

EXHIBIT VI.

Supplemental Test Report WLAN

New Certification of Previously Certified OEM Module

FCC ID: KBCIX260MPIA555BT

IX260 Rugged Laptop with Aircard 555 Dual Band CDMA radio modem

co-located with

WLAN & Bluetooth Intentional Radiators

This report is for the WLAN

Certification Under Title 47 CFR, Part 15.247 DTS

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Prepared

By

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Prepared November 25, 2003

Exhibit VI

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Reply to Items 4 and 5 of July 23 , 2003 correspondence.

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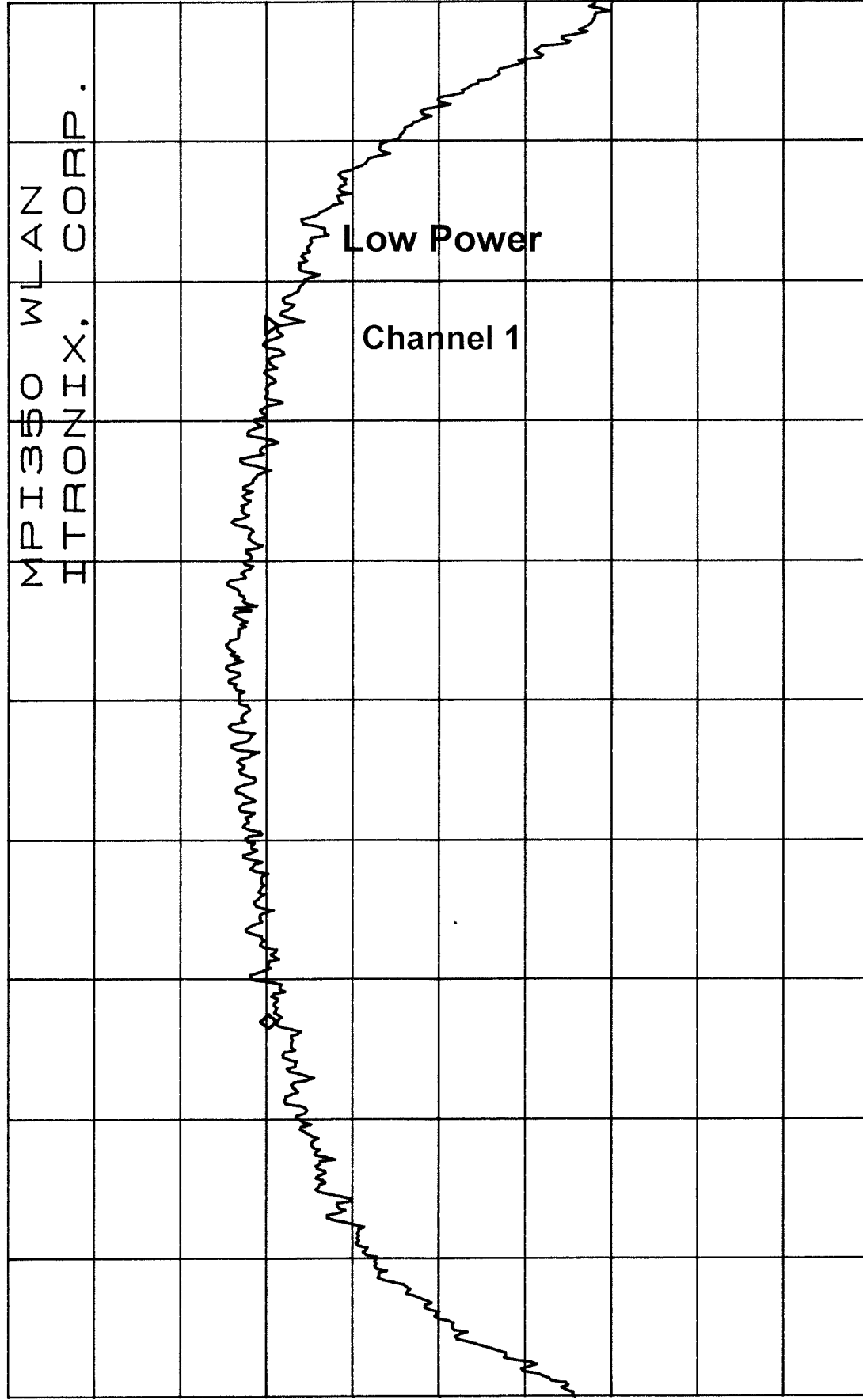
*ATTEN 30dB

