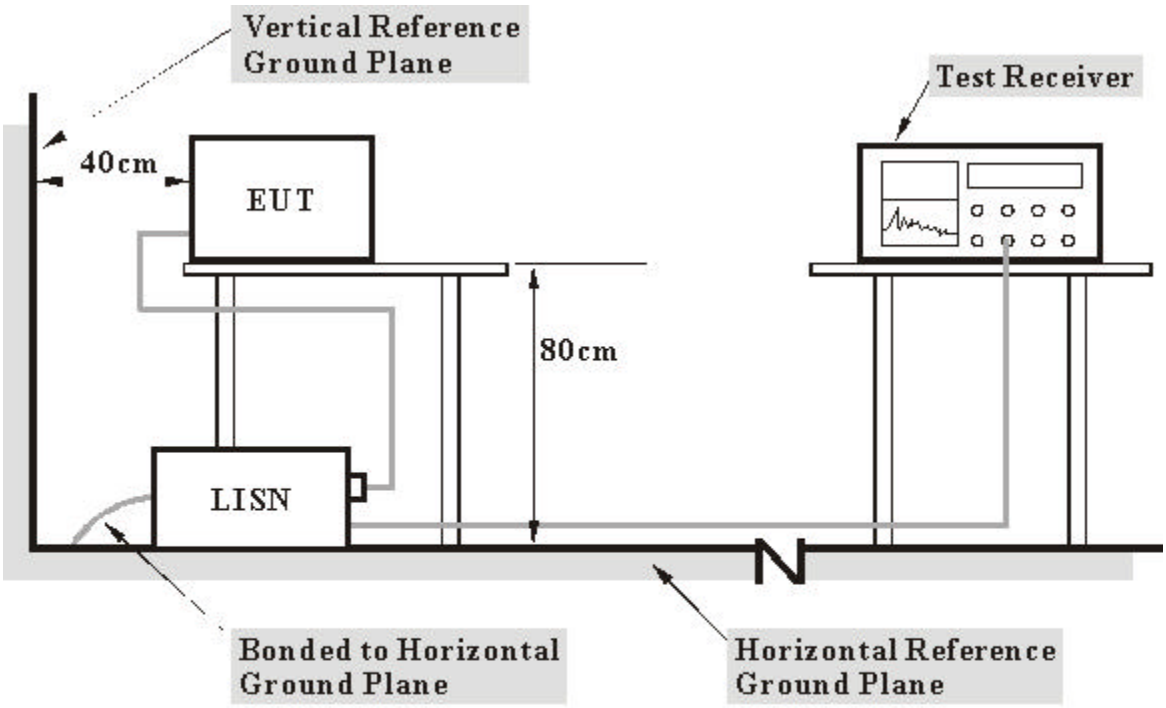
5.1.5 TEST SETUP



Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

5.1.6 EUT OPERATING CONDITIONS

Same as 4.1.6.

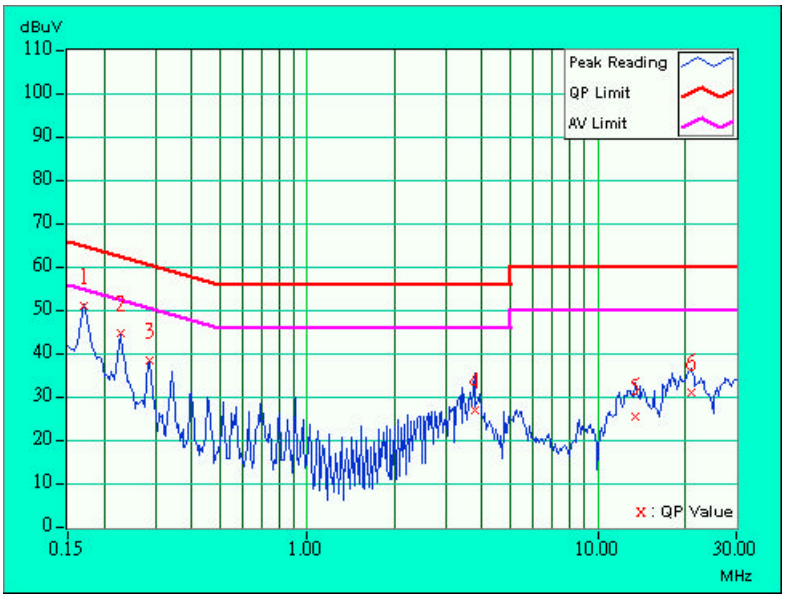
5.1.7 TEST RESULTS

EUT	2.4GHz/5GHz Mini - PCI Card	**MODEL**	WLL220
		6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**PHASE**	Line (L)
ENVIRONMENTAL CONDITIONS	25deg. C, 60RH, 1005 hPa	**TESTED BY**: Gary Chang	

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.170	0.10	49.88	-	49.98	-	64.98	54.98	-15.00	-
2	0.228	0.10	43.56	-	43.66	-	62.52	52.52	-18.86	-
3	0.287	0.10	37.43	-	37.53	-	60.62	50.62	-23.09	-
4	3.762	0.38	25.78	-	26.16	-	56.00	46.00	-29.84	-
5	13.500	0.74	24.58	-	25.32	-	60.00	50.00	-34.68	-
6	20.918	1.12	30.05	-	31.17	-	60.00	50.00	-28.83	-

NOTE:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.

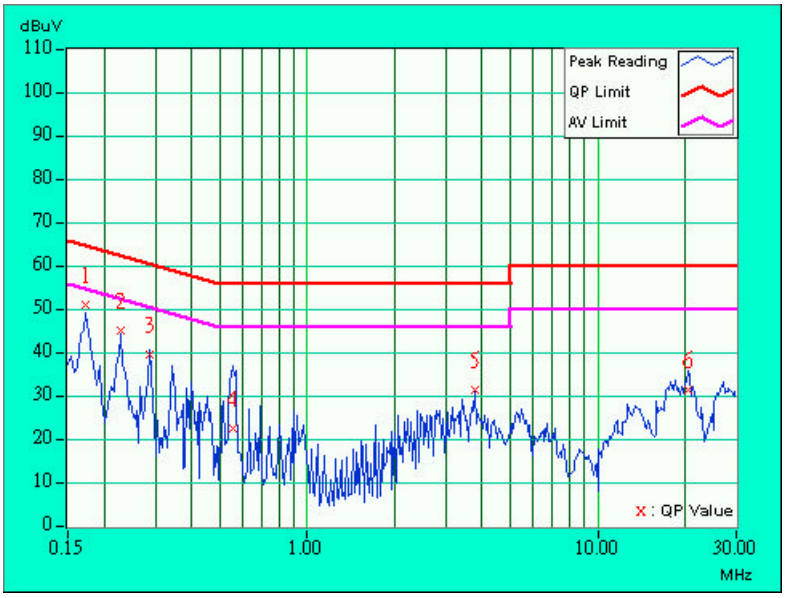


EUT	2.4GHz/5GHz Mini - PCI Card	**MODEL**	WLL220
		6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**PHASE**	Neutral (N)
ENVIRONMENTAL CONDITIONS	25deg. C, 60RH, 1005 hPa	**TESTED BY**: Gary Chang	

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.173	0.10	50.22	-	50.32	-	64.79	54.79	-14.47	-
2	0.228	0.10	44.48	-	44.58	-	62.52	52.52	-17.94	-
3	0.287	0.10	38.84	-	38.94	-	60.62	50.62	-21.68	-
4	0.552	0.13	21.91	-	22.04	-	56.00	46.00	-33.96	-
5	3.777	0.29	30.85	-	31.14	-	56.00	46.00	-24.86	-
6	20.594	0.79	30.80	-	31.59	-	60.00	50.00	-28.41	-

NOTE:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.



