

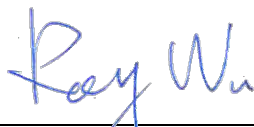
Variant FCC RF Test Report

APPLICANT : Meru Networks Inc.
EQUIPMENT : Multi Radio 802.11a/b/g/n Wireless LAN Access Point
BRAND NAME : Meru Networks Inc.
MODEL NAME : AP302, AP310, AP311, AP320
FCC ID : RE7-AP300
STANDARD : FCC Part 15 Subpart C §15.247
CLASSIFICATION : Digital Transmission System (DTS)

This is a variant report which is only valid combined with the original test report. The product was received on Dec. 24, 2009 and completely tested on Jan. 06, 2010. 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.



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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR9D2415A	Rev. 01	This is a variant report which can be referred to appendix C for product equality declaration. All the test cases were performed on original report which can be referred to appendix D. Based on the original report, only AC Conducted Emission and Radiated Emission was verified.	Jan. 11, 2010

SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.247(d)	A8.5	Frequency Band Edges	$\leq 20\text{dBc}$	Pass	-
3.2	15.207	Gen 7.2.2	AC Conducted Emission	15.207(a)	Pass	Under limit 6.5 dB at 0.478 MHz
3.3	15.247(d)	A8.5	Transmitter Radiated Emission	15.209(a) & 15.247(d)	Pass	Under limit 0.33 dB at 2483.66 MHz
3.4	15.203 & 15.247(b)	A8.4	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

Meru Networks Inc.

894 Ross Drive Sunnyvale, CA 94089 USA

1.2 Manufacturer

Universal Scientific Industrial (Shanghai)

No. 1558, Zhang Dong Road, Zhangjiang Hi-Tech Park, Shanghai, P.R. China 201203

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	Multi Radio 802.11a/b/g/n Wireless LAN Access Point
Brand Name	Meru Networks Inc.
Model Name	AP302, AP310, AP311, AP320
FCC ID	RE7-AP300
Tx/Rx Frequency Range	802.11b/g/n : 2400 MHz ~ 2483.5 MHz 802.11a/n : 5725 MHz ~ 5850 MHz
Channel Spacing	802.11b/g : 5 MHz 802.11a : 20 MHz
HW Version	AP300
SW Version	3.6.1-41
Type of Modulation	802.11b : DSSS (BPSK / QPSK / CCK) 802.11a/g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)
EUT Stage	Production Unit

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).

List of Accessory:

Specification of Accessory		
Antenna 1	Model Name	S24493TS
	Antenna Type	Panel Antenna
	Antenna Gain	3.0 dBi for WLAN (2.4G) ; 4.0 dBi for WLAN (5G)
Antenna 2	Model Name	M6025040M01 D2420M
	Antenna Type	Panel Antenna
	Antenna Gain	2.5 dBi for WLAN (2.4G) ; 4.0 dBi for WLAN (5G)

Remark:

1. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.
2. For accessories equipped with this EUT, please refer to the appendix of the external photo.

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	03CH07HY	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.	AC Adapter 1	UMEC	UP0251P-05PA	N/A	N/A	Shielded, 1.8 m
2.	AC Adapter 2 (for POE)	UMEC	UP0151D-48P	N/A	N/A	Shielded, 1.8 m
3.	POE	PLANET	POE-152	N/A	N/A	N/A
4.	Notebook	DELL	Vostro 1510	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
5.	Notebook	ASUS	F9E	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
6.	Notebook	Acer	MS2180	QDS-BRCM1018	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m

2 Test Configuration of Equipment Under Test

2.1 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 table is showing the total pre-scanned test modes, and the worst modes are recorded in this report only.

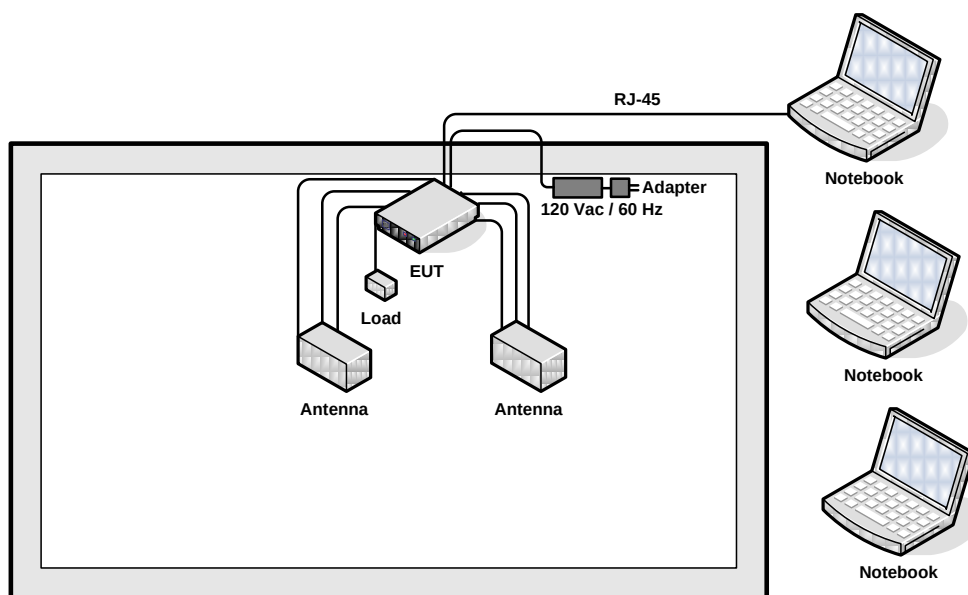
Test Cases	
Test Item	802.11b (Modulation : DSSS) 802.11a/g/n (Modulation : OFDM)
Radiated TCs	Mode 1: 802.11b_CH01_2412 MHz for WLAN 1 and Antenna 1 Mode 2: 802.11b_CH06_2437 MHz for WLAN 1 and Antenna 1 Mode 3: 802.11b_CH11_2462 MHz for WLAN 1 and Antenna 1 Mode 4: 802.11g_CH01_2412 MHz for WLAN 1 and Antenna 1 Mode 5: 802.11g_CH06_2437 MHz for WLAN 1 and Antenna 1 Mode 6: 802.11g_CH11_2462 MHz for WLAN 1 and Antenna 1 Mode 7: 802.11g_CH11_2462 MHz for WLAN 1 and Antenna 2 Mode 8: 802.11n(g)_CH01_2412 MHz (BW 20MHz) for WLAN 1 and Antenna 1 Mode 9: 802.11n(g)_CH06_2437 MHz (BW 20MHz) for WLAN 1 and Antenna 1 Mode 10: 802.11n(g)_CH11_2462 MHz (BW 20MHz) for WLAN 1 and Antenna 1 Mode 11: 802.11n(g)_CH03_2422 MHz (BW 40MHz) for WLAN 1 and Antenna 1 Mode 12: 802.11n(g)_CH09_2452 MHz (BW 40MHz) for WLAN 1 and Antenna 1 Mode 13: 802.11n(g)_CH09_2452 MHz (BW 40MHz) for WLAN 2 and Antenna 1 Mode 14: 802.11a_CH149_5745 MHz for WLAN 1 and Antenna 1 Mode 15: 802.11a_CH157_5785 MHz for WLAN 1 and Antenna 1 Mode 16: 802.11a_CH165_5825 MHz for WLAN 1 and Antenna 1 Mode 17: 802.11a_CH165_5825 MHz for WLAN 1 and Antenna 2 Mode 18: 802.11n(a)_CH149_5745 MHz (BW 20MHz) for WLAN 1 and Antenna 1 Mode 19: 802.11n(a)_CH157_5785 MHz (BW 20MHz) for WLAN 1 and Antenna 1 Mode 20: 802.11n(a)_CH165_5825 MHz (BW 20MHz) for WLAN 1 and Antenna 1 Mode 21: 802.11n(a)_CH165_5825 MHz (BW 20MHz) for WLAN 2 and Antenna 1 Mode 22: 802.11n(a)_CH151_5755 MHz (BW 40MHz) for WLAN 1 and Antenna 1 Mode 23: 802.11n(a)_CH159_5795 MHz (BW 40MHz) for WLAN 1 and Antenna 1 Mode 24: 802.11g_CH11_2462 MHz for WLAN 1 and Antenna 1 + 802.11g_CH11_2462 MHz for WLAN 2 and Antenna 1 Mode 25: 802.11n(a)_CH165_5825 MHz (BW 20MHz) for WLAN 1 and Antenna 1 + 802.11n(a)_CH165_5825 MHz (BW 20MHz) for WLAN 2 and Antenna 1

Test Cases	
AC Conducted Emission	Mode 1 : WLAN 1 (2.4G) Link + WLAN 2 (2.4G) Link + LAN Link + Adapter 1
	Mode 2 : WLAN 1 (5G) Link + WLAN 2 (5G) Link + POE + LAN Link + Adapter 2
Remark: 1. The worst case of AC conducted emission is mode 1; only the test data of it was reported. 2. Only Antenna 1 was used for AC conducted emission test. 3. The EUT has two modules which have the same design, and they can transmit simultaneously. 4. The WLAN 1 (module 1) was tested for full test modes, the WLAN 2 (module 2) was tested based on the worst case of WLAN 1, and the worst case for co-location were mode 24 and 25.	

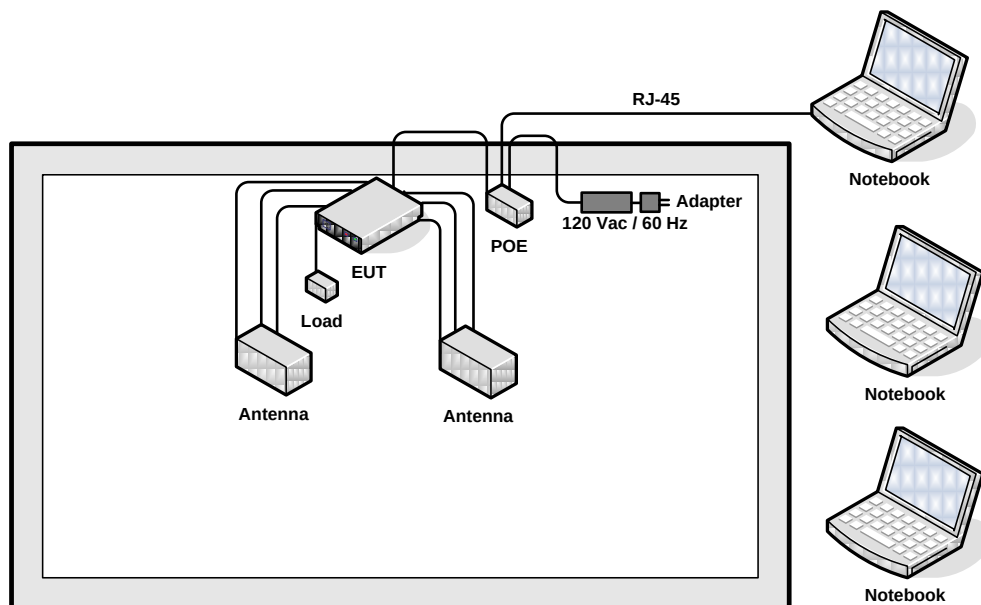
2.2 Connection Diagram of Test System

<Conduction Test>

EUT with Adapter Mode

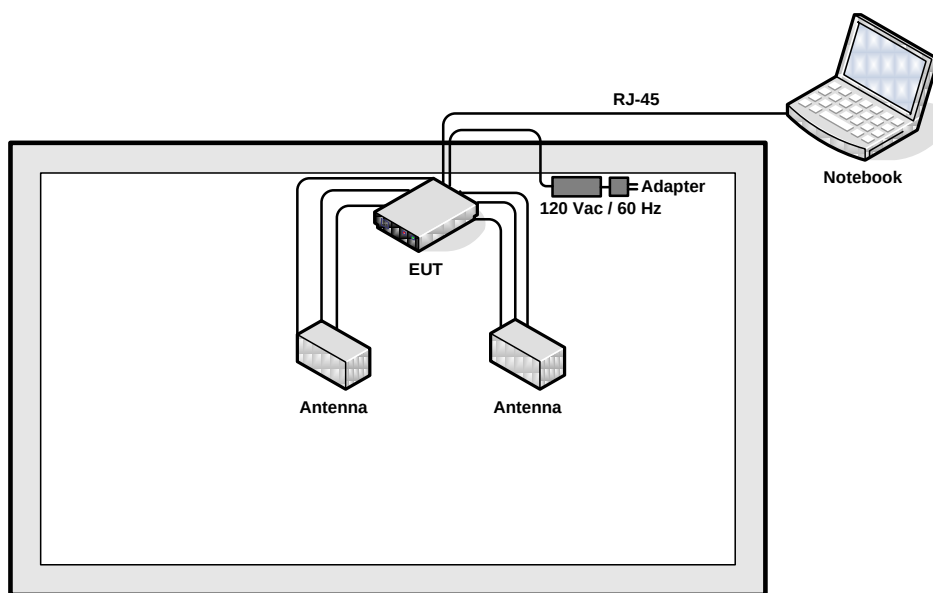


EUT with POE and Adapter Mode



<Radiation Test>

EUT with Antenna 1





The diagram illustrates a network configuration. A laptop, labeled "Notebook", is connected via an "RJ-45" cable to a network switch. The switch is connected to an "Adapter" and a "120 Vac / 60 Hz" power source. The switch is also connected to an "EUT" (End User Terminal) and an "Antenna".

The programmed RF utility “ART”, is installed in notebook 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 Band Edges Measurement

3.1.1 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.

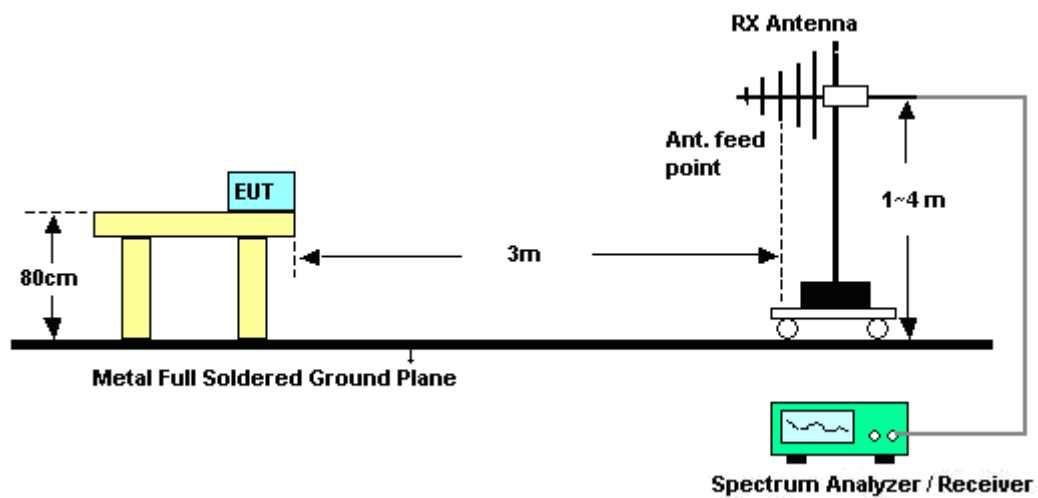
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 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) > RBW. Band edge emissions must be at least 20 dB below the highest emission level within the authorized band as measured with a 100 kHz RBW. Note: If the output power of this device was measured by power meter, 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).

3.1.4 Test Setup



3.1.5 Test Result of Radiated Band Edges

Test Mode :	Mode 1	Temperature :	19~20°C
Test Band :	802.11b	Relative Humidity :	48~49%
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
2385.81	52.24	-21.76	74.00	48.80	32.13	5.46	34.15	162	57	Peak
2385.81	42.96	-11.04	54.00	39.52	32.13	5.46	34.15	162	57	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
2387.33	57.38	-16.62	74.00	53.94	32.13	5.46	34.15	100	6	Peak
2387.00	45.77	-8.23	54.00	42.33	32.13	5.46	34.15	100	6	Average

Test Mode :	Mode 3	Temperature :	19~20°C
Test Band :	802.11b	Relative Humidity :	48~49%
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
2489.74	51.27	-22.73	74.00	47.79	32.30	5.37	34.19	100	54	Peak
2489.74	39.28	-14.72	54.00	35.80	32.30	5.37	34.19	100	54	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
2486.13	53.73	-20.27	74.00	50.26	32.27	5.38	34.19	100	4	Peak
2486.13	43.67	-10.33	54.00	40.20	32.27	5.38	34.19	100	4	Average



Test Mode :	Mode 4	Temperature :	19~20°C
Test Band :	802.11g	Relative Humidity :	48~49%
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
2389.99	65.09	-8.91	74.00	61.66	32.13	5.46	34.16	163	59	Peak
2389.99	46.61	-7.39	54.00	43.18	32.13	5.46	34.16	163	59	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	71.06	-2.94	74.00	67.63	32.13	5.46	34.16	100	6	Peak
2389.99	51.45	-2.55	54.00	48.02	32.13	5.46	34.16	100	6	Average

Test Mode :	Mode 6	Temperature :	19~20°C
Test Band :	802.11g	Relative Humidity :	48~49%
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
2484.42	69.93	-4.07	74.00	66.46	32.27	5.38	34.19	100	51	Peak
2484.42	47.61	-6.39	54.00	44.14	32.27	5.38	34.19	100	51	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	73.67	-0.33	74.00	70.20	32.27	5.38	34.19	100	4	Peak
2483.66	53.35	-0.65	54.00	49.88	32.27	5.38	34.19	100	4	Average



Test Mode :	Mode 7	Temperature :	19~20°C
Test Band :	802.11g	Relative Humidity :	48~49%
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	72.26	-1.74	74.00	68.79	32.27	5.38	34.19	100	318	Peak
2483.66	52.71	-1.29	54.00	49.24	32.27	5.38	34.19	100	318	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
2483.50	68.93	-5.07	74.00	65.46	32.27	5.38	34.19	100	242	Peak
2483.50	46.74	-7.26	54.00	43.27	32.27	5.38	34.19	100	242	Average

Test Mode :	Mode 8	Temperature :	19~20°C
Test Band :	802.11n(g) (BW 20MHz)	Relative Humidity :	48~49%
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	58.40	-15.60	74.00	54.96	32.13	5.46	34.15	163	57	Peak
2389.61	40.74	-13.26	54.00	37.30	32.13	5.46	34.15	163	57	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	62.81	-11.19	74.00	59.38	32.13	5.46	34.16	100	11	Peak
2389.99	45.89	-8.11	54.00	42.46	32.13	5.46	34.16	100	11	Average

Test Mode :	Mode 10	Temperature :	19~20°C
Test Band :	802.11n(g) (BW 20MHz)	Relative Humidity :	48~49%
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	59.40	-14.60	74.00	55.93	32.27	5.38	34.19	127	53	Peak
2483.66	41.43	-12.57	54.00	37.96	32.27	5.38	34.19	127	53	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
2485.18	61.82	-12.18	74.00	58.35	32.27	5.38	34.19	100	4	Peak
2485.18	45.93	-8.07	54.00	42.46	32.27	5.38	34.19	100	4	Average

Test Mode :	Mode 11	Temperature :	19~20°C
Test Band :	802.11n(g) (BW 40MHz)	Relative Humidity :	48~49%
Test Channel :	03	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
2387.33	63.77	-10.23	74.00	60.33	32.13	5.46	34.15	106	58	Peak
2387.33	44.80	-9.20	54.00	41.36	32.13	5.46	34.15	106	58	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
2388.66	70.37	-3.63	74.00	66.93	32.13	5.46	34.15	100	4	Peak
2388.66	43.76	-10.24	54.00	40.32	32.13	5.46	34.15	100	4	Average



Test Mode :	Mode 12	Temperature :	19~20°C
Test Band :	802.11n(g) (BW 40MHz)	Relative Humidity :	48~49%
Test Channel :	09	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	65.51	-8.49	74.00	62.04	32.27	5.38	34.19	133	52	Peak
2483.66	45.40	-8.60	54.00	41.93	32.27	5.38	34.19	133	52	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	69.42	-4.58	74.00	65.95	32.27	5.38	34.19	100	10	Peak
2483.66	51.14	-2.86	54.00	47.67	32.27	5.38	34.19	100	10	Average

Test Mode :	Mode 13	Temperature :	19~20°C
Test Band :	802.11n(g) (BW 40MHz)	Relative Humidity :	48~49%
Test Channel :	09	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	69.31	-4.69	74.00	65.84	32.27	5.38	34.19	100	52	Peak
2483.50	50.95	-3.05	54.00	47.48	32.27	5.38	34.19	100	52	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
2485.94	72.82	-1.18	74.00	69.35	32.27	5.38	34.19	100	0	Peak
2485.94	53.05	-0.95	54.00	49.58	32.27	5.38	34.19	100	0	Average



Test Mode :	Mode 24	Temperature :	19~20°C
Test Band :	802.11g	Relative Humidity :	48~49%
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
2483.85	71.82	-2.18	74.00	68.35	32.27	5.38	34.19	163	56	Peak
2483.85	50.94	-3.06	54.00	47.47	32.27	5.38	34.19	163	56	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
2484.61	71.27	-2.73	74.00	67.80	32.27	5.38	34.19	100	350	Peak
2484.61	47.63	-6.37	54.00	44.16	32.27	5.38	34.19	100	350	Average

3.2 AC Conducted Emission Measurement

3.2.1 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.

