



FCC TEST REPORT

REPORT NO.: RF921203R02
MODEL NO.: USR5430
RECEIVED: Dec. 02, 2003
TESTED: Dec. 02 ~ Dec. 05, 2003

APPLICANT: GEMTEK TECHNOLOGY CO.,LTD.

ADDRESS: No.1 Jen Ai Road, Hsinchu Industrial Park
Hukou, Hsinchu, Taiwan, R.O.C.

ISSUED BY: Advance Data Technology Corporation

LAB LOCATION: 47 14th Lin, Chiapau Tsun, Linko, Taipei,
Taiwan, R.O.C.

This test report consists of 61 pages in total. It may be duplicated completely for legal use with the approval of the applicant. It should not be reproduced except in full, without the written approval of our laboratory. The client should not use it to claim product endorsement by CNLA, NVLAP or any government agencies. The test results in the report only apply to the tested sample.



0528
ILAC MRA



Lab Code: 200102-0



Table of Contents

1	CERTIFICATION	4
2	SUMMARY OF TEST RESULTS	5
3	GENERAL INFORMATION.....	6
3.1	GENERAL DESCRIPTION OF EUT	6
3.2	DESCRIPTION OF TEST MODES	7
3.3	GENERAL DESCRIPTION OF APPLIED STANDARDS	7
3.4	DESCRIPTION OF SUPPORT UNITS	7
3.5	CONFIGURATION OF SYSTEM UNDER TEST	8
4	TEST TYPES AND RESULTS	9
4.1	CONDUCTED EMISSION MEASUREMENT	9
4.1.1	LIMITS OF CONDUCTED EMISSION MEASUREMENT	9
4.1.2	TEST INSTRUMENTS	9
4.1.3	TEST PROCEDURES	10
4.1.4	DEVIATION FROM TEST STANDARD	10
4.1.5	TEST SETUP	11
4.1.6	EUT OPERATING CONDITIONS	11
4.1.7	TEST RESULTS	12
4.2	RADIATED EMISSION MEASUREMENT	18
4.2.1	LIMITS OF RADIATED EMISSION MEASUREMENT	18
4.2.2	TEST INSTRUMENTS	19
4.2.3	TEST PROCEDURES	20
4.2.4	DEVIATION FROM TEST STANDARD	20
4.2.5	TEST SETUP	21
4.2.6	EUT OPERATING CONDITIONS	21
4.2.7	TEST RESULTS	22
4.3	6dB BANDWIDTH MEASUREMENT.....	29
4.3.1	LIMITS OF 6dB BANDWIDTH MEASUREMENT	29
4.3.2	TEST INSTRUMENTS	29
4.3.3	TEST PROCEDURE	29
4.3.4	DEVIATION FROM TEST STANDARD	29
4.3.5	TEST SETUP	30
4.3.6	EUT OPERATING CONDITIONS	30



4.3.7	TEST RESULTS	31
4.4	MAXIMUM PEAK OUTPUT POWER	39
4.4.1	LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT	39
4.4.2	TEST INSTRUMENTS	39
4.4.3	TEST PROCEDURES	40
4.4.4	DEVIATION FROM TEST STANDARD	40
4.4.5	TEST SETUP	40
4.4.6	EUT OPERATING CONDITIONS	40
4.4.7	TEST RESULTS	41
4.5	POWER SPECTRAL DENSITY MEASUREMENT	42
4.5.1	LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT	42
4.5.2	TEST INSTRUMENTS	42
4.5.3	TEST PROCEDURE	43
4.5.4	DEVIATION FROM TEST STANDARD	43
4.5.5	TEST SETUP	43
4.5.6	EUT OPERATING CONDITIONS	43
4.5.7	TEST RESULTS	44
4.6	BAND EDGES MEASUREMENT	52
4.6.1	LIMITS OF BAND EDGES MEASUREMENT	52
4.6.2	TEST INSTRUMENTS	52
4.6.3	TEST PROCEDURE	52
4.6.4	DEVIATION FROM TEST STANDARD	52
4.6.5	EUT OPERATING CONDITION	53
4.6.6	TEST RESULTS	53
4.7	ANTENNA REQUIREMENT	58
4.7.1	STANDARD APPLICABLE	58
4.7.2	ANTENNA CONNECTED CONSTRUCTION	58
5	PHOTOGRAPHS OF THE TEST CONFIGURATION	59
6	INFORMATION ON THE TESTING LABORATORIES	61



1 CERTIFICATION

PRODUCT : 802.11g Wireless Ethernet Bridge
MODEL NO.: USR5430
BRAND NAME : U.S.Robotics
APPLICANT : GEMTEK TECHNOLOGY CO.,LTD.
TEST ITEM : ENGINEERING SAMPLE
STANDARDS : 47 CFR Part 15, Subpart C (Section 15.247),
ANSI C63.4-1992

We, **Advance Data Technology Corporation**, hereby certify that one sample of the designation has been tested in our facility from Dec. 02 ~ Dec. 05, 2003. The test record, data evaluation and Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions herein specified.

