Electromagnetic Compatibility
Test Report

Test Report No: ANT 040106
Issued on: January 23, 2006

Product Name

SmartStep 2.1.1 Rev: A2

FCC ID: TWM-SmartStep0106

Tested According to

FCC 47 CFR, Part 15, Subparts B & C

Tests Performed for

Andante Medical Devices Ltd.
8B, Omer Industrial Park, POB 3023, Omer 84965, Israel
Tel.: 08-6900027

QualiTech EMC Laboratory (ECI Telecom Group)
30 Hasivim St,
Petah-Tikva, 49130, Israel
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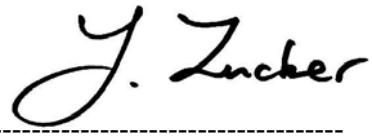
Regis. No: 102724 1633.01

Test personnel

Tests Performed By: ----------
Rami Nataf

Report Prepared By: ----------
Bina Talkar



Report Reviewed By: ----------
Y. Zucker
QA and Lab. Manager
QualiTech EMC Laboratory

ACCREDITED
1633.01

Test Report details:

Test commencement date: 08.12.2005

Test completion date: 30.12.2005

Customer's Representative: Dror Salah

Issued on: **23.01.2006**

Revision details:

Version	Date	Details/Reasons
Rev. 1	04.01.2006	-
Rev. 2	23.01.2006	1. Correct FCC ID: TWM instead of TWN 2. Additional EUT description added on page 7.

Assessment information:

This report contained an assessment of the EUT against Electromagnetic Compatibility based upon tests carried out on the samples submitted. The results contained in this report relate only to the items tested. Manufactured products will not necessarily give identical results due to production and measurement tolerances. QualiTech, EMC Lab does not assume responsibility for any conclusion and generalization drawn from the test results with regards to other specimens or samples of type of the equipment represented by test item.

The EUT was set up and exercised using the configuration, modes of operation and arrangements defined in this report only.

Modifications:

Modifications made to the EUT

None.

Modifications made to the Test Standard

None.

Summary of Compliance Status

Test Spec. Clause	Test Case	Remarks	Notes
§15.247 (a) (1)	Carrier Frequency Separation	**Pass**	-
§15.247 (a) (1)(iii)	Number of Hopping Channels	**Pass**	-
§15.247 (a) (1)(iii)	Time Occupancy (Dwell Time)	**Pass**	-
§15.247 (a) (1) (ii)	Spectrum Bandwidth of a FHSS system/20dB BW	**Pass**	-
§15.247 (b) (1)	Maximum Output Power	**Pass**	-
§15.247 (d)	Band-Edge compliance of RF Conducted Emission (Transmitter)	**Pass**	-
§15.205	Band-Edge compliance of Radiated Emission, Restricted Bands	**Pass**	-
§15.247 (d)	Spurious Emission Conducted (Transmitter)	**Pass**	-
§15.247 (d)	Spurious Emission Radiated (Transmitter)	**Pass**	-
§15.109	Radiated Emission (receiver)	**Pass**	-
§15.107/207	Conducted Emission (receiver)	**Pass**	-
§15.203	Antenna Connector requirement	**Pass**	-
§15.247(i) & §1.1307(b)(1)	Maximum Permissible exposure (MPE)	**Pass**	-

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Table of Content

1. General Description

1.1. Description of the EUT system/test Item:

Product name: SmartStep 2.1.1 Rev: A2

S/N: C051088

FCC ID: TWM-SmartStep0106

Description:

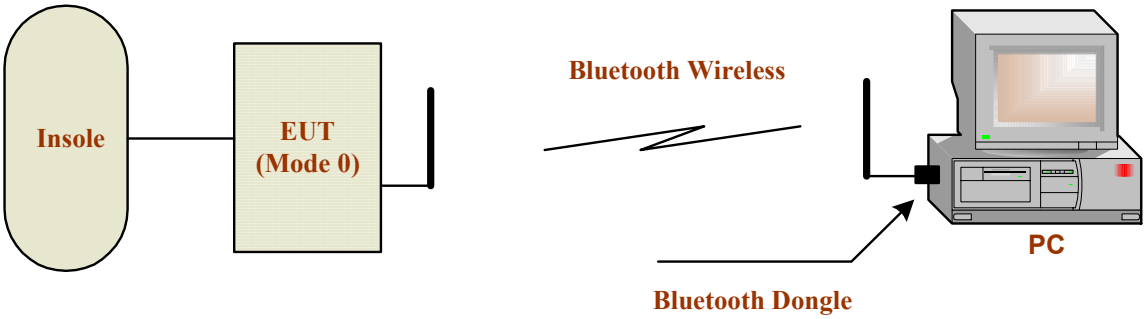
The SmartStep is a biofeedback and monitoring device for efficient gait training of patients with lower limb injuries and neurological disorders.
The product consists of an insole (sealed and filled with air), divided into two parts (Hind and Fore). Each part has a tube for airflow.
Each tube (Each channel of the insole) is connected to a pressure sensor with a coupling connector and the sensors are connected to the control unit.
The connector of the input sensor on the control unit is used for battery charging from the AC/DC adaptor.
The sensors output (voltage values) is then converted to digital values through the micro-controller A/D.
The control unit can store the data of the pressure into the Unit memory.
The control unit can work with the Andante's PC software. The communication is wireless (Bluetooth protocol.
The two major working patterns of the system are as follows:

1. Working without the PC connection - off-line - the unit is not connected to the PC and can be used for biofeedback (Audio feedback) and for logging data that can be downloaded later to the PC.
2. Working with the PC connection - on-line the patient can view the pressure that the leg is applied on the insole with the PC software. Communication is wireless (Bluetooth protocol)

Online mode can also be used for sending limits of pressure to the unit and for downloading stored data.

The control unit consists of two boards. The main board generally consists of the microcontroller, the memory components and the power circuits. The second board is the Bluetooth module (Siw3000 RMOD). The module is Class 2 (10 meter). The antenna of the unit is located on the Bluetooth module board (SMT component) and it is internal.

1.2. EUT Configuration



2. Method of Measurements

Conducted measurements:

The RF output of the transmitter under test was directly connected to the input of the Spectrum analyzer through a specialized antenna connector provided by the manufacturer, and a 10dB attenuator. The measurements readings were corrected by the set-up loss.

Radiated Emission measurements:

Measurements were performed at a 3-meter measurement distance in the semi-anechoic chamber in order to evaluate the radiated electromagnetic interference characteristics of the EUT. The EUT was placed on a non-metallic table, 0.8m above the turntable, was configured, arranged and operated in a manner consistent with typical application and load conditions. The test program of exercising the equipment ensured that various parts of the EUT were exercised to permit detection of all EUT disturbances.
An appropriate antenna depending upon the frequency range, per ANSI C63.4-2003 clause 4.1.5 was used. While the turntable was being rotated, the height of the antenna was varied from 1 to 4m for the frequency range of 30MHz to 1GHz. The highest radiated emission was detected by manipulating the system cables to the worst-case position. This process was repeated for both antenna polarizations.
The amplitudes of worst-case emission were measured with the detector modes and resolution bandwidths over various frequency ranges according to the requirements of C63.4-2003 clause 4.2.

3. Report of Measurements and examinations

3.1. Carrier Frequency Separation

Reference document:	**47 CFR §15.247 (a) (1) & DA 00-705**		
Test Requirements:	Hopping channels carrier frequencies separated by a minimum of 25kHz or 20dB Bandwidth of the hopping channel, whichever is greater.		
Date of Test:	08.12.2005	**Pass**	
Test setup:	Setup 1, see Appendix C		
Operating conditions:	Under normal test conditions		
Method of testing:	Conducted		
S.A. Settings:	RBW: 100kHz, VBW: 100kHz		
Hopping function:	Enabled		
Environment conditions:	Ambient Temperature: 22°c	Relative Humidity: 48%	Atmospheric Pressure: 1011.4 hPa
Test Result:	Carrier separation: approx. 987.5 KHz	See Plot 1 & Plot 2	

3.2. Number of Hopping Channels

Reference document:	**47 CFR §15.247 (a) (1)(iii) & DA 00-705**		
Test Requirements:	Hopping system shall use at least 15 non-overlapping channels.		
Date of Test:	08.12.2005	**Pass**	
Test setup:	Setup 1, see Appendix C		
Operating conditions:	Under normal test conditions		
Method of testing:	Conducted		
S.A. Settings:	RBW: 1MHz, VBW: 1MHz		
Hopping function:	Enabled		
Environment conditions:	Ambient Temperature: 22°c	Relative Humidity: 48%	Atmospheric Pressure: 1011.4 hPa
Test Result:	79 hopping channels	See Plot 3	

3.3. Time of Occupancy (Dwell Time)

Reference document:	**47 CFR §15.247 (a) (1) (iii) & DA 00-705**		
Test Requirements:	The average time of occupancy on any channel shall not be greater than 0.4seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.		
Date of Test:	25/26.04.2005	**Pass**	
Test setup:	Setup 1, see Appendix C		
Operating conditions:	Under normal test conditions		
Method of testing:	Conducted		
S.A. Settings:	RBW: 1MHz, VBW: 3MHz, Span:0 centered on hopping channel		
Hopping function:	Enabled		
Environment conditions:	Ambient Temperature: 22°c	Relative Humidity: 48%	Atmospheric Pressure: 1011.4 hPa
Test Result:	See below	See Plot 4 – Plot 6	

Test results:

Channel	Frequency [GHz]	Time slot (msec)	Reference	Dwell time [Sec]	Limit [Sec]	Result
00	0.282	0.26	Plot 4	0.166	0.4	Pass
41	2.442	0.25	Plot 5	0.160	0.4	Pass
78	2.482	0.25	Plot 6	0.160	0.4	Pass

Dwell Time = Time Slot Length * Hop Rate/Number of Hopping Channels* Period Time
Period Time= 0.4sec * 79, Hop Rate =1600 1/s

3.4. Spectrum Bandwidth of FHSS/ 20dB Bandwidth

Reference document:	**47 CFR §15.247 (a) (1)(iii) & DA 00-705**		
Test Requirements:	Maximum 20dB BW of the hopping channels shall be 1MHz.		
Date of Test:	08.12.2005	**Pass**	
Test setup:	Setup 1, see Appendix C		
Operating conditions:	Under normal test conditions		
Method of testing:	Conducted		
S.A. Settings:	RBW: 10kHz, VBW: 100kHz, Span: 2MHz		
Hopping function:	Disabled		
Environment conditions:	Ambient Temperature: 22°c	Relative Humidity: 48%	Atmospheric Pressure: 1011.4 hPa
Test Result:	See below	See Plot 7 – Plot 9	

Test results:

Channel	Frequency [GHz]	20dB BW [kHz]	Limit [MHz]	Reference	Result
00	2.402	870	1MHz	Plot 7	Pass
41	2.443	790	1MHz	Plot 8	Pass
78	2.480	783	1MHz	Plot 9	Pass

3.5. Maximum Output Power

Reference document:	**47 CFR §15.247 (b) (1) & DA 00-705**		
Test Requirements:	The maximum peak output power shall not exceed 1Watt (30dBm)		
Date of Test:	08.12.2005	**Pass**	
Test setup:	Setup 1, see Appendix C		
Operating conditions:	Under normal test conditions		
Method of testing:	Conducted		
S.A. Settings:	RBW: 3MHz, VBW: 3MHz, Span:10MHz		
Hopping function:	Disabled		
Environment conditions:	Ambient Temperature: 22°c	Relative Humidity: 48%	Atmospheric Pressure: 1011.4 hPa
Test Result:	See below	See Plot 10 – Plot 12	

Test results:

Channel	Frequency [GHz]	Cable Loss [dB]	Max. Peak Output power* [dBm]	Max. Peak Output power* [mW]	Reference	Result
00	2.400	0.45	-4.264	0.415	Plot 10	Pass
41	2.443	0.45	-4.425	0.400	Plot 11	Pass
78	2.480	0.45	-3.52	0.493	Plot 12	Pass

*Corrected for external attenuations

3.6. Band-edge compliance of RF Conducted Emission

Reference document:	**47 CFR §15.247 (d) & DA 00-705**		
Test Requirements and limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in section 15.209(a) (See section 5.205(c).		
Date of Test:	08.12.2005	**Pass**	
Test setup:	Setup 1, see Appendix C		
Operating conditions:	Under normal test conditions		
Method of testing:	Conducted		
S.A. Settings:	RBW: 100kHz, VBW: 100kHz		
Hopping function:	Disabled/Enabled		
Environment conditions:	Ambient Temperature: 22°c	Relative Humidity: 48%	Atmospheric Pressure: 1011.4 hPa
Test Result:	See below	See Plot 13 – Plot 16	

Test results of

Activity	Delta value [dB]	Reference	Result
Hopping off, lowest frequency	-44.3	Plot 13	Pass
Hopping on, lowest frequency	-44.7	Plot 14	Pass
Hopping off, highest frequency	-43.71	Plot 15	Pass
Hopping on, highest frequency	-44.74	Plot 16	Pass

3.7. Band-Edge compliance of Radiated Emission, restricted Bands

Reference document:	**47 CFR §15.205 & DA 00-705**		
Test Requirements:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in section 15.209(a) (See section 5.205(c).		
Limit:	54dBµV/m	**Pass**	
Date of Test:	08.12.2005		
Test setup:	Setup 2, see Appendix C		
Operating conditions:	Under normal test conditions		
Method of testing:	Radiated		
S.A. Settings:	RBW: 1MHz, VBW: 3MHz,		
Hopping function:	Disabled/Enabled		
Environment conditions:	Ambient Temperature: 22°c	Relative Humidity: 48%	Atmospheric Pressure: 1011.4 hPa
Test Result:	See below	See Plot 17 – 24	

Test results:

Channel	Max. Measured (Average detector) in restricted band at 3m [dBµV/m]	Limit [dBµV/m]	Reference	Result
Hopping off, lowest frequency	24.30	54	Plot 17-18	Pass
Hopping on, lowest frequency	30.59	54	Plot 19-20	Pass
Hopping off, highest frequency	23.64	54	Plot 21-22	Pass
Hopping on, highest frequency	22.99	54	Plot 23-24	Pass

3.8. Spurious Emission- Conducted (Transmitter)

Reference document:	**47 CFR §15.247 (d) & DA 00-705**		
Test Requirements:	In any 100 kHz bandwidth outside the frequency band at least 20 dB below the highest level of the desired power.		
Date of Test:	08.12.2005	**Pass**	
Test setup:	Setup 1, see Appendix C		
Operating conditions:	Under normal test conditions		
Method of testing:	Conducted		
S.A. Settings:	RBW: 100kHz, VBW: 100kHz,		
Hopping function:	Disabled (lowest, middle, and highest)		
Environment conditions:	Ambient Temperature: 22°c	Relative Humidity: 48%	Atmospheric Pressure: 1011.4 hPa
Test Result:	See below	See Plot 25 – Plot 27	

Test results:

Frequency [GHz]	Spurious Frequency [GHz]	Reference	Emissions limit	Result
2.401	None	Plot 25	-20dBc	Pass
2.443	None	Plot 26		Pass
2.478	None	Plot 27		Pass

3.9. Spurious Emission- Radiated (Transmitter)

Reference document:	**47 CFR §15.247 (d) & §15.209(a) & DA 00-705**		
Test Requirements:	The emissions from an intentional radiator shall not exceed the field strength levels specified in §15.209(a).		
Date of Test:	08.12.2005	**Pass**	
Test setup:	Setup 1, see Appendix C		
Operating conditions:	Under normal test conditions		
Method of testing:	Radiated		
S.A. Settings:	f <1GHz: RBW: 120kHz,VBW: 1MHz f >1GHz: RBW: 1MHz, VBW: 3MHz		
Hopping function:	Disabled (lowest, middle, and highest)		
Environment conditions:	Ambient Temperature: 22°c	Relative Humidity: 48%	Atmospheric Pressure: 1011.4 hPa
Test Result:	See below	See Plot 28– Plot 63	

Test result

Lowest channel, 2.402					
Frequency [MHz]	Detector	Spurious level [dBµV/m]	Reference	Limit [dBµV/m]	Result
212.119	QP	30.3	Plot 28-Plot 39	43.5	Pass

Middle channel, 2.443					
Frequency [MHz]	Detector	Spurious level [dBµV/m]	Reference	Limit [dBµV/m]	Result
213.606	QP	29.3	Plot 40- Plot 51	43.5	Pass

Highest channel, 2.48					
Frequency [MHz]	Detector	Spurious level [dBµV/m]	Reference	Limit [dBµV/m]	Result
213.606	QP	30.2	Plot 52- Plo 63	43.5	Pass

Rest of the readings were at least 15 db below the limit

3.10. Radiated Emission- (Receiver)

Reference document:	**47 CFR §15.109**		
Test Requirements:	Emission Level shall not exceed §15.109 limits		
Date of Test:	08.12.2005	**Pass**	
Test setup:	Setup 2, see Appendix C		
Operating conditions:	Under normal test conditions		
Method of testing:	Radiated		
S.A. Settings:	F <1GHz: RBW: 120kHz,VBW: 1MHz F >1GHz: RBW: 1MHz, VBW: 3MHz		
Mode of operation:	Receive		
Environment conditions:	Ambient Temperature: 22°c	Relative Humidity: 48%	Atmospheric Pressure: 1011.4 hPa
Test Result:	See below	See Plot 64- Plot 73	

Test results:
All readings were at least 10 db below the limit

3.11. Conducted Emission- (Receiver)

Reference document:	**47 CFR §15.107/207**		
Test Requirements:	Emission Level shall not exceed §15.107/207 limits		
Date of Test:	08.12.2005	**Pass**	
Test setup:	Setup 3, see Appendix C		
Operating conditions:	Under normal test conditions		
S.A. Settings:	RBW: 9kHz,VBW**:** 30 kHz,		
Mode of operation:	Receive		
Environment conditions:	Ambient Temperature: 21°c	Relative Humidity: 48%	Atmospheric Pressure: 1011.4 hPa
Test Result:	See below	See Plot 74 – Plot 75	

Test Result

"Phase" Lead

Frequency [MHz]	Measured Result [dBµV]		Limit [dBµV]		Margin [dB]		Result
	QP	AVR	QP	AVR	QP	AVR	
0.173558	36.2	9.9	64.79	54.79	-28.59	-44.89	Pass
0.19453	41.6	1.6	63.84	53.84	-22.24	-52.24	Pass
0.314683	28.7	-2.2	59.85	49.85	-31.15	-52.05	Pass
0.496451	21.9	-1.4	56.06	46.06	-34.16	-47.46	Pass
0.632975	25.8	-2.4	56.00	46.00	-30.20	-48.40	Pass

"Neutral" Lead

Frequency [MHz]	Measured Result [dBµV]		Limit [dBµV]		Margin [dB]		Result
	QP	AVR	QP	AVR	QP	AVR	
0.173558	33.4	-5.8	64.79	54.79	-31.39	-60.59	Pass
0.194530	32.8	1.5	63.84	53.84	-31.04	-52.34	Pass
0.314683	25.9	-0.9	59.85	49.85	-33.95	-50.75	Pass
0.496451	17.4	-3.9	56.06	46.06	-38.66	-49.96	Pass
0.632975	12.1	0.2	56.00	46.00	-43.90	-45.80	Pass

3.12. Antenna Connector Requirements

Reference document:	**47 CFR §15.203**	
Test Requirements:	An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with provisions of this section.	
Test Result:	The SmartStep employs an integral antenna without any connector.	**Pass**

3.13. Maximum Permissible exposure (MPE)

Reference document:	**47 CFR §15.247(i) & §1.1307(b)(1)**	
Test Requirements:	According to §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the commission's guideline.	
Limit	1mW/cm^2	**Pass**
Calculation Result*:	Power Density = 0.27mW/cm^2 at a sphere of 20cm. The SAR measurement is not required.	

* At the frequency of 2.4GHz, a sphere of 20cm is in the far field of the antenna, therefore, equation (3) given in OET Bulletin 65 is used to estimate the MPE.

$$S = \frac{PG}{4\pi R^2}$$

S=power density
P=power input to the antenna, 493mW
G=power gain of the antenna, 2.7542 (4.4dBi)
R= distance to the center of the antenna, 20cm

This calculation results in an estimation of 0.27mW/cm^2 at a sphere of 20cm.