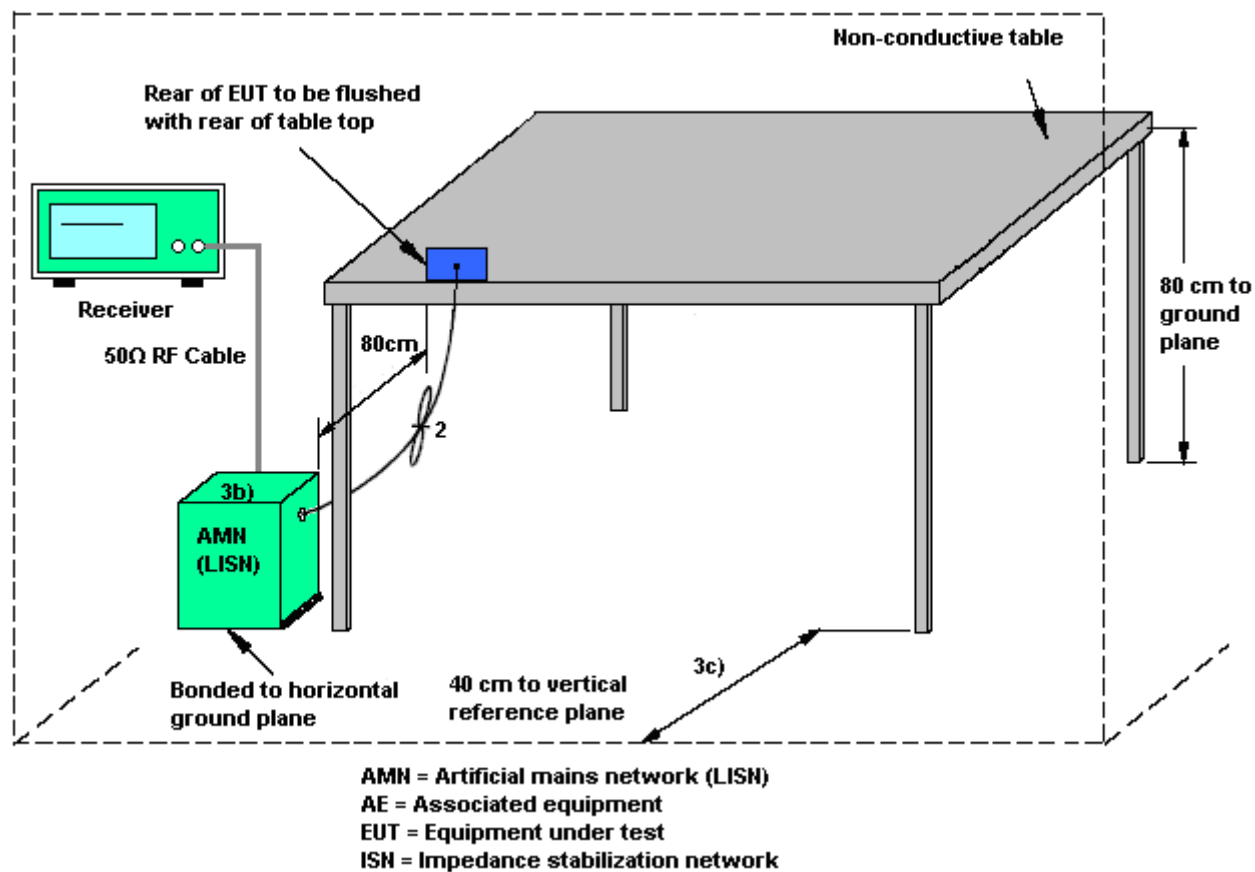
3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

3.2.3 Test Procedures

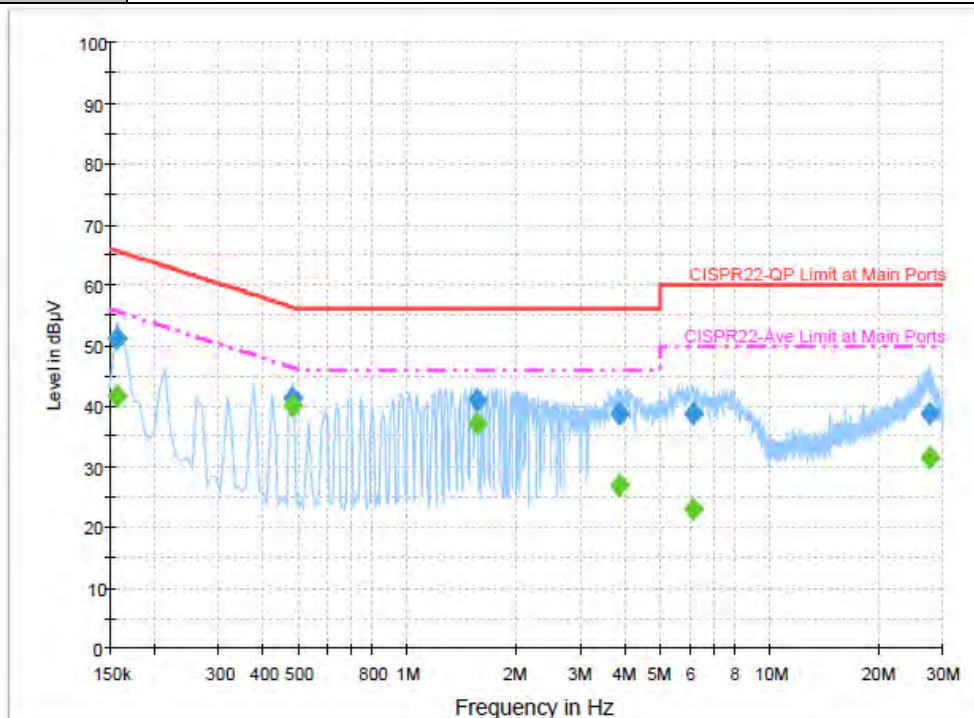
1. The testing follows the guidelines in ANSI C63.4-2003.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (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.

3.2.4 Test Setup



3.2.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	Temperature :	20~22℃
Test Engineer :	Hayden Wu	Relative Humidity :	42~45%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	WLAN 1 (2.4G) Link + WLAN 2 (2.4G) Link + LAN Link + Adapter 1		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



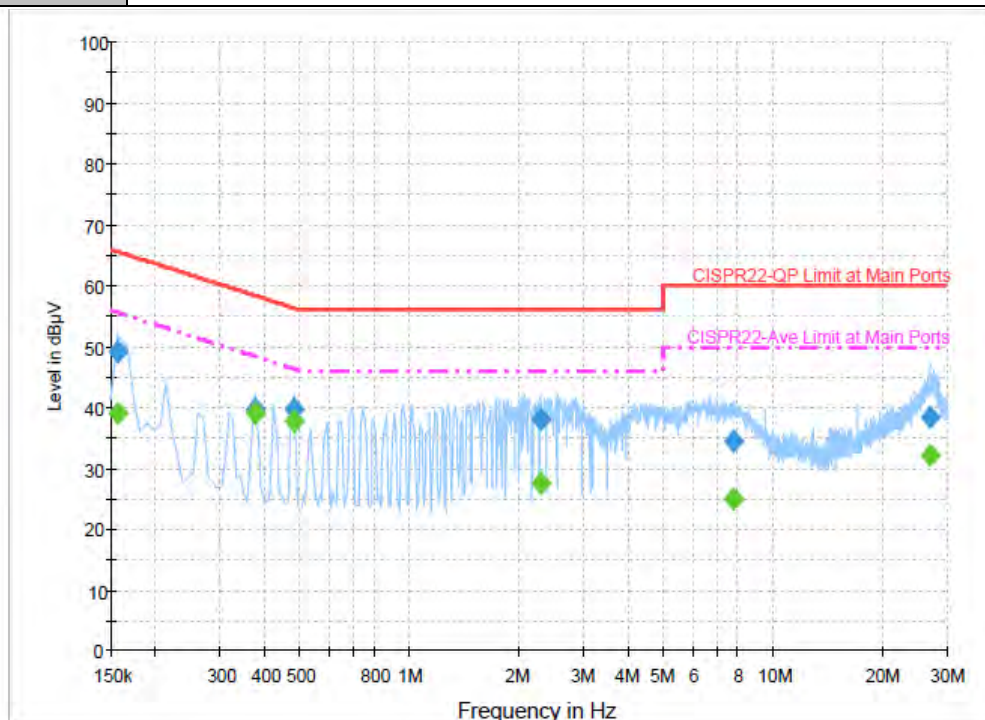
Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.158000	51.3	Off	L1	19.5	14.3	65.6
0.478000	41.4	Off	L1	19.4	15.0	56.4
1.550000	41.0	Off	L1	19.5	15.0	56.0
3.854000	38.7	Off	L1	19.5	17.3	56.0
6.158000	38.6	Off	L1	19.5	21.4	60.0
27.574000	38.7	Off	L1	19.7	21.3	60.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.158000	41.7	Off	L1	19.5	13.9	55.6
0.478000	39.9	Off	L1	19.4	6.5	46.4
1.550000	37.0	Off	L1	19.5	9.0	46.0
3.854000	26.9	Off	L1	19.5	19.1	46.0
6.158000	22.9	Off	L1	19.5	27.1	50.0
27.574000	31.3	Off	L1	19.7	18.7	50.0

Test Mode :	Mode 1	Temperature :	20~22°C
Test Engineer :	Hayden Wu	Relative Humidity :	42~45%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WLAN 1 (2.4G) Link + WLAN 2 (2.4G) Link + LAN Link + Adapter 1		
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	49.3	Off	N	19.5	16.3	65.6
0.374000	39.5	Off	N	19.4	18.9	58.4
0.478000	39.7	Off	N	19.4	16.7	56.4
2.294000	38.0	Off	N	19.5	18.0	56.0
7.774000	34.5	Off	N	19.6	25.5	60.0
26.998000	38.3	Off	N	19.9	21.7	60.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.158000	38.9	Off	N	19.5	16.7	55.6
0.374000	39.2	Off	N	19.4	9.2	48.4
0.478000	37.8	Off	N	19.4	8.6	46.4
2.294000	27.7	Off	N	19.5	18.3	46.0
7.774000	24.8	Off	N	19.6	25.2	50.0
26.998000	32.2	Off	N	19.9	17.8	50.0

3.3 Radiated Emission Measurement

3.3.1 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

3.3.2 Measuring Instruments

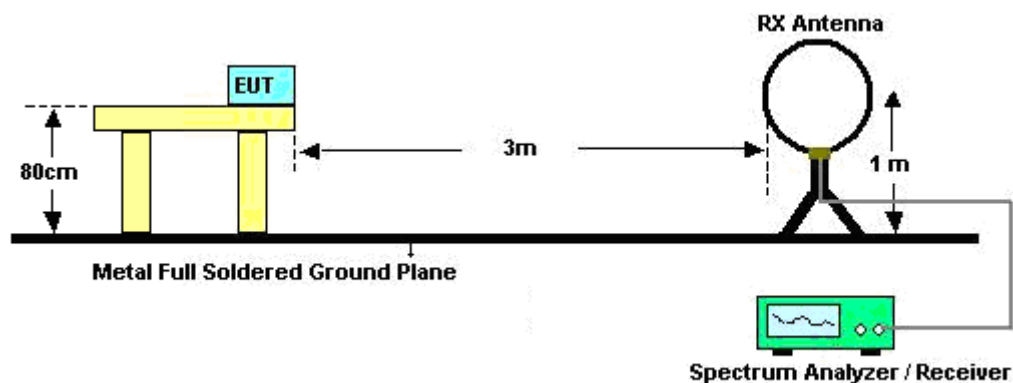
See list of measuring instruments of this test report.

3.3.3 Test Procedures

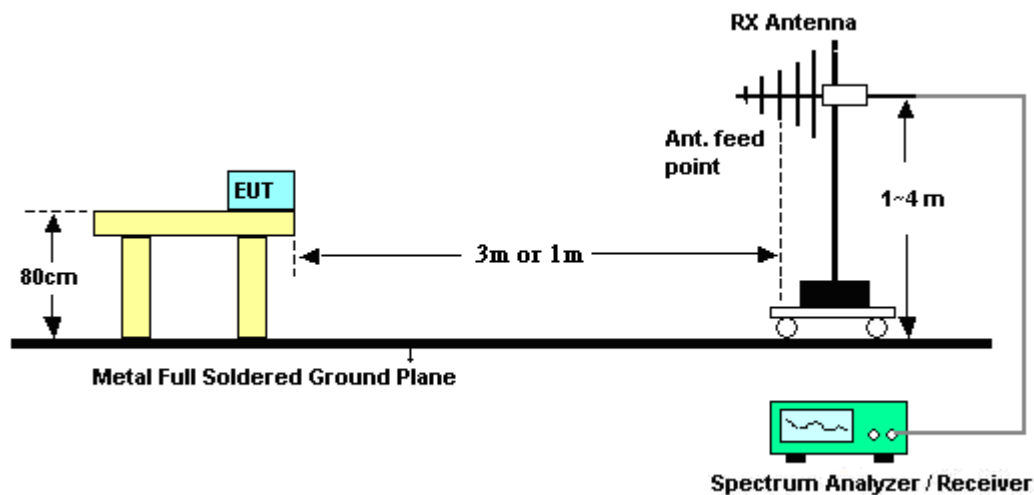
- The testing follows the guidelines in FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
- Use the following spectrum analyzer settings:
 - Span = wide enough to fully capture the emission being measured; RBW = 1 MHz for $f \geq 1$ GHz, 100 kHz for $f < 1$ GHz; VBW $\geq$ RBW; Sweep = 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.

3.3.4 Test Setup

For radiated emissions below 30MHz



For radiated emissions above 30MHz



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

Test Engineer :	Kay Wu	Temperature :	19~20°C	
		Relative Humidity :	48~49%	

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);

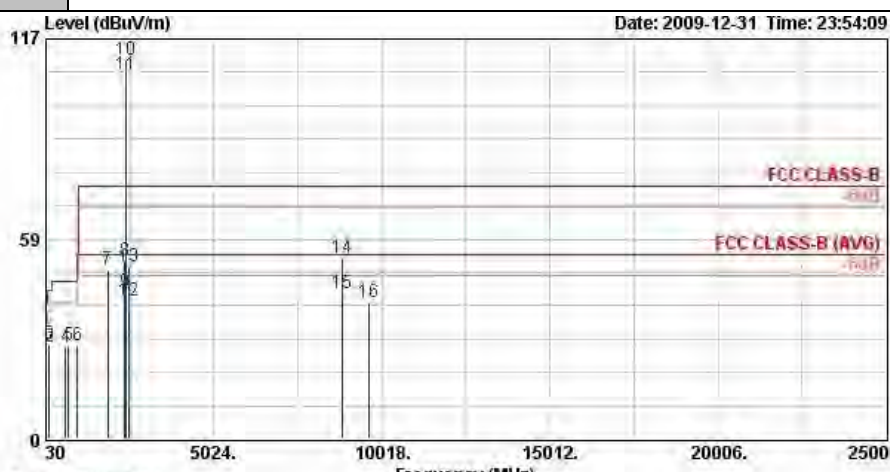
Limit line = specific limits (dBuV) + distance extrapolation factor.

3.3.6 Test Result of Radiated Emission

Test Mode :	Mode 1	Temperature :	19~20℃
Test Channel :	01	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	#10 and #11 are Fundamental Signals which can be ignored. #16 is not in the restricted band.		

Level (dBUV/m)

Date: 2009-12-31 Time: 23:54:09



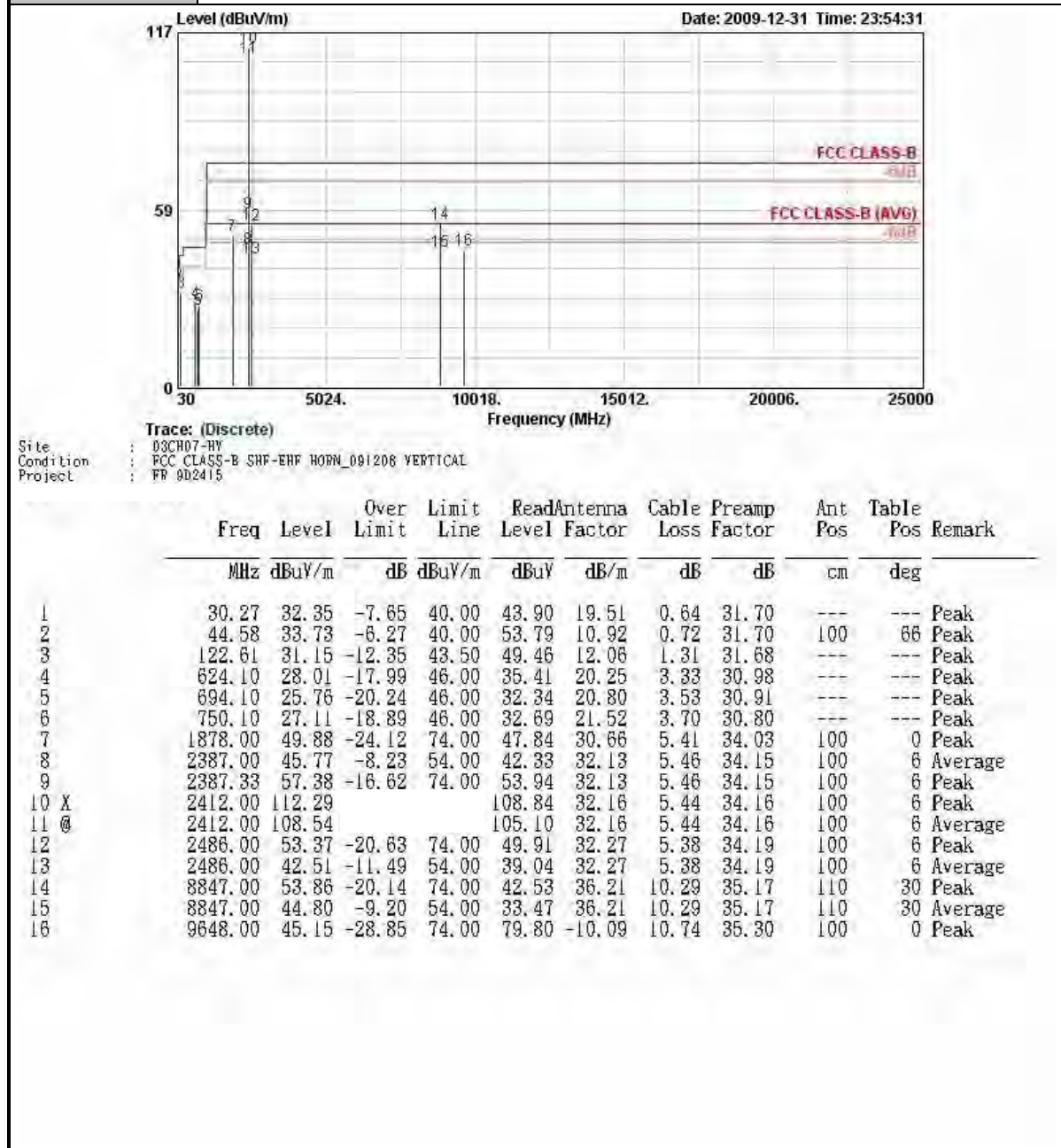
Trace: (Discrete)

Site : 03CH07-HY
Condition : FCC CLASS-B SHF-EHF HORN_081208 HORIZONTAL
Project : FR 9D2415

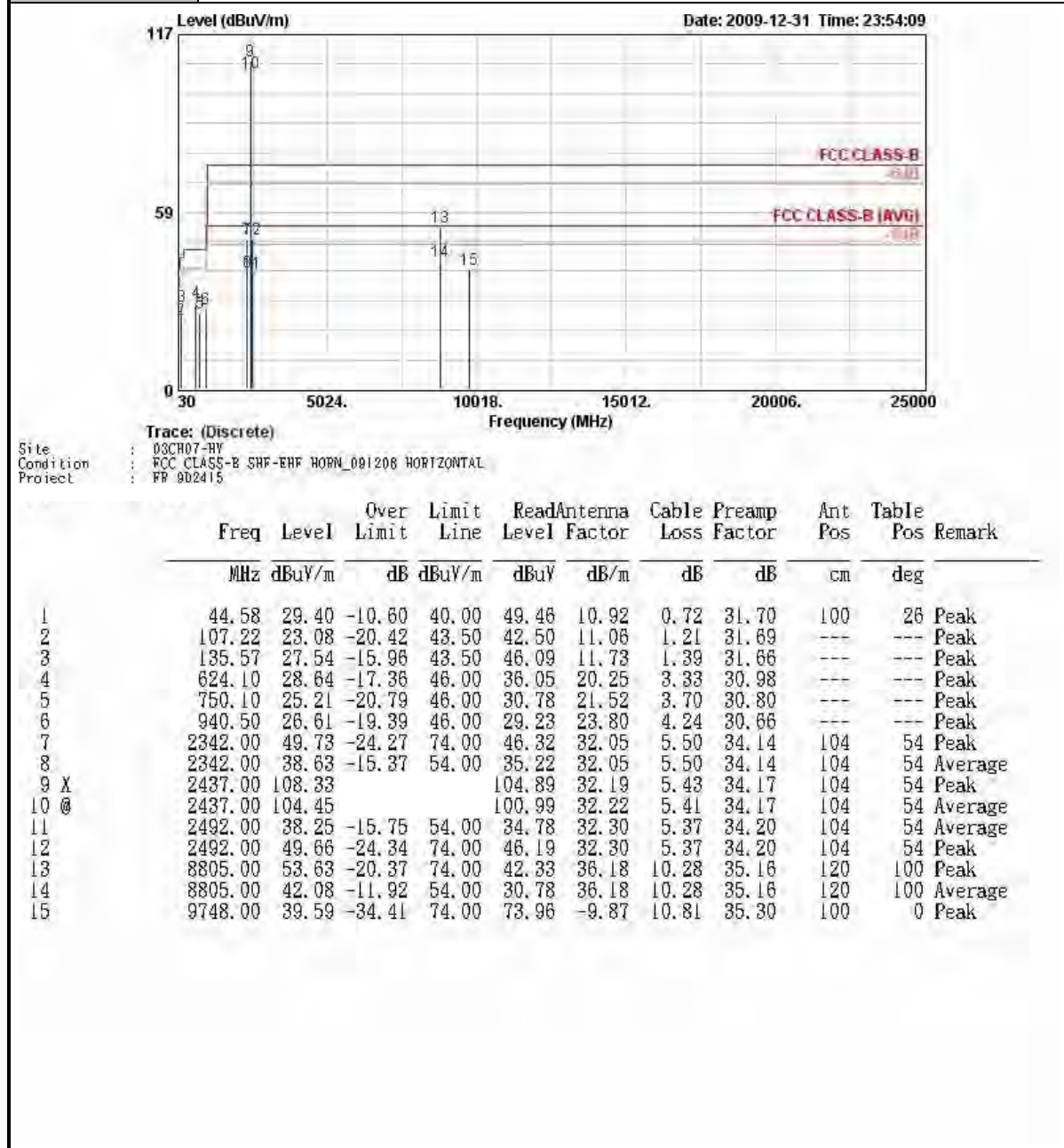
	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBUV/m	Limit	Line	Level	Factor	Loss	Factor	Pos	
			dB	dBUV/m	dBUV	dB/m	dB	dB	cm	deg
1	44.58	29.70	-10.30	40.00	49.76	10.92	0.72	31.70	100	267 Peak
2	125.85	26.76	-16.74	43.50	45.27	11.80	1.35	31.67	---	---
3	135.57	27.75	-15.75	43.50	46.30	11.73	1.39	31.66	---	---
4	624.10	26.83	-19.17	46.00	34.24	20.25	3.33	30.98	---	---
5	696.90	27.38	-18.62	46.00	33.92	20.82	3.54	30.90	---	---
6	957.30	27.49	-18.51	46.00	29.81	24.04	4.28	30.64	---	---
7	1878.00	49.50	-24.50	74.00	47.46	30.66	5.41	34.03	100	0 Peak
8	2385.81	52.24	-21.76	74.00	48.80	32.13	5.46	34.15	162	57 Peak
9	2385.81	42.96	-11.04	54.00	39.52	32.13	5.46	34.15	162	57 Average
10 X	2412.00	110.74			107.30	32.16	5.44	34.16	162	57 Peak
11 @	2412.00	106.43			102.99	32.16	5.44	34.16	162	57 Average
12	2484.00	40.41	-13.59	54.00	36.94	32.27	5.38	34.19	162	57 Average
13	2484.00	50.46	-23.54	74.00	46.99	32.27	5.38	34.19	162	57 Peak
14	8829.00	53.28	-20.72	74.00	41.95	36.20	10.29	35.17	100	58 Peak
15	8829.00	42.58	-11.42	54.00	31.26	36.20	10.29	35.17	100	58 Average
16	9648.00	40.22	-33.78	74.00	74.87	-10.09	10.74	35.30	100	0 Peak



Test Mode :	Mode 1	Temperature :	19~20°C
Test Channel :	01	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	#10 and #11 are Fundamental Signals which can be ignored. #16 is not in the restricted band.		

