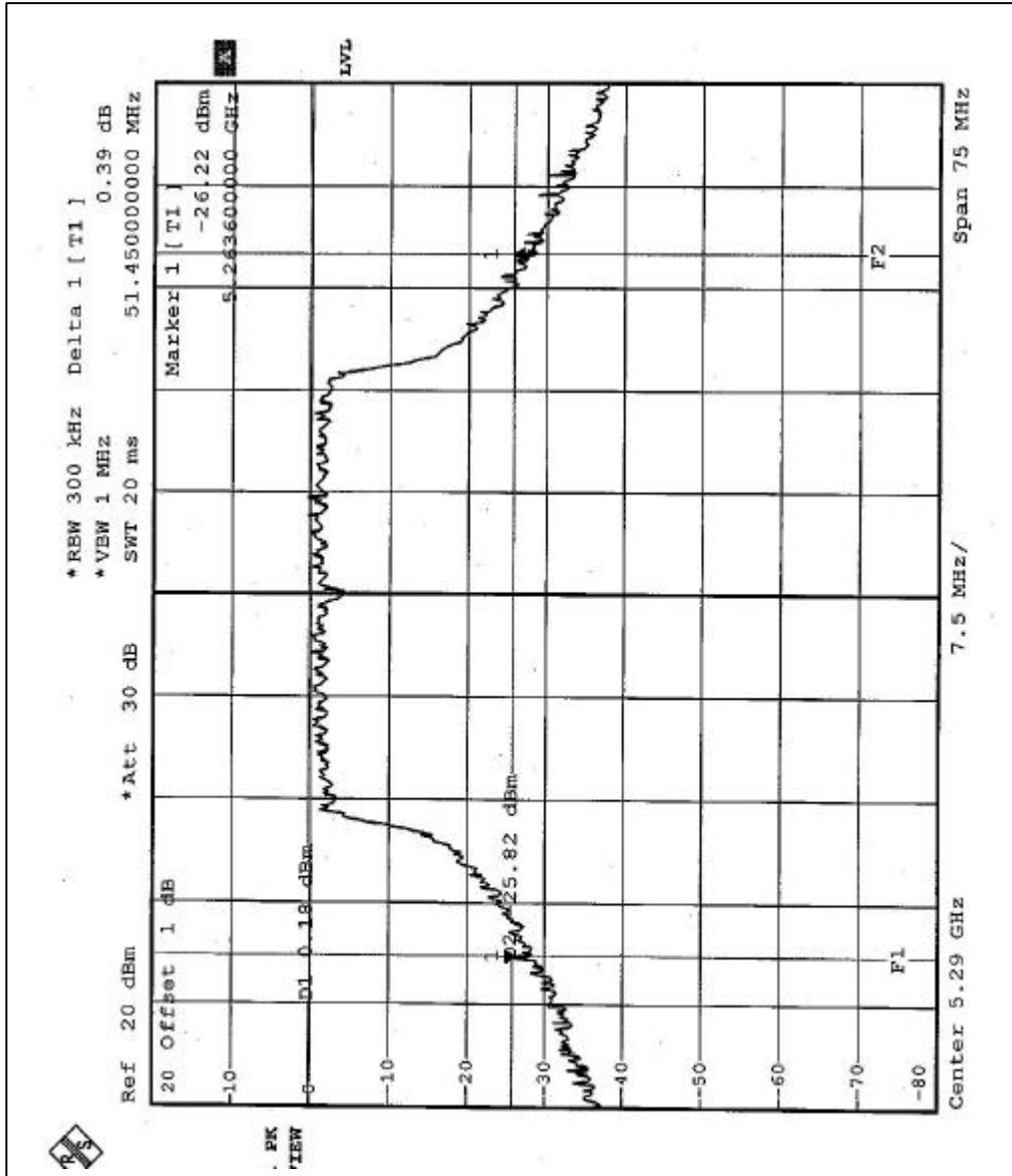




CHANNEL 3





5.4 PEAK POWER EXCURSION MEASUREMENT

5.4.1 LIMITS OF PEAK POWER EXCURSION MEASUREMENT

Frequency Band	Limit
5.15 – 5.25 GHz	13dB
5.25 – 5.35 GHz	13dB
5.725 – 5.825 GHz	13dB

5.4.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
SPECTRUM ANALYZER	FSEK30	100049	July 24, 2003

NOTE:

The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.



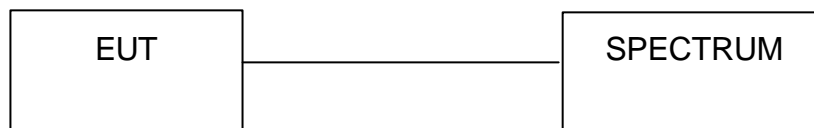
5.4.3 TEST PROCEDURE

1. The transmitter output was connected to the spectrum analyzer.
2. Set the spectrum bandwidth span to view the entire spectrum.
3. Using peak detector and Max-hold function for Trace 1 (RB=1MHz, VB=3MHz) and 2 (RB=1MHz, VB=300KHz).
4. The largest difference between Trace 1 and Trace 2 in any 1MHz band on any frequency was recorded.

5.4.4 DEVIATION FROM TEST STANDARD

No deviation

5.4.5 TEST SETUP



5.4.6 EUT OPERATING CONDITIONS

The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.



5.4.7 TEST RESULTS (F)-Antenna 1 & Antenna 7

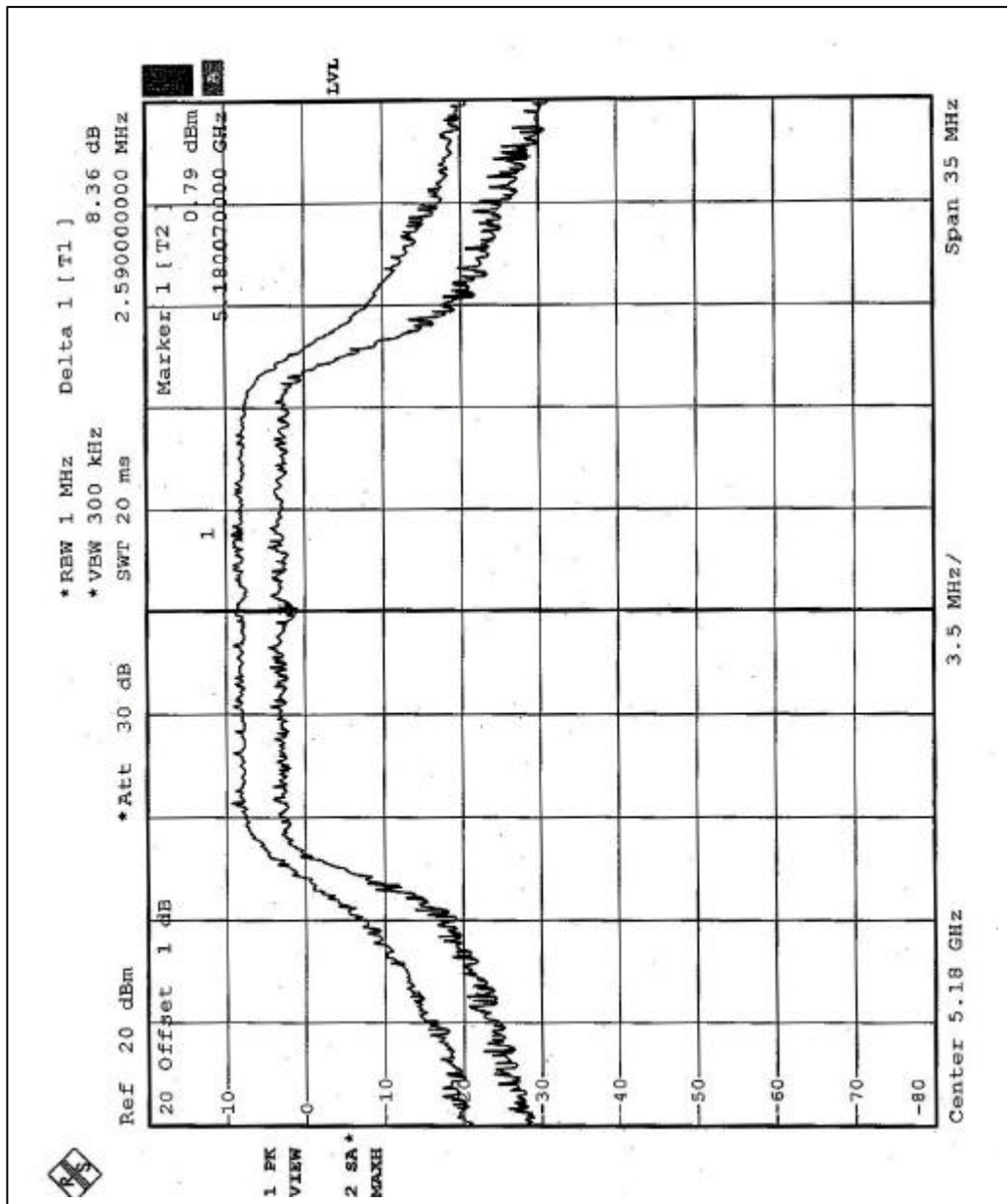
EUT	802.11a/b/g miniPCI module	MODEL	C38WCW
MODE	Normal	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	21eg. C, 58RH, 965 hPa	TESTED BY	Eric Lee

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)	PEAK to AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
1	5180	8.36	13	PASS
4	5240	7.13	13	PASS
5	5260	8.39	13	PASS
8	5320	7.54	13	PASS

