



**SUPERTEL TECHNOLOGIES, INC. TEST REPORT**

**FOR THE**

**SR-436 WIRELESS SPREAD SPECTRUM COMMUNICATIONS SYSTEM**

**FCC PART 15 SUBPART C SECTIONS 15.207 & 15.247**

**COMPLIANCE**

**DATE OF ISSUE: MARCH 5, 2002**

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W.O. No.: 78247

Date of test: January 7 –  
February 28, 2002

**Report No.: FC02-010**

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**CKC Laboratories, Inc. has received Certificates of Accreditation from the following agencies:**

A2LA (USA); BSMI (Taiwan); Nemko (Norway); and GOST (Russia).

**CKC Laboratories, Inc has received test site Registration Acceptance from the following agencies:**

FCC (USA); VCCI (Japan); and Industry Canada.

**CKC Laboratories, Inc. has received Letters of Acceptance through an MRA for the following agencies:**

ACA/NATA (Australia); SABS (South Africa); SWEDAC (Sweden); Radio Communications Agency (RA); HOKLAS (Hong Kong); Bakom (Swiss); BIPT (Belgium); Denmark Telestyrelsen; RvA (Netherlands); SEE (Luxembourg) SITTEL (Bolivia); and UKAS (UK).

## **ADMINISTRATIVE INFORMATION**

**DATE OF TEST:**

January 7 - February 28, 2002

**DATE OF RECEIPT:**

January 7, 2002

**PURPOSE OF TEST:**

To demonstrate the compliance of the SR-436 Wireless Spread Spectrum Communications System with the requirements for FCC Part 15 Subpart C Sections 15.207 and 15.247 devices.

**TEST METHOD:**

ANSI C63.4 (1992)

**MANUFACTURER:**

SuperTel Technologies, Inc.  
3245 146th Place SE, Suite 370  
Bellevue, WA 98007

**REPRESENTATIVE:**

Eric Waunch

**TEST LOCATION:**

CKC Laboratories, Inc.  
22105 Wilson River Hwy, Tillamook, OR 97141  
14797 NE 95th, Redmond, WA 98052

## SUMMARY OF RESULTS

As received, the SuperTel Technologies, Inc. SR-436 Wireless Spread Spectrum Communications System was found to be fully compliant with the following standards and specifications:

### United States

- FCC Part 15 Subpart C Sections 15.207 & 15.247
- ANSI C63.4 (1992) method

## CONDITIONS FOR COMPLIANCE

No modifications to the EUT were necessary to comply.

## APPROVALS

### QUALITY ASSURANCE:

A handwritten signature in black ink, appearing to read "Dennis Ward".

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Dennis Ward, Quality Manager

A handwritten signature in black ink, appearing to read "Ron Dulmage".

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Ron Dulmage, Chief Operations Officer

A handwritten signature in black ink, appearing to read "Robert Nees".

---

Robert Nees, Lab Manager

### TEST PERSONNEL:

A handwritten signature in black ink, appearing to read "Mark Chase".

---

Mark Chase, EMC Engineer

A handwritten signature in black ink, appearing to read "Mike Wilkinson".

---

Mike Wilkinson, Test Engineer

A handwritten signature in black ink, appearing to read "Andrew Pace".

---

Andrew Pace, Test Engineer

A handwritten signature in black ink, appearing to read "Steve Behm".

---

Steve Behm, EMC/Lab Manager

## **EQUIPMENT UNDER TEST (EUT) DESCRIPTION**

The EUT tested by CKC Laboratories was a production unit. The SR-436 telephone system consisting of one handset, one fixed terminal, and one base unit, are all spread spectrum frequency hopping transceivers.

### **Eut Operating Frequency**

During testing the devices were operating in the following frequency ranges:

2402.825 – 2480.200 MHz – Base

2402.850 – 2480.080 MHz – Handset

2403.080 – 2480.086 MHz – Fixed Terminal

### **Mode Of Operation**

The EUT was tested while operating in a normal mode of operation. Testing required individual channel selection. The handset was tested in all three orthogonal planes while operating on battery power. While in the cradle, the handset only charges the batteries; therefore only 15.209 and 15.207 testing was required. The handset has two antennas, but they are of the same type and therefore only the highest gain antenna was tested. No testing was done on the fixed terminal equipment for 15.247(a)(1), 15.247 (a)(1)(ii), 15.247 (b)(1) and 15.247 (c) because the transmitter module is identical to that used in the base unit.

### **15.31(m) Number Of Channels**

This device operates in the range of 2403-2480 MHz. In accordance with 15.31(m), the frequencies tested were channels 2403, 2441.5 and 2480 MHz.

### **15.33(a) Frequency Ranges Tested**

15.207 Conducted Emissions: 450 kHz – 30 MHz

15.247/15.209 Radiated Emissions: 9 kHz – 26 GHz

### **15.203 Antenna Requirements**

The device is equipped with reverse thread proprietary connectors and a proprietary connector type and therefore complies with Section 15.203 of the FCC rules.

### **15.205 Restricted Bands**

The fundamental operating frequency lies outside the restricted bands and therefore complies with the requirements of Section 15.205 of the FCC rules. Any spurious emission coming from the EUT was investigated to determine if any portion lies inside the restricted band. If any portion of a spurious emissions signal was found to be within a restricted band, investigation was performed to ensure compliance with Section 15.209.

### **15.215 Additional Provisions to the General Radiated Emission Limitations**

The fundamental frequency was kept within the central 80% of the permitted band in order to minimize the possibility of out-of-band operation. Refer to Appendix B for the test equipment used and Appendix C for the occupied bandwidth plot(s).

## **EQUIPMENT UNDER TEST**

### **SR-436 Wireless Spread Spectrum Communications System consisting of:**

#### **Battery Charger**

Manuf: SuperTel Technologies, Inc.  
Model: ENG-CH  
Serial: None  
FCC ID: DoC

#### **Power Supply**

Manuf: SENAO  
Model: AM-71000  
Serial: None  
FCC ID: DoC

#### **Handset**

Manuf: SuperTel Technologies, Inc.  
Model: SR-436  
Serial: ENG-1  
FCC ID: NNA-SR-436 (pending)

#### **Base**

Manuf: SuperTel Technologies, Inc.  
Model: SR-436  
Serial: ENG-1  
FCC ID: NNA-SR-436 (pending)

#### **Fixed Terminal**

Manuf: SuperTel Technologies, Inc.  
Model: SR-436  
Serial: 022200001  
FCC ID: NNA-SR-436 (pending)

## **PERIPHERAL DEVICES**

The EUT was tested with the following peripheral device(s):

#### **Remote CO Simulator**

Manuf: Teltone  
Model: TLS-5  
Serial: 029081  
FCC ID: DoC

#### **CD Player**

Manuf: Sony  
Model: D-131  
Serial: 5658402  
FCC ID: DoC

#### **Computer**

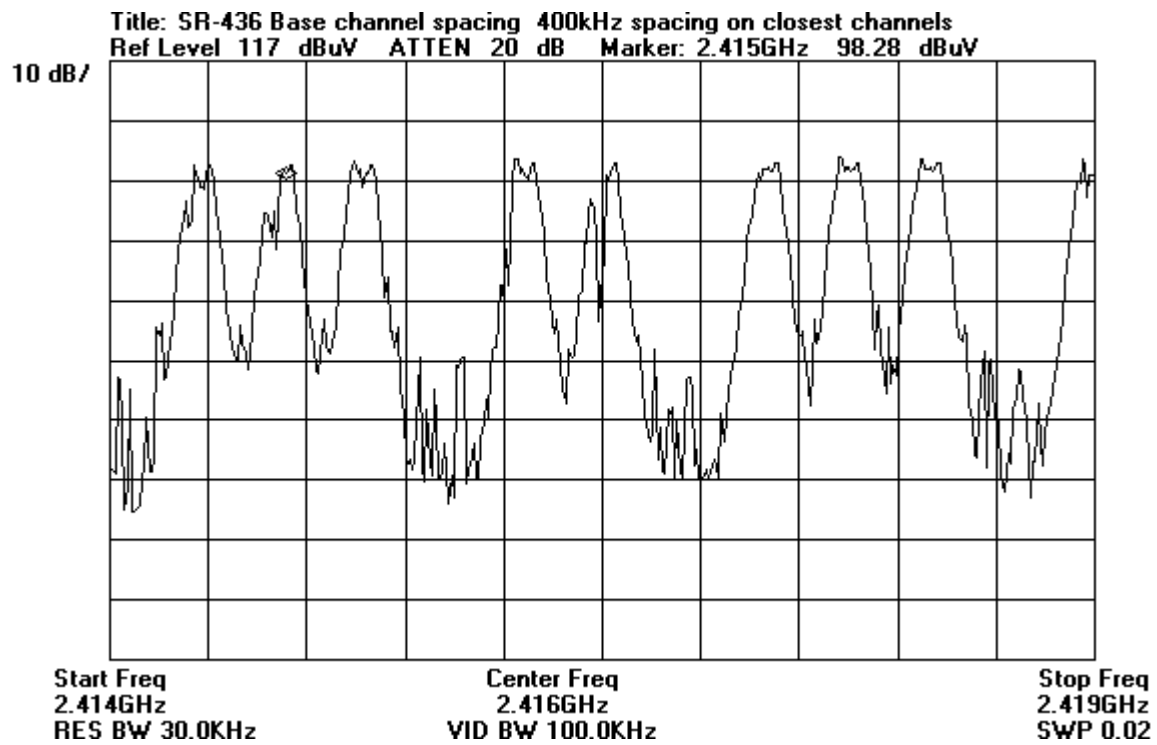
Manuf: Dell  
Model: TS30H  
Serial: 8019146BY40038A  
FCC ID: DoC

#### **Analog Phone Set**

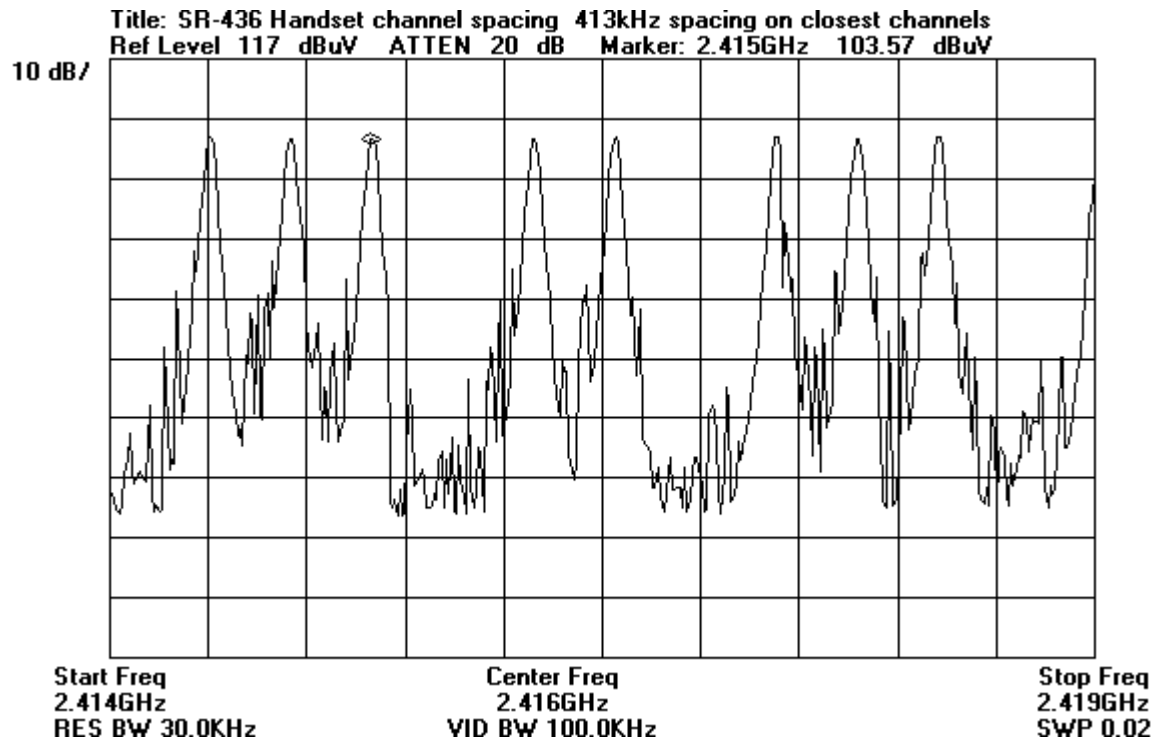
Manuf: Conairphone  
Model: SW160A  
Serial: NA  
FCC ID: DoC

## REPORT OF MEASUREMENTS

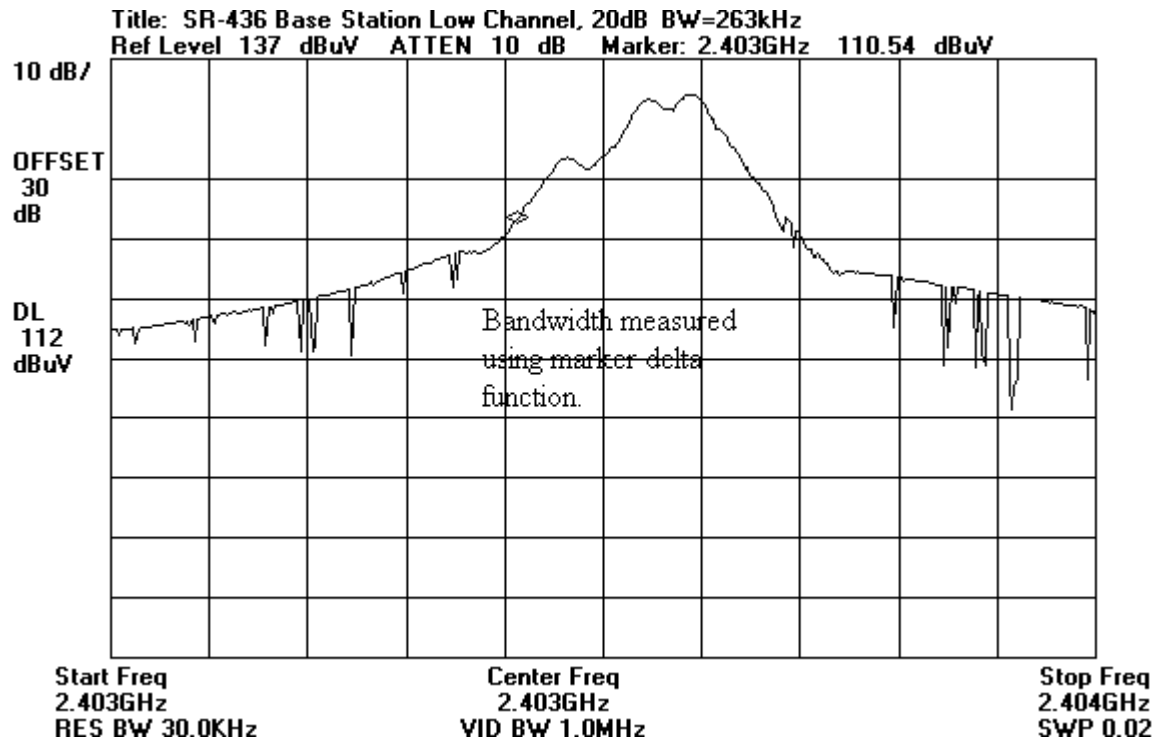
### 15.247(a)(1) BASE - CHANNEL SEPARATION



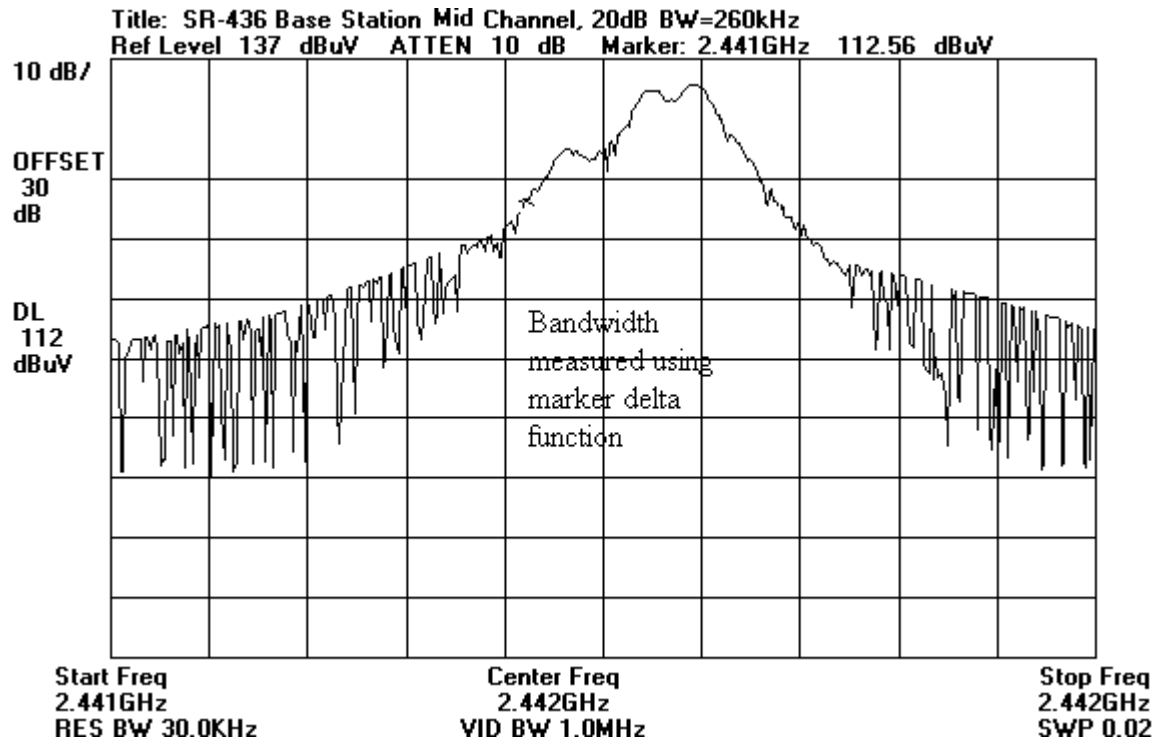
# 15.247(a)(1) HANDSET - CHANNEL SEPARATION



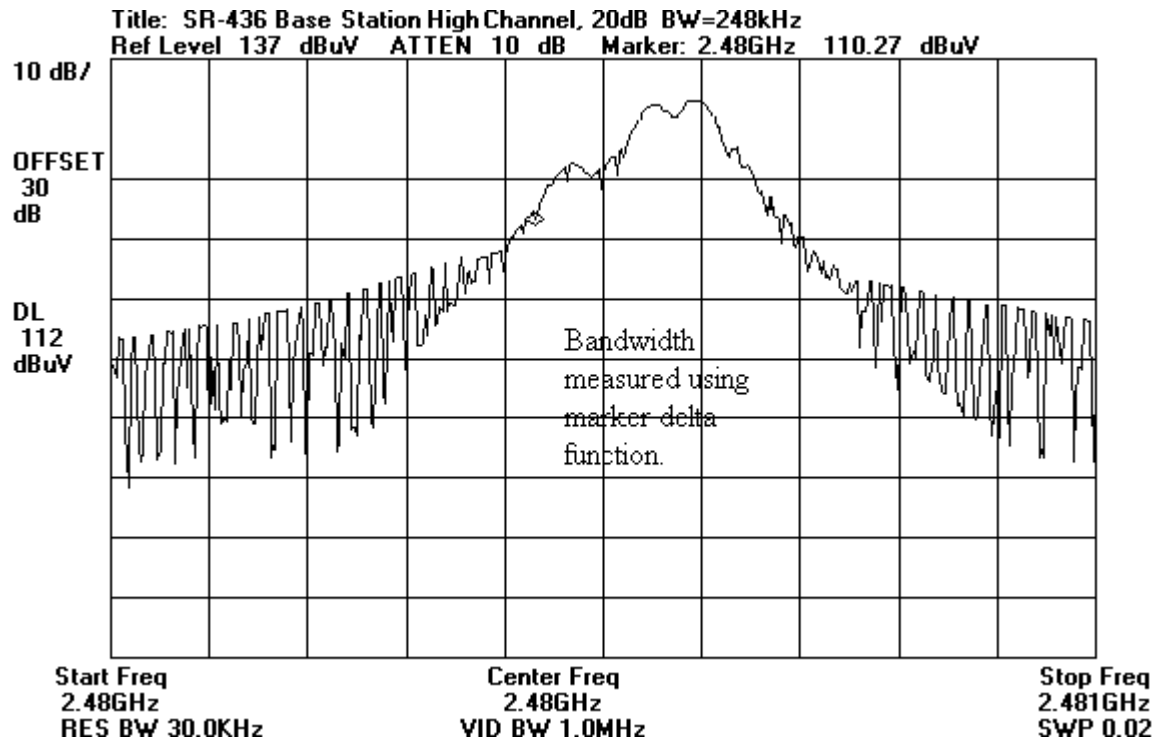
**15.247(a)(1)(ii) BASE - BANDWIDTH LOW CHANNEL**



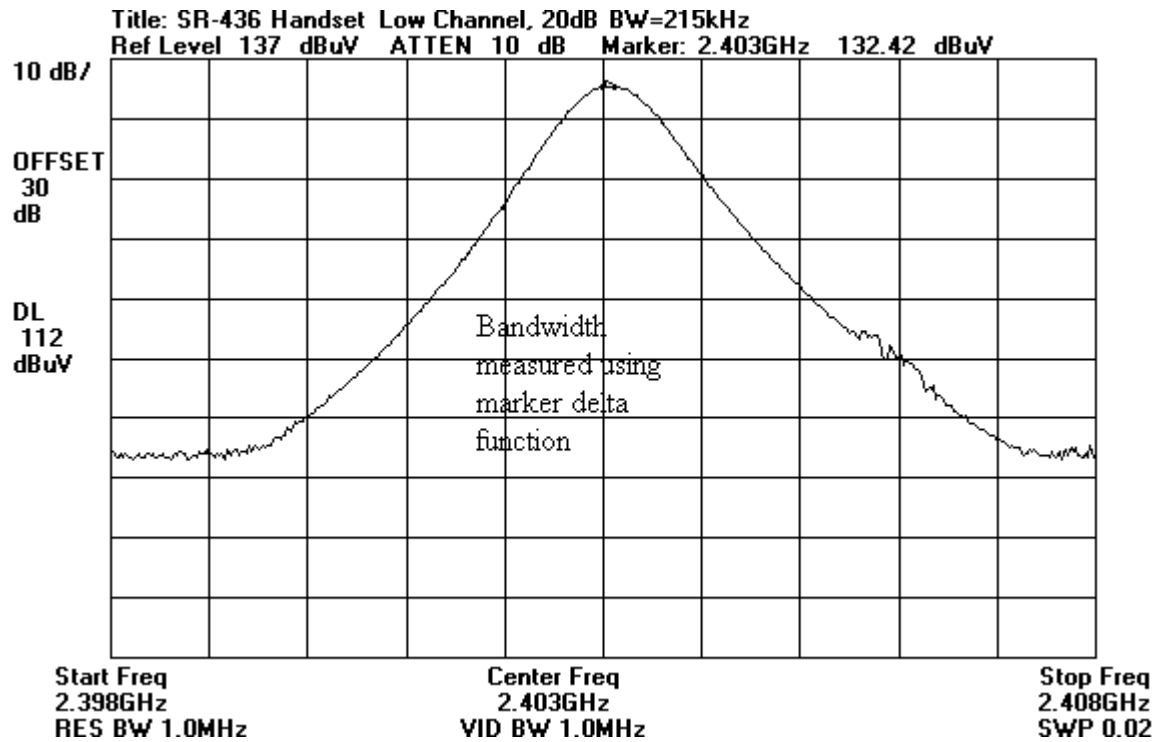
# 15.247(a)(1)(ii) BASE - BANDWIDTH MIDDLE CHANNEL



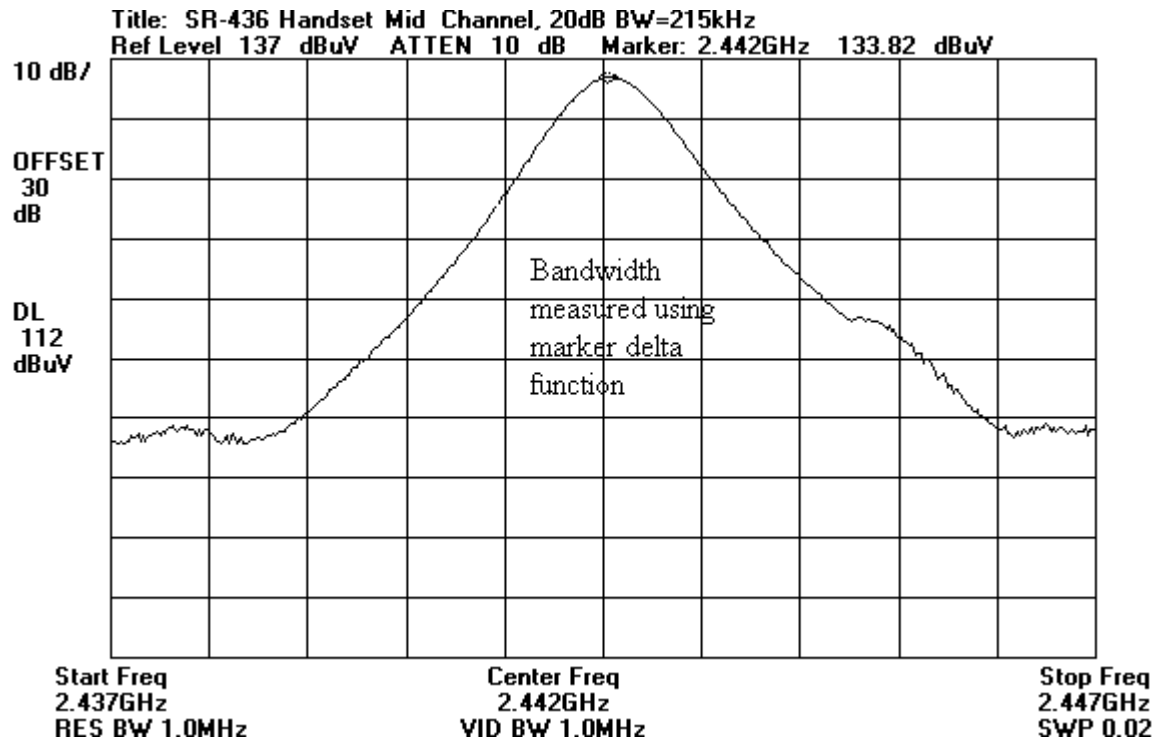
# 15.247(a)(1)(ii) BASE - BANDWIDTH HIGH CHANNEL



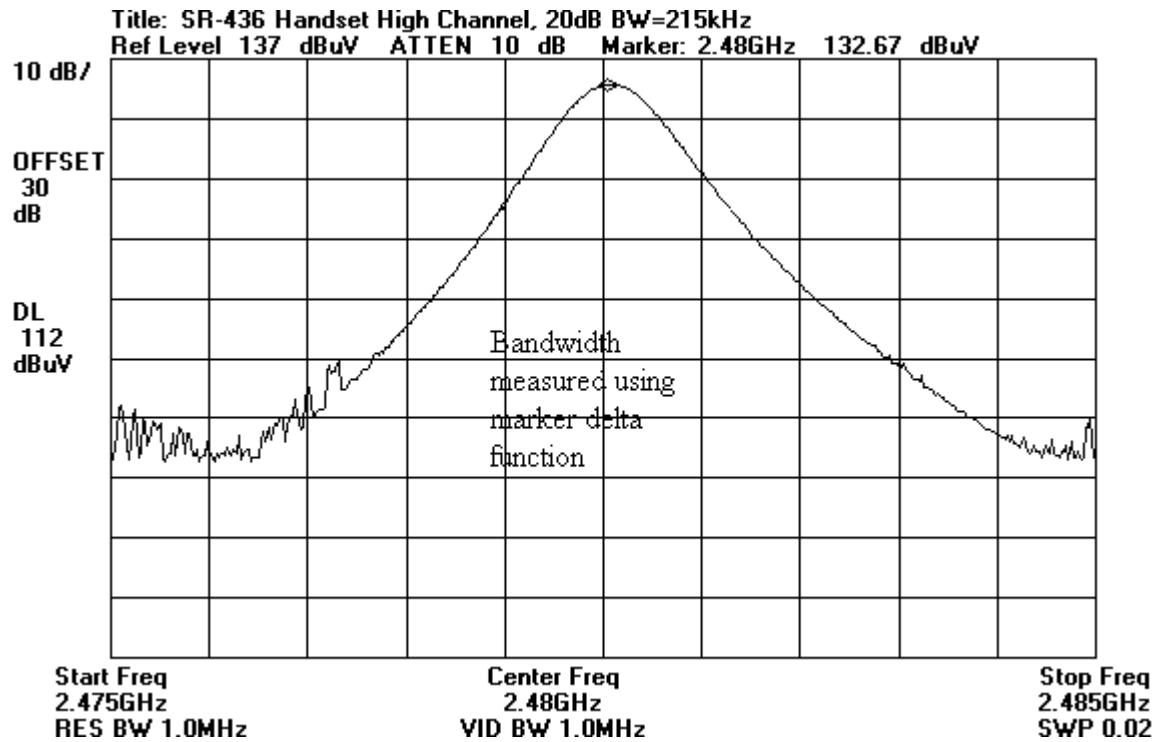
**15.247(a)(1)(ii) HANDSET - BANDWIDTH LOW CHANNEL**



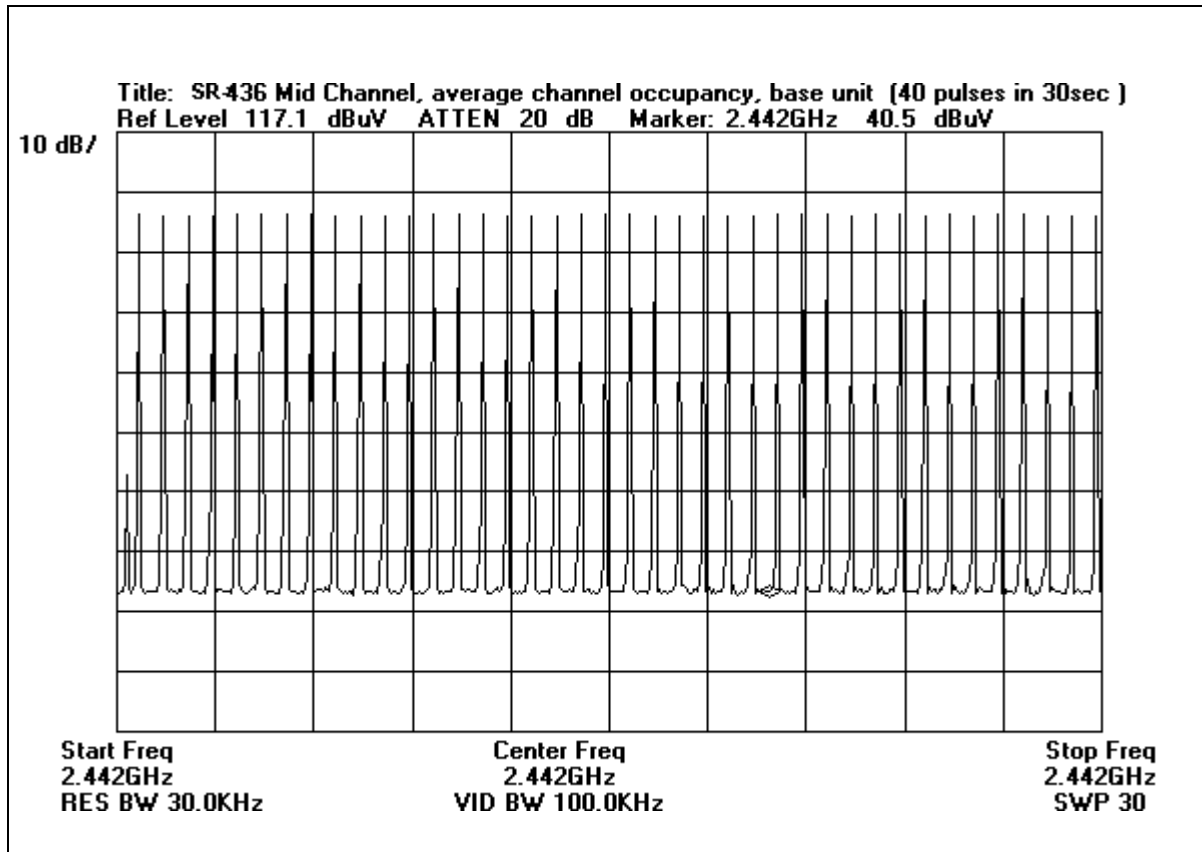
**15.247(a)(1)(ii) HANDSET - BANDWIDTH MIDDLE CHANNEL**



