# Certification Test Report

For a

## CryMed Cryoablator Hand-Held Remote Control

**Manufacturer:**

BIOMEC, Inc.
1771 East 30th Street
Cleveland, Ohio 44114
United States of America

**Testing Laboratory:**

F-Squared Laboratories
16740 Peters Road
Middlefield, Ohio 44062
United States of America

The Hand-Held Remote Control (DTS Transmitter) model CTI-G2-50L-R, for the BIOMEC/Crymed Cryoablator, was tested and was found to comply with the requirements of the Federal Communications Commission outlined in the Federal Register CFR 47, Part 15.247.

The product was received on Nov. 21, 2005 and the testing was completed on Dec. 6, 2005.

**Evaluation Conducted By:**

**Kenneth P. Klann**
**EMC Engineer**

**Report Reviewed By:**

**John Harrington**
**EMC Technical Manager**

**F-Squared Laboratories**
14333Kinsman Road
Burton, OH 44021
(440) 834-8926
Fax: (440) 834-8914

# Table of Contents

## 1. ENGINEERING STATEMENT

This report has been prepared on behalf of BIOMEC, Inc. to provide documentation for the testing described herein. This equipment has been tested and found to comply with Part 15.247 of the FCC Rules using ANSI C63.4 2003 standards. The test results found in this test report relate only to the items tested.

### 1.1. Equipment Under Test:
BIOMEC/Crymed Cryoablator Hand-Held Remote Control
FCC ID: TUYCTIG250LR

### 1.2. Trade Name:
BIOMEC

### 1.3. Model:
BIOMEC/Crymed Cryoablator CTI-G2-50L-R Hand-Held Remote Control

### 1.4. Power Supply:
Batteries - 2 AAA

### 1.5. Applicable Rules:
CFR 47, Part 15.247, subpart C

### 1.6. Equipment Category:
Radio Transmitter-DTS

### 1.7. Antenna:
Chip Antenna (integral)
Johnson Technology CPN: Antenna AT-45
PN: 2Y50AT45A100S

### 1.8. Measurement Location:
F-Squared Laboratories in Middlefield, Ohio. Site description and attenuation data are on file with the FCC's Sampling and Measurement Branch at the FCC Laboratory in Columbia, MD**.**

### 1.9. Measurement Procedure:
All measurements were performed according to the 2003 version of ANSI C63.4 and recommended FCC procedure of measurement of DTS operating under Section 15.247 dated March 2005. A list of the measurement equipment can be found in Section 2.

### 1.10. Uncertainty Budget:
Radiated Emission - Combined Uncertainty (+ or -) 2.24 dB; Expanded Uncertainty (+ or -) 4.48 dB

### 1.11. Engineering Certification:
The undersigned of this report hereby state that the measurements shown in this application were made in accordance with the procedures indicated, and that the energy emitted by this equipment was found to

be within the limits. The undersigned assume full responsibility for the accuracy and completeness of these measurements and further state that, on the basis of the measurements made, the equipment tested is capable of operation in accordance with the requirements of Part 15.247 of the FCC Rules under normal use and maintenance.

## 2. LIST OF MEASUREMENT INFORMATION

| Equipment Type | Manufacturer | Model | Serial Number | Calibration Due Date |
|---|---|---|---|---|
| Thermohygrometer | Oakton | 32230-80 | 001 | June 7, 2006 |
| OATS | Compliance Labs | N/A | 001 | Aug. 24, 2006 |
| Receiver | Rohde & Schwarz | Display, EASI-0-804-8932-52; RF Unit, ESMI-RF 1032-5640-53 | 84982/015; 849152/005 | Mar. 31, 2006 |
| Antenna 2-OATS | Sunol Sciences | JB1 | A101101 | Apr. 15, 2006 |
| Horn Antenna | Emco | 3115 | 9809-5580 | Apr. 6, 2006 |
| Pre-Amplifier | Hewlett Packard | 83006A | 310A00500 | Oct. 20, 2006 |
| Active Loop Antenna | AH Systems Inc | SAS-562B | 238 | Jul 11, 2006 |

## 3. EQUIPMENT UNDER TEST (EUT) INFORMATION AND DATA

### 3.1 Test Item Condition:

The equipment to be tested was received in good condition.

### 3.2 Testing Algorithm:

The Remote Control was configured with Radio Test Software to permit frequency changes from low-mid-upper transmission channel using digital modulation (required for digital transmission systems) or unmodulated carrier. For RF antenna conducted tests, the Remote Control was equipped with an SMA connector for connection to the measuring equipment. For radiated emissions tests, on the OATS, the Remote Control was equipped with integral/internal chip antenna. All measurements were performed with the output power set to Level 7 (set in firmware). The highest emissions were recorded in the data tables.

### 3.3 Radiated Emission Testing on Open Area Test Site (OATS):

The EUT was tested at a distance of 3.0 meters and 1.0 meter. The emissions were maximized by rotating the table and raising/lowering the antenna mounted on a 4.0 meter mast.* Both horizontal and vertical field components were measured. The output of the antenna was connected to the input of the receiver and emissions were measured in the range 10kHz to 25 GHz. The values up to 1GHz are quasi-peak readings made at 3.0 meters with a resolution bandwidth of 200 Hz from 9 kHz to 150 kHz, 9kHz from 150 kHz to 30 MHz and 120 kHz from 30MHz to 1 GHz. The measurements above 1GHz with a resolution bandwidth of 1MHz are average readings at a distance of 1.0 meters. The raw measurements were corrected to allow for antenna factor, cable loss and preamplifier gain. All data for radiated emissions can be found in Section 10.2.

**The Hand-Held Remote Control was examined in three orthogonal positions to ensure maximization of emissions.*

## 4. EUT CONFIGURATION AND CABLES

### 4.1. Equipment Under Test (EUT):

| Device | Manufacturer | Model Number | Serial Number |
|---|---|---|---|
| Hand-Held Remote Control (DTS Transmitter) | BIOMEC/CryMed | CTI-G2-50L-R | Production Prototype |

### 4.2. Accessories (Support Equipment):

| Device | Manufacturer | Model Number | Serial Number |
|---|---|---|---|
| Batteries (2) | Not Specified | AAA | Not Specified |

### 4.3. Cables:

None

| | | | |
|---|---|---|---|
| **Test Date:** | Dec. 6, 2005 | **Test Engineer:** | K. Klann |
| **Standard:** | FCC 47 CFR 15.247 | **Air Temperature:** | 17º-22º C |
| | | **Relative Humidity:** | 20%-35% |

## 5. FCC PART 15.403(f) – DIGITAL MODULATION

**Product Description:**
The Remote Control is a digital transmission system (DTS).* Digital modulation was applied in single frequency mode for all tests except the FCC Part 15.247(c) Radiated Emissions Test for Harmonics/Spurs performed on the Open Area Test Site (OATS). FCC Part 15.247(c) measurements on the OATS utilized continuous wave (CW) operation.

**Based on the Cypress CYWUSB6934 module chip set.*

## 6. FCC PART 15.31(m) – OPERATING FREQUENCIES

**Number of Operating Frequencies:**
The Remote Control normally operates on frequencies selected between Channels 10-70 (60 channels total),* extending from 2.410-2.470 GHz in the 2.400-2.4835 GHz band.

*As defined by firmware for the Cypress CYWUSB6934 Chip Set.

## 7. FCC PART 15.247(a)(2) – BANDWIDTH

### 7.1. Requirements:

The 6dB bandwidth shall be greater than 500 kHz.

Bandwidth measurements were made at the low (channel 10-2.410 GHz), mid (channel 40-2.440 GHz) and upper (channel 70-2.470 GHz) frequencies with the spectrum analyzer impulse bandwidth set at 120 kHz (video bandwidth set at 300 kHz). The bandwidth was measured using the analyzer's marker function.

### 7.2. Results:

The measured 6dB bandwidth with the remote control operating on the low channel (2.410 GHz) is 822 kHz (see spectral plot in Figure 1).

The 6dB bandwidth at the mid channel (2.440 GHz) is 822 kHz (see spectral plot in Figure 2).

Finally, the 6dB bandwidth at the upper channel (2.470 GHz) is 811 kHz (see spectral plot in Figure 3).

The measured 6dB bandwidths meet the FCC 500 kHz requirements. The remote control meets the FCC Part 15.247(a)(2) bandwidth requirements.

## 8. FCC PART 15.247(b)(3) – POWER OUTPUT

The remote control antenna port was fitted with an SMA connector and directly connected to the input of the spectrum analyzer. The peak power output was measured.

### 8.1. Requirements:

The peak power output shall be 1 watt (30 dBm) or less.

Power output measurements were made at the low (channel 10-2.410 GHz), mid (channel 40-2.440 GHz) and upper (Channel 70-2.470 GHz) frequencies, with the spectrum analyzer impulse bandwidth set at 1 MHz (video bandwidth set at 3 MHz). The peak output level was measured using the spectrum analyzer's marker function.

### 8.2. Results:

The measured peak power output found with the remote control operating on the low channel (2.410 GHz) is 101.37 dBµV = -5.63 dBm = 0.274 mW (see plot in Figure 4).

The peak power output at the mid channel (2.440 GHz) is 101.02 dBµV = -5.98 dBm = 0.252 mW (see plot in Figure 5).

Finally, the power output at the upper channel (2.470 GHz) is 99.95 dBµV = -7.05 dBm = 0.197 mW (see plot in Figure 6).

The measured peak power output is less than the 1 watt limit. The remote control meets FCC Part 15.247(b)(3) power requirements.

## 9. FCC PART 15.247(b)(5) – RF SAFETY

The output power level (>0.5 mW) coupled with the inherent low gain of the chip antenna ensures that the user and/or general public will not be exposed to radio frequency energy levels in excess of FCC guidelines, per OET Bulletin 65 Supplement C Edition 01-01 June 2001.

## 10. FCC Part 15.247(c) – SPURIOUS EMISSIONS

The following tests were performed to demonstrate compliance.

### 10.1. RF Antenna Conducted Test

The remote control antenna port was fitted with an SMA connector and directly connected to the input of the spectrum analyzer.

#### 10.1.1. Requirements:

All harmonics and spurs must be at least 20dB down from the highest emission level measured within the authorized band up through the tenth harmonic.

Spurious emissions measurements were made at the low (channel 10-2.410 GHz), mid (channel 40-2.440 GHz, and upper (channel 70-2.470 GHz) frequencies with the appropriate spectrum analyzer impulse bandwidth. Additionally, 20 dB down points were measured for the low and high channels to verify band edge compliance.

#### 10.1.2. Results:

Low (channel 10-2.410 GHz) frequency spectral data plots are shown in figures 7-19. The data is summarized in the table below.

**Hand-Held Remote Control**
**Harmonics & Spurious Emissions: Low Frequency, Channel 10-2.410 GHz**

| Frequency (GHz) | Level (dBµV) | Harmonic Order | dB down from $f_0$ |
|---|---|---|---|
| 2.4100 | 99.95 | $f_0$ | - |
| 4.8200 | 61.76 | $f_2$ | -38.19 |
| 7.2300 | 55.92 | $f_3$ | -44.03 |
| 9.6400 | 41.90 | $f_4$ | -58.05 |

Mid (channel 40-2.440 GHz) frequency spectral data plots are shown in figures 20-32. The data is summarized in the table below.

**Hand-Held Remote Control**
**Harmonics & Spurious Emissions: Mid Frequency, Channel 40-2.440 GHz**

| Frequency (GHz) | Level (dBµV) | Harmonic Order | dB down from $f_0$ |
|---|---|---|---|
| 2.440 | 98.96 | $f_0$ | - |
| 4.880 | 61.12 | $f_2$ | -34.88 |
| 7.320 | 54.34 | $f_3$ | -44.62 |
| 9.760 | 41.74 | $f_4$ | -57.22 |

Upper (channel 70-2.470 GHz) frequency spectral data plots are shown in Figures 33-45. The data is summarized in the table below.

**Hand-Held Remote Control**
**Harmonics & Spurious Emissions: Upper Frequency, Channel 70-2.470 GHz**

| Frequency (GHz) | Level (dBµV) | Harmonic Order | dB down from $f_0$ |
|---|---|---|---|
| 2.470 | 98.20 | $f_0$ | - |
| 4.940 | 59.90 | $f_2$ | -38.30 |
| 7.410 | 53.25 | $f_3$ | -44.95 |
| 9.880 | 44.23 | $f_4$ | -53.97 |

Lower band edge compliance measurement with the remote control operating on the low frequency (channel 10, 2.410 GHz) yields a 20 dB down point of 2.409422 GHz. This is within the 2.4000-2.4835 GHz authorized band.

Upper band edge compliance measurement with the remote control operating on the upper frequency (channel 70, 2.470 GHz) yields a 20 dB down point of 2.470655 GHz. This is within the 2.4000-2.4835 GHz authorized band.

The harmonics/spurs and band edge measurements demonstrate that all emissions outside authorized band are suppressed by at least 20 dB. The Hand-Held Remote Control meets FCC Part 15.247(c) requirements for conducted spurious emissions.

## 10.2. RADIATED EMISSIONS (Restricted Bands)

The remote control antenna port was fitted with its integral/internal chip antenna. Radiated emissions were measured on the Open Area Test Site (OATS). All emissions generated that fall in the restricted bands per FCC Part 15.205 were examined.

### 10.2.1. Requirements:

All emissions that fall in the restricted bands defined in FCC Part 15.205 shall not exceed the maximum field strength listed in FCC Part 15.209(a).

### 10.2.2. Results:

The measurement results are contained in the tables on the following pages. Measurements were performed on the low, middle and upper frequencies with the transmitter unmodulated.

The Hand-Held Remote Control meets FCC Part 15.209 restrictions on field intensity in the restricted bands. Hence, the Remote Control satisfies FCC Part 15.247(c) regarding emissions in the restricted bands.

## Hand-Held Remote Control
## Harmonics & Spurious Emissions: Low Frequency, Channel 10-2.410 GHz

| Frequency (GHz) | Antenna Polarization | Reading @ 1m (dBµV) | Antenna Factor (dB) | Coax Factor (dB) | Preamp Gain (dB) | Emission @ 1m (dBµV/m) | Emission Extrapolated to 3m (dBµV/m) - (9.54dB) | Limit (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|
| 4.820 | V[1] | 38.3 | 32.8 | 7.6 | 28.0 | 50.7 | 41.2 | 54.0 | -12.8 |
| 4.820 | H[2] | 41.0 | 32.8 | 7.6 | 28.0 | 53.4 | 43.9 | 54.0 | -10.1 |

[1]*Maximum emission level found on side orthogonal position.*
[2]*Maximum emission level found on upright orthogonal position.*

All measurements were performed at 1 MHz (IMP) RBW using linear average detector.

## Hand-Held Remote Control
## Harmonics & Spurious Emissions: Mid Frequency, Channel 40-2.440 GHz

| Frequency (GHz) | Antenna Polarization | Reading @ 1m (dBµV) | Antenna Factor (dB) | Coax Factor (dB) | Preamp Gain (dB) | Emission @ 1m (dBµV/m) | Emission Extrapolated to 3m (dBµV/m) - (9.54dB) | Limit (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|
| 4.880 | V[1] | 36.80 | 32.9 | 7.6 | 28.0 | 49.3 | 39.8 | 54.0 | -14.2 |
| 4.880 | H[2] | 41.30 | 32.9 | 7.6 | 28.0 | 53.8 | 44.3 | 54.0 | -9.7 |
| 7.320 | V[2] | 36.00 | 35.6 | 10.5 | 28.0 | 54.1 | 44.6 | 54.0 | -9.4 |
| 7.320 | H[2] | 35.60 | 35.6 | 10.5 | 28.0 | 53.7 | 44.2 | 54.0 | -9.8 |

[1]*Maximum emission level found on side orthogonal position.*
[2]*Maximum emission level found on upright orthogonal position.*

All measurements were performed at 1 MHz (IMP) RBW using linear average detector.

## Hand-Held Remote Control
## Harmonics & Spurious Emissions: Upper Frequency, Channel 70-2.470 GHz

| Frequency (GHz) | Antenna Polarization | Reading @ 1m (dBµV) | Antenna Factor (dB) | Coax Factor (dB) | Preamp Gain (dB) | Emission @ 1m (dBµV/m) | Emission Extrapolated to 3m (dBµV/m) - (9.54dB) | Limit (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|
| 4.940 | V[1] | 38.20 | 33.1 | 7.6 | 28.0 | 50.9 | 41.4 | 54.0 | -12.6 |
| 4.940 | H[2] | 41.30 | 33.1 | 7.6 | 28.0 | 54.0 | 44.5 | 54.0 | -9.5 |
| 7.410 | V[2] | 35.40 | 35.8 | 10.5 | 28.0 | 53.7 | 44.2 | 54.0 | -9.8 |
| 7.410 | H[2] | 34.20 | 35.8 | 10.5 | 28.0 | 52.5 | 43.0 | 54.0 | -11.0 |

[1]*Maximum emission level found on side orthogonal position.*
[2]*Maximum emission level found on upright orthogonal position.*

All measurements were performed at 1 MHz (IMP) RBW using linear average detector.

## 11. FCC PART 15.247(d) – PEAK POWER SPECTRAL DENSITY (PSD)

Peak power spectral density measurements were performed.