5.2 RADIATED EMISSION MEASUREMENT

5.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Emissions radiated outside of the specified bands, shall be according to the general radiated limits in 15.209 as following:

Frequencies (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

5.2.2 LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS

Frequencies (MHz)	**EIRP Limit (dBm)**	**Equivalent Field Strength at 3m (dBμV/m)** *note 3
5150~5250	-27	68.3
5250~5350	-27	68.3
5725~5825	-27 *note 1	68.3
	-17 *note 2	78.3

NOTE:

1. For frequencies 10MHz or greater above or below the band edge.
2. All emissions within the frequency range from the band edge to 10MHz above or below the band edge.
3. The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength

$$E = \frac{1000000\sqrt{30P}}{3} \quad \mu V/m, \quad \text{where P is the eirp (Watts)}$$

5.2.3 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
* HP Spectrum Analyzer	8590L	3544A01176	May 13, 2003
* HP Preamplifier	8447D	2944A08485	Apr. 29, 2003
* HP Preamplifier	8449B	3008A01201	Dec. 01, 2003
* HP Preamplifier	8449B	3008A01292	Aug. 07, 2003
* ROHDE & SCHWARZ TEST RECEIVER	ESMI	839013/007 839379/002	Jan. 27, 2003
SCHAFFNER Tunable Dipole Antenna	VHBA 9123	459	Nov. 22, 2003
SCHWARZBECK Tunable Dipole Antenna	UHA 9105	977	
* CHASE BILOG Antenna	CBL6112A	2221	Aug. 2, 2003
* SCHWARZBECK Horn Antenna	BBHA9120-D1	D130	July 3, 2003
* EMCO Horn Antenna	3115	9312-4192	April 9, 2003
* EMCO Turn Table	1060	1115	NA
* SHOSHIN Tower	AP-4701	A6Y005	NA
* Software	ADT_Radiated_V5.09	NA	NA
* ANRITSU RF Switches	MP59B	M35046	July 11. 2003
* TIMES RF cable	LMR-600	CABLE-ST5-01	July. 11. 2003

NOTE: 1. The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to NML/ROC and NIST/USA.

2. "*" = These equipment are used for the final measurement.
3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
4. The test was performed in ADT Open Site No. 5.
5. The VCCI Site Registration No. is R-1039.

5.2.4 TEST PROCEDURES

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 10 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

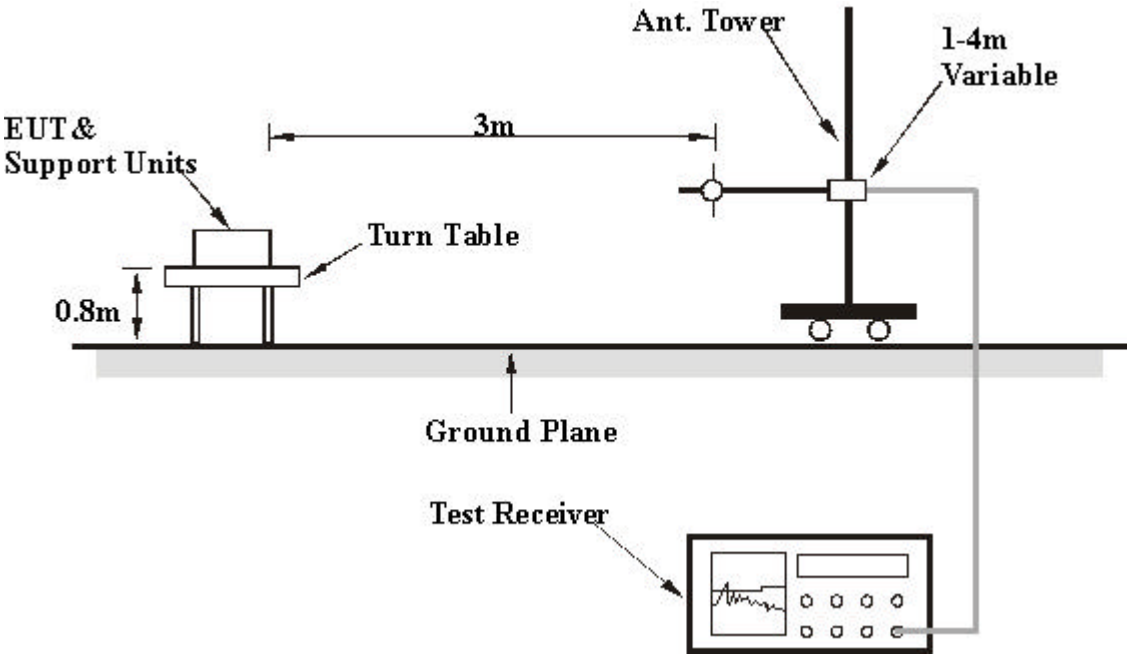
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 300 Hz for Average detection (AV) at frequency above 1GHz.

5.2.5 DEVIATION FROM TEST STANDARD

No deviation

5.2.6 TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

5.2.7 EUT OPERATING CONDITIONS

Same as 4.1.6.

5.2.8 TEST RESULTS

EUT	2.4GHz/5GHz Mini - PCI Card	**MODEL**	WLL220
FREQUENCY RANGE	Below 1000MHz	**DETECTOR FUNCTION**	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25 deg. C, 60%RH, 1050 hPa	**INPUT POWER (SYSTEM)**	120Vac, 60Hz
TESTED BY	Gary Chang		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	256.00	31.0 QP	46.00	-15.00	1.57 H	45	11.70	19.30
2	288.00	30.5 QP	46.00	-15.50	1.17 H	25	10.80	19.70
3	320.00	29.2 QP	46.00	-16.80	1.43 H	82	8.70	20.50
4	384.00	29.2 QP	46.00	-16.80	1.12 H	184	6.70	22.50
5	480.00	28.2 QP	46.00	-17.80	1.31 H	50	3.60	24.60
6	576.00	30.4 QP	46.00	-15.60	1.05 H	156	3.80	26.60
7	768.00	31.0 QP	46.00	-15.00	1.15 H	27	1.10	29.90

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	160.00	34.2 QP	43.50	-9.30	1.17 V	104	21.30	12.90
2	256.00	35.7 QP	46.00	-10.30	1.54 V	118	16.40	19.30
3	288.00	31.4 QP	46.00	-14.60	1.08 V	270	11.70	19.70
4	320.00	30.5 QP	46.00	-15.50	1.21 V	316	10.00	20.50
5	384.00	30.5 QP	46.00	-15.50	1.13 V	158	8.00	22.50
6	480.00	31.2 QP	46.00	-14.80	1.27 V	53	6.60	24.60
7	576.00	27.5 QP	46.00	-18.50	1.15 V	24	0.90	26.60
8	736.00	32.4 QP	46.00	-13.60	1.37 V	216	3.40	29.00

NOTE:

1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.

5.2.9 TEST RESULTS

EUT	2.4GHz/5GHz Mini - PCI Card	**MODEL**	WLL220
MODE	Normal Mode	**CHANNEL**	1
FREQUENCY RANGE	Above 1000 MHz	**DETECTOR FUNCTION**	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 60%RH, 1050 hPa	**INPUT POWER (SYSTEM)**	120Vac, 60Hz
TESTED BY	Gary Chang		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5150.00	63.0 PK	74.00	-11.00	1.14 H	25	25.30	37.70
1	#5150.00	50.8 AV	54.00	-3.20	1.14 H	25	13.10	37.70
2	*5180.00	99.0 PK			1.14 H	25	61.30	37.70
2	*5180.00	91.1 AV			1.14 H	25	53.40	37.70
3	10360.00	58.0 PK	68.30	-10.30	1.54 H	16	13.50	44.50

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5150.00	62.0 PK	74.00	-12.00	1.52 V	45	24.30	37.70
1	#5150.00	50.2 AV	54.00	-3.80	1.52 V	45	12.50	37.70
2	*5180.00	98.5 PK			1.81 V	264	60.80	37.70
2	*5180.00	90.8 AV			1.81 V	264	53.10	37.70
3	10360.00	56.3 PK	68.30	-12.00	1.24 V	23	11.80	44.50

NOTE:

1. Emission level = Raw value - Correction Factor
2. Correction Factor = Pre-Amp. Factor - Ant. Factor - Cable loss
   (Pre-Amp. Factor = 0, when a Pre-Amplifier is not used for the test.)
3. Margin value = Emission level - Limit value
4. The other emission levels were very low against the limit.
5. "*" : Fundamental frequency
6. "#" : The radiated frequency falling in the restricted band.

