



RADIO TEST REPORT

REPORT NO.: RE911218R01D

MODEL NO.: TEW-403PI

TESTED: Jan. 16, 2003 ~ Jan. 27, 2003

APPLICANT: TRENDware International Inc.

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1. CERTIFICATION

PRODUCT : 802.11g Wireless LAN PCI Adapter
MODEL NO. : TEW-403PI
BRAND NAME : Trendnet
APPLICANT : TRENDware International Inc.
STANDARDS : EN 300 328-2 (07-2000)

We, **Advance Data Technology Corporation**, hereby certify that one sample of the designation has been tested in our facility from Jan. 16, 2003 ~ Jan. 27, 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 : Emily Lu , **DATE :** June 20, 2003
Emily Lu

APPROVED BY : Dr. Alan Lane, JVF , **DATE :** June 20, 2003
Dr. Alan Lane, JVF

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

PRODUCT	802.11g Wireless LAN PCI Adapter
MODEL NO.	TEW-403PI
SOURCE VOLTAGE	$V_{nom} = 230$ $V_{min} = 207$ $V_{max} = 253$
POWER SUPPLY	3.3VDC from host equipment
RATED RF OUTPUT POWER	17.33dBm (Measured Max. Average) 20.60dBm (Measured Max. Peak)
MODULATION TYPE	802.11b: CCK, QPSK, DBPSK 802.11g: OFDM
BIT RATE OF TRANSMITTER	up to 54Mbps
OPERATING FREQUENCY	2.412GHz ~ 2.472GHz
NUMBER OF CHANNEL	13
CHANNEL SPACING	5MHz
L.O. FREQUENCY	VCO freq.=2/3 fundamental freq.
ANTENNA TYPE	Dipole antenna
TEMPERATURE RANGE	0°C ~ 55°C
DATA CABLE	NA
I/O PORTS	NA
ASSOCIATED DEVICES	NA

NOTE:

1. This test report is issued as a supplementary report of the original report: RE911218R01. The model in this report is identical to the original application except for their model number, brand name and applicant due to marketing requirement.
2. The EUT operates in the 2.4GHz frequency spectrum with throughput of up to 54Mbps.
3. The EUT complies with IEEE 802.11g draft standards, and backwards compatible with IEEE 802.11b products.
4. For more detailed features description, please refer to the manufacturer's specifications or User's Manual.

2.2 DESCRIPTION OF TEST MODES

The EUT (802.11g Wireless LAN PCI Adapter) has been tested under operating and standby condition. Software used to control the EUT for staying in continuous transmitting and receiving mode is programmed. Channel 1, 7, 10 and 13 are chosen for testing to fulfill the requirement of frequency spectrum usage in each country.

Two test result were presented in the following sections, test result A is for transfer rate 11Mbps with CCK technique and test result B is for transfer rate 54Mbps with OFDM technique

2.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is an 802.11g Wireless LAN PCI Adapter, according to the specifications of the manufacturers, it must comply with the requirements of the following standards:

EN 300 328-2 (07-2000)

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

2.4 DESCRIPTION OF SUPPORT UNITS

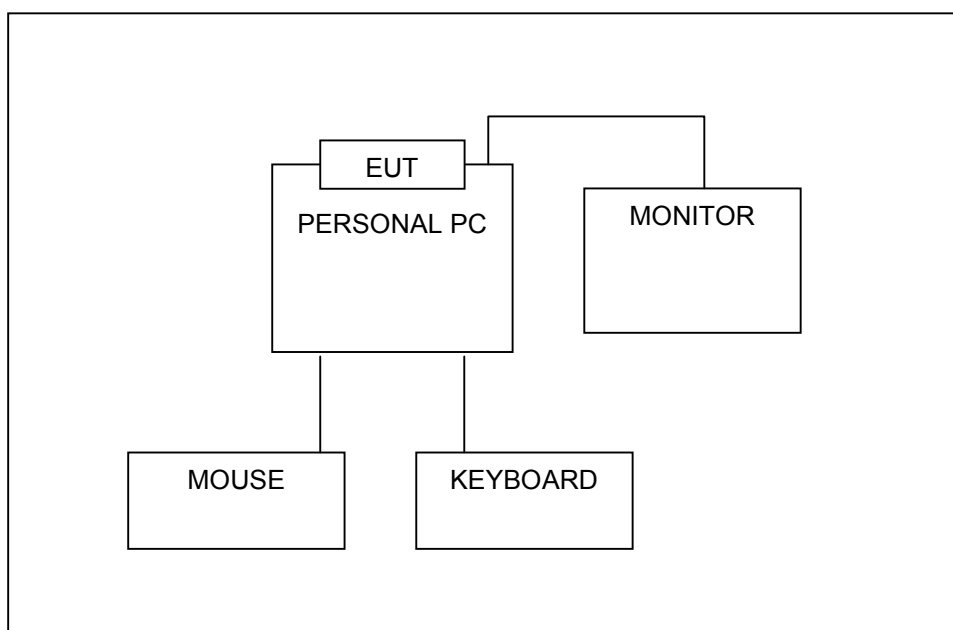
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	PERSONAL COMPUTER	HP	Brio BA410	SG12902766	FCC DoC APPROVED
2	LCD MONITOR	ADI	LD-522N	1140A1T00100365A	FCC DoC APPROVED
3	KEYBOARD	BTC	5121W	H013001162	E5XKB5121WTH0110
4	PS2 MOUSE	HP	M-S48a	LZC20508276AW	JNZ201213

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA
2	1.8 m braid shielded wire, terminated with VGA connector via metallic frame, w/o core.
3	1.6 m foil shielded wire, terminated with PS/2 connector via metallic frame, w/o core.
4	1.8 m Non shielded wire, terminated with PS/2 connector via drain wire, w/o core.

