Washington Laboratories, Ltd.

FCC & Industry Canada Certification Test Report
For the
Hand Held Products, Inc.
IK8560

FCC ID: HD585606065
IC ID: 1693B-85606065

WLL JOB# **9177**
June 22, 2006

Prepared for:

Hand Held Products, Inc.
700 Visions Drive
Skaneateles Falls, NY 13153

Prepared By:

Washington Laboratories, Ltd.
7560 Lindbergh Drive
Gaithersburg, Maryland 20879

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Prepared by: Brian J. Dettling
Documentation Specialist

Reviewed by: Gregory M. Snyder
Chief EMC Engineer

Abstract

This report has been prepared on behalf of Hand Held Products, Inc. to support the attached Application for Equipment Authorization. The test report and application are submitted for a DTS Transmitter under Part 15.247 of the FCC Rules and Regulations and Spectrum Management and Telecommunications Policy RSS-210 and RSS-GEN of Industry Canada.. This Certification Test Report documents the test configuration and test results for a Hand Held Products, Inc. Model IK8560 .

Testing was performed on an Open Area Test Site (OATS) of Washington Laboratories, Ltd, 7560 Lindbergh Drive, Gaithersburg, MD 20879. Site description and site attenuation data have been placed on file with the FCC's Sampling and Measurements Branch at the FCC laboratory in Columbia, MD. The Industry Canada OATS numbers are 3035A-1 and 3035A-2 for Washington Laboratories, Ltd. Site 1 and Site 2, respectively. Washington Laboratories, Ltd. has been accepted by the FCC and approved by NIST NVLAP (NVLAP Lab Code: 200066-0) as an independent FCC test laboratory.

The Hand Held Products, Inc. IK8560 complies with the limits for a DTS Transmitter device under FCC Part 15.247 and Industry Canada RSS-210 and RSS-GEN.

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1 Introduction

1.1 Compliance Statement

The Hand Held Products, Inc. IK8560 complies with the limits for a DTS Transmitter device under FCC Part 15.247 and Industry Canada RSS-210.

1.2 Test Scope

Tests for radiated and conducted (at antenna terminal) emissions were performed. All measurements were performed in accordance with FCC Public Notice DA 00-705 and the 2001 version of ANSI C63.4. The measurement equipment conforms to ANSI C63.2 Specifications for Electromagnetic Noise and Field Strength Instrumentation.

1.3 Contract Information

Customer:	Hand Held Products, Inc. 700 Visions Drive Skaneateles Falls, NY 13153
Purchase Order Number:	24596
Quotation Number:	62923

1.4 Test Dates

Testing was performed on the following date(s):	May 4 to May 15, 2006

1.5 Test and Support Personnel

Washington Laboratories, LTD	Steve Dovell
Client Representative	Nicole Robinson

1.6 Abbreviations

A	**A**mpere
ac	**a**lternating **c**urrent
AM	Amplitude Modulation
Amps	**Amp**eres
b/s	**b**its per **s**econd
BW	**B**and**W**idth
CE	**C**onducted **E**mission
cm	**c**enti**m**eter
CW	**C**ontinuous **W**ave
dB	**d**eci**B**el
dc	**d**irect **c**urrent
EMI	**E**lectro**m**agnetic **I**nterference
EUT	**E**quipment **U**nder **T**est
FM	**F**requency **M**odulation
G	**g**iga - prefix for 10^9 multiplier
Hz	**H**ertz
IF	**I**ntermediate **F**requency
k	**k**ilo - prefix for 10^3 multiplier
LISN	**L**ine **I**mpedance **S**tabilization **N**etwork
M	**M**ega - prefix for 10^6 multiplier
M	**m**eter
µ	**m**icro - prefix for 10^{-6} multiplier
NB	**N**arrow**b**and
QP	**Q**uasi-**P**eak
RE	**R**adiated **E**missions
RF	**R**adio **F**requency
rms	**r**oot-**m**ean-**s**quare
SN	**S**erial **N**umber
S/A	**S**pectrum **A**nalyzer
V	**V**olt

2 Equipment Under Test

2.1 EUT Identification & Description

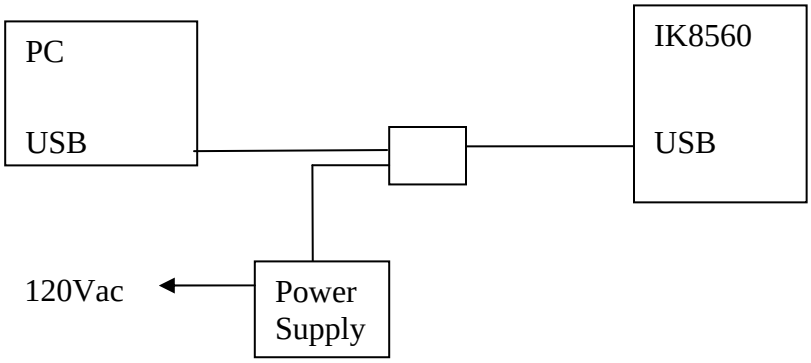
The Hand Held Products, Inc. IK8560 is a is a wall mounted bar code reader that uses Windows CE as the operating system and an built in 802.11b radio for network communications.

Table 1. Device Summary

ITEM	DESCRIPTION
Manufacturer:	Hand Held Products, Inc.
FCC ID:	HD585606065
IC:	1693B-85606065
Model:	IK8560
FCC Rule Parts:	§15.247
Industry Canada:	RSS210, RSS-GEN
Frequency Range:	2412MHz (Ch. 1) – 2462MHz (Ch. 11)
Maximum Output Power:	25.12mW
Modulation:	DSSS
Occupied Bandwidth:	11.784MHz
Keying:	Automatic
Type of Information:	Data
Number of Channels:	11
Power Output Level	Fixed
Antenna Connector	N/A, Integral Antenna
Antenna Type	Internal, Peak Gain 1.5dB
Interface Cables:	USB to PC
Power Source & Voltage:	12Vdc via 100-240 Vac power adapter

2.2 Test Configuration

The IK8560 was connected to a PC running Active Sync via the USB port. Power is supplied via an external brick that connects through the USB cable. Reference the figure below.



2.3 Testing Algorithm

The IK8560 was programmed for continuous transmission via a test script provided by the client to exercise all internal functions. The unit was controlled so that it was possible to set the transmit to the low, high and mid channels. The output power is fixed at the maximum.

Worst case emission levels are provided in the test results data.

2.4 Test Location

All measurements herein were performed at Washington Laboratories, Ltd. test center in Gaithersburg, MD. Site description and site attenuation data have been placed on file with the FCC's Sampling and Measurements Branch at the FCC laboratory in Columbia, MD. The Industry Canada OATS numbers are 3035A-1 and 3035A-2 for Washington Laboratories, Ltd. Site 1 and Site 2, respectively. Washington Laboratories, Ltd. has been accepted by the FCC and approved by NIST NVLAP (NVLAP Lab Code: 200066-0) as an independent FCC test laboratory.

2.5 Measurements

2.5.1 References

FCC 97-114 Guidelines on Measurements for Direct Sequence Spread Spectrum Systems

ANSI C63.2 Specifications for Electromagnetic Noise and Field Strength Instrumentation

ANSI C63.4 American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz

2.6 Measurement Uncertainty

All results reported herein relate only to the equipment tested. For the purposes of the measurements performed by Washington Laboratories, the measurement uncertainty is ±2.3 dB. This has been calculated for a *worst-case situation* (radiated emissions measurements performed on an open area test site).

The following measurement uncertainty calculation is provided:

$$\text{Total Uncertainty} = (A^2 + B^2 + C^2)^{1/2}/(n-1)$$

where:

A = Antenna calibration uncertainty, in dB = 2 dB

B = Spectrum Analyzer uncertainty, in dB = 1 dB

C = Site uncertainty, in dB = 4 dB

n = number of factors in uncertainty calculation = 3

Thus, Total Uncertainty = $0.5\ (2^2 + 1^2 + 4^2)^{1/2} = \pm 2.3$ dB.

3 Test Equipment

Table 2 shows a list of the test equipment used for measurements along with the calibration information.

Table 2: Test Equipment List

Site 1 List:

WLL Asset #	Manufacturer Model/Type	Function	Cal. Due
0125	SOLAR 8028-50-TS-BNC	LISN	1/31/2007
0126	SOLAR 8028-50-TS-BNC	LISN	1/31/2007
0072	HP 8568B	SPECTRUM ANALYZER	7/05/2006
0070	HP 85685A	RF PRESELECTOR	7/05/2006
0382	SUNOL JB1	BICONILOG ANTENNA	1/27/2007
0004	ARA DRG118/A	MICROWAVE HORN ANTENNA	2/02/2007
0074	HEWLETT-PACKARD 8593A	SPECTRUM ANALYZER	10/04/2006
0066	HEWLETT-PACKARD 8449B	MICROWAVE PREAMP	6/14/2006
0068	HP85650A	QUASI-PEAK ADAPTER	6/30/2006
0476	TEKTRONIX TDS220	OSCILLOSCOPE	8/02/2006
0475	WILTRON	RF DETECTOR	2/09/2007
0477	HEWLETT-PACKARD 8648C	SIGNAL GENERATOR	7/15/2006

4 Test Results

4.1 RF Power Output: (§15.247(b) and RSS-210, A8.4)

For devices within the scope of FCC §15.247 and RSS-210 Annex A, the peak power conducted from the intentional radiator to the antenna shall not be greater than one watt (30 dBm).

The output from the transmitter was connected to a diode detector and oscilloscope. The peak deflection was measured on the oscilloscope and recorded. A signal generator was then substituted in place of EUT and set to the same frequency as the transmitter. The CW output of the signal generator was increased until the same deflection was noted on the oscilloscope. A power meter was then connected to the output of the signal generator to determine the output power of the signal generator. This level is then recorded as the output power of the EUT at the specified frequency.

The EUT carrier was modulated during this test.

Table 3: RF Power Output

Channel and/or Frequency	Measured Level (dBm)	Measured Level (Watts)	Rated (Watts)	Limit (Watts)
Ch. 1, 2412 MHz	14.0	25.12 mW	.0398	1
Ch 6, 2437 MHz	13.5	22.4 mW	.0398	1
Ch 11, 2462 MHz	12.0	15.85 mW	.0398	1

RF Output Power Measurement
Diode Detector Method Test Setup Diagram

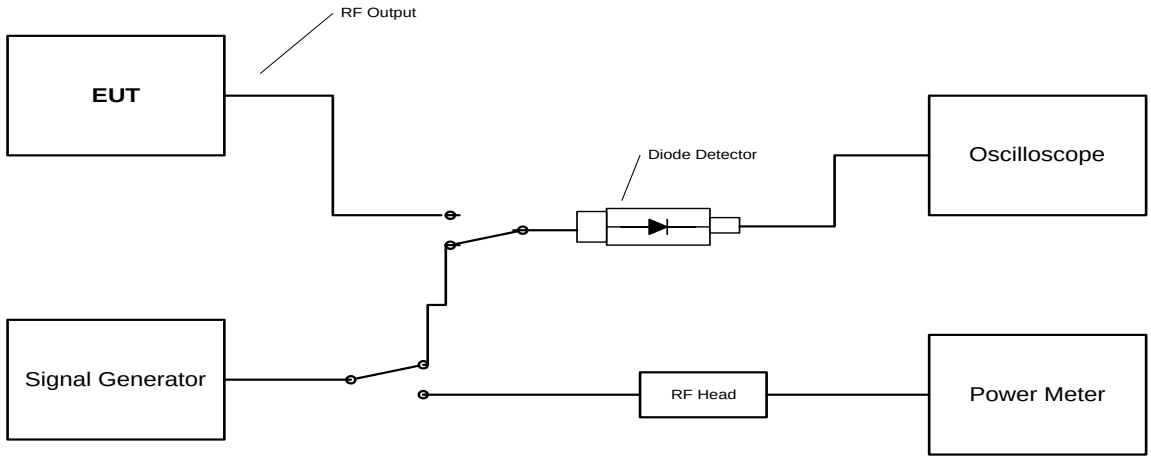


Figure 4-1. Power Measurement Setup

4.2 Occupied Bandwidth: (§15.247(a)(2) and RSS-210 Section A8.2)

For systems using digital modulation techniques, FCC Part 15.247 and Annex A of RSS-210 requires that the minimum 6dB bandwidth be at least 500 kHz.