Note: Antenna 1: Channel 1,4,5,8
Antenna 7: Channel 5,8

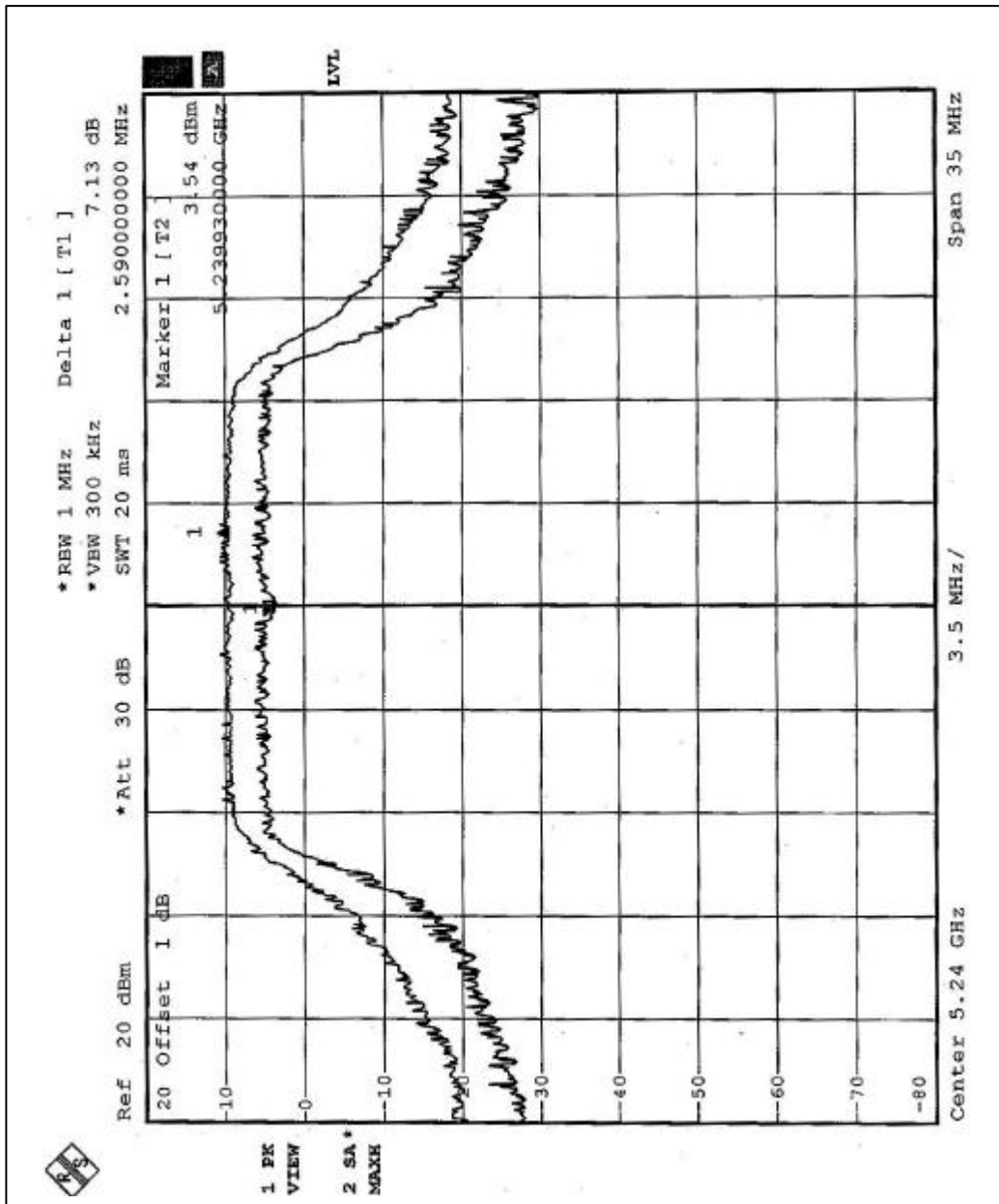


CHANNEL 1



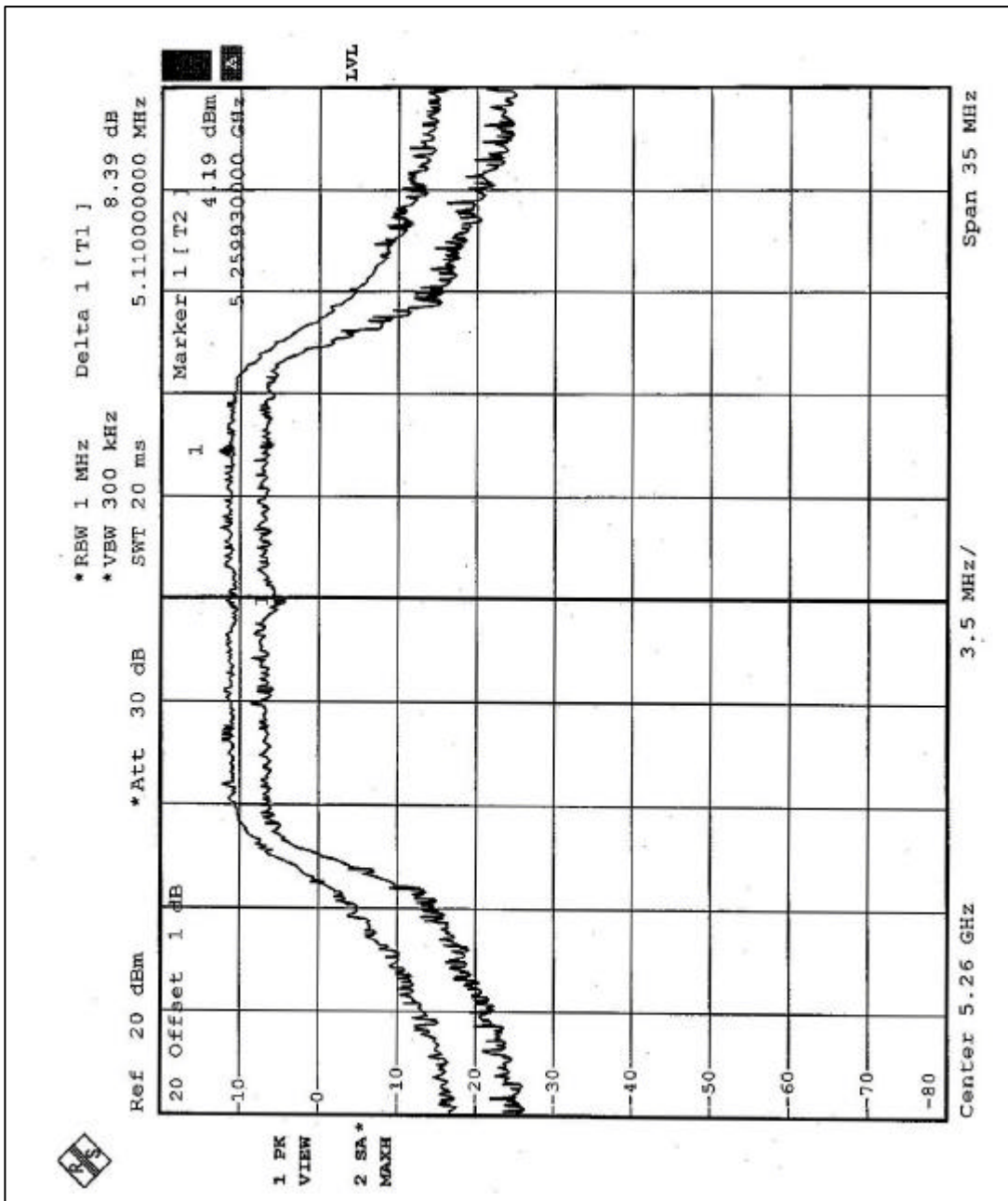


CHANNEL 4



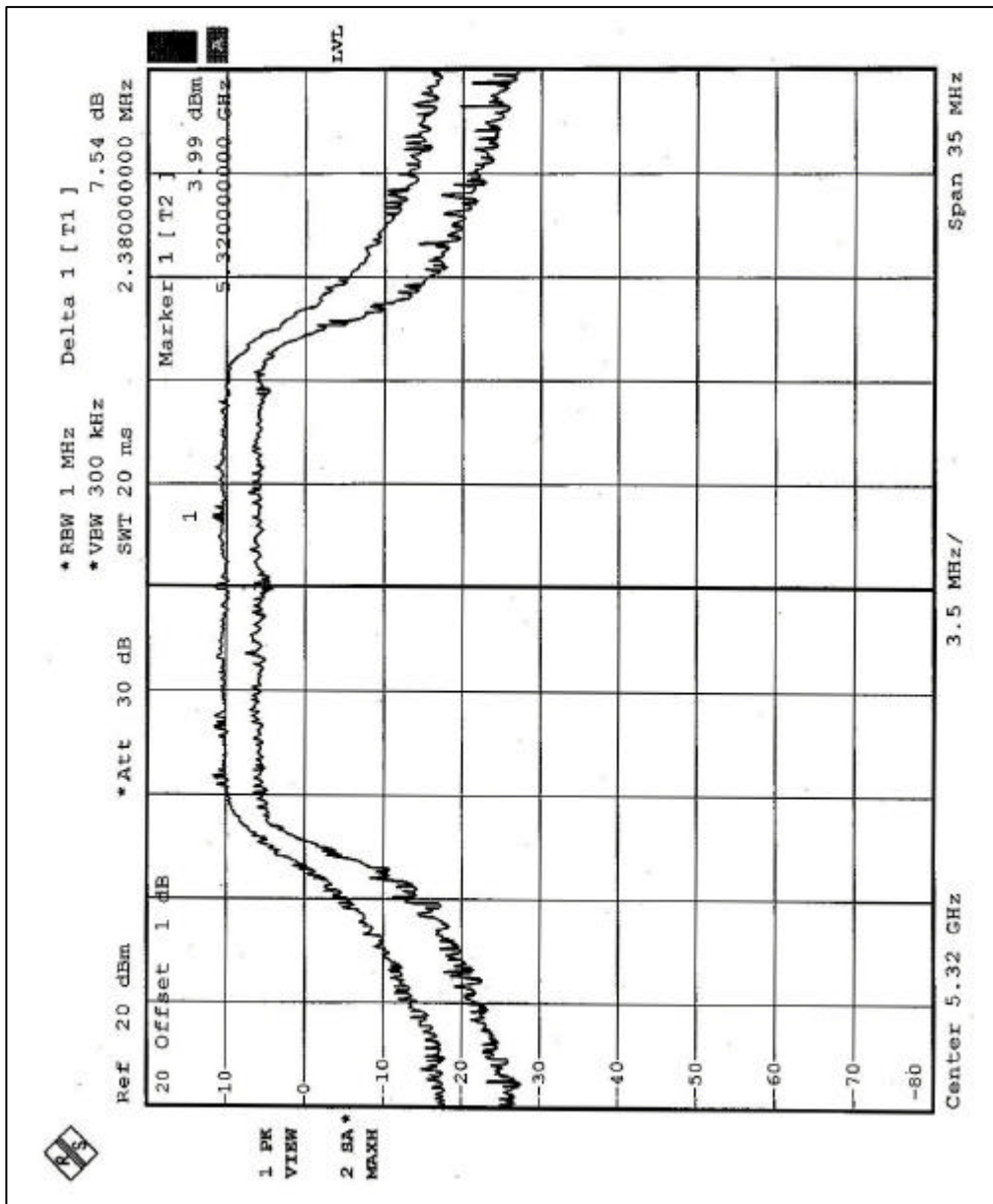


CHANNEL 5





CHANNEL 8





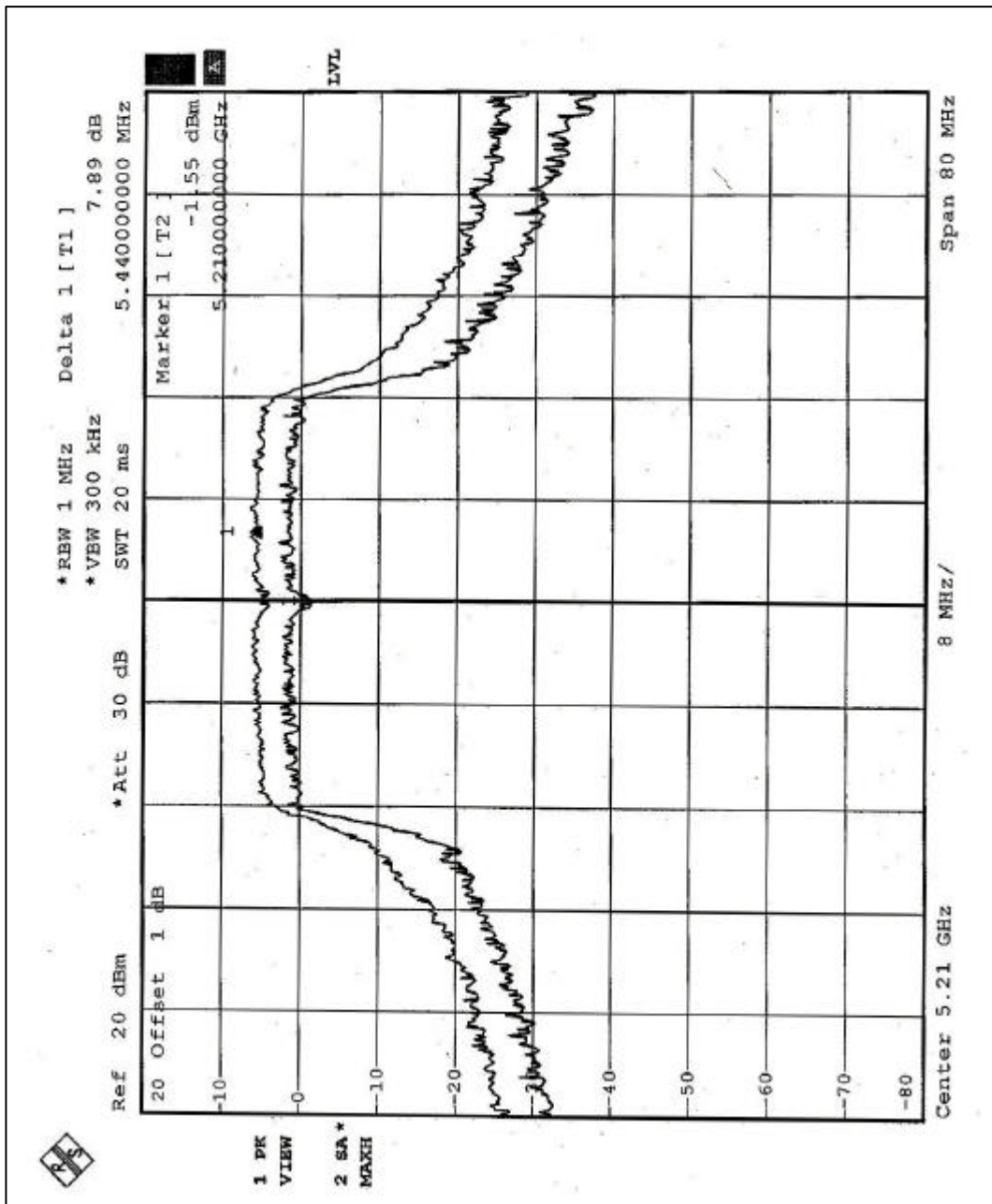
EUT	802.11a/b/g miniPCI module	MODEL	C38WCW
MODE	Turbo	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	21eg. C, 58RH, 965 hPa	TESTED BY	Eric Lee

