



**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**

**PREPARED FOR:**

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

P.O. No.: STT-02-889  
W.O. No.: 78247

**PREPARED BY:**

Mary Ellen Clayton  
CKC Laboratories, Inc.  
5473A Clouds Rest  
Mariposa, CA 95338

Date of test: January 7 –  
February 28, 2002

**Report No.: FC02-010**

This report contains a total of 105 pages and may be reproduced in full only. Partial reproduction may only be done with the written consent of CKC Laboratories, Inc. The results in this report apply only to the items tested, as identified herein.

## TABLE OF CONTENTS

Administrative Information .....	5
Summary of Results .....	6
Conditions for Compliance .....	6
Approvals .....	6
Equipment Under Test (EUT) Description .....	7
Eut Operating Frequency .....	7
Mode Of Operation .....	7
15.31 Number Of Channels .....	7
15.33 Frequency Ranges Tested .....	7
15.203 Antenna Requirements .....	7
15.205 Restricted Bands .....	7
15.215 Additional Provisions to the General Radiated Emission Limitations .....	7
Equipment Under Test .....	8
Peripheral Devices .....	8
Report of Measurements .....	9
15.247(a)(1) Base - Channel Separation .....	9
15.247(a)(1) Handset - Channel Separation .....	10
15.247(a)(1)(ii) Base - Bandwidth Low Channel .....	11
15.247(a)(1)(ii) Base - Bandwidth Middle Channel .....	12
15.247(a)(1)(ii) Base - Bandwidth High Channel .....	13
15.247(a)(1)(ii) Handset - Bandwidth Low Channel .....	14
15.247(a)(1)(ii) Handset - Bandwidth Middle Channel .....	15
15.247(a)(1)(ii) Handset - Bandwidth High Channel .....	16
15.247(a)(1)(ii) Base Average Occupancy .....	17
15.247(a)(1)(ii) Handset Average Occupancy .....	18
15.247(a)(1)(ii) Base Number Of Hops .....	19
15.247(a)(1)(ii) Base Number Of Hops .....	20
15.247(a)(1)(ii) Handset Number Of Hops .....	21
15.247(a)(1)(ii) Handset Number Of Hops .....	22
15.247(a)(1)(ii) Base On Time .....	23
15.247(a)(1)(ii) Handset On Time .....	24
Table 1: 15.247(b)(1) Base Set Highest Peak Output: EIRP .....	25
Table 2: 15.247(b)(2)/15.31(e) Base Set Voltage Variation on Peak Power .....	26
Table 3: 15.247(c)/15.209 Base Set OATS Highest Emission Levels: 3MHz-25GHz .....	27
Table 4: 15.247(c) Base Set Terminal Highest Emission Levels: 9kHz-10GHz .....	28
15.247(b)(1) Base Peak Output Antenna Terminal - Low .....	29
15.247(b)(1) Base Peak Output Antenna Terminal - Middle .....	30
15.247(b)(1) Base Peak Output Antenna Terminal - High .....	31
Table 5: 15.247(b)(1) Hand Set Highest Peak Output: EIRP .....	32
Table 6: 15.247(c)/15.209 Hand Set OATS Highest Emission Levels: 15MHz-26GHz .....	33
Table 7: 15.247(c) Hand Set Terminal Highest Emission Levels: 9kHz-10GHz .....	34

15.247(b)(1) Handset Peak Output Antenna Terminal - Low.....	35
15.247(b)(1) Handset Peak Output Antenna Terminal - Middle .....	36
15.247(b)(1) Handset Peak Output Antenna Terminal - High.....	37
Table 8: 15.247(b)(1) Fixed Terminal Highest Peak Output: EIRP .....	38
Table 9: 15.247(b)(1)/15.31(e) Fixed Terminal Voltage Variation on Peak Power .....	39
Table 10: 15.247(c)/15.209 Fixed Terminal OATS Highest Emission Levels: 3MHz-25GHz	40
Table 11: 15.207 Base Set Highest Conducted Emission Levels .....	41
Table 12: 15.207 Hand Set Highest Conducted Emission Levels .....	42
Table 13: 15.207 Fixed Terminal Highest Conducted Emission Levels .....	43
Base Bandedge - Low Channel.....	44
Base Bandedge - High Channel.....	45
Handset Bandedge - Low Channel .....	46
Handset Bandedge - High Channel.....	47
Measurement Uncertainty.....	48
Temperature And Humidity During Testing.....	48
EUT Setup.....	48
Correction Factors.....	49
Table A: Sample Calculations .....	49
Test Instrumentation and Analyzer Settings .....	49
Table B: 15.35 Analyzer Bandwidth Settings Per Frequency Range .....	49
Spectrum Analyzer Detector Functions .....	50
Peak.....	50
Quasi-Peak.....	50
Average.....	50
EUT Testing.....	51
Mains Conducted Emissions.....	51
Antenna Conducted Emissions .....	51
Radiated Emissions.....	51
Transmitter Characteristics .....	52
15.247(a)(1)(ii) Bandwidth – Frequency Hopping .....	52
15.247(b) Peak Output Power.....	52
Appendix A: Test Setup Photographs.....	53
Photograph Showing Antenna Conducted Emissions - Base.....	54
Photograph Showing Radiated Emissions - Base .....	55
Photograph Showing Radiated Emissions - Base .....	56
Photograph Showing Antenna Conducted Emissions - Handset .....	57
Photograph Showing Radiated Emissions - Handset.....	58
Photograph Showing Radiated Emissions - Handset.....	59
Photograph Showing Radiated Emissions - Handset.....	60
Photograph Showing Radiated Emissions - Handset.....	61
Photograph Showing Mains Conducted Emissions .....	62
Photograph Showing Mains Conducted Emissions .....	63

Photograph Showing Radiated Emissions - Fixed Terminal .....	64
Photograph Showing Radiated Emissions - Fixed Terminal .....	65
Photograph Showing Voltage Variation At Antenna Terminal - Fixed Terminal.....	66
Photograph Showing Mains Conducted Emissions - Fixed Terminal .....	67
Photograph Showing Mains Conducted Emissions - Fixed Terminal .....	68
Appendix B: Test Equipment List .....	69



**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**

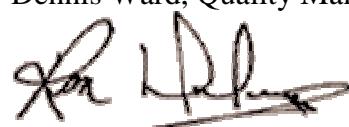
#### **QUALITY ASSURANCE:**

---



Dennis Ward, Quality Manager

---



Ron Dulmage, Chief Operations Officer

---



Robert Nees, Lab Manager

#### **TEST PERSONNEL:**

---



Mark Chase, EMC Engineer

---



Mike Wilkinson, Test Engineer

---



Andrew Pace, Test Engineer

---



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: SENA  
 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

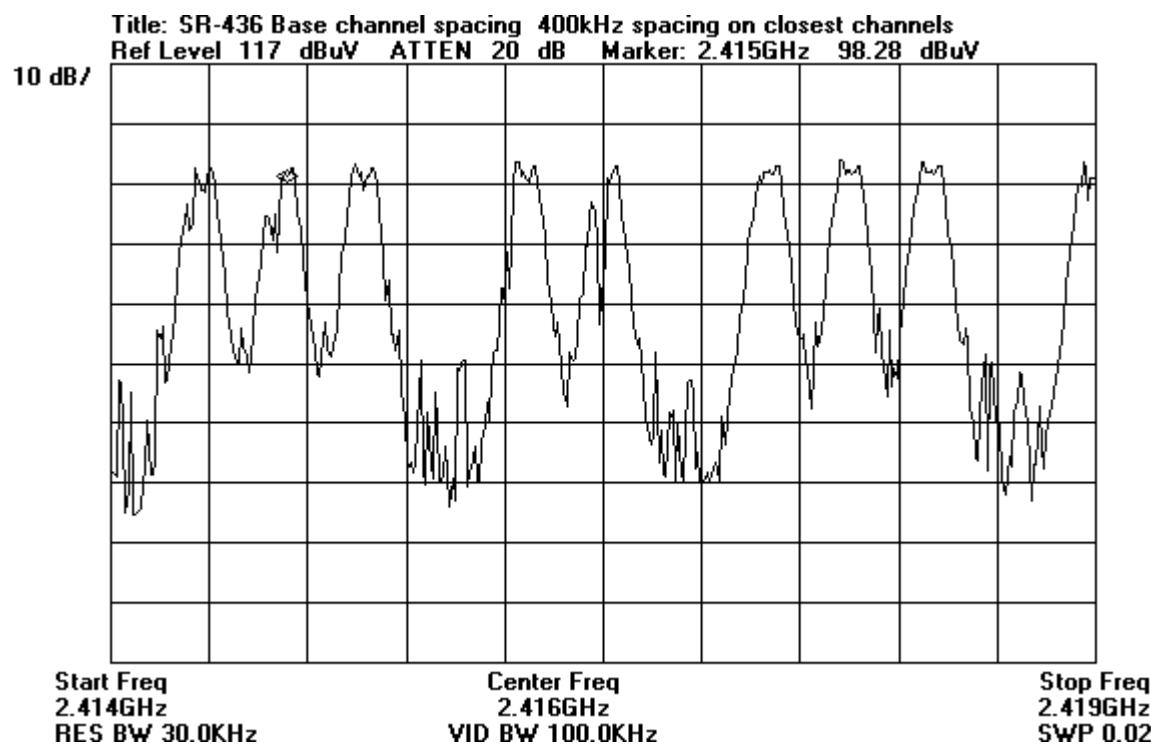
Manuf: Dell  
 Model: TS30H  
 Serial: 8019146BY40038A  
 FCC ID: DoC

#### Analog Phone Set

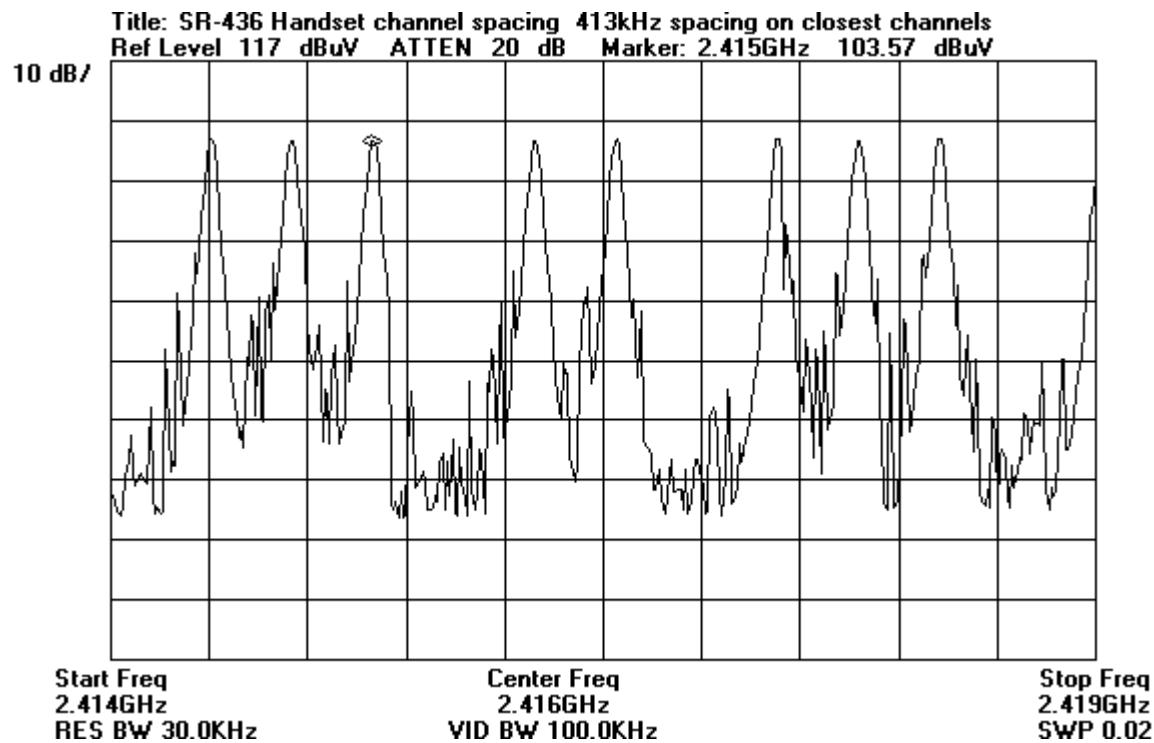
Manuf: Conairphone  
 Model: SW160A  
 Serial: NA  
 FCC ID: DoC

## REPORT OF MEASUREMENTS

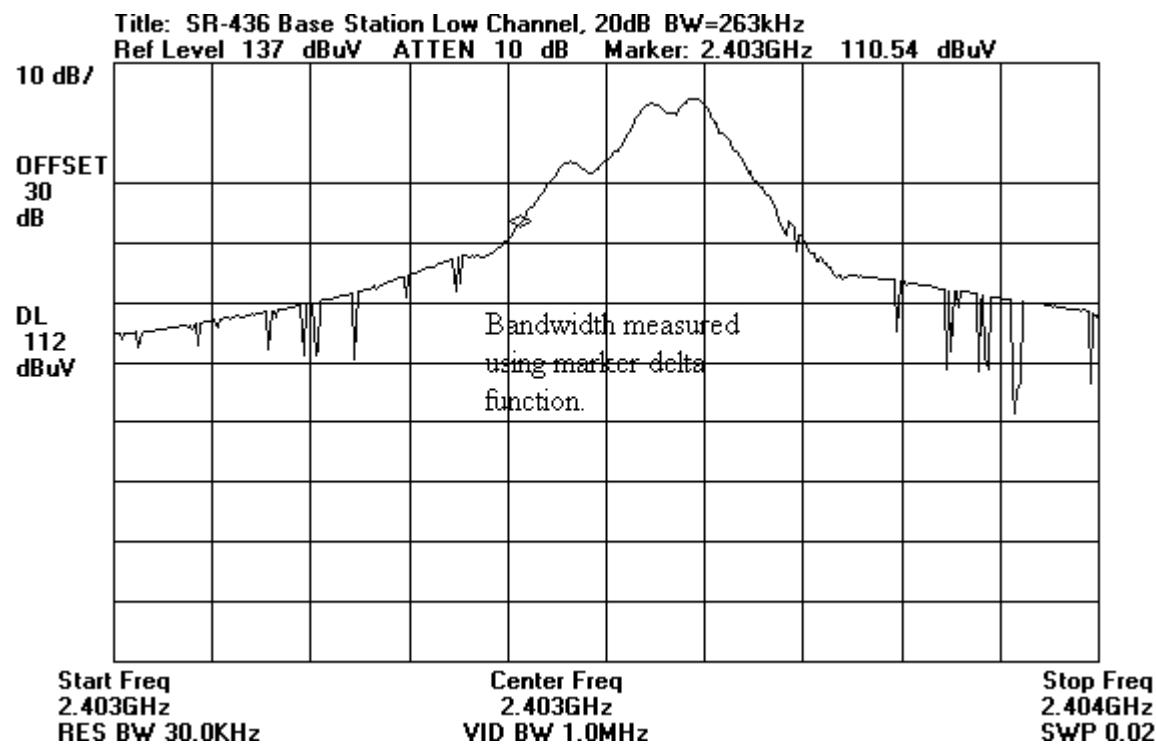
### 15.247(a)(1) BASE - CHANNEL SEPARATION



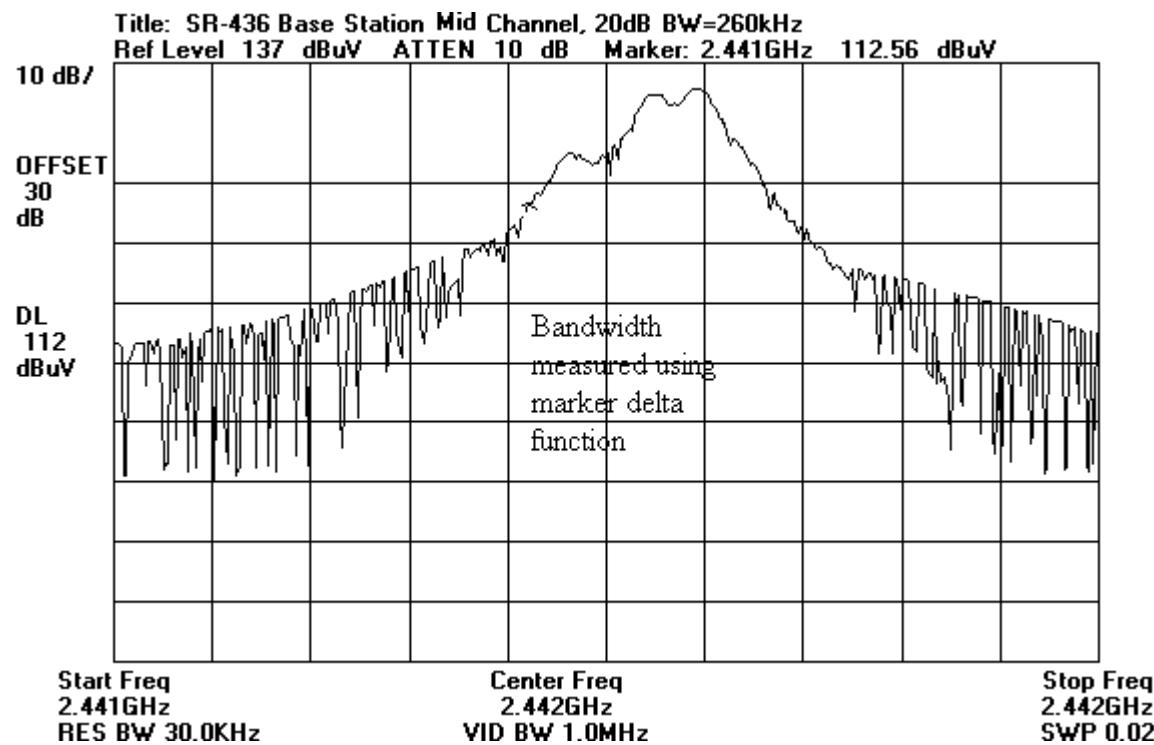
**15.247(a)(1) HANDSET - CHANNEL SEPARATION**