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

2.5 CONFIGURATION OF SYSTEM UNDER TEST



2.6 LIST OF MEASUREMENTS

Clause	Test Parameter	Remarks
	TRANSMITTER PARAMETERS	
7.2.1	Effective Radiated Power	Applicable
7.2.1	Effective Conducted Power	Applicable
7.2.2	Peak Power Density (FHSS Equipment)	Not Applicable
7.2.2	Peak Power Density (DSSS Equipment – Radiated)	Applicable
7.2.2	Peak Power Density (DSSS Equipment – Conducted)	Applicable
7.2.3	Frequency Range of Equipment Using FHSS Modulation	Not Applicable
7.2.4	Frequency Range of Equipment Using Other Forms Of Modulation	Applicable See Note 2
7.2.5	Spurious Emissions (Operating – Radiated)	Applicable
7.2.5	Spurious Emissions (Standby – Radiated)	See Note 1
7.2.5	Spurious Emissions (Operating – Conducted)	Applicable
7.2.5	Spurious Emissions (Standby – Conducted)	See Note 1
	RECEIVER PARAMETERS	
9.1	Spurious Emissions (Radiated)	Applicable
9.2	Spurious Emissions (Conducted)	Applicable

NOTE:

1. The emission of the transmitter on standby mode is equal to that of receiving mode.
2. Additionally, channel 10 was recorded, for showing effective use of frequency spectrum on France.

3. TEST PROCEDURES AND RESULTS

TRANSMITTER PARAMETERS

3.1 EFFECTIVE RADIATED POWER (RADIATED)

3.1.1 LIMITS OF EFFECTIVE RADIATED POWER

Condition	Limit
Under all test conditions	Av: 20 dBm / -10 dBW Pk: 23 dBm / -7 dBW

3.1.2 TEST PROCEDURES

Please refer to item 7 of the standard.

3.1.3 DEVIATION FROM TEST STANDARD

No deviation

3.1.4 TEST SETUP

The test setup has been constructed as the normal use condition. The EUT has been connected with PC and placed on the turn table. Controlling software has been activated to set the EUT on specific status.

3.1.5 TEST RESULTS (A)

EUT	802.11g Wireless LAN PCI Adapter	Model	TEW-403PI
Modulation bit rate	11Mbps	Duty cycle of EUT	100 %
Environmental Conditions	21deg. C,63%RH	Tested By	Ansen Lei

TEST CONDITION				TRANSMITTER PEAK POWER (dBm)							
				(CH1) 2412 MHz		(CH7) 2442 MHz		(CH10) 2457 MHz		(CH13) 2472 MHz	
				PK	AV	PK	AV	PK	AV	PK	AV
Tnom(°C)	20	Vnom(v)	230 V	18.66	15.39	16.88	13.97	16.42	13.67	15.86	12.87
Tmin(°C)	0	Vmin(v)	207 V	18.32	15.30	16.63	13.83	15.67	13.20	16.50	13.80
		Vmax(v)	253 V	18.32	15.30	16.63	13.83	15.67	13.20	16.50	13.80
Tmax(°C)	55	Vmin(v)	207 V	18.22	14.44	17.06	13.68	17.07	14.01	16.44	13.08
		Vmax(v)	253 V	18.22	14.44	17.06	13.68	17.07	14.01	16.44	13.08

3.1.6 TEST RESULTS (B)

EUT	802.11g Wireless LAN PCI Adapter	Model	TEW-403PI
Modulation bit rate	54Mbps	Duty cycle of EUT	100 %
Environmental Conditions	21deg. C,63%RH	Tested By	Ansen Lei

TEST CONDITION				TRANSMITTER PEAK POWER (dBm)							
				(CH1) 2412 MHz		(CH7) 2442 MHz		(CH10) 2457 MHz		(CH13) 2472 MHz	
				PK	AV	PK	AV	PK	AV	PK	AV
Tnom(°C)	20	Vnom(v)	230 V	20.60	17.33	18.15	15.24	17.51	14.76	16.82	13.83
Tmin(°C)	0	Vmin(v)	207 V	20.44	17.30	17.50	15.09	17.03	14.00	16.15	13.62
		Vmax(v)	253 V	20.44	17.30	17.50	15.09	17.03	14.00	16.15	13.62
Tmax(°C)	55	Vmin(v)	207 V	20.19	17.23	17.57	15.46	17.87	15.68	17.65	15.46
		Vmax(v)	253 V	20.19	17.23	17.57	15.46	17.87	15.68	17.65	15.46

3.2 EFFECTIVE RADIATED POWER (CONDUCTED)

3.2.1 LIMITS OF EFFECTIVE RADIATED POWER

Condition	Limit
Under all test conditions	Av: 20 dBm / -10 dBW Pk: 23 dBm / -7 dBW

3.2.2 TEST PROCEDURES

Please refer to item 7 of the standard.

3.2.3 DEVIATION FROM TEST STANDARD

No deviation

3.2.4 TEST SETUP

The test setup has been constructed as the normal use condition. The EUT has been connected with PC and placed on the turn table. Controlling software has been activated to set the EUT on specific status.

3.2.5 TEST RESULTS (A)

EUT	802.11g Wireless LAN PCI Adapter	Model	TEW-403PI
Modulation bit rate	11Mbps	Duty cycle of EUT	100 %
Environmental Conditions	21deg. C,63%RH	Tested By	Steven Lu

TEST CONDITION				TRANSMITTER PEAK POWER (dBm)							
				(CH1) 2412 MHz		(CH7) 2442 MHz		(CH10) 2457 MHz		(CH13) 2472 MHz	
				PK	AV	PK	AV	PK	AV	PK	AV
Tnom(°C)	20	Vnom(v)	230 V	17.84	14.72	17.03	13.93	16.26	13.60	15.79	12.81
Tmin(°C)	0	Vmin(v)	207 V	17.62	14.54	16.82	13.71	16.01	13.45	15.54	12.57
		Vmax(v)	253 V	17.62	14.54	16.82	13.71	16.01	13.45	15.54	12.57
Tmax(°C)	55	Vmin(v)	207 V	17.43	14.04	16.54	13.49	15.83	13.18	15.24	12.14
		Vmax(v)	253 V	17.43	14.04	16.54	13.49	15.83	13.18	15.24	12.14

3.2.6 TEST RESULTS (B)

EUT	802.11g Wireless LAN PCI Adapter	Model	TEW-403PI
Modulation bit rate	54Mbps	Duty cycle of EUT	100 %
Environmental Conditions	22deg. C,64%RH	Tested By	Steven Lu

