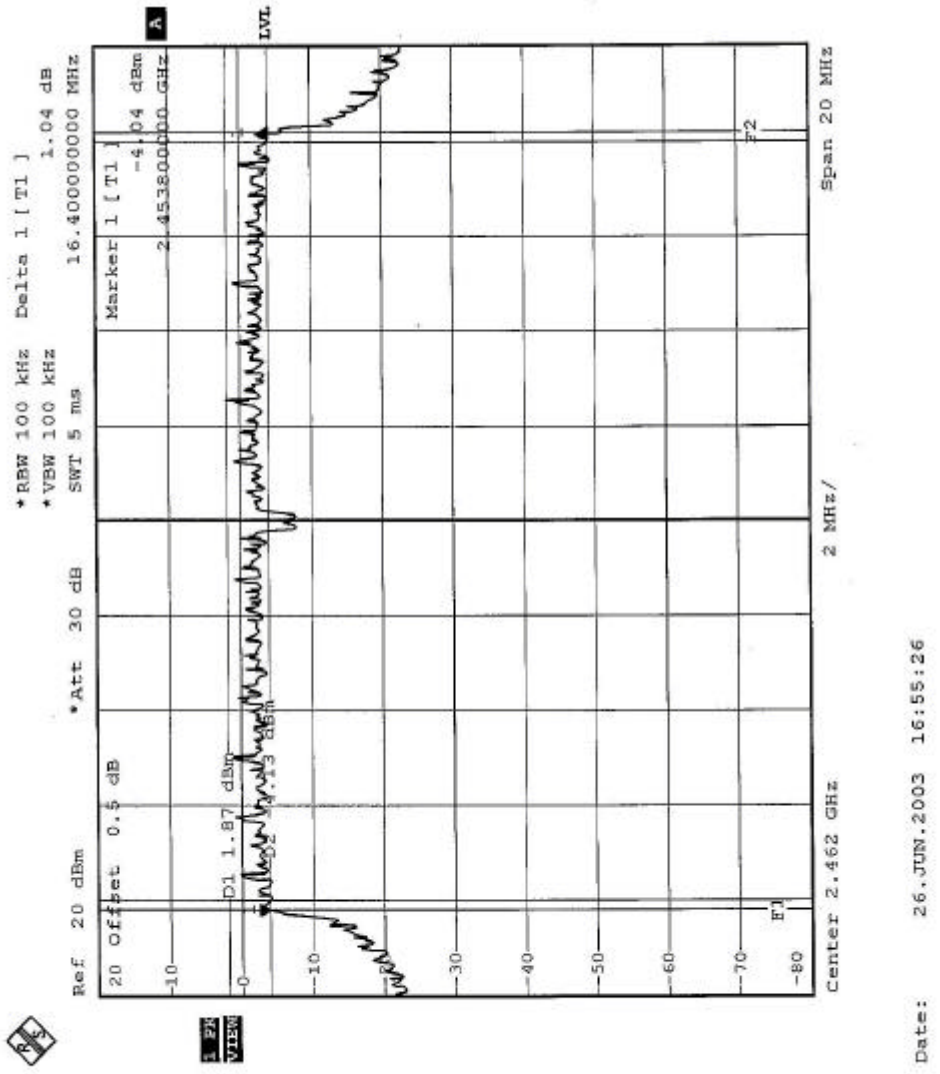
CH11


RBW 100 kHz
VBW 100 kHz
SWT 5 ms
Delta 1 [T1]
1.04 dB
16.400000000 MHz
Marker 1 [T1]
-4.04 dBm
2.453800000 GHz
Ref 20 dBm
Offset 0.5 dB
Att 30 dB
D1 1.87 dBm
Center 2.462 GHz
2 MHz/
Span 20 MHz
Date: 26.JUN.2003 16:55:26

4.4 MAXIMUM PEAK OUTPUT POWER

4.4.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

The Maximum Peak Output Power Measurement is 30dBm.

4.4.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSEK30	100049	Jul. 24, 2003
R&S SIGNAL GENERATOR	SMP04	100011	May 28, 2004
TEKTRONIX OSCILLOSCOPE	TDS 220	B048470	Mar. 05, 2004
NARDA DETECTOR	4503A	FSCM99899	NA

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

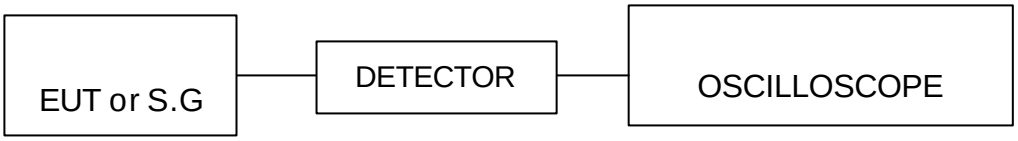
4.4.3 TEST PROCEDURES

1. A detector was used on the output port of the EUT. An oscilloscope was used to read the response of the detector.
2. Replaced the EUT by the signal generator . The center frequency of the S.G was adjusted to the center frequency of the measured channel.
3. Adjusted the power to have the same reading on oscilloscope. Record the power level.

4.4.4 DEVIATION FROM TEST STANDARD

No deviation

4.4.5 TEST SETUP



4.4.6 EUT OPERATING CONDITIONS

Same as Item 4.3.6

4.4.7 TEST RESULTS (CCK)

EUT	Mini- PCI CARD	**MODEL**	WLL4030
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	27deg. C, 57%RH, 991hPa
TEST MODE	CCK	**TESTED BY**	Steven Lu

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	16.42	30	PASS
6	2437	16.37	30	PASS
11	2462	16.40	30	PASS

4.4.8 TEST RESULTS (OFDM)

EUT	Mini- PCI CARD	**MODEL**	WLL4030
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	27deg. C, 57%RH, 991hPa
TEST MODE	OFDM	**TESTED BY**	Steven Lu

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	16.42	30	PASS
6	2437	16.40	30	PASS
11	2462	16.40	30	PASS

4.5 POWER SPECTRAL DENSITY MEASUREMENT

4.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

4.5.2 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.

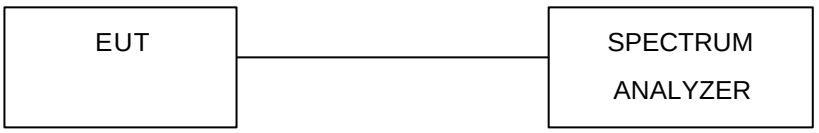
4.5.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3kHz RBW and 30kHz VBW, set sweep time = span/3kHz. The power spectral density was measured and recorded.
The sweep time is allowed to be longer than span/3kHz for a full response of the mixer in the spectrum analyzer.