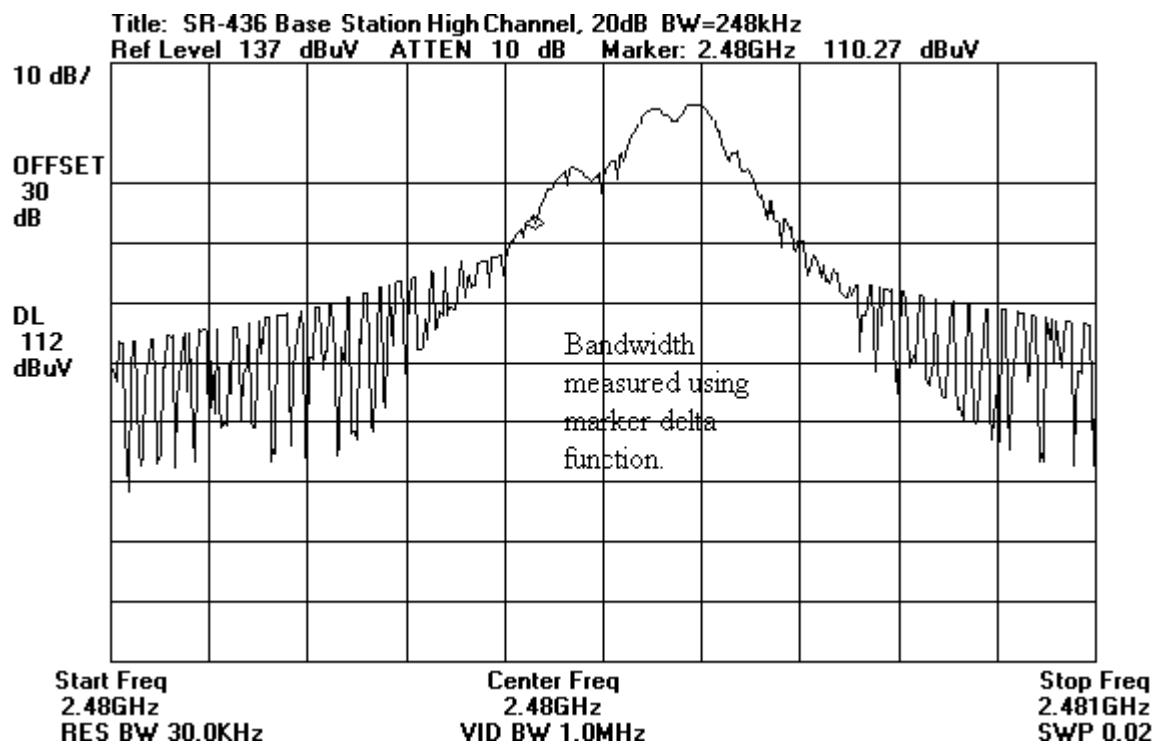
**15.247(a)(1)(ii) BASE - BANDWIDTH LOW CHANNEL**



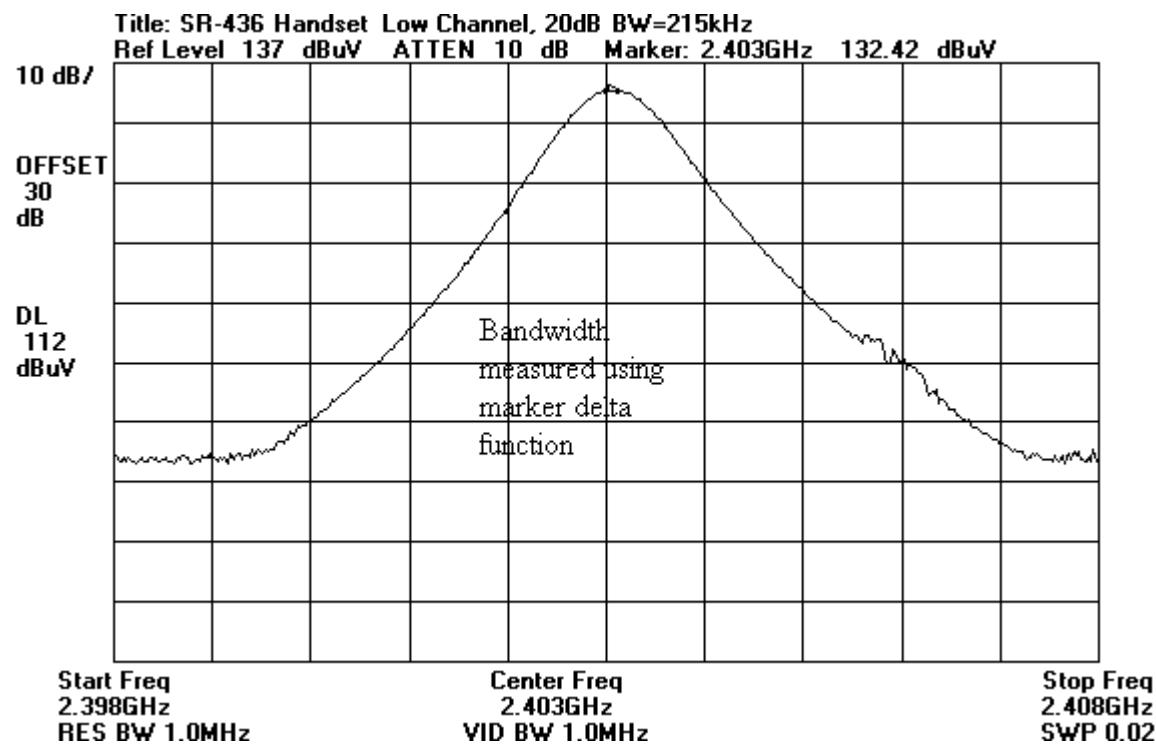
**15.247(a)(1)(ii) BASE - BANDWIDTH MIDDLE CHANNEL**



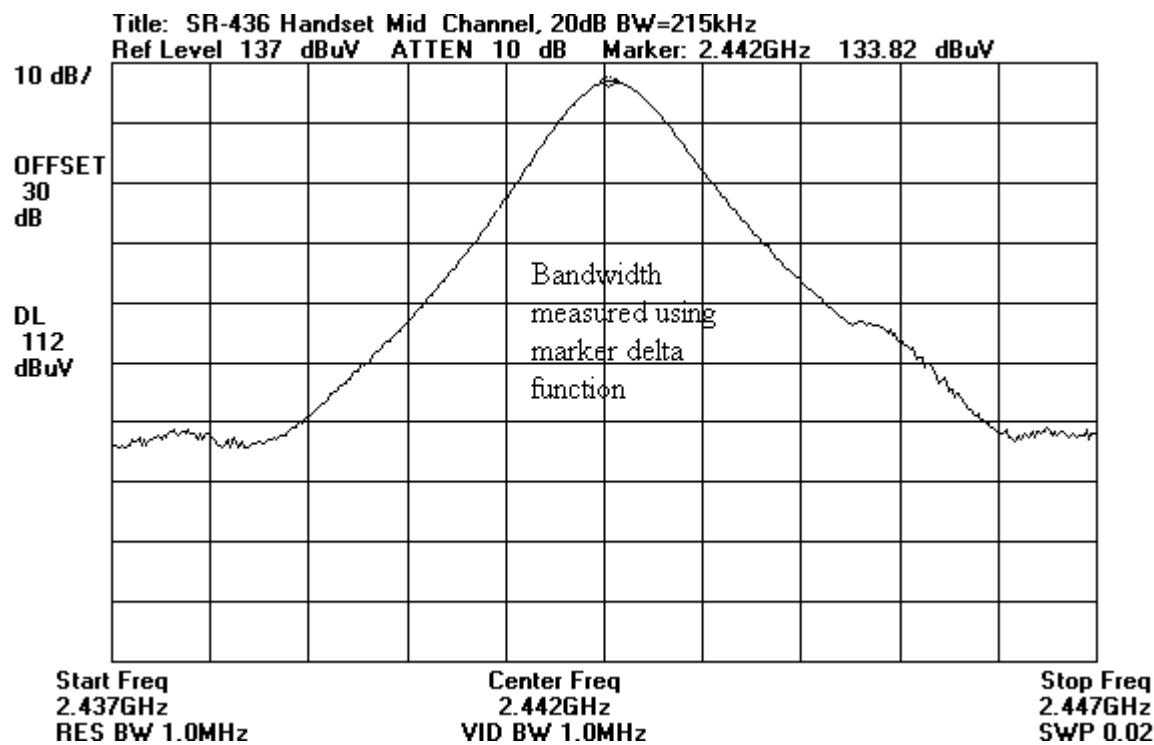
**15.247(a)(1)(ii) BASE - BANDWIDTH HIGH CHANNEL**



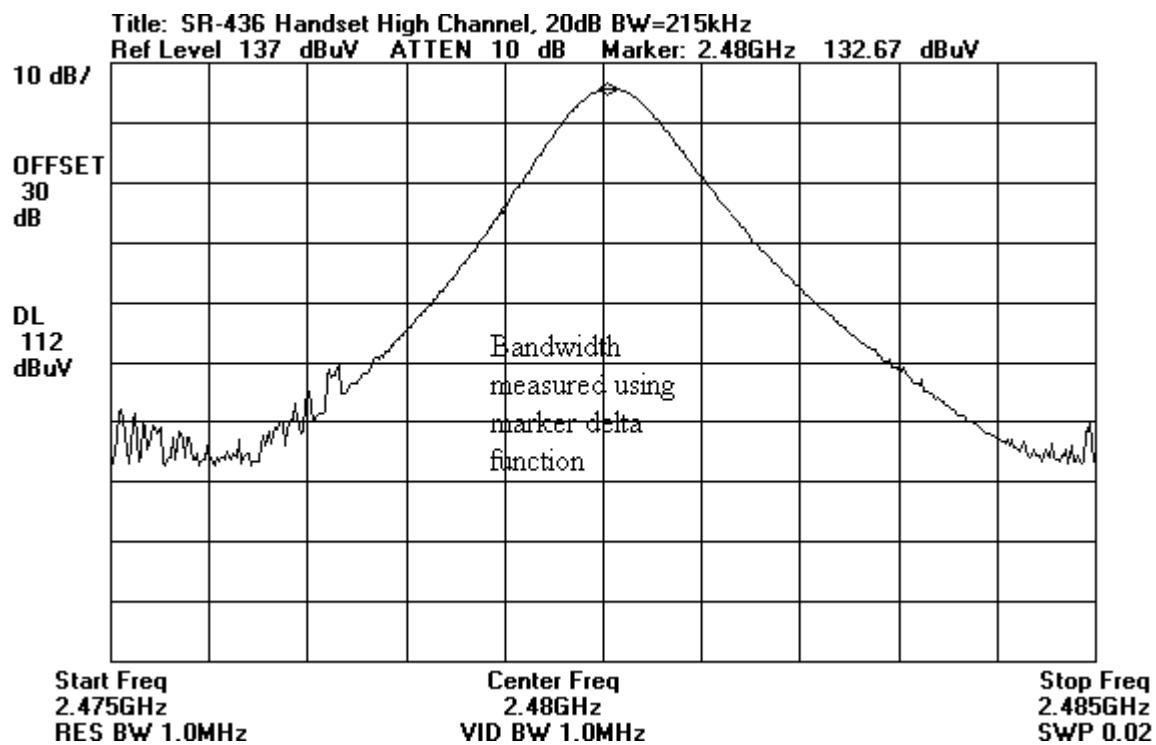
**15.247(a)(1)(ii) HANDSET - BANDWIDTH LOW CHANNEL**



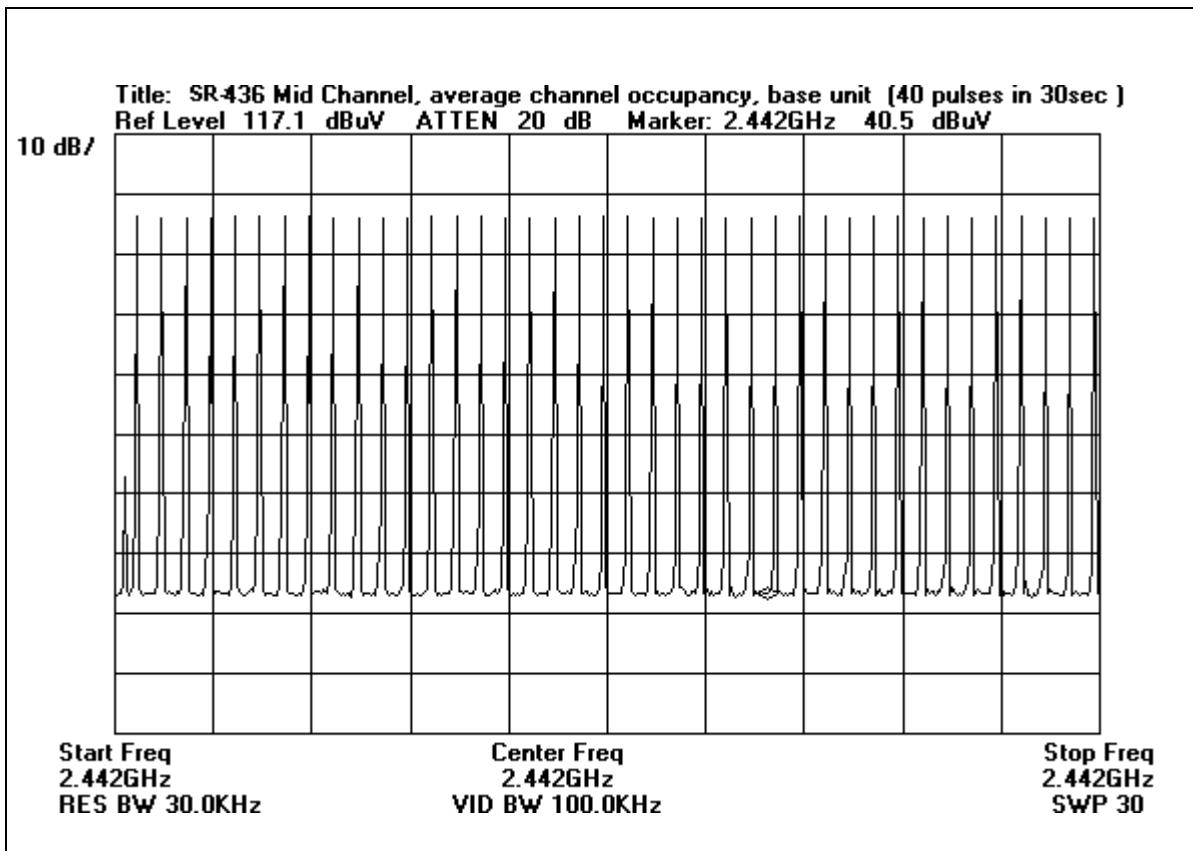
**15.247(a)(1)(ii) HANDSET - BANDWIDTH MIDDLE CHANNEL**



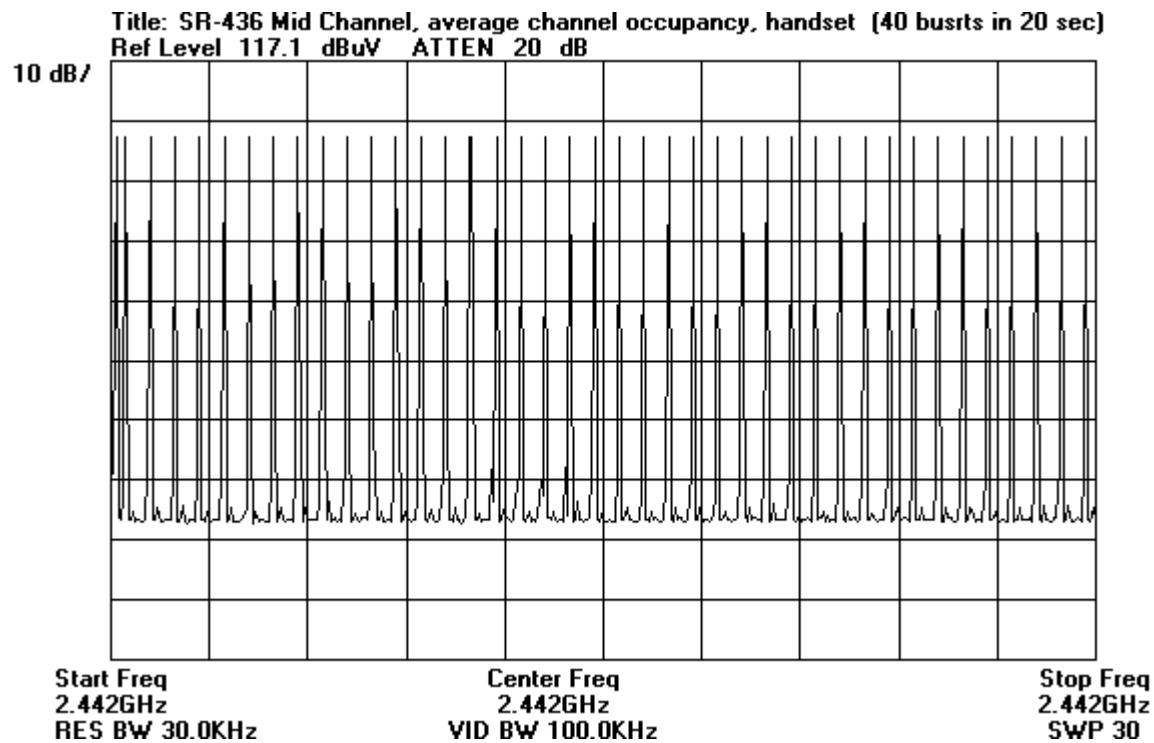
**15.247(a)(1)(ii) HANDSET - BANDWIDTH HIGH CHANNEL**