RL 16.7dBm

ΔMKR 0dB

10dB/

-9.97MHz



CENTER 2.41200GHZ

SPAN 20.00MHZ

*RBW 100KHZ

*VBW 300KHZ

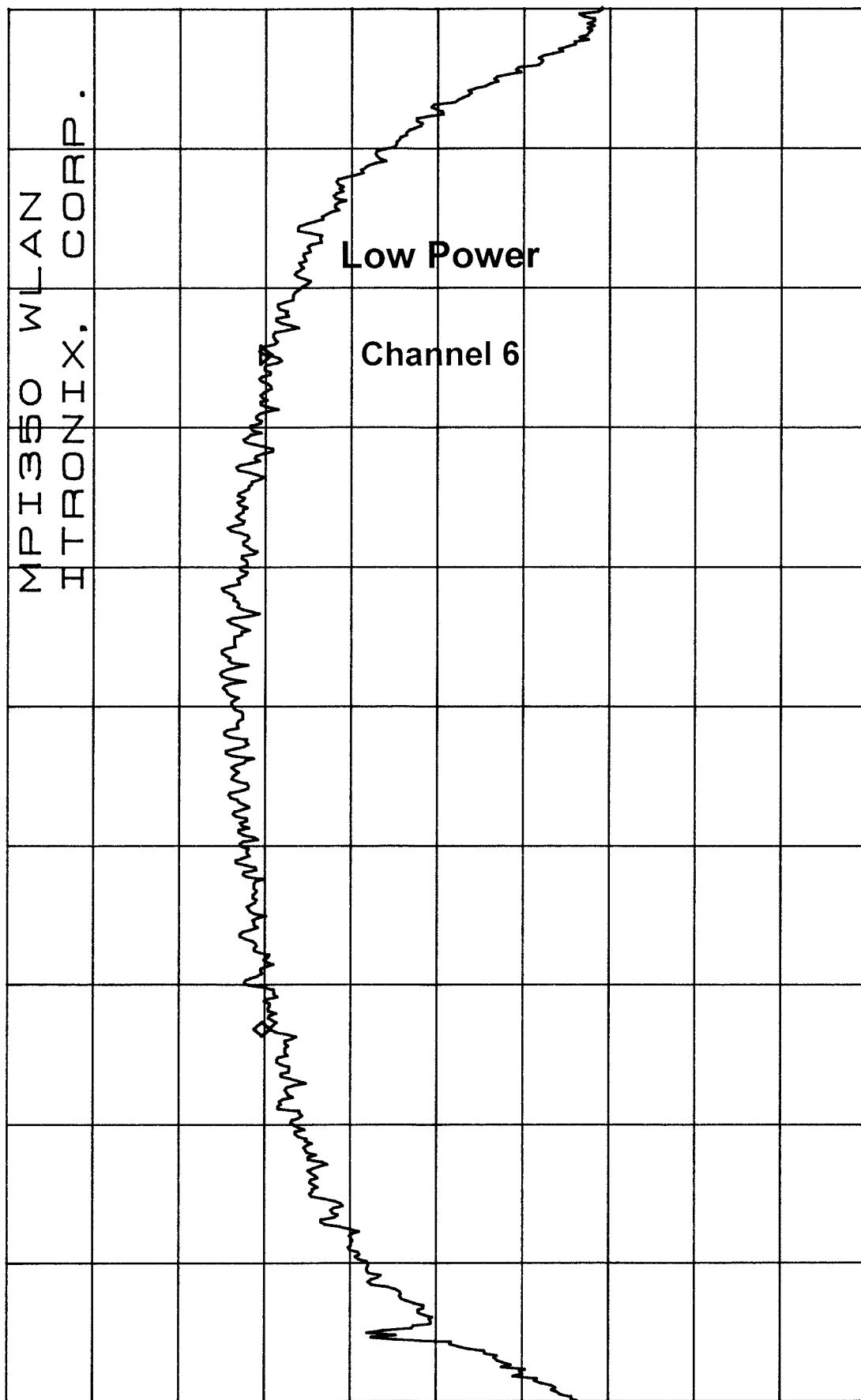
SWP 50ms

*ATTEN 30dB

RL 16.7dBm

ΔMKR 0dB

-9.67MHz



CENTER 2.43700GHZ SPAN 20.00MHZ

*RBW 100KHZ *VBW 300KHZ

SWP 50ms

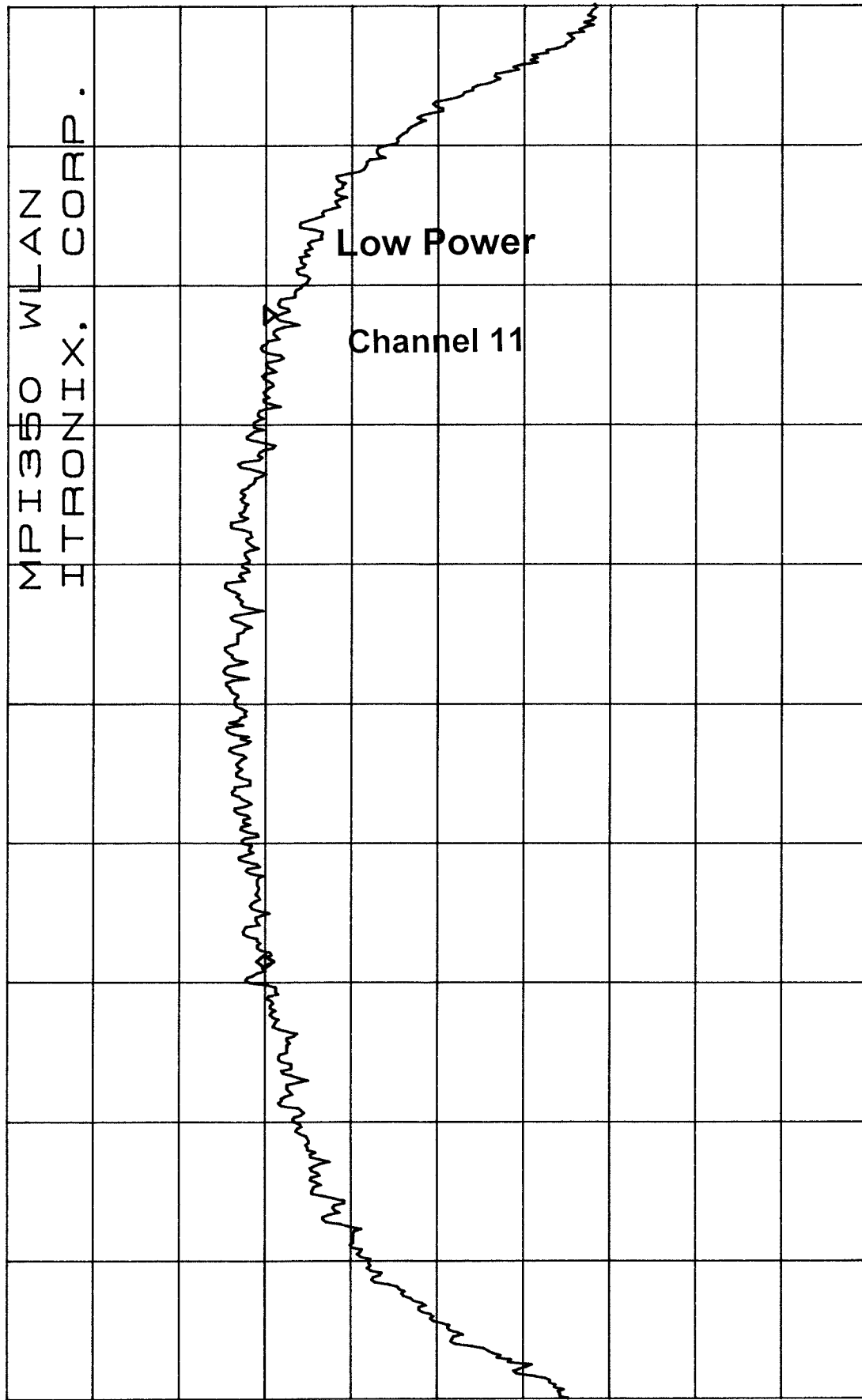
*ATTEN 30dB

RL 16.7dBm

ΔMKR .17dB

10dB/

-9.27MHz



CENTER 2.46200GHZ

SPAN 20.00MHZ

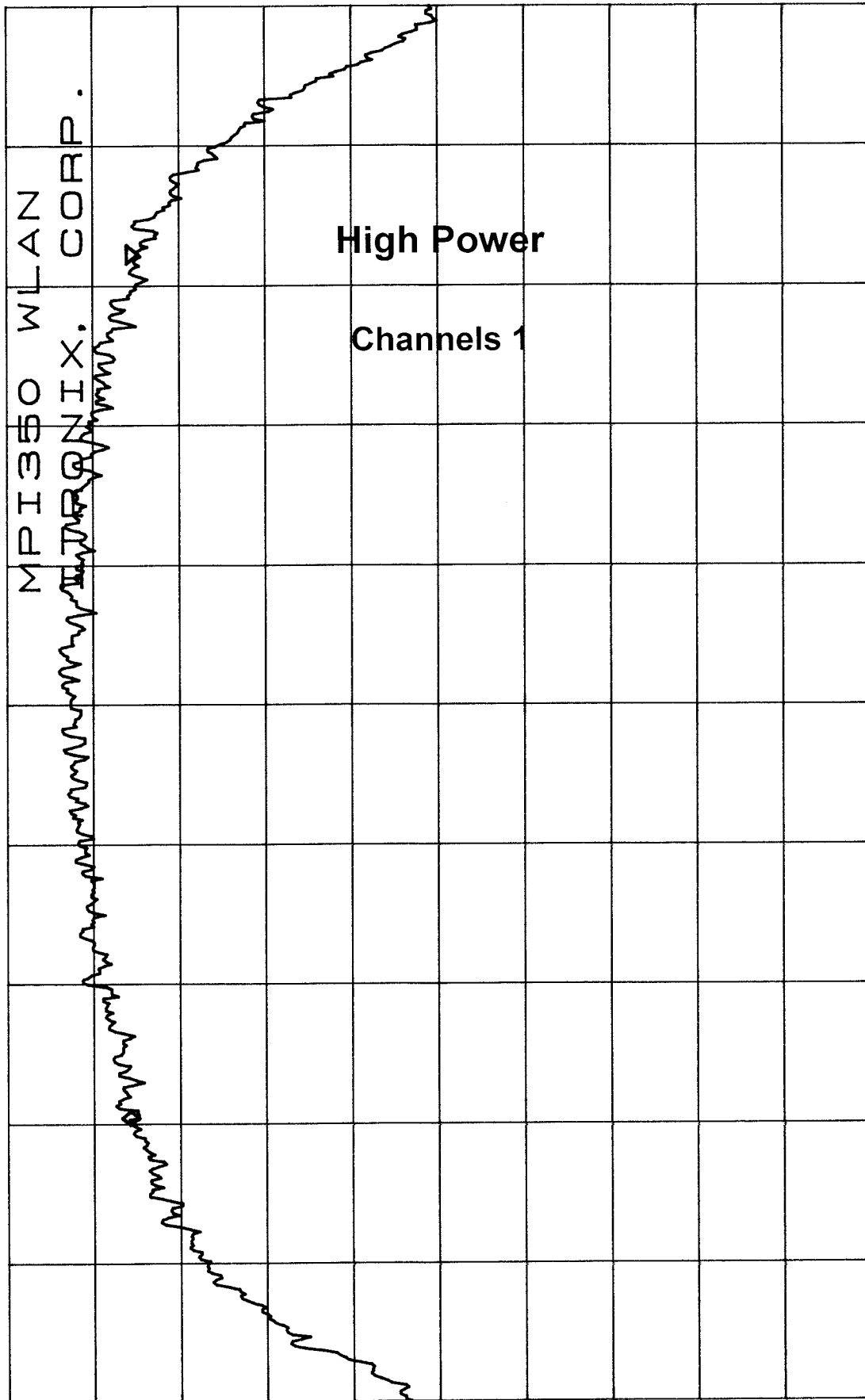
*RBW 100KHZ

*VBW 300KHZ

SWP 50ms

*ATTEN 30dB
RL 16.7dBm

ΔMKR 0dB
-12.37MHz



CENTER 2.41200GHZ SPAN 20.00MHZ
*RBW 100KHZ *VBW 300KHZ SWP 50ms

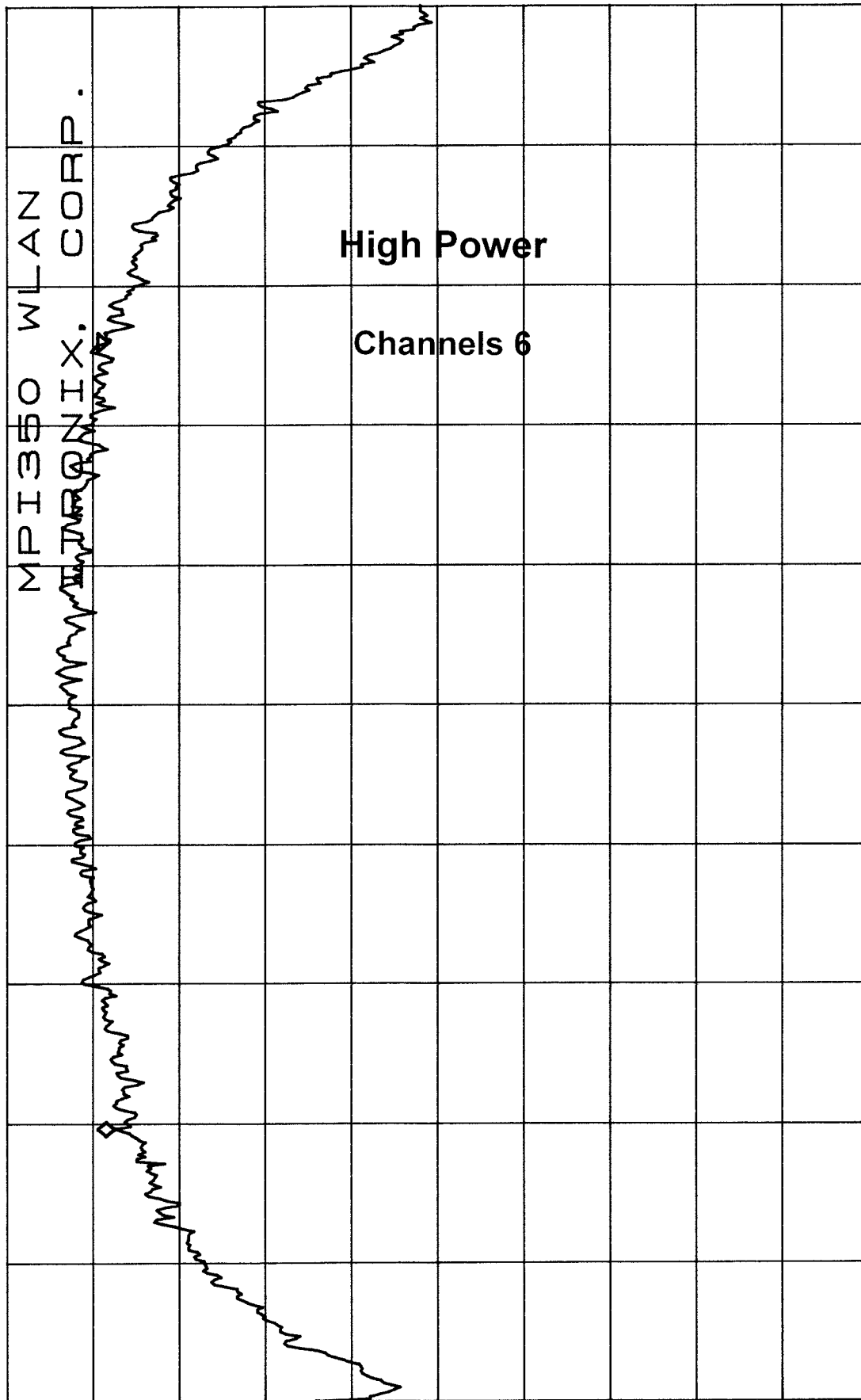
*ATTEN 30dB

RL 16.7dBm

10dB/

ΔMKR -.67dB

-11.27MHz



CENTER 2.43700GHZ

SPAN 20.00MHZ

*RBW 100KHZ

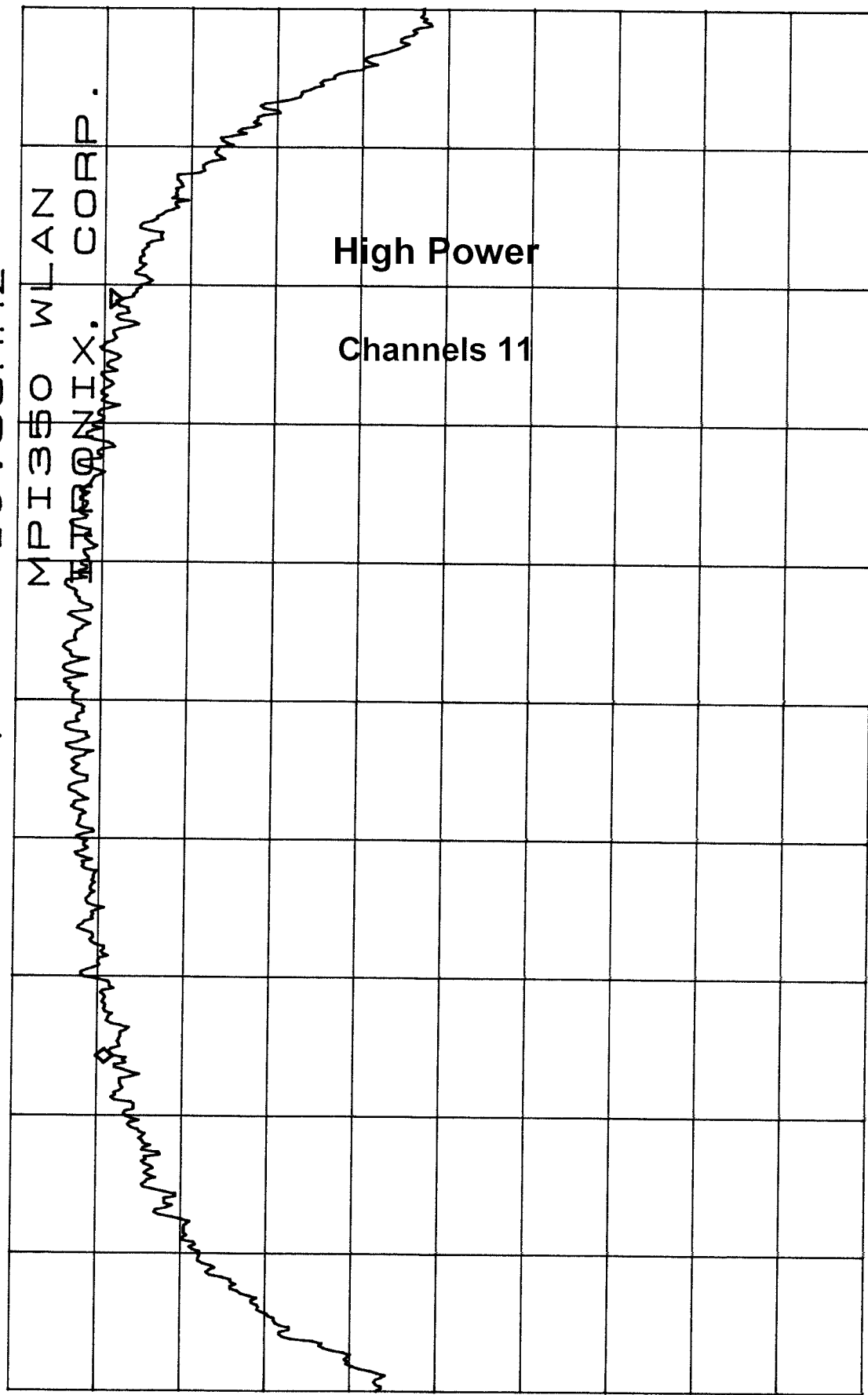
*VBW 300KHZ

SWP 50ms

*ATTEN 30dB
RL 16.7dBm

ΔMKR .17dB
-10.93MHz

10dB/



CENTER 2.46200GHz
*RBW 100kHz *VBW 300kHz

SPAN 20.00MHz
SWP 50ms

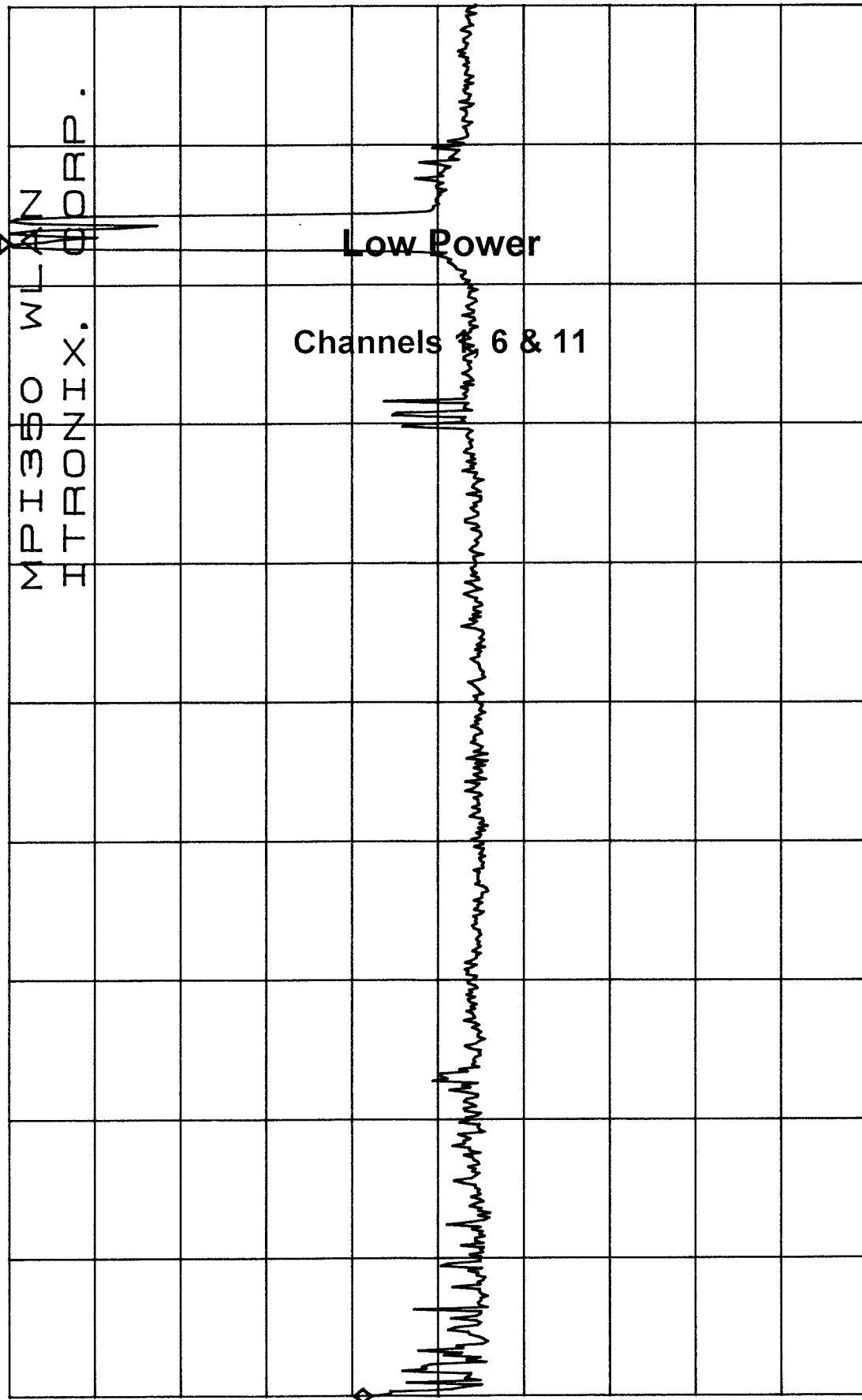
*ATTEN 20dB

ΔMKR -42.00dB

RL -9.0dBm

10dB/

-2.382GHz



START 30MHz