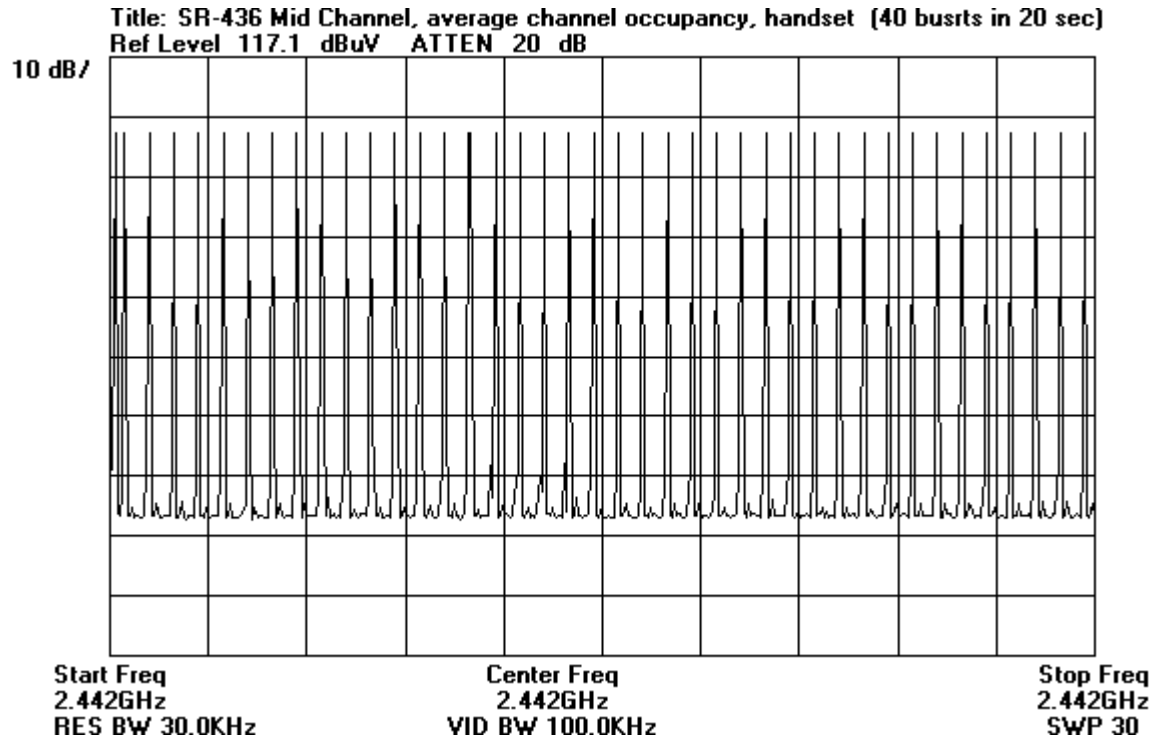
**15.247(a)(1)(ii) HANDSET - BANDWIDTH HIGH CHANNEL**



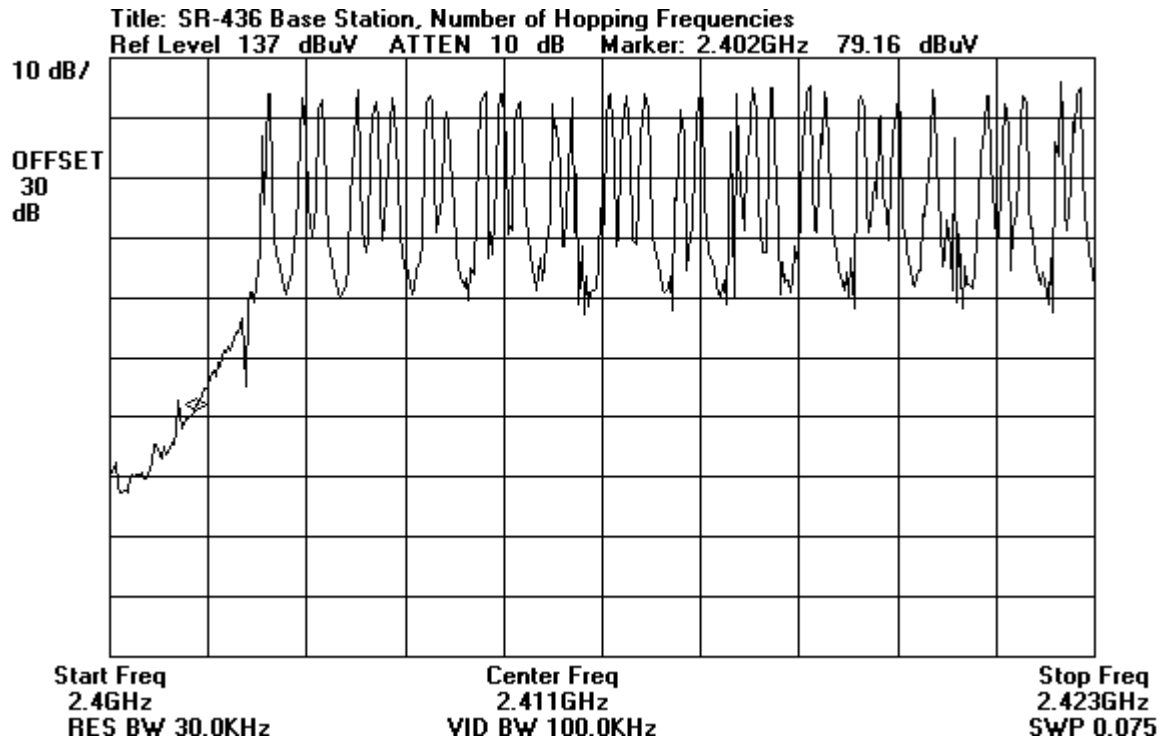
**15.247(a)(1)(ii) BASE AVERAGE OCCUPANCY**



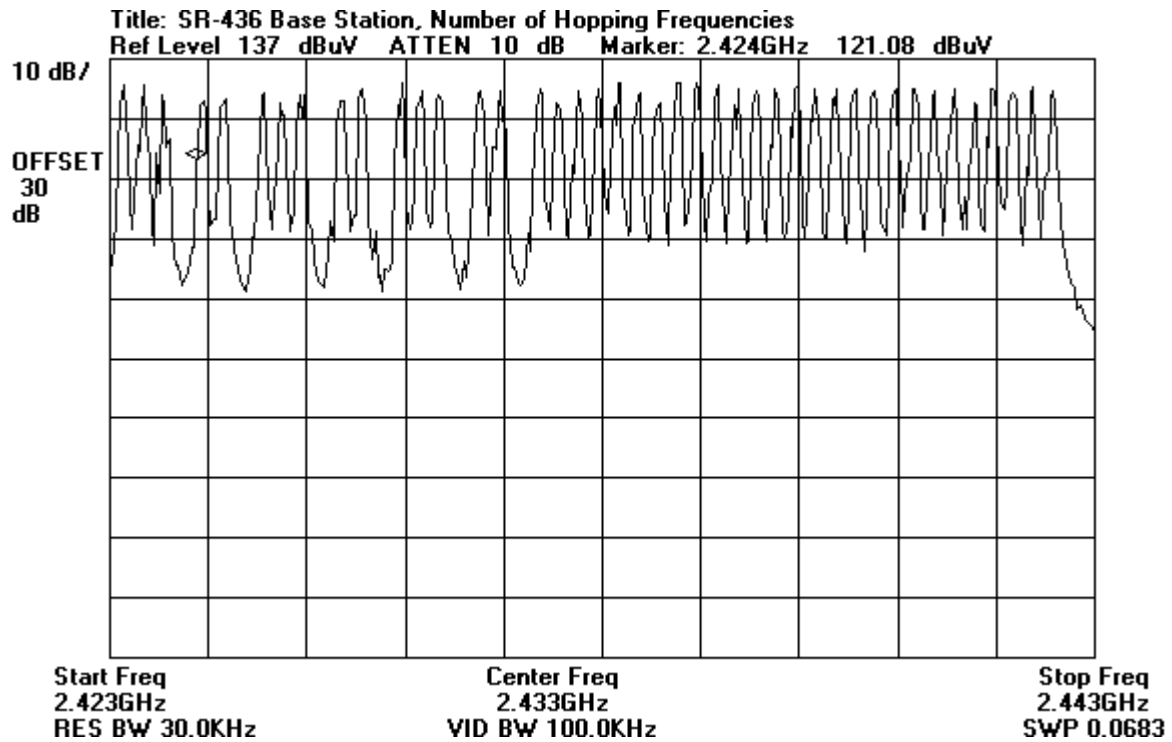
## 15.247(a)(1)(ii) HANDSET AVERAGE OCCUPANCY



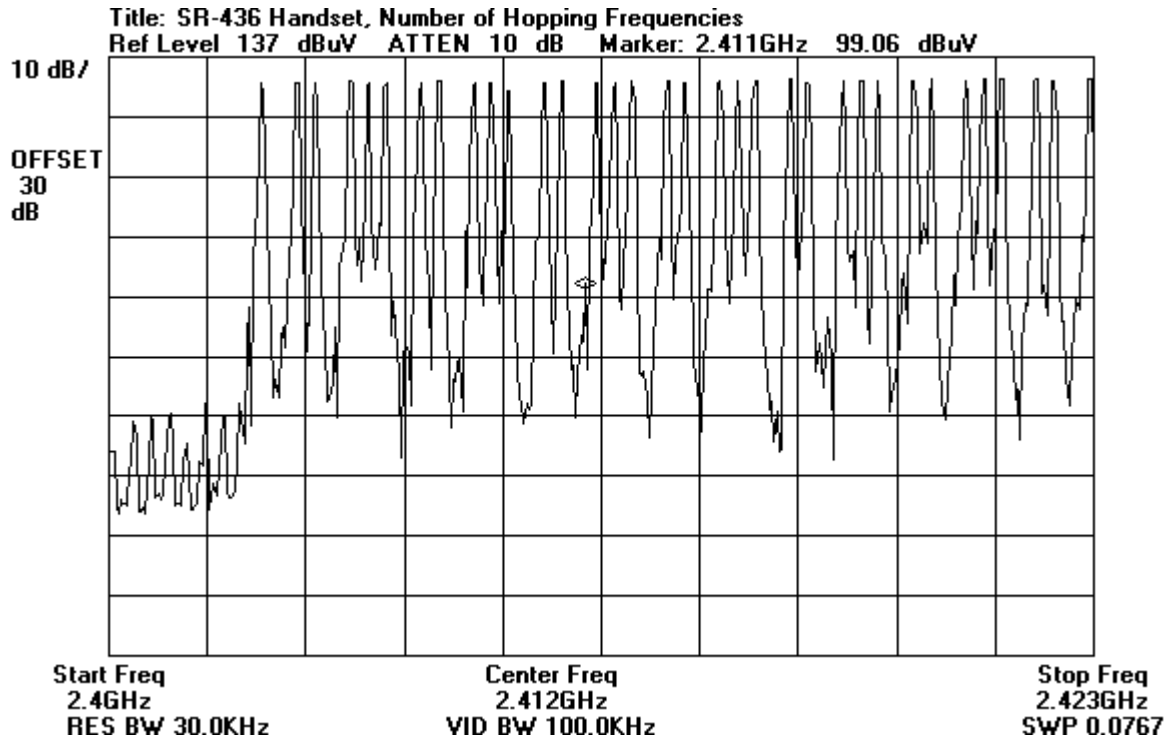
# 15.247(a)(1)(ii) BASE NUMBER OF HOPS



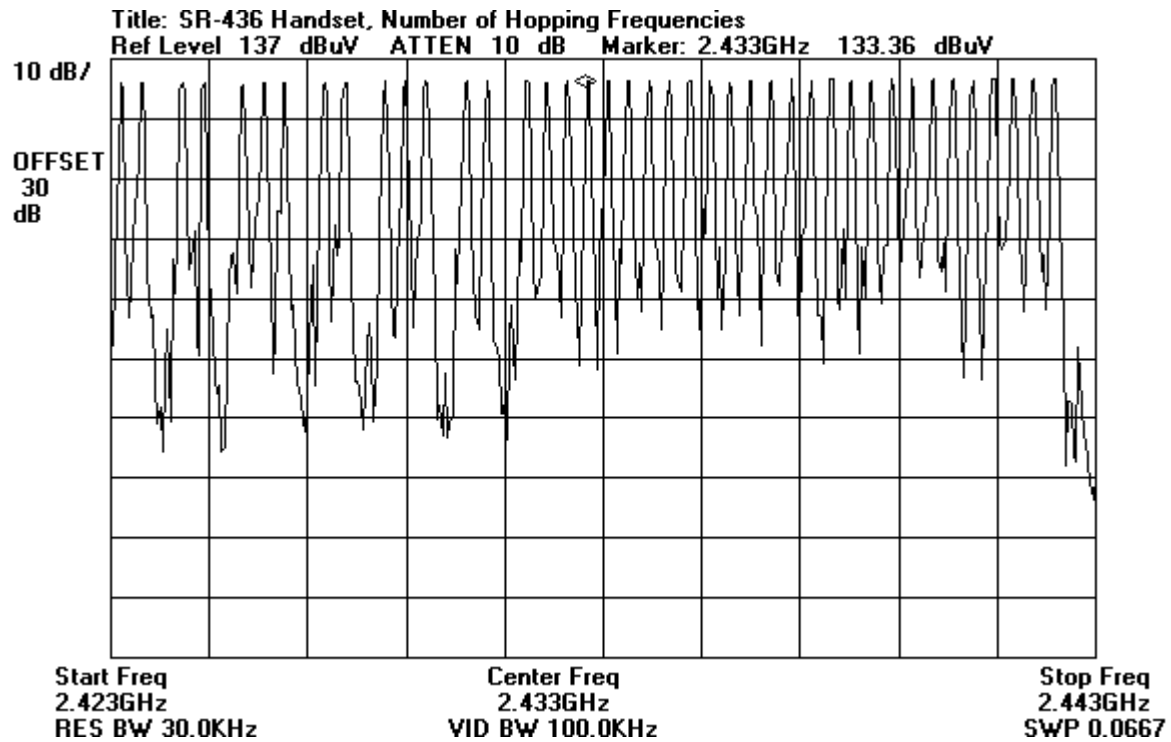
# 15.247(a)(1)(ii) BASE NUMBER OF HOPS



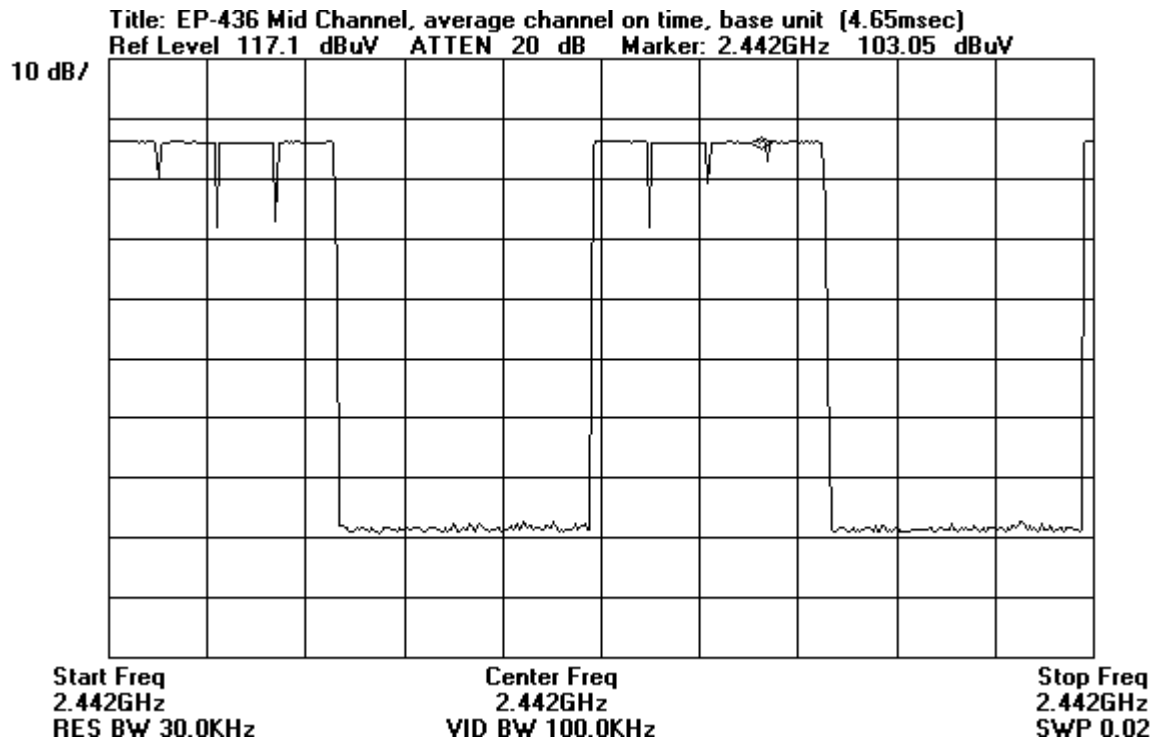
# 15.247(a)(1)(ii) HANDSET NUMBER OF HOPS



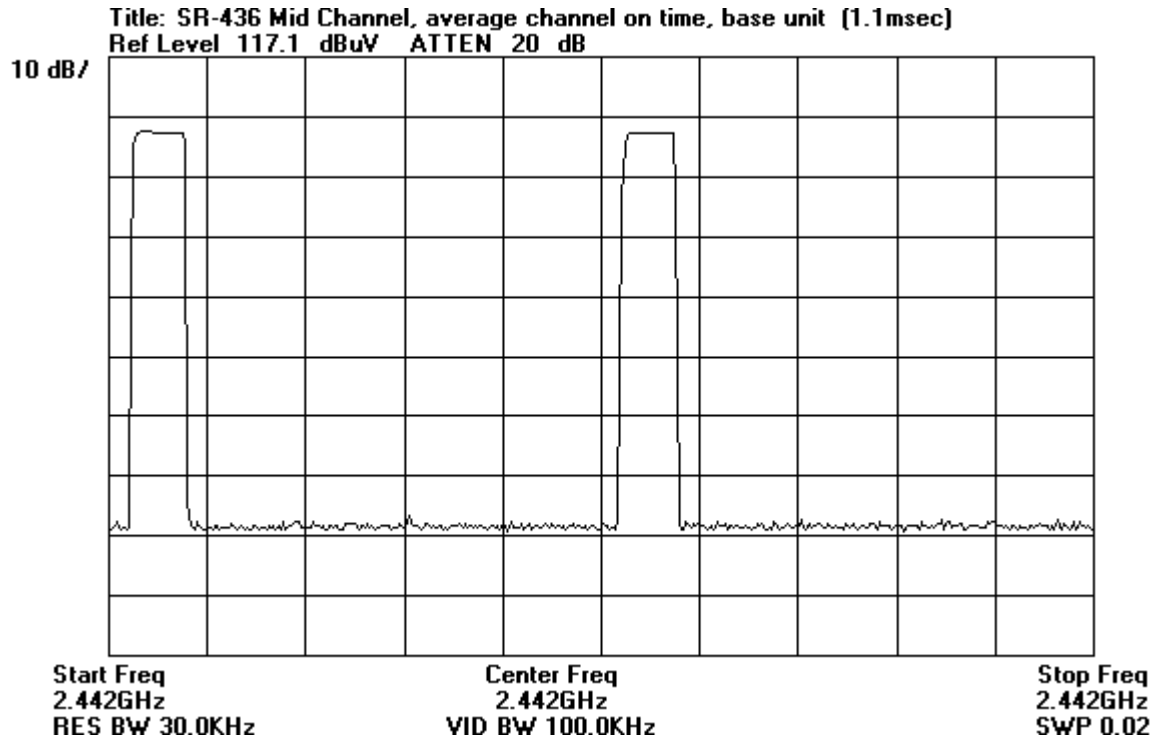
**15.247(a)(1)(ii) HANDSET NUMBER OF HOPS**



**15.247(a)(1)(ii) BASE ON TIME**



# 15.247(a)(1)(ii) HANDSET ON TIME



The following tables report the six highest worst case levels recorded during the tests performed on the SR-436 Wireless Spread Spectrum Communications System. All readings taken are peak readings unless otherwise noted. The data sheets from which these tables were compiled are contained in Appendix B.

**Table 1: 15.247(b)(1) Base Set Highest Peak Output: EIRP**

| FREQUENCY<br>MHz | METER<br>READING<br>dBμV | CORRECTION FACTORS |           |             |            | CORRECTED<br>READING<br>dBμV/m | SPEC<br>LIMIT<br>dBμV/m | MARGIN<br>DB | NOTES |
|------------------|--------------------------|--------------------|-----------|-------------|------------|--------------------------------|-------------------------|--------------|-------|
|                  |                          | Ant<br>dB          | Amp<br>dB | Cable<br>dB | Dist<br>dB |                                |                         |              |       |
| 2402.825         | 98.7                     | 29.3               |           | 1.9         | -10.0      | 119.9                          | 137.0                   | -17.1        | V     |
| 2403.288         | 90.4                     | 29.3               |           | 1.9         | -10.0      | 111.6                          | 137.0                   | -25.4        | H     |
| 2441.488         | 104.9                    | 29.3               |           | 1.9         | -10.0      | 126.1                          | 137.0                   | -10.9        | V     |
| 2441.613         | 97.2                     | 29.3               |           | 1.9         | -10.0      | 118.4                          | 137.0                   | -18.6        | H     |
| 2480.163         | 88.4                     | 29.3               |           | 1.9         | -10.0      | 109.6                          | 137.0                   | -27.4        | H     |
| 2480.200         | 98.4                     | 29.3               |           | 1.9         | -10.0      | 119.6                          | 137.0                   | -17.4        | V     |

Test Method: ANSI C63.4 (1992)  
Spec Limit : FCC Part 15 Subpart C Section 15.247(b)(1)  
Test Distance: 1 Meter

NOTES: H = Horizontal Polarization  
V = Vertical Polarization

COMMENTS: The channels are locked and are stepped through manually. The low channel = 2403 MHz, mid channel = 2441.5 MHz and high channel = 2480 MHz. Channel setting is as indicated for each reading in the datasheet. 5dBi gain antenna connected to the EUT. EIUT antenna is in the vertical position. EIRP was calculated using the corrected reading in the datasheet less the distance correction factor and (EIRP) Peak power =  $(E_d)^2 / 30G$ . Calculated EIRP for the readings are: 2441 MHz Vertical, meter 104.9 dBμV + 31.2 dB = 136.1 dBμV = 0.429 Watt. 2402 MHz Vertical, meter 98.7 dBμV + 31.2 dB = 129.9 dBμV = 0.103 Watt. 2480 MHz Vertical, meter 98.4 dBμV + 31.2 dB = 129.6 dBμV = 0.096 Watt. 2441 MHz Horizontal, meter 97.2 dBμV + 31.2 dB = 128.4 dBμV = 0.073 Watt. 2403 MHz Horizontal, meter 90.4 dBμV + 31.2 dB = 121.6 dBμV = 0.015 Watt. 2480 MHz Horizontal, meter 88.4 dBμV + 31.2 dB = 119.6 dBμV = 0.010 Watt.

**Table 2: 15.247(b)(2)/15.31(e) Base Set Voltage Variation on Peak Power**

| <b>FREQUENCY<br/>MHz</b> | <b>CORRECTED<br/>READING<br/>dBμV/m</b> | <b>85%</b> | <b>115%</b> | <b>SPEC<br/>LIMIT<br/>dBμV/m</b> |
|--------------------------|---|------------|-------------|----------------------------------|
| 2403                     | 101.2                                   | 131.4      | 131.4       | 137.0                            |
| 2441                     | 103.1                                   | 132.8      | 133.3       | 137.0                            |
| 2480                     | 100.9                                   | 130.7      | 131.0       | 137.0                            |

Test Method: ANSI C63.4 (1992)  
Spec Limit : FCC Part 15 Subpart C Section 15.247(b)(1)/15.31(e)  
Test Distance: No Distance

COMMENTS: The channels are locked and are stepped through manually. The low channel = 2403 MHz, mid channel = 2441.5 MHz and high channel = 2480 MHz. Channel setting is as indicated for each reading in the datasheet. AC power input was set to 102 VAC (85%) , 120 VAC (nominal) and 138 VAC (115%) for each channel as indicated for each reading in the datasheet. EUT is connected directly to the Spectrum Analyzer through a 30 dB attenuator. Highest output was 133.3 dBuV = 0.427 Watt.

**Table 3: 15.247(c)/15.209 Base Set OATS Highest Emission Levels: 3MHz-25GHz**

| FREQUENCY<br>MHz | METER<br>READING<br>dB $\mu$ V | CORRECTION FACTORS |           |             |            | CORRECTED<br>READING<br>dB $\mu$ V/m | SPEC<br>LIMIT<br>dB $\mu$ V/m | MARGIN<br>DB | NOTES |
|------------------|--------------------------------|--------------------|-----------|-------------|------------|--------------------------------------|-------------------------------|--------------|-------|
|                  |                                | Ant<br>dB          | Amp<br>dB | Cable<br>dB | Dist<br>dB |                                      |                               |              |       |
| 491.518          | 49.9                           | 19.0               | -27.8     | 0.0         | 0.0        | 41.1                                 | 46.0                          | -4.9         | V     |
| 491.523          | 49.0                           | 19.0               | -27.8     | 0.0         | 0.0        | 40.2                                 | 46.0                          | -5.8         | V     |
| 491.529          | 49.3                           | 19.0               | -27.8     | 0.0         | 0.0        | 40.5                                 | 46.0                          | -5.5         | V     |
| 886.600          | 41.2                           | 23.2               | -27.6     | 0.0         | 0.0        | 36.8                                 | 46.0                          | -9.2         | V     |
| 12015.200        | 46.9                           | 37.2               | -35.0     | 5.6         | -10.0      | 44.6                                 | 54.0                          | -9.4         | V     |
| 12400.240        | 48.4                           | 37.2               | -35.0     | 5.6         | -10.0      | 46.2                                 | 54.0                          | -7.8         | V     |

Test Method: ANSI C63.4 (1992)

Spec Limit : FCC Part 15 Subpart C Section 15.247(c)/15.209

Test Distance: 1 and 3 Meters

NOTES:

V = Vertical Polarization

**COMMENTS:** The channels are locked and are stepped through manually. The low channel = 2403 MHz, mid channel = 2441.5 MHz and high channel = 2480 MHz. Channel setting is as indicated for each reading in the datasheet. EUT antenna is in the vertical position. 5 dBi gain antenna connected to the EUT. Base L-1 port is connected to the remote located CO Simulator via a 20 foot RJ-11 cable. L-2 through L-4 ports have unterminated 2 meter RJ 11 cables attached. Audio port is connected, via a 2 meter audio cable, to the CD Player which is playing a music CD. The SR-436 Handset is placed in the charger and is in the ring only mode. Test distance is 1 meter 0.9 GHz to 25.0 GHz. Test distance is 3 meters 15 MHz to 900 MHz. Frequency range investigated was 3 MHz to 25 GHz (lowest oscillator = 3.579 MHz, highest oscillator = 2.483 GHz)

**Table 4: 15.247(c) Base Set Terminal Highest Emission Levels: 9kHz-10GHz**

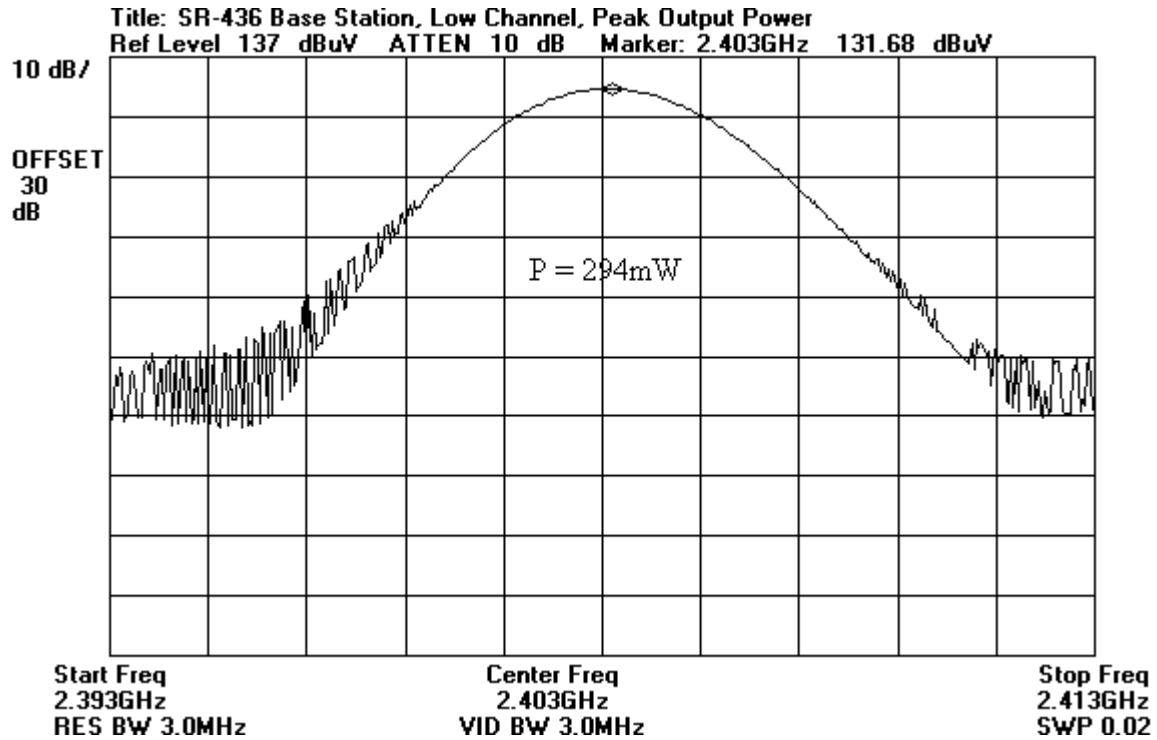
| FREQUENCY<br>MHz | METER<br>READING<br>dB $\mu$ V | CORRECTION FACTORS |  |  |  | CORRECTED<br>READING<br>dB $\mu$ V/m | SPEC<br>LIMIT<br>dB $\mu$ V/m | MARGIN<br>DB | NOTES |
|------------------|--------------------------------|--------------------|--|--|--|--------------------------------------|-------------------------------|--------------|-------|
|                  |                                | Ant<br>dB          |  |  |  |                                      |                               |              |       |
| 2446.650         | 85.4                           | 0.0                |  |  |  | 85.4                                 | 113.5                         | -28.1        | N     |
| 2458.600         | 79.9                           | 0.0                |  |  |  | 79.9                                 | 113.5                         | -33.6        | N     |
| 4806.130         | 77.3                           | 0.0                |  |  |  | 77.3                                 | 113.5                         | -36.2        | N     |

Test Method: ANSI C63.4 (1992)  
Spec Limit : FCC Part 15 Subpart C Section 15.247(c)  
Test Distance: No Distance

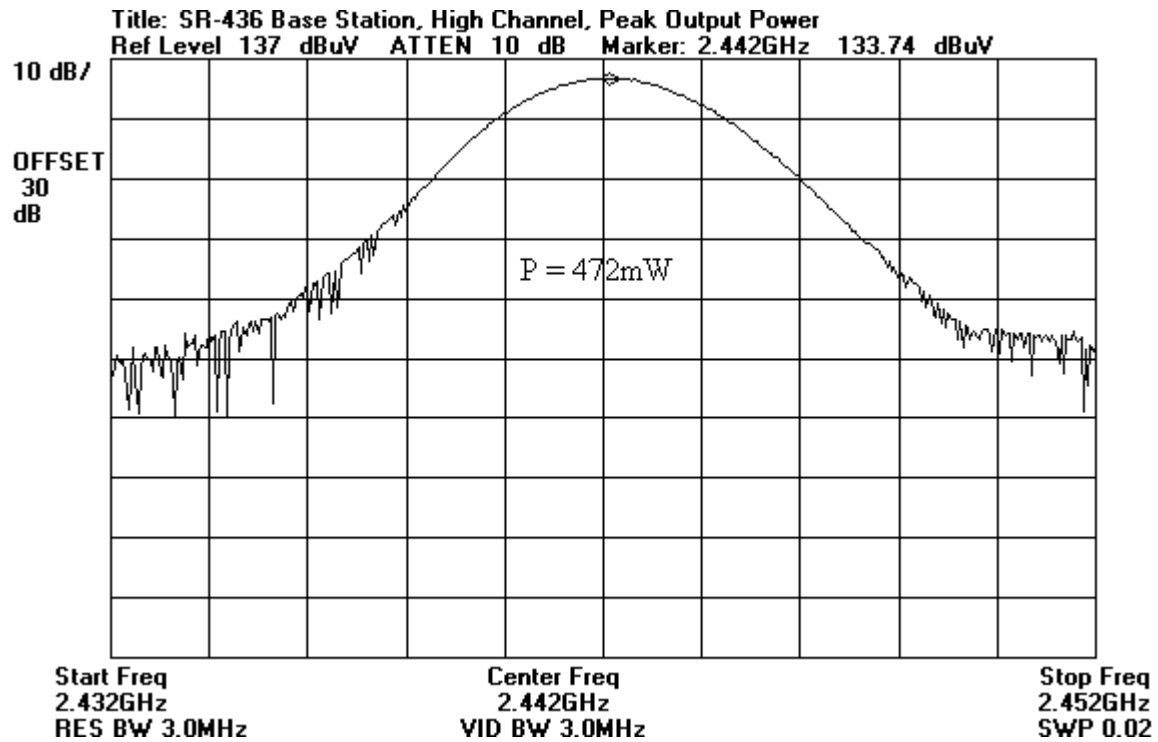
NOTES: N = No Polarization

COMMENTS: 9kHz - 24GHz. SR-436 Base Station, Conducted Spurious Emissions Check. Fundamentals are measured. The lowest strength fundamental - 20dB is then programmed as the limit line.

