

FCC TEST REPORT

for

47 CFR Part 15 Subpart C

Equipment : Wireless Repeater 11g True Turbo

Trade Name : Philips

Model No. : SNR6500

FCC ID : RAXWA4001C

Filing Type : Certification

Applicant : Arcadyan Technology Corporation
4F, No. 9, Park Avenue II, Science-based Industrial Park,
Hsinchu 300, Taiwan

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- The data shown in this test report were carried out on Mar. 29, 2005 at **Sporton International Inc. LAB.**



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1. General Description of Equipment under Test

1.1. Applicant

Arcadyan Technology Corporation

4F, No. 9, Park Avenue II, Science-based Industrial Park, Hsinchu 300, Taiwan

1.2 Manufacturer

Arcadyan Technology Corporation

4F, No. 9, Park Avenue II, Science-based Industrial Park, Hsinchu 300, Taiwan

1.3 Basic Description of Equipment under Test

Equipment	: Wireless Repeater 11g True Turbo
Trade Name	: Philips
Model No.	: SNR6500
FCC ID	: RAXWA4001C
Power Supply Type	: Switching
AC Power Cord	: AC 120V, Non-shielded, Wall-mount, 1.8 meter, 2 pin
Charger 1	: DVE, DSA-0051-03
Charger 2	: Leader, MU12-2050100-C5



1.4 Feature of Equipment under Test

Product Feature & Specification			
1. Modulation Type	802.11b: DSSS(CCK/DQPSK/DBPSK) 802.11g: OFDM(64QAM/16QAM/DQPSK/DBPSK)		
2. Frequency Range	2400 MHz ~ 2483.5 MHz		
3. Number of Channels	11 Channels		
4. Carrier Frequency of each channel	2412 + (n-1) x 5 MHz; n = 1~11		
5. Channel Bandwidth	22MHz-DSSS 20MHz-OFDM 40MHz-11g Turbo Mode		
6. Maximum Output Power to Antenna (Normal condition)	802.11b: 17.84 dBm 802.11g: 18.14 dBm 11g Turbo Mode: 17.99 dBm		
7. Type of Antenna Connector	Reverse SMA / NA		
8. Antenna Type and Gain	Fixed dipole / PCB antenna		
9. Antenna Gain	1.5 dBi		
10. Function Type	Transmitter		Transceiver V
11. Power Rating (DC/AC , Voltage)	120VAC / DC 5V		
12. Duty Cycle	100%		
13. Temperature / Humidity Range	0°C to 40°C 5% to 95%		



2 Test Configuration of Equipment under Test

2.1 Test Manner

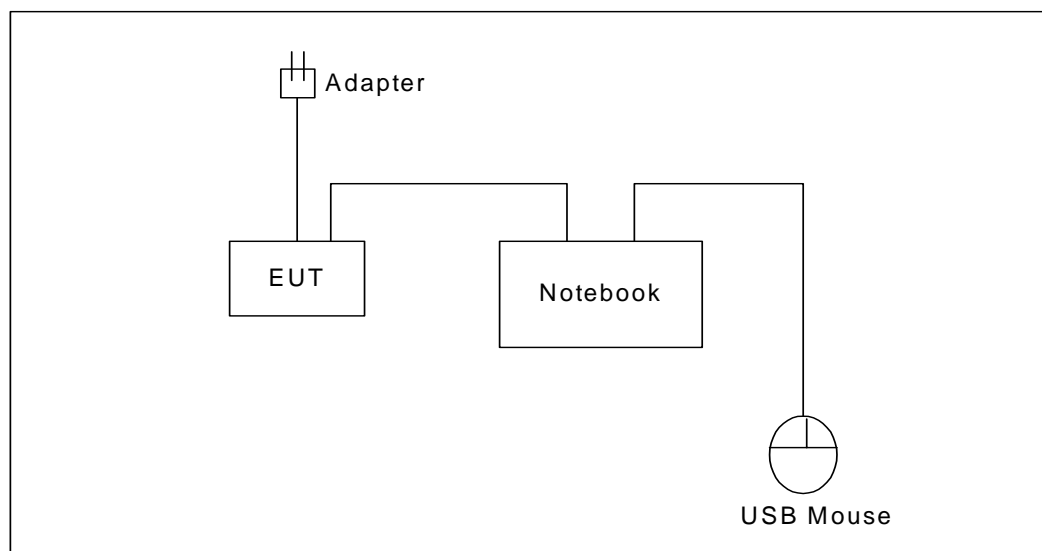
- a. The EUT has been associated with peripherals pursuant to ANSI C63.4-2003 and configuration operated in a manner tended to maximize its emission characteristics in a typical application.
- b. For spurious emission below 1GHz, only one channel of each application was tested because it is not related to channel selection.
- c. The EUT is programmed to transmit signal continuously for all testings.
- d. Frequency range investigated: conduction 150 kHz to 30 MHz, radiation 30 MHz to 25000MHz.

2.2 Test Mode

Application	802.11b	802.11g
Radiated Emission	Mode 1: Tx Ch01(2412MHz)	Mode 5: Tx Ch01(2412MHz)
	Mode 2: Tx Ch06(2437MHz)	Mode 6: Tx Ch06(2437MHz)
	Mode 3: Tx Ch06(2437 MHz) for Leader Charger	Mode 7: Tx Ch06(2437MHz) for Leader Charger
	Mode 4: Tx Ch11(2462MHz)	Mode 8: Tx Ch06(Turbo Mode) Mode 9: Tx Ch11(2462MHz)
Conducted Emission	Mode 1: Link Mode for DVE Charger	
	Mode 2: Link Mode for Leader	

Remark: There are two chargers for this device. The second charger, Leader, was tested for radiation emission on channel 06 low frequency range (below 1GHz).

2.3 Connection Diagram of Test System



2.4 Ancillary Equipment List

Item	Equipment	Model No.	Serial No.
1.	Notebook (DELL)	PP05L	N/A
2.	(USB) Mouse (LOGITECH)	M-BE58	N/A



3. RF Utility

The programmed RF Utility is either installed in EUT or Notebook to provide channel selection, power level, data rate and the application type. RF Utility can send transmitting signal for all testings.



4. General Information of Test

Test Site Location : No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park,
Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.
TEL : 886-3-327-3456
FAX : 886-3-318-0055

Test Site No : 03CH06-HY

4.1 Test Voltage

120V/ 60Hz

4.2 Standard for Methods of Measurement

ANSI C63.4-2003

4.3 Test in Compliance with

47 CFR Part 15 Subpart C

4.4 Frequency Range Investigated

- a. Conduction: from 150 kHz to 30 MHz
- b. Radiation: from 30 MHz to 25000 MHz

4.5 Test Distance

The test distance of radiated emission from antenna to EUT is 3 m.



5. Test Data and Test Result

5.1 List of Measurements and Examinations

FCC Rule	Description of Test	Result	Section
15.247(a)(2)	6dB Bandwidth	Pass	5.2
15.247(d)	Power Spectral Density	Pass	5.3
15.247 (c)	100kHz Bandwidth of Frequency Band Edges	Pass	5.4
15.247(b)	Maximum Peak Output Power	Pass	5.5
15.207	Conducted Emission	Pass	5.6
15.209(a)	Radiated Emission	Pass	5.7
15.203 15.247(b)(4)	Antenna Requirement	Pass	5.8

5.2 6dB Bandwidth Measurement

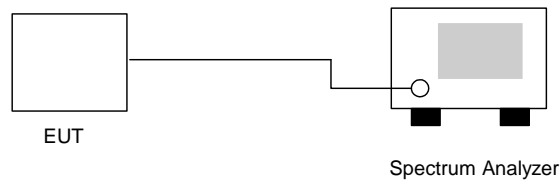
5.2.1 Measuring Instruments :

As described in chapter 6 of this test report.

5.2.2 Test Procedure :

1. The transmitter output was connected to the spectrum analyzer directly.
2. Set RBW of spectrum analyzer to 100kHz and VBW to 100kHz.
3. The 6 dB bandwidth is defined as the frequency range where the power is higher than the peak power minus 6dB.