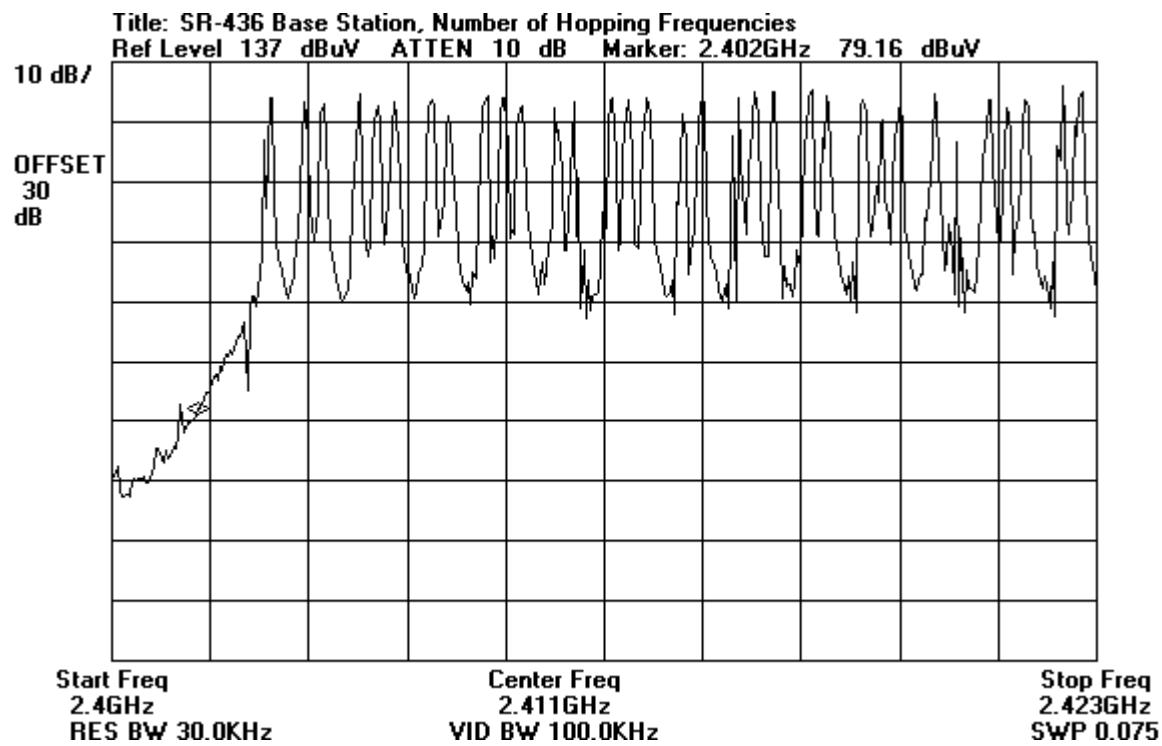
**15.247(a)(1)(ii) BASE AVERAGE OCCUPANCY**



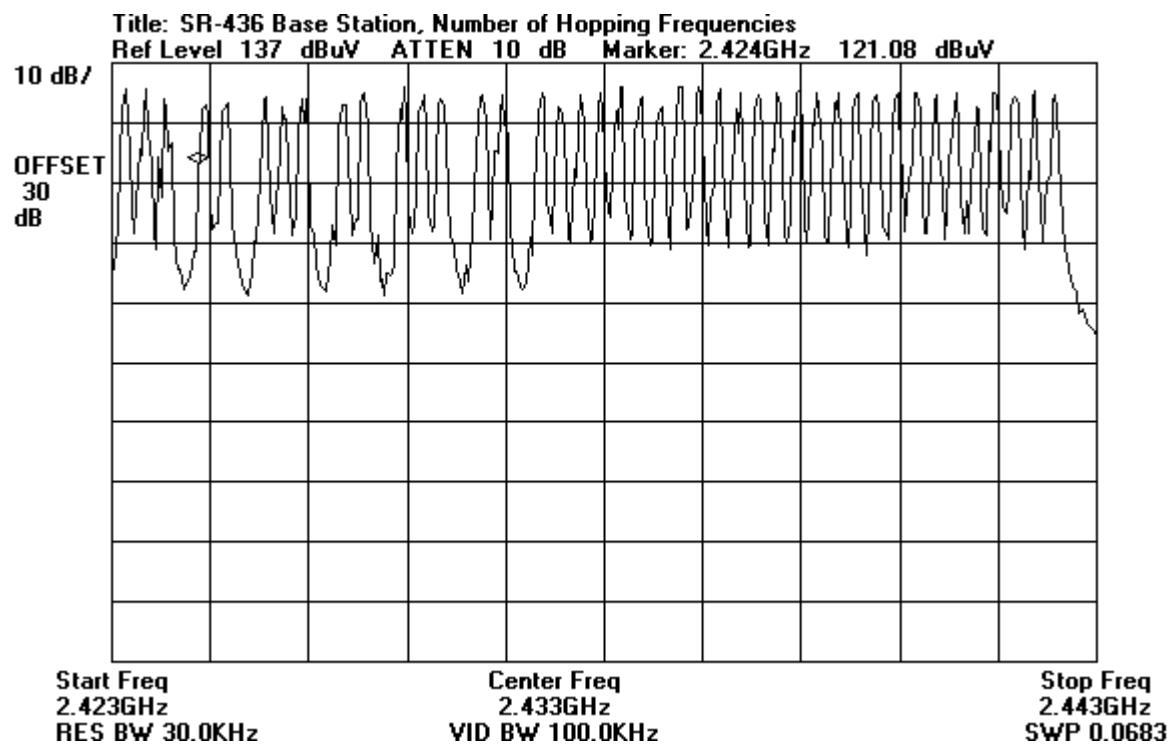
**15.247(a)(1)(ii) HANDSET AVERAGE OCCUPANCY**



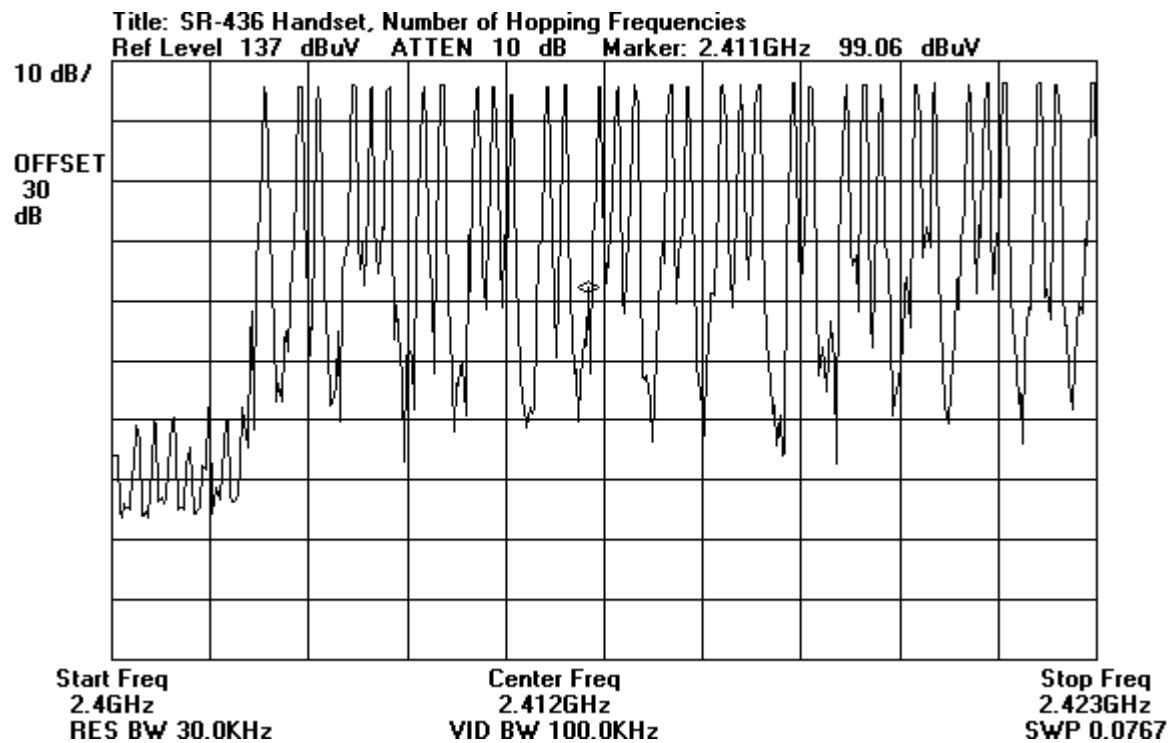
**15.247(a)(1)(ii) BASE NUMBER OF HOPS**



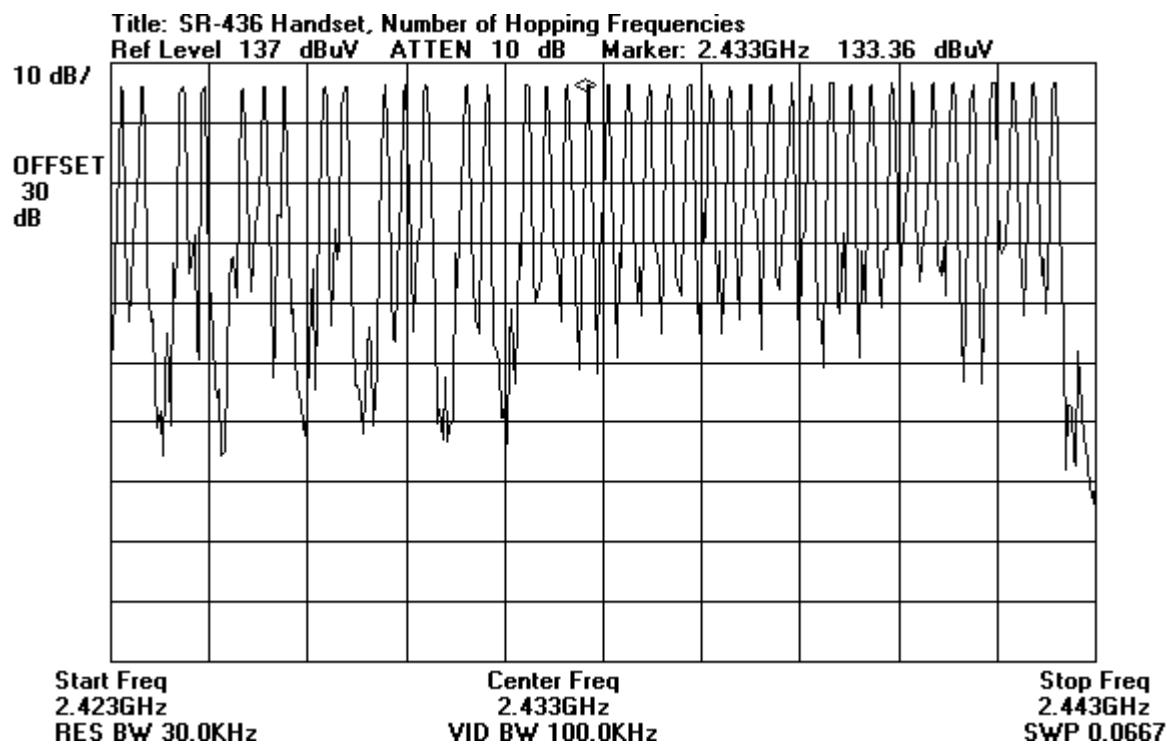
**15.247(a)(1)(ii) BASE NUMBER OF HOPS**



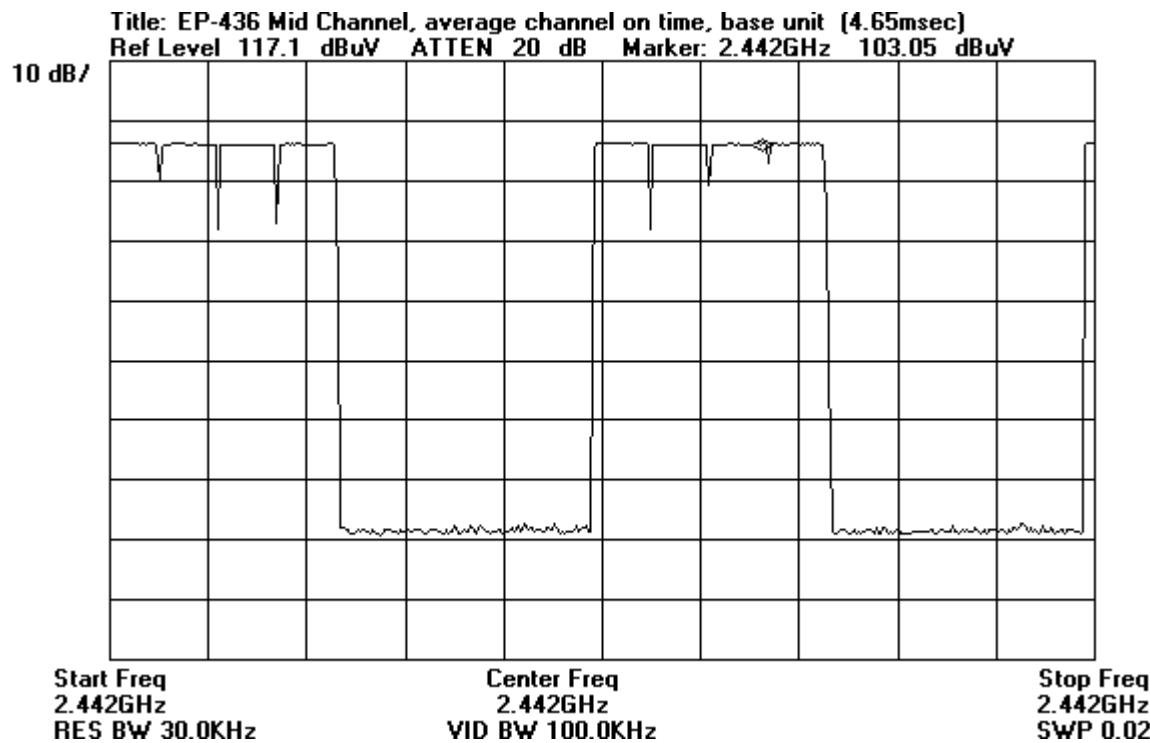
**15.247(a)(1)(ii) HANDSET NUMBER OF HOPS**



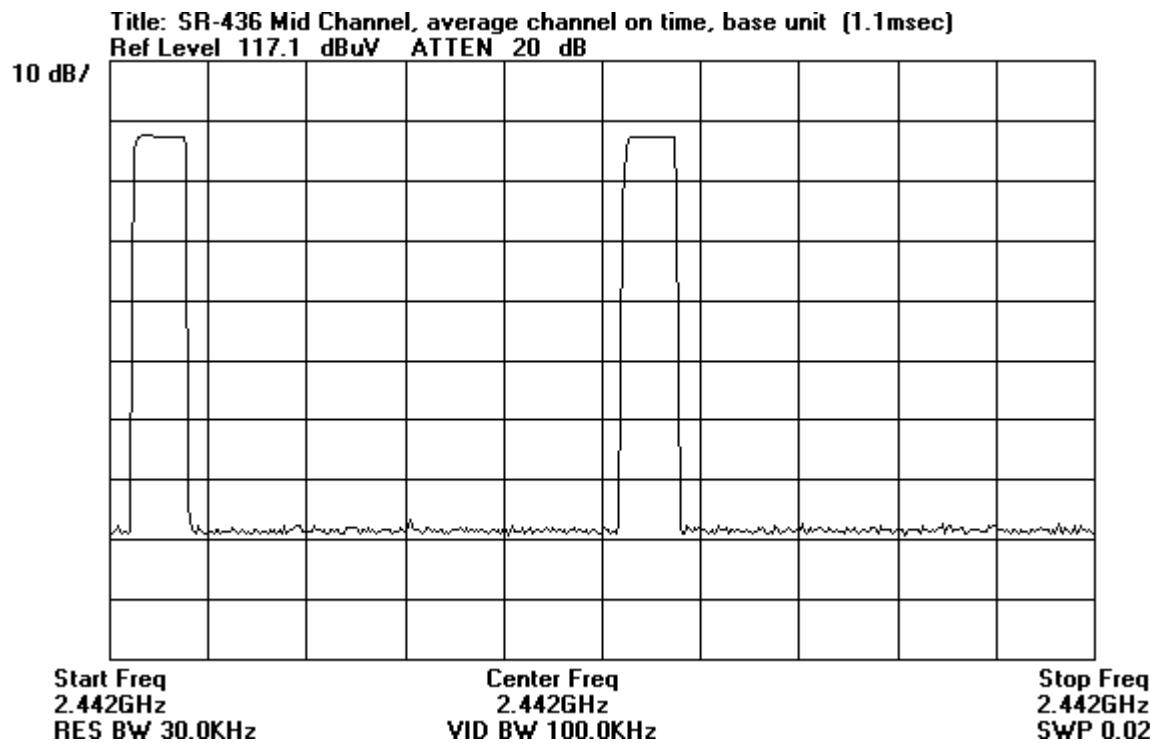
**15.247(a)(1)(ii) HANDSET NUMBER OF HOPS**



**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**

Table 1: 15.247(b)(1) Base Set Highest Peak Output: EIRP										
FREQUENCY MHz	METER READING dB $\mu$ V	CORRECTION FACTORS				CORRECTED READING dB $\mu$ V/m	SPEC LIMIT dB $\mu$ V/m	MARGIN DB	NOTES	
		Ant dB	Amp dB	Cable dB	Dist 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 =  $(Ed)^2/30G$ . 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.

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

<b>FREQUENCY MHz</b>	<b>CORRECTED READING dB<math>\mu</math>V/m</b>	<b>85%</b>	<b>115%</b>	<b>SPEC LIMIT dB<math>\mu</math>V/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 dB $\mu$ V = 0.427 Watt.