STOP 2.900GHz

*RBW 100kHz

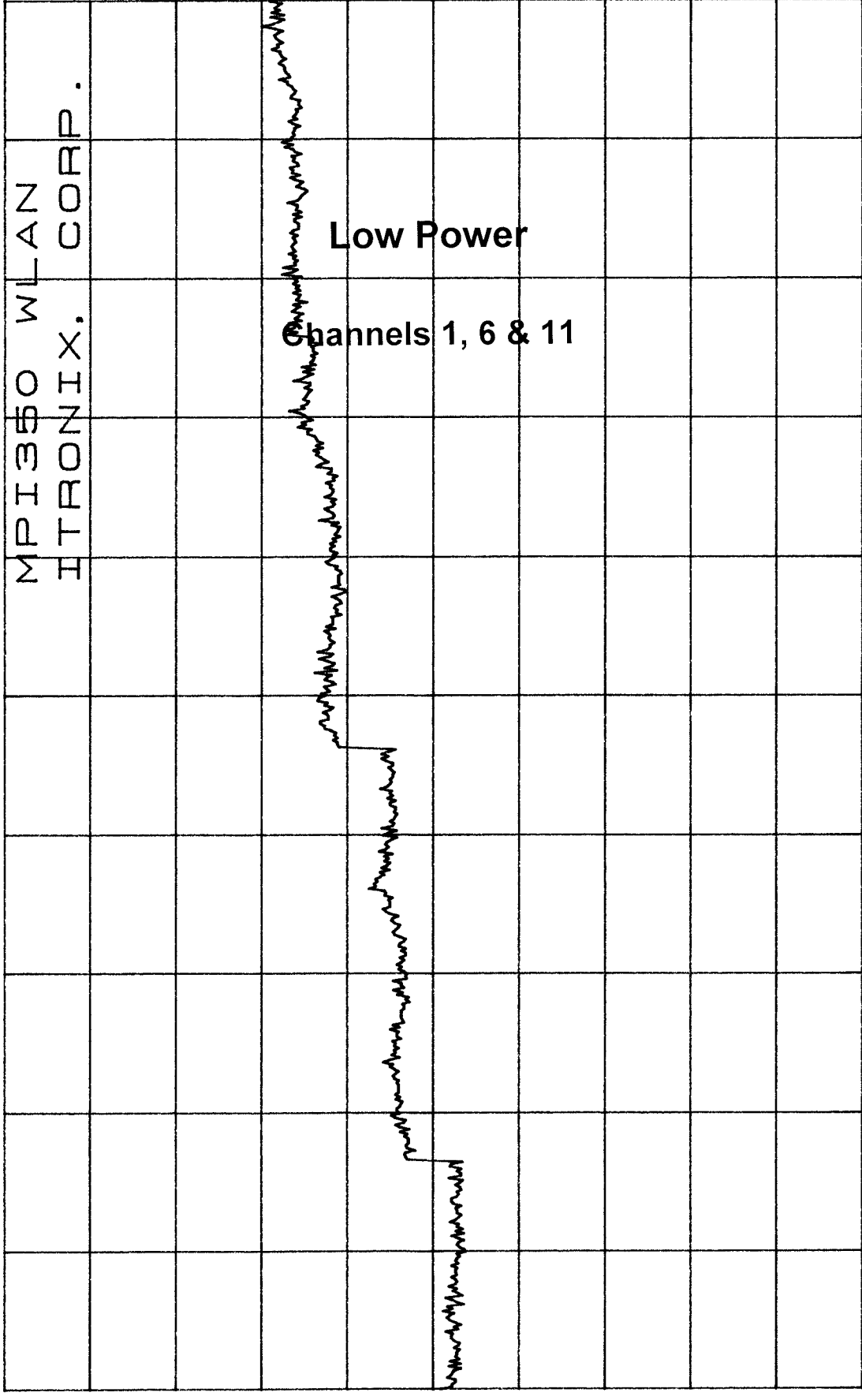
*VBW 300kHz

SWP 800ms

*ATTEN 20dB

RL -9.0dBm

10dB/



START 2.75GHZ

STOP 25.00GHZ

*RBW 100KHZ

*VBW 300KHZ

SWP 6.0sec

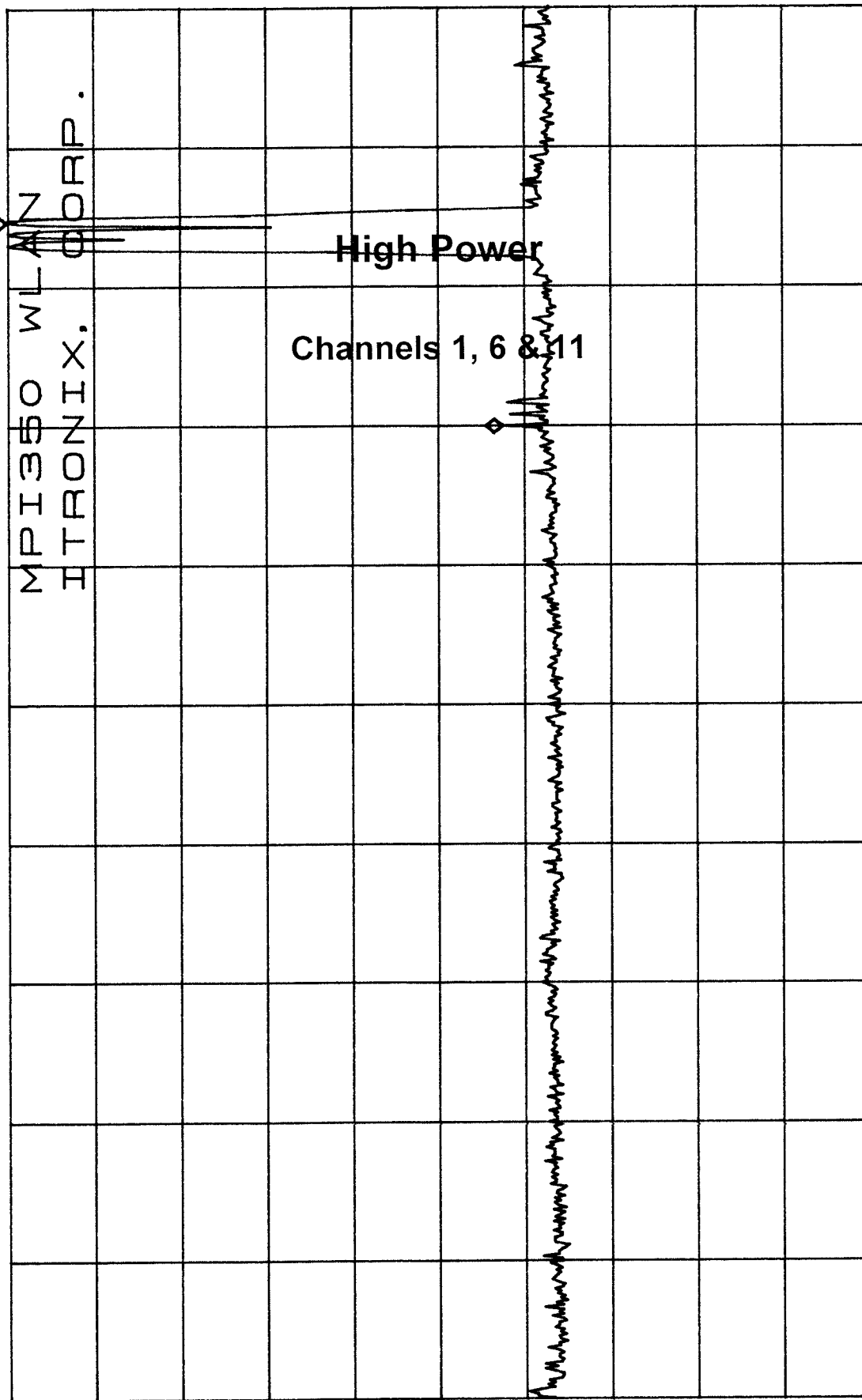
*ATTEN 30dB

ΔMKR -57.67dB

RL 10.3dBm

10dB/

-422MHz

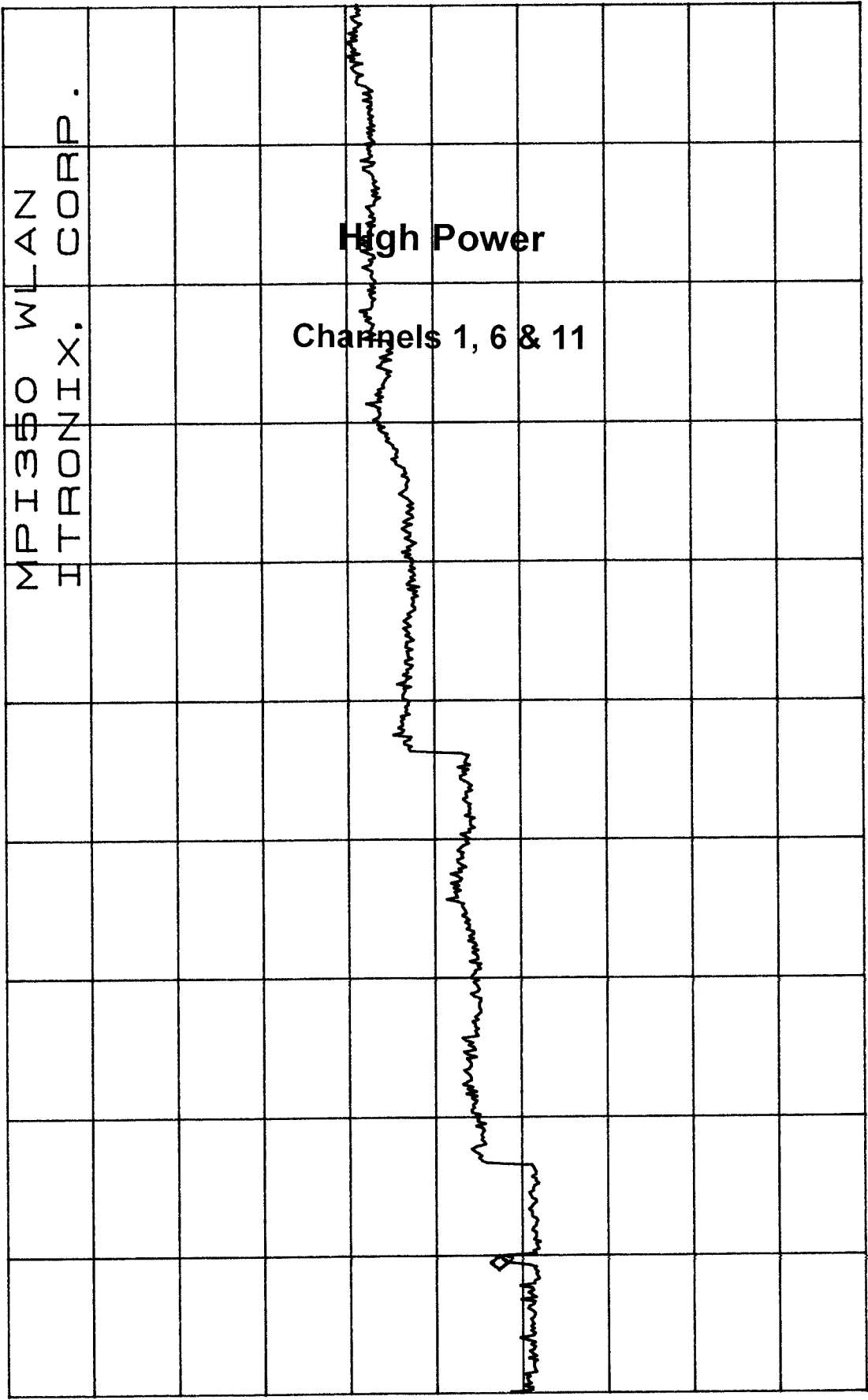


START 20MHz STOP 2.900GHz

*RBW 100kHz *VBW 300kHz SWP 800ms

*ATTEN 30dB
RL 10.3dBm

MKR -47.99dBm
4.86GHz
10dB/



START 2.75GHz STOP 25.00GHz
*RBW 100kHz *VBW 300kHz SWP 6.0sec



11 POWER SPECTRAL DENSITY TEST DATA

The Power spectral density per FCC 15.247(d) was measured from the antenna port of the EUT using a 50 ohm spectrum analyzer with the resolution bandwidth set at 3kHz, the video bandwidth set at 3kHz, and the sweep time set at 17 second. The spectral lines were resolved for the modulated carriers at 2.412GHz, 2.442GHz and 2.462GHz respectively. These levels are well below the +8 dBm limit. See power spectral density table below and the plots in Section 16 of this report.