Occupied bandwidth was performed by connecting the RF output of the EUT to the input of a spectrum analyzer. The following plots depict the bandwidth measurements. Table 4 lists the measured bandwidths.

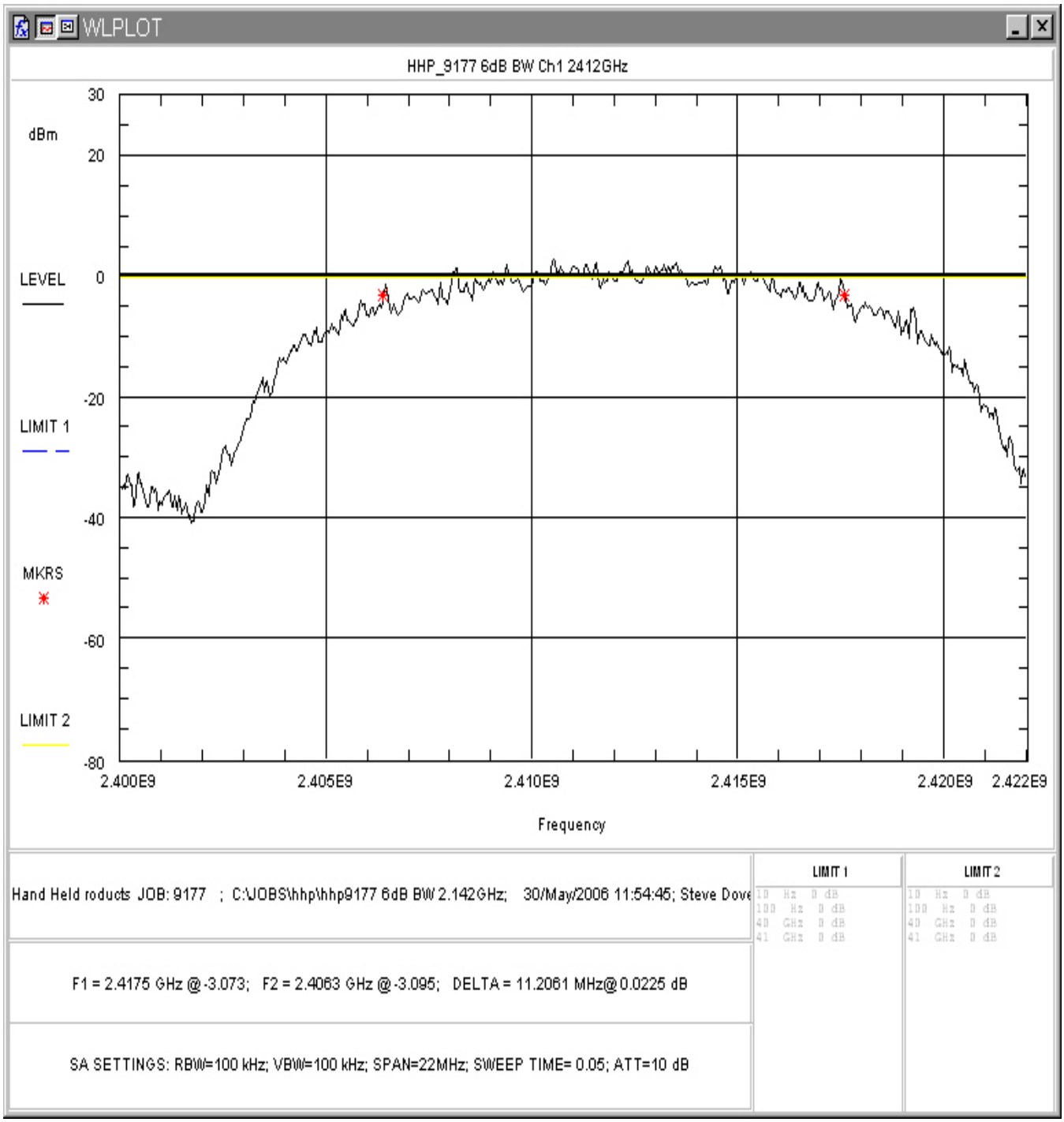


Figure 4-2. Occupied Bandwidth, Low Channel

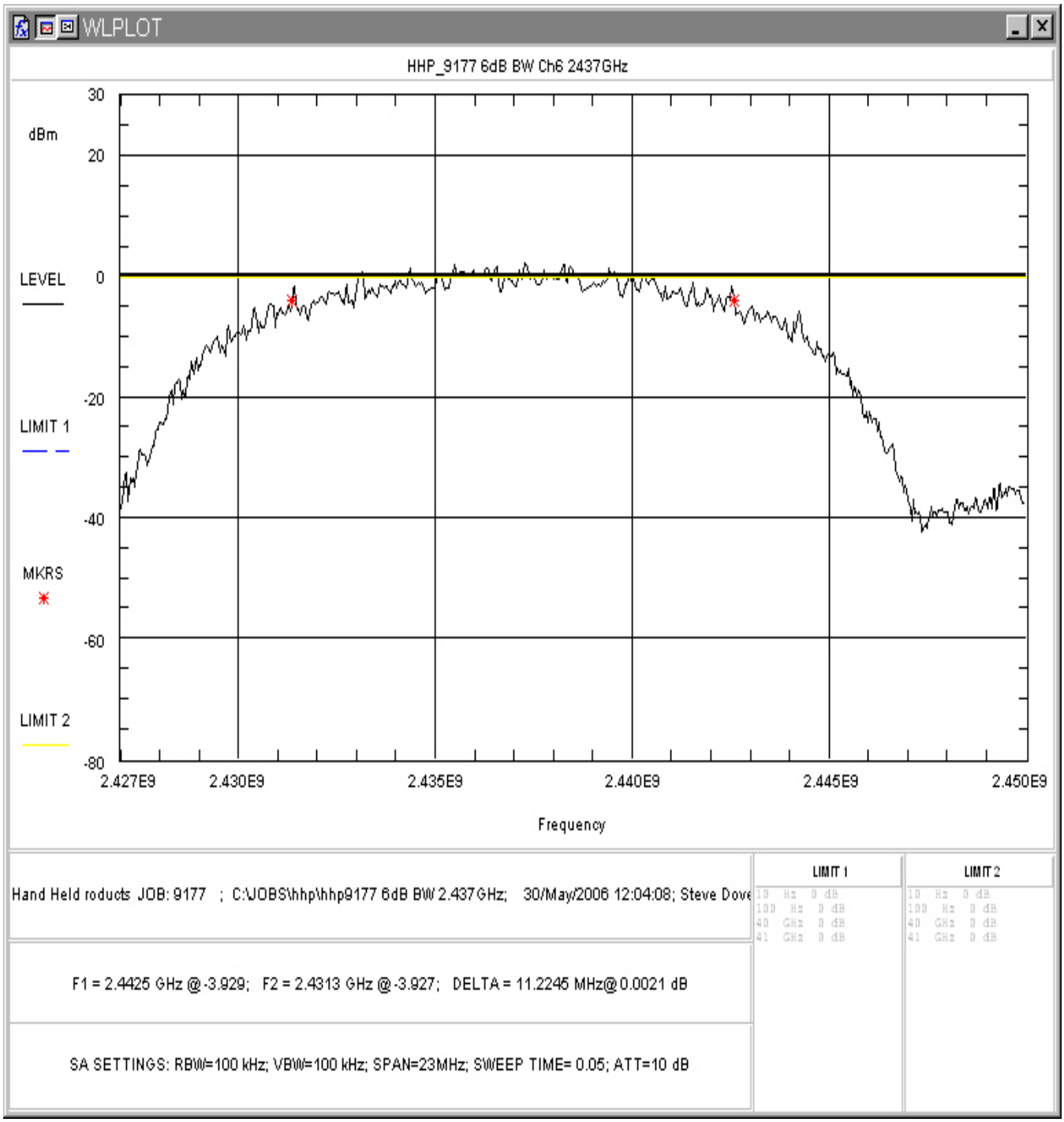


Figure 4-3. Occupied Bandwidth, Mid Channel

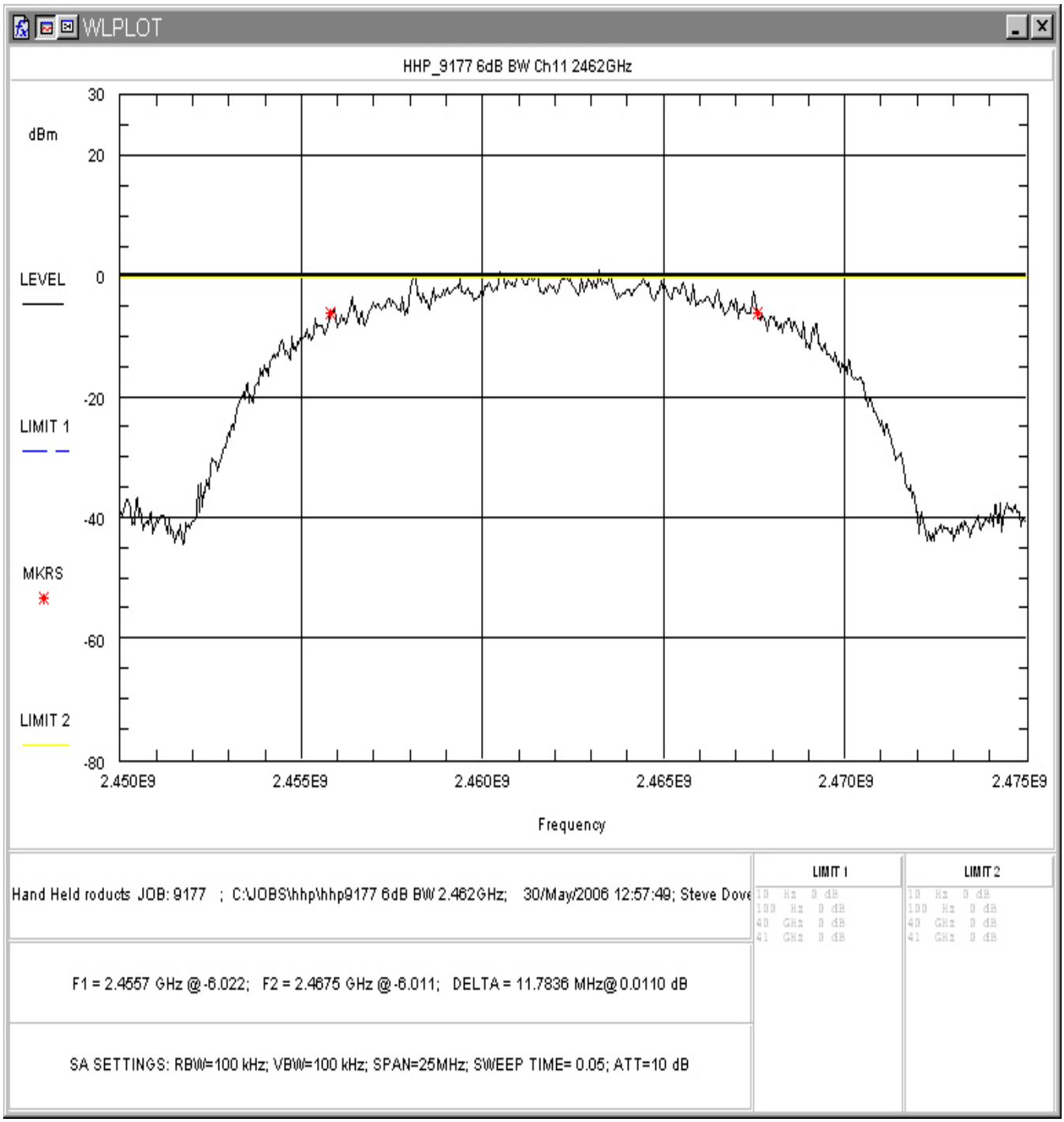


Figure 4-4. Occupied Bandwidth, High Channel

Table 4 provides a summary of the Occupied Bandwidth Results.

