FCC TEST REPORT

for

47 CFR, Part 15, Subpart E

Equipment : 802.11 a/b/g WLAN Access Port

Trade Name : Symbol

Model No. : WSAP-5100 /WSAP-5110

FCC ID : H9PWSAP5100

Filing Type : Certification

Applicant : Universal Scientific Industrial Co., Ltd.
141, Lane 351, Taiping Road, Sec. 1, Tsao Tuen,
Nan-Tou, Taiwan

SPORTON International Inc.

6F, No.106, Sec. 1, Hsin Tai Wu Rd., Hsi Chih, Taipei Hsien, Taiwan, R.O.C.

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History of this test report

Original Report Issue Date: Aug. 10, 2004

■ No additional attachment.

☐ Additional attachment were issued as following record:

Attachment No.	Issue Date	Description

Certificate No. : F471907

CERTIFICATE OF COMPLIANCE

For

47 CFR, Part 15, Subpart E

Equipment	: **802.11 a/b/g WLAN Access Port**
Trade Name	: **Symbol**
Model No.	: **WSAP-5100 /WSAP-5110**
FCC ID	: **H9PWSAP5100**
Filing Type	: **Certification**
Applicant	: **Universal Scientific Industrial Co., Ltd.** 141, Lane 351, Taiping Road, Sec. 1, Tsao Tuen, Nan-Tou, Taiwan

I **HEREBY** CERTIFY THAT :

The measurements shown in this test report were made in accordance with the procedures given in **ANSI C63.4 - 2001** and the equipment under test was ***passed*** all test items required in FCC Part 15 subpart E, relative to the equipment under test. Testing was carried out on Aug. 03, 2004 at **SPORTON International Inc.** LAB.

Daniel Lee 8/13/2004

Daniel Lee

Manager

SPORTON International Inc.

6F, No.106, Sec. 1, Hsin Tai Wu Rd., Hsi Chih, Taipei Hsien, Taiwan, R.O.C.

1. General Description of Equipment under Test

1.1. Applicant

Universal Scientific Industrial Co., Ltd.
141, Lane 351, Taiping Road, Sec. 1, Tsao Tuen, Nan-Tou, Taiwan

1.2. Manufacturer

Universal Scientific Industrial Co., Ltd.
140, Lane 351, Taiping Road, Sec. 1, Tsao, Tuen, Nan_Tou, Taiwan

1.3 Basic Description of Equipment under Test

Equipment	: 802.11 a/b/g WLAN Access Port
Trade Name	: Symbol
Model No.	: WSAP-5100 /WSAP-5110
FCC ID	: H9PWSAP5100
Power Supply Type	: Power Over Ethernet (48V)

1.4 Feature of Equipment under Test

Product Feature & Specification				
1. Host/Radio Interface	Power Over Ethernet/Wireless LAN Access Port			
2. Housing Type	Plastic Housing for WSAP-5110 Metallic Housing for WSAP-5100			
3. Modulation Type/Data Rate	OFDM:54/48/36/24/18/12/9/6Mbps CCK:11/5Mbps DQPSK:2Mbps DBPSK:1Mbps			
4. Freq.Range/Carrier Freqs.	2400~2483.5MHz;5150 ~ 5250MHz (Band I); 5250 ~ 5350MHz (Band II);5725~5850MHz (Band III)			
5. Number o f Channels	802.11g/b: 11 Ch 802.11a:8Ch(5150~5350MHz),5Ch(5725~5850MHz)			
6. Carrier Frequency of each channel	802.11g/b:2412+ m*5 MHz ,m=1~11 802.11a: 5000+n*5 MHz, n=36,40,44,48,52,56,60,64,149,153,157,161,165			
7. Channel Spacing	802.11g/b:5MHz 802.11a: 20MHz			
8. Maximum Output Power to Antenna (Normal condition)	Refer to power table 1.6			
9. Type of Antenna Connector	Refer to Antenna list 1.5			
10. Antenna Type				
11. Antenna Gain				
12. Main Board Version	Plastic Housing		Cypress Mercury Abracon	
	Metallic Housing		Mercury TXC-33.3MHz	
13. Function Type	Transmitter		Transceiver	V
14. Power Rating (DC/AC , Voltage)	Power Over Ethernet (48V) (Symbol WS2000)			
15. Duty Cycle	100%			

1.5 Antenna List

Antenna List	Antenna Type	Peak Gain (dBi)	Cable Loss (dB)	Net Gain (dBi)	Frequency Range (GHz)	Application	Housing Type	Connector Type	Serial No.
Antenna 1	Integral	2 / 3.8	0	2 / 3.8	2.4 ~ 2.5/ 5.15 ~ 5.825	11b/g; 11 a band I/II/III	Plastic	NA	
Antenna 2	Sector Panel	11.2	2.7	8.5	2.4 ~ 2.5	11 b/g	Metallic	RP-BNC	ML-2499-11 PNA2-01
Antenna 3	Dipole	2	0	2	2.4 ~ 2.5	11 b/g	Metallic	RP-BNC	ML-2499-AP A2-01
Antenna 4	Dipole Array	4.6	1.3	3.3	2.4 ~ 2.5	11 b/g	Metallic	RP-BNC	ML-2499-HP A3-01
Antenna 5	YAGI	14.2	1.3	12.9	2.4 ~ 2.5	11 b/g	Metallic	N-Type	ML-2499-BY GA2-01
Antenna 6	Dipole	2.0	0	2.0	5.15 ~ 5.875	11 a Band II/III	Metallic	RP-SMA	ML-5299-AP A1-01
Antenna 7	Dipole Array	5.9	0.84	5	5.15 ~ 5.875	11 a Band II/III	Metallic	RP-SMA	ML-5299-HP A1-01
Antenna 8	Panel	14.2	1.2	13	5.15 ~ 5.875	11 a Band II/III	Metallic	RP-SMA	ML-5299-W PNA1-01

1.6 Power Table

	802.11b	802.11g	802.11a/band 1	802.11a/band 2	802.11a/band 3
Antenna 1	20.3 dBm	21.5 dBm	16.6 dBm	22.1 dBm	23.4 dBm
Antenna 2	18.1 dBm	20.8 dBm	N/A	N/A	N/A
Antenna 3	18.1 dBm	21.5 dBm	N/A	N/A	N/A
Antenna 4	18.1 dBm	21.5 dBm	N/A	N/A	N/A
Antenna 5	15.5 dBm	19.7 dBm	N/A	N/A	N/A
Antenna 6	N/A	N/A	N/A	22.1 dBm	24 dBm
Antenna 7	N/A	N/A	N/A	23.5 dBm	23.4 dBm
Antenna 8	N/A	N/A	N/A	17 dBm	22.5 dBm

2 Test Configuration of Equipment under Test

2.1 Test Manner

a. The EUT has been associated with notebook and peripherals pursuant to ANSI C63.4-2001 and configuration operated in a manner, which tended to maximize its emission characteristics in a typical application.
b. The complete test system included DELL NOTEBOOK and EUT for EMI test.
c. The EUT can operate on 5150MHz to 5350MHz as listed in section 1.4.
d. The following test modes were tested for conduction test:

•Plastic Housing / WASP-5110:
Mode 1: 802.11 a link mode
Mode 2: 802.11 a+g link mode
•Metallic Housing / WASP-5100:
Mode 3: 802.11 a link mode
Mode 4: 802.11 a+g link mode

e. Radiation test refer to test Matrix:

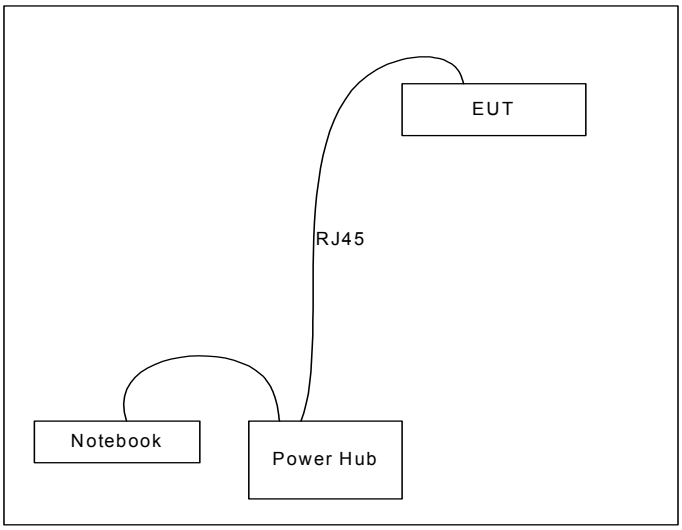
Antenna List	11 a TX f=5180/5240 MHz /above 1 GHz	11 a TX f=5180 MHz /below 1 GHz	11 a TX f=5260/5320 MHz /above 1 GHz
Antenna 1	Y	Y	Y
Antenna 6			Y
Antenna 7			Y
Antenna 8			Y

f. Frequency range investigated: conduction 150 KHz to 30 MHz, radiation 30 MHz to 40000MHz.
g. The 802.11a band I requires intergral or permauently attached antenna, only antenna 1 can comply with this requirement.

2.2 Description of Test System

Item	Asset	Model Name	Power Cord	S/N
1.	Notebook (DELL)	PP05L	N/A	SP0005

2.3 Connection Diagram of Test System



Power Hub: Symbol WS 2000

3 Operation of Equipment under Test

The following programs were executed:

one self test program ”WinLEO Version 00.33” to keep transmitting signals

4 General Information of Test

Test Site Location	:	No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiag, Tao Yuan Hsien, Taiwan, R.O.C. TEL : 886-3-327-3456 FAX : 886-3-318-0055
Test Site No	:	CO01-HY, 03CH03-HY、03CH06-HY

4.1 Test Voltage

110V/ 60Hz

4.2 Standard for Methods of Measurement

ANSI C63.4-2001

4.3 Test in Compliance with

FCC Part 15, Subpart E

4.4 Frequency Range Investigated

a. Conduction: from 150 kHz to 30 MHz
b. Radiation: from 30 MHz to 40000MHz

4.5 Test Distance

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

5 Report of Measurements and Examinations

5.1 List of Measurements and Examinations

FCC Rule	Description of Test	Result
15.407(b)(5)	Conducted Emission	Pass
15.403	Emission Bandwidth	Pass
15.407(a)(3)	Maximum Peak Output Power	Pass
15.407(b)(3)(5)	Radiated Emission	Pass
15.407(a)	Power Spectral Density	Pass
15.407(b)(3)	Band Edges Measurement	Pass
15.407(a)(3)	Antenna Requirement	Pass
15.407(a)(6)	Peak Excursion	Pass
15.407(c)	Automatically Discontinue Transmission	Pass
15.407(g)	Frequency Stability	Pass
15.407(f)	Maximum Permissible Exposure	Pass

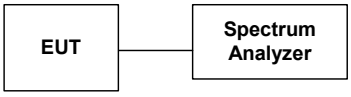
5.2 Emission Bandwidth

5.2.1 Measuring Instruments：

As described in chapter 7 of this test report.