PREPARED BY: Landy S bong , **DATE:** Dec. 09, 2003
Landy S bong
APPROVED BY: Ellis Wu , **DATE:** Dec. 09, 2003
Ellis Wu /
Technical Manager



2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: 47 CFR Part 15, Subpart C			
Standard Section	Test Type and Limit	Result	REMARK
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit Minimum passing margin is -16.18dB at 0.427MHz
15.247(a)(2)	Spectrum Bandwidth of a Direct Sequence Spread Spectrum System. Limit: min. 500kHz	PASS	Meet the requirement of limit
15.247(b)	Maximum Peak Output Power Limit: max. 30dBm	PASS	Meet the requirement of limit
15.247(c)	Transmitter Radiated Emissions Limit: Table 15.209	PASS	Meet the requirement of limit Minimum passing margin is -1.81dB at 2483.50MHz
15.247(d)	Power Spectral Density Limit: max. 8dBm	PASS	Meet the requirement of limit
15.247(c)	Band Edge Measurement Limit: 20dB less than the peak value of fundamental frequency	PASS	Meet the requirement of limit

Note: The information of measurement uncertainty is available upon the customer's request.



3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	802.11g Wireless Ethernet Bridge
MODEL NO.	USR5430
POWER SUPPLY	12VdC from power adapter
MODULATION TYPE	BPSK, QPSK, CCK, 16QAM, 64QAM
RADIO TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	1/2/5.5/6/9/11/12/18/24/36/48/54Mbps
FREQUENCY RANGE	2412MHz ~ 2462MHz
NUMBER OF CHANNEL	11
MAXIMUM OUTPUT POWER	15.20dBm
ANTENNA TYPE	Dipole antenna with 2.0dBi gain
DATA CABLE	NA
I/O PORTS	RJ45
ASSOCIATED DEVICES	NA

NOTE:

1. The EUT was powered by the following adapter:

BRAND :	Potrans Electrical Corporation
MODEL :	WD411200500
INPUT :	120VaC , 60Hz , 11W
OUTPUT :	12VdC , 500 mA

BRAND :	LINKSYS
MODEL :	WD411200500
INPUT :	120VaC , 60Hz , 11W
OUTPUT :	12VdC , 500 mA

2. The EUT operates in the 2.4GHz frequency spectrum and compatible with the draft 802.11g standard to provide a wireless data rate of up to 54Mbps.
3. For more detailed features description, please refer to the manufacturer's specifications or User's Manual.



3.2 DESCRIPTION OF TEST MODES

Eleven channels are provided to this EUT.

Channel	Frequency	Channel	Frequency
1	2412 MHz	7	2442 MHz
2	2417 MHz	8	2447 MHz
3	2422 MHz	9	2452 MHz
4	2427 MHz	10	2457 MHz
5	2432 MHz	11	2462 MHz
6	2437 MHz		

NOTE:

1. Below 1GHz, the channel 1, 6, and 11 were pre-tested in chamber. The channel 11, the worst case, was chosen for final test.
2. Above 1GHz, the channel 1, 6, and 11 were tested individually.
3. Transfer rate at 11Mbps with CCK technology and 6Mbps with OFDM technique, the worst cases, was chosen for final test.

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a 802.11g Wireless Ethernet Bridge. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC 47 CFR Part 15, Subpart C. (15.247)

ANSI C63.4: 1992

All test items have been performed and recorded as per the above standards.

NOTE: The EUT is also considered as a kind of computer peripheral, because the connection to computer is necessary for typical use. It has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.

3.4 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

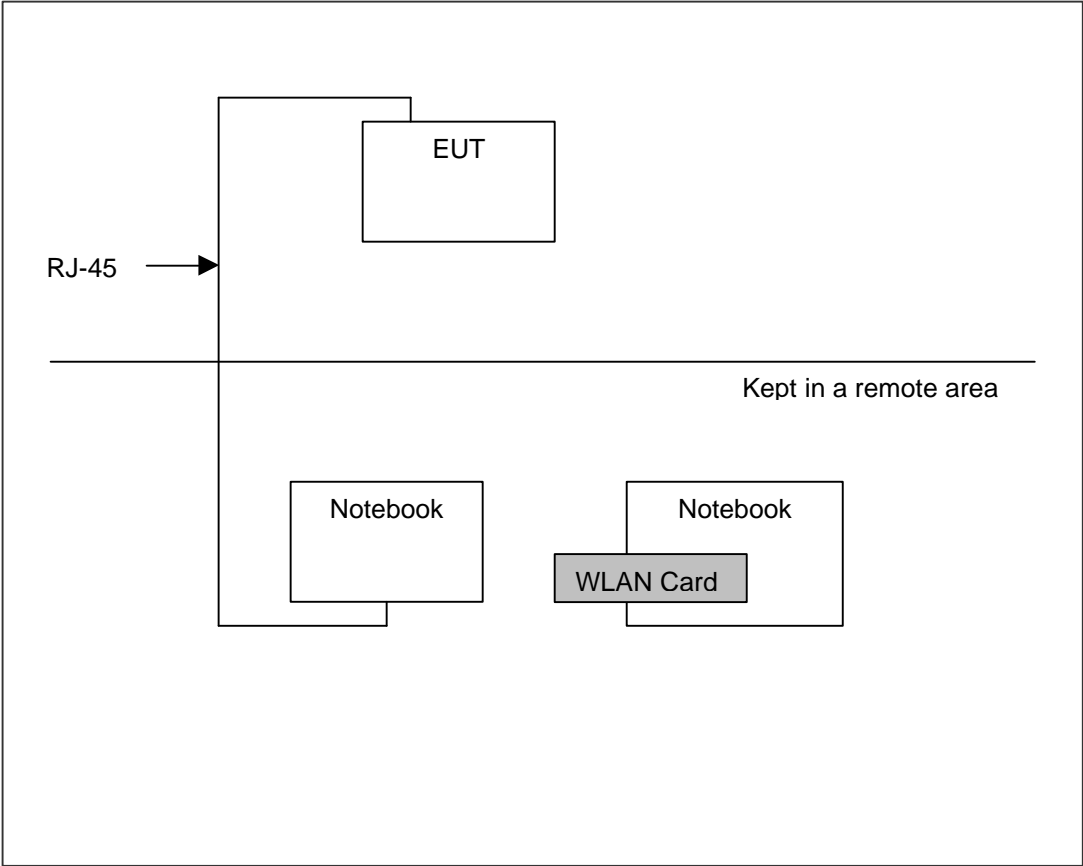
NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	Notebook	DELL	LX4100D	07427	HFSBLX
2	Notebook	DELL	C600	NA	NA
3	WLAN Card	ASUS	WL-100g	NA	NA

