            | 20.9                    | 46.0                    |
| 492.0                  | 88                                | --                                          | 2.2                           | 0                                 | V              | -1.6                            | 17.1                    | 46.0                    |
| 921.01                 | --                                | 4                                           | 1.5                           | 0                                 | V              | +32.3                           | 36.3                    | 46.0                    |
| 931.36                 | --                                | 3.5                                         | 1.5                           | 0                                 | V              | +32.5                           | 36.0                    | 46.0                    |
| 938.9                  | --                                | 4                                           | 1.5                           | 0                                 | V              | +32.7                           | 36.7                    | 46.0                    |
| With Lapel microphone  |                                   |                                             |                               |                                   |                |                                 |                         |                         |
| 921.01                 | --                                | 4                                           | 1.5                           | 0                                 | V              | +32.3                           | 36.3                    | 46.0                    |
| 931.36                 | --                                | 4                                           | 1.5                           | 0                                 | V              | +32.5                           | 36.5                    | 46.0                    |
| 938.9                  | --                                | 4                                           | 1.5                           | 0                                 | V              | +32.7                           | 36.7                    | 46.0                    |
| With programming cable |                                   |                                             |                               |                                   |                |                                 |                         |                         |
| 921.01                 | --                                | 5                                           | 1.5                           | 0                                 | V              | +32.3                           | 37.3                    | 46.0                    |
| 931.36                 | --                                | 5                                           | 1.5                           | 0                                 | V              | +32.5                           | 37.5                    | 46.0                    |

✧ All signals greater than 3dB from the limit are calculate to the nearest whole number.

✧ Field Level (dBuV/m) = [107 – Measured level (dBm)] + Antenna Factor/Cable Loss (dB)

Ambient Temperature: 66°F

Humidity: 46%

Atmospheric Pressure: 30.1"

NOTES:

FORM CTS-DS-001R

Document #: EMI3355.US.02

Date: July 11, 2002

# TEST SERVICES

## RADIATED EMISSION MEASUREMENTS (continued)

CUSTOMER: M/A-COM

DATE: 05/15/02

EQUIPMENT: OPENSky P800 PORTABLE RADIO

TEST NUMBER: 4

| FREQUENCY<br>MHz                                                                                                                                                                                                    | PEAK<br>MEASURED<br>LEVEL<br>-dBm | QUASI-<br>PEAK<br>MEASURED<br>LEVEL<br>dBuV | ANTENNA<br>HEIGHT<br>(METERS) | TURNTABL<br>E<br>AZIMUTH<br>(DEGREES) | ANTENNA<br>H/V | ANTENNA<br>FAC/CABLE<br>LOSS dB | FIELD LEVEL<br>dBuV/m ⚡ | LIMIT<br>dBuV/m<br>(QP) |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|---------------------------------------------|-------------------------------|---------------------------------------|----------------|---------------------------------|-------------------------|-------------------------|
| 938.9                                                                                                                                                                                                               | --                                | 3.5                                         | 1.5                           | 0                                     | V              | +32.7                           | 36.2                    | 46.0                    |
| 1878.0                                                                                                                                                                                                              | 85                                | --                                          | 1.5                           | 0                                     | V              | +28.6                           | 50.6                    | 54.0                    |
|                                                                                                                                                                                                                     |                                   |                                             |                               |                                       |                |                                 |                         |                         |
|                                                                                                                                                                                                                     |                                   |                                             |                               |                                       |                |                                 |                         |                         |
|                                                                                                                                                                                                                     |                                   |                                             |                               |                                       |                |                                 |                         |                         |
|                                                                                                                                                                                                                     |                                   |                                             |                               |                                       |                |                                 |                         |                         |
|                                                                                                                                                                                                                     |                                   |                                             |                               |                                       |                |                                 |                         |                         |
|                                                                                                                                                                                                                     |                                   |                                             |                               |                                       |                |                                 |                         |                         |
|                                                                                                                                                                                                                     |                                   |                                             |                               |                                       |                |                                 |                         |                         |
|                                                                                                                                                                                                                     |                                   |                                             |                               |                                       |                |                                 |                         |                         |
|                                                                                                                                                                                                                     |                                   |                                             |                               |                                       |                |                                 |                         |                         |
|                                                                                                                                                                                                                     |                                   |                                             |                               |                                       |                |                                 |                         |                         |
|                                                                                                                                                                                                                     |                                   |                                             |                               |                                       |                |                                 |                         |                         |
|                                                                                                                                                                                                                     |                                   |                                             |                               |                                       |                |                                 |                         |                         |
|                                                                                                                                                                                                                     |                                   |                                             |                               |                                       |                |                                 |                         |                         |
| The field level measurements for the Quarter wave antenna scan were less than the Half wave antenna scan. The Half wave antenna scan measurements were the worst case and were the ones recorded on the data sheet. |                                   |                                             |                               |                                       |                |                                 |                         |                         |
|                                                                                                                                                                                                                     |                                   |                                             |                               |                                       |                |                                 |                         |                         |

