



# GARWOOD LABORATORIES, INC.

950 Calle Negocio, San Clemente, CA 92673

Phone: 949-361-9189 Fax: 949-361-9597

"EXCELLENCE  
BUILT ON  
INTEGRITY"

Report No: FR50170SEP

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## EMC TEST REPORT FOR PROSOFT TECHNOLOGY, INCORPORATED

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### 4.3.3 Peak Output Power Test Summary (continued)

Temperature: 24 C      Relative Humidity: 28%

13 dBi Directional RP-SMA Patch Antenna (MP240115PTNF)

Channel	Channel Frequency (MHz.)	Original Measurement (dBm)	Correction Factor (dBm)	Actual Measurement (dBm) *	Minimum Limit (dBm)	Pass/Fail
2	2417	11.00	6.50	17.50	27	PASS
7	2442	9.70	6.16	15.86	27	PASS
12	2467	9.70	6.16	15.86	27	PASS
<b>Test Personnel:</b>		- Mark J. Lyon				

\*Actual measurement = Original measurement + correction factor.

#### RF Power Output Test Equipment:

Instrument	MFG / Model No.	Serial Number	Calibration Due Date
<b>Peak Output Power Test</b>			
Spectrum Analyzer	Hewlett Packard/8566B	2427A04639	2/13/05
Analyzer Display	Hewlett Packard/85662A	2848A17070	2/26/05
Pre-Amplifier	Hewlett Packard/8447A	2805A03163	2/26/05
20 dB Attenuator	Midwest Microwave/1092	0046	UWCE*

?? UWCE = Use With Calibrated Equipment



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### 4.3.3.1 Voltage Variations

This test was performed with conducted peak power measurements method in accordance with FCC Part 15.247 (b) (3) and 15.31(e)

The method used to determine the rf peak output power for the selected frequencies at the specified voltages (85% and 115% of nominal rated supply voltage) was to integrate the bandwidth measurement taken from the 6 dB bandwidth measurements (section 4.4) and add it to the rf peak power measurements. The formula used in this case was  $10 * \text{LOG}(\text{BW1}/\text{BW2})$ . This was performed, due to the fact that the capabilities of the spectrum analyzer resolution bandwidth was limited to 3 MHz. The limits were determined per 15.247 (4).

### 4.3.3.2 EUT Operating Conditions:

The software provided by client enabled the EUT to operate continuously in transmit mode at the selected channels, individually.

### 4.3.3.3 Voltage Variations Test Results:

No changes were noted in the peak power readings from the peak power measurements performed in 4.3.3.



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### 4.4 6 dB Bandwidth Test Summary (Reference: FCC PT.15, Subpart C, §15.247(a)(2) RSS-210 6.2.2 (o) (b)

#### 4.4.1 Test Procedure:

The transmitter output was connected to the spectrum analyzer through a 20 dB attenuator. The bandwidth of the fundamental frequency was measured by a spectrum analyzer. The 6 dB bandwidth is defined as the total spectrum the power of which is higher than the peak power minus 6 dB.

#### 4.4.2 EUT Operating Conditions:

The software provided by client enabled the EUT to operate continuously in transmit mode at the selected channels, individually.

#### 4.4.3 6 dB Bandwidth Test Summary

Temperature: 24 C      Relative Humidity: 28%

CHANNEL	CHANNEL FREQUENCY (MHz.)	6 dB BANDWIDTH (MHz.)	MINIMUM LIMIT (MHz.)	PASS/FAIL
2	2417	13.52	0.5	PASS
7	2442	12.40	0.5	PASS
12	2467	12.34	0.5	PASS

<b>Test Personnel:</b>	- Mark J. Lyon
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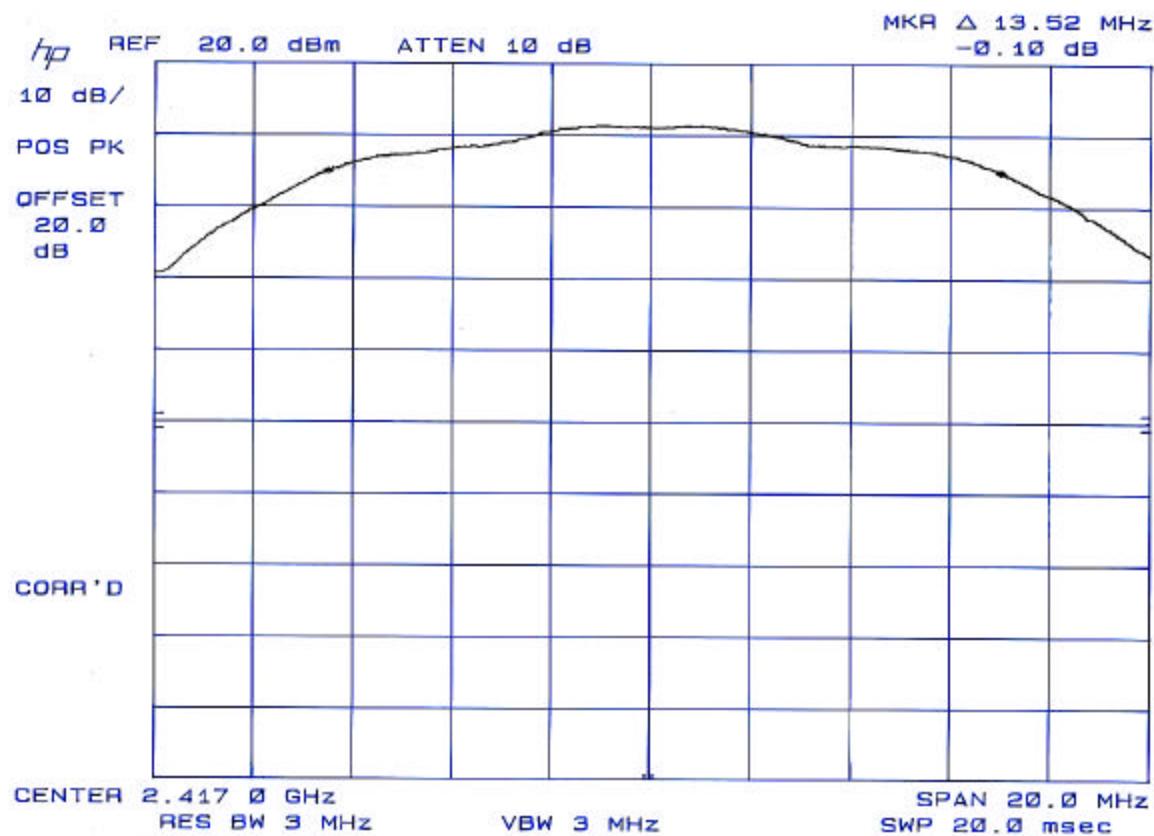
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### 4.4.4 6 dB Bandwidth Test Data