5.2.2 Test Procedure：

The transmitter output is connected to the spectrum analyzer. The resolution bandwidth is set to approximately 1% of the emission bandwidth. For these tests, the resolution bandwidth is 300 kHz, and peak detection is used. The 26 dB bandwidth is defined as the total spectrum over which the power is higher than the peak power minus 26 dB. Test Setup Layout：



5.2.3 Test Result：The spectrum analyzer plots are attached as below

5.2.3.1 Antenna 1:

- Temperature : 25.3 °C
- Relative Humidity : 53.5%

Frequency (MHz)	26dB Emission bandwidth (MHz)	Plot Ref. No.
5180	21.4	Antenna1-1
5240	21.4	Antenna1-2
5260	41.1	Antenna1-3
5320	37	Antenna1-4

5.2.3.2 Antenna 6:

- Temperature : 25.3 °C
- Relative Humidity : 53.5%

Frequency (MHz)	26dB Emission bandwidth (MHz)	Plot Ref. No.
5260	41.2	Antenna 6-1
5320	31.6	Antenna 6-2

5.2.3.3 Antenna 7:

- Temperature : 25.3 °C
- Relative Humidity : 53.5%

Frequency (MHz)	26dB Emission bandwidth (MHz)	Plot Ref. No.
5260	49.68	Antenna 7-1
5320	39.10	Antenna 7-2

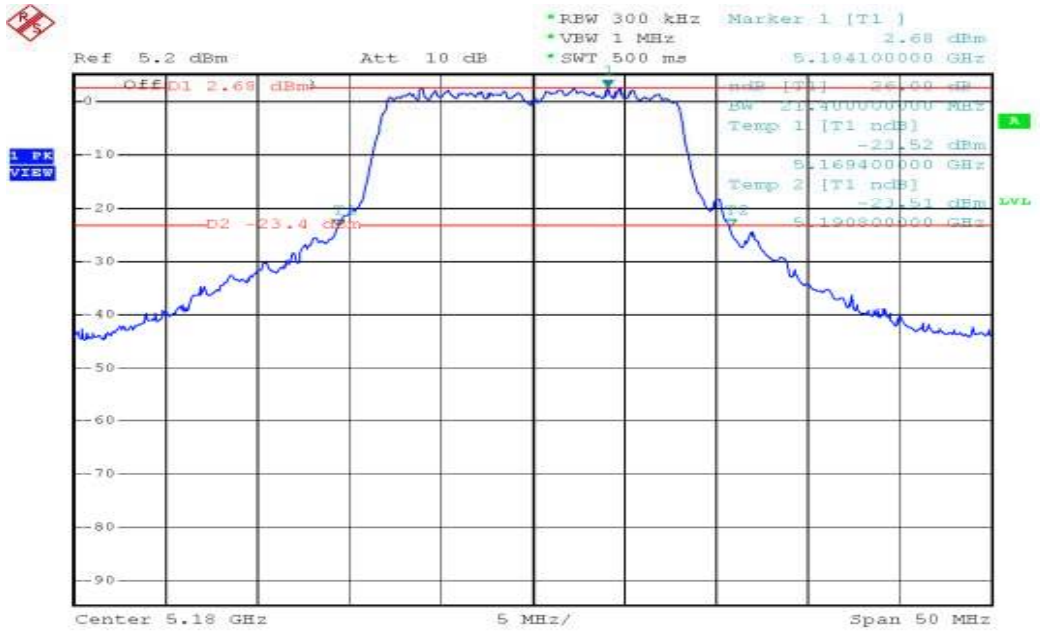
5.2.3.4 Antenna 8:

- Temperature : 25.3 °C
- Relative Humidity : 53.5%

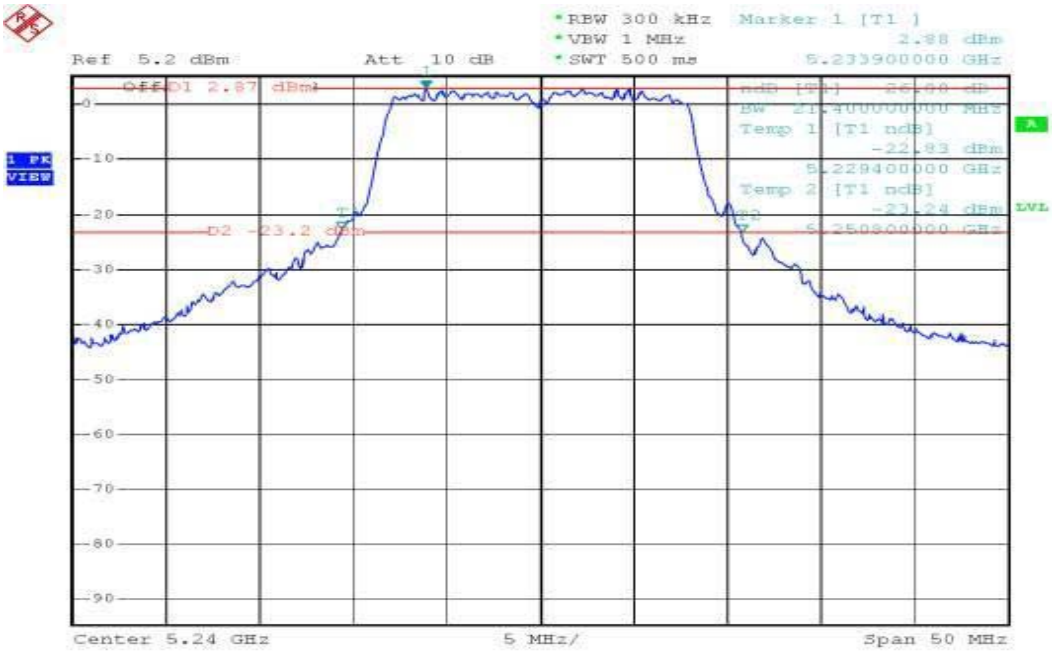
Frequency (MHz)	26dB Emission bandwidth (MHz)	Plot Ref. No.
5260	22	Antenna 8-1
5320	22	Antenna 8-2

5.2.4 Test Data

5.2.4.1 Antenna 1

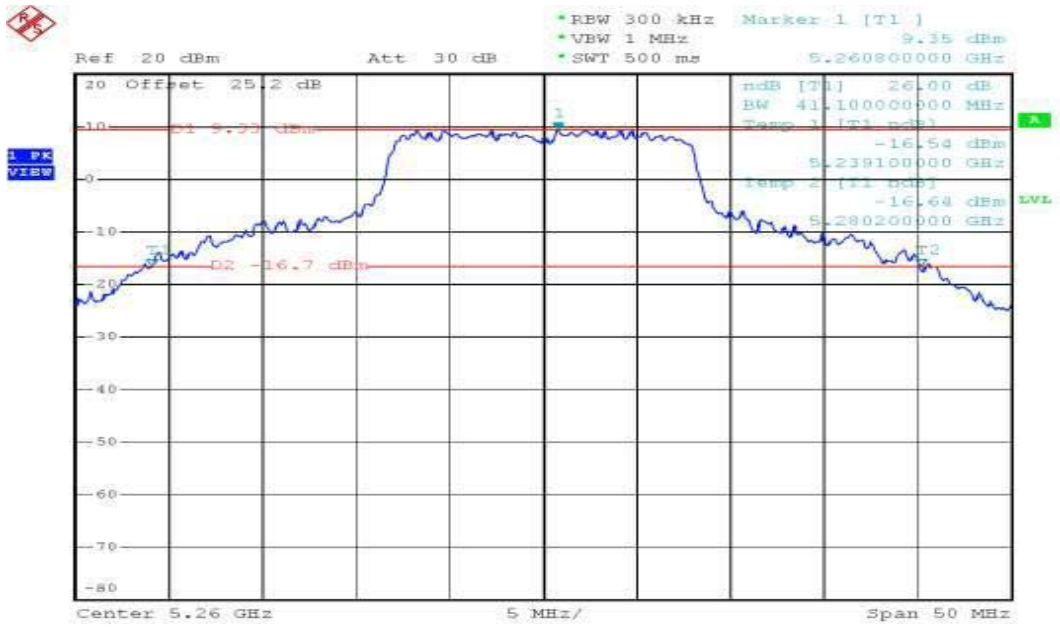


1-1

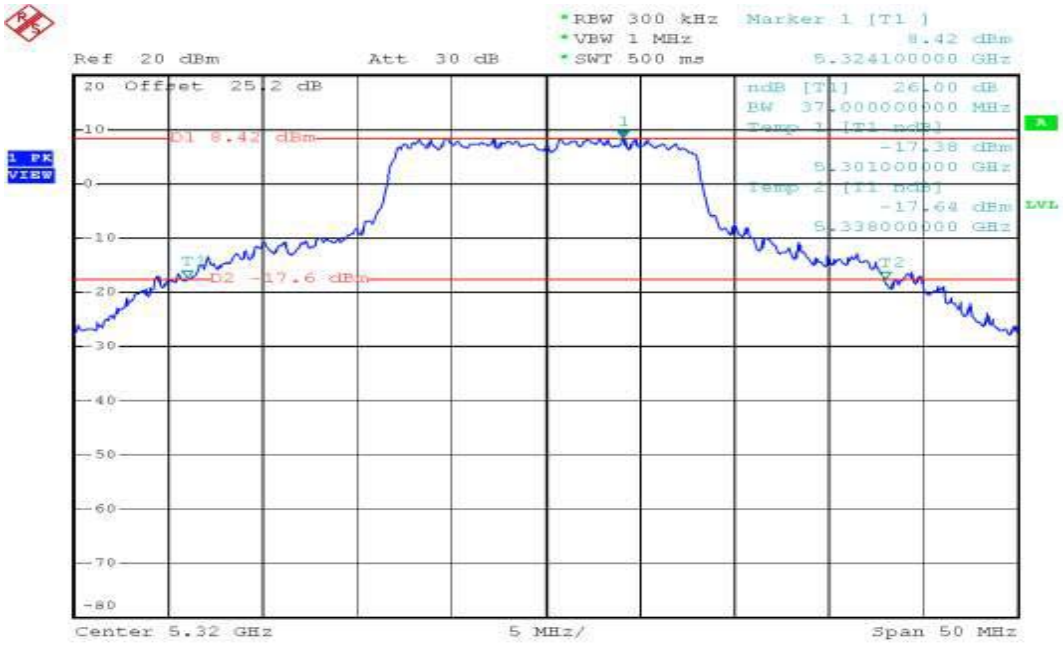


1-2

1-3

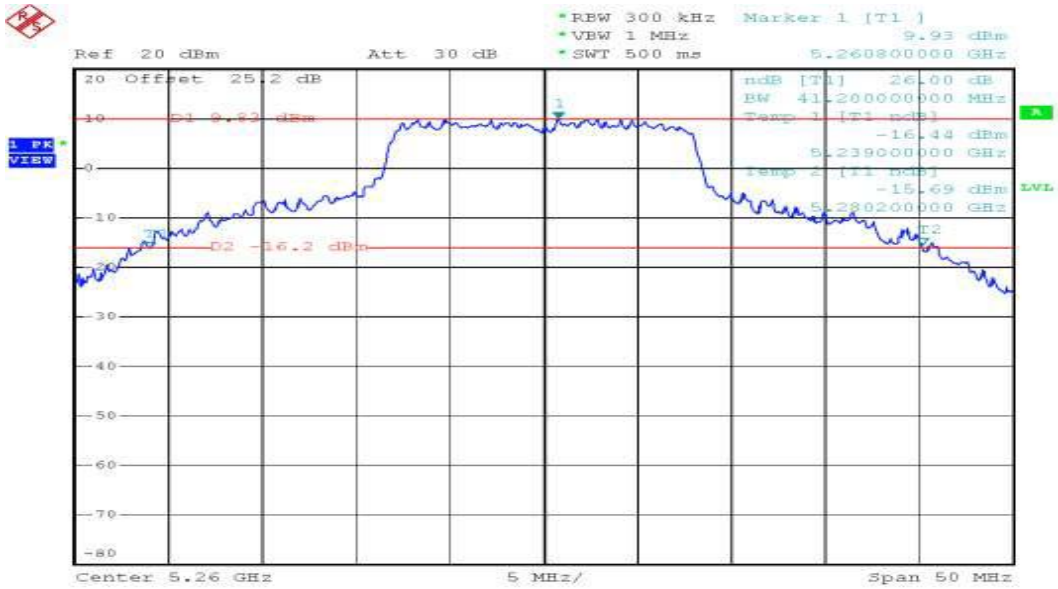

RBW 300 kHz
VBW 1 MHz
SWT 500 ms
Marker 1 [T1]
9.35 dBm
5.260800000 GHz
Ref 20 dBm
Att 30 dB
20 Offset 25.2 dB
D1 9.35 dBm
D2 -16.7 dBm
ndB [T1] 26.00 dB
BW 41.100000000 MHz
-16.54 dBm
5.239100000 GHz
-16.64 dBm
5.280200000 GHz
1 PK VIEW
A
LVL
Center 5.26 GHz
5 MHz/
Span 50 MHz