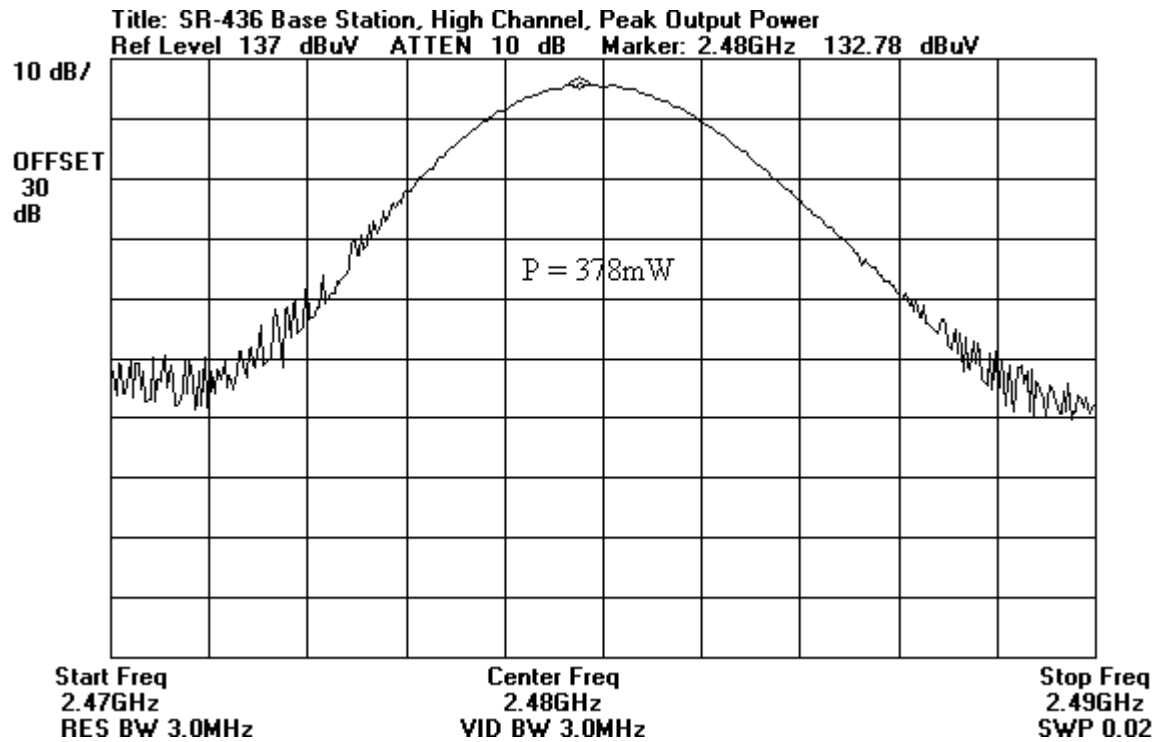
# 15.247(b)(1) BASE PEAK OUTPUT ANTENNA TERMINAL - LOW



**15.247(b)(1) BASE PEAK OUTPUT ANTENNA TERMINAL - MIDDLE**



# 15.247(b)(1) BASE PEAK OUTPUT ANTENNA TERMINAL - HIGH



**Table 5: 15.247(b)(1) Hand Set Highest Peak Output: EIRP**

| FREQUENCY<br>MHz | METER<br>READING<br>dBμV | CORRECTION FACTORS |           |             |            | CORRECTED<br>READING<br>dBμV/m | SPEC<br>LIMIT<br>dBμV/m | MARGIN<br>DB | NOTES |
|------------------|--------------------------|--------------------|-----------|-------------|------------|--------------------------------|-------------------------|--------------|-------|
|                  |                          | Ant<br>dB          | Amp<br>dB | Cable<br>dB | Dist<br>dB |                                |                         |              |       |
| 2402.850         | 102.2                    | 29.3               |           | 1.9         | -10.0      | 123.4                          | 137.0                   | -13.6        | V     |
| 2402.980         | 102.5                    | 29.3               |           | 1.9         | -10.0      | 123.7                          | 137.0                   | -13.3        | H     |
| 2441.430         | 101.9                    | 29.3               |           | 1.9         | -10.0      | 123.1                          | 137.0                   | -13.9        | H     |
| 2441.480         | 104.5                    | 29.3               |           | 1.9         | -10.0      | 125.7                          | 137.0                   | -11.3        | V     |
| 2479.950         | 102.3                    | 29.3               |           | 1.9         | -10.0      | 123.5                          | 137.0                   | -13.5        | V     |
| 2480.080         | 102.0                    | 29.3               |           | 1.9         | -10.0      | 123.2                          | 137.0                   | -13.8        | H     |

Test Method: ANSI C63.4 (1992)  
 Spec Limit : FCC Part 15 Subpart C Section 15.247(b)(1)  
 Test Distance: 1 Meter

NOTES: H = Horizontal Polarization  
 V = Vertical Polarization

COMMENTS: The channels are locked and are stepped through manually. The low channel = 2403 MHz, mid channel = 2441.5 MHz and high channel = 2480 MHz. Channel setting is as indicated for each reading in the datasheet. EUT tested in 3 orthogonal planes as indicated for each reading in the datasheet. 5dBi gain antenna connected to the EUT. EUT is Battery operated. EIRP was calculated using the corrected reading in the datasheet less the distance correction factor and (EIRP) Peak power =  $(E_d)^2 / 30G$ . Calculated EIRP for the 6 highest readings are: 2441 MHz, meter 104.5 dBuV + 31.2 dB = 135.7 dBuV = 0.392 Watt. 2402 MHz, meter 102.5 dBuV + 31.2 dB = 133.7 dBuV = 0.247 Watt. 2479 MHz, meter 102.3 dBuV + 31.2 dB = 133.5 dBuV = 0.236 Watt. 2402 MHz, meter 102.2 dBuV + 31.2 dB = 133.4 dBuV = 0.231 Watt. 2480 MHz, meter 102.0 dBuV + 31.2 dB = 133.2 dBuV = 0.220 Watt. 2441 MHz, meter 101.9 dBuV + 31.2 dB = 133.1 dBuV = 0.215 Watt.

**Table 6: 15.247(c)/15.209 Hand Set OATS Highest Emission Levels: 15MHz-26GHz**

| FREQUENCY<br>MHz | METER<br>READING<br>dB $\mu$ V | CORRECTION FACTORS |           |             |            | CORRECTED<br>READING<br>dB $\mu$ V/m | SPEC<br>LIMIT<br>dB $\mu$ V/m | MARGIN<br>DB | NOTES |
|------------------|--------------------------------|--------------------|-----------|-------------|------------|--------------------------------------|-------------------------------|--------------|-------|
|                  |                                | Ant<br>dB          | Amp<br>dB | Cable<br>dB | Dist<br>dB |                                      |                               |              |       |
| 7324.662         | 49.2                           | 34.5               | -38.0     | 4.1         | -10.0      | 39.8                                 | 54.0                          | -14.2        | VA    |
| 7440.138         | 47.0                           | 34.6               | -38.0     | 4.2         | -10.0      | 37.8                                 | 54.0                          | -16.2        | VA    |
| 7440.313         | 47.4                           | 34.6               | -38.0     | 4.2         | -10.0      | 38.2                                 | 54.0                          | -15.8        | VA    |
| 14418.500        | 43.0                           | 38.4               | -34.2     | 7.2         | -10.0      | 44.4                                 | 54.0                          | -9.6         | V     |
| 14880.490        | 39.1                           | 38.0               | -34.0     | 7.0         | -10.0      | 40.1                                 | 54.0                          | -13.9        | VA    |
| 16821.600        | 28.8                           | 43.2               | -34.0     | 11.1        | -10.0      | 39.1                                 | 54.0                          | -14.9        | VA    |

Test Method: ANSI C63.4 (1992)  
Spec Limit : FCC Part 15 Subpart C Section 15.247(c)/15.209  
Test Distance: 1 & 3 Meters

NOTES: A = Average Reading  
V = Vertical Polarization

COMMENTS: The channels are locked and are stepped through manually. The low channel = 2403 MHz. mid channel = 2441.5 MHz and high channel = 2480 MHz. Channel setting is as indicated for each reading in the datasheet. EUT tested in 3 orthogonal planes as indicated for each reading in the datasheet. 5 dBi gain antenna connected to the EUT. EUT is Battery operated. Test distance is 1 meter 1.0 GHz to 26.0 GHz. Test distance is 3 meters 15 MHz to 1.0 GHz. Frequency range investigated was 15 MHz to 26 GHz (lowest oscillator = 16.38 MHz, highest oscillator = 2483 MHz) No signals found above 17 GHz.

**Table 7: 15.247(c) Hand Set Terminal Highest Emission Levels: 9kHz-10GHz**

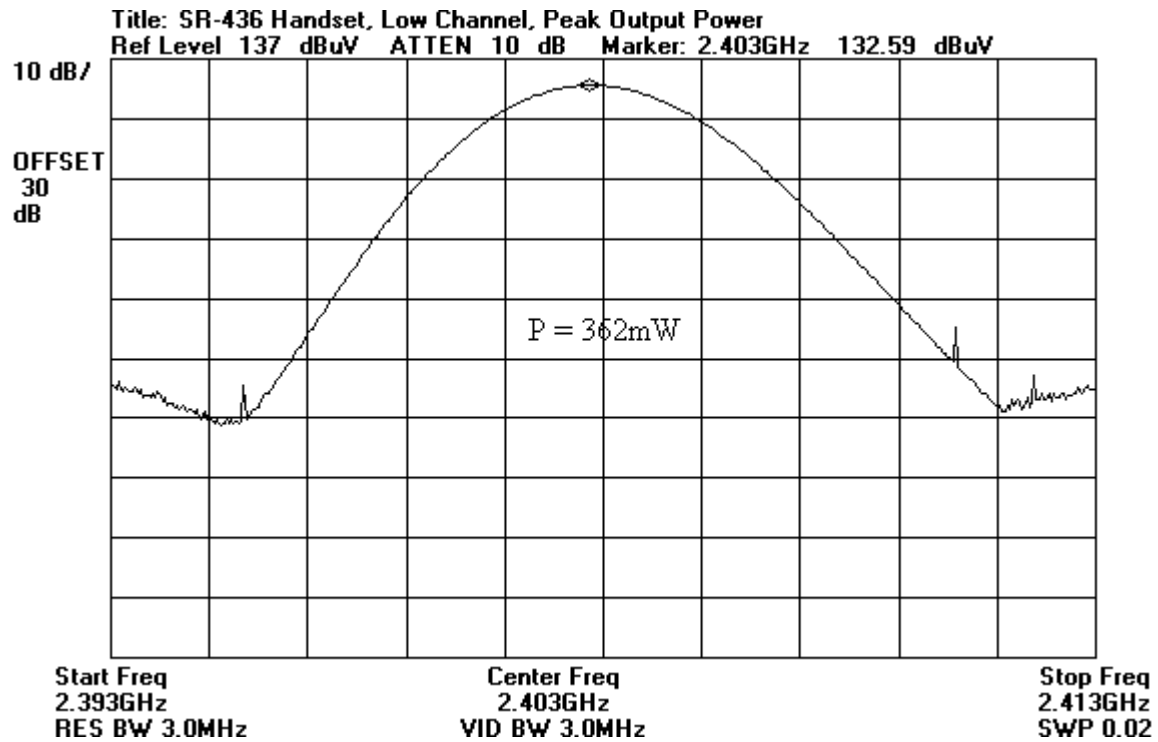
| FREQUENCY<br>MHz | METER<br>READING<br>dB $\mu$ V | CORRECTION FACTORS |    |    |    | CORRECTED<br>READING<br>dB $\mu$ V/m | SPEC<br>LIMIT<br>dB $\mu$ V/m | MARGIN<br>DB | NOTES |
|------------------|--------------------------------|--------------------|----|----|----|--------------------------------------|-------------------------------|--------------|-------|
|                  |                                | dB                 | dB | dB | dB |                                      |                               |              |       |
| 221.880          | 70.4                           |                    |    |    |    | 70.4                                 | 112.5                         | -42.1        | N     |
| 480.830          | 79.8                           |                    |    |    |    | 79.8                                 | 112.5                         | -32.7        | N     |
| 519.400          | 79.3                           |                    |    |    |    | 79.3                                 | 112.5                         | -33.2        | N     |
| 1701.750         | 83.1                           |                    |    |    |    | 83.1                                 | 112.5                         | -29.4        | N     |
| 1759.430         | 80.6                           |                    |    |    |    | 80.6                                 | 112.5                         | -31.9        | N     |
| 4806.367         | 70.0                           |                    |    |    |    | 70.0                                 | 112.5                         | -42.5        | N     |

Test Method: ANSI C63.4 (1992)  
Spec Limit : FCC Part 15 Subpart C Section 15.247(c)  
Test Distance: No Distance

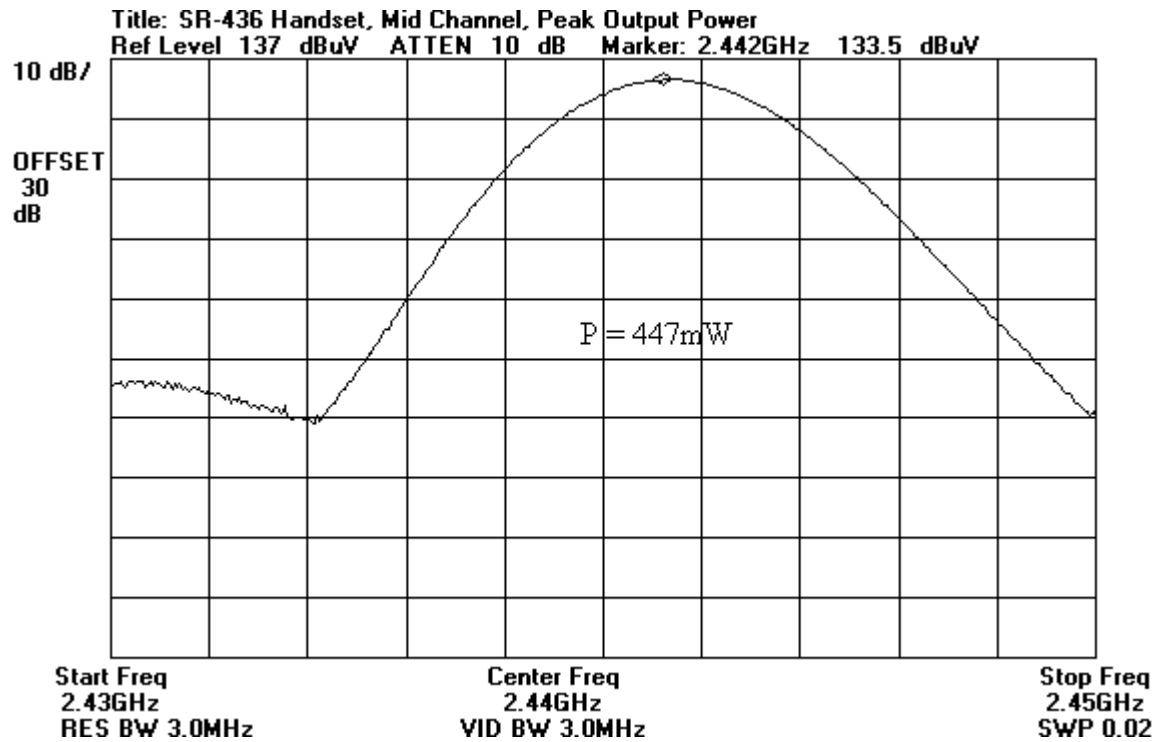
NOTES: N = No Polarization

COMMENTS: 9kHz - 10GHz. SR-436 Handset, Conducted Spurious Emissions Check. Fundamentals are measured. The lowest strength fundamental - 20dB is then programmed as the limit line.

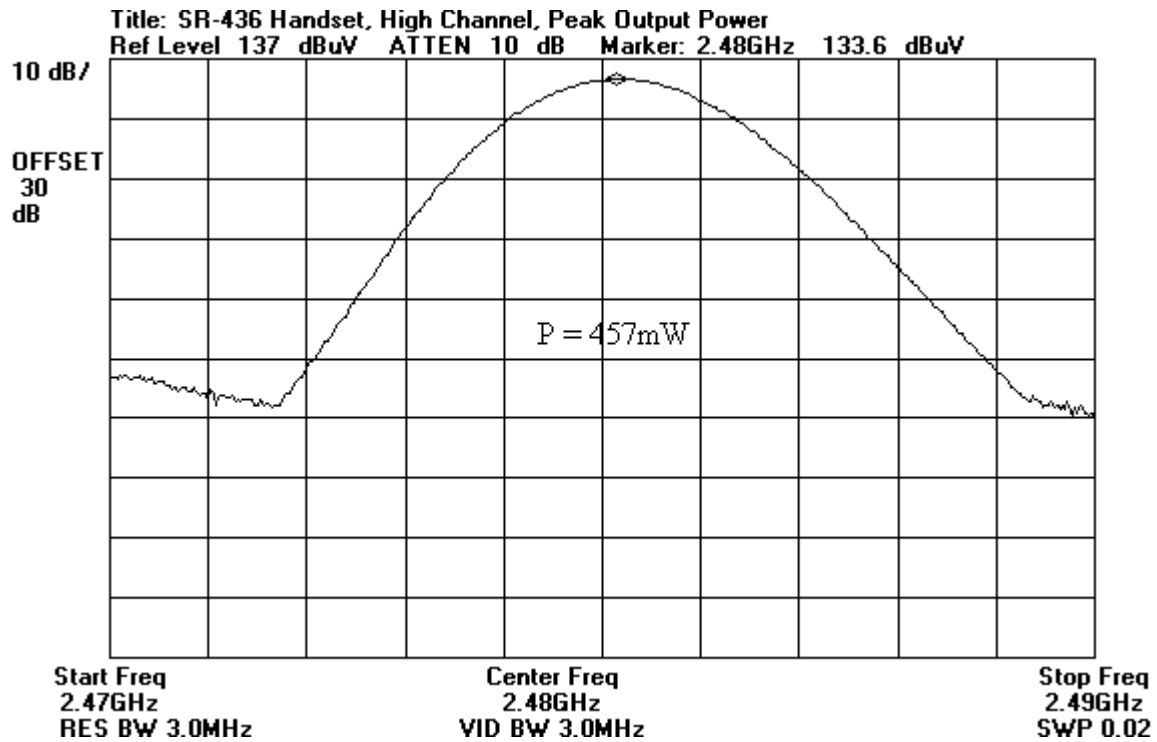
# 15.247(b)(1) HANDSET PEAK OUTPUT ANTENNA TERMINAL - LOW



# 15.247(b)(1) HANDSET PEAK OUTPUT ANTENNA TERMINAL - MIDDLE



**15.247(b)(1) HANDSET PEAK OUTPUT ANTENNA TERMINAL - HIGH**



**Table 8 15.247(b)(1) Fixed Terminal Highest Peak Output: EIRP**

| FREQUENCY<br>MHz | METER<br>READING<br>dBμV | CORRECTION FACTORS |           |             |            | CORRECTED<br>READING<br>dBμV/m | SPEC<br>LIMIT<br>dBμV/m | MARGIN<br>DB | NOTES |
|------------------|--------------------------|--------------------|-----------|-------------|------------|--------------------------------|-------------------------|--------------|-------|
|                  |                          | Ant<br>dB          | Amp<br>dB | Cable<br>dB | Dist<br>dB |                                |                         |              |       |
| 2403.080         | 99.5                     | 29.3               |           | 1.9         | -10.0      | 120.7                          | 137.0                   | -16.3        | V     |
| 2403.085         | 83.6                     | 29.3               |           | 1.9         | -10.0      | 104.8                          | 137.0                   | -32.2        | H     |
| 2441.578         | 103.0                    | 29.3               |           | 1.9         | -10.0      | 124.2                          | 137.0                   | -12.8        | V     |
| 2441.598         | 88.1                     | 29.3               |           | 1.9         | -10.0      | 109.3                          | 137.0                   | -27.7        | H     |
| 2480.068         | 103.6                    | 29.3               |           | 1.9         | -10.0      | 124.8                          | 137.0                   | -12.2        | V     |
| 2480.083         | 88.6                     | 29.3               |           | 1.9         | -10.0      | 109.8                          | 137.0                   | -27.2        | H     |

Test Method: ANSI C63.4 (1992)  
Spec Limit : FCC Part 15 Subpart C Section 15.247(b)(1)  
Test Distance: 1 Meter

NOTES: H = Horizontal Polarization  
V = Vertical Polarization

**COMMENTS:** The channels are locked and are stepped through manually. The low channel = 2403 MHz, mid channel = 2441.5 MHz and high channel = 2480 MHz. Channel setting is as indicated for each reading in the datasheet. The support computer is connected to the ATE (maintenance) port of the EUT via a 6-foot serial to PS2 cable and is running HyperTerminal to control the EUT mode and channel setting. The phone set is connected to the Telephone port 1 of the EUT via a 6 foot RJ-11 cable and a unterminated 6 foot RJ-11 cable was connected to EUT Telephone port 2. 5dBi gain antenna connected to the EUT. EIUT antenna is in the vertical position. EIRP was calculated using the corrected reading in the datasheet less the distance correction factor and (EIRP) Peak power =  $(E_d)^2 / 30G$ . Calculated EIRP for the readings are: 2480 MHz Vertical, meter 103.6 dBuV + 31.2 dB = 134.8 dBuV = 0.318 Watt. 2441 MHz Vertical, meter 103.0 dBuV + 31.2 dB = 134.2 dBuV = 0.277 Watt. 2403 MHz Vertical, meter 99.5 dBuV + 31.2 dB = 130.7 dBuV = 0.124 Watt. 2480 MHz Horizontal, meter 88.6 dBuV + 31.2 dB = 119.8 dBuV = 0.010 Watt. 2441 MHz Horizontal, meter 88.1 dBuV + 31.2 dB = 119.3 dBuV = 0.009 Watt. 2403 MHz Horizontal, meter 83.6 dBuV + 31.2 dB = 114.8 dBuV = 0.003 Watt.

**Table 9:15.247(b)(1)/15.31(e) Fixed Terminal Voltage Variation on Peak Power**

| <b>FREQUENCY<br/>MHz</b> | <b>CORRECTED<br/>READING<br/>dBμV/m</b> | <b>85%</b> | <b>115%</b> | <b>SPEC<br/>LIMIT<br/>dBμV/m</b> |
|--------------------------|---|------------|-------------|----------------------------------|
| 2403                     | 128.9                                   | 128.6      | 128.3       | 137.0                            |
| 2441                     | 131.8                                   | 131.2      | 131.8       | 137.0                            |
| 2480                     | 131.3                                   | 130.9      | 131.3       | 137.0                            |

Test Method: ANSI C63.4 (1992)  
Spec Limit : FCC Part 15 Subpart C Section 15.247(b)(1)/15.31(e)  
Test Distance: No Distance

COMMENTS: The channels are locked and are stepped through manually. The low channel = 2403 MHz, mid channel = 2441.5 MHz and high channel = 2480 MHz. Channel setting is as indicated for each reading in the datasheet. The support computer is connected to the ATE (maintenance) port of the EUT via a 6-foot serial to PS2 cable and is running HyperTerminal to control the EUT mode and channel setting. AC power input was set to 102 VAC (85%) , 120 VAC (nominal) and 138 VAC (115%) for each channel as indicated for each reading in the datasheet. EUT is connected directly to the Spectrum Analyzer through a 30-dB attenuator. Highest output was 131.2 dBuV = 24.2 dBm = 0.263 Watt.

**Table 10: 15.247(c)/15.209 Fixed Terminal OATS Highest Emission Levels: 3MHz-25GHz**

| FREQUENCY<br>MHz | METER<br>READING<br>dB $\mu$ V | CORRECTION FACTORS |           |             |            | CORRECTED<br>READING<br>dB $\mu$ V/m | SPEC<br>LIMIT<br>dB $\mu$ V/m | MARGIN<br>DB | NOTES |
|------------------|--------------------------------|--------------------|-----------|-------------|------------|--------------------------------------|-------------------------------|--------------|-------|
|                  |                                | Ant<br>dB          | Amp<br>dB | Cable<br>dB | Dist<br>dB |                                      |                               |              |       |
| 196.603          | 54.2                           | 8.8                | -26.7     | 0.0         | 0.0        | 36.3                                 | 43.5                          | -7.2         | V     |
| 196.607          | 53.6                           | 8.8                | -26.7     | 0.0         | 0.0        | 35.7                                 | 43.5                          | -7.8         | V     |
| 7324.750         | 56.1                           | 35.0               | -38.0     | 3.6         | -10.0      | 46.7                                 | 54.0                          | -7.3         | H     |
| 14418.500        | 46.8                           | 39.0               | -34.2     | 6.6         | -10.0      | 48.2                                 | 54.0                          | -5.8         | V     |
| 14649.490        | 44.8                           | 38.7               | -34.0     | 6.6         | -10.0      | 46.1                                 | 54.0                          | -7.9         | V     |
| 14880.640        | 47.6                           | 38.4               | -34.0     | 6.6         | -10.0      | 48.6                                 | 54.0                          | -5.4         | V     |

Test Method: ANSI C63.4 (1992)  
Spec Limit : FCC Part 15 Subpart C Section 15.247(c)/15.209  
Test Distance: 1 and 3 Meters

NOTES: H = Horizontal Polarization  
V = Vertical Polarization

**COMMENTS:** The channels are locked and are stepped through manually. The low channel = 2403 MHz, mid channel = 2441.5 MHz and high channel = 2480 MHz. Channel setting is as indicated for each reading in the datasheet. EUT antenna is in the vertical position. 5 dBi gain antenna connected to the EUT. The support computer is connected to the ATE (maintenance) port of the EUT via a 6-foot serial to PS2 cable and is running HyperTerminal to control the EUT mode and channel setting. The phone set is connected to the Telephone port 1 of the EUT via a 6 foot RJ-11 cable and a unterminated 6 foot RJ-11 cable was connected to EUT Telephone port 2. 5dBi gain antenna connected to the EUT. Test distance is 1 meter 0.9 GHz to 25.0 GHz. Test distance is 3 meters 15 MHz to 900 MHz. Frequency range investigated was 3 MHz to 25 GHz (lowest oscillator = 3.579 MHz, highest oscillator = 2.483 GHz).

**Table 11: 15.207 Base Set Highest Conducted Emission Levels**

| FREQUENCY<br>MHz | METER<br>READING<br>dB $\mu$ V | CORRECTION FACTORS |  |             |  | CORRECTED<br>READING<br>dB $\mu$ V | SPEC<br>LIMIT<br>dB $\mu$ V | MARGIN<br>dB | NOTES |
|------------------|--------------------------------|--------------------|--|-------------|--|------------------------------------|-----------------------------|--------------|-------|
|                  |                                | Lisn<br>dB         |  | Cable<br>dB |  |                                    |                             |              |       |
| 0.451672         | 43.7                           | 0.1                |  | 0.2         |  | 44.0                               | 48.0                        | -4.0         | W     |
| 0.455015         | 43.5                           | 0.1                |  | 0.2         |  | 43.8                               | 48.0                        | -4.2         | B     |
| 0.455851         | 43.8                           | 0.1                |  | 0.2         |  | 44.1                               | 48.0                        | -3.9         | W     |
| 0.461701         | 43.5                           | 0.1                |  | 0.2         |  | 43.8                               | 48.0                        | -4.2         | B     |
| 0.465880         | 43.1                           | 0.1                |  | 0.2         |  | 43.4                               | 48.0                        | -4.6         | W     |
| 0.476746         | 43.2                           | 0.1                |  | 0.2         |  | 43.5                               | 48.0                        | -4.5         | W     |

Test Method: ANSI C63.4 (1992)  
Spec Limit : FCC Part 15 Subpart C Section 15.207

NOTES: B = Black Lead  
W = White Lead

**COMMENTS:** The channels are locked and set to High Channel. EUT antenna is in the vertical position. 5 dBi gain antenna connected to the EUT. Base L-1 port is connected to the remote located CO Simulator via a 20 foot RJ-11 cable. L-2 through L-4 ports have unterminated 2 meter RJ 11 cables attached. Audio port is connected, via a 2 meter audio cable, to the CD Player which is playing a music CD. The SR-436 Handset is placed in the charger and is in the ring only mode. Frequency range investigated was 450 kHz to 30 MHz. Base connected to measurement LISN.

**Table 12: 15.207 Hand Set Highest Conducted Emission Levels**

| FREQUENCY<br>MHz | METER<br>READING<br>dB $\mu$ V | CORRECTION FACTORS |  |             |  | CORRECTED<br>READING<br>dB $\mu$ V | SPEC<br>LIMIT<br>dB $\mu$ V | MARGIN<br>dB | NOTES |
|------------------|--------------------------------|--------------------|--|-------------|--|------------------------------------|-----------------------------|--------------|-------|
|                  |                                | Lisn<br>dB         |  | Cable<br>dB |  |                                    |                             |              |       |
| 9.857450         | 35.1                           | 0.7                |  | 0.9         |  | 36.7                               | 48.0                        | -11.3        | B     |
| 27.621000        | 33.7                           | 1.5                |  | 1.5         |  | 36.7                               | 48.0                        | -11.3        | B     |
| 28.947000        | 33.8                           | 1.8                |  | 1.5         |  | 37.1                               | 48.0                        | -10.9        | B     |
| 29.064000        | 33.9                           | 1.1                |  | 1.5         |  | 36.5                               | 48.0                        | -11.5        | W     |
| 29.415000        | 33.5                           | 1.9                |  | 1.5         |  | 36.9                               | 48.0                        | -11.1        | B     |
| 29.727000        | 33.2                           | 1.9                |  | 1.5         |  | 36.6                               | 48.0                        | -11.4        | B     |

Test Method: ANSI C63.4 (1992)  
Spec Limit : FCC Part 15 Subpart C Section 15.207

NOTES: B = Black Lead  
W = White Lead

**COMMENTS:** The channels are locked and set to High Channel. EUT antenna is in the vertical position. 5 dBi gain antenna connected to the EUT. Base L-1 port is connected to the remote located CO Simulator via a 20 foot RJ-11 cable. L-2 through L-4 ports have unterminated 2 meter RJ 11 cables attached. Audio port is connected, via a 2 meter audio cable, to the CD Player which is playing a music CD. The SR-436 Handset is placed in the charger and is in the ring only mode. Frequency range investigated was 450 kHz to 30 MHz. Handset installed in Charger connected to measurement LISN.

**Table 13: 15.207 Fixed Terminal Highest Conducted Emission Levels**

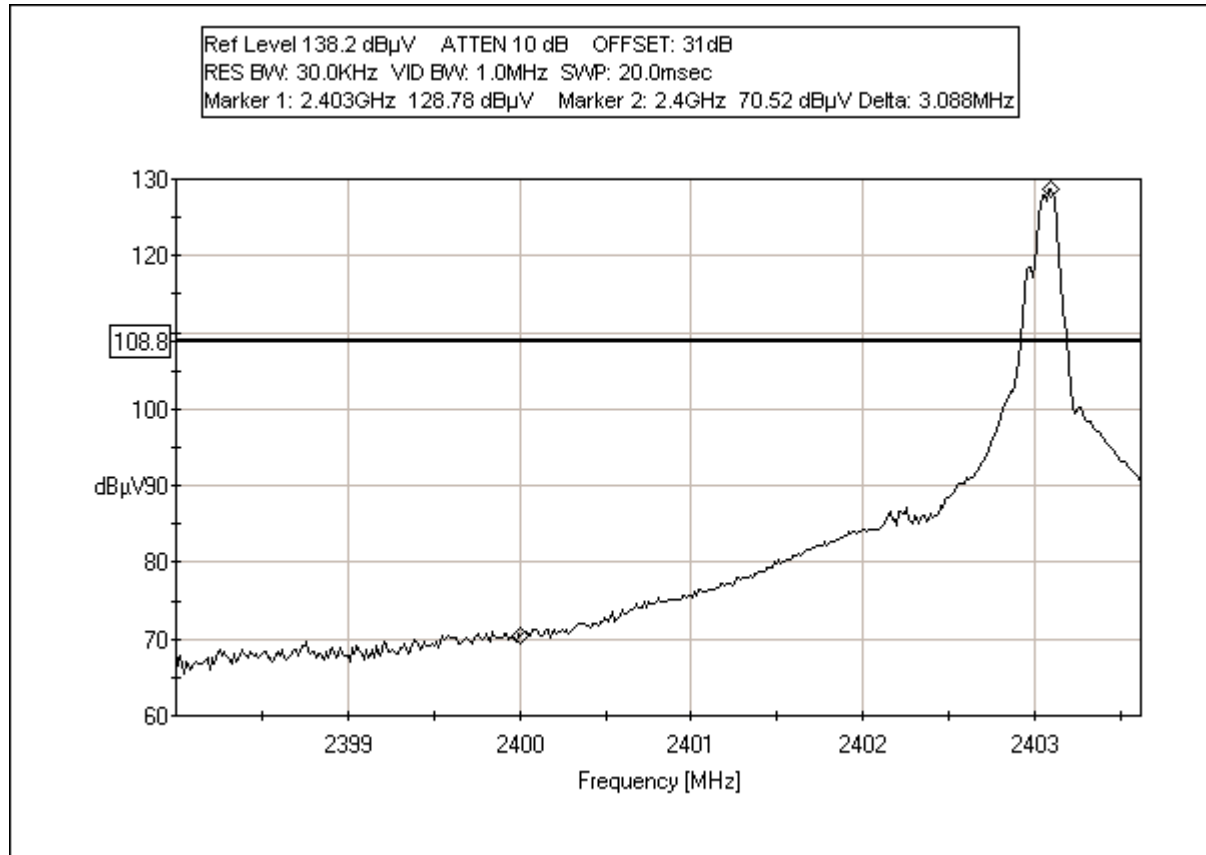
| FREQUENCY<br>MHz | METER<br>READING<br>dB $\mu$ V | CORRECTION FACTORS |  |     |  | CORRECTED<br>READING<br>dB $\mu$ V | SPEC<br>LIMIT<br>dB $\mu$ V | MARGIN<br>dB | NOTES |
|------------------|--------------------------------|--------------------|--|-----|--|------------------------------------|-----------------------------|--------------|-------|
|                  |                                | Lisn<br>dB         |  |     |  |                                    |                             |              |       |
| 1.474652         | 43.8                           | 0.1                |  | 0.3 |  | 44.2                               | 48.0                        | -3.8         | B     |
| 1.603604         | 45.0                           | 0.1                |  | 0.3 |  | 45.4                               | 48.0                        | -2.6         | B     |
| 1.617932         | 44.1                           | 0.1                |  | 0.3 |  | 44.5                               | 48.0                        | -3.5         | B     |
| 1.627484         | 44.6                           | 0.1                |  | 0.3 |  | 45.0                               | 48.0                        | -3.0         | B     |
| 1.651364         | 44.1                           | 0.1                |  | 0.3 |  | 44.5                               | 48.0                        | -3.5         | B     |
| 1.725392         | 45.0                           | 0.1                |  | 0.3 |  | 45.4                               | 48.0                        | -2.6         | B     |

Test Method: ANSI C63.4 (1992)  
Spec Limit : FCC Part 15 Subpart C Section 15.207

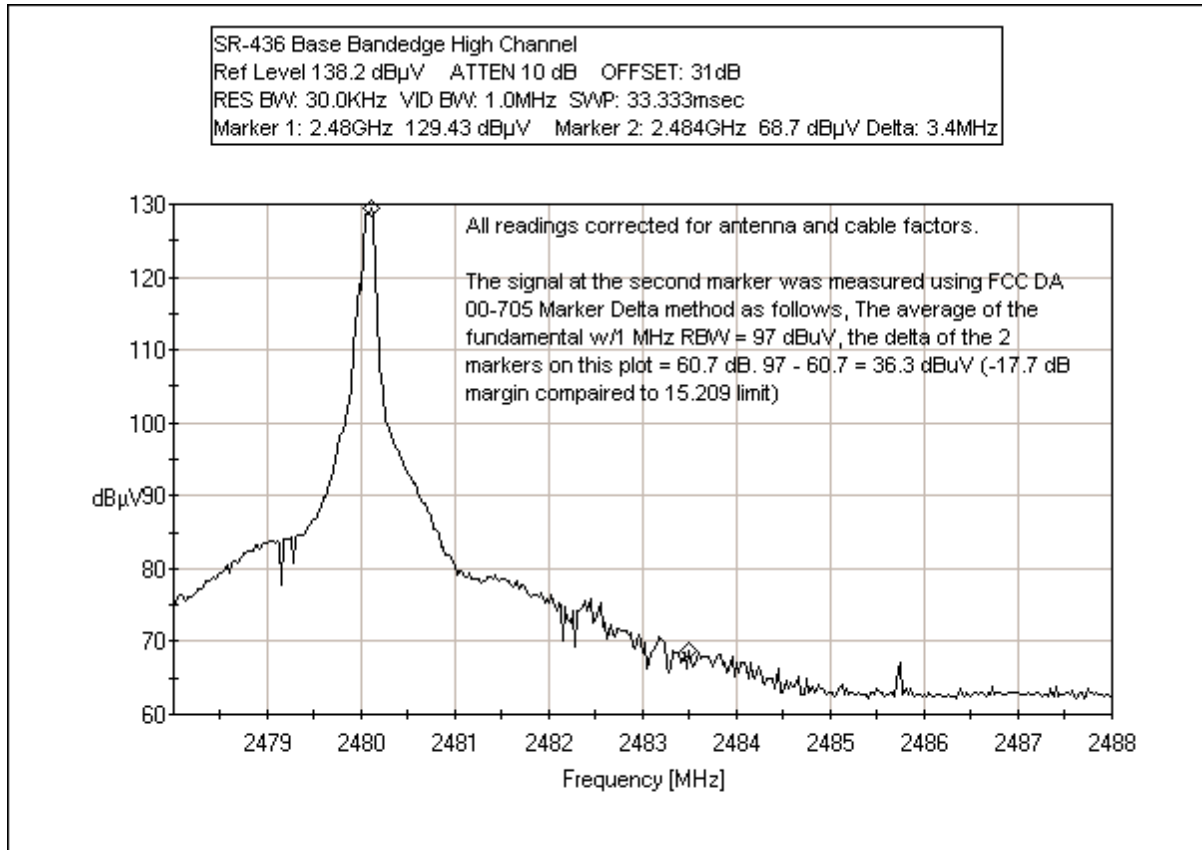
NOTES: B = Black Lead  
W = White Lead

**COMMENTS:** The EUT is set to. mid channel = 2441.5 MHz, highest power. EUT antenna is in the vertical position. 5 dBi gain antenna connected to the EUT. The support computer is connected to the ATE (maintenance) port of the EUT via a 6-foot serial to PS2 cable and is running HyperTerminal to control the EUT mode and channel setting. The phone set is connected to the Telephone port 1 of the EUT via a 6 foot RJ-11 cable and a unterminated 6 foot RJ-11 cable was connected to EUT Telephone port 2. 5dBi gain antenna connected to the EUT. Frequency range investigated was 450 kHz to 30 MHz.