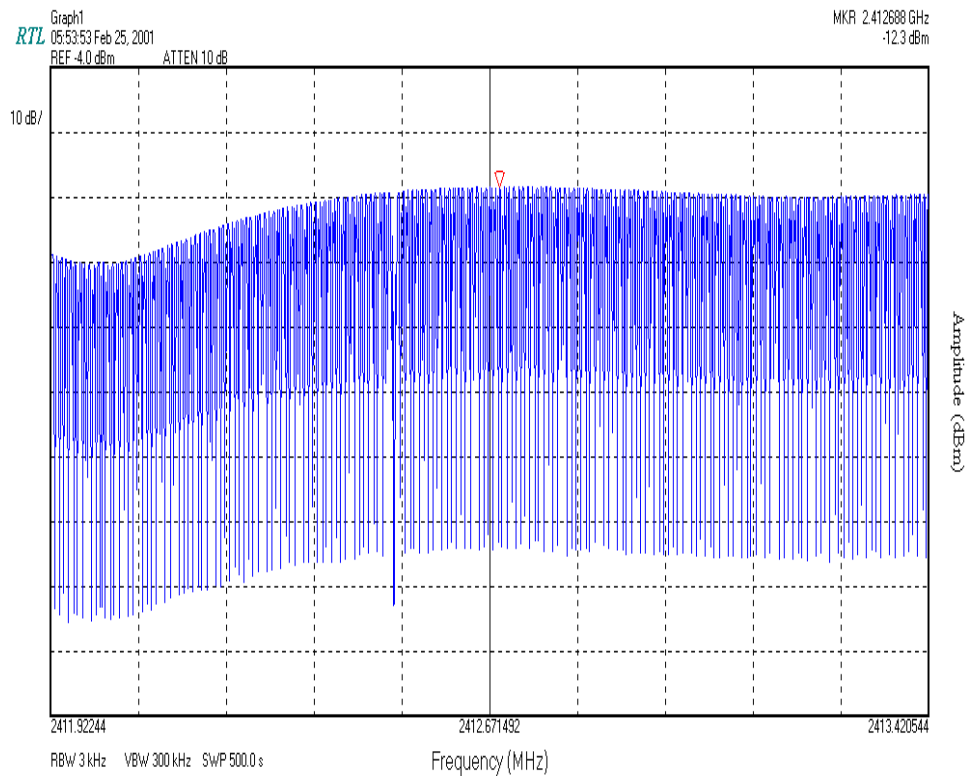
TABLE 27: POWER SPECTRAL DENSITY

Channel	Power Spectral Density limit = +8dBm
1	-12.3
6	-11.6
11	-13.9



16 SPECTRAL DENSITY PLOTS

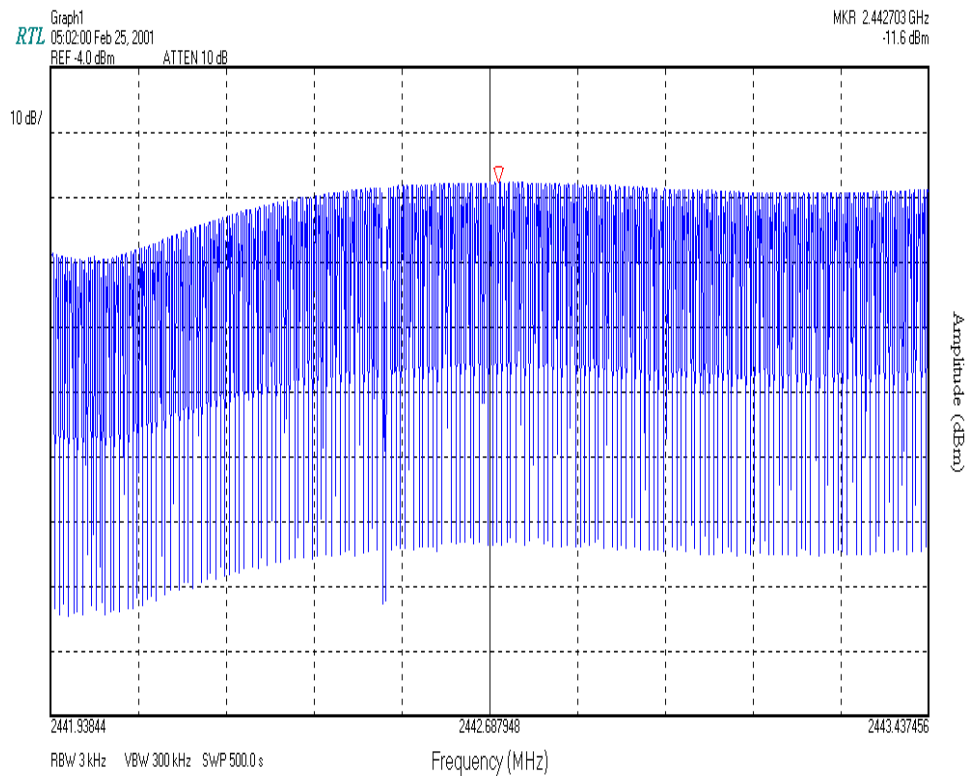
PLOT 21: CHANNEL 1





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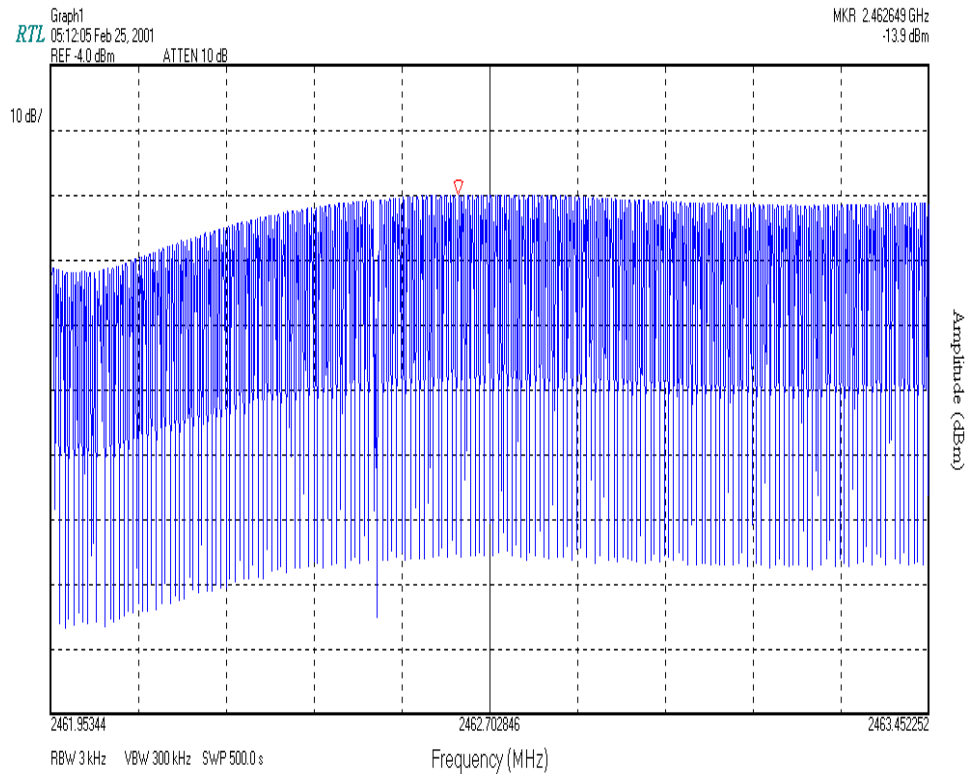
PLOT 22: CHANNEL 6





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PLOT 23: CHANNEL 11





12 COMPLIANCE WITH THE RESTRICTED BAND EDGE TEST DATA

Compliance with the band edges was performed using the FCC's "Radiated Measurement at a Band Edge" guidance document. The final data derived below were from radiated measurements only. The data taken in this report represents the worst case at 11 MBPS. Data rates of 5.5MBPS, 2 MBPS and 1 MBPS were investigated and found to be in compliance. Both absolute and delta method were performed with the same results.

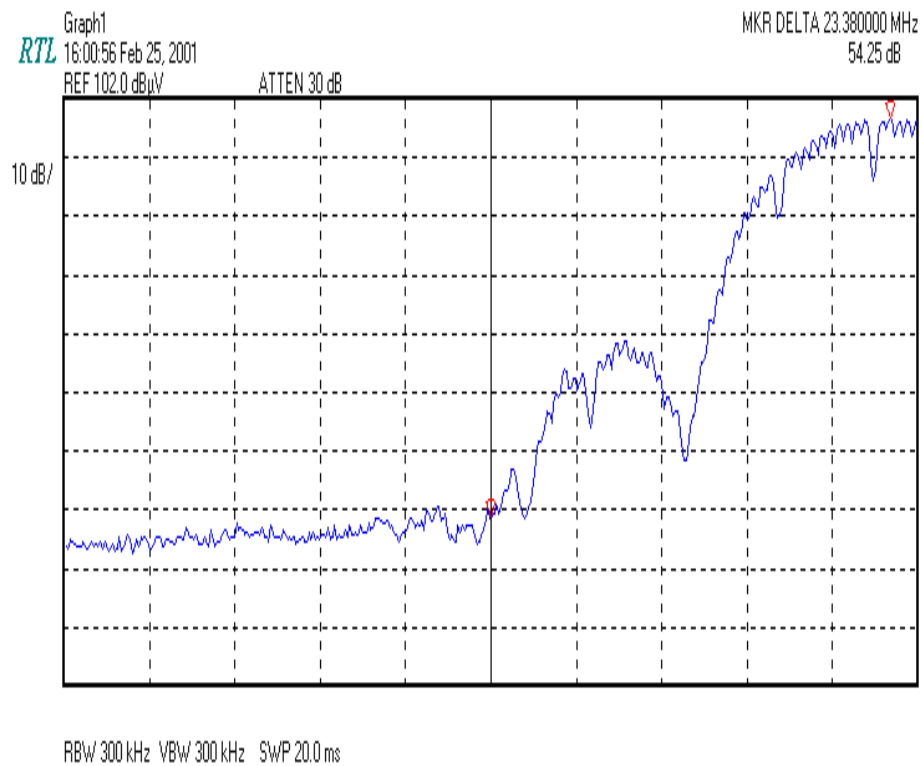
TABLE 28: RESTRICTED BAND EDGE

Band edge Measurement					
Antenna	Channel Set to	Frequency tested MHz	Field Strength Level (dB μ V/m)	FCC Limit (dB μ V/m)	FCC Margin (dB)
Cisco Dipole	1	2390.0	53.1	54.0	-0.9
	11	2483.5	53.9	54.0	-0.1
Dell Dipole	1	2390.0	41.4	54.0	-12.6
	11	2483.5	52.4	54.0	-1.6
Dell Inverted F	1	2390.0	40.4	54.0	-13.6
	11	2483.5	46.9	54.0	-7.1
Toshiba Chip	1	2390.0	37.9	54.0	-16.1
	11	2483.5	47.2	54.0	-6.8
Toshiba Inverted F	1	2390.0	39.8	54.0	-14.2
	11	2483.5	50.2	54.0	-3.8