Plot 1





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### Plot 2





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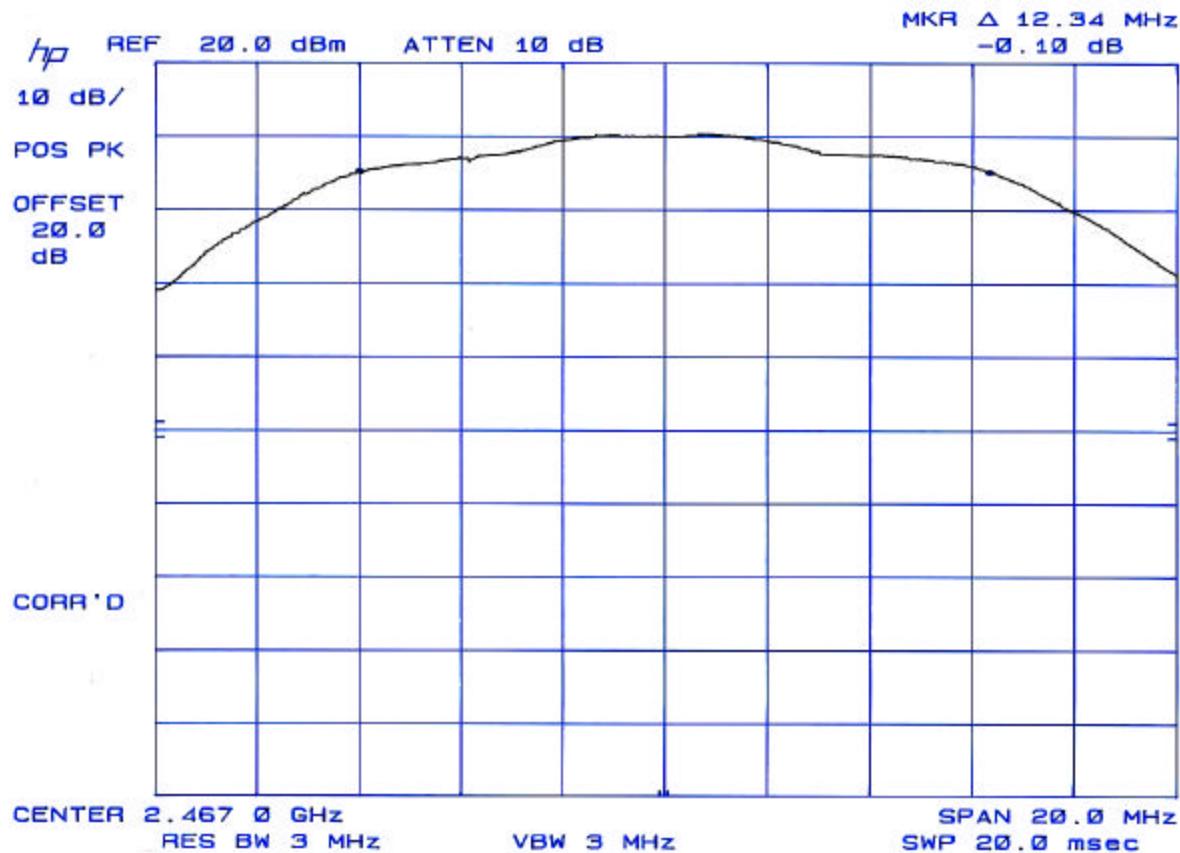
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### Plot 3



#### 4.4.5 6 dB Bandwidth Test Equipment:

Instrument	MFG / Model No.	Serial Number	Calibration Due Date
<b>6 dB Bandwidth Test</b>			
Spectrum Analyzer	Hewlett Packard/8566B	2427A04639	2/13/05
Analyzer Display	Hewlett Packard/85662A	2848A17070	2/26/05
20 dB Attenuator	Midwest Microwave/1092	0046	NCR

\* UWCE = Use With Calibrated Equipment

Test Personnel:	Mark J. Lyon
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### 4.5 Power Spectral Density Test Summary

**Test Requirement: Peak Power Spectral Density Test Summary (Reference: FCC PT.15, Subpart C, §15.247(d) RSS-210 6.2.2 (o) (b)**

#### 4.5.1 Peak Power Spectral Density Test Procedure:

The transmitter output was connected to the spectrum analyzer through a 20 dB attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3 kHz RBW and 3 kHz. VBW. The power spectral density was measured and recorded.

#### 4.5.2 EUT Operating Conditions:

The software provided by client enabled the EUT to operate continuously in transmit mode at the selected channels, individually.

#### 4.5.3 Peak Power Spectral Density Test Summary

**Temperature: 24 C      Relative Humidity: 28%**

CHANNEL	CHANNEL FREQUENCY (MHz.)	RF POWER LEVEL IN 3 kHz. BW (dBm)	MINIMUM LIMIT (dBm)	PASS/FAIL
2	2417	-18.10	8	PASS
7	2442	-20.90	8	PASS
12	2467	-20.30	8	PASS

**Test Personnel:** - Mark J. Lyon



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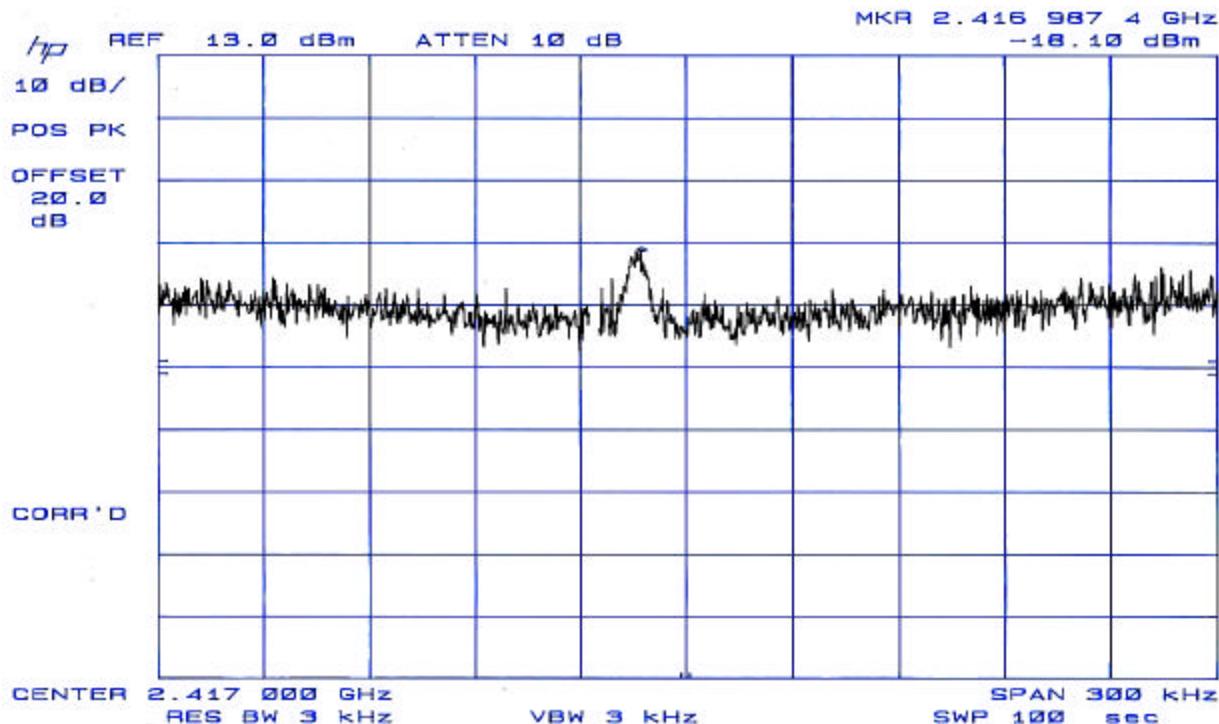
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### 4.5.4 Peak Power Spectral Density Test Data