EUT	2.4GHz/5GHz Mini - PCI Card	**MODEL**	WLL220
MODE	Normal Mode	**CHANNEL**	4
FREQUENCY RANGE	Above 1000 MHz	**DETECTOR FUNCTION**	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 60%RH, 1050 hPa	**INPUT POWER (SYSTEM)**	120Vac, 60Hz
TESTED BY	Gary Chang		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5240.00	105.2 PK			1.00 H	72	67.60	37.70
1	*5240.00	97.5 AV			1.00 H	72	59.80	37.70
2	10480.00	57.3 PK	68.30	-11.00	1.04 H	45	12.30	45.00

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5240.00	103.3 PK			1.49 V	126	65.60	37.70
1	*5240.00	95.8 AV			1.49 V	126	58.10	37.70
2	10480.00	57.8 PK	68.30	-10.50	1.57 V	45	12.80	45.00

NOTE:

1. Emission level = Raw value - Correction Factor
2. Correction Factor = Pre-Amp. Factor - Ant. Factor - Cable loss
   (Pre-Amp. Factor = 0, when a Pre-Amplifier is not used for the test.)
3. Margin value = Emission level - Limit value
4. The other emission levels were very low against the limit.
5. "*" : Fundamental frequency

EUT	2.4GHz/5GHz Mini - PCI Card	**MODEL**	WLL220
MODE	Normal Mode	**CHANNEL**	5
FREQUENCY RANGE	Above 1000 MHz	**DETECTOR FUNCTION**	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 60%RH, 1050 hPa	**INPUT POWER (SYSTEM)**	120Vac, 60Hz
TESTED BY	Gary Chang		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5260.00	104.0 PK			1.14 H	79	66.30	37.70
1	*5260.00	96.0 AV			1.14 H	79	58.30	37.70
2	10520.00	60.0 PK	68.30	-8.00	1.24 H	158	14.90	45.10

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5260.00	103.5 PK			1.41 V	153	65.80	37.70
1	*5260.00	95.2 AV			1.41 V	153	57.50	37.70
2	10520.00	62.0 PK	68.30	-6.30	1.15 V	24	16.90	45.10

NOTE:

1. Emission level = Raw value - Correction Factor
2. Correction Factor = Pre-Amp. Factor - Ant. Factor - Cable loss
   (Pre-Amp. Factor = 0, when a Pre-Amplifier is not used for the test.)
3. Margin value = Emission level - Limit value
4. The other emission levels were very low against the limit.
5. "*" : Fundamental frequency

EUT	2.4GHz/5GHz Mini - PCI Card	**MODEL**	WLL220
MODE	Normal Mode	**CHANNEL**	8
FREQUENCY RANGE	Above 1000 MHz	**DETECTOR FUNCTION**	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 60%RH, 1050 hPa	**INPUT POWER (SYSTEM)**	120Vac, 60Hz
TESTED BY	Gary Chang		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5320.00	96.2 PK			1.12 H	47	58.50	37.70
1	*5320.00	86.2 AV			1.12 H	47	48.50	37.70
2	#5350.00	58.5 PK	74.00	-15.50	1.25 H	24	20.80	37.70
2	#5350.00	50.8 AV	54.00	-3.20	1.25 H	24	13.10	37.70
3	#10640.00	57.7 PK	74.00	-16.30	1.47 H	59	12.40	45.20
3	#10640.00	46.8 AV	54.00	-7.20	1.47 H	59	1.50	45.20

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5320.00	96.7 PK			1.15 V	127	59.00	37.70
1	*5320.00	86.7 AV			1.15 V	127	49.00	37.70
2	#5350.00	64.0 PK	74.00	-10.00	1.18 V	45	26.30	37.70
2	#5350.00	51.0 AV	54.00	-3.00	1.18 V	45	13.30	37.70
3	#10640.00	57.2 PK	74.00	-16.80	1.12 V	154	11.90	45.20
3	#10640.00	48.2 AV	54.00	-5.80	1.12 V	154	2.90	45.20

NOTE:

1. Emission level = Raw value - Correction Factor
2. Correction Factor = Pre-Amp. Factor - Ant. Factor - Cable loss
   (Pre-Amp. Factor = 0, when a Pre-Amplifier is not used for the test.)
3. Margin value = Emission level - Limit value
4. The other emission levels were very low against the limit.
5. "*" : Fundamental frequency
6. "#" : The radiated frequency falling in the restricted band.

EUT	2.4GHz/5GHz Mini - PCI Card	**MODEL**	WLL220
MODE	Normal Mode	**CHANNEL**	9
FREQUENCY RANGE	Above 1000 MHz	**DETECTOR FUNCTION**	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 60%RH, 1050 hPa	**INPUT POWER (SYSTEM)**	120Vac, 60Hz
TESTED BY	Gary Chang		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5715.00	63.5 PK	68.30	-4.80	1.15 H	236	25.60	37.90
2	5725.00	73.2 PK	78.30	-5.10	1.15 H	236	35.30	37.90
3	*5745.00	94.8 PK			1.15 H	236	56.90	37.90
3	*5745.00	88.0 AV			1.15 H	236	50.10	37.90
4	#11490.00	59.5 PK	74.00	-14.50	1.42 H	15	14.00	45.50
4	#11490.00	50.7 AV	54.00	-3.30	1.42 H	15	5.20	45.50

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5725.00	70.9 PK	78.30	-7.40	1.37 V	337	33.00	37.90
2	5715.00	65.9 PK	68.30	-2.40	1.37 V	337	28.00	37.90
3	*5745.00	100.0 PK			1.37 V	337	62.10	37.90
3	*5745.00	90.7 AV			1.37 V	337	52.80	37.90
4	#11490.00	60.5 PK	74.00	-13.50	1.64 V	254	15.00	45.50
4	#11490.00	51.5 AV	54.00	-2.50	1.64 V	254	6.00	45.50

NOTE:

1. Emission level = Raw value - Correction Factor
2. Correction Factor = Pre-Amp. Factor - Ant. Factor - Cable loss
   (Pre-Amp. Factor = 0, when a Pre-Amplifier is not used for the test.)
3. Margin value = Emission level - Limit value
4. The other emission levels were very low against the limit.
5. "*": Fundamental frequency
6. "#" : The radiated frequency falling in the restricted band.

EUT	2.4GHz/5GHz Mini - PCI Card	**MODEL**	WLL220
MODE	Normal Mode	**CHANNEL**	12
FREQUENCY RANGE	Above 1000 MHz	**DETECTOR FUNCTION**	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 60%RH, 1050 hPa	**INPUT POWER (SYSTEM)**	120Vac, 60Hz
TESTED BY	Gary Chang		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5805.00	94.2 PK			1.22 H	295	56.20	38.00
1	*5805.00	88.5 AV			1.22 H	295	50.50	38.00
2	5825.00	75.0 PK	78.30	-3.30	1.23 H	245	37.00	38.00
3	5835.00	63.0 PK	68.30	-5.30	1.23 H	245	25.00	38.00
4	#11610.00	60.5 PK	74.00	-13.50	1.41 H	145	15.00	45.50
4	#11610.00	50.7 AV	54.00	-3.30	1.41 H	145	5.20	45.50

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5805.00	96.5 PK			1.00 V	165	58.50	38.00
1	*5805.00	89.1 AV			1.00 V	165	51.10	38.00
2	5835.00	64.0 PK	68.30	-4.30	1.00 V	165	26.00	38.00
3	5825.00	71.0 PK	78.30	-7.30	1.00 V	165	33.00	38.00
4	#11610.00	57.5 PK	74.00	-16.50	1.45 V	41	12.00	45.50
4	#11610.00	48.5 AV	54.00	-5.50	1.45 V	41	3.00	45.50

NOTE:

1. Emission level = Raw value - Correction Factor
2. Correction Factor = Pre-Amp. Factor - Ant. Factor - Cable loss
   (Pre-Amp. Factor = 0, when a Pre-Amplifier is not used for the test.)
3. Margin value = Emission level - Limit value
4. The other emission levels were very low against the limit.
5. "*": Fundamental frequency
6. "#": The radiated frequency falling in the restricted band.

EUT	2.4GHz/5GHz Mini - PCI Card	**MODEL**	WLL220
MODE	Turbo Mode	**CHANNEL**	1
FREQUENCY RANGE	Above 1000 MHz	**DETECTOR FUNCTION**	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 60%RH, 1050 hPa	**INPUT POWER (SYSTEM)**	120Vac, 60Hz
TESTED BY	Gary Chang		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5210.00	99.6 PK			1.15 H	65	61.90	37.70
1	*5210.00	90.2 AV			1.15 H	65	52.50	37.70
2	10420.00	56.5 PK	68.30	-11.80	1.42 H	57	11.70	44.80

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5210.00	98.0 PK			1.42 V	57	60.30	37.70
1	*5210.00	88.8 AV			1.42 V	57	51.10	37.70
2	10420.00	58.0 PK	68.30	-10.30	1.08 V	59	13.20	44.80

NOTE:

1. Emission level = Raw value - Correction Factor
2. Correction Factor = Pre-Amp. Factor - Ant. Factor - Cable loss
   (Pre-Amp. Factor = 0, when a Pre-Amplifier is not used for the test.)
3. Margin value = Emission level - Limit value
4. The other emission levels were very low against the limit.
5. "*" : Fundamental frequency