TEST CONDITION				TRANSMITTER PEAK POWER (dBm)							
				(CH1) 2412 MHz		(CH7) 2442 MHz		(CH10) 2457 MHz		(CH13) 2472 MHz	
				PK	AV	PK	AV	PK	AV	PK	AV
Tnom(°C)	20	Vnom(v)	230 V	19.37	16.44	18.69	15.68	17.84	14.84	17.16	14.08
Tmin(°C)	0	Vmin(v)	207 V	19.14	16.14	18.42	15.42	17.62	14.62	16.92	13.78
		Vmax(v)	253 V	19.14	16.14	18.42	15.42	17.62	14.62	16.92	13.78
Tmax(°C)	55	Vmin(v)	207 V	18.89	16.04	18.26	15.23	17.40	14.37	16.70	13.54
		Vmax(v)	253 V	18.89	16.04	18.26	15.23	17.40	14.37	16.70	13.54

3.3 PEAK POWER DENSITY (DSSS EQUIPMENT) (RADIATED)

3.3.1 LIMIT OF PEAK POWER DENSITY

Condition	Limit
Under all test conditions	20dBm / 100 KHz (FHSS) 10dBm / 1 MHz (DSSS)

3.3.2 TEST PROCEDURES

Please refer to item 7 of the standard.

3.3.3 DEVIATION FROM TEST STANDARD

No deviation

3.3.4 TEST SETUP

The EUT has been programmed to continuously transmit in certain channel during test.

3.3.5 TEST RESULTS (A)

EUT	802.11g Wireless LAN PCI Adapter	Model	TEW-403PI
Modulation bit rate	11Mbps		
Environmental Conditions	21deg. C,63%RH	Tested By	Ansen Lei

Channel Number	Channel Frequency (MHz)	RF Power (dBm/KHz)	Limit (dBm/kHz)	PASS/FAIL
1	2408.546217	7.43/1000	10/1000	PASS
7	2439.244489	3.55/1000	10/1000	PASS
10	2454.172470	5.04/1000	10/1000	PASS
13	2473.296343	2.36/1000	10/1000	PASS

NOTE

1. For equipment using FHSS modulation, the power density shall be limit to $-10\text{dBW}(100\text{mW})$ per 100kHz e.i.r.p.
2. For equipment using other types of modulation, the peak power shall be limit to $-20\text{dBW}(10\text{mW})$ per MHz e.i.r.p.

3.3.6 TEST RESULTS (B)

EUT	802.11g Wireless LAN PCI Adapter	Model	TEW-403PI
Modulation bit rate	54Mbps		
Environmental Conditions	21deg. C,63%RH	Tested By	Ansen Lei

Channel Number	Channel Frequency (MHz)	RF Power (dBm/KHz)	Limit (dBm/kHz)	PASS/FAIL
1	2416.227204	1.57/1000	10/1000	PASS
7	2440.136523	-1.23/1000	10/1000	PASS
10	2457.635646	-3.99/1000	10/1000	PASS
13	2469.288327	-4.46/1000	10/1000	PASS

NOTE

1. For equipment using FHSS modulation, the power density shall be limit to $-10\text{dBW}(100\text{mW})$ per 100kHz e.i.r.p.
2. For equipment using other types of modulation, the peak power shall be limit to $-20\text{dBW}(10\text{mW})$ per MHz e.i.r.p.

3.4 PEAK POWER DENSITY (DSSS EQUIPMENT) (CONDUCTED)

3.4.1 LIMIT OF PEAK POWER DENSITY

Condition	Limit
Under all test conditions	20dBm / 100 KHz (FHSS)
	10dBm / 1 MHz (DSSS)

3.4.2 TEST PROCEDURES

Please refer to item 7 of the standard.

3.4.3 DEVIATION FROM TEST STANDARD

No deviation

3.4.4 TEST SETUP

The EUT has been programmed to continuously transmit in certain channel during test.

3.4.5 TEST RESULTS (A)

EUT	802.11g Wireless LAN PCI Adapter	Model	TEW-403PI
Modulation bit rate	11Mbps		
Environmental Conditions	20deg. C,60%RH	Tested By	Steven Lu

Channel Number	Channel Frequency (MHz)	RF Power (dBm/KHz)	Limit (dBm/kHz)	PASS/FAIL
1	2409.898923	7.03/1000	10/1000	PASS
7	2440.350087	6.84/1000	10/1000	PASS
10	2453.683993	6.68/1000	10/1000	PASS
13	2468.649549	6.54/1000	10/1000	PASS

NOTE

1. For equipment using FHSS modulation, the power density shall be limit to -10dBW(100mW) per 100kHz e.i.r.p.
2. For equipment using other types of modulation, the peak power shall be limit to -20dBW(10mW) per MHz e.i.r.p.

3.4.6 TEST RESULTS (B)

EUT	802.11g Wireless LAN PCI Adapter	Model	TEW-403PI
Modulation bit rate	54Mbps		
Environmental Conditions	20deg. C,60%RH	Tested By	Steven Lu

Channel Number	Channel Frequency (MHz)	RF Power (dBm/KHz)	Limit (dBm/kHz)	PASS/FAIL
1	2407.036949	5.30/1000	10/1000	PASS
7	2437.306237	5.12/1000	10/1000	PASS
10	2451.607966	5.08/1000	10/1000	PASS
13	2469.341558	4.99/1000	10/1000	PASS

NOTE

1. For equipment using FHSS modulation, the power density shall be limit to -10dBW(100mW) per 100kHz e.i.r.p.
2. For equipment using other types of modulation, the peak power shall be limit to -20dBW(10mW) per MHz e.i.r.p.

3.5 FREQUENCY RANGE (DSSS EQUIPMENT) (RADIATED)

3.5.1 LIMIT OF FREQUENCY RANGE

Condition	Country	Limit
Under all test conditions	France	$F_L \geq 2446.5\text{MHz}$ $F_H \leq 2483.5\text{ MHz}$
	EU	$F_L \geq 2400.0\text{MHz}$ $F_H \leq 2483.5\text{ MHz}$

3.5.2 TEST PROCEDURES

Please refer to item 7 of the standard.

3.5.3 DEVIATION FROM TEST STANDARD

No deviation

3.5.4 TEST SETUP

The EUT and probe antenna was placed into the temperature oven. The probe has to be connected with spectrum analyzer. The power source of the EUT has to be connected with the power supply for voltage change. The frequency has to be recorded for the right and left end above threshold of highest and lowest channel respectively.