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA
2	NA
3	NA

NOTE: All power cords of the above support units are non shielded (1.8m).



3.5 CONFIGURATION OF SYSTEM UNDER TEST





4 TEST TYPES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

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

4.1.2 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. 19 2004
*ROHDE & SCHWARZ 2-wire ISN	ENY22	837497/016	Nov. 19 2004
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.



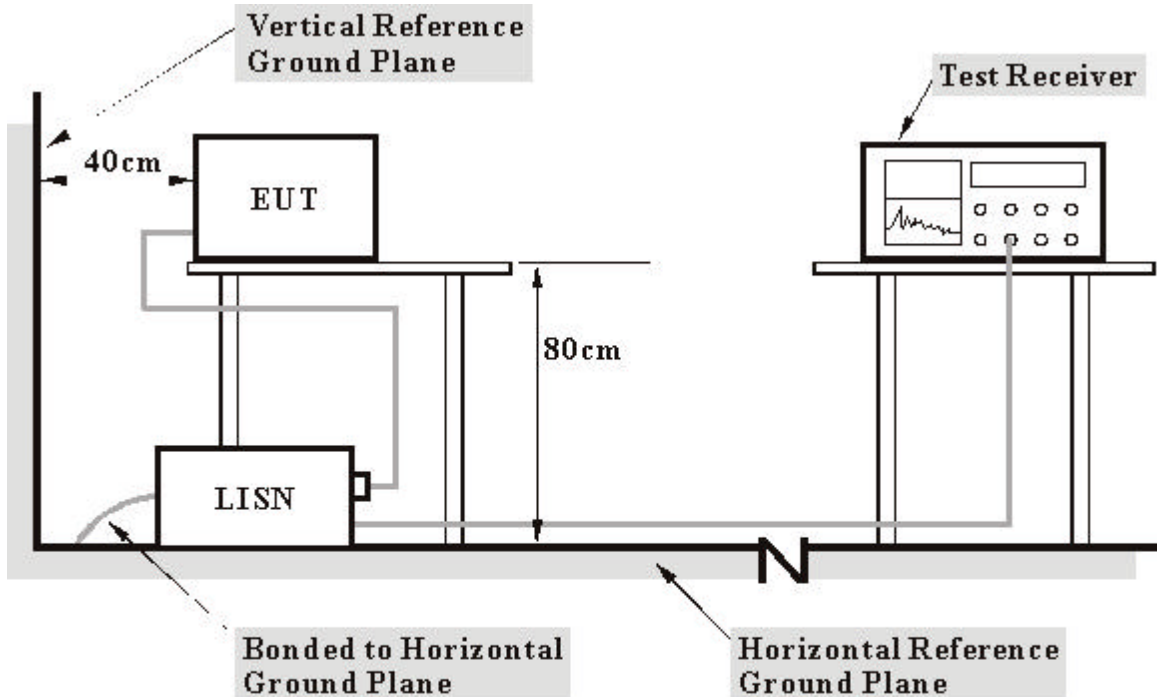
4.1.3 TEST PROCEDURES

- 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

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 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.

4.1.6 EUT OPERATING CONDITIONS

- a. Placed the EUT on the testing table.
- b. Prepared another computer system to act as a communication partner and placed it outside of testing area.
- c. The communication partner ran a test program to enable EUT under transmission/receiving condition continuously at specific channel frequency via an RJ45 cable.
- d. The communication partner sent data to EUT by command "PING".