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)	PEAK to AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
1	5210	7.89	13	PASS
2	5250	8.90	13	PASS
3	5290	8.62	13	PASS

Note: Antenna 1: Channel 1,2,3
 Antenna 7: Channel 3

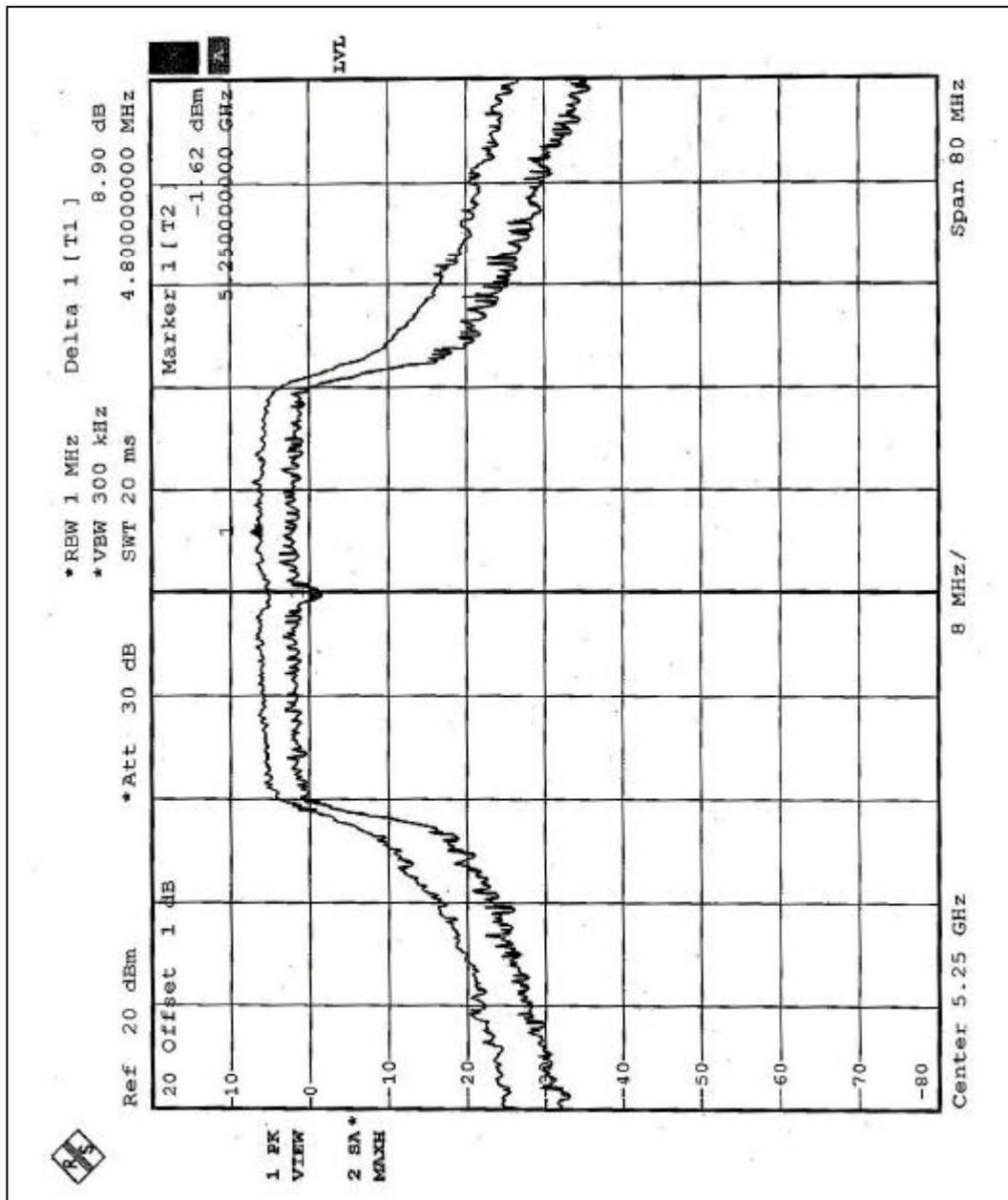


CHANNEL 1



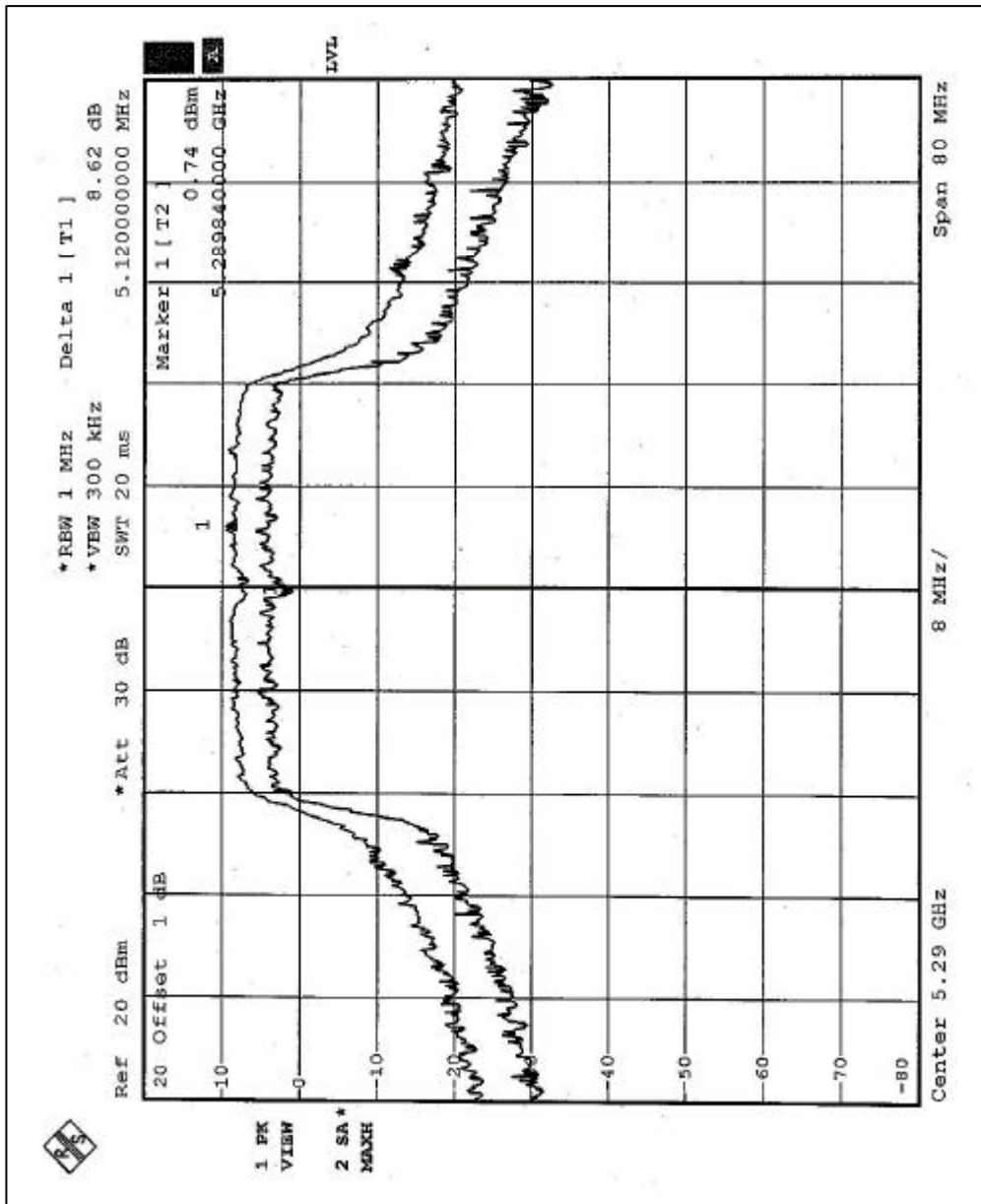


CHANNEL 2





CHANNEL 3



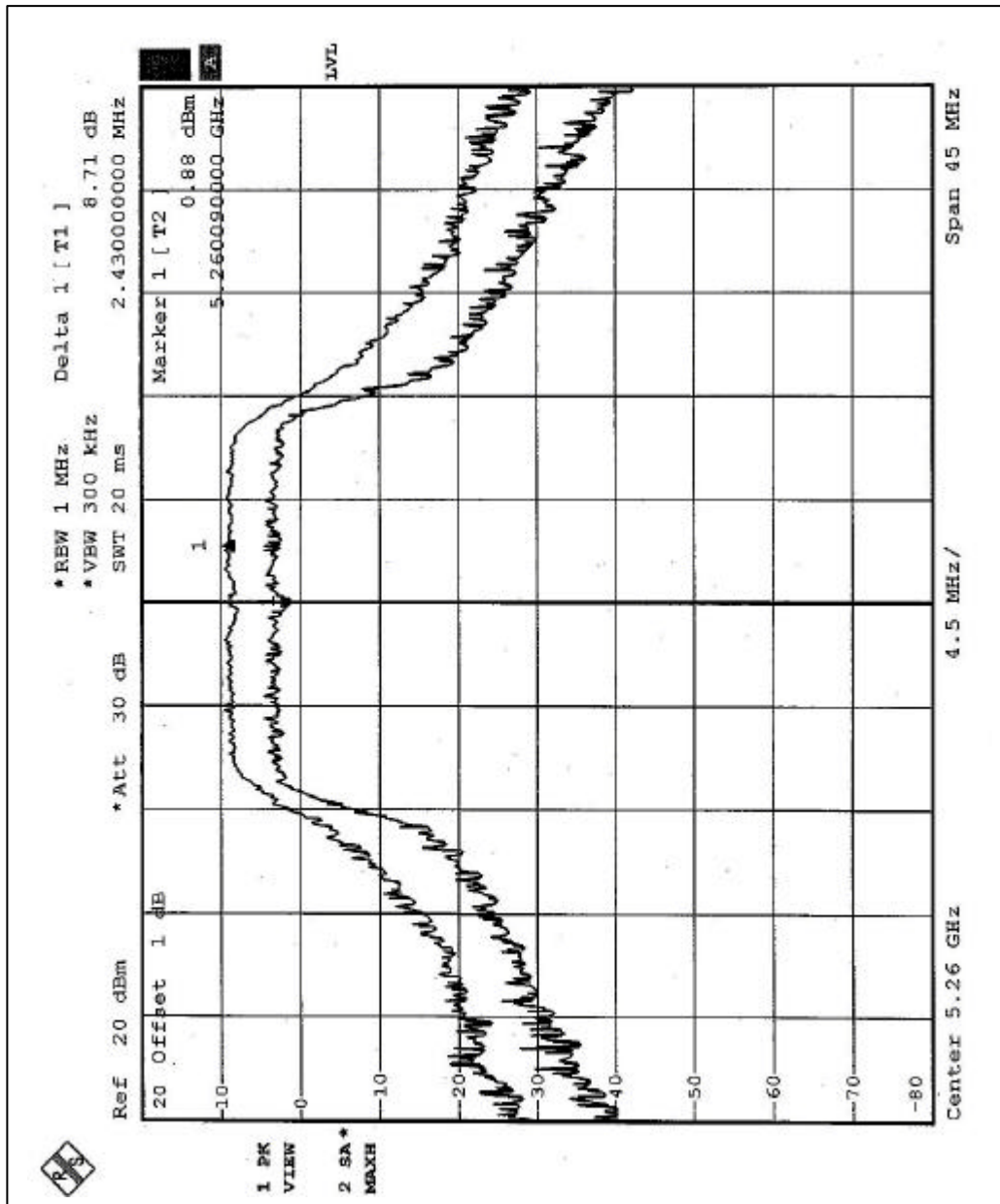


5.4.8 TEST RESULTS (F)-Antenna 8

EUT	802.11a/b/g miniPCI module	MODEL	C38WCW
MODE	Normal	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	21eg. C, 58RH, 965 hPa	TESTED BY	Eric Lee