Plot 1



#### Notes:

1. 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.
2. EUT complies



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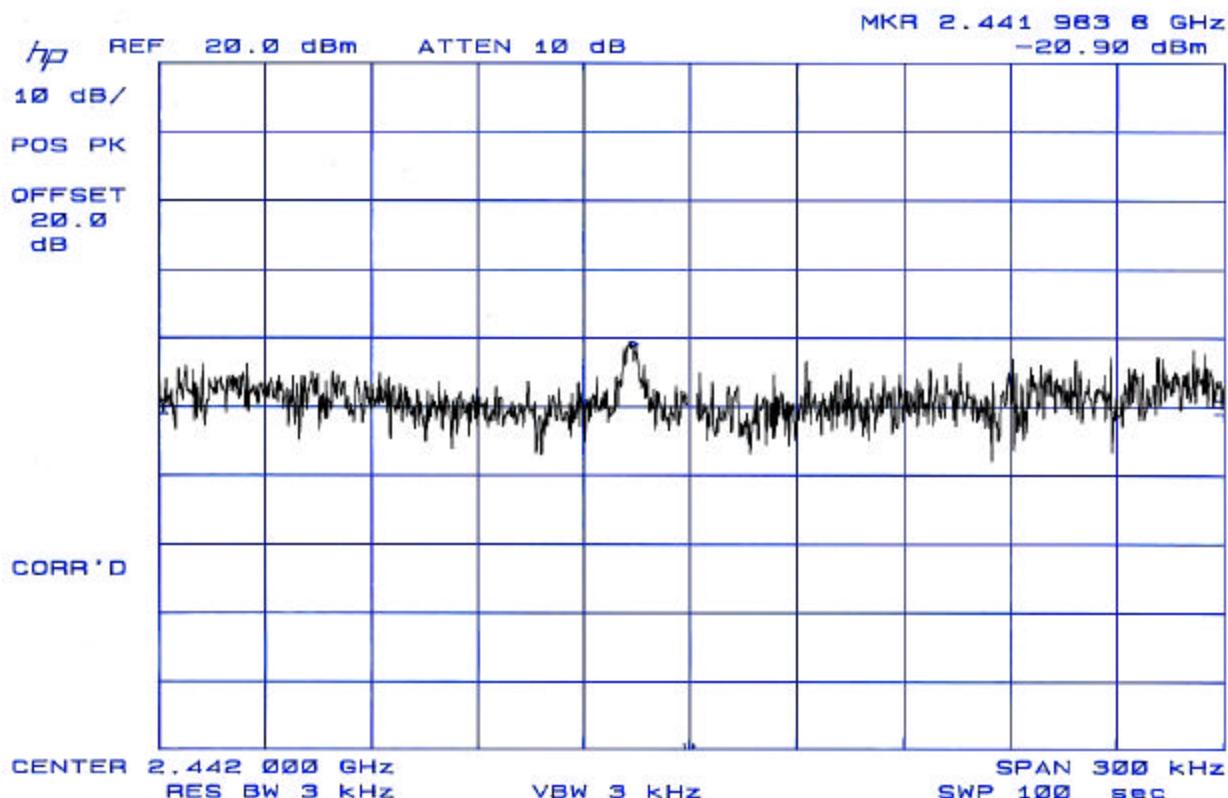
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Plot 2



### Notes:

1. 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.
2. EUT complies



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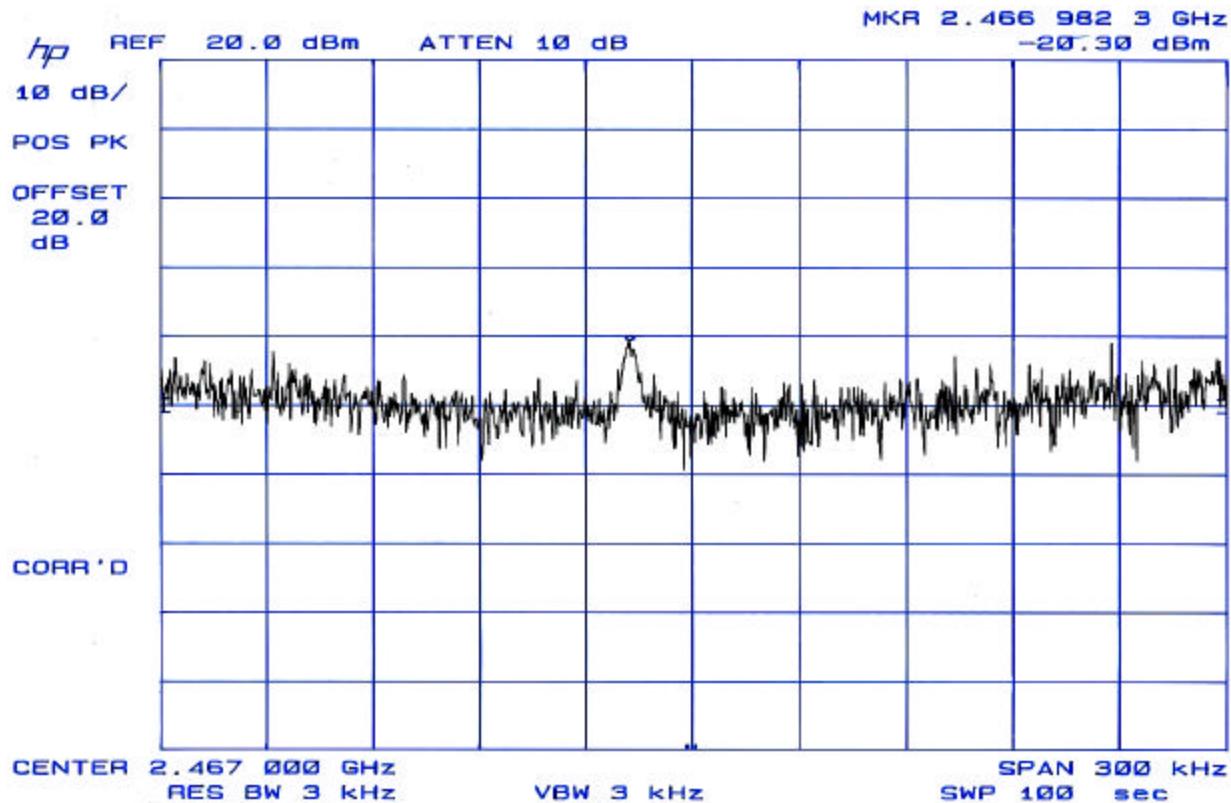
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### Plot 3



### Notes:

1. 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.
2. EUT complies



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### 4.5.5 Peak Power Spectral Density Test Equipment:

Instrument	MFG / Model No.	Serial Number	Calibration Due Date
<b>Peak Power Spectral Density Test</b>			
Spectrum Analyzer	Hewlett Packard/8566B	2427A04639	2/13/05
Analyzer Display	Hewlett Packard/85662A	2848A17070	2/26/05
20 dB Attenuator	Midwest Microwave/1092	0046	UWCE*

\* UWCE = Use With Calibrated Equipment

<b>Test Personnel:</b>	Mark J. Lyon
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### 4.6 Conducted Spurious Test Summary (Reference: FCC PT.15, Subpart C, §15.247(c) RSS-210 (o) (e1))

#### 4.6.1 Conducted Spurious Test Procedure

The out of band emissions in any 100 kHz. bandwidth were measured with a spectrum analyzer connected to the antenna terminal, via a 20 dB attenuator, while the EUT was operating in transmission mode at the appropriate center frequency. All spurious emissions (e.g. harmonics) from the lowest frequency generated in the EUT up through the 10<sup>th</sup> harmonic were measured.

#### 4.6.2 EUT Operating Conditions

All conducted emissions in any 100 kHz. bandwidth outside of the fundamental emission bandwidth were at least 20 dB lower than the highest peak reading of the fundamental frequency.