5.2.3 Test Setup Layout :



5.2.4 Test Result :

- Application Type : 802.11b
- Temperature : 25°C
- Relative Humidity : 60%
- Test Enginner : Jay

Channel	Frequency (MHz)	6dB Emission bandwidth (MHz)	Limits (MHz)	Plot Ref. No.
01	2412	11.24	0.5	Mode 1
06	2437	10.72	0.5	Mode 2
11	2462	11.08	0.5	Mode 3



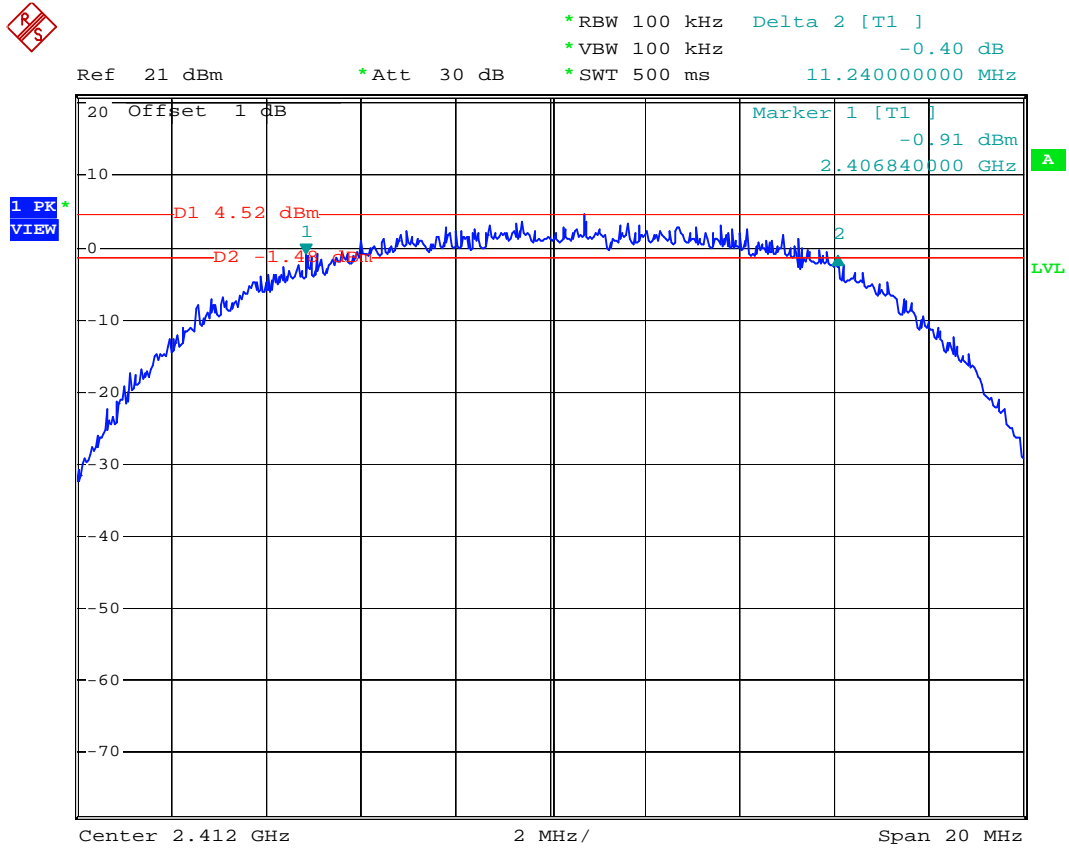
- Application Type : 802.11g and Turbo Mode
- Temperature : 25°C
- Relative Humidity : 60%
- Test Enginner : Jay

Channel	Frequency (MHz)	6dB Emission bandwidth (MHz)	Limits (MHz)	Plot Ref. No.
01	2412	16.44	0.5	Mode 4
06	2437	16.44	0.5	Mode 5
06 (Turbo)	2437	32.80	0.5	Mode 6
11	2462	16.52	0.5	Mode 7



5.2.5 6dB Bandwidth

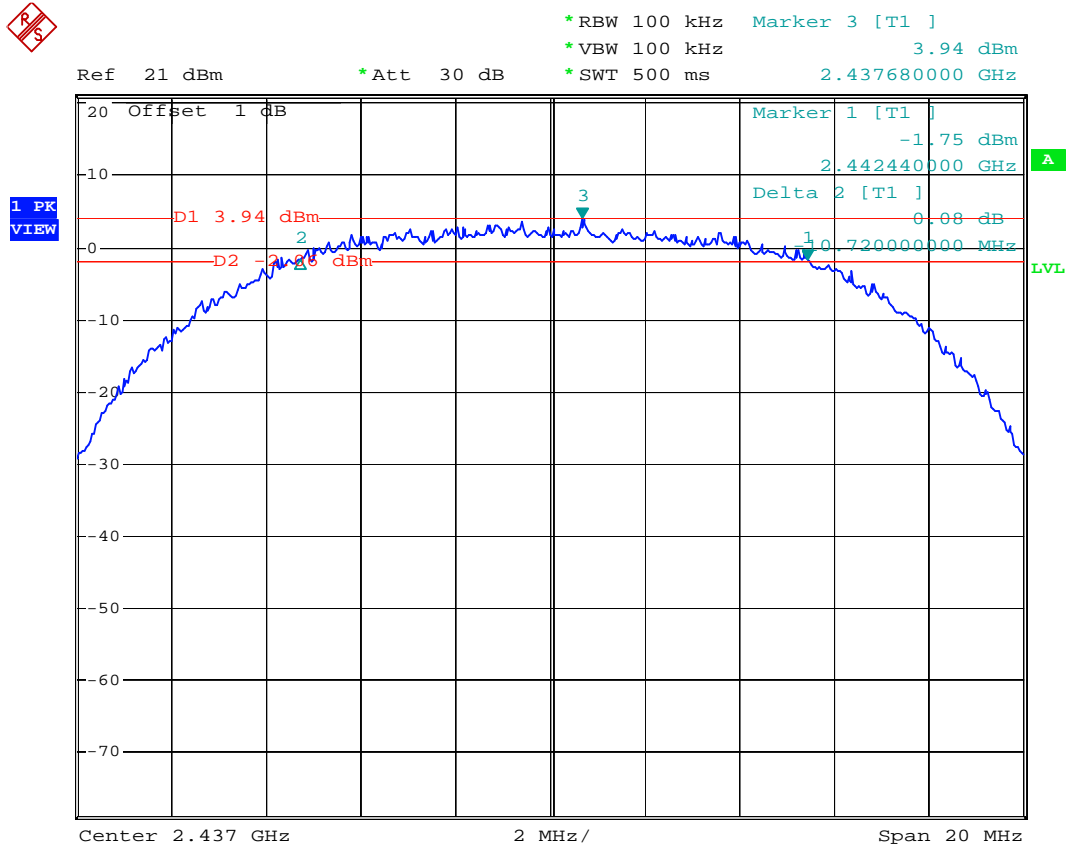
Mode 1 : 802.11b Tx CH01 (2412MHz)



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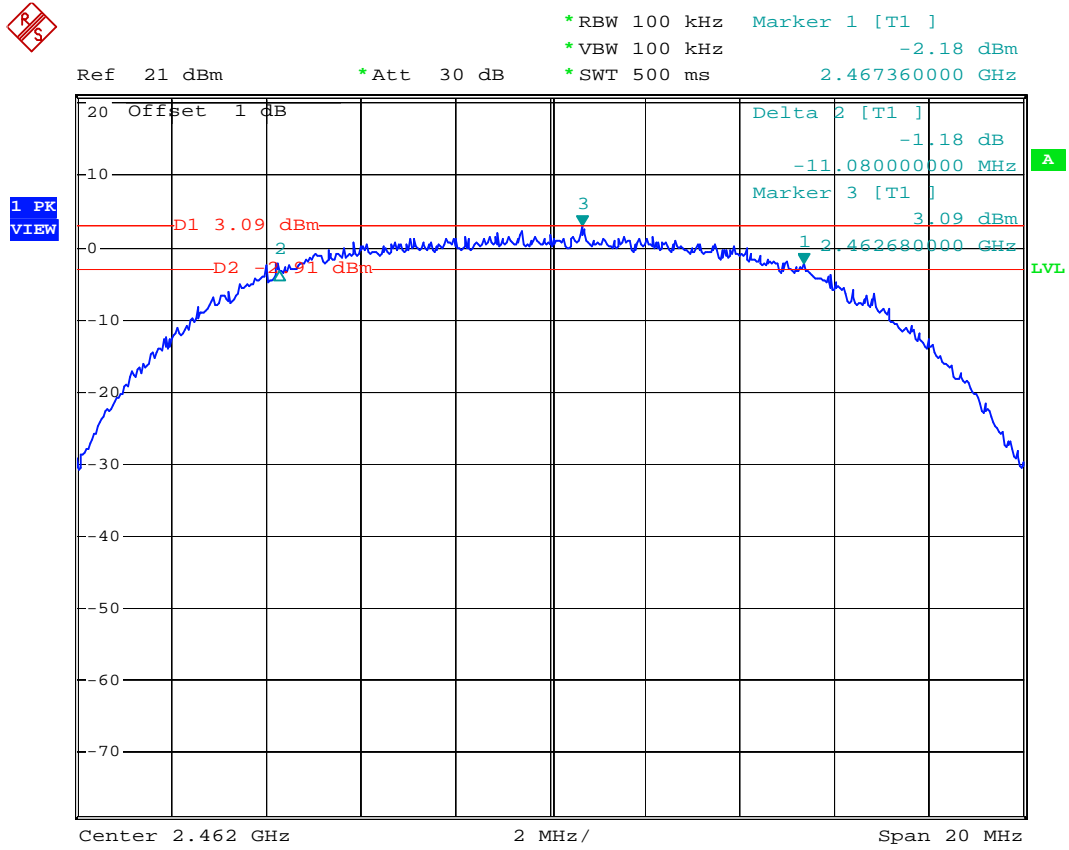
Mode 2 : 802.11b Tx CH06 (2437MHz)