4.5.4 DEVIATION FROM TEST STANDARD

No deviation

4.5.5 TEST SETUP



4.5.6 EUT OPERATING CONDITION

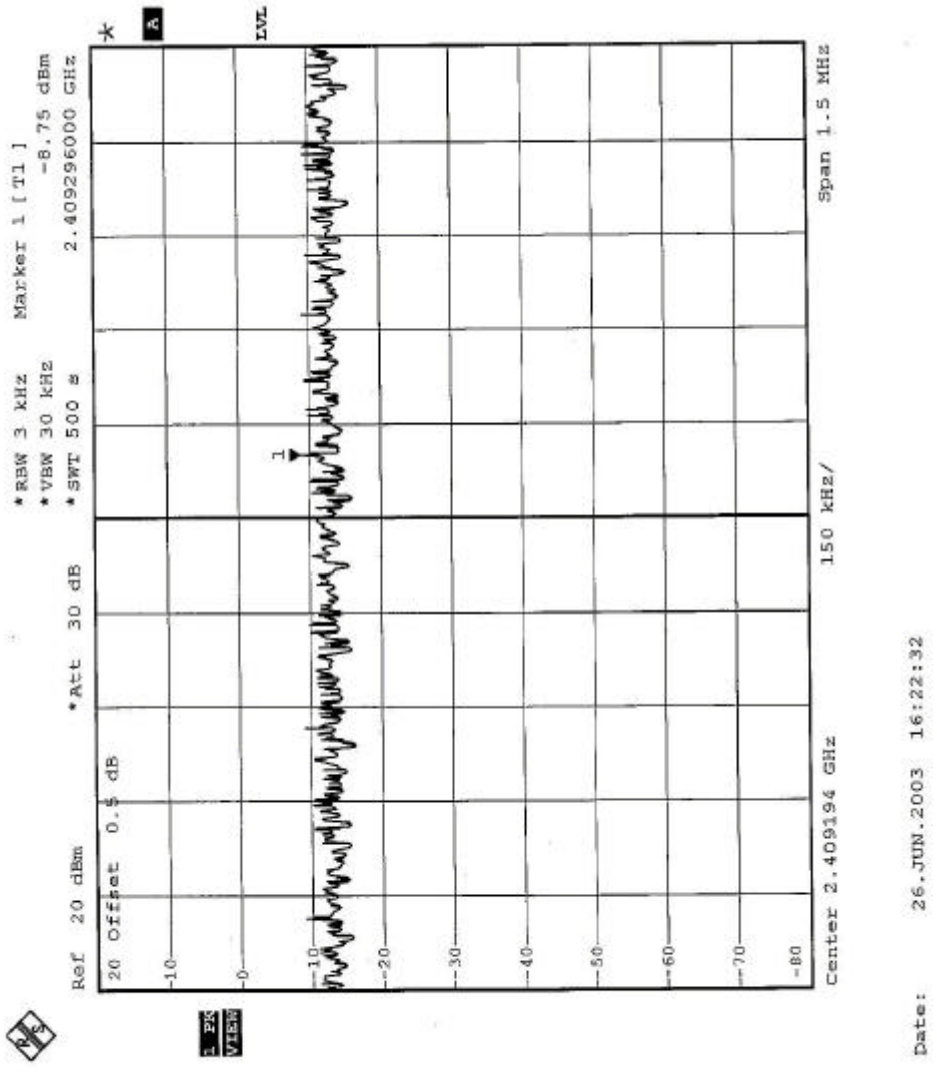
Same as Item 4.3.6

4.5.7 TEST RESULTS (CCK)

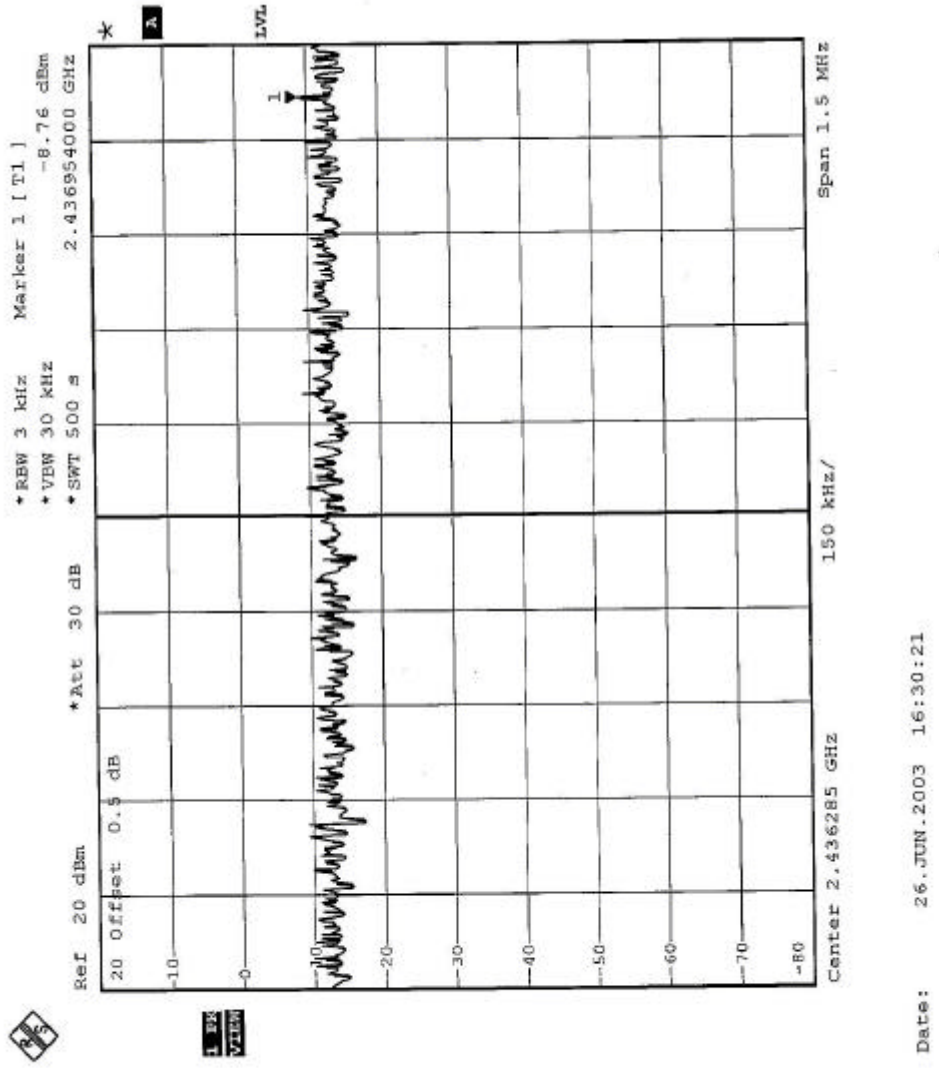
EUT	Mini- PCI CARD	**MODEL**	WLL4030
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	247deg. C, 57%RH, 991hPa
TEST MODE	CCK	**TESTED BY**	Steven Lu

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-8.75	8	PASS
6	2437	-8.76	8	PASS
11	2462	-8.30	8	PASS

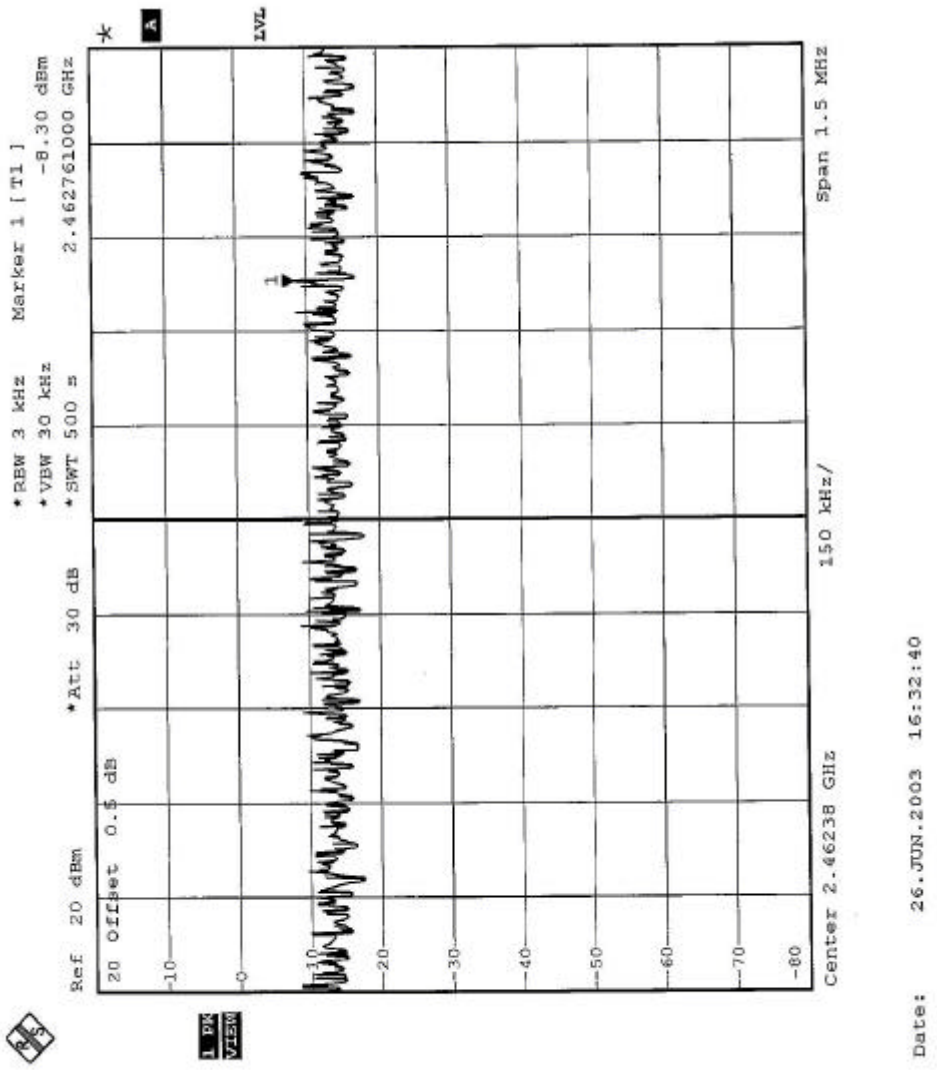
CH1


Ref 20 dBm
20 Offset 0.5 dB
*Att 30 dB
*RBW 3 kHz
*VBW 30 kHz
*SWT 500 s
Marker 1 [T1]
-8.75 dBm
2.409296000 GHz
1
Center 2.409194 GHz
150 kHz/
Span 1.5 MHz
Date: 26.JUN.2003 16:22:32

CH6


RBW 3 kHz
VBW 30 kHz
SWT 500 ms
Marker 1 [T1]
-8.76 dBm
2.43695000 GHz
Ref 20 dBm
Offset 0.5 dB
Att 30 dB
Center 2.436285 GHz
150 kHz/
Span 1.5 MHz
Date: 26.JUN.2003 16:30:21