3.5.5 TEST RESULTS (A)

EUT	802.11g Wireless LAN PCI Adapter	Model	TEW-403PI
Channel	10 ~ 13 (for France)		
Environmental Conditions	21deg. C, 63%RH	Tested By	Ansen Lei

TEST CONDITIONS			FREQUENCY (MHz)	
			Lowest	Highest
Tnom 20°C	Vnom(v)	230	2449.80	2479.02
Tmin 0°C	Vmin(v)	207	2449.30	2479.80
	Vmax(v)	253	2449.30	2479.80
Tmax 55°C	Vmin(v)	207	2449.55	2479.58
	Vmax(v)	253	2449.55	2479.58
Measured frequencies (lowest and highest)			$F_L = 2449.30$	$F_H = 2479.80$

NOTE

- 1.For France market, only channel 10 ~ 13 are allowed. So, only lowest edge of channel 10 and highest edge of channel 13 under extreme condition are recorded in the above table.
- 2.The E.U.T is a stand alone radio device (see the clause 6.2.2). The host equipment is powered by the AC adapter. So, the AC power is used as the extreme voltage source.

EUT	802.11g Wireless LAN PCI Adapter	Model	TEW-403PI
Channel	1 ~ 13 (for other EU countries)		
Environmental Conditions	21deg. C, 63%RH	Tested By	Ansen Lei

TEST CONDITIONS			FREQUENCY (MHz)	
			Lowest	Highest
Tnom 20°C	Vnom(v)	230	2404.47	2479.02
Tmin 0°C	Vmin(v)	207	2402.13	2479.80
	Vmax(v)	253	2402.13	2479.80
Tmax 55°C	Vmin(v)	207	2402.17	2479.58
	Vmax(v)	253	2402.17	2479.58
Measured frequencies (lowest and highest)			$F_L = 2402.13$	$F_H = 2479.80$

NOTE

- 1.For EU market, only channel 1 ~ 13 are allowed. So, only lowest edge of channel 1 and highest edge of channel 13 under extreme condition are recorded in the above table.
- 2.The E.U.T is a stand alone radio device (see the clause 6.2.2). The host equipment is powered by the AC Adapter. So, the AC power is used as the extreme voltage source. (see clause 6.3.2.1)

3.5.6 TEST RESULTS (B)

EUT	802.11g Wireless LAN PCI Adapter	Model	TEW-403PI
Channel	10 ~ 13 (for France)		
Environmental Conditions	21deg. C, 63%RH	Tested By	Ansen Lei

TEST CONDITIONS			FREQUENCY (MHz)	
			Lowest	Highest
Tnom 20°C	Vnom(v)	230	2448.17	2480.50
Tmin 0°C	Vmin(v)	207	2447.67	2482.25
	Vmax(v)	253	2447.67	2482.25
Tmax 55°C	Vmin(v)	207	2447.92	2482.28
	Vmax(v)	253	2447.92	2482.28
Measured frequencies (lowest and highest)			$F_L = 2447.67$	$F_H = 2482.28$

NOTE

- 1.For France market, only channel 10 ~ 13 are allowed. So, only lowest edge of channel 10 and highest edge of channel 13 under extreme condition are recorded in the above table.
- 2.The E.U.T is a stand alone radio device (see the clause 6.2.2). The host equipment is powered by the AC adapter. So, the AC power is used as the extreme voltage source.

EUT	802.11g Wireless LAN PCI Adapter	Model	TEW-403PI
Channel	1 ~ 13 (for other EU countries)		
Environmental Conditions	21deg. C, 63%RH	Tested By	Ansen Lei

TEST CONDITIONS			FREQUENCY (MHz)	
			Lowest	Highest
Tnom 20°C	Vnom(v)	230	2400.92	2480.50
Tmin 0°C	Vmin(v)	207	2402.50	2482.25
	Vmax(v)	253	2402.50	2482.25
Tmax 55°C	Vmin(v)	207	2400.58	2482.28
	Vmax(v)	253	2400.58	2482.28
Measured frequencies (lowest and highest)			$F_L = 2400.58$	$F_H = 2482.28$

NOTE

- 1.For EU market, only channel 1 ~ 13 are allowed. So, only lowest edge of channel 1 and highest edge of channel 13 under extreme condition are recorded in the above table.
- 2.The E.U.T is a stand alone radio device (see the clause 6.2.2). The host equipment is powered by the AC Adapter. So, the AC power is used as the extreme voltage source. (see clause 6.3.2.1)

3.6 FREQUENCY RANGE (DSSS EQUIPMENT) (CONDUCTED)

3.6.1 LIMIT OF FREQUENCY RANGE

Condition	Country	Limit
Under all test conditions	France	$F_L \geq 2446.5\text{MHz}$ $F_H \leq 2483.5\text{ MHz}$
	EU	$F_L \geq 2400.0\text{MHz}$ $F_H \leq 2483.5\text{ MHz}$

3.6.2 TEST PROCEDURES

Please refer to item 7 of the standard.

3.6.3 DEVIATION FROM TEST STANDARD

No deviation

3.6.4 TEST SETUP

The EUT and probe antenna was placed into the temperature oven. The probe has to be connected with spectrum analyzer. The power source of the EUT has to be connected with the power supply for voltage change. The frequency has to be recorded for the right and left end above threshold of highest and lowest channel respectively.

3.6.5 TEST RESULTS (A)

EUT	802.11g Wireless LAN PCI Adapter	Model	TEW-403PI
Channel	10 ~ 13 (for France)		
Environmental Conditions	20deg. C, 60%RH	Tested By	Steven Lu

TEST CONDITIONS			FREQUENCY (MHz)	
			Lowest	Highest
Tnom 20°C	Vnom(v)	230	2449.72	2479.10
Tmin 0°C	Vmin(v)	207	2449.30	2479.83
	Vmax(v)	253	2449.30	2479.83
Tmax 55°C	Vmin(v)	207	2449.84	2479.42
	Vmax(v)	253	2449.84	2479.42
Measured frequencies (lowest and highest)			$F_L = 2449.30$	$F_H = 2479.83$

NOTE

1. For France market, only channel 10 ~ 13 are allowed. So, only lowest edge of channel 10 and highest edge of channel 13 under extreme condition are recorded in the above table.
2. The E.U.T is a stand alone radio device (see the clause 6.2.2). The host equipment is powered by the AC adapter. So, the AC power is used as the extreme voltage source.