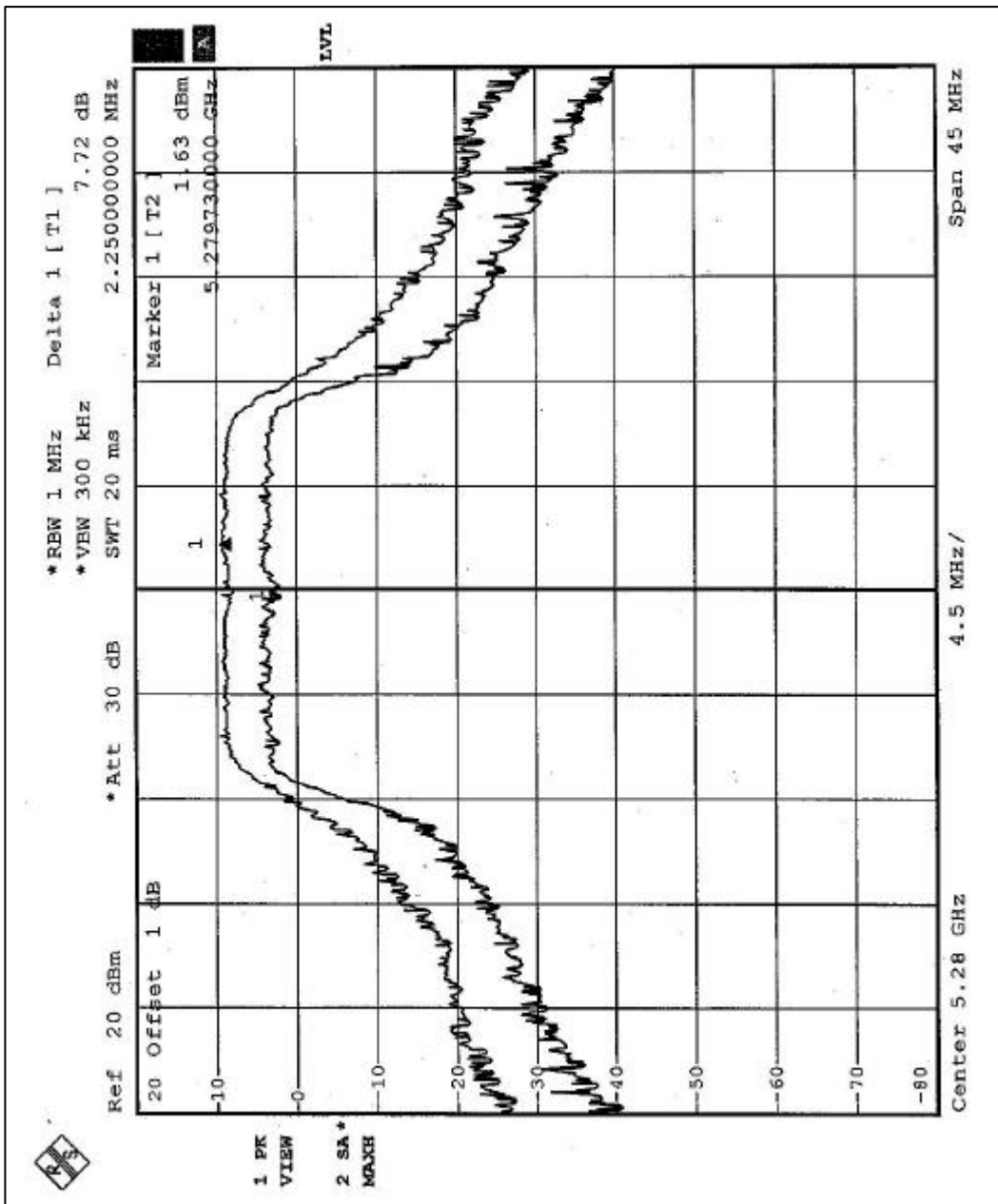
CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)	PEAK to AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
5	5260	8.71	13	PASS
8	5320	7.35	13	PASS

CHANNEL 5





CHANNEL 8



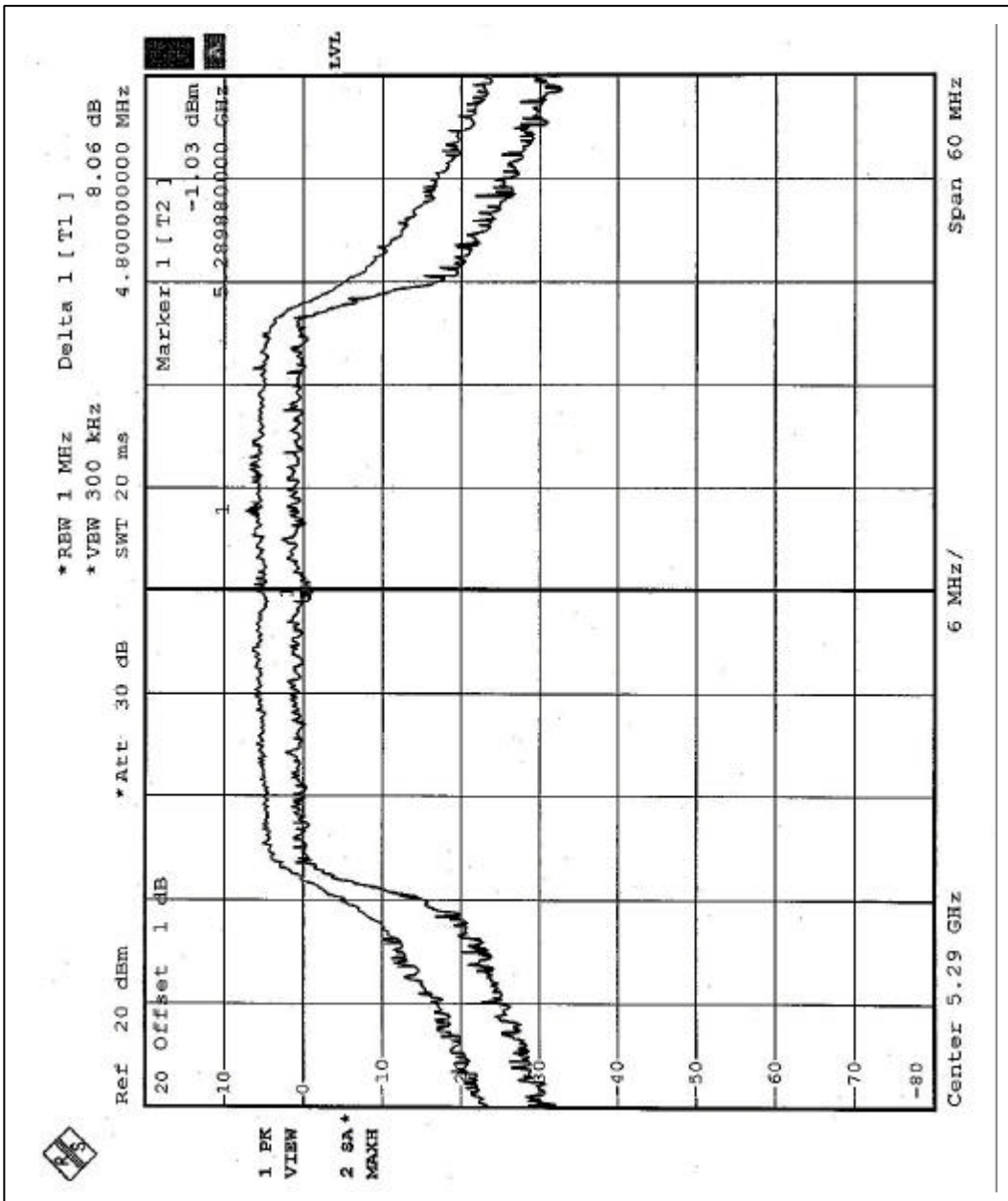


EUT	802.11a/b/g miniPCI module	MODEL	C38WCW
MODE	Turbo	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	21eg. C, 58RH, 965 hPa	TESTED BY	Eric Lee

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)	PEAK to AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
3	5290	9.17	13	PASS



CHANNEL 3





5.5 PEAK POWER SPECTRAL DENSITY MEASUREMENT

5.5.1 LIMITS OF PEAK POWER SPECTRAL DENSITY MEASUREMENT

Frequency Band	Limit
5.15 – 5.25 GHz	4dBm
5.25 – 5.35 GHz	11dBm
5.725 – 5.825 GHz	17dBm

5.5.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSP	1093.4495.30	Dec. 19, 2003

NOTE:

- 1.The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81.
- 2.The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

5.5.3 TEST PROCEDURES

1. The transmitter output was connected to the spectrum analyzer.
2. Set RBW=1MHz, VBW=3MHz. The PPSD is the highest level found across the emission in any 1MHz band.

5.5.4 DEVIATION FROM TEST STANDARD

No deviation

5.5.5 TEST SETUP



5.5.6 EUT OPERATING CONDITIONS

Same as 5.3.6



5.5.7 TEST RESULTS (G)-Antenna 1 & Antenna 7

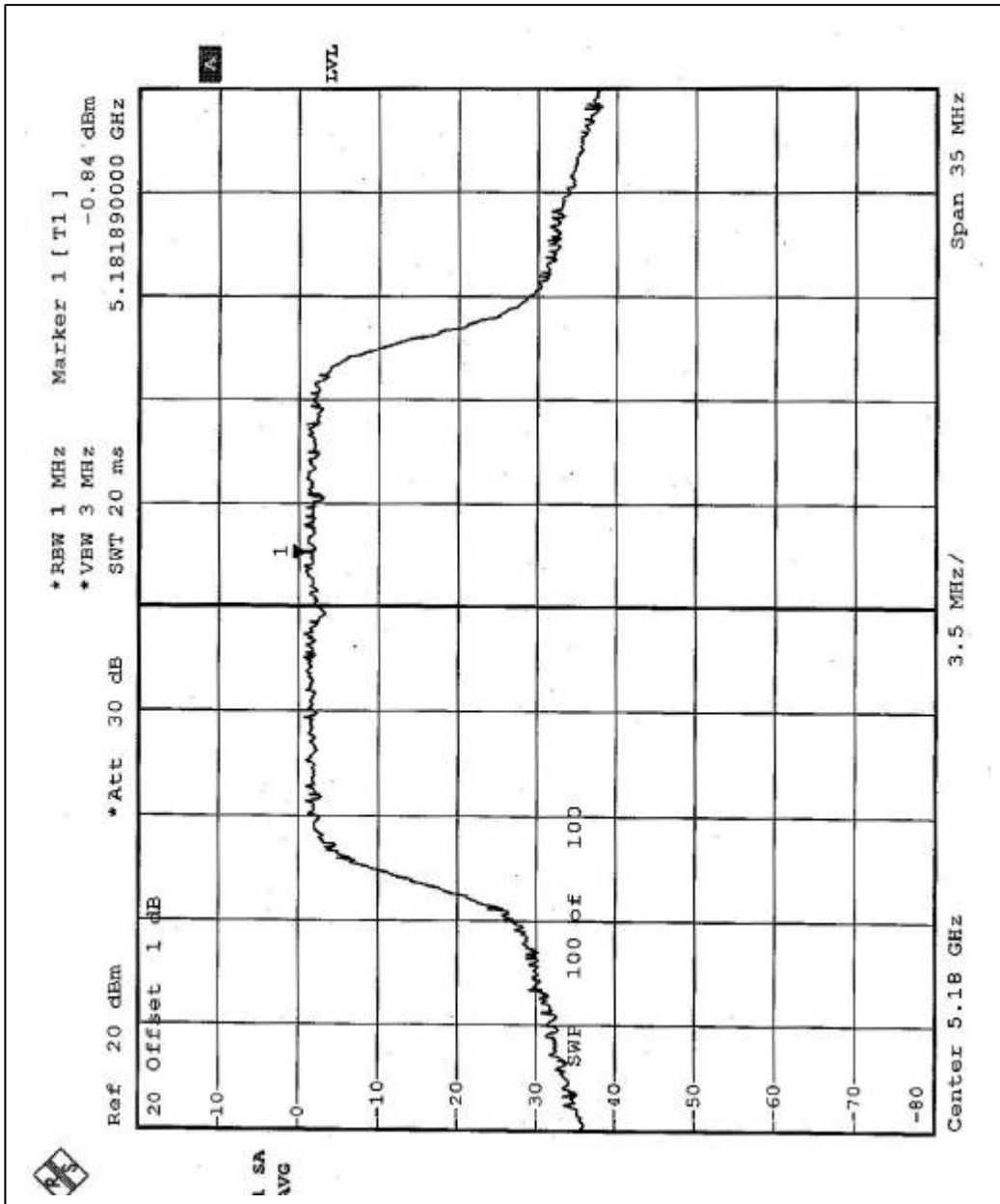
EUT	802.11a/b/g miniPCI module	MODEL	C38WCW
MODE	Normal	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	21eg. C, 58RH, 965 hPa	TESTED BY	Eric Lee