CH11

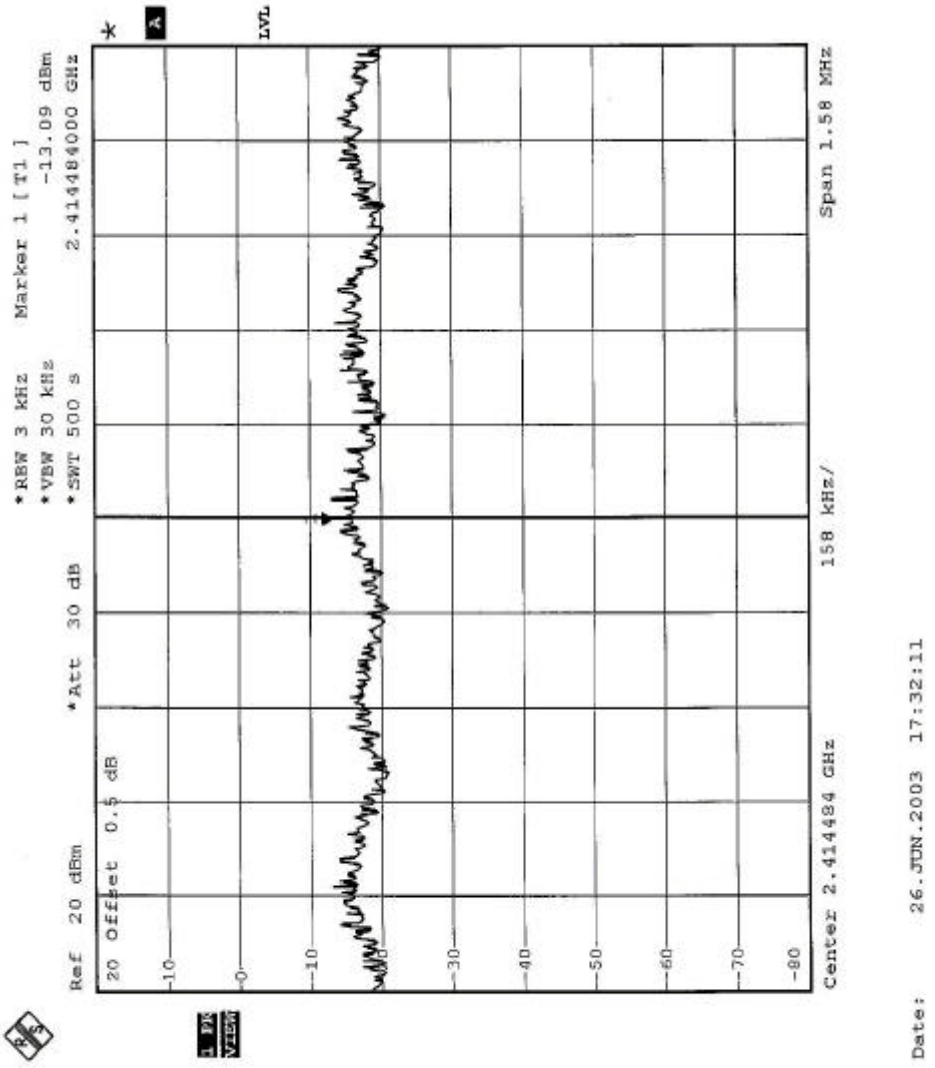

RBW 3 kHz
VBW 30 kHz
SWT 500 s
Marker 1 [T1]
-8.30 dBm
2.46276000 GHz
Ref 20 dBm
Offset 0.5 dB
Att 30 dB
Center 2.46238 GHz
150 kHz/
Span 1.5 MHz
Date: 26.JUN.2003 16:32:40

4.5.8 TEST RESULTS (OFDM)

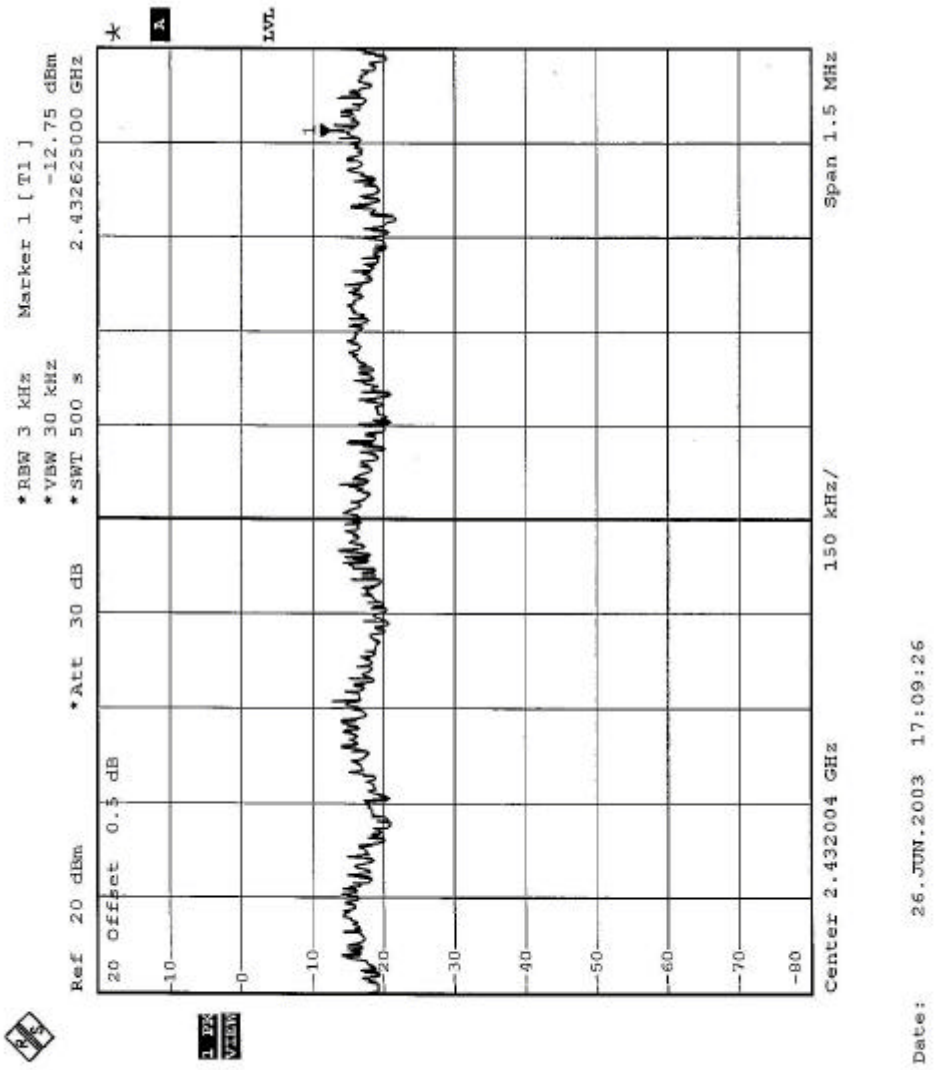
EUT	Mini- PCI CARD	MODEL	WLL400
INPUT POWER (SYSTEM)	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	27deg. C, 57%RH, 991hPa
TEST MODE	OFDM	TESTED BY	Steven Lu

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-13.09	8	PASS
6	2437	-12.75	8	PASS
11	2462	-12.20	8	PASS

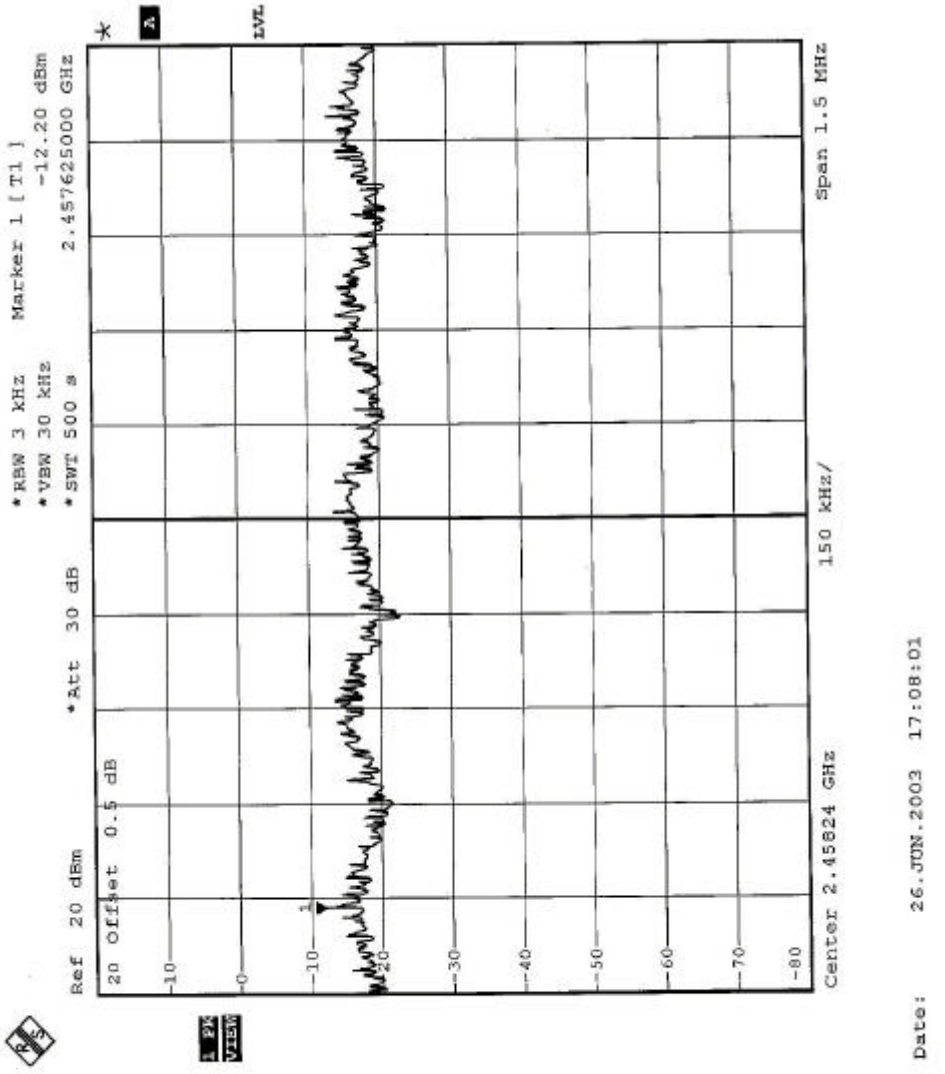
CH1


Ref 20 dBm
20 Offset 0.5 dB
*Att 30 dB
*RBW 3 kHz
*VBW 30 kHz
*SWT 500 s
Marker 1 [T1]
-13.09 dBm
2.414484000 GHz
LVL
Center 2.414484 GHz
158 kHz/
Span 1.58 MHz
Date: 26.JUN.2003 17:32:11

CH6


RBW 3 kHz
VBW 30 kHz
SWT 500 s
Marker 1 [T1]
-12.75 dBm
2.432625000 GHz
Ref 20 dBm
Offset 0.5 dB
Att 30 dB
Center 2.432004 GHz
150 kHz/
Span 1.5 MHz
Date: 26.JUN.2003 17:09:26

CH11


Ref 20 dBm
20 Offset 0.5 dB
*Att 30 dB
*RBW 3 kHz
*VBW 30 kHz
*Swt 500 s
Marker 1 [T1]
-12.20 dBm
2.457625000 GHz
Center 2.45824 GHz
150 kHz/
Span 1.5 MHz
Date: 26.JUN.2003 17:08:01

4.6 BAND EDGES MEASUREMENT

4.6.1 LIMITS OF BAND EDGES MEASUREMENT

Below –20dB of the highest emission level of operating band (in 100KHz Resolution Bandwidth).

4.6.2 TEST INSTRUMENTS

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

NOTE: The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81.