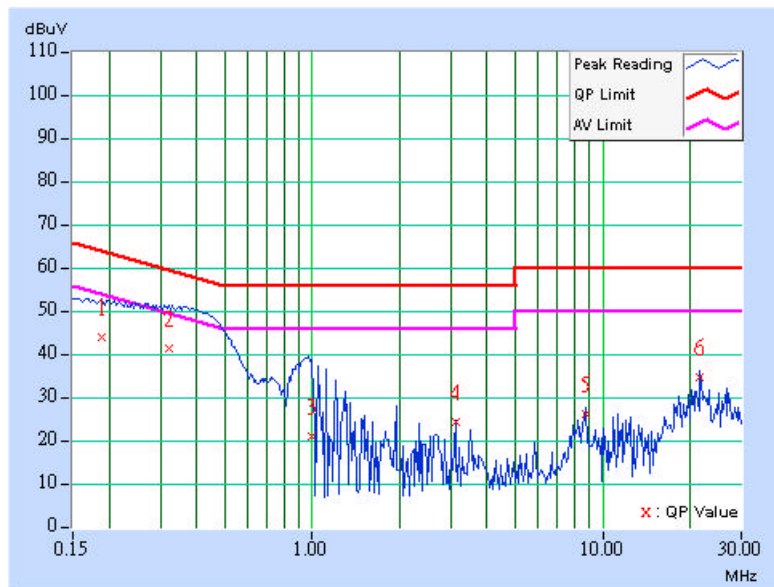


4.1.7 TEST RESULTS

EUT	802.11g Wireless Ethernet Bridge	MODEL	USR5430
CHANNEL	Channel 1	6dB BANDWIDTH	9kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH, 991hPa	TESTED BY: Martin Lee	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.189	0.06	43.31	-	43.37	-	64.08	54.08	-20.71	-
2	0.322	0.06	40.88	-	40.94	-	59.66	49.66	-18.72	-
3	1.001	0.16	20.32	-	20.48	-	56.00	46.00	-35.52	-
4	3.109	0.20	23.61	-	23.81	-	56.00	46.00	-32.19	-
5	8.719	0.37	25.69	-	26.06	-	60.00	50.00	-33.94	-
6	21.664	0.72	33.97	-	34.69	-	60.00	50.00	-25.31	-

- 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.

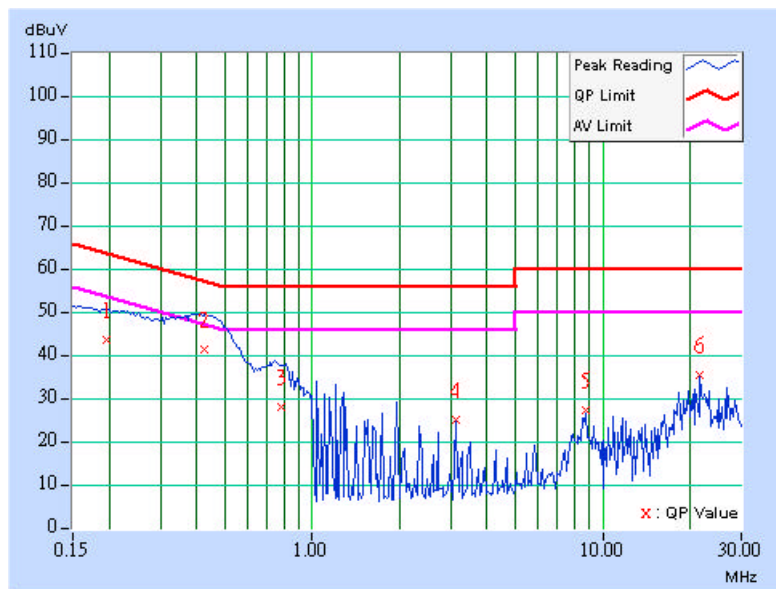




EUT	802.11g Wireless Ethernet Bridge	MODEL	USR5430
CHANNEL	Channel 1	6dB BANDWIDTH	9kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH, 991hPa	TESTED BY: Martin Lee	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.197	0.05	43.03	-	43.08	-	63.74	53.74	-20.66	-
2	0.427	0.05	41.07	-	41.12	-	57.30	47.30	-16.18	-
3	0.778	0.12	27.65	-	27.77	-	56.00	46.00	-28.23	-
4	3.109	0.19	24.76	-	24.95	-	56.00	46.00	-31.05	-
5	8.715	0.35	26.96	-	27.31	-	60.00	50.00	-32.69	-
6	21.664	0.58	35.10	-	35.68	-	60.00	50.00	-24.32	-

- 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.

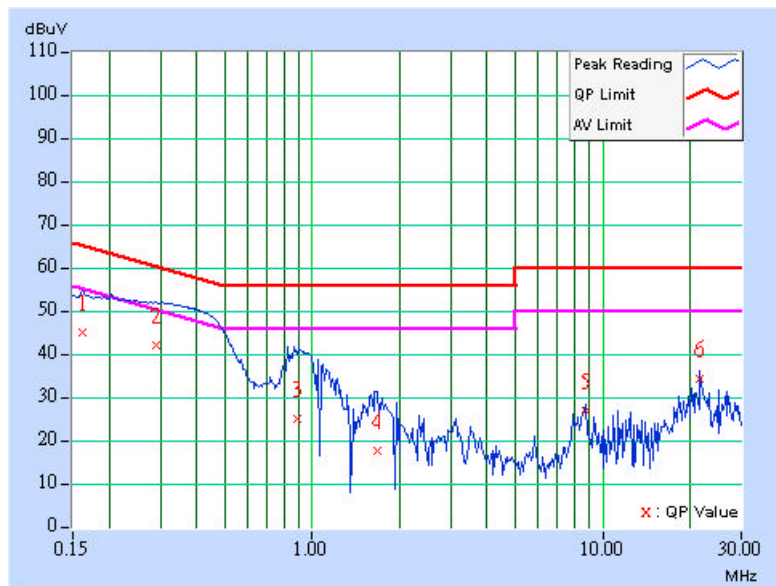




EUT	802.11g Wireless Ethernet Bridge	MODEL	USR5430
CHANNEL	Channel 6	6dB BANDWIDTH	9kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH, 991hPa	TESTED BY: Martin Lee	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.162	0.06	44.45	-	44.51	-	65.38
2	0.291	0.06	41.36	-	41.42	-	60.51	50.51	-19.09	-
3	0.890	0.14	24.39	-	24.53	-	56.00	46.00	-31.47	-
4	1.672	0.17	17.10	-	17.27	-	56.00	46.00	-38.73	-
5	8.719	0.37	26.25	-	26.62	-	60.00	50.00	-33.38	-
6	21.664	0.72	33.87	-	34.59	-	60.00	50.00	-25.41	-

- 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.