1-4

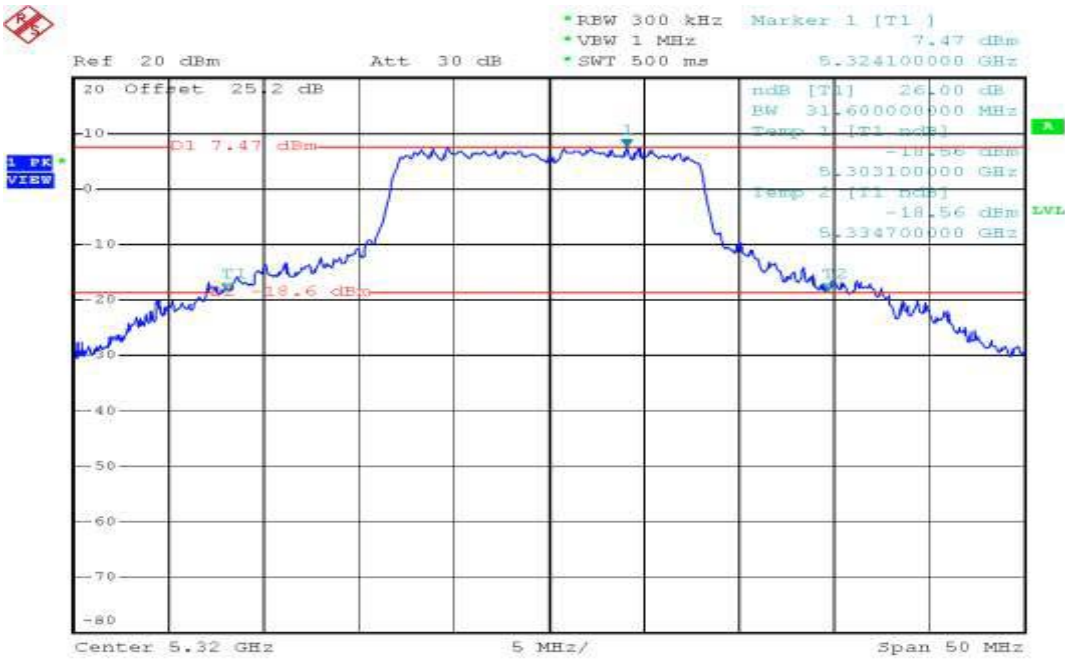

RBW 300 kHz
VBW 1 MHz
SWT 500 ms
Marker 1 [T1]
8.42 dBm
5.324100000 GHz
Ref 20 dBm
Att 30 dB
20 Offset 25.2 dB
D1 8.42 dBm
D2 -17.6 dBm
ndB [T1] 26.00 dB
BW 37.000000000 MHz
-17.38 dBm
5.301000000 GHz
-17.64 dBm
5.338000000 GHz
1 PK VIEW
A
LVL
Center 5.32 GHz
5 MHz/
Span 50 MHz

5.2.4.2 Antenna 6

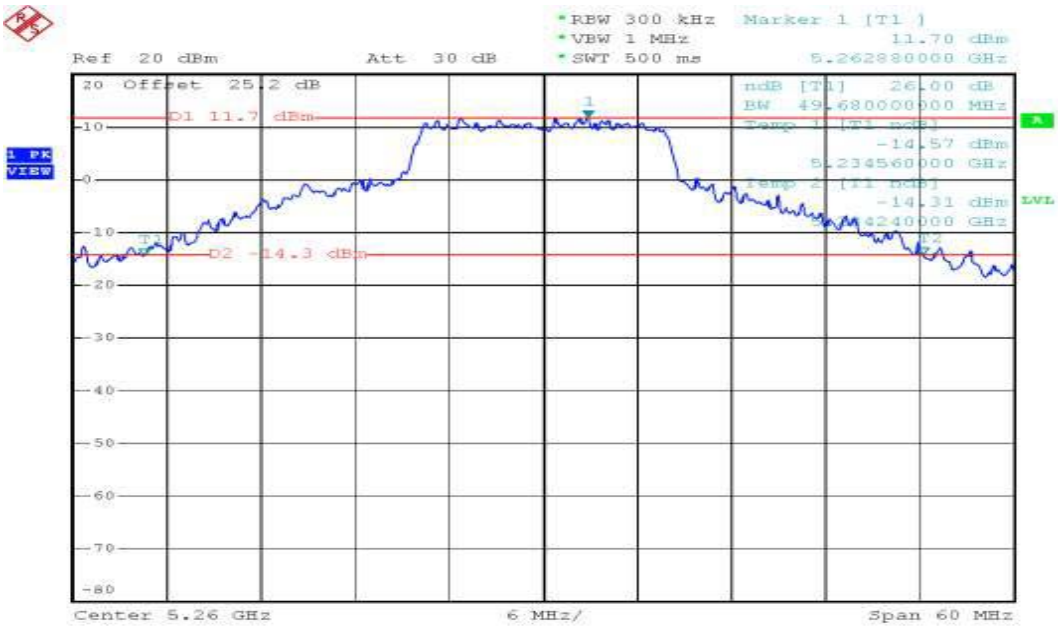
6-1



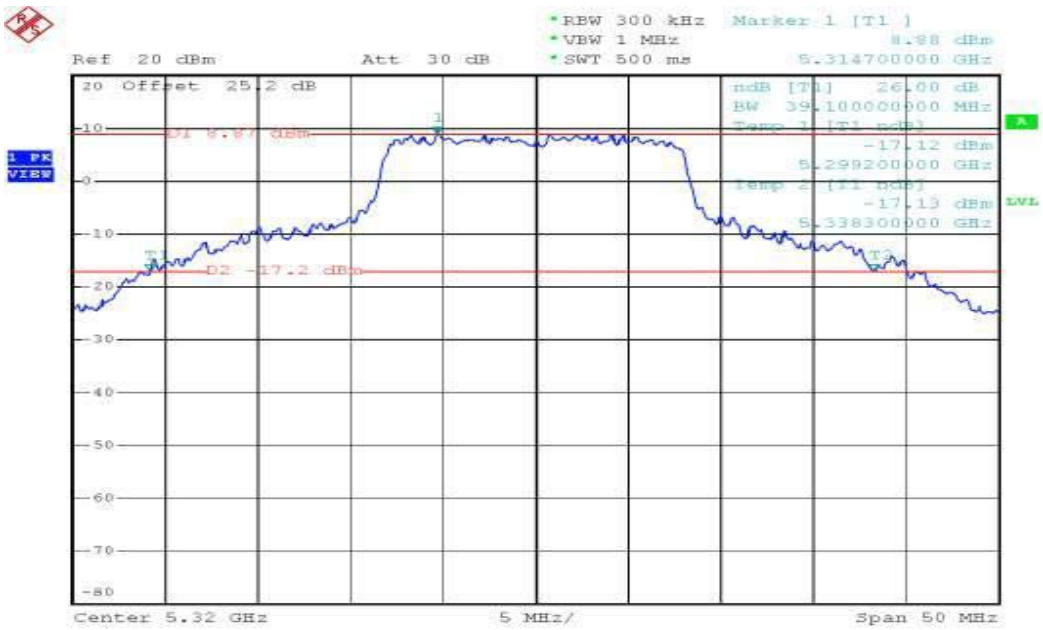
6-2



5.2.4.3 Antenna 7



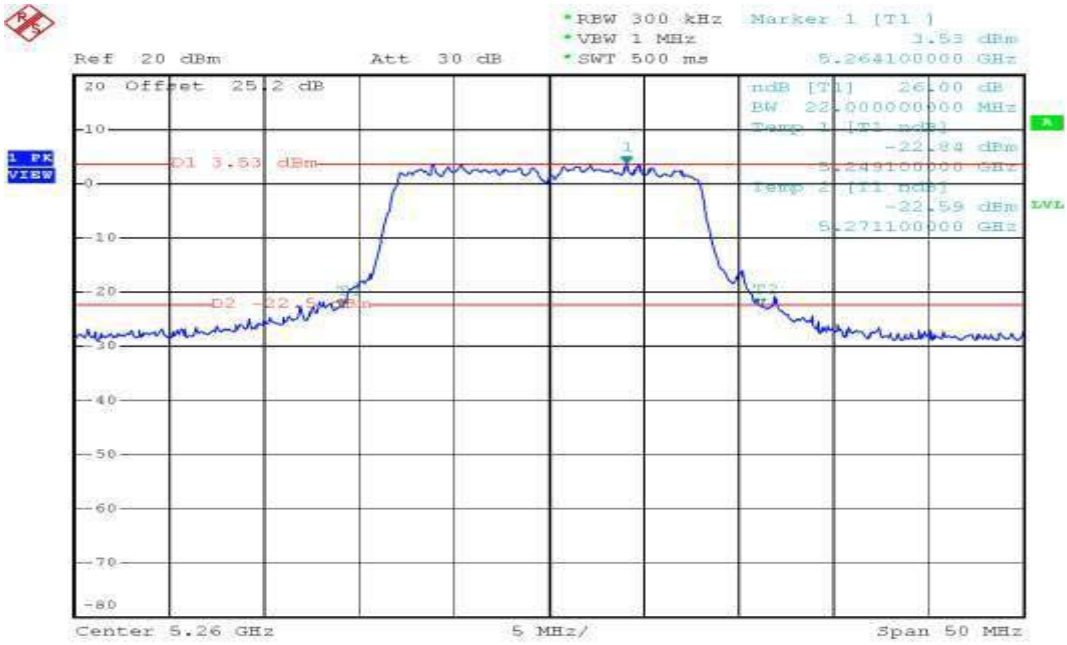
7-1



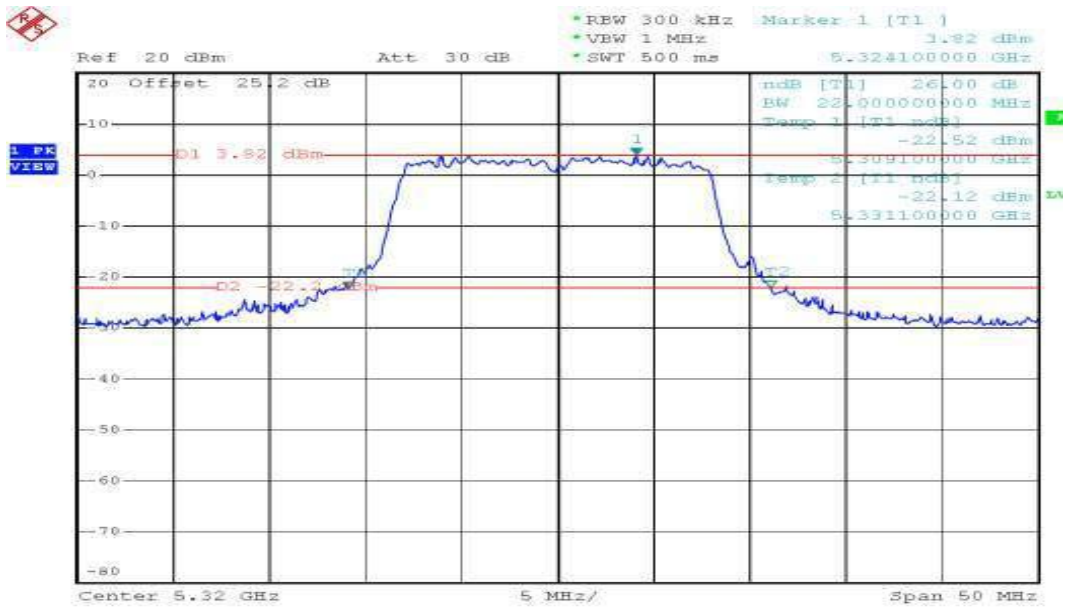
7-2

5.2.4.4 Antenna 8

8-1



8-2



5.3 Peak Output Power

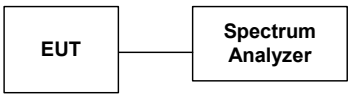
5.3.1 Measuring Instruments：

As described in chapter 7 of this test report.

5.3.2 Test Procedure：

The transmitter output is connected to the spectrum analyzer. The resolution bandwidth is set to 1 MHz, peak detection is used, and the peak power is determined by channel integration over the previously measured emissions bandwidth..

5.3.3 Test Setup Layout：



5.3.4 Test Result：See spectrum analyzer plots below

5.3.4.1 Antenna 1:

- Temperature : 25.3 °C
- Relative Humidity : 53.5%

Frequency (MHz)	Measured Output Power (dBm)	Limits (Watt/dBm)	Plot Ref. No.
5180	16.42	50mW/17 dBm	Antenna 1-1
5240	16.60	50mW/17 dBm	Antenna 1-2
5260	22.12	250mW/24 dBm	Antenna 1-3
5320	20.82	250mW/24 dBm	Antenna 1-4

Comments： The peak transmit power shall not exceed the lesser of 50mW or 4dBm+10logB in 5150~5250 band; 250mW or 11dBm+10logB in5250~5350 band.