4.6.3 TEST PROCEDURE

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

4.6.4 DEVIATION FROM TEST STANDARD

No deviation

4.6.5 EUT OPERATING CONDITION

Same as Item 4.3.6

4.6.6 TEST RESULTS

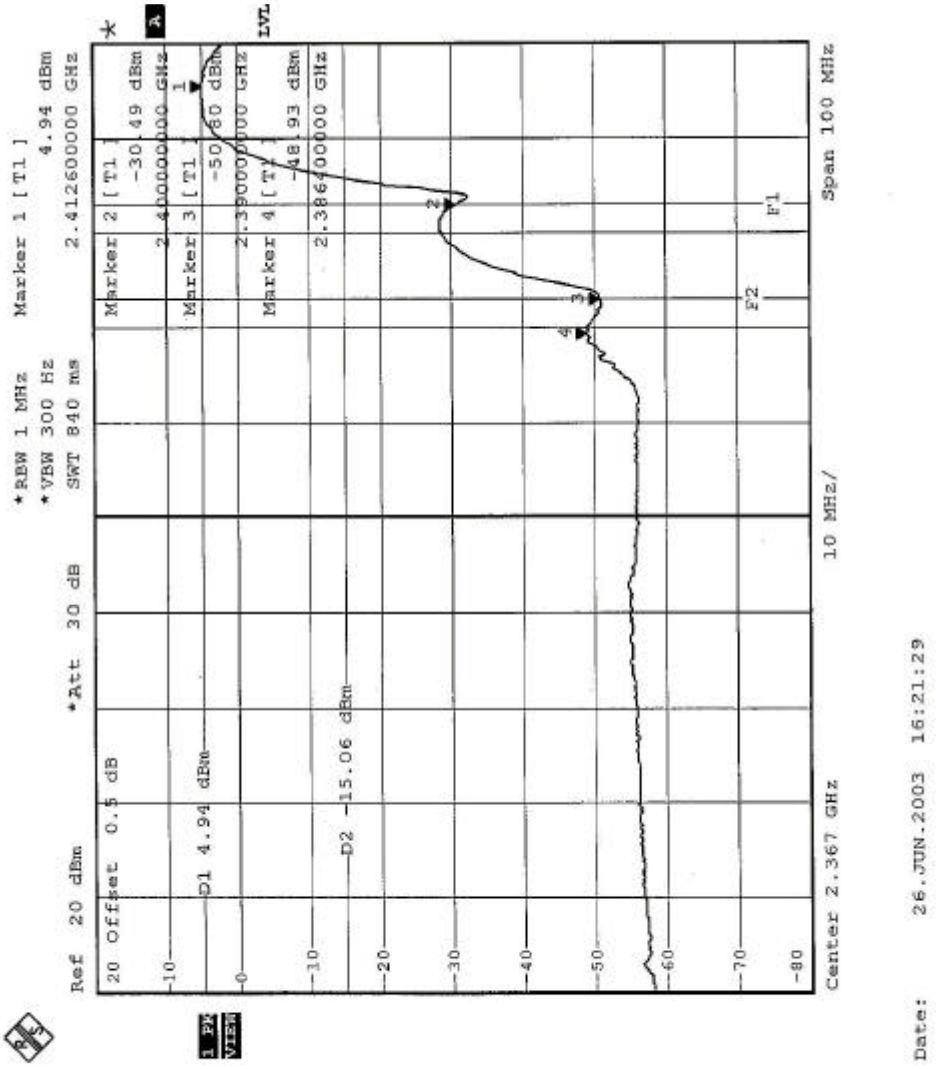
The spectrum plots are attached on the following 2 pages. D2 line indicates the highest level, D1 line indicates the 20dB offset below D2. It shows compliance with the requirement in part 15.247(C).

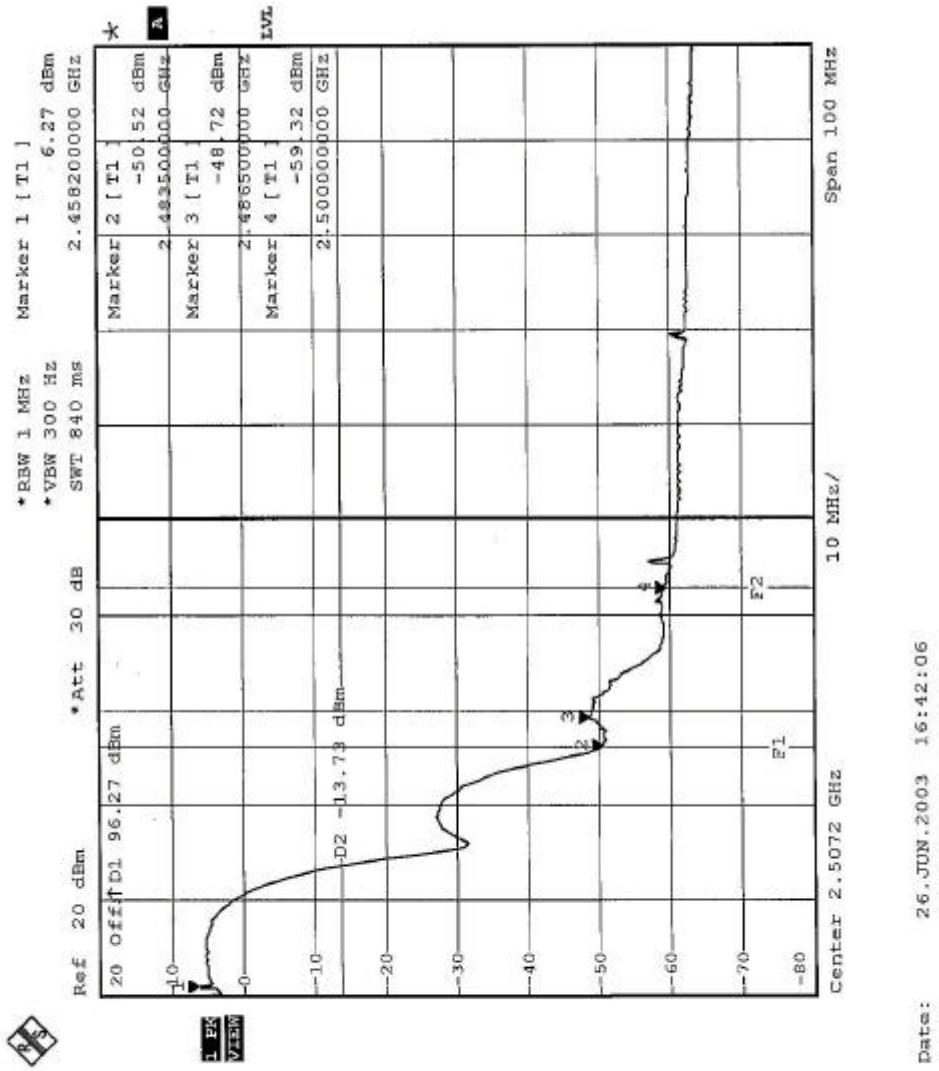
NOTE1: The band edge emission plot of CCK technique on the following page shows 53.87dB delta between carrier maximum power and local maximum emission in restrict band (2.386400GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 (Page 28) is 101.6dBuV/m, so the maximum field strength in restrict band is 101.6-53.87=47.73dBuV/m which is under 54dBuV/m limit.

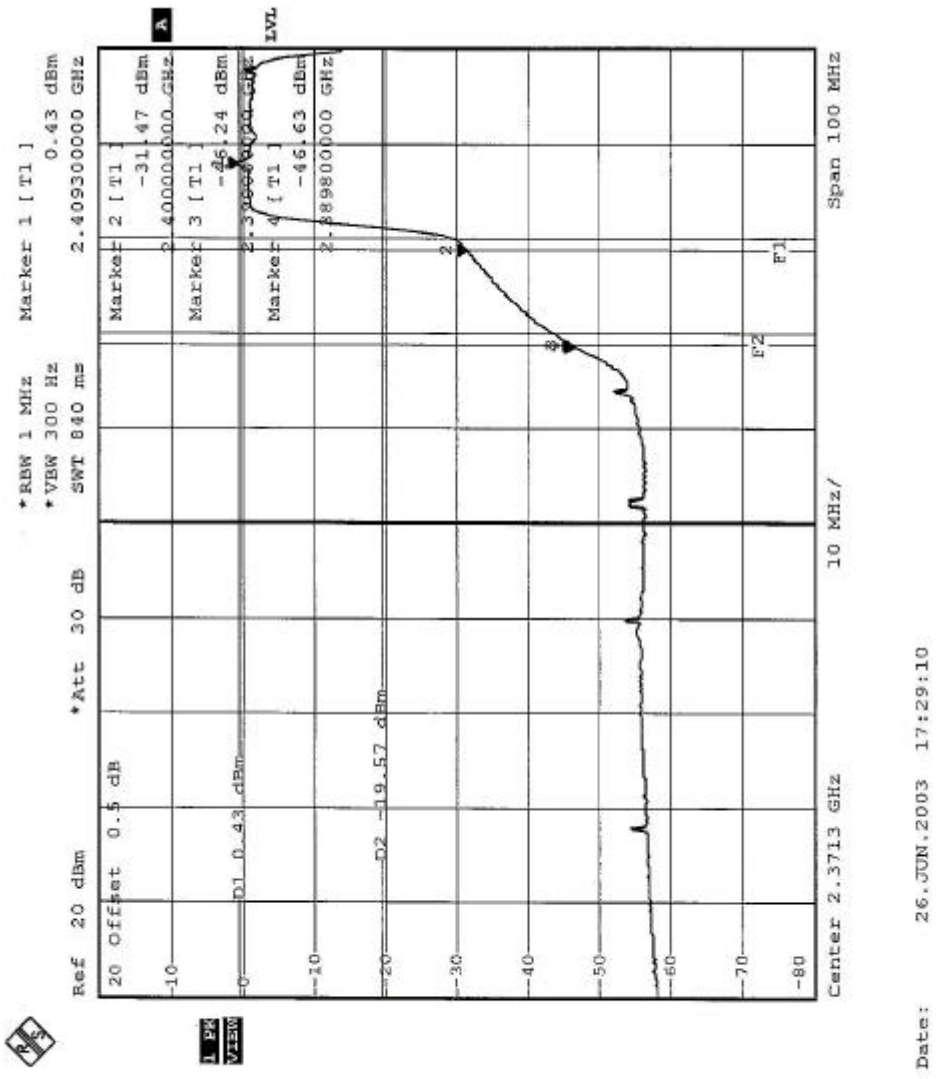
NOTE2: The band edge emission plot of CCK on the following page shows 54.99dB delta between carrier maximum power and local maximum emission in restrict band (2.486500GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 (Page 30) is 103.7dBuV/m, so the maximum field strength in restrict band is 103.7-54.99=46.61dBuV/m which is under 54 dBuV/m limit.