EUT	802.11g Wireless LAN PCI Adapter	Model	TEW-403PI
Channel	1 ~ 13 (for other EU countries)		
Environmental Conditions	20deg. C, 60%RH	Tested By	Steven Lu

TEST CONDITIONS			FREQUENCY (MHz)	
			Lowest	Highest
Tnom 20°C	Vnom(v)	230	2404.642	2479.10
Tmin 0°C	Vmin(v)	207	2402.22	2479.83
	Vmax(v)	253	2402.22	2479.83
Tmax 55°C	Vmin(v)	207	2402.57	2479.42
	Vmax(v)	253	2402.57	2479.42
Measured frequencies (lowest and highest)			F _L = 2402.22	F _H = 2479.83

NOTE

1. For EU market, only channel 1 ~ 13 are allowed. So, only lowest edge of channel 1 and highest edge of channel 13 under extreme condition are recorded in the above table.
2. The E.U.T is a stand alone radio device (see the clause 6.2.2). The host equipment is powered by the AC Adapter. So, the AC power is used as the extreme voltage source. (see clause 6.3.2.1)

3.6.6 TEST RESULTS (B)

EUT	802.11g Wireless LAN PCI Adapter	Model	TEW-403PI
Channel	10 ~ 13 (for France)		
Environmental Conditions	20deg. C, 60%RH	Tested By	Steven Lu

TEST CONDITIONS			FREQUENCY (MHz)	
			Lowest	Highest
Tnom 20°C	Vnom(v)	230	2448.20	2480.50
Tmin 0°C	Vmin(v)	207	2447.42	2482.32
	Vmax(v)	253	2447.42	2482.32
Tmax 55°C	Vmin(v)	207	2447.88	2482.14
	Vmax(v)	253	2447.88	2482.14
Measured frequencies (lowest and highest)			$F_L = 2447.42$	$F_H = 2482.32$

NOTE

- 1.For France market, only channel 10 ~ 13 are allowed. So, only lowest edge of channel 10 and highest edge of channel 13 under extreme condition are recorded in the above table.
- 2.The E.U.T is a stand alone radio device (see the clause 6.2.2). The host equipment is powered by the AC adapter. So, the AC power is used as the extreme voltage source.

EUT	802.11g Wireless LAN PCI Adapter	Model	TEW-403PI
Channel	1 ~ 13 (for other EU countries)		
Environmental Conditions	20deg. C, 60%RH	Tested By	Steven Lu

TEST CONDITIONS			FREQUENCY (MHz)	
			Lowest	Highest
Tnom 20°C	Vnom(v)	230	2400.98	2480.50
Tmin 0°C	Vmin(v)	207	2402.42	2482.32
	Vmax(v)	253	2402.42	2482.32
Tmax 55°C	Vmin(v)	207	2400.58	2482.14
	Vmax(v)	253	2400.58	2482.14
Measured frequencies (lowest and highest)			F _L = 2400.58	F _H = 2482.32

NOTE

- 1.For EU market, only channel 1 ~ 13 are allowed. So, only lowest edge of channel 1 and highest edge of channel 13 under extreme condition are recorded in the above table.
- 2.The E.U.T is a stand alone radio device (see the clause 6.2.2). The host equipment is powered by the AC Adapter. So, the AC power is used as the extreme voltage source. (see clause 6.3.2.1)

3.7 TRANSMITTER SPURIOUS EMISSIONS (RADIATED)

3.7.1 LIMITS OF TRANSMITTER SPURIOUS EMISSIONS

Transmitter limits for narrowband spurious emissions

Frequency Range	Operating Limit	Standby Limit
30MHz ~ 1GHz	-36dBm	-57dBm
Above 1GHz ~ 12.75GHz	-30dBm	-47dBm
1.8~1.9GHz 5.15~5.3GHz	-47dBm	-47dBm

3.7.2 TEST PROCEDURES

Please refer to item 7 of the standard.

3.7.3 DEVIATION FROM TEST STANDARD

No deviation

3.7.4 TEST SETUP

For the actual test configuration, please refer to the related Item in this test report (Photographs of the Test Configuration).

3.7.5 TEST RESULTS (A)

EUT	802.11g Wireless LAN PCI Adapter	Model	TEW-403PI
Frequency Range	Below 1GHz		
Environmental Conditions	25deg. C , 70%RH	Tested By	Ansen Lei

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	Antenna Polarization	Level (dBm)	Limit (Dbm)	Margin
84.11	V	-66.4	-36.00	-30.40
264.29	H	-71.3	-36.00	-35.30
267.54	V	-59.1	-36.00	-23.10
329.46	H	-70.6	-36.00	-34.60
399.60	H	-70.8	-36.00	-34.80
399.60	V	-70.5	-36.00	-34.50
479.56	H	-56.4	-36.00	-20.40
479.56	V	-59.4	-36.00	-23.40
497.80	V	-62.6	-36.00	-26.60
625.45	H	-68.6	-36.00	-32.60
625.45	V	-71.0	-36.00	-35.00
664.73	H	-66.2	-36.00	-30.20
664.73	V	-65.5	-36.00	-29.50
838.68	V	-72.0	-36.00	-36.00
840.08	H	-70.0	-36.00	-34.00
873.75	H	-69.9	-36.00	-33.90

NOTE: The emission behavior belongs to narrowband spurious emission.

EUT	802.11g Wireless LAN PCI Adapter	Model	TEW-403PI
Channel	1		
Environmental Conditions	25deg. C , 70%RH	Tested By	Ansen Lei

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	Antenna Polarization	Level (dBm)	Limit (dBm)	Margin
1607.92	H	-73.4	-30.00	-43.40
1607.92	V	-71.2	-30.00	-41.20
3215.91	V	-63.3	-30.00	-33.30
3215.92	H	-59.5	-30.00	-29.50
4823.59	H	-72.4	-30.00	-42.40
4823.61	V	-72.0	-30.00	-42.00
6431.34	V	-60.3	-30.00	-30.30
6431.92	H	-60.3	-30.00	-30.30
7236.15	V	-68.4	-30.00	-38.40
7236.34	H	-67.0	-30.00	-37.00
8039.27	V	-60.5	-30.00	-30.50
8040.10	H	-60.1	-30.00	-30.10

NOTE: The emission behavior belongs to narrowband spurious emission.

