

FCC RF Test Report

APPLICANT : HTC Corporation
EQUIPMENT : Pocket PC Phone
MODEL NAME : PB81120
FCC ID : NM8PB81120
STANDARD : FCC Part 15 Subpart C §15.247
CLASSIFICATION : Digital Transmission System (DTS)

The product was received on Nov. 20, 2009 and completely tested on Dec. 18, 2009. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.4-2003 and shown the compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by:



Roy Wu / Manager



SPORTON INTERNATIONAL INC.

No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.



TABLE OF CONTENTS

REVISION HISTORY	3
SUMMARY OF TEST RESULT	4
1 GENERAL DESCRIPTION	5
1.1 Applicant	5
1.2 Manufacturer	5
1.3 Feature of Equipment Under Test	5
1.4 Testing Site	6
1.5 Applied Standards	6
1.6 Ancillary Equipment List	6
2 TEST CONFIGURATION OF EQUIPMENT UNDER TEST	7
2.1 RF Power	7
2.2 Test Mode	8
2.3 Connection Diagram of Test System	9
2.4 RF Utility	9
3 TEST RESULT	10
3.1 6dB Bandwidth Measurement	10
3.2 Output Power Measurement	15
3.3 Band Edges Measurement	17
3.4 Spurious Emission Measurement	23
3.5 Power Spectral Density Measurement	30
3.6 AC Conducted Emission Measurement	35
3.7 Radiated Emission Measurement	39
3.8 Antenna Requirements	56
4 LIST OF MEASURING EQUIPMENT	57
5 UNCERTAINTY OF EVALUATION	58
6 CERTIFICATION OF TAF ACCREDITATION	60
APPENDIX A. PHOTOGRAPHS OF EUT	
APPENDIX B. SETUP PHOTOGRAPHS	



REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR961306-05B	Rev. 01	Initial issue of report	Jan. 05, 2010

SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.247(a)(2)	A8.2(a)	6dB Bandwidth	$\geq 0.5\text{MHz}$	Pass	-
3.2	15.247(b)	A8.4	Power Output	$\leq 30\text{dBm}$	Pass	-
3.3	15.247(d)	A8.5	Frequency Band Edges	$\leq 20\text{dBc}$	Pass	-
3.4	15.247(d)	A8.5	Spurious Emission	$< 20\text{ dBc}$	Pass	-
3.5	15.247(e)	A8.2(b)	Power Spectral Density	$\leq 8\text{dBm}$	Pass	-
3.6	15.207	Gen 7.2.2	AC Conducted Emission	15.207(a)	Pass	Under limit 7.8 dB at 0.31 MHz
3.7	15.247(d)	A8.5	Transmitter Radiated Emission	15.209(a) & 15.247(d)	Pass	Under limit 3.26 dB at 31.62 MHz
3.8	15.203 & 15.247(b)	A8.4	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

HTC Corporation

No. 23, Xinghua Rd., Taoyuan 330, Taiwan

1.2 Manufacturer

HTC Corporation

No. 23, Xinghua Rd., Taoyuan 330, Taiwan

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	Pocket PC Phone
Model Name	PB81120
FCC ID	NM8PB81120
Pocket PC Phone 1	EUT with LCD Panel 1 + Camera 1
Pocket PC Phone 2	EUT with LCD Panel 2 + Camera 2
Tx/Rx Frequency Range	2400 MHz ~ 2483.5 MHz
Number of Channels	11
Carrier Frequency of Each Channel	$2412+(n-1)*5$ MHz; $n=1\sim11$
Channel Spacing	5 MHz
Maximum Output Power to Antenna	802.11b : 17.27 dBm (53.33 mW) 802.11g : 21.11 dBm (129.12 mW)
Antenna Type	PIFA Antenna with gain 0.5 dBi
Type of Modulation	802.11b : DSSS (BPSK / QPSK / CCK) 802.11g : OFDM (BPSK / QPSK / 16QAM / 64QAM)
EUT Stage	Identical Prototype

Remark:

1. For other wireless features of this EUT, test report will be issued separately.
2. This test report recorded only product characteristics and test results of Digital Transmission System (DTS).

1.4 Testing Site

Test Site	SPORTON INTERNATIONAL INC.		
Test Site Location	No. 52, Hwa Ya 1 st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-3273456 / FAX: +886-3-3284978		
Test Site No.	Sporton Site No.		FCC/IC Registration No.
	CO05-HY	03CH07-HY	TW1022/4086B-1

1.5 Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC Part 15 Subpart C §15.247
- FCC KDB Publication No. 558074 (Measurement Guidelines of DTS)
- ANSI C63.4-2003
- IC RSS-210 Issue 7

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B (DoC), recorded in a separate test report.

1.6 Ancillary Equipment List

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
2.	GPS Station	T&E	GS-50	N/A	N/A	Unshielded, 1.8 m
3.	WLAN AP	D-Link	DIR-628	KA2DIR628A2	N/A	Unshielded, 1.8 m
4.	Notebook	DELL	Vostro 1510	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
5.	LCD Monitor	Lenovo	6135-AB1	FCC DoC	Shielded, 1.6 m	Unshielded, 1.8 m
6.	Bluetooth Earphone	Nokia	BH-100	PYA1YH	N/A	N/A
7.	iPod	Apple	A1285	FCC DoC	Shielded, 1.0 m	N/A

2 Test Configuration of Equipment Under Test

2.1 RF Power

Preliminary tests were performed in different data rate and recorded the RF power output in the following table:

802.11b RF Power (dBm)					
Channel	Frequency (MHz)	Data Rate			
		1 Mbps	2 Mbps	5.5 Mbps	11 Mbps
CH 01	2412 MHz	17.27	17.07	16.73	16.90
CH 06	2437 MHz	16.17	16.25	16.14	16.28
CH 11	2462 MHz	16.73	16.64	16.23	16.61

802.11g RF Power (dBm)									
Channel	Frequency (MHz)	Data Rate							
		6 Mbps	9 Mbps	12 Mbps	18 Mbps	24 Mbps	36 Mbps	48 Mbps	54 Mbps
CH 01	2412 MHz	20.67	20.43	20.45	20.36	20.53	20.34	20.83	20.69
CH 06	2437 MHz	20.37	20.45	20.07	20.15	20.15	20.13	20.55	20.30
CH 11	2462 MHz	20.91	20.95	20.75	20.60	20.91	20.60	21.09	21.11

Remark:

1. The 802.11b data rates were set in 1 Mbps and 802.11g data rates were set in 54 Mbps for all the test cases, due to the highest RF output power.
2. The EUT is programmed to transmit signals continuously for all testing.

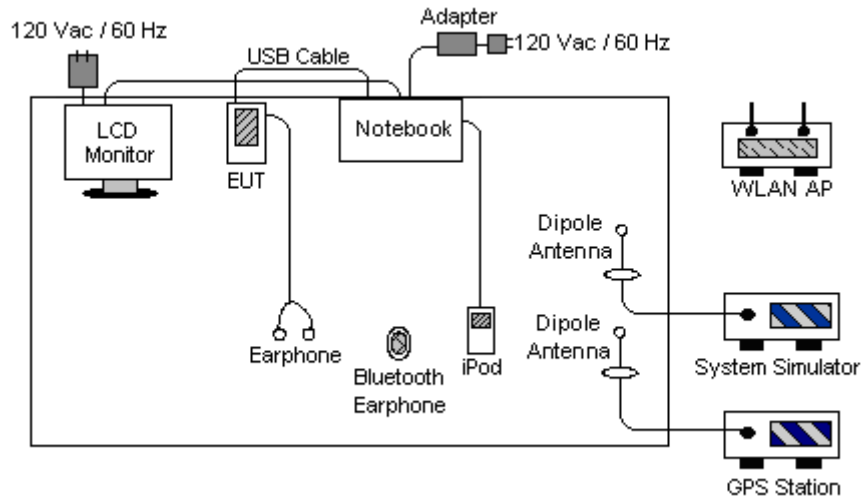
2.2 Test Mode

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. Frequency range investigated: conducted emission (150 kHz to 30 MHz), radiated emission (30 MHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower). Pre-scanned tests were conducted to determine the final configuration from all possible combinations. The following tables are showing the test modes as the worst cases and recorded in this report.

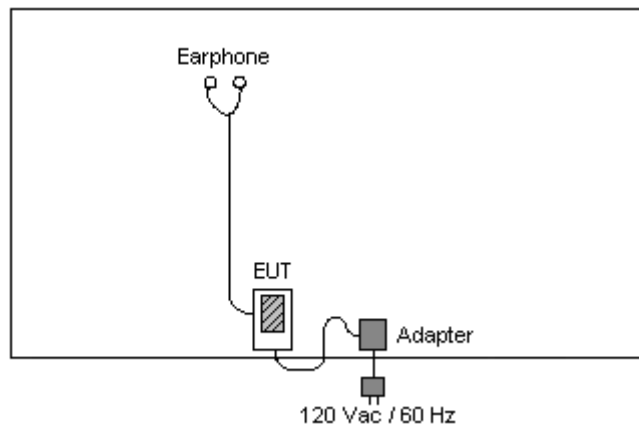
Test Cases		
Test Item	802.11b	802.11g
Conducted TCs	Mode 1 : CH01_2412 MHz	Mode 4 : CH01_2412 MHz
	Mode 2 : CH06_2437 MHz	Mode 5 : CH06_2437 MHz
	Mode 3 : CH11_2462 MHz	Mode 6 : CH11_2462 MHz
Radiated TCs	Mode 1 : CH01_2412 MHz for Pocket PC Phone 1 + Adapter 1 + Earphone 1	Mode 5 : CH01_2412 MHz for Pocket PC Phone 1 + Adapter 1 + Earphone 1
	Mode 2 : CH06_2437 MHz for Pocket PC Phone 1 + Adapter 1 + Earphone 1	Mode 6 : CH06_2437 MHz for Pocket PC Phone 1 + Adapter 1 + Earphone 1
	Mode 3 : CH11_2462 MHz for Pocket PC Phone 1 + Adapter 1 + Earphone 1	Mode 7 : CH11_2462 MHz for Pocket PC Phone 1 + Adapter 1 + Earphone 1
	Mode 4 : CH06_2437 MHz for Pocket PC Phone 2 + Adapter 1 + Earphone 1	
AC Conducted Emission	Mode 1 : Pocket PC Phone 1 + GSM850 Idle + Bluetooth Link + WLAN Link + GPS Rx + Camera + Earphone 2 + USB Cable (Link with Notebook)	
	Mode 2 : Pocket PC Phone 2 + GSM850 Idle + Bluetooth Link + WLAN Link + GPS Rx + Camera + Earphone 2 + USB Cable (Link with Notebook)	
Remark: The worst case of conducted emission is mode 2; only the test data of it was reported.		

2.3 Connection Diagram of Test System

<Conducted Emission>



<Radiated Emission>



2.4 RF Utility

The programmed RF utility is installed in EUT to provide channel selection, power level, data rate and the application type. RF utility can send transmitting signal for all testing. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

3 Test Result

3.1 6dB Bandwidth Measurement

3.1.1 Limit of 6dB Bandwidth

The minimum 6 dB bandwidth shall be at least 500 kHz.

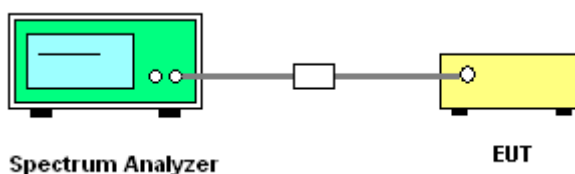
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
3. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz.
In order to make an accurate measurement, set the span greater than RBW. The 6 dB bandwidth must be greater than 500 kHz.
4. The marker-delta reading at this point is the 6 dB bandwidth of the emission.

3.1.4 Test Setup

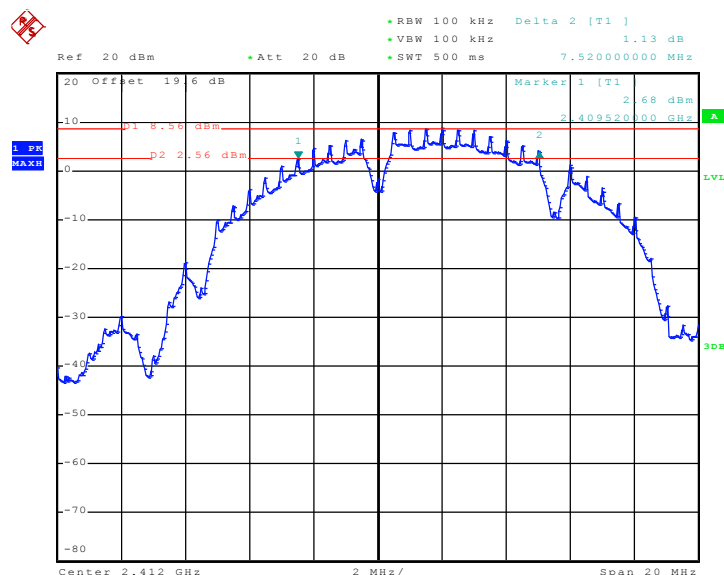


3.1.5 Test Result of 6dB Bandwidth

Test Mode :	Mode 1, 2, 3	Temperature :	25~27°C
Test Engineer :	Tang Liu	Relative Humidity :	52~55%

Channel	Frequency (MHz)	802.11b 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	7.52	0.5	Pass
06	2437	7.56	0.5	Pass
11	2462	7.08	0.5	Pass

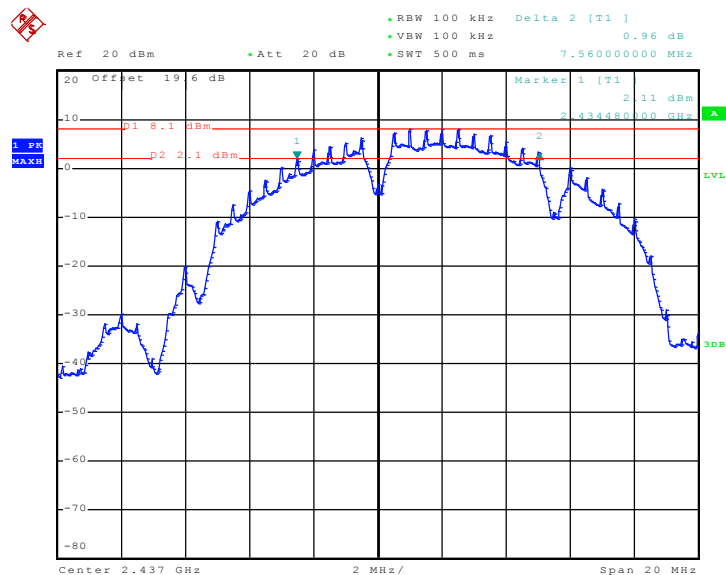
Mode 1 : 6 dB Bandwidth Plot on 802.11b Channel 01



Date: 27.NOV.2009 23:51:28

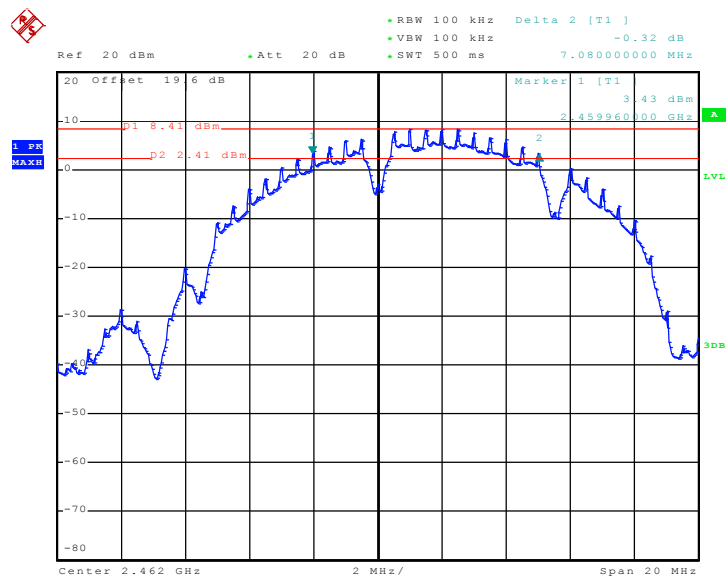


Mode 2 : 6 dB Bandwidth Plot on 802.11b Channel 06



Date: 27.NOV.2009 23:58:19

Mode 3 : 6 dB Bandwidth Plot on 802.11b Channel 11



Date: 27.NOV.2009 23:56:07





Ref 20 dBm Att 20 dB RBW 100 kHz VBW 100 kHz SWT 500 ms Delta 2 [T1] 15.76000000 MHz

Offset 19.6 dB

Marker 1 [T1] -2.32 dBm 2.42941000 GHz

P1 1.69 dBm P2 -2.32 dBm

Center 2.437 GHz Span 20 MHz

The screenshot shows a VectorStar spectrum analyzer interface. The main display is a grid with a blue trace representing the signal. The trace is centered at 2.462 GHz, as indicated by the 'Center' label at the bottom. The frequency span is 20 MHz, and the resolution bandwidth (RBW) is 100 kHz. The video bandwidth (VBW) is 100 kHz, and the sweep time (SWT) is 500 ms. The signal level is approximately -4.29 dBm, as shown by the 'Marker 1' label. The trace is noisy, with a peak-to-peak (Pk-Pk) level of 1.61 dBm. The reference level (Ref) is 20 dBm, and the attenuation (Att) is 20 dB. The display also shows a 'Delta 2 [T1]' value of 0.13 dB. The signal is identified as 'LVL' (Level) and '3dB' (3 dB) on the right side of the screen. The 'Offset' is 19.6 dB. The 'Marker 1' label shows a value of -4.29 dBm at 2.453920000 GHz. The 'Center' label at the bottom shows 2.462 GHz. The 'Span' label at the bottom shows 20 MHz. The 'RBW' label at the top shows 100 kHz. The 'VBW' label at the top shows 100 kHz. The 'SWT' label at the top shows 500 ms. The 'Ref' label at the top shows 20 dBm. The 'Att' label at the top shows 20 dB. The 'Delta 2 [T1]' label at the top shows 0.13 dB. The 'Pk-Pk' label at the top shows 1.61 dBm. The 'LVL' label at the top shows -4.29 dBm. The '3dB' label at the top shows 2.453920000 GHz. The 'Offset' label at the top shows 19.6 dB. The 'Marker 1' label at the top shows -4.29 dBm. The 'Center' label at the bottom shows 2.462 GHz. The 'Span' label at the bottom shows 20 MHz.