#### 4.6.3 Conducted Spurious Emissions Summary

Temperature: 24 C Relative Humidity: 28%

CHANNEL	FREQUENCY	PLOT NOS.	PASS/FAIL
2	2417	1-11	PASS
7	2442	12-20	PASS
12	2467	21-29	PASS



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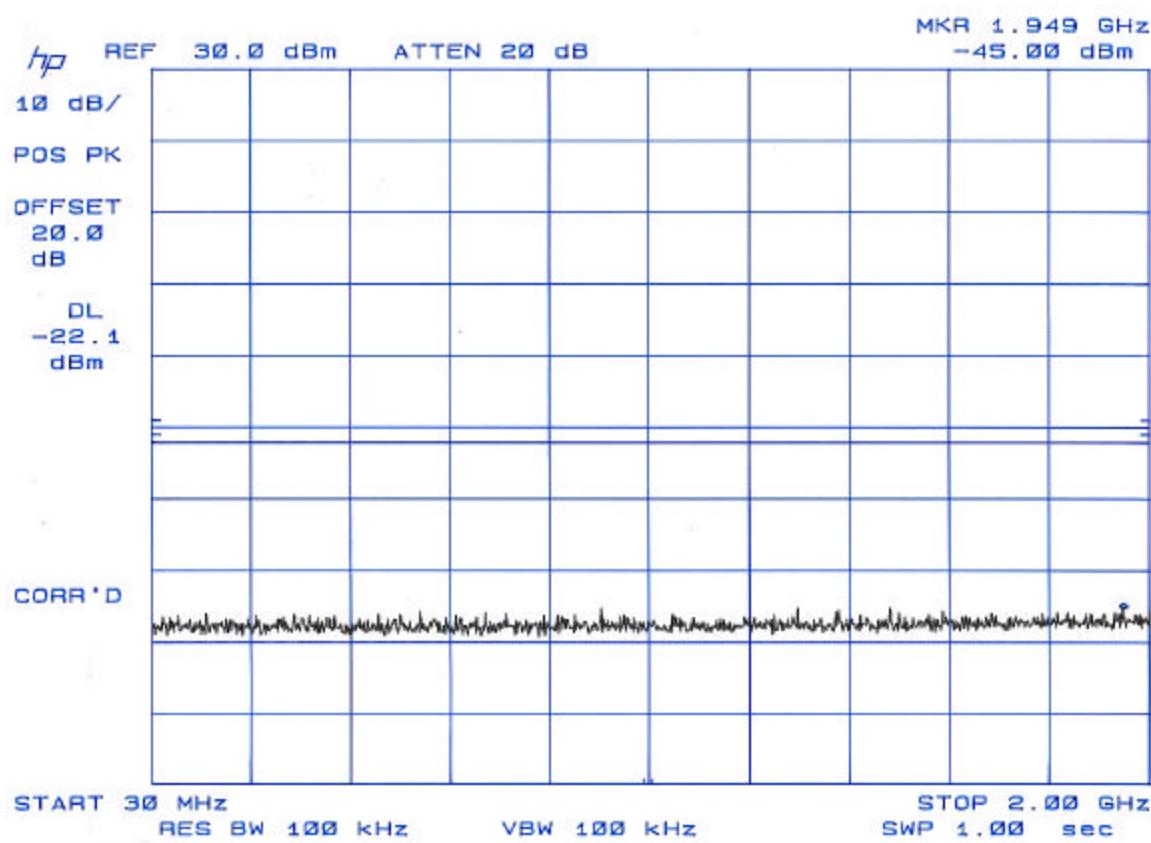
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### 4.6.4 Conducted Spurious Test Data

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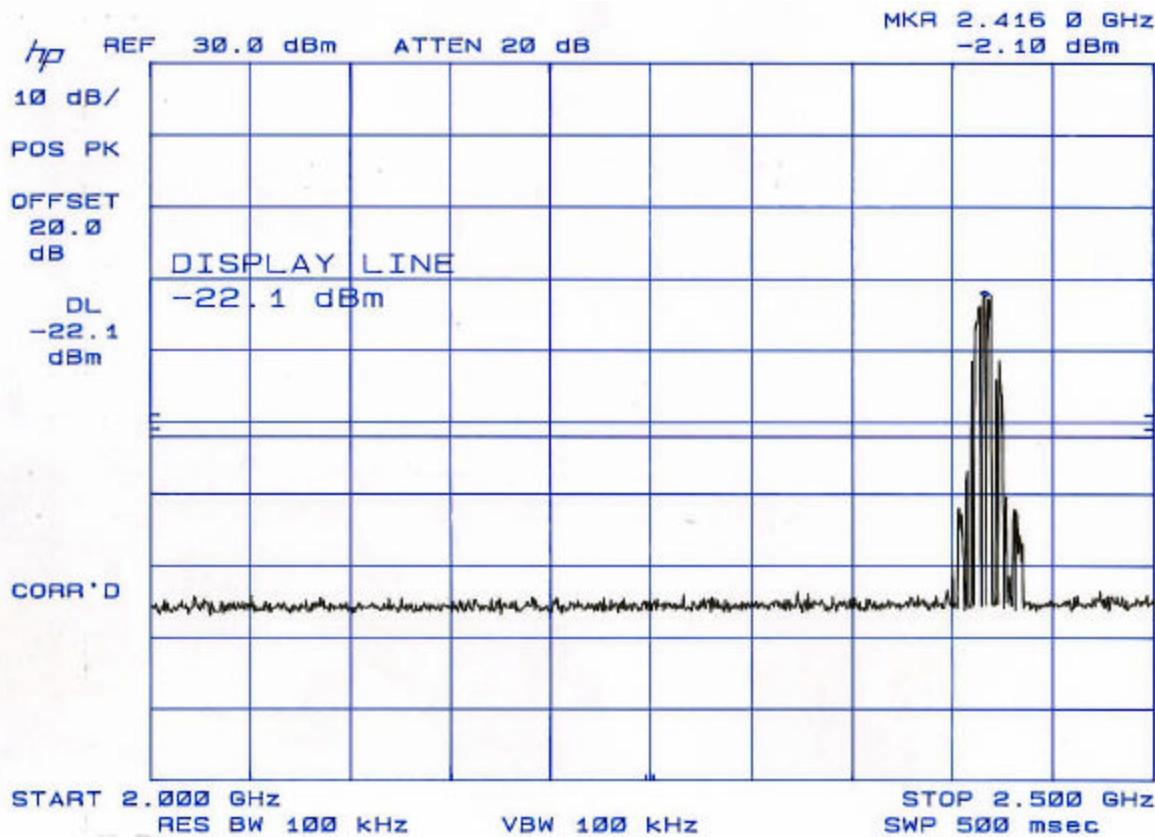
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**Plot 2**