EUT	802.11g Wireless LAN PCI Adapter	Model	TEW-403PI
Channel	7		
Environmental Conditions	25deg. C , 70%RH	Tested By	Ansen Lei

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	Antenna Polarization	Level (dBm)	Limit (dBm)	Margin
1627.93	V	-71.0	-30.00	-41.00
1627.97	H	-69.9	-30.00	-39.90
3255.92	H	-62.7	-30.00	-32.70
3255.93	V	-59.6	-30.00	-29.60
4883.98	H	-71.2	-30.00	-41.20
4884.02	V	-71.7	-30.00	-41.70
6511.40	V	-62.2	-30.00	-32.20
6511.77	H	-60.6	-30.00	-30.60
7325.72	H	-66.1	-30.00	-36.10
7325.85	V	-64.9	-30.00	-34.90
8139.23	V	-60.3	-30.00	-30.30
8140.09	H	-58.3	-30.00	-28.30

NOTE: The emission behavior belongs to narrowband spurious emission.

EUT	802.11g Wireless LAN PCI Adapter	Model	TEW-403PI
Channel	10		
Environmental Conditions	25deg. C , 70%RH	Tested By	Ansen Lei

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	Antenna Polarization	Level (dBm)	Limit (dBm)	Margin
1637.94	V	-70.6	-30.00	-40.60
1637.98	H	-72.5	-30.00	-42.50
3275.91	V	-62.6	-30.00	-32.60
3275.92	H	-62.9	-30.00	-32.90
4913.72	V	-71.9	-30.00	-41.90
4914.04	H	-72.9	-30.00	-42.90
6551.63	V	-60.9	-30.00	-30.90
6552.31	H	-59.3	-30.00	-29.30
7370.79	V	-66.5	-30.00	-36.50
7371.22	H	-64.7	-30.00	-34.70
8189.33	V	-58.7	-30.00	-28.70
8189.71	H	-59.0	-30.00	-29.00

NOTE: The emission behavior belongs to narrowband spurious emission.

EUT	802.11g Wireless LAN PCI Adapter	Model	TEW-403PI
Channel	13		
Environmental Conditions	25deg. C , 70%RH	Tested By	Ansen Lei

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	Antenna Polarization	Level (dBm)	Limit (dBm)	Margin
1647.91	V	-71.0	-30.00	-41.00
1647.95	H	-72.4	-30.00	-42.40
3296.58	H	-63.0	-30.00	-33.00
3297.39	V	-60.3	-30.00	-30.30
4942.82	H	-72.5	-30.00	-42.50
4943.27	V	-71.6	-30.00	-41.60
6591.84	V	-58.7	-30.00	-28.70
6592.26	H	-58.3	-30.00	-28.30
7415.82	H	-64.7	-30.00	-34.70
7416.51	V	-63.8	-30.00	-33.80
8242.16	H	-58.7	-30.00	-28.70
8243.51	V	-58.3	-30.00	-28.30

NOTE: The emission behavior belongs to narrowband spurious emission.

3.7.6 TEST RESULTS (B)

EUT	802.11g Wireless LAN PCI Adapter	Model	TEW-403PI
Frequency Range	Below 1GHz		
Environmental Conditions	25deg. C , 70%RH	Tested By	Ansen Lei

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	Antenna Polarization	Level (dBm)	Limit (Dbm)	Margin
84.11	V	-66.3	-36.00	-30.30
240.48	V	-71.8	-36.00	-35.80
264.29	H	-70.5	-36.00	-34.50
288.10	H	-70.9	-36.00	-34.90
399.60	V	-69.6	-36.00	-33.60
479.56	H	-56.9	-36.00	-20.90
479.56	V	-59.4	-36.00	-23.40
497.80	H	-62.3	-36.00	-26.30
583.37	H	-61.8	-36.00	-25.80
583.37	V	-63.9	-36.00	-27.90
598.80	H	-62.6	-36.00	-26.60
598.80	V	-66.0	-36.00	-30.00
625.45	H	-67.6	-36.00	-31.60
639.48	V	-68.5	-36.00	-32.50
664.73	H	-66.0	-36.00	-30.00
664.73	V	-67.5	-36.00	-31.50
882.16	V	-68.7	-36.00	-32.70
903.21	V	-63.7	-36.00	-27.70

NOTE: The emission behavior belongs to narrowband spurious emission.

EUT	802.11g Wireless LAN PCI Adapter	Model	TEW-403PI
Channel	1		
Environmental Conditions	25deg. C , 70%RH	Tested By	Ansen Lei

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	Antenna Polarization	Level (dBm)	Limit (dBm)	Margin
1607.97	H	-73.5	-30.00	-43.50
1612.62	V	-72.4	-30.00	-42.40
3215.91	H	-58.6	-30.00	-28.60
3254.68	V	-63.8	-30.00	-33.80
4823.83	H	-70.3	-30.00	-40.30
4881.64	V	-71.6	-30.00	-41.60
6428.68	V	-62.4	-30.00	-32.40
6431.57	H	-60.9	-30.00	-30.90
7236.34	H	-68.3	-30.00	-38.30
7239.58	V	-65.3	-30.00	-35.30
8040.47	H	-60.1	-30.00	-30.10
8043.29	V	-60.2	-30.00	-30.20

NOTE: The emission behavior belongs to narrowband spurious emission.

EUT	802.11g Wireless LAN PCI Adapter	Model	TEW-403PI
Channel	7		
Environmental Conditions	25deg. C , 70%RH	Tested By	Ansen Lei

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	Antenna Polarization	Level (dBm)	Limit (dBm)	Margin
1627.96	V	-70.1	-30.00	-40.10
1627.97	H	-72.1	-30.00	-42.10
3255.90	H	-60.7	-30.00	-30.70
3255.91	V	-59.5	-30.00	-29.50
4884.10	V	-71.2	-30.00	-41.20
4884.22	H	-71.0	-30.00	-41.00
6511.55	H	-60.3	-30.00	-30.30
6511.70	V	-60.8	-30.00	-30.80
7326.17	H	-66.2	-30.00	-36.20
7326.34	V	-65.0	-30.00	-35.00
8139.75	V	-59.4	-30.00	-29.40
8140.21	H	-59.8	-30.00	-29.80

NOTE: The emission behavior belongs to narrowband spurious emission.