EUT	2.4GHz/5GHz Mini - PCI Card	**MODEL**	WLL220
MODE	Turbo Mode	**CHANNEL**	2
FREQUENCY RANGE	Above 1000 MHz	**DETECTOR FUNCTION**	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 60%RH, 1050 hPa	**INPUT POWER (SYSTEM)**	120Vac, 60Hz
TESTED BY	Gary Chang		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5250.00	104.0 PK			1.15 H	65	66.30	37.70
1	*5250.00	93.8 AV			1.15 H	65	56.20	37.70
2	10500.00	60.5 PK	68.30	-7.80	1.18 H	45	15.40	45.10

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5250.00	101.3 PK			1.24 V	28	63.60	37.70
1	*5250.00	93.1 AV			1.24 V	28	55.40	37.70
2	10500.00	62.0 PK	68.30	-6.30	1.31 V	42	16.90	45.10

NOTE:

1. Emission level = Raw value - Correction Factor
2. Correction Factor = Pre-Amp. Factor - Ant. Factor - Cable loss
   (Pre-Amp. Factor = 0, when a Pre-Amplifier is not used for the test.)
3. Margin value = Emission level - Limit value
4. The other emission levels were very low against the limit.
5. "*" : Fundamental frequency

EUT	2.4GHz/5GHz Mini - PCI Card	**MODEL**	WLL220
MODE	Turbo Mode	**CHANNEL**	3
FREQUENCY RANGE	Above 1000 MHz	**DETECTOR FUNCTION**	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 60%RH, 1050 hPa	**INPUT POWER (SYSTEM)**	120Vac, 60Hz
TESTED BY	Gary Chang		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5290.00	96.0 PK			1.11 H	51	58.30	37.70
1	*5290.00	85.2 AV			1.11 H	51	47.50	37.70
2	10580.00	57.0 PK	68.30	-11.30	1.25 H	245	11.90	45.10

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5290.00	94.0 PK			1.23 V	68	56.30	37.70
1	*5290.00	84.5 AV			1.23 V	68	46.80	37.70
2	10580.00	56.0 PK	68.30	-12.30	1.13 V	181	10.90	45.10

NOTE:

1. Emission level = Raw value - Correction Factor
2. Correction Factor = Pre-Amp. Factor - Ant. Factor - Cable loss
   (Pre-Amp. Factor = 0, when a Pre-Amplifier is not used for the test.)
3. Margin value = Emission level - Limit value
4. The other emission levels were very low against the limit.
5. "*" : Fundamental frequency

EUT	2.4GHz/5GHz Mini - PCI Card	**MODEL**	WLL220
MODE	Turbo Mode	**CHANNEL**	4
FREQUENCY RANGE	Above 1000 MHz	**DETECTOR FUNCTION**	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 60%RH, 1050 hPa	**INPUT POWER (SYSTEM)**	120Vac, 60Hz
TESTED BY	Gary Chang		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5715.00	65.5 PK	68.30	-2.80	1.15 H	290	27.60	37.90
2	5725.00	73.4 PK	78.30	-4.90	1.15 H	290	35.50	37.90
3	*5760.00	96.5 PK			1.15 H	290	58.60	37.90
3	*5760.00	87.2 AV			1.15 H	290	49.30	37.90
4	#11520.00	57.5 PK	74.00	-16.50	1.82 H	5	12.00	45.50
4	#11520.00	48.5 AV	54.00	-5.50	1.82 H	5	3.00	45.50

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5715.00	63.8 PK	68.30	-4.50	1.24 V	25	25.90	37.90
2	5725.00	71.0 PK	78.30	-7.30	1.24 V	25	33.10	37.90
3	*5760.00	96.0 PK			1.24 V	25	58.10	37.90
3	*5760.00	87.4 AV			1.24 V	25	49.40	37.90
4	#11520.00	59.9 PK	74.00	-14.10	1.12 V	35	14.40	45.50
4	#11520.00	50.7 AV	54.00	-3.30	1.12 V	35	5.20	45.50

NOTE:

1. Emission level = Raw value - Correction Factor
2. Correction Factor = Pre-Amp. Factor - Ant. Factor - Cable loss
   (Pre-Amp. Factor = 0, when a Pre-Amplifier is not used for the test.)
3. Margin value = Emission level - Limit value
4. The other emission levels were very low against the limit.
5. "*" : Fundamental frequency
6. "#" :The radiated frequency falling in the restricted band.

EUT	2.4GHz/5GHz Mini - PCI Card	**MODEL**	WLL220
MODE	Turbo Mode	**CHANNEL**	5
FREQUENCY RANGE	Above 1000 MHz	**DETECTOR FUNCTION**	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 60%RH, 1050 hPa	**INPUT POWER (SYSTEM)**	120Vac, 60Hz
TESTED BY	Gary Chang		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5800.00	94.8 PK			1.12 H	54	56.80	38.00
1	*5800.00	86.0 AV			1.12 H	54	48.00	38.00
2	5825.00	73.0 PK	78.30	-5.30	1.12 H	54	35.00	38.00
3	5835.00	63.0 PK	68.30	-5.30	1.12 H	54	25.00	38.00
4	#11600.00	60.3 PK	74.00	-13.70	1.15 H	15	14.80	45.50
4	#11600.00	50.5 AV	54.00	-3.50	1.15 H	15	5.00	45.50

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5800.00	92.0 PK			1.25 V	328	54.00	38.00
1	*5800.00	84.5 AV			1.25 V	328	46.50	38.00
2	5825.00	69.0 PK	78.30	-9.30	1.25 V	328	31.00	38.00
3	5835.00	62.4 PK	68.30	-5.90	1.25 V	328	24.40	38.00
4	#11600.00	57.5 PK	74.00	-16.50	1.42 V	35	12.00	45.50
4	#11600.00	48.5 AV	54.00	-5.50	1.42 V	35	3.00	45.50

NOTE:

1. Emission level = Raw value - Correction Factor
2. Correction Factor = Pre-Amp. Factor - Ant. Factor - Cable loss
   (Pre-Amp. Factor = 0, when a Pre-Amplifier is not used for the test.)
3. Margin value = Emission level - Limit value
4. The other emission levels were very low against the limit.
5. "*" : Fundamental frequency
6. "#" :The radiated frequency falling in the restricted band.

5.3 PEAK TRANSMIT POWER MEASUREMENT

5.3.1 LIMITS OF PEAK TRANSMIT POWER MEASUREMENT

Frequency Band	Limit
5.15 – 5.25 GHz	The lesser of 50mW (17dBm) or 4dBm + 10logB
5.25 – 5.35 GHz	The lesser of 250mW (24dBm) or 11dBm + 10logB
5.725 – 5.825 GHz	The lesser of 1W (30dBm) or 17dBm + 10logB

Note: Where B is the 26dB emission bandwidth in MHz.

5.3.2 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.

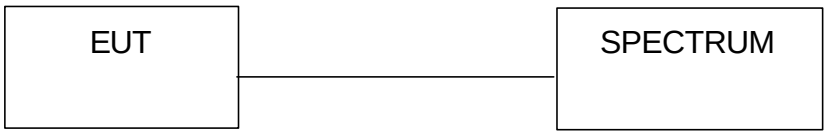
5.3.3 TEST PROCEDURE

2. The transmitter output was connected to the spectrum analyzer.
3. Set span to encompass the entire emission bandwidth of the signal.
4. Set RBW to 1MHz, VBW to 300kHz.
5. Using the spectrum analyzer's channel power measurement function to measure the output power.