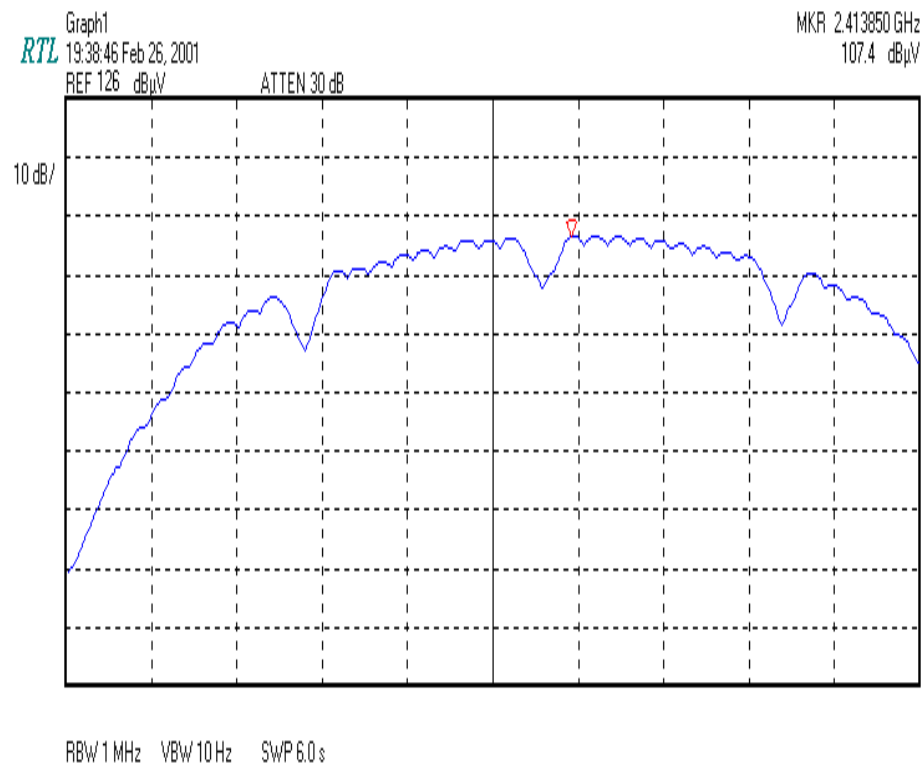
15 BANDEDGE PLOTS

PLOT 1: CHANNEL 1 CISCO DIPOLE ANTENNA 1MHZ/10HZ





PLOT 2: CHANNEL 1 CISCO DIPOLE ANTENNA

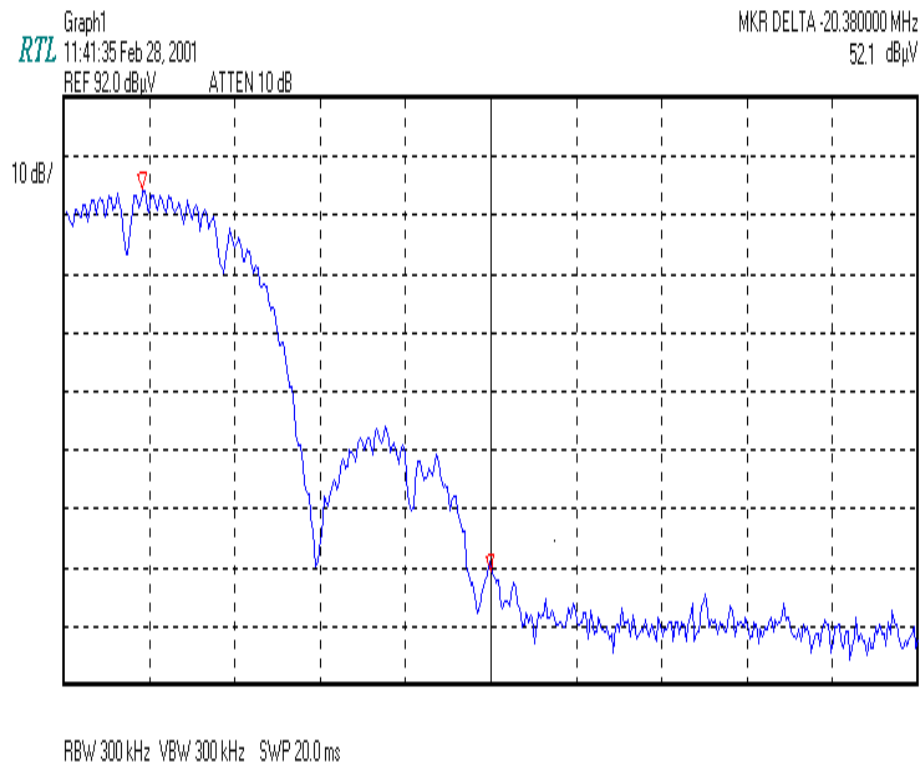


Note site factor entered into analyzer register for corrected final result.



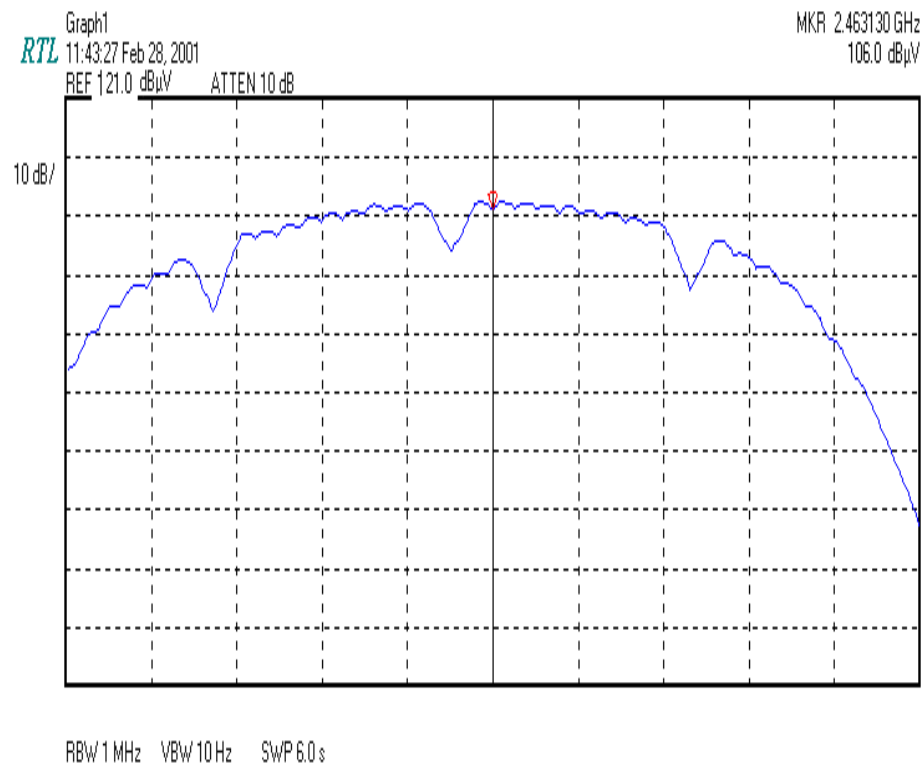
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PLOT 3: CHANNEL 11 CISCO DIPOLEANTENNA





PLOT 4: CHANNEL 11 CISCO DIPOLE ANTENNA

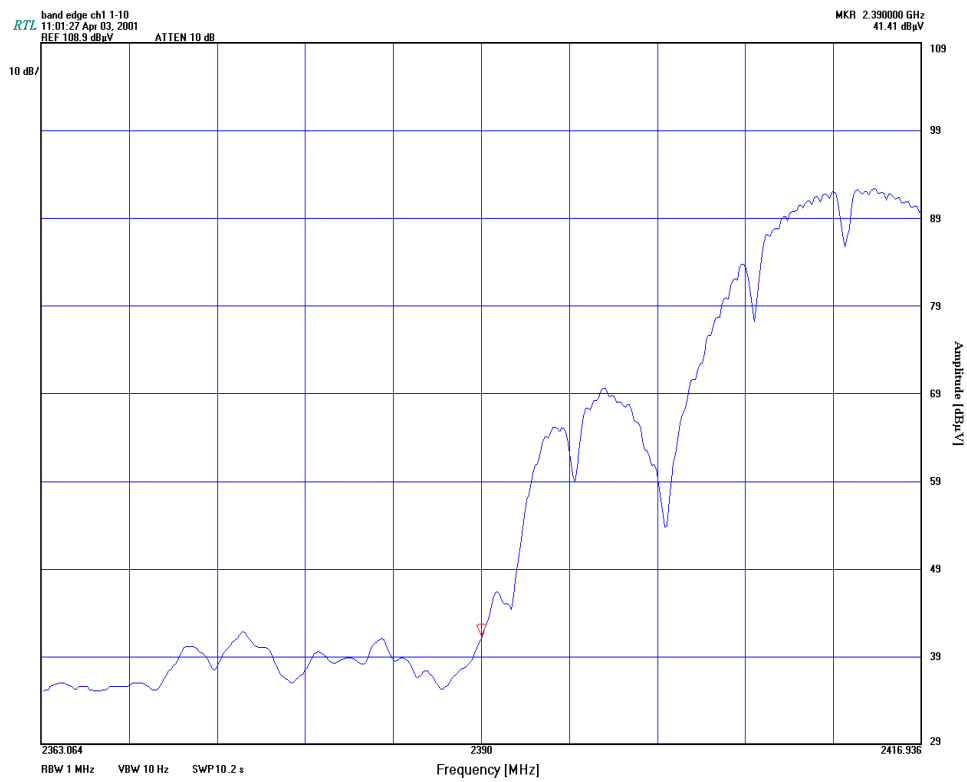


Note site factor entered into analyzer register for corrected final result.



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PLOT 5: CHANNEL 1 DELL DIPOLE ANTENNA 1MHZ/10HZ

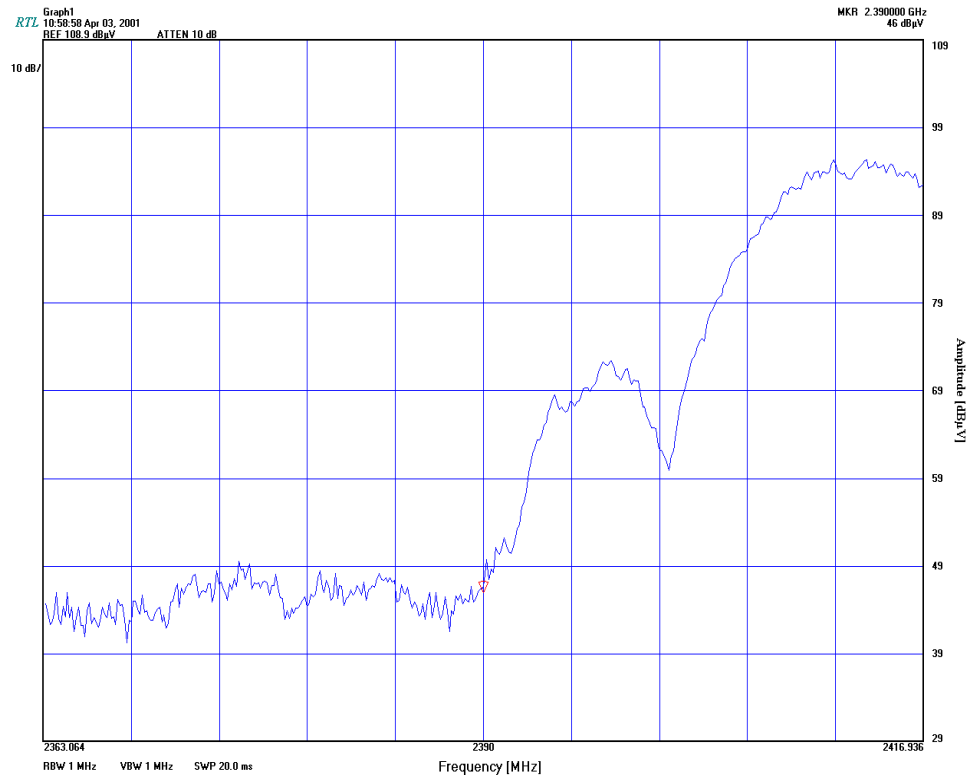




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PLOT 6

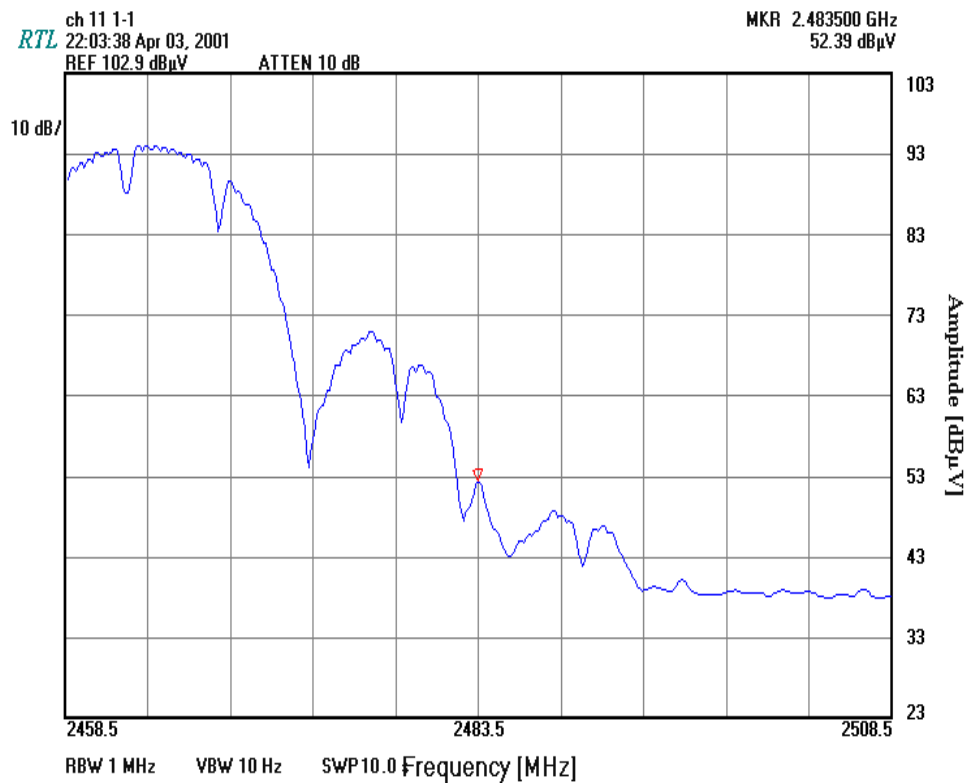
CHANNEL 1 DELL DIPOLE ANTENNA 1MHZ/1MHZ





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PLOT 7 CHANNEL 11 DELL DIPOLE ANTENNA 1MHZ/10HZ