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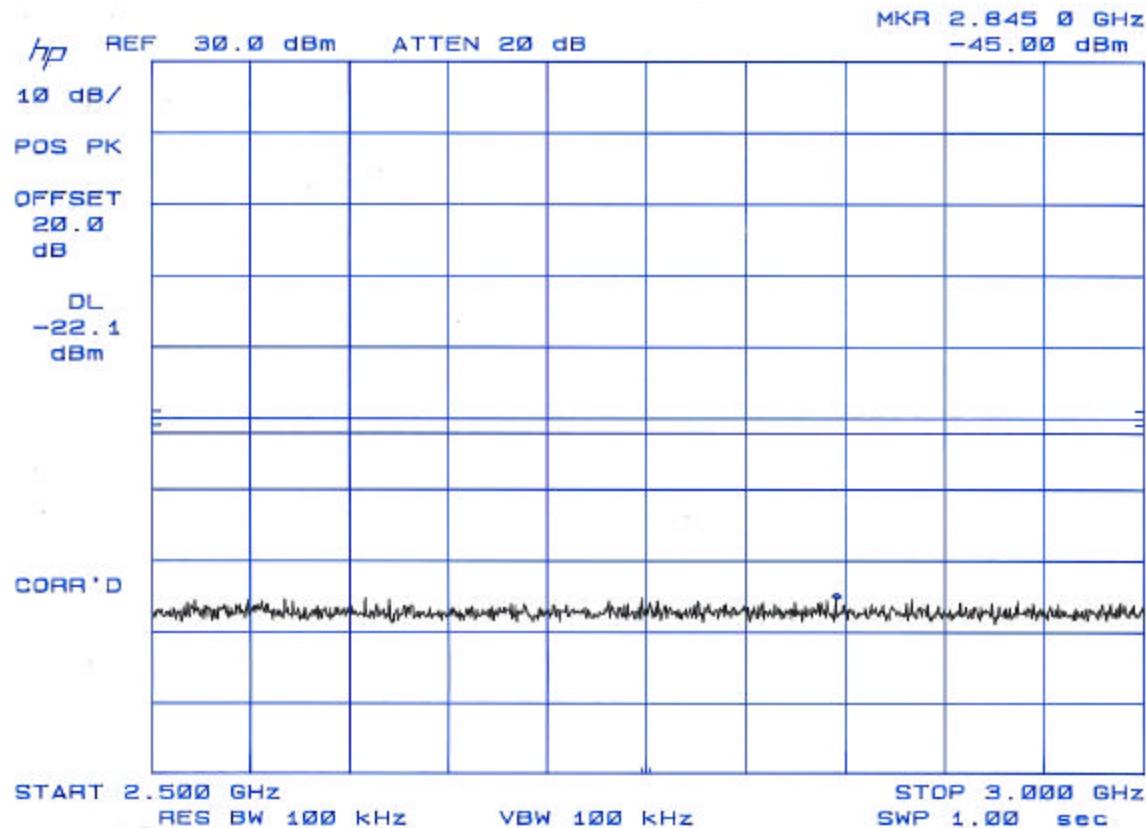
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**Plot 3**





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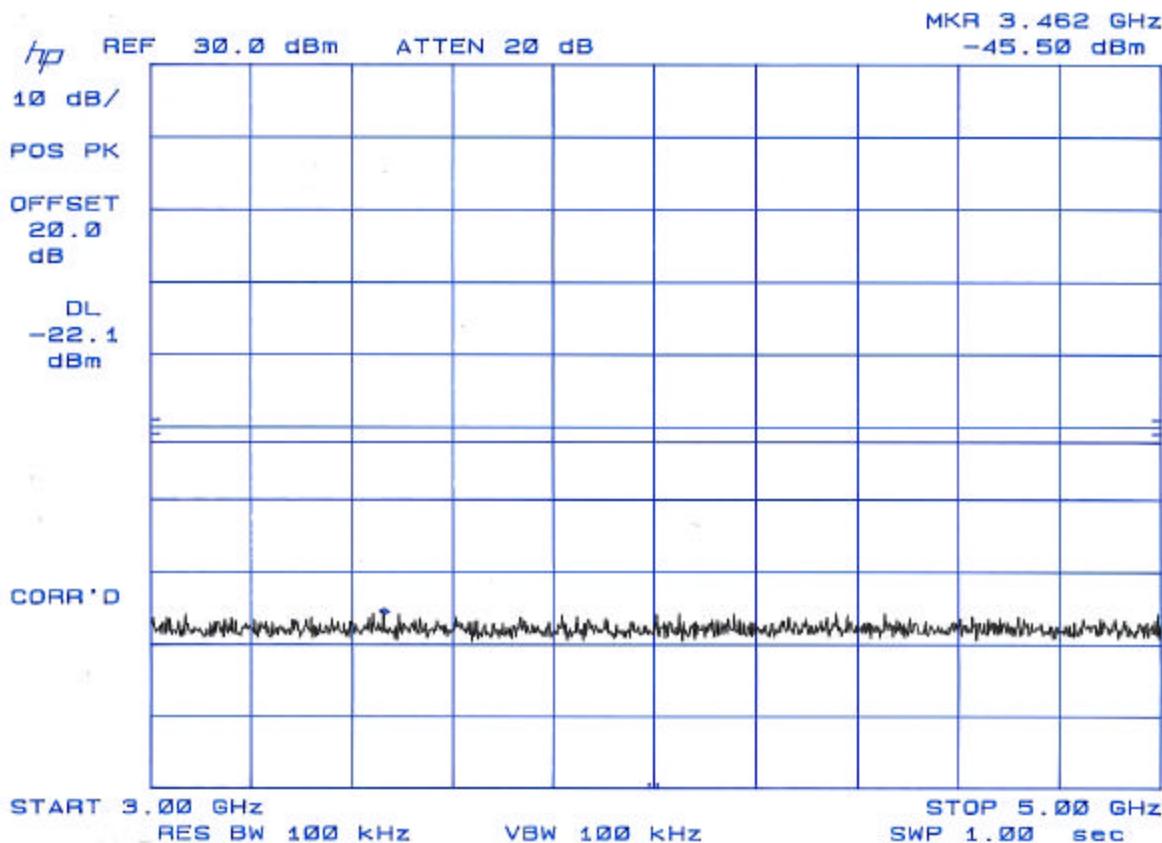
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Plot 4





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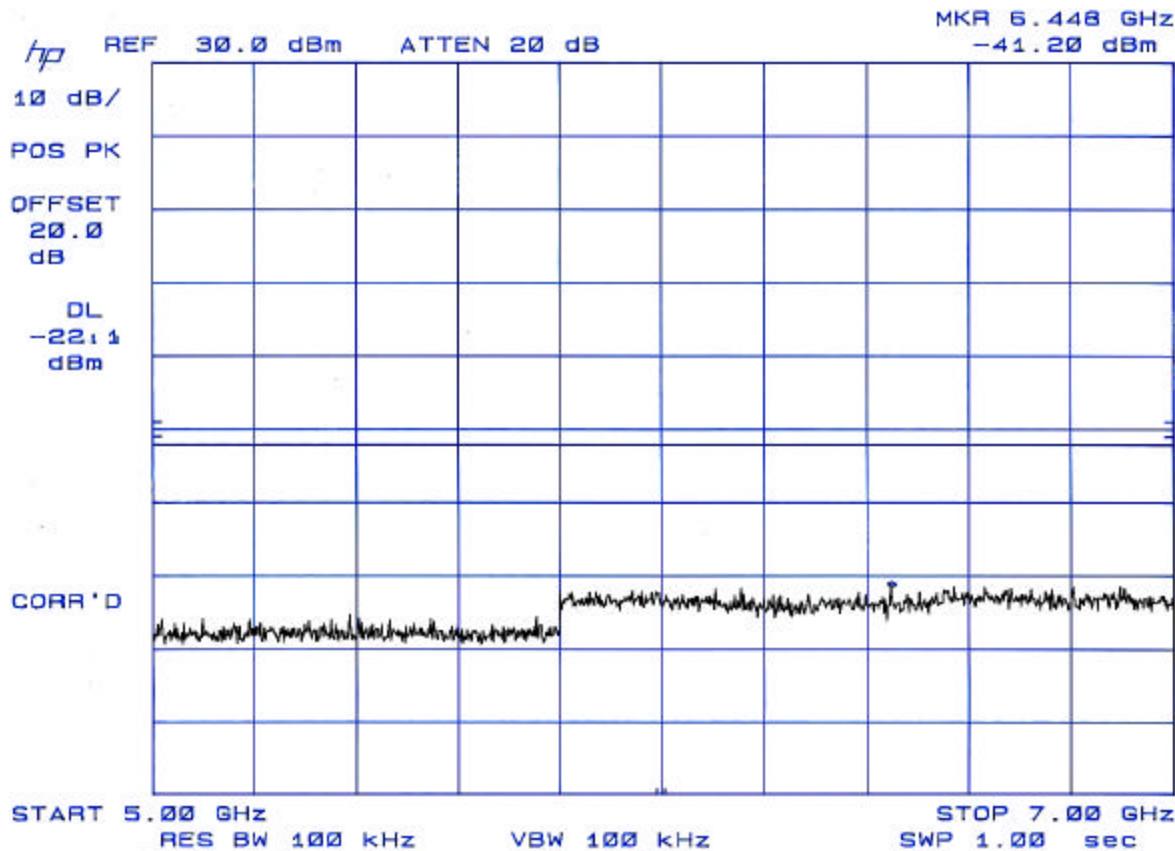
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**Plot 5**