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

FREQUENCY MHz	METER READING dB $\mu$ V	CORRECTION FACTORS				CORRECTED READING dB $\mu$ V/m	SPEC LIMIT dB $\mu$ V/m	MARGIN DB	NOTES
		Ant dB	Amp dB	Cable dB	Dist 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) NOTES: V = Vertical Polarization  
 Spec Limit : FCC Part 15 Subpart C Section 15.247(c)/15.209  
 Test Distance: 1 and 3 Meters

**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)

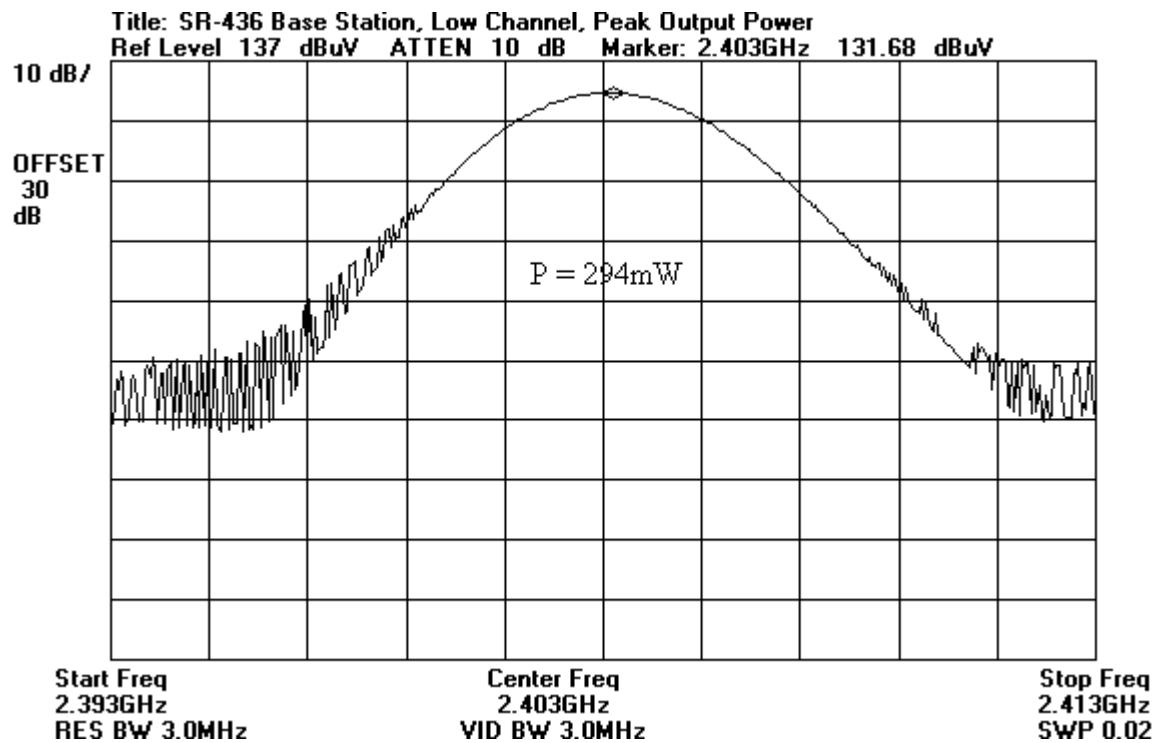
**Table 4: 15.247(c) Base Set Terminal Highest Emission Levels: 9kHz-10GHz**

FREQUENCY MHz	METER READING dB $\mu$ V	CORRECTION FACTORS				CORRECTED READING dB $\mu$ V/m	SPEC LIMIT dB $\mu$ V/m	MARGIN DB	NOTES
		Ant dB	dB	dB	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

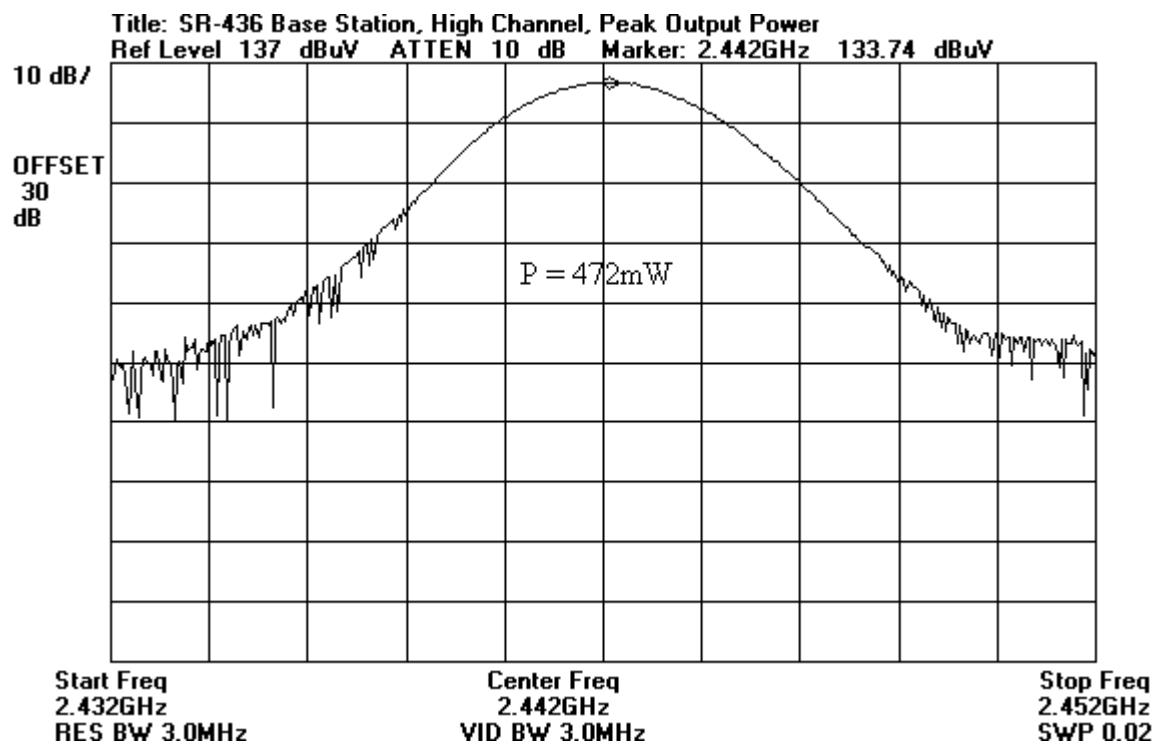
Test Method: ANSI C63.4 (1992) NOTES: N = No Polarization  
Spec Limit : FCC Part 15 Subpart C Section 15.247(c)  
Test Distance: No Distance

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.

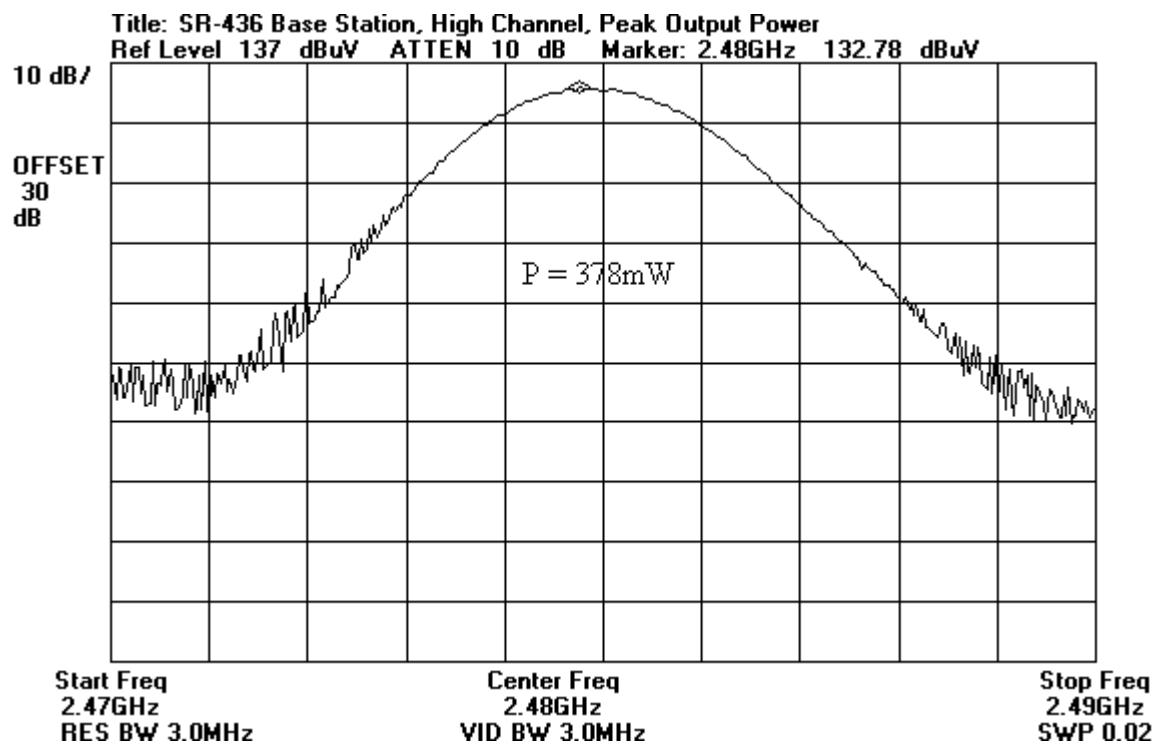
**15.247(b)(1) BASE PEAK OUTPUT ANTENNA TERMINAL - LOW**



**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 MHz	METER READING dB $\mu$ V	CORRECTION FACTORS				CORRECTED READING dB $\mu$ V/m	SPEC LIMIT dB $\mu$ V/m	MARGIN DB	NOTES
		Ant dB	Amp dB	Cable dB	Dist 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=(Ed)<sup>2</sup>/30G. Calculated EIRP for the 6 highest readings are: 2441 MHz, meter 104.5 dB $\mu$ V + 31.2 dB = 135.7 dB $\mu$ V = 0.392 Watt. 2402 MHz, meter 102.5 dB $\mu$ V + 31.2 dB = 133.7 dB $\mu$ V = 0.247 Watt. 2479 MHz, meter 102.3 dB $\mu$ V + 31.2 dB = 133.5 dB $\mu$ V = 0.236 Watt. 2402 MHz, meter 102.2 dB $\mu$ V + 31.2 dB = 133.4 dB $\mu$ V = 0.231 Watt. 2480 MHz, meter 102.0 dB $\mu$ V + 31.2 dB = 133.2 dB $\mu$ V = 0.220 Watt. 2441 MHz, meter 101.9 dB $\mu$ V + 31.2 dB = 133.1 dB $\mu$ V = 0.215 Watt.

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

FREQUENCY MHz	METER READING dB $\mu$ V	CORRECTION FACTORS				CORRECTED READING dB $\mu$ V/m	SPEC LIMIT dB $\mu$ V/m	MARGIN DB	NOTES
		Ant dB	Amp dB	Cable dB	Dist 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 MHz	METER READING dB $\mu$ V	CORRECTION FACTORS				CORRECTED READING dB $\mu$ V/m	SPEC LIMIT dB $\mu$ V/m	MARGIN 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)

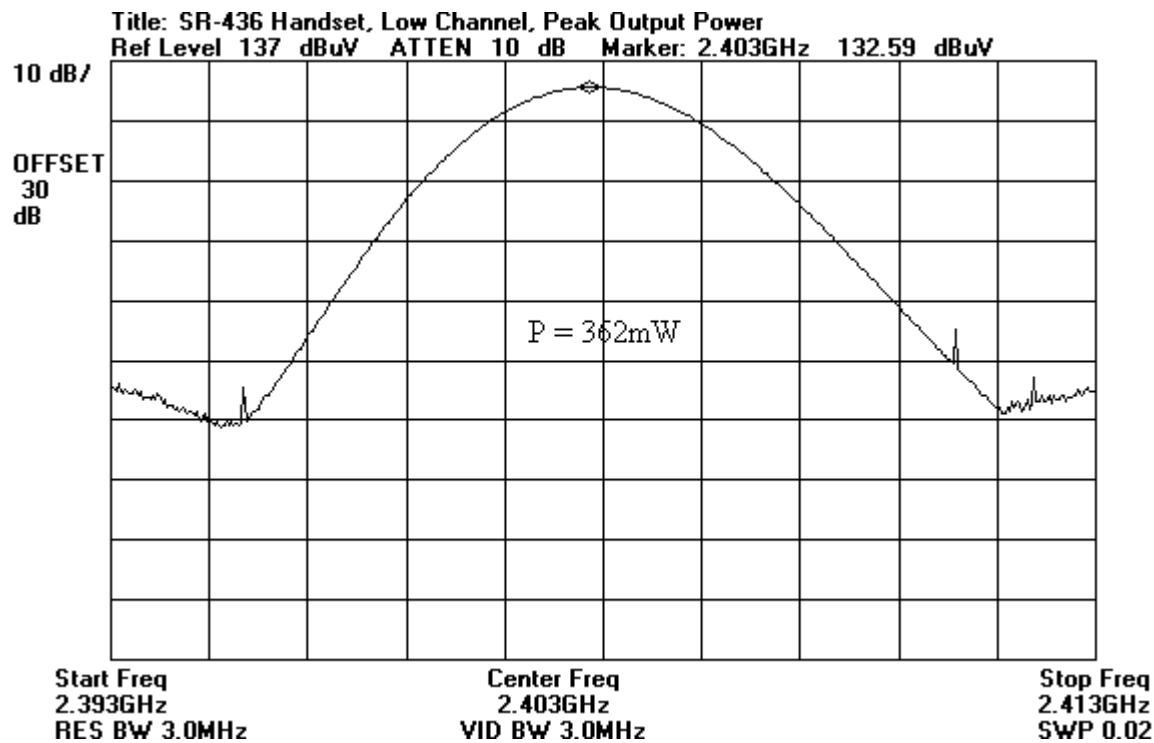
NOTES: N = No Polarization

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

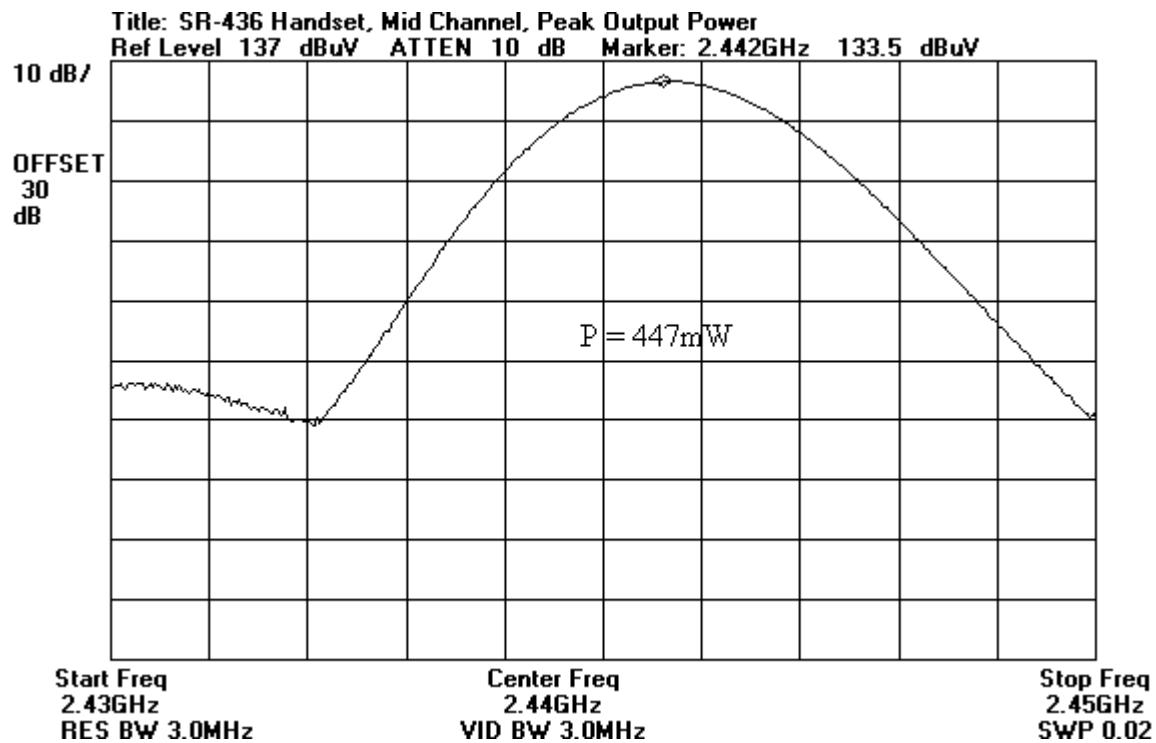
Test Distance: No Distance

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.