Table 4: Occupied Bandwidth Results

Frequency	Bandwidth	Limit	Pass/Fail
Low Channel 2412MHz	11.206MHz	1 MHz	Pass
Mid Channel 2437MHz	11.225MHz	1 MHz	Pass
High Channel 2462MHz	11.784MHz	1 MHz	Pass

4.3 RF Peak Power Spectral Density (§15.247(e) and RSS-210, Annex 8.2)

For digitally modulated systems, the peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

The output from the transmitter was connected to an attenuator and then to the input of the RF Spectrum Analyzer. The analyzer offset was adjusted to compensate for the attenuator and other losses in the system.

The highest peak within the transmission was located and measured for the low, mid, and high channels of the IK8560. Plots of the PSD were taken as shown in Figure 4-5 through **Error! Reference source not found.** below. Table 5 provides a summary of the data.

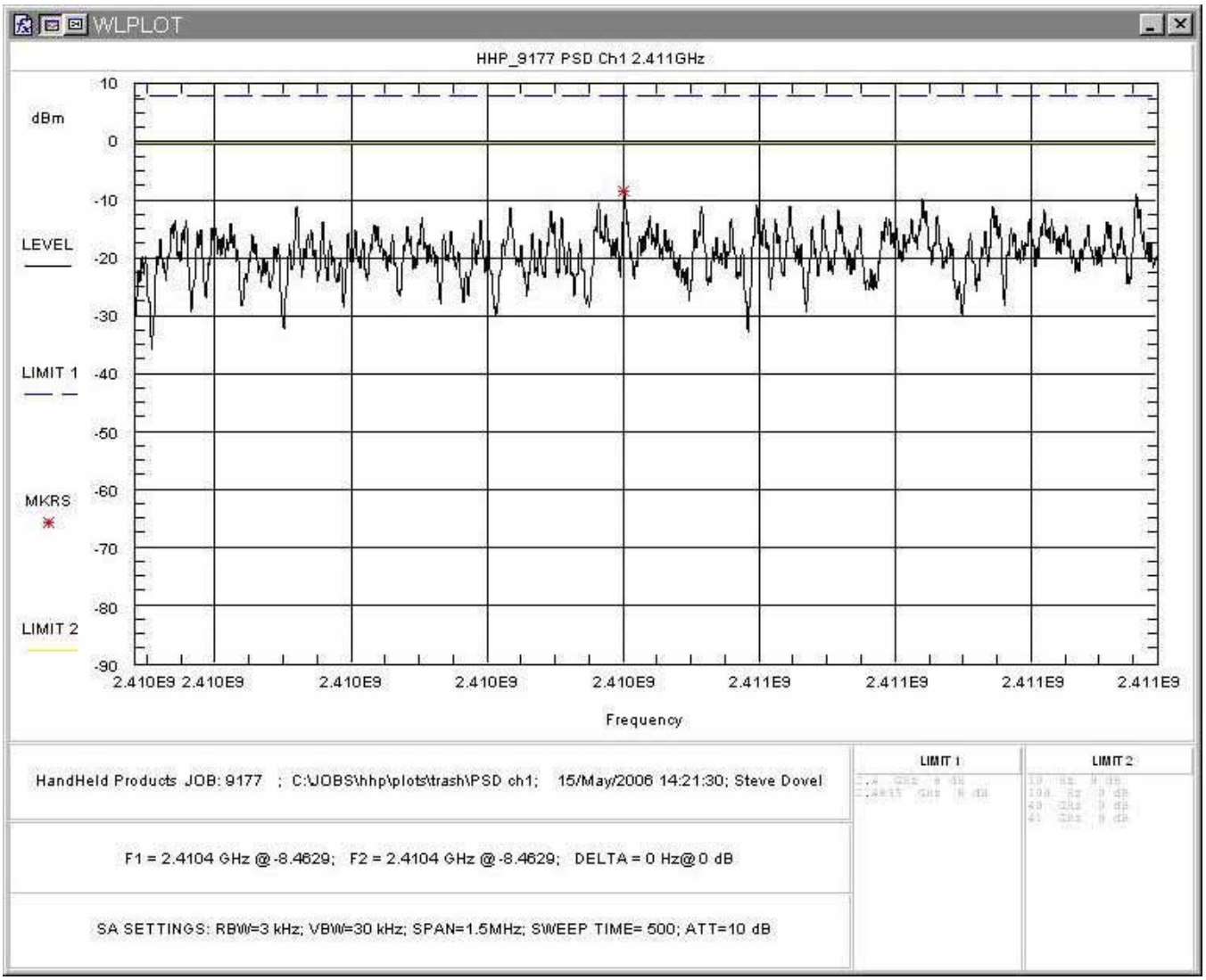


Figure 4-5. Power Spectral Density: Low Channel 2412MHz

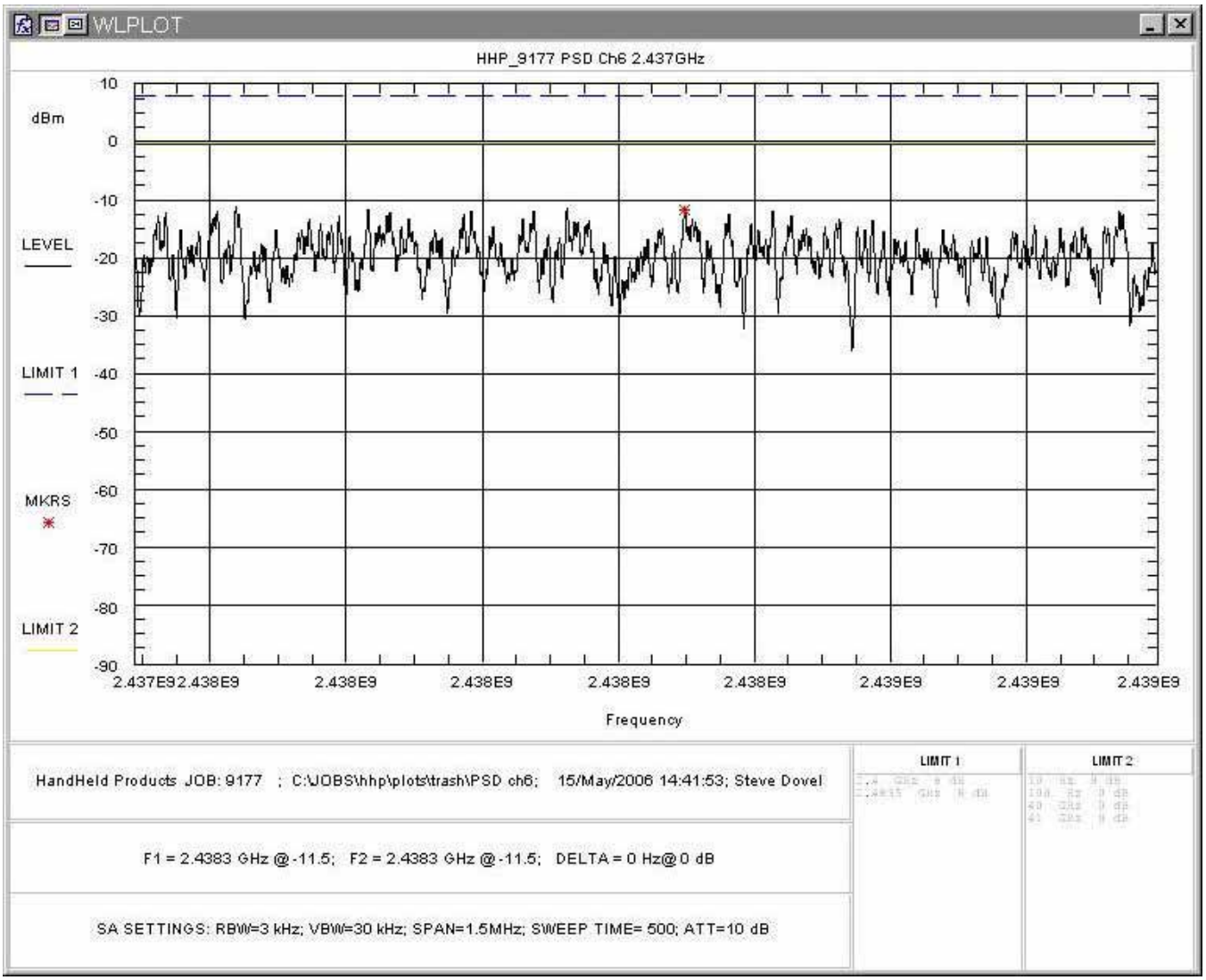


Figure 4-6. Power Spectral Density: Mid Channel 2437MHz

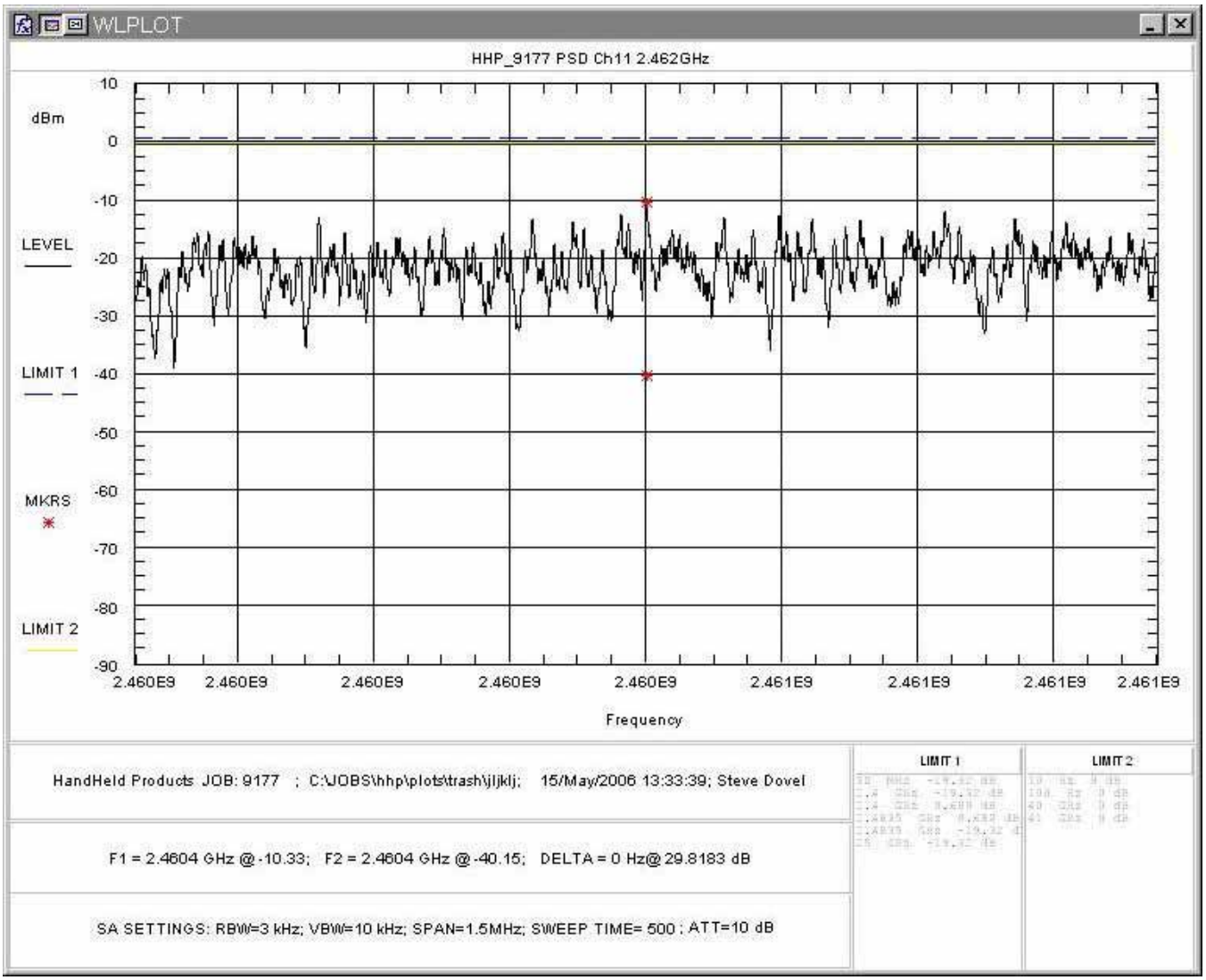


Figure 4-7. Power Spectral Density: High Channel 2462MHz

Table 5: RF Power Spectral Density

Frequency	Level (dBm)	Limit (dBm)	Pass/Fail
2412MHz Channel 1	-8.46	8	Pass
2437MHz Channel 6	-11.5	8	Pass
2462MHz Channel 11	-10.3	8	Pass

4.4 Conducted Spurious Emissions at Antenna Terminals (FCC Part §15.247(d) and RSS-210, A8)

In any 100 kHz band outside the frequency band in which the system is operating, the RF power shall be at least 20dB below that in the 100 kHz bandwidth that contain the highest level of the desired power.