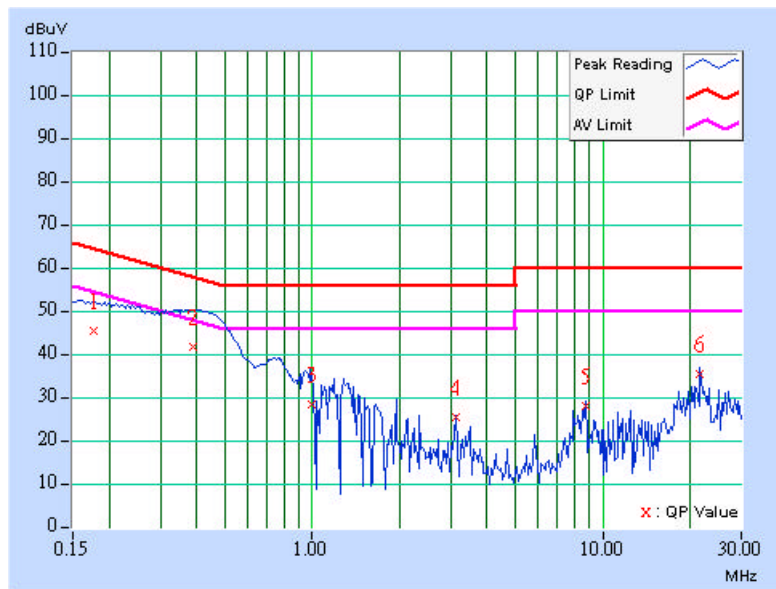




EUT	802.11g Wireless Ethernet Bridge	MODEL	USR5430
CHANNEL	Channel 6	6dB BANDWIDTH	9kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH, 991hPa	TESTED BY: Martin Lee	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.177	0.05	44.86	-	44.91	-	64.61
2	0.390	0.05	41.41	-	41.46	-	58.06	48.06	-16.60	-
3	1.001	0.16	27.87	-	28.03	-	56.00	46.00	-27.97	-
4	3.109	0.19	25.08	-	25.27	-	56.00	46.00	-30.73	-
5	8.715	0.35	27.50	-	27.85	-	60.00	50.00	-32.15	-
6	21.664	0.58	35.00	-	35.58	-	60.00	50.00	-24.42	-

- 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.

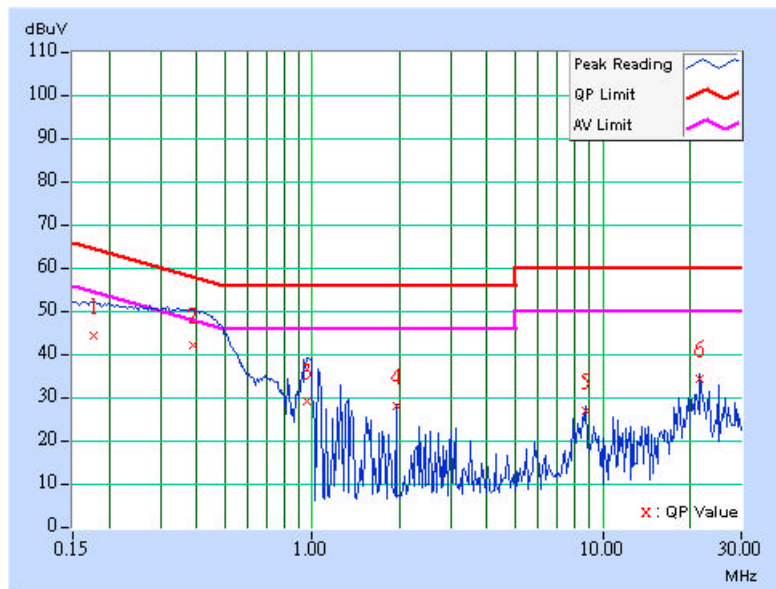




EUT	802.11g Wireless Ethernet Bridge	MODEL	USR5430
CHANNEL	Channel 11	6dB BANDWIDTH	9kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH, 991hPa	TESTED BY: Martin Lee	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.177	0.06	43.67	-	43.73	-	64.61
2	0.388	0.06	41.65	-	41.71	-	58.11	48.11	-16.40	-
3	0.963	0.15	28.65	-	28.80	-	56.00	46.00	-27.20	-
4	1.945	0.18	27.38	-	27.56	-	56.00	46.00	-28.44	-
5	8.719	0.37	26.21	-	26.58	-	60.00	50.00	-33.42	-
6	21.664	0.72	33.87	-	34.59	-	60.00	50.00	-25.41	-

- 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.