CHANNEL NUMBER	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 1 MHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	5180	-0.84	4	PASS
4	5240	0.35	4	PASS
5	5260	0.95	11	PASS
8	5320	2.26	11	PASS

Note: Antenna 1: Channel 1,4,5,8
Antenna 7: Channel 5,8

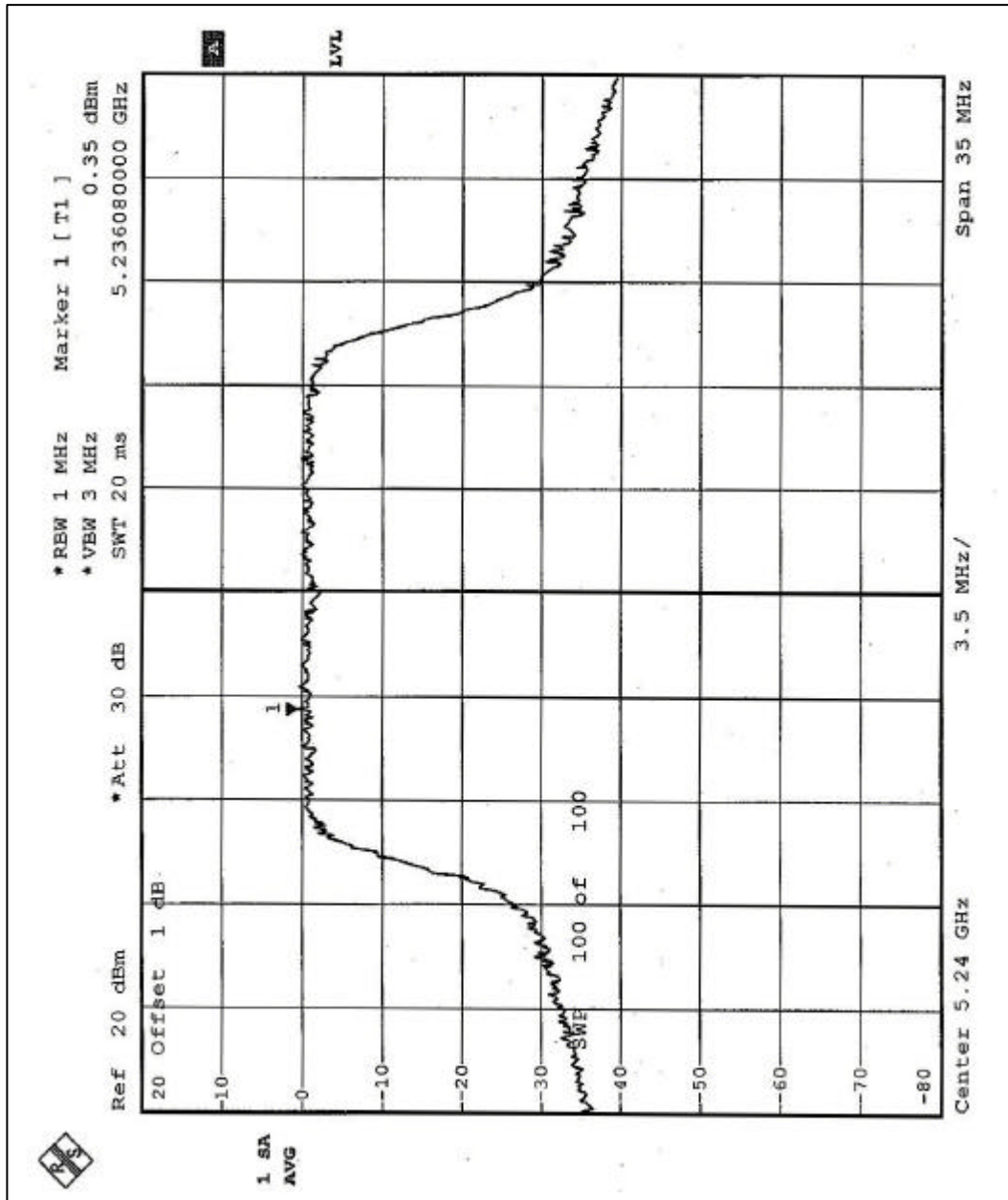


CHANNEL 1



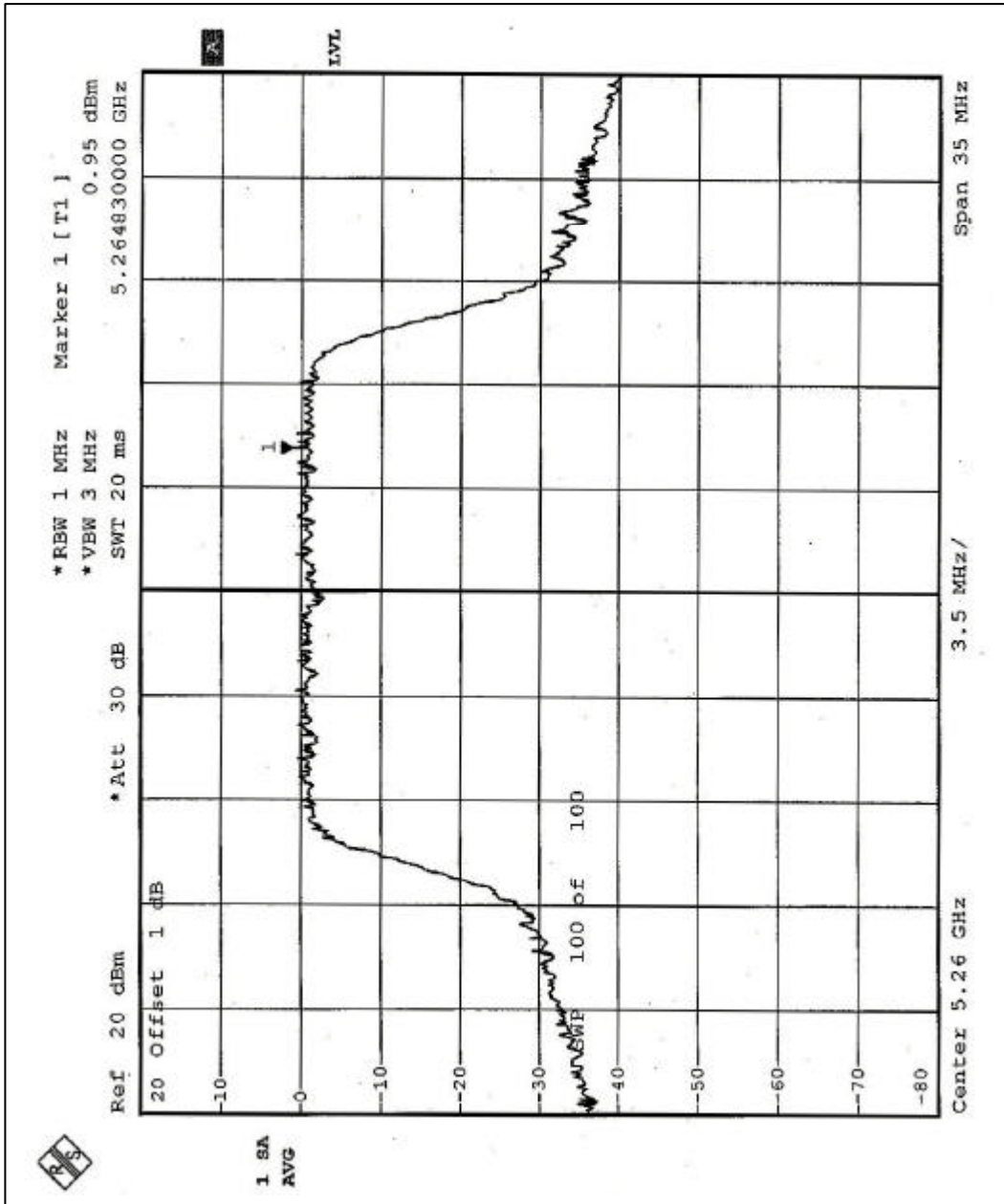


CHANNEL 4



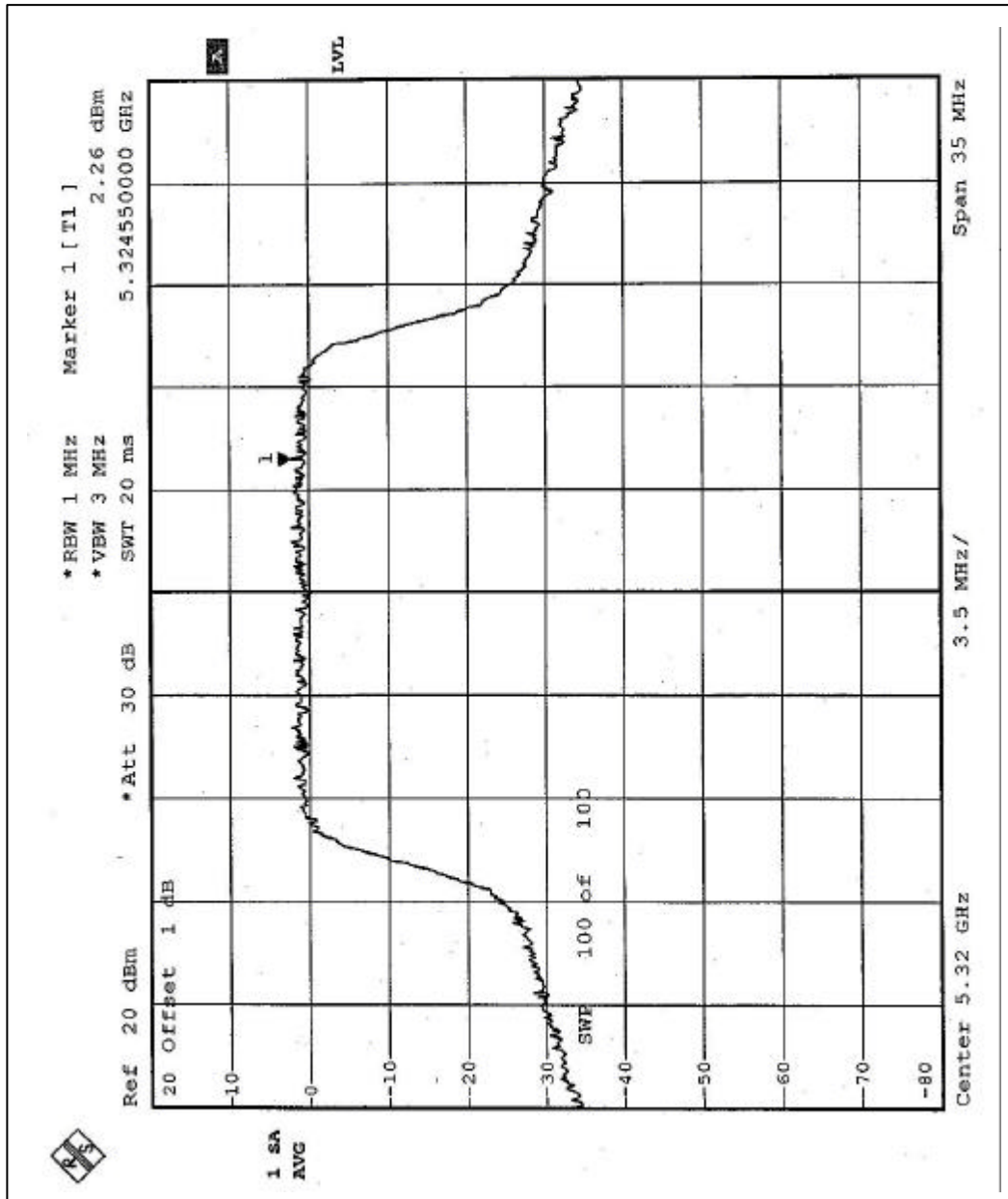


CHANNEL 5





CHANNEL 8





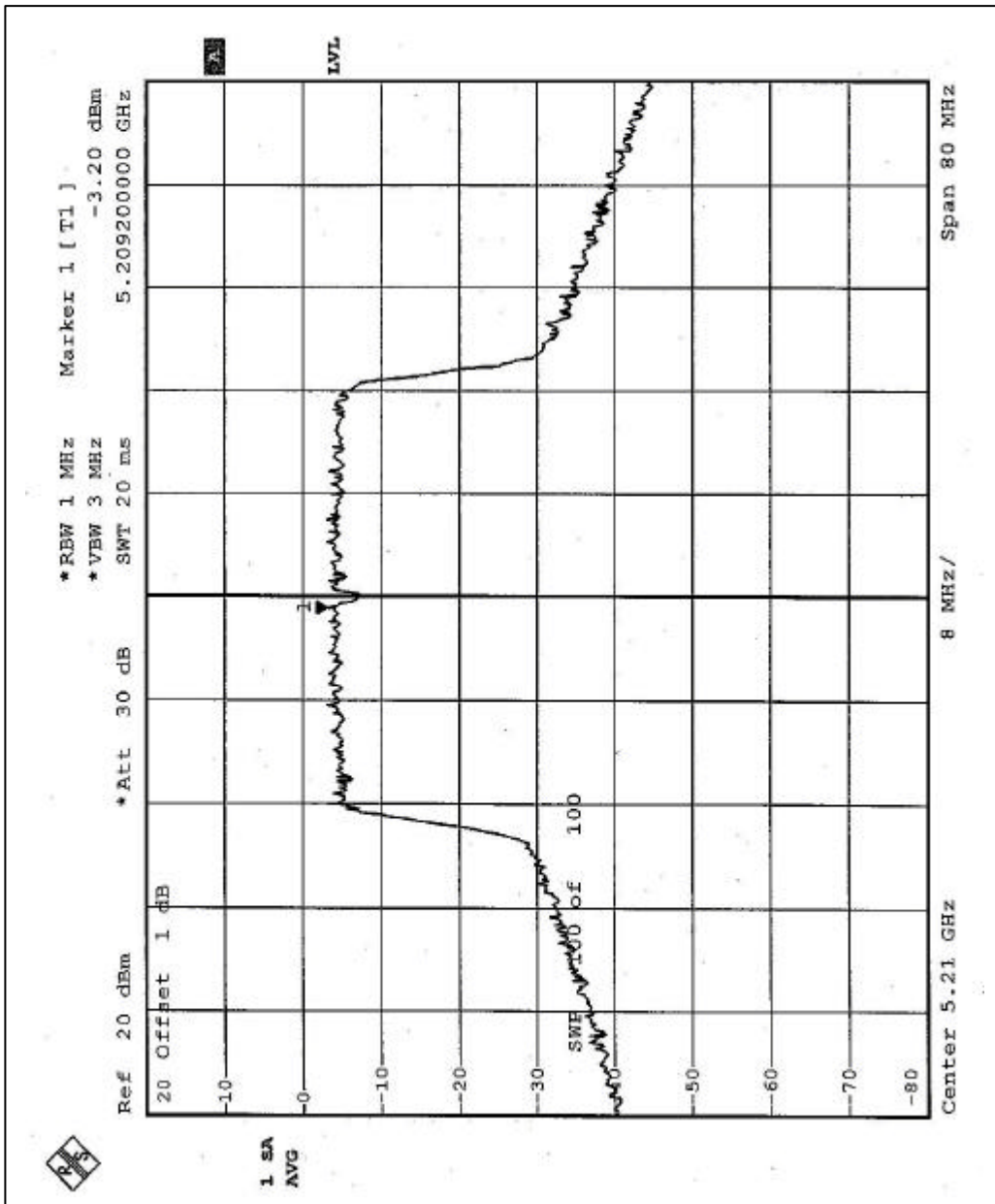
EUT	802.11a/b/g miniPCI module	MODEL	C38WCW
MODE	Turbo	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	27eg. C, 56RH, 965 hPa	TESTED BY	Eric Lee

CHANNEL NUMBER	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 1 MHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	5210	-3.20	4	PASS
2	5250	-2.05	4	PASS
3	5290	0.41	11	PASS