5.3.4 DEVIATION FROM TEST STANDARD

No deviation

5.3.5 TEST SETUP



5.3.6 EUT OPERATING CONDITIONS

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

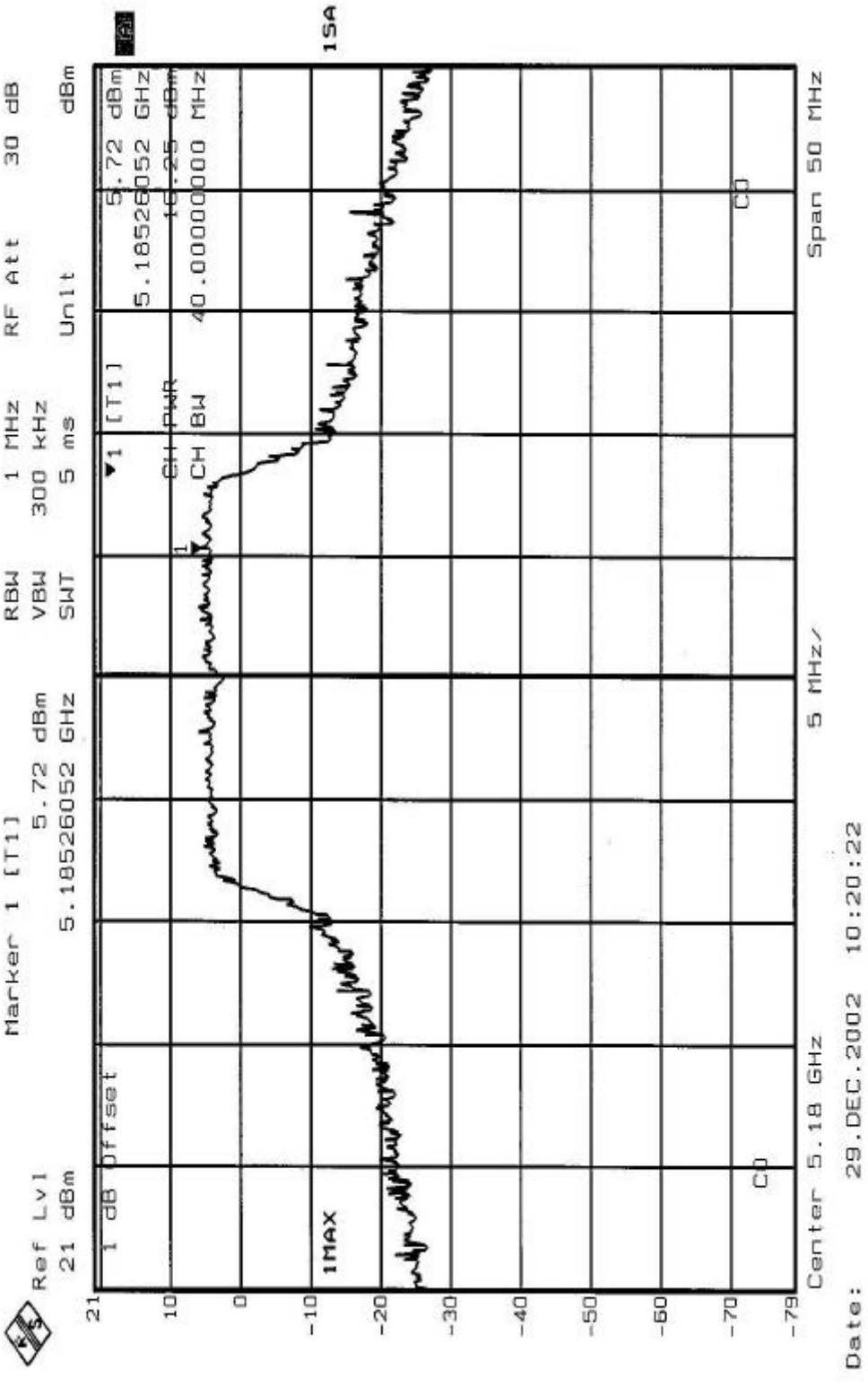
5.3.7 TEST RESULTS

EUT	2.4GHz/5GHz Mini - PCI Card	**MODEL**	WLL220
MODE	Normal	**INPUT POWER (SYSTEM)**	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	20eg. C, 60RH, 1005 hPa	**TESTED BY**	Steven Lu

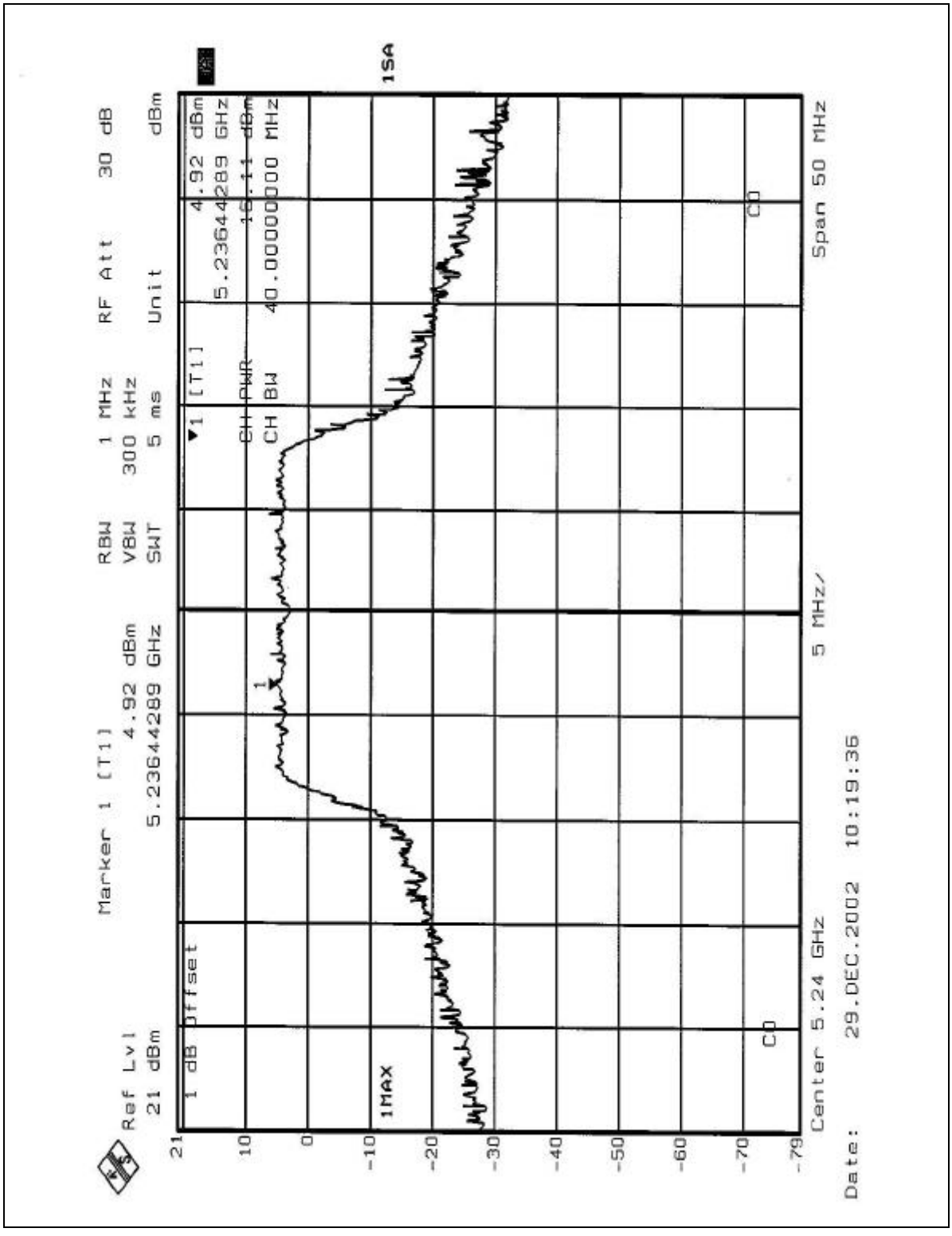
CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	26dBc Occupied Bandwidth (MHz)	PASS/FAIL
1	5180	16.25	17.00	39.880	PASS
4	5240	16.11	17.00	36.072	PASS
5	5260	16.36	24.00	35.371	PASS
8	5320	16.49	24.00	39.780	PASS
9	5745	16.53	30.00	32.966	PASS
12	5805	17.15	30.00	33.166	PASS

NOTE: The 26dBc Occupied Bandwidth plot, please refer to the following pages.