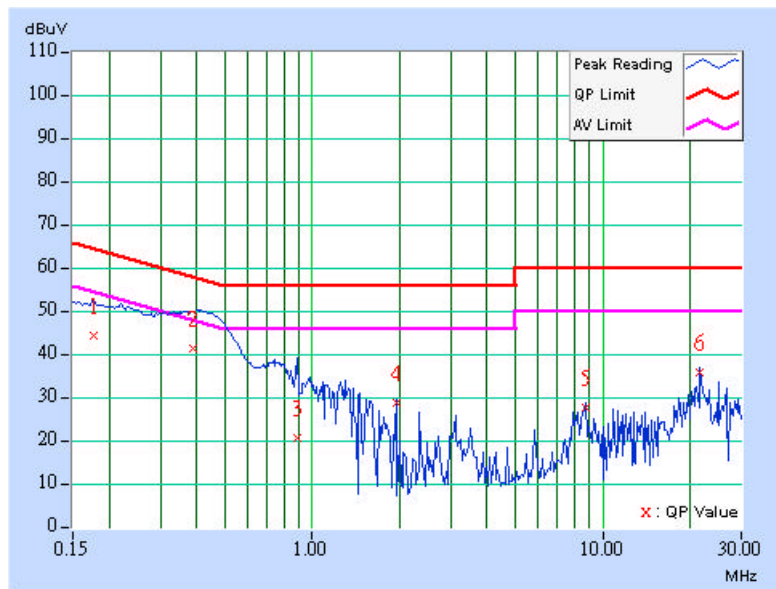




EUT	802.11g Wireless Ethernet Bridge	MODEL	USR5430
CHANNEL	Channel 11	6dB BANDWIDTH	9kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH, 991hPa	TESTED BY: Martin Lee	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.177	0.05	44.04	-	44.09	-	64.61
2	0.388	0.05	40.87	-	40.92	-	58.12	48.12	-17.20	-
3	0.889	0.14	20.12	-	20.26	-	56.00	46.00	-35.74	-
4	1.945	0.18	28.35	-	28.53	-	56.00	46.00	-27.47	-
5	8.719	0.35	27.32	-	27.67	-	60.00	50.00	-32.33	-
6	21.663	0.58	35.28	-	35.86	-	60.00	50.00	-24.14	-

- 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.





4.2 RADIATED EMISSION MEASUREMENT

4.2.1 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.



4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
*HP Spectrum Analyzer	8594E	3911A07465	Jul. 07, 2004
*HP Preamplifier	8447D	2944A10386	Aug. 12, 2004
HP Preamplifier	8449B	3008A01201	Nov. 11, 2004
* HP Preamplifier	8449B	3008A01292	Aug. 11, 2004
SCHAFFNER Tunable Dipole Antenna	VHBA 9123	459	Jun. 26, 2004
SCHWARZBECK Tunable Dipole Antenna	UHA 9105	977	
*SCHAFFNER TEST RECEIVER	SCR 3501	409	Jan. 26, 2004
* SCHAFFNER BILOG Antenna	CBL6111C	2727	Jul. 15, 2004
* SCHWARZBECK Horn Antenna	BBHA9120-D1	D130	Jun 30, 2004
* ADT. Turn Table	TT100	0201	NA
* ADT. Tower	AT100	0201	NA
* Software	ADT_Radiated_V 5.14	NA	NA
* ANRITSU RF Switches	MP59B	6100237246	Oct. 17, 2004
* TIMES RF cable	LMR-600	CABLE-ST10-01	Oct. 17, 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. 10.
 5. The VCCI Site Registration No. is R-1625.



4.2.3 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 10 dB 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 10 dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

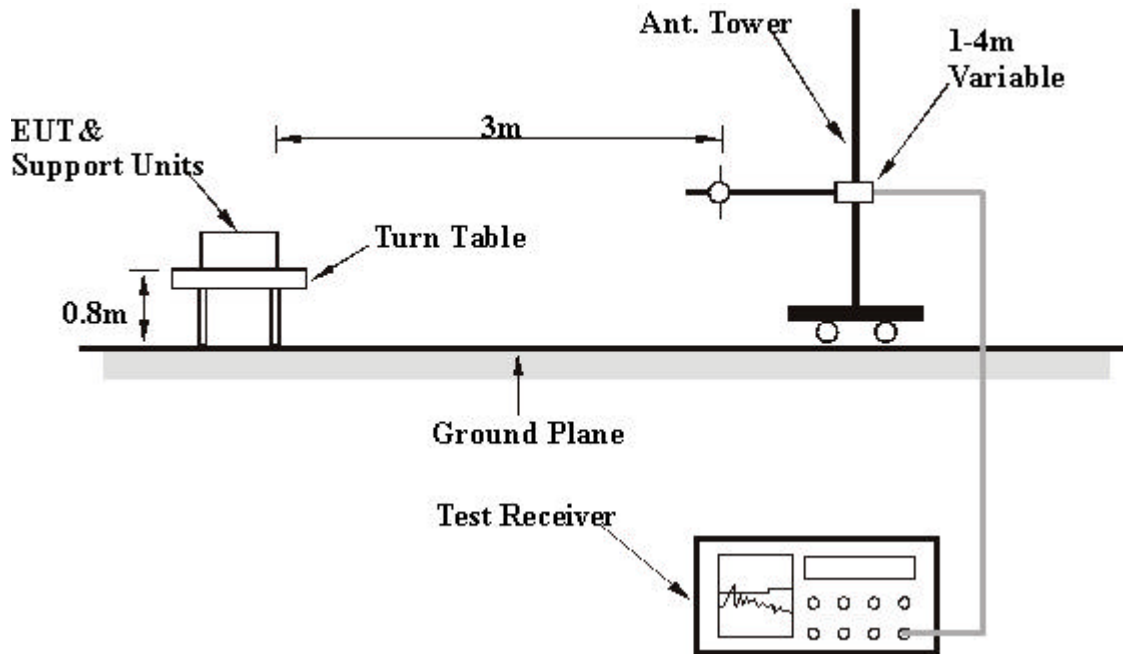
NOTE:

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 10 Hz for Average detection (AV) at frequency above 1GHz.