Note: Antenna 1: Channel 1,2,3
Antenna 7: Channel 3

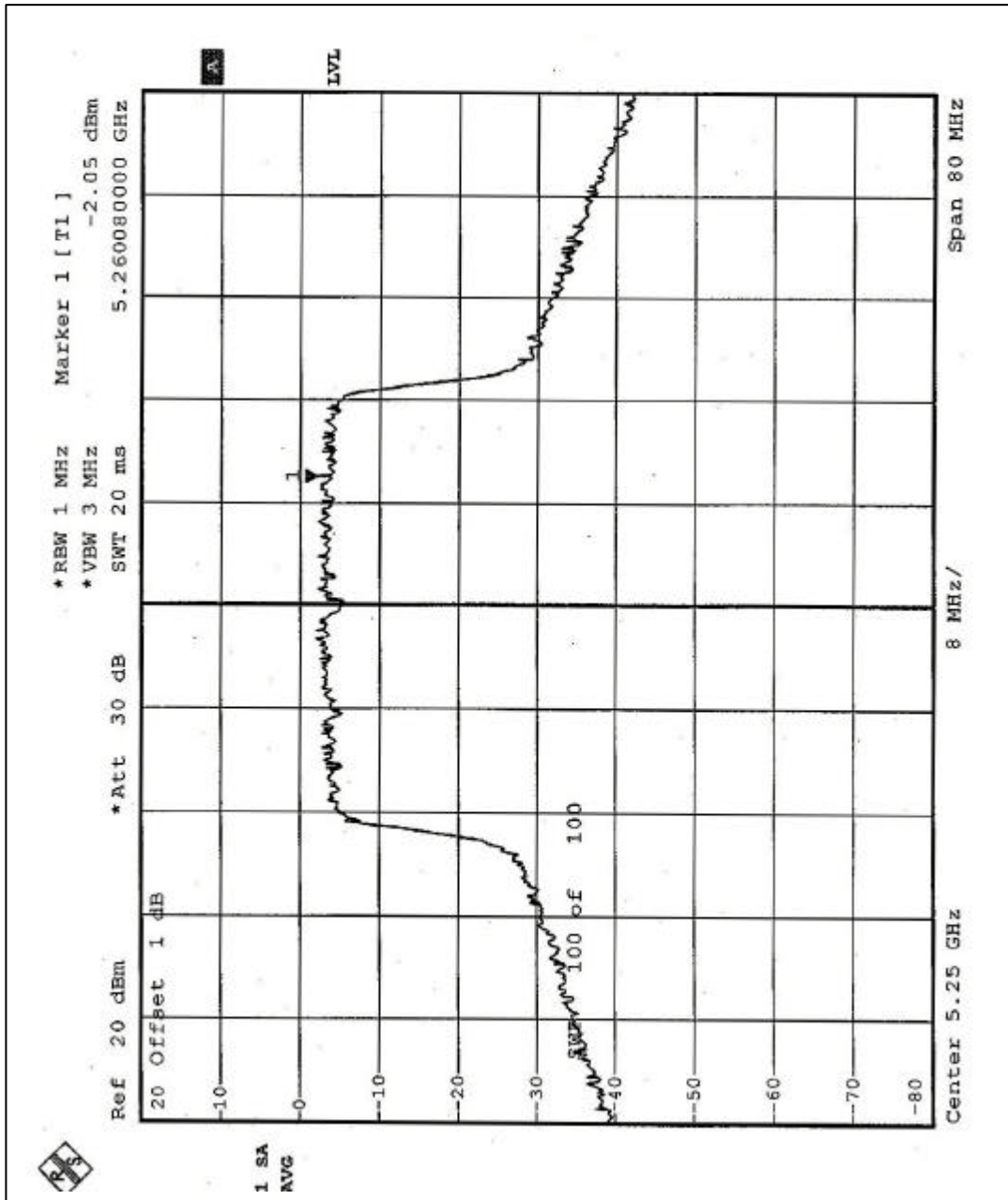


CHANNEL 1



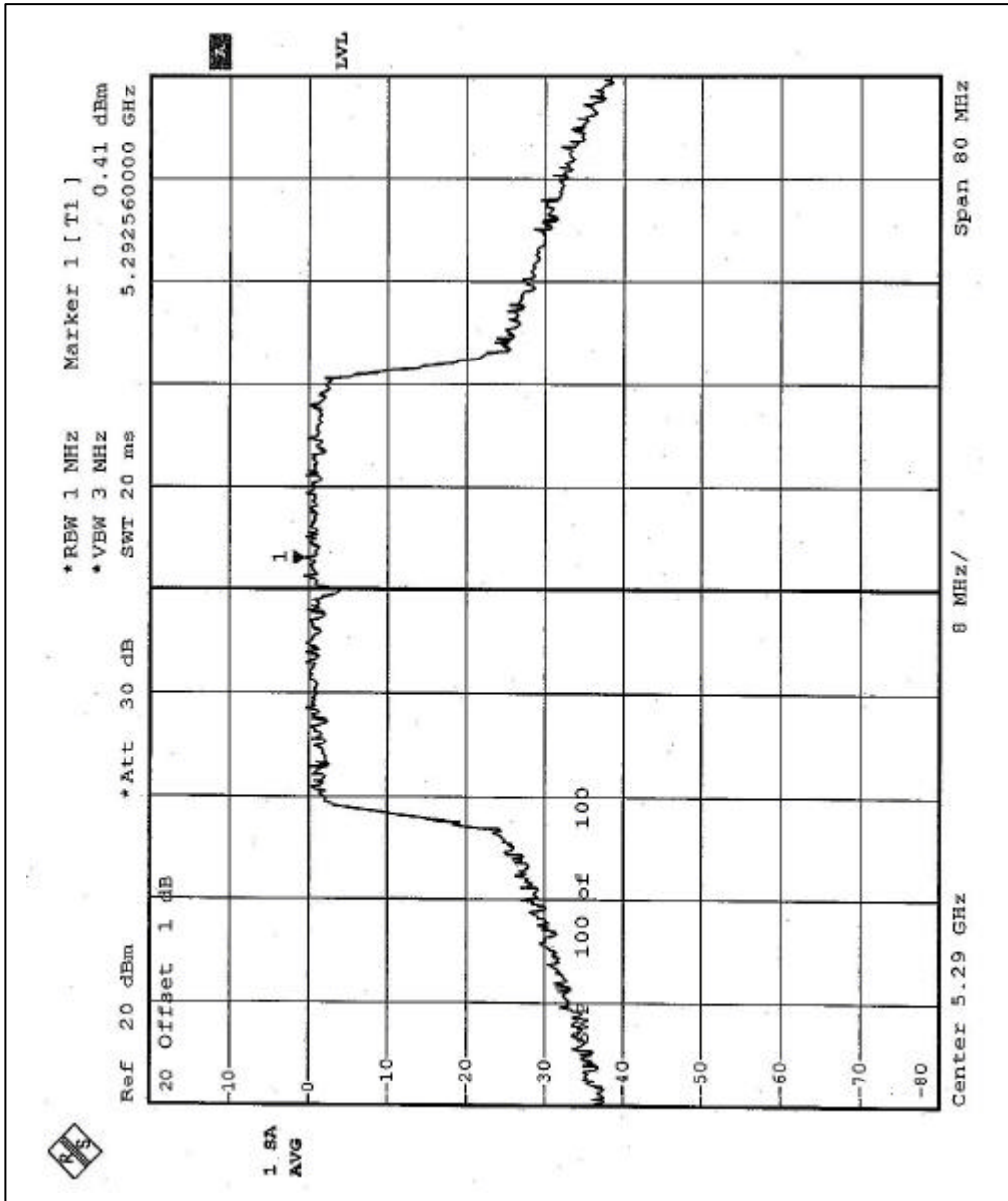


CHANNEL 2





CHANNEL 3





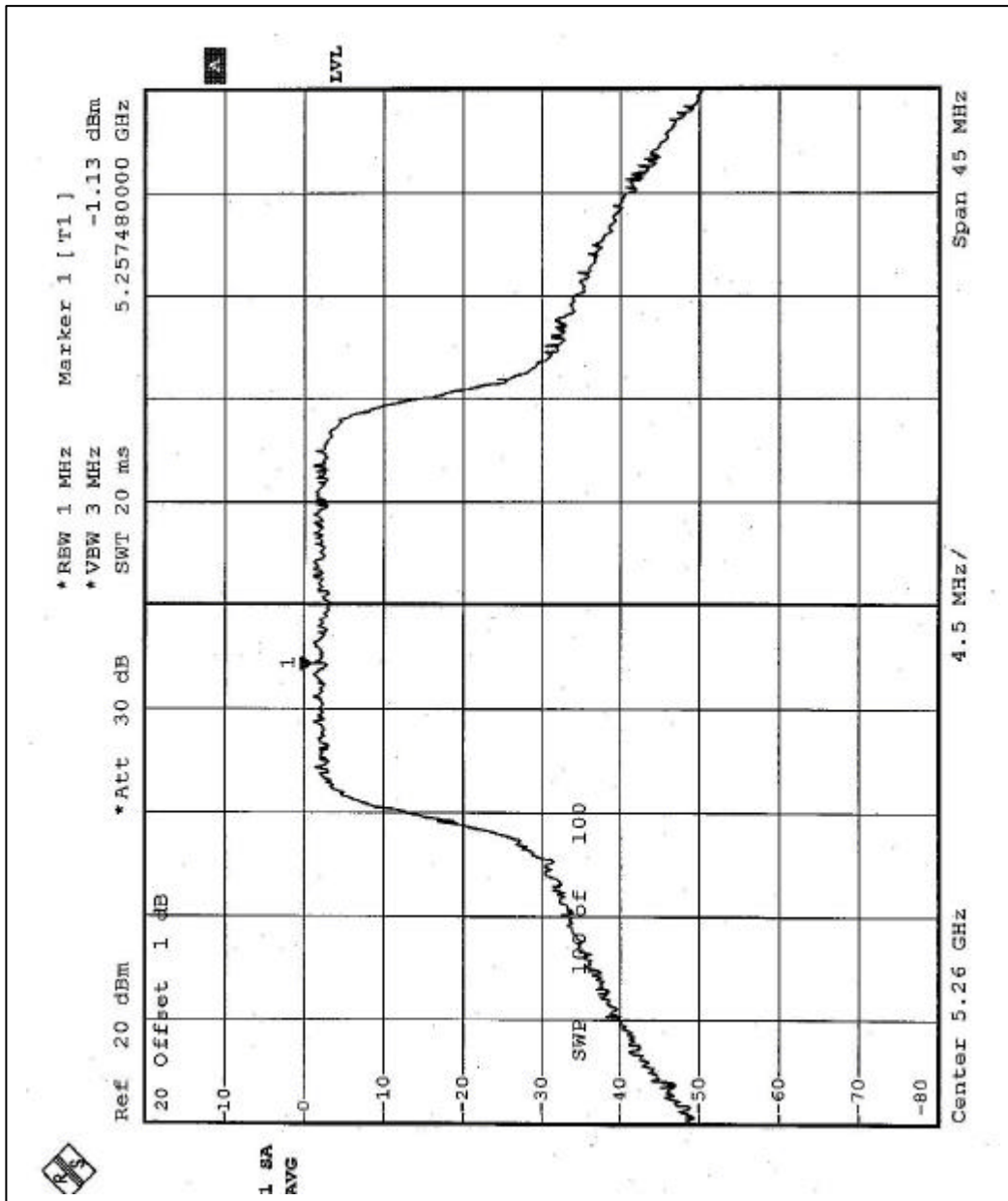
5.5.8 TEST RESULTS (G)-Antenna 8

EUT	802.11a/b/g miniPCI module	MODEL	C38WCW
MODE	Normal	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	21eg. C, 58RH, 965 hPa	TESTED BY	Eric Lee

CHANNEL NUMBER	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 1 MHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
5	5260	-1.13	11	PASS
8	5320	-0.43	11	PASS

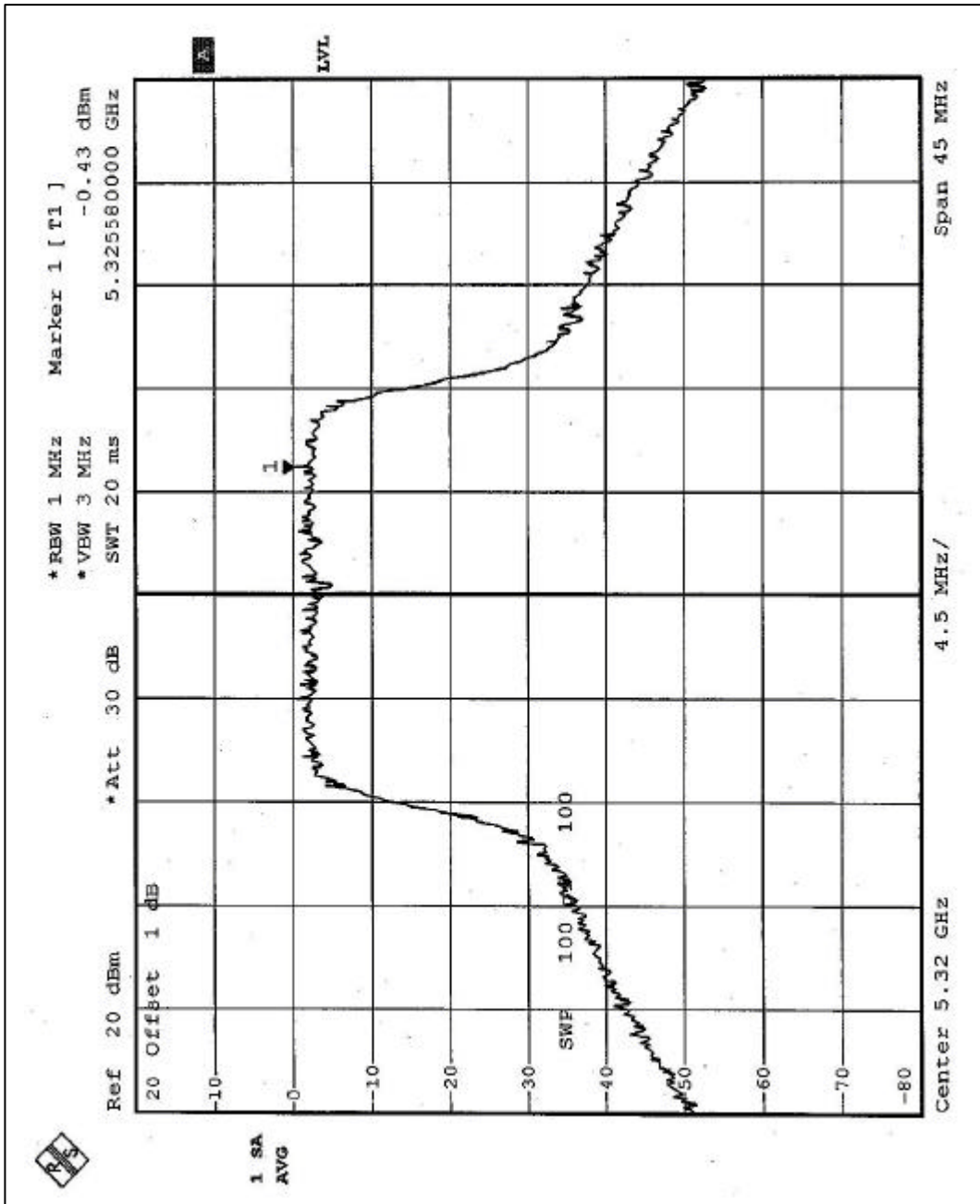


CHANNEL 5





CHANNEL 8