The EUT antenna was removed and the cable was connected directly into a spectrum analyzer through a 10 dB attenuator. An offset was programmed into the spectrum analyzer to compensate for the loss of the external attenuator. The spectrum analyzer resolution bandwidth was set to 100 kHz and the video bandwidth was set to 100 kHz. The amplitude of the EUT carrier frequency was measured to determine the emissions limit (20 dB below the carrier frequency amplitude). The emissions outside of the allocated frequency band were then scanned from 30 MHz up to the tenth harmonic of the carrier. All measurements were performed with a measurement bandwidth of 100kHz. The video bandwidth was set to 3MHz during the testing.

The following are plots of the conducted spurious emissions data.

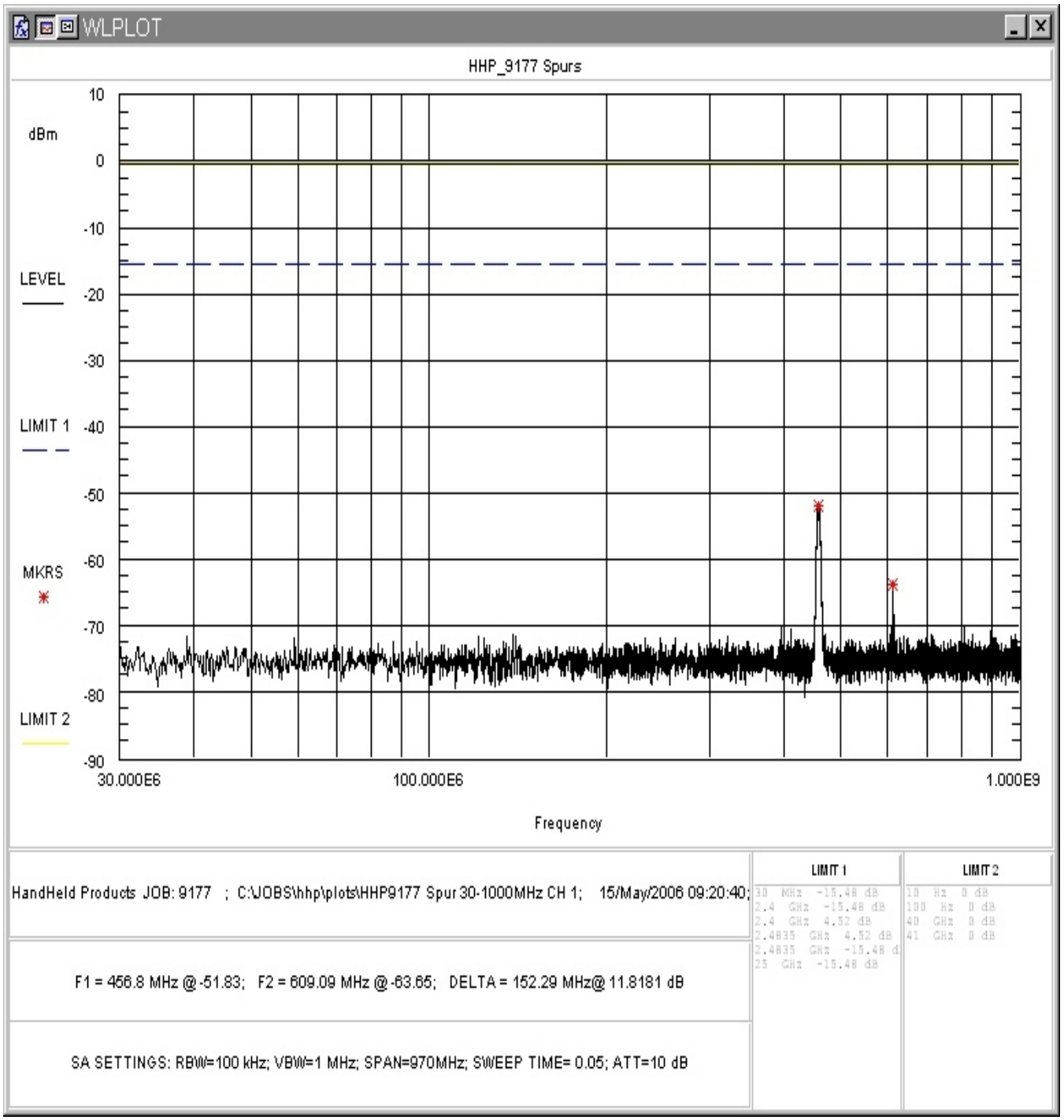


Figure 4-8. Conducted Spurious Emissions, Low Channel 30 - 1000MHz

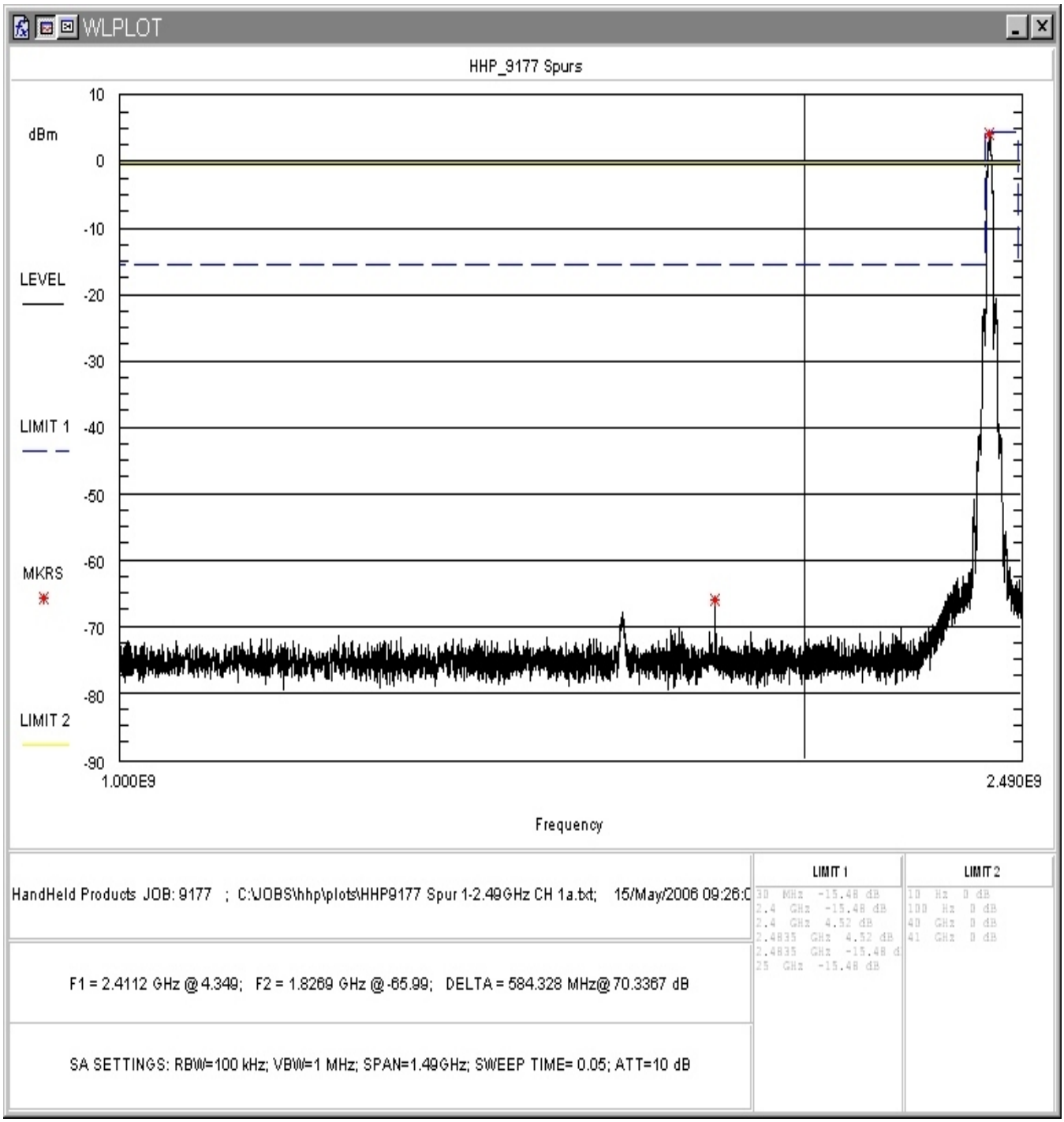