Date: 27.NOV.2009 22:11:11

3.2 Output Power Measurement

3.2.1 Limit of Output Power

For systems using digital modulation in the 2400-2483.5MHz, the limit for peak output power is 30dBm. If transmitting antenna of directional gain greater than 6dBi are used the peak output power from the intentional radiator shall be reduced below the above stated value by the amount in dB that the directional gain of the antenna exceeds 6 dBi. In case of point-to-point operation, the limit has to be reduced by 1dB for every 3dB that the directional gain of the antenna exceeds 6dBi.

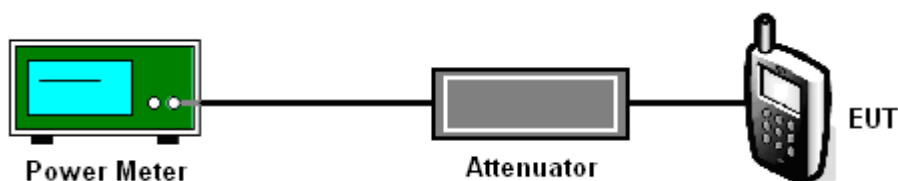
3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

3.2.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. The RF output of EUT was connected to the power meter by a low loss cable.
3. Measure the power by power meter.

3.2.4 Test Setup



3.2.5 Test Result of Output Power

Test Mode :	Mode 1, 2, 3	Temperature :	25~27℃
Test Engineer :	Tang Liu	Relative Humidity :	52~55%

Channel	Frequency (MHz)	802.11b Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	17.27	30	Pass
06	2437	16.17	30	Pass
11	2462	16.73	30	Pass

Test Mode :	Mode 4, 5, 6	Temperature :	25~27℃
Test Engineer :	Tang Liu	Relative Humidity :	52~55%

Channel	Frequency (MHz)	802.11g Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	20.69	30	Pass
06	2437	20.30	30	Pass
11	2462	21.11	30	Pass

3.3 Band Edges Measurement

3.3.1 Limit of Band Edges

In any 100 kHz bandwidth outside the intentional radiation frequency band, the radio frequency power shall be at least 20 dB below the highest level of the radiated power. If the output power of this device was measured by spectrum analyzer, the attenuation under this paragraph shall be 30 dB instead of 20 dB.

3.3.2 Measuring Instruments

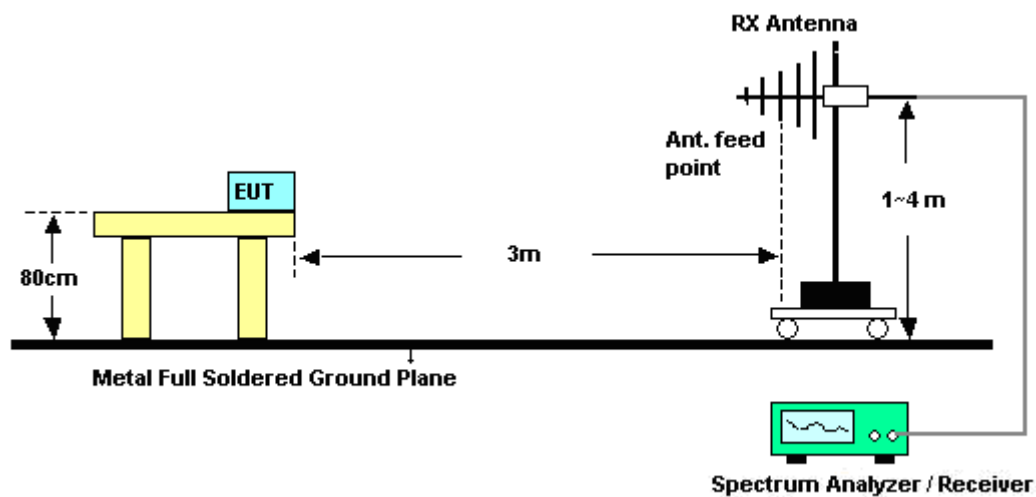
See list of measuring instruments of this test report.

3.3.3 Test Procedures

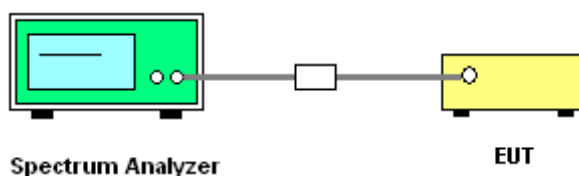
1. The testing follows the guidelines in ANSI C63.4-2003 and FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Conducted emission test: Set RBW = 100 kHz, Video bandwidth (VBW) $\geq$ RBW. Band edge emissions must be at least 20 dB down from the highest emission level within the authorized band as measured with a 100 kHz RBW. Note: If the device complies with the use of power option 2 the attenuation under this paragraph shall be 30 dB instead of 20 dB.
3. Radiated emission test: Apply to band edge emissions that fall in the restricted bands listed in FCC Section 15.205. The maximum permitted average field strength is listed in FCC Section 15.209. A pre-amp is necessary for this measurement. For measurements above 1 GHz, set RBW = 1MHz, VBW = 10 Hz, Sweep=Auto. If the emission is pulsed, modify the unit for continuous operation; use the settings shown above, then correct the reading by subtracting the peak-average correction factor, derived from the appropriate duty cycle calculation as in FCC Section 15.35(b) and (c).

3.3.4 Test Setup

<Radiated Band Edges>



<Conducted Band Edges>



3.3.5 Test Result of Radiated Band Edges

Test Mode :	Mode 1	Temperature :	24~25°C
Test Band :	802.11b	Relative Humidity :	47~48%
Test Channel :	01	Test Engineer :	Kay Wu

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.61	58.30	-15.70	74.00	54.86	32.13	5.46	34.15	200	120	Peak
2389.61	46.67	-7.33	54.00	43.23	32.13	5.46	34.15	200	120	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.61	52.37	-21.63	74.00	48.93	32.13	5.46	34.15	100	178	Peak
2389.61	40.75	-13.25	54.00	37.31	32.13	5.46	34.15	100	178	Average

Test Mode :	Mode 3	Temperature :	24~25°C
Test Band :	802.11b	Relative Humidity :	47~48%
Test Channel :	11	Test Engineer :	Kay Wu

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.50	61.66	-12.34	74.00	58.19	32.27	5.38	34.19	195	358	Peak
2483.50	49.75	-4.25	54.00	46.28	32.27	5.38	34.19	195	358	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.66	56.80	-17.20	74.00	53.33	32.27	5.38	34.19	100	106	Peak
2483.66	43.46	-10.54	54.00	39.99	32.27	5.38	34.19	100	106	Average



Test Mode :	Mode 5	Temperature :	24~25°C
Test Band :	802.11g	Relative Humidity :	47~48%
Test Channel :	01	Test Engineer :	Kay Wu

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.42	68.90	-5.10	74.00	65.69	32.13	5.46	34.38	100	121	Peak
2389.42	45.49	-8.51	54.00	42.28	32.13	5.46	34.38	100	121	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.99	66.41	-7.59	74.00	63.20	32.13	5.46	34.38	100	105	Peak
2389.99	44.18	-9.82	54.00	40.97	32.13	5.46	34.38	100	105	Average

Test Mode :	Mode 7	Temperature :	24~25°C
Test Band :	802.11g	Relative Humidity :	47~48%
Test Channel :	11	Test Engineer :	Kay Wu

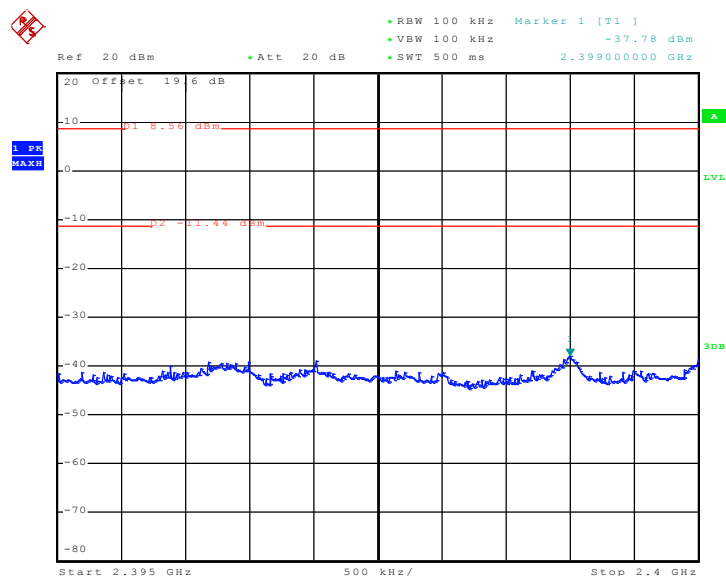
ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.66	66.21	-7.79	74.00	62.95	32.27	5.38	34.40	195	360	Peak
2483.66	47.30	-6.70	54.00	44.04	32.27	5.38	34.40	195	360	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	62.22	-11.78	74.00	58.96	32.27	5.38	34.40	100	108	Peak
2483.5	45.93	-8.07	54.00	42.67	32.27	5.38	34.40	100	108	Average

3.3.6 Test Plots of Conducted Band Edges

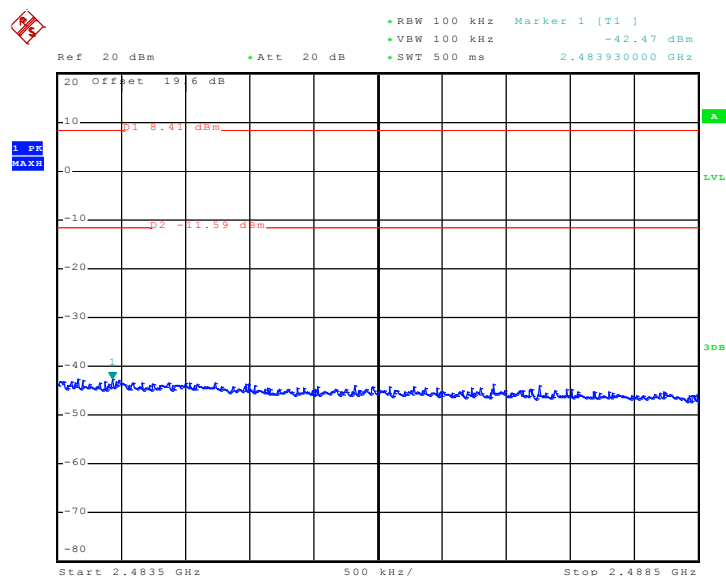
Test Mode :	Mode 1 and 3	Temperature :	25~27°C
Test Band :	802.11b	Relative Humidity :	52~55%
Test Channel :	01 and 11	Test Engineer :	Tang Liu

Low Band Edge Plot on 802.11b Channel 01



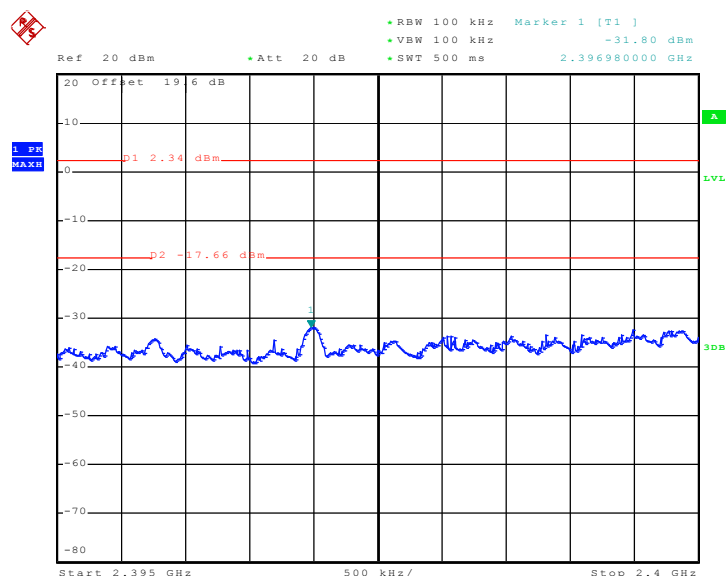
Date: 27.NOV.2009 23:51:59

High Band Edge Plot on 802.11b Channel 11

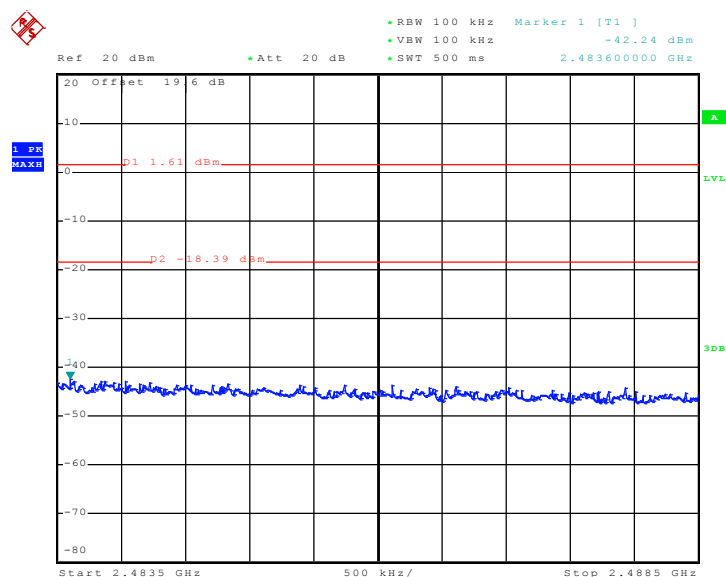


Date: 27.NOV.2009 23:56:56

Test Mode :	Mode 4 and 6	Temperature :	25~27°C
Test Band :	802.11g	Relative Humidity :	52~55%
Test Channel :	01 and 11	Test Engineer :	Tang Liu

Low Band Edge Plot on 802.11g Channel 01


Date: 27.NOV.2009 22:18:33

High Band Edge Plot on 802.11g Channel 11


Date: 27.NOV.2009 22:11:57

3.4 Spurious Emission Measurement

3.4.1 Limit of Spurious Emission Measurement

All harmonics/spurs must be at least 20 dB down from the highest emission level within the authorized band.

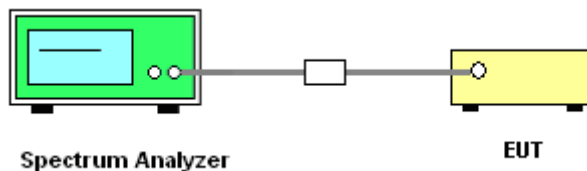
3.4.2 Measuring Instruments

See list of measuring instruments of this test report.

3.4.3 Test Procedure

1. The transmitter output was connected to the spectrum analyzer via a low lose cable.
2. Set RBW = 100 kHz, Video bandwidth (VBW) $\geq$ RBW, scan up through 10th harmonic. All harmonics/spurs must be at least 20 dB down from the highest emission level within the authorized band as measured with a 100 kHz RBW.