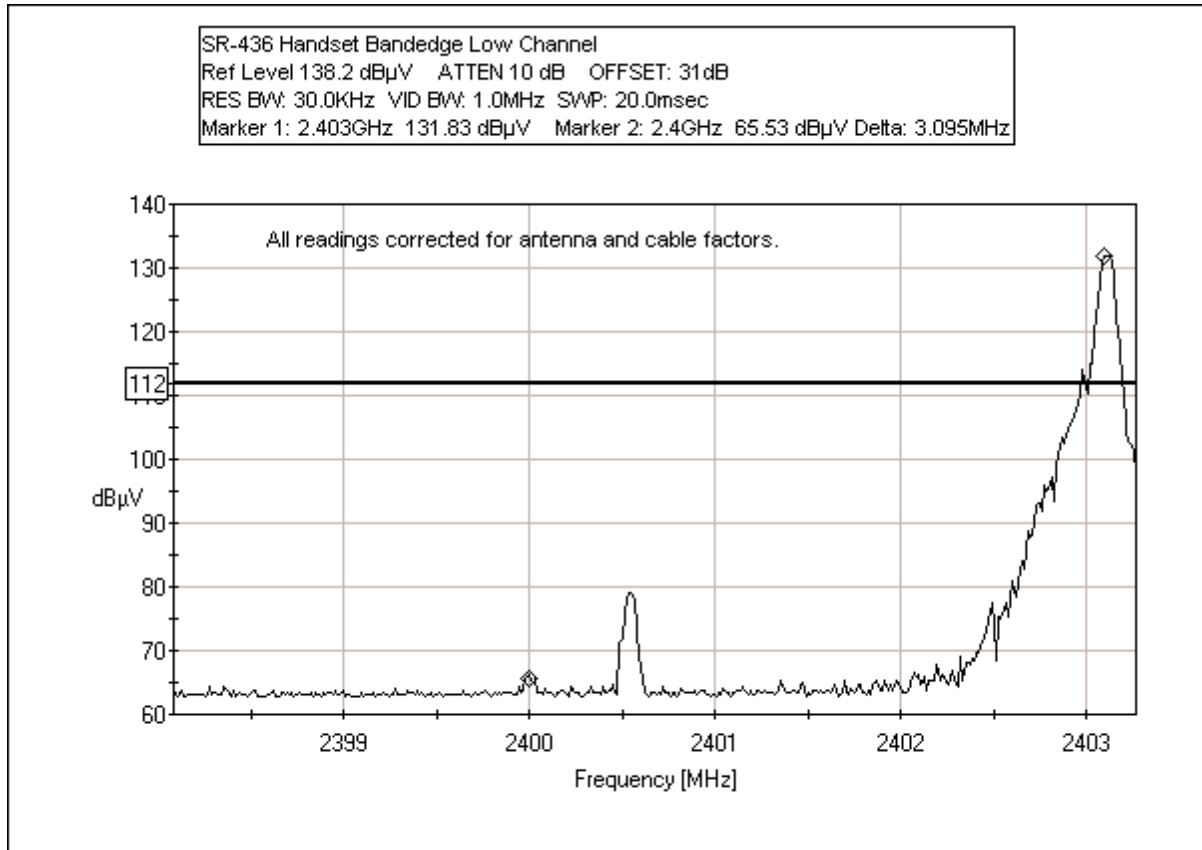
## BASE BANDEDGE - LOW CHANNEL



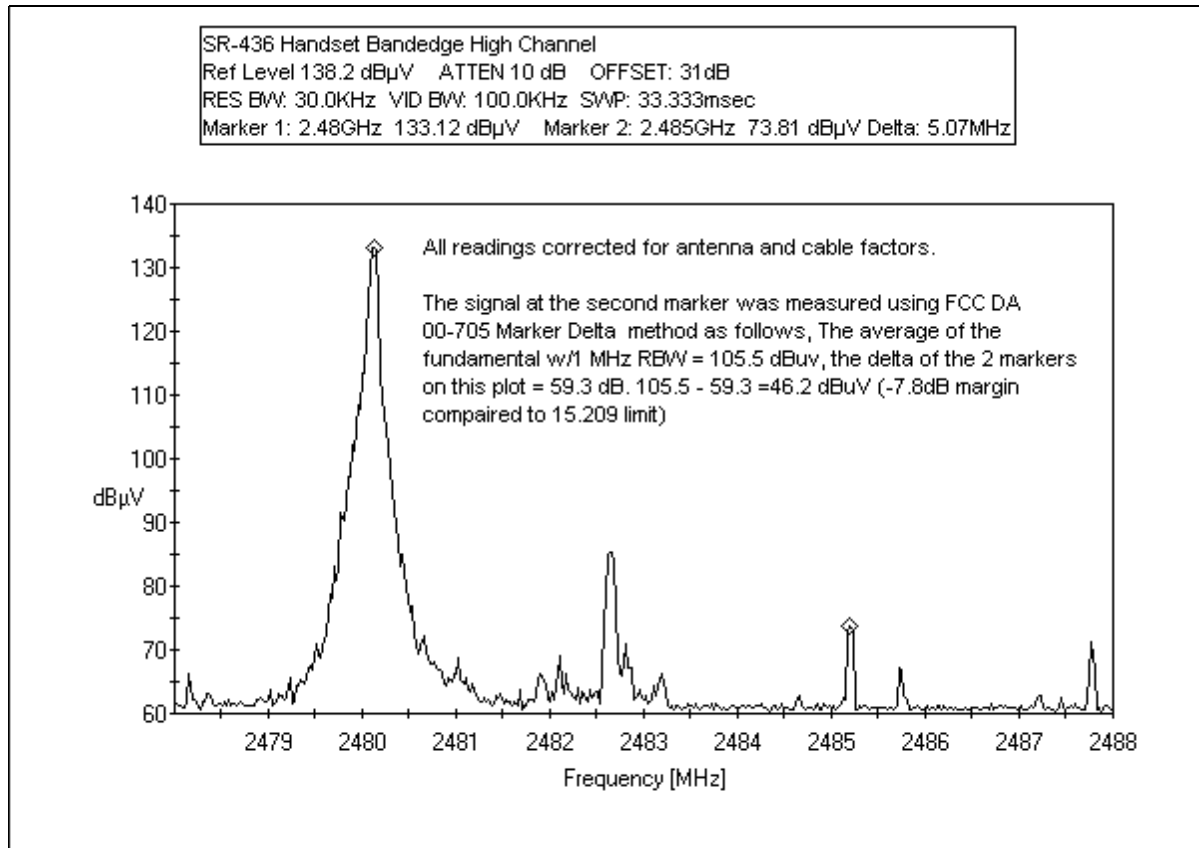
## BASE BANDEDGE - HIGH CHANNEL



## HANDSET BANDEDGE - LOW CHANNEL



## HANDSET BANDEDGE - HIGH CHANNEL



## **MEASUREMENT UNCERTAINTY**

Associated with data in this report is a  $\pm 2.94\text{dB}$  measurement uncertainty for radiated emissions and  $\pm 1.56\text{dB}$  measurement uncertainty for conducted emissions.

## **TEMPERATURE AND HUMIDITY DURING TESTING**

The temperature during testing was within  $+15^{\circ}\text{C}$  and  $+35^{\circ}\text{C}$ .  
The relative humidity was between 20% and 75%.

## **EUT SETUP**

The equipment under test (EUT) was set up in a manner that represented its normal use, as shown in the photographs in Appendix A. Any special conditions required for the EUT to operate normally are identified in the comments that accompany the emissions tables. The corrected data was then compared to the applicable emission limits to determine compliance.

The cables were routed consistent with the typical application by varying the configuration of the test sample. Interface cables were connected to the available I/O ports of the test unit. The effect of varying the position of the cables was investigated to find the configuration that produced maximum emissions. I/O cables were of the type and length specified in the individual requirements. The length of cable that produced maximum emissions was selected. The interval between different pieces of equipment was approximately 10 centimeters. All excessive interconnecting cable was bundled in 30-40 centimeter lengths.

The radiated and conducted emissions data of the SR-436 Wireless Spread Spectrum Communications System was taken with the HP Spectrum Analyzer. Incorporating the applicable correction factors for distance, antenna, cable loss and amplifier gain, the data was reduced as shown in Table A.

Preliminary and final measurements were taken in order to ensure that all emissions from the EUT were found and maximized.

## CORRECTION FACTORS

The basic spectrum analyzer reading was converted using correction factors as shown in the highest emissions readings in the tables. For radiated emissions in dB $\mu$ V/m, the spectrum analyzer reading in dB $\mu$ V was corrected by using the following formula in Table A. This reading was then compared to the applicable specification limit to determine compliance.

| <b>TABLE A: SAMPLE CALCULATIONS</b> |                     |                |
|-------------------------------------|---------------------|----------------|
|                                     | Meter reading       | (dB $\mu$ V)   |
| +                                   | Antenna Factor      | (dB)           |
| +                                   | Cable Loss          | (dB)           |
| -                                   | Distance Correction | (dB)           |
| -                                   | Preamplifier Gain   | (dB)           |
| =                                   | Corrected Reading   | (dB $\mu$ V/m) |

## TEST INSTRUMENTATION AND ANALYZER SETTINGS

The test instrumentation and equipment listed in Table A were used to collect both the radiated and conducted emissions data for the SR-436 Wireless Spread Spectrum Communications System. For radiated measurements from 9 kHz to 30 MHz, the magnetic loop antenna was used. For radiated measurements from 30 MHz to 1000 MHz, the biconilog antenna was used. The horn antenna was used for frequencies above 1000 MHz. Conducted emissions tests required the use of the FCC type LISNs.

The HP spectrum analyzer was used for all measurements. Table B shows the analyzer bandwidth settings that were used in designated frequency bands. For conducted emissions, an appropriate reference level and a vertical scale size of 10 dB per division were used. A 10 dB external attenuator was also used during conducted tests, with internal offset correction in the analyzer. During radiated testing, the measurements were made with 0 dB of attenuation, a reference level of 97 dB $\mu$ V, and a vertical scale of 10 dB per division.

| <b>FCC SECTION 15.35:</b>                                       |                     |                  |                   |
|---|---------------------|------------------|-------------------|
| <b>TABLE B: ANALYZER BANDWIDTH SETTINGS PER FREQUENCY RANGE</b> |                     |                  |                   |
| TEST  | BEGINNING FREQUENCY | ENDING FREQUENCY | BANDWIDTH SETTING |
| CONDUCTED EMISSIONS   | 450 kHz             | 30 MHz           | 9 kHz             |
| RADIATED EMISSIONS  | 3 kHz               | 150 kHz          | 200 Hz            |
| RADIATED EMISSIONS  | 150 kHz             | 30 MHz           | 9 kHz             |
| RADIATED EMISSIONS  | 30 MHz              | 1000 MHz         | 120 kHz           |
| RADIATED EMISSIONS  | 1000 MHz            | 25 GHz           | 1 MHz             |

## **SPECTRUM ANALYZER DETECTOR FUNCTIONS**

The notes that accompany the measurements contained in the Tables indicate the type of detector function used to obtain the given readings. Unless otherwise noted, all readings were made in the "Peak" mode. Whenever a "Quasi-Peak" or "Average" reading is listed as one of the six highest readings, this is indicated as a "Q" or an "A" in the appropriate table. The following paragraphs describe in more detail the detector functions and when they were used to obtain the emissions data for the SR-436 Wireless Spread Spectrum Communications System.

### **Peak**

In this mode, the Spectrum Analyzer or test engineer recorded all emissions at their peak value as the frequency band selected was scanned. By combining this function with another feature of the analyzer called "peak hold," the analyzer had the ability to measure transients or low duty cycle transient emission peak levels. In this mode the analyzer made a slow scan across the frequency band selected and measured the peak emission value found at each frequency across the band.

### **Quasi-Peak**

When the true peak values exceeded or were within 2 dB of the specification limit, quasi-peak measurements were taken using the HP Quasi-Peak Adapter for the HP Spectrum Analyzer. The detailed procedure for making quasi peak measurements contained in the HP Quasi-Peak Adapter manual were followed.

### **Average**

For certain frequencies, average measurements may be made using the spectrum analyzer. To make these measurements, the test engineer reduces the video bandwidth on the analyzer until the modulation of the signal is filtered out. At this point the analyzer is set into the linear mode and the scan time is reduced.

## **EUT TESTING**

### **Mains Conducted Emissions**

During conducted emissions testing, the EUT was located on a wooden table measuring approximately 80 cm high, 1 meter deep, and 1.5 meters in length. One wall of the room where the EUT was located has a minimum 2 meter by 2 meter conductive plane. The EUT was mounted on the wooden table 40 cm away from the conductive plane, and 80 cm from any other conductive surface.

The vertical metal plane used for conducted emissions was grounded to the earth. Power to the EUT was provided through a LISN. The LISN was grounded to the ground plane. All other objects were kept a minimum of 80 cm away from the EUT during the conducted test.

For conducted emissions testing, a 30 to 50 second sweep time was used for automated measurements in the frequency bands of 450 kHz to 1.705 MHz, 1.705 MHz to 3 MHz, and 3 MHz to 30 MHz. All readings within 20 dB of the limit were recorded. At frequencies where the recorded emissions were close to the limit, further investigation was performed manually at a slower sweep rate.

### **Antenna Conducted Emissions**

For measuring the signal strength on the RF output port of the EUT, the spectrum analyzer was connected directly to the EUT. The sweep time of the analyzer was adjusted so that the spectrum analyzer readings were always in a calibrated range. All readings within 20 dB of the limit were recorded.

### **Radiated Emissions**

The EUT was mounted on a nonconductive, rotating table 80 cm above the conductive grid. The nonconductive table dimensions were 1 meter by 1.5 meters.

During the preliminary radiated scan, the EUT was powered up and operating in its defined FCC test mode. For radiated measurements from 9 kHz to 30 MHz, the magnetic loop antenna was used. The frequency range of 30 MHz to 1000 MHz was scanned with the biconilog antenna located about 1.5 meter above the ground plane in the vertical polarity. During this scan, the turntable was rotated and all peaks at or near the limit were recorded. A scan of the FM band from 88 to 110 MHz was then made using a reduced resolution bandwidth and frequency span. The biconilog antenna was changed to the horizontal polarity and the above steps were repeated. For frequencies exceeding 1000 MHz, the horn antenna was used. Care was taken to ensure that no frequencies were missed within the FM and TV bands. An analysis was performed to determine if the signals that were at or near the limit were caused by an ambient transmission. If unable to determine by analysis, the equipment was powered down to make the final determination if the EUT was the source of the emission.

A thorough scan of all frequencies was made manually using a small frequency span, rotating the turntable as needed. The test engineer maximized the readings with respect to the table rotation and configuration of EUT. Maximizing of the EUT was achieved by monitoring the spectrum analyzer on a closed circuit television monitor. Photographs showing the final worst case configuration of the EUT are contained in Appendix A.

## **TRANSMITTER CHARACTERISTICS**

### **15.247(a)(1)(ii) Bandwidth Measurements (Frequency Hopping 2400-2483.5 MHz)**

The fundamental frequency was kept within the permitted band 2400-2483.5 MHz. This band shall use a minimum of 75 hopping frequencies. The hopping channel carrier frequencies shall be separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. The maximum 20 dB bandwidth of the hopping channel is 1 MHz. In a 30 second period, the average time of occupancy on any frequency shall be no more than 0.4 seconds.

### **15.247(b) Peak Output Power**

The RF conducted test was measured using a direct connection between the antenna port of the transmitter and the spectrum analyzer, through suitable attenuation. The resolution bandwidth was adjusted to greater than the 6 dB bandwidth of the emissions.

**15.247(b)(1)** The maximum peak output power of frequency hopping systems operating in the 2400-2483.5 band and for all direct sequences, shall not exceed 1 watt.

**APPENDIX A**

**TEST SETUP PHOTOGRAPHS**

**PHOTOGRAPH SHOWING ANTENNA CONDUCTED EMISSIONS - BASE**

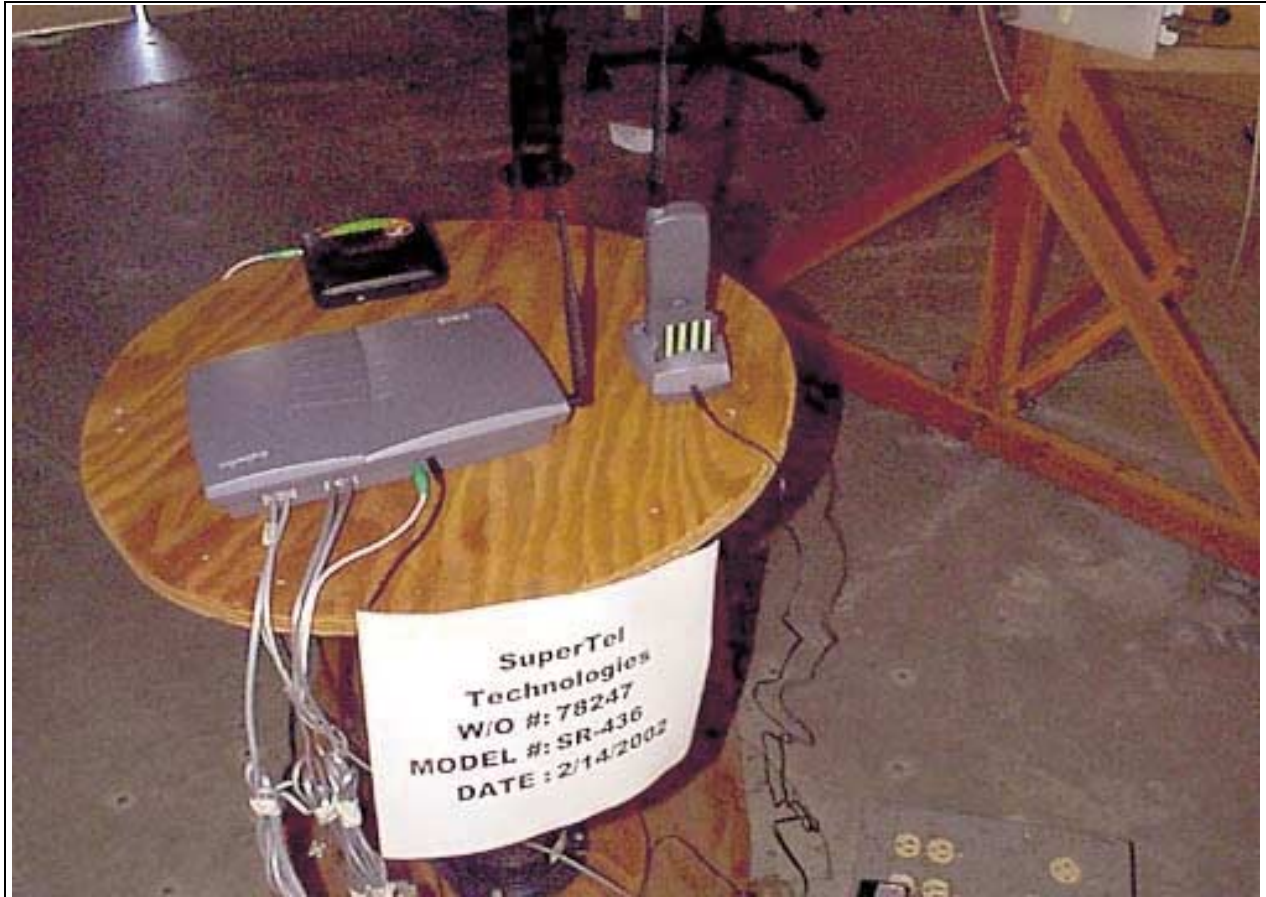


**PHOTOGRAPH SHOWING RADIATED EMISSIONS**



Radiated Emissions - Front View - SR-436 Base and Charger

**PHOTOGRAPH SHOWING RADIATED EMISSIONS**



Radiated Emissions - Back View - SR-436 Base and Charger

**PHOTOGRAPH SHOWING ANTENNA CONDUCTED EMISSIONS - HANDSET**



**PHOTOGRAPH SHOWING RADIATED EMISSIONS**



Radiated Emissions - Front View - SR-436 Handset Vertical

**PHOTOGRAPH SHOWING RADIATED EMISSIONS**



Radiated Emissions - Front View - SR-436 Handset Horizontal

**PHOTOGRAPH SHOWING RADIATED EMISSIONS**



Radiated Emissions - Back View - SR-436 Handset Vertical

**PHOTOGRAPH SHOWING RADIATED EMISSIONS**



Radiated Emissions - Back View - SR-436 Handset Side

**PHOTOGRAPH SHOWING MAINS CONDUCTED EMISSIONS**



Mains Conducted Emissions - Front View - SR-436

**PHOTOGRAPH SHOWING MAINS CONDUCTED EMISSIONS**



Mains Conducted Emissions - Side View - SR-436

**PHOTOGRAPH SHOWING RADIATED EMISSIONS**



Radiated Emissions - Front View - SR-436-FT

**PHOTOGRAPH SHOWING RADIATED EMISSIONS**



Radiated Emissions - Back View - SR-436-FT

**PHOTOGRAPH SHOWING VOLTAGE VARIATION AT ANTENNA TERMINAL**



Voltage Variation - Front View - SR-436-FT

**PHOTOGRAPH SHOWING MAINS CONDUCTED EMISSIONS**



Mains Conducted Emissions - Front View - SR-436-FT

**PHOTOGRAPH SHOWING MAINS CONDUCTED EMISSIONS**



Mains Conducted Emissions - Side View - SR-436-FT

## APPENDIX B

### TEST EQUIPMENT LIST

| Function                                | S/N        | Calibration Date | Cal Due Date | Asset # |
|---|------------|------------------|--------------|---------|
| HP 8593EM EMC Analyzer                  | 3624A00159 | 09/21/2001       | 09/21/2002   | 2111    |
| EMCO 3115 1-18 GHz Horn Antenna         | 9006-3413  | 08/07/2001       | 06/07/2002   | 327     |
| HP 8593EM EMC Analyzer                  | 3624A00159 | 09/21/2001       | 09/21/2002   | 2111    |
| 30 dB Attenuator                        | none       | 06/08/2001       | 06/08/2002   | 2397    |
| Powerstat model 126                     | None       | 08/25/2001       | 08/25/2002   | 2230    |
| HP 84300-80037 1.5 GHz High Pass Filter | 3643A00027 | 06/08/2001       | 06/08/2002   | 2116    |
| HP 84300-80038 3.5 GHz High Pass Filter | 3643A00027 | 06/08/2001       | 06/08/2002   | 2117    |
| HP 8593EM EMC Analyzer                  | 3624A00159 | 09/21/2001       | 09/21/2002   | 2111    |
| EMCO 3115 1-18 GHz Horn Antenna         | 9006-3413  | 08/07/2001       | 06/07/2002   | 327     |
| HP 83017A Amplifier 26GHz               | 0000009002 | 01/15/2002       | 01/15/2003   | 2114    |
| HP 84300-80037 1.5 GHz High Pass Filter | 3643A00027 | 06/08/2001       | 06/08/2002   | 2116    |
| EMCO 6502 Mag Loop Antenna              | 2156       | 01/09/2002       | 01/09/2003   | 52      |
| Chase CBL6111C Bilog Antenna            | 2455       | 01/31/2002       | 01/31/2003   | 1992    |
| HP 8447D Amplifier                      | 2727A05392 | 08/17/2001       | 08/17/2002   | 10      |
| HP 84125-80008 18-26 GHz Horn Antenna   | 3643A00027 | 07/09/2001       | 07/09/2002   | 2112    |
| HP 8593EM EMC Analyzer                  | 3624A00159 | 09/21/2001       | 09/21/2002   | 2111    |
| Fischer LISN                            | none       | 11/15/2001       | 11/15/2002   | 12      |
| Fischer LISN                            | none       | 11/15/2001       | 11/15/2002   | 11      |
| HP 8574A EMI Receiver                   | 3010A01076 | 07/12/2001       | 07/12/2002   | 42      |
| Fischer LISN                            | none       | 11/15/2001       | 11/15/2002   | 14      |
| Fischer LISN                            | none       | 11/15/2001       | 11/15/2002   | 13      |
| Fischer LISN                            | none       | 11/15/2001       | 11/15/2002   | 12      |
| Fischer LISN                            | none       | 11/15/2001       | 11/15/2002   | 11      |

Test Location: CKC Laboratories • 22105 Wilson River Hwy. • Tillamook, OR 97141 • 503 842-5577

Customer: **SuperTel Technologies, Inc.**

Specification: **FCC15.247**

Work Order #: **78247**

Date: 2/6/02

Test Type: **Radiated Scan**

Time: 17:00:38

Equipment: **2.4 GHz 4-Line WPABX**

Sequence#: 3

Manufacturer: SuperTel Technologies

Tested By: Mike Wilkinson

Model: SR-436 Base Set

S/N: ENG-1

**Equipment Under Test (\* = EUT):**

| Function              | Manufacturer          | Model #         | S/N   |
|-----------------------|-----------------------|-----------------|-------|
| 2.4 GHz 4-Line WPABX* | SuperTel Technologies | SR-436 Base Set | ENG-1 |
| Power Supply          | SENAO                 | AM-71000        | None  |

**Support Devices:**

| Function | Manufacturer | Model # | S/N |
|----------|--------------|---------|-----|
|----------|--------------|---------|-----|

**Test Conditions / Notes:**

The channels are locked and are stepped through manually. The low channel = 2403 MHz, mid channel = 2441.5 MHz and high channel = 2480 MHz. Channel setting is as indicated for each reading in the datasheet. 5dBi gain antenna connected to the EUT. EUT antenna is in the vertical position. EIRP was calculated using the corrected reading in the datasheet less the distance correction factor and (EIRP) Peak power =  $(E_d)^2 / 30G$ . Calculated EIRP for the readings are: 2441 MHz Vertical, meter 104.9 dBuV + 31.2 dB = 136.1 dBuV = 0.429 Watt. 2402 MHz Vertical, meter 98.7 dBuV + 31.2 dB = 129.9 dBuV = 0.103 Watt. 2480 MHz Vertical, meter 98.4 dBuV + 31.2 dB = 129.6 dBuV = 0.096 Watt. 2441 MHz Horizontal, meter 97.2 dBuV + 31.2 dB = 128.4 dBuV = 0.073 Watt. 2403 MHz Horizontal, meter 90.4 dBuV + 31.2 dB = 121.6 dBuV = 0.015 Watt. 2480 MHz Horizontal, meter 88.4 dBuV + 31.2 dB = 119.6 dBuV = 0.010 Watt.

**Transducer Legend:**

|              |                                     |
|--------------|-------------------------------------|
| T1=Horn 1-18 | T2=10' Silver Semflex SMA CKC P1403 |
|--------------|-------------------------------------|

**Measurement Data:**

Reading listed by margin.

Test Distance: 1 Meter

| #            | Freq<br>MHz | Rdng<br>dBμV | T1<br>dB | T2<br>dB | dB | dB | Dist<br>Table | Corr<br>dBμV/m | Spec<br>dBμV/m | Margin<br>dB | Polar<br>Ant |
|--------------|-------------|--------------|----------|----------|----|----|---------------|----------------|----------------|--------------|--------------|
| 1            | 2441.488M   | 104.9        | +29.3    | +1.9     |    |    | -10.0         | 126.1          | 137.0          | -10.9        | Vert         |
| Mid channel  |             |              |          |          |    |    |               |                |                |              |              |
| 2            | 2402.825M   | 98.7         | +29.3    | +1.9     |    |    | -10.0         | 119.9          | 137.0          | -17.1        | Vert         |
| Low channel  |             |              |          |          |    |    |               |                |                |              |              |
| 3            | 2480.200M   | 98.4         | +29.3    | +1.9     |    |    | -10.0         | 119.6          | 137.0          | -17.4        | Vert         |
| High channel |             |              |          |          |    |    |               |                |                |              |              |
| 4            | 2441.613M   | 97.2         | +29.3    | +1.9     |    |    | -10.0         | 118.4          | 137.0          | -18.6        | Horiz        |
| Mid channel  |             |              |          |          |    |    |               |                |                |              |              |
| 5            | 2403.288M   | 90.4         | +29.3    | +1.9     |    |    | -10.0         | 111.6          | 137.0          | -25.4        | Horiz        |
| Low channel  |             |              |          |          |    |    |               |                |                |              |              |
| 6            | 2480.163M   | 88.4         | +29.3    | +1.9     |    |    | -10.0         | 109.6          | 137.0          | -27.4        | Horiz        |
| High channel |             |              |          |          |    |    |               |                |                |              |              |

Test Location: CKC Laboratories • 22105 Wilson River Hwy. • Tillamook, OR 97141 • 503 842-5577

Customer: **SuperTel Technologies, Inc.**  
 Specification: **FCC15.247**  
 Work Order #: **78247**  
 Test Type: **Radiated Scan**  
 Equipment: **2.4 GHz 4-Line WPABX**  
 Manufacturer: SuperTel Technologies  
 Model: SR-436 Base Set  
 S/N: ENG-1

Date: 2/12/02  
 Time: 08:53:40  
 Sequence#: 4  
 Tested By: Mike Wilkinson

**Equipment Under Test (\* = EUT):**

| Function              | Manufacturer          | Model #         | S/N   |
|-----------------------|-----------------------|-----------------|-------|
| 2.4 GHz 4-Line WPABX* | SuperTel Technologies | SR-436 Base Set | ENG-1 |
| Power Supply          | SENAO                 | AM-71000        | None  |

**Support Devices:**

| Function | Manufacturer | Model # | S/N |
|----------|--------------|---------|-----|
|----------|--------------|---------|-----|

**Test Conditions / Notes:**

The channels are locked and are stepped through manually. The low channel = 2403 MHz, mid channel = 2441.5 MHz and high channel = 2480 MHz. Channel setting is as indicated for each reading in the datasheet. AC power input was set to 102 VAC (85%) , 120 VAC (nominal) and 138 VAC (115%) for each channel as indicated for each reading in the datasheet. EUT is connected directly to the Spectrum Analyzer through a 30 dB attenuator. Highest output was 133.3 dBuV = 0.427 Watt.