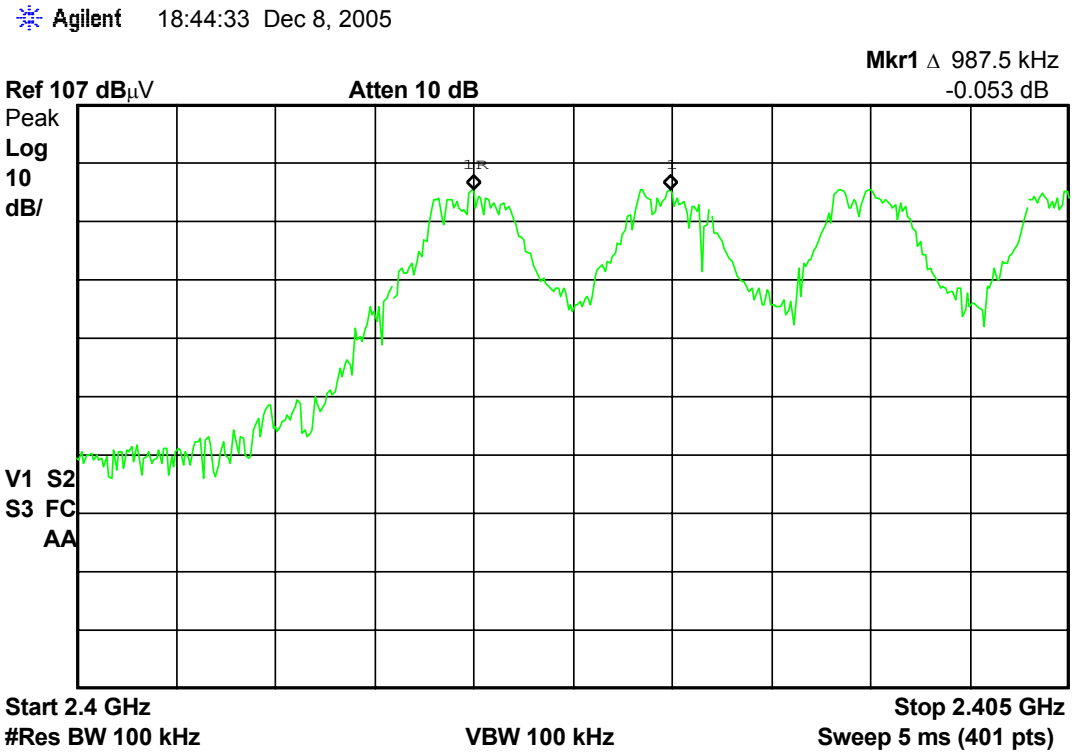
4. Appendix

Appendix A: List of Measuring Equipment used:

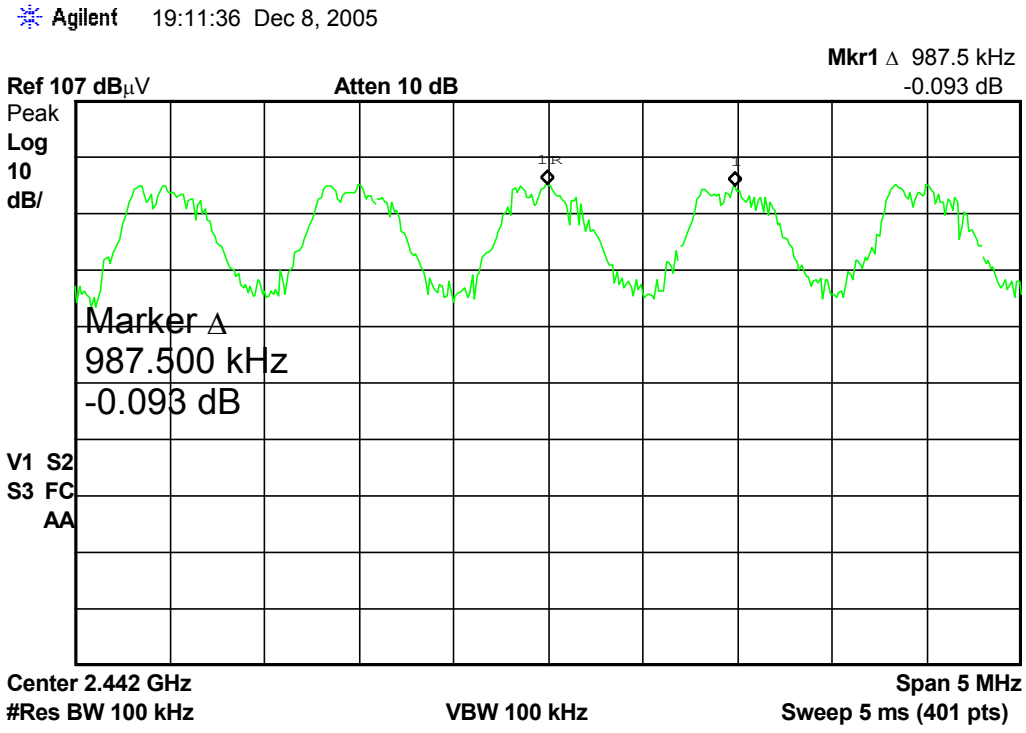
Equipment	Manufacturer/ Model	Serial Number	Due date
CISPR16 EMI Receiver	HP8546A	3710A00392	30-06-05
Spectrum Analyzer 9kHz ÷ 22 GHz	HP 8593EM	3536A00131	30-06-05
Spectrum Analyzer 100 Hz ÷ 26.5 GHz	Agilent E7405A	US41160436	30-06-05
LNA Amplifier 1 GHz ÷ 18 GHz	AMP – 5D-010180-30-10P-GW	618653	01-01-06
Dual Ridged Guide Ant.1-18 GHz	EMCO 3115	9602-4677	01-01-06
Antenna 18 GHz ÷ 26.5 GHz	Alpha Industry 861A/599	505	01-01-06
Turn table	HD100	100/693	-
Antenna Mast	HD 100	100/693	-
Biconical 20 –200 MHz	Schwarzbeck VHBB9124	9124/0255	16-05-06
Log-Periodic 200 – 1000 MHz	Schwarzbeck VUSLP9111	VUSLP9111184	16-05-06
Pre-Amplifier	MiTeq, AMF-5F-18002650-30-10P	945372	01-01-06
LISN	Fischer 50/250-25-2	-	30-06-05
Transient Limiter	HP11947A	-	30-06-05
Notch Filter	Micro-Tronics BRM50702-05	0001	01-01-2006

Appendix B: Plots

Sec. 3.1 Carrier Frequency Separation
Plot 1

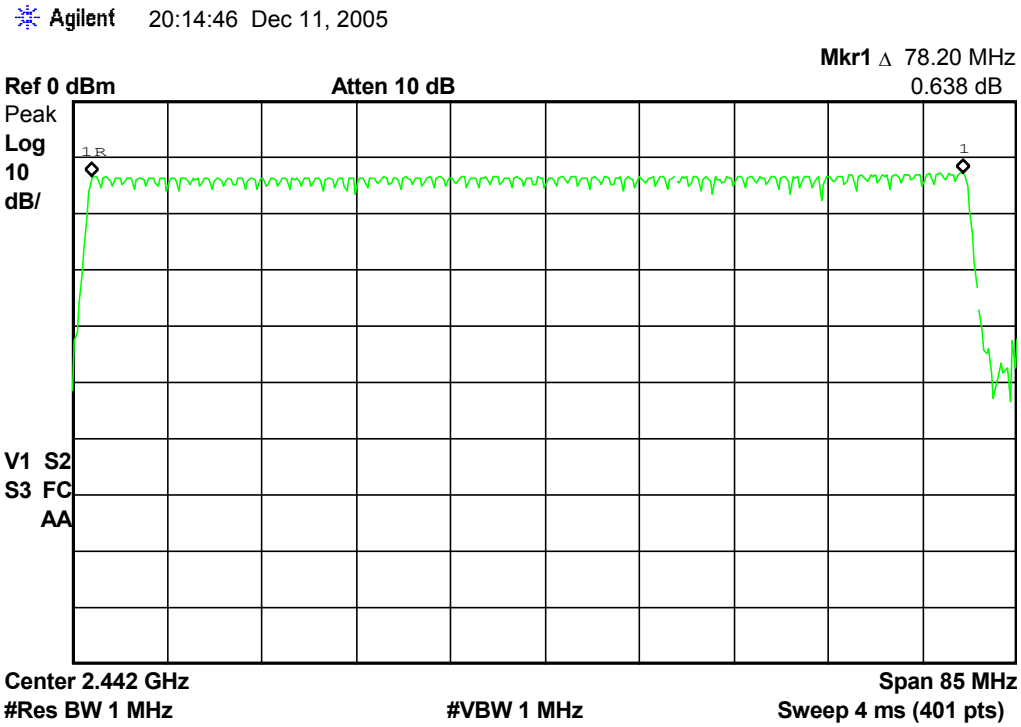


Plot 2



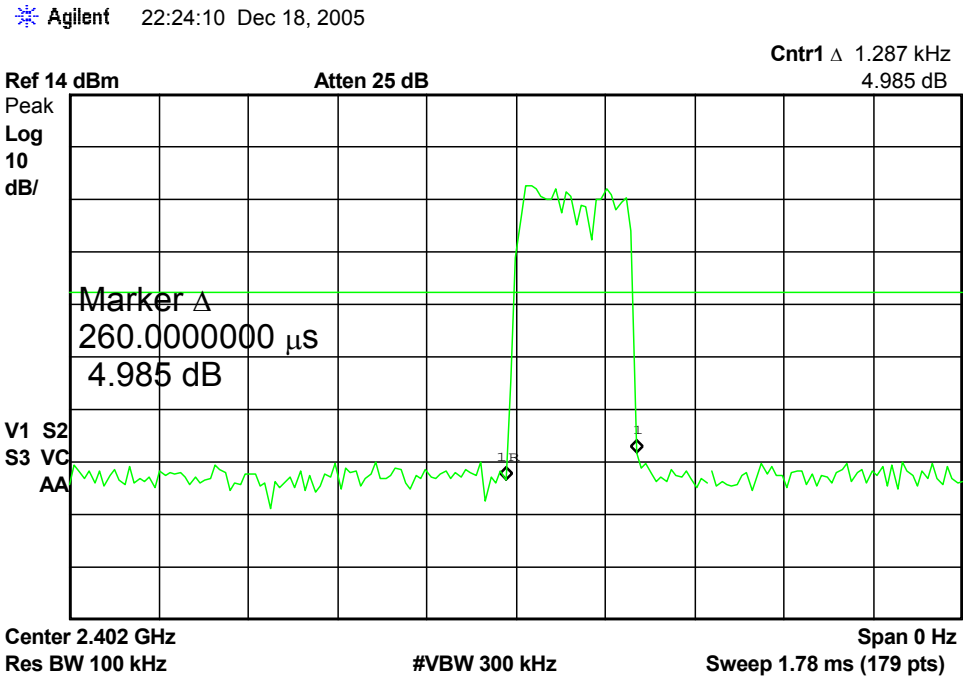
Sec. 3.2 Number of Hopping Channels

Plot 3

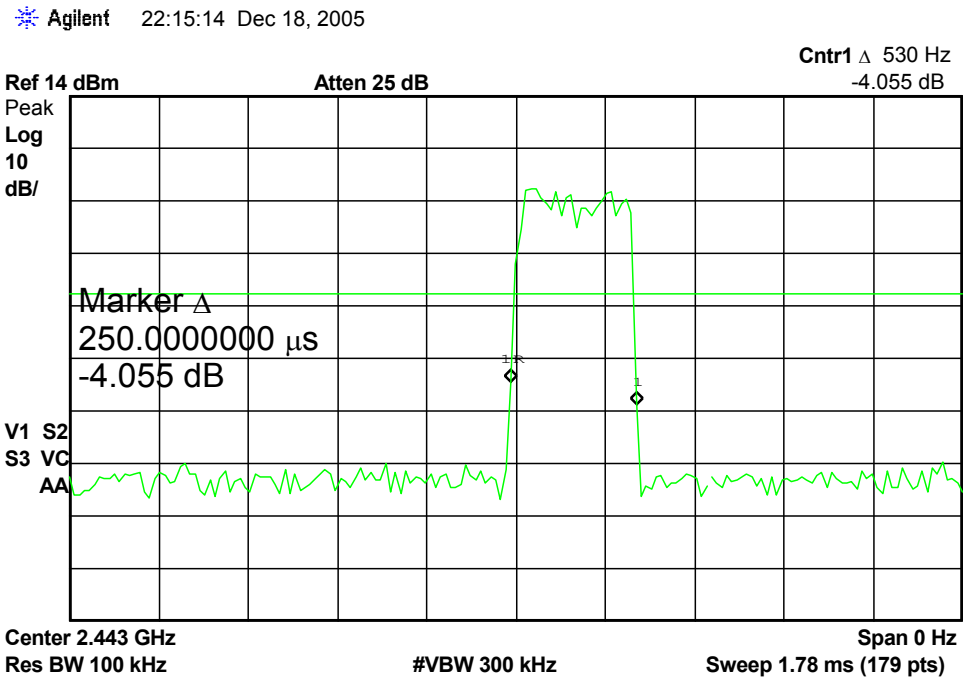


Sec. 3.3 Time of Occupancy (Dwell Time)

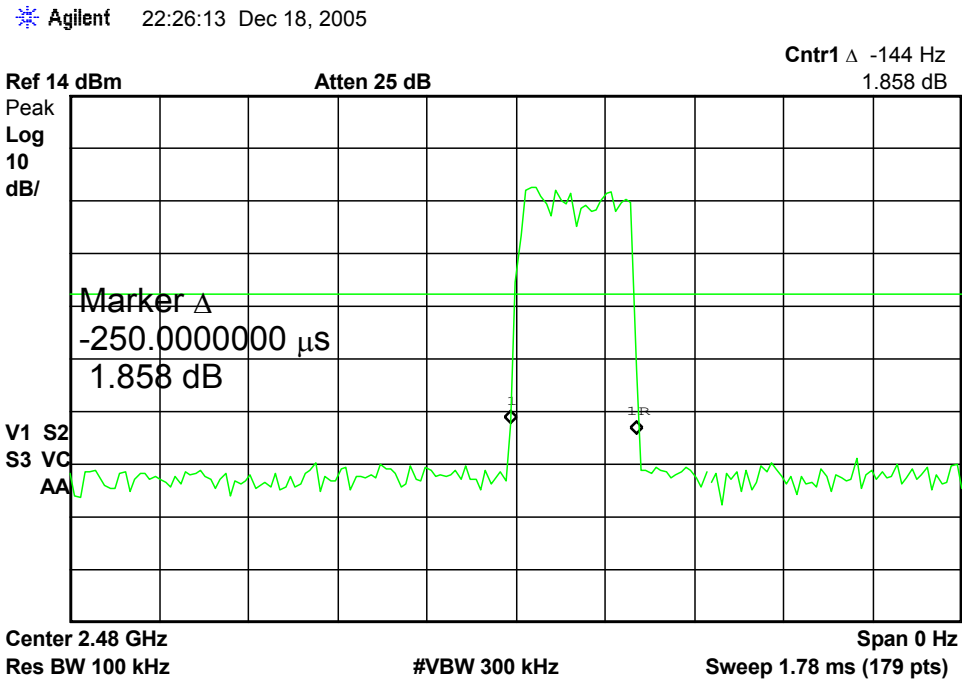
Plot 4



Plot 5

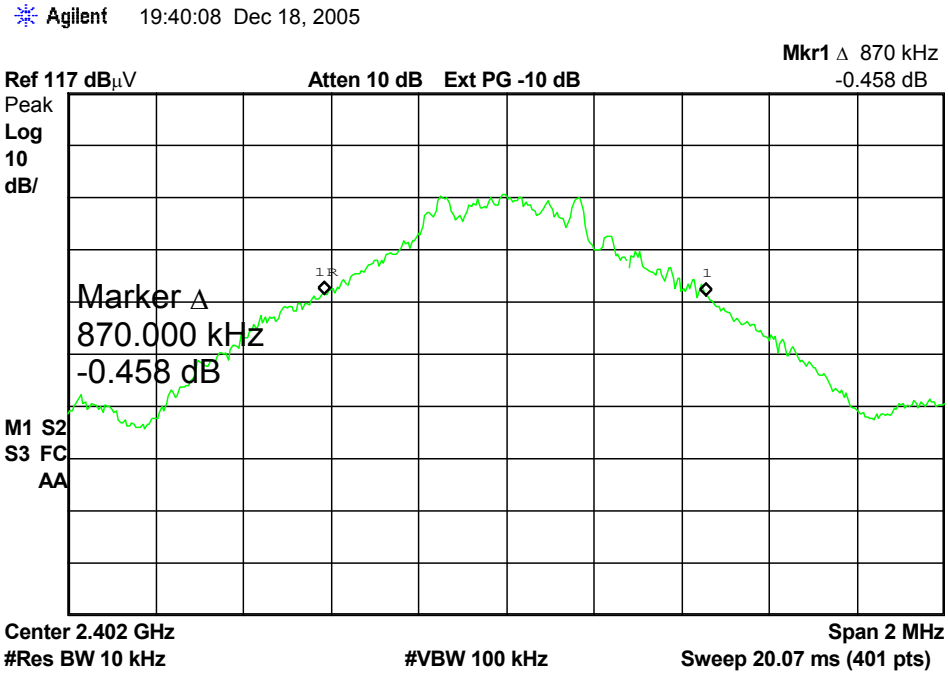


Plot 6

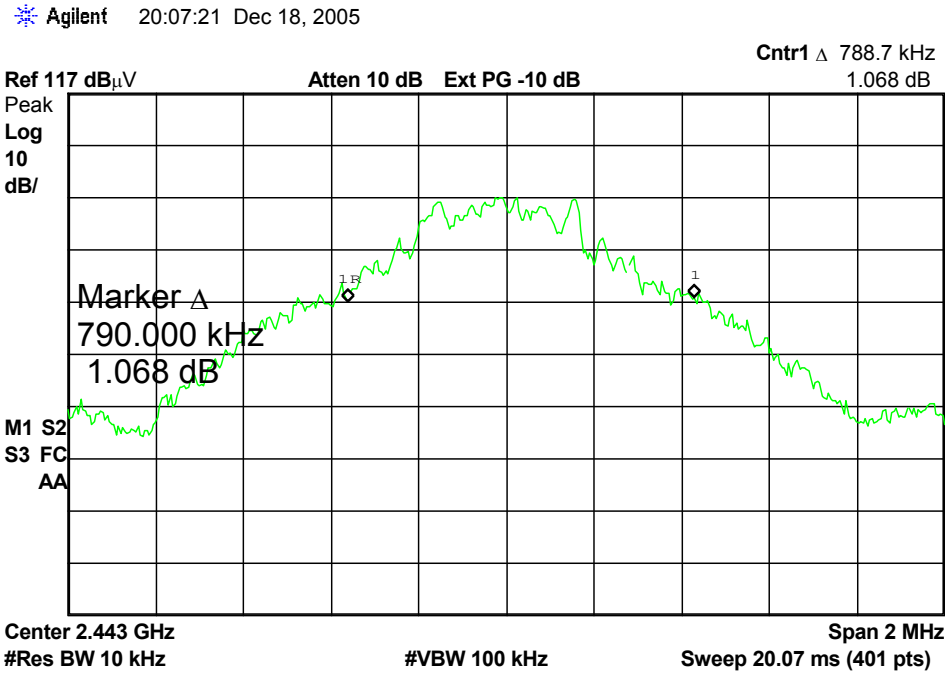

Agilent 22:26:13 Dec 18, 2005
Cntr1 Δ -144 Hz
1.858 dB
Ref 14 dBm
Atten 25 dB
Peak
Log
10
dB/
Marker Δ
-250.0000000 µs
1.858 dB
V1 S2
S3 VC
AA
Center 2.48 GHz
Res BW 100 kHz
#VBW 300 kHz
Span 0 Hz
Sweep 1.78 ms (179 pts)