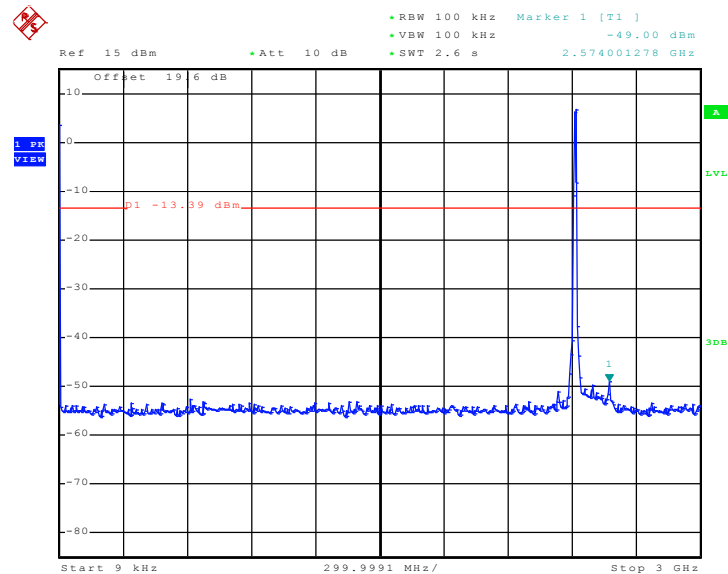
3.4.4 Test Setup



3.4.5 Test Plots of Spurious Emission

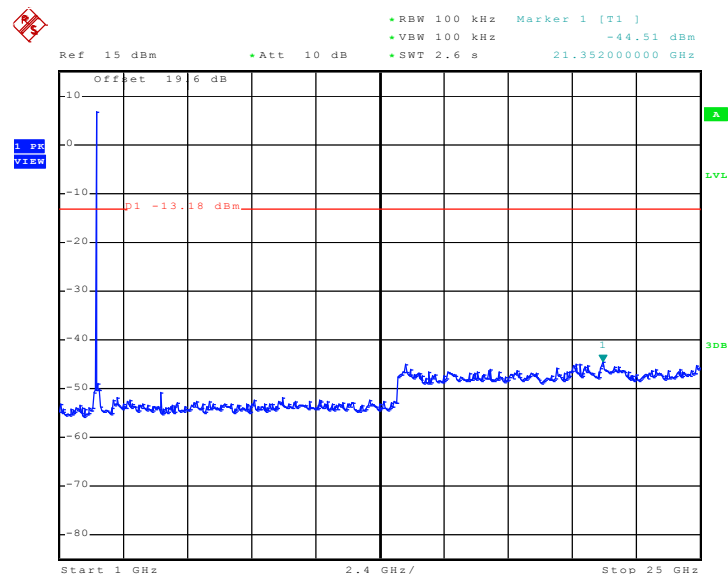
Test Mode :	Mode 1	Temperature :	25~27°C
Test Channel :	01	Relative Humidity :	52~55%
		Test Engineer :	Tang Liu

Conducted Spurious Emission Plot between 9 kHz ~ 3 GHz



Date: 27.NOV.2009 22:21:54

Conducted Spurious Emission Plot between 1GHz ~ 25 GHz

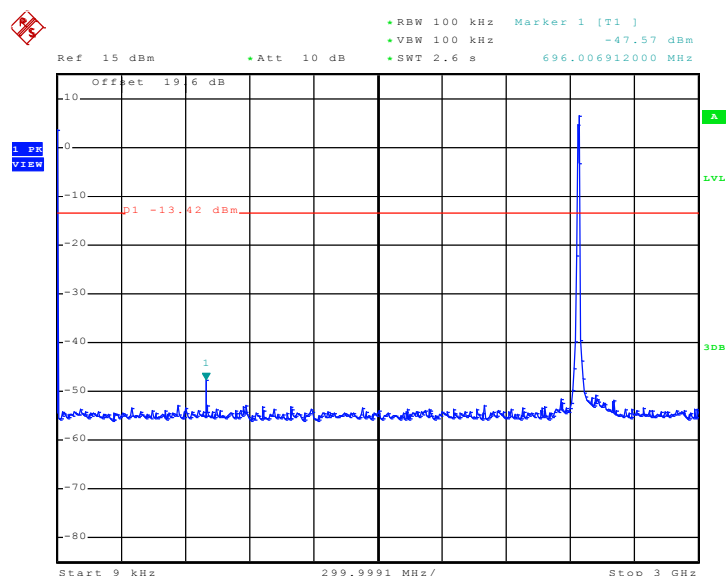


Date: 27.NOV.2009 22:22:13



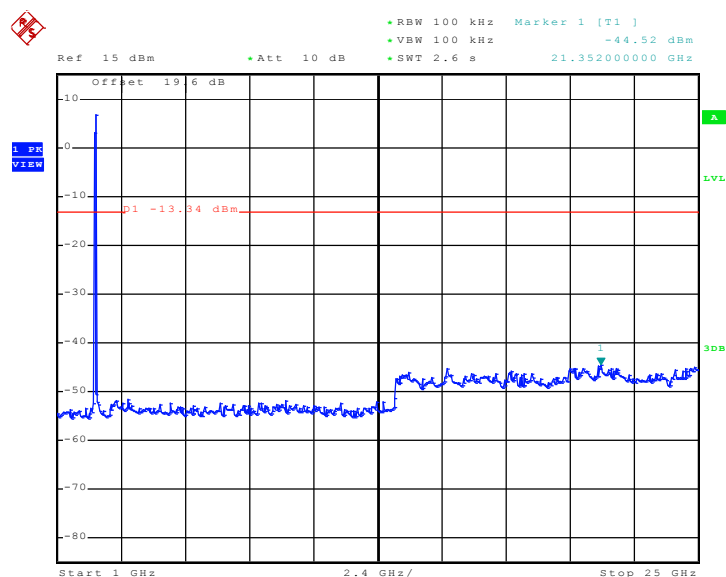
Test Mode :	Mode 2	Temperature :	25~27°C
Test Channel :	06	Relative Humidity :	52~55%
		Test Engineer :	Tang Liu

Conducted Spurious Emission Plot between 9 kHz ~ 3 GHz



Date: 27.NOV.2009 22:23:06

Conducted Spurious Emission Plot between 1GHz ~ 25 GHz

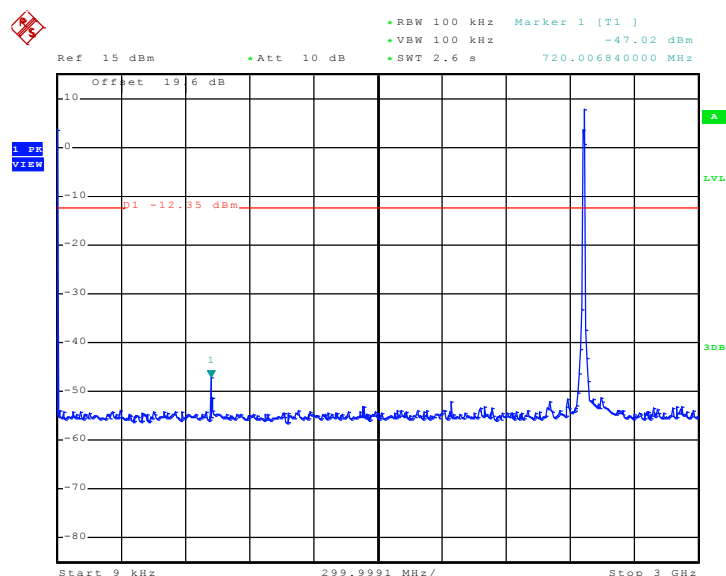


Date: 27.NOV.2009 22:23:25



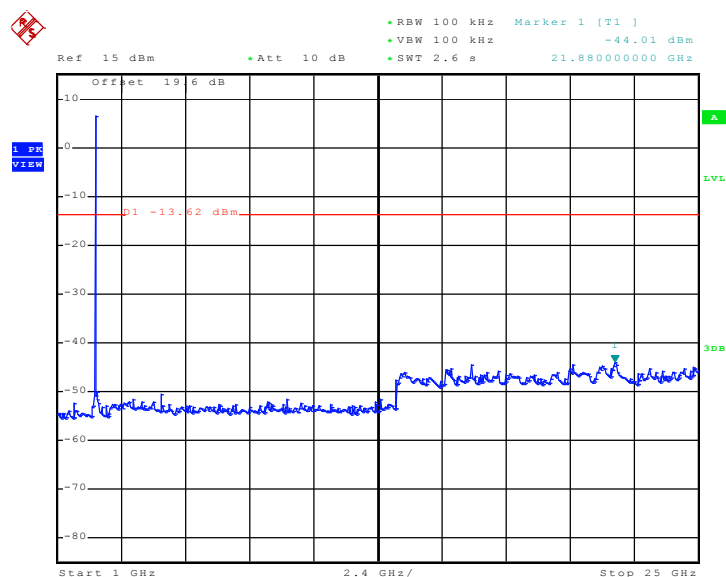
Test Mode :	Mode 3	Temperature :	25~27°C
Test Channel :	11	Relative Humidity :	52~55%
		Test Engineer :	Tang Liu

Conducted Spurious Emission Plot between 9 kHz ~ 3 GHz



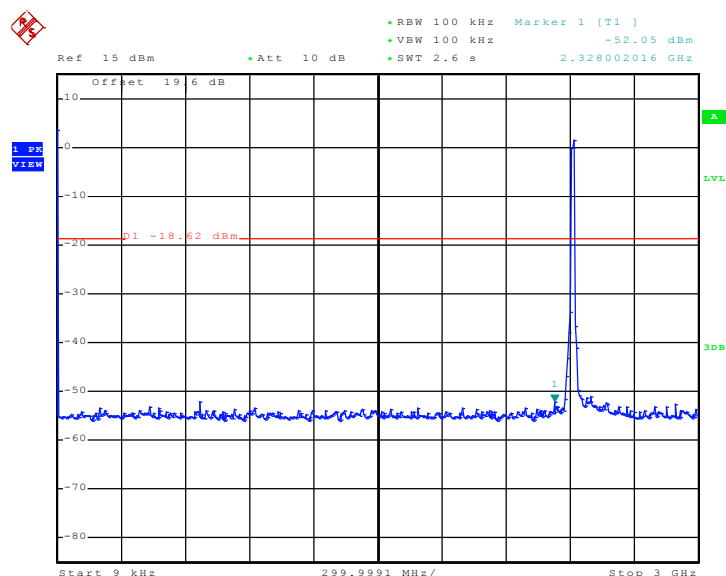
Date: 27.NOV.2009 22:24:13

Conducted Spurious Emission Plot between 1GHz ~ 25 GHz

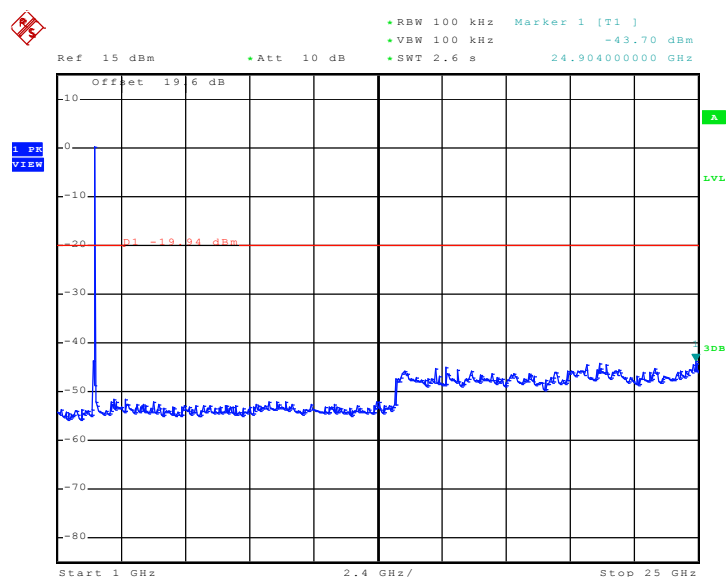


Date: 27.NOV.2009 22:24:37

Test Mode :	Mode 4	Temperature :	25~27°C
Test Channel :	01	Relative Humidity :	52~55%
		Test Engineer :	Tang Liu

Conducted Spurious Emission Plot between 9 kHz ~ 3 GHz


Date: 27.NOV.2009 22:25:38

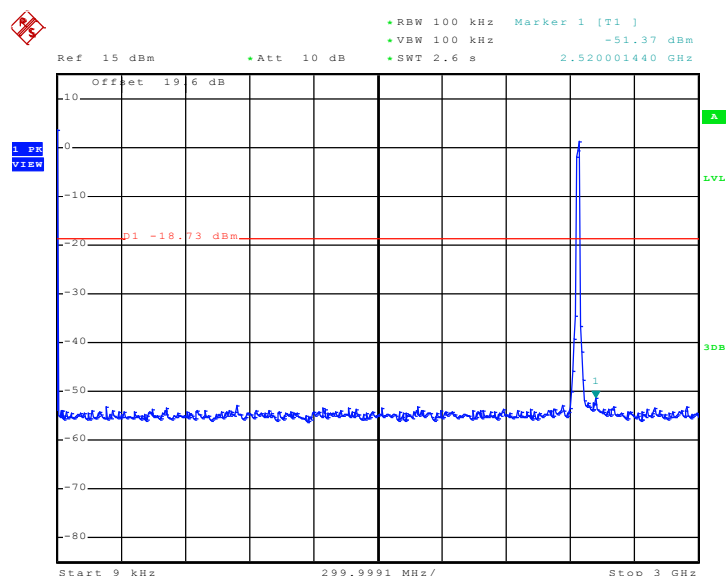
Conducted Spurious Emission Plot between 1GHz ~ 25 GHz


Date: 27.NOV.2009 22:25:57



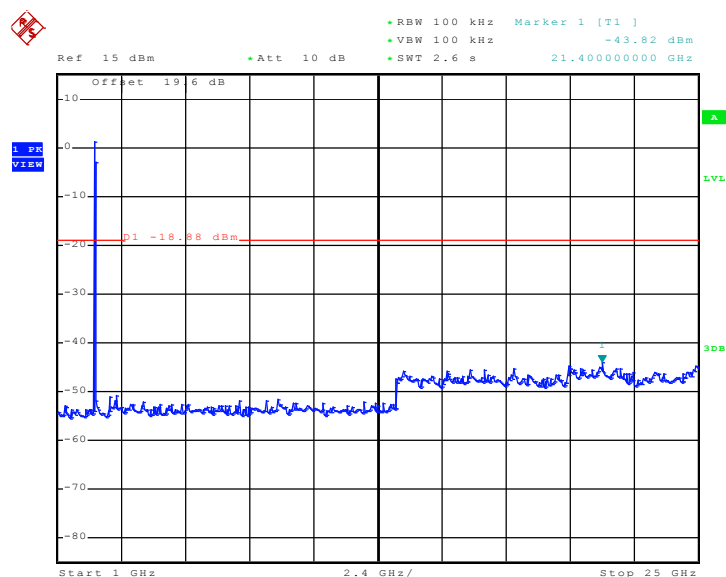
Test Mode :	Mode 5	Temperature :	25~27°C
Test Channel :	06	Relative Humidity :	52~55%
		Test Engineer :	Tang Liu

Conducted Spurious Emission Plot between 9 kHz ~ 3 GHz



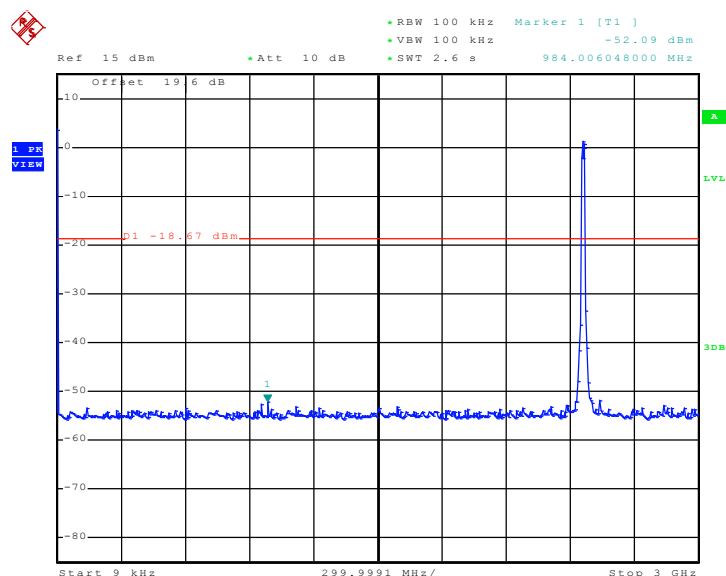
Date: 27.NOV.2009 22:26:45

Conducted Spurious Emission Plot between 1GHz ~ 25 GHz

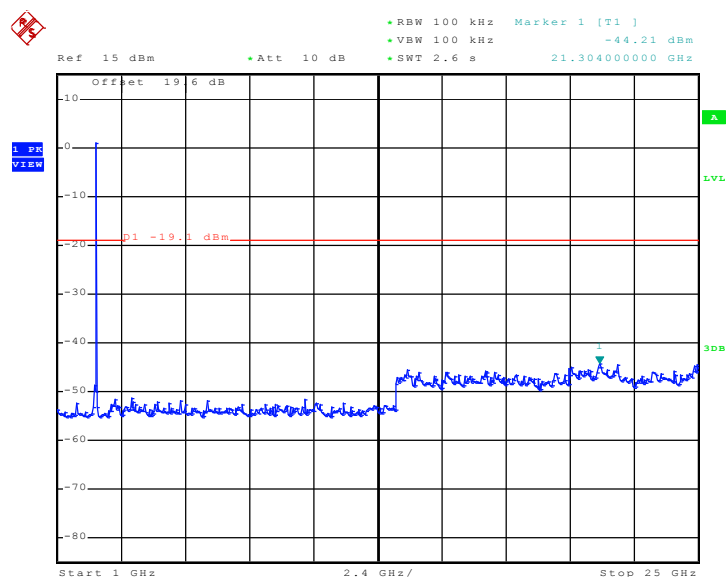


Date: 27.NOV.2009 22:27:02

Test Mode :	Mode 6	Temperature :	25~27°C
Test Channel :	11	Relative Humidity :	52~55%
		Test Engineer :	Tang Liu

Conducted Spurious Emission Plot between 9 kHz ~ 3 GHz


Date: 27.NOV.2009 22:27:56

Conducted Spurious Emission Plot between 1GHz ~ 25 GHz


Date: 27.NOV.2009 22:28:11

3.5 Power Spectral Density Measurement

3.5.1 Limit of Power Spectral Density

The peak power spectral density shall not be greater than 8dBm in any 3kHz band at any time interval of continuous transmission.