### 11.1. Requirements:

The peak power spectral density shall not exceed +8dBm in any 3 kHz band during any time interval of continuous transmission.

Power spectral density measurements were performed at a resolution bandwidth of 3 kHz (video bandwidth set at 3 MHz). The peak spectral densities were measured at the low (channel 10-2.410 GHz), mid (channel 40-2.440 GHz) and upper (channel 70-2.470 GHz) frequencies.

### 11.2. Results:

The spectral plots of the PSD at the low channel are shown in figures 46 and 47. The peak spectral densities were found at:

| Frequency (GHz) | Peak PSD (dBµV) | Peak PSD (dBm) |
|---|---|---|
| 2.40954 | 88.87 | -18.13 |
| 2.41004 | 99.34 | -7.66 |
| 2.41054 | 88.85 | -18.15 |

The spectral plots of the PSD at the mid channel are shown in figures 48 and 49. The peak spectral densities were found at:

| Frequency (GHz) | Peak PSD (dBµV) | Peak PSD (dBm) |
|---|---|---|
| 2.43955 | 88.31 | -18.69 |
| 2.44004 | 98.81 | -8.09 |
| 2.44054 | 88.31 | -18.69 |

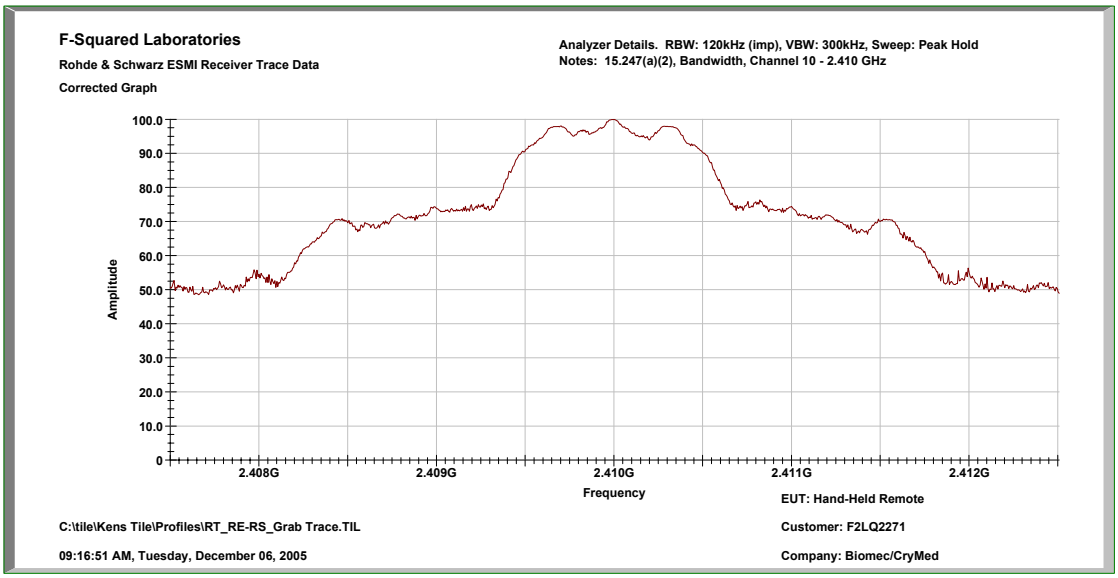
The plots of the PSD for the upper channel are shown in figures 50 and 51. The peak spectral densities were found at:

| Frequency (GHz) | Peak PSD (dBµV) | Peak PSD (dBm) |
|---|---|---|
| 2.46955 | 87.76 | -19.24 |
| 2.47004 | 98.12 | -8.88 |
| 2.47054 | 87.73 | -19.27 |

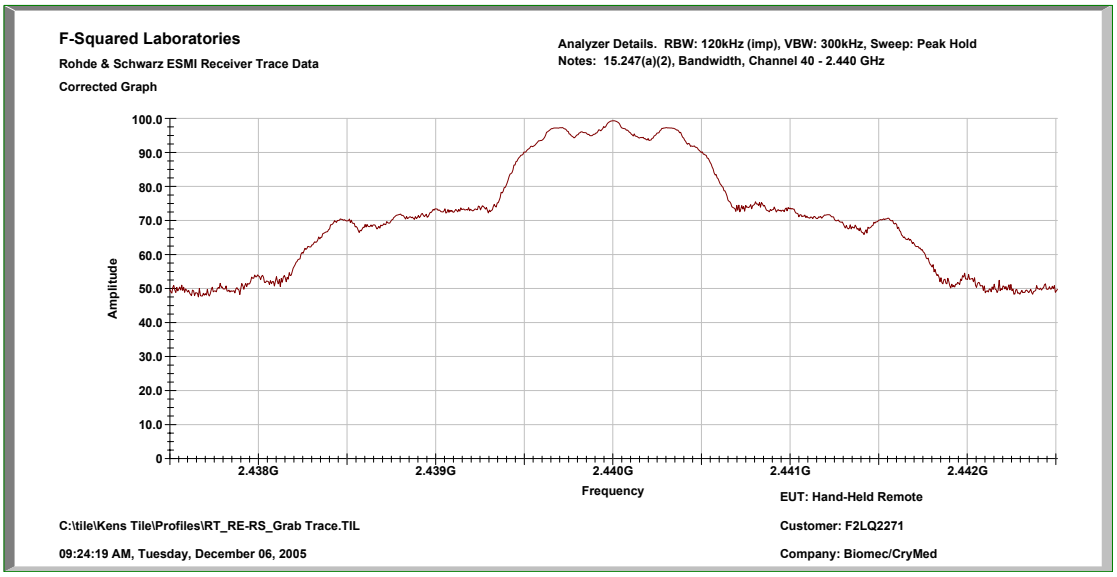
The peak power spectral densities measured from the Remote Control are less than the 8 dBm limit per FCC Part 15.247(d). The Hand-Held Remote Control meets the requirements of FCC Part 15.247(d).

## 12. FIGURES – SPECTRAL DATA PLOTS

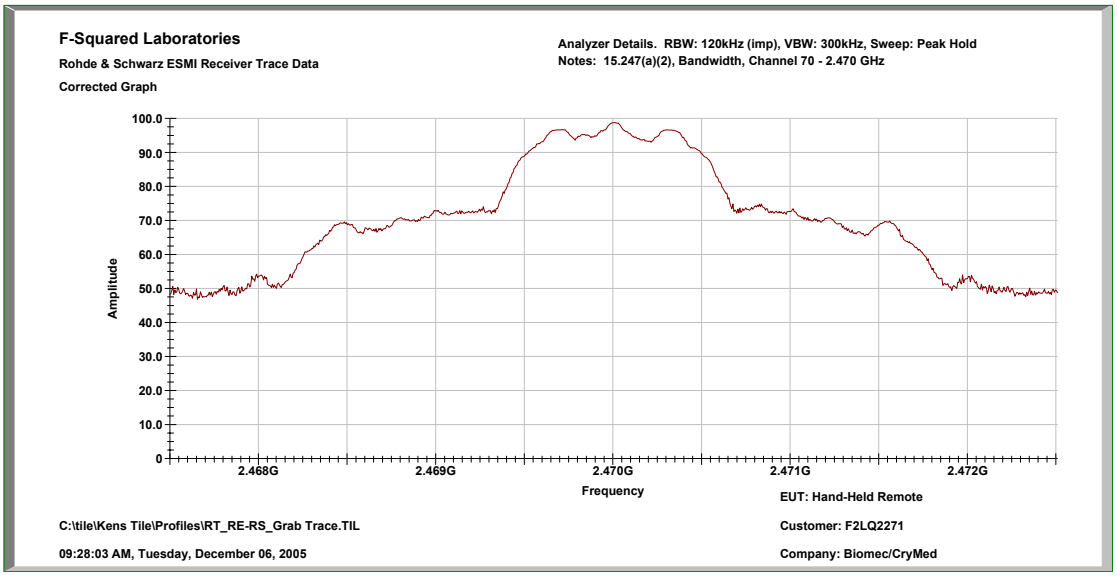
### Figure 1: Occupied Bandwidth, Low Channel



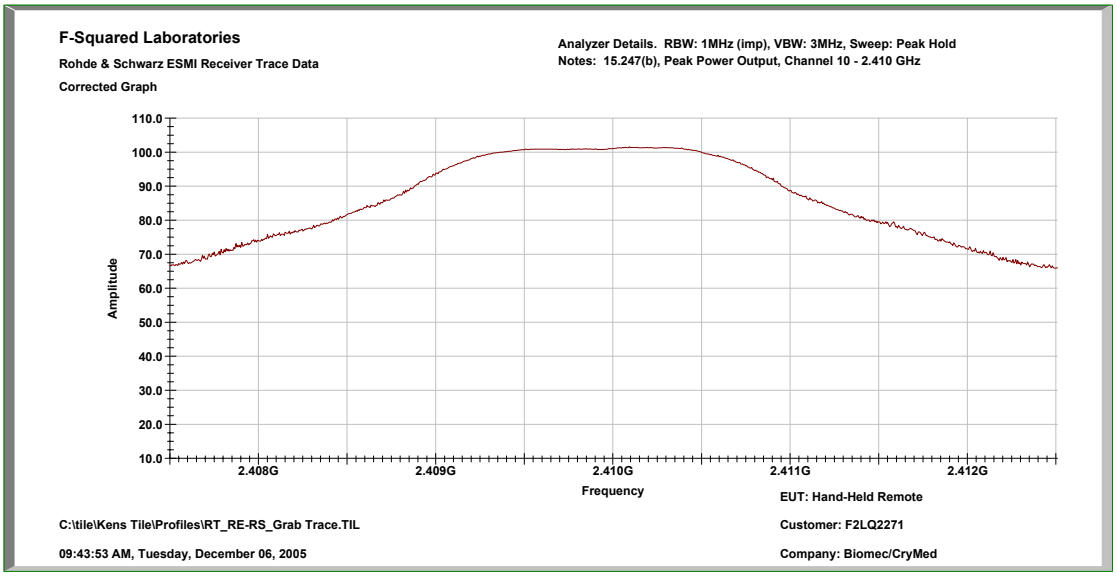

### Figure 2: Occupied Bandwidth, Mid Channel



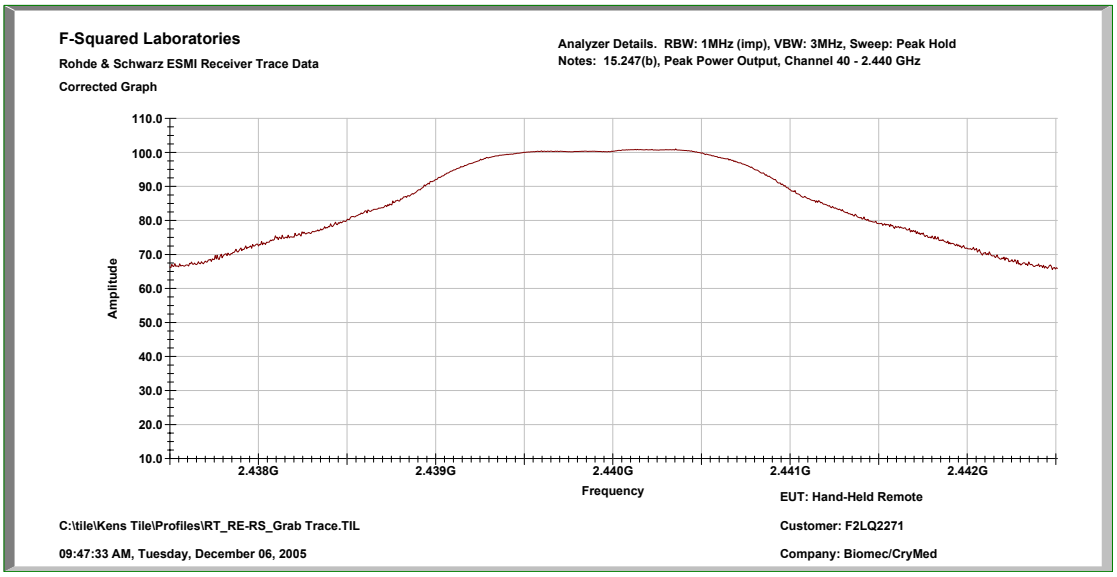
## Figure 3: Occupied Bandwidth, Upper Channel



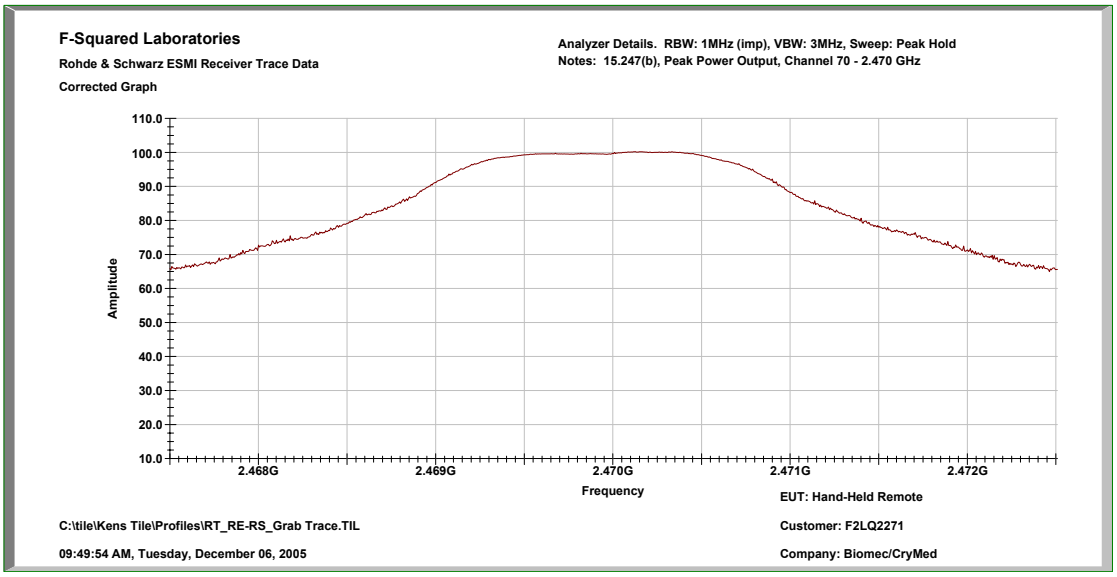

## Figure 4: Peak Power Output, Low Channel



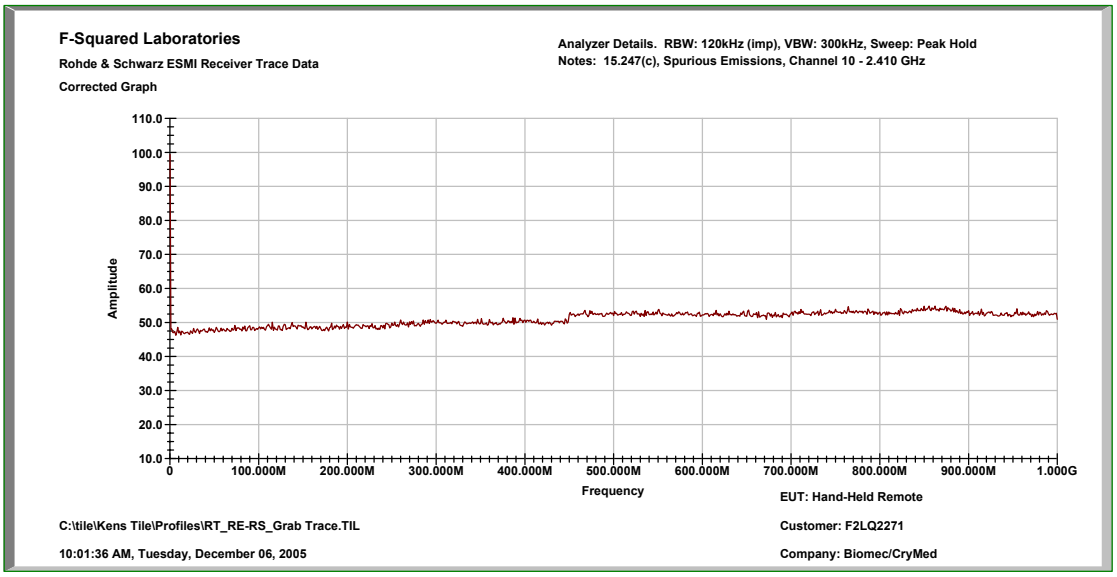
## Figure 5: Peak Power Output, Mid Channel