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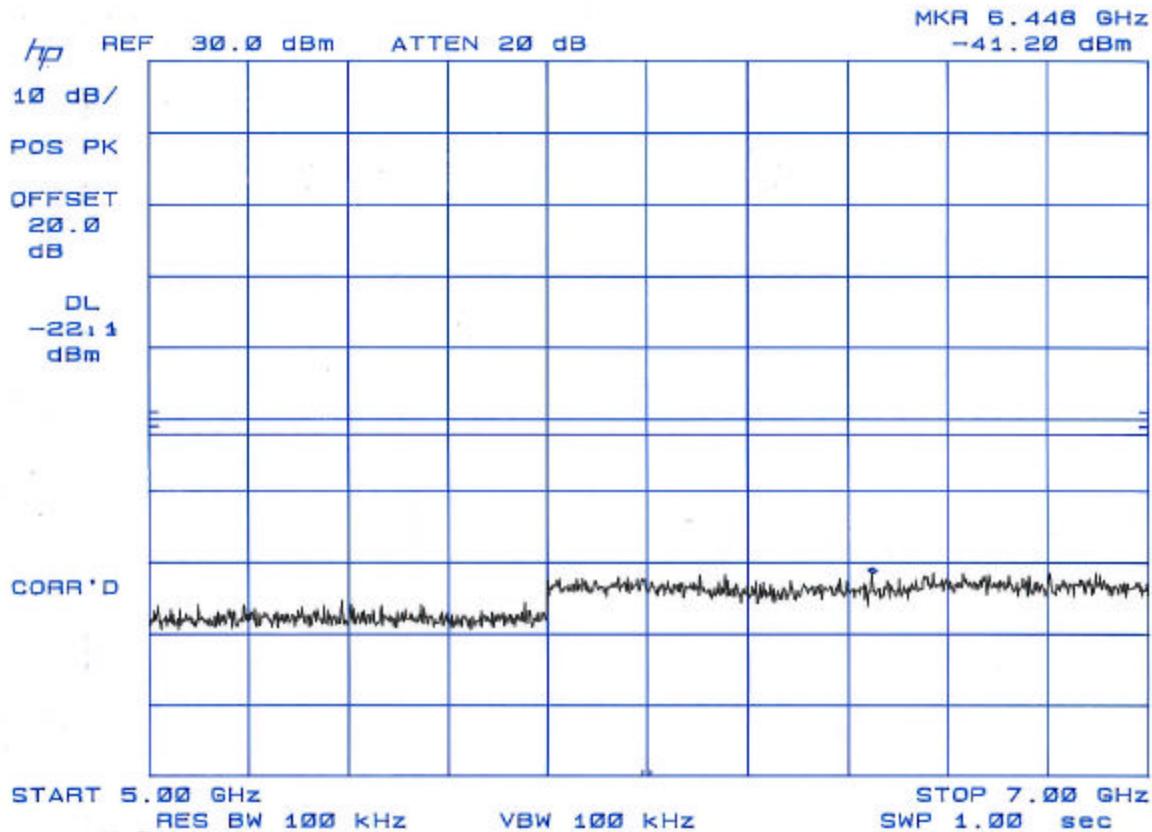
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**Plot 6**





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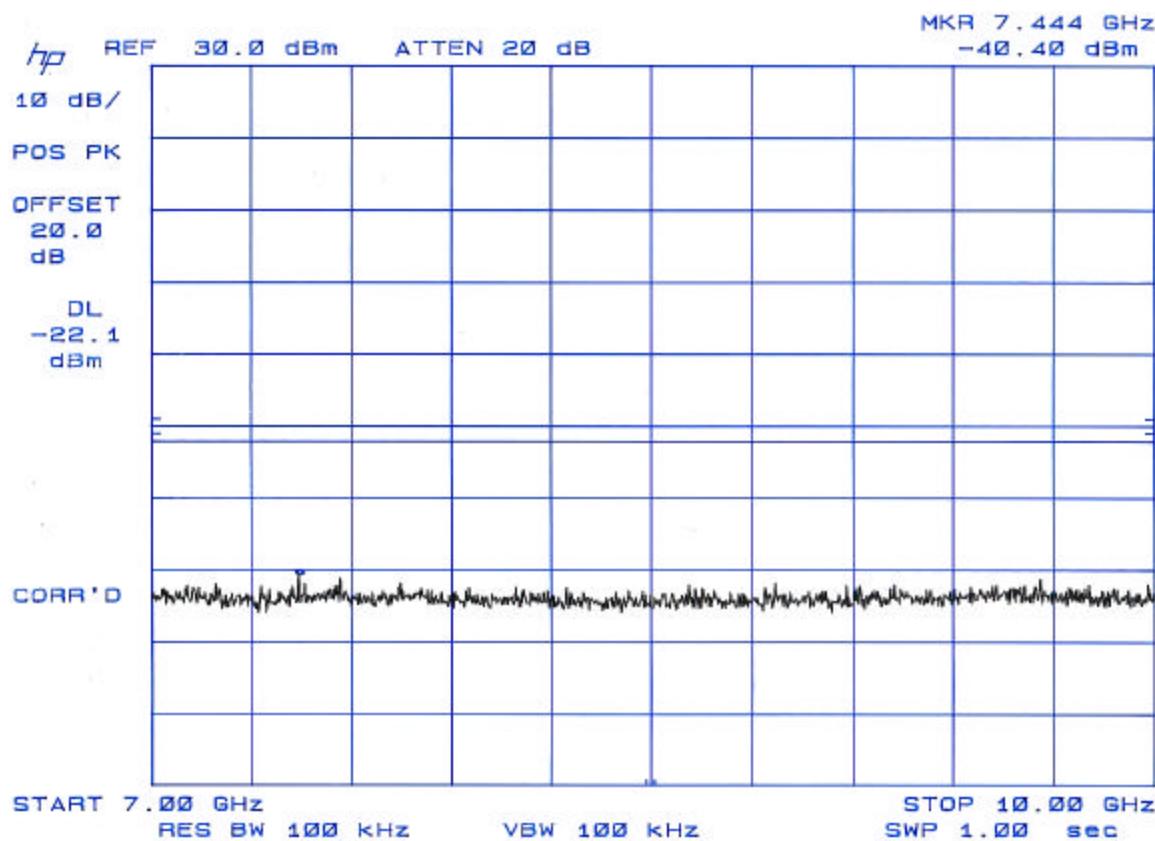
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Plot 7