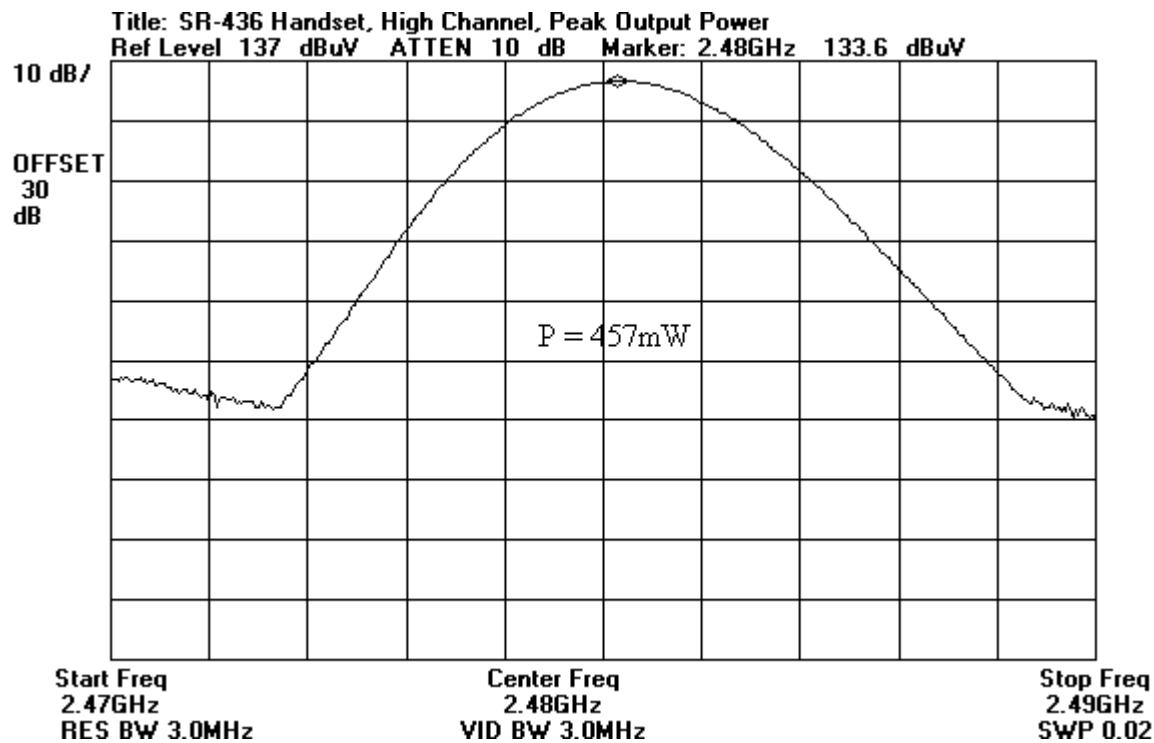
**15.247(b)(1) HANDSET PEAK OUTPUT ANTENNA TERMINAL - LOW**



**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 MHz	METER READING dB $\mu$ V	CORRECTION FACTORS				CORRECTED READING dB $\mu$ V/m	SPEC LIMIT dB $\mu$ V/m	MARGIN DB	NOTES
		Ant dB	Amp dB	Cable dB	Dist 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=(Ed)<sup>2</sup>/30G. Calculated EIRP for the readings are: 2480 MHz Vertical, meter 103.6 dB $\mu$ V + 31.2 dB = 134.8 dB $\mu$ V = 0.318 Watt. 2441 MHz Vertical, meter 103.0 dB $\mu$ V + 31.2 dB = 134.2 dB $\mu$ V = 0.277 Watt. 2403 MHz Vertical, meter 99.5 dB $\mu$ V + 31.2 dB = 130.7 dB $\mu$ V = 0.124 Watt. 2480 MHz Horizontal, meter 88.6 dB $\mu$ V + 31.2 dB = 119.8 dB $\mu$ V = 0.010 Watt. 2441 MHz Horizontal, meter 88.1 dB $\mu$ V + 31.2 dB = 119.3 dB $\mu$ V = 0.009 Watt. 2403 MHz Horizontal, meter 83.6 dB $\mu$ V + 31.2 dB = 114.8 dB $\mu$ V = 0.003 Watt.

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

<b>FREQUENCY MHz</b>	<b>CORRECTED READING dB<math>\mu</math>V/m</b>	<b>85%</b>	<b>115%</b>	<b>SPEC LIMIT dB<math>\mu</math>V/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 dB $\mu$ V = 24.2 dBm = 0.263 Watt.

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

FREQUENCY MHz	METER READING dB $\mu$ V	CORRECTION FACTORS				CORRECTED READING dB $\mu$ V/m	SPEC LIMIT dB $\mu$ V/m	MARGIN DB	NOTES
		Ant dB	Amp dB	Cable dB	Dist 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 MHz	METER READING dB $\mu$ V	CORRECTION FACTORS			CORRECTED READING dB $\mu$ V	SPEC LIMIT dB $\mu$ V	MARGIN dB	NOTES
		Lisn dB	Cable dB	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 MHz	METER READING dB $\mu$ V	CORRECTION FACTORS			CORRECTED READING dB $\mu$ V	SPEC LIMIT dB $\mu$ V	MARGIN dB	NOTES
		Lisn dB	Cable dB	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**

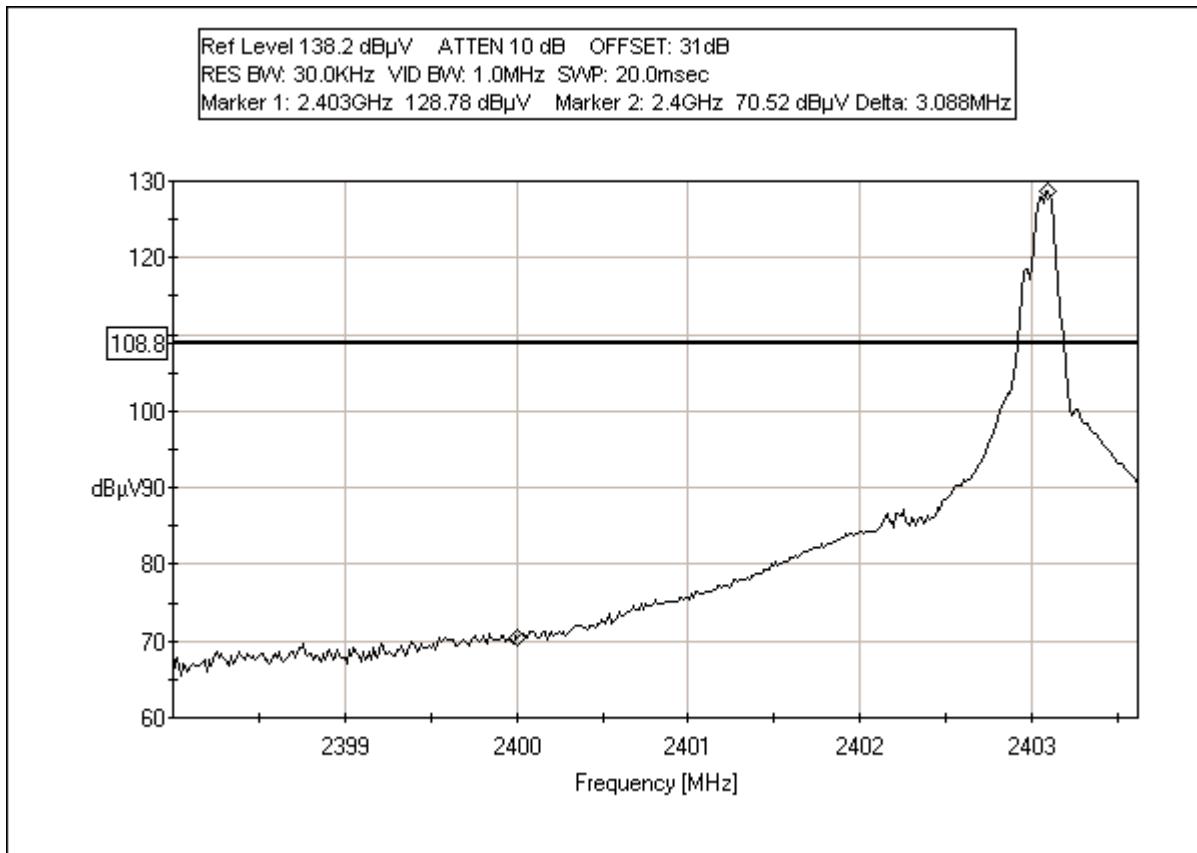
FREQUENCY MHz	METER READING dB $\mu$ V	CORRECTION FACTORS				CORRECTED READING dB $\mu$ V	SPEC LIMIT dB $\mu$ V	MARGIN dB	NOTES
		Lisn dB	dB	dB	dB				
1.474652	43.8	0.1		0.3		44.2	48.0	-3.8	B
1.603604	45.0	0.1		0.3		45.4	48.0	-2.6	B
1.617932	44.1	0.1		0.3		44.5	48.0	-3.5	B
1.627484	44.6	0.1		0.3		45.0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

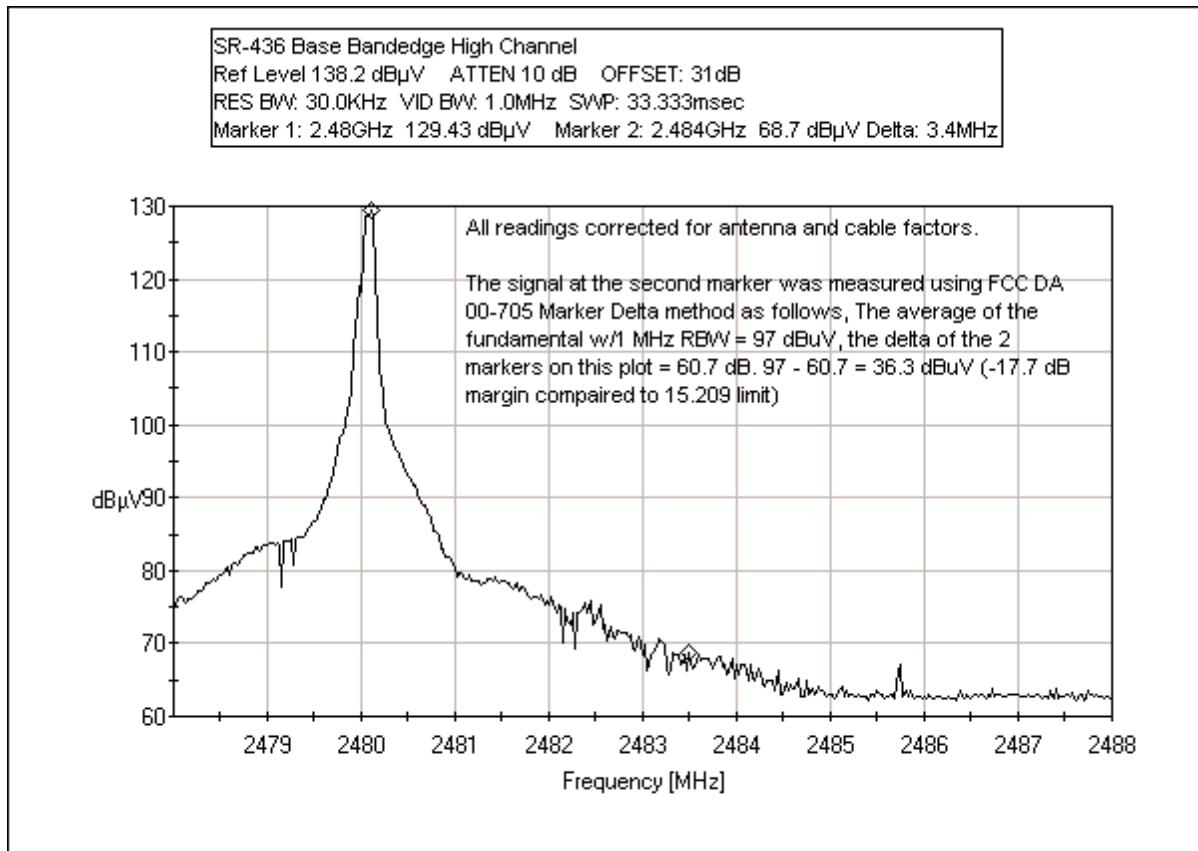
NOTES:  
 B = Black Lead  
 W = White Lead

**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.

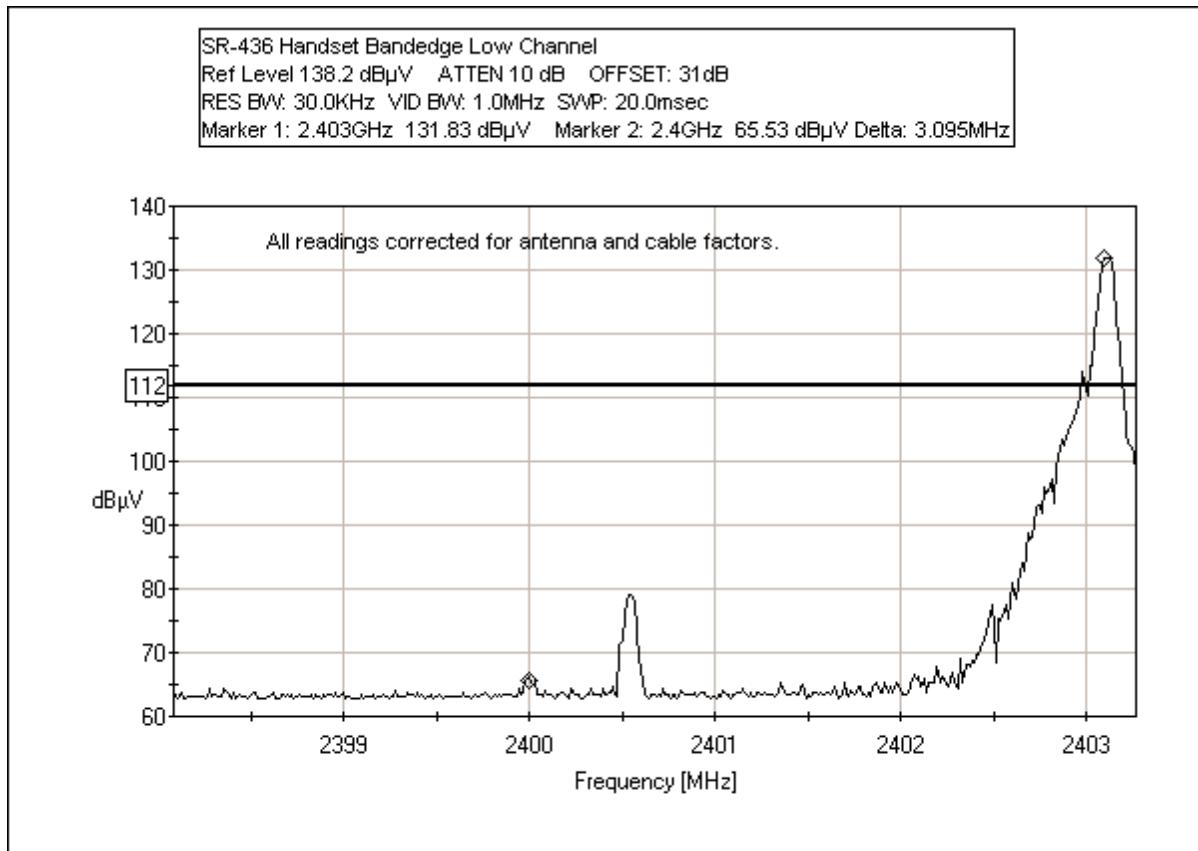
**BASE BANDEDGE - LOW CHANNEL**



## BASE BANDEDGE - HIGH CHANNEL

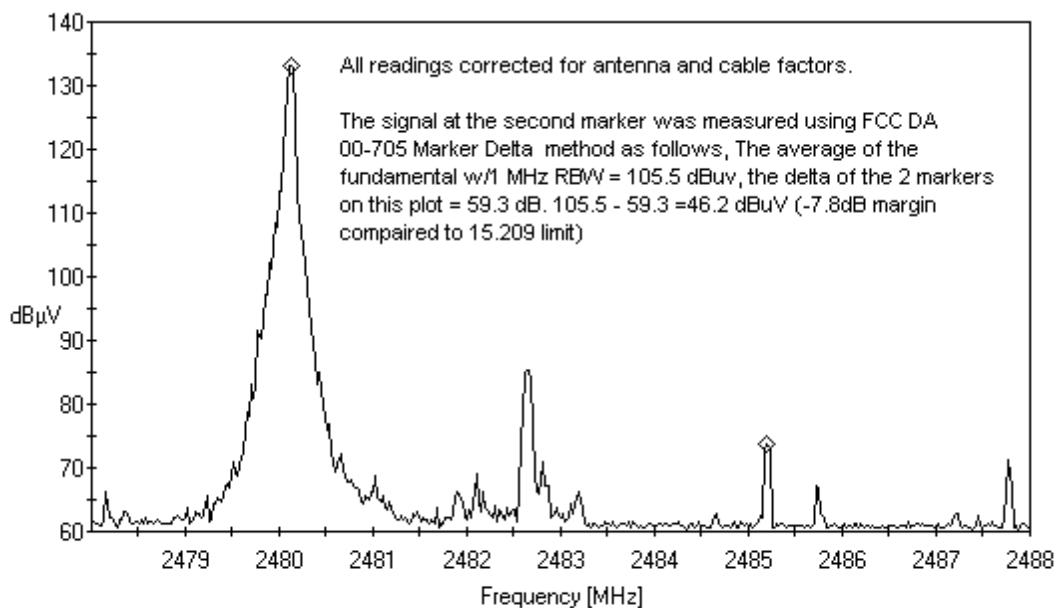


## HANDSET BANDEDGE - LOW CHANNEL



## HANDSET BANDEDGE - HIGH CHANNEL

SR-436 Handset Bandedge High Channel  
Ref Level 138.2 dB $\mu$ V ATTEN 10 dB OFFSET: 31dB  
RES BW: 30.0KHz VID BW: 100.0KHz SWP: 33.333msec  
Marker 1: 2.48GHz 133.12 dB $\mu$ V Marker 2: 2.485GHz 73.81 dB $\mu$ V Delta: 5.07MHz



## **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.

**TABLE A: SAMPLE CALCULATIONS**

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.

**FCC SECTION 15.35:**

**TABLE B: ANALYZER BANDWIDTH SETTINGS PER FREQUENCY RANGE**

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.