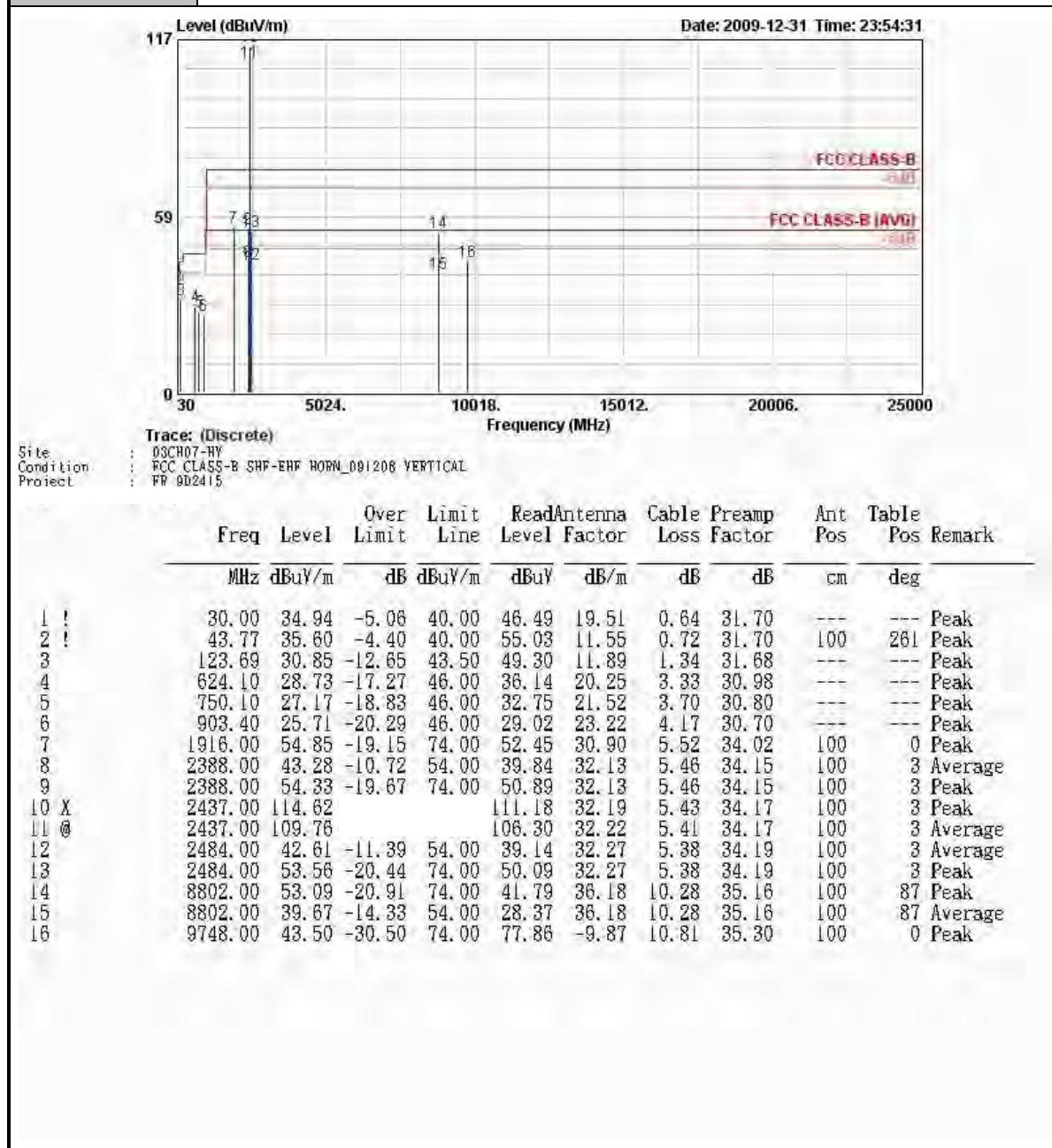


Test Mode :	Mode 2	Temperature :	19~20°C
Test Channel :	06	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	#9 and #10 are Fundamental Signals which can be ignored. #15 is not in the restricted band.		



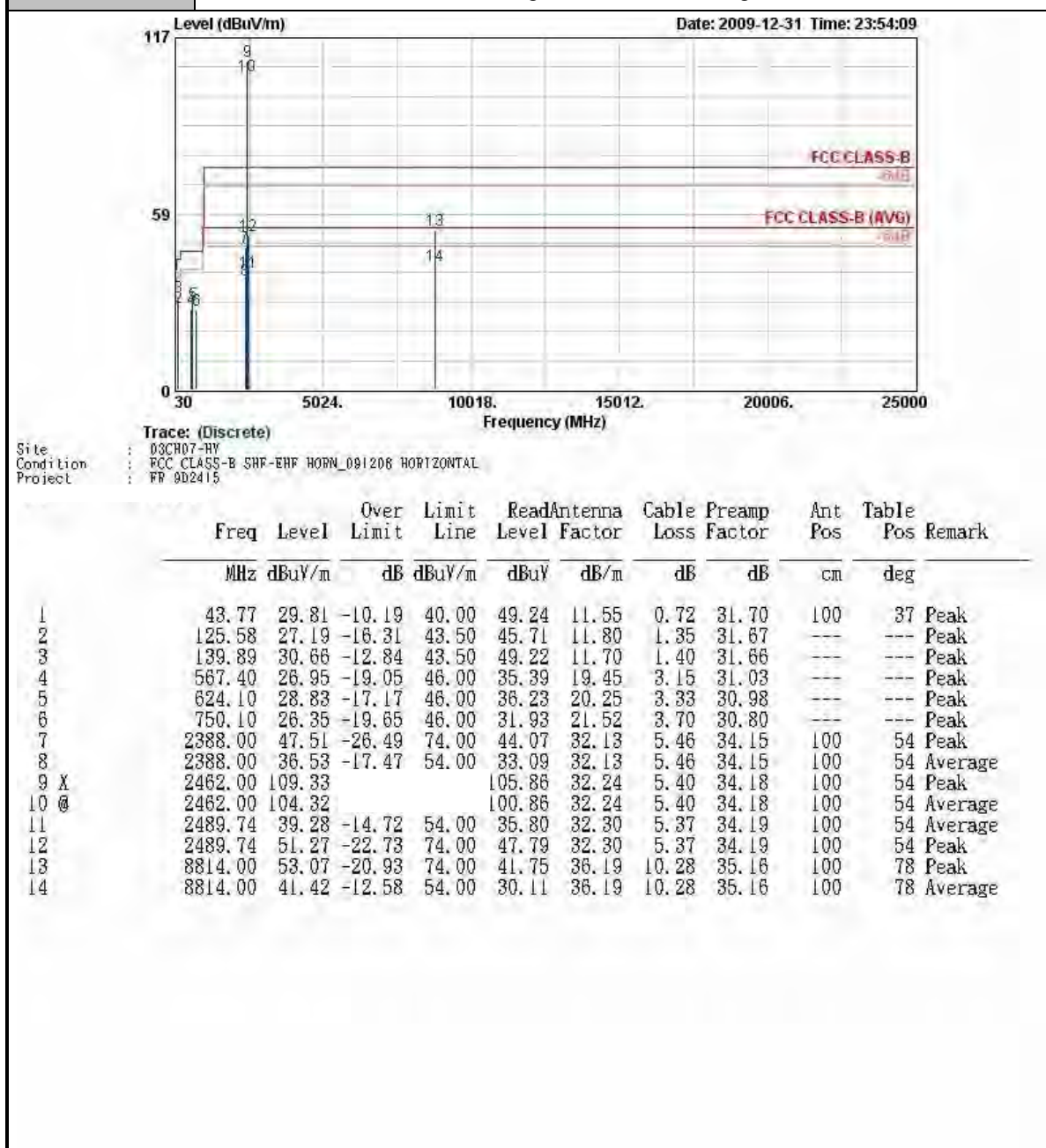


Test Mode :	Mode 2	Temperature :	19~20°C
Test Channel :	06	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	#10 and #11 are Fundamental Signals which can be ignored. #16 is not in the restricted band.		



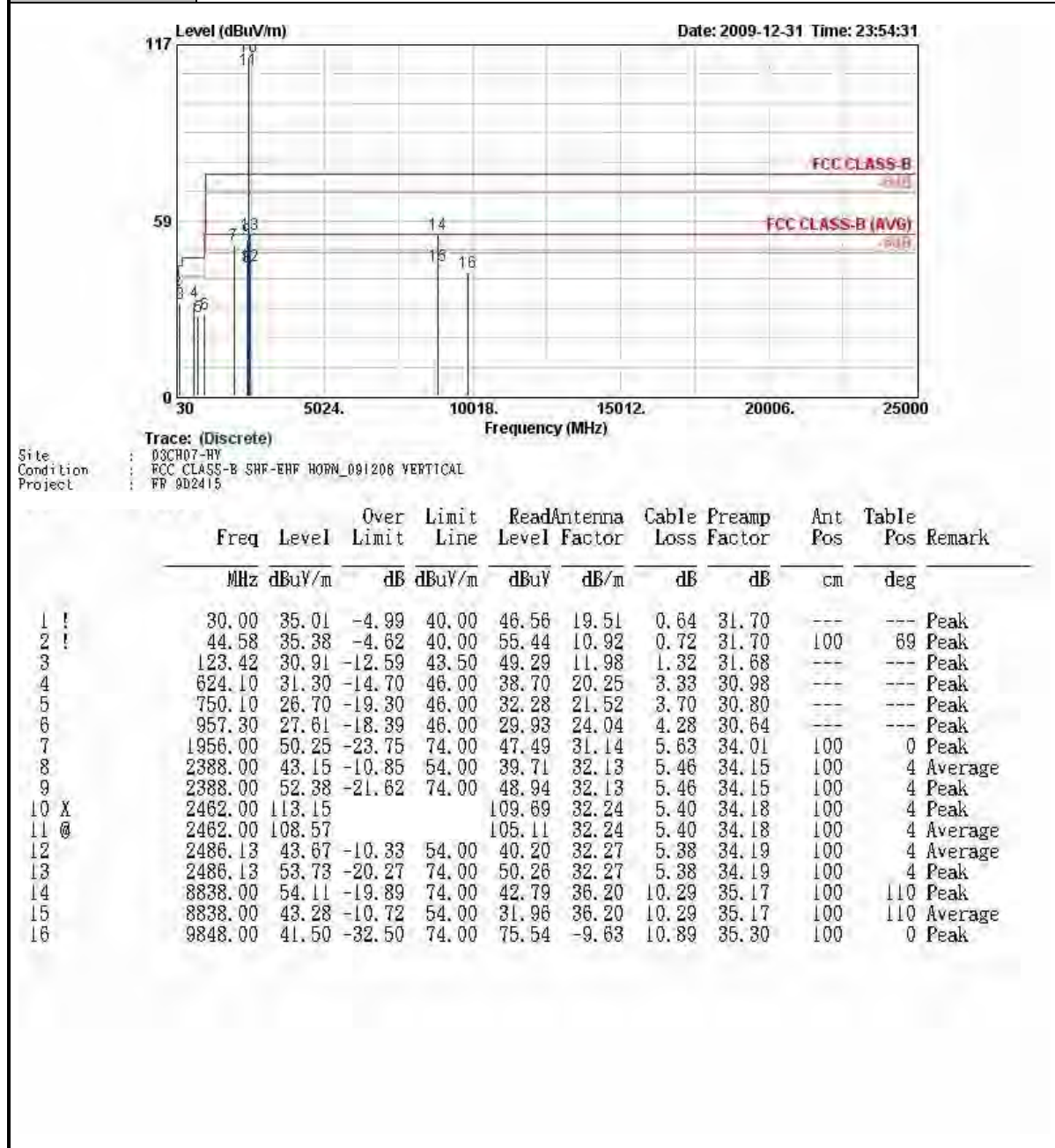


Test Mode :	Mode 3	Temperature :	19~20°C
Test Channel :	11	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		

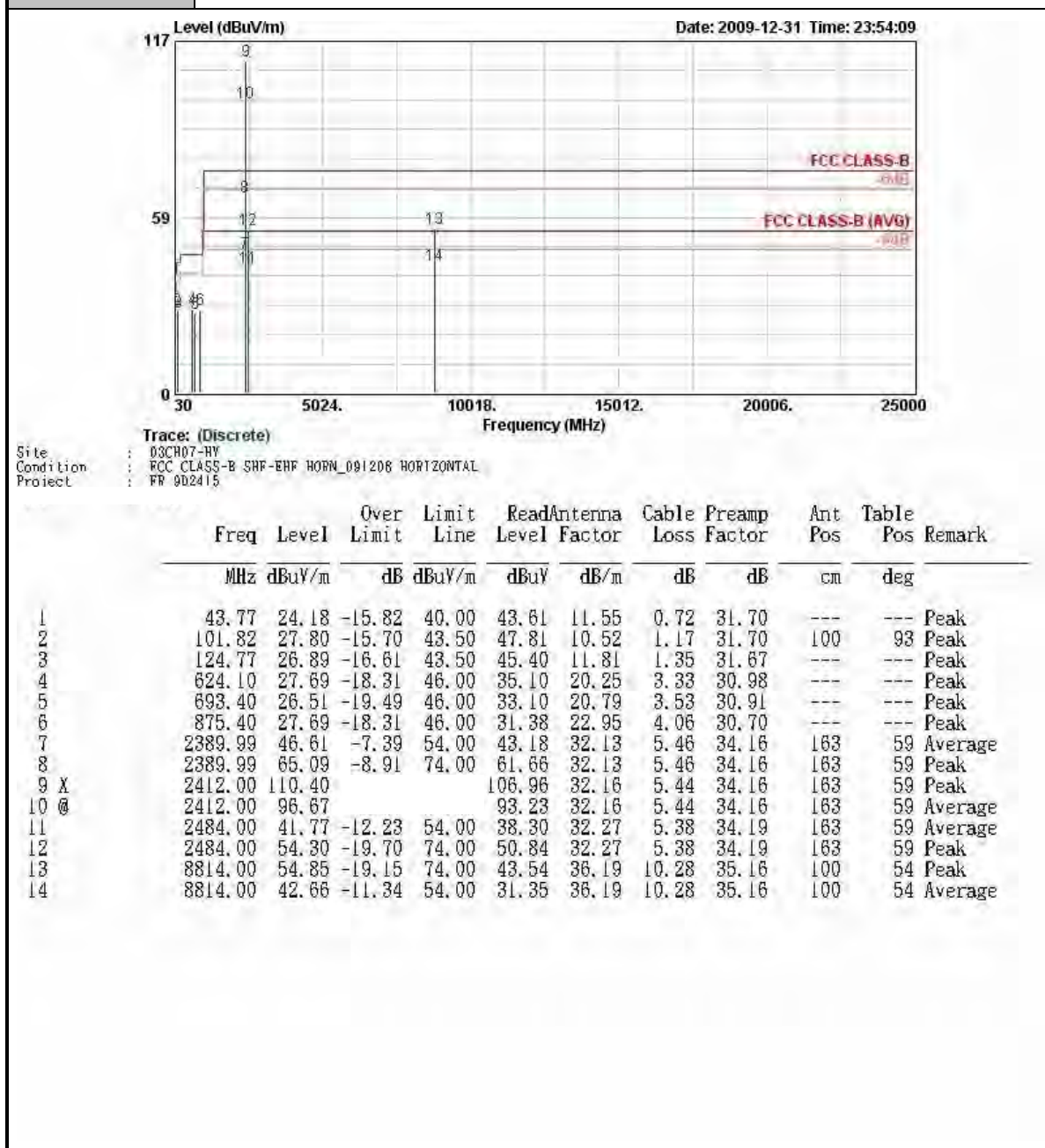




Test Mode :	Mode 3	Temperature :	19~20°C
Test Channel :	11	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	#10 and #11 are Fundamental Signals which can be ignored. #16 is not in the restricted band.		

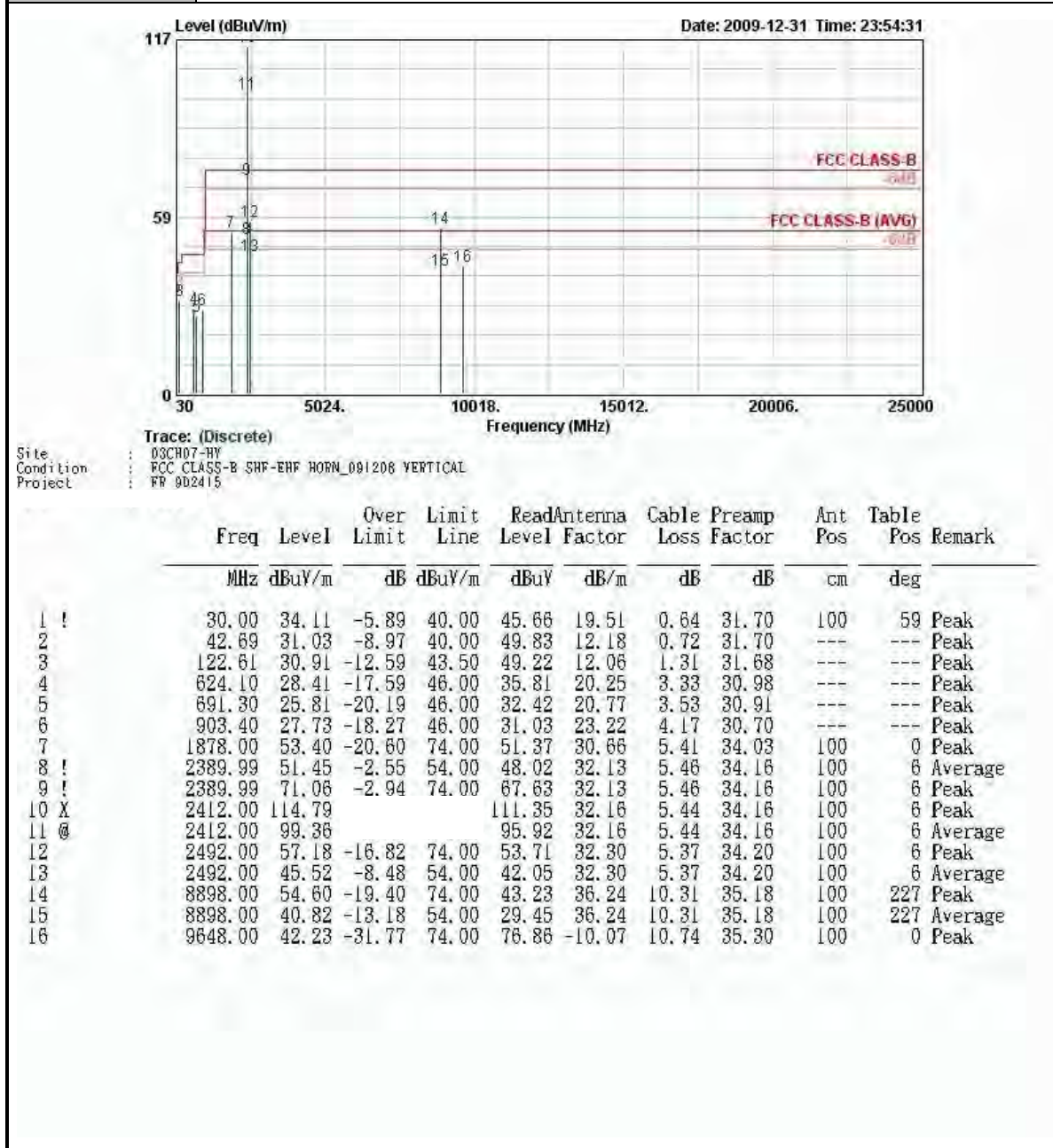


Test Mode :	Mode 4	Temperature :	19~20°C
Test Channel :	01	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		



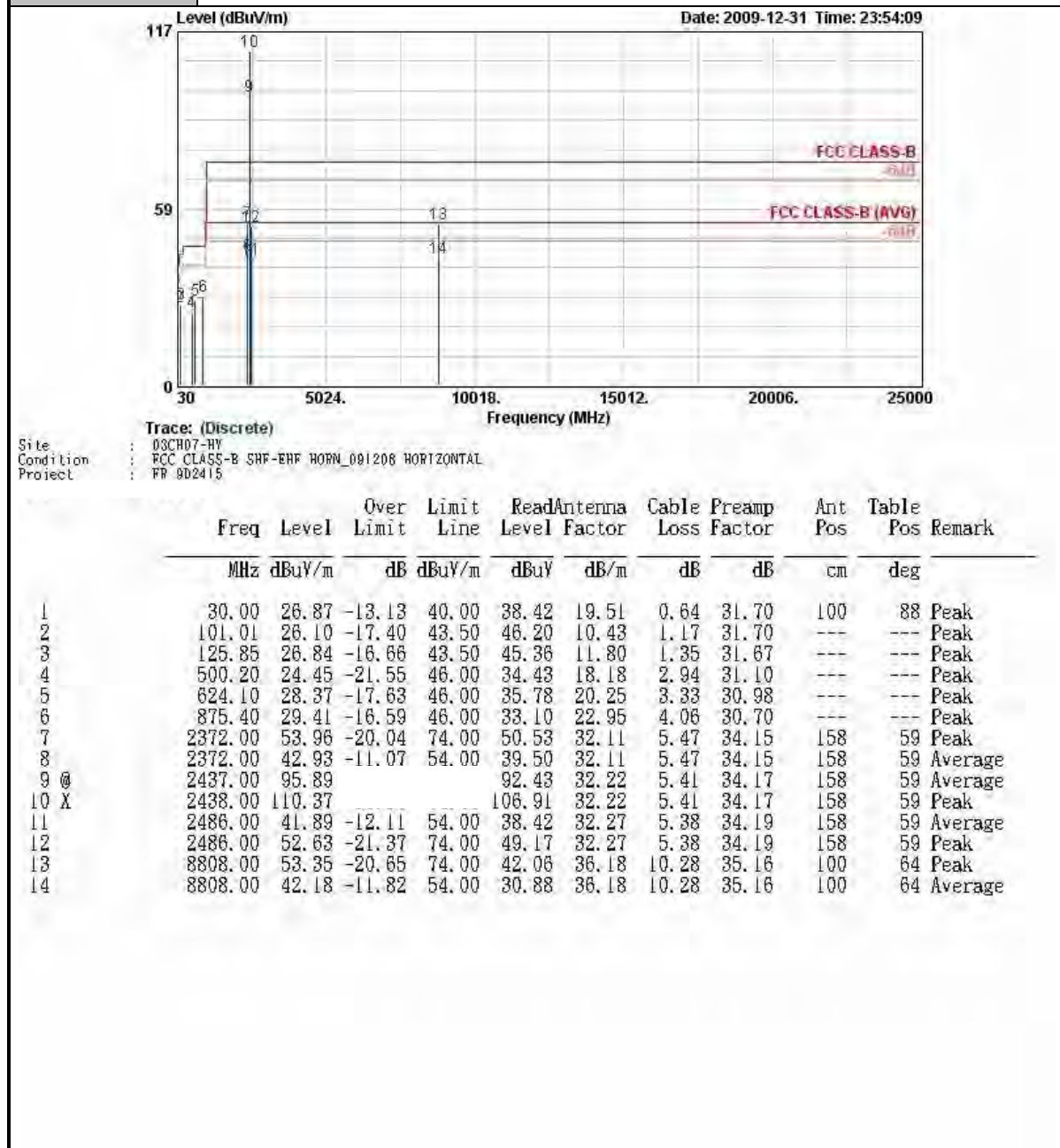


Test Mode :	Mode 4	Temperature :	19~20°C
Test Channel :	01	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	#10 and #11 are Fundamental Signals which can be ignored. #16 is not in the restricted band.		