## Figure 6: Peak Power Output, Upper Channel



## Figure 7: Harmonics & Spurious Emissions, Low Channel, 0-1 GHz




## Figure 8: Harmonics & Spurious Emissions, Low Channel, 1-2 GHz

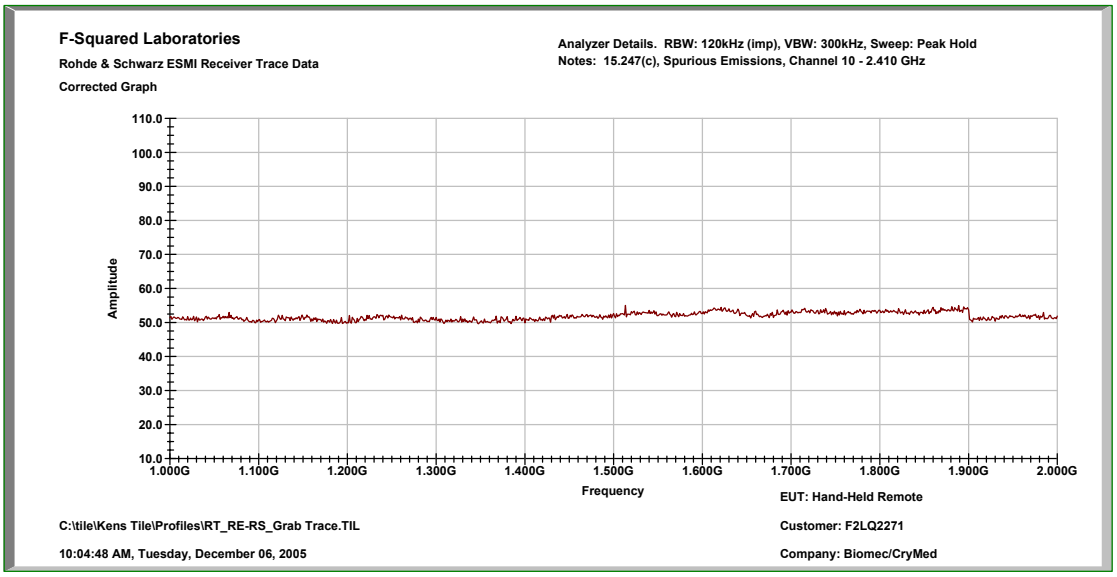


**Figure 9: Harmonics & Spurious Emissions, Low Channel, 2-3 GHz**

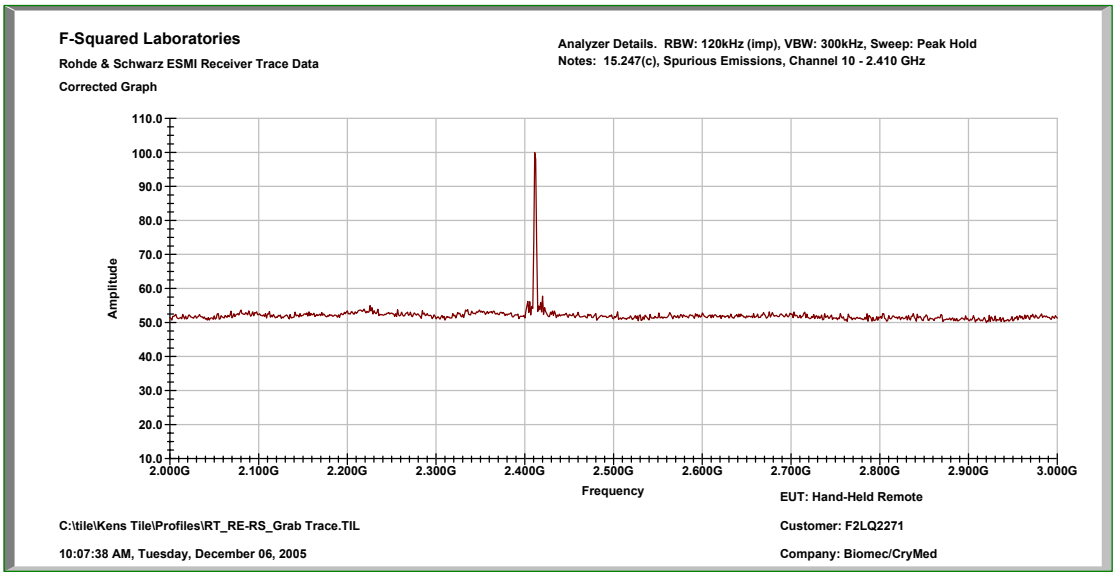
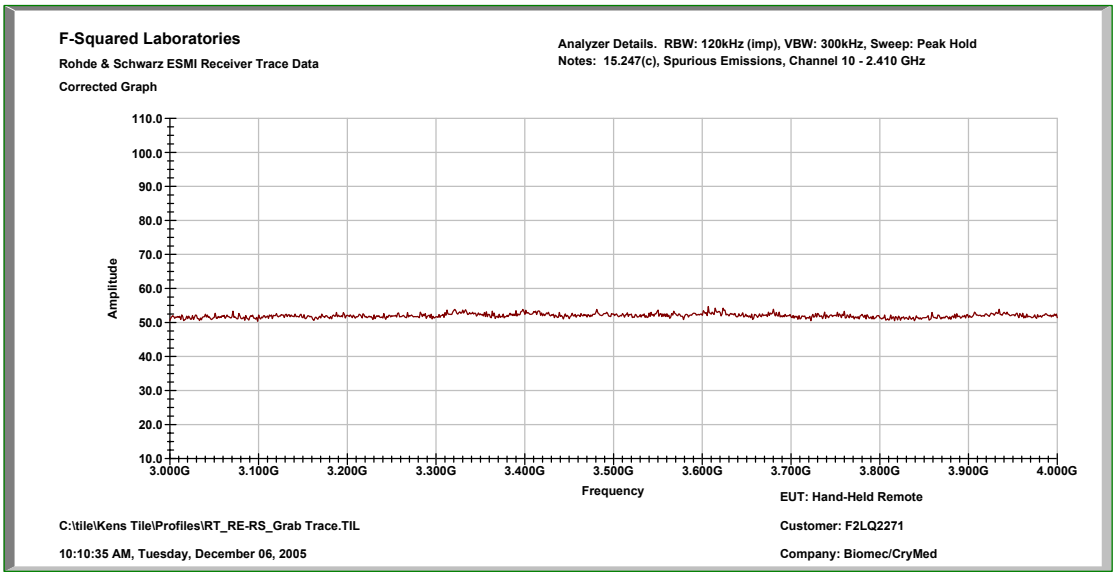
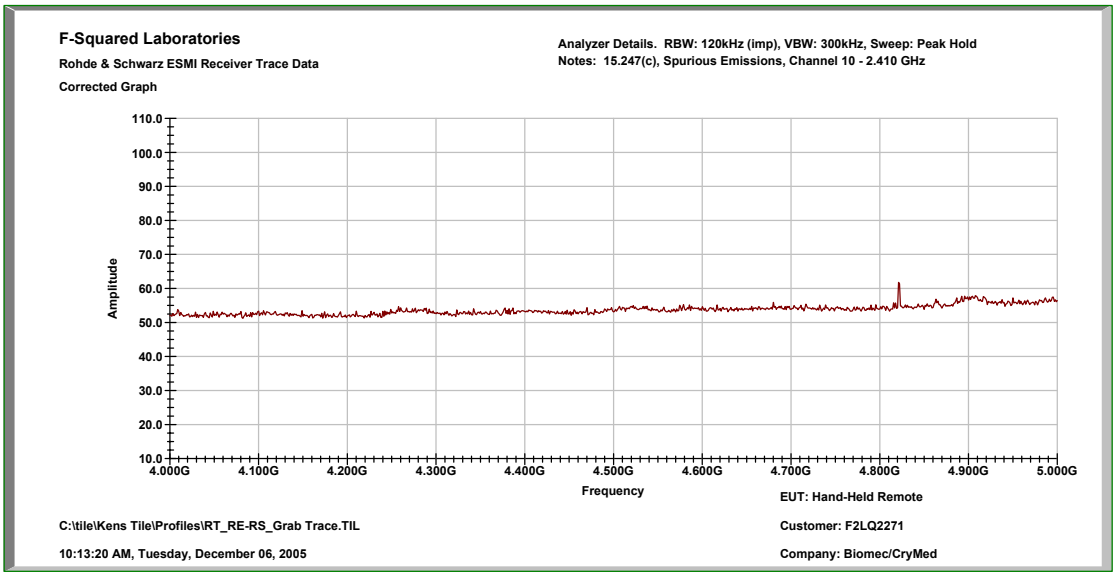


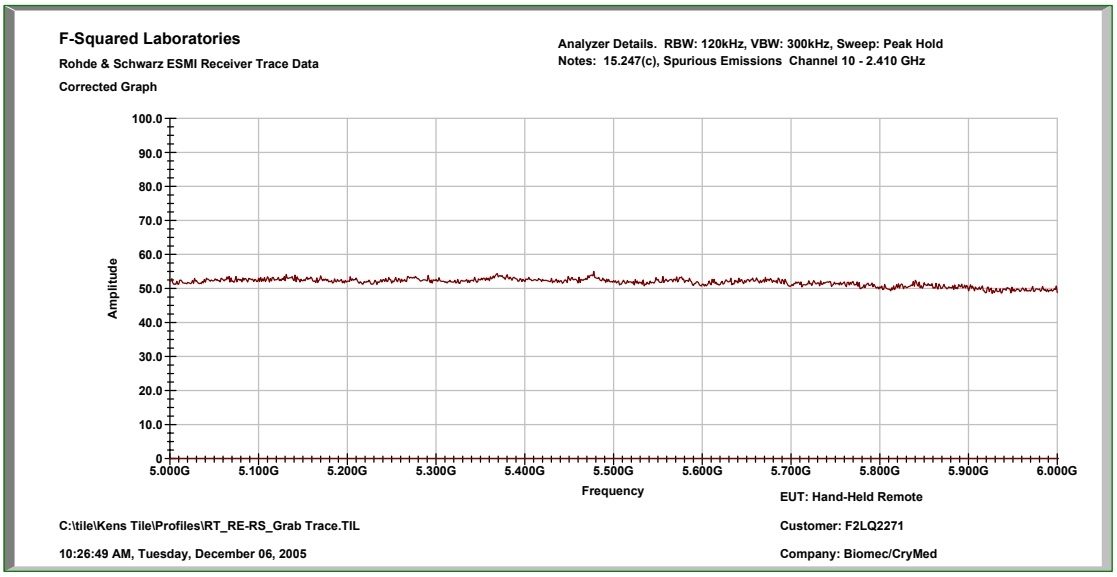

**Figure 10: Harmonics & Spurious Emissions, Low Channel, 3-4 GHz**



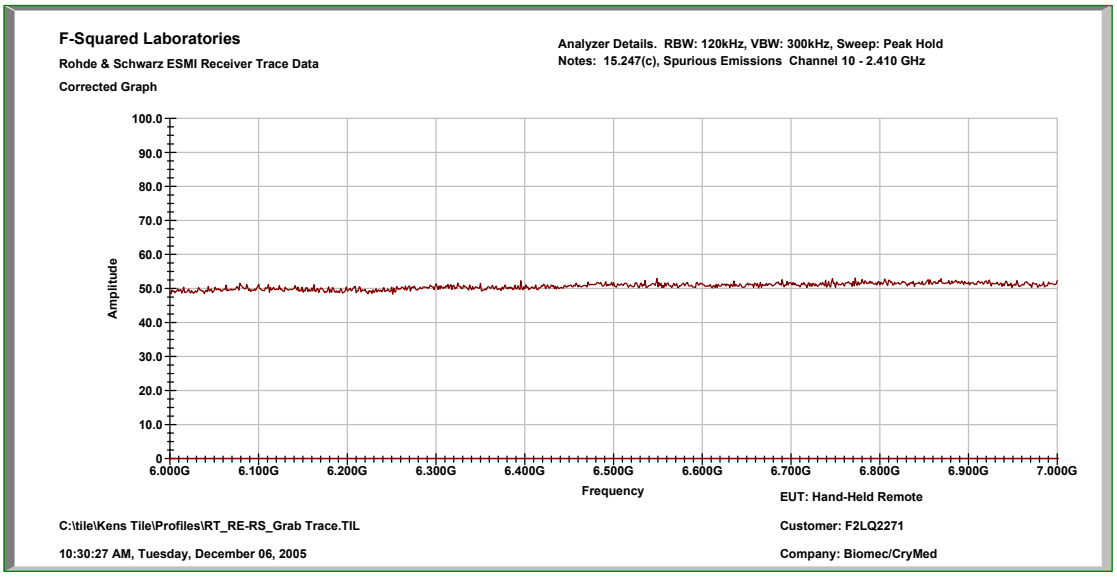
## Figure 11: Harmonics & Spurious Emissions, Low Channel, 4-5 GHz



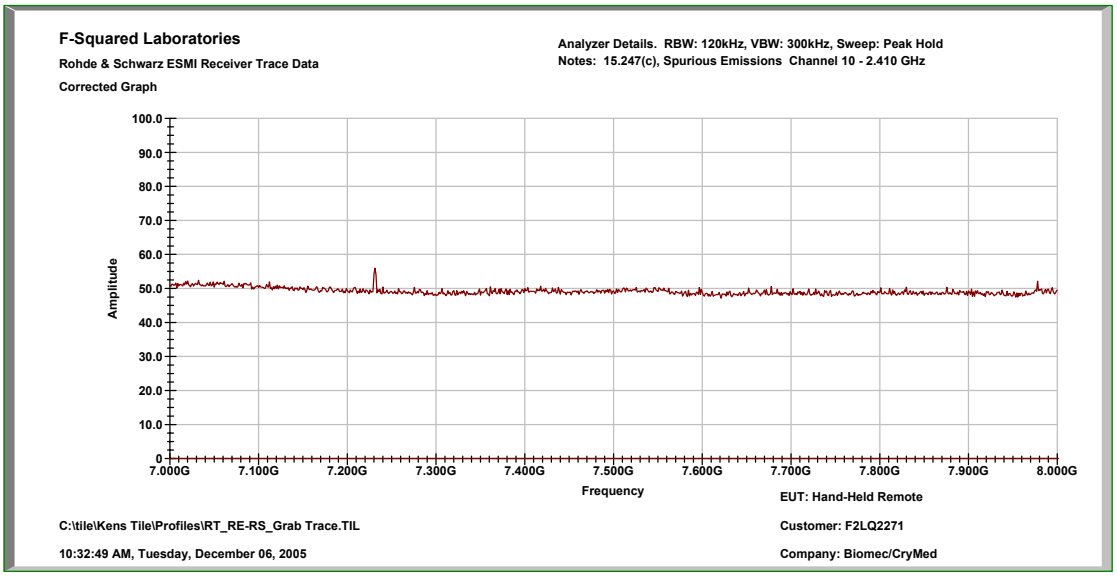

## Figure 12: Harmonics & Spurious Emissions, Low Channel, 5-6 GHz



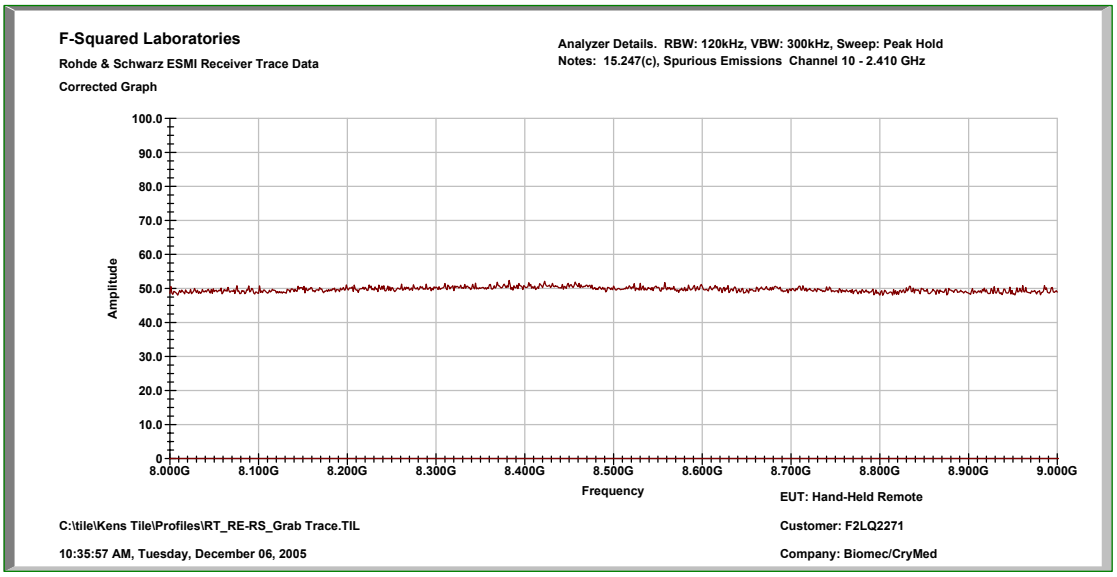
## Figure 13: Harmonics & Spurious Emissions, Low Channel, 6-7 GHz