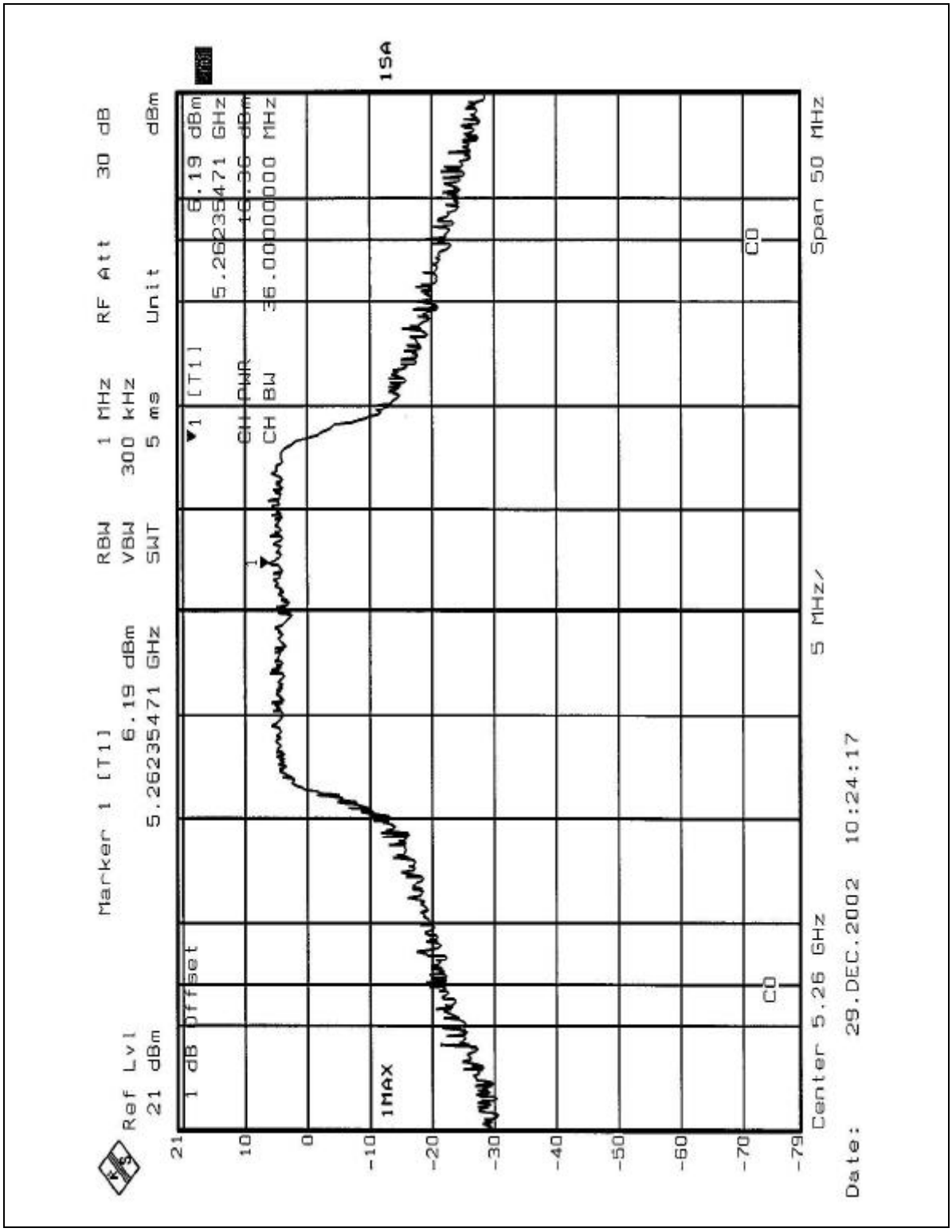
CHANNEL 1


Ref Lvl
21 dBm
1 dB Offset
Marker 1 [T1]
5.72 dBm
5.18526052 GHz
RBW 1 MHz
VBW 300 kHz
SWT 5 ms
Unit dBm
RF Att 30 dB
1 [T1]
5.72 dBm
5.18526052 GHz
CH PWR 16.25 dBm
CH BW 40.000000000 MHz
1SA
1MAX
CO
Center 5.18 GHz
5 MHz/
Span 50 MHz
Date: 29.DEC.2002 10:20:22

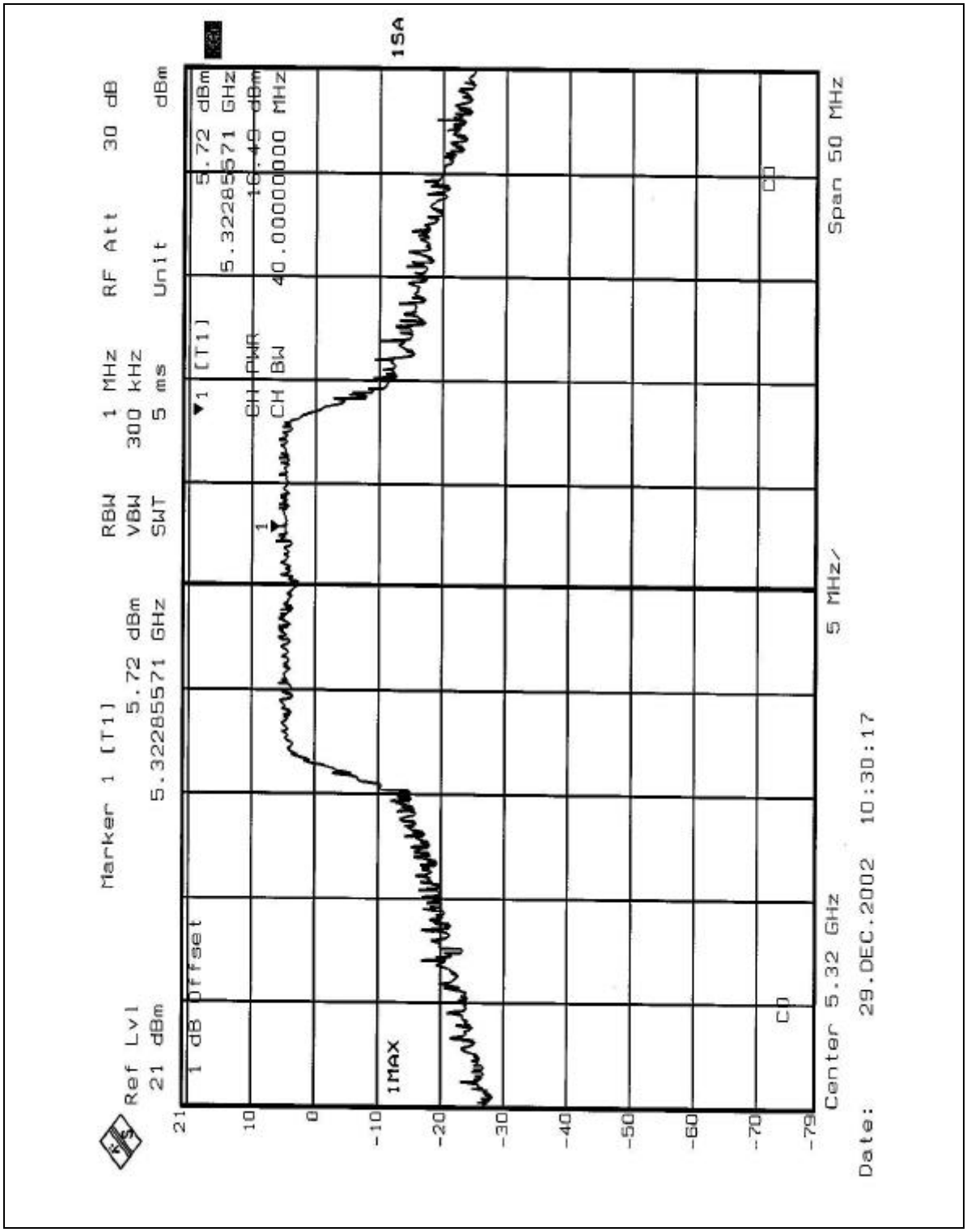
CHANNEL 4


Ref Lvl
21 dBm
1 dB Offset
Marker 1 [T1]
4.92 dBm
5.2364289 GHz
RBW 1 MHz
VBW 300 kHz
SWT 5 ms
RF Att 30 dB
Unit dBm
1 [T1] 4.92 dBm
5.2364289 GHz
CH PWR 16.11 dBm
CH BW 40.000000000 MHz
1SA
1MAX
CO
Center 5.24 GHz
5 MHz/
Span 50 MHz
Date: 29.DEC.2002 10:19:36