Sec. 3.4 Spectrum Bandwidth of FHSS/ 20dB Bandwidth

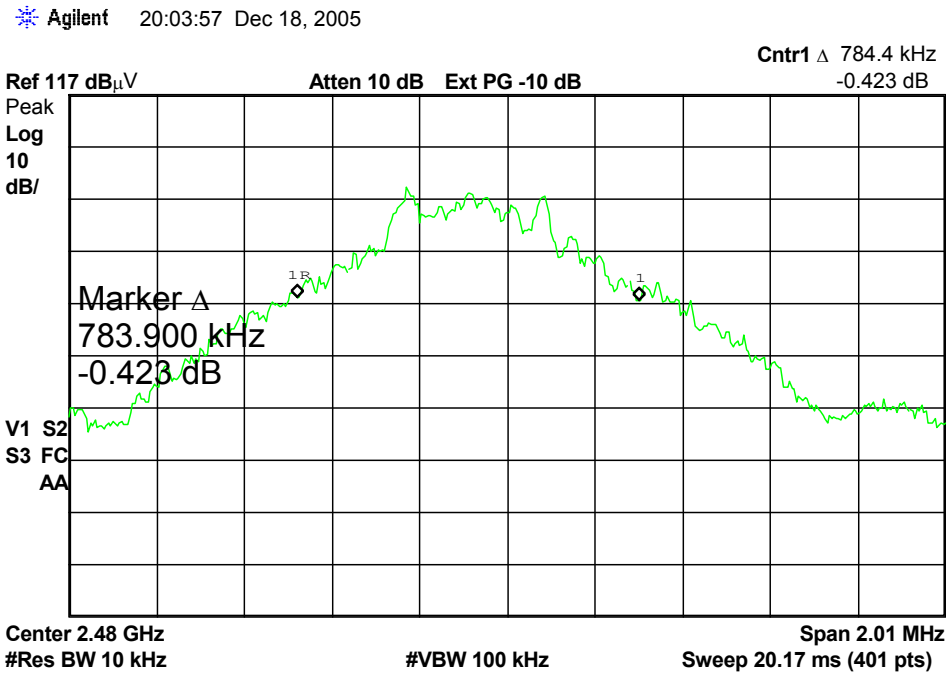
Plot 7



Plot 8

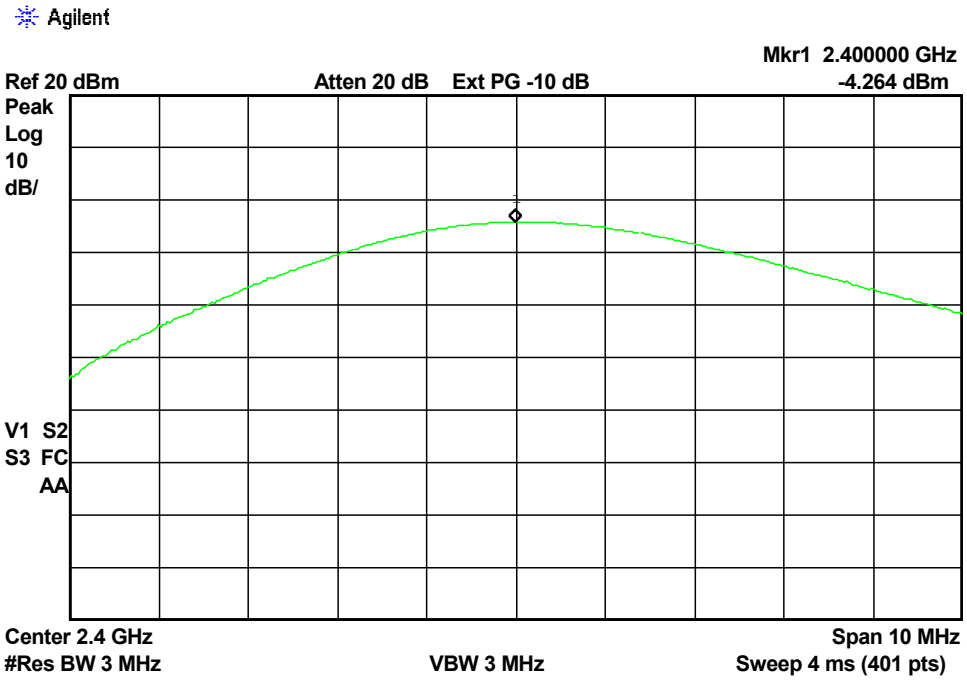


Plot 9

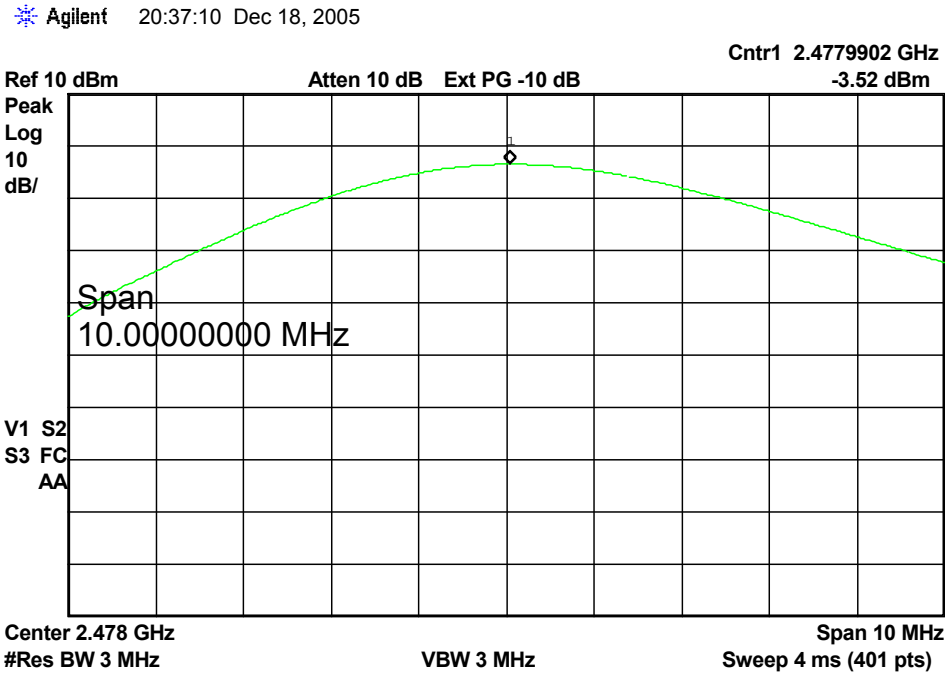

Agilent 20:03:57 Dec 18, 2005
Cntr1 Δ 784.4 kHz
-0.423 dB
Ref 117 dBµV
Atten 10 dB Ext PG -10 dB
Peak
Log
10
dB/
Marker Δ
783.900 kHz
-0.423 dB
V1 S2
S3 FC
AA
Center 2.48 GHz
#Res BW 10 kHz
#VBW 100 kHz
Span 2.01 MHz
Sweep 20.17 ms (401 pts)

Sec. 3.5 Maximum Output Power

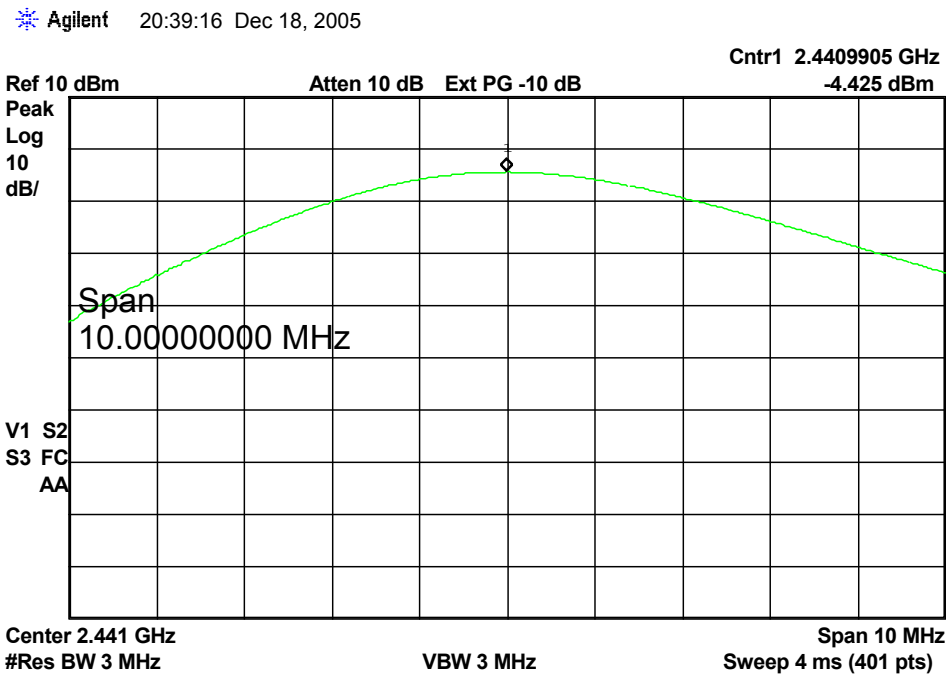
Plot 10



Plot 11

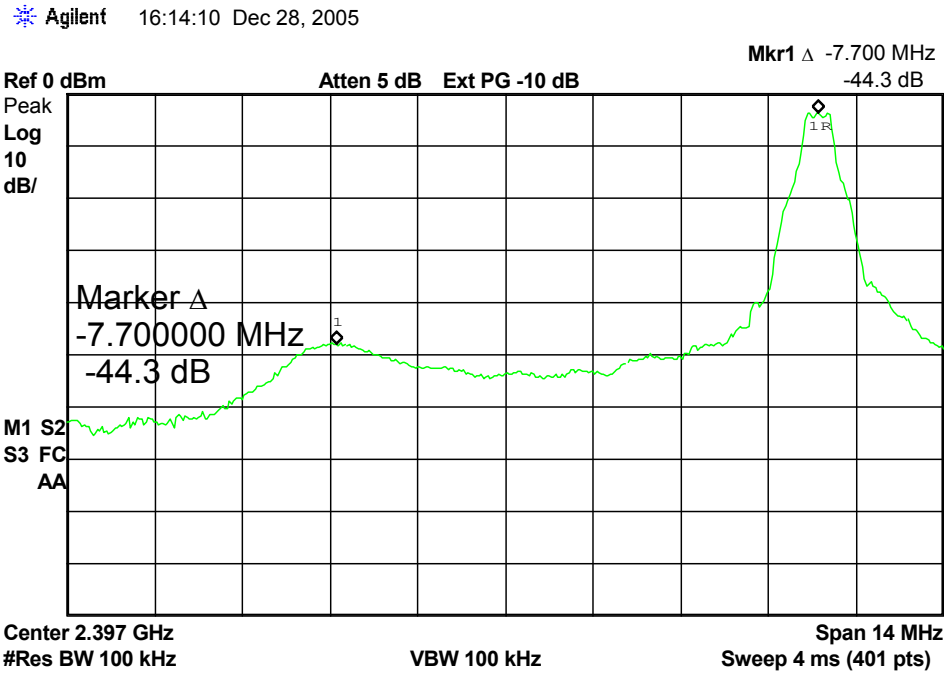


Plot 12

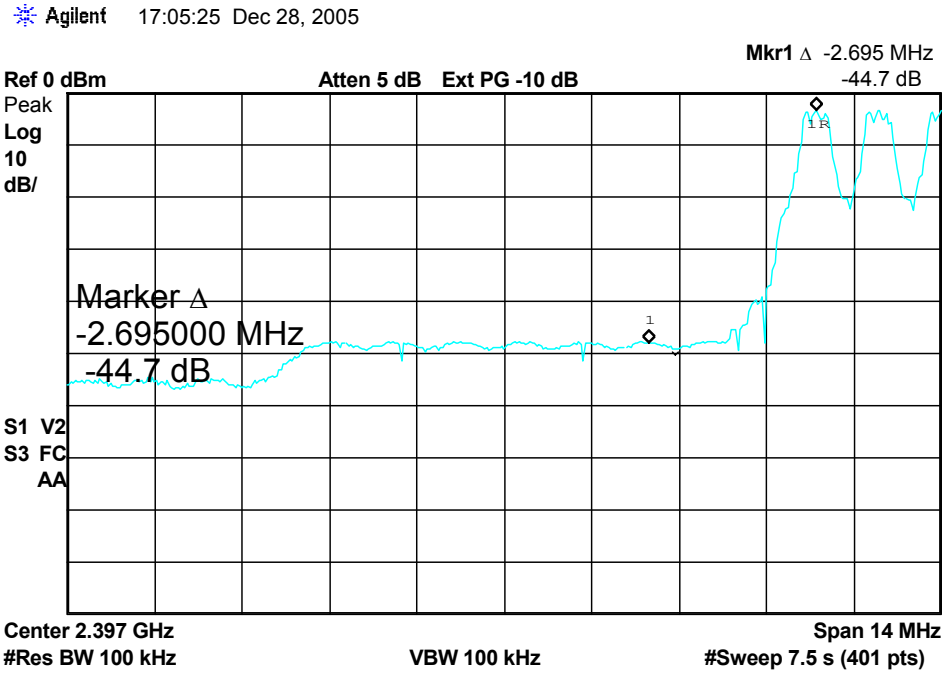

Agilent 20:39:16 Dec 18, 2005
Cntr1 2.4409905 GHz
Ref 10 dBm
Atten 10 dB
Ext PG -10 dB
-4.425 dBm
Peak
Log
10
dB/
Span
10.00000000 MHz
V1 S2
S3 FC
AA
Center 2.441 GHz
#Res BW 3 MHz
VBW 3 MHz
Span 10 MHz
Sweep 4 ms (401 pts)