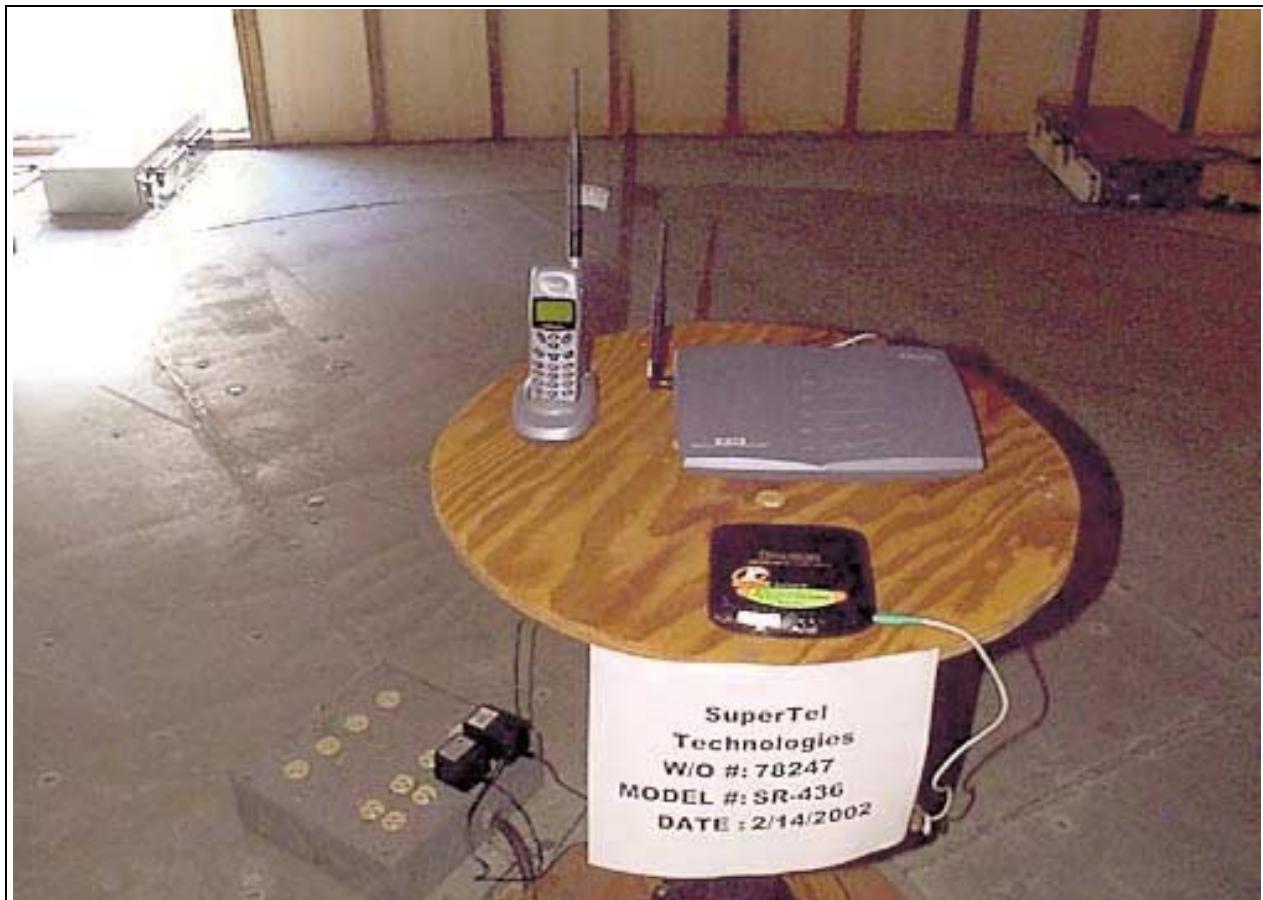
**15.247(b)(1)** The maximum peak output power of frequency hopping systems operating in the 2400-2483.5 band and for all direct sequences, shall not exceed 1 watt.

**APPENDIX A**  
**TEST SETUP PHOTOGRAPHS**

**PHOTOGRAPH SHOWING ANTENNA CONDUCTED EMISSIONS - BASE**

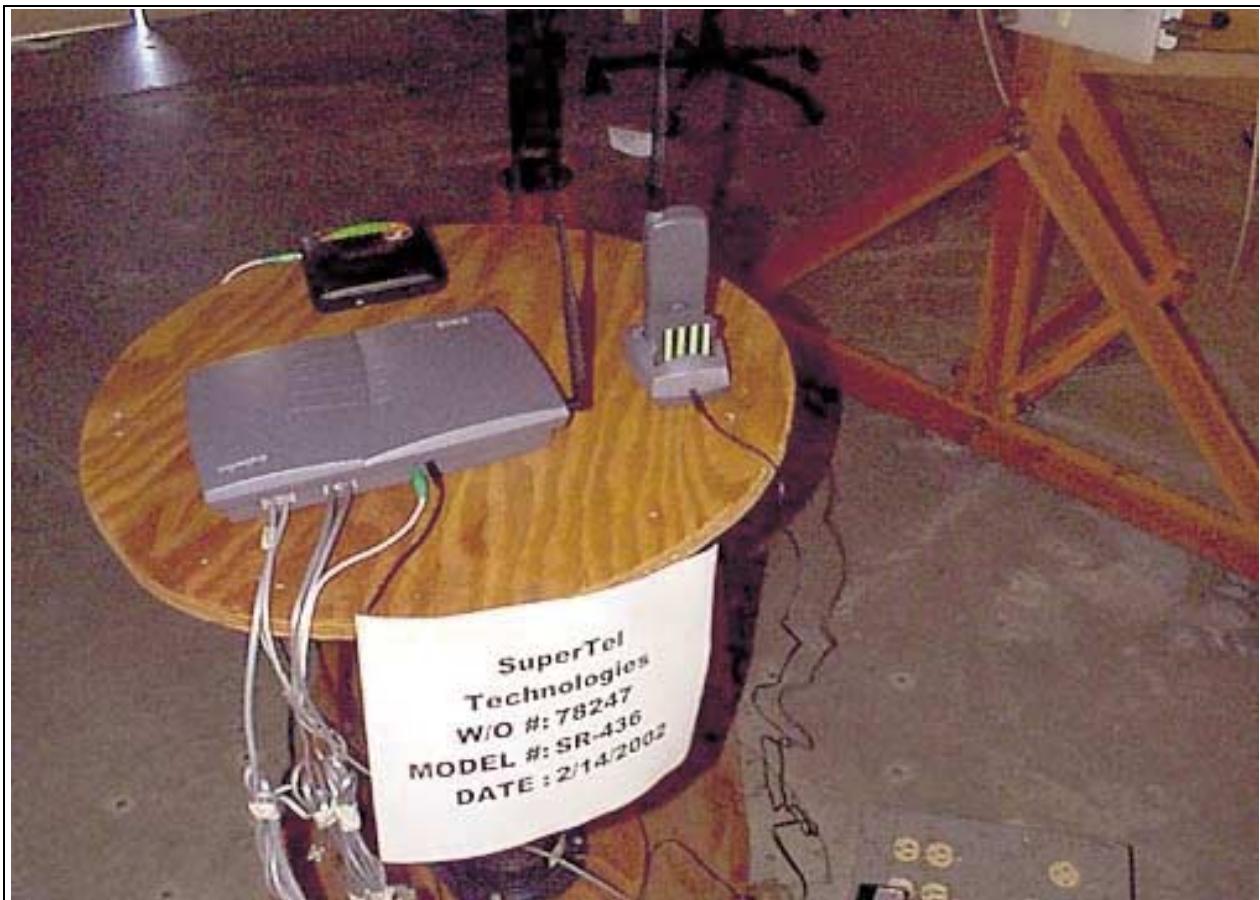


**PHOTOGRAPH SHOWING RADIATED EMISSIONS**



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**



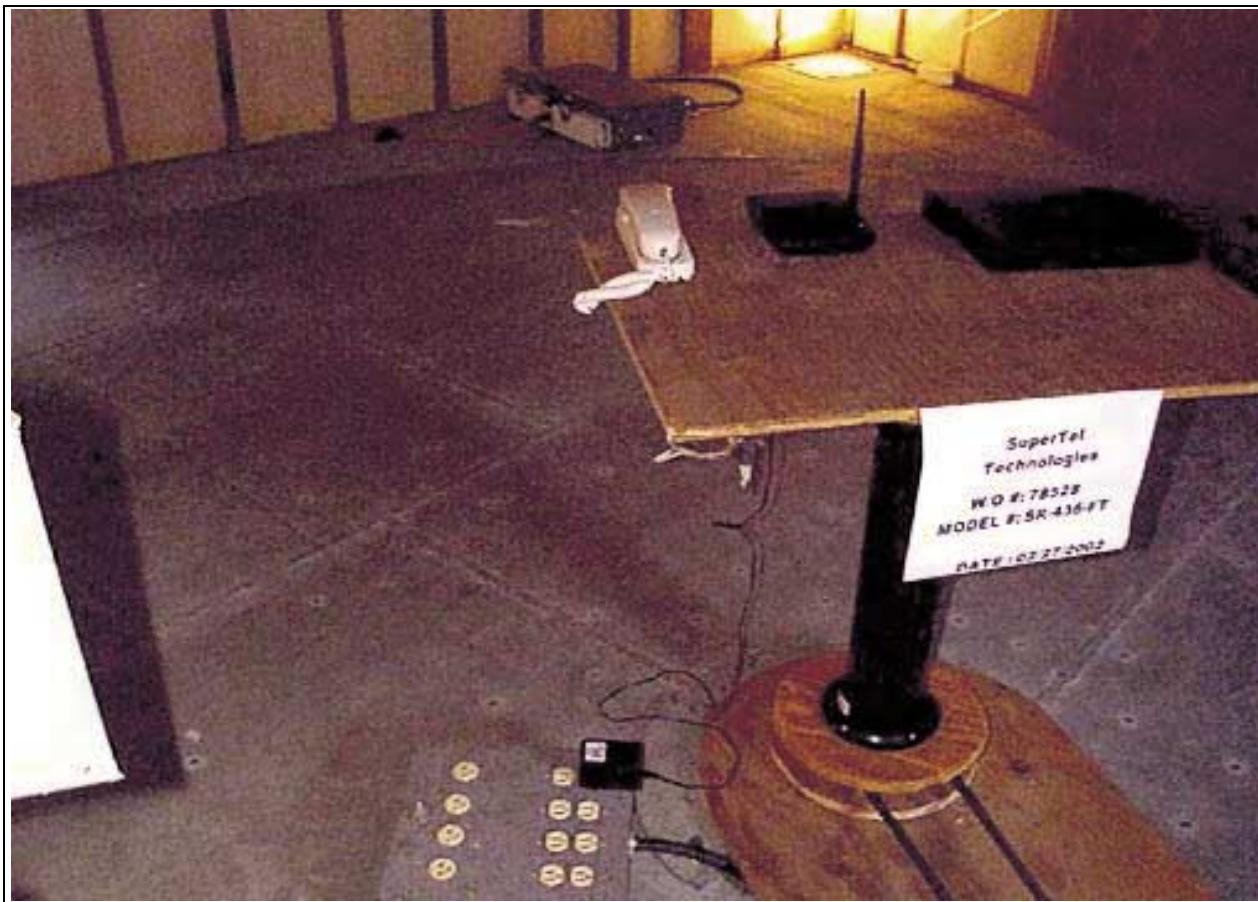
Mains Conducted Emissions - Front View - SR-436

**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  
 Model: SR-436 Base Set  
 S/N: ENG-1  
 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. 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=(Ed)^2/30G. Calculated EIRP for the readings are: 2441 MHz Vertical, meter 104.9 dB<sub>µ</sub>V + 31.2 dB = 136.1 dB<sub>µ</sub>V = 0.429 Watt. 2402 MHz Vertical, meter 98.7 dB<sub>µ</sub>V + 31.2 dB = 129.9 dB<sub>µ</sub>V = 0.103 Watt. 2480 MHz Vertical, meter 98.4 dB<sub>µ</sub>V + 31.2 dB = 129.6 dB<sub>µ</sub>V = 0.096 Watt. 2441 MHz Horizontal, meter 97.2 dB<sub>µ</sub>V + 31.2 dB = 128.4 dB<sub>µ</sub>V = 0.073 Watt. 2403 MHz Horizontal, meter 90.4 dB<sub>µ</sub>V + 31.2 dB = 121.6 dB<sub>µ</sub>V = 0.015 Watt. 2480 MHz Horizontal, meter 88.4 dB<sub>µ</sub>V + 31.2 dB = 119.6 dB<sub>µ</sub>V = 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 MHz	Rdng dB <sub>µ</sub> V	T1 dB	T2 dB	dB	Dist Table	Corr dB <sub>µ</sub> V/m	Spec dB <sub>µ</sub> V/m	Margin dB	Polar 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** Date: 2/12/02  
 Test Type: **Radiated Scan** Time: 08:53:40  
 Equipment: **2.4 GHz 4-Line WPABX** Sequence#: 4  
 Manufacturer: SuperTel Technologies  
 Model: SR-436 Base Set  
 S/N: ENG-1  
 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 MHz	Rdng dB $\mu$ V	T1 dB					Dist Table	Corr dB $\mu$ V	Spec dB $\mu$ V	Margin dB	Polar 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			
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			
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			
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			
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  
 Model: SR-436 Base Set  
 S/N: ENG-1  
 Tested By: Mike Wilkinson

***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	

<b>Measurement Data:</b>			Reading listed by margin.									Test Distance: 3 Meters			
#	Freq	Rdng	T1	T2	T3	T4	Dist	Corr	Spec	Margin	Polar				
			T5	T6	T7		Table	dB $\mu$ V/m	dB $\mu$ V/m						
			MHz	dB $\mu$ V	dB	dB	dB								
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	12400.240M	48.4	-35.0	+1.1	+0.0	+0.0	-10.0	46.2	54.0	-7.8	Vert				
			+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	46.9	-35.0	+1.0	+0.0	+0.0	-10.0	44.6	54.0	-9.4	Vert
	M		+0.1	+4.4	+37.2						
Low channel											
7	884.713M	39.2	+0.0	+0.0	+23.2	-27.6	+0.0	34.8	46.0	-11.2	Vert
			+0.0	+0.0	+0.0						High channel
8	4806.163M	52.2	-40.0	+0.3	+0.0	+0.0	-10.0	38.5	54.0	-15.5	Vert
	Ave		+0.1	+2.7	+33.2						Low channel
^	4806.163M	74.8	-40.0	+0.3	+0.0	+0.0	-10.0	61.1	54.0	+7.1	Vert
			+0.1	+2.7	+33.2						Low channel
10	7324.740M	47.8	-38.0	+0.3	+0.0	+0.0	-10.0	38.4	54.0	-15.6	Vert
	Ave		+0.5	+3.3	+34.5						Mid channel
^	7324.740M	67.0	-38.0	+0.3	+0.0	+0.0	-10.0	57.6	54.0	+3.6	Vert
			+0.5	+3.3	+34.5						Mid channel
12	4883.215M	51.7	-40.0	+0.4	+0.0	+0.0	-10.0	38.2	54.0	-15.8	Horiz
	Ave		+0.1	+2.7	+33.3						Mid channel
^	4883.215M	71.5	-40.0	+0.4	+0.0	+0.0	-10.0	58.0	54.0	+4.0	Horiz
			+0.1	+2.7	+33.3						Mid channel
14	14649.420	36.1	-34.0	+1.8	+0.0	+0.0	-10.0	37.4	54.0	-16.6	Vert
	M		+0.5	+4.8	+38.2						Mid channel
Ave											
^	14649.420	47.7	-34.0	+1.8	+0.0	+0.0	-10.0	49.0	54.0	-5.0	Vert
	M		+0.5	+4.8	+38.2						Mid channel
16	499.713M	37.8	+0.0	+0.0	+19.2	-27.8	+0.0	29.2	46.0	-16.8	Vert
			+0.0	+0.0	+0.0						Low channel
17	12207.920	38.0	-35.0	+1.1	+0.0	+0.0	-10.0	35.8	54.0	-18.2	Vert
	M		+0.1	+4.4	+37.2						Mid channel
^	12207.920	54.4	-35.0	+1.1	+0.0	+0.0	-10.0	52.2	54.0	-1.8	Vert
	M		+0.1	+4.4	+37.2						Mid channel
19	483.319M	34.8	+0.0	+0.0	+18.7	-27.7	+0.0	25.8	46.0	-20.2	Vert
			+0.0	+0.0	+0.0						Mid channel
20	4883.240M	47.3	-40.0	+0.4	+0.0	+0.0	-10.0	33.8	54.0	-20.2	Vert
	Ave		+0.1	+2.7	+33.3						Mid channel
^	4883.240M	72.1	-40.0	+0.4	+0.0	+0.0	-10.0	58.6	54.0	+4.6	Vert
			+0.1	+2.7	+33.3						Mid channel
22	499.713M	33.7	+0.0	+0.0	+19.2	-27.8	+0.0	25.1	46.0	-20.9	Vert
			+0.0	+0.0	+0.0						Mid channel
23	475.141M	33.7	+0.0	+0.0	+18.5	-27.7	+0.0	24.5	46.0	-21.5	Vert
			+0.0	+0.0	+0.0						Low channel
24	7440.240M	41.4	-38.0	+0.3	+0.0	+0.0	-10.0	32.2	54.0	-21.8	Vert
	Ave		+0.5	+3.4	+34.6						High channel
^	7440.240M	64.3	-38.0	+0.3	+0.0	+0.0	-10.0	55.1	54.0	+1.1	Vert
			+0.5	+3.4	+34.6						High channel
26	475.149M	33.0	+0.0	+0.0	+18.5	-27.7	+0.0	23.8	46.0	-22.2	Vert
			+0.0	+0.0	+0.0						Mid channel
27	499.713M	31.8	+0.0	+0.0	+19.2	-27.8	+0.0	23.2	46.0	-22.8	Horiz
			+0.0	+0.0	+0.0						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	SuperTel	SR-436	none
Station*			

***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 MHz	Rdng dB $\mu$ V	Dist Table	Corr dB $\mu$ V	Spec dB $\mu$ V	Margin dB	Polar 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  
 Model: SR-436 Hand Set  
 S/N: None  
 Tested By: Mike Wilkinson

***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=(Ed)^2/30G. Calculated EIRP for the 6 highest readings are: 2441 MHz, meter 104.5 dB<sub>µ</sub>V + 31.2 dB = 135.7 dB<sub>µ</sub>V = 0.392 Watt. 2402 MHz, meter 102.5 dB<sub>µ</sub>V + 31.2 dB = 133.7 dB<sub>µ</sub>V = 0.247 Watt. 2479 MHz, meter 102.3 dB<sub>µ</sub>V + 31.2 dB = 133.5 dB<sub>µ</sub>V = 0.236 Watt. 2402 MHz, meter 102.2 dB<sub>µ</sub>V + 31.2 dB = 133.4 dB<sub>µ</sub>V = 0.231 Watt. 2480 MHz, meter 102.0 dB<sub>µ</sub>V + 31.2 dB = 133.2 dB<sub>µ</sub>V = 0.220 Watt. 2441 MHz, meter 101.9 dB<sub>µ</sub>V + 31.2 dB = 133.1 dB<sub>µ</sub>V = 0.215 Watt.