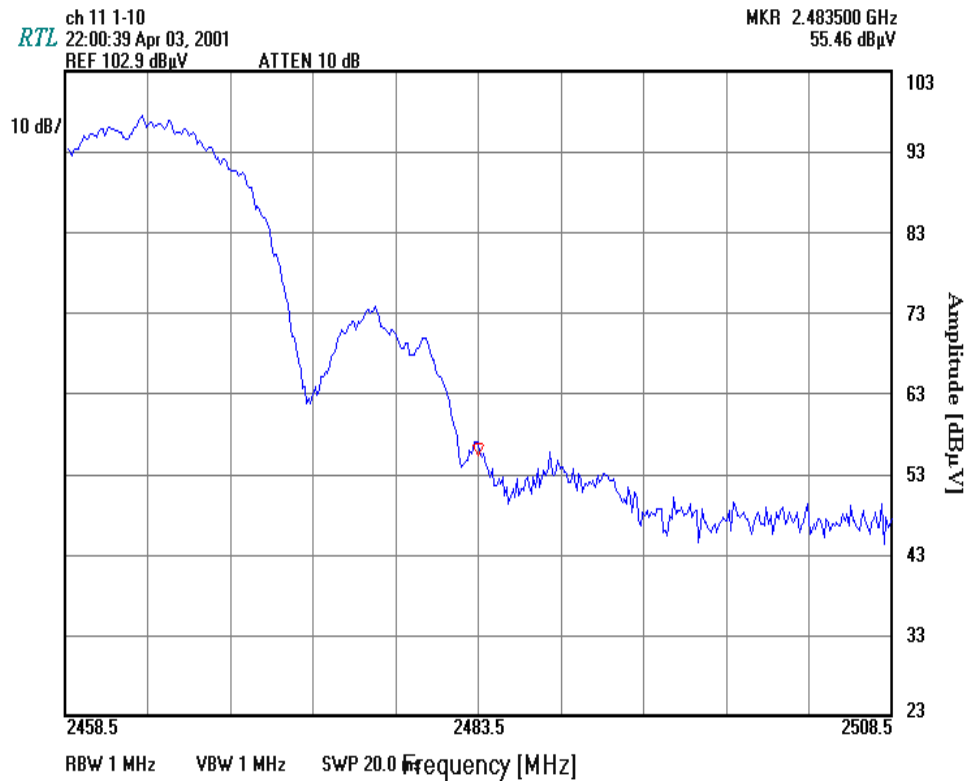




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PLOT 8

CHANNEL 11 DELL DIPOLE ANTENNA 1MHZ/1MHZ

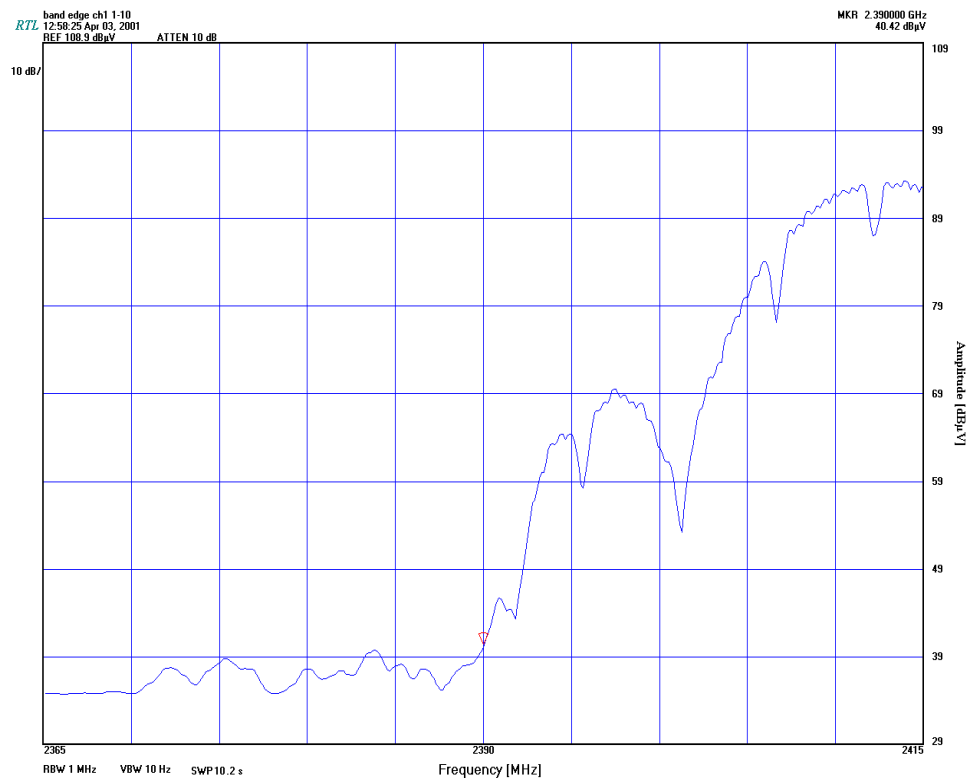




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PLOT 9

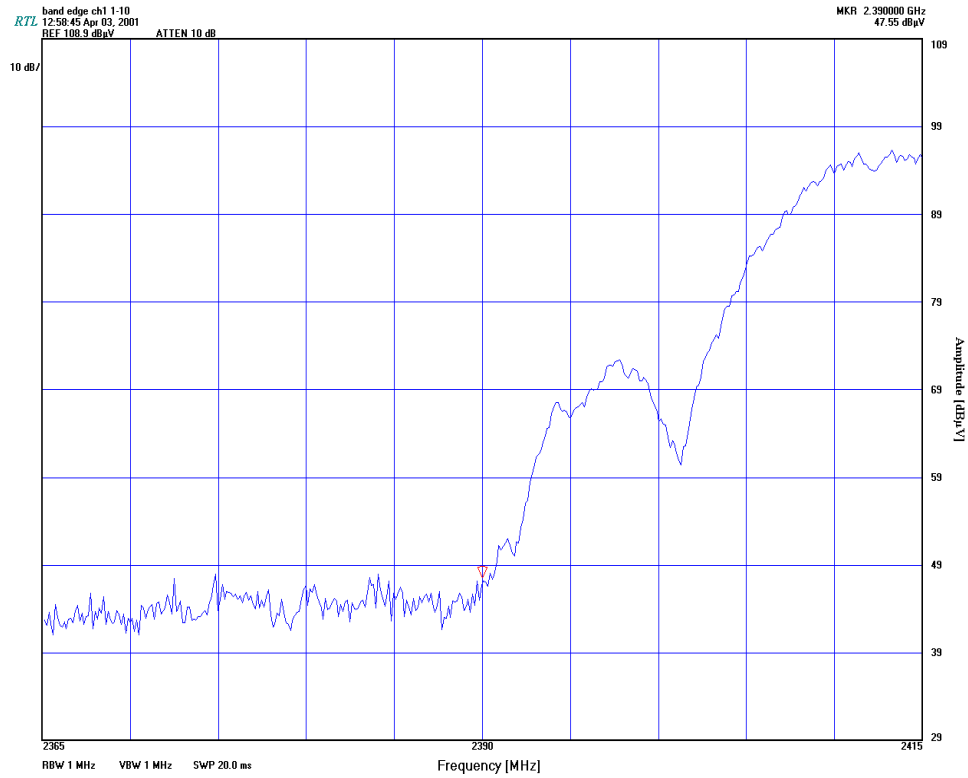
CHANNEL 1 DELL INVERTED F ANTENNA 1MHZ/10HZ





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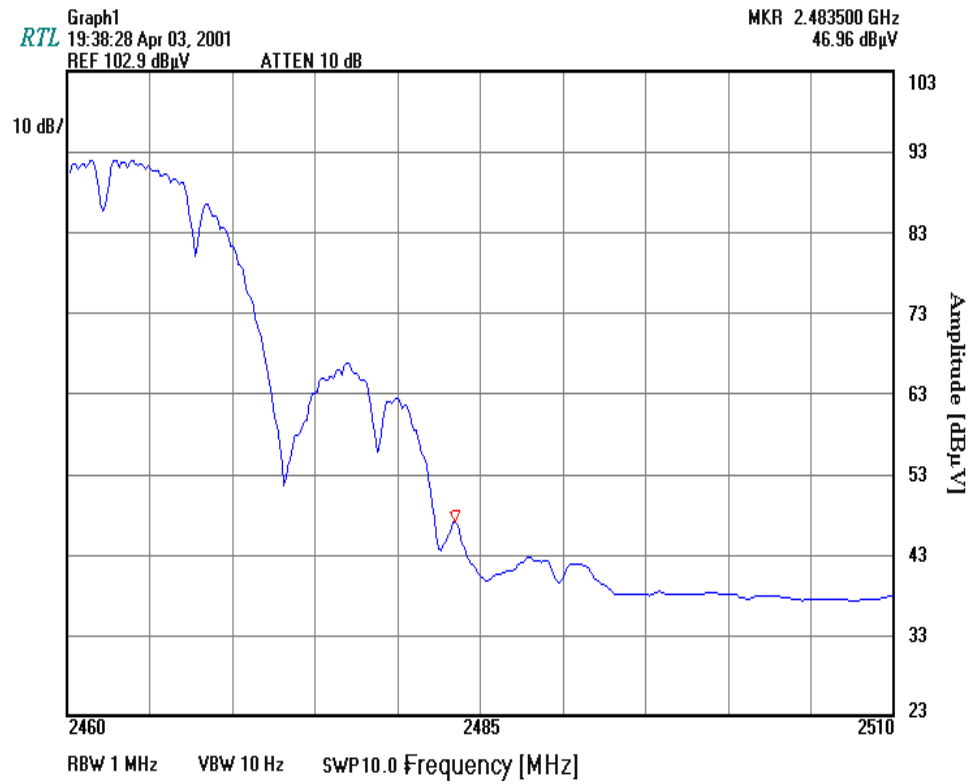
PLOT 10 CHANNEL 1 DELL INVERTED F ANTENNA 1MHZ/1MHZ





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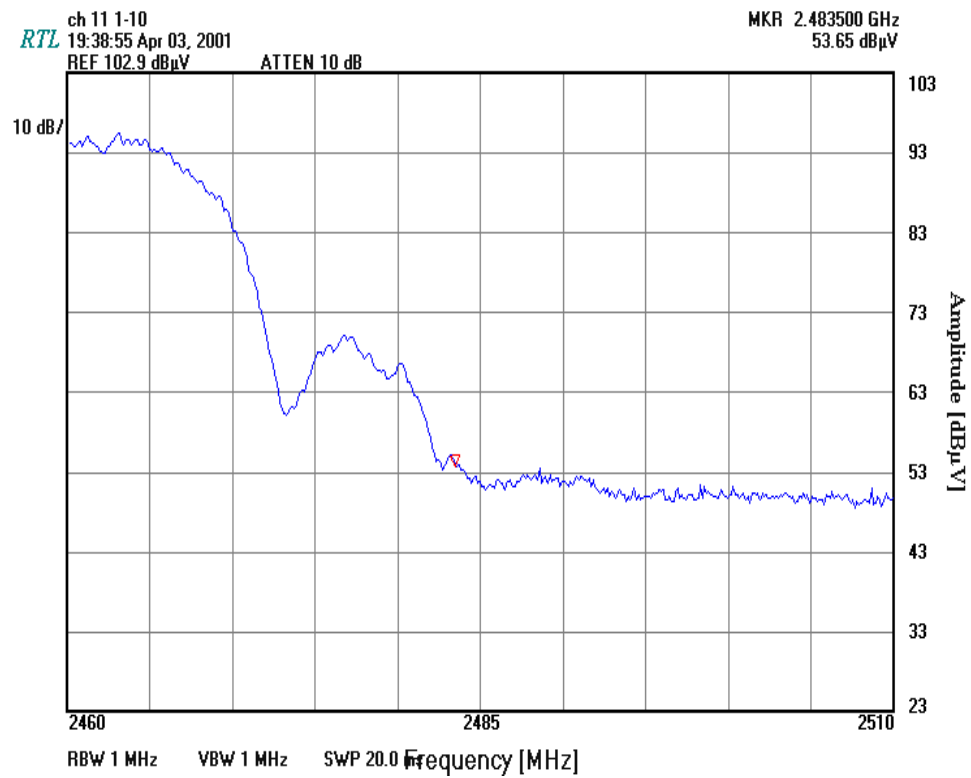
PLOT 11 CHANNEL 11 DELL INVERTED F ANTENNA 1MHZ/10HZ