Sec. 3.6 Band-edge compliance of RF Conducted Emission

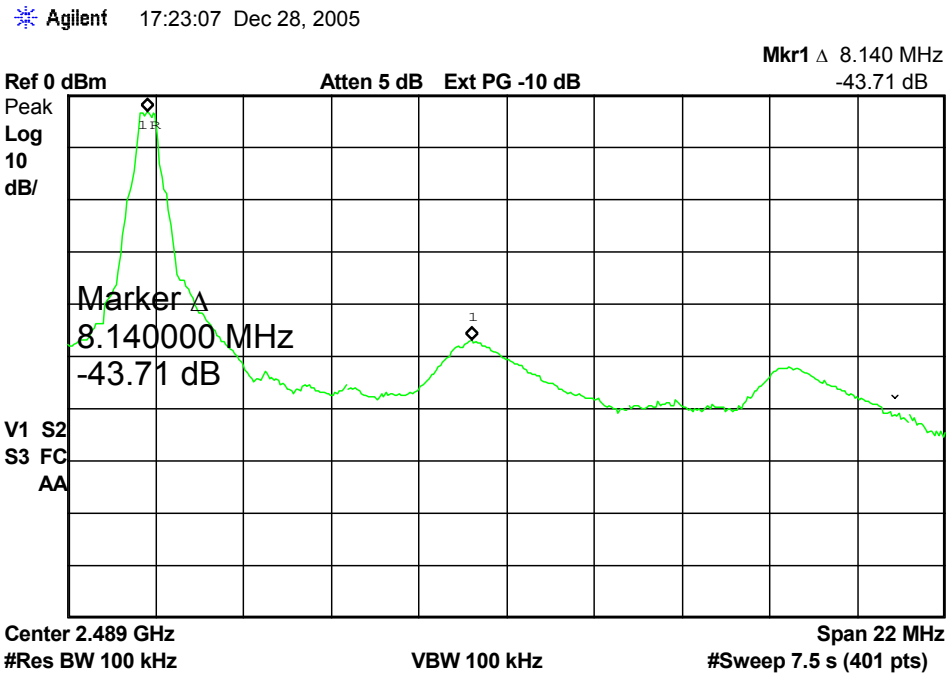
Plot 13



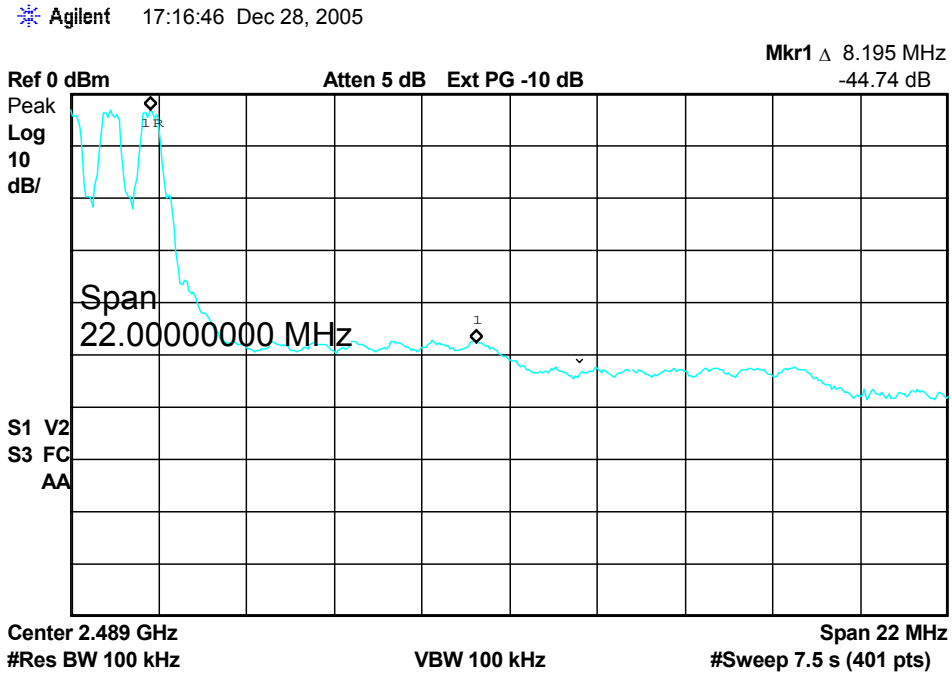
Plot 14



Plot 15

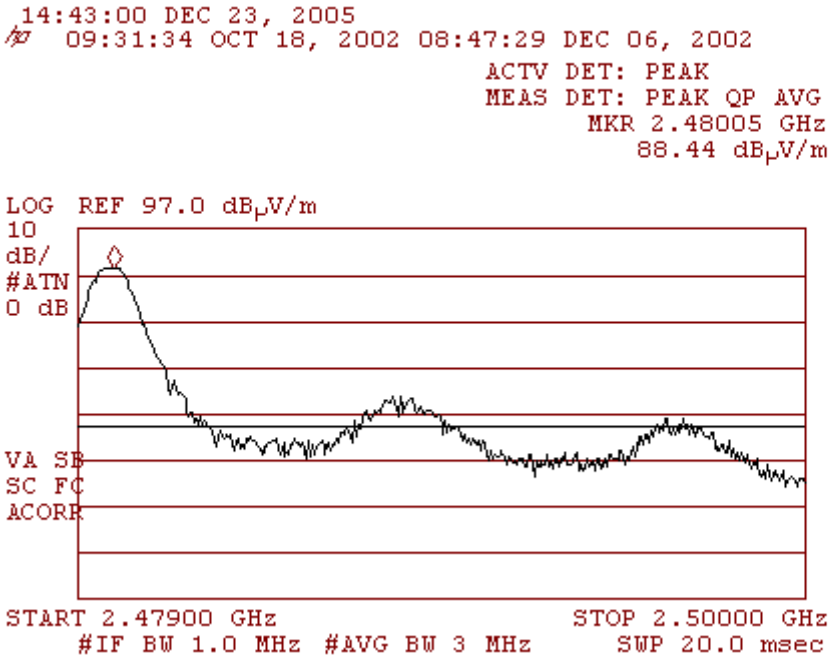


Plot 16

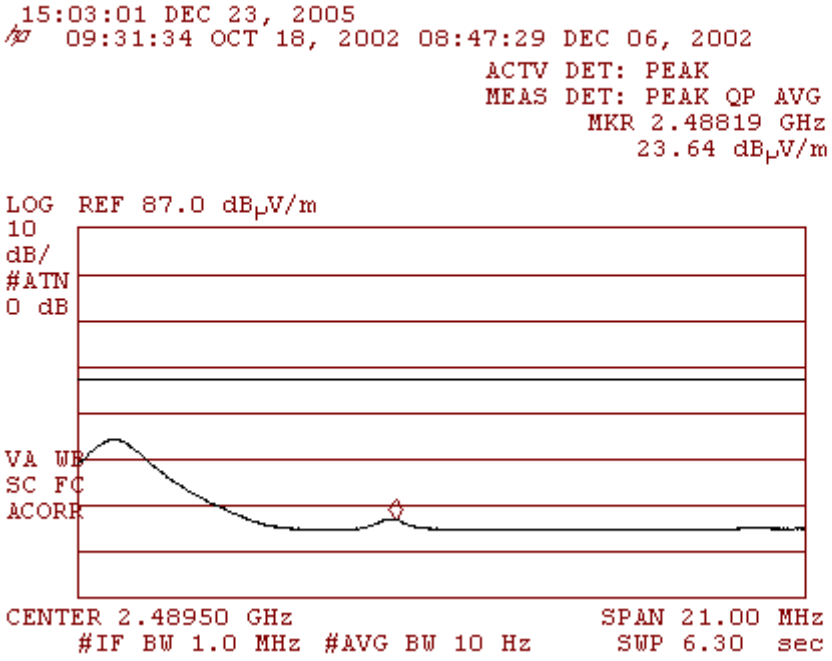


Sec. 3.7 Band-edge compliance of Radiated Emission, restricted Bands

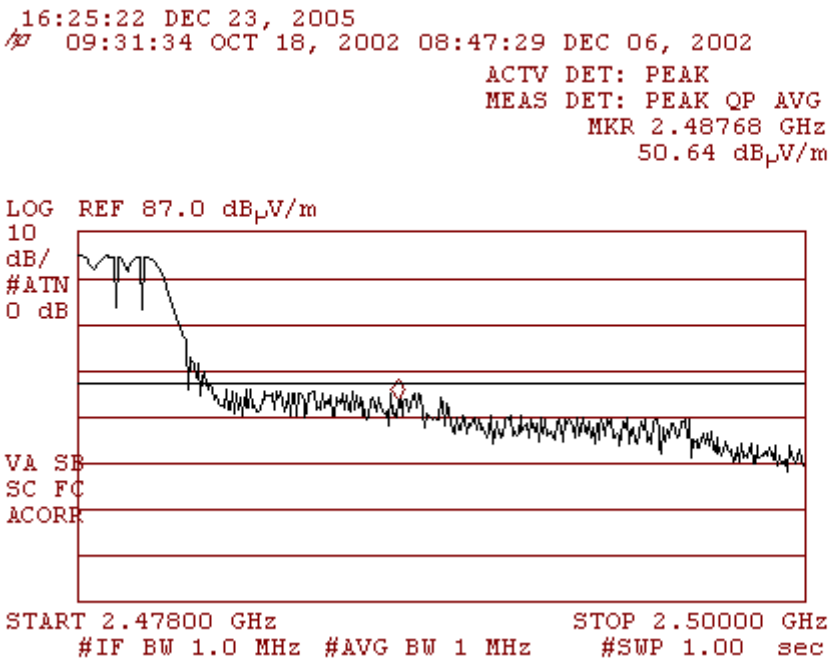
Plot 17
Single mode Highest Frequency



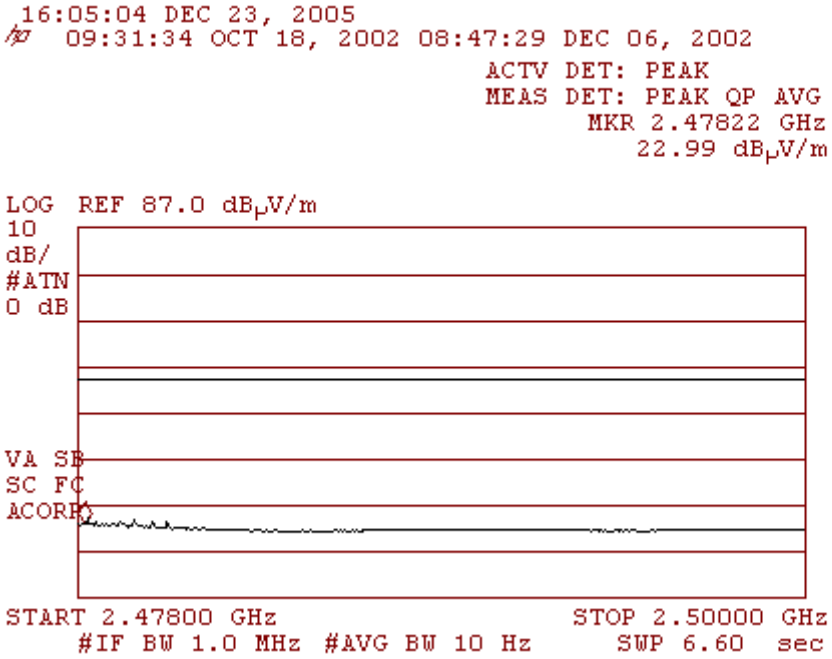
Plot 18
Average



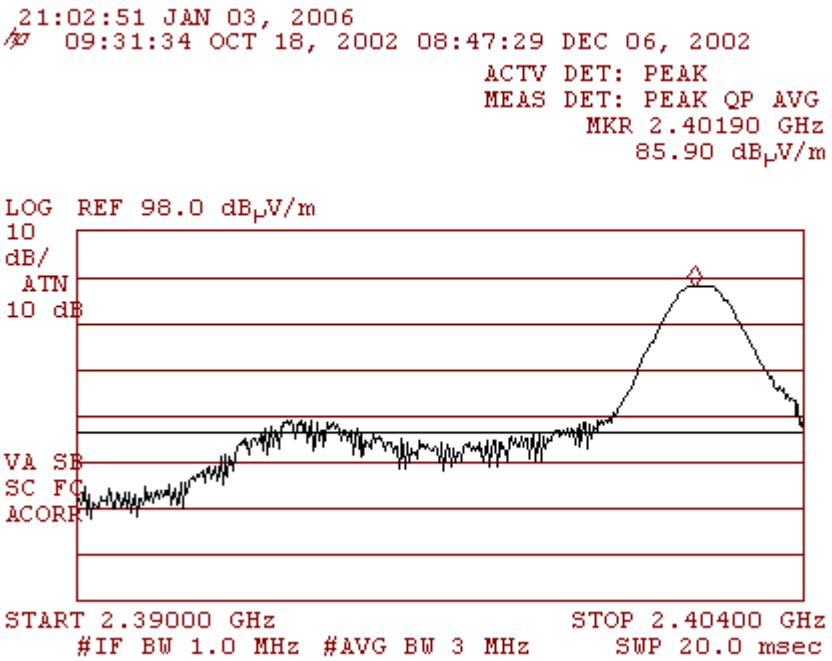
Plot 19
Hopping mode highest Frequency



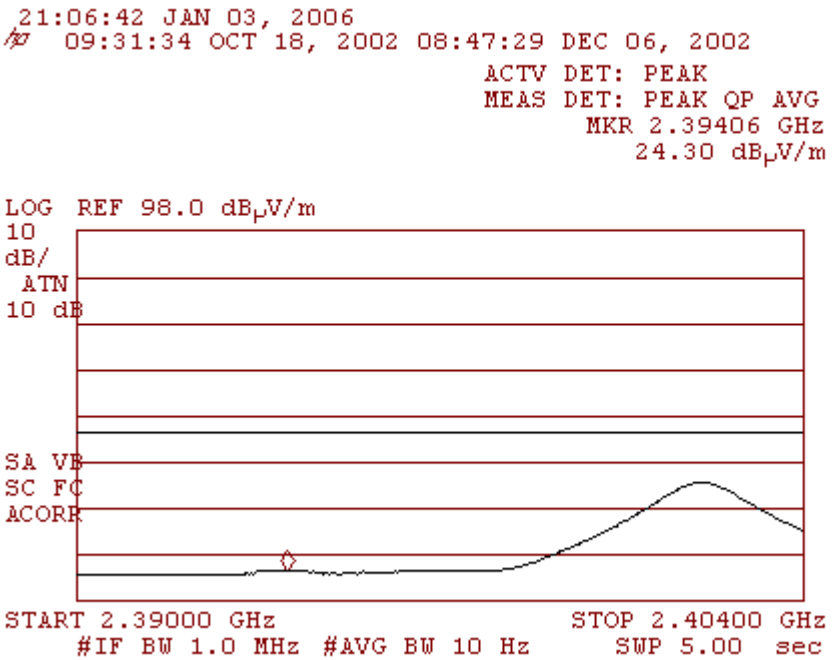
Plot 20
Average



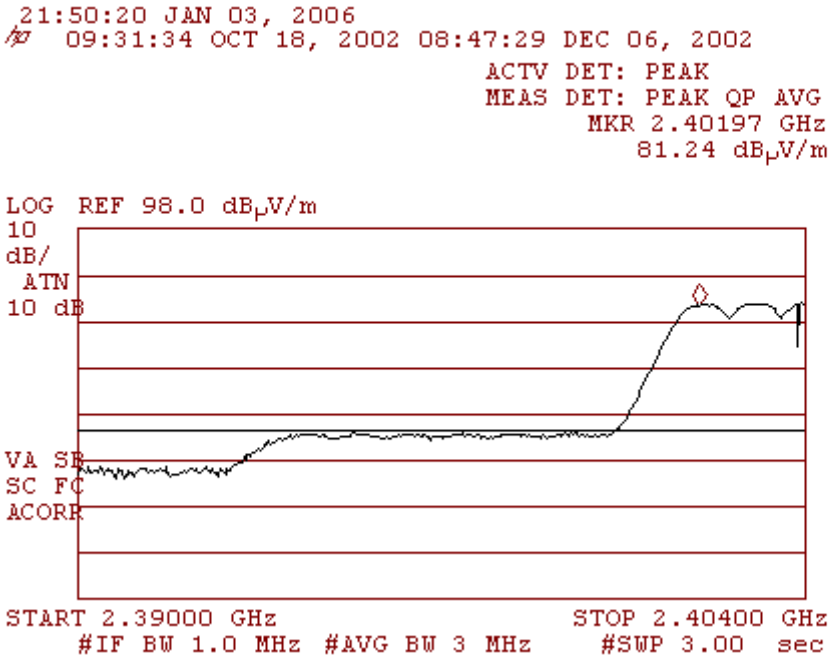
Plot 21
Single mode Lowest Frequency



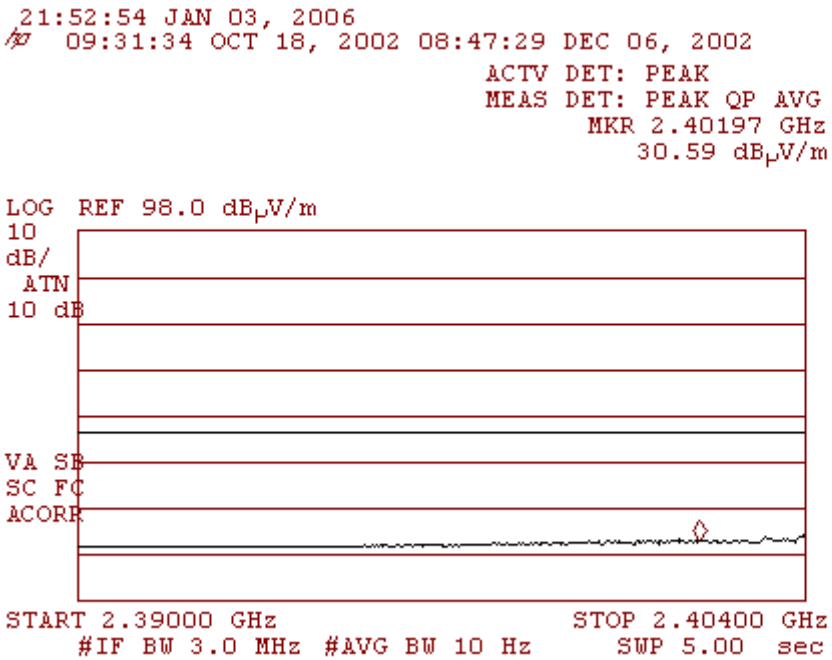
Plot 22
Average



Plot 23
Hopping mode Lowest Frequency

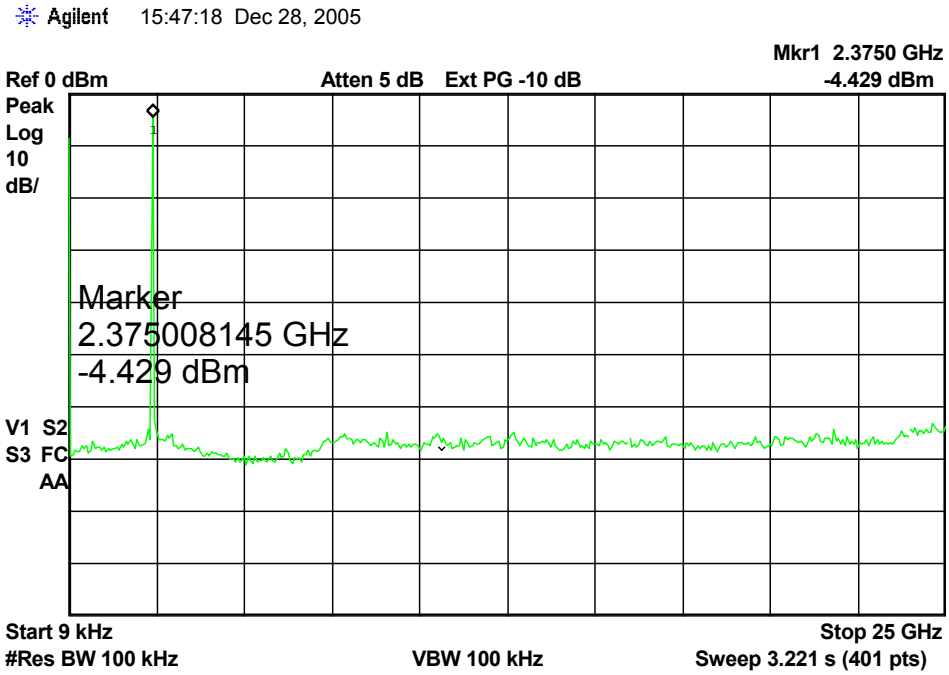


Plot 24
Average

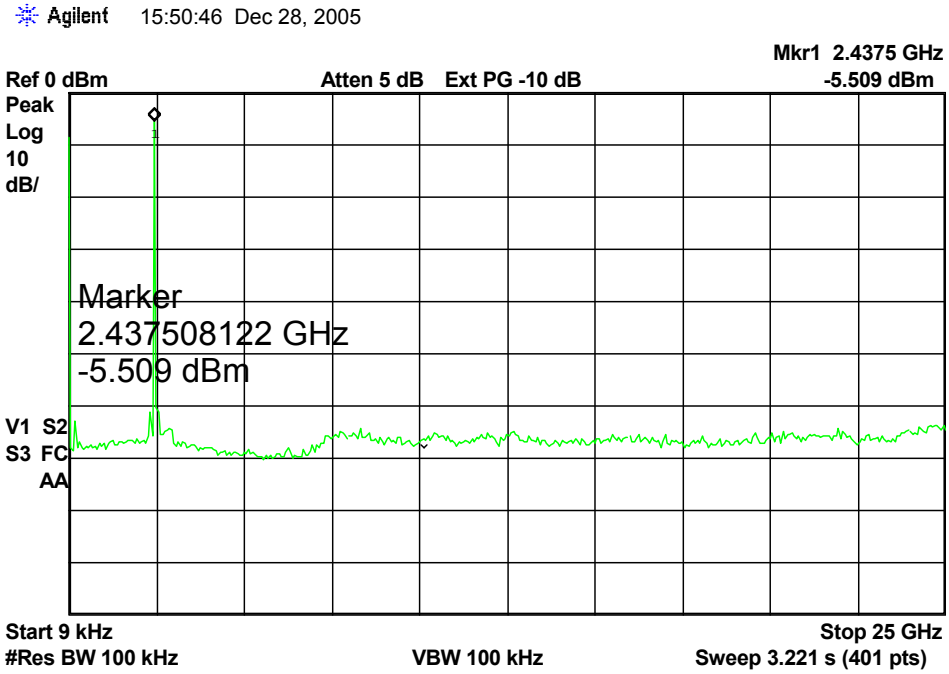


Sec. 3.8 Spurious Emission- Conducted (Transmitter)

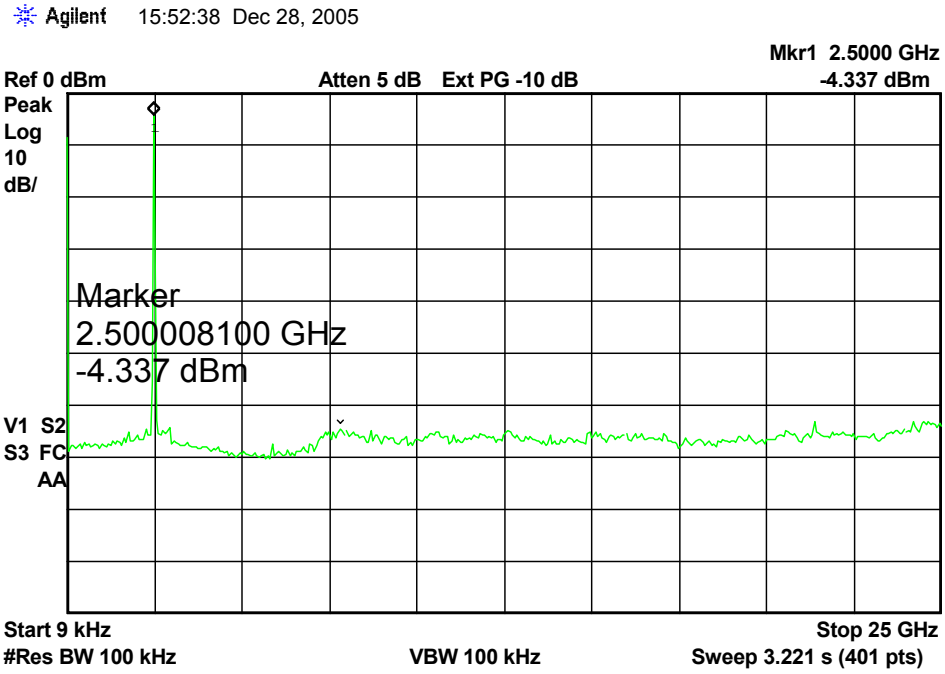
Plot 25
Low frequency



Plot 26
Middle frequency

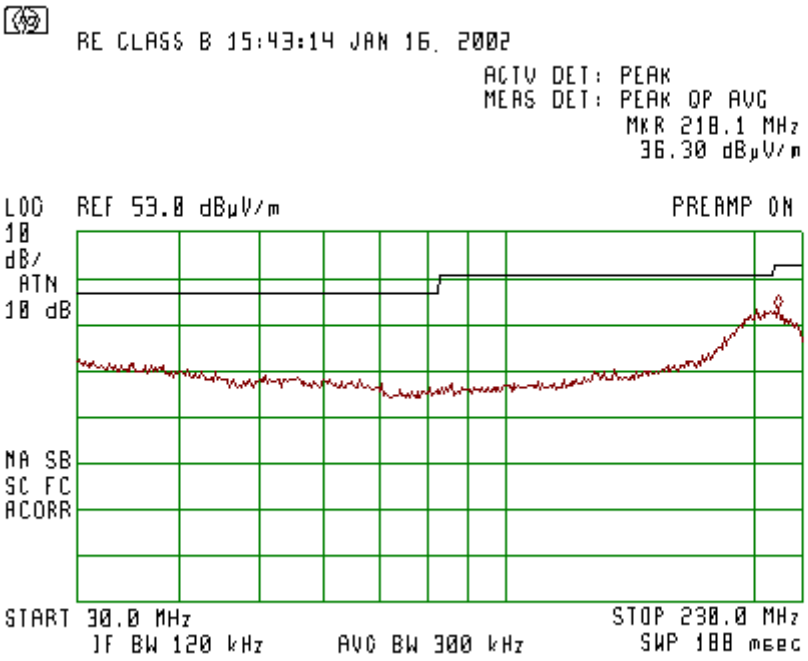


Plot 27
High frequency

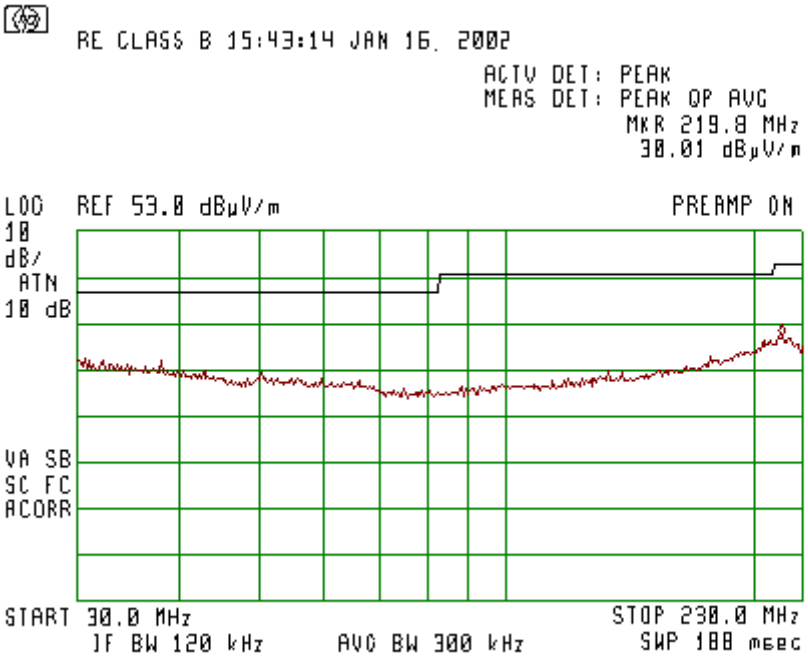


Sec.3.9 Spurious Emission- Radiated (Transmitter)

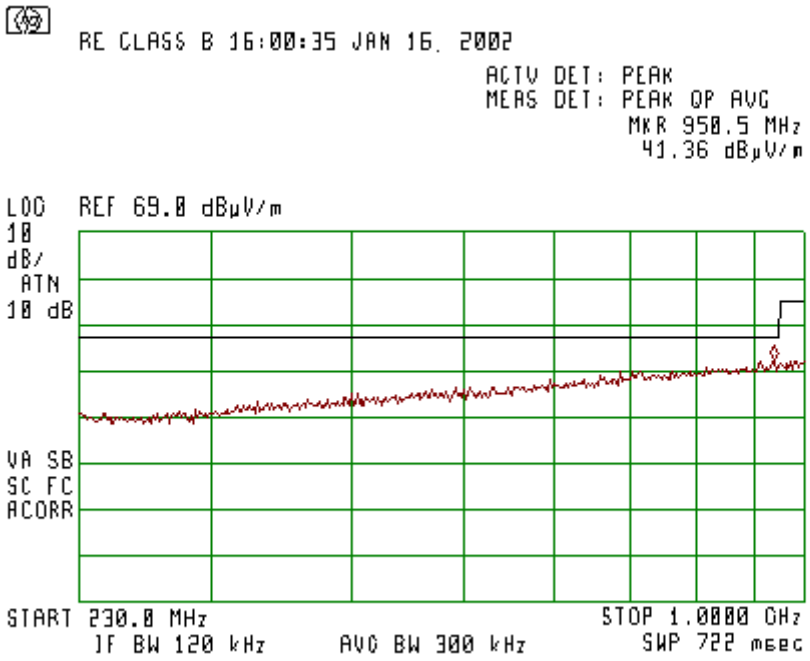
Low frequency
Plot 28
Horizontal Polarization