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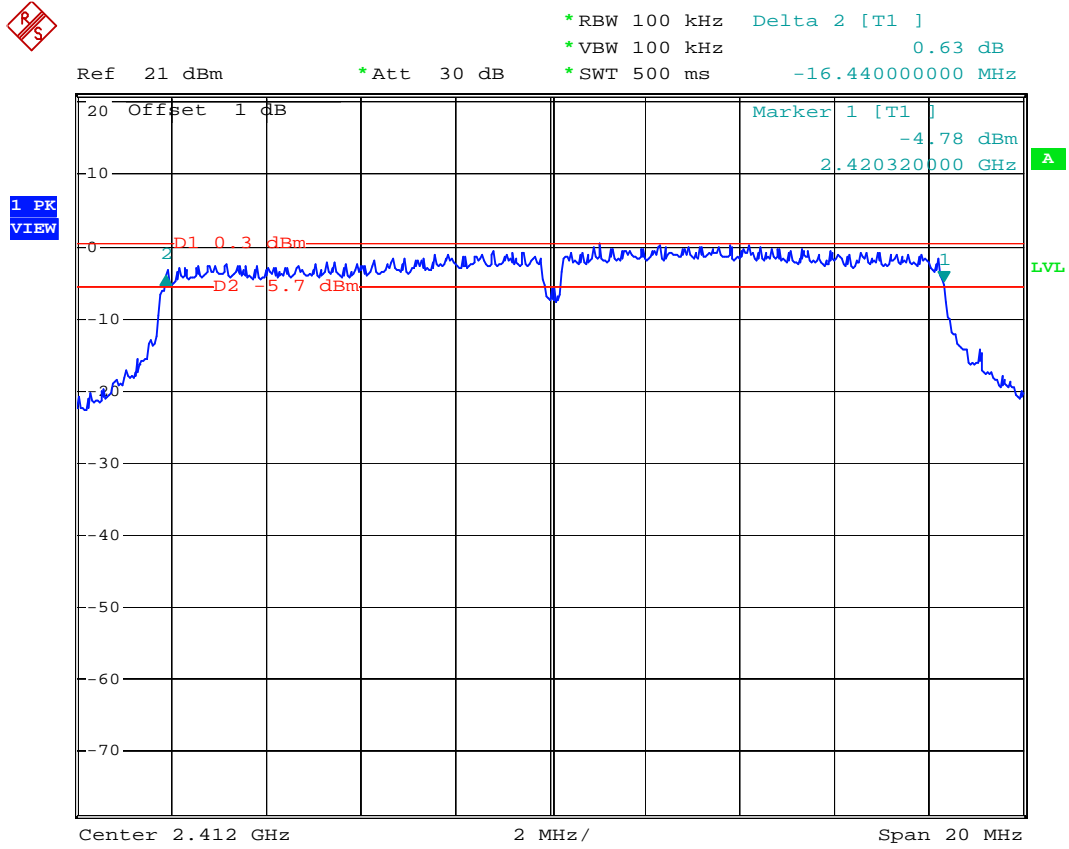
Mode 3 : 802.11b Tx CH11(2462MHz)



Date: 26.MAR.2005 07:16:03



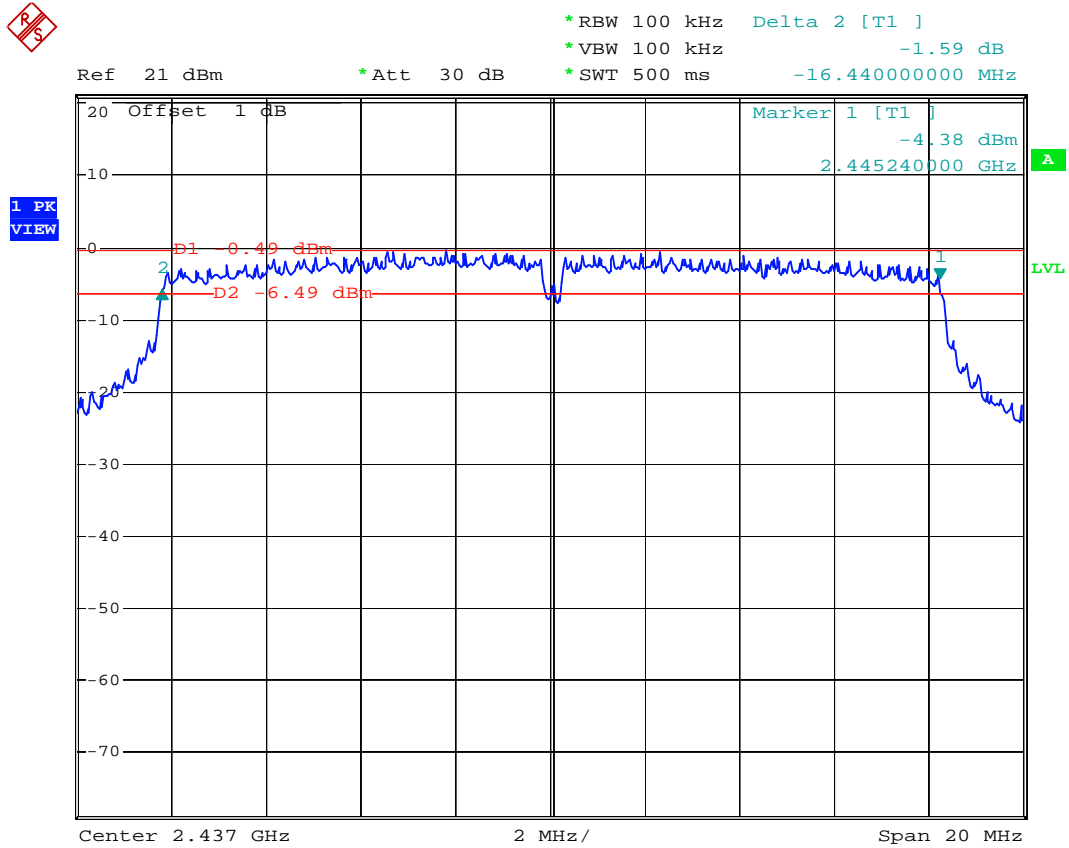
Mode 4 : 802.11g Tx CH01 (2412MHz)



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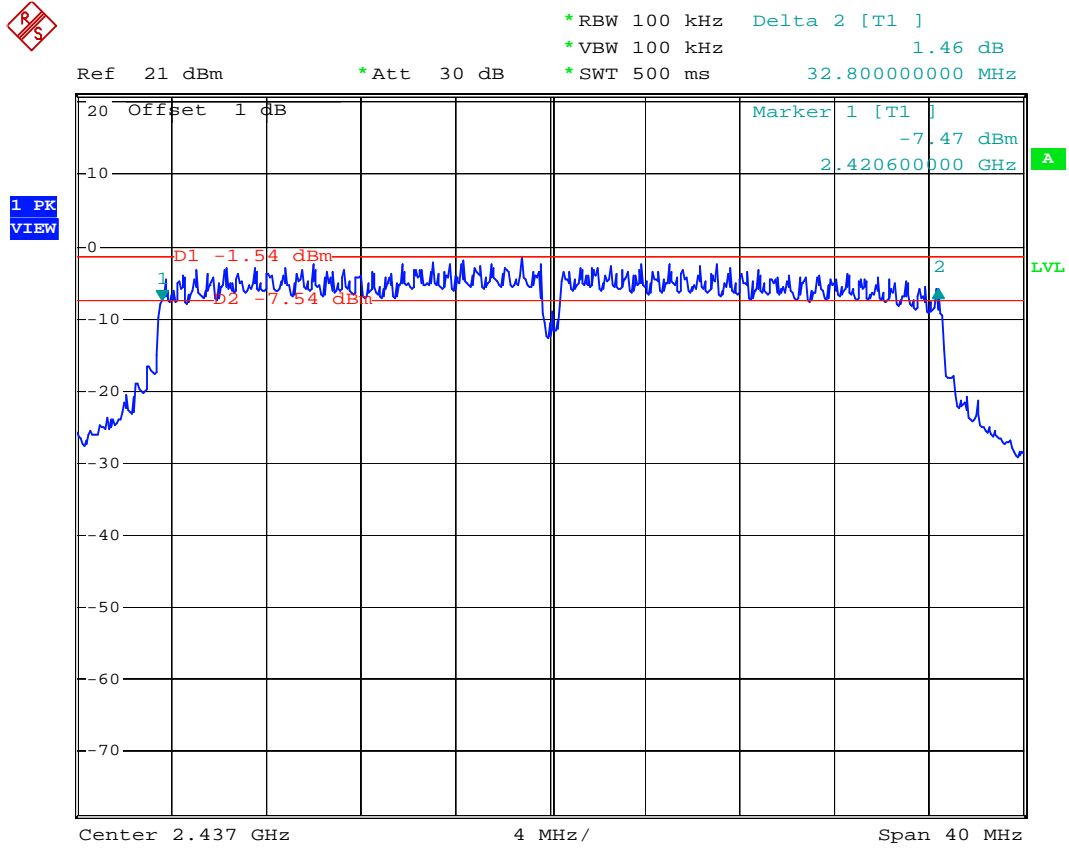
Mode 5 : 802.11g Tx CH06 (2437MHz)