## Figure 14: Harmonics & Spurious Emissions, Low Channel, 7-8 GHz



## Figure 15: Harmonics & Spurious Emissions, Low Channel, 8-9 GHz




## Figure 16: Harmonics & Spurious Emissions, Low Channel, 9-10 GHz

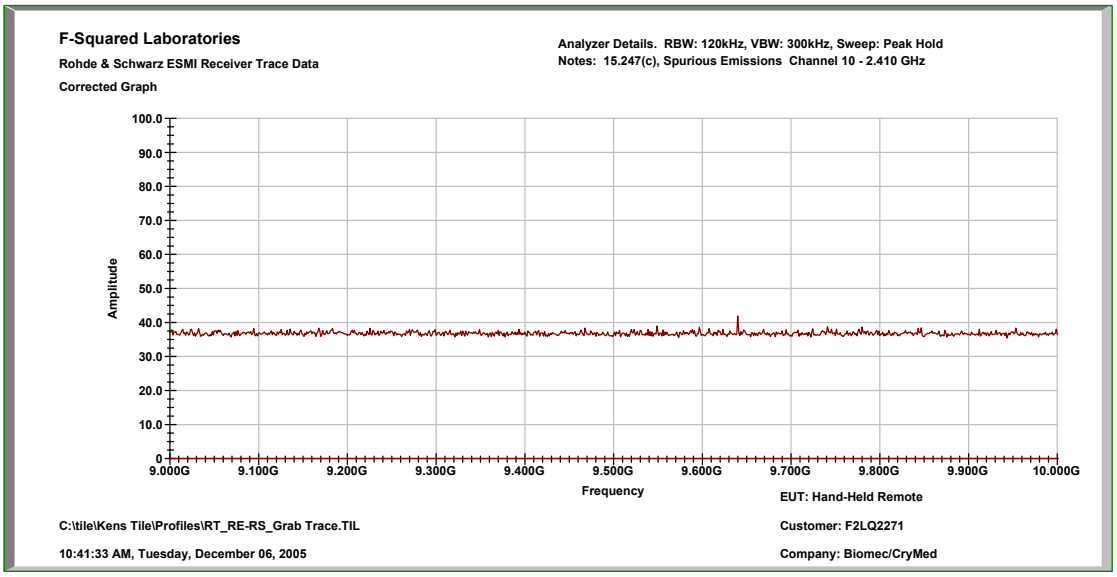


**Figure 17: Harmonics & Spurious Emissions, Low Channel, 10-15 GHz**

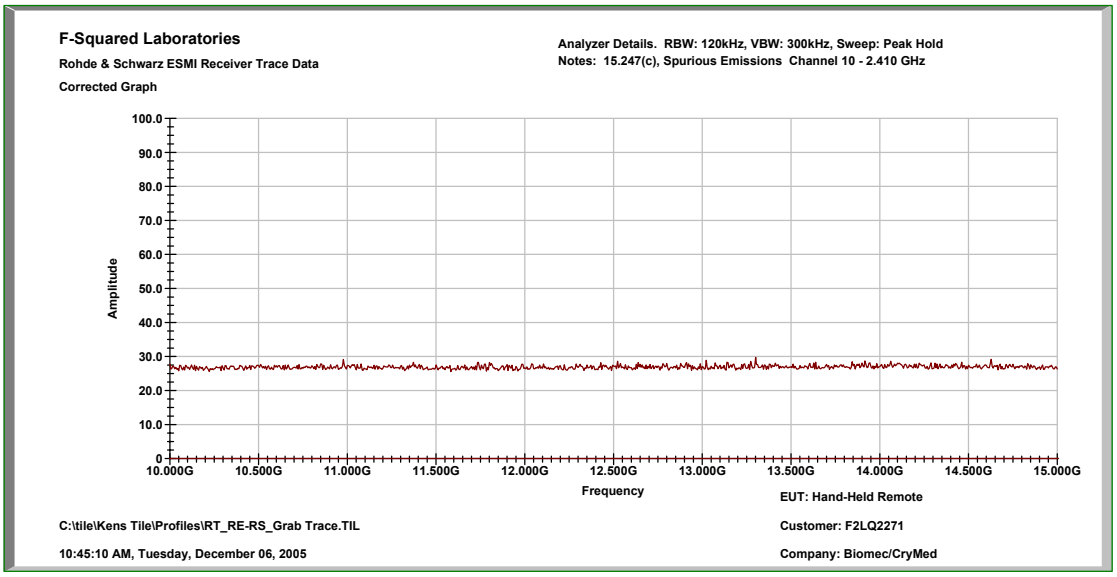
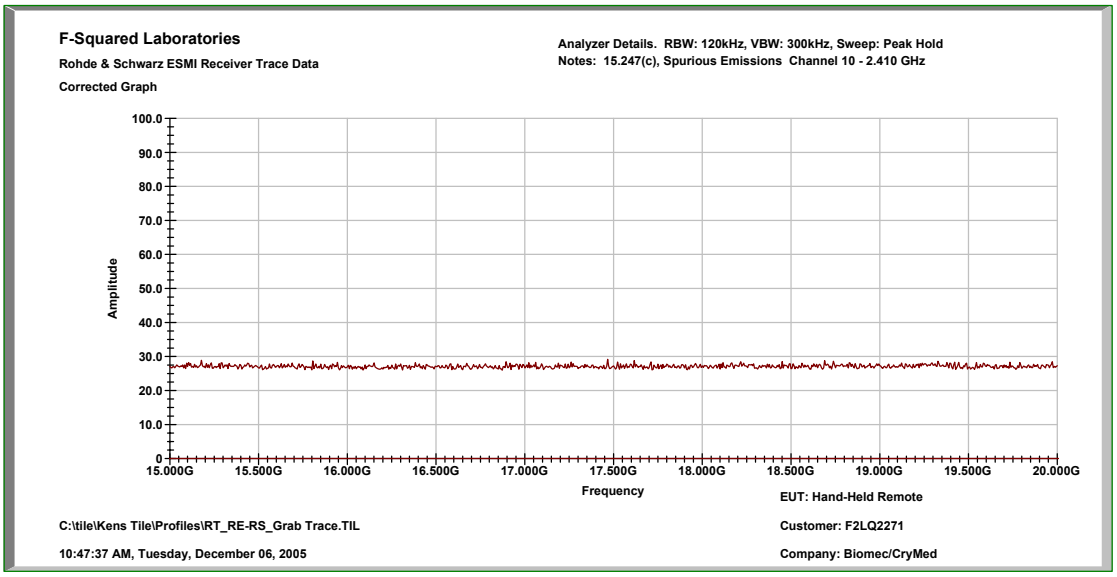
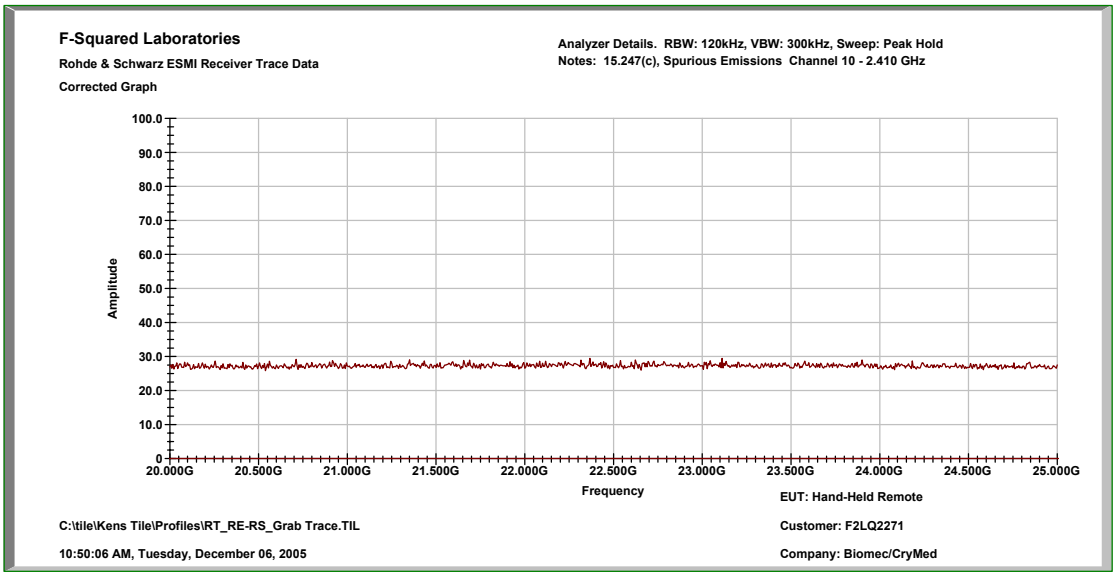


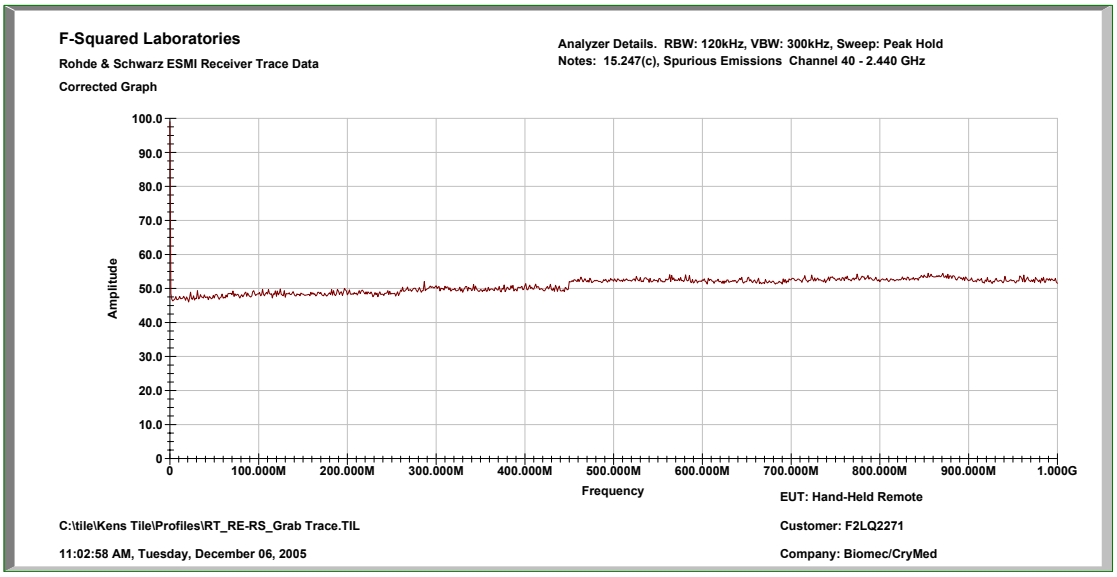

**Figure 18: Harmonics & Spurious Emissions, Low Channel, 15-20 GHz**



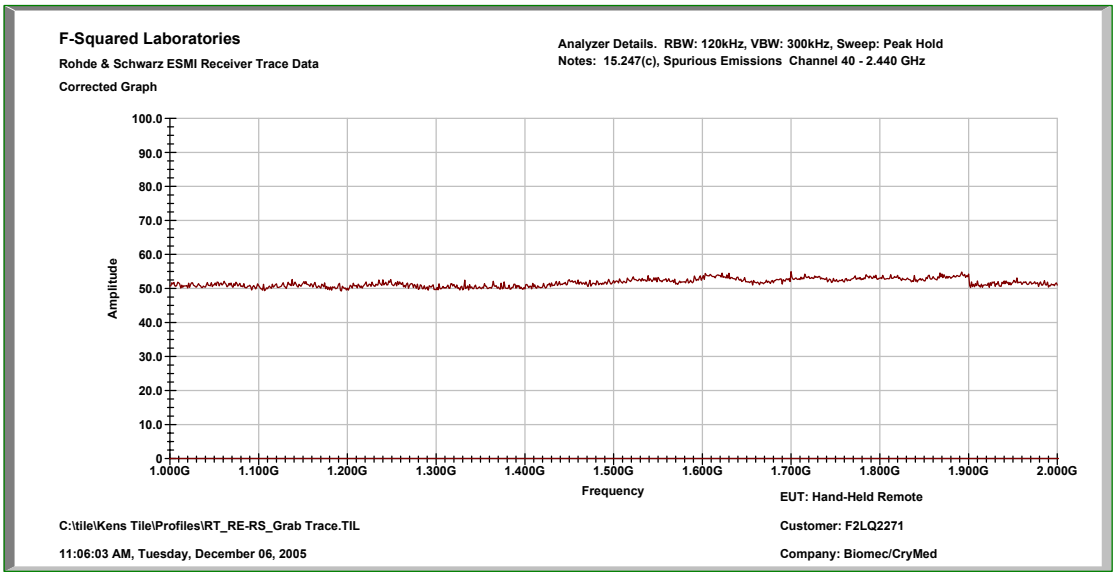
## Figure 19: Harmonics & Spurious Emissions, Low Channel, 20-25 GHz



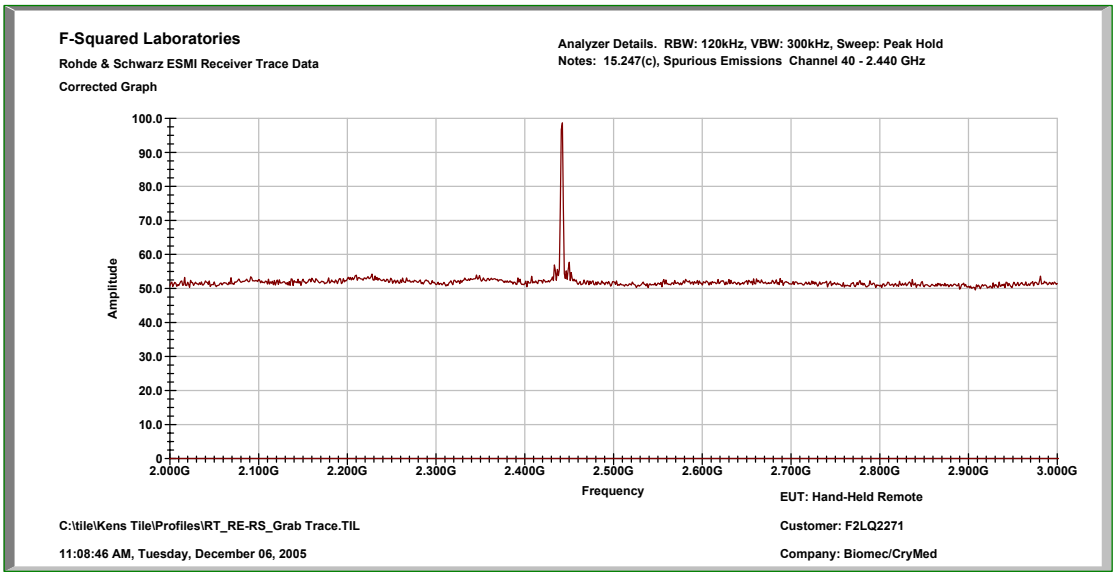
## Figure 20: Harmonics & Spurious Emissions, Mid Channel, 0-1 GHz



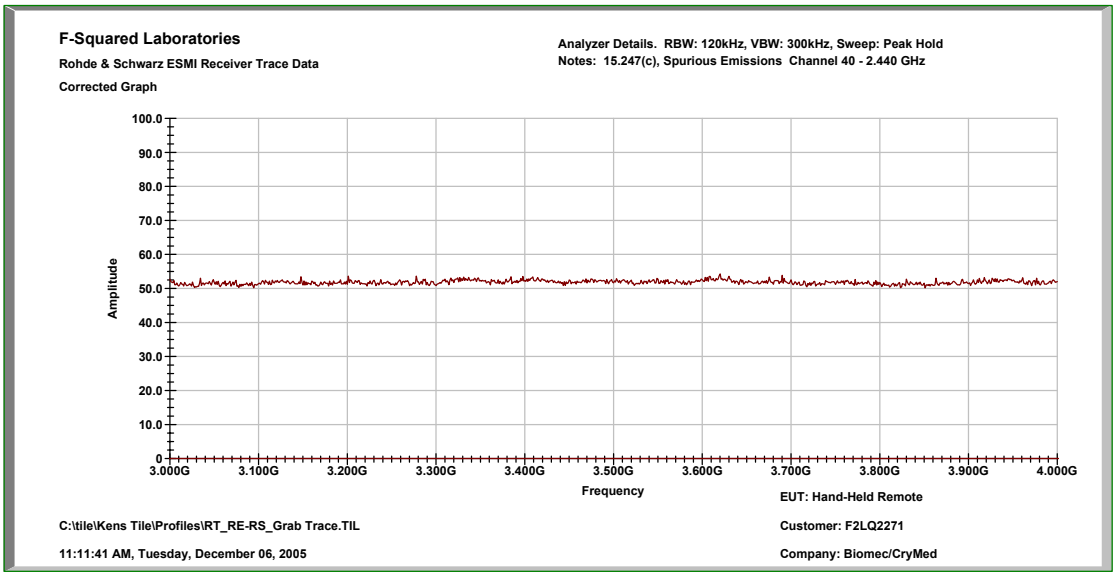

## Figure 21: Harmonics & Spurious Emissions, Mid Channel, 1-2 GHz



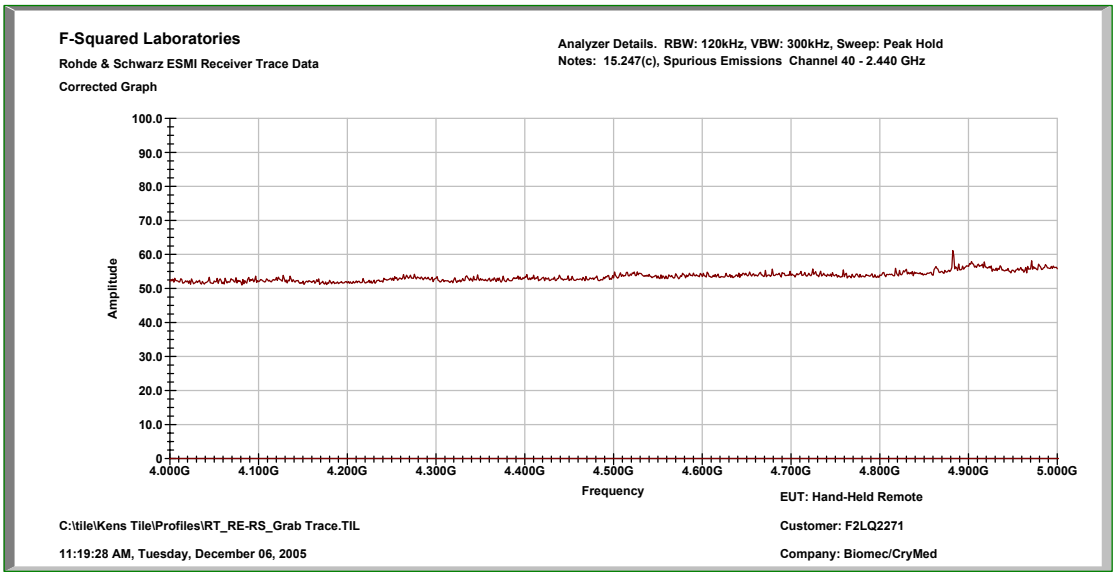
## Figure 22: Harmonics & Spurious Emissions, Mid Channel, 2-3 GHz