5180MHz 4dBm + 10log(21.4 MHz) = 17.3 dBm

5240MHz 4dBm + 10log(21.4 MHz) = 17.3 dBm

5260MHz 11dBm + 10log(41.1 MHz) = 27.1 dBm

5320MHz 11Bm + 10log(37 MHz) = 26.7dBm

5.3.4.2 Antenna 6:

- Temperature : 25.3 °C
- Relative Humidity : 53.5%

Frequency (MHz)	Measured Output Power (dBm)	Limits (Watt/dBm)	Plot Ref. No.
5260	22.12	250mW/24 dBm	Antenna 6-1
5320	19.78	250mW/24 dBm	Antenna 6-2

Comments： The peak transmit power shall not exceed the lesser of 250mW or 11dBm+10logB in 5250~5350 band.

5260MHz 11dBm + 10log(41.2 MHz) = 26.7 dBm

5320MHz 11Bm + 10log(31.6 MHz) = 26.0 dBm

5.3.4.3 Antenna 7:

- Temperature : 25.3 °C
- Relative Humidity : 53.5%

Frequency (MHz)	Measured Output Power (dBm)	Limits (Watt/dBm)	Plot Ref. No.
5260	23.55	250mW/24 dBm	Antenna 7-1
5320	21.41	250mW/24 dBm	Antenna 7-2

Comments： The peak transmit power shall not exceed the lesser of 250mW or 11dBm+10logB in 5250~5350 band.

5260MHz 11dBm + 10log(49.68 MHz) = 28.0 dBm

5320MHz 11Bm + 10log(39.1 MHz) = 26.9 dBm

5.3.4.4 Antenna 8:

- Temperature : 25.3 °C
- Relative Humidity : 53.5%

Frequency (MHz)	Measured Output Power (dBm)	Limits (Watt/dBm)	Plot Ref. No.
5260	16.76	50mW/17 dBm	Antenna 8-1
5320	16.98	50mW/17 dBm	Antenna 8-2

Comments : The peak transmit power shall not exceed the lesser of 250mW or 11dBm+10logB in 5250~5350 band.

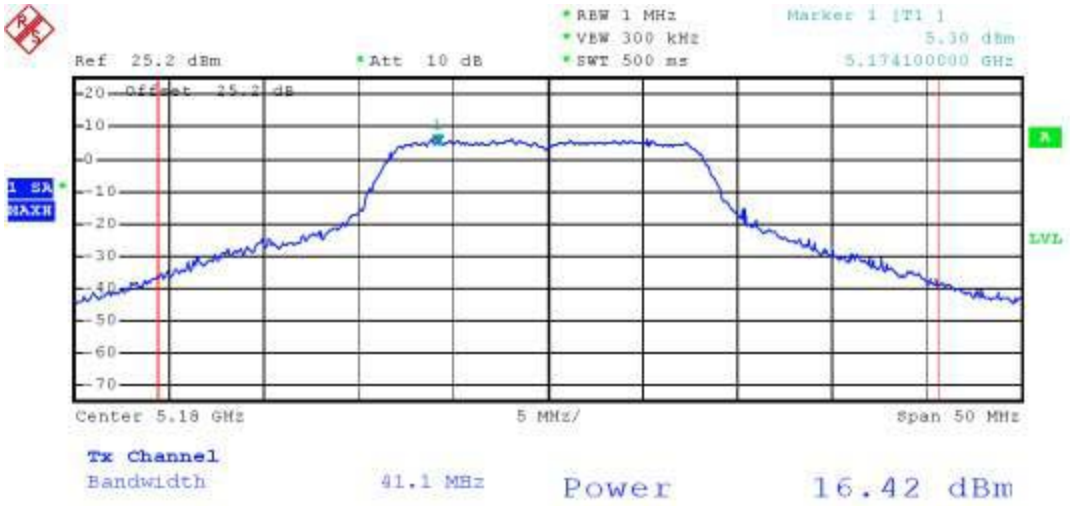
5260MHz 11dBm + 10log(22MHz) = 24.4 dBm

5320MHz 11Bm + 10log(22 MHz) = 24.4 dBm

5.3.5 Test Data

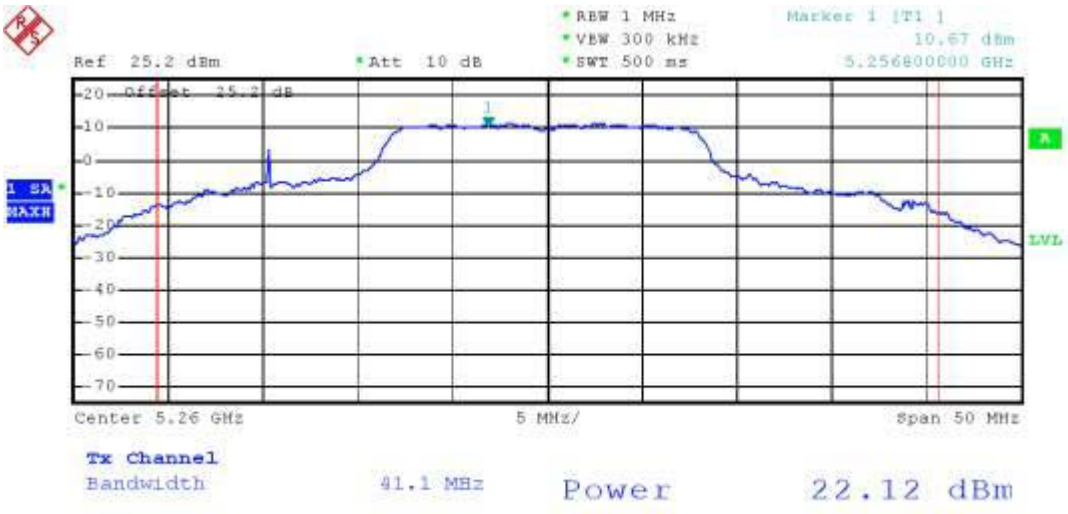
5.3.5.1 Antenna 1

1-1

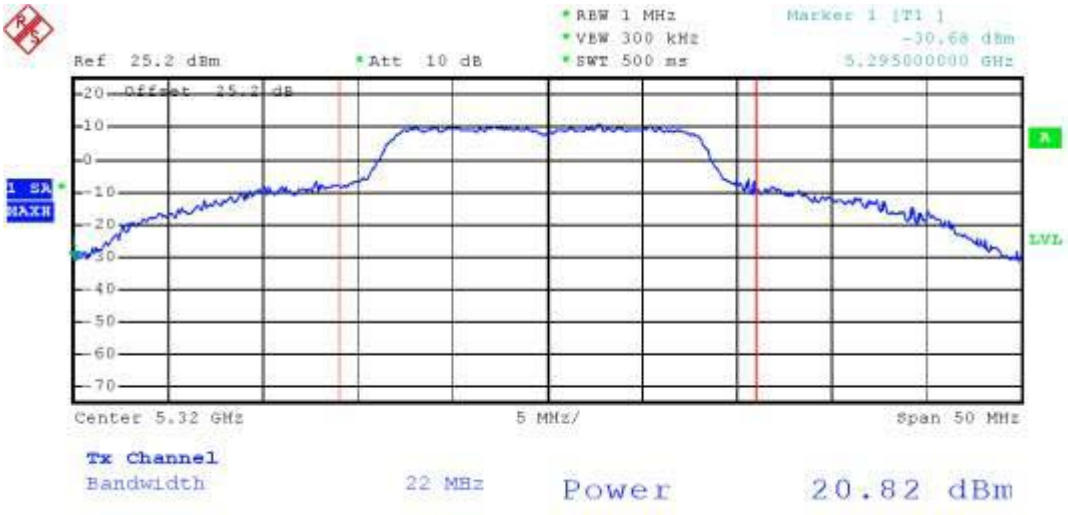


1-2

1-3

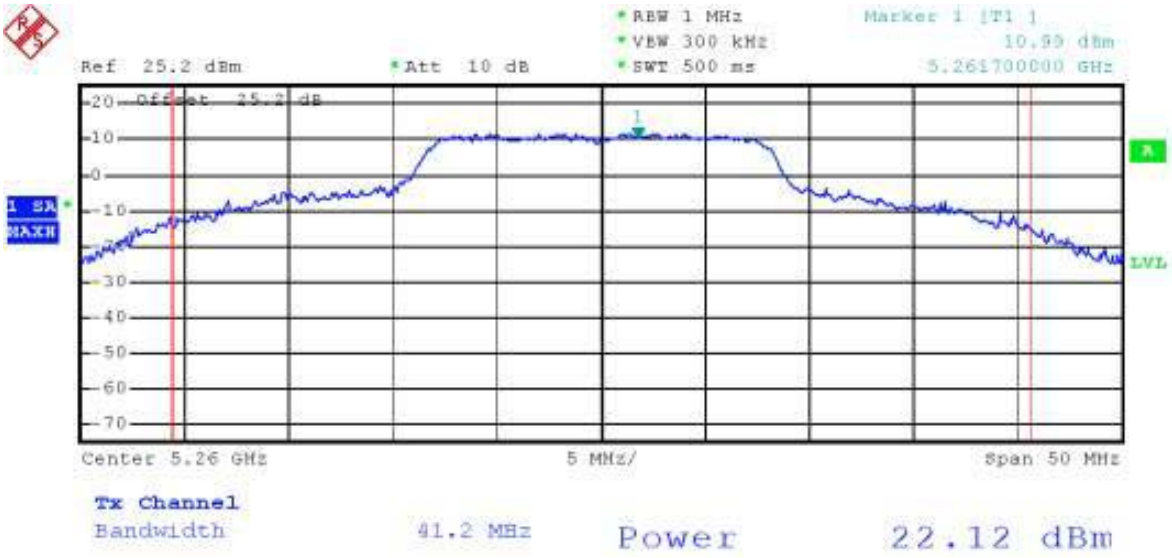

RBW 1 MHz
VBW 300 kHz
SWT 500 ms
Marker 1 [T1]
10.67 dBm
5.256800000 GHz
Ref 25.2 dBm
Att 10 dB
Offset 25.2 dB
1 SA
MAXH
A
LVL
Center 5.26 GHz
5 MHz/
Span 50 MHz
Tx Channel
Bandwidth
41.1 MHz
Power
22.12 dBm

1-4


RBW 1 MHz
VBW 300 kHz
SWT 500 ms
Marker 1 [T1]
-30.68 dBm
5.295000000 GHz
Ref 25.2 dBm
Att 10 dB
Offset 25.2 dB
1 SA
MAXH
A
LVL
Center 5.32 GHz
5 MHz/
Span 50 MHz
Tx Channel
Bandwidth
22 MHz
Power
20.82 dBm