Date: 26.MAR.2005 07:38:12



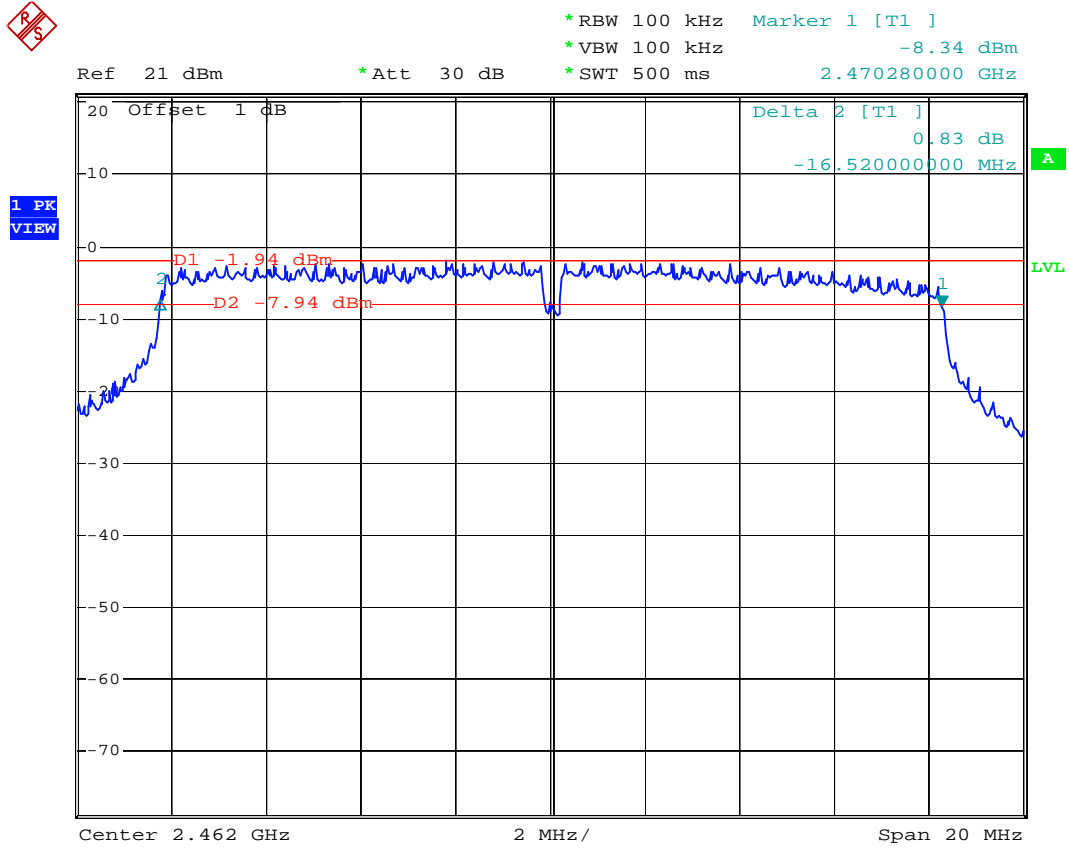
Mode 6 : 802.11g Tx CH06 (2437MHz)



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Mode 7 : 802.11g Tx CH06 (2437MHz)



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5.3 Power Spectral Density Measurement

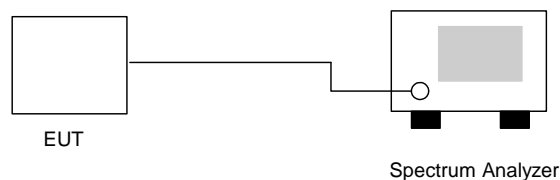
5.3.1 Measuring Instruments :

As described in chapter 6 of this test report.

5.3.2 Test Procedure :

1. The transmitter output was connected to spectrum analyzer directly.
2. The spectrum analyzer's resolution bandwidth was set at 3kHz RBW and 30kHz VBW as that of the fundamental frequency. Set the sweep time=span/3kHz.
3. The power spectral density was measured and recorded.
4. The sweep time is allowed to be longer than span/3kHz for a full response of the mixer in the spectrum analyzer.

5.3.3 Test Setup Layout :



5.3.4 Test Result :

- Application Type : 802.11b
- Temperature : 25°C,
- Relative Humidity : 60%
- Test Enginner : Jay

Channel	Frequency (MHz)	Power Spectral Density (dBm)	Limits (dBm)	Plot Ref. No.
01	2412	-10.12	8	Mode 1
06	2437	-10.61	8	Mode 2
11	2462	-11.96	8	Mode 3



- Application Type : 802.11g and Turbo Mode
- Temperature : 25°C,
- Relative Humidity : 60%
- Test Enginner : Jay

Channel	Frequency (MHz)	Power Spectral Density (dBm)	Limits (dBm)	Plot Ref. No.
01	2412	-8.78	8	Mode 4
06	2437	-12.08	8	Mode 5
06(Turbo)	2437	-14.42	8	Mode 6
11	2462	-11.79	8	Mode 7

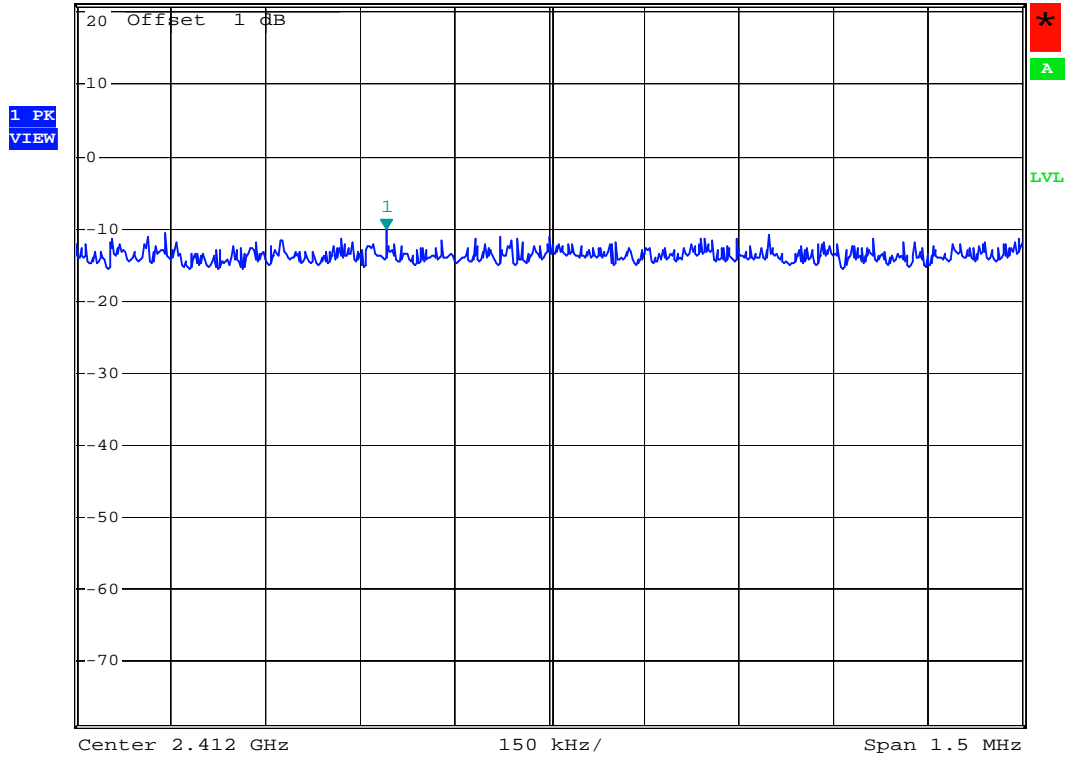


5.3.5 Power Spectral Density

Mode 1 : 802.11b Tx CH01(2412MHz)