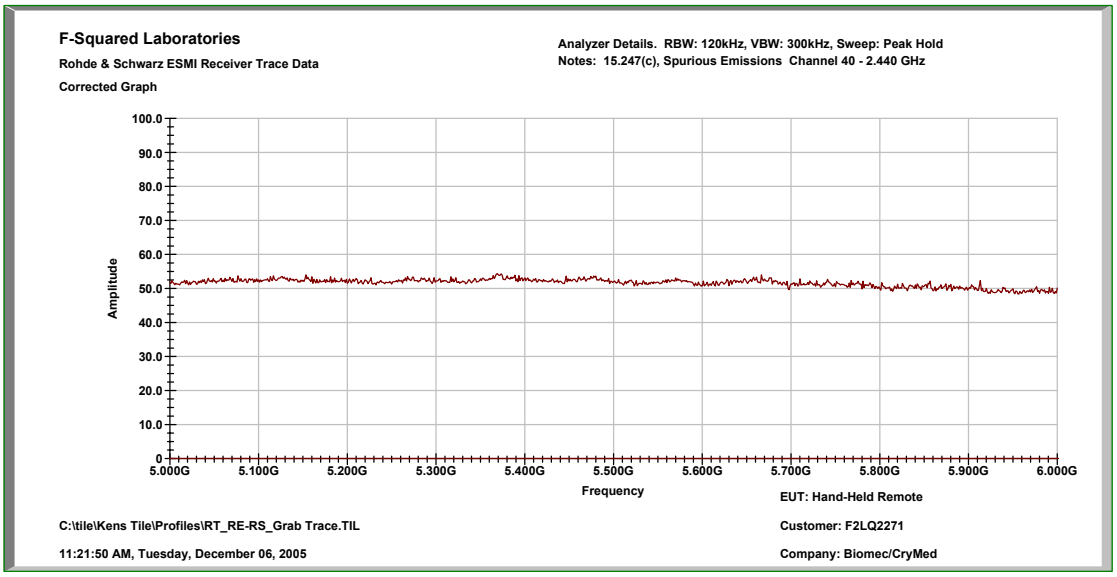

## Figure 23: Harmonics & Spurious Emissions, Mid Channel, 3-4 GHz



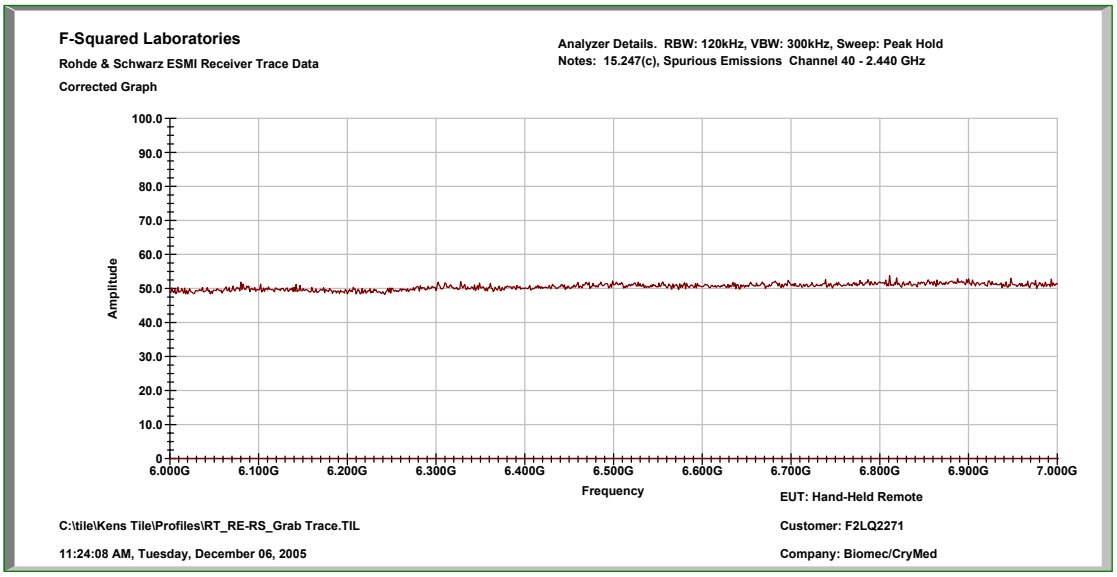
## Figure 24: Harmonics & Spurious Emissions, Mid Channel, 4-5 GHz




## Figure 25: Harmonics & Spurious Emissions, Mid Channel, 5-6 GHz



## Figure 26: Harmonics & Spurious Emissions, Mid Channel, 6-7 GHz




## Figure 27: Harmonics & Spurious Emissions, Mid Channel, 7-8 GHz

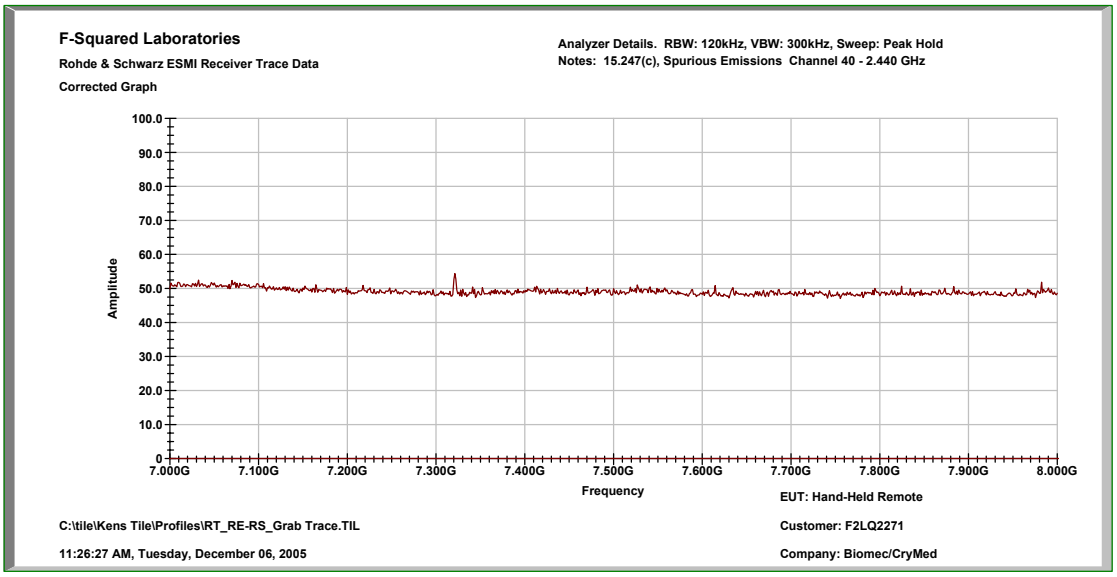


**Figure 28: Harmonics & Spurious Emissions, Mid Channel, 8-9 GHz**

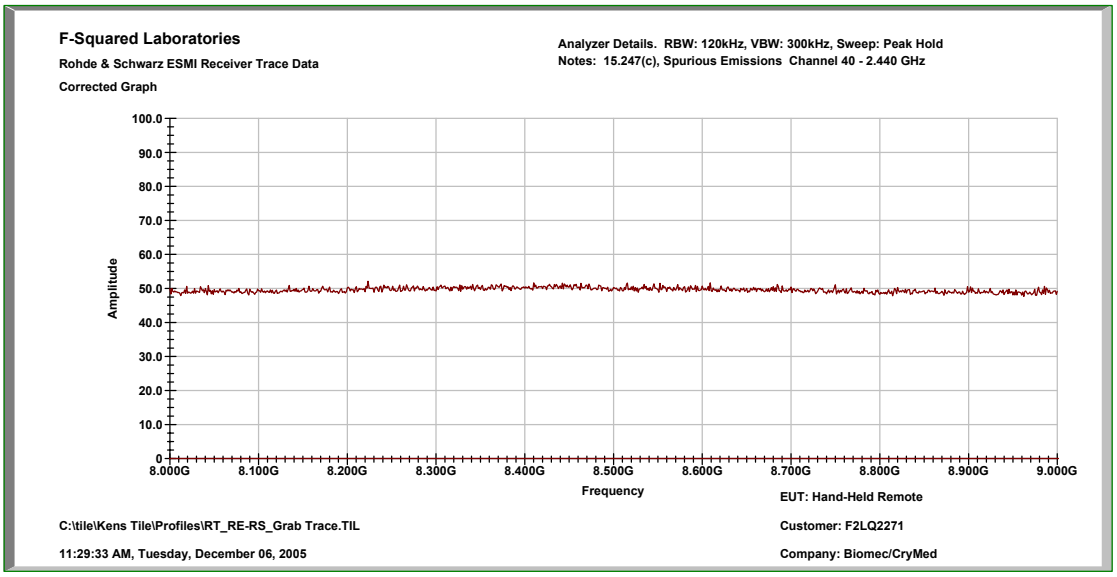
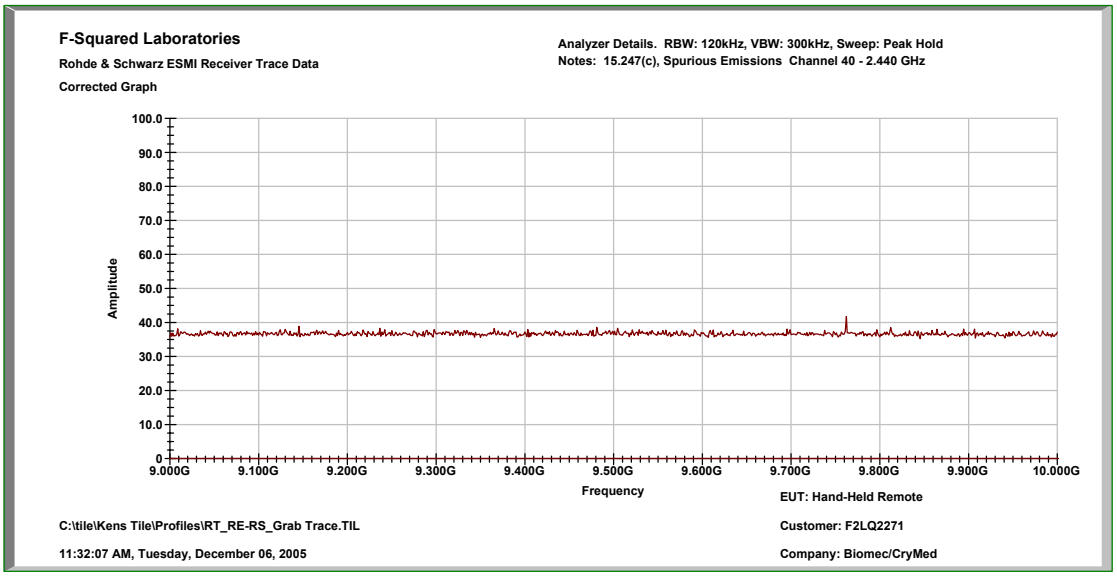
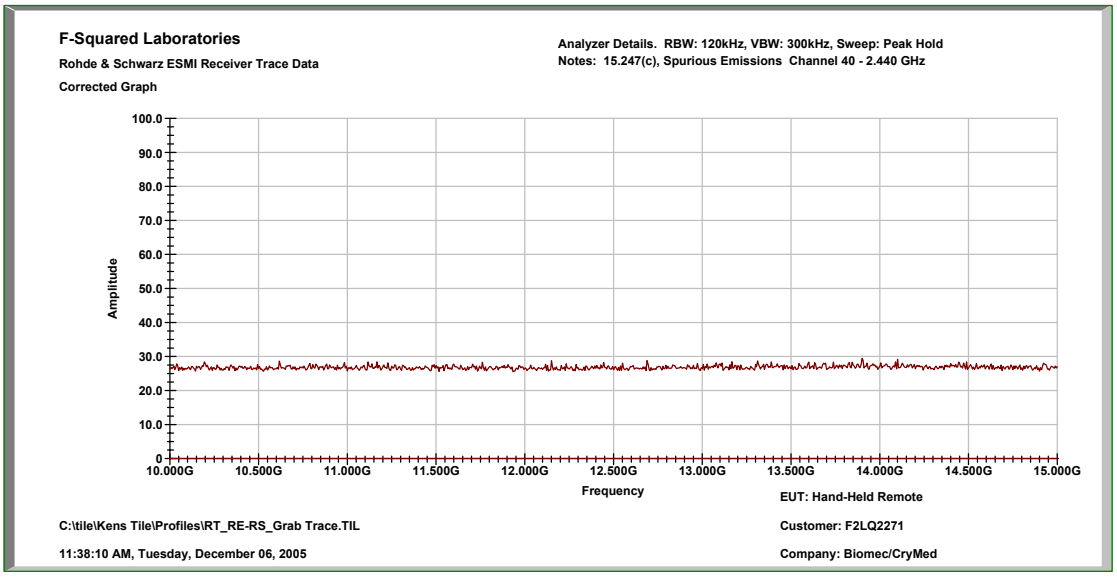