**Transducer Legend:**

|              |
|--------------|
| T1=30 DB Pad |
|--------------|

**Measurement Data:** Reading listed by margin.

Test Distance: None

| # | Freq<br>MHz | Rdng<br>dBμV | T1<br>dB | dB | dB | dB | Dist<br>Table | Corr<br>dBμV | Spec<br>dBμV          | Margin<br>dB | Polar<br>Ant |
|---|-------------|--------------|----------|----|----|----|---------------|--------------|-----------------------|--------------|--------------|
| 1 | 2441.330M   | 103.1        | +30.2    |    |    |    | +0.0          | 133.3        | 137.0                 | -3.7         | None         |
|   |             |              |          |    |    |    |               |              | 115%, mid channel     |              |              |
| 2 | 2441.630M   | 103.1        | +30.2    |    |    |    | +0.0          | 133.3        | 137.0                 | -3.7         | None         |
|   |             |              |          |    |    |    |               |              | Nominal, mid channel  |              |              |
| 3 | 2441.700M   | 102.6        | +30.2    |    |    |    | +0.0          | 132.8        | 137.0                 | -4.2         | None         |
|   |             |              |          |    |    |    |               |              | 85%, mid channel      |              |              |
| 4 | 2403.110M   | 101.2        | +30.2    |    |    |    | +0.0          | 131.4        | 137.0                 | -5.6         | None         |
|   |             |              |          |    |    |    |               |              | 85%, low channel      |              |              |
| 5 | 2402.940M   | 101.2        | +30.2    |    |    |    | +0.0          | 131.4        | 137.0                 | -5.6         | None         |
|   |             |              |          |    |    |    |               |              | 115%, low channel     |              |              |
| 6 | 2402.940M   | 101.2        | +30.2    |    |    |    | +0.0          | 131.4        | 137.0                 | -5.6         | None         |
|   |             |              |          |    |    |    |               |              | Nominal, low channel  |              |              |
| 7 | 2480.100M   | 100.9        | +30.2    |    |    |    | +0.0          | 131.1        | 137.0                 | -5.9         | None         |
|   |             |              |          |    |    |    |               |              | Nominal, high channel |              |              |
| 8 | 2479.980M   | 100.8        | +30.2    |    |    |    | +0.0          | 131.0        | 137.0                 | -6.0         | None         |
|   |             |              |          |    |    |    |               |              | 115%, high channel    |              |              |
| 9 | 2479.930M   | 100.5        | +30.2    |    |    |    | +0.0          | 130.7        | 137.0                 | -6.3         | None         |
|   |             |              |          |    |    |    |               |              | 85%, high channel     |              |              |

Test Location: CKC Laboratories • 22105 Wilson River Hwy. • Tillamook, OR 97141 • 503 842-5577

Customer: **SuperTel Technologies, Inc.**

Specification: **FCC15.247 & 15.209 @3M**

Work Order #: **78247**

Date: 2/14/02

Test Type: **Radiated Scan**

Time: 13:59:40

Equipment: **2.4 GHz 4-Line WPABX**

Sequence#: 6

Manufacturer: SuperTel Technologies

Tested By: Mike Wilkinson

Model: SR-436 Base Set

S/N: ENG-1

**Equipment Under Test (\* = EUT):**

| Function              | Manufacturer          | Model #         | S/N   |
|-----------------------|-----------------------|-----------------|-------|
| Battery Charger       | SuperTel Technologies | ENG-CH          | None  |
| Power Supply          | SENAO                 | AM-71000        | None  |
| 2.4 GHz 4-Line WPABX  | SuperTel Technologies | SR-436 Hand Set | ENG-1 |
| 2.4 GHz 4-Line WPABX* | SuperTel Technologies | SR-436 Base Set | ENG-1 |

**Support Devices:**

| Function            | Manufacturer | Model # | S/N     |
|---------------------|--------------|---------|---------|
| CD Player           | Sony         | D-131   | 5658402 |
| Remote CO Simulator | Teltone      | TLS-5   | 029081  |

**Test Conditions / Notes:**

The channels are locked and are stepped through manually. The low channel = 2403 MHz, mid channel = 2441.5 MHz and high channel = 2480 MHz. Channel setting is as indicated for each reading in the datasheet. EUT antenna is in the vertical position. 5 dBi gain antenna connected to the EUT. Base L-1 port is connected to the remote located CO Simulator via a 20 foot RJ-11 cable. L-2 through L-4 ports have unterminated 2 meter RJ 11 cables attached. Audio port is connected, via a 2 meter audio cable, to the CD Player which is playing a music CD. The SR-436 Handset is placed in the charger and is in the ring only mode. Test distance is 1 meter 0.9 GHz to 25.0 GHz. Test distance is 3 meters 15 MHz to 900 MHz. Frequency range investigated was 3 MHz to 25 GHz (lowest oscillator = 3.579 MHz, highest oscillator = 2.483 GHz).

**Transducer Legend:**

|                      |                                     |
|----------------------|-------------------------------------|
| T1=26.5 GHz Amp      | T2=6in SMA cable #2212              |
| T3=Bilog A           | T4=Amp-A                            |
| T5=3.5 GHz High-Pass | T6=10' Silver Semflex SMA CKC P1403 |
| T7=Horn 1-18         |                                     |

**Measurement Data:**

Reading listed by margin.

Test Distance: 3 Meters

| # | Freq      | Rdng | T1    | T2   | T3    | T4    | Dist  | Corr   | Spec         | Margin | Polar |
|---|-----------|------|-------|------|-------|-------|-------|--------|--------------|--------|-------|
|   | MHz       | dBμV | T5    | T6   | T7    |       | Table | dBμV/m | dBμV/m       | dB     | Ant   |
| 1 | 491.518M  | 49.9 | +0.0  | +0.0 | +19.0 | -27.8 | +0.0  | 41.1   | 46.0         | -4.9   | Vert  |
|   |           |      | +0.0  | +0.0 | +0.0  |       |       |        | High channel |        |       |
| 2 | 491.529M  | 49.3 | +0.0  | +0.0 | +19.0 | -27.8 | +0.0  | 40.5   | 46.0         | -5.5   | Vert  |
|   |           |      | +0.0  | +0.0 | +0.0  |       |       |        | Mid channel  |        |       |
| 3 | 491.523M  | 49.0 | +0.0  | +0.0 | +19.0 | -27.8 | +0.0  | 40.2   | 46.0         | -5.8   | Vert  |
|   |           |      | +0.0  | +0.0 | +0.0  |       |       |        | Low channel  |        |       |
| 4 | 12400.240 | 48.4 | -35.0 | +1.1 | +0.0  | +0.0  | -10.0 | 46.2   | 54.0         | -7.8   | Vert  |
|   | M         |      | +0.1  | +4.4 | +37.2 |       |       |        | High channel |        |       |
| 5 | 886.600M  | 41.2 | +0.0  | +0.0 | +23.2 | -27.6 | +0.0  | 36.8   | 46.0         | -9.2   | Vert  |
|   |           |      | +0.0  | +0.0 | +0.0  |       |       |        | Mid channel  |        |       |

|    |                       |      |               |              |               |       |       |      |              |       |       |
|----|-----------------------|------|---------------|--------------|---------------|-------|-------|------|--------------|-------|-------|
| 6  | 12015.200<br>M        | 46.9 | -35.0<br>+0.1 | +1.0<br>+4.4 | +0.0<br>+37.2 | +0.0  | -10.0 | 44.6 | 54.0         | -9.4  | Vert  |
|    |                       |      |               |              |               |       |       |      | Low channel  |       |       |
| 7  | 884.713M              | 39.2 | +0.0<br>+0.0  | +0.0<br>+0.0 | +23.2<br>+0.0 | -27.6 | +0.0  | 34.8 | 46.0         | -11.2 | Vert  |
|    |                       |      |               |              |               |       |       |      | High channel |       |       |
| 8  | 4806.163M<br>Ave      | 52.2 | -40.0<br>+0.1 | +0.3<br>+2.7 | +0.0<br>+33.2 | +0.0  | -10.0 | 38.5 | 54.0         | -15.5 | Vert  |
|    |                       |      |               |              |               |       |       |      | Low channel  |       |       |
| ^  | 4806.163M             | 74.8 | -40.0<br>+0.1 | +0.3<br>+2.7 | +0.0<br>+33.2 | +0.0  | -10.0 | 61.1 | 54.0         | +7.1  | Vert  |
|    |                       |      |               |              |               |       |       |      | Low channel  |       |       |
| 10 | 7324.740M<br>Ave      | 47.8 | -38.0<br>+0.5 | +0.3<br>+3.3 | +0.0<br>+34.5 | +0.0  | -10.0 | 38.4 | 54.0         | -15.6 | Vert  |
|    |                       |      |               |              |               |       |       |      | Mid channel  |       |       |
| ^  | 7324.740M             | 67.0 | -38.0<br>+0.5 | +0.3<br>+3.3 | +0.0<br>+34.5 | +0.0  | -10.0 | 57.6 | 54.0         | +3.6  | Vert  |
|    |                       |      |               |              |               |       |       |      | Mid channel  |       |       |
| 12 | 4883.215M<br>Ave      | 51.7 | -40.0<br>+0.1 | +0.4<br>+2.7 | +0.0<br>+33.3 | +0.0  | -10.0 | 38.2 | 54.0         | -15.8 | Horiz |
|    |                       |      |               |              |               |       |       |      | Mid channel  |       |       |
| ^  | 4883.215M             | 71.5 | -40.0<br>+0.1 | +0.4<br>+2.7 | +0.0<br>+33.3 | +0.0  | -10.0 | 58.0 | 54.0         | +4.0  | Horiz |
|    |                       |      |               |              |               |       |       |      | Mid channel  |       |       |
| 14 | 14649.420<br>M<br>Ave | 36.1 | -34.0<br>+0.5 | +1.8<br>+4.8 | +0.0<br>+38.2 | +0.0  | -10.0 | 37.4 | 54.0         | -16.6 | Vert  |
|    |                       |      |               |              |               |       |       |      | Mid channel  |       |       |
| ^  | 14649.420<br>M        | 47.7 | -34.0<br>+0.5 | +1.8<br>+4.8 | +0.0<br>+38.2 | +0.0  | -10.0 | 49.0 | 54.0         | -5.0  | Vert  |
|    |                       |      |               |              |               |       |       |      | Mid channel  |       |       |
| 16 | 499.713M              | 37.8 | +0.0<br>+0.0  | +0.0<br>+0.0 | +19.2<br>+0.0 | -27.8 | +0.0  | 29.2 | 46.0         | -16.8 | Vert  |
|    |                       |      |               |              |               |       |       |      | Low channel  |       |       |
| 17 | 12207.920<br>M<br>Ave | 38.0 | -35.0<br>+0.1 | +1.1<br>+4.4 | +0.0<br>+37.2 | +0.0  | -10.0 | 35.8 | 54.0         | -18.2 | Vert  |
|    |                       |      |               |              |               |       |       |      | Mid channel  |       |       |
| ^  | 12207.920<br>M        | 54.4 | -35.0<br>+0.1 | +1.1<br>+4.4 | +0.0<br>+37.2 | +0.0  | -10.0 | 52.2 | 54.0         | -1.8  | Vert  |
|    |                       |      |               |              |               |       |       |      | Mid channel  |       |       |
| 19 | 483.319M              | 34.8 | +0.0<br>+0.0  | +0.0<br>+0.0 | +18.7<br>+0.0 | -27.7 | +0.0  | 25.8 | 46.0         | -20.2 | Vert  |
|    |                       |      |               |              |               |       |       |      | Mid channel  |       |       |
| 20 | 4883.240M<br>Ave      | 47.3 | -40.0<br>+0.1 | +0.4<br>+2.7 | +0.0<br>+33.3 | +0.0  | -10.0 | 33.8 | 54.0         | -20.2 | Vert  |
|    |                       |      |               |              |               |       |       |      | Mid channel  |       |       |
| ^  | 4883.240M             | 72.1 | -40.0<br>+0.1 | +0.4<br>+2.7 | +0.0<br>+33.3 | +0.0  | -10.0 | 58.6 | 54.0         | +4.6  | Vert  |
|    |                       |      |               |              |               |       |       |      | Mid channel  |       |       |
| 22 | 499.713M              | 33.7 | +0.0<br>+0.0  | +0.0<br>+0.0 | +19.2<br>+0.0 | -27.8 | +0.0  | 25.1 | 46.0         | -20.9 | Vert  |
|    |                       |      |               |              |               |       |       |      | Mid channel  |       |       |
| 23 | 475.141M              | 33.7 | +0.0<br>+0.0  | +0.0<br>+0.0 | +18.5<br>+0.0 | -27.7 | +0.0  | 24.5 | 46.0         | -21.5 | Vert  |
|    |                       |      |               |              |               |       |       |      | Low channel  |       |       |
| 24 | 7440.240M<br>Ave      | 41.4 | -38.0<br>+0.5 | +0.3<br>+3.4 | +0.0<br>+34.6 | +0.0  | -10.0 | 32.2 | 54.0         | -21.8 | Vert  |
|    |                       |      |               |              |               |       |       |      | High channel |       |       |
| ^  | 7440.240M             | 64.3 | -38.0<br>+0.5 | +0.3<br>+3.4 | +0.0<br>+34.6 | +0.0  | -10.0 | 55.1 | 54.0         | +1.1  | Vert  |
|    |                       |      |               |              |               |       |       |      | High channel |       |       |
| 26 | 475.149M              | 33.0 | +0.0<br>+0.0  | +0.0<br>+0.0 | +18.5<br>+0.0 | -27.7 | +0.0  | 23.8 | 46.0         | -22.2 | Vert  |
|    |                       |      |               |              |               |       |       |      | Mid channel  |       |       |
| 27 | 499.713M              | 31.8 | +0.0<br>+0.0  | +0.0<br>+0.0 | +19.2<br>+0.0 | -27.8 | +0.0  | 23.2 | 46.0         | -22.8 | Horiz |
|    |                       |      |               |              |               |       |       |      | Low channel  |       |       |

|    |           |      |       |      |       |       |       |      |              |       |       |
|----|-----------|------|-------|------|-------|-------|-------|------|--------------|-------|-------|
| 28 | 7209.263M | 40.7 | -38.0 | +0.3 | +0.0  | +0.0  | -10.0 | 31.1 | 54.0         | -22.9 | Vert  |
|    | Ave       |      | +0.5  | +3.3 | +34.3 |       |       |      | Low channel  |       |       |
| ^  | 7209.263M | 62.8 | -38.0 | +0.3 | +0.0  | +0.0  | -10.0 | 53.2 | 54.0         | -0.8  | Vert  |
|    |           |      | +0.5  | +3.3 | +34.3 |       |       |      | Low channel  |       |       |
| 30 | 479.255M  | 31.5 | +0.0  | +0.0 | +18.6 | -27.7 | +0.0  | 22.4 | 46.0         | -23.6 | Vert  |
|    |           |      | +0.0  | +0.0 | +0.0  |       |       |      | Low channel  |       |       |
| 31 | 479.231M  | 31.1 | +0.0  | +0.0 | +18.6 | -27.7 | +0.0  | 22.0 | 46.0         | -24.0 | Vert  |
|    |           |      | +0.0  | +0.0 | +0.0  |       |       |      | Mid channel  |       |       |
| 32 | 9611.875M | 36.0 | -37.0 | +0.4 | +0.0  | +0.0  | -10.0 | 29.8 | 54.0         | -24.2 | Vert  |
|    | Ave       |      | +0.4  | +3.8 | +36.2 |       |       |      | Low channel  |       |       |
| ^  | 9611.875M | 57.4 | -37.0 | +0.4 | +0.0  | +0.0  | -10.0 | 51.2 | 54.0         | -2.8  | Vert  |
|    |           |      | +0.4  | +3.8 | +36.2 |       |       |      | Low channel  |       |       |
| 34 | 4806.200M | 43.4 | -40.0 | +0.3 | +0.0  | +0.0  | -10.0 | 29.7 | 54.0         | -24.3 | Horiz |
|    | Ave       |      | +0.1  | +2.7 | +33.2 |       |       |      | Low channel  |       |       |
| ^  | 4806.200M | 67.1 | -40.0 | +0.3 | +0.0  | +0.0  | -10.0 | 53.4 | 54.0         | -0.6  | Horiz |
|    |           |      | +0.1  | +2.7 | +33.2 |       |       |      | Low channel  |       |       |
| 36 | 4960.240M | 42.3 | -40.0 | +0.4 | +0.0  | +0.0  | -10.0 | 29.0 | 54.0         | -25.0 | Vert  |
|    | Ave       |      | +0.1  | +2.8 | +33.4 |       |       |      | High channel |       |       |
| ^  | 4960.240M | 65.2 | -40.0 | +0.4 | +0.0  | +0.0  | -10.0 | 51.9 | 54.0         | -2.1  | Vert  |
|    |           |      | +0.1  | +2.8 | +33.4 |       |       |      | High channel |       |       |
| 38 | 7324.740M | 37.3 | -38.0 | +0.3 | +0.0  | +0.0  | -10.0 | 27.9 | 54.0         | -26.1 | Horiz |
|    | Ave       |      | +0.5  | +3.3 | +34.5 |       |       |      | Mid channel  |       |       |
| ^  | 7324.740M | 61.7 | -38.0 | +0.3 | +0.0  | +0.0  | -10.0 | 52.3 | 54.0         | -1.7  | Horiz |
|    |           |      | +0.5  | +3.3 | +34.5 |       |       |      | Mid channel  |       |       |
| 40 | 7209.200M | 37.1 | -38.0 | +0.3 | +0.0  | +0.0  | -10.0 | 27.5 | 54.0         | -26.5 | Horiz |
|    | Ave       |      | +0.5  | +3.3 | +34.3 |       |       |      | Low channel  |       |       |
| ^  | 7209.200M | 59.8 | -38.0 | +0.3 | +0.0  | +0.0  | -10.0 | 50.2 | 54.0         | -3.8  | Horiz |
|    |           |      | +0.5  | +3.3 | +34.3 |       |       |      | Low channel  |       |       |
| 42 | 4960.240M | 38.6 | -40.0 | +0.4 | +0.0  | +0.0  | -10.0 | 25.3 | 54.0         | -28.7 | Horiz |
|    | Ave       |      | +0.1  | +2.8 | +33.4 |       |       |      | High channel |       |       |
| ^  | 4960.240M | 63.5 | -40.0 | +0.4 | +0.0  | +0.0  | -10.0 | 50.2 | 54.0         | -3.8  | Horiz |
|    |           |      | +0.1  | +2.8 | +33.4 |       |       |      | High channel |       |       |
| 44 | 202.738M  | 31.6 | +0.0  | +0.0 | +9.0  | -26.7 | +0.0  | 13.9 | 43.5         | -29.6 | Vert  |
|    |           |      | +0.0  | +0.0 | +0.0  |       |       |      | Mid channel  |       |       |
| 45 | 202.746M  | 31.4 | +0.0  | +0.0 | +9.0  | -26.7 | +0.0  | 13.7 | 43.5         | -29.8 | Vert  |
|    |           |      | +0.0  | +0.0 | +0.0  |       |       |      | Low channel  |       |       |

Test Location: CKC Laboratories • 14797 NE 95th Street • Redmond, WA 98052 • 425-883-4757

Customer: **SuperTel**  
 Specification: **FCC15.247 SR-436 Base**  
 Work Order #: **78247** Date: 2/1/02  
 Test Type: **Conducted Spurious Emissions** Time: 16:28:00  
 Equipment: 4 Line WPABX Base Station Sequence#: 1  
 Manufacturer: SuperTel Tested By: Andrew Pace  
 Model: SR-436  
 S/N: none

**Equipment Under Test (\* = EUT):**

| Function                   | Manufacturer | Model # | S/N  |
|----------------------------|--------------|---------|------|
| 4 Line WPABX Base Station* | SuperTel     | SR-436  | none |

**Support Devices:**

| Function | Manufacturer | Model # | S/N |
|----------|--------------|---------|-----|
|----------|--------------|---------|-----|

**Test Conditions / Notes:**

9kHz - 24GHz. SR-436 Base Station, Conducted Spurious Emissions Check. Fundamentals are measured. The lowest strength fundamental - 20dB is then programmed as the limit line.

**Transducer Legend:**

|  |
|--|
|  |
|--|

**Measurement Data:** Reading listed by margin. Test Distance: None

| # | Freq<br>MHz | Rdng<br>dBμV | dB | dB | dB | dB | Dist<br>Table | Corr<br>dBμV | Spec<br>dBμV     | Margin<br>dB | Polar<br>Ant |
|---|-------------|--------------|----|----|----|----|---------------|--------------|------------------|--------------|--------------|
| 1 | 2441.480M   | 133.5        |    |    |    |    | +0.0          | 133.5        | 113.5            | +20.0        | None         |
|   |             |              |    |    |    |    |               |              | Mid Fundamental  |              |              |
| 2 | 2403.050M   | 131.9        |    |    |    |    | +0.0          | 131.9        | 113.5            | +18.4        | None         |
|   |             |              |    |    |    |    |               |              | Low Fundamental  |              |              |
| 3 | 2480.050M   | 131.3        |    |    |    |    | +0.0          | 131.3        | 113.5            | +17.8        | None         |
|   |             |              |    |    |    |    |               |              | High Fundamental |              |              |
| 4 | 2446.650M   | 85.4         |    |    |    |    | +0.0          | 85.4         | 113.5            | -28.1        | None         |
|   |             |              |    |    |    |    |               |              | Low              |              |              |
| 5 | 2458.600M   | 79.9         |    |    |    |    | +0.0          | 79.9         | 113.5            | -33.6        | None         |
|   |             |              |    |    |    |    |               |              | High             |              |              |
| 6 | 4806.130M   | 77.3         |    |    |    |    | +0.0          | 77.3         | 113.5            | -36.2        | None         |
|   |             |              |    |    |    |    |               |              | Low              |              |              |

Test Location: CKC Laboratories • 22105 Wilson River Hwy. • Tillamook, OR 97141 • 503 842-5577

Customer: **SuperTel Technologies, Inc.**

Specification: **FCC15.247**

Work Order #: **78247**

Date: 2/11/02

Test Type: **Radiated Scan**

Time: 15:15:04

Equipment: **2.4 GHz 4-Line WPABX**

Sequence#: 2

Manufacturer: SuperTel Technologies

Tested By: Mike Wilkinson

Model: SR-436 Hand Set

S/N: None

**Equipment Under Test (\* = EUT):**

| Function              | Manufacturer          | Model #         | S/N  |
|-----------------------|-----------------------|-----------------|------|
| 2.4 GHz 4-Line WPABX* | SuperTel Technologies | SR-436 Hand Set | None |

**Support Devices:**

| Function | Manufacturer | Model # | S/N |
|----------|--------------|---------|-----|
|----------|--------------|---------|-----|

**Test Conditions / Notes:**

The channels are locked and are stepped through manually. The low channel = 2403 MHz, mid channel = 2441.5 MHz and high channel = 2480 MHz. Channel setting is as indicated for each reading in the datasheet. EUT tested in 3 orthogonal planes as indicated for each reading in the datasheet. 5dBi gain antenna connected to the EUT. EUT is Battery operated. EIRP was calculated using the corrected reading in the datasheet less the distance correction factor and (EIRP) Peak power =  $(E_d)^2 / 30G$ . Calculated EIRP for the 6 highest readings are: 2441 MHz, meter 104.5 dBuV + 31.2 dB = 135.7 dBuV = 0.392 Watt. 2402 MHz, meter 102.5 dBuV + 31.2 dB = 133.7 dBuV = 0.247 Watt. 2479 MHz, meter 102.3 dBuV + 31.2 dB = 133.5 dBuV = 0.236 Watt. 2402 MHz, meter 102.2 dBuV + 31.2 dB = 133.4 dBuV = 0.231 Watt. 2480 MHz, meter 102.0 dBuV + 31.2 dB = 133.2 dBuV = 0.220 Watt. 2441 MHz, meter 101.9 dBuV + 31.2 dB = 133.1 dBuV = 0.215 Watt.

**Transducer Legend:**

|              |                                     |
|--------------|-------------------------------------|
| T1=Horn 1-18 | T2=10' Silver Semflex SMA CKC P1403 |
|--------------|-------------------------------------|

**Measurement Data:**

Reading listed by margin.

Test Distance: 1 & 3 Meters

| # | Freq<br>MHz | Rdng<br>dBμV | T1<br>dB | T2<br>dB | dB | dB | Dist<br>Table | Corr<br>dBμV/m | Spec<br>dBμV/m                     | Margin<br>dB | Polar<br>Ant |
|---|-------------|--------------|----------|----------|----|----|---------------|----------------|------------------------------------|--------------|--------------|
| 1 | 2441.480M   | 104.5        | +29.3    | +1.9     |    |    | -10.0         | 125.7          | 137.0                              | -11.3        | Vert         |
|   |             |              |          |          |    |    |               |                | Mid channel,<br>vertical position  |              |              |
| 2 | 2402.980M   | 102.5        | +29.3    | +1.9     |    |    | -10.0         | 123.7          | 137.0                              | -13.3        | Horiz        |
|   |             |              |          |          |    |    |               |                | Low channel, side<br>position      |              |              |
| 3 | 2479.950M   | 102.3        | +29.3    | +1.9     |    |    | -10.0         | 123.5          | 137.0                              | -13.5        | Vert         |
|   |             |              |          |          |    |    |               |                | High channel,<br>Vertical position |              |              |
| 4 | 2402.850M   | 102.2        | +29.3    | +1.9     |    |    | -10.0         | 123.4          | 137.0                              | -13.6        | Vert         |
|   |             |              |          |          |    |    |               |                | Low channel,<br>vertical position  |              |              |
| 5 | 2480.080M   | 102.0        | +29.3    | +1.9     |    |    | -10.0         | 123.2          | 137.0                              | -13.8        | Horiz        |
|   |             |              |          |          |    |    |               |                | High channel, side<br>position     |              |              |
| 6 | 2441.430M   | 101.9        | +29.3    | +1.9     |    |    | -10.0         | 123.1          | 137.0                              | -13.9        | Horiz        |
|   |             |              |          |          |    |    |               |                | Mid channel, side<br>position      |              |              |

|    |           |      |       |      |       |       |                                      |       |       |
|----|-----------|------|-------|------|-------|-------|--------------------------------------|-------|-------|
| 7  | 2479.950M | 96.6 | +29.3 | +1.9 | -10.0 | 117.8 | 137.0                                | -19.2 | Vert  |
|    |           |      |       |      |       |       | High channel,<br>Horizontal Position |       |       |
| 8  | 2441.630M | 96.4 | +29.3 | +1.9 | -10.0 | 117.6 | 137.0                                | -19.4 | Vert  |
|    |           |      |       |      |       |       | Mid channel,<br>horizontal position  |       |       |
| 9  | 2403.080M | 96.4 | +29.3 | +1.9 | -10.0 | 117.6 | 137.0                                | -19.4 | Vert  |
|    |           |      |       |      |       |       | Low channel,<br>horizontal position  |       |       |
| 10 | 2403.150M | 95.5 | +29.3 | +1.9 | -10.0 | 116.7 | 137.0                                | -20.3 | Horiz |
|    |           |      |       |      |       |       | Low channel,<br>horizontal position  |       |       |
| 11 | 2441.575M | 95.5 | +29.3 | +1.9 | -10.0 | 116.7 | 137.0                                | -20.3 | Horiz |
|    |           |      |       |      |       |       | Mid channel,<br>horizontal position  |       |       |
| 12 | 2480.188M | 95.5 | +29.3 | +1.9 | -10.0 | 116.7 | 137.0                                | -20.3 | Horiz |
|    |           |      |       |      |       |       | High channel,<br>horizontal position |       |       |
| 13 | 2403.080M | 92.1 | +29.3 | +1.9 | -10.0 | 113.3 | 137.0                                | -23.7 | Vert  |
|    |           |      |       |      |       |       | Low channel, side<br>position        |       |       |
| 14 | 2480.150M | 91.4 | +29.3 | +1.9 | -10.0 | 112.6 | 137.0                                | -24.4 | Vert  |
|    |           |      |       |      |       |       | High channel, side<br>position       |       |       |
| 15 | 2441.730M | 91.4 | +29.3 | +1.9 | -10.0 | 112.6 | 137.0                                | -24.4 | Vert  |
|    |           |      |       |      |       |       | Mid channel, side<br>position        |       |       |
| 16 | 2441.563M | 88.4 | +29.3 | +1.9 | -10.0 | 109.6 | 137.0                                | -27.4 | Horiz |
|    |           |      |       |      |       |       | Mid channel,<br>vertical position    |       |       |
| 17 | 2480.150M | 88.3 | +29.3 | +1.9 | -10.0 | 109.5 | 137.0                                | -27.5 | Horiz |
|    |           |      |       |      |       |       | High channel,<br>vertical position   |       |       |
| 18 | 2403.650M | 88.3 | +29.3 | +1.9 | -10.0 | 109.5 | 137.0                                | -27.5 | Horiz |
|    |           |      |       |      |       |       | Low channel,<br>vertical position    |       |       |

Test Location: CKC Laboratories • 22105 Wilson River Hwy. • Tillamook, OR 97141 • 503 842-5577

Customer: **SuperTel Technologies, Inc.**

Specification: **FCC15.247 & 15.209**

Work Order #: **78247**

Date: 2/14/02

Test Type: **Radiated Scan**

Time: 15:51:12

Equipment: **2.4 GHz 4-Line WPABX**

Sequence#: 7

Manufacturer: SuperTel Technologies

Tested By: Mike Wilkinson

Model: SR-436 Hand Set

S/N: ENG-1

**Equipment Under Test (\* = EUT):**

| Function             | Manufacturer          | Model #         | S/N   |
|----------------------|-----------------------|-----------------|-------|
| 2.4 GHz 4-Line WPABX | SuperTel Technologies | SR-436 Hand Set | ENG-1 |

**Support Devices:**

| Function | Manufacturer | Model # | S/N |
|----------|--------------|---------|-----|
|----------|--------------|---------|-----|

**Test Conditions / Notes:**

The channels are locked and are stepped through manually. The low channel = 2403 MHz, mid channel = 2441.5 MHz and high channel = 2480 MHz. Channel setting is as indicated for each reading in the datasheet. EUT tested in 3 orthogonal planes as indicated for each reading in the datasheet. 5 dBi gain antenna connected to the EUT. EUT is Battery operated. Test distance is 1 meter 1.0 GHz to 26.0 GHz. Test distance is 3 meters 15 MHz to 1.0 GHz. Frequency range investigated was 15 MHz to 26 GHz (lowest oscillator = 16.38 MHz, highest oscillator = 2483 MHz) No signals found above 17 GHz.

**Transducer Legend:**

|                      |                                     |
|----------------------|-------------------------------------|
| T1=26.5 GHz Amp      | T2=6in SMA cable #2212              |
| T3=Bilog A           | T4=Amp-A                            |
| T5=3.5 GHz High-Pass | T6=10' Silver Semflex SMA CKC P1403 |
| T7=Horn 1-18         |                                     |

**Measurement Data:**

Reading listed by margin.