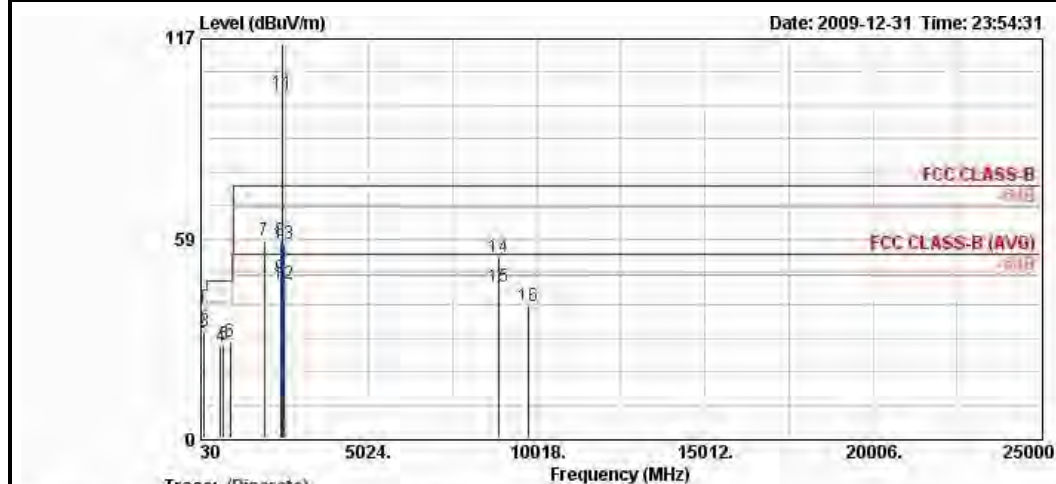


Test Mode :	Mode 5	Temperature :	19~20°C
Test Channel :	06	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		



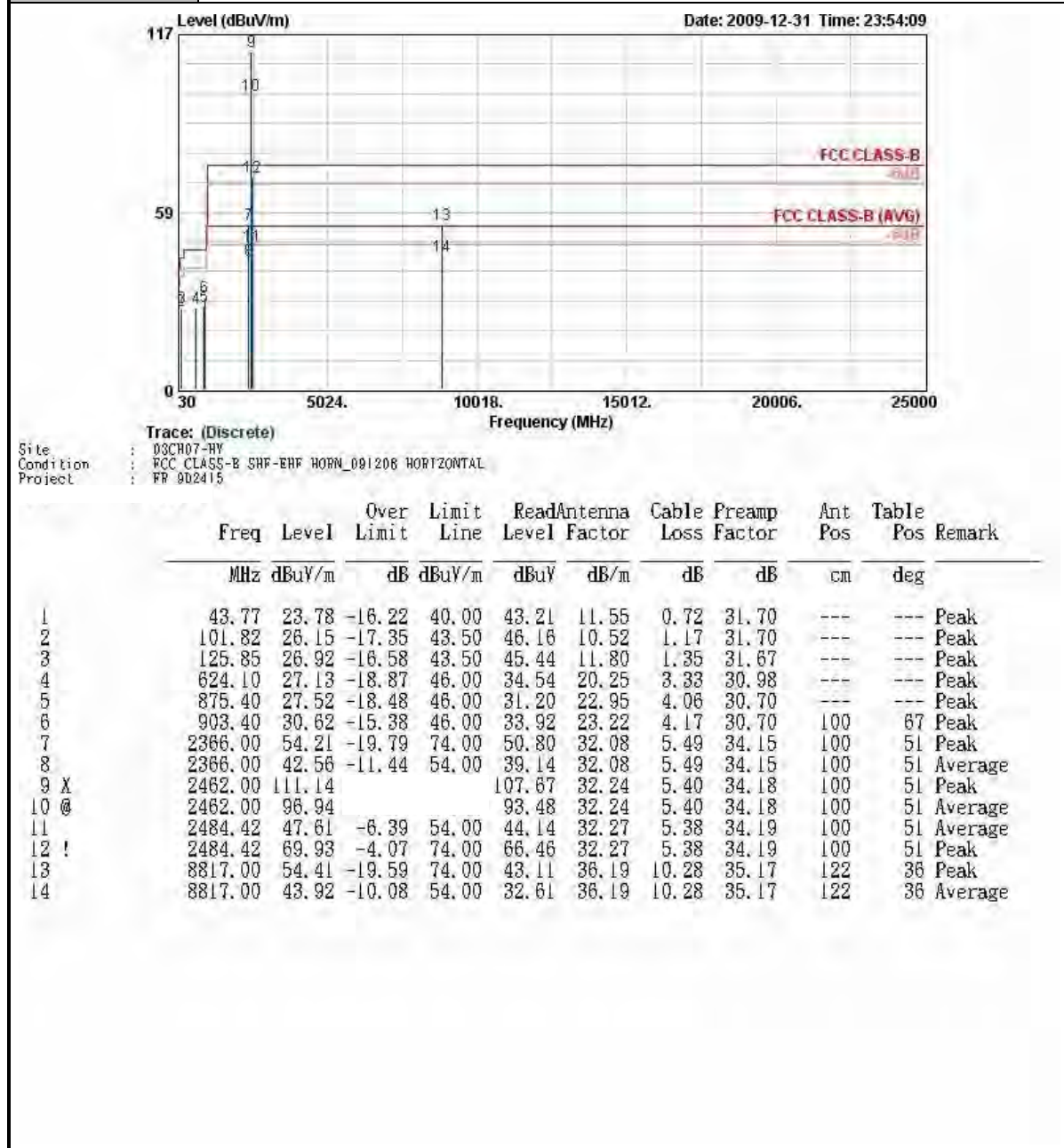


Test Mode :	Mode 5	Temperature :	19~20°C
Test Channel :	06	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	#10 and #11 are Fundamental Signals which can be ignored. #16 is not in the restricted band.		



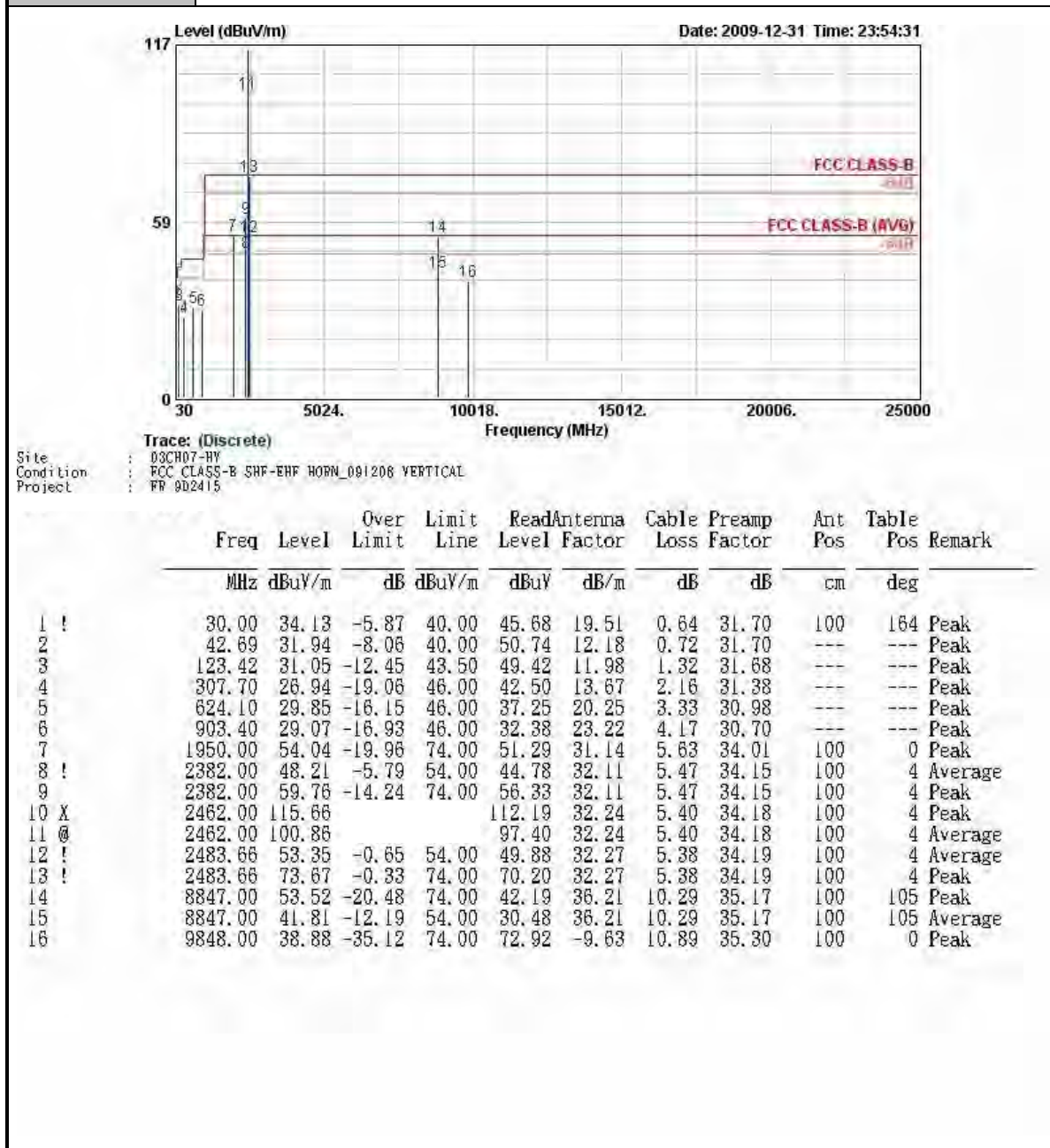
	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 !	30.00	34.05	-5.95	40.00	45.60	19.51	0.64	31.70	100	49	Peak
2	42.69	30.70	-9.30	40.00	49.50	12.18	0.72	31.70	---	---	Peak
3	124.77	31.18	-12.32	43.50	49.70	11.81	1.35	31.67	---	---	Peak
4	624.10	26.80	-19.20	46.00	34.20	20.25	3.33	30.98	---	---	Peak
5	696.20	27.46	-18.54	46.00	34.01	20.81	3.54	30.90	---	---	Peak
6	903.40	28.18	-17.82	46.00	31.49	23.22	4.17	30.70	---	---	Peak
7	1916.00	57.71	-16.29	74.00	55.31	30.90	5.52	34.02	100	0	Peak
8	2388.00	57.87	-16.13	74.00	54.43	32.13	5.46	34.15	100	3	Peak
9	2388.00	46.77	-7.23	54.00	43.33	32.13	5.46	34.15	100	3	Average
10 X	2437.00	115.51			112.04	32.22	5.41	34.17	100	3	Peak
11 @	2437.00	101.04			97.58	32.22	5.41	34.17	100	3	Average
12	2484.00	45.40	-8.60	54.00	41.93	32.27	5.38	34.19	100	3	Average
13	2484.00	57.05	-16.95	74.00	53.58	32.27	5.38	34.19	100	3	Peak
14	8874.00	53.11	-20.89	74.00	41.76	36.22	10.30	35.18	106	100	Peak
15	8874.00	44.51	-9.49	54.00	33.17	36.22	10.30	35.18	106	100	Average
16	9748.00	38.90			73.26	-9.87	10.81	35.30	100	0	Peak

Test Mode :	Mode 6	Temperature :	19~20°C
Test Channel :	11	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	#9 and #10 are Fundamental Signals which can be ignored. #16 is not in the restricted band.		

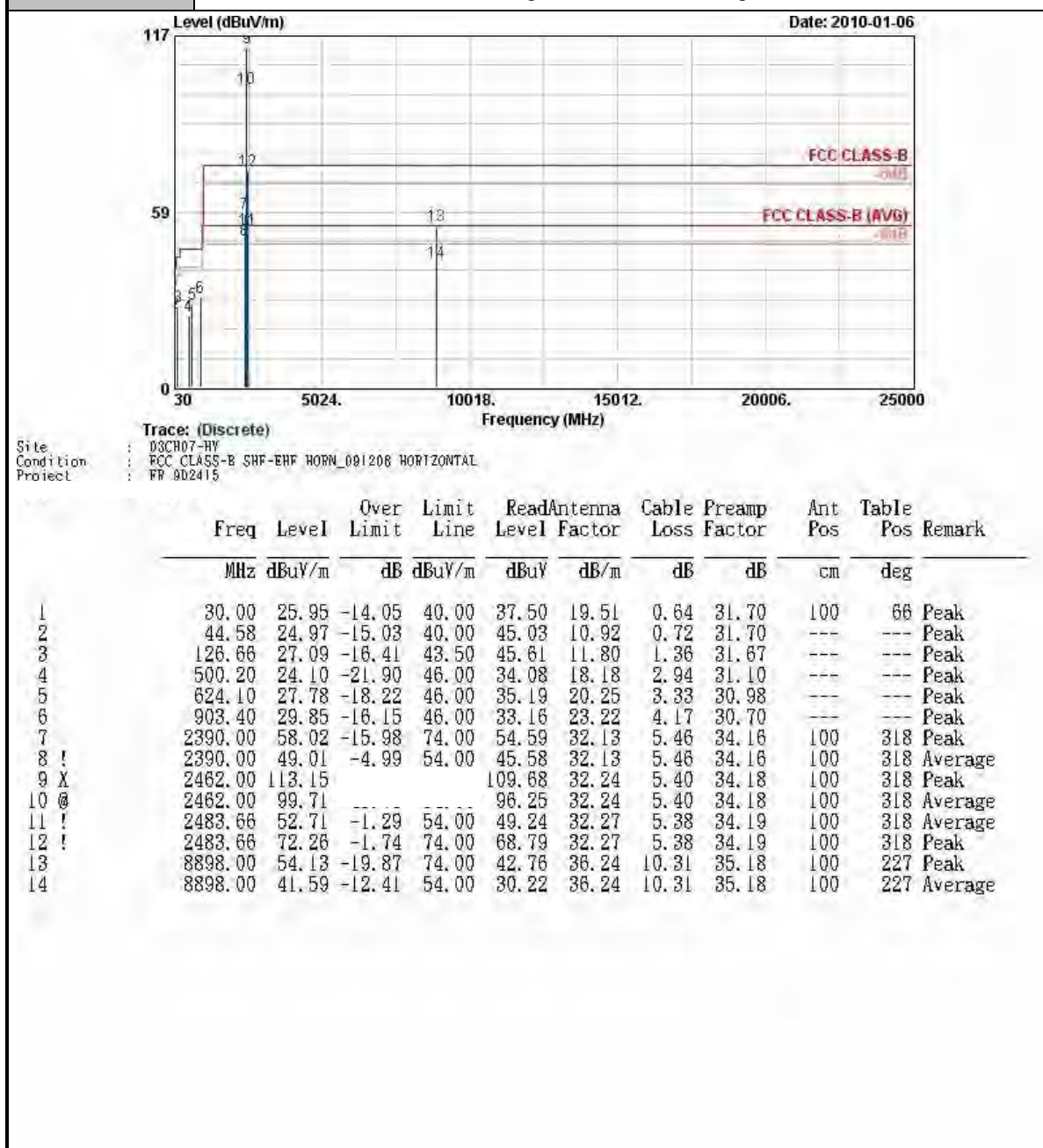




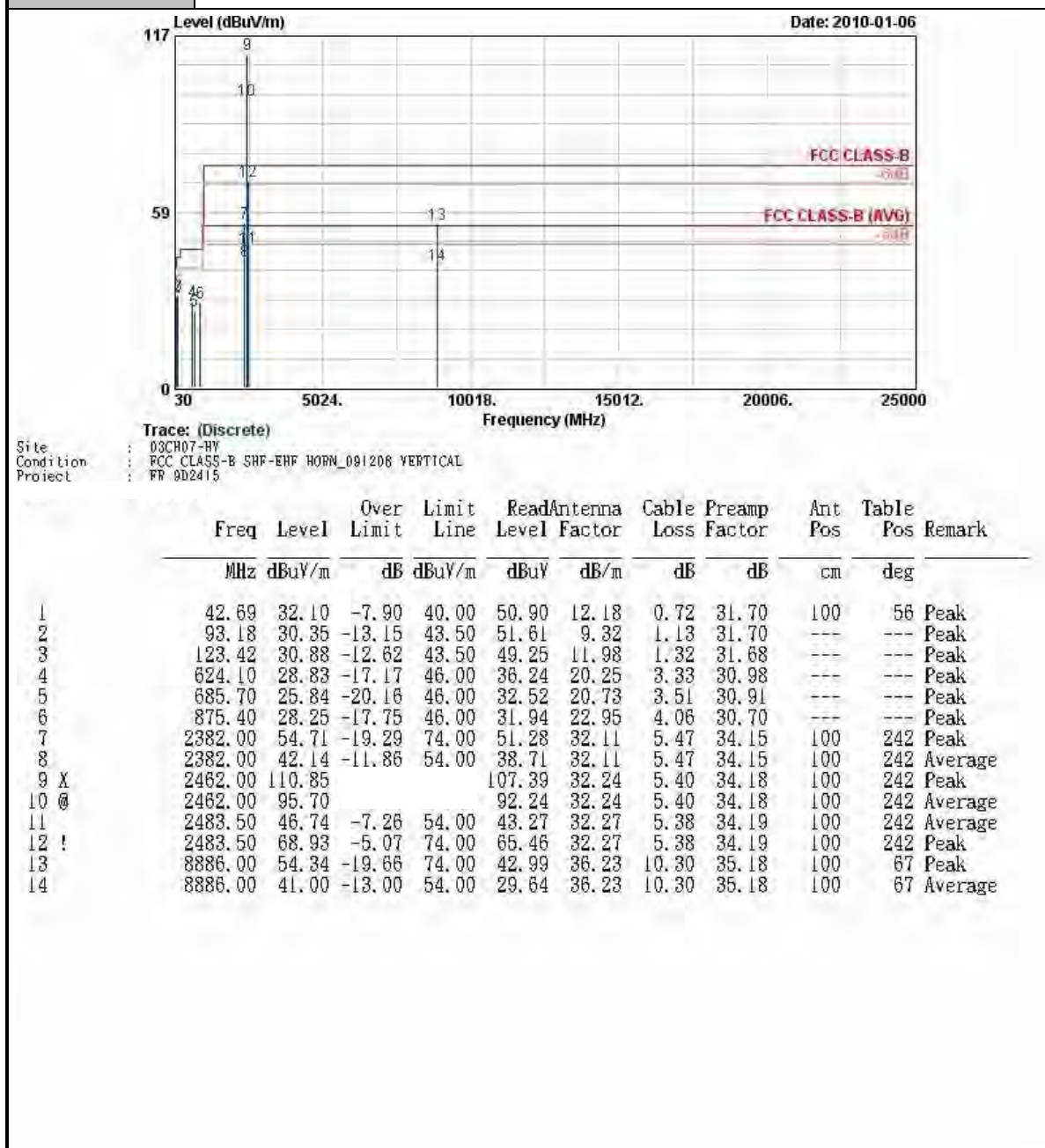
Test Mode :	Mode 6	Temperature :	19~20°C
Test Channel :	11	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	#10 and #11 are Fundamental Signals which can be ignored. #16 is not in the restricted band.		