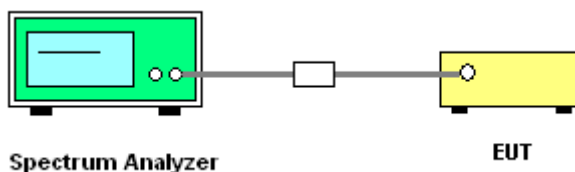
3.5.2 Measuring Instruments

See list of measuring instruments of this test report.

3.5.3 Test Procedures

1. The test follows FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
3. Take the measured data from spectrum analyzer.

3.5.4 Test Setup

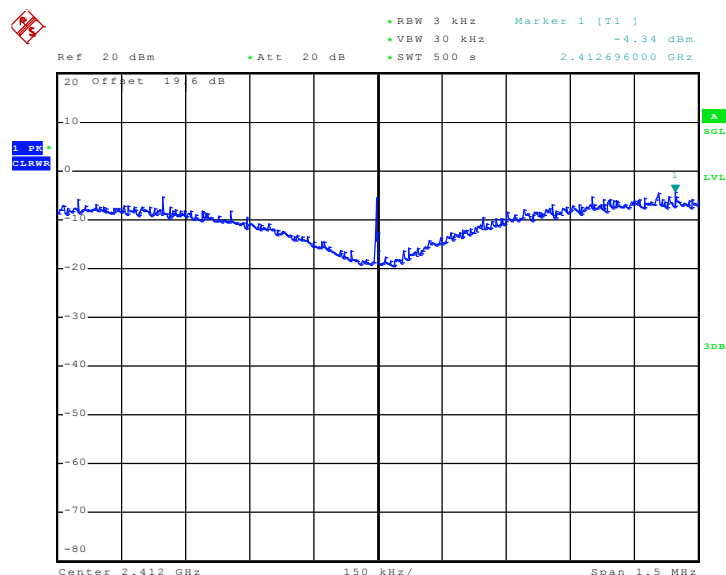


3.5.5 Test Result of Power Spectral Density

Test Mode :	Mode 1, 2, 3	Temperature :	25~27℃
Test Engineer :	Tang Liu	Relative Humidity :	52~55%

Channel	Frequency (MHz)	802.11b Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-4.34	8	Pass
06	2437	-4.83	8	Pass
11	2462	-5.12	8	Pass

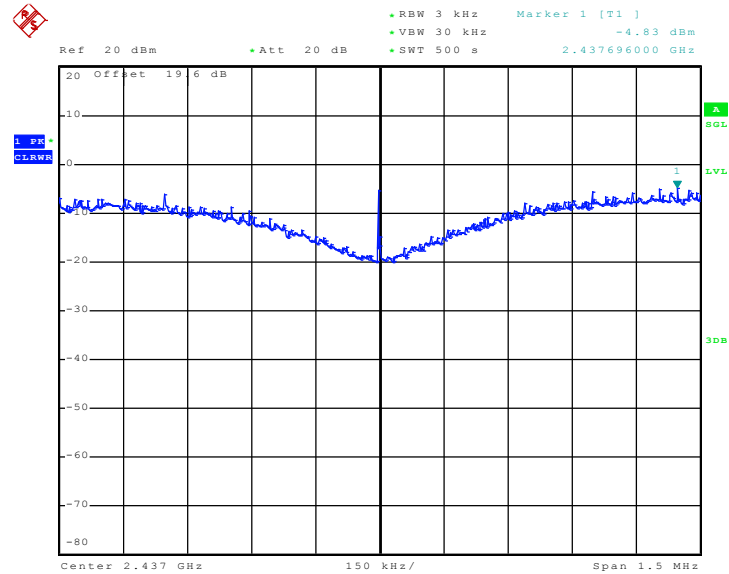
Mode 1 : PSD Plot on 802.11b Channel 01



Date: 27.NOV.2009 23:49:26

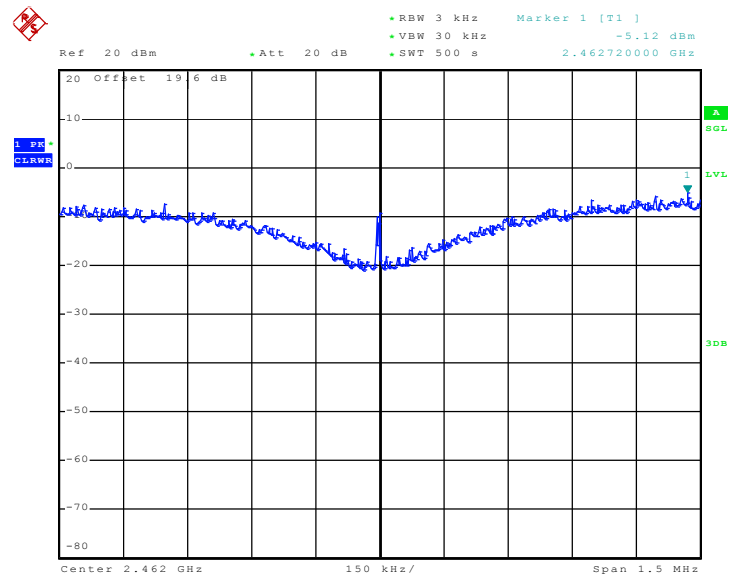


Mode 2 : PSD Plot on 802.11b Channel 06



Date: 28.NOV.2009 00:07:17

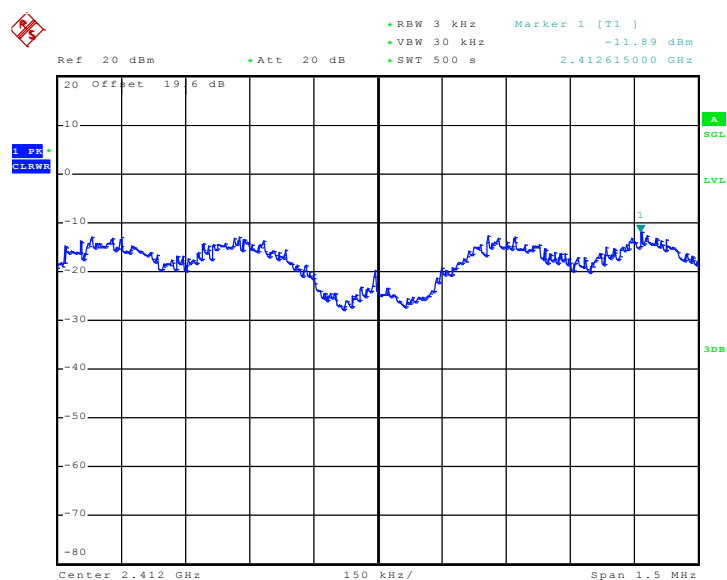
Mode 3 : PSD Plot on 802.11b Channel 11



Date: 28.NOV.2009 00:17:06

Test Mode :	Mode 4, 5, 6	Temperature :	25~27°C
Test Engineer :	Tang Liu	Relative Humidity :	52~55%

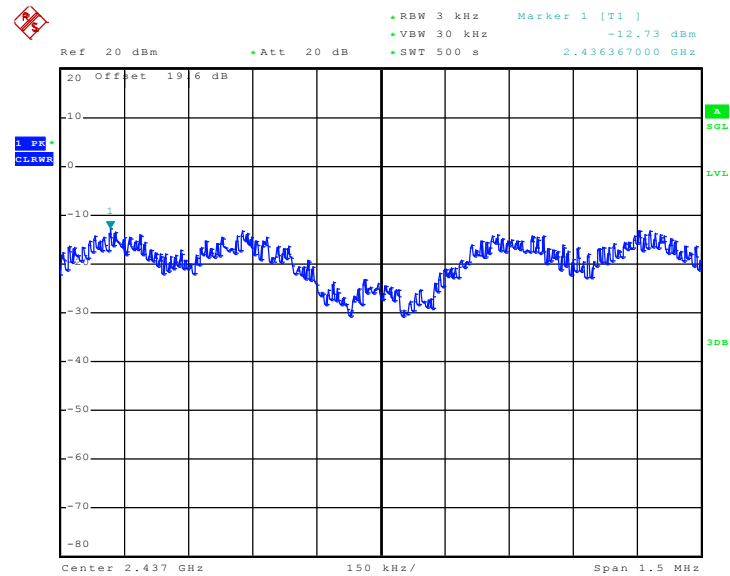
Channel	Frequency (MHz)	802.11g Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-11.89	8	Pass
06	2437	-12.73	8	Pass
11	2462	-12.42	8	Pass

Mode 4 : PSD Plot on 802.11g Channel 01


Date: 27.NOV.2009 23:16:47

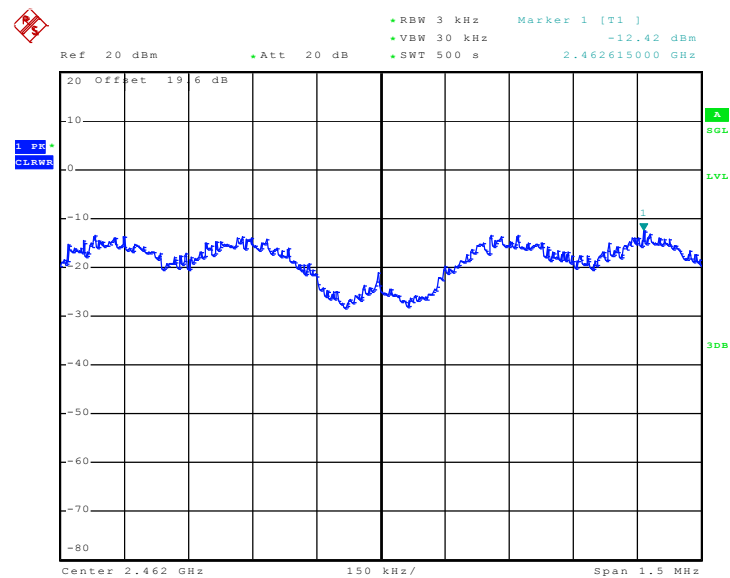


Mode 5 : PSD Plot on 802.11g Channel 06



Date: 27.NOV.2009 23:07:05

Mode 6 : PSD Plot on 802.11g Channel 11



Date: 27.NOV.2009 22:38:55

3.6 AC Conducted Emission Measurement

3.6.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-Peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

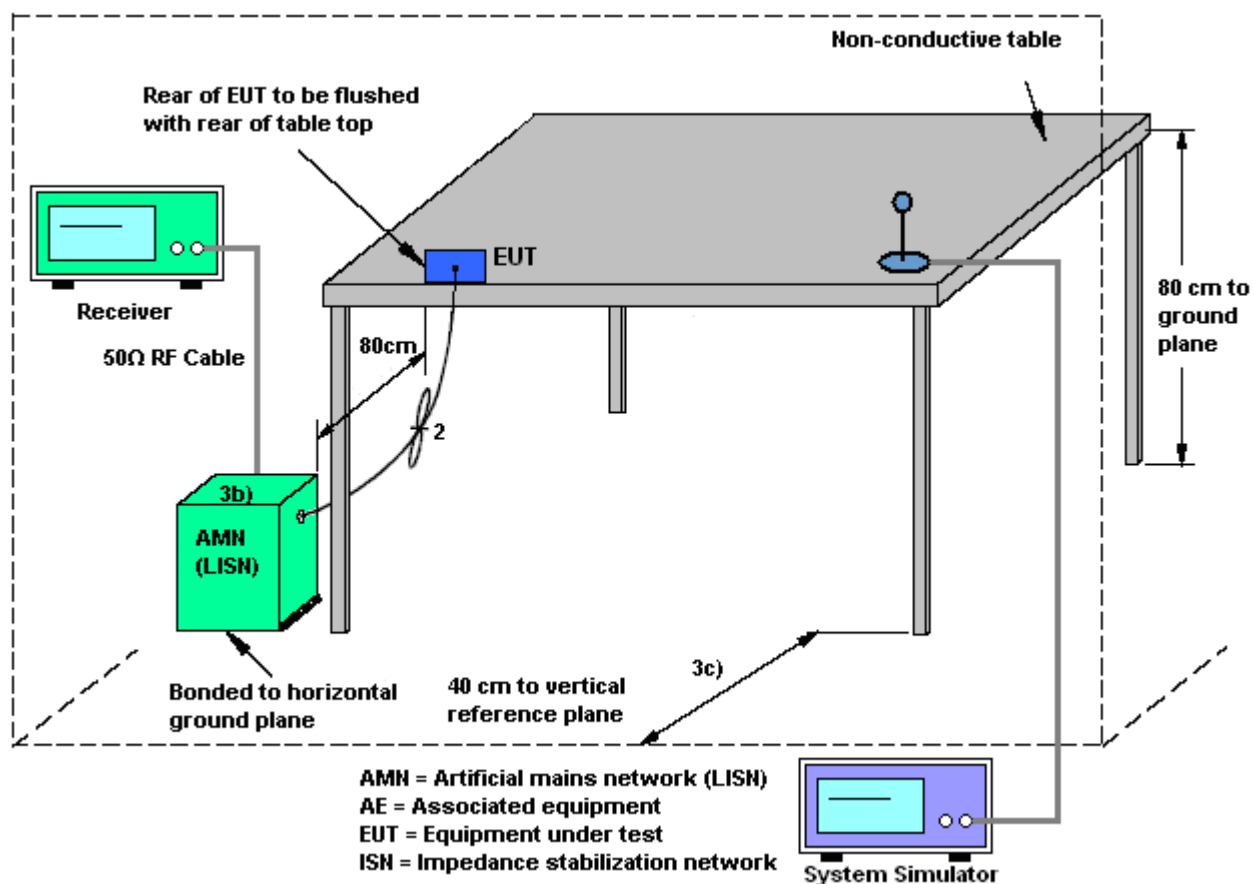
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

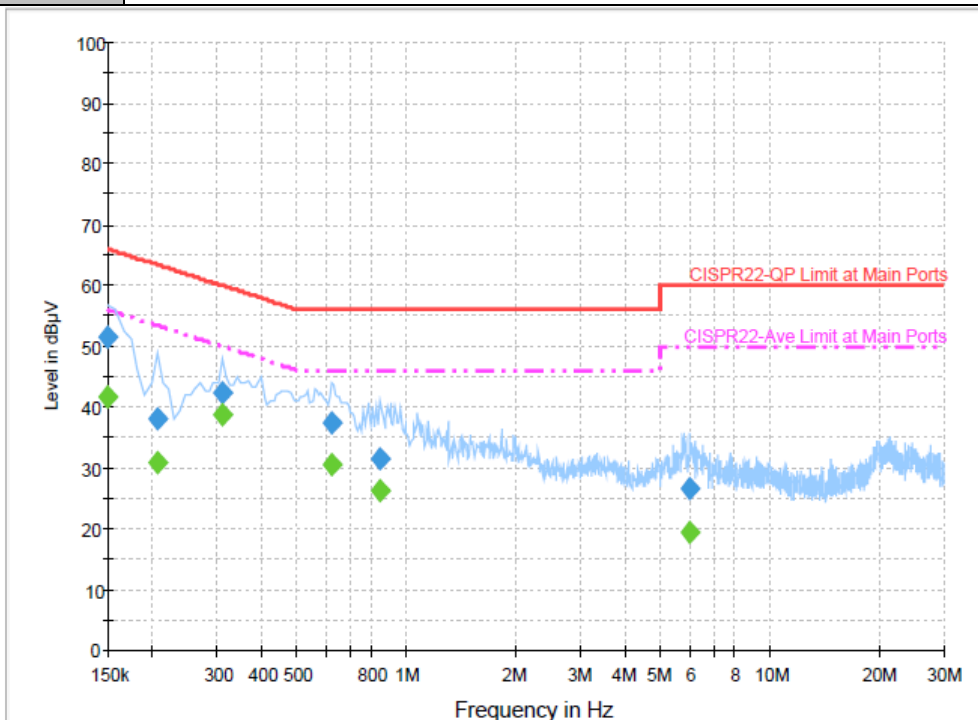
1. The testing follows the guidelines in ANSI C63.4-2003.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (LISN).
4. All the support units are connecting to the other LISN.
5. The LISN provides 50 ohm coupling impedance for the measuring instrument.
6. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
7. Both sides of AC line were checked for maximum conducted interference.
8. The frequency range from 150 kHz to 30 MHz was searched.
9. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