Ref 21 dBm *Att 30 dB *RBW 3 kHz Marker 1 [T1] -10.12 dBm
*VBW 30 kHz *SWT 500 s 2.411742000 GHz



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Mode 2 : 802.11b Tx CH06 (2437MHz)

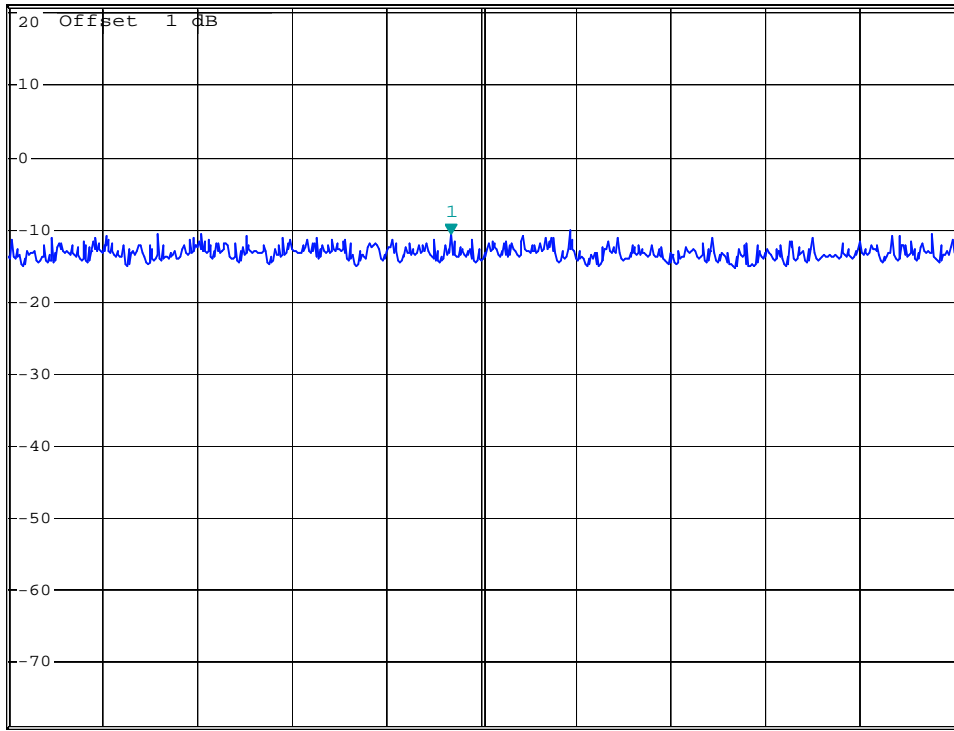


*RBW 3 kHz Marker 1 [T1]
*VBW 30 kHz -10.61 dBm
*SWT 500 s 2.436952000 GHz

Ref 21 dBm

*Att 30 dB

1 PK
VIEW



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Mode 3 : 802.11b Tx CH11 (2462MHz)

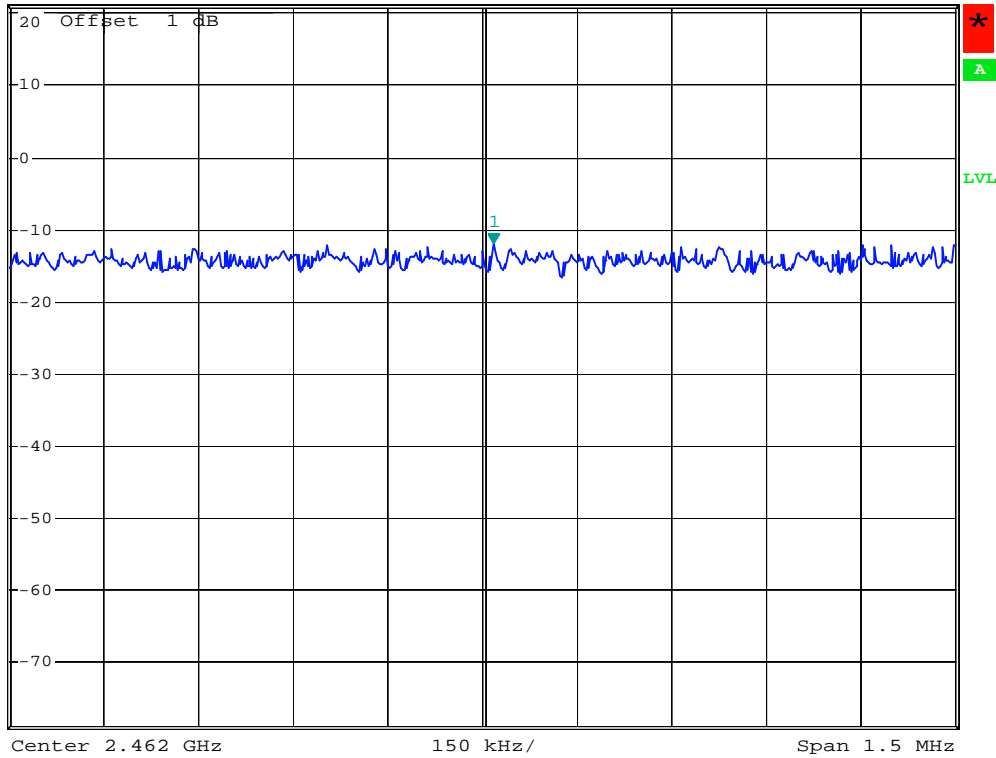


*RBW 3 kHz Marker 1 [T1]
*VBW 30 kHz -11.96 dBm
*SWT 500 s 2.462018000 GHz

Ref 21 dBm

*Att 30 dB

1 PK
VIEW



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Mode 4 : 802.11g Tx CH01(2412MHz)

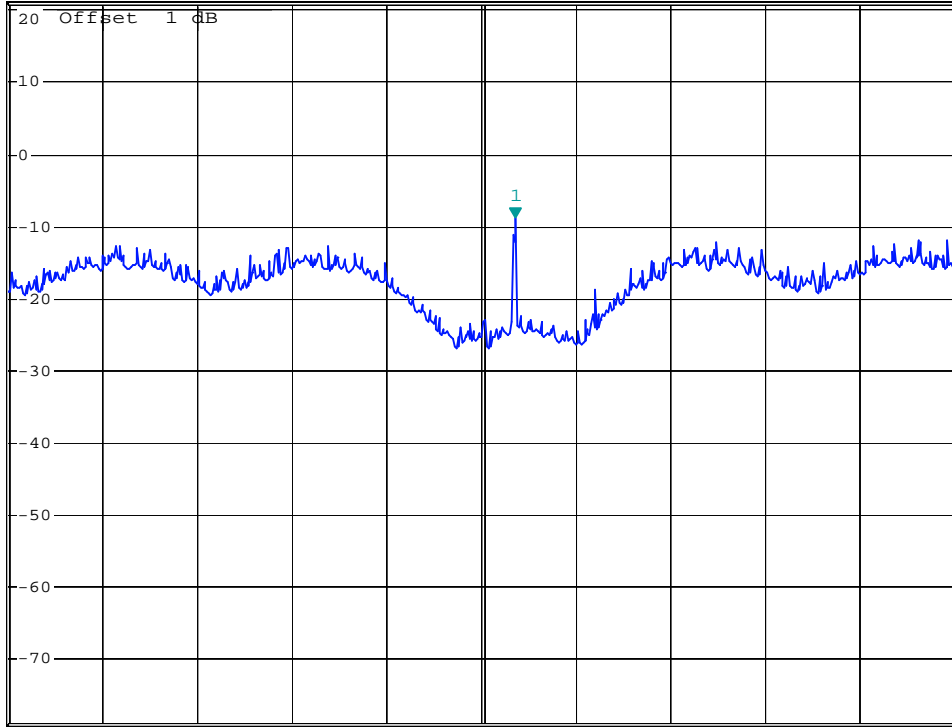


*RBW 3 kHz Marker 1 [T1]
*VBW 30 kHz -8.78 dBm
*SWT 500 s 2.412054000 GHz

Ref 21 dBm

*Att 30 dB

1 PK
VIEW



Center 2.412 GHz 150 kHz/ Span 1.5 MHz

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Mode 5 : 802.11g Tx CH06 (2437MHz)