4.2.4 DEVIATION FROM TEST STANDARD

No deviation

4.2.5 TEST SETUP



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

4.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6



4.2.7 TEST RESULTS

EUT	802.11g Wireless Ethernet Bridge	MODEL	USR5430
CHANNEL	Channel 11	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	24deg. C, 60%RH, 991hPa	TESTED BY: Martin 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	200.00	23.73 QP	43.50	-19.77	1.60 H	302	13.26	10.47
2	250.00	25.05 QP	46.00	-20.95	1.00 H	182	11.13	13.92
3	300.01	40.46 QP	46.00	-5.54	1.48 H	57	24.17	16.29
4	400.00	36.99 QP	46.00	-9.01	1.35 H	237	17.57	19.42
5	500.01	39.48 QP	46.00	-6.52	1.25 H	61	17.58	21.90
6	720.02	35.42 QP	46.00	-10.58	1.28 H	228	8.90	26.52
7	749.99	34.88 QP	46.00	-11.12	1.39 H	175	7.47	27.41
8	800.02	34.34 QP	46.00	-11.66	1.36 H	55	7.15	27.19
9	900.03	37.91 QP	46.00	-8.09	1.44 H	158	8.77	29.14

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	58.75	30.02 QP	40.00	-9.98	1.55 V	322	24.00	6.02
2	110.84	24.65 QP	43.50	-18.85	1.39 V	264	13.09	11.56
3	125.00	29.78 QP	43.50	-13.72	1.42 V	75	17.31	12.47
4	200.01	32.83 QP	43.50	-10.67	1.25 V	318	22.36	10.47
5	250.13	23.89 QP	46.00	-22.11	2.03 V	2	9.95	13.94
6	300.01	36.95 QP	46.00	-9.05	1.27 V	128	20.66	16.29
7	400.01	36.32 QP	46.00	-9.68	1.62 V	285	16.90	19.42
8	500.01	38.40 QP	46.00	-7.60	1.82 V	2	16.50	21.90
9	800.03	32.59 QP	46.00	-13.41	1.71 V	115	5.40	27.19
10	900.04	38.64 QP	46.00	-7.36	1.28 V	276	9.50	29.14
11	999.99	33.54 QP	54.00	-20.46	1.69 V	69	2.91	30.63

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 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	802.11g Wireless Ethernet Bridge	MODEL	USR5430
CHANNEL	Channel 1	FREQUENCY RANGE	Above 1000MHz
MODE	CCK		
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 991hPa	TESTED BY: Martin 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	2390.00	55.43 PK	74.00	-18.57	1.25 H	47	22.76	32.67
1	2390.00	41.10 AV	54.00	-12.90	1.25 H	47	8.43	32.67
2	*2412.00	100.27 PK			1.25 H	47	67.50	32.77
2	*2412.00	85.94 AV			1.25 H	47	53.17	32.77
3	4824.00	45.60 PK	74.00	-28.40	1.00 H	148	6.57	39.04

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	2390.00	65.26 PK	74.00	-8.74	1.19 V	239	32.59	32.67
1	2390.00	48.60 AV	54.00	-5.40	1.19 V	239	15.93	32.67
2	*2412.00	110.10 PK			1.19 V	239	77.33	32.77
2	*2412.00	93.44 AV			1.19 V	239	60.67	32.77
3	4824.00	50.43 PK	74.00	-23.57	1.17 V	215	11.40	39.04
4	9648.00	60.13 PK	74.00	-13.87	1.38 V	161	11.16	48.97
4	9648.00	47.30 AV	54.00	-6.70	1.38 V	161	-1.67	48.97

- 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	802.11g Wireless Ethernet Bridge	MODEL	USR5430
CHANNEL	Channel 6	FREQUENCY RANGE	Above 1000MHz
MODE	CCK		
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 991hPa	TESTED BY: Martin Lee	

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3M

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	*2437.00	101.90 PK			1.02 H	98	69.00	32.90
1	*2437.00	87.23 AV			1.02 H	98	54.33	32.90
2	4874.00	46.29 PK	74.00	-27.71	1.36 H	168	7.23	39.05
3	9748.00	58.84 PK	74.00	-15.16	1.31 H	201	9.64	49.20
3	9748.00	46.17 AV	54.00	-7.83	1.31 H	201	-3.03	49.20

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3M

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	*2437.00	113.07 PK			1.12 V	198	80.17	32.90
1	*2437.00	94.57 AV			1.12 V	198	61.67	32.90
2	4874.00	51.52 PK	74.00	-22.48	1.31 V	62	12.46	39.05
2	4874.00	36.79 AV	54.00	-17.21	1.31 V	62	-2.27	39.05
3	9748.00	60.17 PK	74.00	-13.83	1.28 V	355	10.97	49.20
3	9748.00	47.51 AV	54.00	-6.49	1.28 V	355	-1.69	49.20

- 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	802.11g Wireless Ethernet Bridge	MODEL	USR5430
CHANNEL	Channel 11	FREQUENCY RANGE	Above 1000MHz
MODE	CCK		
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 991hPa	TESTED BY: Martin Lee	