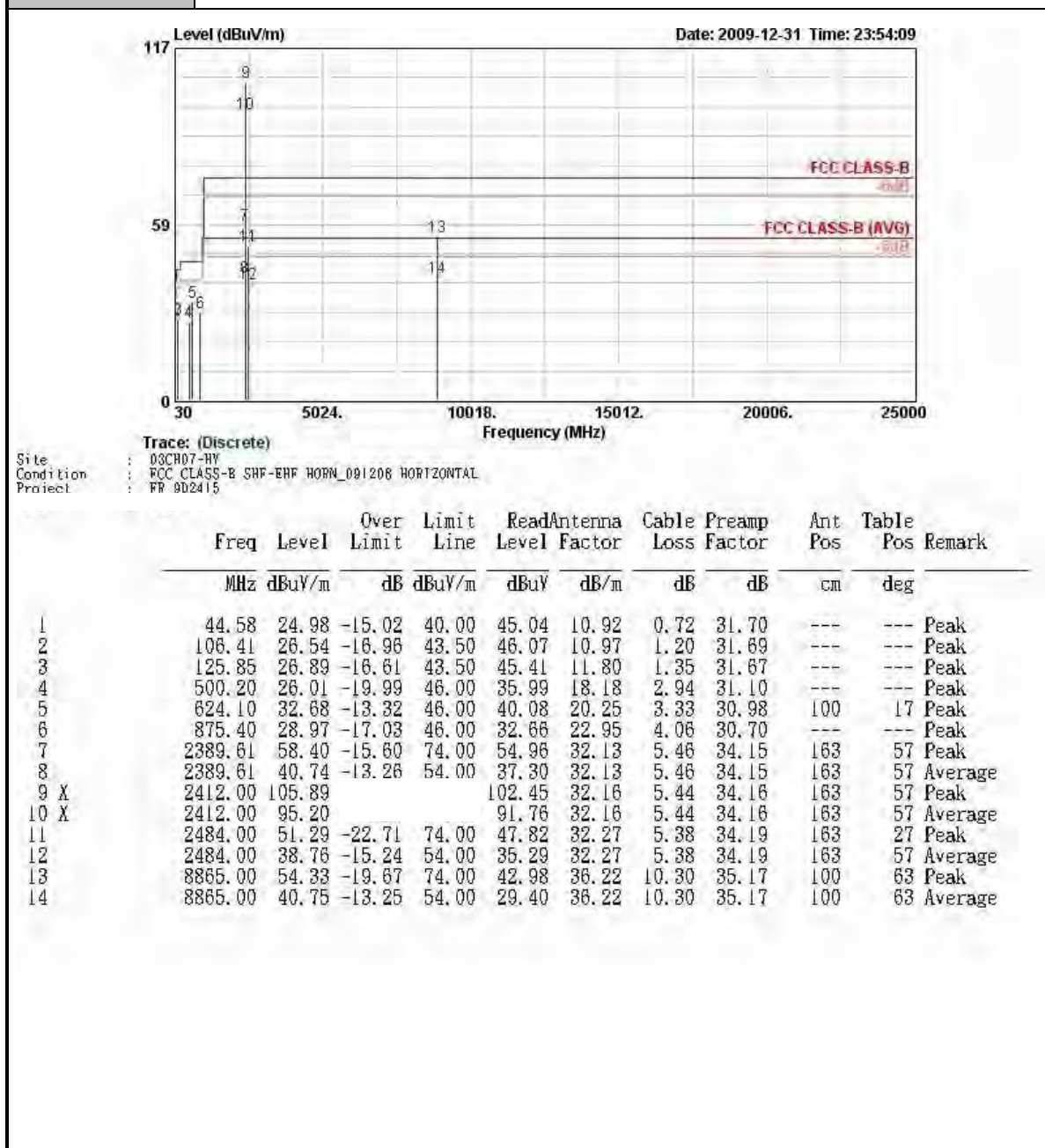
Test Mode :	Mode 7	Temperature :	19~20°C
Test Channel :	11	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		



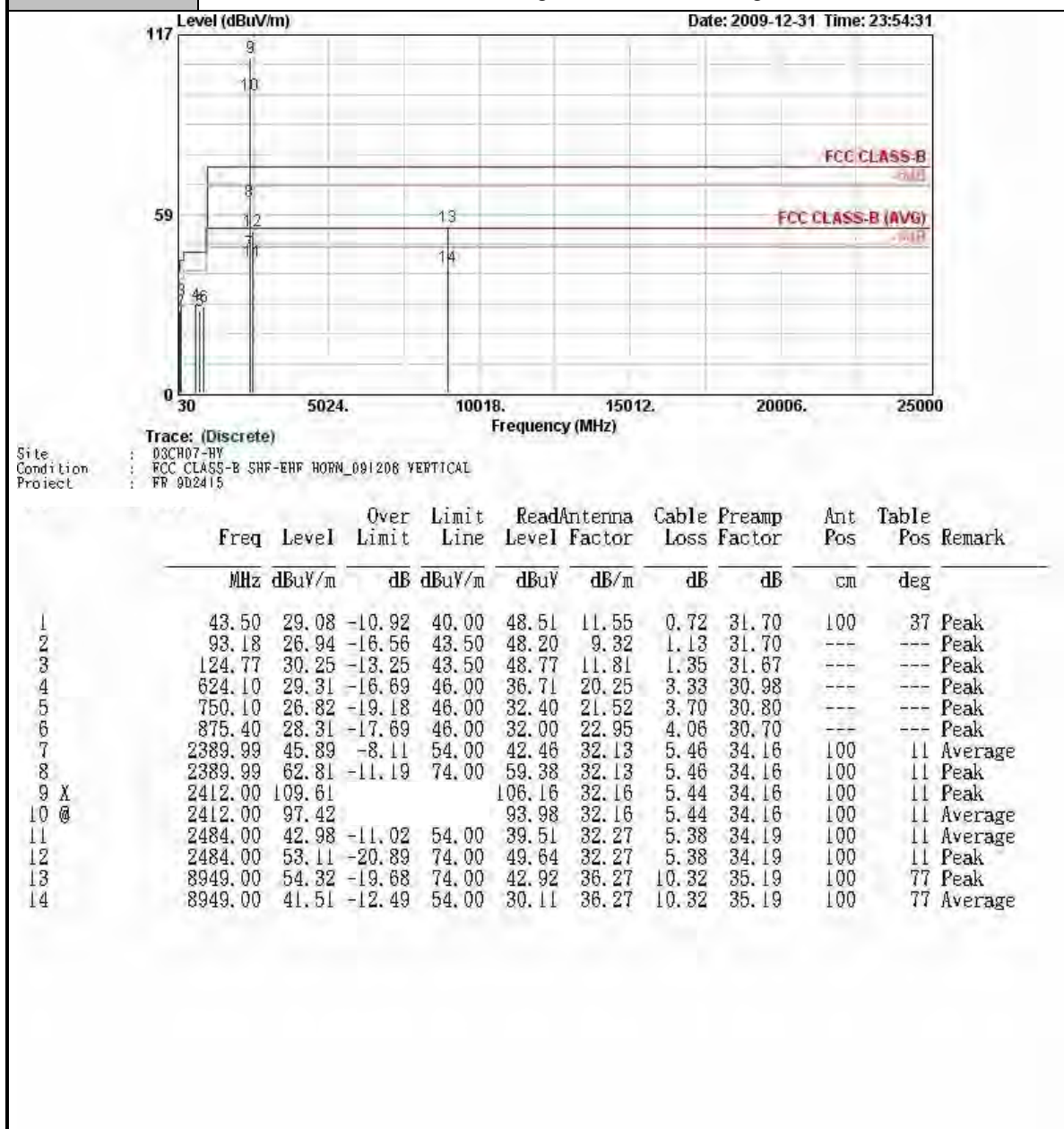
Test Mode :	Mode 7	Temperature :	19~20°C
Test Channel :	11	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		



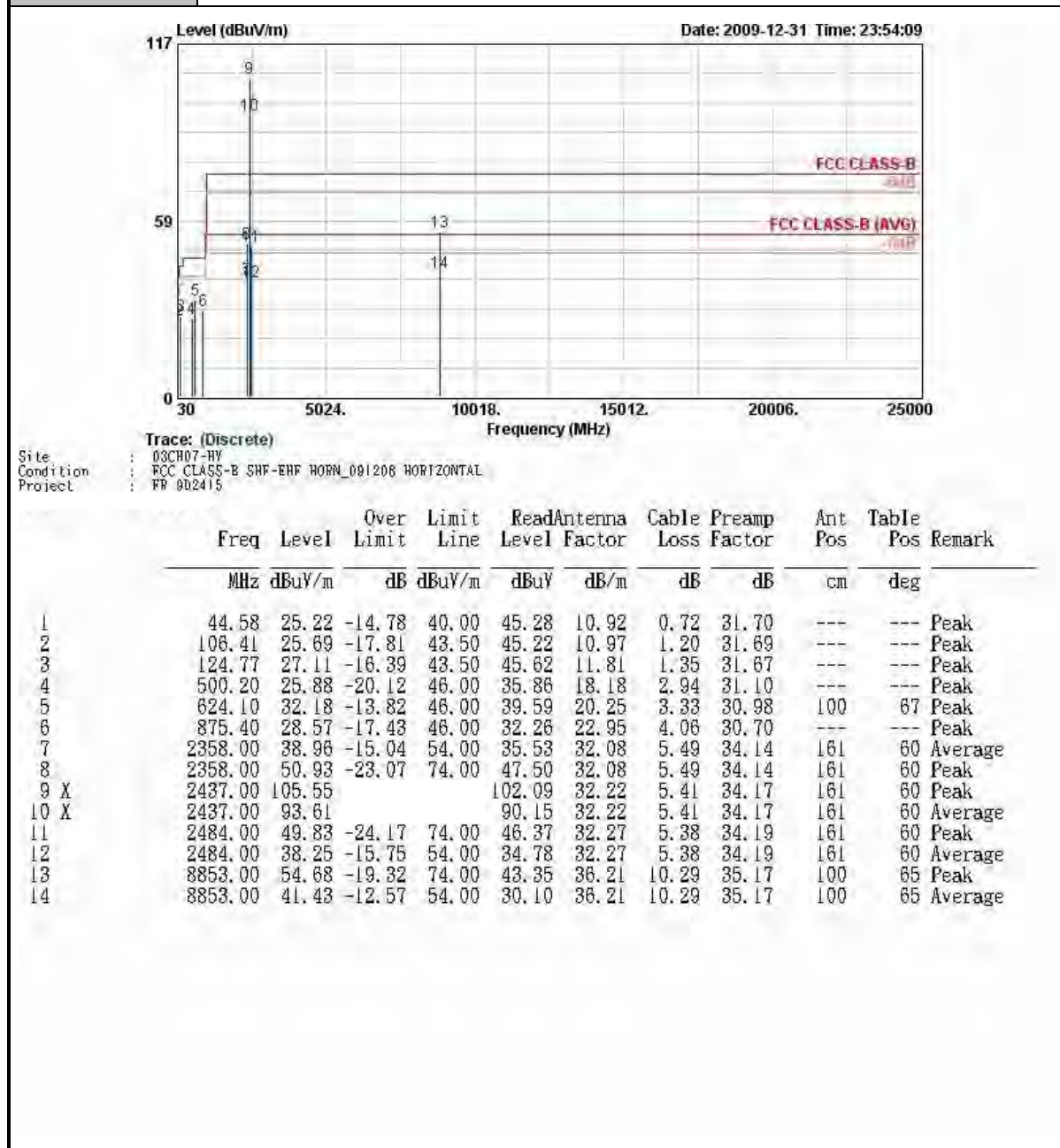
Test Mode :	Mode 8	Temperature :	19~20°C
Test Channel :	01	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		



Test Mode :	Mode 8	Temperature :	19~20°C
Test Channel :	01	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		

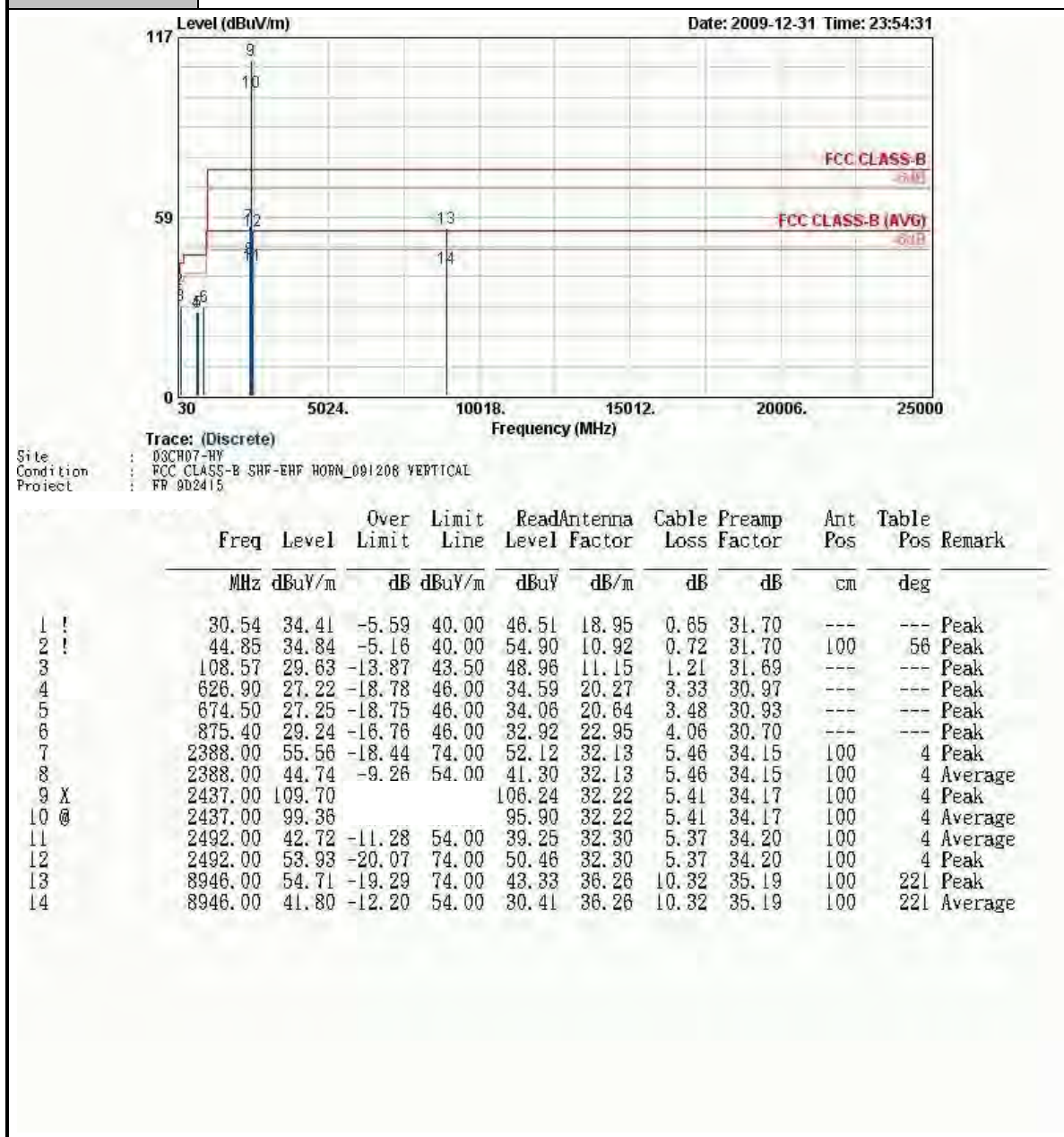


Test Mode :	Mode 9	Temperature :	19~20°C
Test Channel :	06	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		

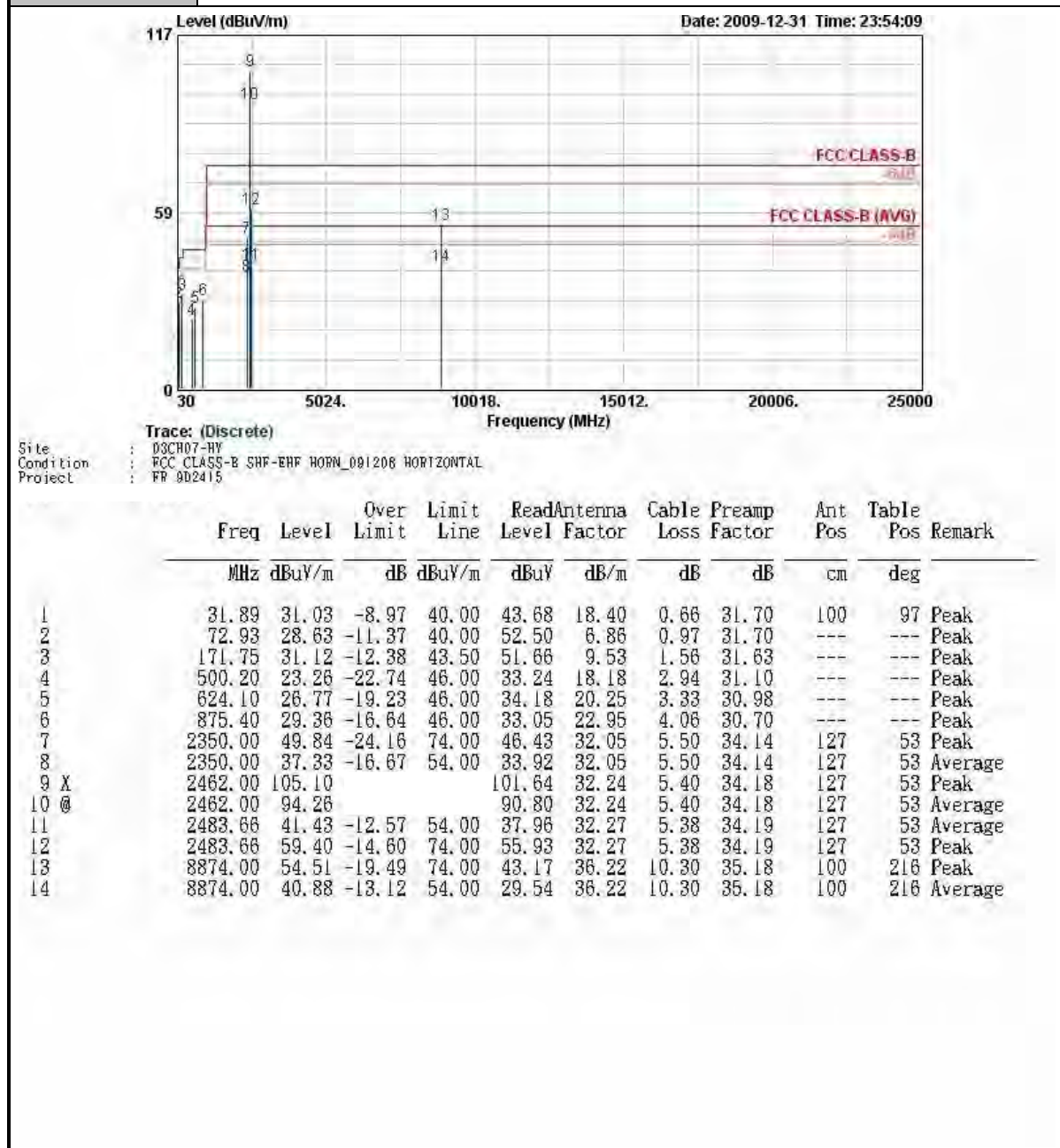




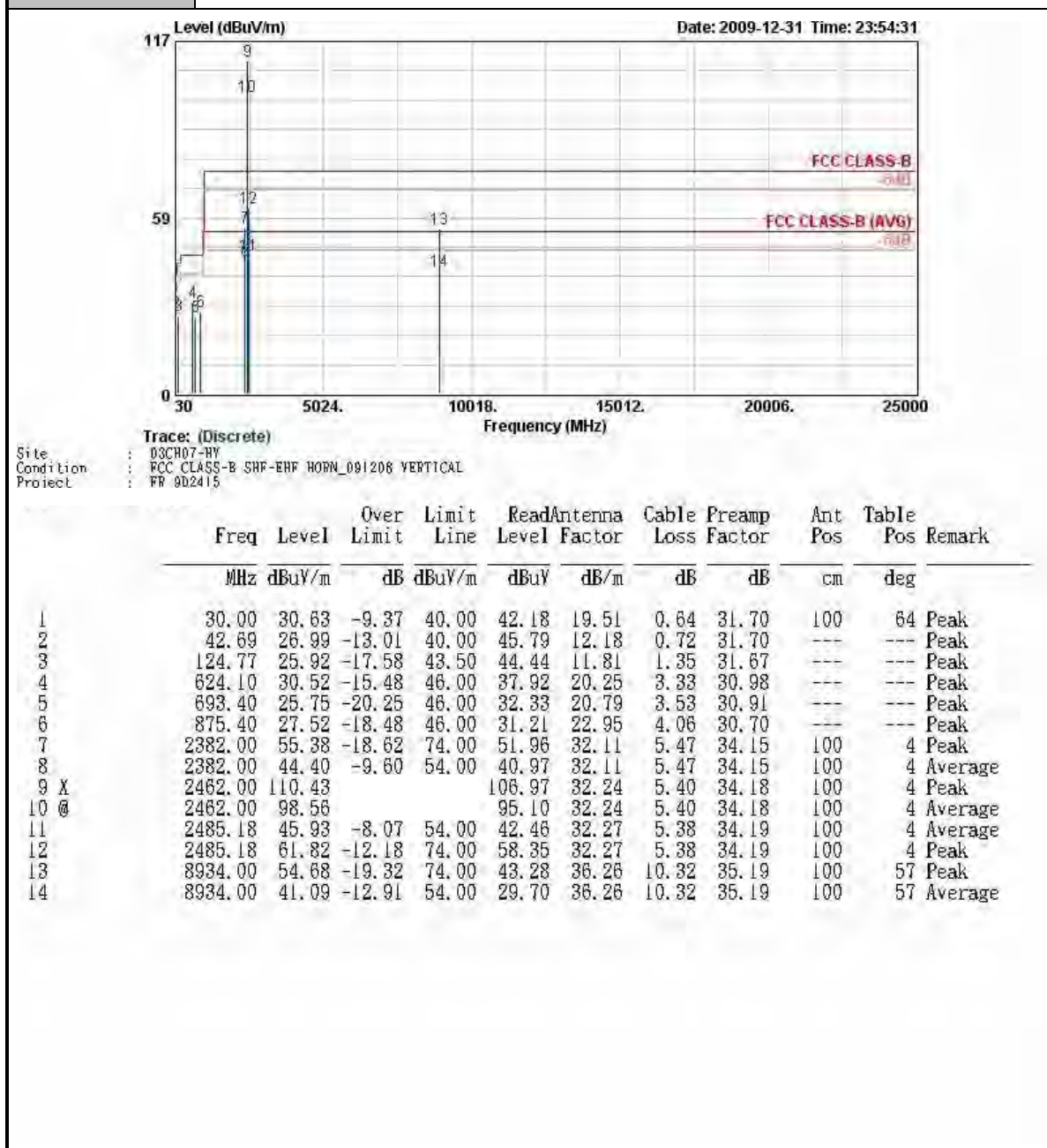
Test Mode :	Mode 9	Temperature :	19~20°C
Test Channel :	06	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		



Test Mode :	Mode 10	Temperature :	19~20°C
Test Channel :	11	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		