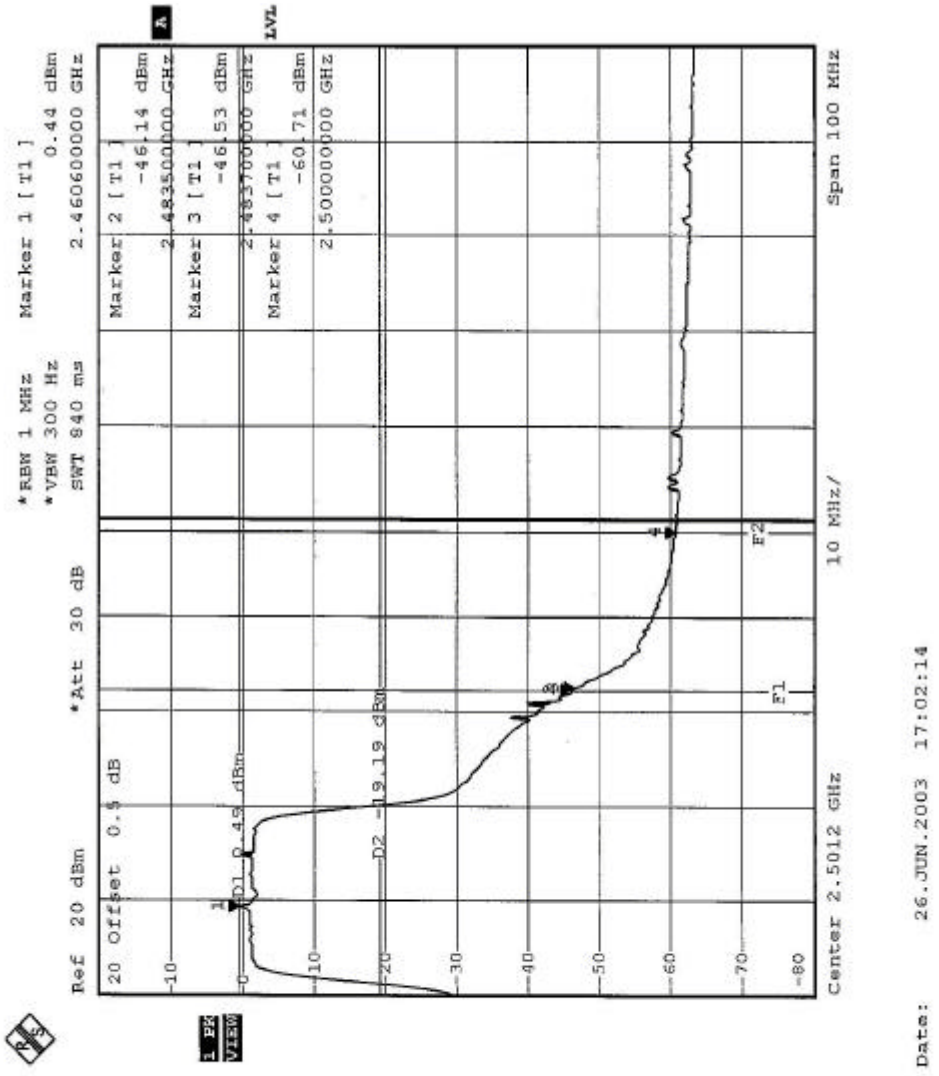
NOTE3: The band edge emission plot of OFDM technique on the following page shows 46.67dB delta between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 (Page 26) is 97.7dBuV/m, so the maximum field strength in restrict band is 97.7-46.67=51.03dBuV/m which is under 54 dBuV/m limit.

NOTE4: The band edge emission plot of OFDM on the following page shows 46.58dB delta between carrier maximum power and local maximum emission in restrict band (2.483500GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 (Page 28) is 97.9dBuV/m, so the maximum field strength in restrict band is 97.9-46.58=51.32dBuV/m which is under 54dBuV/m limit.


*RBW 1 MHz
*VBW 300 Hz
SWT 840 ms
Marker 1 [T1]
4.94 dBm
2.412600000 GHz
Ref 20 dBm
Offset 0.5 dB
*Att 30 dB
Marker 2 [T1]
-30.49 dBm
2.400000000 GHz
Marker 3 [T1]
-50.60 dBm
2.390000000 GHz
Marker 4 [T1]
-48.93 dBm
2.386400000 GHz
D1 4.94 dBm
D2 -15.06 dBm
Center 2.367 GHz
10 MHz/
Span 100 MHz
F1
F2
Date: 26.JUN.2003 16:21:29


RBW 1 MHz
VBW 300 Hz
SWT 840 ms
Marker 1 [T1]
6.27 dBm
2.458200000 GHz
Marker 2 [T1]
-50.52 dBm
2.483500000 GHz
Marker 3 [T1]
-48.72 dBm
2.486500000 GHz
Marker 4 [T1]
-59.32 dBm
2.500000000 GHz
Ref 20 dBm
Att 30 dB
20 offset
D1 96.27 dBm
D2 -13.73 dBm
10 MHz/
Center 2.5072 GHz
Span 100 MHz
F1
F2
1 PK
VIEW
Date: 26.JUN.2003 16:42:06


Marker 1 [T1]
0.43 dBm
2.40930000 GHz
*RBW 1 MHz
*VBW 300 Hz
SWT 840 ms
*Att 30 dB
Ref 20 dBm
20 Offset 0.5 dB
Marker 2 [T1]
-31.47 dBm
2.40000000 GHz
Marker 3 [T1]
-46.24 dBm
Marker 4 [T1]
-46.63 dBm
2.48980000 GHz
D1 0.43 dBm
D2 -19.57 dBm
Center 2.3713 GHz
10 MHz/
Span 100 MHz
Date: 26.JUN.2003 17:29:10


Marker 1 [T1]
0.44 dBm
2.46060000 GHz
Marker 2 [T1]
-46.14 dBm
2.48350000 GHz
Marker 3 [T1]
-46.53 dBm
2.48370000 GHz
Marker 4 [T1]
-60.71 dBm
2.50000000 GHz
*RBW 1 MHz
*VBW 300 Hz
SWT 840 ms
*Att 30 dB
Ref 20 dBm
20 Offset 0.5 dB
D1 0.45 dBm
D2 -19.19 dBm
Center 2.5012 GHz
10 MHz/
Span 100 MHz
Date: 26.JUN.2003 17:02:14

4.7 ANTENNA REQUIREMENT

4.7.1 STANDARD APPLICABLE

For intentional device, according to FCC 47 CFR Section 15.203, 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. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

4.7.2 ANTENNA CONNECTED CONSTRUCTION

The antenna used in this product is printed dipole / patch antenna with UFL connector. The maximum Gain of the antenna is 3dBi.

5. TEST TYPES AND RESULTS (FOR PART 802.11a)

5.1 CONDUCTED EMISSION MEASUREMENT

5.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dBμV)	
	Quasi-peak	Average
0.15-0.5 0.5-5 5-30	66 to 56 56 60	56 to 46 46 50

NOTE:
1. The lower limit shall apply at the transition frequencies.
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.
3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

5.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
ROHDE & SCHWARZ Test Receiver	ESCS 30	838251/021	Jan. 20, 2004
ROHDE & SCHWARZ Artificial Mains Network (for EUT)	ESH3-Z5	100218	Dec. 18, 2003
ROHDE & SCHWARZ Artificial Mains Network (for peripherals)	ESH3-Z5	100219	Dec. 18, 2003
ROHDE & SCHWARZ Artificial Mains Network (for peripherals)	ESH3-Z5	100220	Dec. 18, 2003
ROHDE & SCHWARZ 4-wire ISN	ENY41	837032/016	Nov. 29 2003
ROHDE & SCHWARZ 2-wire ISN	ENY22	837497/016	Nov. 29 2003
Software	Cond-V2M3	NA	NA
RF cable (JYEBAO)	5D-FB	Cable-C10.01	May. 01, 2004
SUHNER Terminator (For ROHDE & SCHWARZ LISN)	65BNC-5001	E1-010770	Mar. 24, 2004
SUHNER Terminator (For ROHDE & SCHWARZ LISN)	65BNC-5001	E1-010773	Apr. 06, 2004

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 conducted telecom port test only (if tested).
3. The test was performed in ADT Shielded Room No. 10.
4. The VCCI Site Registration No. is C-1312.

5.1.3 TEST PROCEDURES

a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.