Figure 4-9. Conducted Spurious Emissions, Low Channel 1 – 2.49GHz

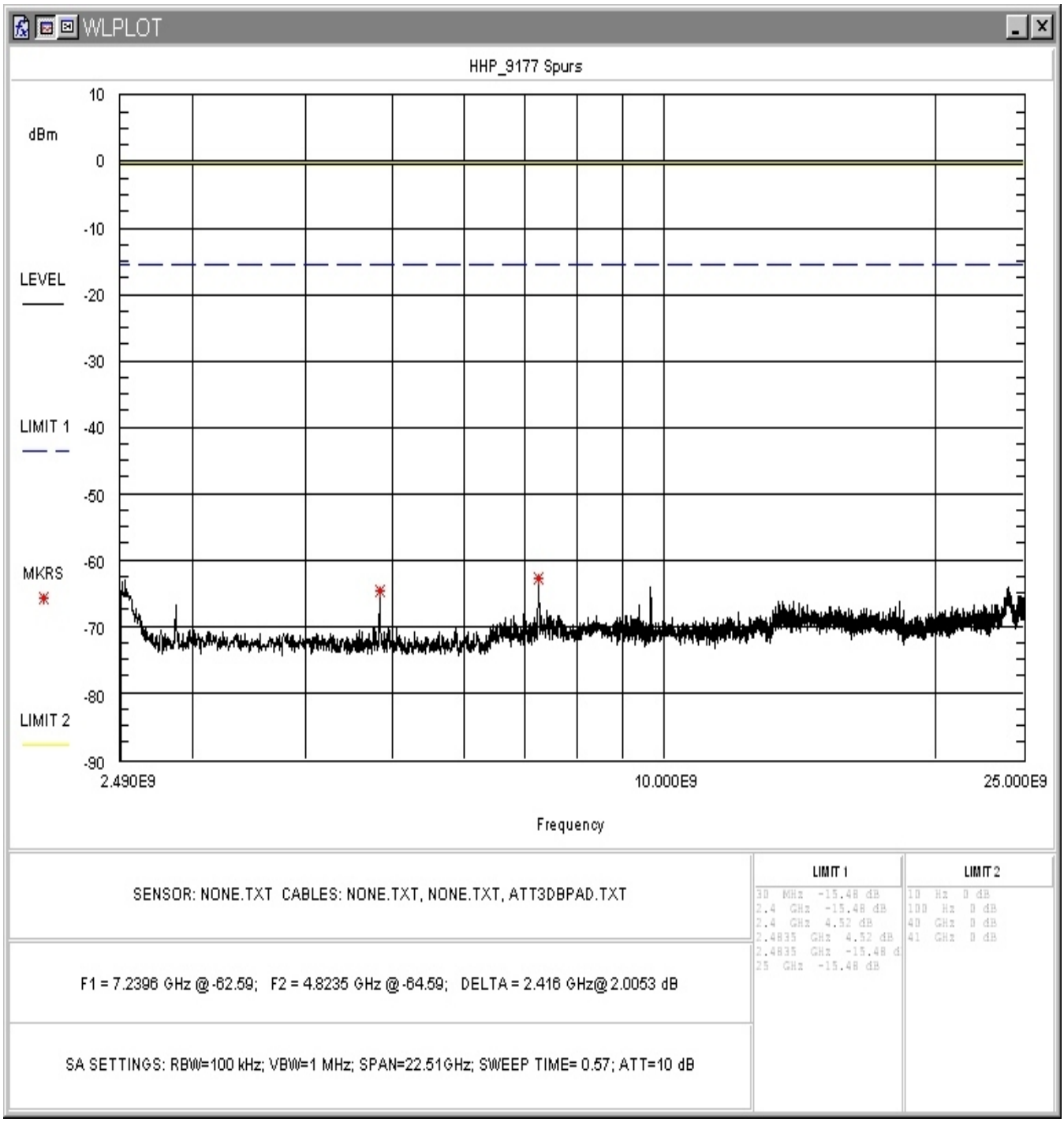


Figure 4-10. Conducted Spurious Emissions, Low Channel 2.49 – 25GHz

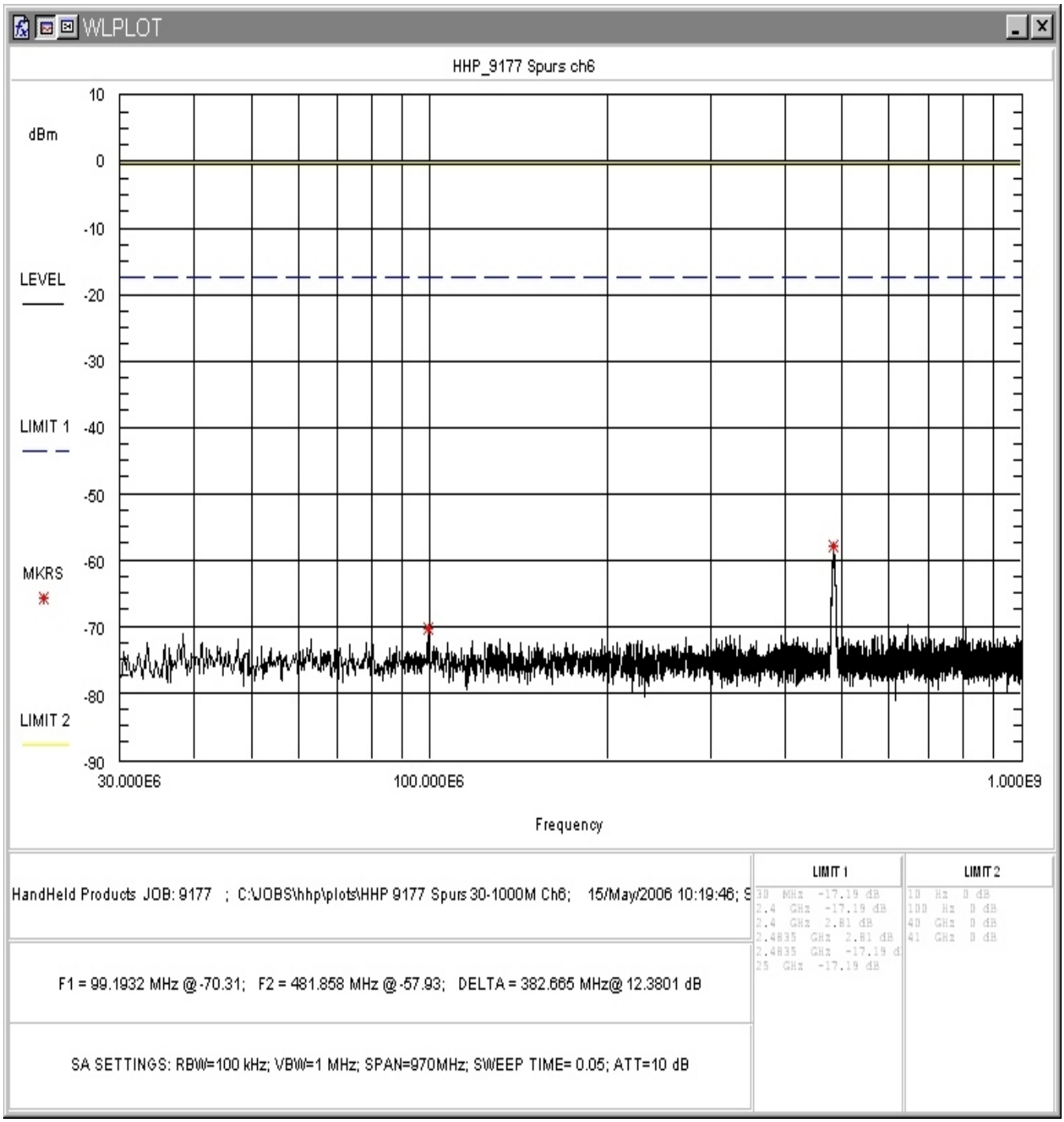


Figure 4-11. Conducted Spurious Emissions, Mid Channel 30 - 1000MHz

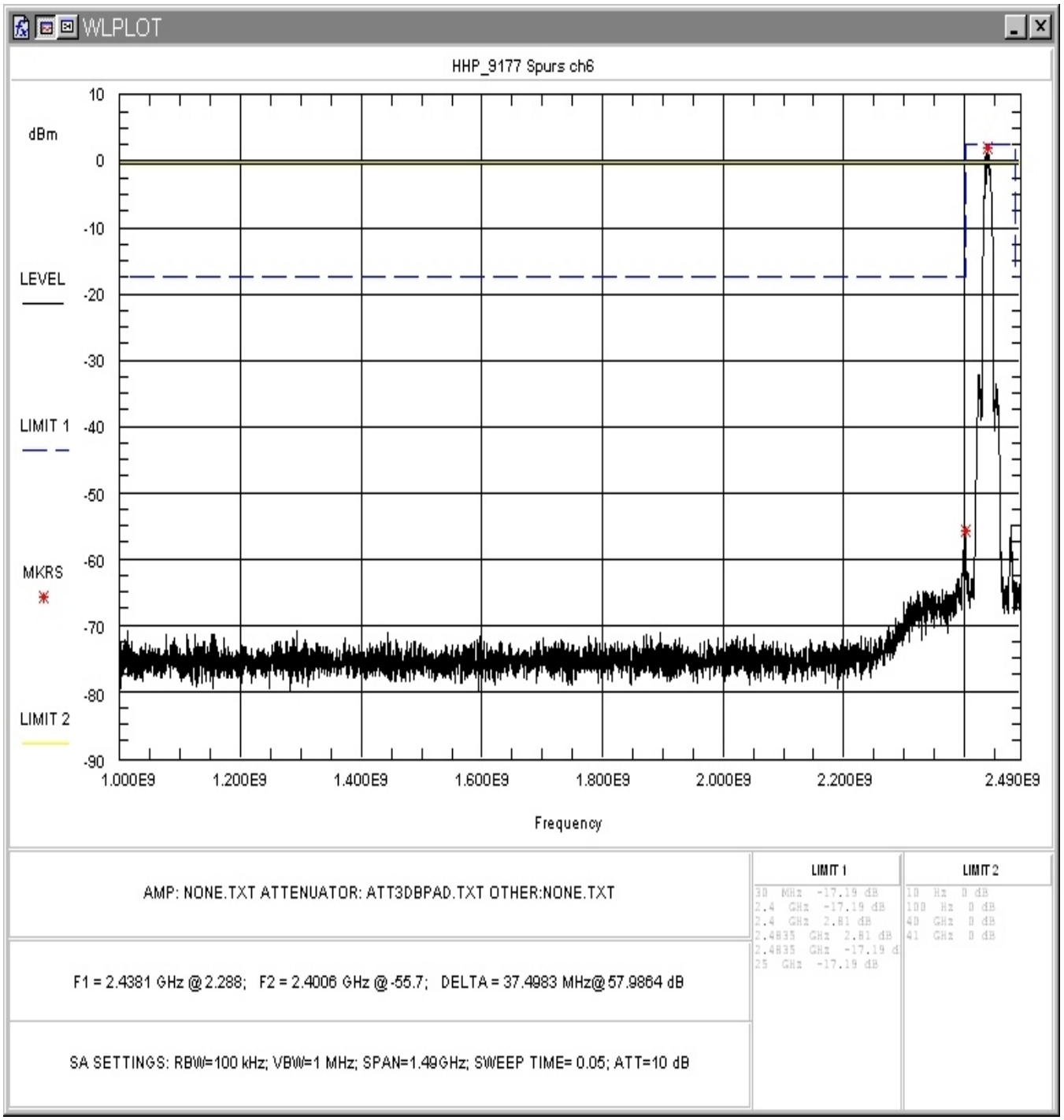


Figure 4-12. Conducted Spurious Emissions, Mid Channel 1 – 2.49GHz

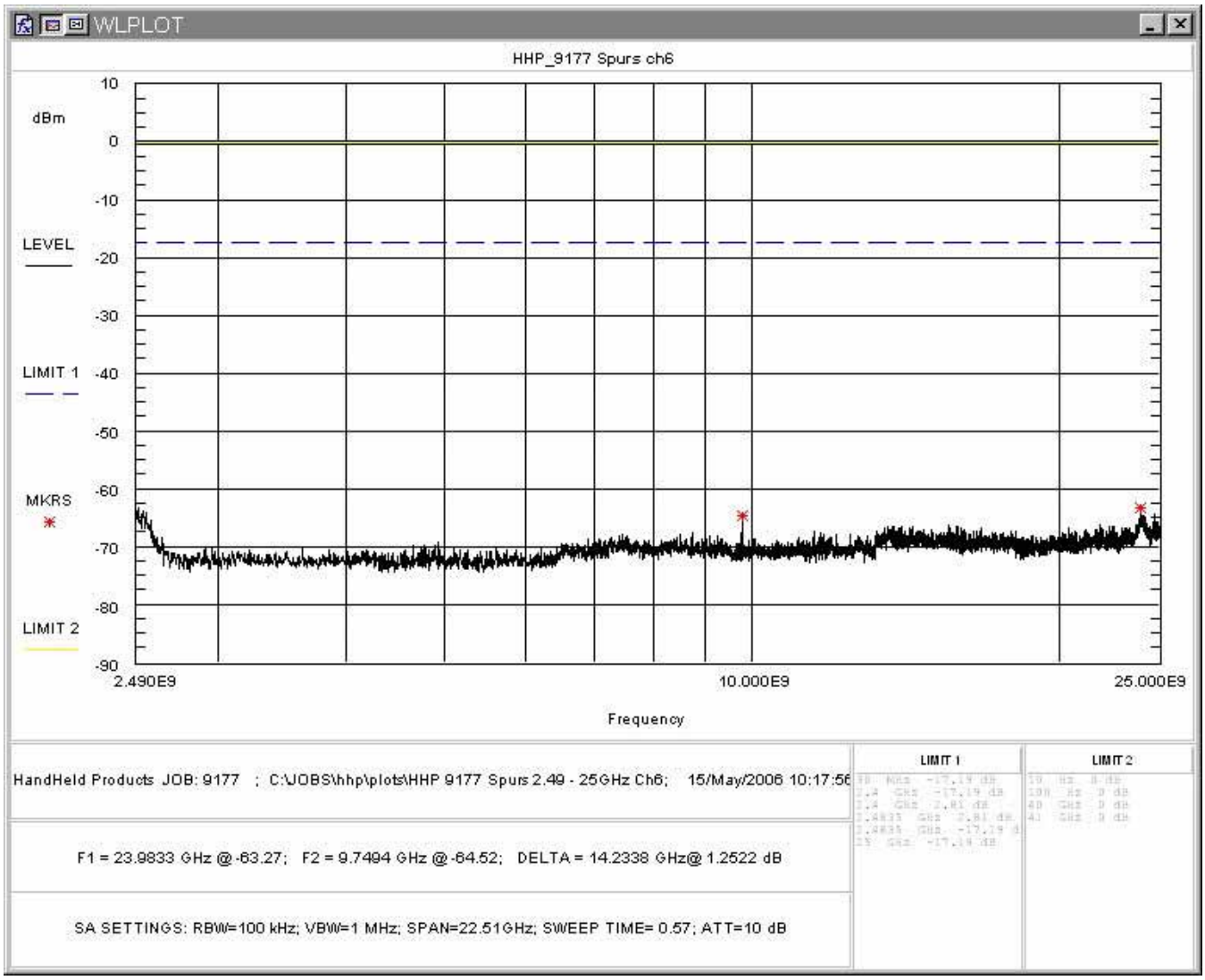


Figure 4-13. Conducted Spurious Emissions, Mid Channel 2.49 – 25GHz

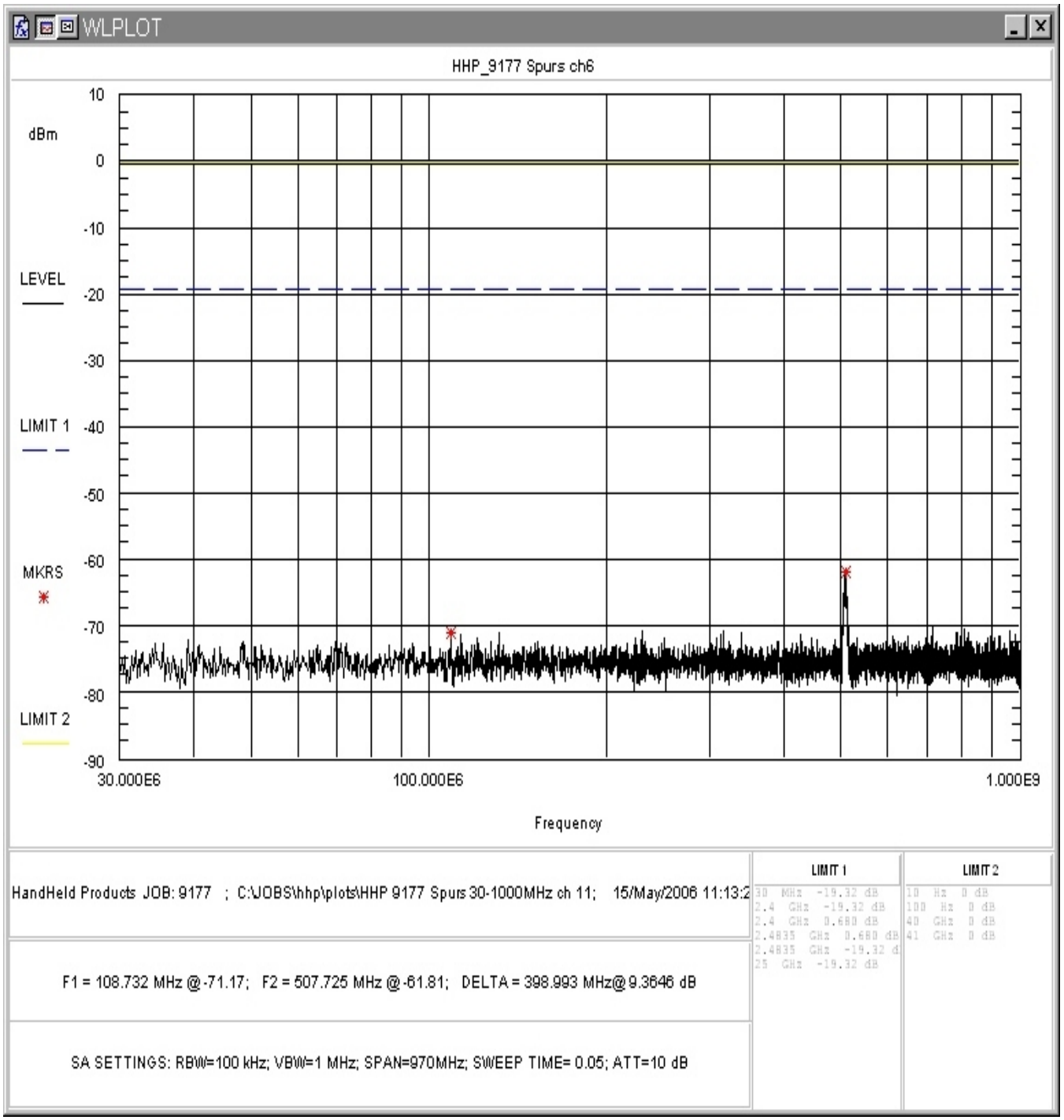


Figure 4-14. Conducted Spurious Emissions, High Channel 30 - 1000MHz

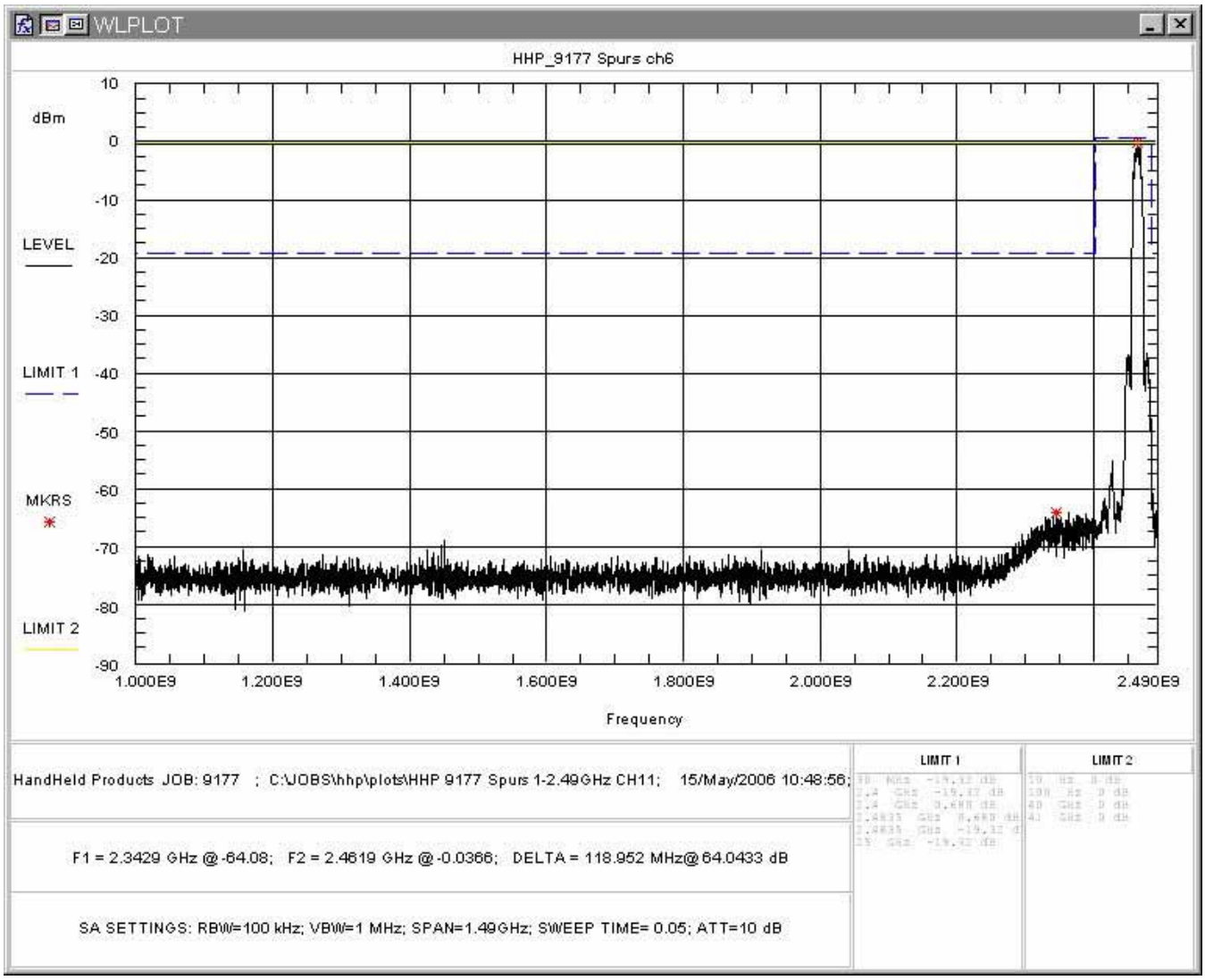


Figure 4-15. Conducted Spurious Emissions, High Channel 1 – 2.49GHz

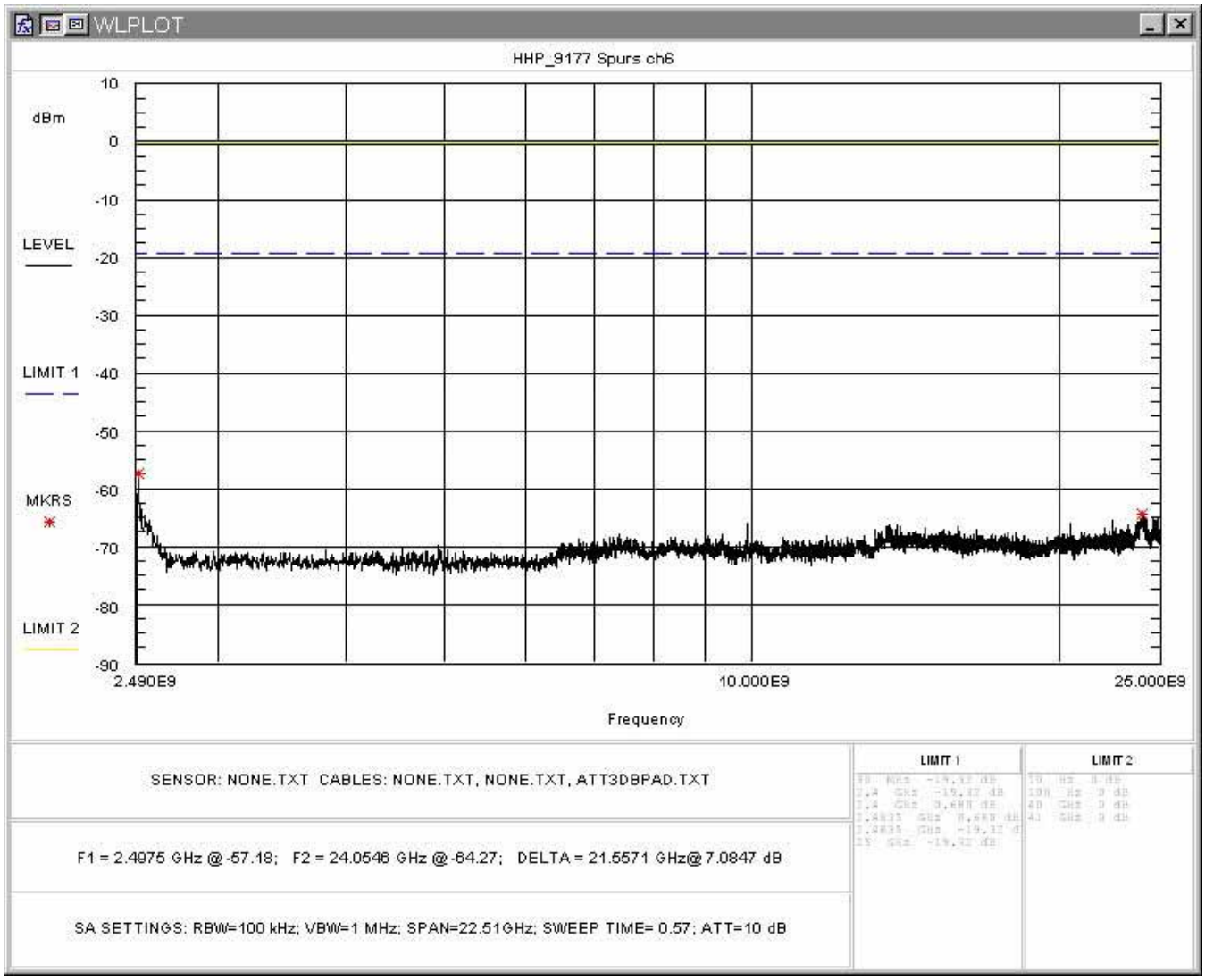


Figure 4-16. Conducted Spurious Emissions, High Channel 2.49 – 25GHz

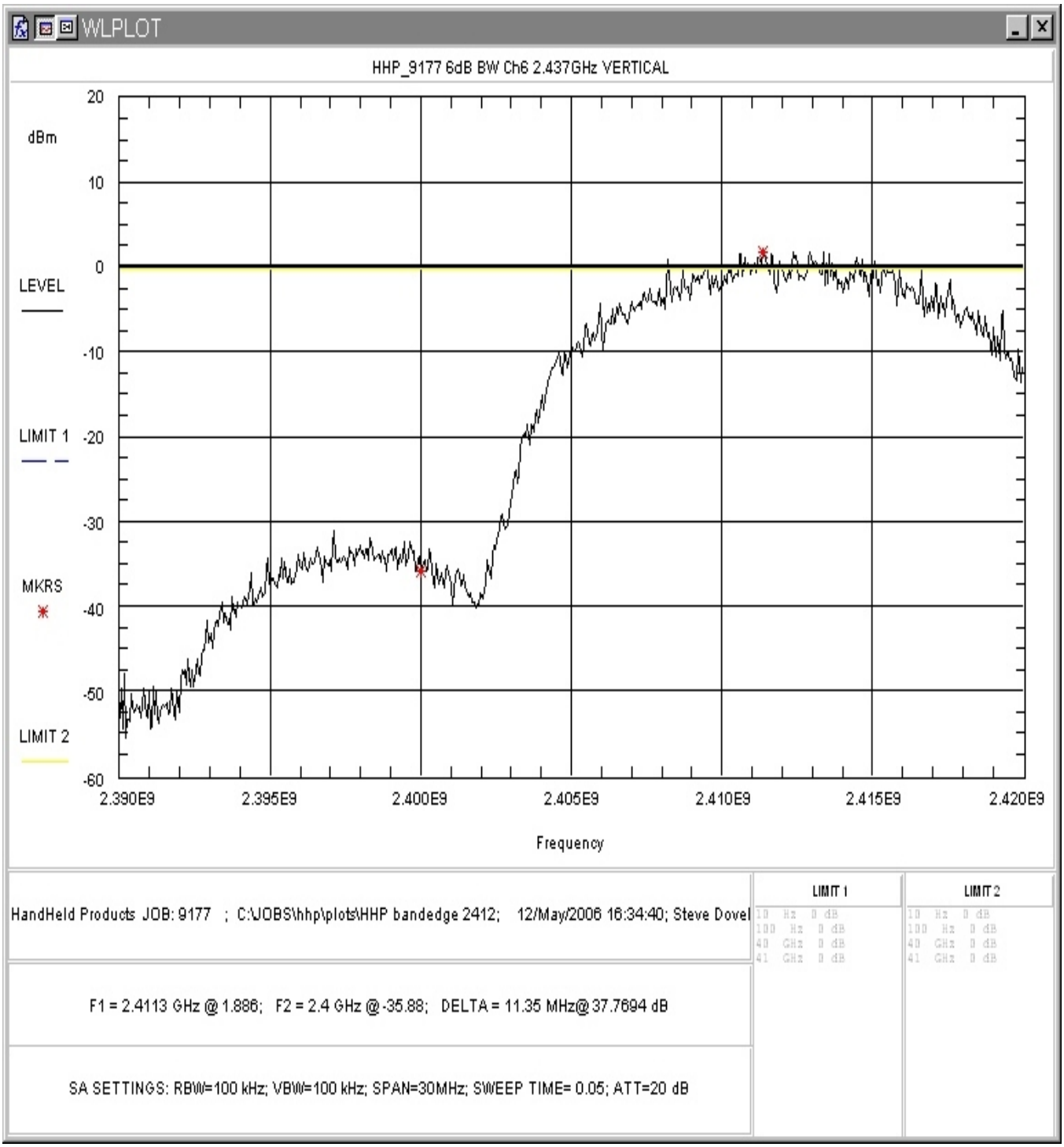


Figure 4-17: Conducted Spurious, Bandedge, Low Channel