***Transducer Legend:***

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

<b>Measurement Data:</b>				Reading listed by margin.								Test Distance: 1 & 3 Meters			
#	Freq MHz	Rdng dB <sub>µ</sub> V		T1 dB	T2 dB			Dist Table	Corr dB <sub>µ</sub> V/m	Spec dB <sub>µ</sub> V/m	Margin dB	Polar Ant			
1	2441.480M	104.5	+29.3	+1.9				-10.0	125.7	137.0	-11.3	Vert Mid channel, vertical position			
2	2402.980M	102.5	+29.3	+1.9				-10.0	123.7	137.0	-13.3	Horiz Low channel, side position			
3	2479.950M	102.3	+29.3	+1.9				-10.0	123.5	137.0	-13.5	Vert High channel, Vertical position			
4	2402.850M	102.2	+29.3	+1.9				-10.0	123.4	137.0	-13.6	Vert Low channel, vertical position			
5	2480.080M	102.0	+29.3	+1.9				-10.0	123.2	137.0	-13.8	Horiz High channel, side position			
6	2441.430M	101.9	+29.3	+1.9				-10.0	123.1	137.0	-13.9	Horiz Mid channel, side position			

7	2479.950M	96.6	+29.3	+1.9	-10.0	117.8	137.0	-19.2	Vert				
					High channel, Horizontal Position								
8	2441.630M	96.4	+29.3	+1.9	-10.0	117.6	137.0	-19.4	Vert				
					Mid channel. horizontal position								
9	2403.080M	96.4	+29.3	+1.9	-10.0	117.6	137.0	-19.4	Vert				
					Low channel, horizontal position								
10	2403.150M	95.5	+29.3	+1.9	-10.0	116.7	137.0	-20.3	Horiz				
					Low channel, horizontal position								
11	2441.575M	95.5	+29.3	+1.9	-10.0	116.7	137.0	-20.3	Horiz				
					Mid channel, horizontal position								
12	2480.188M	95.5	+29.3	+1.9	-10.0	116.7	137.0	-20.3	Horiz				
					High channel, horizontal position								
13	2403.080M	92.1	+29.3	+1.9	-10.0	113.3	137.0	-23.7	Vert				
					Low channel, side position								
14	2480.150M	91.4	+29.3	+1.9	-10.0	112.6	137.0	-24.4	Vert				
					High channel, side position								
15	2441.730M	91.4	+29.3	+1.9	-10.0	112.6	137.0	-24.4	Vert				
					Mid channel, side position								
16	2441.563M	88.4	+29.3	+1.9	-10.0	109.6	137.0	-27.4	Horiz				
					Mid channel, vertical position								
17	2480.150M	88.3	+29.3	+1.9	-10.0	109.5	137.0	-27.5	Horiz				
					High channel, vertical position								
18	2403.650M	88.3	+29.3	+1.9	-10.0	109.5	137.0	-27.5	Horiz				
					Low channel, 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  
 Model: SR-436 Hand Set  
 S/N: ENG-1  
 Tested By: Mike Wilkinson

***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	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
			T5	T6	T7		Table	dB $\mu$ V/m	dB $\mu$ V/m		
	MHz	dB $\mu$ V	dB	dB	dB	dB					
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	28.8	-34.0	+2.4	+0.0	+0.0	-10.0	39.1	54.0	-14.9	Vert
	M		+3.5	+5.2	+43.2						
	Ave										Low channel, side position
^	16821.600	40.4	-34.0	+2.4	+0.0	+0.0	-10.0	50.7	54.0	-3.3	Vert
	M		+3.5	+5.2	+43.2						Low channel, side position
8	7440.313M	47.4	-38.0	+0.3	+0.0	+0.0	-10.0	38.2	54.0	-15.8	Vert
	Ave		+0.5	+3.4	+34.6						High channel, side position
^	7440.313M	75.3	-38.0	+0.3	+0.0	+0.0	-10.0	66.1	54.0	+12.1	Vert
			+0.5	+3.4	+34.6						High channel, side position
10	7440.138M	47.0	-38.0	+0.3	+0.0	+0.0	-10.0	37.8	54.0	-16.2	Vert
	Ave		+0.5	+3.4	+34.6						High channel, horizontal position
11	7324.675M	46.9	-38.0	+0.3	+0.0	+0.0	-10.0	37.5	54.0	-16.5	Horiz
	Ave		+0.5	+3.3	+34.5						Mid channel, vertical position
^	7324.675M	71.2	-38.0	+0.3	+0.0	+0.0	-10.0	61.8	54.0	+7.8	Horiz
			+0.5	+3.3	+34.5						Mid channel, vertical position
^	7324.713M	64.8	-38.0	+0.3	+0.0	+0.0	-10.0	55.4	54.0	+1.4	Horiz
			+0.5	+3.3	+34.5						Mid channel, side position
14	12208.040	39.7	-35.0	+1.1	+0.0	+0.0	-10.0	37.5	54.0	-16.5	Horiz
	M		+0.1	+4.4	+37.2						Mid channel, side position
	Ave										
15	7324.788M	46.3	-38.0	+0.3	+0.0	+0.0	-10.0	36.9	54.0	-17.1	Vert
	Ave		+0.5	+3.3	+34.5						Mid channel, vertical position
^	7324.788M	68.9	-38.0	+0.3	+0.0	+0.0	-10.0	59.5	54.0	+5.5	Vert
			+0.5	+3.3	+34.5						Mid channel, vertical position
^	7324.850M	62.9	-38.0	+0.3	+0.0	+0.0	-10.0	53.5	54.0	-0.5	Vert
			+0.5	+3.3	+34.5						Mid channel, side position
18	12400.500	38.8	-35.0	+1.1	+0.0	+0.0	-10.0	36.6	54.0	-17.4	Horiz
	M		+0.1	+4.4	+37.2						High channel, side position
	Ave										
^	12400.500	57.9	-35.0	+1.1	+0.0	+0.0	-10.0	55.7	54.0	+1.7	Horiz
	M		+0.1	+4.4	+37.2						High channel, side position
20	12207.900	38.8	-35.0	+1.1	+0.0	+0.0	-10.0	36.6	54.0	-17.4	Vert
	M		+0.1	+4.4	+37.2						Mid channel, horizontal position
	Ave										

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

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

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

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

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

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

--

<b>Measurement Data:</b> Reading listed by margin.				Test Distance: None				
#	Freq MHz	Rdng dB $\mu$ V	Margin dB	Dist Table	Corr dB $\mu$ V	Spec dB $\mu$ V	Margin dB	Polar 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. 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=(Ed)^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
--------------	-------------------------------------

<b>Measurement Data:</b>				Reading listed by margin.							Test Distance: 1 Meter			
#	Freq MHz	Rdng dB $\mu$ V		T1 dB	T2 dB		dB	Dist Table	Corr dB $\mu$ V/m	Spec dB $\mu$ V/m	Margin dB	Polar 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:**

<b>Measurement Data:</b>		Reading listed by margin.					Test Distance: None				
#	Freq MHz	Rdng dB $\mu$ V	Dist Table	Corr dB $\mu$ V	Spec dB $\mu$ V	Margin dB	Polar Ant				
1	2441.580M	131.8		+0.0	131.8	137.0	-5.2	None			
						115%, mid channel					
2	2441.535M	131.8		+0.0	131.8	137.0	-5.2	None			
						Nominal, mid channel					
3	2480.065M	131.3		+0.0	131.3	137.0	-5.7	None			
						115%, high channel					
4	2480.075M	131.3		+0.0	131.3	137.0	-5.7	None			
						Nominal, high channel					
5	2441.530M	131.2		+0.0	131.2	137.0	-5.8	None			
						85%, mid channel					
6	2480.100M	130.9		+0.0	130.9	137.0	-6.1	None			
						85%, high channel					
7	2403.070M	128.9		+0.0	128.9	137.0	-8.1	None			
						Nominal, low channel					
8	2403.070M	128.6		+0.0	128.6	137.0	-8.4	None			
						85%, low channel					
9	2403.130M	128.3		+0.0	128.3	137.0	-8.7	None			
						115%, low 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: **2/28/02**  
 Test Type: **Radiated Scan** Time: **10:59:47**  
 Equipment: **Fixed Terminal** Sequence#: **3**  
 Manufacturer: SuperTel Technologies  
 Model: SR-436-FT  
 S/N: 022200001  
 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	

<b><i>Measurement Data:</i></b>			Reading listed by margin.									Test Distance: 1 & 3 Meters			
#	Freq	Rdng	T1	T2	T3	T4	Dist	Corr	Spec	Margin	Polar				
			T5	T6	T7		Table	dB $\mu$ V	dB $\mu$ V	dB	Ant				
MHz	dB $\mu$ V	dB	dB	dB	dB	dB	Table	dB $\mu$ V	dB $\mu$ V	dB	Ant				
1 14880.640	47.6	-34.0	+1.8	+0.0	+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	+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	+1.8	+0.0	+0.0	-10.0	46.1	54.0	-7.9	Vert
			+0.5	+4.8	+38.2						Mid channel
7	103.656M	52.1	+0.0	+0.0	+10.0	-27.0	+0.0	35.1	43.5	-8.4	Vert
			+0.0	+0.0	+0.0						High channel
8	196.609M	52.6	+0.0	+0.0	+8.8	-26.7	+0.0	34.7	43.5	-8.8	Vert
			+0.0	+0.0	+0.0						Mid Channel
9	334.115M	49.2	+0.0	+0.0	+14.3	-26.7	+0.0	36.8	46.0	-9.2	Horiz
QP			+0.0	+0.0	+0.0						Mid Channel
^	334.115M	60.1	+0.0	+0.0	+14.3	-26.7	+0.0	47.7	46.0	+1.7	Horiz
			+0.0	+0.0	+0.0						Low channel
^	334.121M	58.1	+0.0	+0.0	+14.3	-26.7	+0.0	45.7	46.0	-0.3	Horiz
			+0.0	+0.0	+0.0						Mid Channel
^	334.118M	47.4	+0.0	+0.0	+14.3	-26.7	+0.0	35.0	46.0	-11.0	Horiz
			+0.0	+0.0	+0.0						High channel
13	467.758M	45.8	+0.0	+0.0	+18.3	-27.7	+0.0	36.4	46.0	-9.6	Horiz
			+0.0	+0.0	+0.0						Mid Channel
14	4883.175M	56.9	-40.0	+0.4	+0.0	+0.0	-10.0	43.4	54.0	-10.6	Vert
Ave			+0.1	+2.7	+33.3						Mid channel
^	4883.175M	82.7	-40.0	+0.4	+0.0	+0.0	-10.0	69.2	54.0	+15.2	Vert
			+0.1	+2.7	+33.3						Mid channel
16	339.634M	46.4	+0.0	+0.0	+14.5	-26.7	+0.0	34.2	46.0	-11.8	Horiz
QP			+0.0	+0.0	+0.0						Mid Channel
^	339.616M	54.3	+0.0	+0.0	+14.5	-26.7	+0.0	42.0	46.0	-4.0	Horiz
			+0.0	+0.0	+0.0						Mid Channel
18	334.106M	45.6	+0.0	+0.0	+14.3	-26.7	+0.0	33.2	46.0	-12.8	Vert
QP			+0.0	+0.0	+0.0						Mid Channel
^	334.128M	53.9	+0.0	+0.0	+14.3	-26.7	+0.0	41.5	46.0	-4.5	Vert
			+0.0	+0.0	+0.0						Mid Channel
^	334.121M	53.8	+0.0	+0.0	+14.3	-26.7	+0.0	41.4	46.0	-4.6	Vert
			+0.0	+0.0	+0.0						Low channel
^	334.104M	46.2	+0.0	+0.0	+14.3	-26.7	+0.0	33.8	46.0	-12.2	Vert
			+0.0	+0.0	+0.0						High channel
22	334.118M	45.0	+0.0	+0.0	+14.3	-26.7	+0.0	32.6	46.0	-13.4	Vert
QP			+0.0	+0.0	+0.0						Low channel
23	393.220M	42.5	+0.0	+0.0	+16.0	-27.1	+0.0	31.4	46.0	-14.6	Vert
			+0.0	+0.0	+0.0						Mid Channel
24	4806.166M	53.1	-40.0	+0.3	+0.0	+0.0	-10.0	39.4	54.0	-14.6	Vert
Ave			+0.1	+2.7	+33.2						Low channel
^	4806.166M	77.9	-40.0	+0.3	+0.0	+0.0	-10.0	64.2	54.0	+10.2	Vert
			+0.1	+2.7	+33.2						Low channel
26	393.207M	41.7	+0.0	+0.0	+16.0	-27.1	+0.0	30.6	46.0	-15.4	Vert
			+0.0	+0.0	+0.0						Low channel
27	334.115M	42.3	+0.0	+0.0	+14.3	-26.7	+0.0	29.9	46.0	-16.1	Horiz
QP			+0.0	+0.0	+0.0						Low channel
28	4960.150M	50.9	-40.0	+0.4	+0.0	+0.0	-10.0	37.6	54.0	-16.4	Vert
Ave			+0.1	+2.8	+33.4						High channel
^	4960.150M	76.5	-40.0	+0.4	+0.0	+0.0	-10.0	63.2	54.0	+9.2	Vert
			+0.1	+2.8	+33.4						High channel
30	286.713M	42.4	+0.0	+0.0	+13.0	-26.4	+0.0	29.0	46.0	-17.0	Horiz
			+0.0	+0.0	+0.0						Low channel

31	768.455M	34.8	+0.0	+0.0	+21.7	-27.9	+0.0	28.6	46.0	-17.4	Vert
			+0.0	+0.0	+0.0						Low channel
32	491.533M	36.0	+0.0	+0.0	+19.0	-27.8	+0.0	27.2	46.0	-18.8	Vert
			+0.0	+0.0	+0.0						Mid Channel
33	491.503M	35.9	+0.0	+0.0	+19.0	-27.8	+0.0	27.1	46.0	-18.9	Vert
			+0.0	+0.0	+0.0						High channel
34	200.481M	41.6	+0.0	+0.0	+8.8	-26.7	+0.0	23.7	43.5	-19.8	Vert
			+0.0	+0.0	+0.0						Low channel
35	335.888M	37.4	+0.0	+0.0	+14.4	-26.7	+0.0	25.1	46.0	-20.9	Vert
			+0.0	+0.0	+0.0						High channel
36	9920.300M	38.0	-36.4	+0.5	+0.0	+0.0	-10.0	33.0	54.0	-21.0	Vert
	Ave		+0.6	+3.9	+36.4						High channel
^	9920.300M	62.2	-36.4	+0.5	+0.0	+0.0	-10.0	57.2	54.0	+3.2	Vert
			+0.6	+3.9	+36.4						High channel
38	7209.241M	41.6	-38.0	+0.3	+0.0	+0.0	-10.0	32.0	54.0	-22.0	Vert
	Ave		+0.5	+3.3	+34.3						Low channel
^	7209.241M	61.6	-38.0	+0.3	+0.0	+0.0	-10.0	52.0	54.0	-2.0	Vert
			+0.5	+3.3	+34.3						Low channel
40	12400.530	34.0	-35.0	+1.1	+0.0	+0.0	-10.0	31.8	54.0	-22.2	Vert
	M		+0.1	+4.4	+37.2						High channel
^	12400.530	55.2	-35.0	+1.1	+0.0	+0.0	-10.0	53.0	54.0	-1.0	Vert
	M		+0.1	+4.4	+37.2						High channel
42	4960.225M	45.0	-40.0	+0.4	+0.0	+0.0	-10.0	31.7	54.0	-22.3	Horiz
	Ave		+0.1	+2.8	+33.4						High channel
^	4960.225M	68.6	-40.0	+0.4	+0.0	+0.0	-10.0	55.3	54.0	+1.3	Horiz
			+0.1	+2.8	+33.4						High channel
44	14879.960	29.9	-34.0	+1.8	+0.0	+0.0	-10.0	30.9	54.0	-23.1	Vert
	M		+0.4	+4.8	+38.0						High channel
^	14879.960	50.0	-34.0	+1.8	+0.0	+0.0	-10.0	30.9	54.0	-23.1	Vert
	Ave		+0.4	+4.8	+38.0						High channel
45	475.126M	31.8	+0.0	+0.0	+18.5	-27.7	+0.0	22.6	46.0	-23.4	Vert
			+0.0	+0.0	+0.0						Low channel
46	9612.340M	36.6	-37.0	+0.4	+0.0	+0.0	-10.0	30.4	54.0	-23.6	Vert
	Ave		+0.4	+3.8	+36.2						Low channel
^	9612.341M	60.1	-37.0	+0.4	+0.0	+0.0	-10.0	53.9	54.0	-0.1	Vert
			+0.4	+3.8	+36.2						Low channel
48	7440.275M	39.4	-38.0	+0.3	+0.0	+0.0	-10.0	30.2	54.0	-23.8	Horiz
	Ave		+0.5	+3.4	+34.6						High channel
^	7440.275M	63.3	-38.0	+0.3	+0.0	+0.0	-10.0	54.1	54.0	+0.1	Horiz
			+0.5	+3.4	+34.6						High channel
50	12015.450	32.4	-35.0	+1.0	+0.0	+0.0	-10.0	30.1	54.0	-23.9	Vert
	M		+0.1	+4.4	+37.2						Low channel
^	12015.450	52.2	-35.0	+1.0	+0.0	+0.0	-10.0	49.9	54.0	-4.1	Vert
	M		+0.1	+4.4	+37.2						Low channel