5.3.5.2 Antenna 6

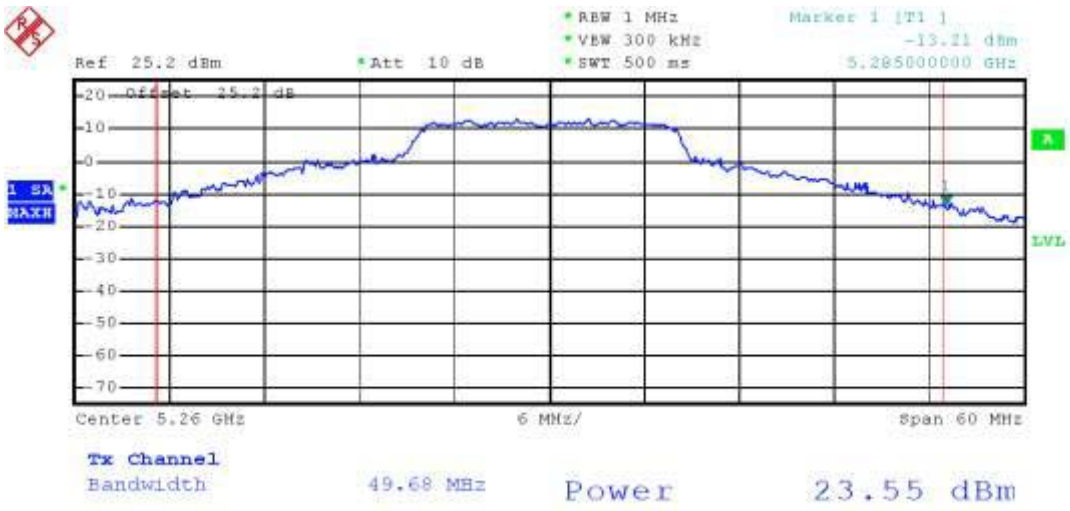
6-1



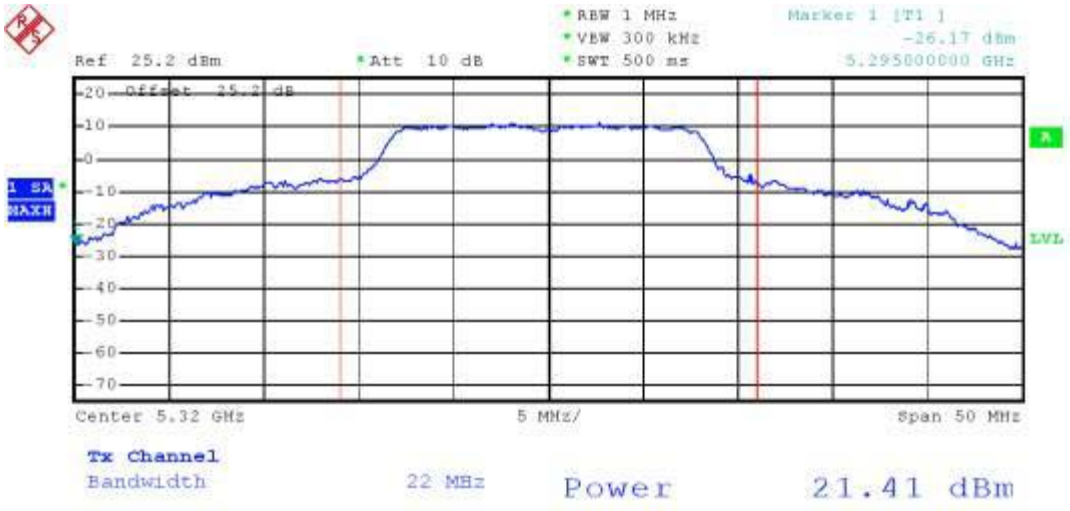
6-2

5.3.5.3 Antenna 7

7-1

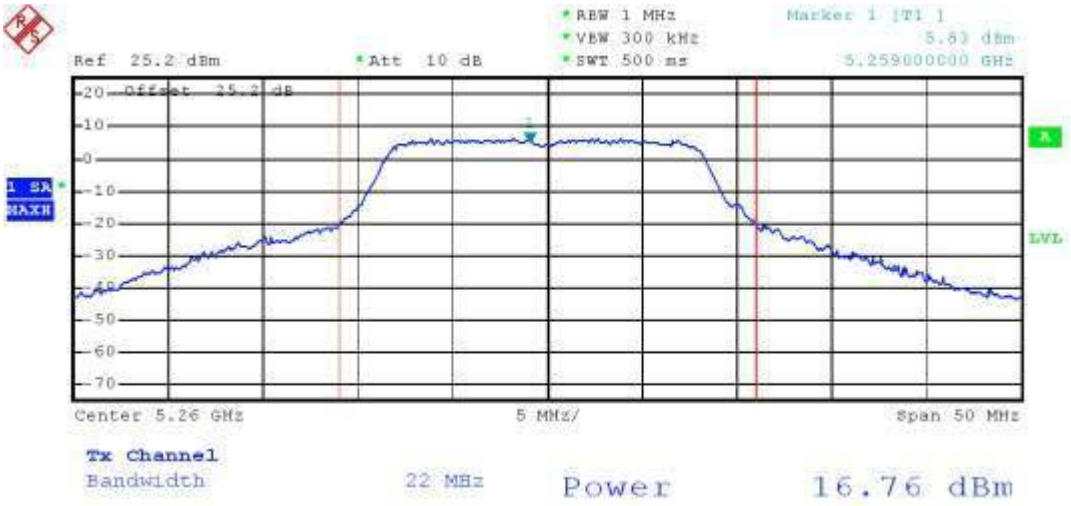


7-2

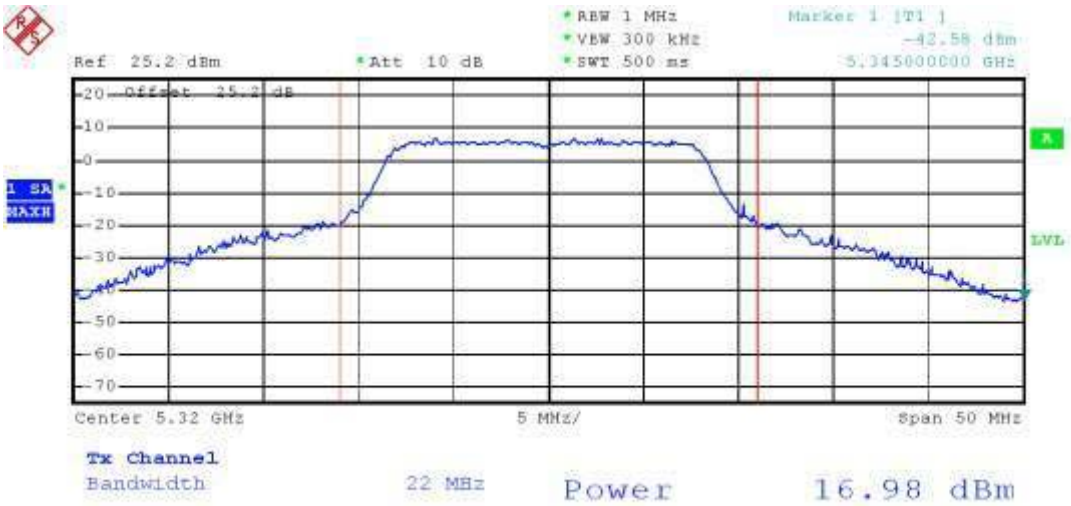


5.3.5.4 Antenna 8

8-1



8-2



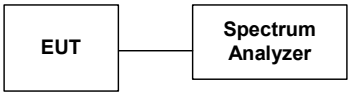
5.4 Peak Power Spectral Density

5.4.1 Measuring Instruments：

As described in chapter 7 of this test report.

5.4.2 Test Procedure：

The transmitter output is connected to the spectrum analyzer. The resolution bandwidth is set to 1 MHz, sample detection is used, and the analyzer is set for video averaging over.



5.4.3 Test Result：See spectrum analyzer plots below

5.4.3.1 Antenna 1:

- Temperature : 25.3 °C
- Relative Humidity : 53.5%

Frequency (MHz)	Power Spectral Density (dBm)	Limits (dBm)	Plot Ref. No.
5180	-0.60	4	Antenna 1-1
5240	-0.76	4	Antenna 1-2
5260	3.59	11	Antenna 1-3
5320	3.22	11	Antenna 1-4

5.4.3.2 Antenna 6:

- Temperature : 25.3 °C
- Relative Humidity : 53.5%

Frequency (MHz)	Power Spectral Density (dBm)	Limits (dBm)	Plot Ref. No.
5260	5.46	11	Antenna 6-1
5320	5.30	11	Antenna 6-2

5.4.3.3 Antenna 7:

- Temperature : 25.3 °C
- Relative Humidity : 53.5%

Frequency (MHz)	Power Spectral Density (dBm)	Limits (dBm)	Plot Ref. No.
5260	5.38	11	Antenna 7-1
5320	5.05	11	Antenna 7-2

5.4.3.4 Antenna 8:

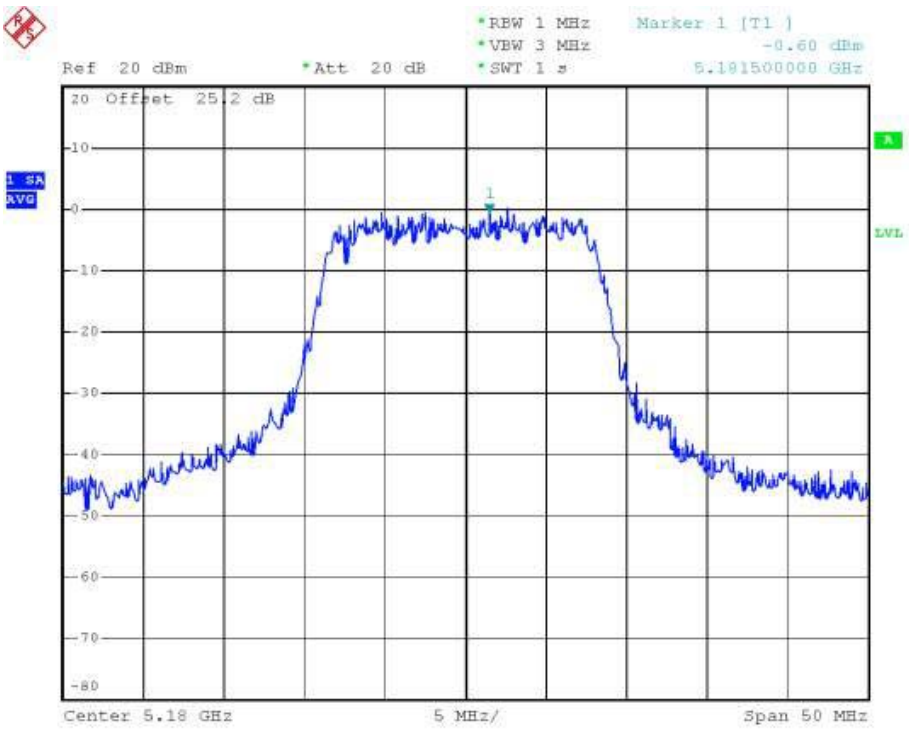
- Temperature : 25.3 °C
- Relative Humidity : 53.5%

Frequency (MHz)	Power Spectral Density (dBm)	Limits (dBm)	Plot Ref. No.
5260	-2.4	11	Antenna 8-1
5320	1.25	11	Antenna 8-2