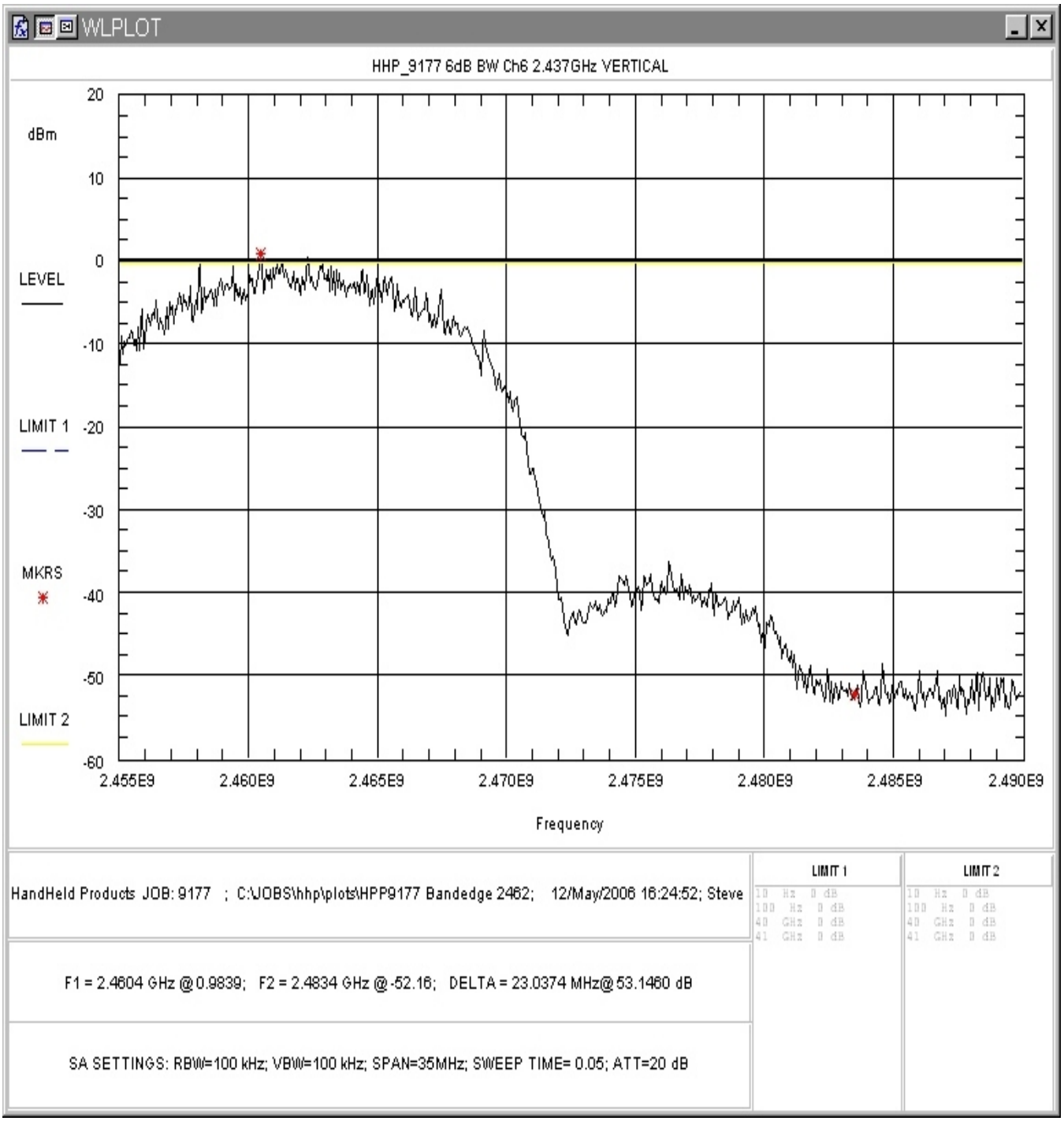


Figure 4-18: Conducted Spurious, Bandedge, High Channel

4.5 Radiated Spurious Emissions: (FCC Part §2.1053)

The EUT must comply with the requirements for radiated spurious emissions that fall within the restricted bands. These emissions must meet the limits specified in §15.209 and §15.35(b) for peak measurements.

4.5.1 Test Procedure

The EUT was placed on motorized turntable for radiated testing on a 3-meter open field test site. The emissions from the EUT were measured continuously at every azimuth by rotating the turntable. Receiving antennas were mounted on an antenna mast to determine the height of maximum emissions. The height of the antenna was varied between 1 and 4 meters. The peripherals were placed on the table in accordance with ANSI C63.4-2003. Cables were varied in position to produce maximum emissions. Both the horizontal and vertical field components were measured.

The emissions were measured using the following resolution bandwidths:

Frequency Range	Resolution Bandwidth	Video Bandwidth
30MHz-1000 MHz	120kHz	>100 kHz
>1000 MHz	1 MHz	<30 Hz (Avg.) 1MHz (Peak)

The following is a sample calculation used in the data tables for calculating the final field strength of spurious emissions and comparing these levels to the specified limits.

Sample Calculation:

Spectrum Analyzer Voltage (SA Level):	V dBµV
Antenna Factor (Ant Corr):	AFdB/m
Cable Loss Correction (Cable Corr):	CCdB
Amplifier Gain:	GdB
Electric Field (Corr Level):	EdBµV/m = VdBµV + AFdB/m + CCdB - GdB
To convert to linear units:	EµV/m = antilog (EdBµV/m/20)

Data are supplied in the following tables. Testing was performed to 25GHz. All detected emissions are reported in the following tables. Both peak and average measurements are listed. Following the transmit data are the data collected for the receiver spurious emissions.