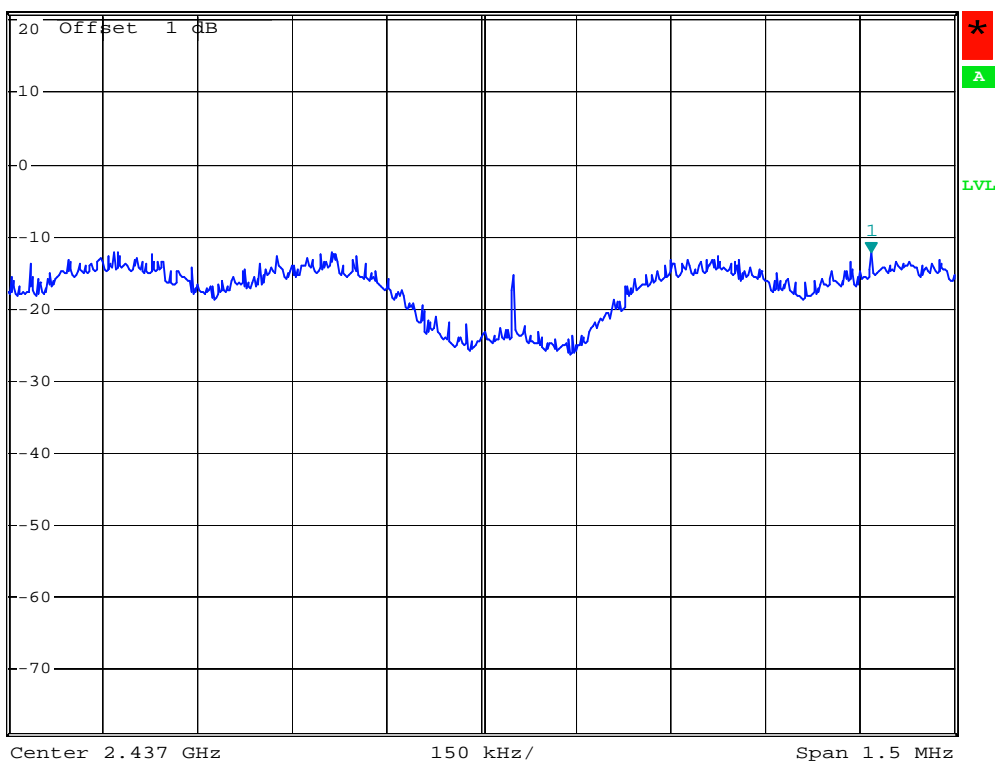


*RBW 3 kHz Marker 1 [T1]
*VBW 30 kHz -12.08 dBm
*SWT 500 s 2.437618000 GHz

Ref 21 dBm

*Att 30 dB

1 PK
VIEW



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Mode 6 : 802.11g Tx CH06 (2437MHz)

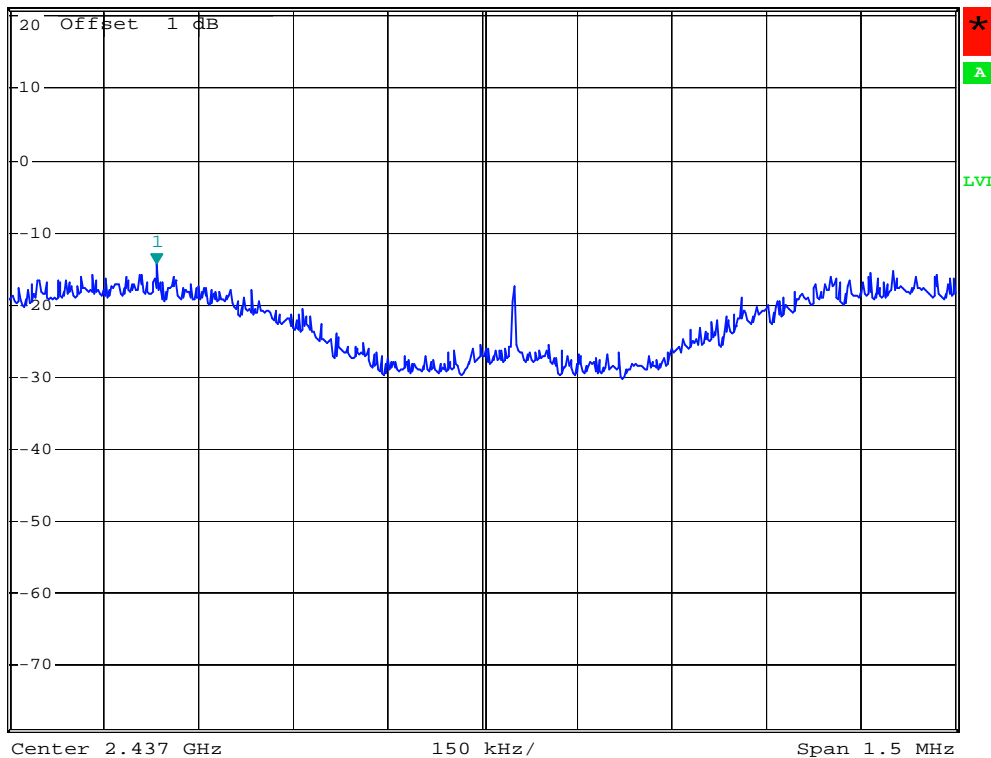


*RBW 3 kHz Marker 1 [T1]
*VBW 30 kHz -14.42 dBm
*SWT 500 s 2.436484000 GHz

Ref 21 dBm

*Att 30 dB

1 PK
VIEW



Date: 26.MAR.2005 07:50:03



Mode 7 : 802.11g Tx CH11 (2462MHz)

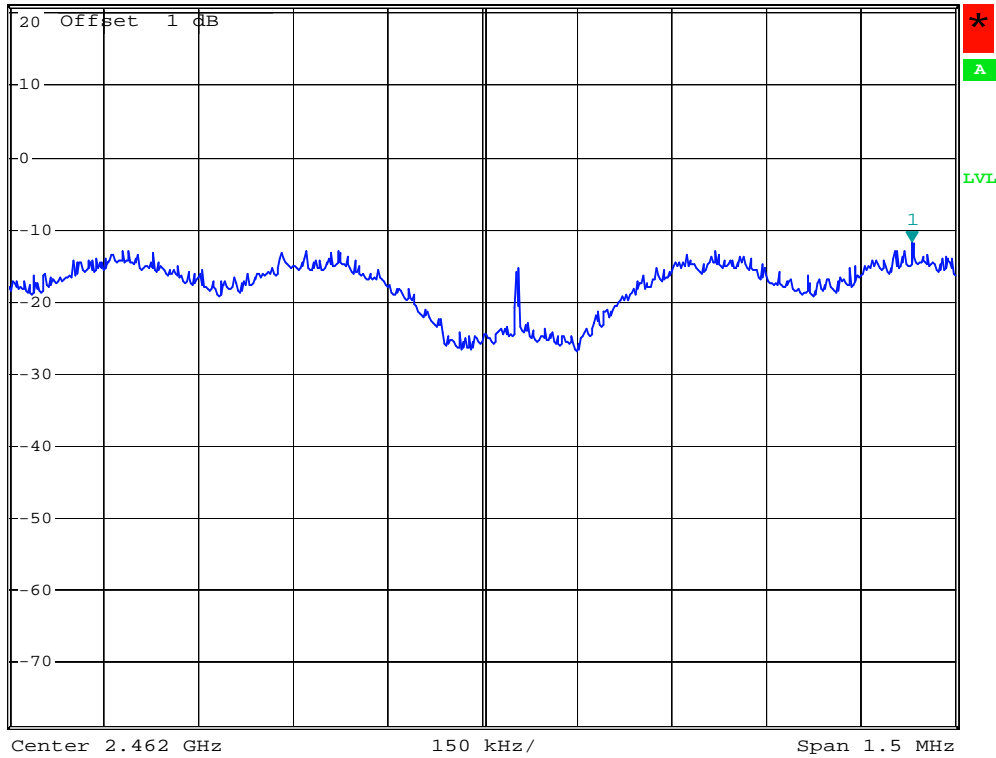


*RBW 3 kHz Marker 1 [T1]
*VBW 30 kHz -11.79 dBm
*SWT 500 s 2.462681000 GHz

Ref 21 dBm

*Att 30 dB

1 PK
VIEW



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5.4 Band Edges Measurement

5.4.1 Measuring Instruments :

As described in chapter 6 of this test report.