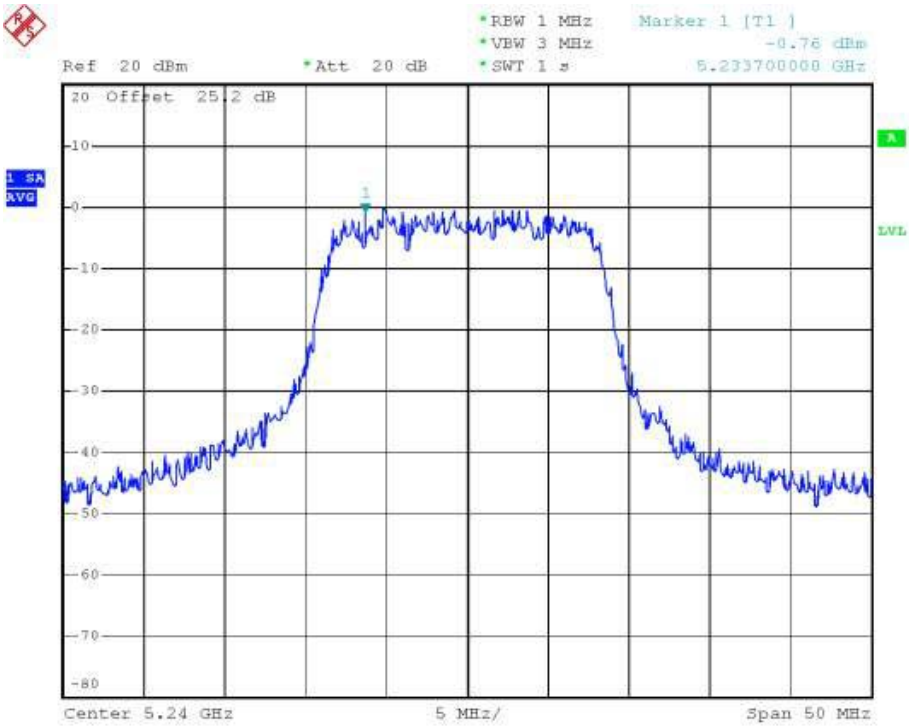
5.4.4 Test Data

5.4.4.1 Antenna 1

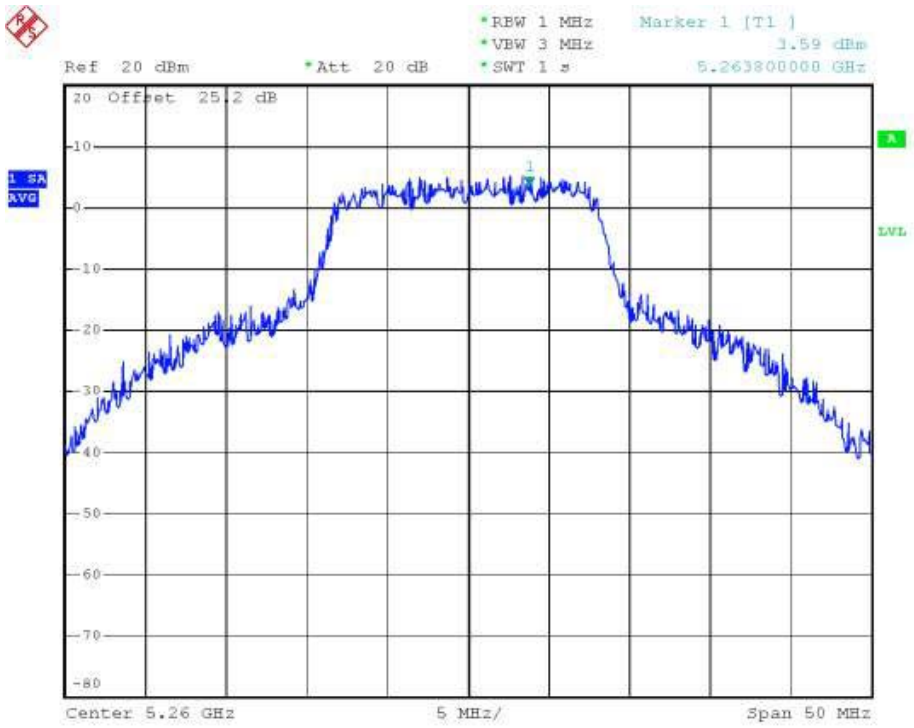
1-1



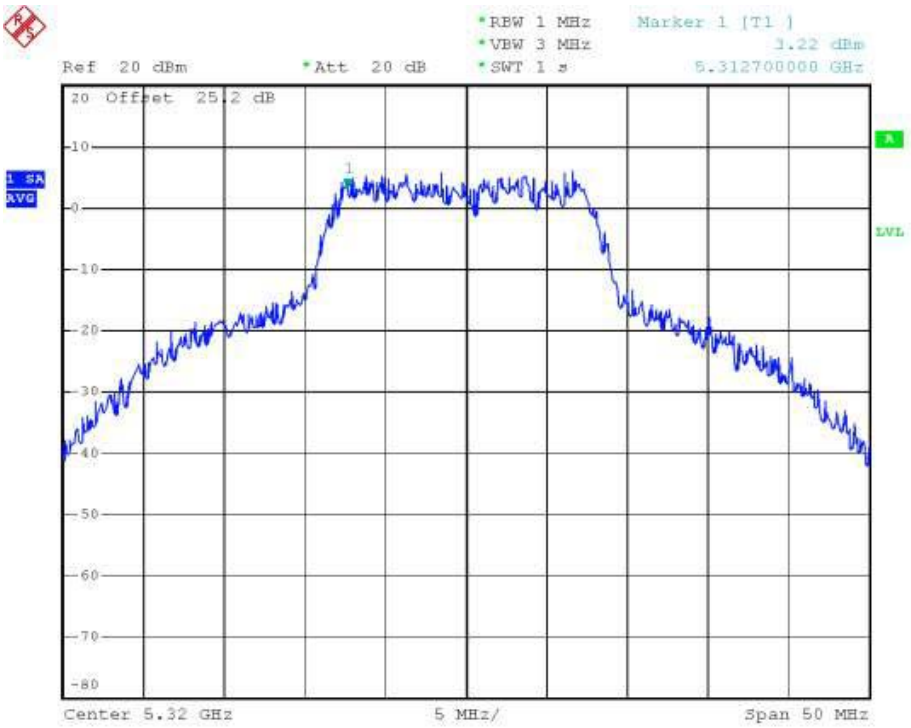
1-2



1-3

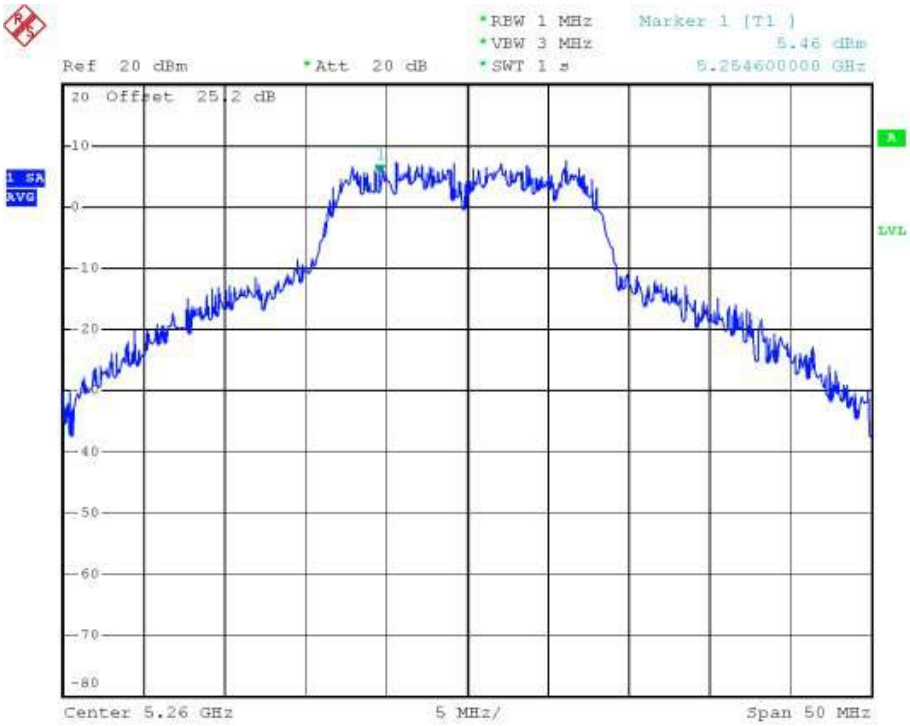

RBW 1 MHz
VBW 3 MHz
SWT 1 s
Marker 1 [T1]
3.59 dBm
5.263800000 GHz
Ref 20 dBm
Att 20 dB
Offset 25.2 dB
1 SA
AVG
A
LVL
Center 5.26 GHz
5 MHz/
Span 50 MHz

1-4

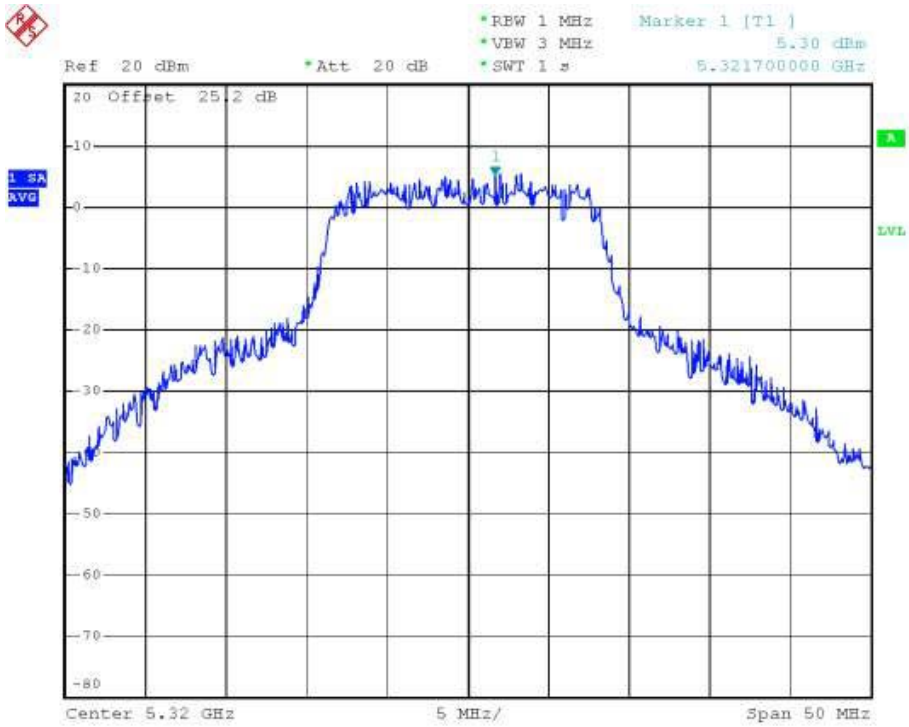

RBW 1 MHz
VBW 3 MHz
SWT 1 s
Marker 1 [T1]
3.22 dBm
5.312700000 GHz
Ref 20 dBm
Att 20 dB
Offset 25.2 dB
1 SA
AVG
A
LVL
Center 5.32 GHz
5 MHz/
Span 50 MHz