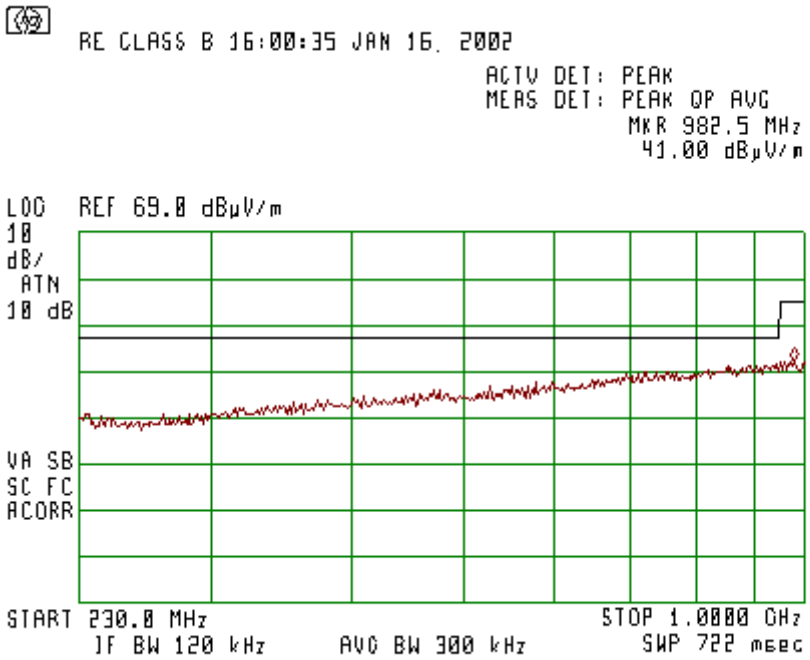
Plot 29
Vertical Polarization



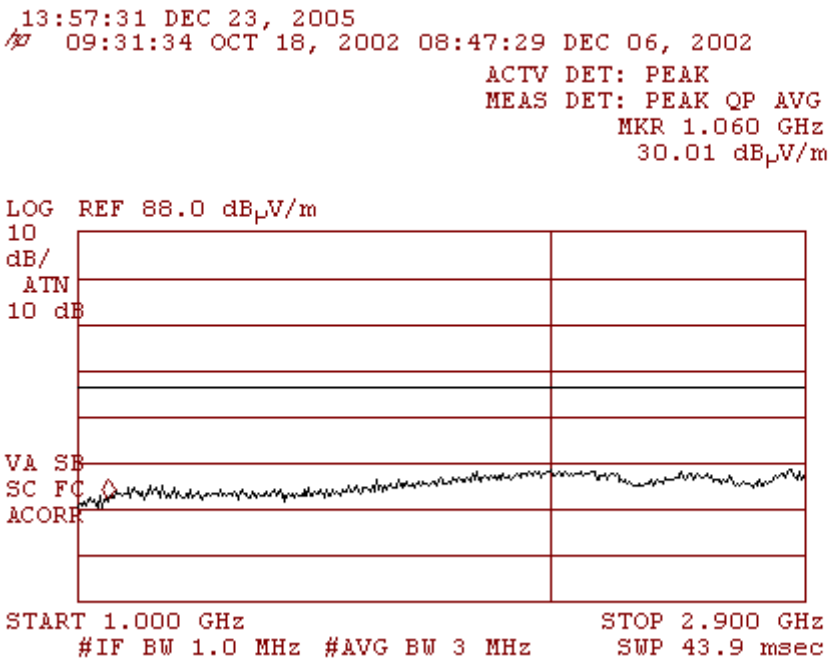
Plot 30
Horizontal Polarization



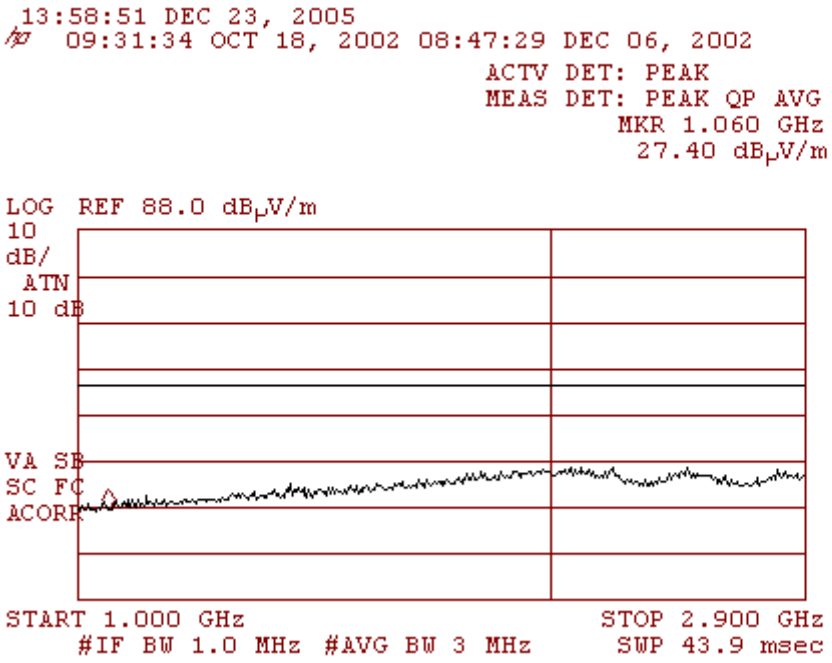
Plot 31
Vertical Polarization



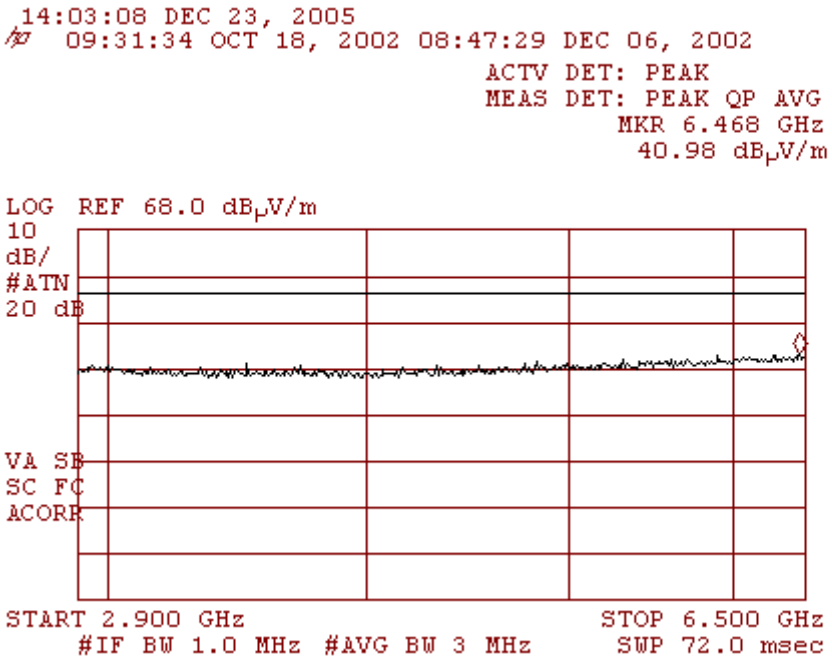
Plot 32
Horizontal Polarization



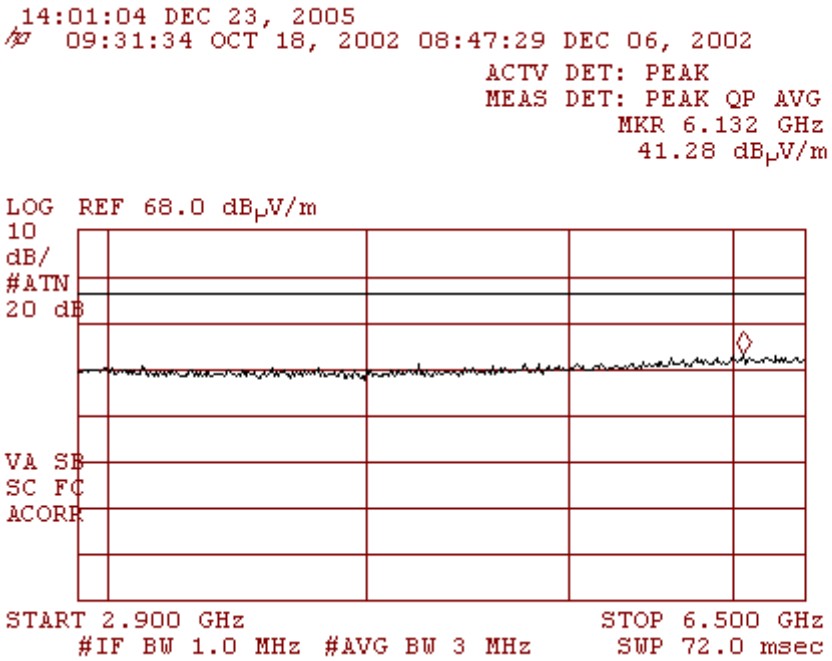
Plot 33
Vertical Polarization



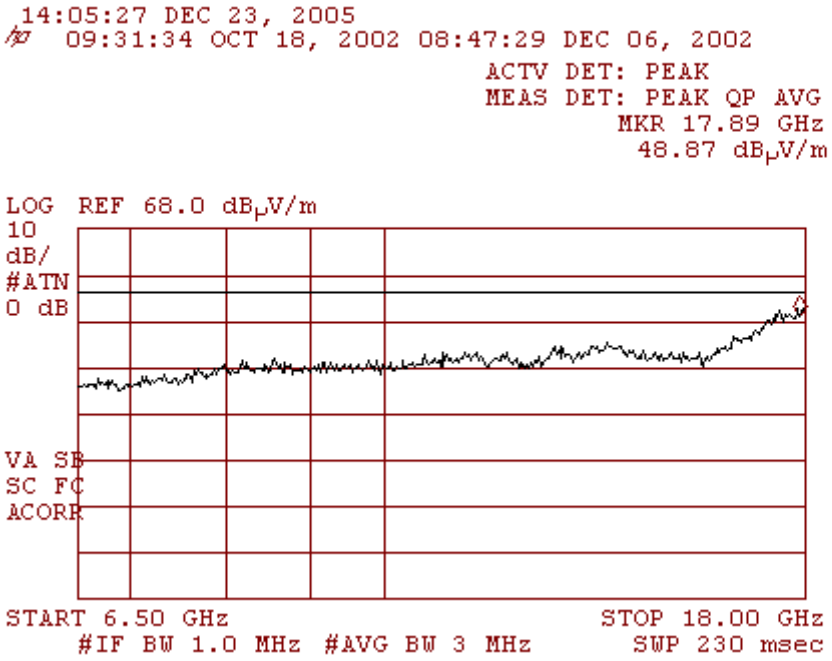
Plot 34
Horizontal Polarization



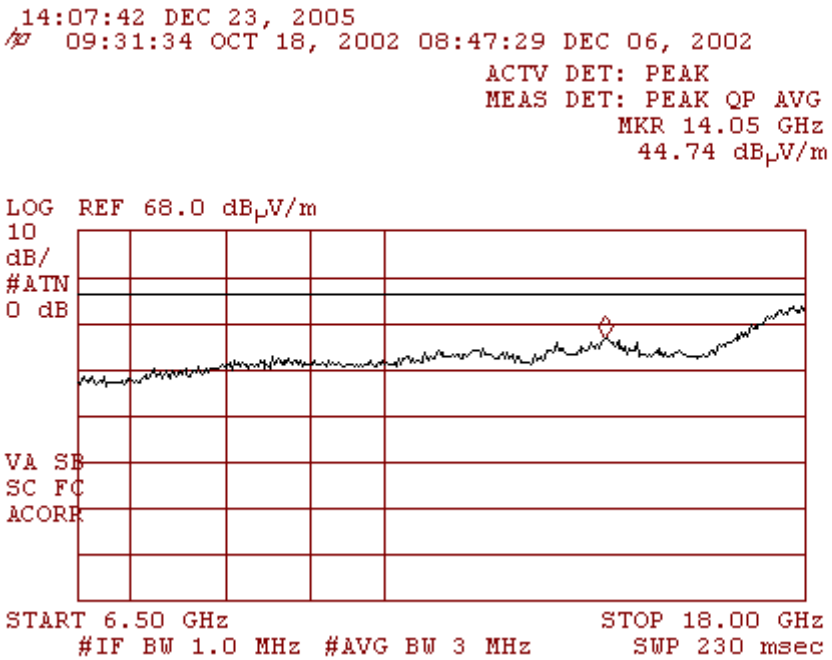
Plot 35
Vertical Polarization



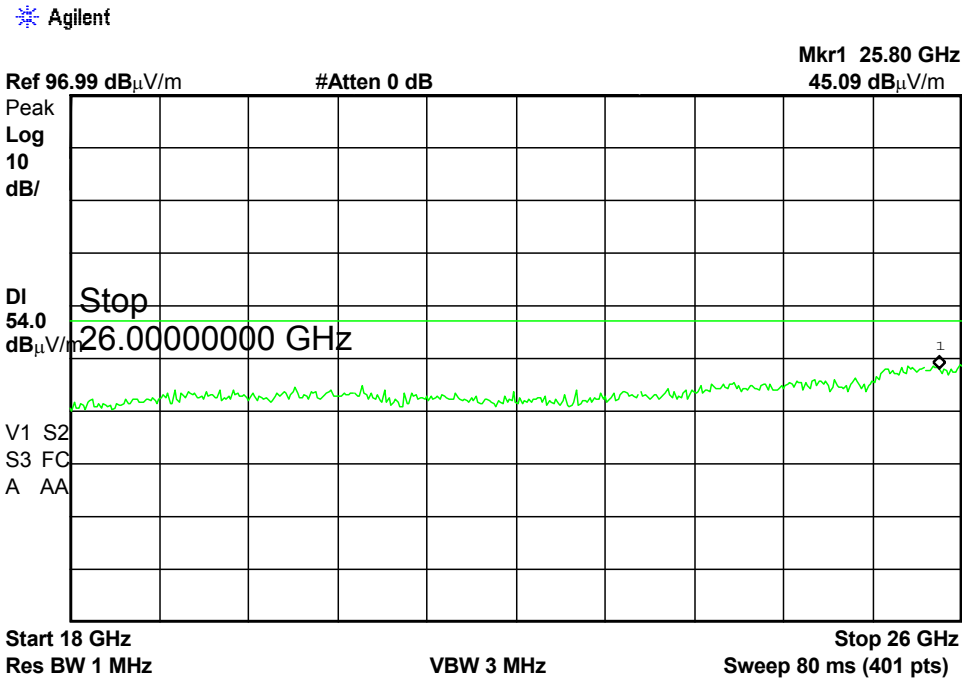
Plot 36
Horizontal Polarization



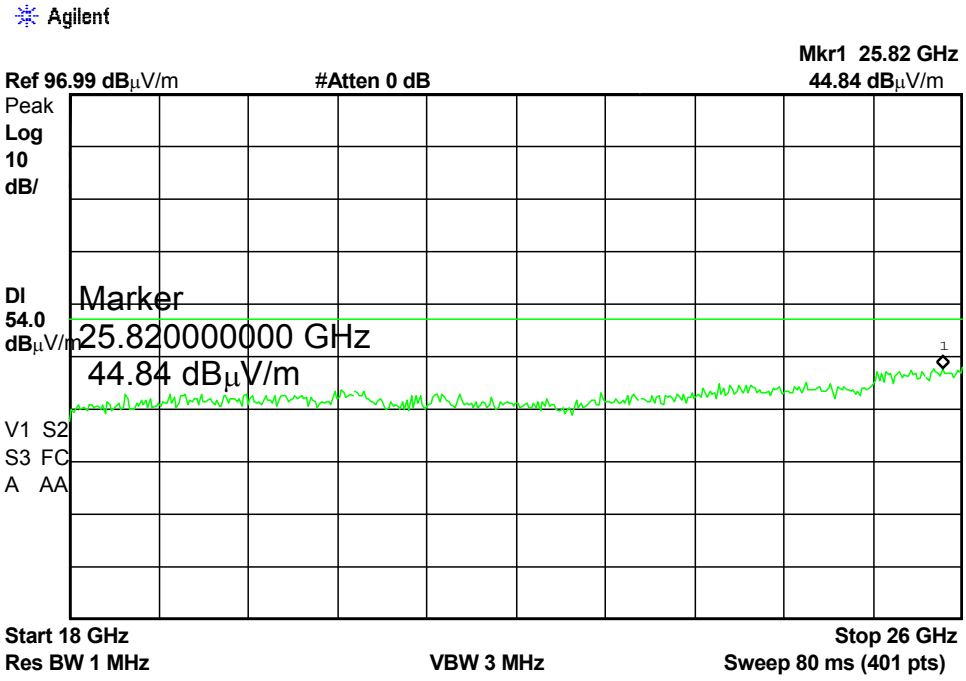
Plot 37
Vertical Polarization



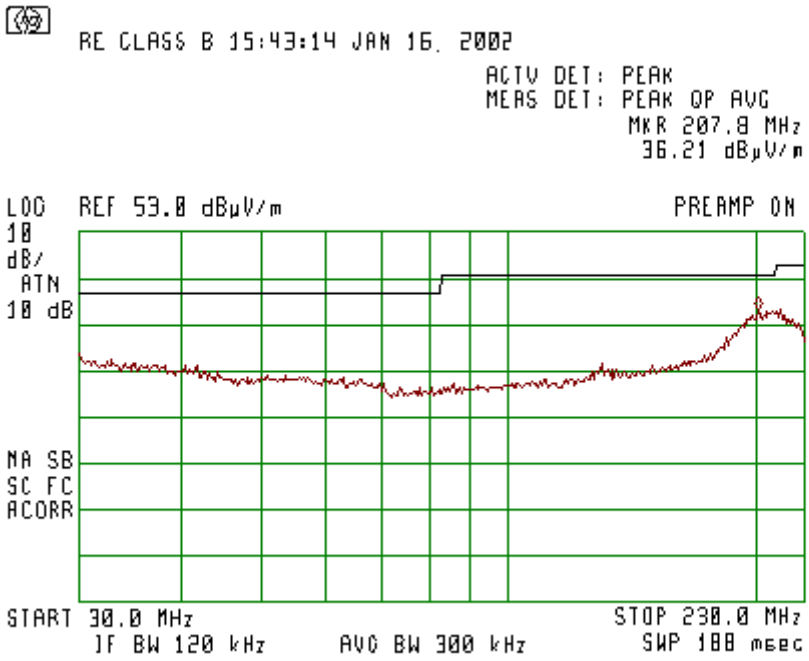
Plot 38
Horizontal Polarization



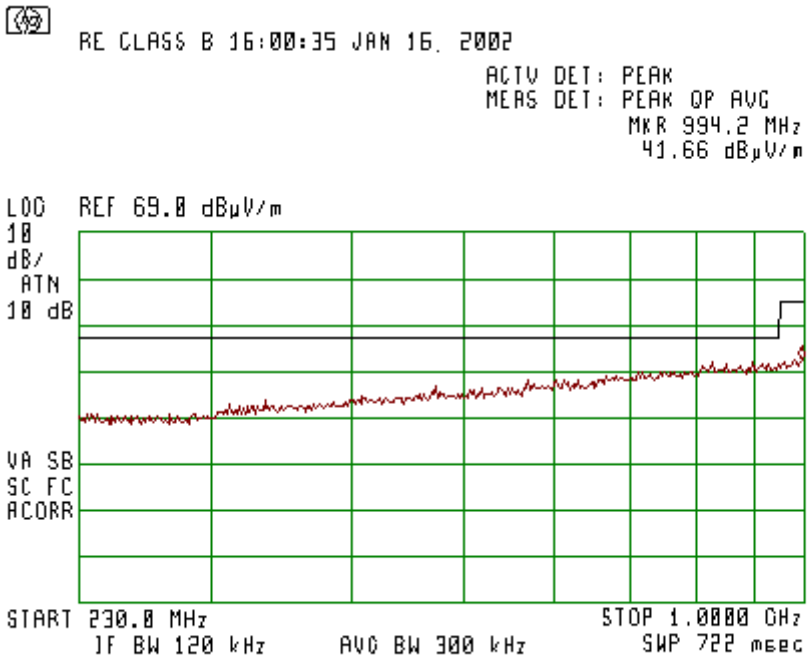
Plot 39
Vertical Polarization



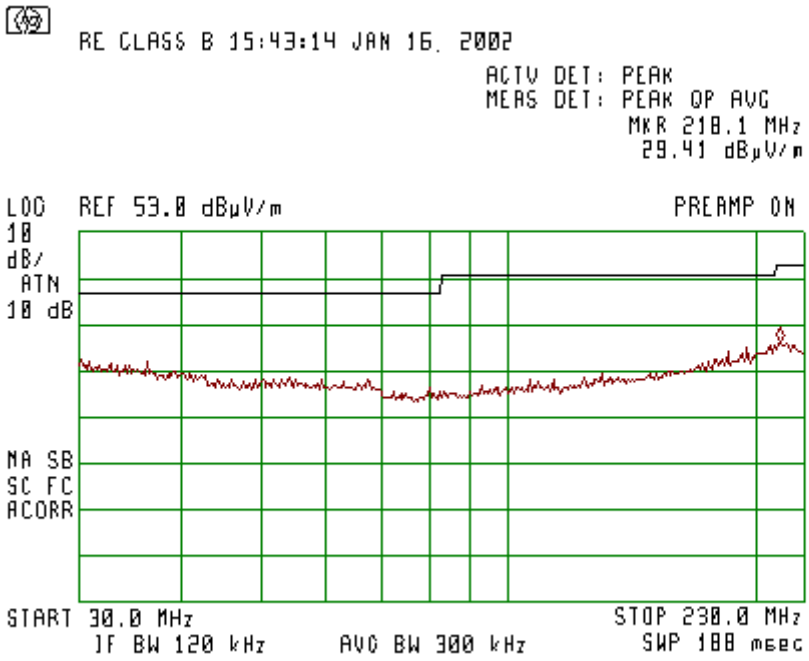
Middle Frequency
Plot 40
Horizontal Polarization