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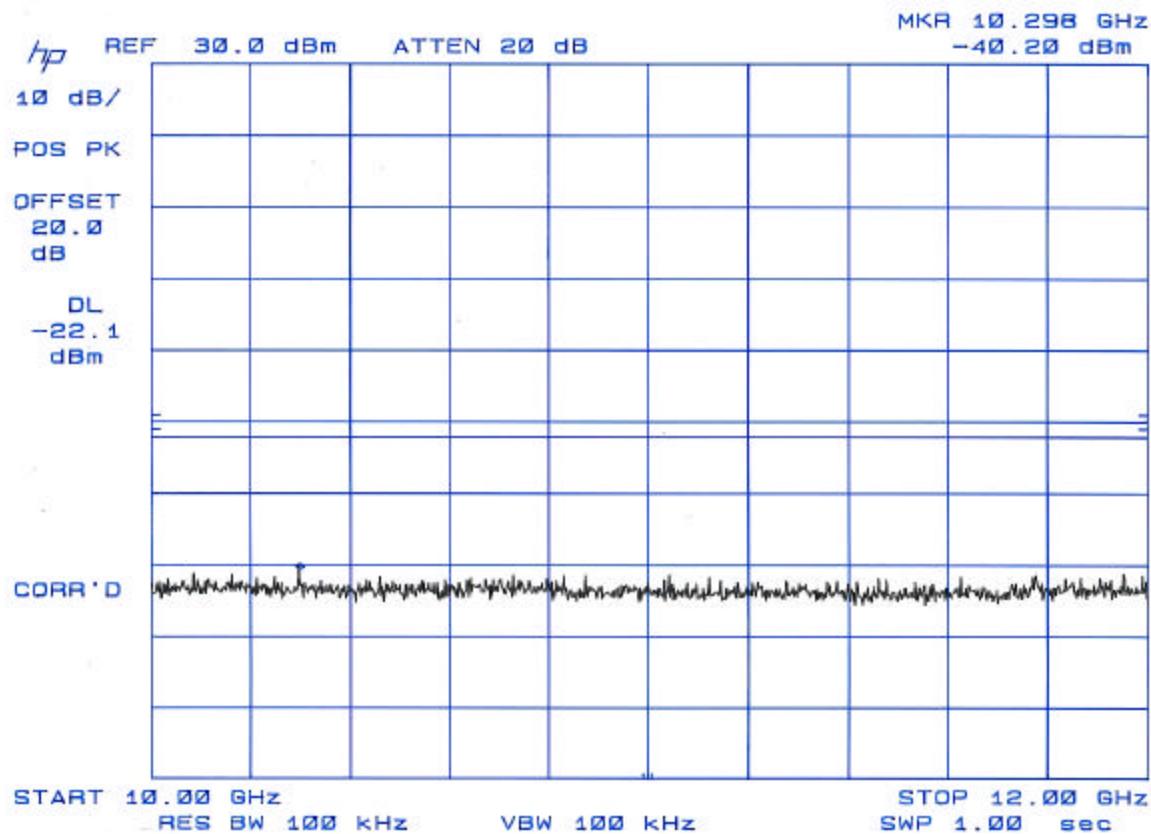
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### Plot 8





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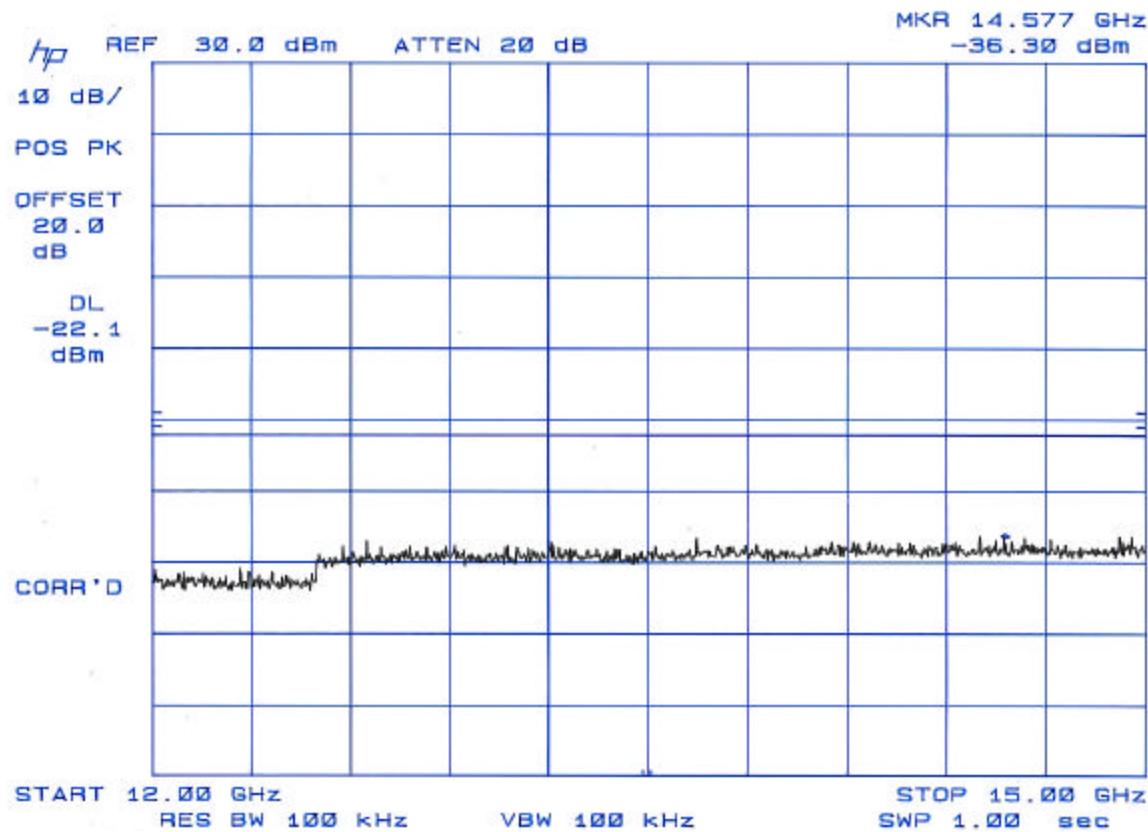
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### Plot 9





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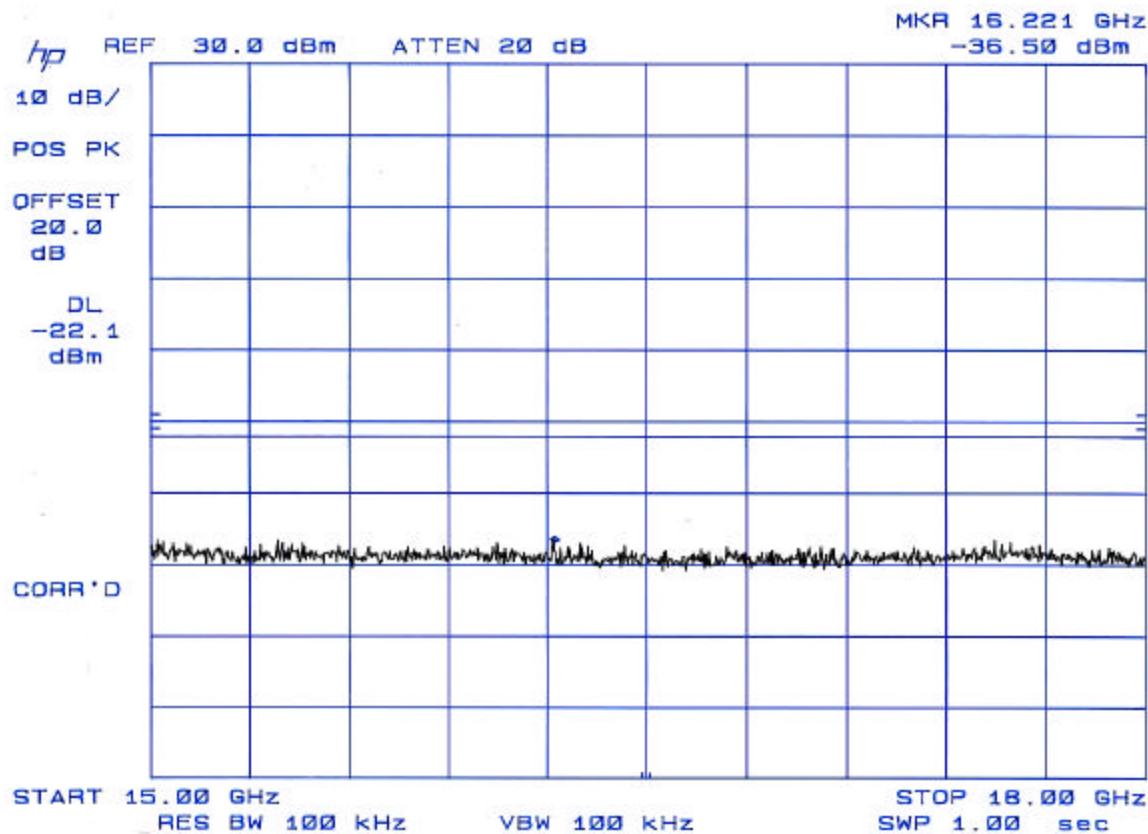
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### Plot 10