EUT	802.11g Wireless LAN PCI Adapter	Model	TEW-403PI
Channel	10		
Environmental Conditions	25deg. C , 70%RH	Tested By	Ansen Lei

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	Antenna Polarization	Level (dBm)	Limit (dBm)	Margin
1637.95	V	-72.7	-30.00	-42.70
1637.97	H	-72.8	-30.00	-42.80
3275.91	V	-57.3	-30.00	-27.30
3275.92	H	-61.5	-30.00	-31.50
4913.93	H	-71.2	-30.00	-41.20
4914.18	V	-71.9	-30.00	-41.90
6551.72	V	-60.6	-30.00	-30.60
6552.10	H	-59.8	-30.00	-29.80
7370.97	H	-64.9	-30.00	-34.90
7371.43	V	-63.9	-30.00	-33.90
8189.44	H	-58.7	-30.00	-28.70
8189.60	V	-56.9	-30.00	-26.90

NOTE: The emission behavior belongs to narrowband spurious emission.

EUT	802.11g Wireless LAN PCI Adapter	Model	TEW-403PI
Channel	13		
Environmental Conditions	25deg. C , 70%RH	Tested By	Ansen Lei

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	Antenna Polarization	Level (dBm)	Limit (dBm)	Margin
1647.16	V	-73.9	-30.00	-43.90
1647.85	H	-72.5	-30.00	-42.50
3296.13	V	-56.6	-30.00	-26.60
3296.21	H	-62.6	-30.00	-32.60
4943.25	H	-71.5	-30.00	-41.50
4943.75	V	-71.6	-30.00	-41.60
6591.95	H	-59.7	-30.00	-29.70
6592.88	V	-58.1	-30.00	-28.10
7414.63	H	-64.2	-30.00	-34.20
7415.90	V	-64.7	-30.00	-34.70
8240.34	V	-55.4	-30.00	-25.40
8241.28	H	-57.5	-30.00	-27.50

NOTE: The emission behavior belongs to narrowband spurious emission.

3.8 TRANSMITTER SPURIOUS EMISSIONS (CONDUCTED)

3.8.1 LIMITS OF TRANSMITTER SPURIOUS EMISSIONS

Transmitter limits for narrowband spurious emissions

Frequency Range	Operating Limit	Standby Limit
30MHz ~ 1GHz	-36dBm	-57dBm
Above 1GHz ~ 12.75GHz	-30dBm	-47dBm
1.8~1.9GHz 5.15~5.3GHz	-47dBm	-47dBm

3.8.2 TEST PROCEDURES

Please refer to item 7 of the standard.

3.8.3 DEVIATION FROM TEST STANDARD

No deviation

3.8.4 TEST SETUP

For the actual test configuration, please refer to the related Item in this test report (Photographs of the Test Configuration).

3.8.5 TEST RESULTS (A)

EUT	802.11g Wireless LAN PCI Adapter	Model	TEW-403PI
Frequency Range	Below 1GHz		
Environmental Conditions	25deg. C , 70%RH	Tested By	Hardaway Lee

SPURIOUS EMISSION LEVEL			
Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin
473.21	-65.30	-36.00	-29.30
891.14	-62.00	-36.00	-26.00
968.90	-66.90	-36.00	-30.90
974.73	-56.90	-36.00	-20.90

NOTE: The emission behavior belongs to narrowband spurious emission.

EUT	802.11g Wireless LAN PCI Adapter	Model	TEW-403PI
Channel	1, 7, 10, 13		
Environmental Conditions	25deg. C , 70%RH	Tested By	Hardaway Lee

SPURIOUS EMISSION LEVEL				
Channel	Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin
1	2396.79	-42.50	-30.00	-12.50
	3180.36	-61.10	-30.00	-31.10
	4815.63	-86.40	-30.00	-56.40
7	2430.86	-55.50	-30.00	-25.50
	3248.50	-68.20	-30.00	-38.20
10	2430.86	-50.40	-30.00	-20.40
	3248.50	-66.40	-30.00	--36.40
	4917.84	-78.90	-30.00	-48.90
13	2499.00	-41.80	-30.00	-11.80
	3282.57	-53.80	-30.00	-23.80
	4951.90	-43.40	-30.00	-13.40

NOTE: The emission behavior belongs to narrowband spurious emission.

3.8.6 TEST RESULTS (B)

EUT	802.11g Wireless LAN PCI Adapter	Model	TEW-403PI
Frequency Range	Below 1GHz		
Environmental Conditions	25deg. C , 70%RH	Tested By	Hardaway Lee

SPURIOUS EMISSION LEVEL			
Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin
473.21	-61.90	-36.00	-25.90
840.60	-67.20	-36.00	-31.20
904.75	-57.20	-36.00	-21.20
914.47	-55.20	-36.00	-19.20
968.90	-55.30	-36.00	-19.30
972.79	-53.90	-36.00	-17.90

NOTE: The emission behavior belongs to narrowband spurious emission.

EUT	802.11g Wireless LAN PCI Adapter	Model	TEW-403PI
Channel	1, 7, 10, 13		
Environmental Conditions	25deg. C , 70%RH	Tested By	Hardaway Lee

SPURIOUS EMISSION LEVEL				
Channel	Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin
1	2396.79	-44.80	-30.00	-14.80
	3214.43	-61.80	-30.00	-31.80
	4815.63	-77.70	-30.00	-47.70
7	2430.86	-46.90	-30.00	-16.90
	3248.50	-61.20	-30.00	-31.20
	4883.77	-74.60	-30.00	-44.60
10	2430.86	-49.30	-30.00	-19.30
	3248.50	-65.30	-30.00	-35.30
	4917.86	-46.50	-30.00	-16.50
13	2646.93	-39.50	-30.00	-9.50
	3282.57	-51.80	-30.00	-21.80
	4917.84	-39.60	-30.00	-9.60

NOTE: The emission behavior belongs to narrowband spurious emission.

RECEIVER PARAMETERS

3.9 RECEIVER SPURIOUS RADIATION (RADIATED)

3.9.1 LIMIT OF RECEIVER SPURIOUS RADIATION

Narrowband spurious emission limits for receivers

Frequency Range	Limit
30MHz ~ 1GHz	-57dBm
Above 1GHz ~ 12.75GHz	-47dBm

3.9.2 TEST PROCEDURES

Please refer to item 7 of the standard.