3.6.4 Test Setup



3.6.5 Test Result of AC Conducted Emission

Test Mode :	Mode 2	Temperature :	22~24℃
Test Engineer :	Hayden Wu	Relative Humidity :	51~54%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	Pocket PC Phone 2 + GSM850 Idle + Bluetooth Link + WLAN Link + GPS Rx + Camera + Earphone 2 + USB Cable (Link with Notebook)		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



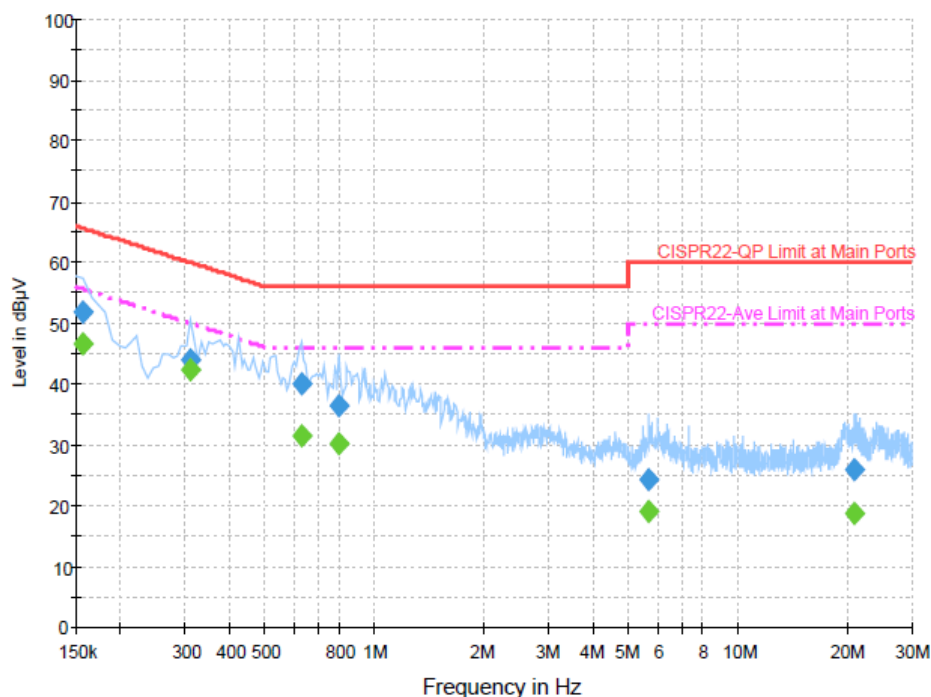
Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	51.5	Off	L1	19.6	14.5	66.0
0.206000	37.9	Off	L1	19.6	25.5	63.4
0.310000	42.4	Off	L1	19.5	17.6	60.0
0.622000	37.3	Off	L1	19.5	18.7	56.0
0.846000	31.5	Off	L1	19.5	24.5	56.0
5.982000	26.6	Off	L1	19.5	33.4	60.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	41.7	Off	L1	19.6	14.3	56.0
0.206000	31.0	Off	L1	19.6	22.4	53.4
0.310000	38.7	Off	L1	19.5	11.3	50.0
0.622000	30.6	Off	L1	19.5	15.4	46.0
0.846000	26.3	Off	L1	19.5	19.7	46.0
5.982000	19.4	Off	L1	19.5	30.6	50.0

Test Mode :	Mode 2	Temperature :	22~24℃
Test Engineer :	Hayden Wu	Relative Humidity :	51~54%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	Pocket PC Phone 2 + GSM850 Idle + Bluetooth Link + WLAN Link + GPS Rx + Camera + Earphone 2 + USB Cable (Link with Notebook)		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		


Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.158000	51.8	Off	N	19.6	13.8	65.6
0.310000	44.0	Off	N	19.5	16.0	60.0
0.630000	39.9	Off	N	19.5	16.1	56.0
0.798000	36.5	Off	N	19.5	19.5	56.0
5.654000	24.4	Off	N	19.5	35.6	60.0
20.790000	25.9	Off	N	19.8	34.1	60.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.158000	46.7	Off	N	19.6	8.9	55.6
0.310000	42.2	Off	N	19.5	7.8	50.0
0.630000	31.5	Off	N	19.5	14.5	46.0
0.798000	30.3	Off	N	19.5	15.7	46.0
5.654000	18.9	Off	N	19.5	31.1	50.0
20.790000	18.7	Off	N	19.8	31.3	50.0

3.7 Radiated Emission Measurement

3.7.1 Limit of Radiated Emission

In any 100 kHz bandwidth outside the intentional radiator frequency band, all harmonics/spurious must be at least 20 dB below the highest emission level within the authorized band. If the output power of this device was measured by spectrum analyzer, the attenuation under this paragraph shall be 30 dB instead of 20 dB. In addition, radiated emissions which fall in the restricted bands must also comply with the FCC section 15.209 limits as below.

Frequency (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

3.7.2 Measuring Instruments

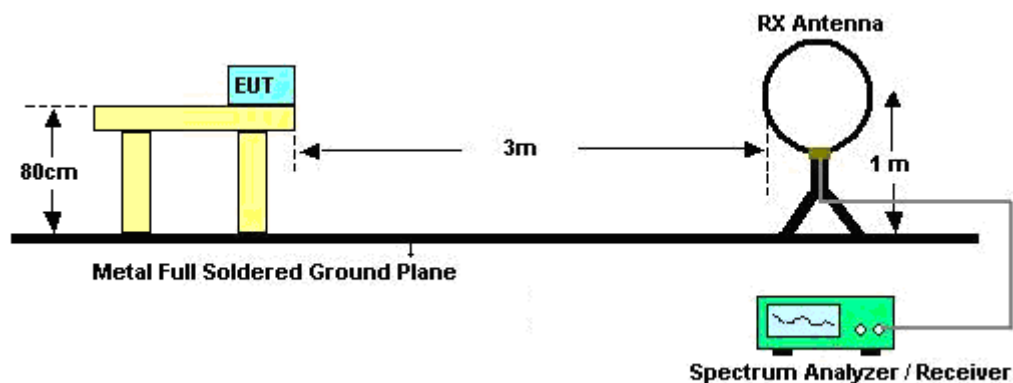
See list of measuring instruments of this test report.

3.7.3 Test Procedures

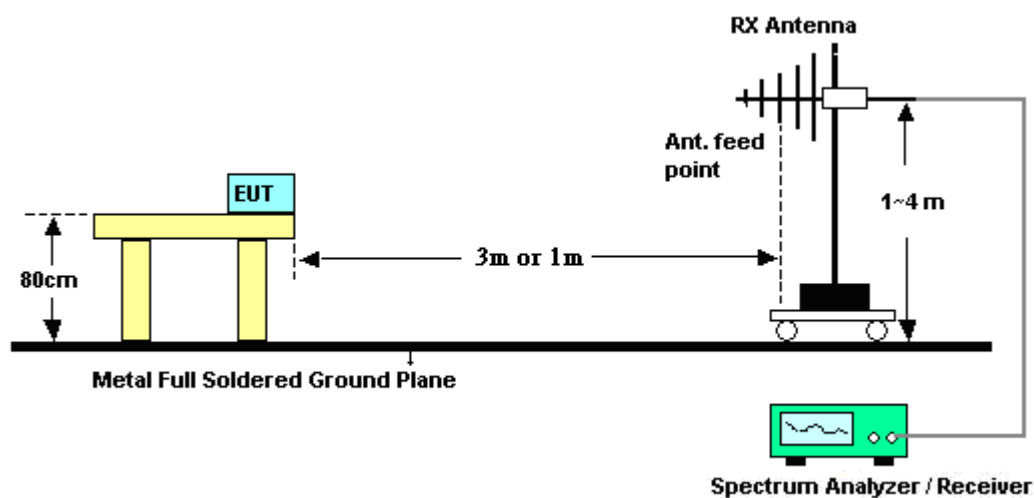
- The testing follows the guidelines in FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
- Use the following spectrum analyzer settings:
 - Span = wide enough to fully capture the emission being measured; RBW = 1 MHz for $f \geq 1$ GHz, 100 kHz for $f < 1$ GHz; VBW $\geq$ RBW; Sweep = auto; Detector function = peak; Trace = max hold.
 - Above 18 GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade from 3m to 1m.
Distance extrapolation factor = $20 \log (\text{specific distance [3m]} / \text{test distance [1m]})$ (dB)
- Follow the guidelines in ANSI C63.4-2003 with respect to maximizing the emission by rotating the EUT, measuring the emission for three EUT orthogonal planes, and adjusting the measurement antenna height and polarization. A pre-amp and a high pass filter are used for this test in order to get the good signal level.

3.7.4 Test Setup

For radiated emissions below 30MHz



For radiated emissions above 30MHz



3.7.5 Test Results of Radiated Emissions (9 kHz ~ 30 MHz)

Test Engineer :	Kay Wu	Temperature :	24~25°C	
		Relative Humidity :	47~48%	

Frequency (MHz)	Level (dBuV)	Over Limit (dB)	Limit Line (dBuV)	Remark
-	-	-	-	See Note

Note:

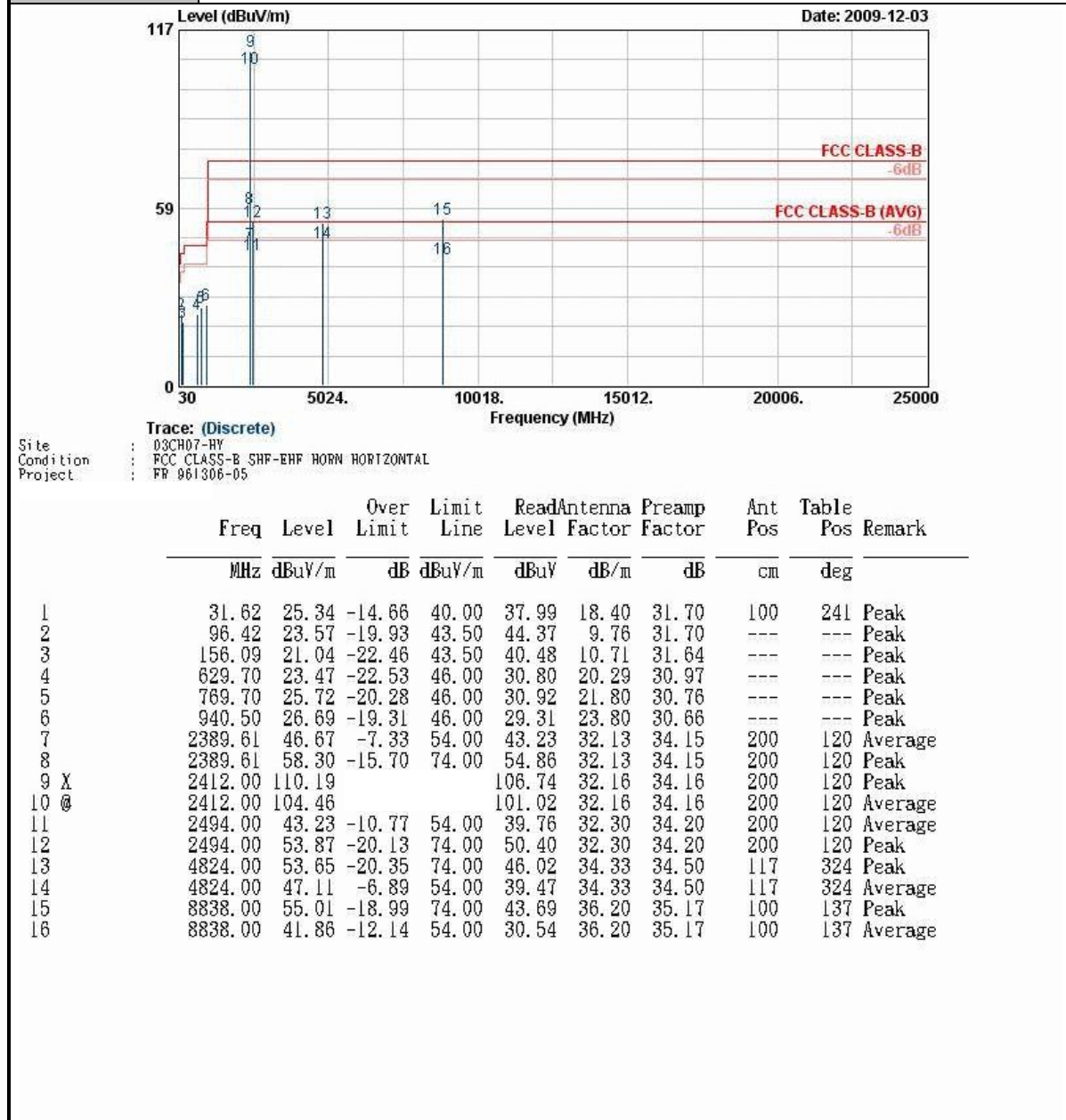
The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Distance extrapolation factor = $40 \log (\text{specific distance} / \text{test distance})$ (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor.

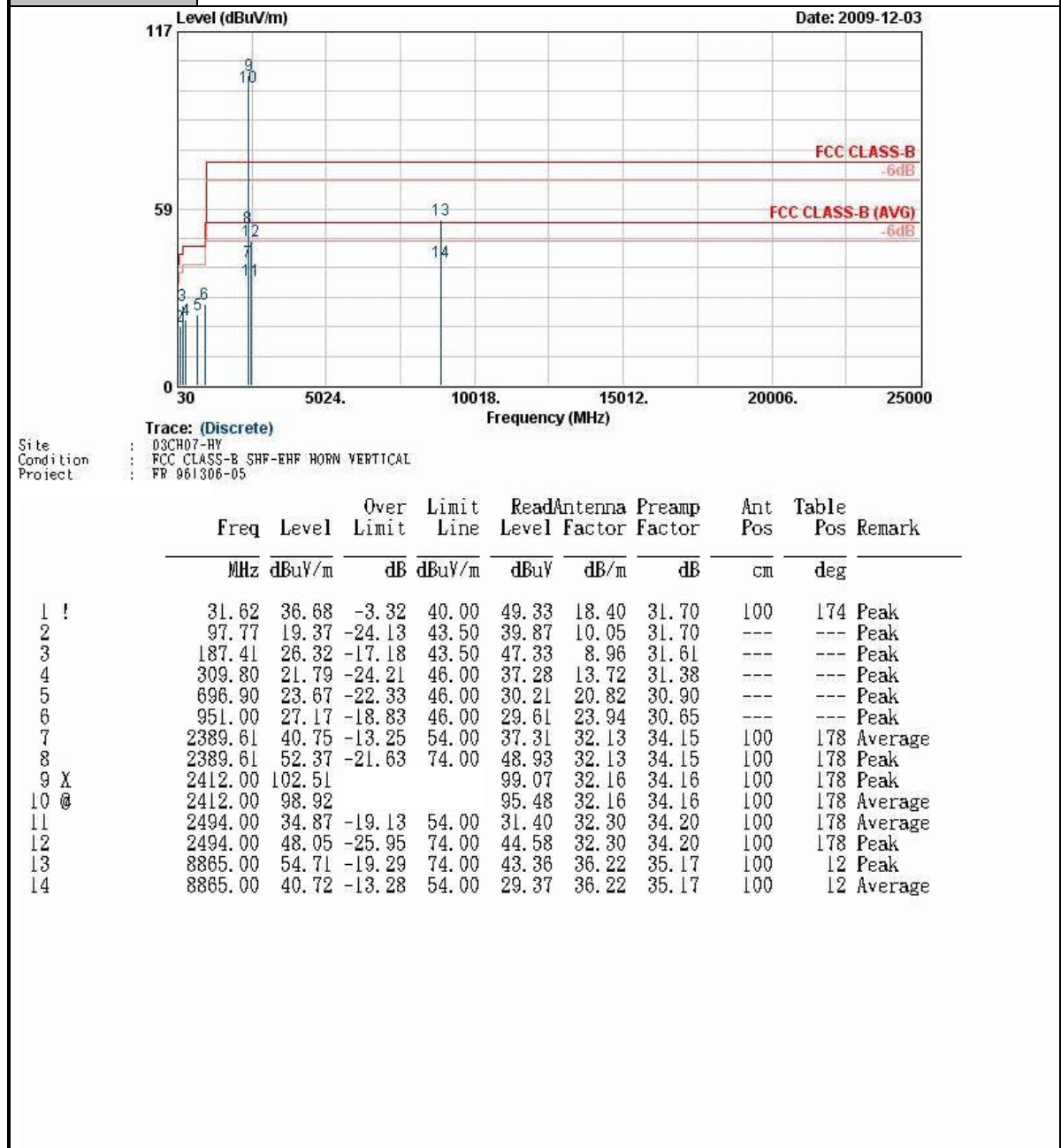
3.7.6 Test Result of Radiated Emission (30 MHz ~ 10th Harmonic)

Test Mode :	Mode 1	Temperature :	24~25°C
Test Channel :	01	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		