5.4.4.2 Antenna 6

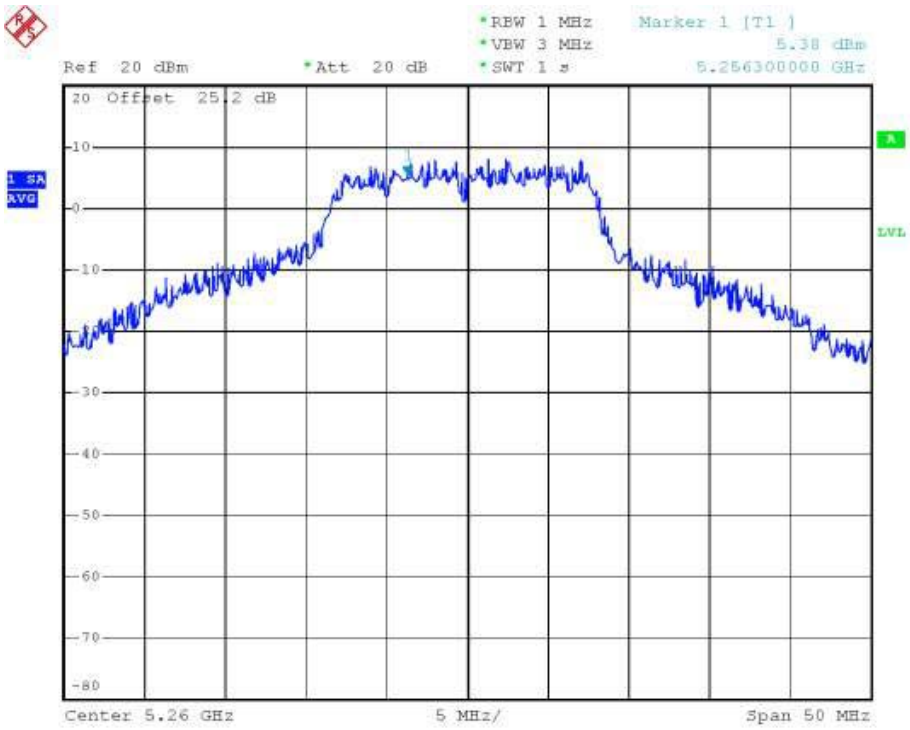
6-1



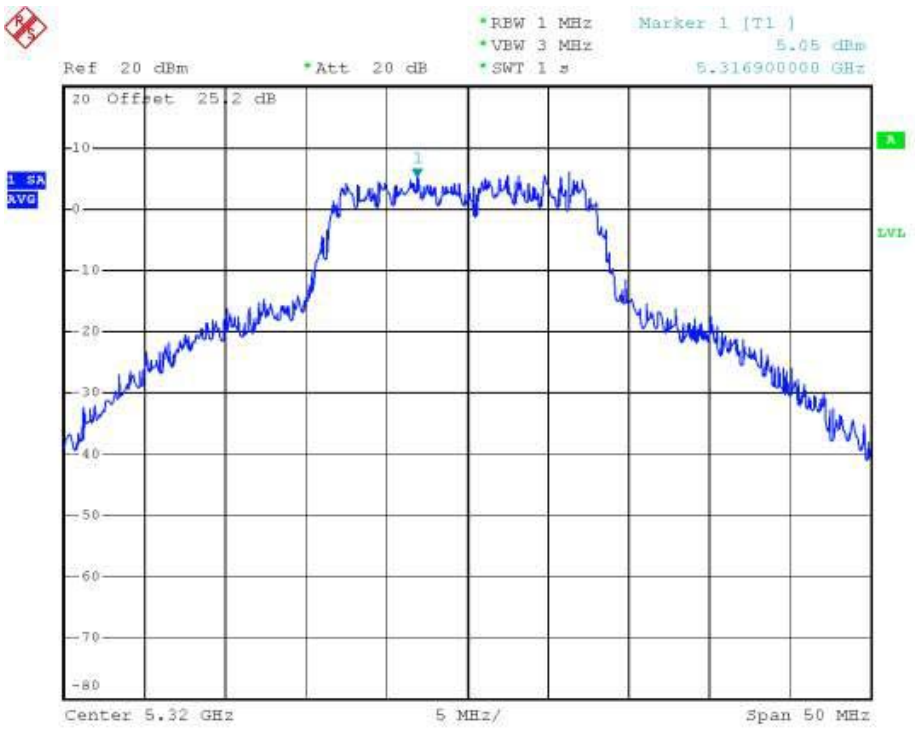
6-2



5.4.4.3 Antenna 7



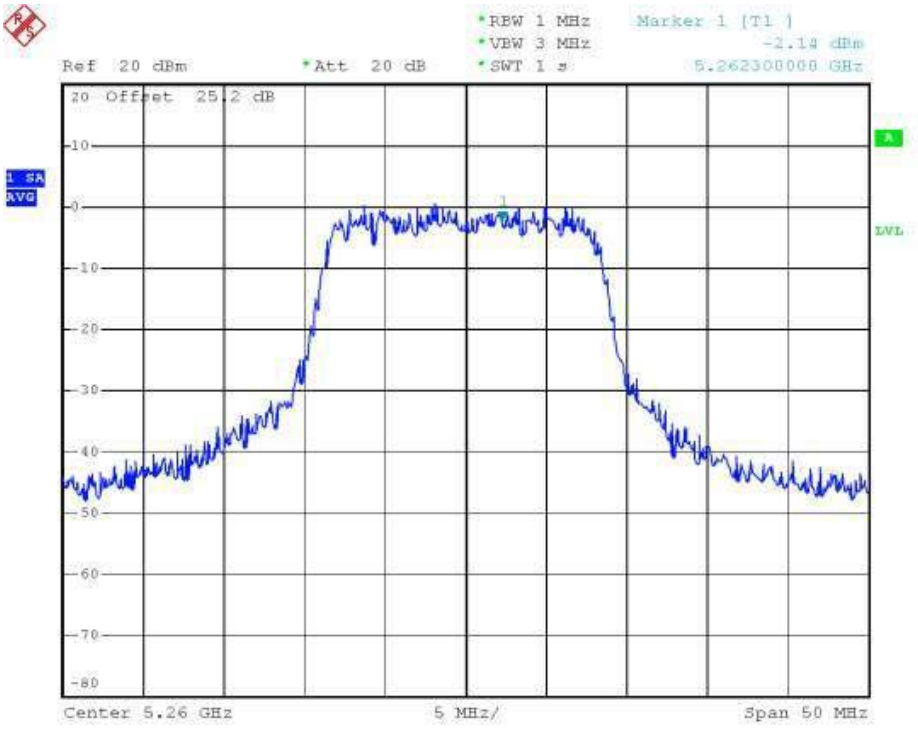
7-1



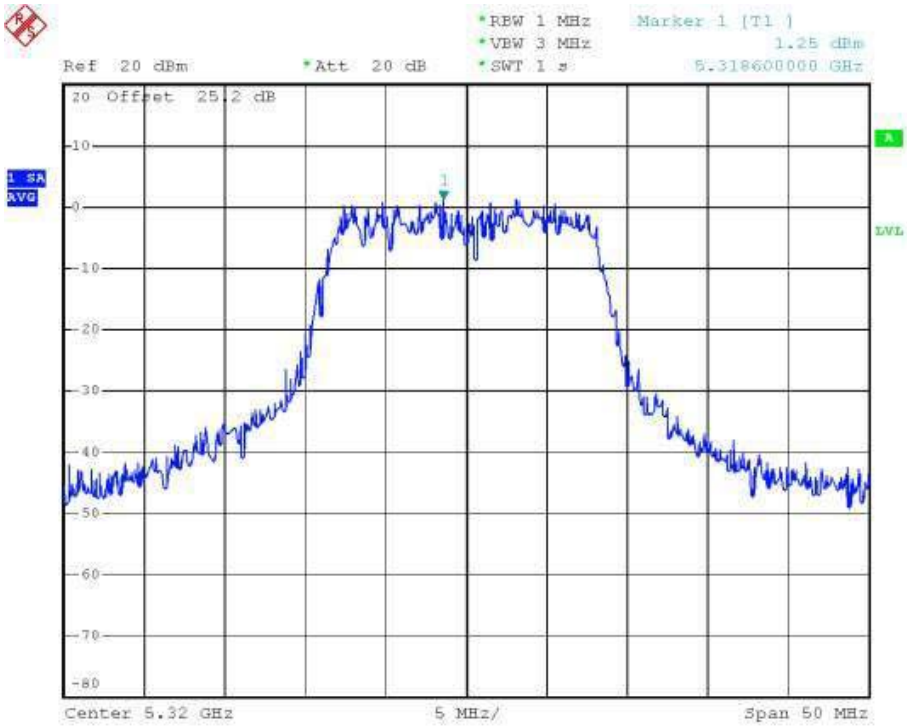
7-2

5.4.4.4 Antenna 8

8-1



8-2



5.5 Test of Conducted Emission

Conducted Emissions were measured from 150 KHz to 30 MHz with a bandwidth of 9 KHz and return leads of the EUT according to the methods defined in ANSI C63.4-2001 Section 3.1. The EUT was placed on a nonmetallic stand in a shielded room 0.8 meters above the ground plane. The interface cables and equipment positioning were varied within limits of reasonable applications to determine the position produced maximum conducted emissions.

5.5.1 Major Measuring Instruments：

● Test Receiver	(R&S ESCS 30)
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 KHz

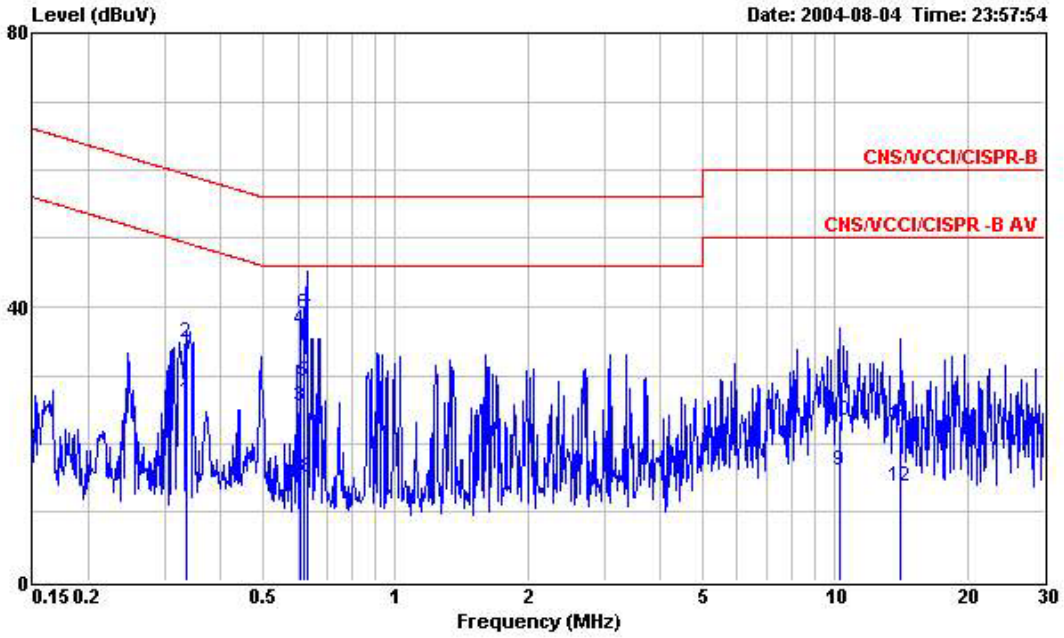
5.5.2 Test Procedures：

a. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
b. Connect EUT to the power mains through a line impedance stabilization network (LISN).
c. All the support units are connect to the other LISN.
d. The LISN provides 50 ohm coupling impedance for the measuring instrument.
e. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
f. Both sides of AC line were checked for maximum conducted interference.
g. The frequency range from 150 KHz to 30 MHz was searched.
h. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

5.5.3 Test Result of Conducted Emission：

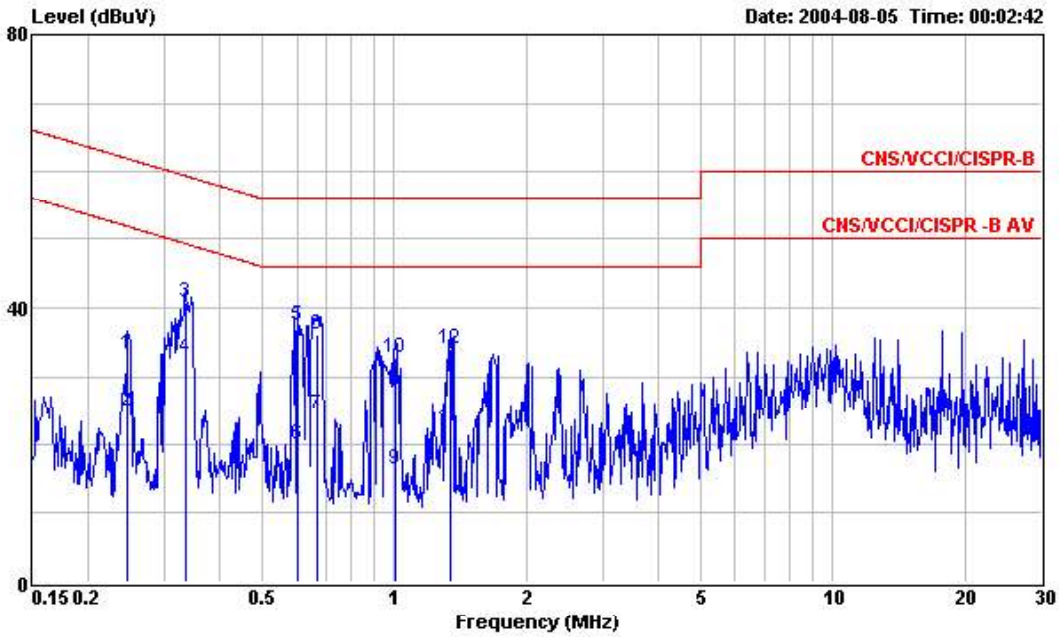
- Frequency Range of Test : from 150KHz to 30 MHz.
- Test Mode : Mode 1
- Temperature : 25.5°C
- Relative Humidity : 52 %

■ The test was passed at the minimum margin that marked by the frame in the following table



Site : CO01-HY
Condition : CNS/VCCI/CISPR-B 2003 2001/008 LINE
EUT : 802.11a/b/g Access Point
Power : 120Vac/60Hz
Model : WASP-5110
Memo : 802.11 a link mode

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.334	26.20	-23.15	49.35	26.08	0.10	0.02	Average
2	0.334	34.91	-24.44	59.35	34.79	0.10	0.02	QP
3	0.610	25.50	-20.50	46.00	25.37	0.10	0.03	Average
4	0.610	36.63	-19.37	56.00	36.50	0.10	0.03	QP
5	0.618	28.98	-17.02	46.00	28.85	0.10	0.03	Average
6	0.618	38.93	-17.07	56.00	38.80	0.10	0.03	QP
7	0.630	38.25	-17.75	56.00	38.12	0.10	0.03	QP
8	0.630	15.03	-30.97	46.00	14.90	0.10	0.03	Average
9	10.230	16.08	-33.92	50.00	15.78	0.20	0.10	Average
10	10.230	23.33	-36.67	60.00	23.03	0.20	0.10	QP
11	14.140	22.67	-37.33	60.00	22.35	0.20	0.12	QP
12	14.140	13.77	-36.23	50.00	13.45	0.20	0.12	Average