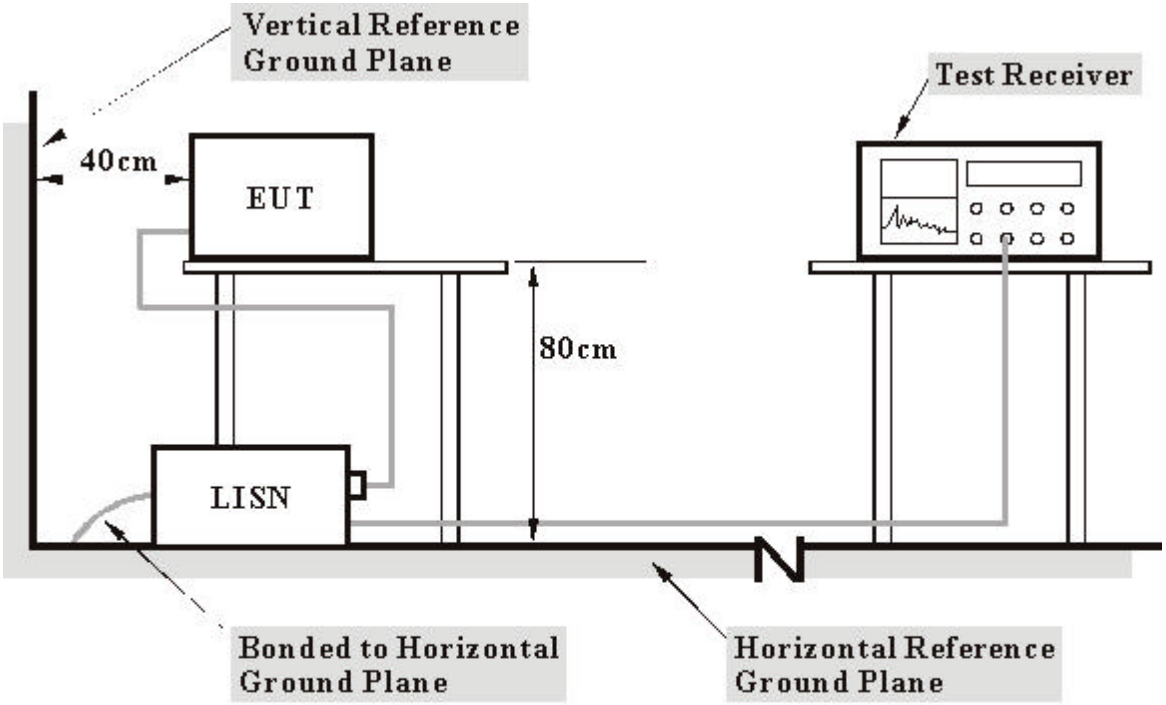
b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

c. The frequency range from 150kHz to 30MHz was searched. Emission levels over 10dB under the prescribed limits could not be reported

5.1.4 DEVIATION FROM TEST STANDARD

No deviation

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

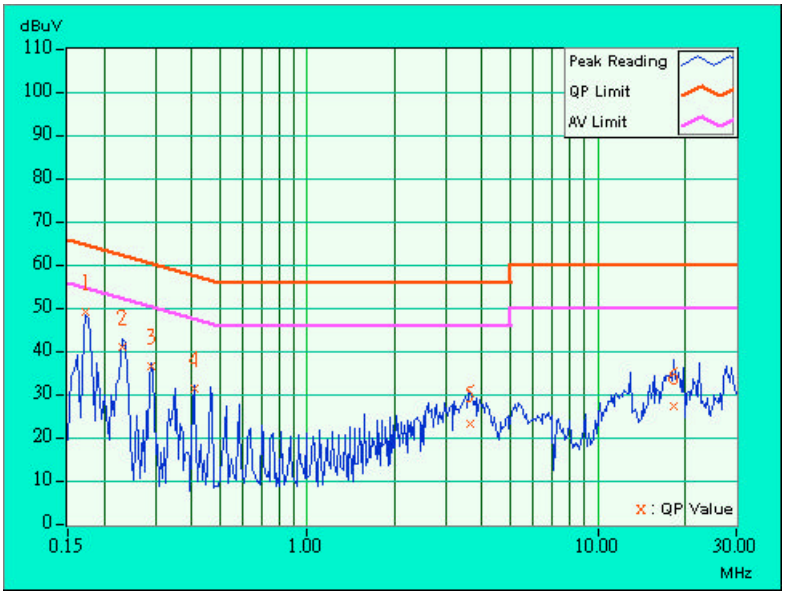
Same as 4.1.6

5.1.7 TEST RESULTS

EUT	Mini- PCI CARD	**MODEL**	WLL4030
		6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**PHASE**	Line (L)
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 991hPa	**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	0.06	48.64	-	48.70	-	64.79	54.79	-16.10	-
2	0.232	0.06	40.57	-	40.63	-	62.38	52.38	-21.75	-
3	0.291	0.06	35.94	-	36.00	-	60.51	50.51	-24.51	-
4	0.408	0.06	30.84	-	30.90	-	57.69	47.69	-26.79	-
5	3.625	0.21	22.64	-	22.85	-	56.00	46.00	-33.15	-
6	18.328	0.61	26.70	-	27.31	-	60.00	50.00	-32.69	-

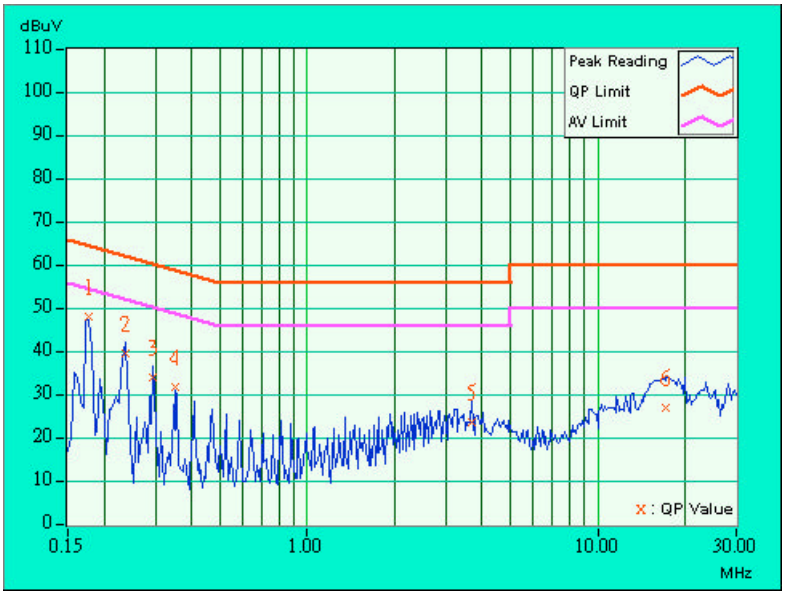
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



EUT	Mini- PCI CARD	**MODEL**	WLL4030
		6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**PHASE**	Neutral (N)
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 991hPa	**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	0.177	0.05	47.49	-	47.54	-	64.61	54.61	-17.07	-
2	0.236	0.05	39.07	-	39.12	-	62.24	52.24	-23.12	-
3	0.295	0.05	33.60	-	33.65	-	60.40	50.40	-26.75	-
4	0.349	0.05	31.34	-	31.39	-	58.98	48.98	-27.59	-
5	3.684	0.20	23.19	-	23.39	-	56.00	46.00	-32.61	-
6	17.230	0.50	26.71	-	27.21	-	60.00	50.00	-32.79	-

REMARKS: 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

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

5.2.3 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
*HP Spectrum Analyzer	8590L	3544A01176	Jun. 10, 2004
*HP Preamplifier	8447D	2944A08485	May. 01, 2004
* HP Preamplifier	8449B	3008A01201	Dec. 01, 2003
* HP Preamplifier	8449B	3008A01292	Aug. 07, 2003
ROHDE & SCHWARZ TEST RECEIVER	ESI7	838496/016	Feb. 23, 2004
* ROHDE & SCHWARZ TEST RECEIVER	ESMI	839013/007 839379/002	Feb. 13, 2004
SCHAFFNER Tunable Dipole Antenna SCHWARZBECK Tunable Dipole Antenna	VHBA 9123 UHA 9105	459 977	Nov. 22, 2003
* CHASE BILOG Antenna	CBL6112A	2221	Aug. 2, 2003
* SCHWARZBECK Horn Antenna	BBHA9120-D1	D130	Jun 30, 2004
* EMCO Horn Antenna	3115	9312-4192	Mar. 23 2004
* EMCO Turn Table	1060	1115	NA
* CHANCE Tower	CM-AT40	CM-A010	NA
* Software	ADT_Radiated_V5.14	NA	NA
* ANRITSU RF Switches	MP59B	M35046	Jan. 05. 2004
* TIMES RF cable	LMR-600	CABLE-ST5-01	Jan. 05. 2004

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.

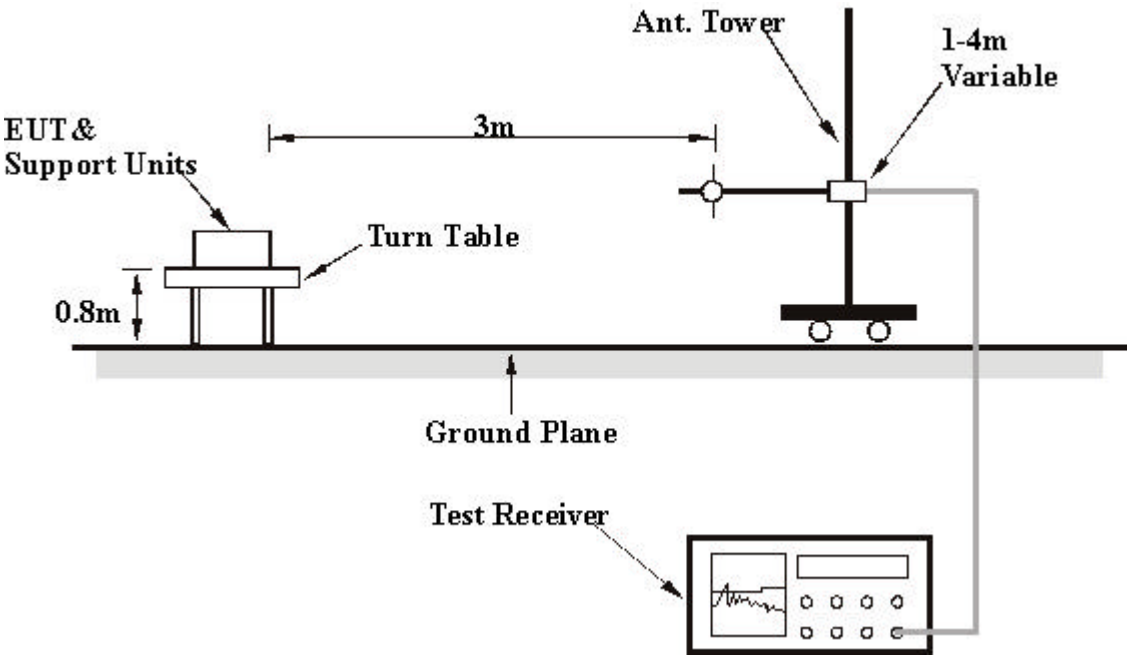
NOTE:

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	Mini- PCI CARD	MODEL	WLL4030
FREQUENCY RANGE	Below 1000MHz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	30deg. C, 60%RH, 991hPa	INPUT POWER (SYSTEM)	120Vac, 60Hz
TESTED BY	Hardaway Lee		

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	191.76	36.3 QP	43.50	-7.20	1.43 H	181	25.50	10.80
2	256.98	30.5 QP	46.00	-15.50	1.00 H	114	14.10	16.50
3	384.03	28.8 QP	46.00	-17.20	1.39 H	104	10.20	18.70
4	417.81	30.5 QP	46.00	-15.50	1.54 H	185	11.10	19.40
5	513.23	32.2 QP	46.00	-13.80	1.27 H	68	11.00	21.20
6	545.10	29.5 QP	46.00	-16.50	1.27 H	23	8.40	21.10
7	576.51	32.9 QP	46.00	-13.10	1.34 H	119	11.00	21.90
8	672.31	38.1 QP	46.00	-7.90	1.41 H	147	15.20	22.90
9	736.59	31.4 QP	46.00	-14.60	1.41 H	196	7.60	23.80
10	833.92	29.1 QP	46.00	-16.90	1.50 H	225	4.10	25.00
11	863.89	33.0 QP	46.00	-13.00	1.69 H	244	7.90	25.10

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
1	160.29	26.7 QP	43.50	-16.80	1.22 V	27	15.90	10.80
2	191.79	27.2 QP	43.50	-16.30	1.15 V	65	16.40	10.80
3	223.79	18.1 QP	46.00	-27.90	1.30 V	86	5.00	13.20
4	288.05	26.9 QP	46.00	-19.10	1.30 V	156	10.30	16.60
5	417.78	30.2 QP	46.00	-15.80	1.45 V	201	10.90	19.40
6	420.93	27.6 QP	46.00	-18.40	1.20 V	70	8.20	19.40
7	516.08	30.2 QP	46.00	-15.80	1.00 V	200	9.10	21.20
8	577.14	32.0 QP	46.00	-14.00	1.14 V	134	10.10	22.00
9	580.27	24.1 QP	46.00	-21.90	1.47 V	212	2.00	22.10
10	677.24	27.6 QP	46.00	-18.40	1.20 V	130	4.70	22.90
11	703.00	38.4 QP	46.00	-7.60	1.10 V	146	15.30	23.10

REMARKS: 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.

EUT	Mini- PCI CARD	MODEL	WLL4030
FREQUENCY RANGE	Above 1000 MHz	CHANNEL	1
ENVIRONMENTAL CONDITIONS	30deg. C, 60%RH, 991hPa	DETECTOR FUNCTION	Peak(PK) Average (AV)
INPUT POWER (SYSTEM)	120Vac, 60Hz	TESTED BY	Hardaway Lee

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	*5180.00	100.1 PK			1.00 H	142	63.90	36.20
1	*5180.00	90.3 AV			1.00 H	142	54.10	36.20
2	10360.00	60.2 PK	74.00	-13.8	1.29 H	186	15.70	44.50
2	10360.00	46.3 AV	54.00	-7.7	1.29 H	186	1.80	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	*5180.00	101.3 PK			1.40 V	86	65.10	36.20
1	*5180.00	91.3 AV			1.40 V	86	55.10	36.20
2	10360.00	62.1 PK	74.00	-11.9	1.29 V	186	17.60	44.50
2	10360.00	48.4 AV	54.00	-5.6	1.29 V	186	3.90	44.50

REMARKS:

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. "*" : Fundamental frequency

EUT	Mini- PCI CARD	**MODEL**	WLL4030
FREQUENCY RANGE	Above 1000 MHz	**CHANNEL**	4
ENVIRONMENTAL CONDITIONS	30deg. C, 60%RH, 991hPa	**DETECTOR FUNCTION**	Peak(PK) Average (AV)
INPUT POWER (SYSTEM)	120Vac, 60Hz	**TESTED BY**	Hardaway Lee

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	100.5 PK			1.00 H	142	64.20	36.30
1	*5240.00	90.3 AV			1.00 H	142	54.00	36.30
2	10479.00	60.6 PK	74.00	-13.4	1.06 H	142	15.90	44.70
2	10479.00	46.8 AV	54.00	-7.2	1.06 H	142	2.10	44.70

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	99.9 PK			1.19 V	83	63.60	36.30
1	*5240.00	90.5 AV			1.19 V	83	54.10	36.30
2	10479.00	62.5 PK	74.00	-11.5	1.12 V	183	17.80	44.70
2	10479.00	48.9 AV	54.00	-5.1	1.12 V	183	4.20	44.70

REMARKS:

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. "*" : Fundamental frequency

EUT	Mini- PCI CARD	MODEL	WLL4030
FREQUENCY RANGE	Above 1000 MHz	CHANNEL	5
ENVIRONMENTAL CONDITIONS	30deg. C, 60%RH, 991hPa	DETECTOR FUNCTION	Peak(PK) Average (AV)
INPUT POWER (SYSTEM)	120Vac, 60Hz	TESTED BY	Hardaway Lee

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	100.2 PK			1.11 H	213	63.80	36.40
1	*5260.00	90.0 AV			1.11 H	213	53.60	36.40
2	10521.00	61.3 PK	74.00	-12.7	1.00 H	85	16.50	44.80
2	10521.00	47.2 AV	54.00	-6.8	1.00 H	85	2.40	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	*5260.00	104.1 PK			1.00 V	51	67.70	36.40
1	*5260.00	94.3 AV			1.00 V	51	57.90	36.40
2	10521.00	63.2 PK	74.00	-10.8	1.00 V	185	18.40	44.80
2	10521.00	49.1 AV	54.00	-4.9	1.00 V	185	4.30	44.80

REMARKS:

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. "*" : Fundamental frequency

EUT	Mini- PCI CARD	**MODEL**	WLL4030
FREQUENCY RANGE	Above 1000 MHz	**CHANNEL**	8
ENVIRONMENTAL CONDITIONS	30deg. C, 60%RH, 991hPa	**DETECTOR FUNCTION**	Peak(PK) Average (AV)
INPUT POWER (SYSTEM)	120Vac, 60Hz	**TESTED BY**	Hardaway Lee

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	98.0 PK			1.05 H	247	61.50	36.40
1	*5320.00	88.8 AV			1.05 H	247	52.30	36.40
2	#10640.00	58.0 PK	74.00	-16.00	1.41 H	102	13.00	45.10
2	#10640.00	46.5 AV	54.00	-7.50	1.41 H	102	1.40	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	*5320.00	103.6 PK			1.00 V	151	67.10	36.40
1	*5320.00	94.0 AV			1.00 V	151	57.60	36.40
2	#10640.00	57.7 PK	74.00	-16.30	1.00 V	220	12.60	45.10
2	#10640.00	44.6 AV	54.00	-9.40	1.00 V	220	-0.50	45.10

REMARKS:

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. "*" : Fundamental frequency
6. "# " : The radiated frequency falling in the restricted band.

EUT	Mini- PCI CARD	**MODEL**	WLL4030
FREQUENCY RANGE	Above 1000 MHz	**CHANNEL**	9
ENVIRONMENTAL CONDITIONS	30deg. C, 60%RH, 991hPa	**DETECTOR FUNCTION**	Peak(PK) Average (AV)
INPUT POWER (SYSTEM)	120Vac, 60Hz	**TESTED BY**	Hardaway Lee

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	64.33 PK	71.10	-9.10	2.03 H	66	27.23	37.1
2	5725.00	69.20 PK	81.10	-7.30	2.03 H	66	32.10	37.1
3	*5745.00	97.5 PK			2.03 H	66	60.30	37.10
3	*5745.00	88.0 AV			2.03 H	66	50.80	37.10
4	#11495.00	64.6 PK	74.00	-9.40	1.24 H	188	18.90	45.80
4	#11495.00	50.4 AV	54.00	-3.60	1.24 H	188	4.70	45.80

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	5715.00	62.0 PK	71.10	-9.10	1.13 V	65	24.90	37.10
2	5725.00	73.8 PK	81.10	-7.30	1.13 V	65	36.70	37.10
3	*5745.00	99.8 PK			1.13 V	65	62.70	37.10
3	*5745.00	89.8 AV			1.13 V	65	52.70	37.10
4	#11490.00	51.0 PK	74.00	-23.00	1.34 V	62	5.20	45.80
4	#11490.00	45.2 AV	54.00	-8.80	1.34 V	62	-0.60	45.80

REMARKS:

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. "*" : Fundamental frequency
6. "# " : The radiated frequency falling in the restricted band.