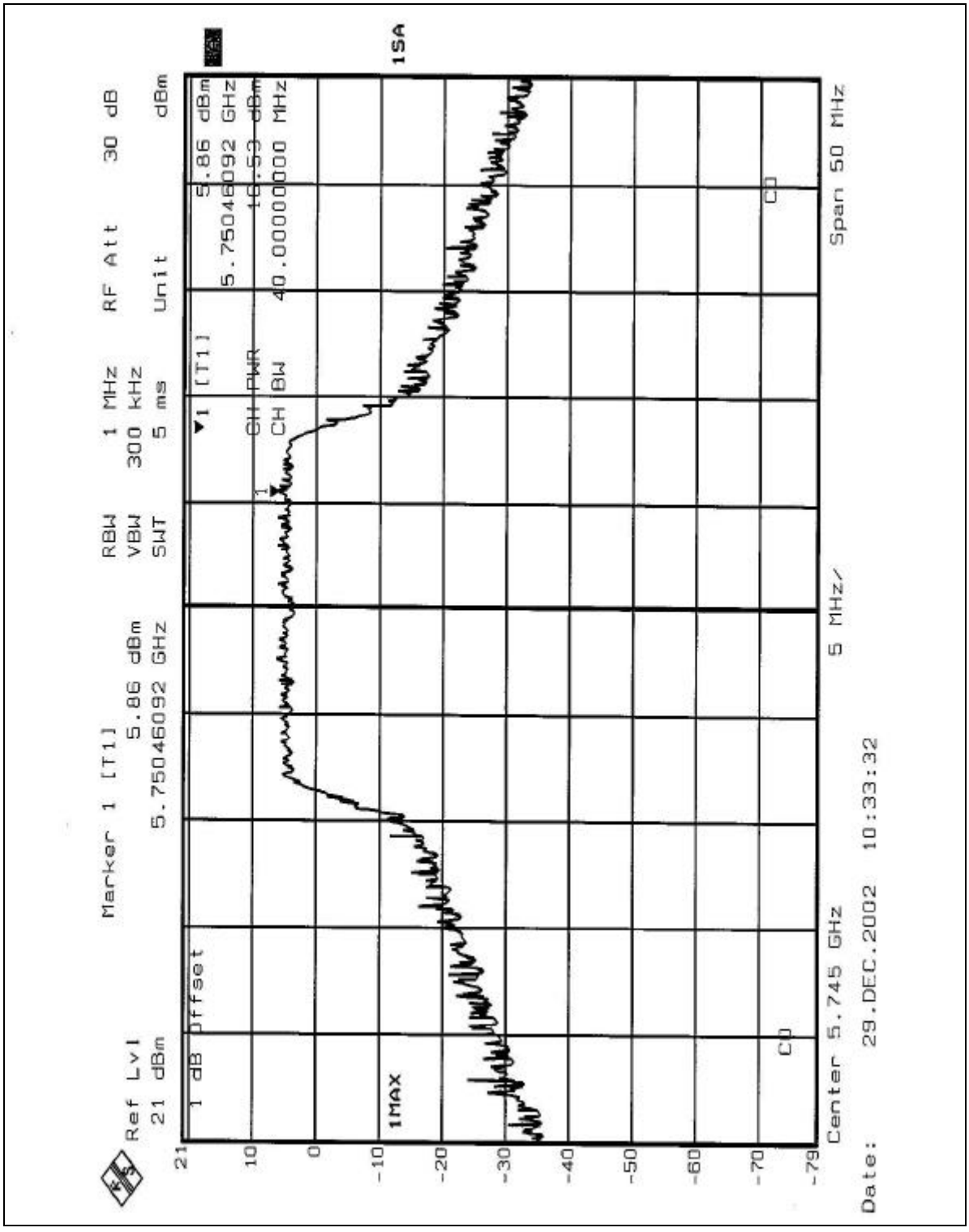
CHANNEL 5


Marker 1 [T1]
6.19 dBm
5.26235471 GHz
RBW 1 MHz
VBW 300 kHz
SWT 5 ms
RF Att 30 dB
Unit dBm
Ref Lvl
21 dBm
1 dB Offset
1MAX
1SA
CH PWR 6.19 dBm
CH BW 5.26235471 GHz
36.00000000 MHz
Center 5.26 GHz
5 MHz/
Span 50 MHz
Date: 29.DEC.2002 10:24:17

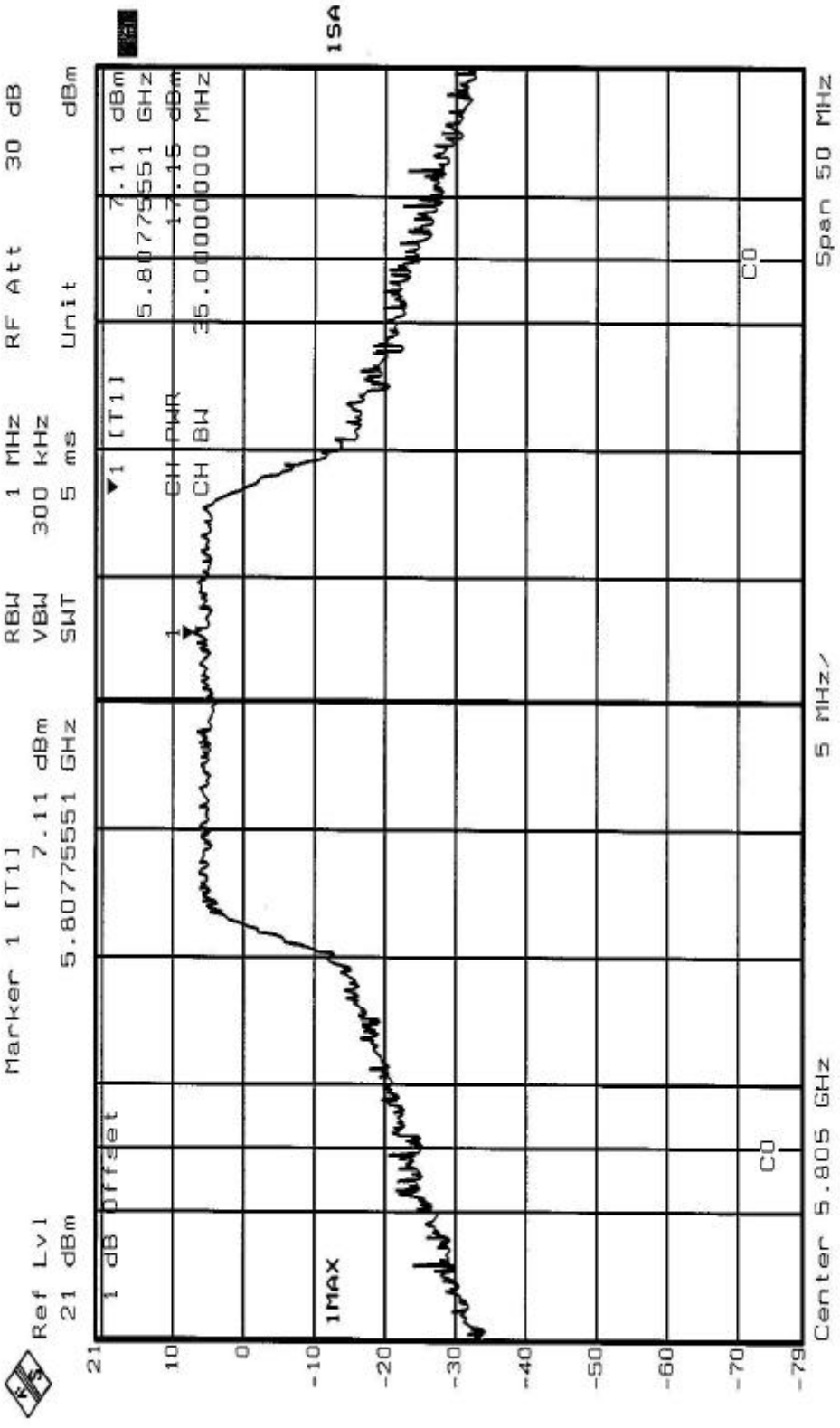
CHANNEL8


Ref Lvl
21 dBm
1 dB Offset
Marker 1 [T1]
5.72 dBm
5.32285571 GHz
RBW 1 MHz
VBW 300 kHz
SWT 5 ms
RF Att 30 dB
Unit dBm
1 [T1]
5.72 dBm
5.32285571 GHz
CH PWR 16.45 dBm
CH BW 40.000000000 MHz
1SA
1MAX
Center 5.32 GHz
5 MHz/
Span 50 MHz
Date: 29.DEC.2002 10:30:17