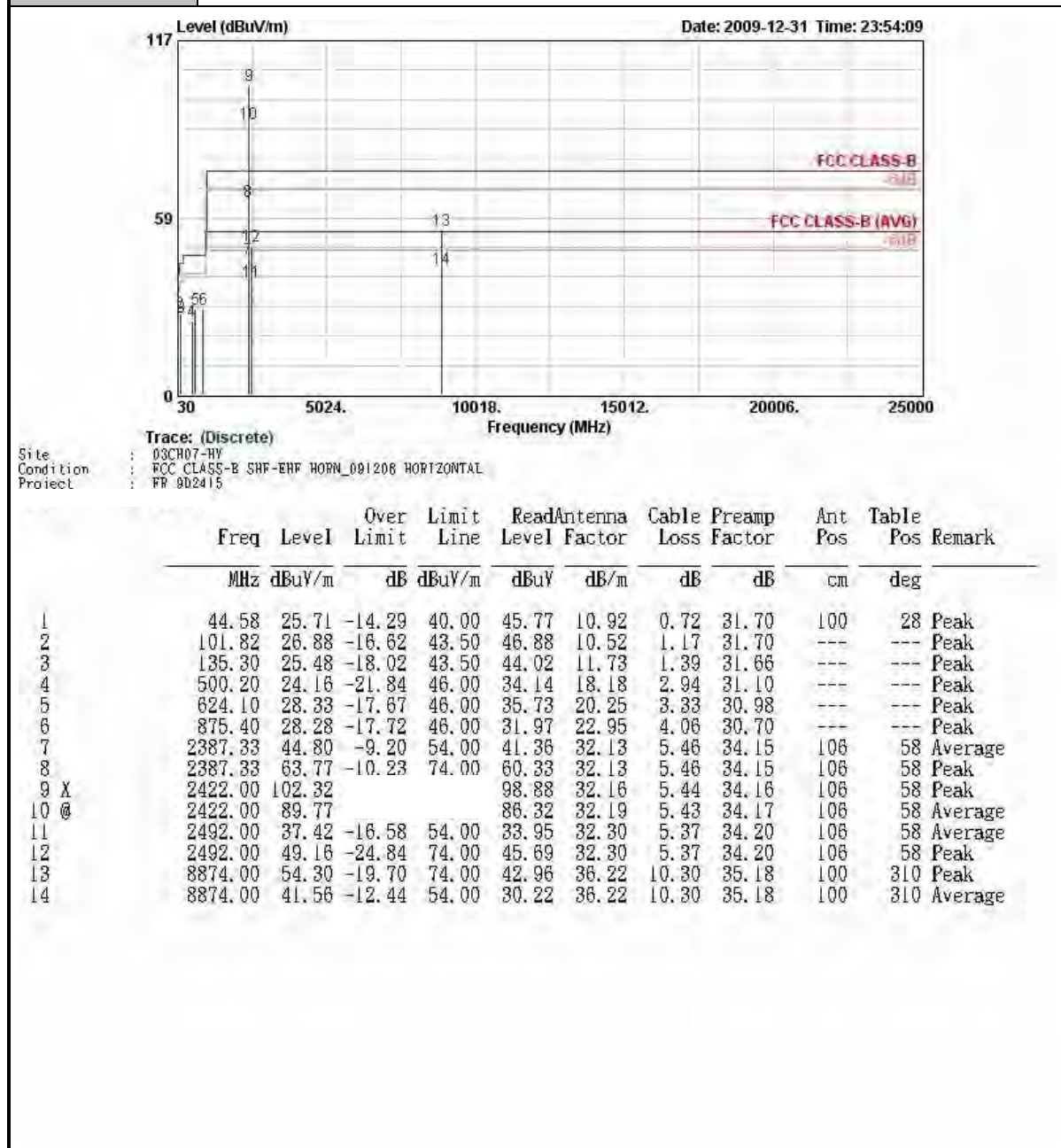


Test Mode :	Mode 10	Temperature :	19~20°C
Test Channel :	11	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		

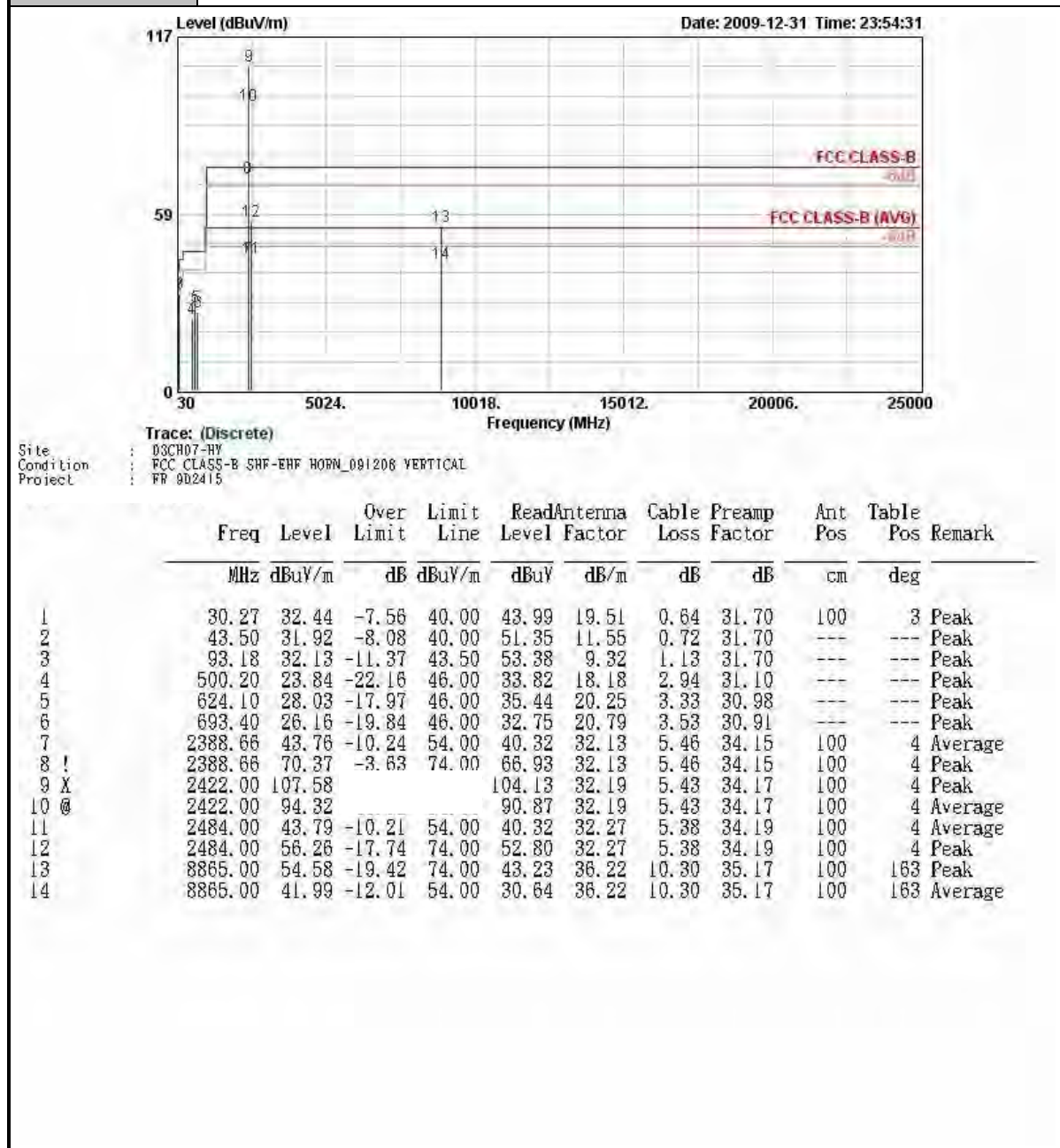




Test Mode :	Mode 11	Temperature :	19~20°C
Test Channel :	03	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		

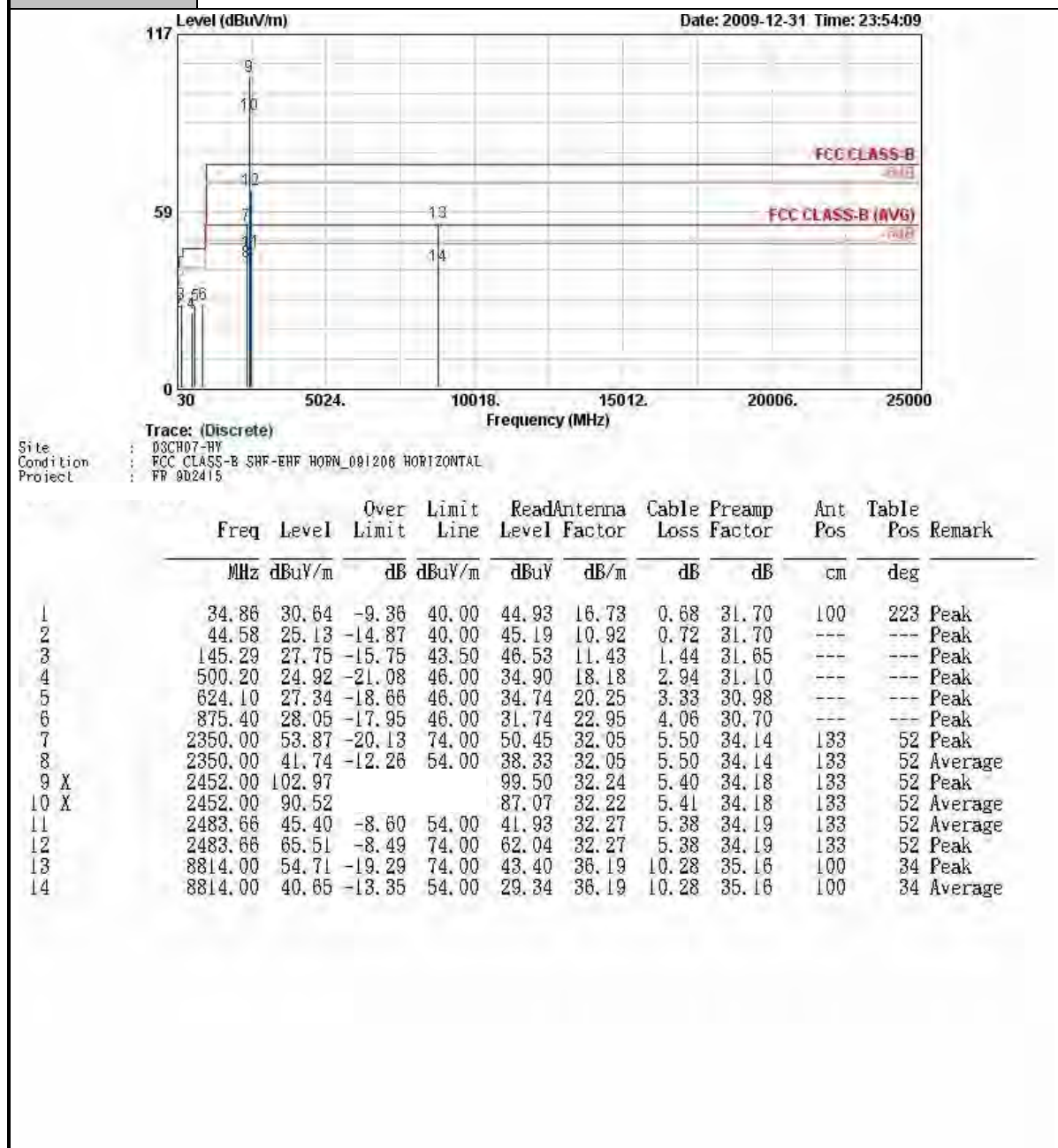


Test Mode :	Mode 11	Temperature :	19~20°C
Test Channel :	03	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		

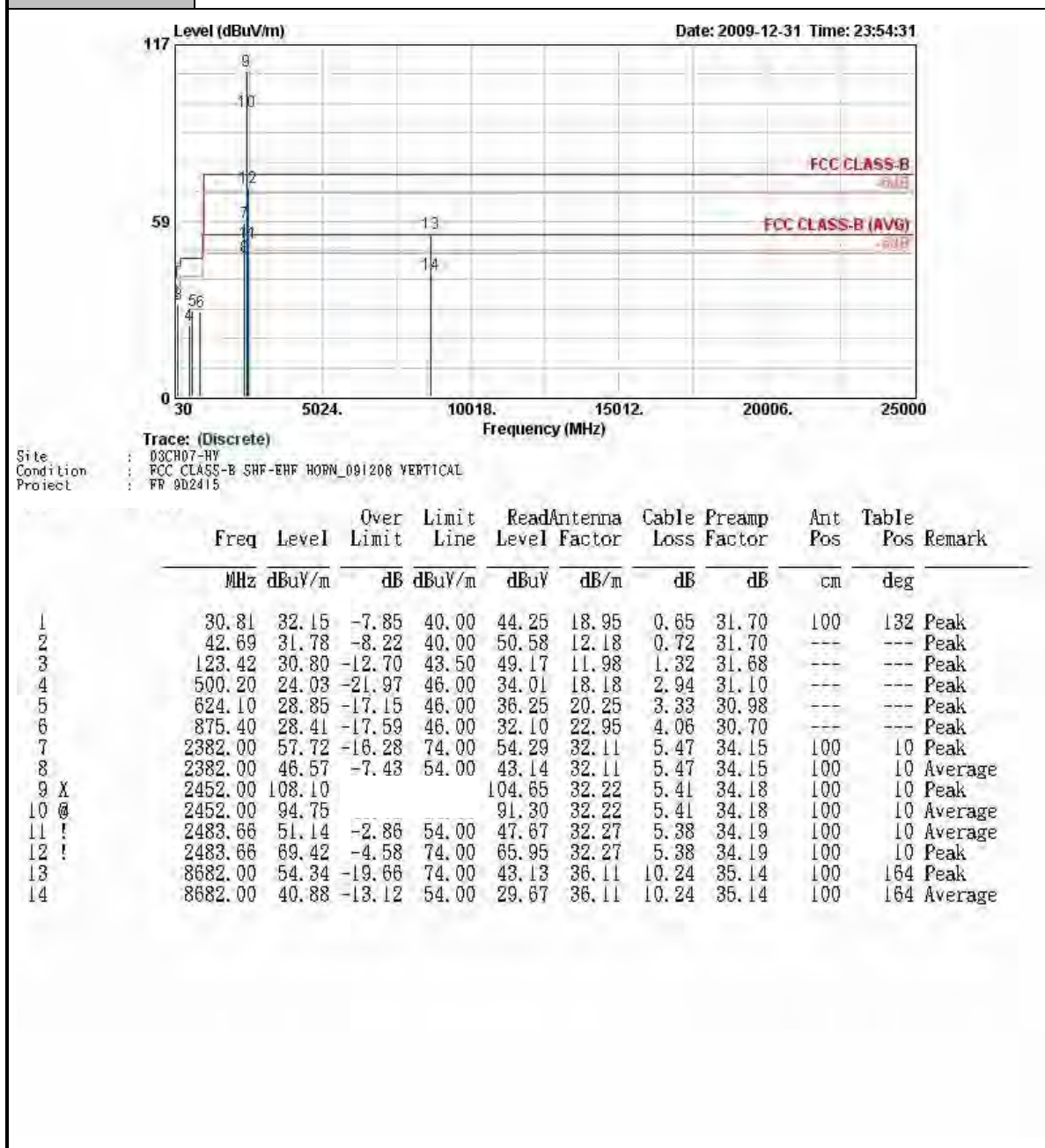




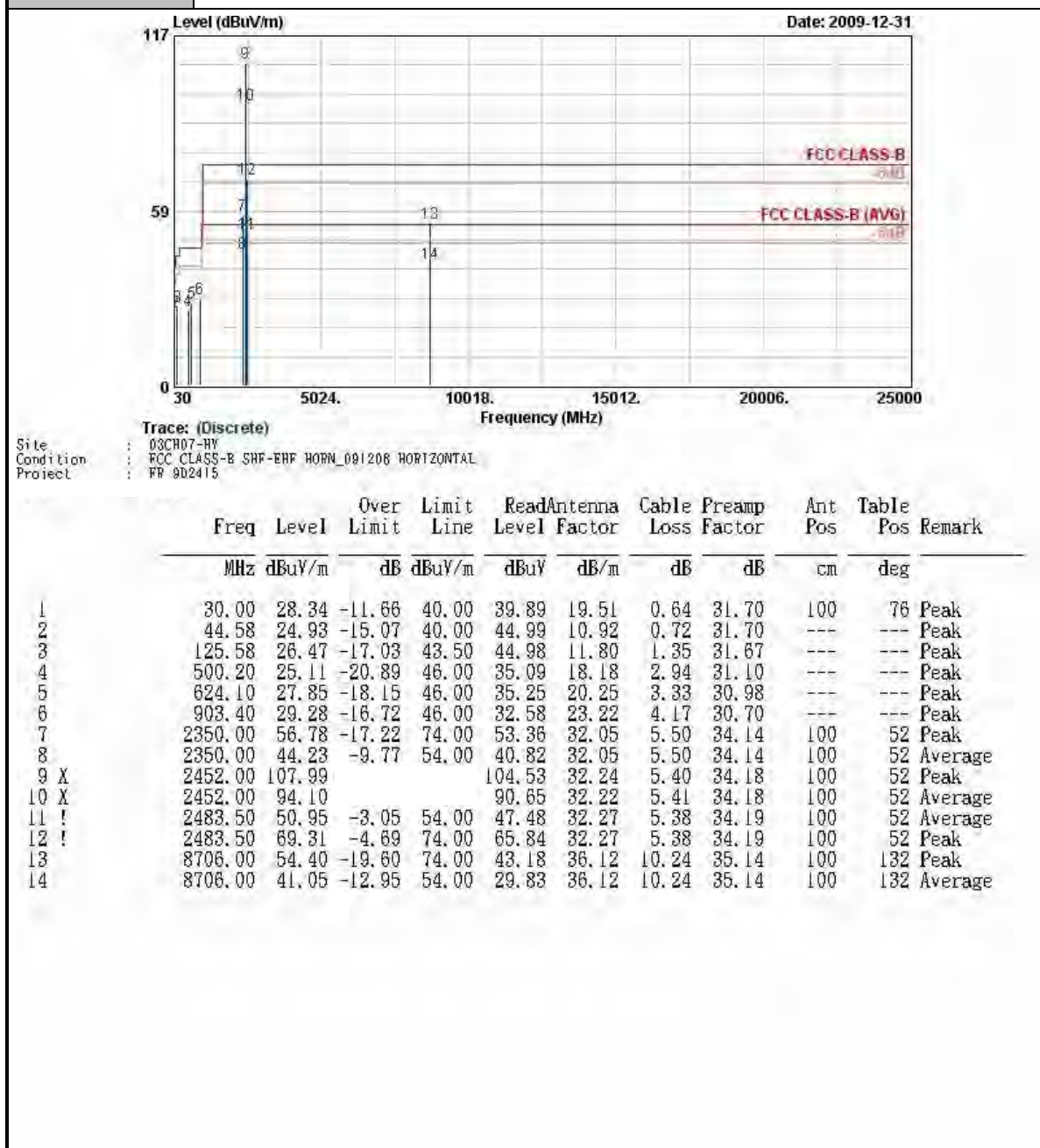
Test Mode :	Mode 12	Temperature :	19~20°C
Test Channel :	09	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		



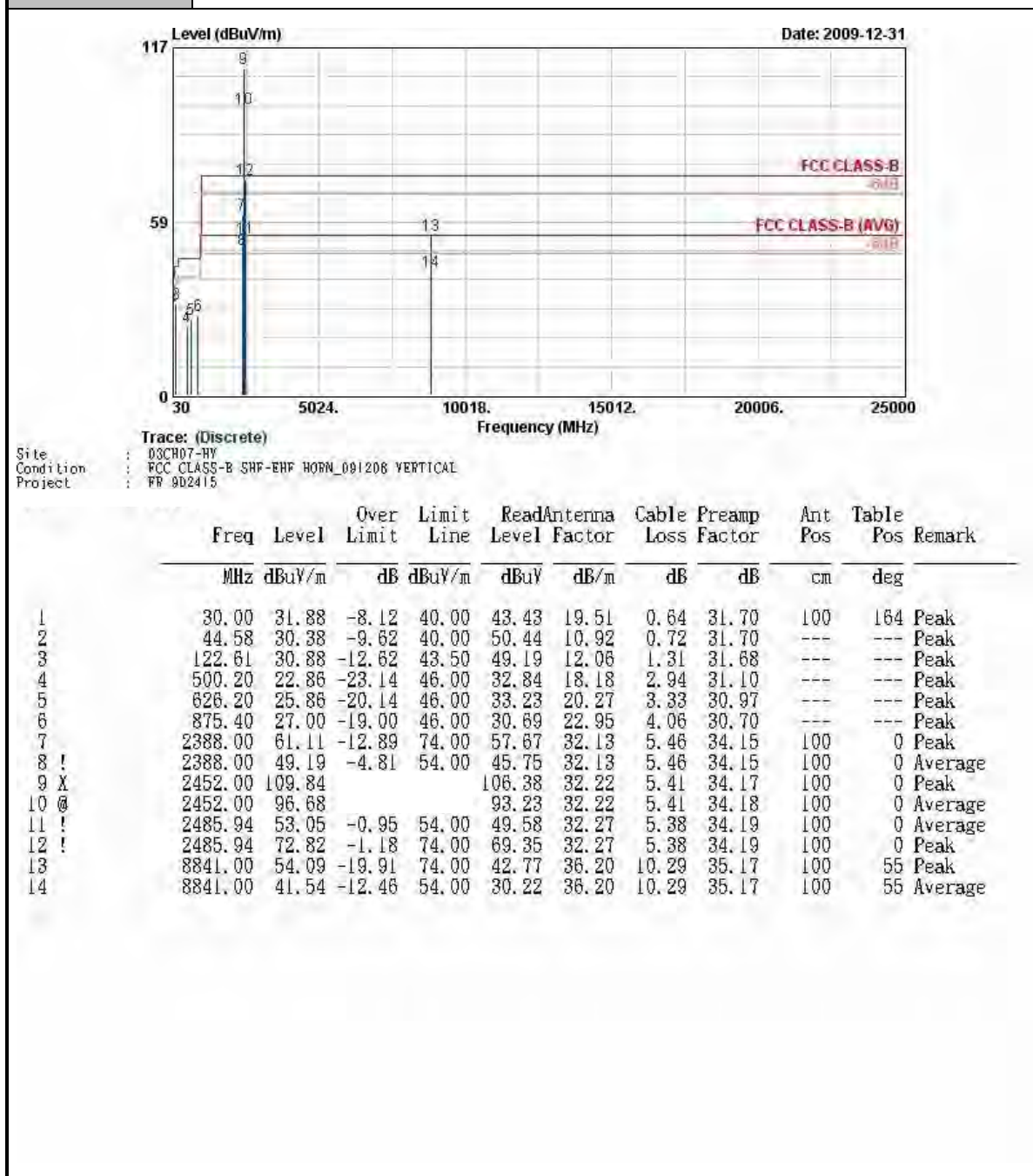
Test Mode :	Mode 12	Temperature :	19~20°C
Test Channel :	09	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		