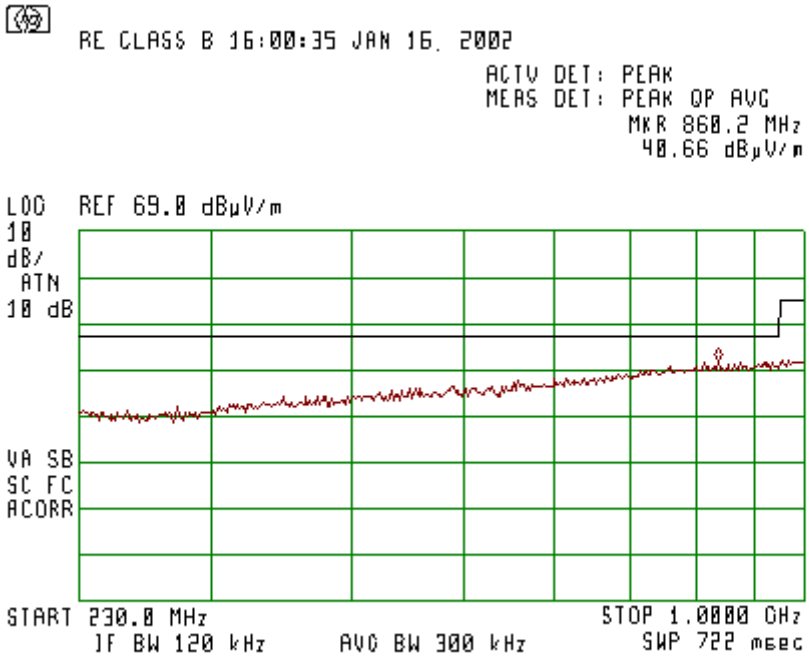
Plot 41
Vertical Polarization



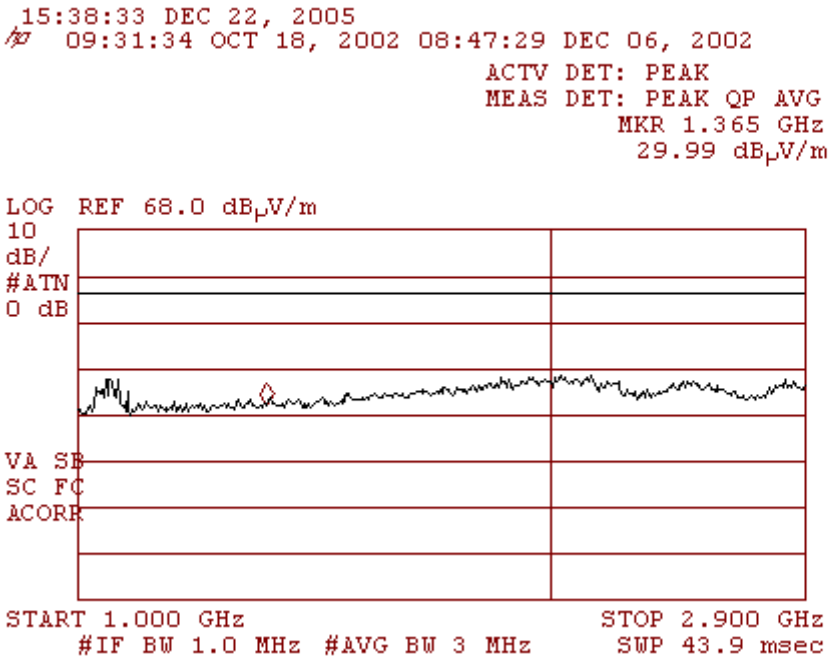
Plot 42
Horizontal Polarization



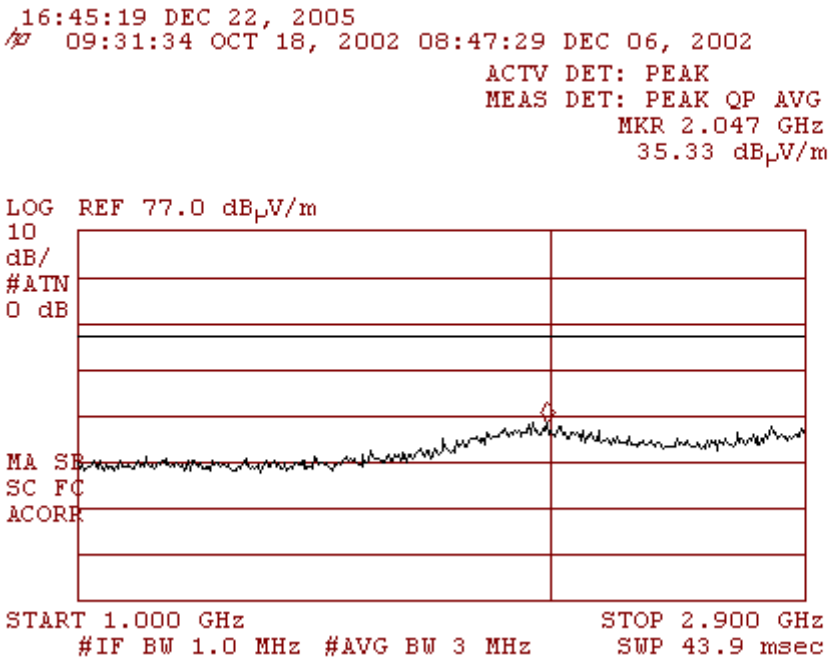
Plot 43
Vertical Polarization



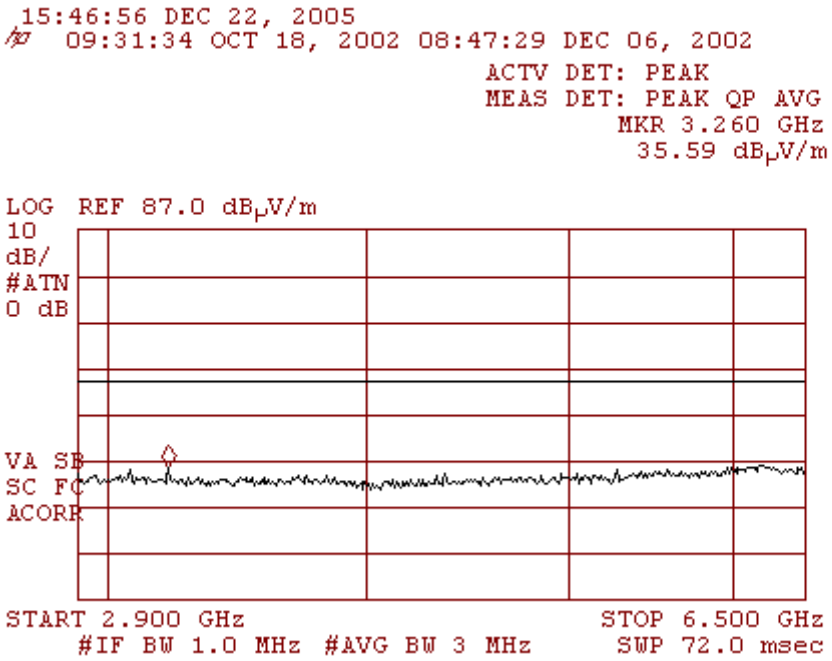
Plot 44
Horizontal Polarization



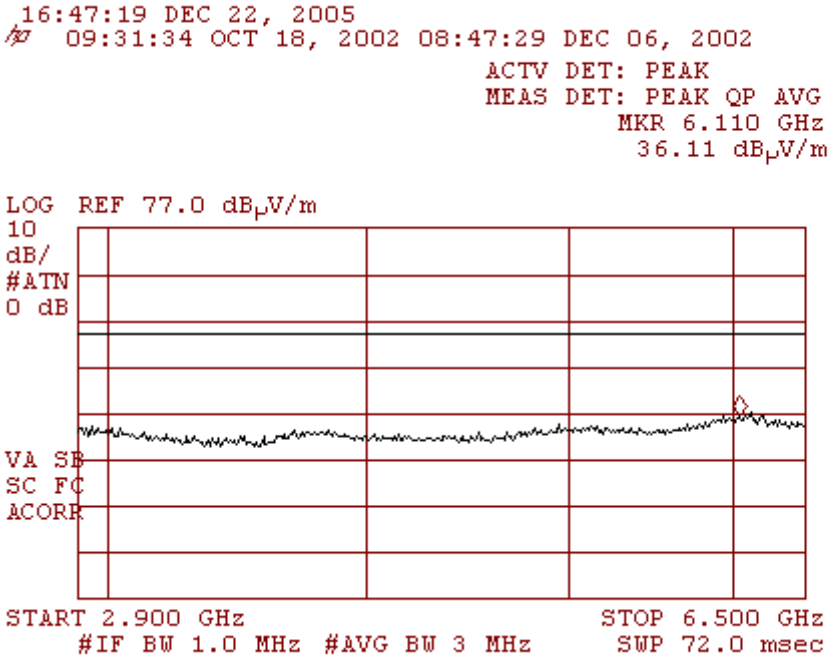
Plot 45
Vertical Polarization



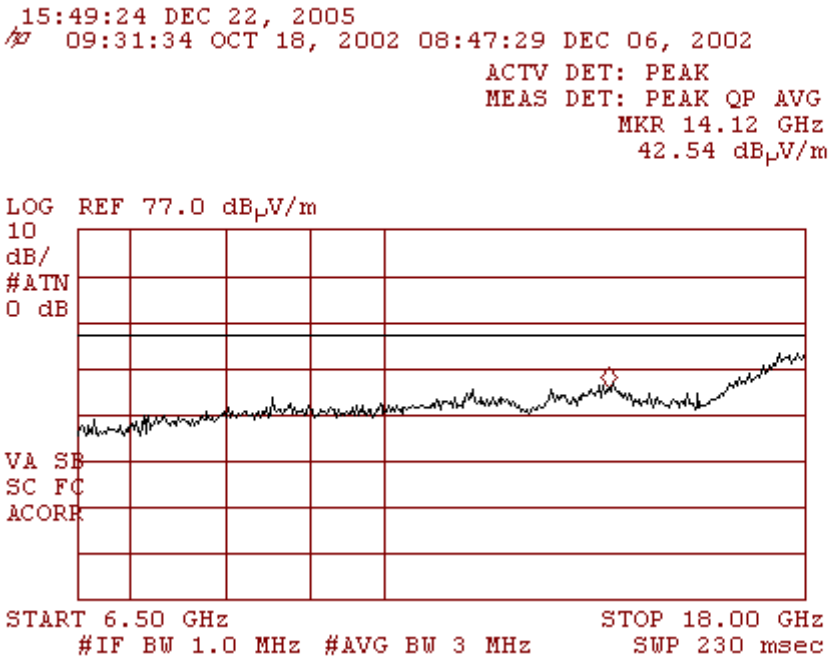
Plot 46
Horizontal Polarization



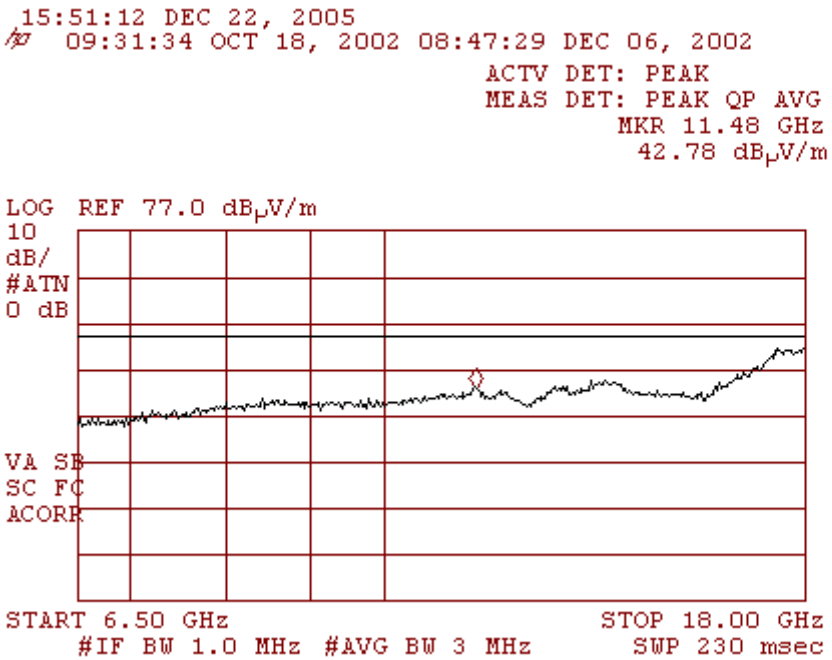
Plot 47
Vertical Polarization



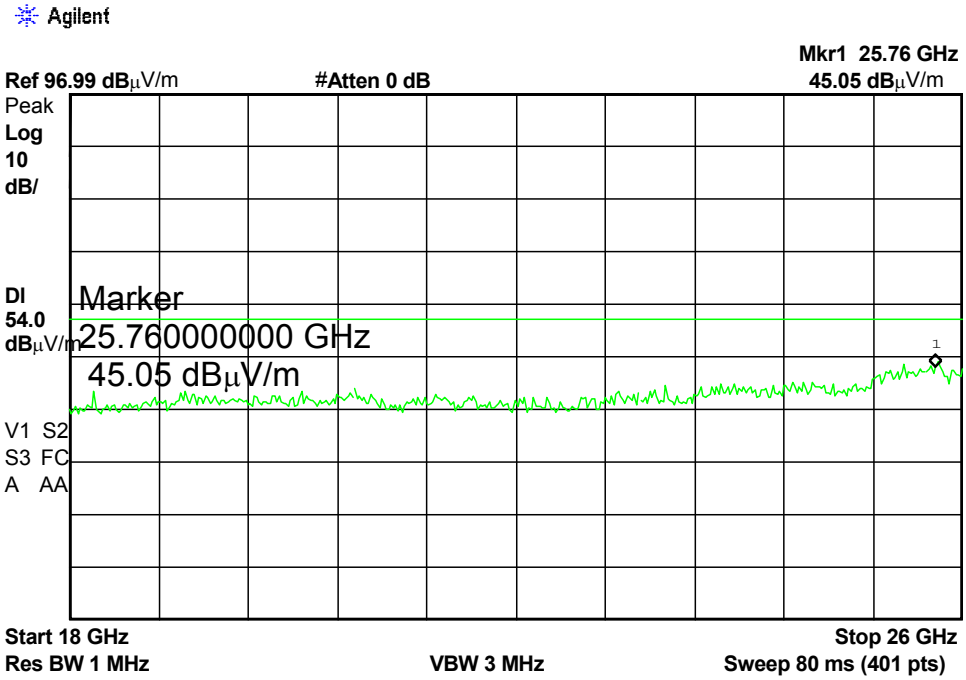
Plot 48
Horizontal Polarization



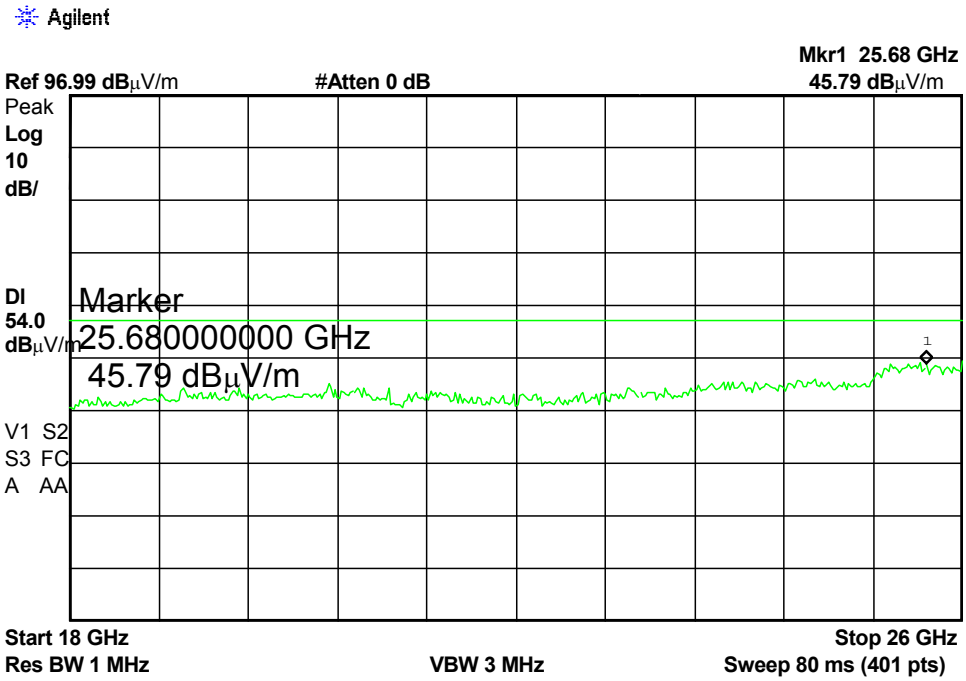
Plot 49
Vertical Polarization



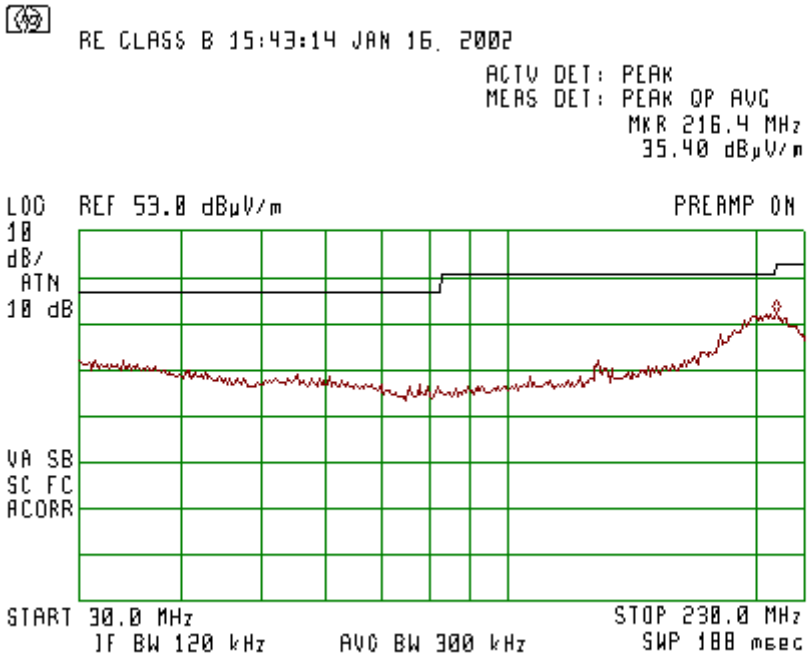
Plot 50
Horizontal Polarization



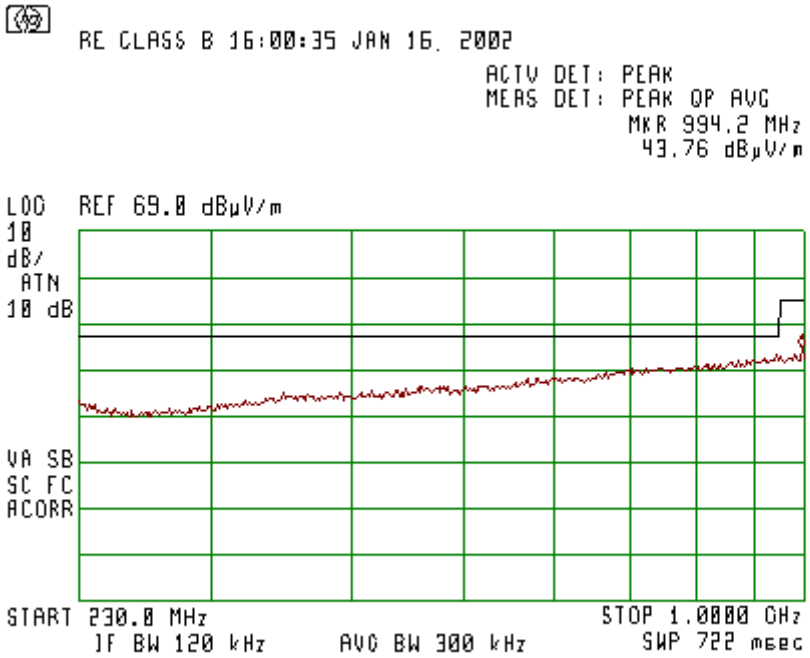
Plot 51
Vertical Polarization



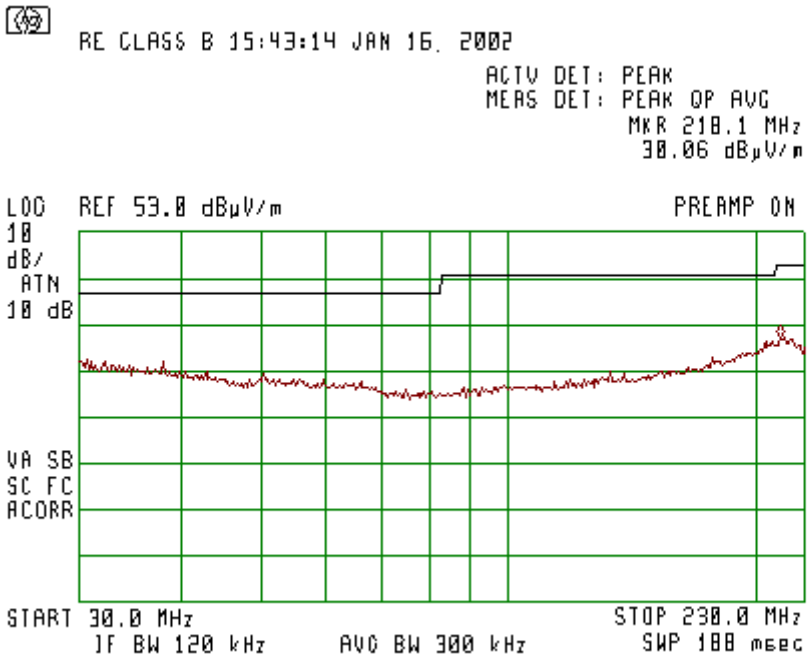
High Frequency
Plot 52
Horizontal Polarization