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3M								
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	*2462.00	100.03 PK			1.03 H	65	67.00	33.03
1	*2462.00	85.33 AV			1.03 H	65	52.30	33.03
2	2483.50	56.86 PK	74.00	-17.14	1.03 H	65	23.72	33.14
2	2483.50	42.16 AV	54.00	-11.84	1.03 H	65	9.02	33.14
3	4924.00	48.84 PK	74.00	-25.16	1.13 H	128	9.73	39.11

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3M								
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	*2462.00	112.53 PK			1.06 V	173	79.50	33.03
1	*2462.00	95.36 AV			1.06 V	173	62.33	33.03
2	2483.50	69.36 PK	74.00	-4.64	1.06 V	173	36.22	33.14
2	2483.50	52.19 AV	54.00	-1.81	1.06 V	173	19.05	33.14
3	4924.00	52.00 PK	74.00	-22.00	1.02 V	234	12.89	39.11
3	4924.00	37.17 AV	54.00	-16.83	1.02 V	234	-1.94	39.11
4	9848.00	56.20 PK	74.00	-17.80	1.22 V	30	6.62	49.58
4	9848.00	46.03 AV	54.00	-7.97	1.22 V	30	-3.55	49.58

- 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	802.11g Wireless Ethernet Bridge	MODEL	USR5430
CHANNEL	Channel 1	FREQUENCY RANGE	Above 1000MHz
MODE	OFDM		
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 991hPa	TESTED BY: Martin 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	2390.00	49.94 PK	74.00	-24.06	1.20 H	145	17.27	32.67
2	*2412.00	96.94 PK			1.20 H	145	64.17	32.77
2	*2412.00	84.27 AV			1.20 H	145	51.50	32.77
3	4824.00	45.43 PK	74.00	-28.57	1.00 H	189	6.40	39.04

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	2390.00	62.27 PK	74.00	-11.73	1.14 V	128	29.60	32.67
1	2390.00	49.10 AV	54.00	-4.90	1.14 V	128	16.43	32.67
2	*2412.00	109.27 PK			1.14 V	128	76.50	32.77
2	*2412.00	96.10 AV			1.14 V	128	63.33	32.77
3	4824.00	50.60 PK	74.00	-23.40	1.34 V	14	11.57	39.04

- 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	802.11g Wireless Ethernet Bridge	MODEL	USR5430
CHANNEL	Channel 6	FREQUENCY RANGE	Above 1000MHz
MODE	OFDM		
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 991hPa	TESTED BY: Martin Lee	

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3M								
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	*2437.00	99.57 PK			1.05 H	87	66.67	32.90
1	*2437.00	86.57 AV			1.05 H	87	53.67	32.90
2	4874.00	46.62 PK	74.00	-27.38	1.26 H	324	7.56	39.05

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3M								
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	*2437.00	108.50 PK			1.10 V	130	75.60	32.90
1	*2437.00	94.90 AV			1.10 V	130	62.00	32.90
2	4874.00	49.29 PK	74.00	-24.71	1.11 V	243	10.23	39.05

- 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	802.11g Wireless Ethernet Bridge	MODEL	USR5430
CHANNEL	Channel 11	FREQUENCY RANGE	Above 1000MHz
MODE	OFDM		
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 991hPa	TESTED BY: Martin Lee	

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3M								
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	*2462.00	97.36 PK			1.02 H	36	64.33	33.03
1	*2462.00	84.86 AV			1.02 H	36	51.83	33.03
2	2483.50	53.19 PK	74.00	-20.81	1.02 H	36	20.05	33.14
2	2483.50	40.69 AV	54.00	-13.31	1.02 H	36	7.55	33.14
3	4924.00	46.97 PK	74.00	-27.03	1.12 H	227	7.86	39.11

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3M								
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	*2462.00	109.36 PK			1.07 V	172	76.33	33.03
1	*2462.00	95.36 AV			1.07 V	172	62.33	33.03
2	2483.50	65.19 PK	74.00	-8.81	1.08 V	247	32.05	33.14
2	2483.50	51.19 AV	54.00	-2.81	1.08 V	247	18.05	33.14
3	4924.00	50.00 PK	74.00	-24.00	1.08 V	247	10.89	39.11

- 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.



4.3 6dB BANDWIDTH MEASUREMENT

4.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSEK30	100049	Aug. 12, 2004

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

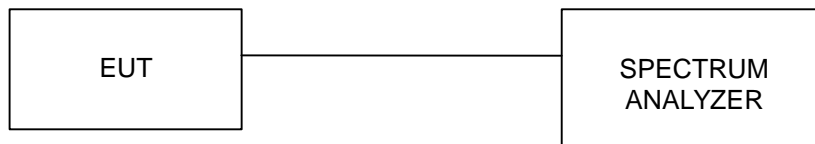
4.3.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100kHz RBW and 100kHz VBW. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

4.3.4 DEVIATION FROM TEST STANDARD

No deviation

4.3.5 TEST SETUP



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

4.3.6 EUT OPERATING CONDITIONS

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.



4.3.7 TEST RESULTS

EUT	802.11g Wireless Ethernet Bridge	MODEL	USR5430
MODE	CCK	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 991hPa	TESTED BY	Martin Lee

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	10.8	0.5	PASS
6	2437	10.6	0.5	PASS
11	2462	11.0	0.5	PASS