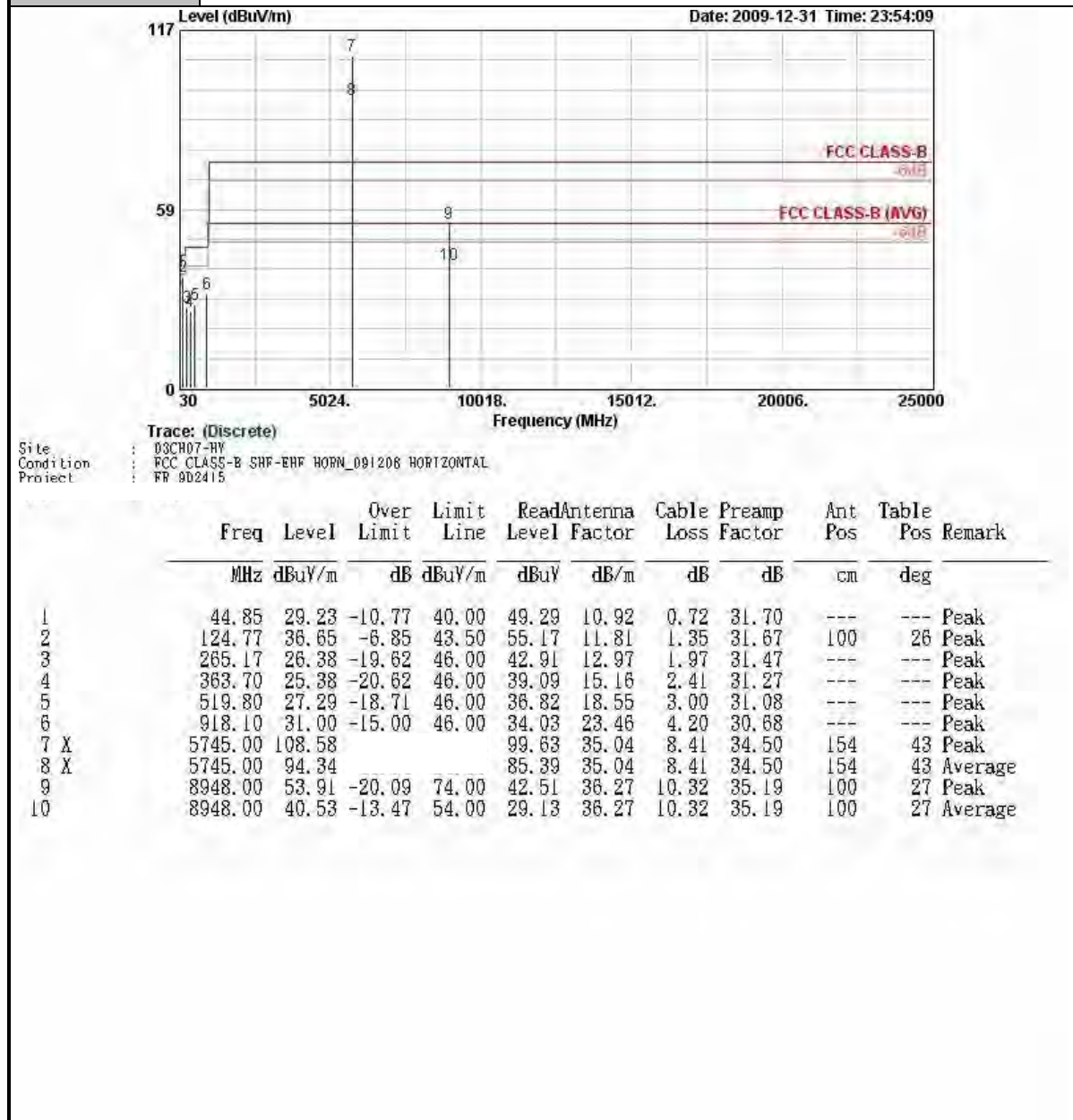
Test Mode :	Mode 13	Temperature :	19~20°C
Test Channel :	09	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		



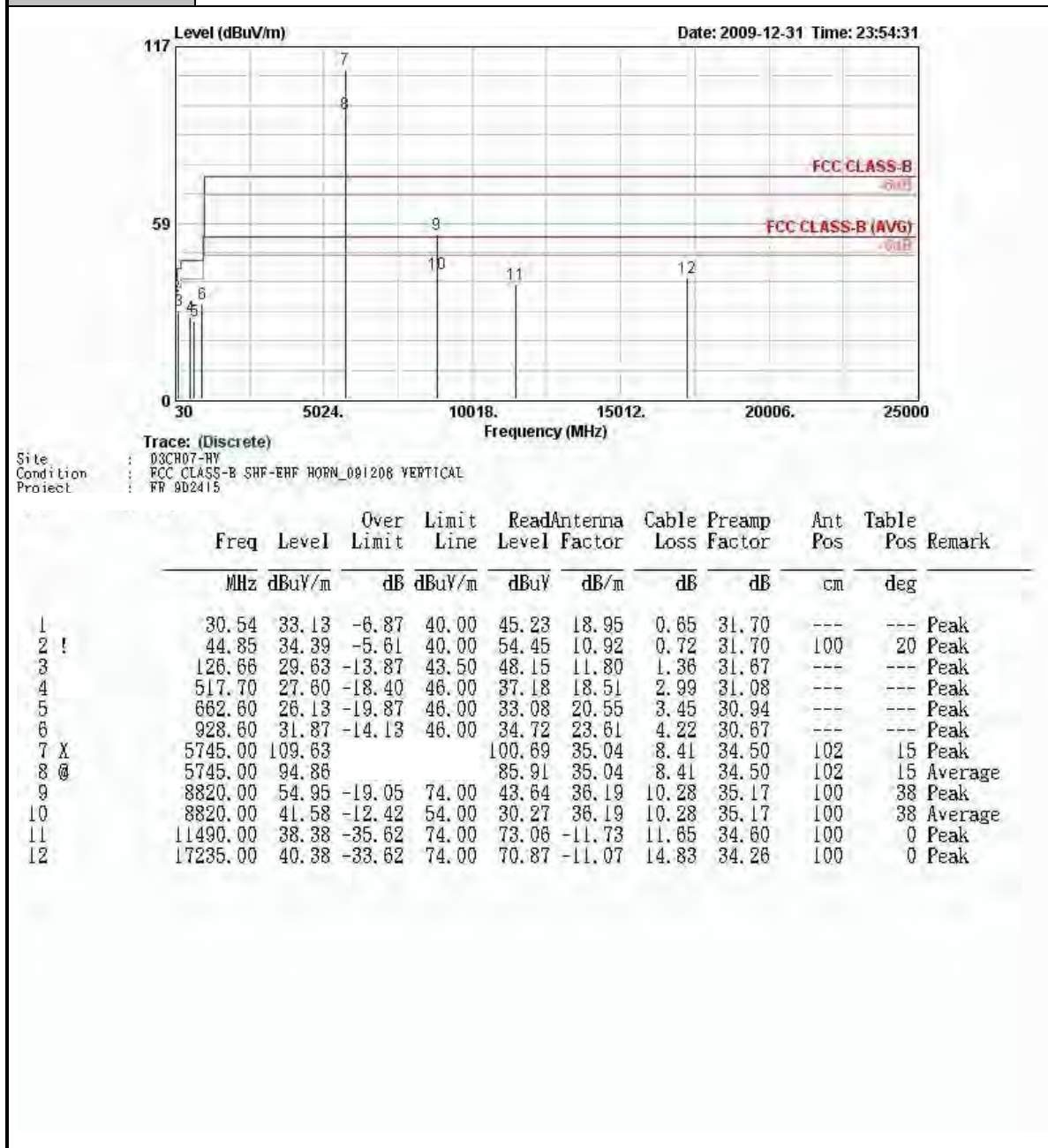
Test Mode :	Mode 13	Temperature :	19~20°C
Test Channel :	09	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		



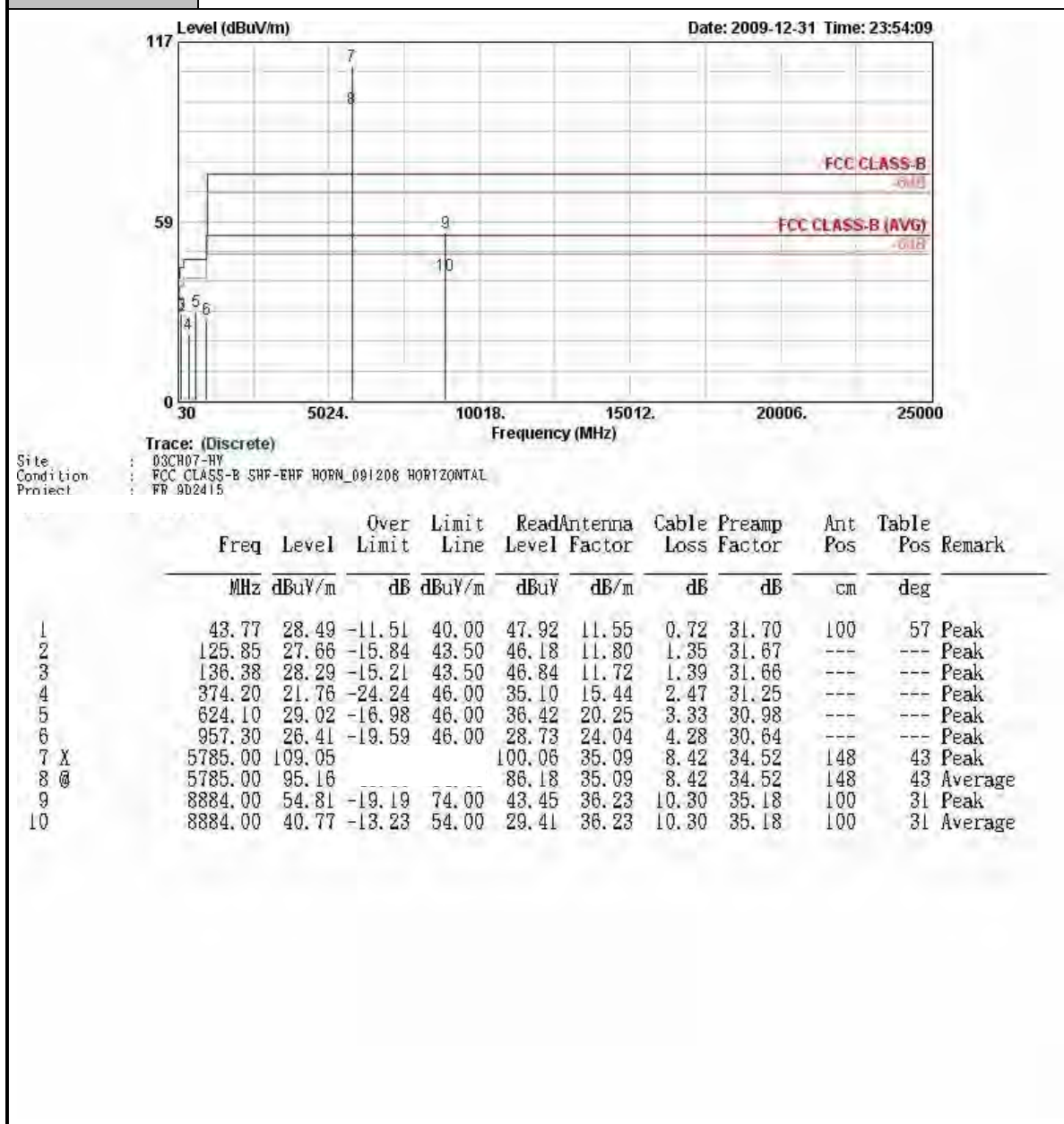
Test Mode :	Mode 14	Temperature :	19~20°C
Test Channel :	149	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	#7 and #8 are Fundamental Signals which can be ignored.		



Test Mode :	Mode 14	Temperature :	19~20°C
Test Channel :	149	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	#7 and #8 are Fundamental Signals which can be ignored. #12 is not in the restricted band.		

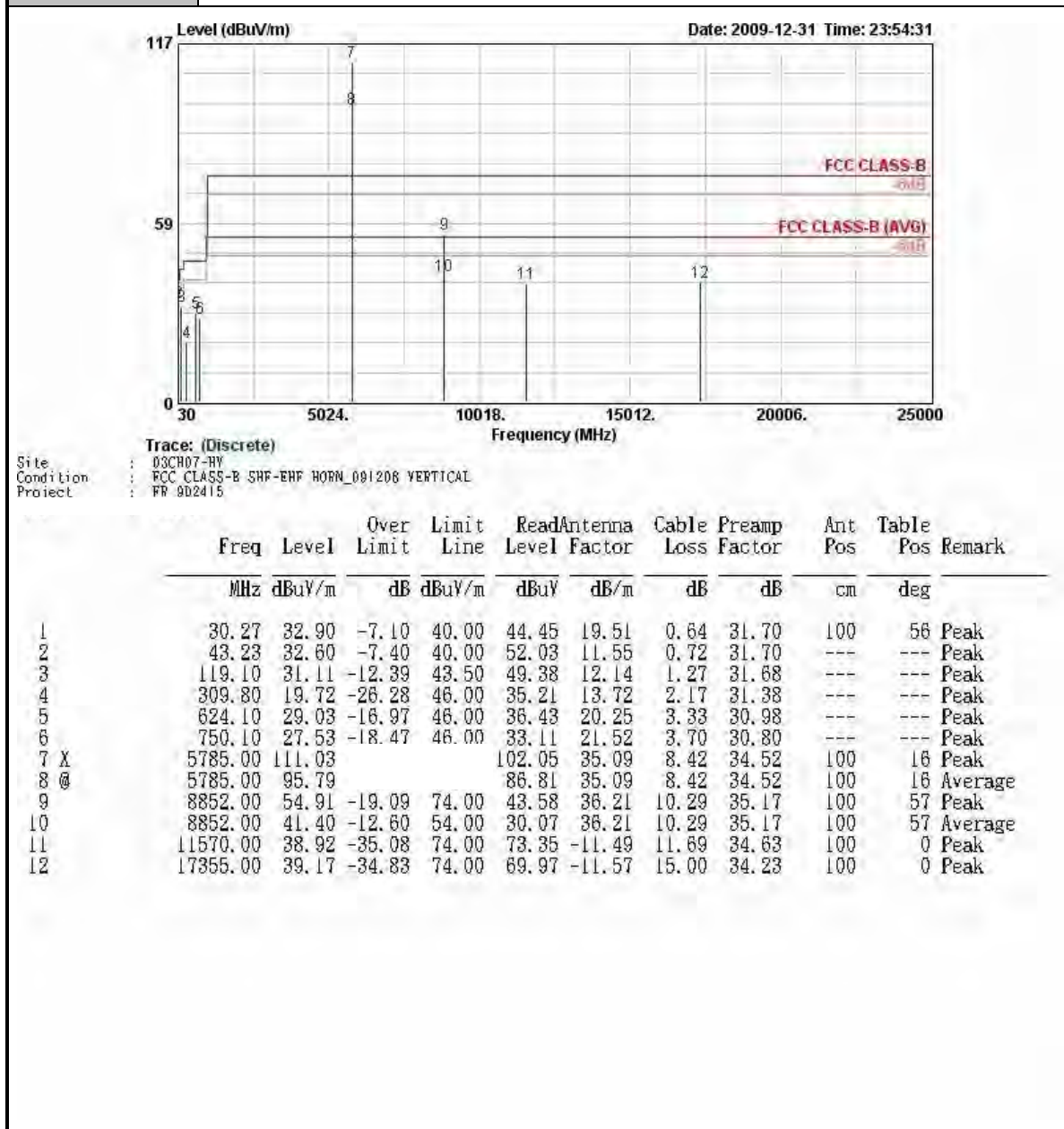


Test Mode :	Mode 15	Temperature :	19~20°C
Test Channel :	157	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	#7 and #8 are Fundamental Signals which can be ignored.		

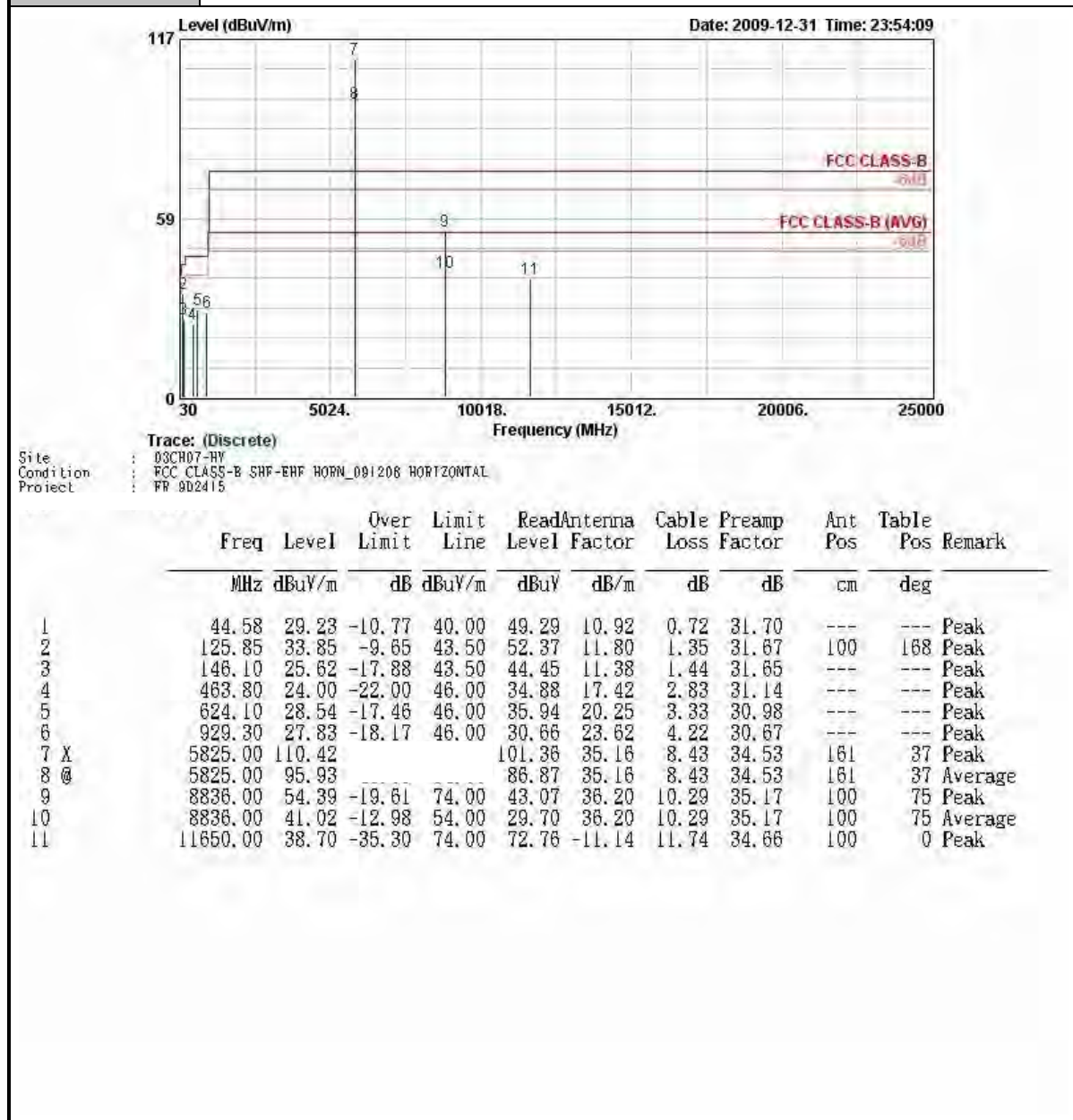




Test Mode :	Mode 15	Temperature :	19~20°C
Test Channel :	157	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	#7 and #8 are Fundamental Signals which can be ignored. #12 is not in the restricted band.		

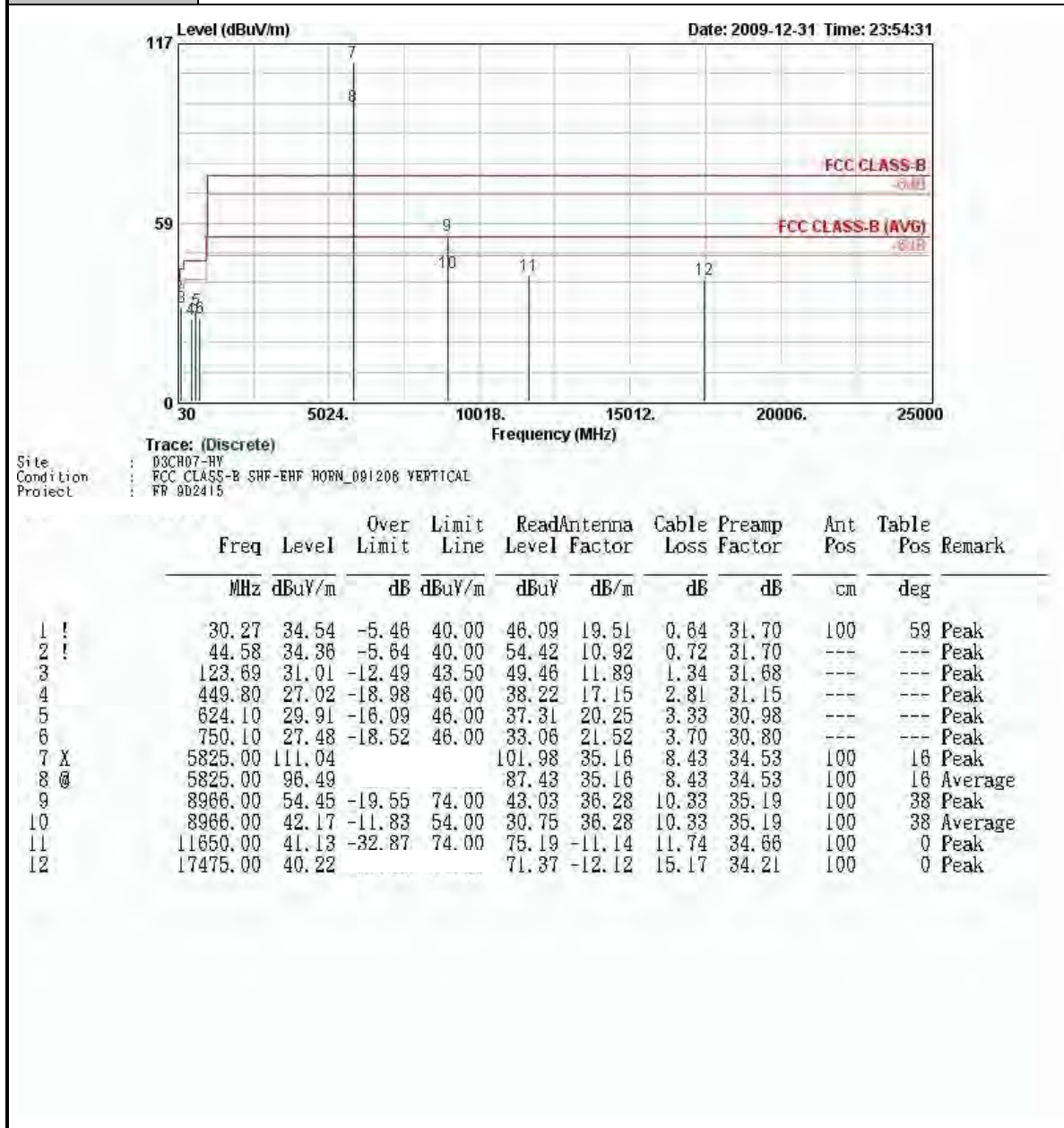


Test Mode :	Mode 16	Temperature :	19~20°C
Test Channel :	165	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	#7 and #8 are Fundamental Signals which can be ignored.		