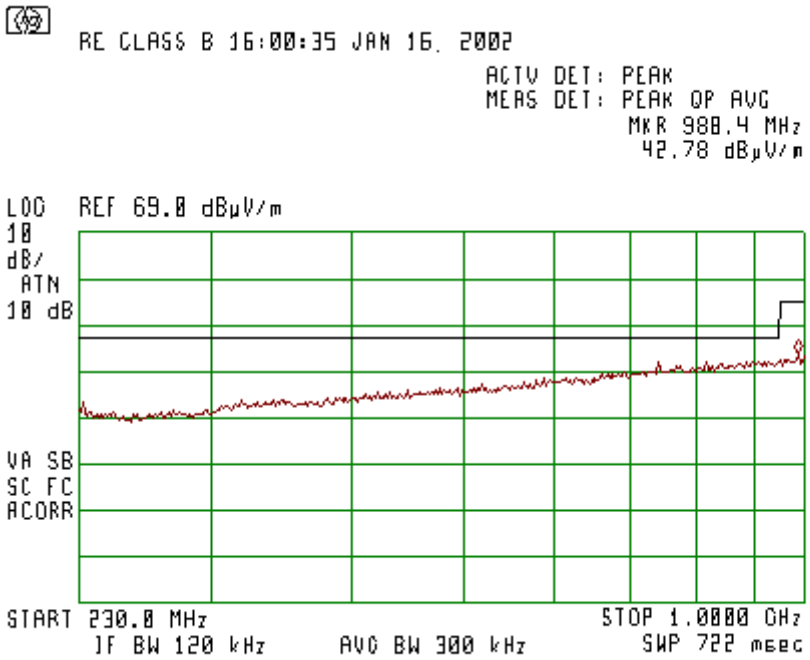
Plot 53
Vertical Polarization



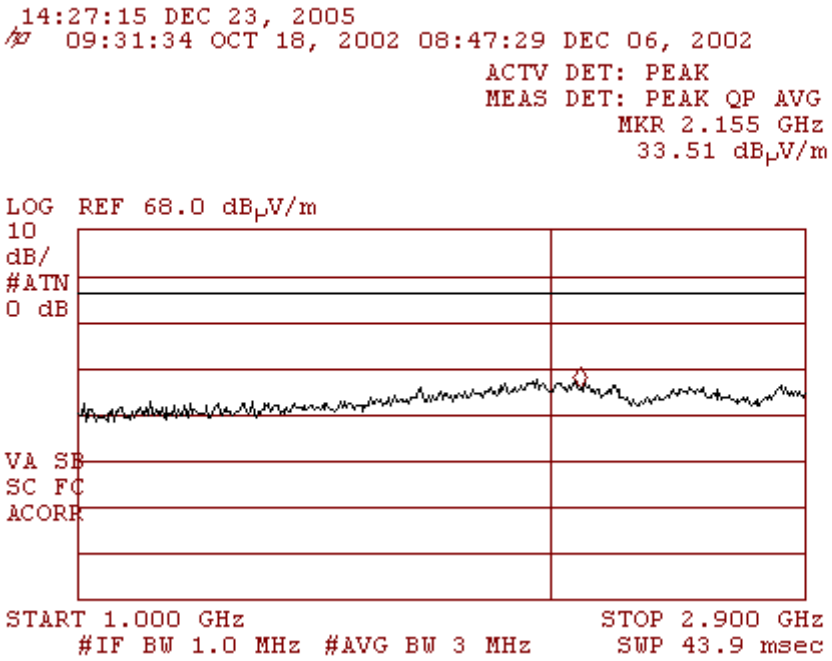
Plot 54
Horizontal Polarization



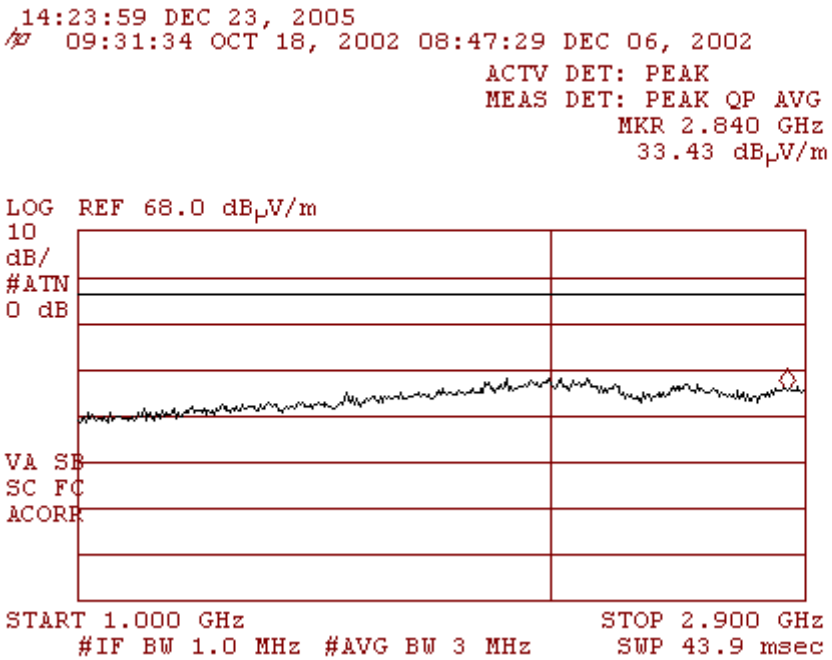
Plot 55
Vertical Polarization



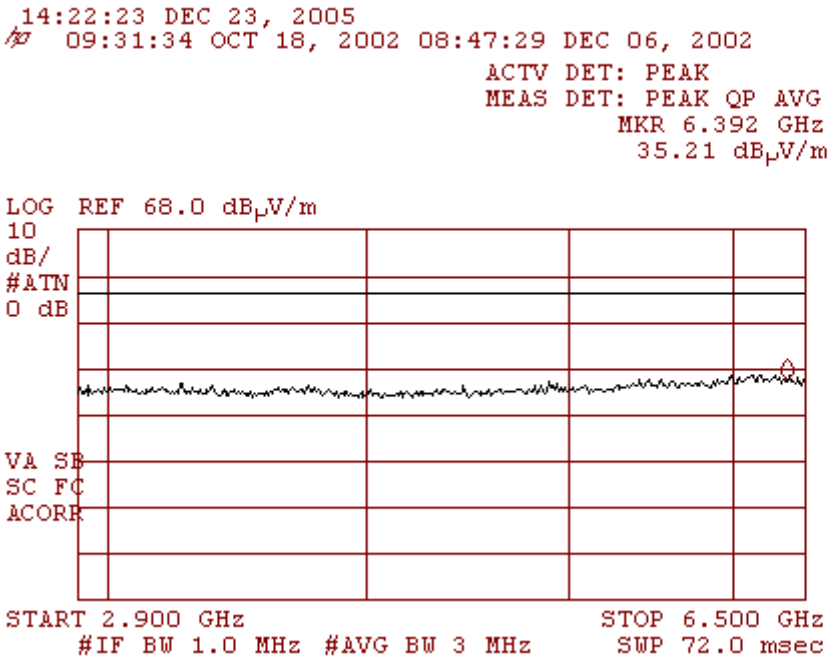
Plot 56
Horizontal Polarization



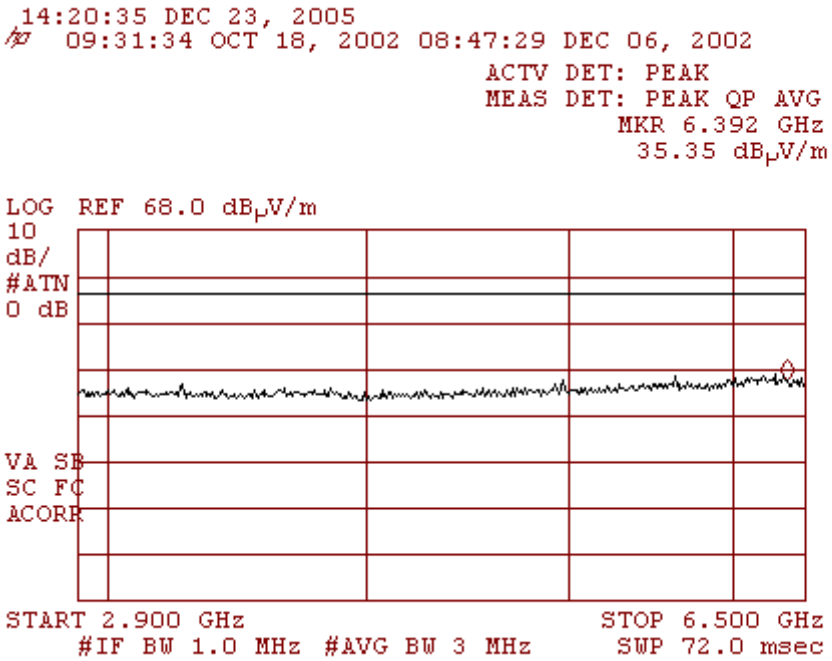
Plot 57
Vertical Polarization



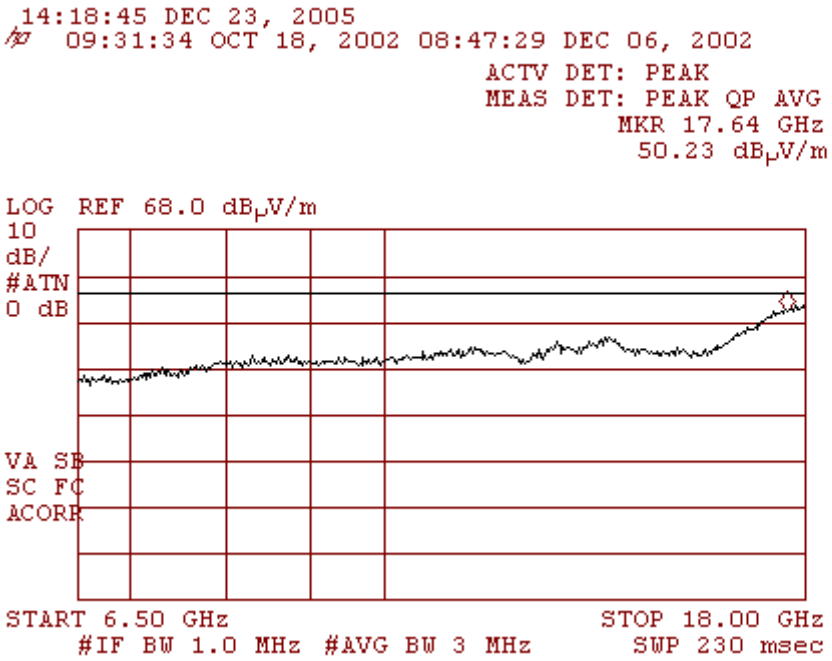
Plot 58
Horizontal Polarization



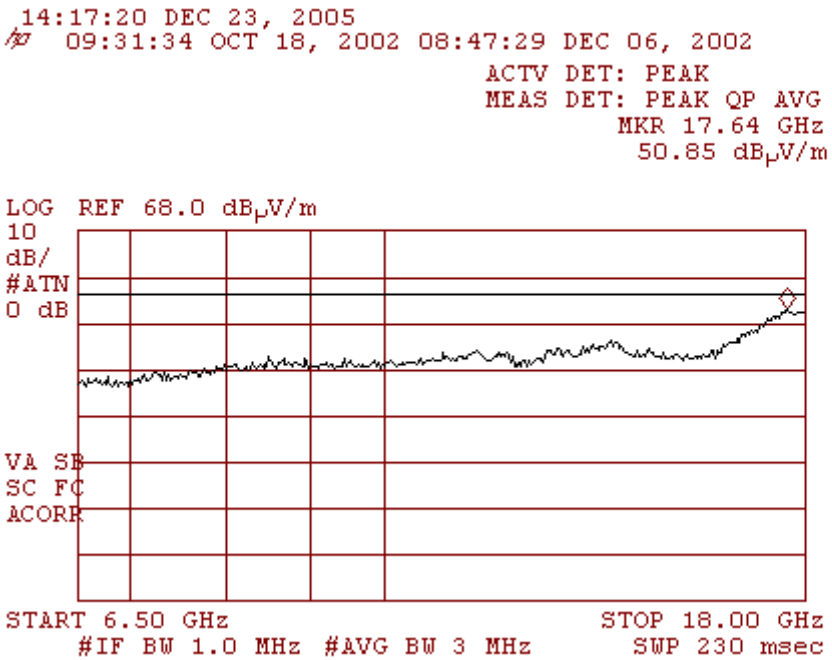
Plot 59
Vertical Polarization



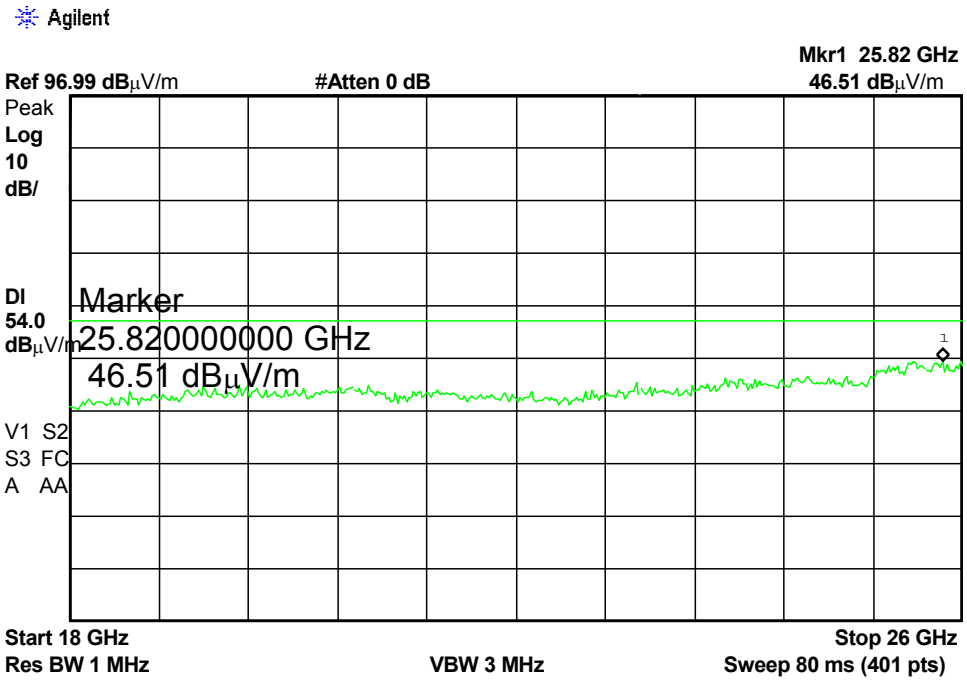
Plot 60
Horizontal Polarization



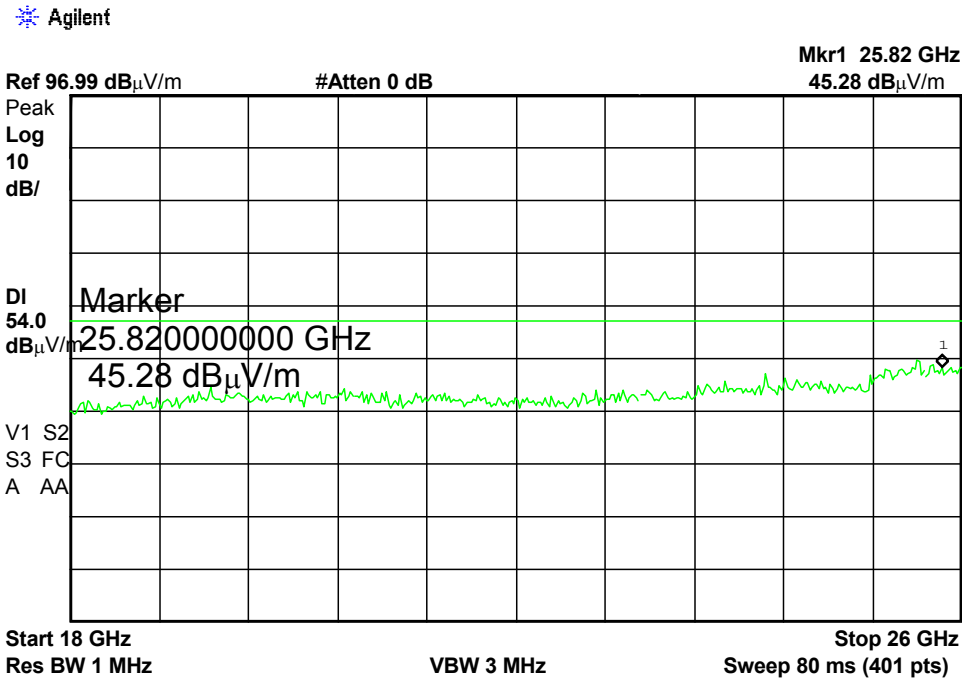
Plot 61
Vertical Polarization



Plot 62
Horizontal Polarization

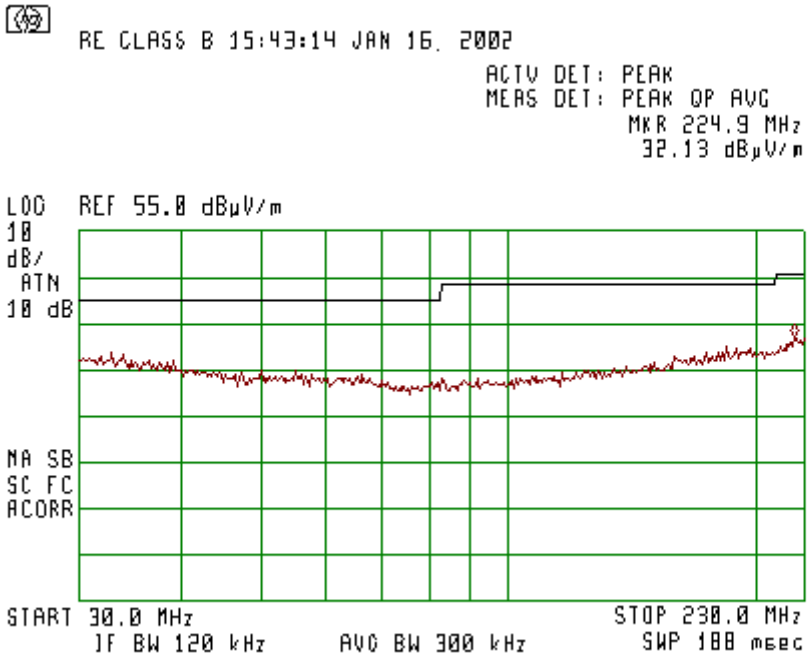


Plot 63
Vertical Polarization

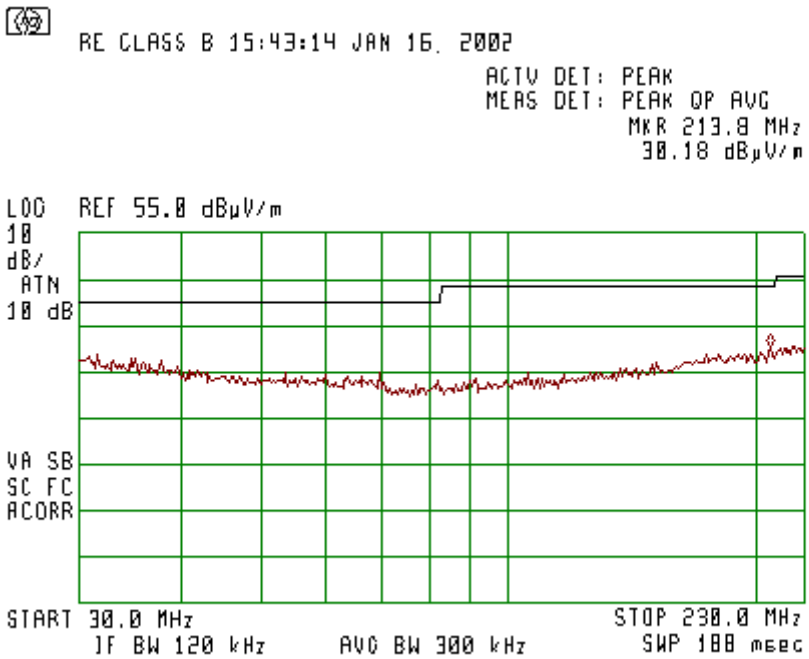


Sec. 3.10 Radiated Emission- (Receiver)

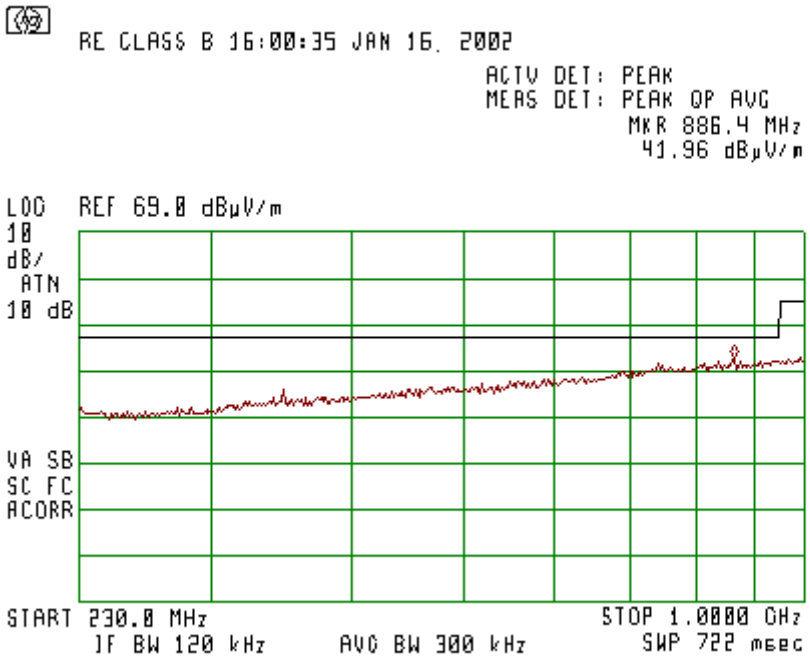
Receive mode
Plot 64
Horizontal Polarization