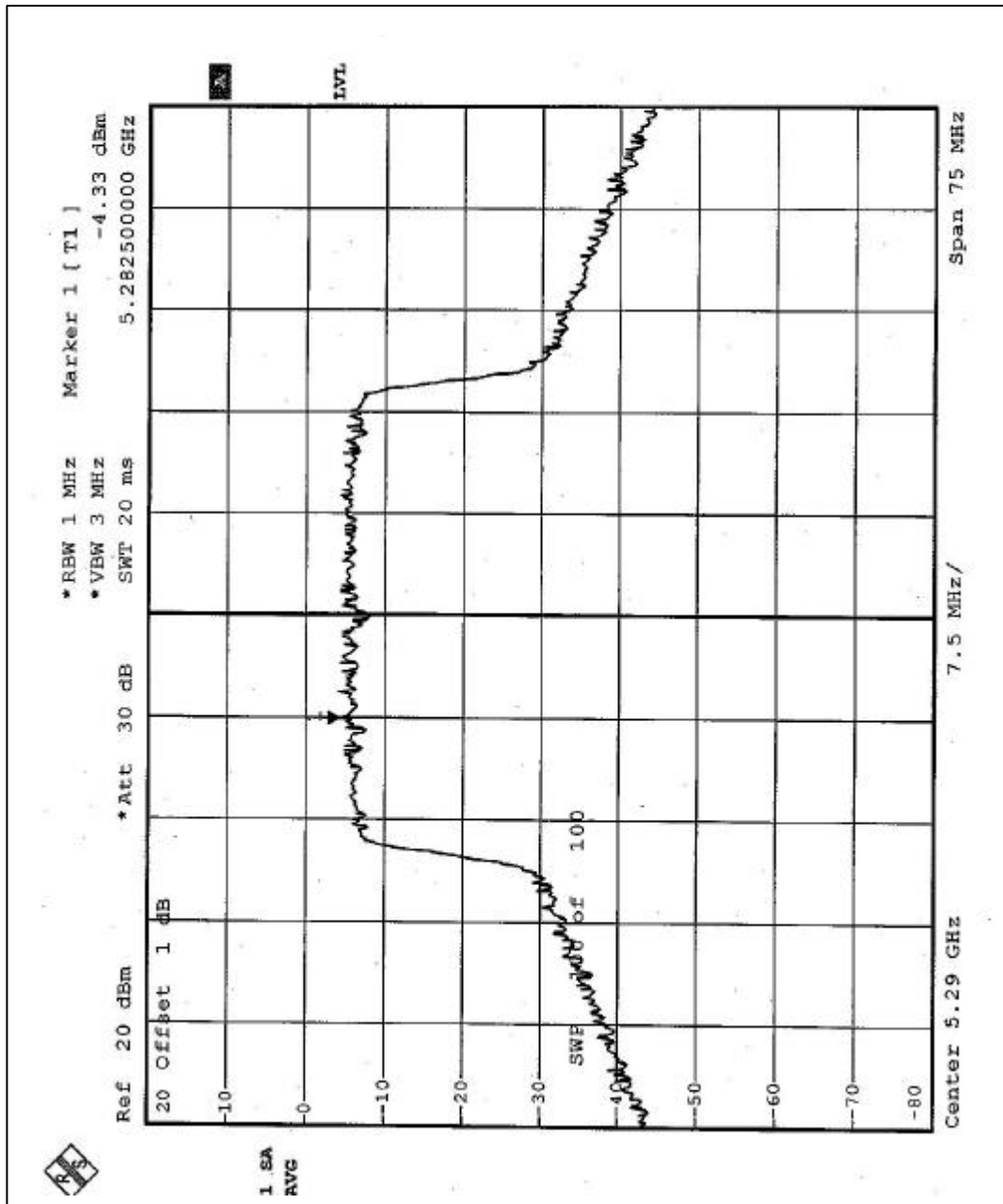


EUT	802.11a/b/g miniPCI module	MODEL	C38WCW
MODE	Turbo	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	21eg. C, 59RH, 965 hPa	TESTED BY	Eric Lee

CHANNEL NUMBER	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 1 MHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
3	5290	-4.33	11	PASS



CHANNEL 3





5.6 FREQUENCY STABILITY

5.6.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

The frequency tolerance of the carrier signal shall be maintained within +/- 0.02% of the operating frequency over a temperature variation of -30 degrees to 50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C.