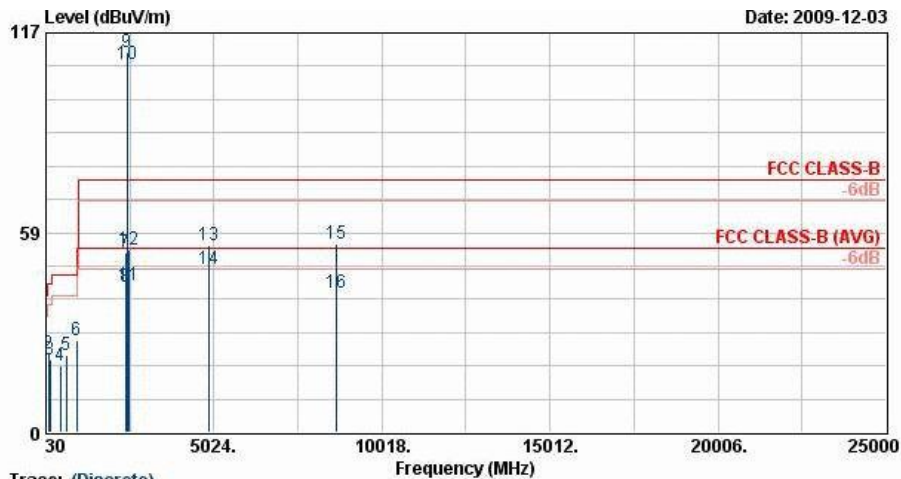


Test Mode :	Mode 1	Temperature :	24~25°C
Test Channel :	01	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		



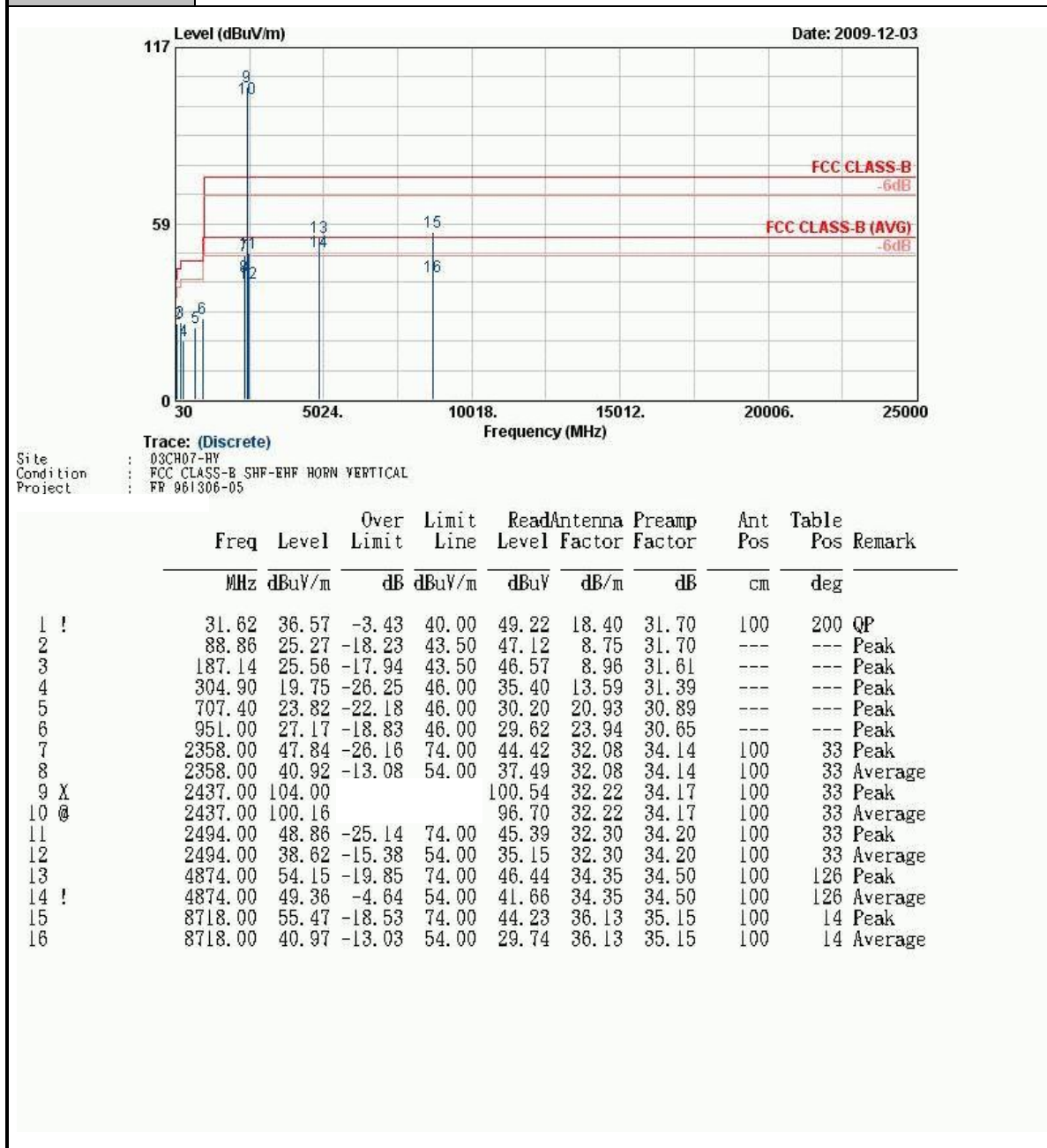


Test Mode :	Mode 2	Temperature :	24~25°C
Test Channel :	06	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		

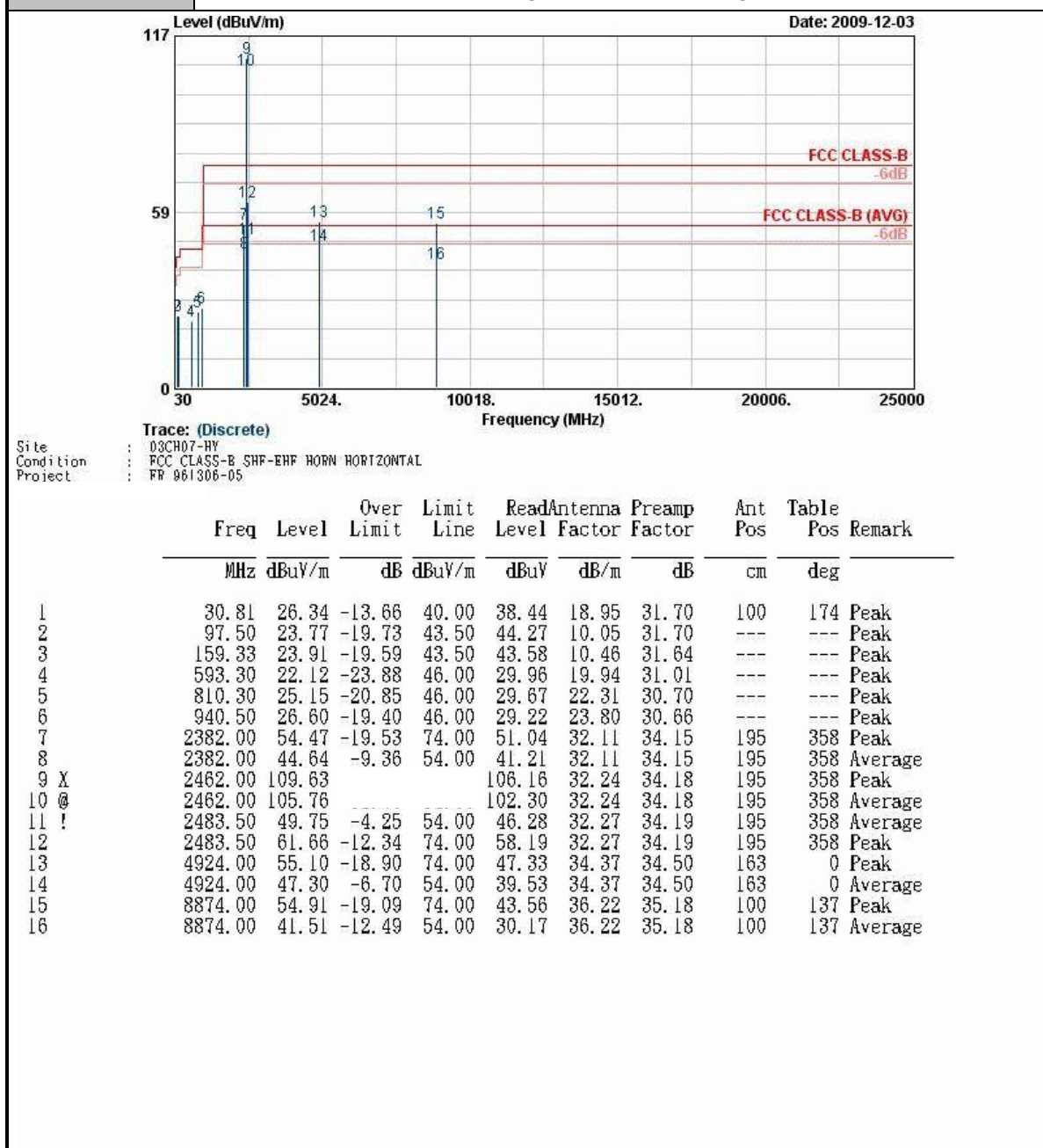


	Freq	Level	Over	Limit	ReadAntenna	Preamp	Ant	Table	
	MHz	dBuV/m	Limit	Line	Level	Factor	Factor	Pos	Pos Remark
			dB	dBuV/m	dBuV	dB/m	dB	cm	deg
1	31.89	29.10	-10.90	40.00	41.75	18.40	31.70	100	157 Peak
2	96.42	22.97	-20.53	43.50	43.78	9.76	31.70	---	---
3	148.26	21.10	-22.40	43.50	40.00	11.29	31.65	---	---
4	469.40	19.52	-26.48	46.00	30.26	17.54	31.13	---	---
5	635.30	22.57	-23.43	46.00	29.83	20.34	30.97	---	---
6	948.90	26.78	-19.22	46.00	29.26	23.91	30.65	---	---
7	2388.00	52.59	-21.41	74.00	49.15	32.13	34.15	200	126 Peak
8	2388.00	42.43	-11.57	54.00	38.99	32.13	34.15	200	126 Average
9 X	2437.00	111.17	---	---	107.71	32.22	34.17	200	126 Peak
10 @	2437.00	107.77	---	---	104.31	32.22	34.17	200	126 Average
11	2484.00	43.05	-10.95	54.00	39.58	32.27	34.19	200	126 Average
12	2484.00	53.58	-20.42	74.00	50.11	32.27	34.19	200	126 Peak
13	4874.00	54.70	-19.30	74.00	46.99	34.35	34.50	100	326 Peak
14	4874.00	47.89	-6.11	54.00	40.19	34.35	34.50	100	326 Average
15	8661.00	55.39	-18.61	74.00	44.19	36.10	35.13	100	32 Peak
16	8661.00	40.87	-13.13	54.00	29.67	36.10	35.13	100	32 Average

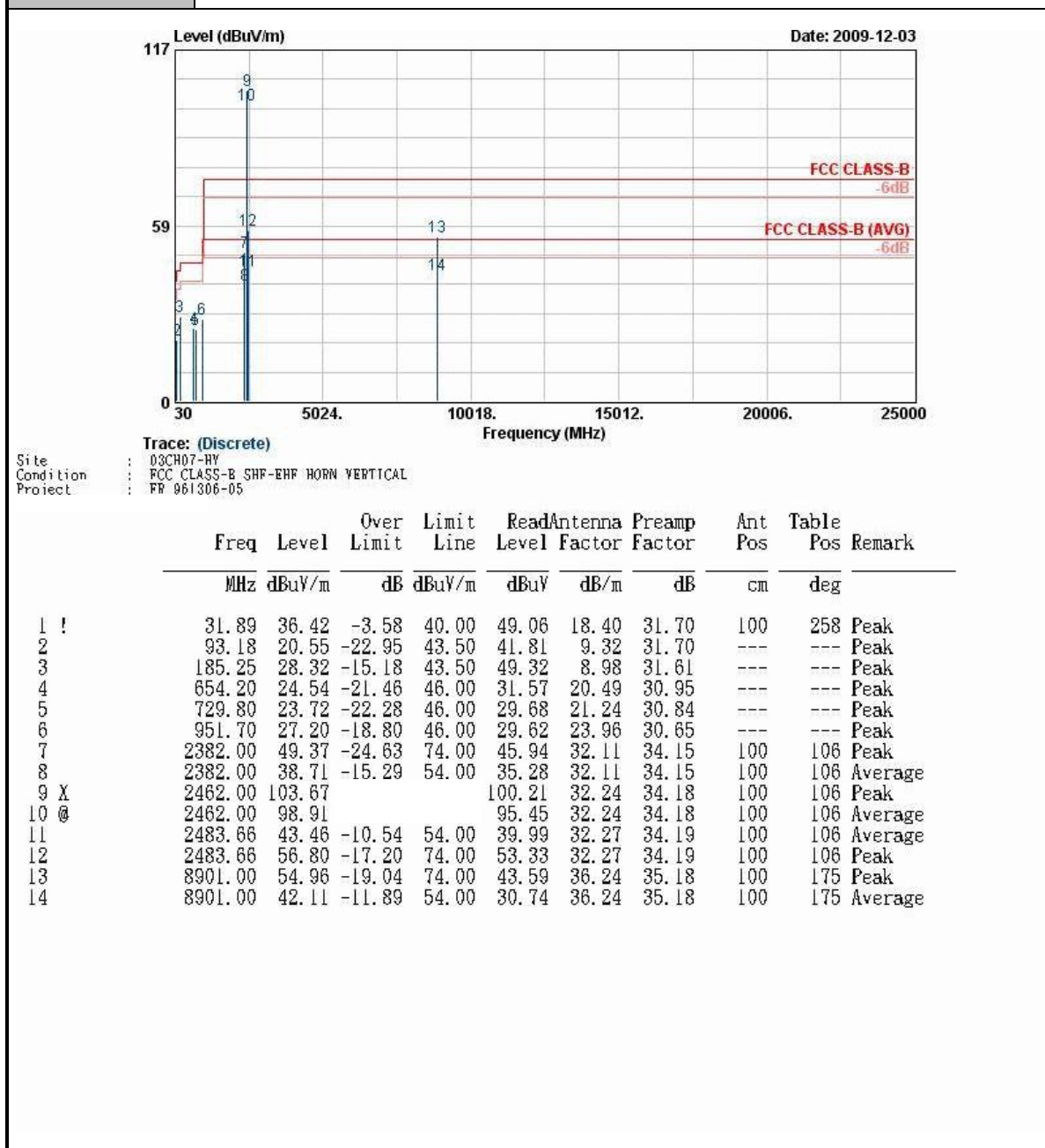
Test Mode :	Mode 2	Temperature :	24~25°C
Test Channel :	06	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		



Test Mode :	Mode 3	Temperature :	24~25°C
Test Channel :	11	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		

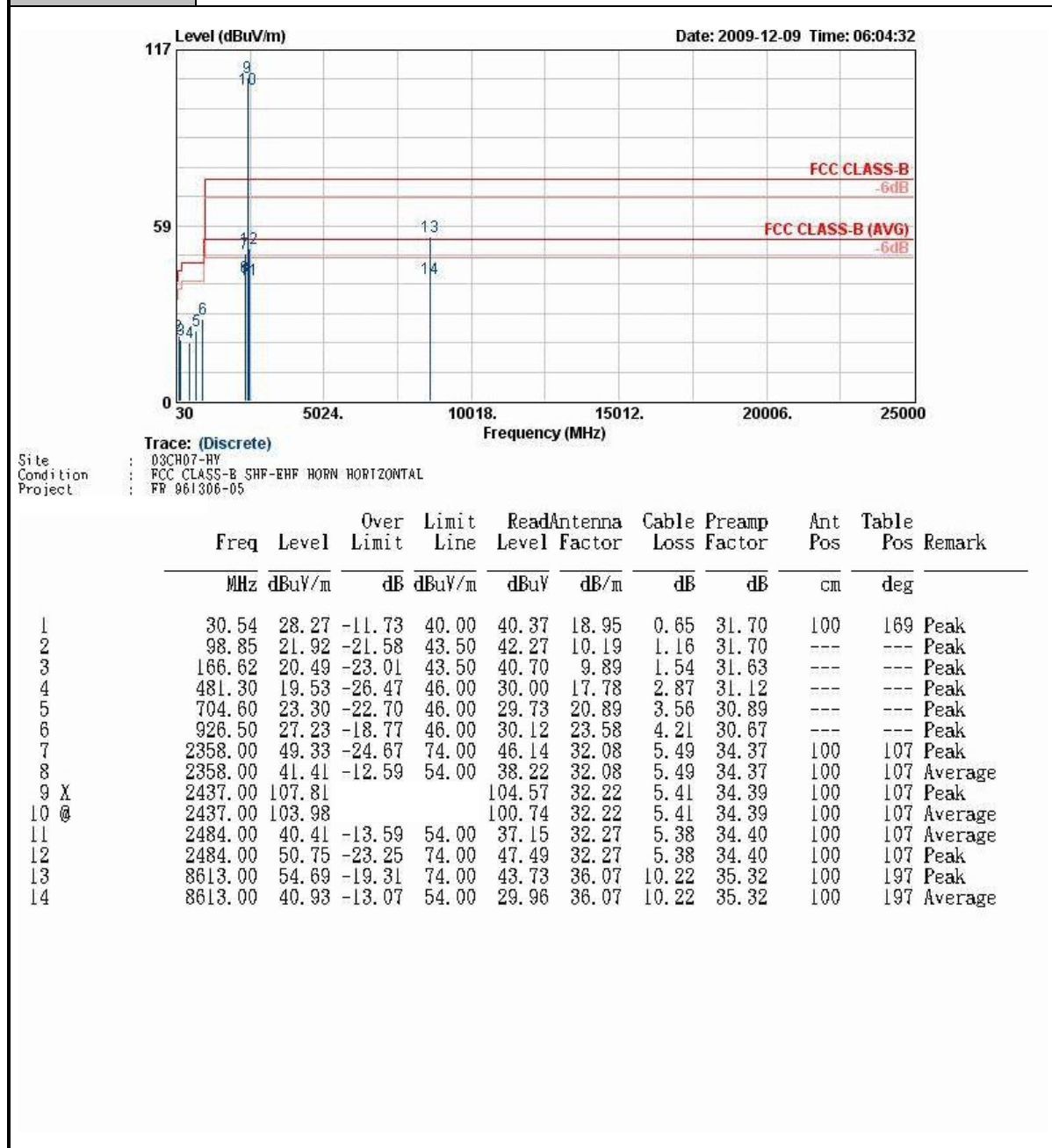


Test Mode :	Mode 3	Temperature :	24~25°C
Test Channel :	11	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		