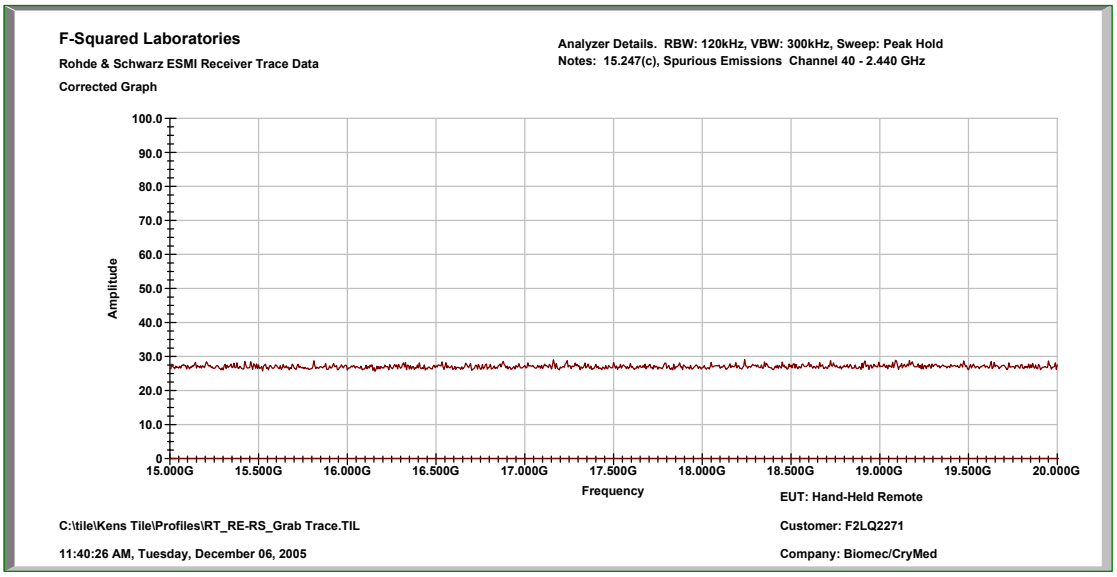

**Figure 29: Harmonics & Spurious Emissions, Mid Channel, 9-10 GHz**



## Figure 30: Harmonics & Spurious Emissions, Mid Channel, 10-15 GHz




## Figure 31: Harmonics & Spurious Emissions, Mid Channel, 15-20 GHz



## Figure 32: Harmonics & Spurious Emissions, Mid Channel, 20-25 GHz

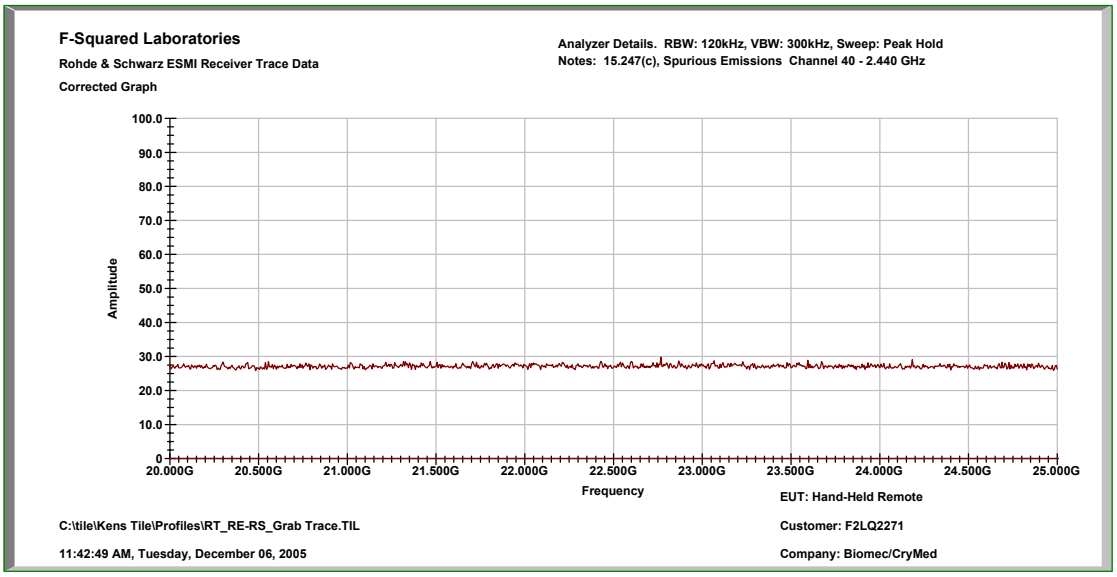


**Figure 33: Harmonics & Spurious Emissions, Upper Channel, 0-1 GHz**

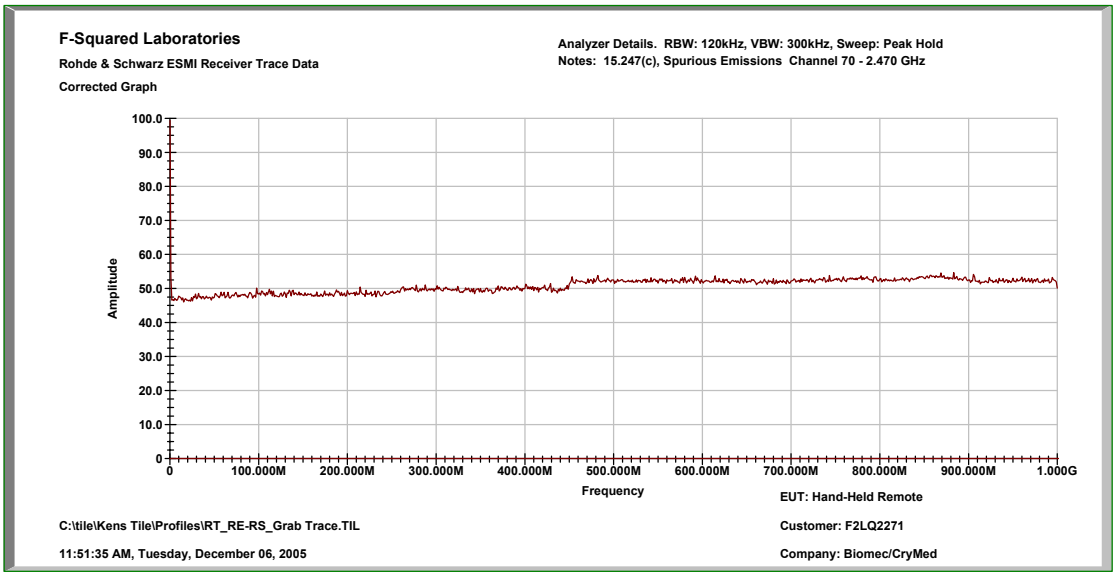



**Figure 34: Harmonics & Spurious Emissions, Upper Channel, 1-2 GHz**

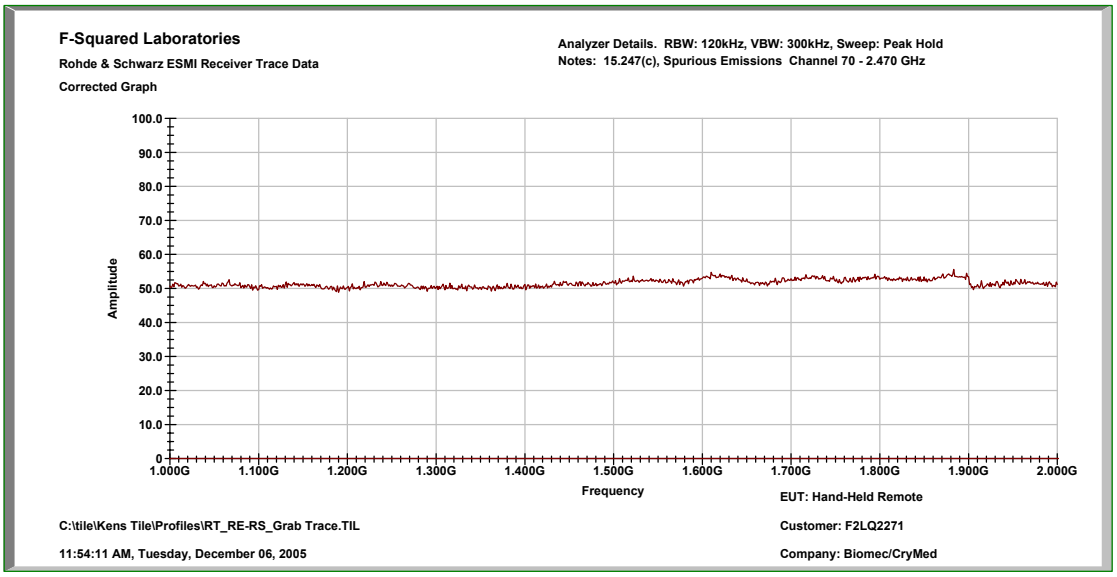


**Figure 35: Harmonics & Spurious Emissions, Upper Channel, 2-3 GHz**

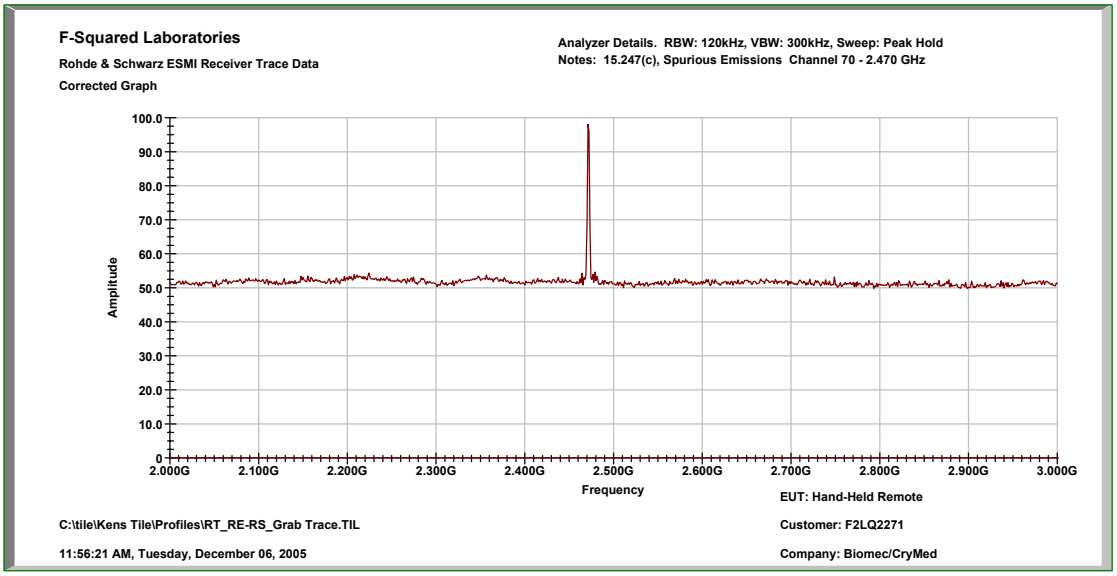
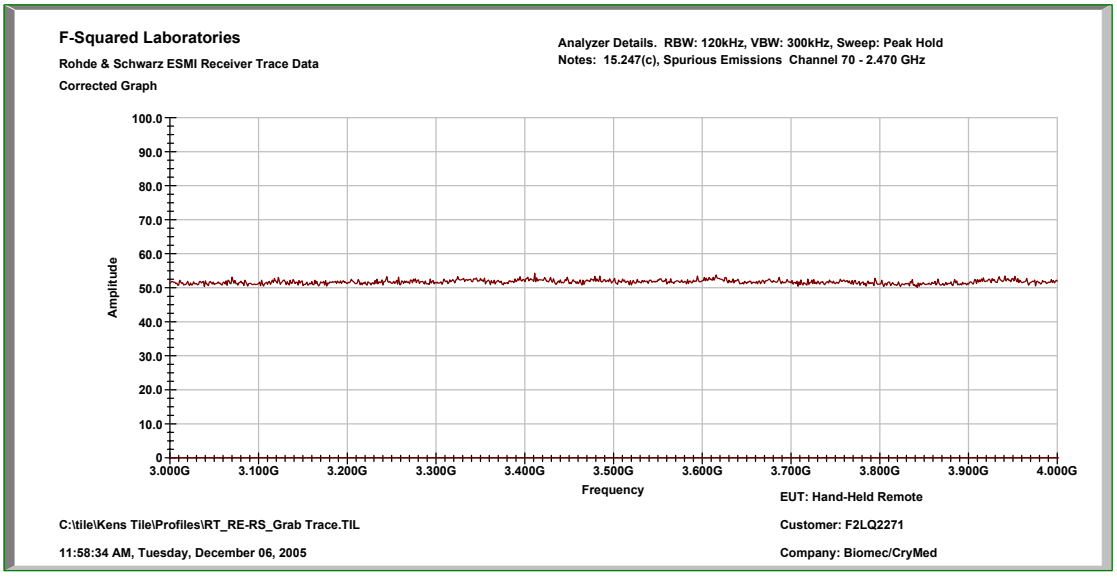
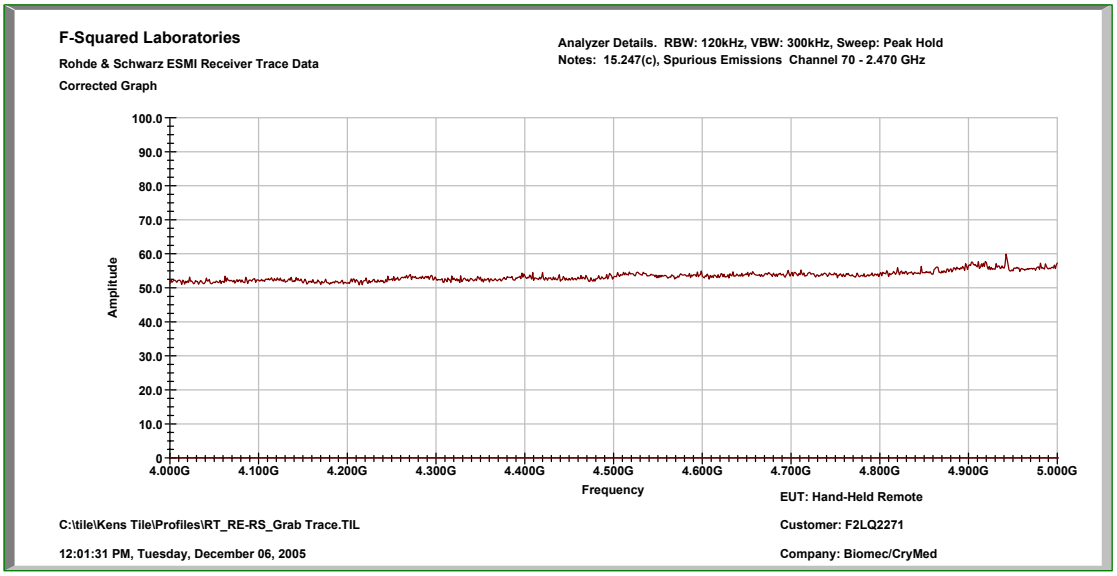


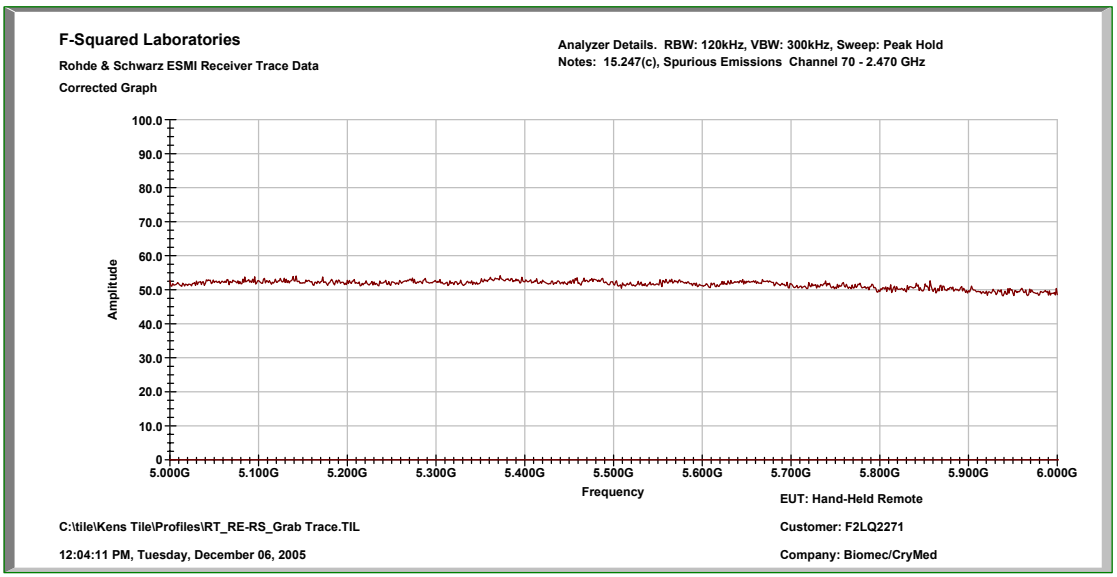

**Figure 36: Harmonics & Spurious Emissions, Upper Channel, 3-4 GHz**



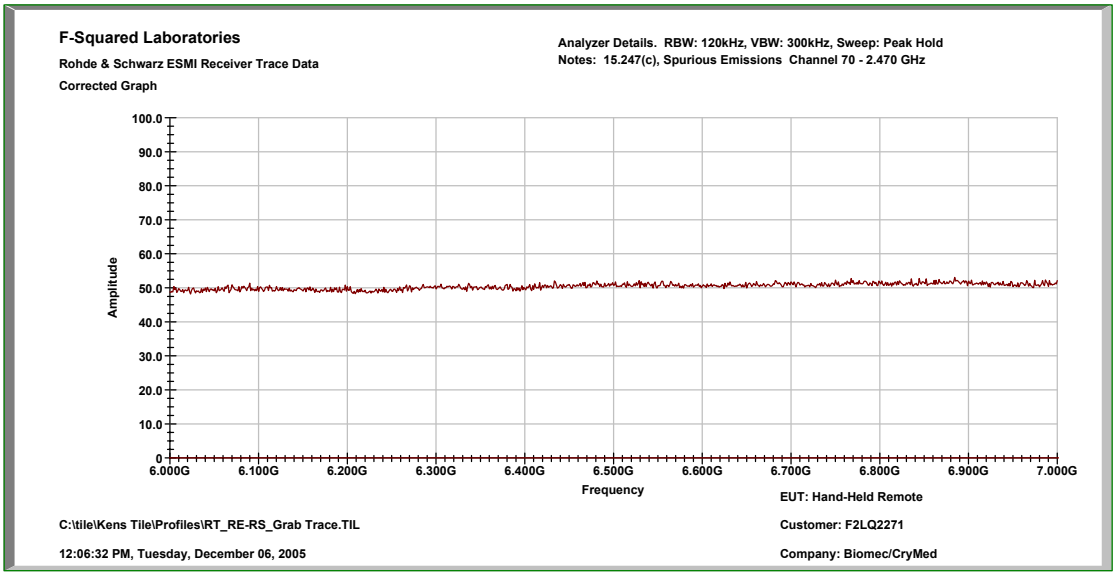
## Figure 37: Harmonics & Spurious Emissions, Upper Channel, 4-5 GHz