Test Distance: 1 Meter

| # | Freq      | Rdng | T1<br>T5 | T2<br>T6 | T3<br>T7 | T4   | Dist  | Corr   | Spec                             | Margin | Polar |
|---|-----------|------|----------|----------|----------|------|-------|--------|----------------------------------|--------|-------|
|   | MHz       | dBμV | dB       | dB       | dB       | dB   | Table | dBμV/m | dBμV/m                           | dB     | Ant   |
| 1 | 14418.500 | 43.0 | -34.2    | +1.8     | +0.0     | +0.0 | -10.0 | 44.4   | 54.0                             | -9.6   | Vert  |
|   | M         |      | +0.6     | +4.8     | +38.4    |      |       |        |                                  |        |       |
|   |           |      |          |          |          |      |       |        | Low channel, side position       |        |       |
| 2 | 14880.490 | 39.1 | -34.0    | +1.8     | +0.0     | +0.0 | -10.0 | 40.1   | 54.0                             | -13.9  | Vert  |
|   | M         |      | +0.4     | +4.8     | +38.0    |      |       |        |                                  |        |       |
|   | Ave       |      |          |          |          |      |       |        | High channel, side position      |        |       |
| ^ | 14880.490 | 52.2 | -34.0    | +1.8     | +0.0     | +0.0 | -10.0 | 53.2   | 54.0                             | -0.8   | Vert  |
|   | M         |      | +0.4     | +4.8     | +38.0    |      |       |        |                                  |        |       |
|   |           |      |          |          |          |      |       |        | High channel, side position      |        |       |
| 4 | 7324.662M | 49.2 | -38.0    | +0.3     | +0.0     | +0.0 | -10.0 | 39.8   | 54.0                             | -14.2  | Vert  |
|   | Ave       |      | +0.5     | +3.3     | +34.5    |      |       |        | Mid channel, horizontal position |        |       |
| ^ | 7324.662M | 76.4 | -38.0    | +0.3     | +0.0     | +0.0 | -10.0 | 67.0   | 54.0                             | +13.0  | Vert  |
|   |           |      | +0.5     | +3.3     | +34.5    |      |       |        | Mid channel, horizontal position |        |       |

|    |                       |      |               |              |               |      |       |      |                                      |       |       |
|----|-----------------------|------|---------------|--------------|---------------|------|-------|------|--------------------------------------|-------|-------|
| 6  | 16821.600<br>M<br>Ave | 28.8 | -34.0<br>+3.5 | +2.4<br>+5.2 | +0.0<br>+43.2 | +0.0 | -10.0 | 39.1 | 54.0                                 | -14.9 | Vert  |
|    |                       |      |               |              |               |      |       |      | Low channel, side<br>position        |       |       |
| ^  | 16821.600<br>M        | 40.4 | -34.0<br>+3.5 | +2.4<br>+5.2 | +0.0<br>+43.2 | +0.0 | -10.0 | 50.7 | 54.0                                 | -3.3  | Vert  |
|    |                       |      |               |              |               |      |       |      | Low channel, side<br>position        |       |       |
| 8  | 7440.313M<br>Ave      | 47.4 | -38.0<br>+0.5 | +0.3<br>+3.4 | +0.0<br>+34.6 | +0.0 | -10.0 | 38.2 | 54.0                                 | -15.8 | Vert  |
|    |                       |      |               |              |               |      |       |      | High channel, side<br>position       |       |       |
| ^  | 7440.313M             | 75.3 | -38.0<br>+0.5 | +0.3<br>+3.4 | +0.0<br>+34.6 | +0.0 | -10.0 | 66.1 | 54.0                                 | +12.1 | Vert  |
|    |                       |      |               |              |               |      |       |      | High channel, side<br>position       |       |       |
| 10 | 7440.138M<br>Ave      | 47.0 | -38.0<br>+0.5 | +0.3<br>+3.4 | +0.0<br>+34.6 | +0.0 | -10.0 | 37.8 | 54.0                                 | -16.2 | Vert  |
|    |                       |      |               |              |               |      |       |      | High channel,<br>horizontal position |       |       |
| 11 | 7324.675M<br>Ave      | 46.9 | -38.0<br>+0.5 | +0.3<br>+3.3 | +0.0<br>+34.5 | +0.0 | -10.0 | 37.5 | 54.0                                 | -16.5 | Horiz |
|    |                       |      |               |              |               |      |       |      | Mid channel,<br>vertical position    |       |       |
| ^  | 7324.675M             | 71.2 | -38.0<br>+0.5 | +0.3<br>+3.3 | +0.0<br>+34.5 | +0.0 | -10.0 | 61.8 | 54.0                                 | +7.8  | Horiz |
|    |                       |      |               |              |               |      |       |      | Mid channel,<br>vertical position    |       |       |
| ^  | 7324.713M             | 64.8 | -38.0<br>+0.5 | +0.3<br>+3.3 | +0.0<br>+34.5 | +0.0 | -10.0 | 55.4 | 54.0                                 | +1.4  | Horiz |
|    |                       |      |               |              |               |      |       |      | Mid channel, side<br>position        |       |       |
| 14 | 12208.040<br>M<br>Ave | 39.7 | -35.0<br>+0.1 | +1.1<br>+4.4 | +0.0<br>+37.2 | +0.0 | -10.0 | 37.5 | 54.0                                 | -16.5 | Horiz |
|    |                       |      |               |              |               |      |       |      | Mid channel, side<br>position        |       |       |
| 15 | 7324.788M<br>Ave      | 46.3 | -38.0<br>+0.5 | +0.3<br>+3.3 | +0.0<br>+34.5 | +0.0 | -10.0 | 36.9 | 54.0                                 | -17.1 | Vert  |
|    |                       |      |               |              |               |      |       |      | Mid channel,<br>vertical position    |       |       |
| ^  | 7324.788M             | 68.9 | -38.0<br>+0.5 | +0.3<br>+3.3 | +0.0<br>+34.5 | +0.0 | -10.0 | 59.5 | 54.0                                 | +5.5  | Vert  |
|    |                       |      |               |              |               |      |       |      | Mid channel,<br>vertical position    |       |       |
| ^  | 7324.850M             | 62.9 | -38.0<br>+0.5 | +0.3<br>+3.3 | +0.0<br>+34.5 | +0.0 | -10.0 | 53.5 | 54.0                                 | -0.5  | Vert  |
|    |                       |      |               |              |               |      |       |      | Mid channel, side<br>position        |       |       |
| 18 | 12400.500<br>M<br>Ave | 38.8 | -35.0<br>+0.1 | +1.1<br>+4.4 | +0.0<br>+37.2 | +0.0 | -10.0 | 36.6 | 54.0                                 | -17.4 | Horiz |
|    |                       |      |               |              |               |      |       |      | High channel, side<br>position       |       |       |
| ^  | 12400.500<br>M        | 57.9 | -35.0<br>+0.1 | +1.1<br>+4.4 | +0.0<br>+37.2 | +0.0 | -10.0 | 55.7 | 54.0                                 | +1.7  | Horiz |
|    |                       |      |               |              |               |      |       |      | High channel, side<br>position       |       |       |
| 20 | 12207.900<br>M<br>Ave | 38.8 | -35.0<br>+0.1 | +1.1<br>+4.4 | +0.0<br>+37.2 | +0.0 | -10.0 | 36.6 | 54.0                                 | -17.4 | Vert  |
|    |                       |      |               |              |               |      |       |      | Mid channel,<br>horizontal position  |       |       |

|    |                       |      |               |              |               |      |       |      |                                      |       |      |
|----|-----------------------|------|---------------|--------------|---------------|------|-------|------|--------------------------------------|-------|------|
| 21 | 12400.140<br>M<br>Ave | 38.7 | -35.0<br>+0.1 | +1.1<br>+4.4 | +0.0<br>+37.2 | +0.0 | -10.0 | 36.5 | 54.0                                 | -17.5 | Vert |
|    |                       |      |               |              |               |      |       |      | High channel,<br>horizontal position |       |      |
| ^  | 12400.140<br>M        | 56.5 | -35.0<br>+0.1 | +1.1<br>+4.4 | +0.0<br>+37.2 | +0.0 | -10.0 | 54.3 | 54.0                                 | +0.3  | Vert |
|    |                       |      |               |              |               |      |       |      | High channel,<br>horizontal position |       |      |
| 23 | 12207.950<br>M<br>Ave | 38.7 | -35.0<br>+0.1 | +1.1<br>+4.4 | +0.0<br>+37.2 | +0.0 | -10.0 | 36.5 | 54.0                                 | -17.5 | Vert |
|    |                       |      |               |              |               |      |       |      | Mid channel, side<br>position        |       |      |
| 24 | 7209.200M<br>Ave      | 46.1 | -38.0<br>+0.5 | +0.3<br>+3.3 | +0.0<br>+34.3 | +0.0 | -10.0 | 36.5 | 54.0                                 | -17.5 | Vert |
|    |                       |      |               |              |               |      |       |      | Low channel, side<br>position        |       |      |
| ^  | 7209.263M             | 74.5 | -38.0<br>+0.5 | +0.3<br>+3.3 | +0.0<br>+34.3 | +0.0 | -10.0 | 64.9 | 54.0                                 | +10.9 | Vert |
|    |                       |      |               |              |               |      |       |      | Low channel, side<br>position        |       |      |
| 26 | 4883.163M<br>Ave      | 49.9 | -40.0<br>+0.1 | +0.4<br>+2.7 | +0.0<br>+33.3 | +0.0 | -10.0 | 36.4 | 54.0                                 | -17.6 | Vert |
|    |                       |      |               |              |               |      |       |      | Mid channel, side<br>position        |       |      |
| 27 | 12400.490<br>M<br>Ave | 38.3 | -35.0<br>+0.1 | +1.1<br>+4.4 | +0.0<br>+37.2 | +0.0 | -10.0 | 36.1 | 54.0                                 | -17.9 | Vert |
|    |                       |      |               |              |               |      |       |      | High channel, side<br>position       |       |      |
| ^  | 12400.490<br>M        | 57.4 | -35.0<br>+0.1 | +1.1<br>+4.4 | +0.0<br>+37.2 | +0.0 | -10.0 | 55.2 | 54.0                                 | +1.2  | Vert |
|    |                       |      |               |              |               |      |       |      | High channel, side<br>position       |       |      |
| 29 | 12015.450<br>M<br>Ave | 38.1 | -35.0<br>+0.1 | +1.0<br>+4.4 | +0.0<br>+37.2 | +0.0 | -10.0 | 35.8 | 54.0                                 | -18.2 | Vert |
|    |                       |      |               |              |               |      |       |      | Low channel, side<br>position        |       |      |
| ^  | 12015.450<br>M        | 53.6 | -35.0<br>+0.1 | +1.0<br>+4.4 | +0.0<br>+37.2 | +0.0 | -10.0 | 51.3 | 54.0                                 | -2.7  | Vert |
|    |                       |      |               |              |               |      |       |      | Low channel, side<br>position        |       |      |

|    |                       |      |               |              |               |      |       |      |                                     |       |       |
|----|-----------------------|------|---------------|--------------|---------------|------|-------|------|-------------------------------------|-------|-------|
| 31 | 12207.980<br>M<br>Ave | 37.9 | -35.0<br>+0.1 | +1.1<br>+4.4 | +0.0<br>+37.2 | +0.0 | -10.0 | 35.7 | 54.0                                | -18.3 | Vert  |
|    |                       |      |               |              |               |      |       |      | Mid channel,<br>vertical position   |       |       |
| ^  | 12207.900<br>M        | 58.3 | -35.0<br>+0.1 | +1.1<br>+4.4 | +0.0<br>+37.2 | +0.0 | -10.0 | 56.1 | 54.0                                | +2.1  | Vert  |
|    |                       |      |               |              |               |      |       |      | Mid channel,<br>horizontal position |       |       |
| ^  | 12207.980<br>M        | 57.3 | -35.0<br>+0.1 | +1.1<br>+4.4 | +0.0<br>+37.2 | +0.0 | -10.0 | 55.1 | 54.0                                | +1.1  | Vert  |
|    |                       |      |               |              |               |      |       |      | Mid channel,<br>vertical position   |       |       |
| ^  | 12207.950<br>M        | 56.0 | -35.0<br>+0.1 | +1.1<br>+4.4 | +0.0<br>+37.2 | +0.0 | -10.0 | 53.8 | 54.0                                | -0.2  | Vert  |
|    |                       |      |               |              |               |      |       |      | Mid channel, side<br>position       |       |       |
| 35 | 12207.890<br>M<br>Ave | 37.9 | -35.0<br>+0.1 | +1.1<br>+4.4 | +0.0<br>+37.2 | +0.0 | -10.0 | 35.7 | 54.0                                | -18.3 | Horiz |
|    |                       |      |               |              |               |      |       |      | Mid channel,<br>vertical position   |       |       |
| ^  | 12207.890<br>M        | 53.4 | -35.0<br>+0.1 | +1.1<br>+4.4 | +0.0<br>+37.2 | +0.0 | -10.0 | 51.2 | 54.0                                | -2.8  | Horiz |
|    |                       |      |               |              |               |      |       |      | Mid channel,<br>vertical position   |       |       |
| 37 | 12208.100<br>M<br>Ave | 37.4 | -35.0<br>+0.1 | +1.1<br>+4.4 | +0.0<br>+37.2 | +0.0 | -10.0 | 35.2 | 54.0                                | -18.8 | Horiz |
|    |                       |      |               |              |               |      |       |      | Mid channel,<br>horizontal position |       |       |
| ^  | 12208.040<br>M        | 58.0 | -35.0<br>+0.1 | +1.1<br>+4.4 | +0.0<br>+37.2 | +0.0 | -10.0 | 55.8 | 54.0                                | +1.8  | Horiz |
|    |                       |      |               |              |               |      |       |      | Mid channel, side<br>position       |       |       |
| ^  | 12208.100<br>M        | 52.9 | -35.0<br>+0.1 | +1.1<br>+4.4 | +0.0<br>+37.2 | +0.0 | -10.0 | 50.7 | 54.0                                | -3.3  | Horiz |
|    |                       |      |               |              |               |      |       |      | Mid channel,<br>horizontal position |       |       |
| 40 | 4806.198M<br>Ave      | 48.9 | -40.0<br>+0.1 | +0.3<br>+2.7 | +0.0<br>+33.2 | +0.0 | -10.0 | 35.2 | 54.0                                | -18.8 | Horiz |
|    |                       |      |               |              |               |      |       |      | Low channel,<br>vertical position   |       |       |
| ^  | 4806.198M             | 74.4 | -40.0<br>+0.1 | +0.3<br>+2.7 | +0.0<br>+33.2 | +0.0 | -10.0 | 60.7 | 54.0                                | +6.7  | Horiz |
|    |                       |      |               |              |               |      |       |      | Low channel,<br>vertical position   |       |       |
| ^  | 4806.198M             | 70.0 | -40.0<br>+0.1 | +0.3<br>+2.7 | +0.0<br>+33.2 | +0.0 | -10.0 | 56.3 | 54.0                                | +2.3  | Horiz |
|    |                       |      |               |              |               |      |       |      | Low channel,<br>horizontal position |       |       |
| ^  | 4806.220M             | 69.0 | -40.0<br>+0.1 | +0.3<br>+2.7 | +0.0<br>+33.2 | +0.0 | -10.0 | 55.3 | 54.0                                | +1.3  | Horiz |
|    |                       |      |               |              |               |      |       |      | Low channel, side<br>position       |       |       |

|    |                  |      |               |              |               |      |       |      |  |       |       |
|----|------------------|------|---------------|--------------|---------------|------|-------|------|--|-------|-------|
| 44 | 4806.198M<br>Ave | 48.8 | -40.0<br>+0.1 | +0.3<br>+2.7 | +0.0<br>+33.2 | +0.0 | -10.0 | 35.1 | 54.0<br>Low channel,<br>vertical position    | -18.9 | Vert  |
| ^  | 4806.198M        | 73.5 | -40.0<br>+0.1 | +0.3<br>+2.7 | +0.0<br>+33.2 | +0.0 | -10.0 | 59.8 | 54.0<br>Low channel,<br>vertical position    | +5.8  | Vert  |
| ^  | 4806.150M        | 71.2 | -40.0<br>+0.1 | +0.3<br>+2.7 | +0.0<br>+33.2 | +0.0 | -10.0 | 57.5 | 54.0<br>Low channel, side<br>position        | +3.5  | Vert  |
| ^  | 4806.198M        | 70.9 | -40.0<br>+0.1 | +0.3<br>+2.7 | +0.0<br>+33.2 | +0.0 | -10.0 | 57.2 | 54.0<br>Low channel,<br>horizontal position  | +3.2  | Vert  |
| 48 | 9766.338M<br>Ave | 40.5 | -37.0<br>+0.5 | +0.6<br>+3.9 | +0.0<br>+36.3 | +0.0 | -10.0 | 34.8 | 54.0<br>Mid channel, side<br>position        | -19.2 | Horiz |
| ^  | 9766.338M        | 60.7 | -37.0<br>+0.5 | +0.6<br>+3.9 | +0.0<br>+36.3 | +0.0 | -10.0 | 55.0 | 54.0<br>Mid channel, side<br>position        | +1.0  | Horiz |
| 50 | 9612.189M<br>Ave | 40.5 | -37.0<br>+0.4 | +0.4<br>+3.8 | +0.0<br>+36.2 | +0.0 | -10.0 | 34.3 | 54.0<br>Low channel, side<br>position        | -19.7 | Vert  |
| ^  | 9612.189M        | 61.7 | -37.0<br>+0.4 | +0.4<br>+3.8 | +0.0<br>+36.2 | +0.0 | -10.0 | 55.5 | 54.0<br>Low channel, side<br>position        | +1.5  | Vert  |
| 52 | 7440.175M<br>Ave | 42.9 | -38.0<br>+0.5 | +0.3<br>+3.4 | +0.0<br>+34.6 | +0.0 | -10.0 | 33.7 | 54.0<br>High channel,<br>vertical position   | -20.3 | Vert  |
| ^  | 7440.138M        | 75.2 | -38.0<br>+0.5 | +0.3<br>+3.4 | +0.0<br>+34.6 | +0.0 | -10.0 | 66.0 | 54.0<br>High channel,<br>horizontal position | +12.0 | Vert  |
| ^  | 7440.175M        | 72.7 | -38.0<br>+0.5 | +0.3<br>+3.4 | +0.0<br>+34.6 | +0.0 | -10.0 | 63.5 | 54.0<br>High channel,<br>vertical position   | +9.5  | Vert  |
| 55 | 4883.175M<br>Ave | 47.1 | -40.0<br>+0.1 | +0.4<br>+2.7 | +0.0<br>+33.3 | +0.0 | -10.0 | 33.6 | 54.0<br>Mid channel,<br>vertical position    | -20.4 | Horiz |
| ^  | 4883.175M        | 77.1 | -40.0<br>+0.1 | +0.4<br>+2.7 | +0.0<br>+33.3 | +0.0 | -10.0 | 63.6 | 54.0<br>Mid channel,<br>vertical position    | +9.6  | Horiz |
| ^  | 4883.213M        | 70.8 | -40.0<br>+0.1 | +0.4<br>+2.7 | +0.0<br>+33.3 | +0.0 | -10.0 | 57.3 | 54.0<br>Mid channel, side<br>position        | +3.3  | Horiz |
| ^  | 4883.175M        | 70.4 | -40.0<br>+0.1 | +0.4<br>+2.7 | +0.0<br>+33.3 | +0.0 | -10.0 | 56.9 | 54.0<br>Mid channel,<br>horizontal position  | +2.9  | Horiz |
| 59 | 7324.800M<br>Ave | 42.1 | -38.0<br>+0.5 | +0.3<br>+3.3 | +0.0<br>+34.5 | +0.0 | -10.0 | 32.7 | 54.0<br>Mid channel,<br>horizontal position  | -21.3 | Horiz |
| ^  | 7324.800M        | 62.7 | -38.0<br>+0.5 | +0.3<br>+3.3 | +0.0<br>+34.5 | +0.0 | -10.0 | 53.3 | 54.0<br>Mid channel,<br>horizontal position  | -0.7  | Horiz |

|    |               |      |               |              |               |       |       |      |                                   |       |       |
|----|---------------|------|---------------|--------------|---------------|-------|-------|------|-----------------------------------|-------|-------|
| 61 | 7324.712M Ave | 42.0 | -38.0<br>+0.5 | +0.3<br>+3.3 | +0.0<br>+34.5 | +0.0  | -10.0 | 32.6 | 54.0                              | -21.4 | Horiz |
|    |               |      |               |              |               |       |       |      | Mid channel, side position        |       |       |
| 62 | 7440.275M Ave | 41.0 | -38.0<br>+0.5 | +0.3<br>+3.4 | +0.0<br>+34.6 | +0.0  | -10.0 | 31.8 | 54.0                              | -22.2 | Horiz |
|    |               |      |               |              |               |       |       |      | High channel, horizontal position |       |       |
| ^  | 7440.275M     | 64.8 | -38.0<br>+0.5 | +0.3<br>+3.4 | +0.0<br>+34.6 | +0.0  | -10.0 | 55.6 | 54.0                              | +1.6  | Horiz |
|    |               |      |               |              |               |       |       |      | High channel, horizontal position |       |       |
| ^  | 7440.238M     | 62.6 | -38.0<br>+0.5 | +0.3<br>+3.4 | +0.0<br>+34.6 | +0.0  | -10.0 | 53.4 | 54.0                              | -0.6  | Horiz |
|    |               |      |               |              |               |       |       |      | High channel, side position       |       |       |
| 65 | 7440.238M Ave | 41.0 | -38.0<br>+0.5 | +0.3<br>+3.4 | +0.0<br>+34.6 | +0.0  | -10.0 | 31.8 | 54.0                              | -22.2 | Horiz |
|    |               |      |               |              |               |       |       |      | High channel, side position       |       |       |
| 66 | 7324.850M Ave | 41.2 | -38.0<br>+0.5 | +0.3<br>+3.3 | +0.0<br>+34.5 | +0.0  | -10.0 | 31.8 | 54.0                              | -22.2 | Vert  |
|    |               |      |               |              |               |       |       |      | Mid channel, side position        |       |       |
| 67 | 4806.200M Ave | 45.4 | -40.0<br>+0.1 | +0.3<br>+2.7 | +0.0<br>+33.2 | +0.0  | -10.0 | 31.7 | 54.0                              | -22.3 | Vert  |
|    |               |      |               |              |               |       |       |      | Low channel, side position        |       |       |
| 68 | 4960.175M Ave | 44.7 | -40.0<br>+0.1 | +0.4<br>+2.8 | +0.0<br>+33.4 | +0.0  | -10.0 | 31.4 | 54.0                              | -22.6 | Vert  |
|    |               |      |               |              |               |       |       |      | High channel, side position       |       |       |
| 69 | 4883.087M Ave | 44.2 | -40.0<br>+0.1 | +0.4<br>+2.7 | +0.0<br>+33.3 | +0.0  | -10.0 | 30.7 | 54.0                              | -23.3 | Horiz |
|    |               |      |               |              |               |       |       |      | Mid channel, side position        |       |       |
| 70 | 4960.113M Ave | 43.4 | -40.0<br>+0.1 | +0.4<br>+2.8 | +0.0<br>+33.4 | +0.0  | -10.0 | 30.1 | 54.0                              | -23.9 | Horiz |
|    |               |      |               |              |               |       |       |      | High channel, side position       |       |       |
| 71 | 4883.138M Ave | 43.6 | -40.0<br>+0.1 | +0.4<br>+2.7 | +0.0<br>+33.3 | +0.0  | -10.0 | 30.1 | 54.0                              | -23.9 | Vert  |
|    |               |      |               |              |               |       |       |      | Mid channel, vertical position    |       |       |
| ^  | 4883.163M     | 76.5 | -40.0<br>+0.1 | +0.4<br>+2.7 | +0.0<br>+33.3 | +0.0  | -10.0 | 63.0 | 54.0                              | +9.0  | Vert  |
|    |               |      |               |              |               |       |       |      | Mid channel, side position        |       |       |
| ^  | 4883.138M     | 73.1 | -40.0<br>+0.1 | +0.4<br>+2.7 | +0.0<br>+33.3 | +0.0  | -10.0 | 59.6 | 54.0                              | +5.6  | Vert  |
|    |               |      |               |              |               |       |       |      | Mid channel, vertical position    |       |       |
| ^  | 4883.163M     | 69.1 | -40.0<br>+0.1 | +0.4<br>+2.7 | +0.0<br>+33.3 | +0.0  | -10.0 | 55.6 | 54.0                              | +1.6  | Vert  |
|    |               |      |               |              |               |       |       |      | Mid channel, horizontal position  |       |       |
| 75 | 4806.198M Ave | 43.8 | -40.0<br>+0.1 | +0.3<br>+2.7 | +0.0<br>+33.2 | +0.0  | -10.0 | 30.1 | 54.0                              | -23.9 | Vert  |
|    |               |      |               |              |               |       |       |      | Low channel, horizontal position  |       |       |
| 76 | 462.785M      | 40.9 | +0.0<br>+0.0  | +0.0<br>+0.0 | +18.2<br>+0.0 | -27.7 | -10.0 | 21.4 | 46.0                              | -24.6 | Vert  |
|    |               |      |               |              |               |       |       |      | Low channel, vertical position    |       |       |
| 77 | 462.775M      | 40.8 | +0.0<br>+0.0  | +0.0<br>+0.0 | +18.2<br>+0.0 | -27.7 | -10.0 | 21.3 | 46.0                              | -24.7 | Vert  |
|    |               |      |               |              |               |       |       |      | Mid channel, vertical position    |       |       |

|    |                  |      |               |              |               |       |       |      |  |       |       |
|----|------------------|------|---------------|--------------|---------------|-------|-------|------|--|-------|-------|
| 78 | 4883.175M<br>Ave | 42.7 | -40.0<br>+0.1 | +0.4<br>+2.7 | +0.0<br>+33.3 | +0.0  | -10.0 | 29.2 | 54.0<br>Mid channel,<br>horizontal position  | -24.8 | Horiz |
| 79 | 304.480M         | 44.1 | +0.0<br>+0.0  | +0.0<br>+0.0 | +13.4<br>+0.0 | -26.4 | -10.0 | 21.1 | 46.0<br>High channel,<br>vertical position   | -24.9 | Vert  |
| 80 | 4806.198M<br>Ave | 42.8 | -40.0<br>+0.1 | +0.3<br>+2.7 | +0.0<br>+33.2 | +0.0  | -10.0 | 29.1 | 54.0<br>Low channel,<br>horizontal position  | -24.9 | Horiz |
| 81 | 4960.138M<br>Ave | 42.2 | -40.0<br>+0.1 | +0.4<br>+2.8 | +0.0<br>+33.4 | +0.0  | -10.0 | 28.9 | 54.0<br>High channel,<br>horizontal position | -25.1 | Horiz |
| ^  | 4960.138M        | 69.9 | -40.0<br>+0.1 | +0.4<br>+2.8 | +0.0<br>+33.4 | +0.0  | -10.0 | 56.6 | 54.0<br>High channel,<br>horizontal position | +2.6  | Horiz |
| ^  | 4960.113M        | 67.9 | -40.0<br>+0.1 | +0.4<br>+2.8 | +0.0<br>+33.4 | +0.0  | -10.0 | 54.6 | 54.0<br>High channel, side<br>position       | +0.6  | Horiz |
| 84 | 4806.220M<br>Ave | 42.5 | -40.0<br>+0.1 | +0.3<br>+2.7 | +0.0<br>+33.2 | +0.0  | -10.0 | 28.8 | 54.0<br>Low channel, side<br>position        | -25.2 | Horiz |
| 85 | 7209.198M<br>Ave | 38.2 | -38.0<br>+0.5 | +0.3<br>+3.3 | +0.0<br>+34.3 | +0.0  | -10.0 | 28.6 | 54.0<br>Low channel, side<br>position        | -25.4 | Horiz |
| ^  | 7209.186M        | 59.0 | -38.0<br>+0.5 | +0.3<br>+3.3 | +0.0<br>+34.3 | +0.0  | -10.0 | 49.4 | 54.0<br>Low channel, side<br>position        | -4.6  | Horiz |
| 87 | 304.500M         | 43.4 | +0.0<br>+0.0  | +0.0<br>+0.0 | +13.4<br>+0.0 | -26.4 | -10.0 | 20.4 | 46.0<br>Mid channel,<br>vertical position    | -25.6 | Vert  |
| 88 | 575.800M         | 38.7 | +0.0<br>+0.0  | +0.0<br>+0.0 | +19.4<br>+0.0 | -27.9 | -10.0 | 20.2 | 46.0<br>High channel,<br>vertical position   | -25.8 | Vert  |
| 89 | 463.300M         | 39.7 | +0.0<br>+0.0  | +0.0<br>+0.0 | +18.2<br>+0.0 | -27.7 | -10.0 | 20.2 | 46.0<br>High channel,<br>vertical position   | -25.8 | Vert  |
| 90 | 4883.163M<br>Ave | 41.6 | -40.0<br>+0.1 | +0.4<br>+2.7 | +0.0<br>+33.3 | +0.0  | -10.0 | 28.1 | 54.0<br>Mid channel,<br>horizontal position  | -25.9 | Vert  |
| 91 | 294.908M         | 43.0 | +0.0<br>+0.0  | +0.0<br>+0.0 | +13.1<br>+0.0 | -26.4 | -10.0 | 19.7 | 46.0<br>Low channel,<br>vertical position    | -26.3 | Vert  |
| 92 | 295.300M         | 42.1 | +0.0<br>+0.0  | +0.0<br>+0.0 | +13.1<br>+0.0 | -26.4 | -10.0 | 18.8 | 46.0<br>Mid channel,<br>vertical position    | -27.2 | Vert  |
| 93 | 295.000M         | 41.9 | +0.0<br>+0.0  | +0.0<br>+0.0 | +13.1<br>+0.0 | -26.4 | -10.0 | 18.6 | 46.0<br>High channel,<br>vertical position   | -27.4 | Vert  |

|    |           |      |               |              |               |      |       |      |                                      |       |      |
|----|-----------|------|---------------|--------------|---------------|------|-------|------|--------------------------------------|-------|------|
| 94 | 4960.175M | 38.3 | -40.0<br>+0.1 | +0.4<br>+2.8 | +0.0<br>+33.4 | +0.0 | -10.0 | 25.0 | 54.0                                 | -29.0 | Vert |
|    | Ave       |      |               |              |               |      |       |      | High channel,<br>vertical position   |       |      |
| ^  | 4960.175M | 72.2 | -40.0<br>+0.1 | +0.4<br>+2.8 | +0.0<br>+33.4 | +0.0 | -10.0 | 58.9 | 54.0                                 | +4.9  | Vert |
|    |           |      |               |              |               |      |       |      | High channel, side<br>position       |       |      |
| ^  | 4960.175M | 67.2 | -40.0<br>+0.1 | +0.4<br>+2.8 | +0.0<br>+33.4 | +0.0 | -10.0 | 53.9 | 54.0                                 | -0.1  | Vert |
|    |           |      |               |              |               |      |       |      | High channel,<br>vertical position   |       |      |
| ^  | 4960.138M | 65.7 | -40.0<br>+0.1 | +0.4<br>+2.8 | +0.0<br>+33.4 | +0.0 | -10.0 | 52.4 | 54.0                                 | -1.6  | Vert |
|    |           |      |               |              |               |      |       |      | High channel,<br>horizontal position |       |      |

Test Location: CKC Laboratories • 14797 NE 95th Street • Redmond, WA 98052 • 425-883-4757

Customer: **SuperTel**  
 Specification: **FCC15.247 SR-436 Handset**  
 Work Order #: **78247** Date: 2/1/02  
 Test Type: **Conducted Spurious Emissions** Time: 14:57:00  
 Equipment: 4 Line WPABX Handset Sequence#: 1  
 Manufacturer: SuperTel Tested By: Andrew Pace  
 Model: SR-436  
 S/N: none

**Equipment Under Test (\* = EUT):**

| Function              | Manufacturer | Model # | S/N  |
|-----------------------|--------------|---------|------|
| 4 Line WPABX Handset* | SuperTel     | SR-436  | none |

**Support Devices:**

| Function | Manufacturer | Model # | S/N |
|----------|--------------|---------|-----|
|----------|--------------|---------|-----|

**Test Conditions / Notes:**

9kHz - 10GHz. SR-436 Handset, Conducted Spurious Emissions Check. Fundamentals are measured. The lowest strength fundamental - 20dB is then programmed as the limit line.

**Transducer Legend:**

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**Measurement Data:** Reading listed by margin.

Test Distance: None

| #  | Freq<br>MHz | Rdng<br>dBμV | dB | dB | dB | dB | Dist<br>Table | Corr<br>dBμV | Spec<br>dBμV     | Margin<br>dB | Polar<br>Ant |
|----|-------------|--------------|----|----|----|----|---------------|--------------|------------------|--------------|--------------|
| 1  | 2441.563M   | 133.8        |    |    |    |    | +0.0          | 133.8        | 112.5            | +21.3        | None         |
|    |             |              |    |    |    |    |               |              | Mid Fundamental  |              |              |
| 2  | 2480.063M   | 133.3        |    |    |    |    | +0.0          | 133.3        | 112.5            | +20.8        | None         |
|    |             |              |    |    |    |    |               |              | High Fundamental |              |              |
| 3  | 2403.063M   | 132.5        |    |    |    |    | +0.0          | 132.5        | 112.5            | +20.0        | None         |
|    |             |              |    |    |    |    |               |              | Low Fundamental  |              |              |
| 4  | 1701.750M   | 83.1         |    |    |    |    | +0.0          | 83.1         | 112.5            | -29.4        | None         |
|    |             |              |    |    |    |    |               |              | Mid              |              |              |
| 5  | 1759.430M   | 80.6         |    |    |    |    | +0.0          | 80.6         | 112.5            | -31.9        | None         |
|    |             |              |    |    |    |    |               |              | High             |              |              |
| 6  | 480.830M    | 79.8         |    |    |    |    | +0.0          | 79.8         | 112.5            | -32.7        | None         |
|    |             |              |    |    |    |    |               |              | Mid              |              |              |
| 7  | 519.400M    | 79.3         |    |    |    |    | +0.0          | 79.3         | 112.5            | -33.2        | None         |
|    |             |              |    |    |    |    |               |              | High             |              |              |
| 8  | 221.880M    | 70.4         |    |    |    |    | +0.0          | 70.4         | 112.5            | -42.1        | None         |
|    |             |              |    |    |    |    |               |              | Mid              |              |              |
| 9  | 4806.367M   | 70.0         |    |    |    |    | +0.0          | 70.0         | 112.5            | -42.5        | None         |
|    |             |              |    |    |    |    |               |              | Low              |              |              |
| 10 | 7209.430M   | 68.3         |    |    |    |    | +0.0          | 68.3         | 112.5            | -44.2        | None         |
|    |             |              |    |    |    |    |               |              | Low              |              |              |
| 11 | 4960.220M   | 67.5         |    |    |    |    | +0.0          | 67.5         | 112.5            | -45.0        | None         |
|    |             |              |    |    |    |    |               |              | High             |              |              |

Test Location: CKC Laboratories • 22105 Wilson River Hwy. • Tillamook, OR 97141 • 503 842-5577

Customer: **SuperTel Technologies, Inc.**

Specification: **FCC15.247**

Work Order #: **78528**

Date: 2/27/02

Test Type: **Radiated Scan**

Time: 13:51:04

Equipment: **Fixed Terminal**

Sequence#: 2

Manufacturer: SuperTel Technologies

Tested By: Mike Wilkinson

Model: SR-436-FT

S/N: 022200001

**Equipment Under Test (\* = EUT):**

| Function        | Manufacturer          | Model #   | S/N       |
|-----------------|-----------------------|-----------|-----------|
| Fixed Terminal* | SuperTel Technologies | SR-436-FT | 022200001 |
| Power Supply    | SENAO                 | AM-71600  | None      |

**Support Devices:**

| Function         | Manufacturer | Model # | S/N             |
|------------------|--------------|---------|-----------------|
| Computer         | Dell         | TS30H   | 8019146BY40038A |
| Analog Phone Set | Conairphone  | SW160A  | None            |

**Test Conditions / Notes:**

The channels are locked and are stepped through manually. The low channel = 2403 MHz, mid channel = 2441.5 MHz and high channel = 2480 MHz. Channel setting is as indicated for each reading in the datasheet. The support computer is connected to the ATE (maintenance) port of the EUT via a 6-foot serial to PS2 cable and is running HyperTerminal to control the EUT mode and channel setting. The phone set is connected to the Telephone port 1 of the EUT via a 6 foot RJ-11 cable and a unterminated 6 foot RJ-11 cable was connected to EUT Telephone port 2. 5dBi gain antenna connected to the EUT. EUT antenna is in the vertical position. EIRP was calculated using the corrected reading in the datasheet less the distance correction factor and (EIRP) Peak power =  $(E_d)^2 / 30G$ . Calculated EIRP for the readings are: 2480 MHz Vertical, meter 103.6 dBuV + 31.2 dB = 134.8 dBuV = 0.318 Watt. 2441 MHz Vertical, meter 103.0 dBuV + 31.2 dB = 134.2 dBuV = 0.277 Watt. 2403 MHz Vertical, meter 99.5 dBuV + 31.2 dB = 130.7 dBuV = 0.124 Watt. 2480 MHz Horizontal, meter 88.6 dBuV + 31.2 dB = 119.8 dBuV = 0.010 Watt. 2441 MHz Horizontal, meter 88.1 dBuV + 31.2 dB = 119.3 dBuV = 0.009 Watt. 2403 MHz Horizontal, meter 83.6 dBuV + 31.2 dB = 114.8 dBuV = 0.003 Watt.