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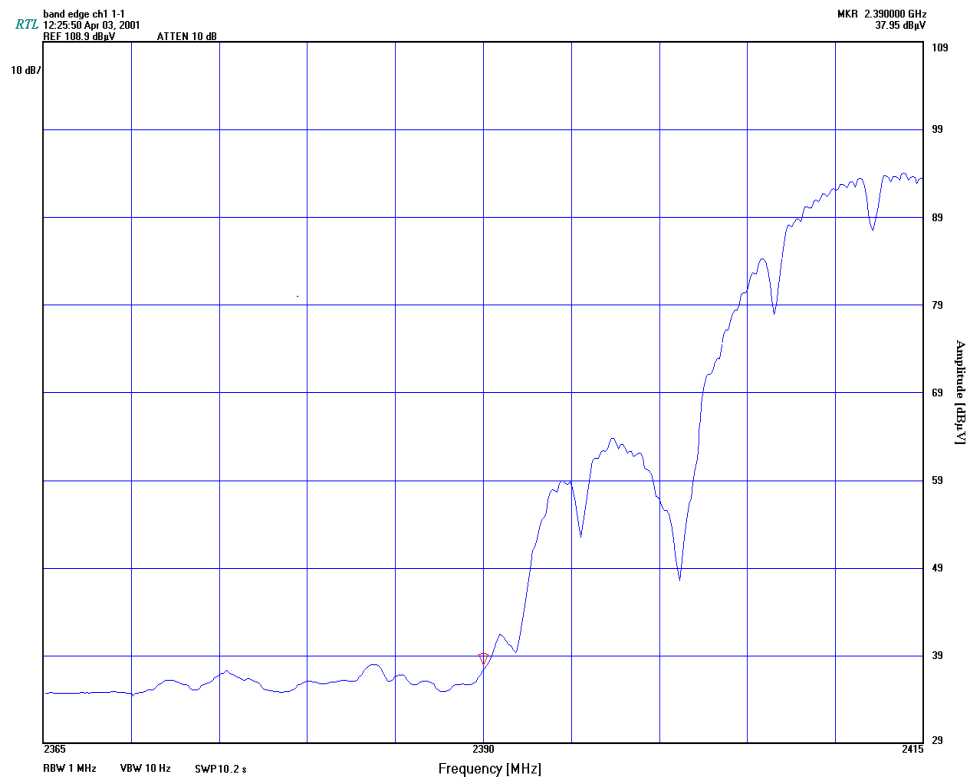
PLOT 12 CHANNEL 11 DELL INVERTED F ANTENNA 1MHZ/1MHZ





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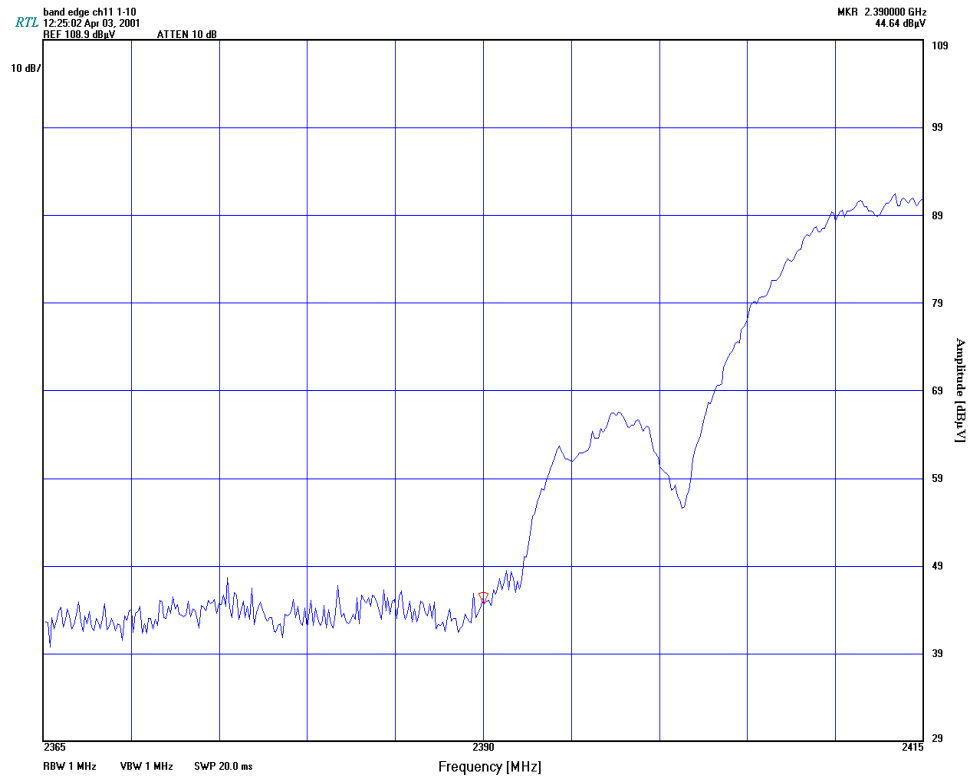
PLOT 13 CHANNEL 1 TOSHIBA CHIP ANTENNA 1MHZ/10HZ





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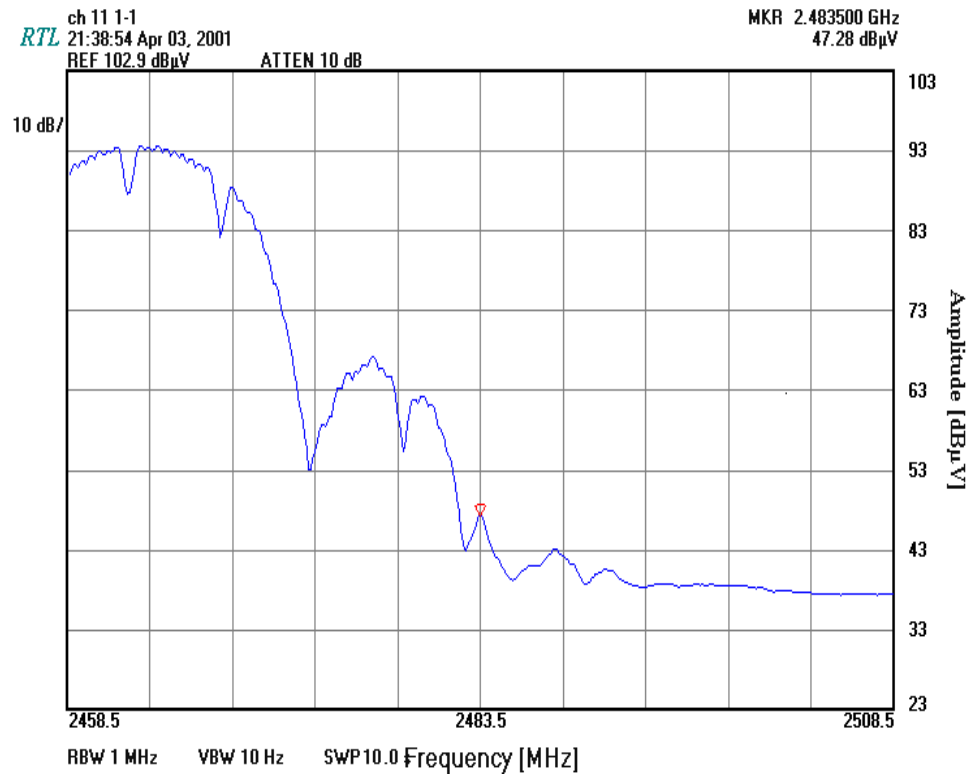
PLOT 14 CHANNEL 1 TOSHIBA CHIP ANTENNA 1MHZ/1MHZ





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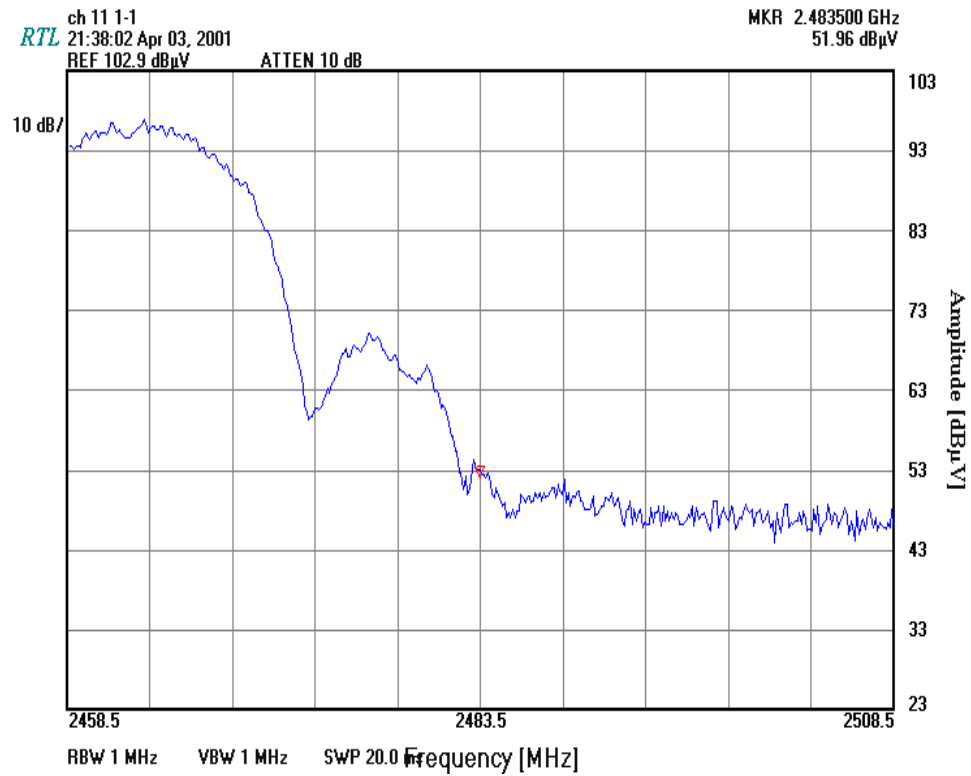
PLOT 15 CHANNEL 11 TOSHIBA CHIP ANTENNA 1MHZ/10HZ





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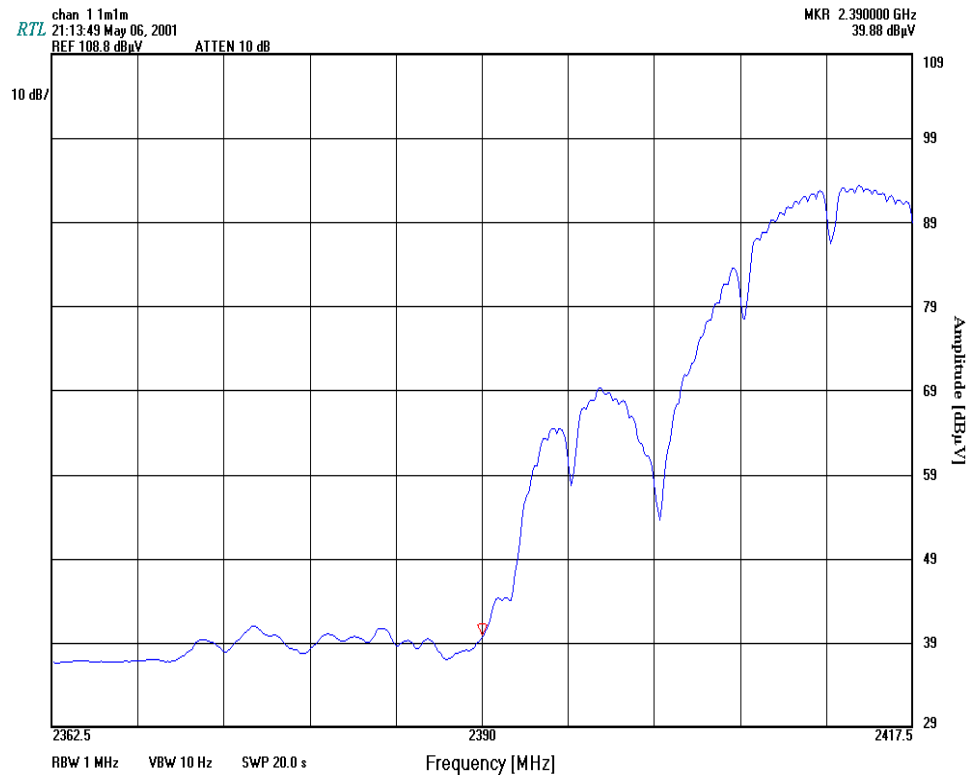
PLOT 16 CHANNEL 11 TOSHIBA CHIP ANTENNA 1MHZ/1MHZ