5.6.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSP30	100019	Dec. 19, 2003

NOTE:

The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

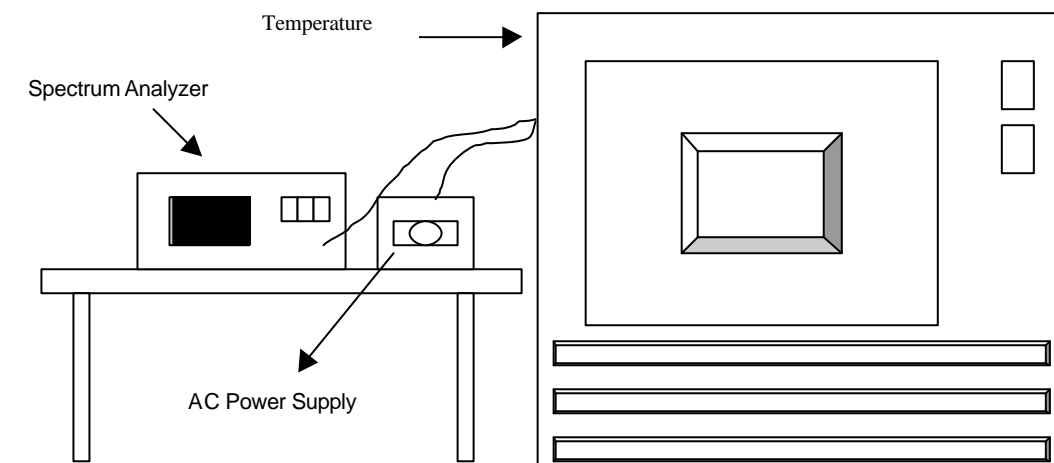
5.6.3 TEST PROCEDURE

1. The EUT was placed inside the environmental test chamber and powered by nominal AC voltage.
2. Turn the EUT on and couple its output to a spectrum analyzer.
3. Turn the EUT off and set the chamber to the highest temperature specified.
4. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.
5. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
6. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

5.6.4 DEVIATION FROM TEST STANDARD

No deviation

5.6.5 TEST SETUP



5.6.6 EUT OPERATING CONDITION

Same as Item 4.1.6



5.6.7 TEST RESULTS (H)

		Operating frequency: 5320MHz				Limit : ± 0.01%	
Temp. ()	Power supply (VAC)	2 minute		5 minute		10 minute	
		(MHz)	(%)	(MHz)	(%)	(MHz)	(%)
50	126.5	5320.046	0.000865%	5320.0168	0.000316%	5320.0166	0.000312%
	110	5320.045	0.000846%	5320.0169	0.000318%	5320.0168	0.000316%
	93.5	5320.044	0.000827%	5320.0167	0.000314%	5320.0167	0.000314%
40	126.5	5319.9975	-0.000047%	5319.9979	-0.000039%	5319.9978	-0.000041%
	110	5319.9976	-0.000045%	5319.9977	-0.000043%	5319.9978	-0.000041%
	93.5	5319.9975	-0.000047%	5319.9978	-0.000041%	5319.9978	-0.000041%
30	126.5	5319.9932	-0.000128%	5319.9935	-0.000122%	5319.9934	-0.000124%
	110	5319.9932	-0.000128%	5319.9934	-0.000124%	5319.9936	-0.000120%
	93.5	5319.9932	-0.000128%	5319.9937	-0.000118%	5319.9937	-0.000118%
20	126.5	5319.9955	-0.000085%	5319.9955	-0.000085%	5319.9955	-0.000085%
	110	5319.9952	-0.000090%	5319.9953	-0.000088%	5319.9953	-0.000088%
	93.5	5319.9955	-0.000085%	5319.9956	-0.000083%	5319.9954	-0.000086%
10	126.5	5319.9934	-0.000124%	5319.9936	-0.000120%	5319.9938	-0.000117%
	110	5319.9932	-0.000128%	5319.9935	-0.000122%	5319.9938	-0.000117%
	93.5	5319.9935	-0.000122%	5319.9935	-0.000122%	5319.9937	-0.000118%
0	126.5	5319.9945	-0.000103%	5319.9945	-0.000103%	5319.9946	-0.000102%
	110	5319.9944	-0.000105%	5319.9946	-0.000102%	5319.9946	-0.000102%
	93.5	5319.9944	-0.000105%	5319.9944	-0.000105%	5319.9947	-0.000100%
-10	126.5	5320.004	0.000075%	5320.0041	0.000077%	5320.0043	0.000081%
	110	5320.004	0.000075%	5320.0042	0.000079%	5320.0043	0.000081%
	93.5	5320.0041	0.000077%	5320.0042	0.000079%	5320.0043	0.000081%
-20	126.5	5320.0185	0.000348%	5320.0184	0.000346%	5320.0186	0.000350%
	110	5320.0184	0.000346%	5320.0185	0.000348%	5320.0186	0.000350%
	93.5	5320.0185	0.000348%	5320.0186	0.000350%	5320.0186	0.000350%
-30	126.5	5320.018	0.000338%	5320.0211	0.000397%	5320.0220	0.000414%
	110	5320.019	0.000357%	5320.0210	0.000395%	5320.0210	0.000395%
	93.5	5320.018	0.000338%	5320.0210	0.000395%	5320.0220	0.000414%

5.7 BAND EDGES MEASUREMENT

5.7.1 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSP	1093.4495.30	Dec. 19, 2003

NOTE:

- 1.The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81.
- 2.The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

5.7.2 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer via a low lose cable. Set RBW of spectrum analyzer to 1MHz and VBW of spectrum analyzer to 300Hz with suitable frequency span including 100 MHz bandwidth from band edge. The band edges was measured and recorded.

5.7.3 EUT OPERATING CONDITION

The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.



5.7.4 TEST RESULTS (I)

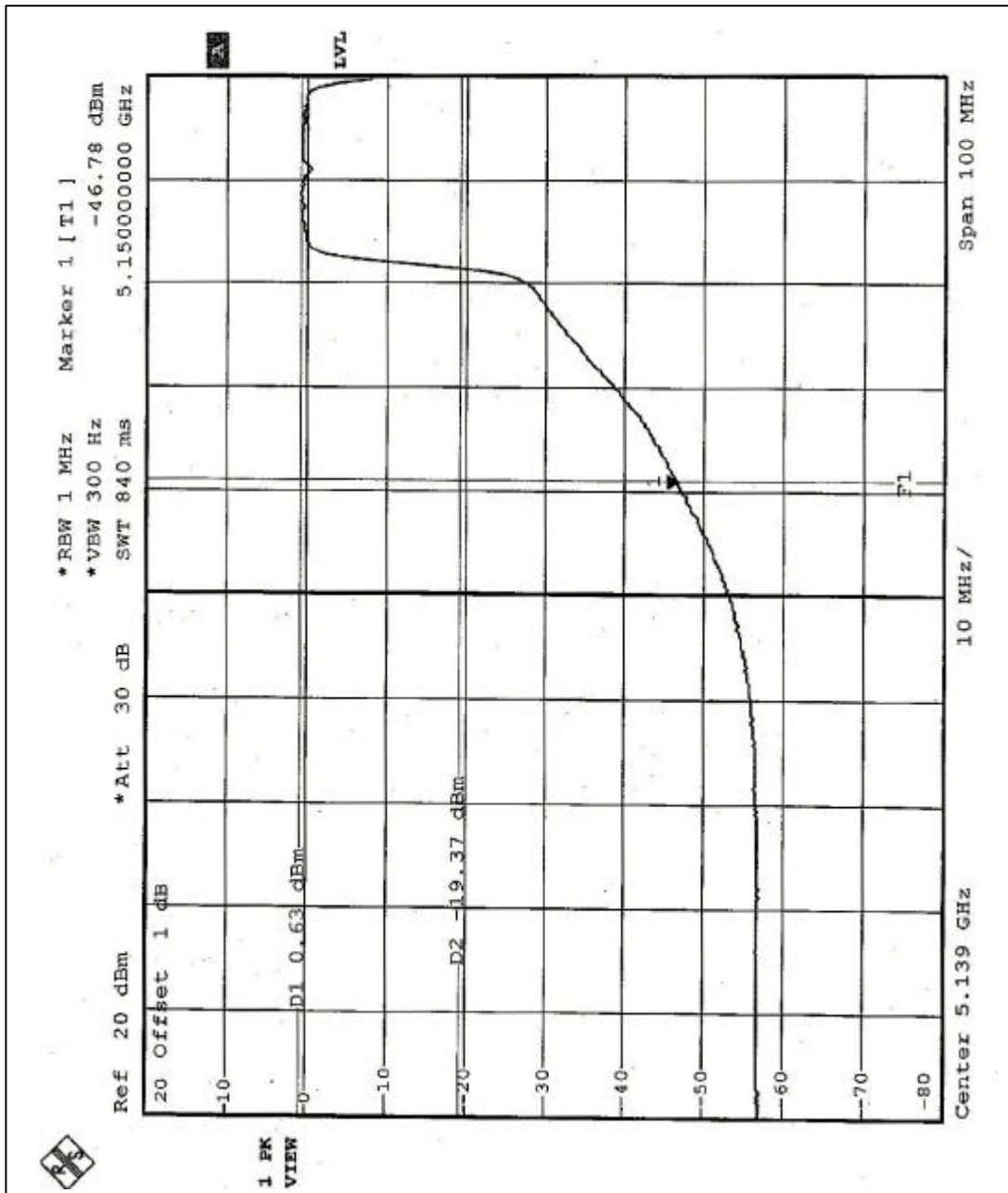
For signals in the restricted bands above and below the 5.15 to 5.35 GHz allocated band a measurement was made of the amplitude of the spurious emissions with respect to the intentional signals. The relative amplitude, in dBc, was applied to the average and peak field strength of the intentional signal made on the OATS to calculate the field strength of the unintentional signals.

The spectrum plots (Average RBW=1MHz, VBW=300Hz) are attached on the following 7 pages.



Normal Mode: Channel 1 (5180 MHz)-Antenna 1

The band edge emission plot on the following page shows 47.41dBc (Average) between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 1 (normal mode) is 100.2dBuV/m, so the maximum field strength in restrict band is $100.2 - 47.41 = 52.79$ dBuV/m which is under 54dBuV/m limit.





Normal Mode: Channel 8 (5320 MHz) -Antenna 1 & Antenna 7

The band edge emission plot on the following page shows 55.22dBc (Average) between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 8 (normal mode) is 103.9dBuV/m, so the maximum field strength in restrict band is $103.9 - 55.22 = 48.68$ dBuV/m which is under 54dBuV/m limit.