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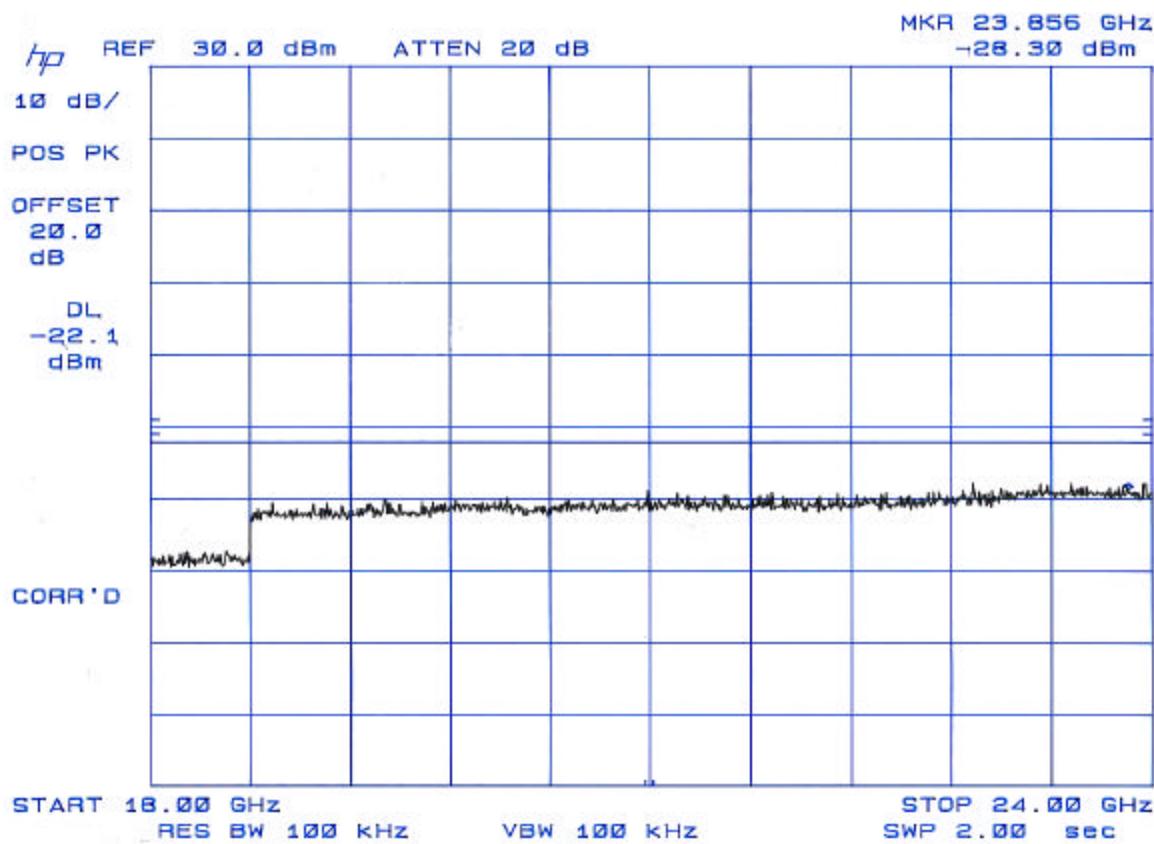
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Plot 11





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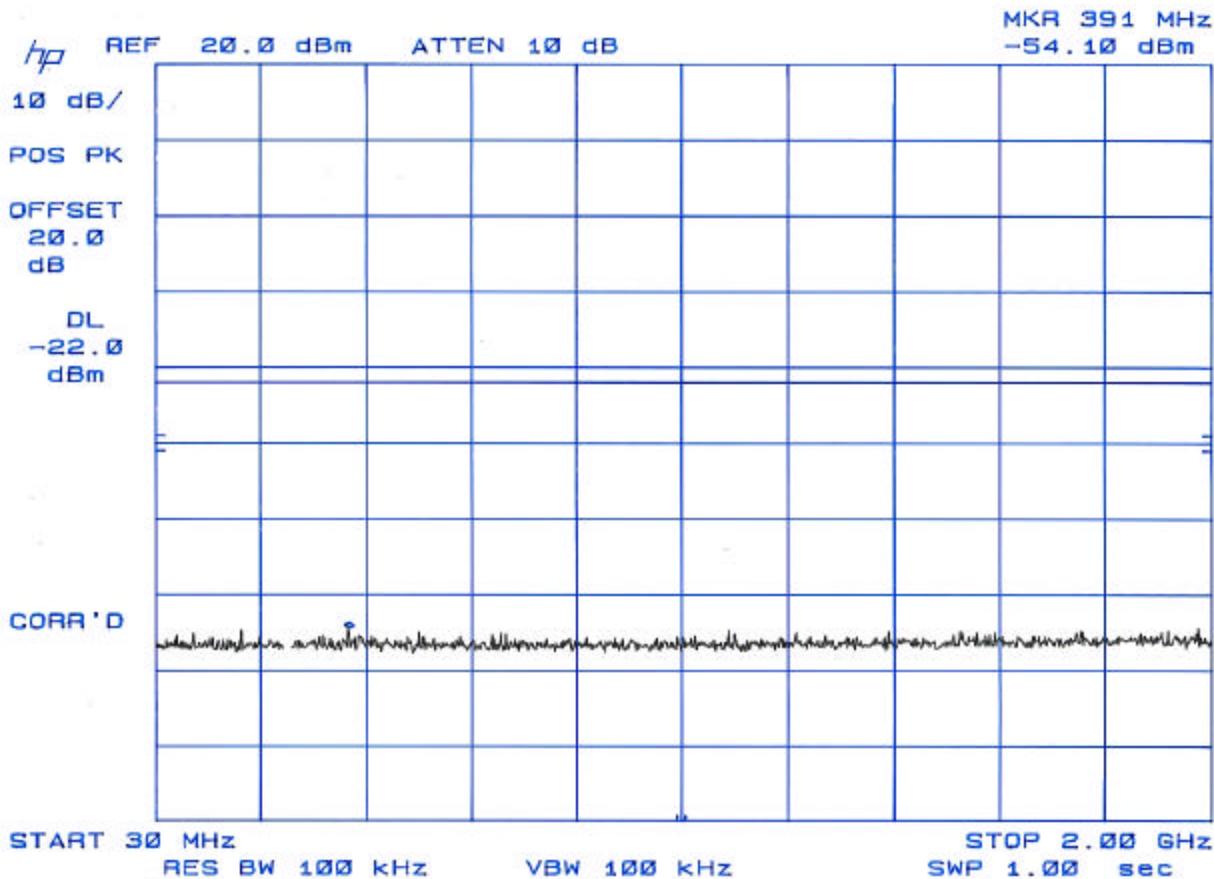
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Plot 12





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Plot 13