Ambient Temperature: 66°F

Humidity: 40%

Atmospheric Pressure: 30.1"

FORM CTS-DS-004.R2

Document #: EMI3355.US.02

Date: July 11, 2002

**2.7.6 Photographic Documentation**

**CUSTOMER: M/A-COM**

**DATE: 05/15/02**

**EQUIPMENT: OPENSky P800 PORTABLE RADIO**

**TEST NUMBER: 4**



Photograph Description: Test set-up

**FORM CTS-PHOTO**

**APPENDIX A  
TEST LOG**

## TEST SERVICES

### TEST LOG

**CUSTOMER: M/A-COM**

**PROGRAM: N/A**

**EQUIPMENT: OPENSky P800 PORTABLE RADIO**

**TESTED BY: MANUEL MARTINEZ**

|                           |                              |                                                                                                                                                                                                                                                                                                                                                                                                                            |                                             |                                                                                                                                 |                                         |                                    |               |
|---------------------------|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|------------------------------------|---------------|
| Pre-Test Checklist        | Date                         | Comments                                                                                                                                                                                                                                                                                                                                                                                                                   |                                             |                                                                                                                                 |                                         |                                    |               |
|                           | 04/17/02                     | <p>Test Plan/Procedure: per Test Spec</p> <p>Test Specification: FCC Part 90, FCC Part 2, FCC Part 15</p> <p>Chomerics Procedure: CHO TPEC T2</p> <p>EUT Power Requirement Verified:</p> <p style="padding-left: 40px;">DC Battery</p> <p>EUT Functional Operational Check: <input checked="" type="checkbox"/> Pass   <input type="checkbox"/> Fail</p> <p>Environmental: Bonding/Grounding: N/A   Safety Issues: N/A</p> |                                             |                                                                                                                                 |                                         |                                    |               |
| In-Process Test Checklist | Date                         | Test #                                                                                                                                                                                                                                                                                                                                                                                                                     | Test Type                                   | Test Equipment Calibrated                                                                                                       | Test Performed Properly – Data Accepted | EUT Set-up Check/Operational Check | EUT Pass/Fail |
|                           | 04/22/02, 05/16/02           | 1                                                                                                                                                                                                                                                                                                                                                                                                                          | Conducted Spurious                          | X                                                                                                                               | X                                       | X                                  | PASS          |
|                           | 04/22/02, 05/16/02           | 2                                                                                                                                                                                                                                                                                                                                                                                                                          | Occupied Bandwidth                          | X                                                                                                                               | X                                       | X                                  | PASS          |
|                           | 04/30/02, 05/14/02           | 3                                                                                                                                                                                                                                                                                                                                                                                                                          | RF Output Power                             | X                                                                                                                               | X                                       | X                                  | PASS          |
|                           | 05/15/02                     | 4                                                                                                                                                                                                                                                                                                                                                                                                                          | FCC Part 15 Radiated Emissions              | X                                                                                                                               | X                                       | X                                  | PASS          |
|                           | 05/14/02, 05/15/02, 05/30/02 | 5                                                                                                                                                                                                                                                                                                                                                                                                                          | Frequency Stability Voltage and Temperature | X                                                                                                                               | X                                       | X                                  | PASS          |
|                           | 05/14/02, 05/16/02           | 6                                                                                                                                                                                                                                                                                                                                                                                                                          | Emission Mask                               | X                                                                                                                               | X                                       | X                                  | PASS          |
|                           | 05/30/02                     | 7                                                                                                                                                                                                                                                                                                                                                                                                                          | Radiated Spurious                           | X                                                                                                                               | X                                       | X                                  | PASS          |
|                           |                              |                                                                                                                                                                                                                                                                                                                                                                                                                            |                                             |                                                                                                                                 |                                         |                                    |               |
|                           |                              |                                                                                                                                                                                                                                                                                                                                                                                                                            |                                             |                                                                                                                                 |                                         |                                    |               |
|                           |                              |                                                                                                                                                                                                                                                                                                                                                                                                                            |                                             |                                                                                                                                 |                                         |                                    |               |
|                           | Post Test Checklist          | Date:                                                                                                                                                                                                                                                                                                                                                                                                                      | EUT Functional Operation Check:             |                                                                                                                                 |                                         |                                    |               |
| 05/30/02                  |                              | <input checked="" type="checkbox"/> X <input type="checkbox"/> Fail                                                                                                                                                                                                                                                                                                                                                        |                                             | <div style="display: flex; justify-content: space-between;"> <div>Test Engineer/Tech</div> <div>Approved Signatory</div> </div> |                                         |                                    |               |