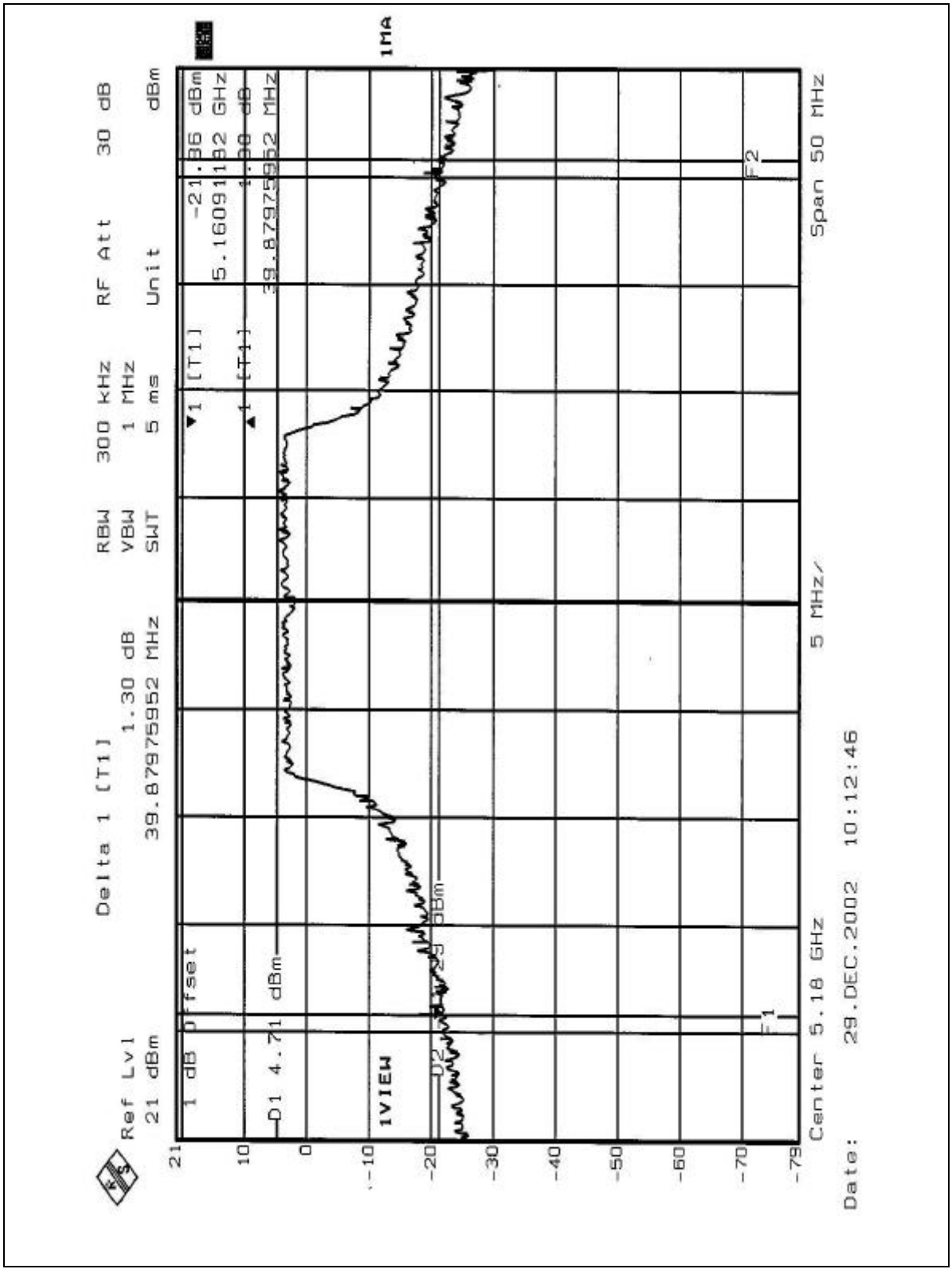
CHANNEL9


Ref Lvl
21 dBm
1 dB Offset
Marker 1 [T1]
5.86 dBm
5.75046092 GHz
RBW 1 MHz
VBW 300 kHz
SWT 5 ms
Unit dBm
RF Att 30 dB
1SA
1MAX
CH PWR 16.53 dBm
CH BW 40.000000000 MHz
Center 5.745 GHz
5 MHz/
Span 50 MHz
Date: 29.DEC.2002 10:33:32

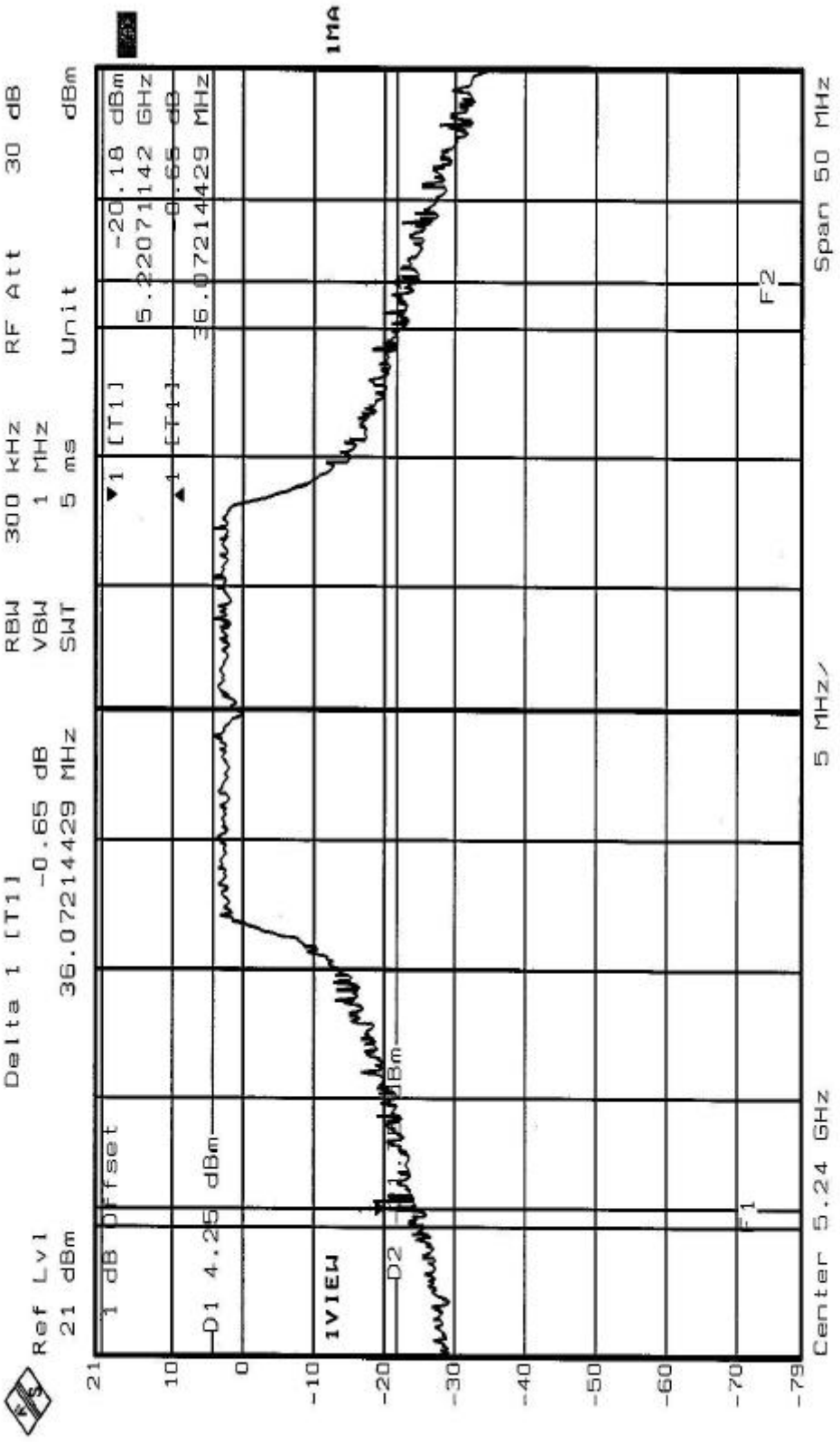
CHANNEL12


Ref Lvl
21 dBm
1 dB Offset
Marker 1 [T1]
7.11 dBm
5.80775551 GHz
RBW 1 MHz
VBW 300 kHz
SWT 5 ms
RF Att 30 dB
Unit dBm
1 [T1] 7.11 dBm
5.80775551 GHz
CH PWR 17.15 dBm
CH BW 35.00000000 MHz
1SA
1MAX
21
10
0
-10
-20
-30
-40
-50
-60
-70
-79
Center 5.805 GHz
5 MHz/
Span 50 MHz
Date: 29.DEC.2002 10:36:53

CHANNEL 1


Delta 1 [T1]
1.30 dB
39.87975952 MHz
Ref Lvl
21 dBm
1 dB Offset
D1 4.71 dBm
1VIEW
RBW 300 kHz
VBW 1 MHz
SWT 5 ms
RF Att 30 dB
Unit dBm
1 [T1] -21.36 dBm
5.16091182 GHz
1 [T1] 1.30 dB
39.87975952 MHz
1MA
Center 5.18 GHz
5 MHz/
Span 50 MHz
Date: 29.DEC.2002 10:12:46

CHANNEL 4


Ref Lvl
21 dBm
1 dB Offset
D1 4.25 dBm
1VIEW
D2
F1
F2
Delta 1 [T1]
-0.65 dB
36.07214429 MHz
RBW 300 kHz
VBW 1 MHz
SWT 5 ms
RF Att 30 dB
Unit dBm
1 [T1] -20.18 dBm
5.22071142 GHz
1 [T1] -0.65 dB
36.07214429 MHz
1MA
Center 5.24 GHz
5 MHz/
Span 50 MHz
Date: 29.DEC.2002 10:18:17