## Figure 38: Harmonics & Spurious Emissions, Upper Channel, 5-6 GHz



## Figure 39: Harmonics & Spurious Emissions, Upper Channel, 6-7 GHz




## Figure 40: Harmonics & Spurious Emissions, Upper Channel, 7-8 GHz

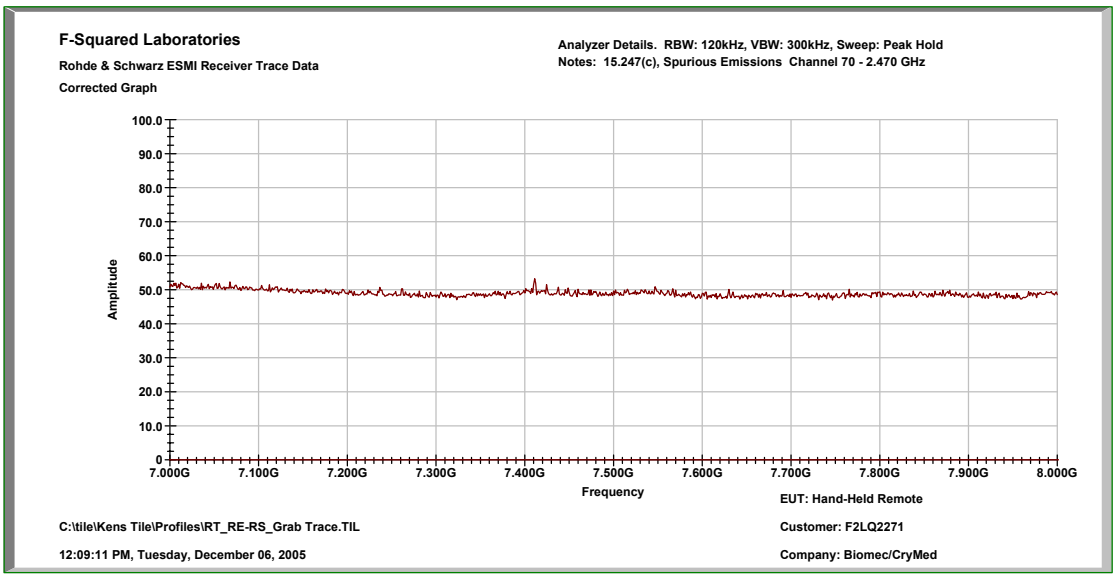


**Figure 41: Harmonics & Spurious Emissions, Upper Channel, 7-8 GHz**

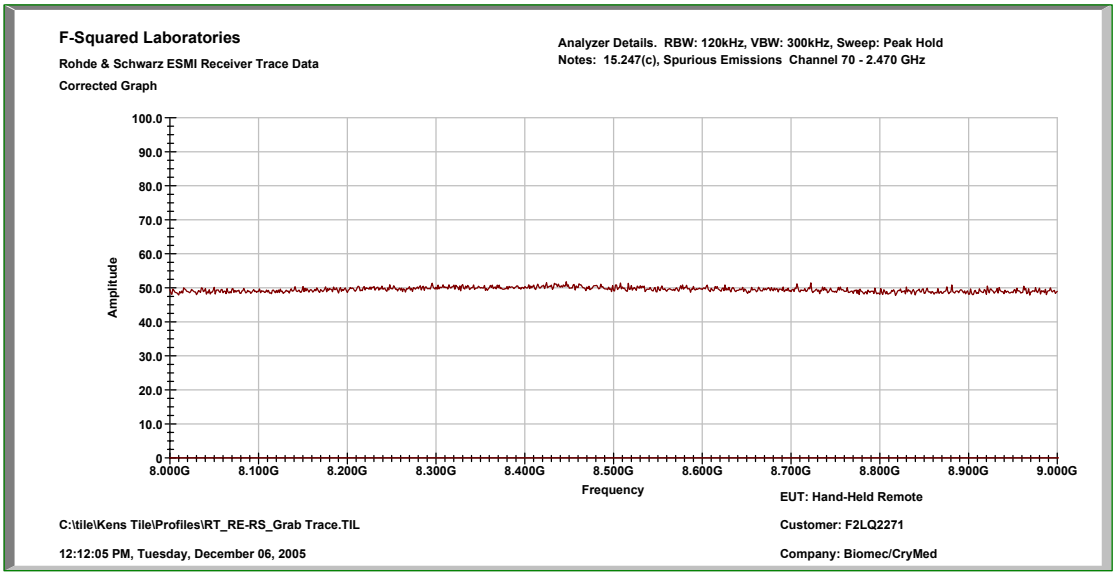
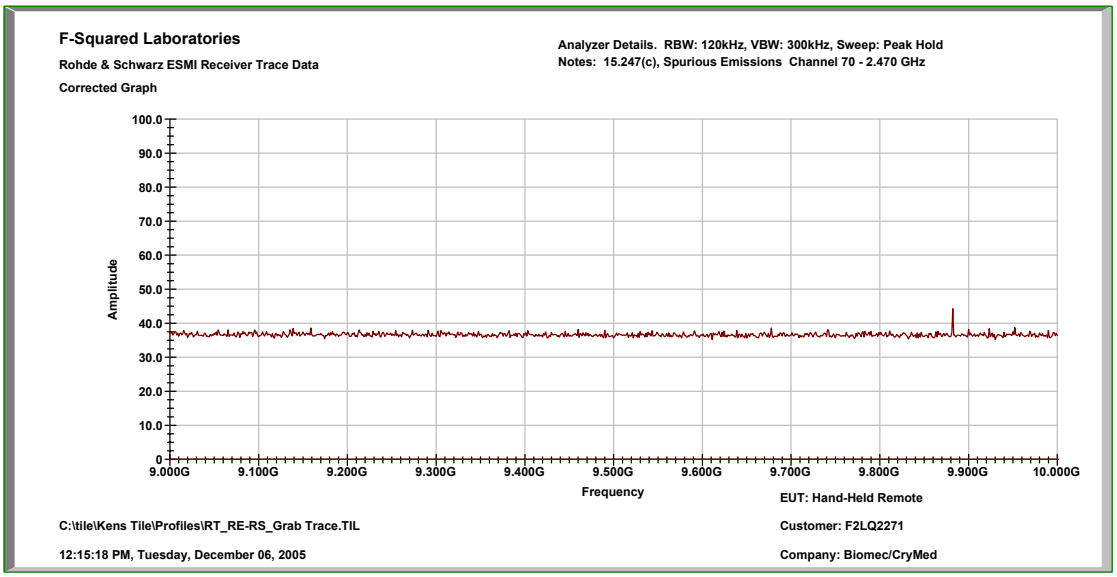
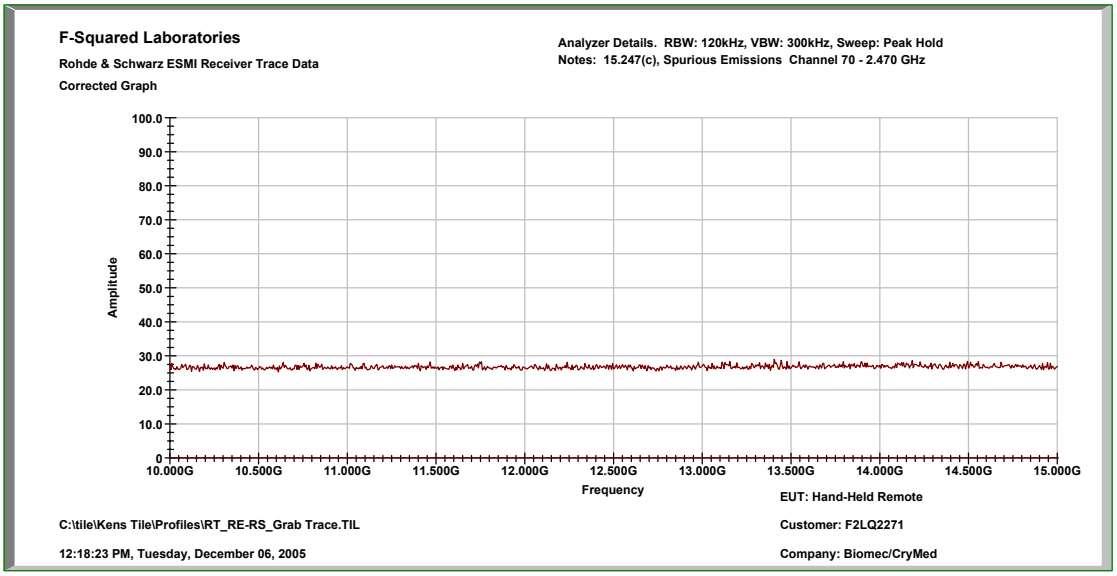


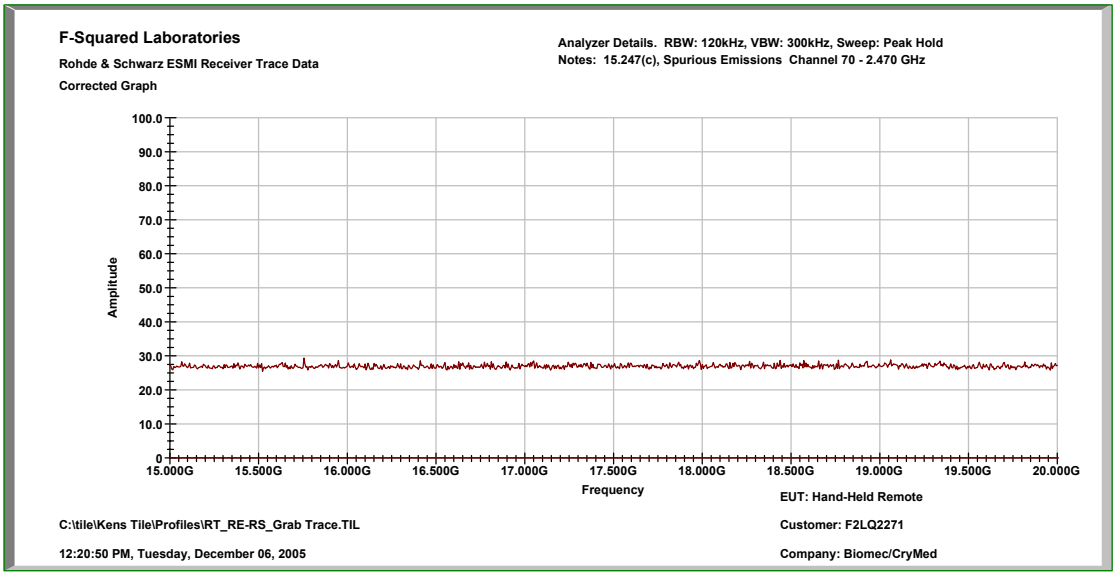

**Figure 42: Harmonics & Spurious Emissions, Upper Channel, 7-8 GHz**



## Figure 43: Harmonics & Spurious Emissions, Upper Channel, 10-15 GHz




## Figure 44: Harmonics & Spurious Emissions, Upper Channel, 15-70 GHz



## Figure 45: Harmonics & Spurious Emissions, Upper Channel, 20-25 GHz

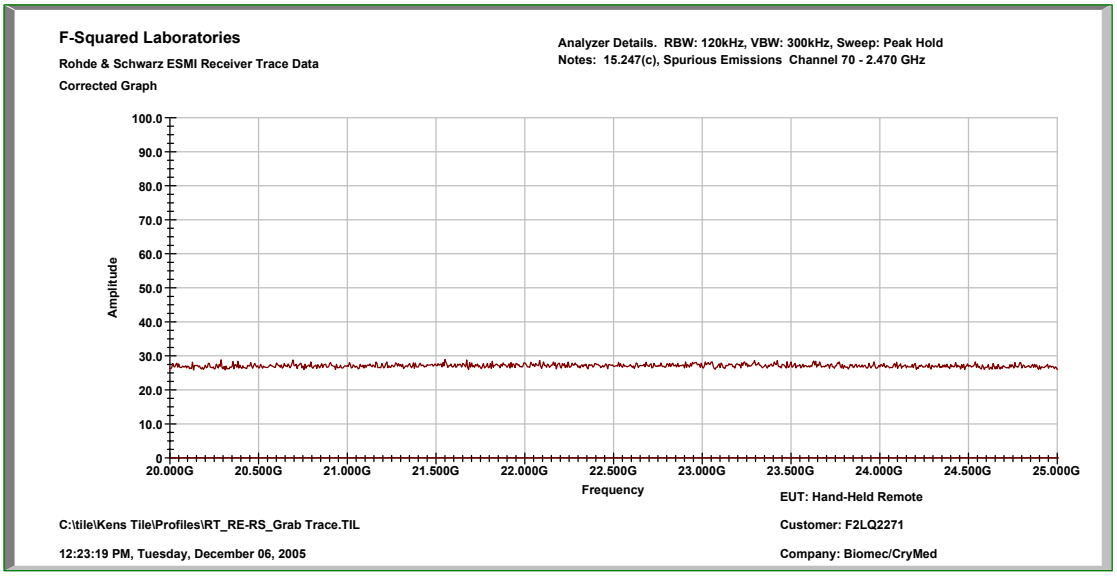


**Figure 46: Peak Power Spectral Density, Low Channel, 200 kHz Span**

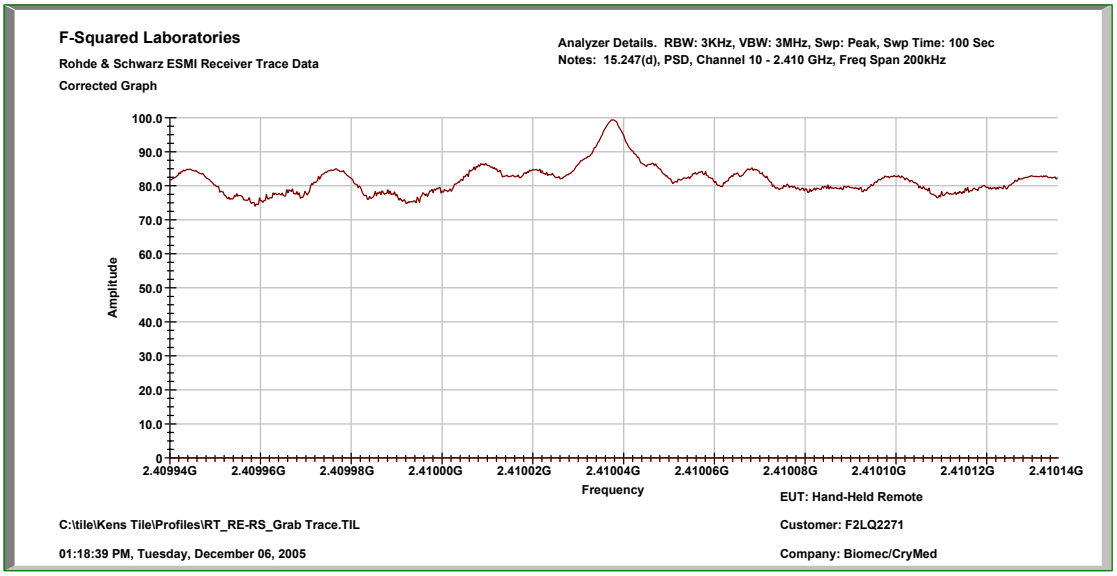
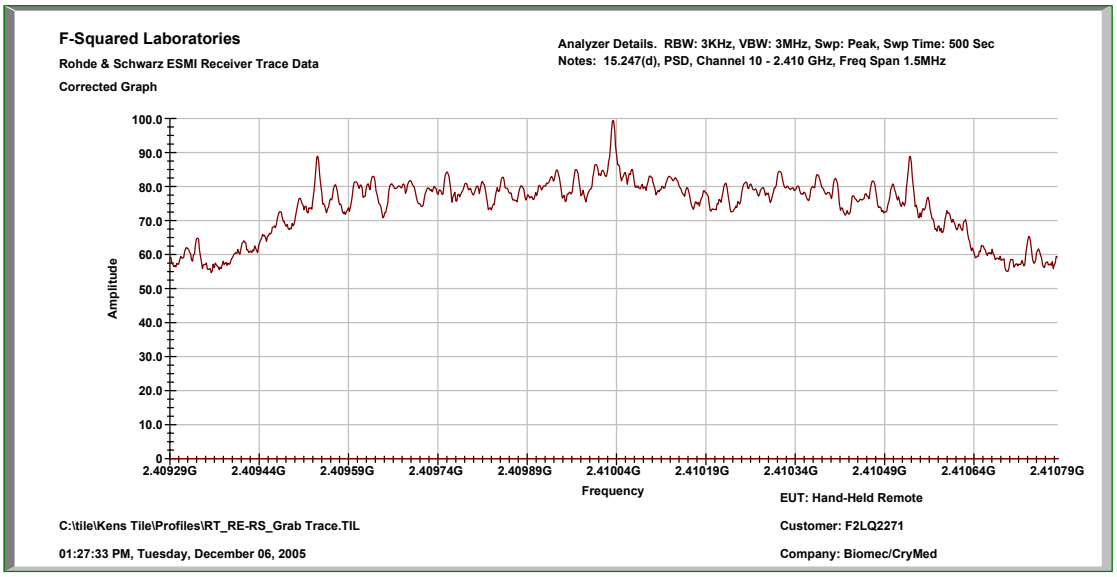
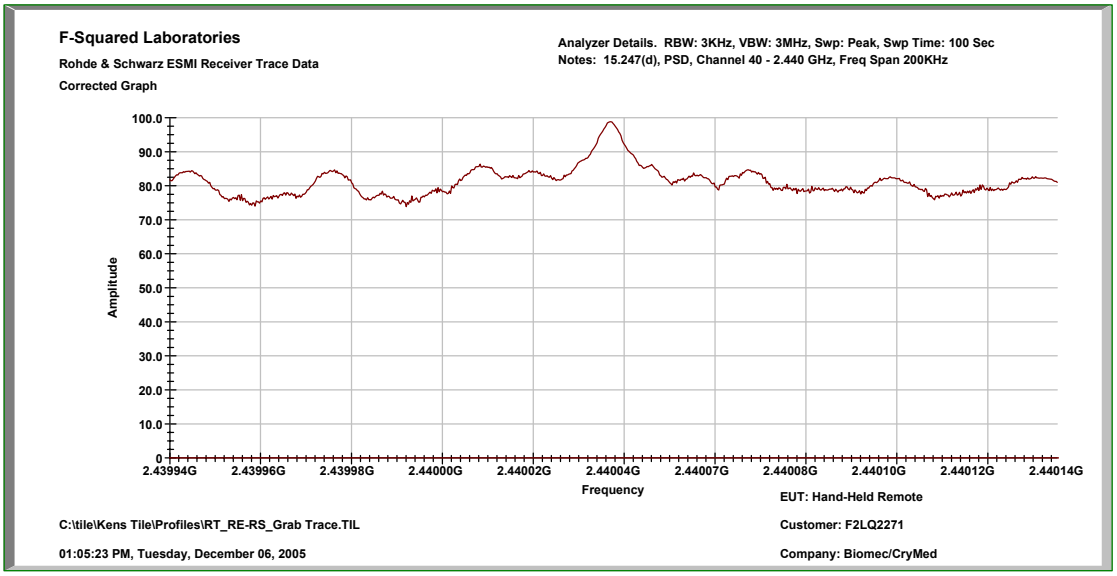