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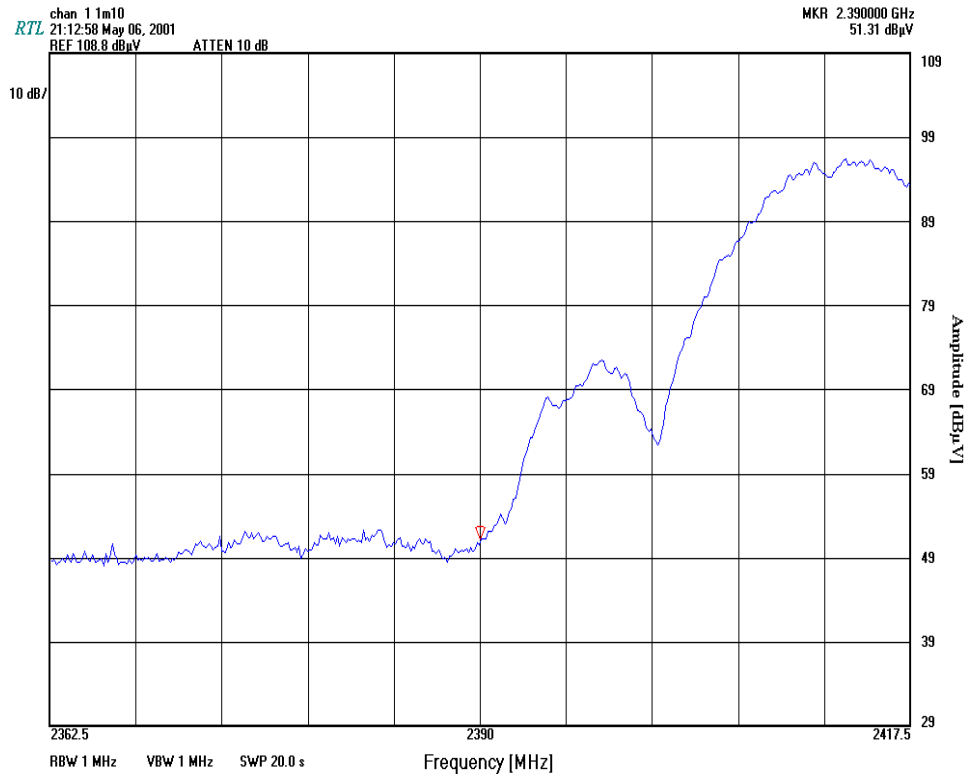
PLOT 17 CHANNEL 1 INVERTED F TOSHIBA ANTENNA 1MHZ/10HZ





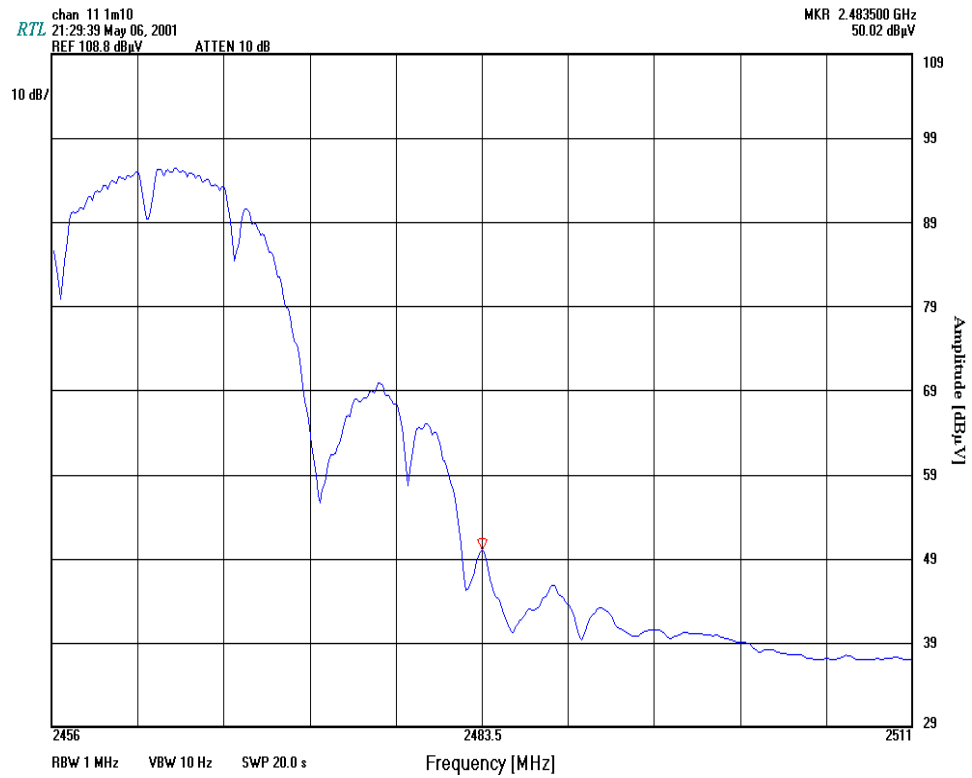
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PLOT 18 CHANNEL 1 INVERTED F TOSHIBA ANTENNA 1MHZ/1MHZ





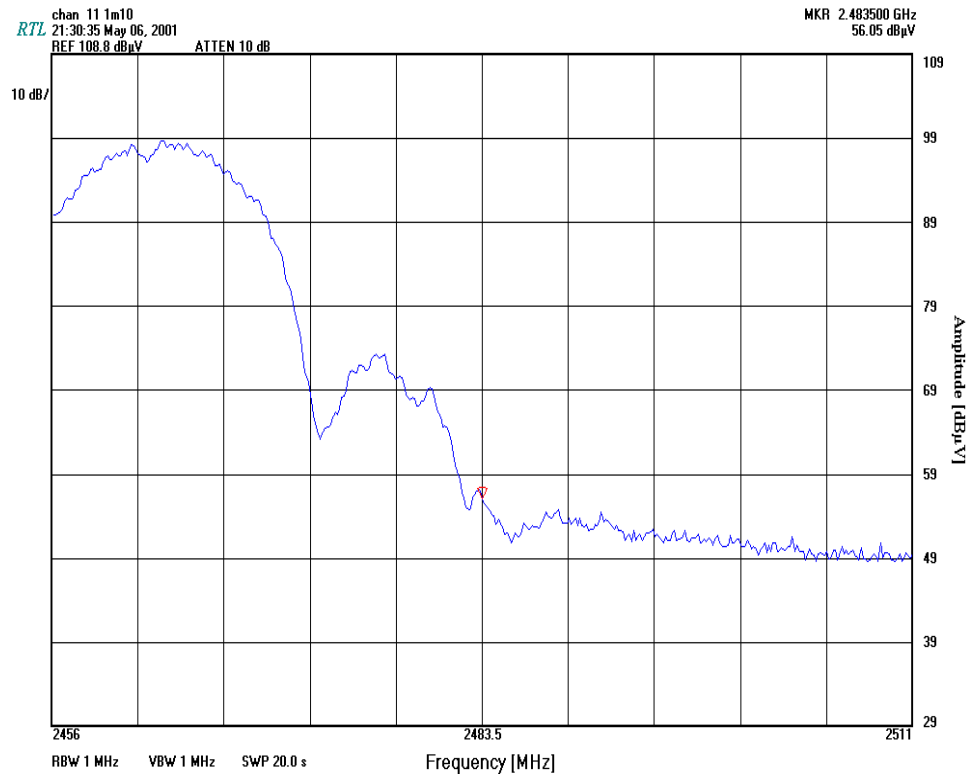
PLOT 19 CHANNEL 11 INVERTED F TOSHIBA ANTENNA 1MHZ/10HZ





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PLOT 20 CHANNEL 11 INVERTED F TOSHIBA ANTENNA 1MHZ/1MHZ



Supplemental Test Report

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Exhibit 6G – Radiated Harmonics and Spurious Emissions	5

Please see Exhibit 7 for the test equipment list and calibration dates as well as Photos of the Equipment Test Setup

Note: Please refer to the OEM Certification exhibits under FCC ID: LDK102042, WLAN Compact Flash Card, Model: MPI-352 Series for test report data and confidential exhibits where appropriate for this ITRONIX Corporation, Intentional Radiator referenced herein.

EXHIBIT 6A - TEST: CONDUCTED RF POWER OUTPUT

Applicant: ITRONIX, Corporation

Model: IX260 Rugged Laptop with Aircard 555 Dual Band CDMA Radio modem co-located with a WLAN & Bluetooth Intentional Radiators

Minimum Standard Specified: Part 15.247(b)(1) is 1 Watt for DTS

Test Results: The measured output power level shows compliance with the above limit and the power granted for the OEM module.

Authorization Procedure: Part 2.1046

Maximum Conducted Power Output: 21.2 dBm

Method of Measurement:

1. The output power levels above had been preset during production for this model.
2. The peak output power was measured 12/10/02 by Celltech with a Gigatronics 8652A Universal Power Meter (S/N: 1835272). The measured channels cover the low, middle and top of the operational frequency range previously approved for this Intentional Radiator of 2412 – 2462 MHz.
3. Both antenna ports were measured, the results below were the maximum level measured.

Tabular Results of Conducted RF Output Power and EIRP

WLAN		Rangestar			
Serial No:		Antenna			
VMS06180144		P/N 100929			
Frequency	Power	Cable loss	Ant. Gain	EIRP	
GHz	dBm		dBi		
2.412	21.2	-inc-	4.5	25.7	*MAX
2.437	21.1	-inc-	4.5	25.6	
2.462	21.1	-inc-	4.5	25.6	

The maximum **WLAN** EIRP is 25.7 dBm with the Rangestar Antenna, P/N 100929, peak antenna gain of 4.5 dBi.

EXHIBIT 6G - TEST: FIELD STRENGTH OF THREE FUNDAMENTAL OPERATING FREQUENCIES

Applicant: ITRONIX, Corporation

FCC ID: KBCIX260MPIA555BT

Model: IX260 Rugged Laptop with Aircard 555 Dual Band CDMA Radio modem co-located with WLAN & Bluetooth Intentional Radiators

Minimum Standard Specified: Part 15.247(c), 15.205 & 15.209(a)

Test Date: 10/21/03

Test Results: Equipment complies with standard

Authorization Procedure: Part 2.1053

Test Equipment Set Up: See Block Diagram in Exhibit 7

Test Frequencies **WLAN**: 2412, 2437, & 2462 MHz (2412 – 2462 MHz band)

Field Strength For Low Mid and High Channel

WLAN Frequency in GHz	Ant. Vert/ Horz	Spectrum Analyzer Reading dBuV	+ Ant Factor	- Amp Gain	+ Cable Loss	= dBuV/m @ 3 meters	or uV/m @ 3 meters
Ch. 1 Low 2.412	V	81.52	28.37	0	3.15	113.04	448745.39
Ch. 6 Mid 2.437	V	82.34	28.37	0	3.15	113.86	493173.80
Ch.11 High 2.462	V	81.76	28.37	0	3.15	113.28	459726.99

Measurements were made with the MPI350 feeding the left antenna in the PC display only, for this co-located model. The right antenna in the display is used by the Bluetooth Intentional radiator exclusively in this configuration and covered in the BT test report also submitted with the application.

EXHIBIT 6G - TEST: RADIATED HARMONICS AND SPURIOUS EMISSIONS

Applicant: ITRONIX, Corporation

FCC ID: KBCIX260MPIA555BT

Model: IX260 Rugged Laptop with Aircard 555 Dual Band CDMA Radio modem co-located with a WLAN & Bluetooth Intentional Radiators

Minimum Standard Specified: Part 15.247(c), 15.205 & 15.209(a)

Authorization Procedure: Part 2.1053

Test Equipment Set Up: See Block Diagram in Exhibit 7

Test Date: 10/21/03

RADIATED HARMONIC AND SPURIOUS EMISSIONS & RESTRICTED BANDS									
Frequency GHz	Max. SA Rdg. dBu/V	Ant. Vert. or Horz.	Peak or Average Detector	Antenna Factor dB	Cable & filter loss dB	Amp Gain	Corrected Reading dBuV/m	Limit 74 Peak 54 Avg dBu/V	uV/m
Fo - 2.412									
4.824	37.05	V	Peak	32.83	3.95	23.2	50.63	74	340.02
4.824	24.65	V	Average	32.83	3.95	23.2	38.23	54	81.56
Fo - 2.437									
4.874	37.17	V	Peak	33.33	3.95	23.2	51.25	74	365.17
4.874	24.68	V	Average	33.33	3.95	23.2	38.76	54	86.70
Fo - 2.462									
4.924	36.52	V	Peak	33.33	3.95	23.2	50.60	74	338.84
4.924	24.80	V	Average	33.33	3.95	23.2	38.88	54	87.90
Harmonic emissions on all three channels (low, mid & high) 3Fo – 10Fo at or below noise floor									
Channel	Frequency in GHz	Harmonics observed				Limit 74 dBuV/m Peak & 54 dBuV/m Average			
Ch. 1 - Low Fo	2.412								
3Fo - 10Fo	7.236 – 24.120	None, At or < noise floor @3m				All emissions < 54 dBuV/m or 500 uV/m			
Ch. 6 - Mid Fo	2.437								
3Fo – 10Fo	7.311 – 24.370	None, At or < noise floor @3m				All emissions < 54 dBuV/m or 500 uV/m			
Ch. 11 - High Fo	2.462								
3Fo - 10Fo	7.386 – 24.620	None, At or < noise floor @3m				All emissions < 54 dBuV/m or 500 uV/m			

All harmonic and spurious emissions were below the limit. 2Fo and 3Fo were measurable during preliminary measurements at less than 1.0 meter with 100 kHz RBW only. Only 2 Fo was measurable at three meters with 1 MHz RBW and VBW. A HP preamplifier with over 20 dB of gain was used during the measurements of the harmonics. A high pass filter was used to reduce the fundamental signal and avoid the possibility of overloading the front end of the analyzer when using the preamp.

Test Notes:

- 1.) All harmonics in the restricted bands listed in Part 15.205 are below the Part 15.209(a) limit.
- 2.) No peak emissions above 1 GHz are more than 20 dB above the average limit.
- 3.) Peak measurements made with 1 MHz RBW & VBW, Average made with 1MHz RBW & 10 Hz VBW.
- 4.) The maximum levels reported above were with the MPI350 connected to and radiating from the left antenna

Applicant: ITRONIX, Corporation

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within the PC display.