**Transducer Legend:**

|              |                                     |
|--------------|-------------------------------------|
| T1=Horn 1-18 | T2=10' Silver Semflex SMA CKC P1403 |
|--------------|-------------------------------------|

**Measurement Data:**

Reading listed by margin.

Test Distance: 1 Meter

| # | Freq<br>MHz | Rdng<br>dBμV | T1<br>dB | T2<br>dB | dB | dB | Dist<br>Table | Corr<br>dBμV/m | Spec<br>dBμV/m | Margin<br>dB | Polar<br>Ant |
|---|-------------|--------------|----------|----------|----|----|---------------|----------------|----------------|--------------|--------------|
| 1 | 2480.068M   | 103.6        | +29.3    | +1.9     |    |    | -10.0         | 124.8          | 137.0          | -12.2        | Vert         |
|   |             |              |          |          |    |    |               |                | High channel   |              |              |
| 2 | 2441.578M   | 103.0        | +29.3    | +1.9     |    |    | -10.0         | 124.2          | 137.0          | -12.8        | Vert         |
|   |             |              |          |          |    |    |               |                | Mid channel    |              |              |
| 3 | 2403.080M   | 99.5         | +29.3    | +1.9     |    |    | -10.0         | 120.7          | 137.0          | -16.3        | Vert         |
|   |             |              |          |          |    |    |               |                | Low channel    |              |              |
| 4 | 2480.083M   | 88.6         | +29.3    | +1.9     |    |    | -10.0         | 109.8          | 137.0          | -27.2        | Horiz        |
|   |             |              |          |          |    |    |               |                | High channel   |              |              |
| 5 | 2441.598M   | 88.1         | +29.3    | +1.9     |    |    | -10.0         | 109.3          | 137.0          | -27.7        | Horiz        |
|   |             |              |          |          |    |    |               |                | Mid channel    |              |              |
| 6 | 2403.085M   | 83.6         | +29.3    | +1.9     |    |    | -10.0         | 104.8          | 137.0          | -32.2        | Horiz        |
|   |             |              |          |          |    |    |               |                | Low channel    |              |              |

Test Location: CKC Laboratories, Inc. • 22105 Wilson River Hwy. • Tillamook, OR 97141 • 503 842-5577  
 Customer: **SuperTel Technologies, Inc.**  
 Specification: **FCC15.247**  
 Work Order #: **78528** Date: 2/27/02  
 Test Type: **Interference Power** Time: 10:45:33  
 Equipment: **Fixed Terminal** Sequence#: 1  
 Manufacturer: SuperTel Technologies Tested By: Mike Wilkinson  
 Model: SR-436-FT  
 S/N: 022200001

**Equipment Under Test (\* = EUT):**

| Function        | Manufacturer          | Model #   | S/N       |
|-----------------|-----------------------|-----------|-----------|
| Power Supply    | SENAO                 | AM-71600  | None      |
| Fixed Terminal* | SuperTel Technologies | SR-436-FT | 022200001 |

**Support Devices:**

| Function | Manufacturer | Model # | S/N             |
|----------|--------------|---------|-----------------|
| Computer | Dell         | TS30H   | 8019146BY40038A |

**Test Conditions / Notes:**

The channels are locked and are stepped through manually. The low channel = 2403 MHz, mid channel = 2441.5 MHz and high channel = 2480 MHz. Channel setting is as indicated for each reading in the datasheet. The support computer is connected to the ATE (maintenance) port of the EUT via a 6-foot serial to PS2 cable and is running HyperTerminal to control the EUT mode and channel setting. AC power input was set to 102 VAC (85%), 120 VAC (nominal) and 138 VAC (115%) for each channel as indicated for each reading in the datasheet. EUT is connected directly to the Spectrum Analyzer through a 30-dB attenuator. Highest output was 131.2 dBuV = 24.2 dBm = 0.263 Watt.

**Transducer Legend:**

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**Measurement Data:** Reading listed by margin. Test Distance: None

| # | Freq<br>MHz | Rdng<br>dBμV | dB | dB | dB | dB | Dist<br>Table | Corr<br>dBμV | Spec<br>dBμV                      | Margin<br>dB | Polar<br>Ant |
|---|-------------|--------------|----|----|----|----|---------------|--------------|-----------------------------------|--------------|--------------|
| 1 | 2441.580M   | 131.8        |    |    |    |    | +0.0          | 131.8        | 137.0<br>115%, mid channel        | -5.2         | None         |
| 2 | 2441.535M   | 131.8        |    |    |    |    | +0.0          | 131.8        | 137.0<br>Nominal, mid channel     | -5.2         | None         |
| 3 | 2480.065M   | 131.3        |    |    |    |    | +0.0          | 131.3        | 137.0<br>115%, high channel       | -5.7         | None         |
| 4 | 2480.075M   | 131.3        |    |    |    |    | +0.0          | 131.3        | 137.0<br>Nominal, high<br>channel | -5.7         | None         |
| 5 | 2441.530M   | 131.2        |    |    |    |    | +0.0          | 131.2        | 137.0<br>85%, mid channel         | -5.8         | None         |
| 6 | 2480.100M   | 130.9        |    |    |    |    | +0.0          | 130.9        | 137.0<br>85%, high channel        | -6.1         | None         |
| 7 | 2403.070M   | 128.9        |    |    |    |    | +0.0          | 128.9        | 137.0<br>Nominal, low channel     | -8.1         | None         |
| 8 | 2403.070M   | 128.6        |    |    |    |    | +0.0          | 128.6        | 137.0<br>85%, low channel         | -8.4         | None         |
| 9 | 2403.130M   | 128.3        |    |    |    |    | +0.0          | 128.3        | 137.0<br>115%, low channel        | -8.7         | None         |

Test Location: CKC Laboratories • 22105 Wilson River Hwy. • Tillamook, OR 97141 • 503 842-5577

Customer: **SuperTel Technologies, Inc.**  
 Specification: **FCC15.247 & 15.209 @3M**  
 Work Order #: **78247**  
 Test Type: **Radiated Scan**  
 Equipment: **Fixed Terminal**  
 Manufacturer: **SuperTel Technologies**  
 Model: **SR-436-FT**  
 S/N: **022200001**

Date: 2/28/02  
 Time: 10:59:47  
 Sequence#: 3  
 Tested By: Mike Wilkinson

**Equipment Under Test (\* = EUT):**

| Function        | Manufacturer          | Model #   | S/N       |
|-----------------|-----------------------|-----------|-----------|
| Fixed Terminal* | SuperTel Technologies | SR-436-FT | 022200001 |
| Power Supply    | SENAO                 | AM-71600  | None      |

**Support Devices:**

| Function         | Manufacturer | Model # | S/N             |
|------------------|--------------|---------|-----------------|
| Computer         | Dell         | TS30H   | 8019146BY40038A |
| Analog Phone Set | Conairphone  | SW160A  | None            |

**Test Conditions / Notes:**

The channels are locked and are stepped through manually. The low channel = 2403 MHz, mid channel = 2441.5 MHz and high channel = 2480 MHz. Channel setting is as indicated for each reading in the datasheet. EUT antenna is in the vertical position. 5 dBi gain antenna connected to the EUT. The support computer is connected to the ATE (maintenance) port of the EUT via a 6-foot serial to PS2 cable and is running HyperTerminal to control the EUT mode and channel setting. The phone set is connected to the Telephone port 1 of the EUT via a 6 foot RJ-11 cable and a unterminated 6 foot RJ-11 cable was connected to EUT Telephone port 2. 5dBi gain antenna connected to the EUT. Test distance is 1 meter 0.9 GHz to 25.0 GHz. Test distance is 3 meters 15 MHz to 900 MHz. Frequency range investigated was 3 MHz to 25 GHz (lowest oscillator = 3.579 MHz, highest oscillator = 2.483 GHz).

**Transducer Legend:**

|                      |                                     |
|----------------------|-------------------------------------|
| T1=26.5 GHz Amp      | T2=6in SMA cable #2212              |
| T3=Bilog A           | T4=Amp-A                            |
| T5=3.5 GHz High-Pass | T6=10' Silver Semflex SMA CKC P1403 |
| T7=Horn 1-18         |                                     |

**Measurement Data:**

Reading listed by margin.

Test Distance: 1 & 3 Meters

| #            | Freq      | Rdng | T1    | T2   | T3    | T4    | Dist  | Corr | Spec | Margin | Polar |
|--------------|-----------|------|-------|------|-------|-------|-------|------|------|--------|-------|
|              | MHz       | dBμV | T5    | T6   | T7    |       |       |      |      |        |       |
|              |           |      | dB    | dB   | dB    | dB    | Table | dBμV | dBμV | dB     | Ant   |
| 1            | 14880.640 | 47.6 | -34.0 | +1.8 | +0.0  | +0.0  | -10.0 | 48.6 | 54.0 | -5.4   | Vert  |
|              | M         |      | +0.4  | +4.8 | +38.0 |       |       |      |      |        |       |
| High channel |           |      |       |      |       |       |       |      |      |        |       |
| 2            | 14418.500 | 46.8 | -34.2 | +1.8 | +0.0  | +0.0  | -10.0 | 48.2 | 54.0 | -5.8   | Vert  |
|              | M         |      | +0.6  | +4.8 | +38.4 |       |       |      |      |        |       |
| Low channel  |           |      |       |      |       |       |       |      |      |        |       |
| 3            | 196.603M  | 54.2 | +0.0  | +0.0 | +8.8  | -26.7 | +0.0  | 36.3 | 43.5 | -7.2   | Vert  |
|              |           |      | +0.0  | +0.0 | +0.0  |       |       |      |      |        |       |
| Low channel  |           |      |       |      |       |       |       |      |      |        |       |
| 4            | 7324.750M | 56.1 | -38.0 | +0.3 | +0.0  | +0.0  | -10.0 | 46.7 | 54.0 | -7.3   | Horiz |
|              |           |      | +0.5  | +3.3 | +34.5 |       |       |      |      |        |       |
| Mid channel  |           |      |       |      |       |       |       |      |      |        |       |
| 5            | 196.607M  | 53.6 | +0.0  | +0.0 | +8.8  | -26.7 | +0.0  | 35.7 | 43.5 | -7.8   | Vert  |
|              |           |      | +0.0  | +0.0 | +0.0  |       |       |      |      |        |       |
| High channel |           |      |       |      |       |       |       |      |      |        |       |

|    |                  |      |               |              |               |       |       |      |                      |       |       |
|----|------------------|------|---------------|--------------|---------------|-------|-------|------|----------------------|-------|-------|
| 6  | 14649.490M       | 44.8 | -34.0<br>+0.5 | +1.8<br>+4.8 | +0.0<br>+38.2 | +0.0  | -10.0 | 46.1 | 54.0<br>Mid channel  | -7.9  | Vert  |
| 7  | 103.656M         | 52.1 | +0.0<br>+0.0  | +0.0<br>+0.0 | +10.0<br>+0.0 | -27.0 | +0.0  | 35.1 | 43.5<br>High channel | -8.4  | Vert  |
| 8  | 196.609M         | 52.6 | +0.0<br>+0.0  | +0.0<br>+0.0 | +8.8<br>+0.0  | -26.7 | +0.0  | 34.7 | 43.5<br>Mid Channel  | -8.8  | Vert  |
| 9  | 334.115M<br>QP   | 49.2 | +0.0<br>+0.0  | +0.0<br>+0.0 | +14.3<br>+0.0 | -26.7 | +0.0  | 36.8 | 46.0<br>Mid Channel  | -9.2  | Horiz |
| ^  | 334.115M         | 60.1 | +0.0<br>+0.0  | +0.0<br>+0.0 | +14.3<br>+0.0 | -26.7 | +0.0  | 47.7 | 46.0<br>Low channel  | +1.7  | Horiz |
| ^  | 334.121M         | 58.1 | +0.0<br>+0.0  | +0.0<br>+0.0 | +14.3<br>+0.0 | -26.7 | +0.0  | 45.7 | 46.0<br>Mid Channel  | -0.3  | Horiz |
| ^  | 334.118M         | 47.4 | +0.0<br>+0.0  | +0.0<br>+0.0 | +14.3<br>+0.0 | -26.7 | +0.0  | 35.0 | 46.0<br>High channel | -11.0 | Horiz |
| 13 | 467.758M         | 45.8 | +0.0<br>+0.0  | +0.0<br>+0.0 | +18.3<br>+0.0 | -27.7 | +0.0  | 36.4 | 46.0<br>Mid Channel  | -9.6  | Horiz |
| 14 | 4883.175M<br>Ave | 56.9 | -40.0<br>+0.1 | +0.4<br>+2.7 | +0.0<br>+33.3 | +0.0  | -10.0 | 43.4 | 54.0<br>Mid channel  | -10.6 | Vert  |
| ^  | 4883.175M        | 82.7 | -40.0<br>+0.1 | +0.4<br>+2.7 | +0.0<br>+33.3 | +0.0  | -10.0 | 69.2 | 54.0<br>Mid channel  | +15.2 | Vert  |
| 16 | 339.634M<br>QP   | 46.4 | +0.0<br>+0.0  | +0.0<br>+0.0 | +14.5<br>+0.0 | -26.7 | +0.0  | 34.2 | 46.0<br>Mid Channel  | -11.8 | Horiz |
| ^  | 339.616M         | 54.3 | +0.0<br>+0.0  | +0.0<br>+0.0 | +14.5<br>+0.0 | -26.7 | +0.0  | 42.0 | 46.0<br>Mid Channel  | -4.0  | Horiz |
| 18 | 334.106M<br>QP   | 45.6 | +0.0<br>+0.0  | +0.0<br>+0.0 | +14.3<br>+0.0 | -26.7 | +0.0  | 33.2 | 46.0<br>Mid Channel  | -12.8 | Vert  |
| ^  | 334.128M         | 53.9 | +0.0<br>+0.0  | +0.0<br>+0.0 | +14.3<br>+0.0 | -26.7 | +0.0  | 41.5 | 46.0<br>Mid Channel  | -4.5  | Vert  |
| ^  | 334.121M         | 53.8 | +0.0<br>+0.0  | +0.0<br>+0.0 | +14.3<br>+0.0 | -26.7 | +0.0  | 41.4 | 46.0<br>Low channel  | -4.6  | Vert  |
| ^  | 334.104M         | 46.2 | +0.0<br>+0.0  | +0.0<br>+0.0 | +14.3<br>+0.0 | -26.7 | +0.0  | 33.8 | 46.0<br>High channel | -12.2 | Vert  |
| 22 | 334.118M<br>QP   | 45.0 | +0.0<br>+0.0  | +0.0<br>+0.0 | +14.3<br>+0.0 | -26.7 | +0.0  | 32.6 | 46.0<br>Low channel  | -13.4 | Vert  |
| 23 | 393.220M         | 42.5 | +0.0<br>+0.0  | +0.0<br>+0.0 | +16.0<br>+0.0 | -27.1 | +0.0  | 31.4 | 46.0<br>Mid Channel  | -14.6 | Vert  |
| 24 | 4806.166M<br>Ave | 53.1 | -40.0<br>+0.1 | +0.3<br>+2.7 | +0.0<br>+33.2 | +0.0  | -10.0 | 39.4 | 54.0<br>Low channel  | -14.6 | Vert  |
| ^  | 4806.166M        | 77.9 | -40.0<br>+0.1 | +0.3<br>+2.7 | +0.0<br>+33.2 | +0.0  | -10.0 | 64.2 | 54.0<br>Low channel  | +10.2 | Vert  |
| 26 | 393.207M         | 41.7 | +0.0<br>+0.0  | +0.0<br>+0.0 | +16.0<br>+0.0 | -27.1 | +0.0  | 30.6 | 46.0<br>Low channel  | -15.4 | Vert  |
| 27 | 334.115M<br>QP   | 42.3 | +0.0<br>+0.0  | +0.0<br>+0.0 | +14.3<br>+0.0 | -26.7 | +0.0  | 29.9 | 46.0<br>Low channel  | -16.1 | Horiz |
| 28 | 4960.150M<br>Ave | 50.9 | -40.0<br>+0.1 | +0.4<br>+2.8 | +0.0<br>+33.4 | +0.0  | -10.0 | 37.6 | 54.0<br>High channel | -16.4 | Vert  |
| ^  | 4960.150M        | 76.5 | -40.0<br>+0.1 | +0.4<br>+2.8 | +0.0<br>+33.4 | +0.0  | -10.0 | 63.2 | 54.0<br>High channel | +9.2  | Vert  |
| 30 | 286.713M         | 42.4 | +0.0<br>+0.0  | +0.0<br>+0.0 | +13.0<br>+0.0 | -26.4 | +0.0  | 29.0 | 46.0<br>Low channel  | -17.0 | Horiz |

|    |                       |      |               |              |               |       |       |      |                      |       |       |
|----|-----------------------|------|---------------|--------------|---------------|-------|-------|------|----------------------|-------|-------|
| 31 | 768.455M              | 34.8 | +0.0<br>+0.0  | +0.0<br>+0.0 | +21.7<br>+0.0 | -27.9 | +0.0  | 28.6 | 46.0<br>Low channel  | -17.4 | Vert  |
| 32 | 491.533M              | 36.0 | +0.0<br>+0.0  | +0.0<br>+0.0 | +19.0<br>+0.0 | -27.8 | +0.0  | 27.2 | 46.0<br>Mid Channel  | -18.8 | Vert  |
| 33 | 491.503M              | 35.9 | +0.0<br>+0.0  | +0.0<br>+0.0 | +19.0<br>+0.0 | -27.8 | +0.0  | 27.1 | 46.0<br>High channel | -18.9 | Vert  |
| 34 | 200.481M              | 41.6 | +0.0<br>+0.0  | +0.0<br>+0.0 | +8.8<br>+0.0  | -26.7 | +0.0  | 23.7 | 43.5<br>Low channel  | -19.8 | Vert  |
| 35 | 335.888M              | 37.4 | +0.0<br>+0.0  | +0.0<br>+0.0 | +14.4<br>+0.0 | -26.7 | +0.0  | 25.1 | 46.0<br>High channel | -20.9 | Vert  |
| 36 | 9920.300M<br>Ave      | 38.0 | -36.4<br>+0.6 | +0.5<br>+3.9 | +0.0<br>+36.4 | +0.0  | -10.0 | 33.0 | 54.0<br>High channel | -21.0 | Vert  |
| ^  | 9920.300M             | 62.2 | -36.4<br>+0.6 | +0.5<br>+3.9 | +0.0<br>+36.4 | +0.0  | -10.0 | 57.2 | 54.0<br>High channel | +3.2  | Vert  |
| 38 | 7209.241M<br>Ave      | 41.6 | -38.0<br>+0.5 | +0.3<br>+3.3 | +0.0<br>+34.3 | +0.0  | -10.0 | 32.0 | 54.0<br>Low channel  | -22.0 | Vert  |
| ^  | 7209.241M             | 61.6 | -38.0<br>+0.5 | +0.3<br>+3.3 | +0.0<br>+34.3 | +0.0  | -10.0 | 52.0 | 54.0<br>Low channel  | -2.0  | Vert  |
| 40 | 12400.530<br>M<br>Ave | 34.0 | -35.0<br>+0.1 | +1.1<br>+4.4 | +0.0<br>+37.2 | +0.0  | -10.0 | 31.8 | 54.0<br>High channel | -22.2 | Vert  |
| ^  | 12400.530<br>M        | 55.2 | -35.0<br>+0.1 | +1.1<br>+4.4 | +0.0<br>+37.2 | +0.0  | -10.0 | 53.0 | 54.0<br>High channel | -1.0  | Vert  |
| 42 | 4960.225M<br>Ave      | 45.0 | -40.0<br>+0.1 | +0.4<br>+2.8 | +0.0<br>+33.4 | +0.0  | -10.0 | 31.7 | 54.0<br>High channel | -22.3 | Horiz |
| ^  | 4960.225M             | 68.6 | -40.0<br>+0.1 | +0.4<br>+2.8 | +0.0<br>+33.4 | +0.0  | -10.0 | 55.3 | 54.0<br>High channel | +1.3  | Horiz |
| 44 | 14879.960<br>M<br>Ave | 29.9 | -34.0<br>+0.4 | +1.8<br>+4.8 | +0.0<br>+38.0 | +0.0  | -10.0 | 30.9 | 54.0<br>High channel | -23.1 | Vert  |
| 45 | 475.126M              | 31.8 | +0.0<br>+0.0  | +0.0<br>+0.0 | +18.5<br>+0.0 | -27.7 | +0.0  | 22.6 | 46.0<br>Low channel  | -23.4 | Vert  |
| 46 | 9612.340M<br>Ave      | 36.6 | -37.0<br>+0.4 | +0.4<br>+3.8 | +0.0<br>+36.2 | +0.0  | -10.0 | 30.4 | 54.0<br>Low channel  | -23.6 | Vert  |
| ^  | 9612.341M             | 60.1 | -37.0<br>+0.4 | +0.4<br>+3.8 | +0.0<br>+36.2 | +0.0  | -10.0 | 53.9 | 54.0<br>Low channel  | -0.1  | Vert  |
| 48 | 7440.275M<br>Ave      | 39.4 | -38.0<br>+0.5 | +0.3<br>+3.4 | +0.0<br>+34.6 | +0.0  | -10.0 | 30.2 | 54.0<br>High channel | -23.8 | Horiz |
| ^  | 7440.275M             | 63.3 | -38.0<br>+0.5 | +0.3<br>+3.4 | +0.0<br>+34.6 | +0.0  | -10.0 | 54.1 | 54.0<br>High channel | +0.1  | Horiz |
| 50 | 12015.450<br>M<br>Ave | 32.4 | -35.0<br>+0.1 | +1.0<br>+4.4 | +0.0<br>+37.2 | +0.0  | -10.0 | 30.1 | 54.0<br>Low channel  | -23.9 | Vert  |
| ^  | 12015.450<br>M        | 52.2 | -35.0<br>+0.1 | +1.0<br>+4.4 | +0.0<br>+37.2 | +0.0  | -10.0 | 49.9 | 54.0<br>Low channel  | -4.1  | Vert  |

|              |                       |      |               |              |               |      |       |      |      |       |       |
|--------------|-----------------------|------|---------------|--------------|---------------|------|-------|------|------|-------|-------|
| 52           | 12208.020<br>M<br>Ave | 31.9 | -35.0<br>+0.1 | +1.1<br>+4.4 | +0.0<br>+37.2 | +0.0 | -10.0 | 29.7 | 54.0 | -24.3 | Horiz |
| Mid channel  |                       |      |               |              |               |      |       |      |      |       |       |
| ^            | 12208.020<br>M        | 52.1 | -35.0<br>+0.1 | +1.1<br>+4.4 | +0.0<br>+37.2 | +0.0 | -10.0 | 49.9 | 54.0 | -4.1  | Horiz |
| Mid channel  |                       |      |               |              |               |      |       |      |      |       |       |
| 54           | 12015.390<br>M<br>Ave | 31.5 | -35.0<br>+0.1 | +1.0<br>+4.4 | +0.0<br>+37.2 | +0.0 | -10.0 | 29.2 | 54.0 | -24.8 | Horiz |
| Low channel  |                       |      |               |              |               |      |       |      |      |       |       |
| ^            | 12015.390<br>M        | 50.8 | -35.0<br>+0.1 | +1.0<br>+4.4 | +0.0<br>+37.2 | +0.0 | -10.0 | 48.5 | 54.0 | -5.5  | Horiz |
| Low channel  |                       |      |               |              |               |      |       |      |      |       |       |
| 56           | 12207.920<br>M<br>Ave | 31.1 | -35.0<br>+0.1 | +1.1<br>+4.4 | +0.0<br>+37.2 | +0.0 | -10.0 | 28.9 | 54.0 | -25.1 | Vert  |
| Mid channel  |                       |      |               |              |               |      |       |      |      |       |       |
| ^            | 12207.920<br>M        | 54.7 | -35.0<br>+0.1 | +1.1<br>+4.4 | +0.0<br>+37.2 | +0.0 | -10.0 | 52.5 | 54.0 | -1.5  | Vert  |
| Mid channel  |                       |      |               |              |               |      |       |      |      |       |       |
| 58           | 4806.190M<br>Ave      | 42.5 | -40.0<br>+0.1 | +0.3<br>+2.7 | +0.0<br>+33.2 | +0.0 | -10.0 | 28.8 | 54.0 | -25.2 | Horiz |
| Low channel  |                       |      |               |              |               |      |       |      |      |       |       |
| ^            | 4806.191M             | 68.4 | -40.0<br>+0.1 | +0.3<br>+2.7 | +0.0<br>+33.2 | +0.0 | -10.0 | 54.7 | 54.0 | +0.7  | Horiz |
| Low channel  |                       |      |               |              |               |      |       |      |      |       |       |
| 60           | 4883.212M<br>Ave      | 42.1 | -40.0<br>+0.1 | +0.4<br>+2.7 | +0.0<br>+33.3 | +0.0 | -10.0 | 28.6 | 54.0 | -25.4 | Horiz |
| Mid channel  |                       |      |               |              |               |      |       |      |      |       |       |
| ^            | 4883.212M             | 72.2 | -40.0<br>+0.1 | +0.4<br>+2.7 | +0.0<br>+33.3 | +0.0 | -10.0 | 58.7 | 54.0 | +4.7  | Horiz |
| Mid channel  |                       |      |               |              |               |      |       |      |      |       |       |
| 62           | 7440.300M<br>Ave      | 37.7 | -38.0<br>+0.5 | +0.3<br>+3.4 | +0.0<br>+34.6 | +0.0 | -10.0 | 28.5 | 54.0 | -25.5 | Vert  |
| High channel |                       |      |               |              |               |      |       |      |      |       |       |
| ^            | 7440.300M             | 66.9 | -38.0<br>+0.5 | +0.3<br>+3.4 | +0.0<br>+34.6 | +0.0 | -10.0 | 57.7 | 54.0 | +3.7  | Vert  |
| High channel |                       |      |               |              |               |      |       |      |      |       |       |
| 64           | 7324.837M<br>Ave      | 37.9 | -38.0<br>+0.5 | +0.3<br>+3.3 | +0.0<br>+34.5 | +0.0 | -10.0 | 28.5 | 54.0 | -25.5 | Vert  |
| Mid channel  |                       |      |               |              |               |      |       |      |      |       |       |
| ^            | 7324.837M             | 66.5 | -38.0<br>+0.5 | +0.3<br>+3.3 | +0.0<br>+34.5 | +0.0 | -10.0 | 57.1 | 54.0 | +3.1  | Vert  |
| Mid channel  |                       |      |               |              |               |      |       |      |      |       |       |
| 66           | 9766.350M<br>Ave      | 33.3 | -37.0<br>+0.5 | +0.6<br>+3.9 | +0.0<br>+36.3 | +0.0 | -10.0 | 27.6 | 54.0 | -26.4 | Vert  |
| Mid channel  |                       |      |               |              |               |      |       |      |      |       |       |
| ^            | 9766.350M             | 62.0 | -37.0<br>+0.5 | +0.6<br>+3.9 | +0.0<br>+36.3 | +0.0 | -10.0 | 56.3 | 54.0 | +2.3  | Vert  |
| Mid channel  |                       |      |               |              |               |      |       |      |      |       |       |

Test Location: CKC Laboratories • 22105 Wilson River Hwy. • Tillamook, OR 97141 • 503 842-5577

Customer: **SuperTel Technologies, Inc.**

Specification: **FCC 15.207 COND**

Work Order #: **78247**

Date: 2/14/02

Test Type: **Conducted Emissions**

Time: 5:11:42 PM

Equipment: **2.4 GHz 4-Line WPABX**

Sequence#: 6

Manufacturer: SuperTel Technologies

Tested By: Mike Wilkinson

Model: SR-436 Base Set

S/N: ENG-1

**Equipment Under Test (\* = EUT):**

| Function              | Manufacturer          | Model #         | S/N   |
|-----------------------|-----------------------|-----------------|-------|
| Battery Charger       | SuperTel Technologies | ENG-CH          | None  |
| Power Supply          | SENAO                 | AM-71000        | None  |
| 2.4 GHz 4-Line WPABX  | SuperTel Technologies | SR-436 Hand Set | ENG-1 |
| 2.4 GHz 4-Line WPABX* | SuperTel Technologies | SR-436 Base Set | ENG-1 |

**Support Devices:**

| Function            | Manufacturer | Model # | S/N     |
|---------------------|--------------|---------|---------|
| CD Player           | Sony         | D-131   | 5658402 |
| Remote CO Simulator | Teltone      | TLS-5   | 029081  |

**Test Conditions / Notes:**

The channels are locked and set to High Channel EUT antenna is in the vertical position. 5 dBi gain antenna connected to the EUT. Base L-1 port is connected to the remote located CO Simulator via a 20 foot RJ-11 cable. L-2 through L-4 ports have unterminated 2 meter RJ 11 cables attached. Audio port is connected, via a 2 meter audio cable, to the CD Player which is playing a music CD. The SR-436 Handset is placed in the charger and is in the ring only mode. Frequency range investigated was 450 kHz to 30 MHz. Base connected to measurement LISN.

**Transducer Legend:**

|                        |         |
|------------------------|---------|
| T1=T1 conducted cables | T2=L11b |
|------------------------|---------|

**Measurement Data:**

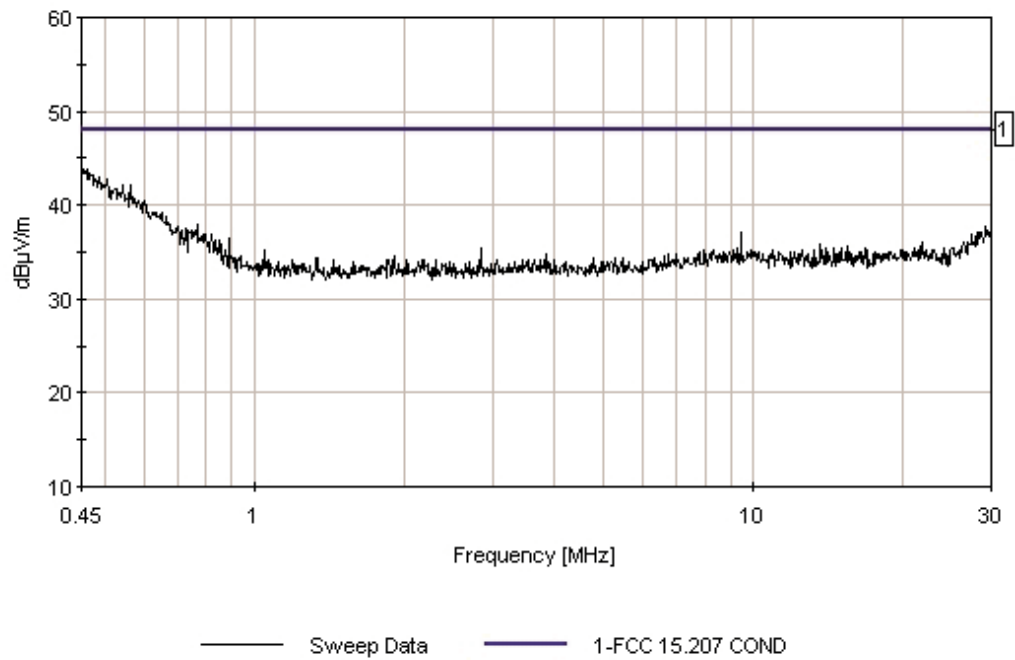
Reading listed by margin.

Test Lead: Black

| # | Freq<br>MHz | Rdng<br>dBμV | T1<br>dB | T2<br>dB |  |  | Dist<br>Table | Corr<br>dBμV/m | Spec<br>dBμV/m | Margin<br>dB | Polar<br>Ant |
|---|-------------|--------------|----------|----------|--|--|---------------|----------------|----------------|--------------|--------------|
| 1 | 461.701k    | 43.5         | +0.2     | +0.1     |  |  | +0.0          | 43.8           | 48.0           | -4.2         | Black        |
| 2 | 455.015k    | 43.5         | +0.2     | +0.1     |  |  | +0.0          | 43.8           | 48.0           | -4.2         | Black        |
| 3 | 466.716k    | 43.1         | +0.2     | +0.1     |  |  | +0.0          | 43.4           | 48.0           | -4.6         | Black        |
| 4 | 473.402k    | 42.9         | +0.2     | +0.1     |  |  | +0.0          | 43.2           | 48.0           | -4.8         | Black        |
| 5 | 487.611k    | 42.6         | +0.2     | +0.1     |  |  | +0.0          | 42.9           | 48.0           | -5.1         | Black        |
| 6 | 477.581k    | 42.5         | +0.2     | +0.1     |  |  | +0.0          | 42.8           | 48.0           | -5.2         | Black        |
| 7 | 508.506k    | 42.4         | +0.2     | +0.1     |  |  | +0.0          | 42.7           | 48.0           | -5.3         | Black        |
| 8 | 545.281k    | 41.9         | +0.2     | +0.1     |  |  | +0.0          | 42.2           | 48.0           | -5.8         | Black        |
| 9 | 563.669k    | 41.8         | +0.2     | +0.1     |  |  | +0.0          | 42.1           | 48.0           | -5.9         | Black        |

|    |          |      |      |      |      |      |      |      |       |
|----|----------|------|------|------|------|------|------|------|-------|
| 10 | 524.386k | 41.5 | +0.2 | +0.1 | +0.0 | 41.8 | 48.0 | -6.2 | Black |
| 11 | 572.027k | 40.5 | +0.2 | +0.1 | +0.0 | 40.8 | 48.0 | -7.2 | Black |
| 12 | 600.444k | 40.2 | +0.1 | +0.1 | +0.0 | 40.4 | 48.0 | -7.6 | Black |
| 13 | 583.728k | 40.2 | +0.1 | +0.1 | +0.0 | 40.4 | 48.0 | -7.6 | Black |
| 14 | 597.101k | 40.0 | +0.1 | +0.1 | +0.0 | 40.2 | 48.0 | -7.8 | Black |
| 15 | 633.876k | 39.1 | +0.1 | +0.1 | +0.0 | 39.3 | 48.0 | -8.7 | Black |

|                  |                  |                  |            |
|------------------|------------------|------------------|------------|
| CKC Laboratories | Date: 02/14/2002 | Time: 5:11:42 PM | WO#: 78247 |
| FCC 15.207 COND  | Test Lead: Black | Sequence#: 6     |            |
| SR-436 base      |                  |                  |            |



Test Location: CKC Laboratories • 22105 Wilson River Hwy. • Tillamook, OR 97141 • 503 842-5577

Customer: **SuperTel Technologies, Inc.**

Specification: **FCC 15.207 COND**

Work Order #: **78247**

Date: 2/14/02

Test Type: **Conducted Emissions**

Time: 5:15:37 PM

Equipment: **2.4 GHz 4-Line WPABX**

Sequence#: 7

Manufacturer: SuperTel Technologies

Tested By: Mike Wilkinson

Model: SR-436 Base Set

S/N: ENG-1

**Equipment Under Test (\* = EUT):**

| Function              | Manufacturer          | Model #         | S/N   |
|-----------------------|-----------------------|-----------------|-------|
| Battery Charger       | SuperTel Technologies | ENG-CH          | None  |
| Power Supply          | SENAO                 | AM-71000        | None  |
| 2.4 GHz 4-Line WPABX  | SuperTel Technologies | SR-436 Hand Set | ENG-1 |
| 2.4 GHz 4-Line WPABX* | SuperTel Technologies | SR-436 Base Set | ENG-1 |

**Support Devices:**

| Function            | Manufacturer | Model # | S/N     |
|---------------------|--------------|---------|---------|
| CD Player           | Sony         | D-131   | 5658402 |
| Remote CO Simulator | Teltone      | TLS-5   | 029081  |

**Test Conditions / Notes:**

The channels are locked and set to High Channel EUT antenna is in the vertical position. 5 dBi gain antenna connected to the EUT. Base L-1 port is connected to the remote located CO Simulator via a 20 foot RJ-11 cable. L-2 through L-4 ports have unterminated 2 meter RJ 11 cables attached. Audio port is connected, via a 2 meter audio cable, to the CD Player which is playing a music CD. The SR-436 Handset is placed in the charger and is in the ring only mode. Frequency range investigated was 450 kHz to 30 MHz. Base connected to measurement LISN.