3.9.3 DEVIATION FROM TEST STANDARD

No deviation

3.9.4 TEST SETUP

For the actual test configuration, please refer to the related Item in this test report (Photographs of the Test Configuration).

3.9.5 TEST RESULTS

EUT	802.11g Wireless LAN PCI Adapter	Model	TEW-403PI
Frequency Range	Below 1GHz		
Environmental Conditions	25deg. C , 70%RH	Tested By	Ansen Lei

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	Antenna Polarization	Level (dBm)	Limit (dBm)	Margin
47.86	V	-61.30	-57.00	-4.30
78.16	V	-63.90	-57.00	-6.90
240.48	H	-73.60	-57.00	-16.60
264.29	H	-73.90	-57.00	-16.90
479.56	H	-58.80	-57.00	-1.80
479.56	V	-58.70	-57.00	-1.70
497.80	H	-61.30	-57.00	-4.30
497.80	V	-62.90	-57.00	-5.90
600.20	H	-65.60	-57.00	-8.60
664.73	V	-63.80	-57.00	-6.80
957.92	H	-64.00	-57.00	-7.00

NOTE: The emission behavior belongs to narrowband spurious emission.

EUT	802.11g Wireless LAN PCI Adapter	Model	TEW-403PI
Channel	1, 7, 10, 13		
Environmental Conditions	25deg. C , 70%RH	Tested By	Ansen Lei

SPURIOUS EMISSION LEVEL					
Channel	Frequency (MHz)	Antenna Polarization	Level (dBm)	Limit (dBm)	Margin
1	1607.96	H	-70.3	-47.00	-23.30
	1607.97	V	-71.0	-47.00	-24.00
	3215.65	V	-67.5	-47.00	-20.50
	3216.19	H	-66.9	-47.00	-19.90
	4823.66	V	-65.2	-47.00	-18.20
	4823.91	H	-63.7	-47.00	-16.70
	6431.74	V	-62.2	-47.00	-15.20
	6432.49	H	-61.0	-47.00	-14.00
7	1627.95	H	-69.7	-47.00	-22.70
	1627.96	V	-70.6	-47.00	-23.60
	3255.50	V	-67.5	-47.00	-20.50
	3256.06	H	-67.0	-47.00	-20.00
	4883.55	V	-64.9	-47.00	-17.90
	4884.29	H	-63.3	-47.00	-16.30
	6511.97	H	-59.6	-47.00	-12.60
	6512.03	V	-61.5	-47.00	-14.50
10	1637.94	H	-71.0	-47.00	-24.00
	1637.96	V	-70.7	-47.00	-23.70
	3275.80	H	-66.9	-47.00	-19.90
	3275.82	V	-67.7	-47.00	-20.70
	4913.34	V	-65.6	-47.00	-18.60
	4913.98	H	-64.8	-47.00	-17.80
	6551.28	H	-58.8	-47.00	-11.80
	6551.35	V	-60.3	-47.00	-13.30
13	1647.94	H	-71.0	-47.00	-24.00
	1647.94	V	-71.5	-47.00	-24.50
	3255.54	H	-66.8	-47.00	-19.80
	3255.99	V	-67.2	-47.00	-20.20
	4864.20	H	-62.6	-47.00	-15.60
	4864.31	V	-63.7	-47.00	-16.70
	6472.21	H	-59.3	-47.00	-12.30
	6472.44	V	-59.9	-47.00	-12.90

NOTE: The emission behavior belongs to narrowband spurious emission.

3.10 RECEIVER SPURIOUS RADIATION (CONDUCTED)

3.10.1 LIMIT OF RECEIVER SPURIOUS RADIATION

Narrowband spurious emission limits for receivers

Frequency Range	Limit
30MHz ~ 1GHz	-57dBm
Above 1GHz ~ 12.75GHz	-47dBm

3.10.2 TEST PROCEDURES

Please refer to item 7 of the standard.

3.10.3 DEVIATION FROM TEST STANDARD

No deviation

3.10.4 TEST SETUP

For the actual test configuration, please refer to the related Item in this test report (Photographs of the Test Configuration).

3.10.5 TEST RESULTS

EUT	802.11g Wireless LAN PCI Adapter	Model	TEW-403PI
Frequency Range	Below 1GHz		
Environmental Conditions	25deg. C , 70%RH	Tested By	Hardaway Lee

SPURIOUS EMISSION LEVEL			
Frequency (MHz)	Level (dBm)	Limit (Dbm)	Margin
480.98	-81.30	-57.00	-24.30
498.48	-82.00	-57.00	-25.00
527.64	-86.40	-57.00	-29.40
871.70	-86.20	-57.00	-29.20

NOTE: The emission behavior belongs to narrowband spurious emission.



EUT	802.11g Wireless LAN PCI Adapter	Model	TEW-403PI
Channel	1, 7, 10, 13		
Environmental Conditions	25deg. C , 70%RH	Tested By	Hardaway Lee

SPURIOUS EMISSION LEVEL				
Channel	Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin
1	2396.79	-71.30	-47.00	-24.30
	4815.63	-75.70	-47.00	-28.70
	6961.92	-73.10	-47.00	-26.10
7	2430.86	-79.00	-47.00	-32.00
	4815.63	-75.70	-47.00	-28.70
	7915.83	-73.40	-47.00	-26.40
10	2873.75	-78.80	-47.00	-31.80
	4951.90	-79.40	-47.00	-32.40
	7915.83	-73.40	-47.00	-26.40
13	2805.61	-80.20	-47.00	-33.20
	4168.34	-80.70	-47.00	-33.70
	8733.47	-75.50	-47.00	-28.50

NOTE: The emission behavior belongs to narrowband spurious emission.

4. PHOTOGRAPHS OF THE TEST CONFIGURATION

Tx and Rx SPURIOUS EMISSION TEST





5. INFORMATION ON THE TESTING LABORATORIES

We, ADT Corp., were founded in 1988 to provide our best service in EMC and Safety consultation. Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025, Guide 25 or EN 45001:

USA	FCC, NVLAP
Germany	TUV Rheinland
Japan	VCCI
New Zealand	MoC
Norway	NEMKO
R.O.C.	BSMI, DGT, CNLA

Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site: www.adt.com.tw/index.5/phtml.
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The address and road map of all our labs can be found in our web site also.