Table 6: Radiated Emission Test Data

Frequency (MHz)	Polarity H/V	Azimuth Degree	Ant. Height (m)	SA Level (QP) (dBµV)	Ant. Corr. (dB/m)	Cable Corr. (dB)	Corr. Level (dBµV/m)	Corr. Level (µV/m)	Limit (µV/m)	Margin (dB)
248.860	V	100.0	1.0	23.9	11.5	4.5	39.9	99.0	210.0	-6.5
248.860	H	230.0	3.4	21.6	11.5	4.5	37.6	76.0	210.0	-8.8
248.600	V	100.0	1.0	17.5	11.5	4.5	33.5	47.4	210.0	-12.9
248.600	H	170.0	4.0	13.1	11.5	4.5	29.1	28.6	210.0	-17.3
249.047	V	100.0	1.0	18.1	11.5	4.5	34.1	50.8	210.0	-12.3
249.047	H	170.0	4.0	12.8	11.5	4.5	28.8	27.6	210.0	-17.6
138.770	V	0.0	1.0	7.3	13.2	3.3	23.8	15.5	150.0	-19.7
138.770	H	33.0	4.0	2.5	13.2	3.3	19.0	8.9	150.0	-24.5
149.324	V	145.0	1.0	21.5	12.5	3.4	37.4	74.0	150.0	-6.1
149.324	H	257.0	4.0	15.3	12.5	3.4	31.2	36.5	150.0	-12.3
149.072	V	145.0	1.0	6.2	12.6	3.4	22.1	12.8	150.0	-21.4
149.072	H	257.0	4.0	6.5	12.6	3.4	22.4	13.3	150.0	-21.1
149.517	V	145.0	1.0	7.3	12.5	3.4	23.2	14.5	150.0	-20.3
149.517	H	257.0	4.0	6.0	12.5	3.4	21.9	12.5	150.0	-21.6
751.760	V	150.0	2.5	4.3	20.8	8.5	33.7	48.3	210.0	-12.8
751.760	H	42.0	4.0	7.0	20.8	8.5	36.4	65.9	210.0	-10.1

Table 7: Radiated Spurious Emissions, Restricted Bands, >1GHz

Client:	HandHeld Products	Date:	5/9/2006
Tester:	Steve Dovell	Job #:	9177
EUT Information:		Test Requirements:	
EUT:	IK8560	TEST STANDARD:	FCC Part 15
Configuration:	Running test script	DISTANCE:	3m
CLASS:	B		
Test Equipment (<1GHz)		Test Equipment (>1GHz):	
ANTENNA:	A_00007	ANTENNA:	A_00004
LIMIT:	LFCC_3m_Class_B	CABLE:	CSITE2_3m
CABLE:	CAB_00372	AMPLIFIER:	A_00522
FILTER:	2.4Notch		

Freq (MHz)	Pol H/V	Az Deg	Ant. Hght (m)	SA Level (dBµV)	Ant. Corr. (dB/m)	Cable Corr. (dB)	Amp Gain (dB)	Filter Corr (dB)	Corr. Level (dBµV/m)	Corr. Level (µV/m)	Limit (µV/m)	Margin (dB)	Notes
Ch 1: 2412				**Avg**									
4822	V	0	1	33.4	32.5	3.2	37.2	0	31.9	39.4	500	-22.1	amb
4822	H	0	1	33.0	32.5	3.2	37.2	0	31.5	37.6	500	-22.5	amb
7233	V	0	1	34.3	37.1	8.9	37.5	0	42.8	138.0	500	-11.2	amb
7233	H	0	1	33.5	37.1	8.9	37.5	0	42	125.9	500	-12.0	amb
12055	V	0	1	37.0	40.0	7.9	37.8	0	47.1	226.5	500	-6.9	amb
12055	H	0	1	36.7	40.0	7.9	37.8	0	46.8	218.8	500	-7.2	amb
19288	V	0	1	39.0	40.0	2.0	37.1	0	43.9	156.7	500	-10.1	amb
19288	H	0	1	39.0	40.0	2.0	37.1	0	43.9	156.7	500	-10.1	amb
				Peak									
4822	V	0	1	44.7	32.5	3.2	37.2	0	43.2	144.5	5000	-30.8	amb
4822	H	0	1	45.0	32.5	3.2	37.2	0	43.5	149.6	5000	-30.5	amb
7233	V	0	1	46.8	37.1	8.9	37.5	0	55.3	582.1	5000	-18.7	amb
7233	H	0	1	46.8	37.1	8.9	37.5	0	55.3	582.1	5000	-18.7	amb
12055	V	0	1	49.0	40.0	7.9	37.8	0	59.1	901.6	5000	-14.9	amb
12055	H	0	1	49.0	40.0	7.9	37.8	0	59.1	901.6	5000	-14.9	amb
19288	V	0	1	50.6	40.0	2.0	37.1	0	55.5	595.7	5000	-18.5	amb
19288	H	0	1	50.3	40.0	2.0	37.1	0	55.2	575.4	5000	-18.8	amb
Ch. 6, 2437				**Avg**									
4873	V	0	1	31.7	32.6	3.3	37.2	0	30.4	33.1	500.0	-23.6	amb
4874	H	0	1	30.8	32.6	3.3	37.2	0	29.5	29.9	500.0	-24.5	amb
7311	V	0	1	34.5	37.1	9.0	37.6	0	43.0	141.3	500.0	-11.0	amb
7311	H	0	1	34.5	37.1	9.0	37.6	0	43.0	141.3	500.0	-11.0	amb
12185	V	0	1	32.8	40.0	7.9	37.5	0	43.2	144.5	500.0	-10.8	amb
12185	H	0	1	35.2	40.0	7.9	37.5	0	45.6	190.5	500.0	-8.4	amb
19496	V	0	1	38.0	40.0	2.0	37.4	0	42.6	134.9	500.0	-11.4	amb
19496	H	0	1	38.0	40.0	2.0	37.4	0	42.6	134.9	500.0	-11.4	amb
				Peak									
4873	V	0	1	43.7	32.6	3.3	37.2	0	42.4	131.8	5000	-31.6	amb
4874	H	0	1	43.3	32.6	3.3	37.2	0	42	125.9	5000	-32.0	amb
7311	V	0	1	45.6	37.1	9.0	37.6	0	54.1	507.0	5000	-19.9	amb

Freq (MHz)	Pol H/V	Az Deg	Ant. Hght (m)	SA Level (dBµV)	Ant. Corr. (dB/m)	Cable Corr. (dB)	Amp Gain (dB)	Filter Corr (dB)	Corr. Level (dBµV/m)	Corr. Level (µV/m)	Limit (µV/m)	Margin (dB)	Notes
7311	H	0	1	44.9	37.1	9.0	37.6	0	53.4	467.7	5000	-20.6	amb
12185	V	0	1	45.8	40.0	7.9	37.5	0	56.2	645.7	5000	-17.8	amb
12185	H	0	1	45.8	40.0	7.9	37.5	0	56.2	645.7	5000	-17.8	amb
19496	V	0	1	50.3	40.0	2.0	37.4	0	54.9	555.9	5000	-19.1	amb
19496	H	0	1	50.2	40.0	2.0	37.4	0	54.8	549.5	5000	-19.2	amb
Ch. 11, 2462				**Avg.**									
4924	V	0	1	31.5	32.7	3.3	37.2	0	30.3	32.7	500.0	-23.7	amb
4924	H	0	1	31.2	32.7	3.3	37.2	0	30.0	31.6	500.0	-24.0	amb
7386	V	0	0	31.3	37.1	9.2	37.6	0	40.0	100.0	500.0	-14.0	amb
7386	H	0	1	33.0	37.1	9.2	37.6	0	41.7	121.6	500.0	-12.3	amb
12310	V	0	1	36.0	40.0	7.9	37.3	0	46.6	213.8	500.0	-7.4	amb
12310	H	0	1	33.8	40.0	7.9	37.3	0	44.4	166.0	500.0	-9.6	amb
19696	V	0	1	37.7	40.0	2.0	37.7	0	42.0	125.9	500.0	-12.0	amb
19696	H	0	1	37.7	40.0	2.0	37.7	0	42.0	125.9	500.0	-12.0	amb
22158	V	0	1	41.8	40.5	2.1	37.4	0	47.0	223.9	500.0	-7.0	amb
22158	H	0	1	42.5	40.5	2.1	37.4	0	47.7	242.7	500.0	-6.3	amb
				Peak									
4924	V	0	1	43.2	32.7	3.3	37.2	0	42.0	125.9	5000	-32.0	amb
4924	H	0	1	44.2	32.7	3.3	37.2	0	43.0	141.3	5000	-31.0	amb
7386	V	0	0	43.8	37.1	9.2	37.6	0	52.5	421.7	5000	-21.5	amb
7386	H	0	1	43.8	37.1	9.2	37.6	0	52.5	421.7	5000	-21.5	amb
12310	V	0	1	47.8	40.0	7.9	37.3	0	58.4	831.8	5000	-15.6	amb
12310	H	0	1	48.0	40.0	7.9	37.3	0	58.6	851.1	5000	-15.4	amb
19696	V	0	1	50.2	40.0	2.0	37.7	0	54.5	530.9	5000	-19.5	amb
19696	H	0	1	50.5	40.0	2.0	37.7	0	54.8	549.5	5000	-19.2	amb
22158	V	0	1	54.4	40.5	2.1	37.4	0	59.6	955.0	5000	-14.4	amb
22158	H	0	1	54.4	40.5	2.1	37.4	0	59.6	955.0	5000	-14.4	amb
Bandedge Ch.11													
2483.500	V	100.0	1.0	31.8	29.1	3.3	37.2	24.5	51.5	375.8	500.0	-2.5	avg
2483.500	H	100.0	1.0	30.8	29.1	3.3	37.2	24.5	50.5	335.0	500.0	-3.5	avg
2483.500	V	100.0	1.0	42.7	29.1	2.8	38.1	24.5	61.0	1122.0	5000	-13.0	peak
2483.500	H	100.0	1.0	43.2	29.1	2.8	38.1	24.5	61.5	1188.5	5000	-12.5	peak
Bandedge Ch. 1													
2390.000	V	100.0	1.0	32.8	28.9	2.7	38.1	24	50.3	327.3	500.0	-3.7	avg
2390.000	H	100.0	1.0	33.1	28.9	2.7	38.1	24	50.6	338.8	500.0	-3.4	avg
2390.000	V	100.0	1.0	43.2	28.9	2.7	38.1	24	60.7	1083.9	5000	-13.3	peak
2390.000	H	100.0	1.0	40.5	28.9	2.7	38.1	24	58.0	794.3	5000	-16.0	Peak

4.6 AC Powerline Conducted Emissions: (FCC Part §15.207 and RSS-GEN)

The EUT was placed on an 80 cm high 1 x 1.5 m non-conductive table above a ground plane. Power to the EUT was provided through a Solar Corporation 50 Ω/50 μH Line Impedance Stabilization Network bonded to a 3 x 2 meter ground plane. The LISN has its AC input supplied from a filtered AC power source. Power and data cables were moved about to obtain maximum emissions.

The 50Ω output of the LISN was connected to the input of the spectrum analyzer and the emissions in the frequency range of 150 kHz to 30 MHz were measured. The detector function was set to quasi-peak, peak, or average as appropriate, and the resolution bandwidth during testing was at least 9 kHz, with all post-detector filtering no less than 10 times the resolution bandwidth for peak measurements.

Data is recorded in the following table.

Table 8: Conducted Emissions Test Data; §15.207

LINE 1 – NEUTRAL

Frequency (MHz)	Level QP (dBuV)	Cable Loss (dB)	LISN Corr (dB)	Corr Level (dBuV)	Limit QP (dBuV)	Margin QP (dB)	Level AVG (dBuV)	Corr Level (dBuV)	Limit AVG (dBuV)	Margin AVG (dB)
0.150	44.3	10.3	0.8	55.4	66.0	-10.6	22.8	33.9	56.0	-22.1
0.285	39.9	10.1	0.4	50.4	60.7	-10.3	37.0	47.5	50.7	-3.2
0.702	28.6	10.2	0.3	39.1	56.0	-16.9	19.4	29.9	46.0	-16.1
18.796	25.8	11.7	2.9	40.4	60.0	-19.6	12.5	27.1	50.0	-22.9
24.990	31.8	12.0	4.3	48.1	60.0	-11.9	30.8	47.1	50.0	-2.9
25.372	27.1	12.0	4.4	43.5	60.0	-16.5	13.4	29.8	50.0	-20.2

LINE 2 - PHASE

Frequency (MHz)	Level QP (dBuV)	Cable Loss (dB)	LISN Corr (dB)	Corr Level (dBuV)	Limit QP (dBuV)	Margin QP (dB)	Level AVG (dBuV)	Corr Level (dBuV)	Limit AVG (dBuV)	Margin AVG (dB)
0.150	43.4	10.3	0.4	54.1	66.0	-11.9	0.150	43.4	56.0	-12.6
0.285	42.3	10.1	0.2	52.6	60.7	-8.0	0.285	42.3	50.7	-8.4
0.718	23.0	10.2	0.2	33.4	56.0	-22.6	0.718	23.0	46.0	-23.0
18.796	23.5	11.7	3.9	39.1	60.0	-20.9	18.796	23.5	50.0	-26.5
24.885	31.5	11.9	5.3	48.7	60.0	-11.3	24.885	31.5	50.0	-18.5
25.673	25.7	12.0	5.5	43.1	60.0	-16.9	25.673	25.7	50.0	-24.3