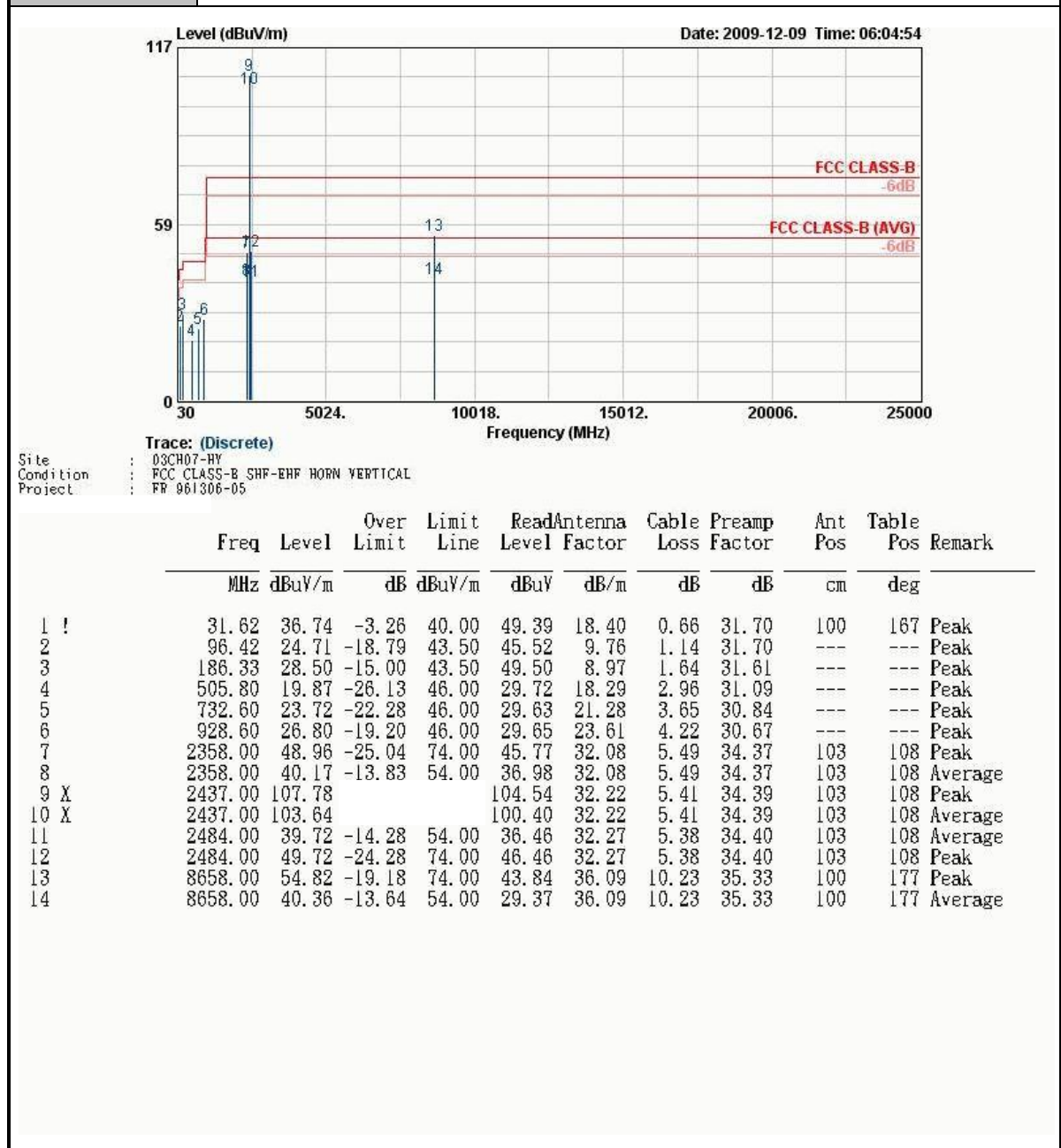




Test Mode :	Mode 4	Temperature :	24~25°C
Test Channel :	06	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		

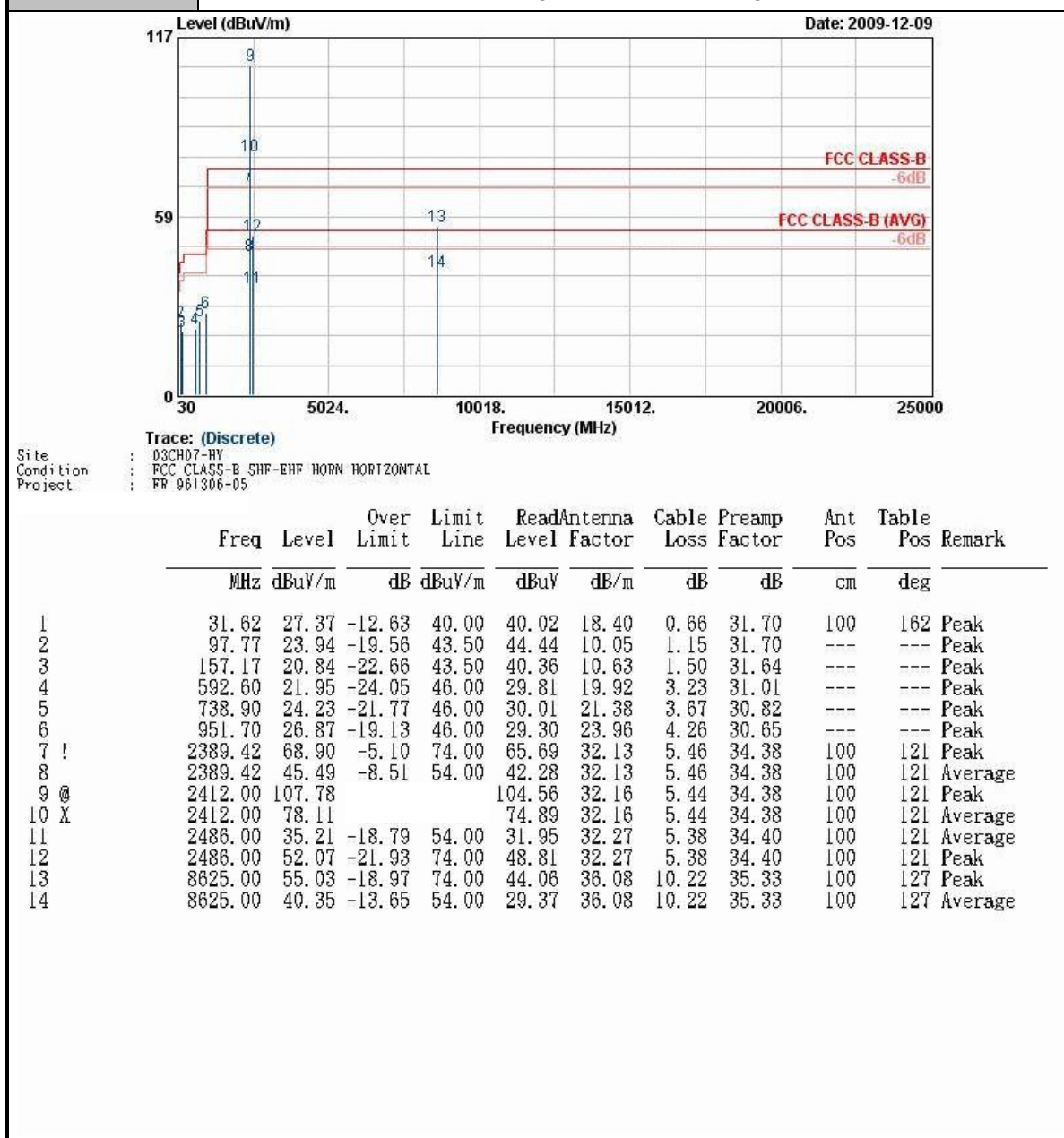


Test Mode :	Mode 4	Temperature :	24~25°C
Test Channel :	06	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		



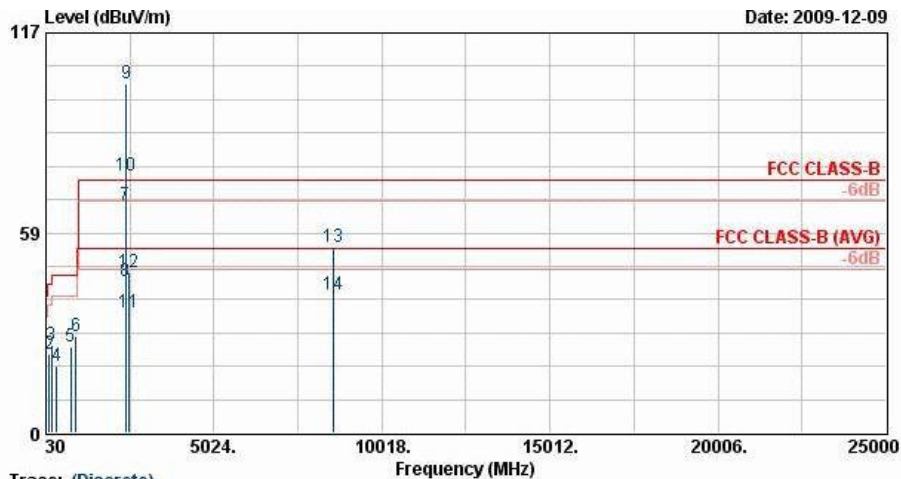


Test Mode :	Mode 5	Temperature :	24~25°C
Test Channel :	01	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		





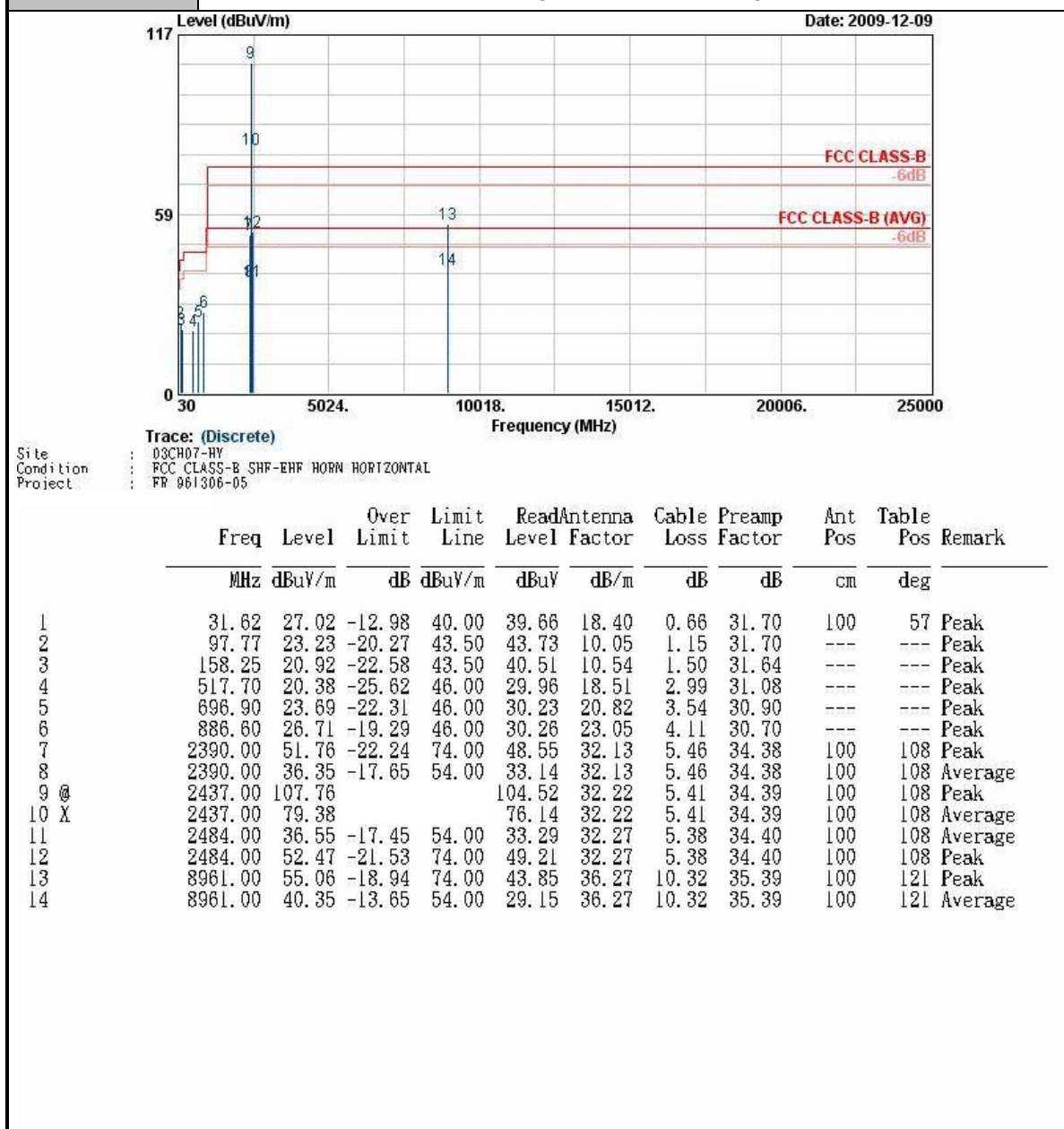
Test Mode :	Mode 5	Temperature :	24~25°C
Test Channel :	01	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		



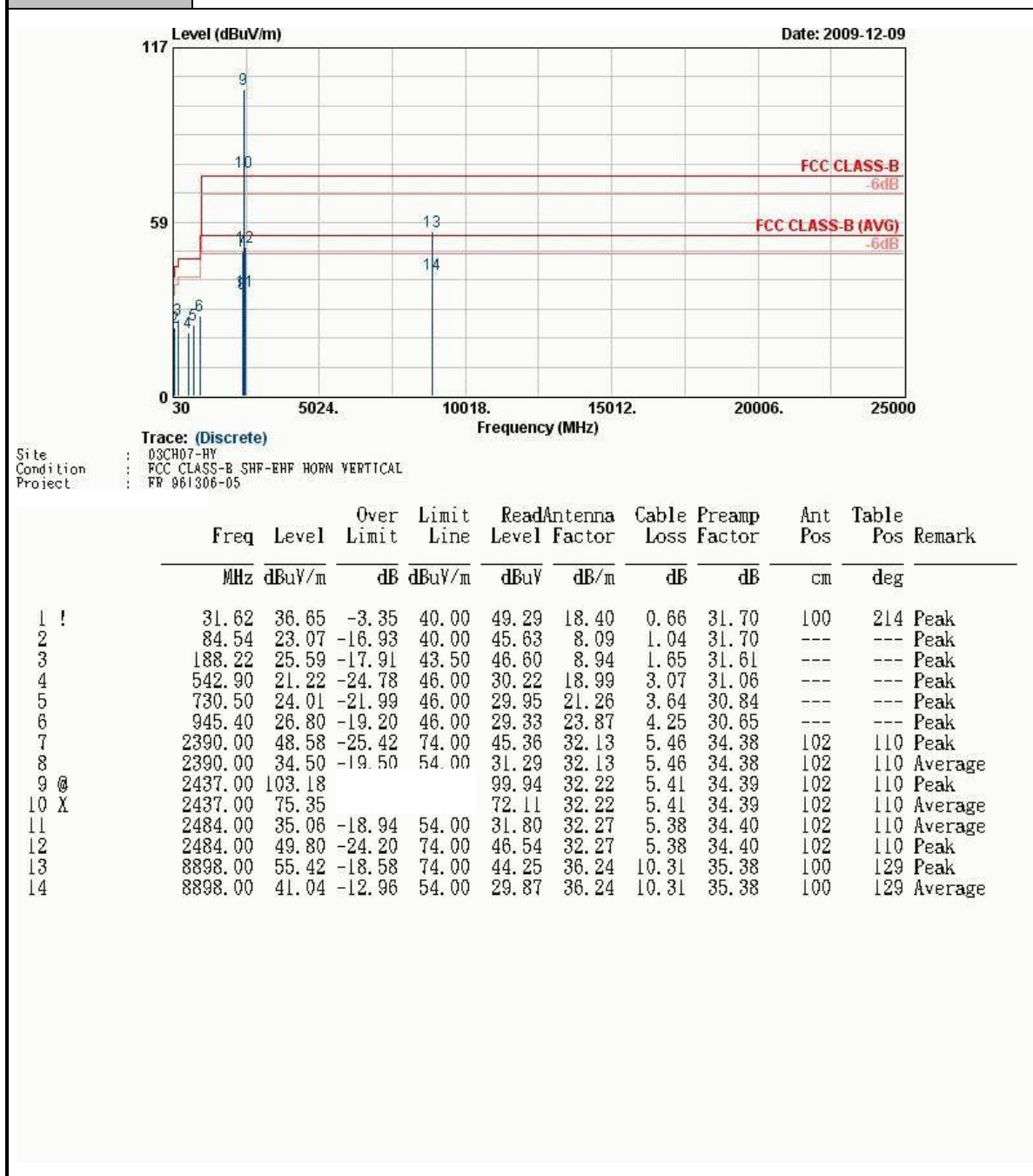
Trace: (Discrete)
Site : D3CH07-RY
Condition : FCC CLASS-B SHF-EHF HORN VERTICAL
Project : FR 961306-05