EUT	Mini- PCI CARD	**MODEL**	WLL4030
FREQUENCY RANGE	Above 1000 MHz	**CHANNEL**	12
ENVIRONMENTAL CONDITIONS	30deg. C, 60%RH, 991hPa	**DETECTOR FUNCTION**	Peak(PK) Average (AV)
INPUT POWER (SYSTEM)	120Vac, 60Hz	**TESTED BY**	Hardaway Lee

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	101.1 PK			1.00 H	88	63.80	37.20
1	*5805.00	91.7 AV			1.00 H	88	54.40	37.20
2	5825.00	75.0 PK	81.10	-6.10	1.00 H	88	37.80	37.30
3	5835.00	64.3 PK	71.10	-6.80	1.00 H	88	27.00	37.30
4	#11604.00	63.4 PK	74.00	-10.60	2.08 H	166	17.80	45.70
4	#11604.00	48.9 AV	54.00	-5.10	2.08 H	166	3.20	45.70

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	102.9 PK			1.45 V	166	65.60	37.20
1	*5805.00	93.9 AV			1.45 V	166	56.60	37.20
2	5825.00	74.7 PK	81.10	-6.40	1.45 V	166	37.40	37.30
3	5835.00	65.8 PK	71.10	-5.30	1.45 V	166	28.50	37.30
4	#11604.00	65.4 PK	74.00	-8.60	2.08 V	166	19.70	45.70
4	#11604.00	52.0 AV	54.00	-2.00	2.08 V	166	6.30	45.70

REMARKS:

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. "*" : 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 – 5.25GHz	The lesser of 50mW (17dBm) or 4dBm + 10logB
5.25 – 5.35GHz	The lesser of 250mW (24dBm) or 11dBm + 10logB
5.725 – 5.825GHz	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

1. The transmitter output was connected to the spectrum analyzer.
2. Set span to encompass the entire emission bandwidth of the signal.
3. Set RBW to 1MHz, VBW to 300kHz.
4. 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.

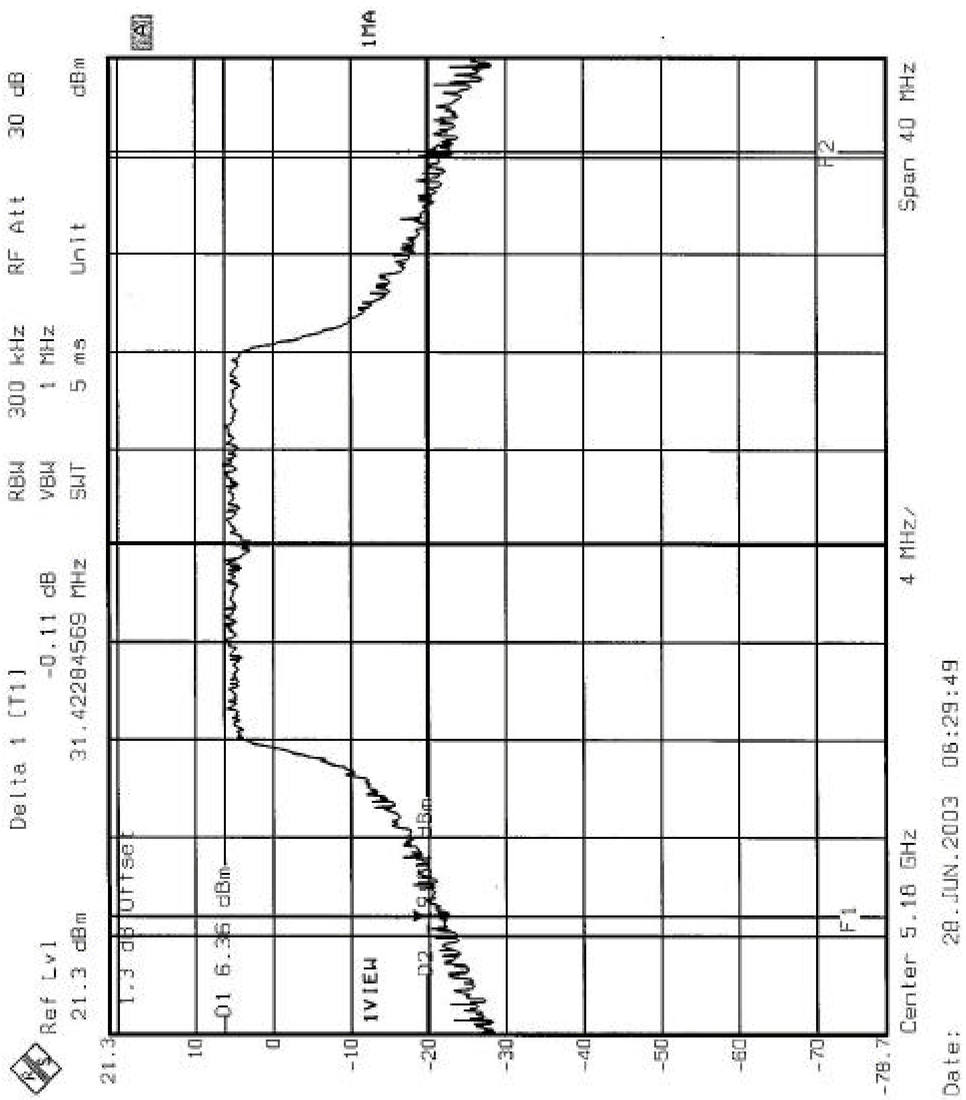
5.3.7 TEST RESULTS

EUT	Mini- PCI CARD	**MODEL**	WLL4030
ENVIRONMENTAL CONDITIONS	269deg. C, 68%RH, 991hPa	**INPUT POWER (SYSTEM)**	120Vac, 60 Hz
TESTED BY	Ansen Lei		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	26dBc Occupied Bandwidth (MHz)	PASS/FAIL
1	5180	15.27	17.00	31.422	PASS
4	5240	15.39	17.00	29.739	PASS
5	5260	16.64	24.00	28.136	PASS
8	5320	16.57	24.00	26.693	PASS
9	5745	18.42	30.00	33.587	PASS
12	5805	18.22	30.00	35.831	PASS

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

CH1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RBW 300 kHz
VBW 1 MHz
SWT 5 ms
RF Att 30 dB
Unit dBm
1.3 dB Offset
D1 6.36 dBm
1VIEW
1MA
D2
F1
F2
21.3
10
0
-10
-20
-30
-40
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-60
-70
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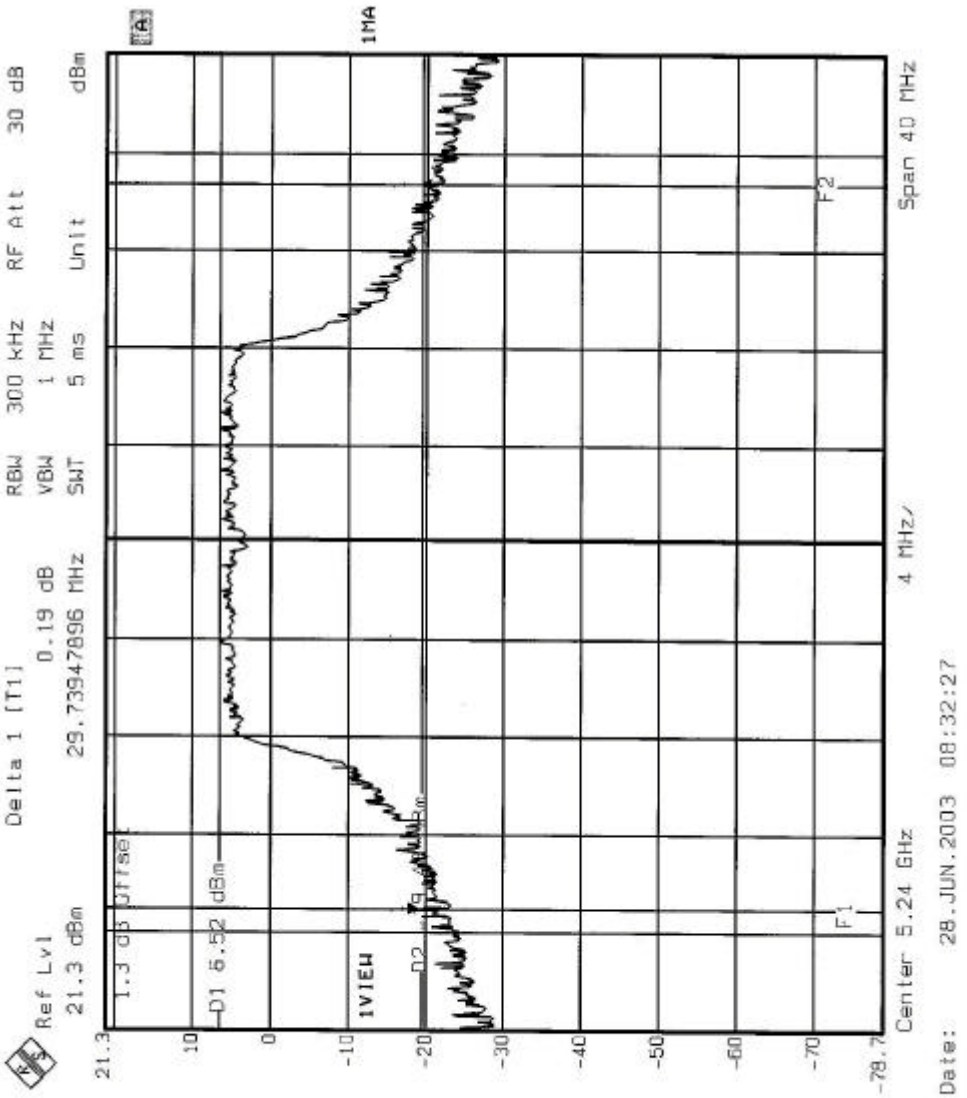
Center 5.18 GHz
4 MHz/
Span 40 MHz
Date: 28.JUN.2003 08:29:49

CH4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RBW 300 kHz
VBW 1 MHz
SWT 5 ms
RF Att 30 dB
Unit dBm
1MA
Ref Lvl
21.3 dBm
1.3 dB Offset
D1 6.52 dBm
1VIEW
D2
F1
F2
Center 5.24 GHz
4 MHz/
Span 40 MHz
Date: 28.JUN.2003 08:32:27