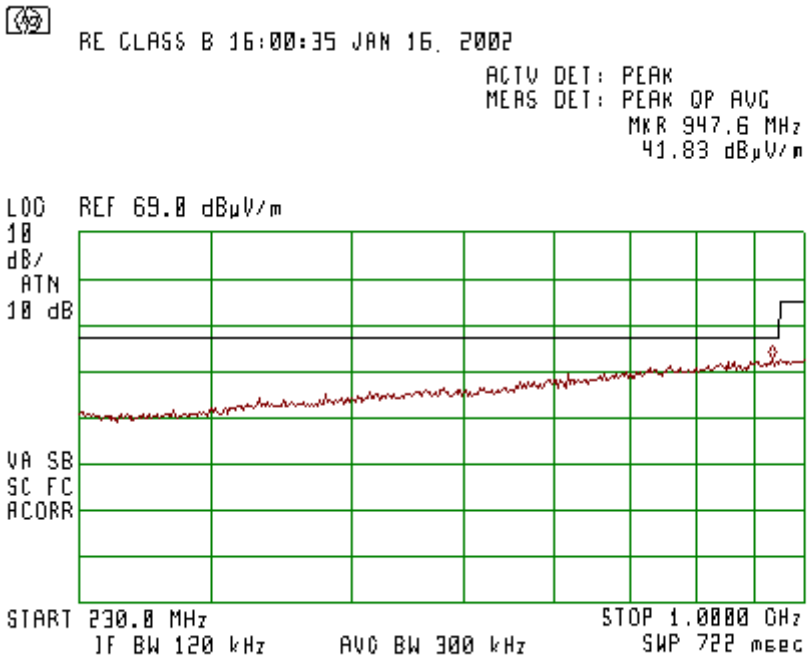
Plot 65
Vertical Polarization



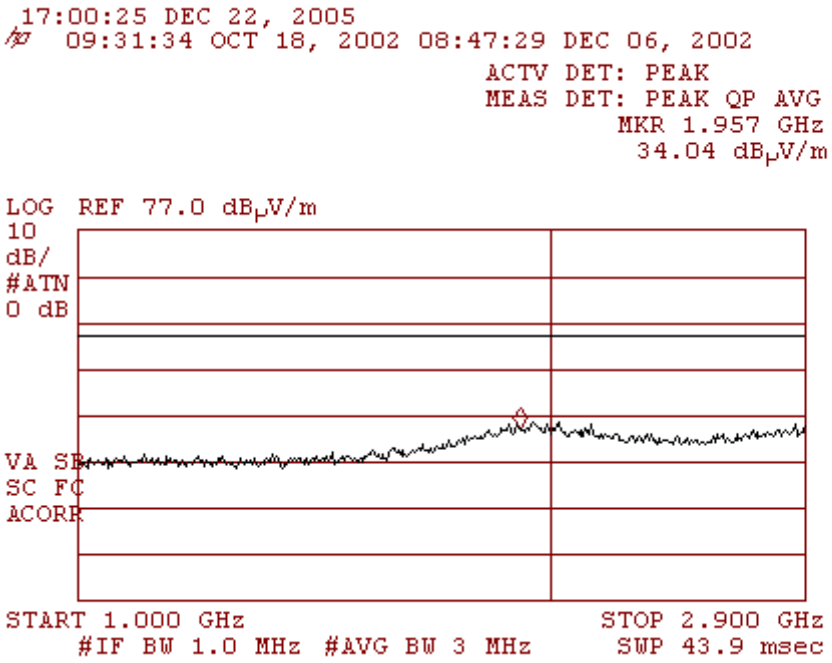
Plot 66
Horizontal Polarization



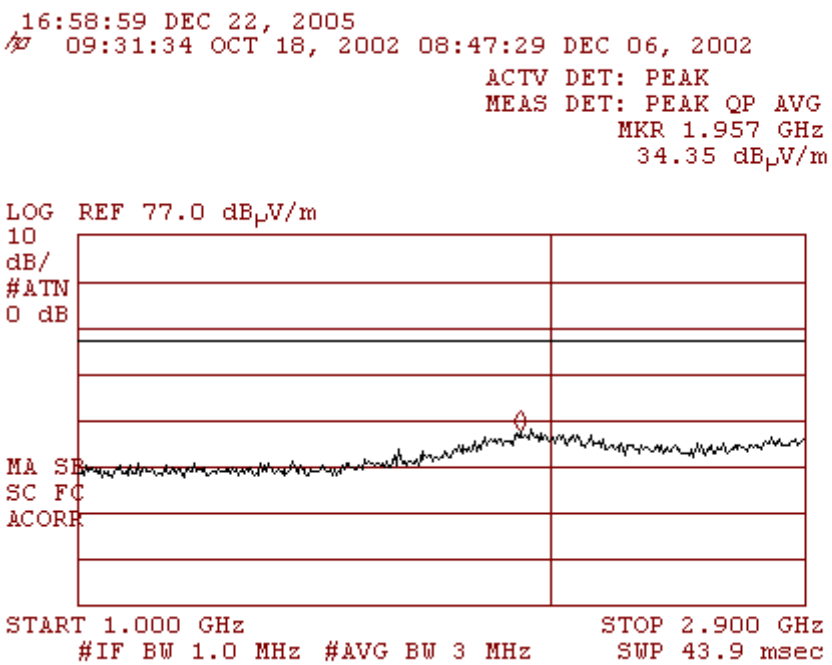
Plot 67
Vertical Polarization



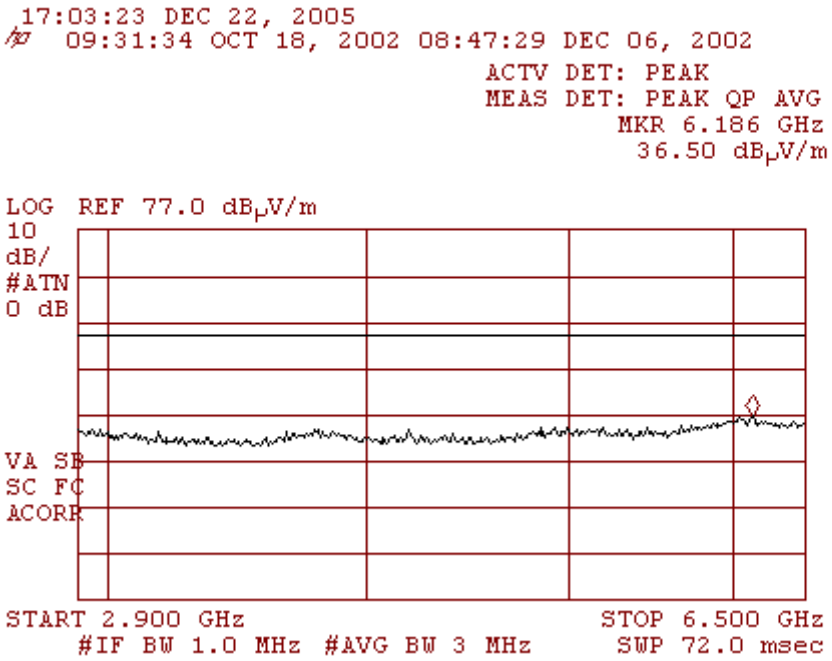
Plot 68
Horizontal Polarization



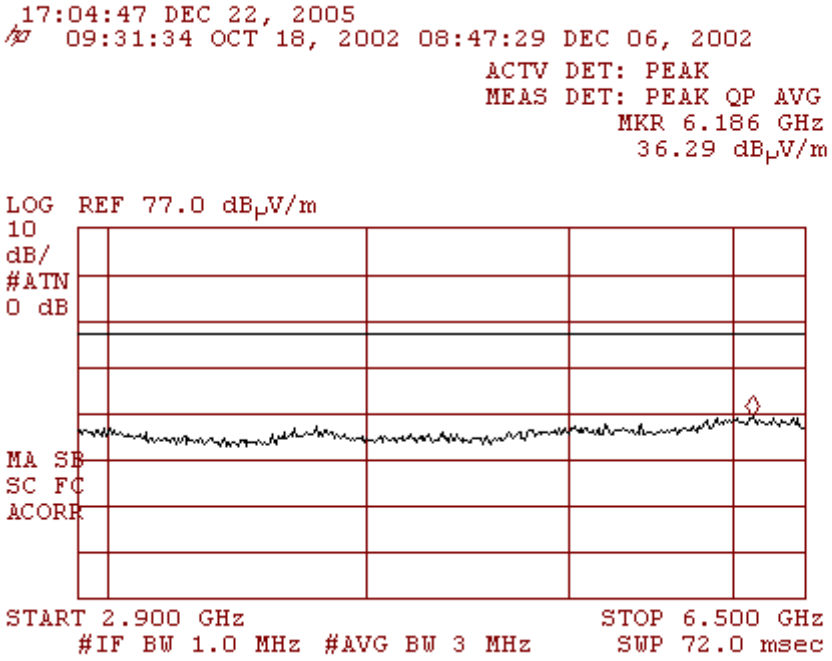
Plot 69
Vertical Polarization



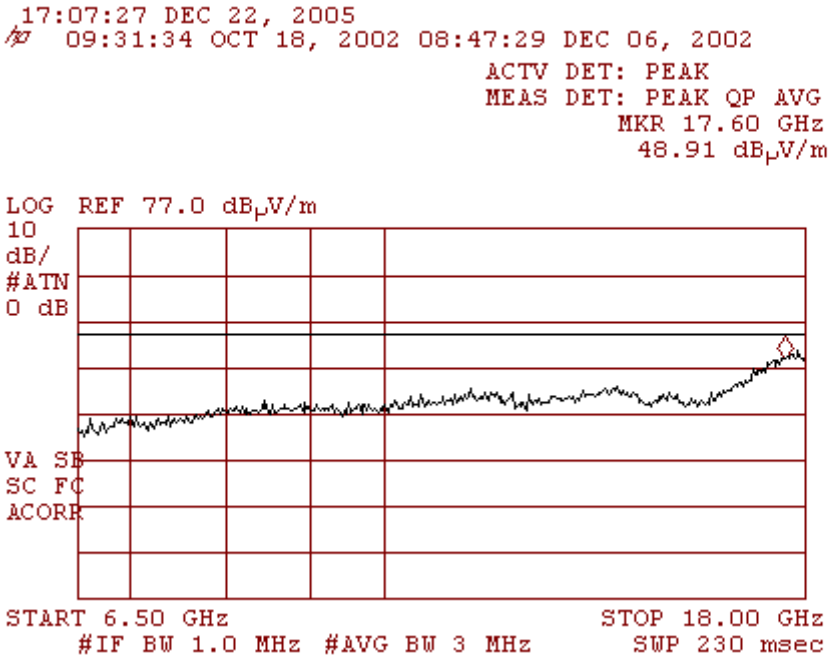
Plot 70
Horizontal Polarization



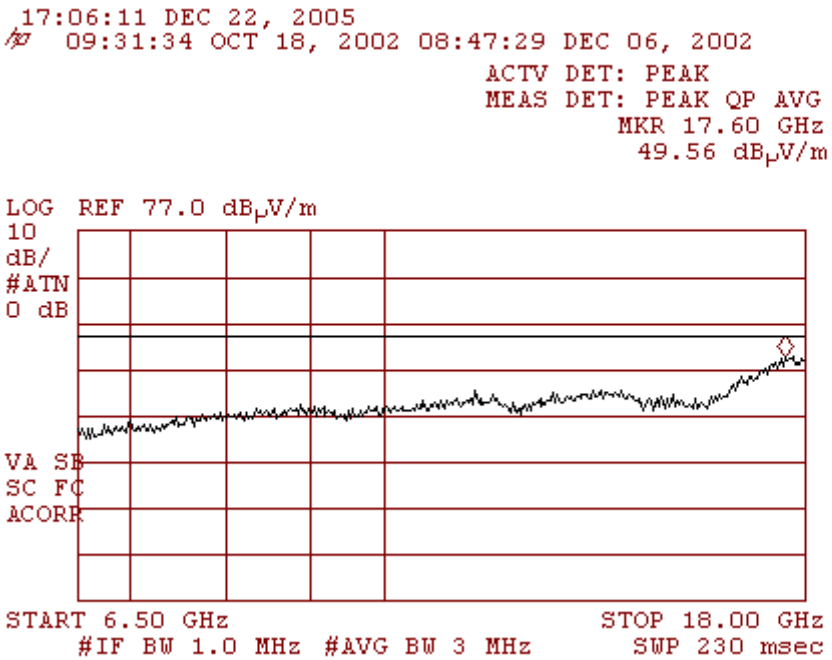
Plot 71
Vertical Polarization



Plot 72
Horizontal Polarization

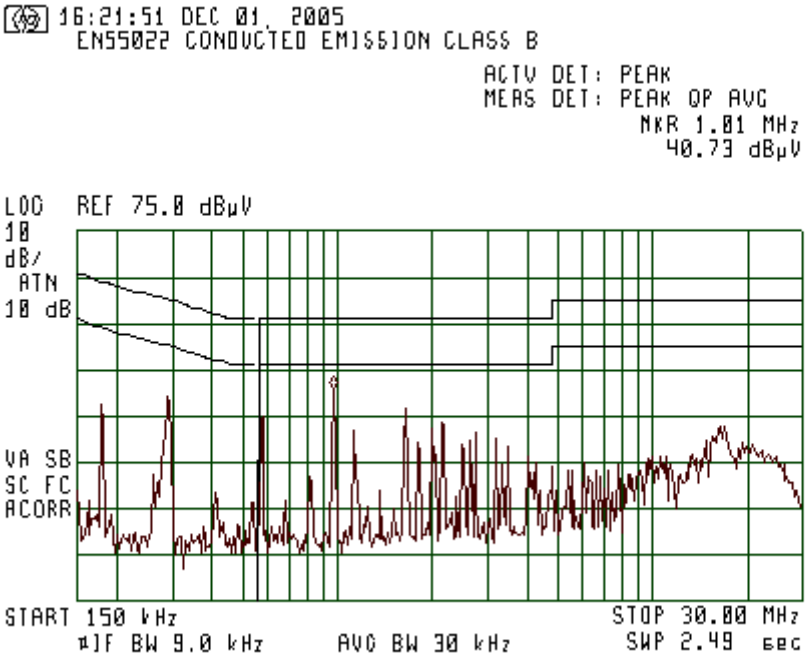


Plot 73
Vertical Polarization

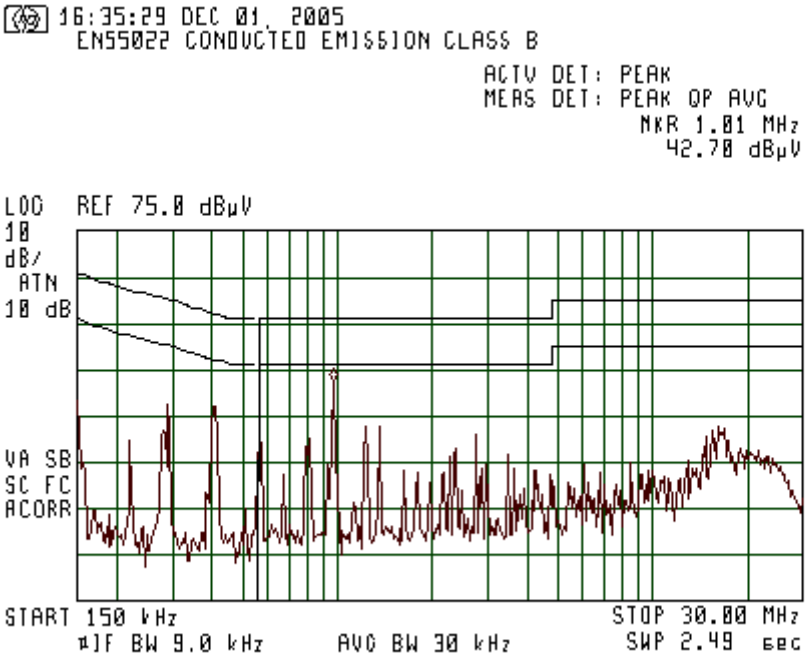


Sec. 3.11: Conducted Emission- (Receiver)

Plot 74
"Phase" Lead

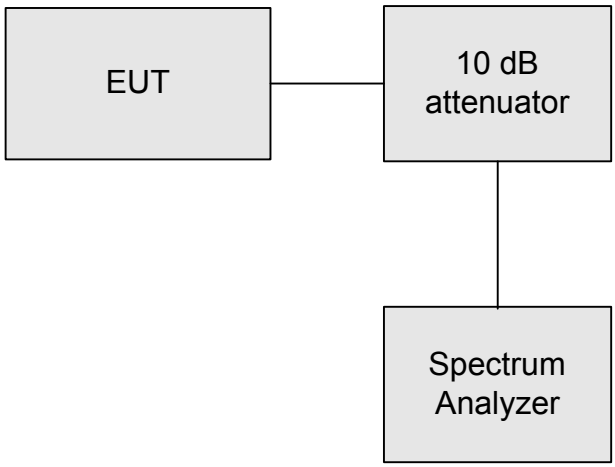


Plot 75
"Neutral" Lead

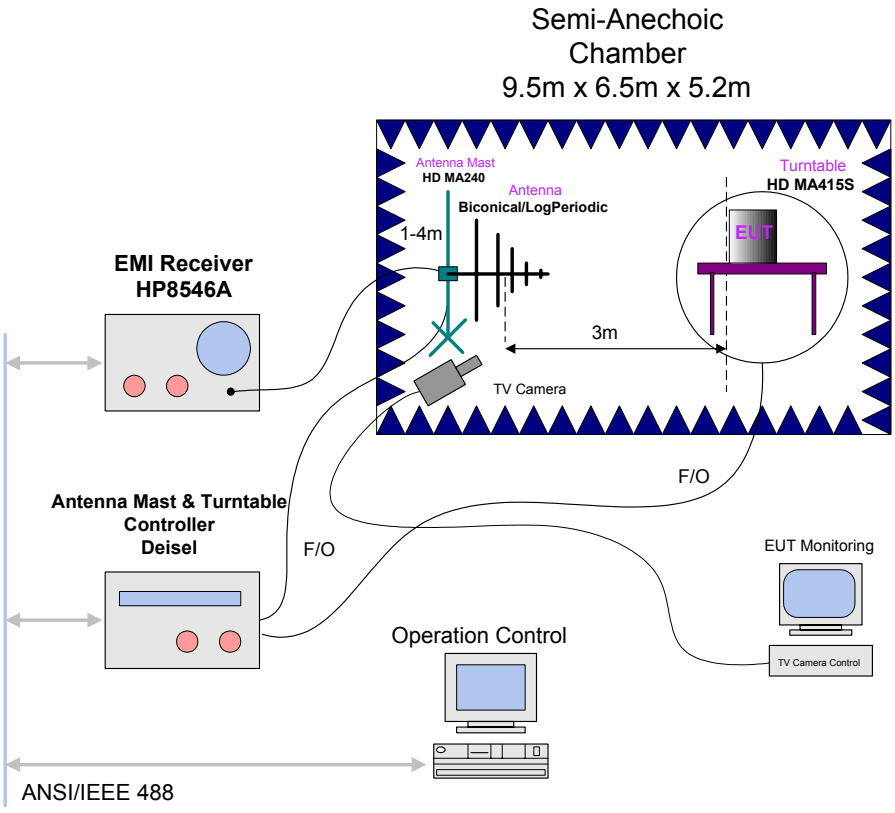


Appendix C: Test setups

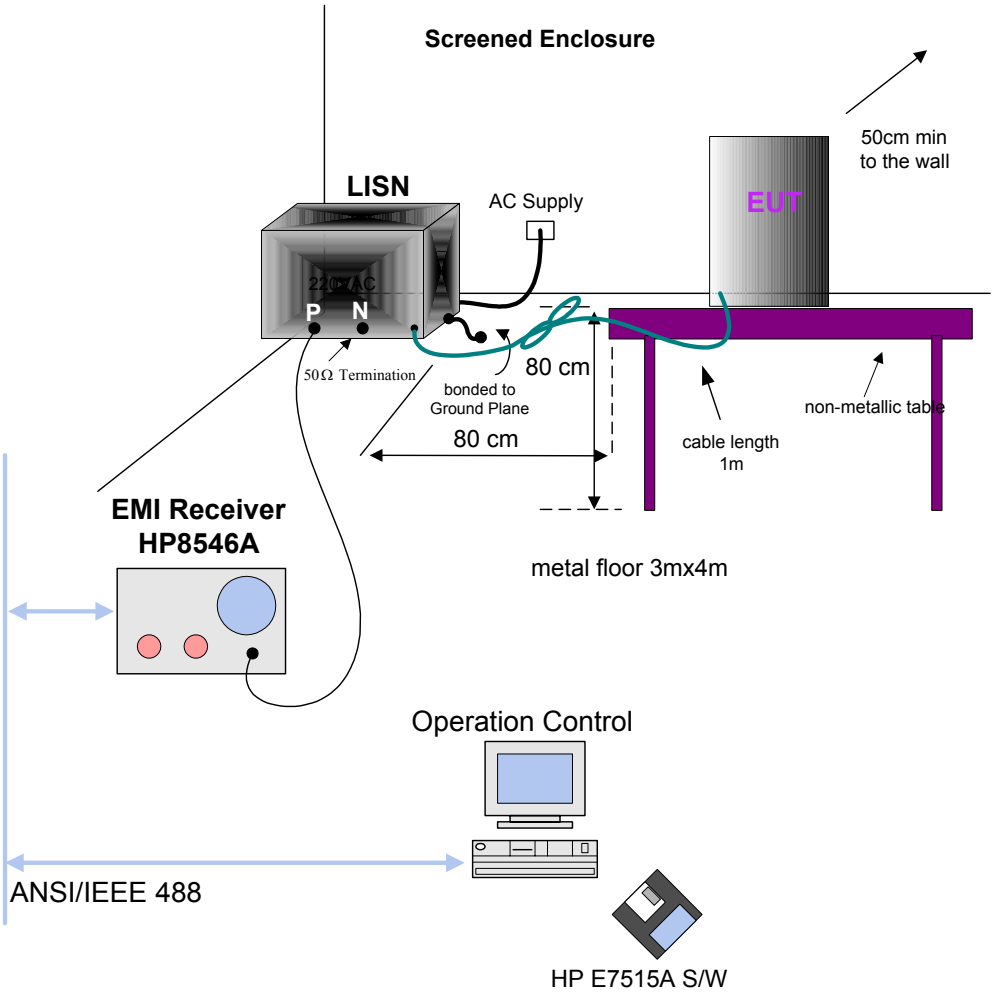
Setup 1



Setup 2



Setup 3


Screened Enclosure
50cm min
to the wall
LISN
AC Supply
EUT
220 VAC
P N
50Ω Termination
bonded to
Ground Plane
80 cm
80 cm
cable length
1m
non-metallic table
EMI Receiver
HP8546A
metal floor 3mx4m
Operation Control
ANSI/IEEE 488
HP E7515A S/W

End of the Test Report