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	Limit	Line	Level	Loss	Factor	Pos	Pos	
			dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1 !	32.16	36.56	-3.44	40.00	49.21	18.40	0.66	31.70	100	118 Peak
2	129.90	23.16	-20.34	43.50	41.69	11.77	1.37	31.67	---	--- Peak
3	186.06	25.87	-17.63	43.50	46.88	8.97	1.64	31.61	---	--- Peak
4	360.20	19.43	-26.57	46.00	33.27	15.06	2.39	31.28	---	--- Peak
5	774.60	25.23	-20.77	46.00	30.34	21.87	3.78	30.75	---	--- Peak
6	925.80	28.08	-17.92	46.00	30.97	23.58	4.21	30.67	---	--- Peak
7	2389.99	66.41	-7.59	74.00	63.20	32.13	5.46	34.38	100	105 Peak
8	2389.99	44.18	-9.82	54.00	40.97	32.13	5.46	34.38	100	105 Average
9 @	2412.00	102.30	---	---	99.08	32.16	5.44	34.38	100	105 Peak
10 X	2412.00	75.23	---	---	72.01	32.16	5.44	34.38	100	105 Average
11	2494.00	35.16	-18.84	54.00	31.89	32.30	5.37	34.40	100	105 Average
12	2494.00	46.90	-27.10	74.00	43.63	32.30	5.37	34.40	100	105 Peak
13	8553.00	54.32	-19.68	74.00	43.40	36.03	10.20	35.31	100	222 Peak
14	8553.00	40.29	-13.71	54.00	29.37	36.03	10.20	35.31	100	222 Average

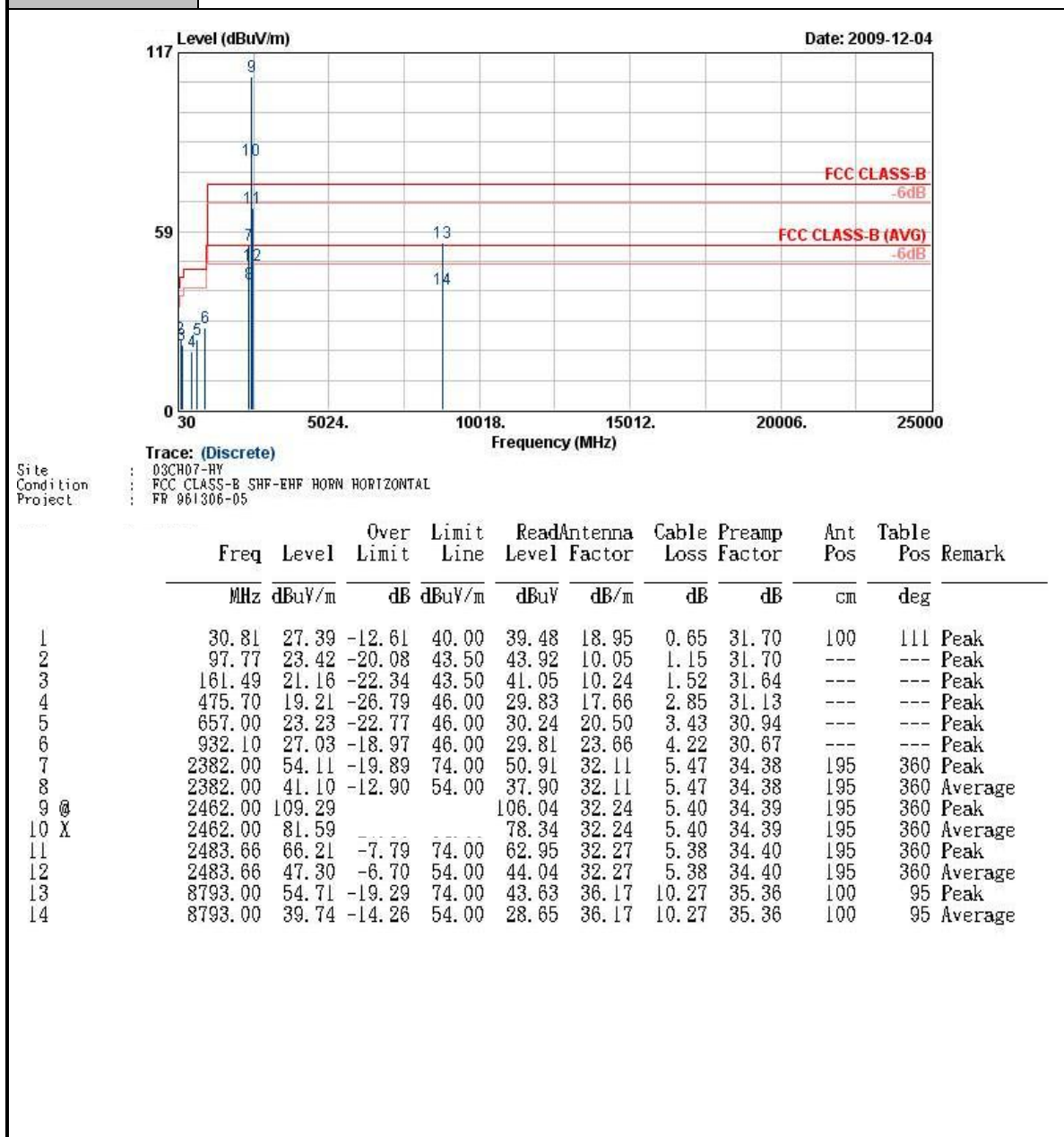
Test Mode :	Mode 6	Temperature :	24~25°C
Test Channel :	06	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		



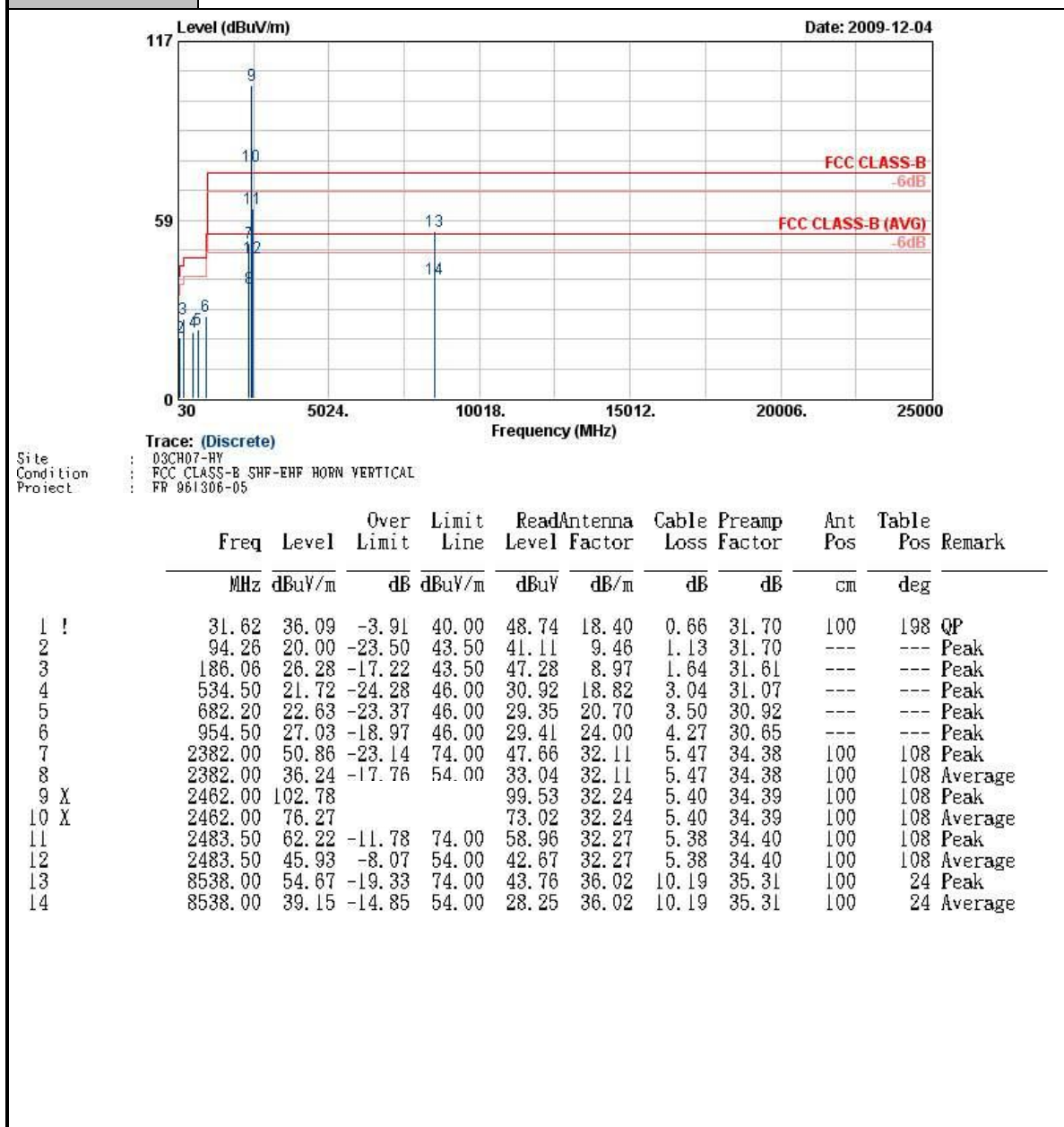
Test Mode :	Mode 6	Temperature :	24~25°C
Test Channel :	06	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		



Test Mode :	Mode 7	Temperature :	24~25°C
Test Channel :	11	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		



Test Mode :	Mode 7	Temperature :	24~25°C
Test Channel :	11	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		



3.8 Antenna Requirements

3.8.1 Standard Applicable

If directional gain of transmitting antennas is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi. For the fixed point-to-point operation, the power shall be reduced by one dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the FCC rule.

3.8.2 Antenna Connected Construction

The antennas type used in this product is PIFA Antenna without connector and it is considered to meet antenna requirement.

3.8.3 Antenna Gain

The antenna peak gain of EUT is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit.

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Due Date	Remark
Spectrum Analyzer	R&S	FSP40	100055	9kHz~40GHz	Jun. 23, 2009	Jun. 22, 2010	Conducted (TH02-HY)
Power Meter	Anritsu	ML2495A	0932001	N/A	Sep. 17, 2009	Sep. 16, 2010	Conducted (TH02-HY)
Power Sensor	Anritsu	MA2411B	0846202	N/A	Sep. 10, 2009	Sep. 09, 2010	Conducted (TH02-HY)
EMI Test Receive	R&S	ESCS 30	100356	9KHz ~ 2.75GHz	Aug. 05, 2009	Aug. 04, 2010	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100081	9kHz~30MHz	Nov. 30, 2009	Nov. 29, 2010	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100080	9kHz~30MHz	Nov. 23, 2009	Nov. 22, 2010	Conduction (CO05-HY)
AC Power Source	APC	APC-1000W	N/A	N/A	N/A	N/A	Conduction (CO05-HY)
System Simulator	R&S	CMU200	105934	N/A	Nov. 11, 2008	Nov. 10, 2010	Conduction (CO05-HY)
GPS Station	T&E	GS-50	N/A	N/A	N/A	N/A	Conduction (CO05-HY)
Bilog Antenna	SCHAFFNER	CBL6111C	2726	30MHz ~ 1GHz	Oct. 31, 2009	Oct. 30, 2010	Radiation (03CH07-HY)
Spectrum Analyzer	R&S	FSP	101067	9KHz ~ 30GHz	Dec. 04, 2009	Dec. 03, 2010	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	00075962	1GHz ~ 18GHz	Aug. 20, 2009	Aug. 19, 2010	Radiation (03CH07-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170251	15GHz- 40GHz	Oct. 14, 2009	Oct. 13, 2010	Radiation (03CH07-HY)
Pre Amplifier	Agilent	8449B	3008A02362	1GHz~ 26.5GHz	Dec.09,2009	Dec. 08, 2010	Radiation (03CH07-HY)
Pre Amplifier	COM-POWER	PA-103A	161241	10-1000MHz.32 dB.GAIN	Mar. 27, 2009	Mar. 26, 2010	Radiation (03CH07-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9 KHz~30 MHz	May 22, 2008	May 21, 2010	Radiation (03CH07-HY)

5 Uncertainty of Evaluation

Uncertainty of Conducted Emission Measurement (150 kHz ~ 30 MHz)

Contribution	Uncertainty of X_i		$u(X_i)$
	dB	Probability Distribution	
Receiver Reading	0.10	Normal (k=2)	0.05
Cable Loss	0.10	Normal (k=2)	0.05
AMN Insertion Loss	2.50	Rectangular	0.63
Receiver Specification	1.50	Rectangular	0.43
Site Imperfection	1.39	Rectangular	0.80
Mismatch	+0.34 / -0.35	U-Shape	0.24
Combined Standard Uncertainty $U_c(y)$	1.13		
Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	2.26		

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Contribution	Uncertainty of X_i		$u(X_i)$
	dB	Probability Distribution	
Receiver Reading	0.41	Normal (k=2)	0.21
Antenna Factor Calibration	0.83	Normal (k=2)	0.42
Cable Loss Calibration	0.25	Normal (k=2)	0.13
Pre-Amplifier Gain Calibration	0.27	Normal (k=2)	0.14
RCV/SPA Specification	2.50	Rectangular	0.72
Antenna Factor Interpolation for Frequency	1.00	Rectangular	0.29
Site Imperfection	1.43	Rectangular	0.83
Mismatch	+0.39 / -0.41	U-Shape	0.28
Combined Standard Uncertainty $U_c(y)$	1.27		
Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	2.54		

Uncertainty of Radiated Emission Measurement (1 GHz ~ 40 GHz)

Contribution	Uncertainty of X_i		$u(X_i)$	C_i	$C_i * u(X_i)$
	dB	Probability Distribution			
Receiver Reading	± 0.10	Normal (k=2)	0.10	1	0.10
Antenna Factor Calibration	± 1.70	Normal (k=2)	0.85	1	0.85
Cable Loss Calibration	± 0.50	Normal (k=2)	0.25	1	0.25
Receiver Correction	± 2.00	Rectangular	1.15	1	1.15
Antenna Factor Directional	± 1.50	Rectangular	0.87	1	0.87
Site Imperfection	± 2.80	Triangular	1.14	1	1.14
Mismatch Receiver VSWR $\Gamma_1 = 0.197$ Antenna VSWR $\Gamma_2 = 0.194$ Uncertainty = $20\text{Log}(1-\Gamma_1\Gamma_2)$	+0.34 / -0.35	U-Shape	0.244	1	0.244
Combined Standard Uncertainty $U_c(y)$	2.36				
Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	4.72				

6 Certification of TAF Accreditation



Certificate No. : L1190-090417

財團法人全國認證基金會
Taiwan Accreditation Foundation

Certificate of Accreditation

This is to certify that

Sporton International Inc.
EMC & Wireless Communications Laboratory
No.52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien,
Taiwan, R.O.C.

is accredited in respect of laboratory

Accreditation Criteria	: ISO/IEC 17025:2005
Accreditation Number	: 1190
Originally Accredited	: December 15, 2003
Effective Period	: January 10, 2007 to January 09, 2010
Accredited Scope	: Testing Field, see described in the Appendix
Specific Accreditation Program	: Accreditation Program for Designated Testing Laboratory for Commodities Inspection Accreditation Program for Telecommunication Equipment Testing Laboratory Accreditation Program for BSMI Mutual Recognition Arrangement with Foreign Authorities



Jay-San Chen
President, Taiwan Accreditation Foundation
Date : April 17, 2009

Pl, total 20 pages

The Appendix forms an integral part of this Certificate, which shall be invalid when use without the Appendix



Appendix A. Photographs of EUT

Please refer to Sporton report number EP961306-05 as below.