52	12208.020	31.9	-35.0	+1.1	+0.0	+0.0	-10.0	29.7	54.0	-24.3	Horiz
	M		+0.1	+4.4	+37.2						
	Ave										Mid channel
^	12208.020	52.1	-35.0	+1.1	+0.0	+0.0	-10.0	49.9	54.0	-4.1	Horiz
	M		+0.1	+4.4	+37.2						
											Mid channel
54	12015.390	31.5	-35.0	+1.0	+0.0	+0.0	-10.0	29.2	54.0	-24.8	Horiz
	M		+0.1	+4.4	+37.2						
	Ave										Low channel
^	12015.390	50.8	-35.0	+1.0	+0.0	+0.0	-10.0	48.5	54.0	-5.5	Horiz
	M		+0.1	+4.4	+37.2						
											Low channel
56	12207.920	31.1	-35.0	+1.1	+0.0	+0.0	-10.0	28.9	54.0	-25.1	Vert
	M		+0.1	+4.4	+37.2						
	Ave										Mid channel
^	12207.920	54.7	-35.0	+1.1	+0.0	+0.0	-10.0	52.5	54.0	-1.5	Vert
	M		+0.1	+4.4	+37.2						
											Mid channel
58	4806.190M	42.5	-40.0	+0.3	+0.0	+0.0	-10.0	28.8	54.0	-25.2	Horiz
	Ave		+0.1	+2.7	+33.2						
											Low channel
^	4806.191M	68.4	-40.0	+0.3	+0.0	+0.0	-10.0	54.7	54.0	+0.7	Horiz
			+0.1	+2.7	+33.2						
											Low channel
60	4883.212M	42.1	-40.0	+0.4	+0.0	+0.0	-10.0	28.6	54.0	-25.4	Horiz
	Ave		+0.1	+2.7	+33.3						
											Mid channel
^	4883.212M	72.2	-40.0	+0.4	+0.0	+0.0	-10.0	58.7	54.0	+4.7	Horiz
			+0.1	+2.7	+33.3						
											Mid channel
62	7440.300M	37.7	-38.0	+0.3	+0.0	+0.0	-10.0	28.5	54.0	-25.5	Vert
	Ave		+0.5	+3.4	+34.6						
											High channel
^	7440.300M	66.9	-38.0	+0.3	+0.0	+0.0	-10.0	57.7	54.0	+3.7	Vert
			+0.5	+3.4	+34.6						
											High channel
64	7324.837M	37.9	-38.0	+0.3	+0.0	+0.0	-10.0	28.5	54.0	-25.5	Vert
	Ave		+0.5	+3.3	+34.5						
											Mid channel
^	7324.837M	66.5	-38.0	+0.3	+0.0	+0.0	-10.0	57.1	54.0	+3.1	Vert
			+0.5	+3.3	+34.5						
											Mid channel
66	9766.350M	33.3	-37.0	+0.6	+0.0	+0.0	-10.0	27.6	54.0	-26.4	Vert
	Ave		+0.5	+3.9	+36.3						
											Mid channel
^	9766.350M	62.0	-37.0	+0.6	+0.0	+0.0	-10.0	56.3	54.0	+2.3	Vert
			+0.5	+3.9	+36.3						
											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  
 Model: SR-436 Base Set  
 S/N: ENG-1  
 Tested By: Mike Wilkinson

**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.

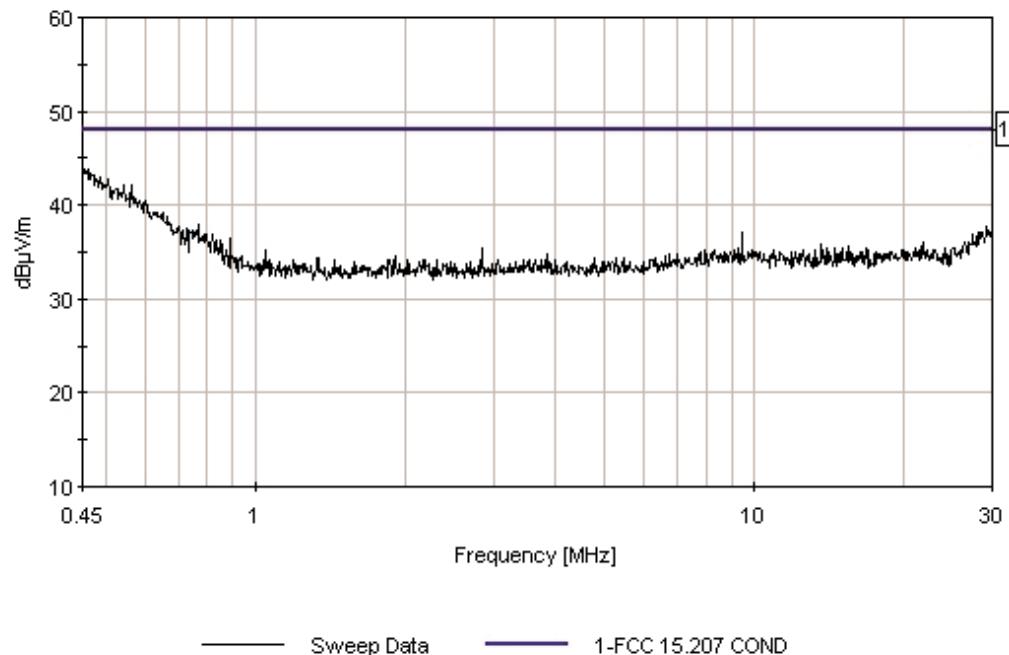
**Transducer Legend:**

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

#	Freq MHz	Rdng dB $\mu$ V	Reading listed by margin.			Dist Table	Corr dB $\mu$ V/m	Spec dB $\mu$ V/m	Margin dB	Polar Ant
			T1 dB	T2 dB	Margin dB					
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  
 Model: SR-436 Base Set  
 S/N: ENG-1  
 Tested By: Mike Wilkinson

***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.

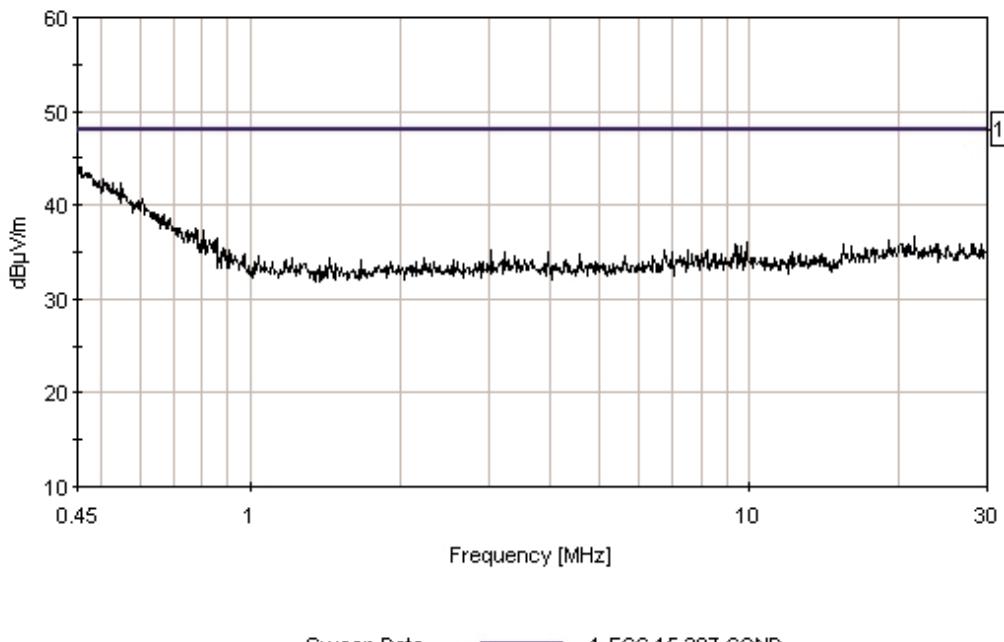
***Transducer Legend:***

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

#	Freq MHz	Rdng dB $\mu$ V	Reading listed by margin.			Dist Table	Corr dB $\mu$ V/m	Spec dB $\mu$ V/m	Margin dB	Polar Ant
			T1 dB	T2 dB	Margin dB					
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	VVO#: 78247
FCC 15.207 COND	Test Lead: White	Sequence#: 7	
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: **5:24:26 PM**  
 Equipment: **2.4 GHz 4-Line WPABX** Sequence#: **9**  
 Manufacturer: SuperTel Technologies  
 Model: SR-436 Hand Set  
 S/N: ENG-1  
 Tested By: Mike Wilkinson

***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:***

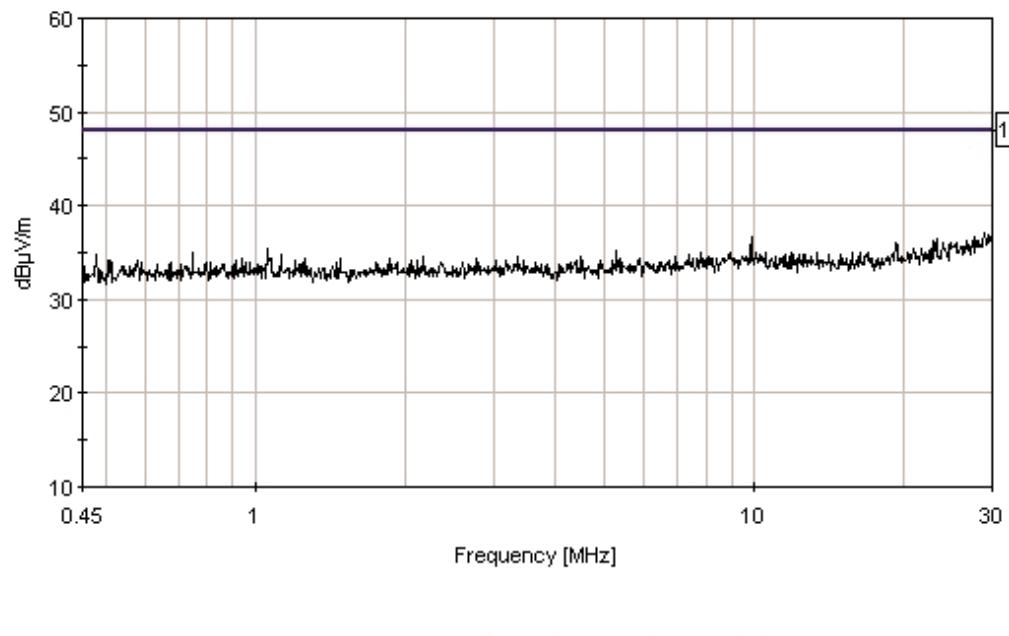
The channels are locked and set to High Channel EUT antenna is in the vertical position. 5 dBi gain antenna connected to the EUT. Base L-1 port is connected to the remote located CO Simulator via a 20 foot RJ-11 cable. L-2 through L-4 ports have unterminated 2 meter RJ 11 cables attached. Audio port 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
------------------------	---------

#	Freq MHz	Reading listed by margin.			Dist Table	Corr dB $\mu$ V/m	Spec dB $\mu$ V/m	Margin dB	Polar Ant
		Rdng dB $\mu$ V	T1 dB	T2 dB					
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  
 Model: SR-436 Hand Set  
 S/N: ENG-1  
 Tested By: Mike Wilkinson

**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.

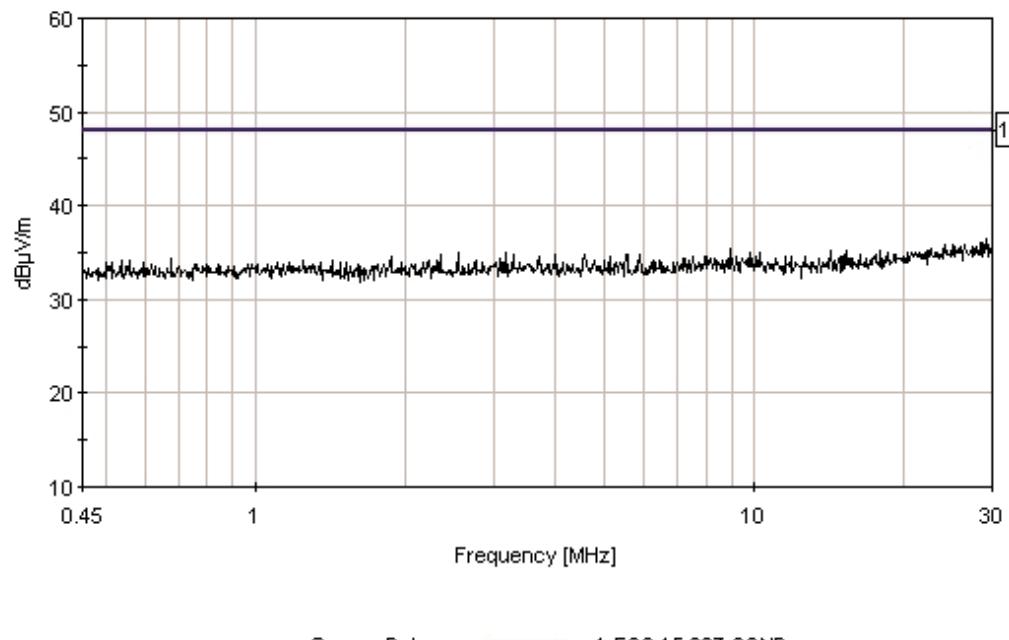
**Transducer Legend:**

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

#	Freq MHz	Reading listed by margin.			Dist Table	Test Lead: White		
		Rdng dB $\mu$ V	T1 dB	T2 dB		Corr dB $\mu$ V/m	Spec dB $\mu$ V/m	Margin dB
1	29.064M	33.9	+1.5	+1.1	+0.0	36.5	48.0	-11.5
2	28.518M	33.6	+1.5	+1.0	+0.0	36.1	48.0	-11.9
3	29.337M	33.3	+1.5	+1.1	+0.0	35.9	48.0	-12.1
4	24.111M	33.7	+1.4	+0.8	+0.0	35.9	48.0	-12.1
5	24.969M	33.5	+1.4	+0.9	+0.0	35.8	48.0	-12.2
6	22.668M	33.4	+1.4	+0.7	+0.0	35.5	48.0	-12.5
7	8.929M	34.4	+0.9	+0.1	+0.0	35.4	48.0	-12.6
8	14.225M	34.2	+1.1	+0.0	+0.0	35.3	48.0	-12.7

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  
 Model: SR-436-FT Tested By: Mike Wilkinson  
 S/N: 022200001 120V 60Hz

***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.

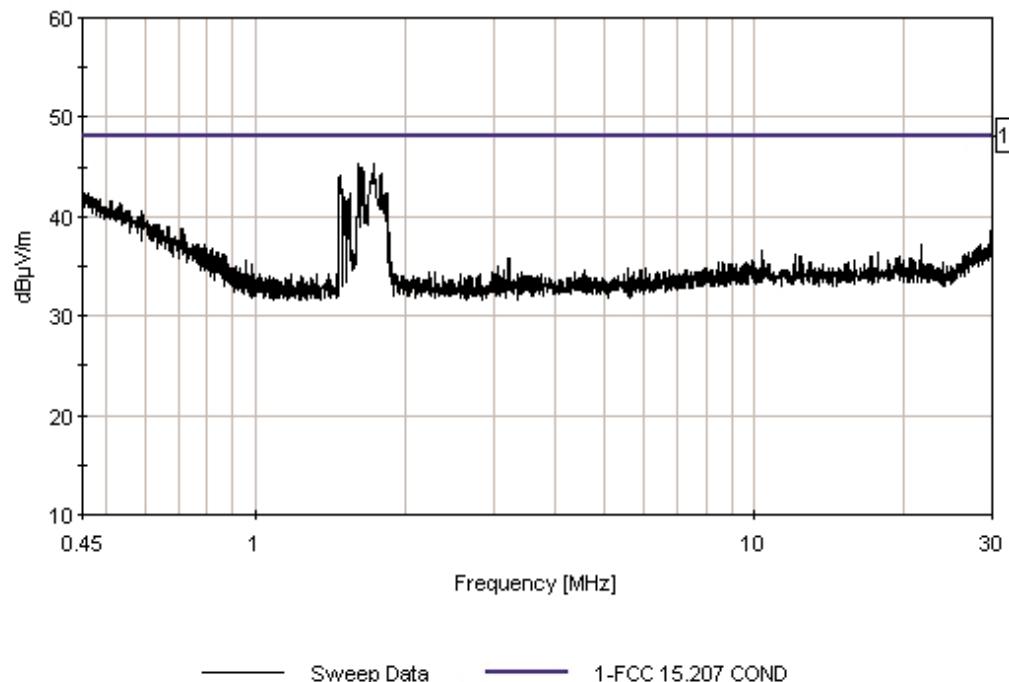
***Transducer Legend:***

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

#	Freq MHz	Rdng dB $\mu$ V	Reading listed by margin.			Dist Table	Corr dB $\mu$ V/m	Spec dB $\mu$ V/m	Margin dB	Polar Ant
			T1 dB	T2 dB	dB					
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. WO#: 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  
 Model: SR-436-FT Tested By: Mike Wilkinson  
 S/N: 022200001 120V 60Hz

***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
------------------------	---------

<b>Measurement Data:</b> Reading listed by margin.				Test Lead: White						
#	Freq MHz	Rdng dB $\mu$ V	T1 dB	T2 dB	dB	Dist Table	Corr dB $\mu$ V/m	Spec dB $\mu$ V/m	Margin dB	Polar 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. WO#: 78247  
FCC 15.207 COND Test Lead: White 120V 60Hz Sequence#: 5