FORM CTS-010

Document #: EMI3355.US.02

Date: July 11, 2002



## TEST LOG

**PROGRAM: N/A**

**TESTED BY: ROBERT FOSTER**

|                           |                   |                                                                                                                                                                                                                                                                                                                                                    |                    |                                                                          |                                         |                                     |                |
|---------------------------|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|--------------------------------------------------------------------------|-----------------------------------------|-------------------------------------|----------------|
| Pre-Test Checklist        | Date              | Comments                                                                                                                                                                                                                                                                                                                                           |                    |                                                                          |                                         |                                     |                |
|                           | 05/22/02          | <b>Test Plan/Procedure: per Test Spec</b><br><b>Test Specification: FCC Part 90, FCC Part 2</b><br><b>Chomerics Procedure: CHO TPEC T2</b><br><b>EUT Power Requirement Verified:</b><br><b>DC Battery</b><br><b>EUT Functional Operational Check: [ X ] Pass   [   ] Fail</b><br><b>Environmental: Bonding/Grounding: N/A   Safety Issues: N/A</b> |                    |                                                                          |                                         |                                     |                |
| In-Process Test Checklist | Date              | Test #                                                                                                                                                                                                                                                                                                                                             | Test Type          | Test Equipment Calibrated                                                | Test Performed Properly – Data Accepted | EUT Set-up Check/ Operational Check | EUT Pass/ Fail |
|                           | 05/22/02          | 1                                                                                                                                                                                                                                                                                                                                                  | Emission Mask      | X                                                                        | X                                       | X                                   | PASS           |
|                           | 05/22/02          | 2                                                                                                                                                                                                                                                                                                                                                  | Conducted Spurious | X                                                                        | X                                       | X                                   | PASS           |
|                           | 05/22/02          | 3                                                                                                                                                                                                                                                                                                                                                  | Occupied Bandwidth | X                                                                        | X                                       | X                                   | PASS           |
|                           | 05/22/02          | 4                                                                                                                                                                                                                                                                                                                                                  | Radiated Spurious  | X                                                                        | X                                       | X                                   | PASS           |
|                           |                   |                                                                                                                                                                                                                                                                                                                                                    |                    |                                                                          |                                         |                                     |                |
|                           |                   |                                                                                                                                                                                                                                                                                                                                                    |                    |                                                                          |                                         |                                     |                |
|                           |                   |                                                                                                                                                                                                                                                                                                                                                    |                    |                                                                          |                                         |                                     |                |
|                           |                   |                                                                                                                                                                                                                                                                                                                                                    |                    |                                                                          |                                         |                                     |                |
|                           |                   |                                                                                                                                                                                                                                                                                                                                                    |                    |                                                                          |                                         |                                     |                |
|                           |                   |                                                                                                                                                                                                                                                                                                                                                    |                    |                                                                          |                                         |                                     |                |
|                           |                   |                                                                                                                                                                                                                                                                                                                                                    |                    |                                                                          |                                         |                                     |                |
| Post Test Checklist       | Date:<br>05/30/02 | <b>EUT Functional Operation Check:</b><br><br><b>[ X ] Pass   [   ] Fail</b>                                                                                                                                                                                                                                                                       |                    | <div> <div>Test Engineer/Tech</div> <div>Approved Signatory</div> </div> |                                         |                                     |                |

**FORM CTS-010**

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