5.4.2 Test Procedure :

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

5.4.3 Test Result :

- Application Type : 802.11b / g and turbo mode
Temperature : 25°C,
Relative Humidity : 60%
Test Enginner : Jay
Test Result in lower band (Channel 1) : PASS
Test Result in higher band (Channel 11) : PASS
Test Result for turbo mode (channel 06) : PASS

5.4.4 Note on Band Edge Emission

➤802.11b

CH01 (Horizontal)

Table with 9 columns: Frequency, Level, Over Limit, Limit Line, Read Level, Antenna Factor, Preamp Factor, Cable Loss, Detect Mode. Rows for 2390.00 MHz at 70.14 dBuV/m and 49.35 dBuV/m.

CH01 (Vertical)

Table with 9 columns: Frequency, Level, Over Limit, Limit Line, Read Level, Antenna Factor, Preamp Factor, Cable Loss, Detect Mode. Rows for 2390.00 MHz at 70.02 dBuV/m and 49.03 dBuV/m.



CH11 (Horizontal)

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB/m)	Preamp Factor (dB)	Cable Loss (dB)	Detect Mode
2383.50	61.92	-12.08	74.00	62.18	30.41	35.19	4.52	Peak
2383.50	51.62	-2.38	54.00	51.87	30.41	35.19	4.52	Average

CH11 (Vertical)

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB/m)	Preamp Factor (dB)	Cable Loss (dB)	Detect Mode
2383.50	62.15	-11.85	74.00	62.40	30.41	35.19	4.52	Peak
2383.50	52.42	-1.58	54.00	52.67	30.41	35.19	4.52	Average

➤802.11g

CH01 (Horizontal)

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB/m)	Preamp Factor (dB)	Cable Loss (dB)	Detect Mode
2390.00	71.87	-2.13	74.00	72.10	30.48	35.14	4.43	Peak
2390.00	52.47	-1.53	54.00	52.70	30.48	35.14	4.43	Average

CH01 (Vertical)

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB/m)	Preamp Factor (dB)	Cable Loss (dB)	Detect Mode
2390.00	72.48	-1.52	74.00	72.71	30.48	35.14	4.43	Peak
2390.00	53.54	-0.46	54.00	53.77	30.48	35.14	4.43	Average



CH11 (Horizontal)

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB/m)	Preamp Factor (dB)	Cable Loss (dB)	Detect Mode
2383.50	71.04	-2.96	74.00	71.30	30.41	35.19	4.52	Peak
2383.50	53.94	-0.06	54.00	54.19	30.41	35.19	4.52	Average

CH11 (Vertical)

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB/m)	Preamp Factor (dB)	Cable Loss (dB)	Detect Mode
2383.50	72.18	-1.82	74.00	72.44	30.41	35.19	4.52	Peak
2383.50	52.74	-1.26	54.00	52.99	30.41	35.19	4.52	Average

➤ Turbo Mode

Turbo CH06 (Horizontal)

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB/m)	Preamp Factor (dB)	Cable Loss (dB)	Detect Mode
2390.00	64.78	-9.22	74.00	65.00	30.48	35.14	4.43	Peak
2390.00	48.61	-5.39	54.00	48.84	30.48	35.14	4.43	Average

Turbo CH06 (Vertical)

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB/m)	Preamp Factor (dB)	Cable Loss (dB)	Detect Mode
2390.00	63.66	-10.34	74.00	63.89	30.48	35.14	4.43	Peak
2390.00	47.25	-6.75	54.00	47.48	30.48	35.14	4.43	Average



Turbo CH06 (Horizontal)

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB/m)	Preamp Factor (dB)	Cable Loss (dB)	Detect Mode
2494.00	60.75	-13.25	74.00	61.00	30.40	35.20	4.55	Peak
2494.00	45.68	-8.32	54.00	45.93	30.40	35.20	4.55	Average

Turbo CH06 (Vertical)

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB/m)	Preamp Factor (dB)	Cable Loss (dB)	Detect Mode
2483.5	60.25	-13.75	74.00	60.50	30.41	35.19	4.52	Peak
2483.5	46.37	-7.63	54.00	46.62	30.41	35.19	4.52	Average

* Remark: The data above can refer to radiated emission in section 5.7.

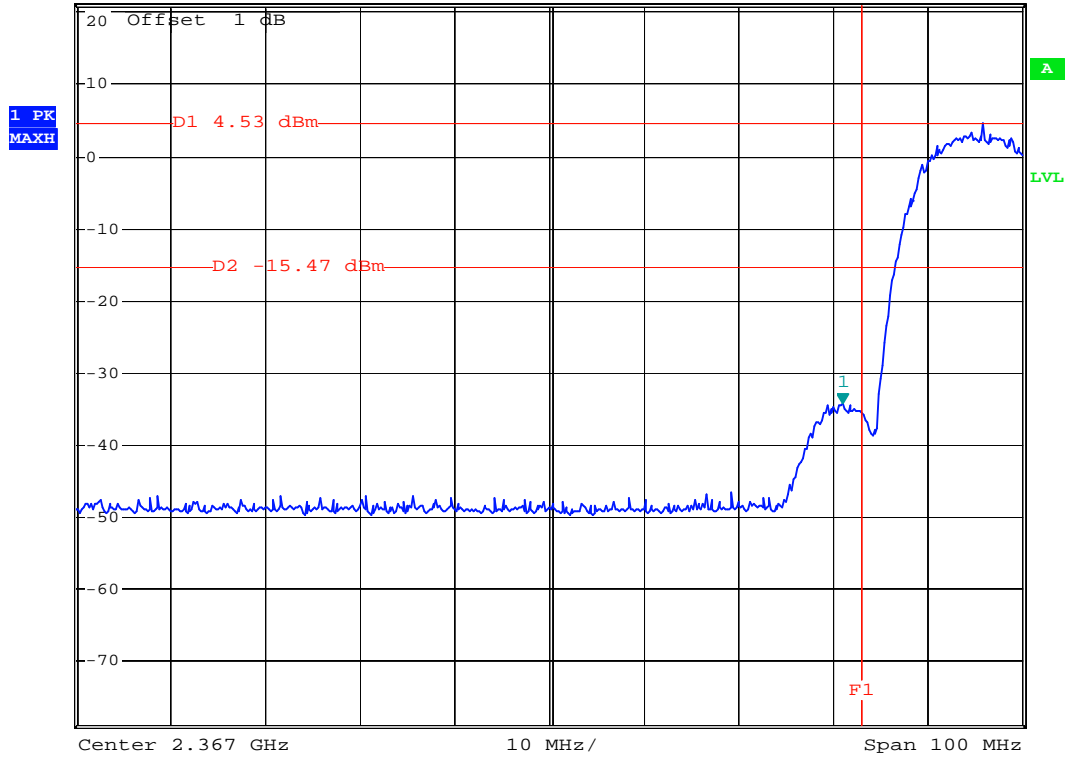


5.4.5 20dB Band Edge

802.11b Tx CH01 (2412MHz)



Ref 21 dBm *Att 30 dB *RBW 100 kHz Marker 1 [T1] -34.37 dBm
*VBW 100 kHz *SWT 500 ms 2.398000000 GHz



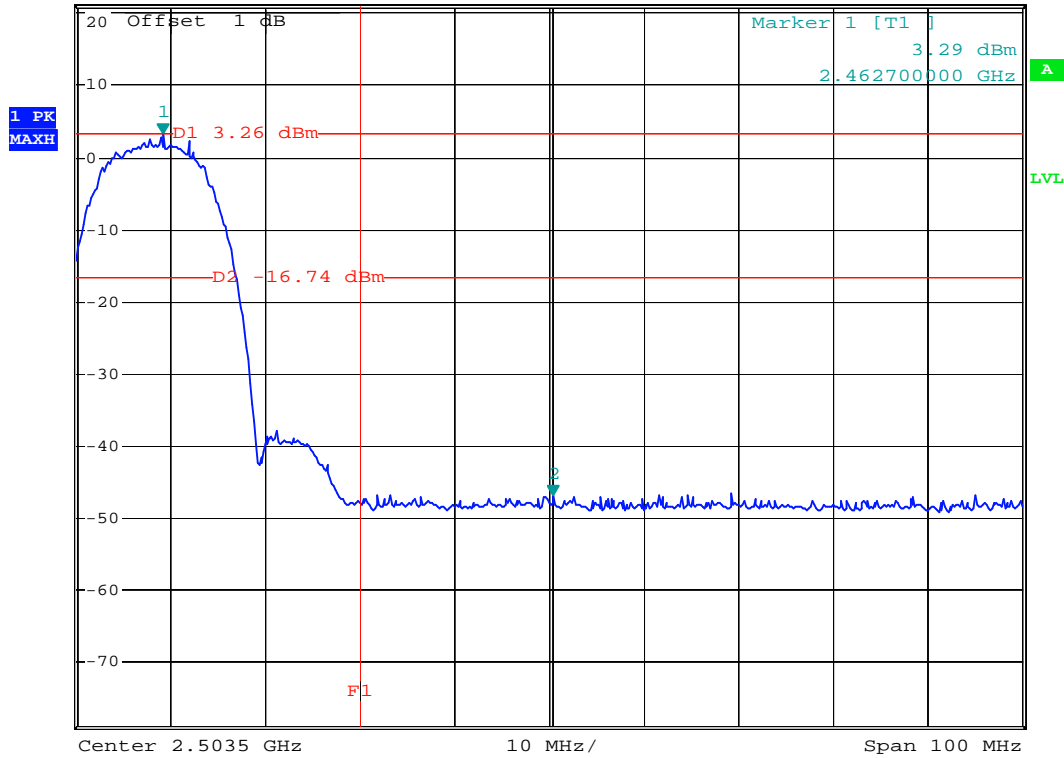
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802.11b Tx CH11 (2462MHz)