**Figure 47: Peak Power Spectral Density, Low Channel, 1.5 MHz Span**



## Figure 48: Peak Power Spectral Density, Mid Channel, 200 kHz Span




## Figure 49: Peak Power Spectral Density, Mid Channel, 1.5 MHz Span

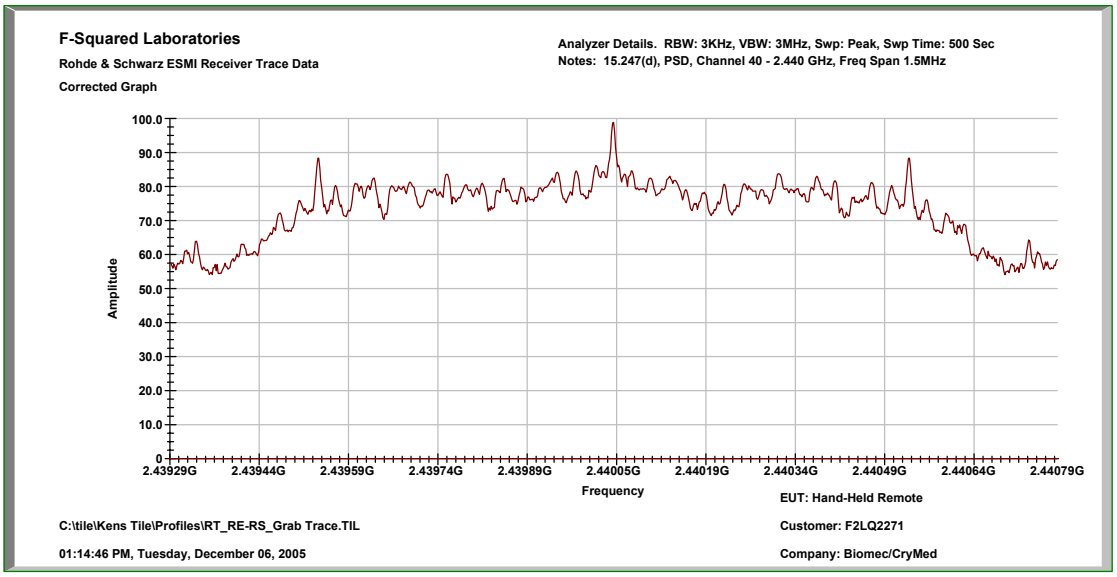


**Figure 50: Peak Power Spectral Density, Upper Channel, 200 kHz Span**

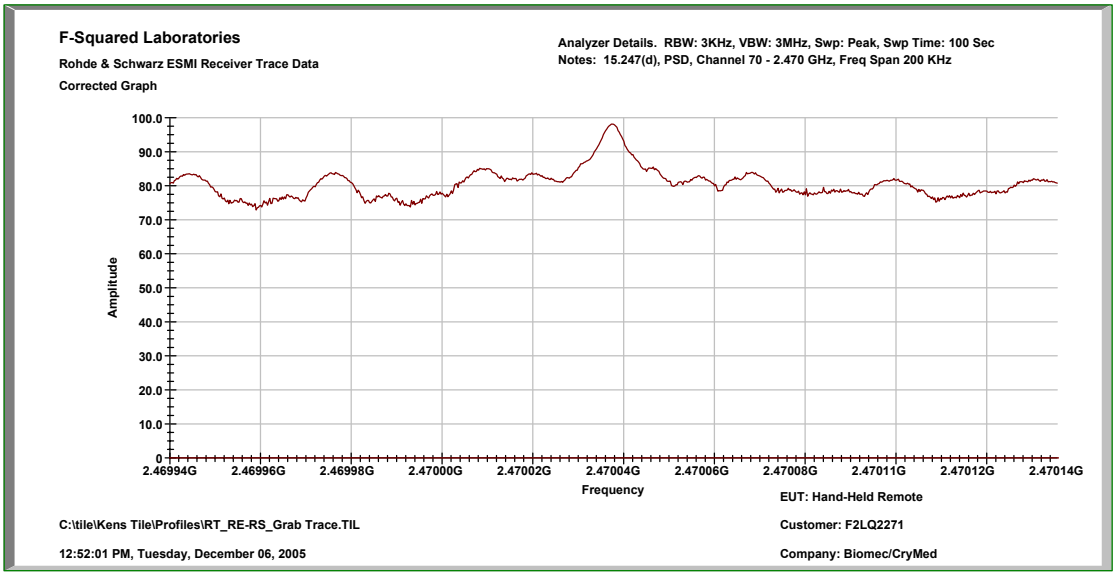
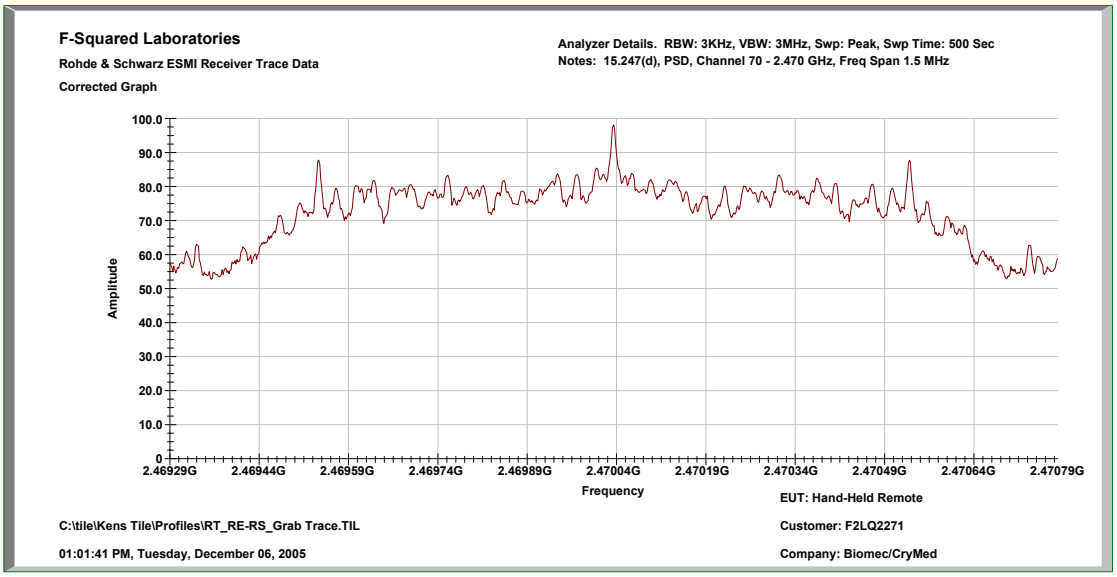
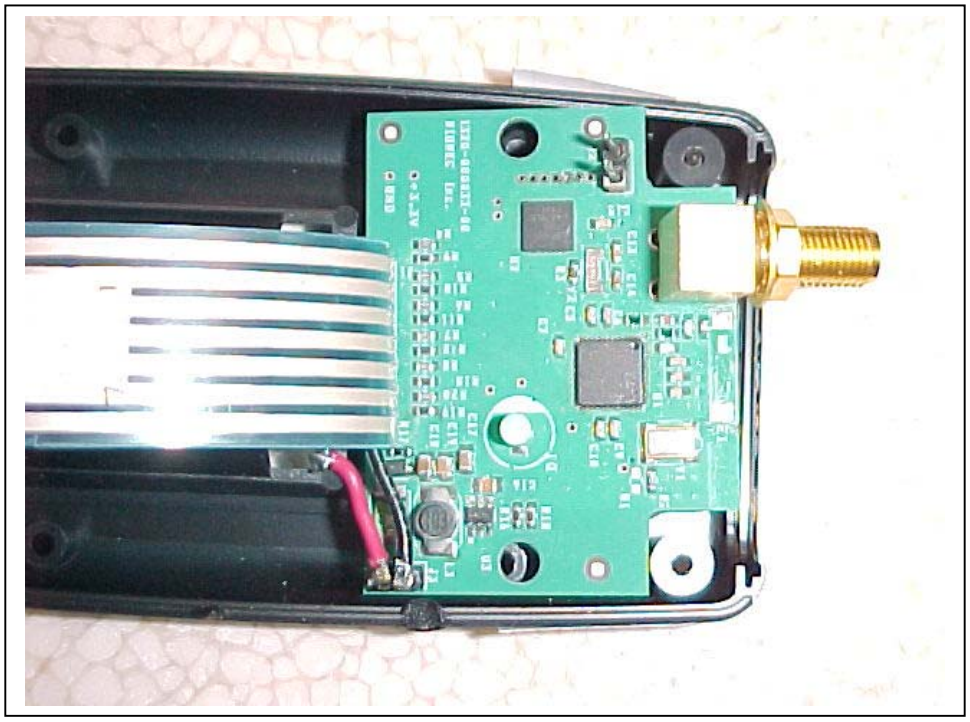



**Figure 51: Peak Power Spectral Density, Upper Channel, 1.5 MHz Span**



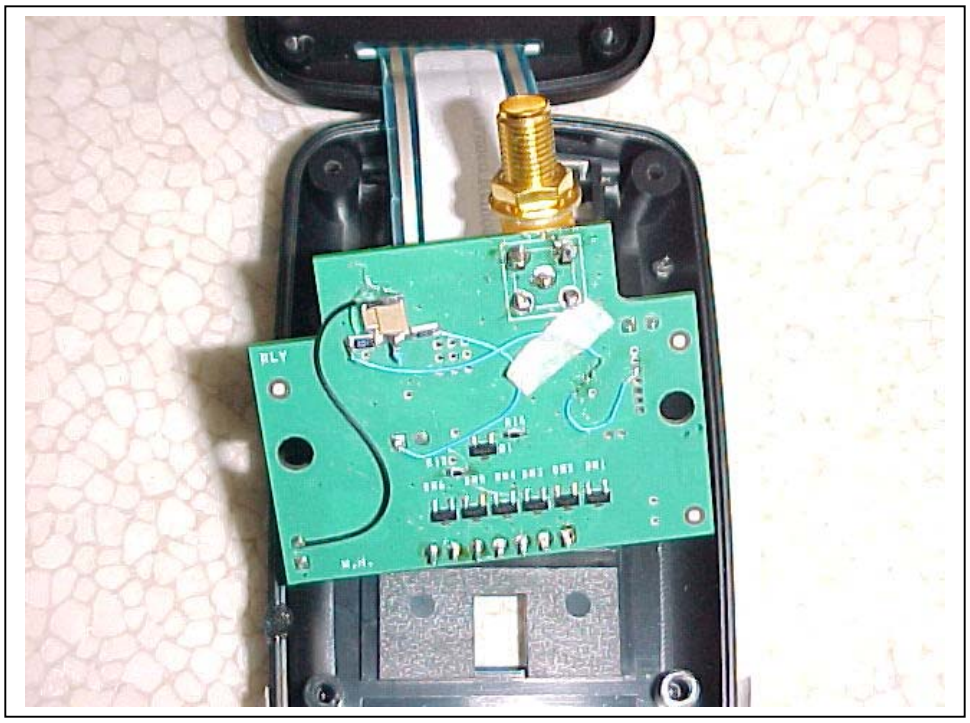
## 13. PHOTOGRAPHS/EXHIBITS – PRODUCT PHOTOS, TEST SETUPS

**Hand-Held Remote Control:**
**Component Side of Printed Circuit Board. SMA Connector Installed.**



**Hand-Held Remote Control:**
**Component Side of Printed Circuit Board. Chip Antenna Installed.**

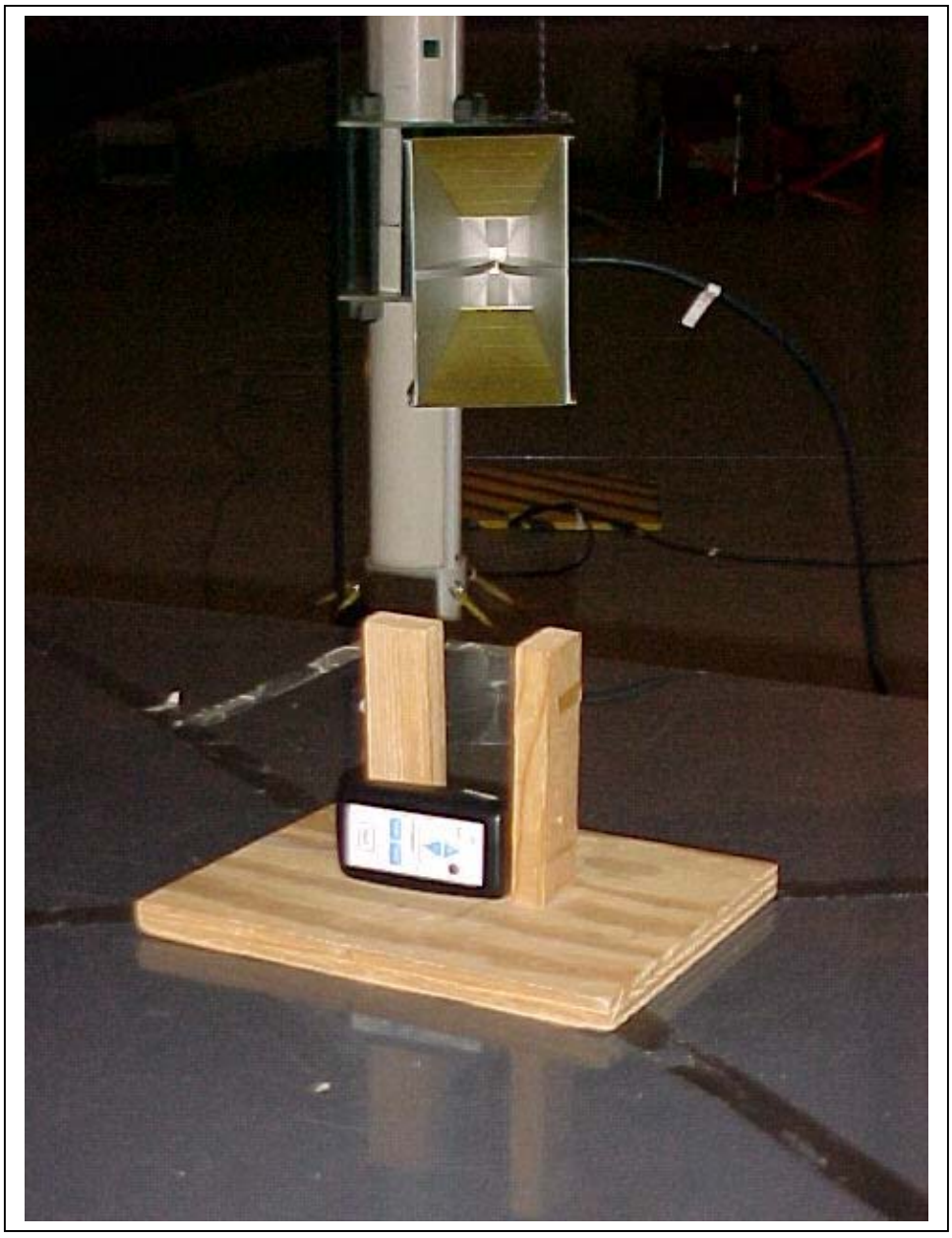
**Hand-Held Remote Control:**
**Solder Side of Printed Circuit Board. SMA Connector Installed.**



**Hand-Held Remote Control:**
**External View**

**RF Antenna Conducted Test:**
**Remote Control Direct Connection to Spectrum Analyzer**

**Orthagonal Positions of Remote Control – Radiated Emissions Test on OATS:**
**Remote Control on Side**



**Orthagonal Positions of Remote Control – Radiated Emissions Test on OATS:**
**Remote Control Upright**

**Orthagonal Positions of Remote Control – Radiated Emissions Test on OATS:**
**Remote Control on Back**