Site : CO01-HY
Condition : CNS/VCCI/CISPR-B 2003 2001/008 NEUTRAL
EUT : 802.11a/b/g Access Point
Power : 120Vac/60Hz
Model : WASP-5110
Memo : 802.11 a link mode

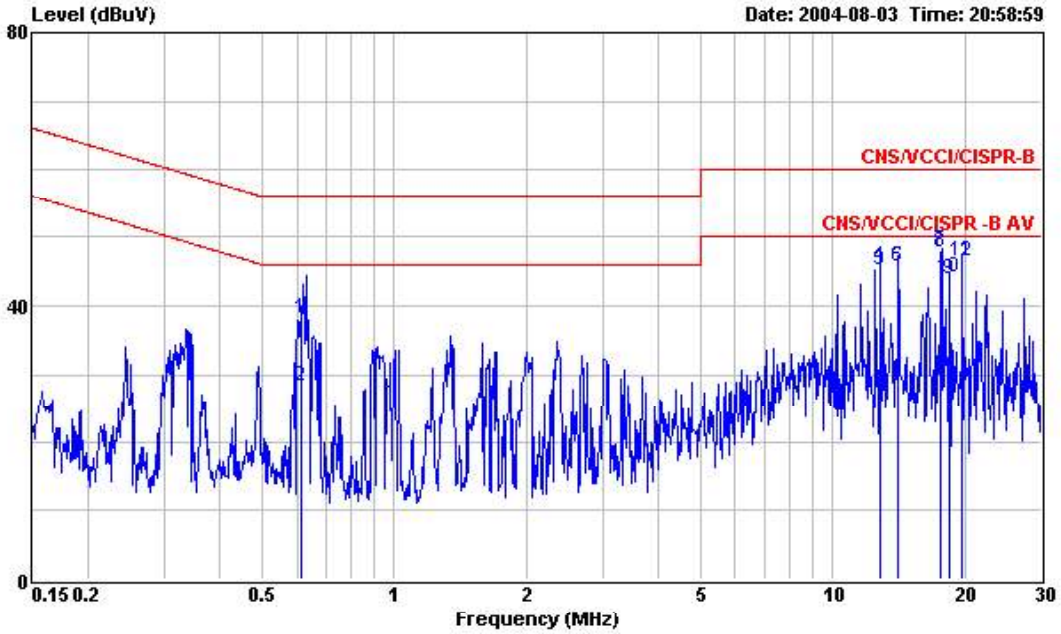
	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.247	33.17	-28.69	61.86	33.05	0.10	0.02	QP
2	0.247	24.96	-26.90	51.86	24.84	0.10	0.02	Average
3	0.334	40.81	-18.54	59.35	40.69	0.10	0.02	QP
4	0.334	32.68	-16.67	49.35	32.56	0.10	0.02	Average
5	0.601	37.41	-18.59	56.00	37.28	0.10	0.03	QP
6	0.601	19.87	-26.13	46.00	19.74	0.10	0.03	Average
7	0.665	24.46	-21.54	46.00	24.32	0.10	0.04	Average
8	0.665	36.02	-19.98	56.00	35.88	0.10	0.04	QP
9	1.010	16.27	-29.73	46.00	16.13	0.10	0.04	Average
10	1.010	32.60	-23.40	56.00	32.46	0.10	0.04	QP
11	1.340	22.47	-23.53	46.00	22.31	0.10	0.06	Average
12	1.340	34.15	-21.85	56.00	33.99	0.10	0.06	QP

Test Engineer : Jones Tsai

Jones Tsai

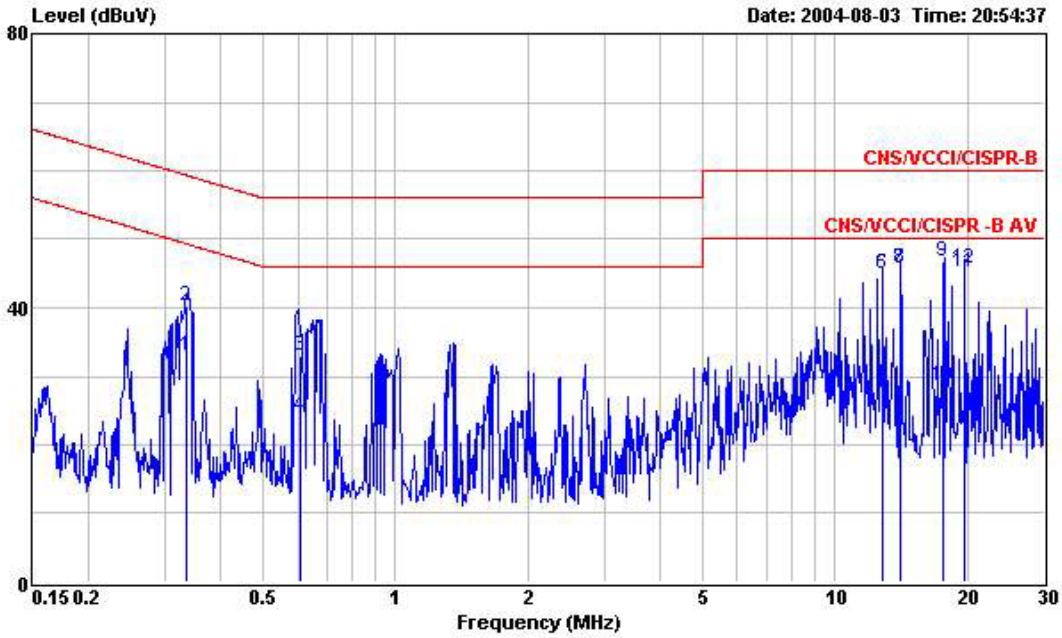
- Frequency Range of Test : from 150KHz to 30 MHz.
- Test Mode : Mode 2
- Temperature : 25.5°C
- Relative Humidity : 52 %

■ The test was passed at the minimum margin that marked by the frame in the following table



Site : CO01-HY
Condition : CNS/VCCI/CISPR-B 2003 2001/008 LINE
EUT : 802.11a/b/g Access Point
Power : 120Vac/60Hz
Model : WASP-5110
Memo : 802.11 a+g link mode

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.611	38.08	-17.92	56.00	37.95	0.10	0.03	QP
2	0.611	28.35	-17.65	46.00	28.22	0.10	0.03	Average
3	12.808	45.27	-14.73	60.00	44.96	0.20	0.11	QP
4	12.808	45.81	-4.19	50.00	45.50	0.20	0.11	Average
5	14.153	45.79	-14.21	60.00	45.47	0.20	0.12	QP
6	14.153	45.68	-4.32	50.00	45.36	0.20	0.12	Average
7	17.694	48.04	-1.96	50.00	47.64	0.26	0.14	Average
8	17.694	47.78	-12.22	60.00	47.38	0.26	0.14	QP
9	18.490	43.94	-16.06	60.00	43.53	0.27	0.14	QP
10	18.490	44.05	-5.95	50.00	43.64	0.27	0.14	Average
11	19.710	46.41	-13.59	60.00	45.96	0.30	0.15	QP
12	19.710	46.58	-3.42	50.00	46.13	0.30	0.15	Average



Site : CO01-HY
Condition : CNS/VCCI/CISPR-B 2003 2001/008 NEUTRAL
EUT : 802.11a/b/g Access Point
Power : 120Vac/60Hz
Model : WASP-5110
Memo : 802.11 a+g link mode

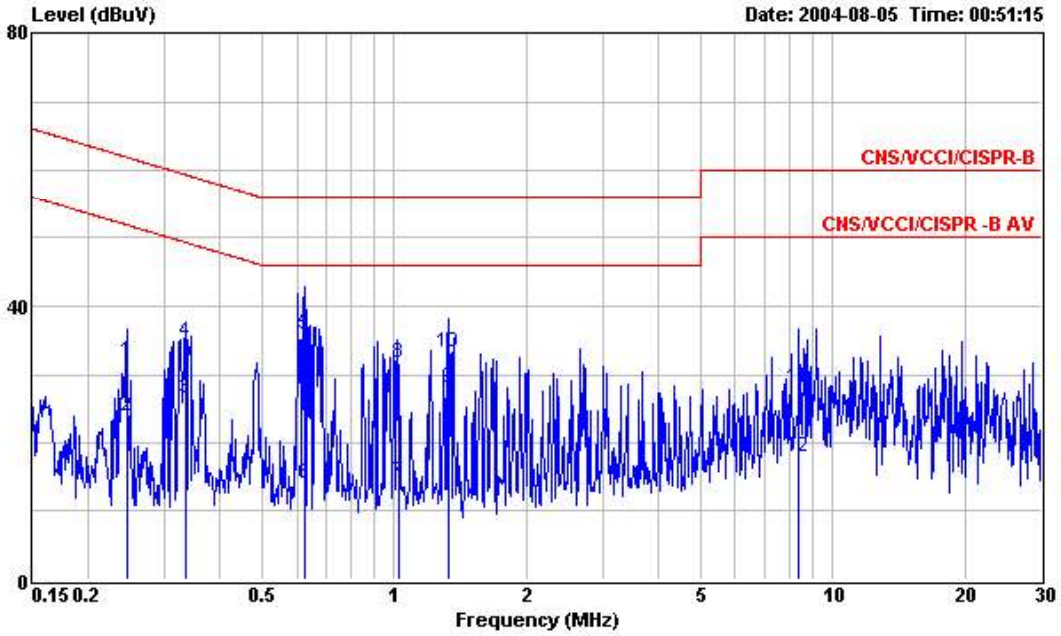
	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.336	32.88	-16.43	49.31	32.76	0.10	0.02	Average
2	0.336	40.37	-18.94	59.31	40.25	0.10	0.02	QP
3	0.611	32.92	-23.08	56.00	32.79	0.10	0.03	QP
4	0.611	24.22	-21.78	46.00	24.09	0.10	0.03	Average
5	12.810	44.94	-15.06	60.00	44.57	0.26	0.11	QP
6	12.810	44.81	-5.19	50.00	44.44	0.26	0.11	Average
7	14.152	45.63	-14.37	60.00	45.22	0.29	0.12	QP
8	14.152	45.76	-4.24	50.00	45.35	0.29	0.12	Average
9	17.695	46.82	-13.18	60.00	46.38	0.30	0.14	QP
10	17.695	28.52	-21.48	50.00	28.08	0.30	0.14	Average
11	19.710	45.28	-14.72	60.00	44.83	0.30	0.15	QP
12	19.710	45.78	-4.22	50.00	45.33	0.30	0.15	Average

Test Engineer : Jones Tsai

Jones Tsai

- Frequency Range of Test : from 150KHz to 30 MHz.
- Test Mode : Mode 3
- Temperature : 25.5°C
- Relative Humidity : 52 %

■ The test was passed at the minimum margin that marked by the frame in the following table



Site : CO01-HY
Condition : CNS/VCCI/CISPR-B 2003 2001/008 LINE
EUT : 802.11a/b/g Access Point
Power : 120Vac/60Hz
Model : WASP-5100
Memo : 802.11 a link mode

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.246	32.03	-29.86	61.89	31.91	0.10	0.02	QP
2	0.246	23.86	-28.03	51.89	23.74	0.10	0.02	Average
3	0.334	26.37	-22.98	49.35	26.25	0.10	0.02	Average
4	0.334	34.79	-24.56	59.35	34.67	0.10	0.02	QP
5	0.627	35.88	-20.12	56.00	35.75	0.10	0.03	QP
6	0.627	14.14	-31.86	46.00	14.01	0.10	0.03	Average
7	1.020	14.39	-31.61	46.00	14.25	0.10	0.04	Average
8	1.020	31.70	-24.30	56.00	31.56	0.10	0.04	QP
9	1.330	27.93	-18.07	46.00	27.77	0.10	0.06	Average
10	1.330	33.17	-22.83	56.00	33.01	0.10	0.06	QP
11	8.370	27.94	-32.06	60.00	27.66	0.18	0.10	QP
12	8.370	17.80	-32.20	50.00	17.52	0.18	0.10	Average