Ref 21 dBm * Att 30 dB * RBW 100 kHz Marker 2 [T1] -46.98 dBm
* VBW 100 kHz * SWT 500 ms 2.503900000 GHz



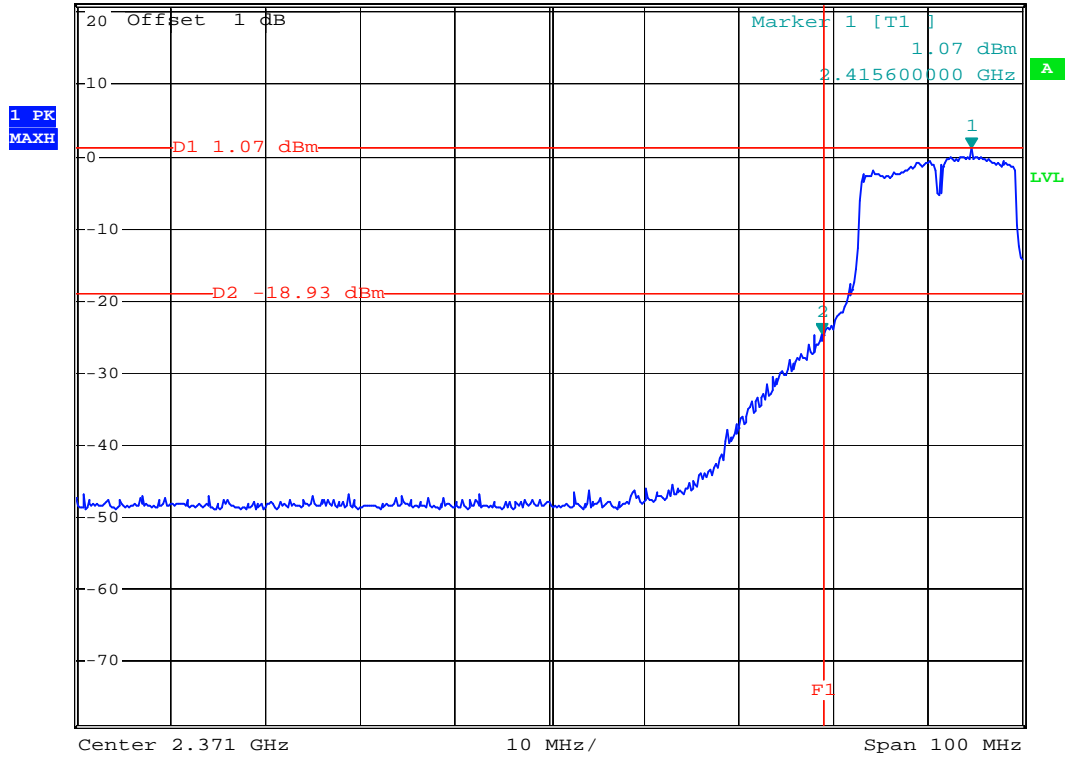
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802.11g Tx CH01 (2412MHz)



*RBW 100 kHz Marker 2 [T1]
 *VBW 100 kHz -24.49 dBm
 *SWT 500 ms 2.399800000 GHz
 Ref 21 dBm *Att 30 dB



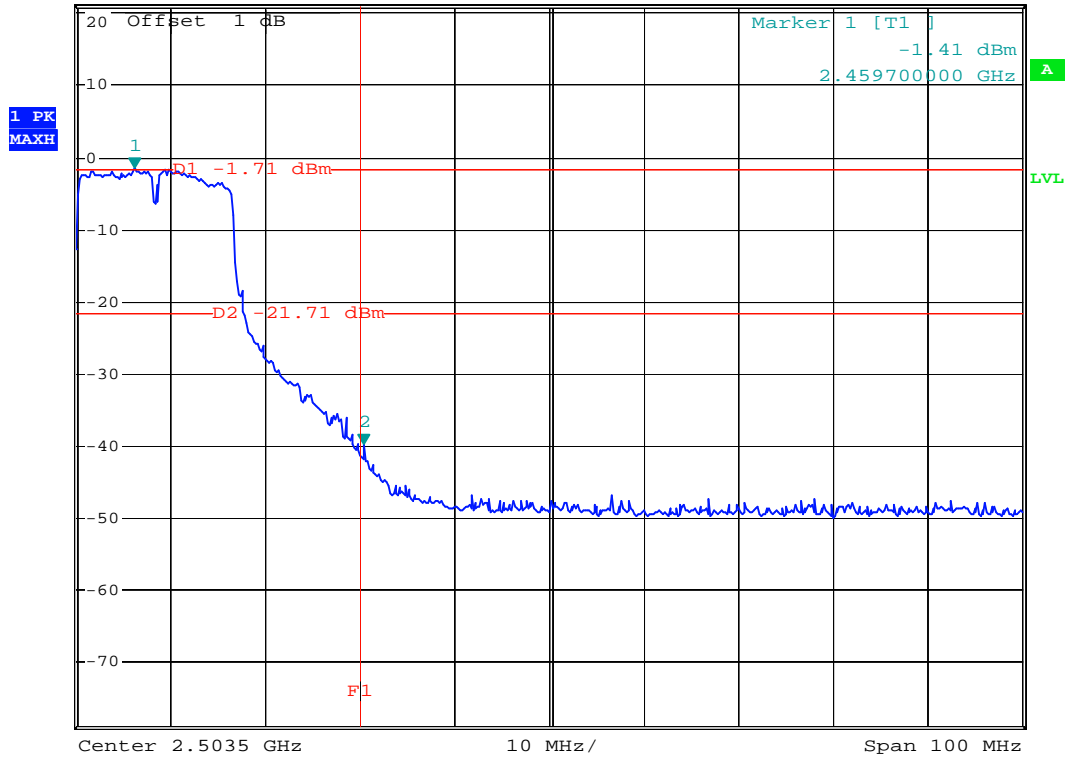
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802.11g Tx CH11 (2462MHz)



Ref 21 dBm * Att 30 dB * RBW 100 kHz Marker 2 [T1] -39.84 dBm
* VBW 100 kHz * SWT 500 ms 2.483900000 GHz



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5.5 Peak Output Power Measurement

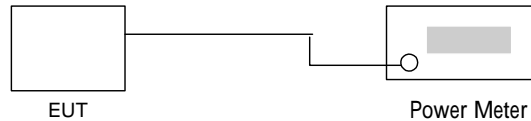
5.5.1 Measuring Instruments :

As described in chapter 6 of this test report.

5.5.2 Test Procedure :

The antenna port (RF output) of the EUT was connected to the input (RF input) of a power meter.
The power is equal to the reading level on power meter plus cable loss at the EUT antenna terminal.

5.5.3 Test Setup Layout :



5.5.4 Test Result :

- Application Type : 802.11b
- Temperature : 25°C
- Relative Humidity : 60 %
- Test Enginner : Jay

Channel	Frequency (MHz)	Measured Output Power (dBm)	Limits (Watt/dBm)
01	2412	17.84	1W/30 dBm
06	2437	17.69	1W/30 dBm
11	2462	17.12	1W/30 dBm



- Application Type : 802.11g
- Temperature : 25°C
- Relative Humidity : 60 %
- Test Enginner : Jay

Channel	Frequency (MHz)	Measured Output Power (dBm)	Limits (Watt/dBm)
01	2412	17.44	1W/30 dBm
06	2437	18.14	1W/30 dBm
06 (Turbo)	2437	17.99	1W/30 dBm
11	2462	17.2	1W/30 dBm