**Transducer Legend:**

|                        |         |
|------------------------|---------|
| T1=T1 conducted cables | T2=L12w |
|------------------------|---------|

**Measurement Data:**

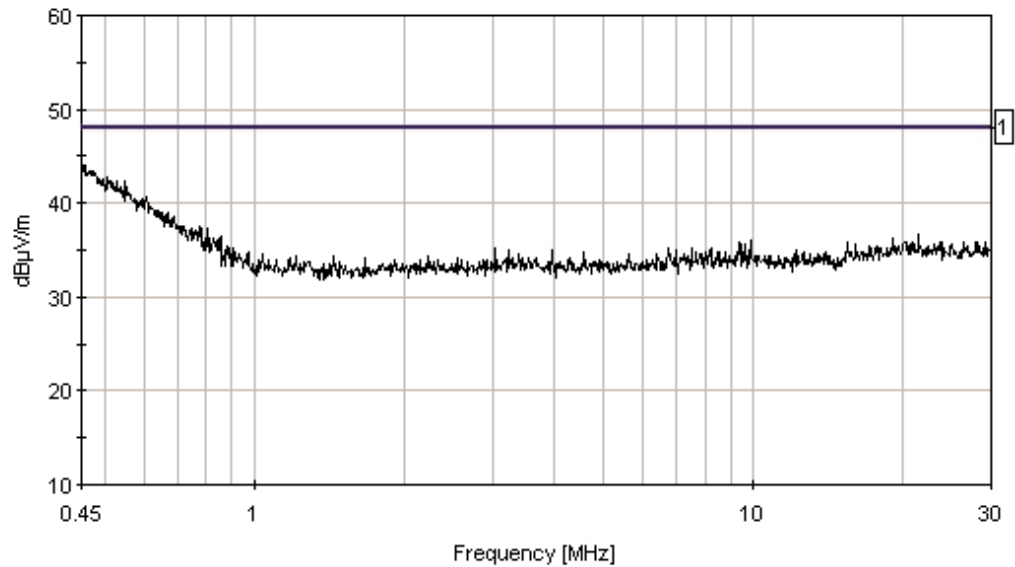
Reading listed by margin.

Test Lead: White

| # | Freq<br>MHz | Rdng<br>dBμV | T1<br>dB | T2<br>dB |  |  | Dist<br>Table | Corr<br>dBμV/m | Spec<br>dBμV/m | Margin<br>dB | Polar<br>Ant |
|---|-------------|--------------|----------|----------|--|--|---------------|----------------|----------------|--------------|--------------|
| 1 | 455.851k    | 43.8         | +0.2     | +0.1     |  |  | +0.0          | 44.1           | 48.0           | -3.9         | White        |
| 2 | 451.672k    | 43.7         | +0.2     | +0.1     |  |  | +0.0          | 44.0           | 48.0           | -4.0         | White        |
| 3 | 476.746k    | 43.2         | +0.2     | +0.1     |  |  | +0.0          | 43.5           | 48.0           | -4.5         | White        |
| 4 | 465.880k    | 43.1         | +0.2     | +0.1     |  |  | +0.0          | 43.4           | 48.0           | -4.6         | White        |
| 5 | 505.163k    | 42.5         | +0.2     | +0.1     |  |  | +0.0          | 42.8           | 48.0           | -5.2         | White        |
| 6 | 550.296k    | 42.1         | +0.2     | +0.1     |  |  | +0.0          | 42.4           | 48.0           | -5.6         | White        |
| 7 | 528.565k    | 42.1         | +0.2     | +0.1     |  |  | +0.0          | 42.4           | 48.0           | -5.6         | White        |
| 8 | 516.864k    | 42.0         | +0.2     | +0.1     |  |  | +0.0          | 42.3           | 48.0           | -5.7         | White        |
| 9 | 511.013k    | 42.0         | +0.2     | +0.1     |  |  | +0.0          | 42.3           | 48.0           | -5.7         | White        |

|    |          |      |      |      |      |      |      |      |       |
|----|----------|------|------|------|------|------|------|------|-------|
| 10 | 541.938k | 41.5 | +0.2 | +0.1 | +0.0 | 41.8 | 48.0 | -6.2 | White |
| 11 | 545.281k | 41.0 | +0.2 | +0.1 | +0.0 | 41.3 | 48.0 | -6.7 | White |
| 12 | 607.130k | 40.4 | +0.1 | +0.1 | +0.0 | 40.6 | 48.0 | -7.4 | White |
| 13 | 594.593k | 40.2 | +0.1 | +0.1 | +0.0 | 40.4 | 48.0 | -7.6 | White |
| 14 | 618.832k | 39.4 | +0.1 | +0.1 | +0.0 | 39.6 | 48.0 | -8.4 | White |
| 15 | 637.219k | 39.1 | +0.1 | +0.1 | +0.0 | 39.3 | 48.0 | -8.7 | White |

|                  |                  |                  |            |
|------------------|------------------|------------------|------------|
| CKC Laboratories | Date: 02/14/2002 | Time: 5:15:37 PM | WO#: 78247 |
| FCC 15.207 COND  | Test Lead: White | Sequence#: 7     |            |
| SR-436 base      |                  |                  |            |



— Sweep Data      — 1-FCC 15.207 COND

Test Location: CKC Laboratories • 22105 Wilson River Hwy. • Tillamook, OR 97141 • 503 842-5577

Customer: **SuperTel Technologies, Inc.**

Specification: **FCC 15.207 COND**

Work Order #: **78247**

Date: 2/14/02

Test Type: **Conducted Emissions**

Time: 5:24:26 PM

Equipment: **2.4 GHz 4-Line WPABX**

Sequence#: 9

Manufacturer: SuperTel Technologies

Tested By: Mike Wilkinson

Model: SR-436 Hand Set

S/N: ENG-1

**Equipment Under Test (\* = EUT):**

| Function              | Manufacturer          | Model #         | S/N   |
|-----------------------|-----------------------|-----------------|-------|
| Battery Charger       | SuperTel Technologies | ENG-CH          | None  |
| Power Supply          | SENAO                 | AM-71000        | None  |
| 2.4 GHz 4-Line WPABX* | SuperTel Technologies | SR-436 Hand Set | ENG-1 |
| 2.4 GHz 4-Line WPABX  | SuperTel Technologies | SR-436 Base Set | ENG-1 |

**Support Devices:**

| Function            | Manufacturer | Model # | S/N     |
|---------------------|--------------|---------|---------|
| CD Player           | Sony         | D-131   | 5658402 |
| Remote CO Simulator | Teltone      | TLS-5   | 029081  |

**Test Conditions / Notes:**

The channels are locked and set to High Channel EUT antenna is in the vertical position. 5 dBi gain antenna connected to the EUT. Base L-1 port is connected to the remote located CO Simulator via a 20 foot RJ-11 cable. L-2 through L-4 ports have unterminated 2 meter RJ 11 cables attached. Audio port is connected, via a 2 meter audio cable, to the CD Player which is playing a music CD. The SR-436 Handset is placed in the charger and is in the ring only mode. Frequency range investigated was 450 kHz to 30 MHz. Handset installed in Charger connected to measurement LISN.

**Transducer Legend:**

|                        |         |
|------------------------|---------|
| T1=T1 conducted cables | T2=L14b |
|------------------------|---------|

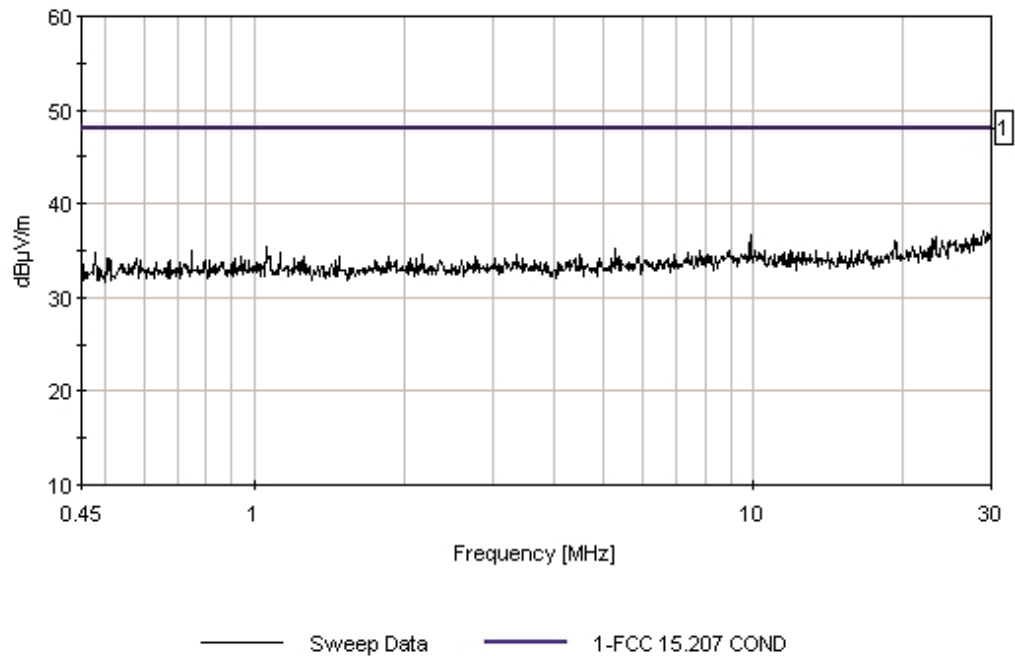
**Measurement Data:** Reading listed by margin.

Test Lead: Black

| # | Freq<br>MHz | Rdng<br>dB $\mu$ V | T1<br>dB | T2<br>dB | Dist<br>dB | Corr<br>dB $\mu$ V/m | Spec<br>dB $\mu$ V/m | Margin<br>dB | Polar<br>Ant |
|---|-------------|--------------------|----------|----------|------------|----------------------|----------------------|--------------|--------------|
| 1 | 28.947M     | 33.8               | +1.5     | +1.8     | +0.0       | 37.1                 | 48.0                 | -10.9        | Black        |
| 2 | 29.415M     | 33.5               | +1.5     | +1.9     | +0.0       | 36.9                 | 48.0                 | -11.1        | Black        |
| 3 | 27.621M     | 33.7               | +1.5     | +1.5     | +0.0       | 36.7                 | 48.0                 | -11.3        | Black        |
| 4 | 9.857M      | 35.1               | +0.9     | +0.7     | +0.0       | 36.7                 | 48.0                 | -11.3        | Black        |
| 5 | 29.727M     | 33.2               | +1.5     | +1.9     | +0.0       | 36.6                 | 48.0                 | -11.4        | Black        |
| 6 | 23.156M     | 34.3               | +1.4     | +0.8     | +0.0       | 36.5                 | 48.0                 | -11.5        | Black        |
| 7 | 26.568M     | 33.5               | +1.5     | +1.3     | +0.0       | 36.3                 | 48.0                 | -11.7        | Black        |
| 8 | 22.824M     | 34.2               | +1.4     | +0.7     | +0.0       | 36.3                 | 48.0                 | -11.7        | Black        |

|    |         |      |      |      |      |      |      |       |       |
|----|---------|------|------|------|------|------|------|-------|-------|
| 9  | 28.050M | 33.1 | +1.5 | +1.6 | +0.0 | 36.2 | 48.0 | -11.8 | Black |
| 10 | 27.855M | 33.1 | +1.5 | +1.6 | +0.0 | 36.2 | 48.0 | -11.8 | Black |
| 11 | 24.677M | 33.8 | +1.4 | +0.9 | +0.0 | 36.1 | 48.0 | -11.9 | Black |
| 12 | 23.858M | 33.9 | +1.4 | +0.8 | +0.0 | 36.1 | 48.0 | -11.9 | Black |
| 13 | 25.515M | 33.5 | +1.5 | +1.0 | +0.0 | 36.0 | 48.0 | -12.0 | Black |
| 14 | 19.197M | 34.2 | +1.3 | +0.5 | +0.0 | 36.0 | 48.0 | -12.0 | Black |
| 15 | 26.802M | 33.1 | +1.5 | +1.3 | +0.0 | 35.9 | 48.0 | -12.1 | Black |

CKC Laboratories Date: 02/14/2002 Time: 5:24:26 PM WO#: 78247  
FCC 15.207 COND Test Lead: Black Sequence#: 9  
SR-436 Handset installed in Charger



Test Location: CKC Laboratories • 22105 Wilson River Hwy. • Tillamook, OR 97141 • 503 842-5577

Customer: **SuperTel Technologies, Inc.**

Specification: **FCC 15.207 COND**

Work Order #: **78247**

Date: 2/14/02

Test Type: **Conducted Emissions**

Time: 5:20:36 PM

Equipment: **2.4 GHz 4-Line WPABX**

Sequence#: 8

Manufacturer: SuperTel Technologies

Tested By: Mike Wilkinson

Model: SR-436 Hand Set

S/N: ENG-1

**Equipment Under Test (\* = EUT):**

| Function              | Manufacturer          | Model #         | S/N   |
|-----------------------|-----------------------|-----------------|-------|
| Battery Charger       | SuperTel Technologies | ENG-CH          | None  |
| Power Supply          | SENAO                 | AM-71000        | None  |
| 2.4 GHz 4-Line WPABX* | SuperTel Technologies | SR-436 Hand Set | ENG-1 |
| 2.4 GHz 4-Line WPABX  | SuperTel Technologies | SR-436 Base Set | ENG-1 |

**Support Devices:**

| Function            | Manufacturer | Model # | S/N     |
|---------------------|--------------|---------|---------|
| CD Player           | Sony         | D-131   | 5658402 |
| Remote CO Simulator | Teltone      | TLS-5   | 029081  |

**Test Conditions / Notes:**

The channels are locked and set to High Channel EUT antenna is in the vertical position. 5 dBi gain antenna connected to the EUT. Base L-1 port is connected to the remote located CO Simulator via a 20 foot RJ-11 cable. L-2 through L-4 ports have unterminated 2 meter RJ 11 cables attached. Audio port is connected, via a 2 meter audio cable, to the CD Player which is playing a music CD. The SR-436 Handset is placed in the charger and is in the ring only mode. Frequency range investigated was 450 kHz to 30 MHz. Handset installed in Charger connected to measurement LISN.

**Transducer Legend:**

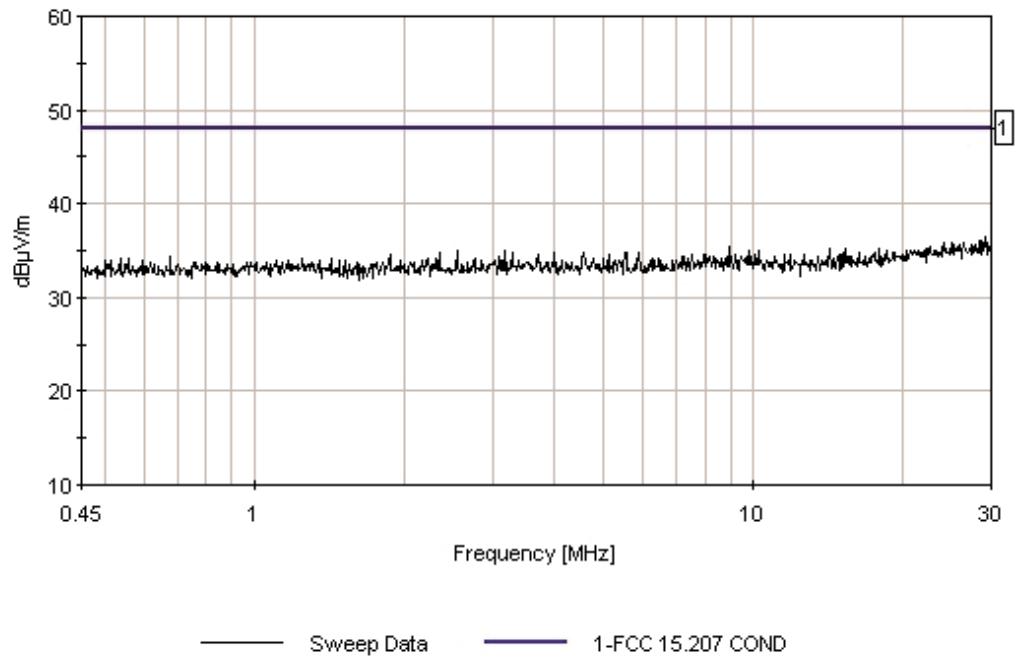
|                        |         |
|------------------------|---------|
| T1=T1 conducted cables | T2=L13w |
|------------------------|---------|

**Measurement Data:** Reading listed by margin. Test Lead: White

| # | Freq<br>MHz | Rdng<br>dBμV | T1<br>dB | T2<br>dB | dB | dB | Dist<br>Table | Corr<br>dBμV/m | Spec<br>dBμV/m | Margin<br>dB | Polar<br>Ant |
|---|-------------|--------------|----------|----------|----|----|---------------|----------------|----------------|--------------|--------------|
| 1 | 29.064M     | 33.9         | +1.5     | +1.1     |    |    | +0.0          | 36.5           | 48.0           | -11.5        | White        |
| 2 | 28.518M     | 33.6         | +1.5     | +1.0     |    |    | +0.0          | 36.1           | 48.0           | -11.9        | White        |
| 3 | 29.337M     | 33.3         | +1.5     | +1.1     |    |    | +0.0          | 35.9           | 48.0           | -12.1        | White        |
| 4 | 24.111M     | 33.7         | +1.4     | +0.8     |    |    | +0.0          | 35.9           | 48.0           | -12.1        | White        |
| 5 | 24.969M     | 33.5         | +1.4     | +0.9     |    |    | +0.0          | 35.8           | 48.0           | -12.2        | White        |
| 6 | 22.668M     | 33.4         | +1.4     | +0.7     |    |    | +0.0          | 35.5           | 48.0           | -12.5        | White        |
| 7 | 8.929M      | 34.4         | +0.9     | +0.1     |    |    | +0.0          | 35.4           | 48.0           | -12.6        | White        |
| 8 | 14.225M     | 34.2         | +1.1     | +0.0     |    |    | +0.0          | 35.3           | 48.0           | -12.7        | White        |

|    |         |      |      |      |      |      |      |       |       |
|----|---------|------|------|------|------|------|------|-------|-------|
| 9  | 15.297M | 34.0 | +1.2 | +0.0 | +0.0 | 35.2 | 48.0 | -12.8 | White |
| 10 | 17.910M | 33.7 | +1.2 | +0.3 | +0.0 | 35.2 | 48.0 | -12.8 | White |
| 11 | 20.991M | 33.1 | +1.4 | +0.6 | +0.0 | 35.1 | 48.0 | -12.9 | White |
| 12 | 20.601M | 33.1 | +1.3 | +0.6 | +0.0 | 35.0 | 48.0 | -13.0 | White |
| 13 | 18.534M | 33.3 | +1.2 | +0.4 | +0.0 | 34.9 | 48.0 | -13.1 | White |
| 14 | 20.250M | 33.1 | +1.3 | +0.5 | +0.0 | 34.9 | 48.0 | -13.1 | White |
| 15 | 19.275M | 33.1 | +1.3 | +0.4 | +0.0 | 34.8 | 48.0 | -13.2 | White |

CKC Laboratories Date: 02/14/2002 Time: 5:20:36 PM WO#: 78247  
FCC 15.207 COND Test Lead: White Sequence#: 8  
SR-436 Handset installed in Charger



Test Location: CKC Laboratories • 22105 Wilson River Hwy. • Tillamook, OR 97141 • 503 842-5577

Customer: **SuperTel Technologies, Inc.**

Specification: **FCC 15.207 COND**

Work Order #: **78247**

Date: 2/28/02

Test Type: **Conducted Emissions**

Time: 12:07:00 PM

Equipment: **Fixed Terminal**

Sequence#: 4

Manufacturer: SuperTel Technologies

Tested By: Mike Wilkinson

Model: SR-436-FT

120V 60Hz

S/N: 022200001

**Equipment Under Test (\* = EUT):**

| Function        | Manufacturer          | Model #   | S/N       |
|-----------------|-----------------------|-----------|-----------|
| Fixed Terminal* | SuperTel Technologies | SR-436-FT | 022200001 |
| Power Supply    | SENAO                 | AM-71600  | None      |

**Support Devices:**

| Function         | Manufacturer | Model # | S/N             |
|------------------|--------------|---------|-----------------|
| Computer         | Dell         | TS30H   | 8019146BY40038A |
| Analog Phone Set | Conairphone  | SW160A  | None            |

**Test Conditions / Notes:**

The EUT is set to, mid channel = 2441.5 MHz, highest power. EUT antenna is in the vertical position. 5 dBi gain antenna connected to the EUT. The support computer is connected to the ATE (maintenance) port of the EUT via a 6-foot serial to PS2 cable and is running HyperTerminal to control the EUT mode and channel setting. The phone set is connected to the Telephone port 1 of the EUT via a 6 foot RJ-11 cable and a unterminated 6 foot RJ-11 cable was connected to EUT Telephone port 2. 5dBi gain antenna connected to the EUT. Frequency range investigated was 450 kHz to 30 MHz.

**Transducer Legend:**

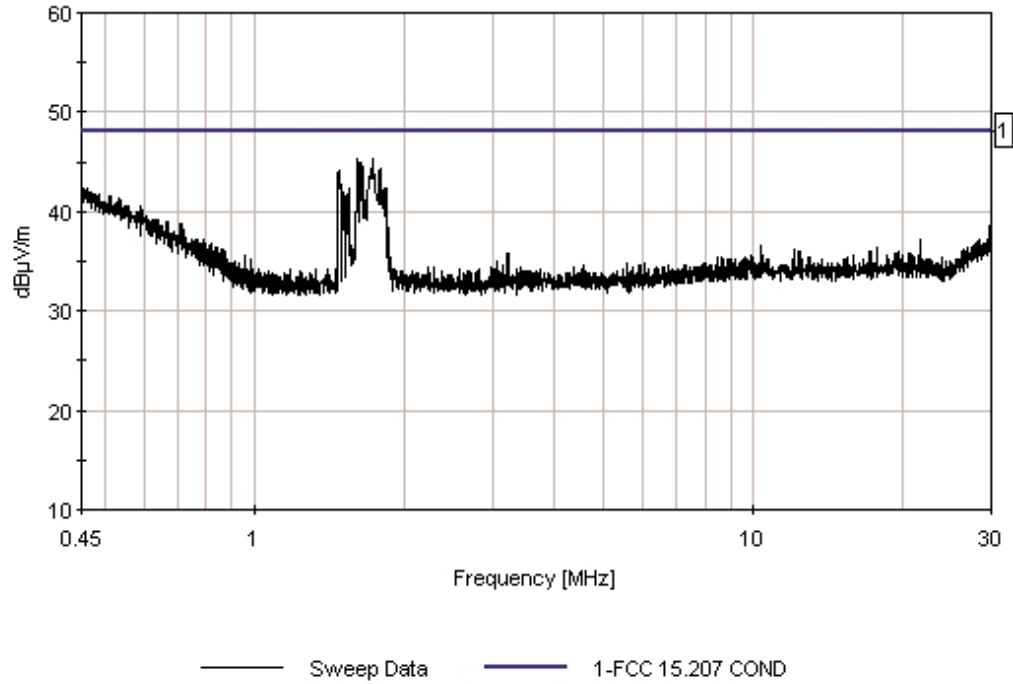
|                        |         |
|------------------------|---------|
| T1=T1 conducted cables | T2=L11b |
|------------------------|---------|

**Measurement Data:** Reading listed by margin. Test Lead: Black

| # | Freq<br>MHz | Rdng<br>dBμV | T1<br>dB | T2<br>dB | dB | dB | Dist<br>Table | Corr<br>dBμV/m | Spec<br>dBμV/m | Margin<br>dB | Polar<br>Ant |
|---|-------------|--------------|----------|----------|----|----|---------------|----------------|----------------|--------------|--------------|
| 1 | 1.604M      | 45.0         | +0.3     | +0.1     |    |    | +0.0          | 45.4           | 48.0           | -2.6         | Black        |
| 2 | 1.725M      | 45.0         | +0.3     | +0.1     |    |    | +0.0          | 45.4           | 48.0           | -2.6         | Black        |
| 3 | 1.627M      | 44.6         | +0.3     | +0.1     |    |    | +0.0          | 45.0           | 48.0           | -3.0         | Black        |
| 4 | 1.618M      | 44.1         | +0.3     | +0.1     |    |    | +0.0          | 44.5           | 48.0           | -3.5         | Black        |
| 5 | 1.651M      | 44.1         | +0.3     | +0.1     |    |    | +0.0          | 44.5           | 48.0           | -3.5         | Black        |
| 6 | 1.475M      | 43.8         | +0.3     | +0.1     |    |    | +0.0          | 44.2           | 48.0           | -3.8         | Black        |
| 7 | 1.496M      | 42.1         | +0.3     | +0.1     |    |    | +0.0          | 42.5           | 48.0           | -5.5         | Black        |
| 8 | 452.507k    | 42.1         | +0.2     | +0.1     |    |    | +0.0          | 42.4           | 48.0           | -5.6         | Black        |
| 9 | 1.544M      | 42.0         | +0.3     | +0.1     |    |    | +0.0          | 42.4           | 48.0           | -5.6         | Black        |

|    |          |      |      |      |      |      |      |       |       |
|----|----------|------|------|------|------|------|------|-------|-------|
| 10 | 450.836k | 41.7 | +0.2 | +0.1 | +0.0 | 42.0 | 48.0 | -6.0  | Black |
| 11 | 1.845M   | 41.3 | +0.4 | +0.1 | +0.0 | 41.8 | 48.0 | -6.2  | Black |
| 12 | 1.530M   | 41.3 | +0.3 | +0.1 | +0.0 | 41.7 | 48.0 | -6.3  | Black |
| 13 | 1.520M   | 41.1 | +0.3 | +0.1 | +0.0 | 41.5 | 48.0 | -6.5  | Black |
| 14 | 1.592M   | 39.5 | +0.3 | +0.1 | +0.0 | 39.9 | 48.0 | -8.1  | Black |
| 15 | 1.553M   | 39.3 | +0.3 | +0.1 | +0.0 | 39.7 | 48.0 | -8.3  | Black |
| 16 | 29.805M  | 34.2 | +1.5 | +2.9 | +0.0 | 38.6 | 48.0 | -9.4  | Black |
| 17 | 10.342M  | 34.8 | +0.9 | +0.9 | +0.0 | 36.6 | 48.0 | -11.4 | Black |
| 18 | 3.211M   | 35.2 | +0.6 | +0.0 | +0.0 | 35.8 | 48.0 | -12.2 | Black |
| 19 | 3.237M   | 35.1 | +0.6 | +0.0 | +0.0 | 35.7 | 48.0 | -12.3 | Black |
| 20 | 10.520M  | 32.3 | +0.9 | +0.9 | +0.0 | 34.1 | 48.0 | -13.9 | Black |
| 21 | 3.681M   | 32.4 | +0.7 | +0.0 | +0.0 | 33.1 | 48.0 | -14.9 | Black |
| 22 | 1.288M   | 31.5 | +0.2 | +0.1 | +0.0 | 31.8 | 48.0 | -16.2 | Black |
| 23 | 1.288M   | 31.5 | +0.2 | +0.1 | +0.0 | 31.8 | 48.0 | -16.2 | Black |
| 24 | 1.288M   | 31.5 | +0.2 | +0.1 | +0.0 | 31.8 | 48.0 | -16.2 | Black |
| 25 | 1.288M   | 31.5 | +0.2 | +0.1 | +0.0 | 31.8 | 48.0 | -16.2 | Black |
| 26 | 1.288M   | 31.5 | +0.2 | +0.1 | +0.0 | 31.8 | 48.0 | -16.2 | Black |
| 27 | 1.288M   | 31.5 | +0.2 | +0.1 | +0.0 | 31.8 | 48.0 | -16.2 | Black |
| 28 | 1.288M   | 31.5 | +0.2 | +0.1 | +0.0 | 31.8 | 48.0 | -16.2 | Black |
| 29 | 1.288M   | 31.5 | +0.2 | +0.1 | +0.0 | 31.8 | 48.0 | -16.2 | Black |
| 30 | 1.288M   | 31.5 | +0.2 | +0.1 | +0.0 | 31.8 | 48.0 | -16.2 | Black |

CKC Laboratories Date: 2/28/02 Time: 12:07:00 PM SuperTel Technologies, Inc. VVO#: 78247  
 FCC 15.207 COND Test Lead: Black 120V 60Hz Sequence#: 4



Test Location: CKC Laboratories • 22105 Wilson River Hwy. • Tillamook, OR 97141 • 503 842-5577

Customer: **SuperTel Technologies, Inc.**

Specification: **FCC 15.207 COND**

Work Order #: **78247**

Date: 2/28/02

Test Type: **Conducted Emissions**

Time: 12:12:20 PM

Equipment: **Fixed Terminal**

Sequence#: 5

Manufacturer: SuperTel Technologies

Tested By: Mike Wilkinson

Model: SR-436-FT

120V 60Hz

S/N: 022200001

**Equipment Under Test (\* = EUT):**

| Function        | Manufacturer          | Model #   | S/N       |
|-----------------|-----------------------|-----------|-----------|
| Fixed Terminal* | SuperTel Technologies | SR-436-FT | 022200001 |
| Power Supply    | SENAO                 | AM-71600  | None      |

**Support Devices:**

| Function         | Manufacturer | Model # | S/N             |
|------------------|--------------|---------|-----------------|
| Computer         | Dell         | TS30H   | 8019146BY40038A |
| Analog Phone Set | Conairphone  | SW160A  | None            |

**Test Conditions / Notes:**

The EUT is set to, mid channel = 2441.5 MHz, highest power. EUT antenna is in the vertical position. 5 dBi gain antenna connected to the EUT. The support computer is connected to the ATE (maintenance) port of the EUT via a 6-foot serial to PS2 cable and is running HyperTerminal to control the EUT mode and channel setting. The phone set is connected to the Telephone port 1 of the EUT via a 6 foot RJ-11 cable and a unterminated 6 foot RJ-11 cable was connected to EUT Telephone port 2. 5dBi gain antenna connected to the EUT. Frequency range investigated was 450 kHz to 30 MHz.

**Transducer Legend:**

|                        |         |
|------------------------|---------|
| T1=T1 conducted cables | T2=L12w |
|------------------------|---------|

**Measurement Data:**

Reading listed by margin.

Test Lead: White

| # | Freq<br>MHz | Rdng<br>dBμV | T1<br>dB | T2<br>dB | dB | dB | Dist<br>Table | Corr<br>dBμV/m | Spec<br>dBμV/m | Margin<br>dB | Polar<br>Ant |
|---|-------------|--------------|----------|----------|----|----|---------------|----------------|----------------|--------------|--------------|
| 1 | 450.005k    | 42.3         | +0.2     | +0.1     |    |    | +0.0          | 42.6           | 48.0           | -5.4         | White        |
| 2 | 21.674M     | 34.3         | +1.4     | +1.0     |    |    | +0.0          | 36.7           | 48.0           | -11.3        | White        |
| 3 | 4.186M      | 34.7         | +0.7     | +0.1     |    |    | +0.0          | 35.5           | 48.0           | -12.5        | White        |
| 4 | 2.334M      | 34.5         | +0.4     | +0.1     |    |    | +0.0          | 35.0           | 48.0           | -13.0        | White        |
| 5 | 10.520M     | 31.9         | +0.9     | +0.3     |    |    | +0.0          | 33.1           | 48.0           | -14.9        | White        |
| 6 | 3.681M      | 31.8         | +0.7     | +0.1     |    |    | +0.0          | 32.6           | 48.0           | -15.4        | White        |
| 7 | 1.288M      | 31.7         | +0.2     | +0.1     |    |    | +0.0          | 32.0           | 48.0           | -16.0        | White        |

CKC Laboratories Date: 2/28/02 Time: 12:12:20 PM SuperTel Technologies, Inc. VVO#: 78247  
FCC 15.207 COND Test Lead: White 120V 60Hz Sequence#: 5