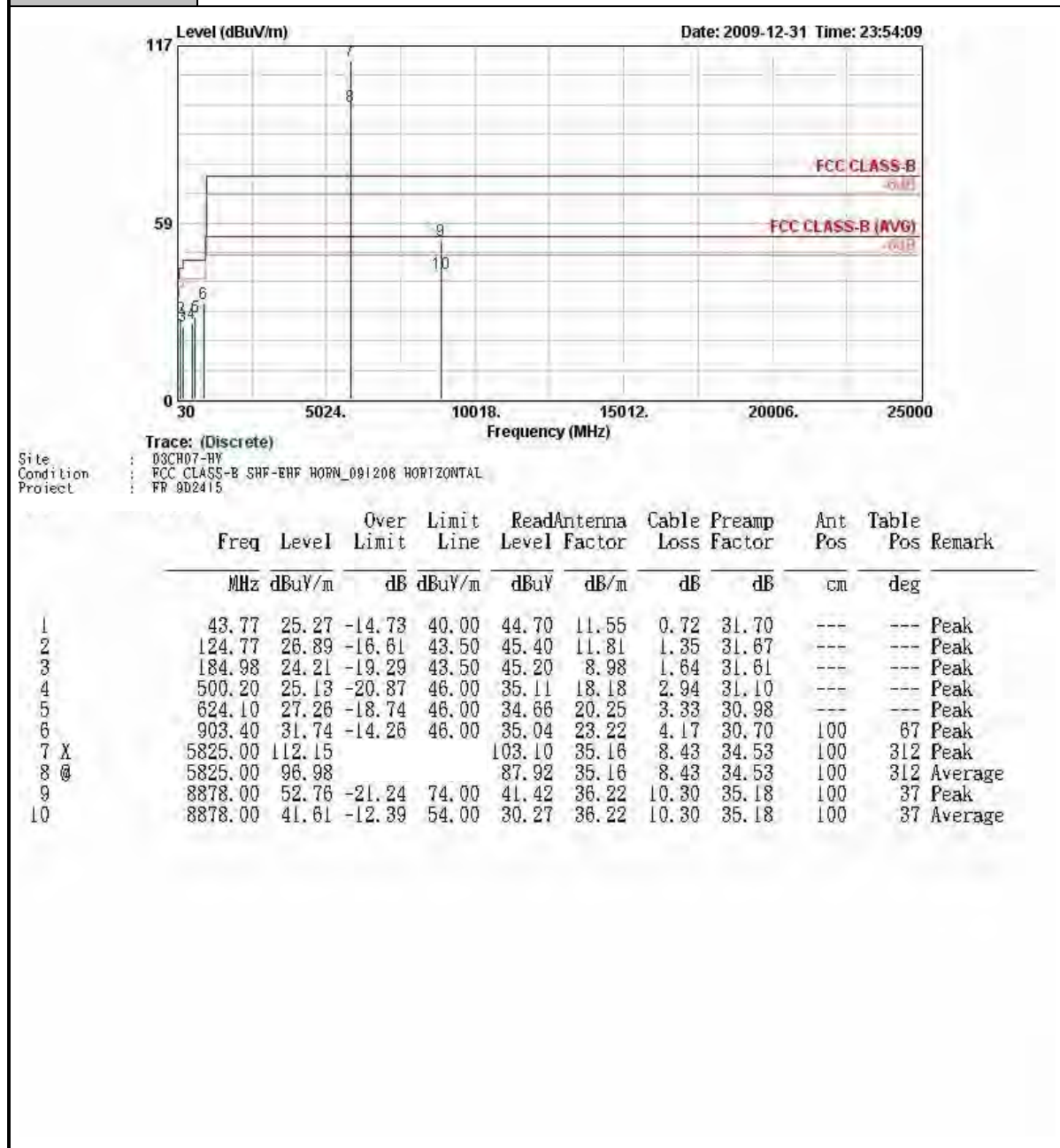


Test Mode :	Mode 16	Temperature :	19~20°C
Test Channel :	165	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	#7 and #8 are Fundamental Signals which can be ignored. #12 is not in the restricted band.		



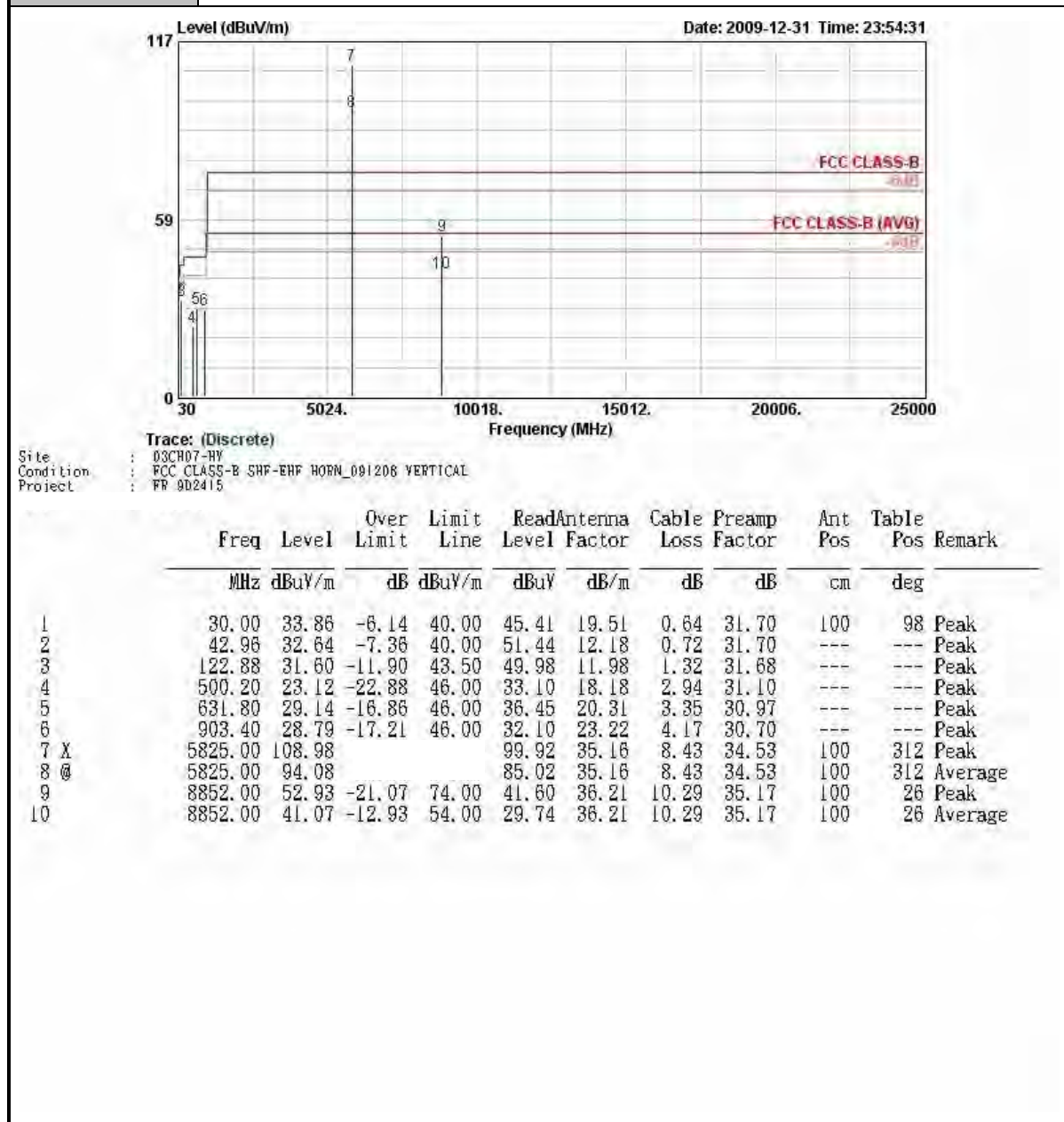


Test Mode :	Mode 17	Temperature :	19~20°C
Test Channel :	165	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	#7 and #8 are Fundamental Signals which can be ignored.		

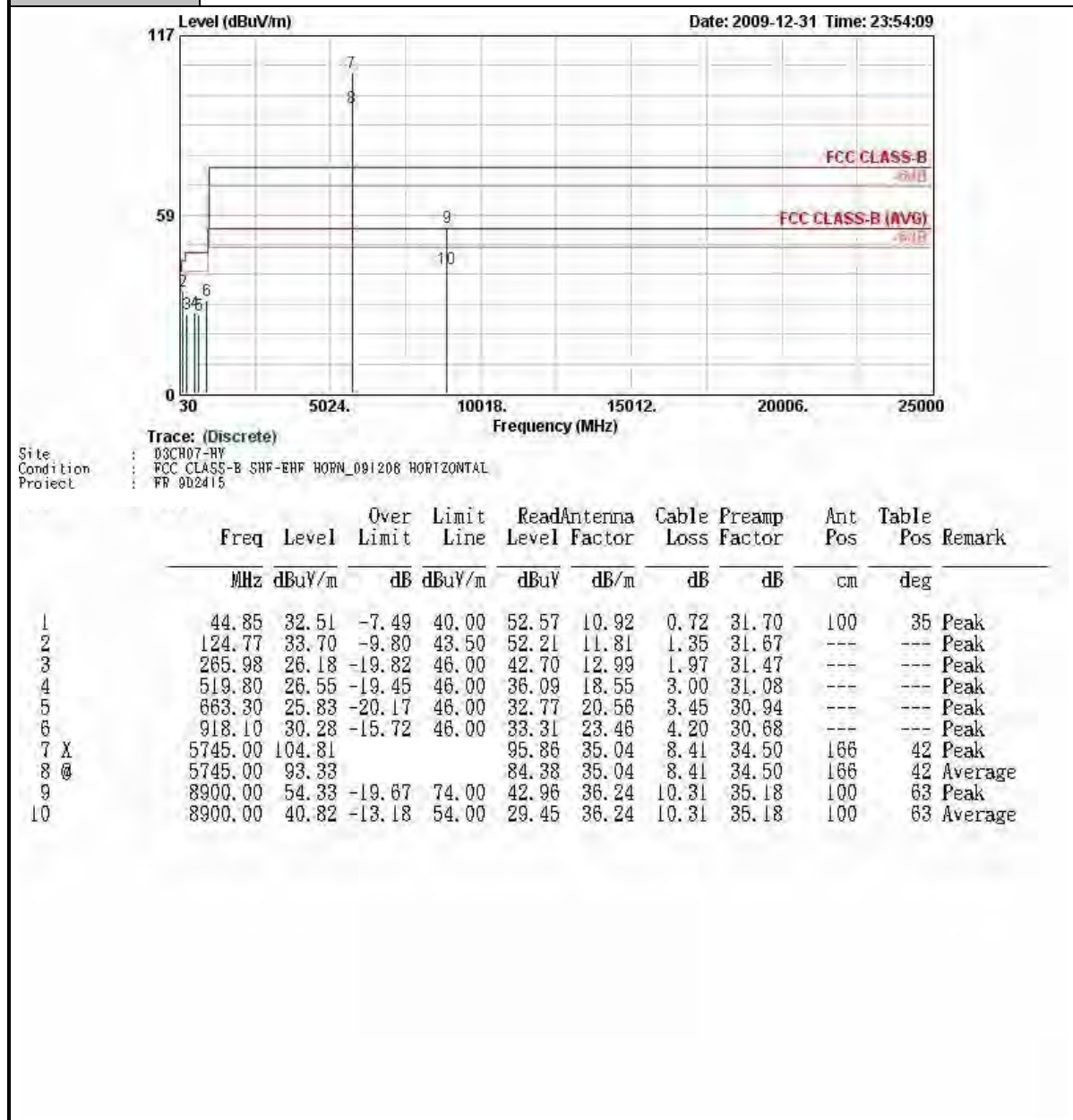




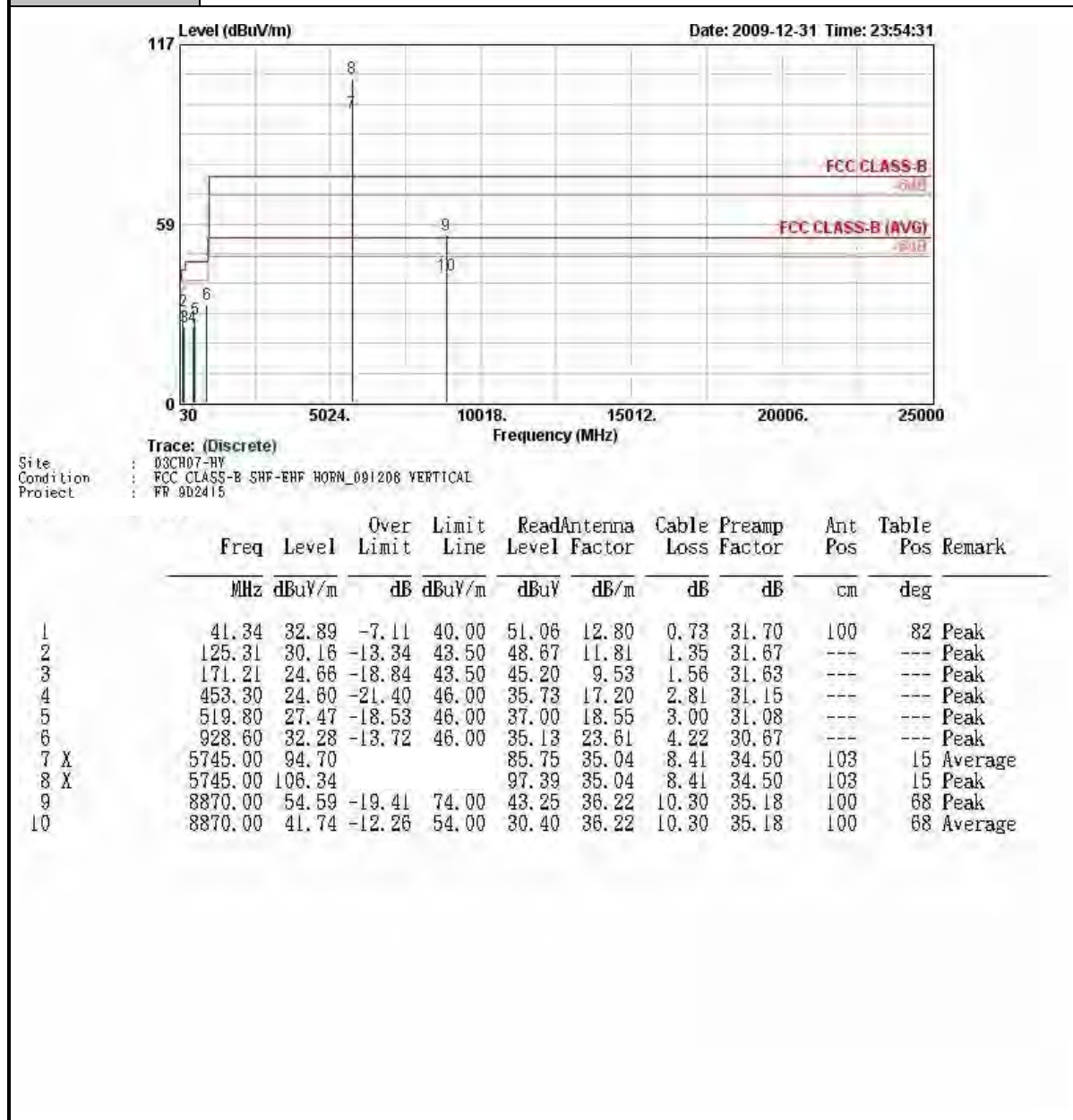
Test Mode :	Mode 17	Temperature :	19~20°C
Test Channel :	165	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	#7 and #8 are Fundamental Signals which can be ignored.		



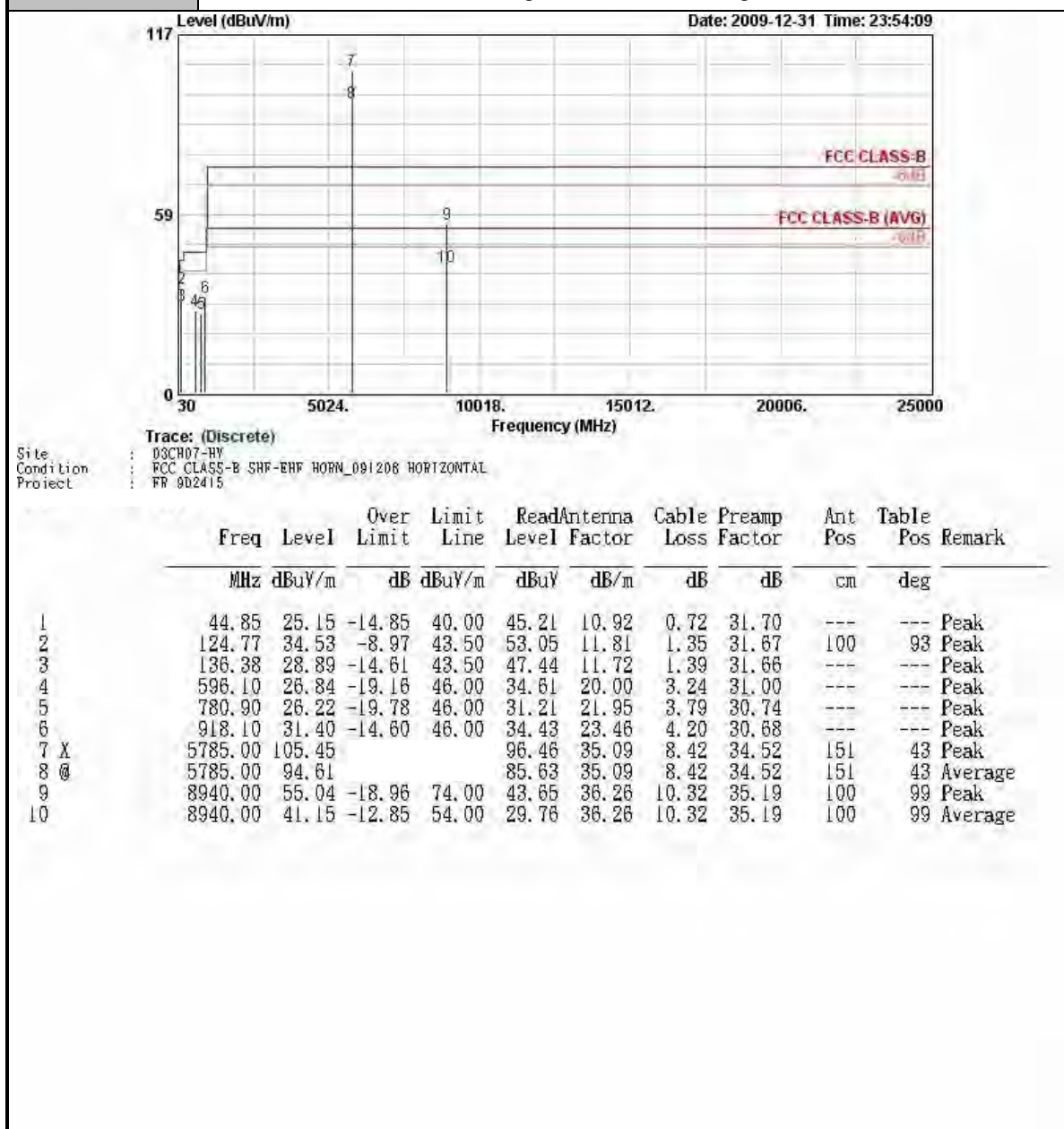
Test Mode :	Mode 18	Temperature :	19~20°C
Test Channel :	149	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	#7 and #8 are Fundamental Signals which can be ignored.		



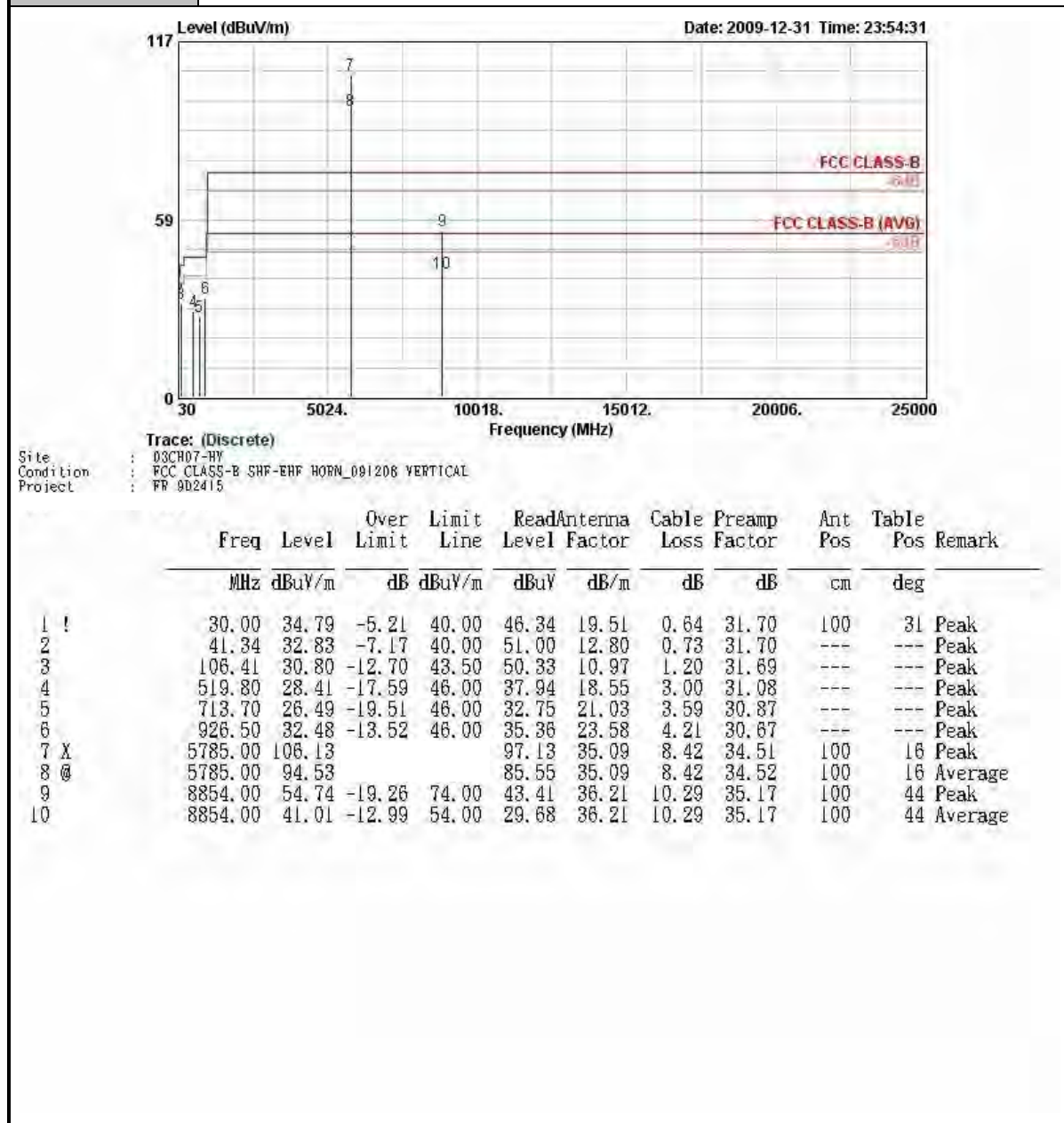
Test Mode :	Mode 18	Temperature :	19~20°C
Test Channel :	149	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	#7 and #8 are Fundamental Signals which can be ignored.		



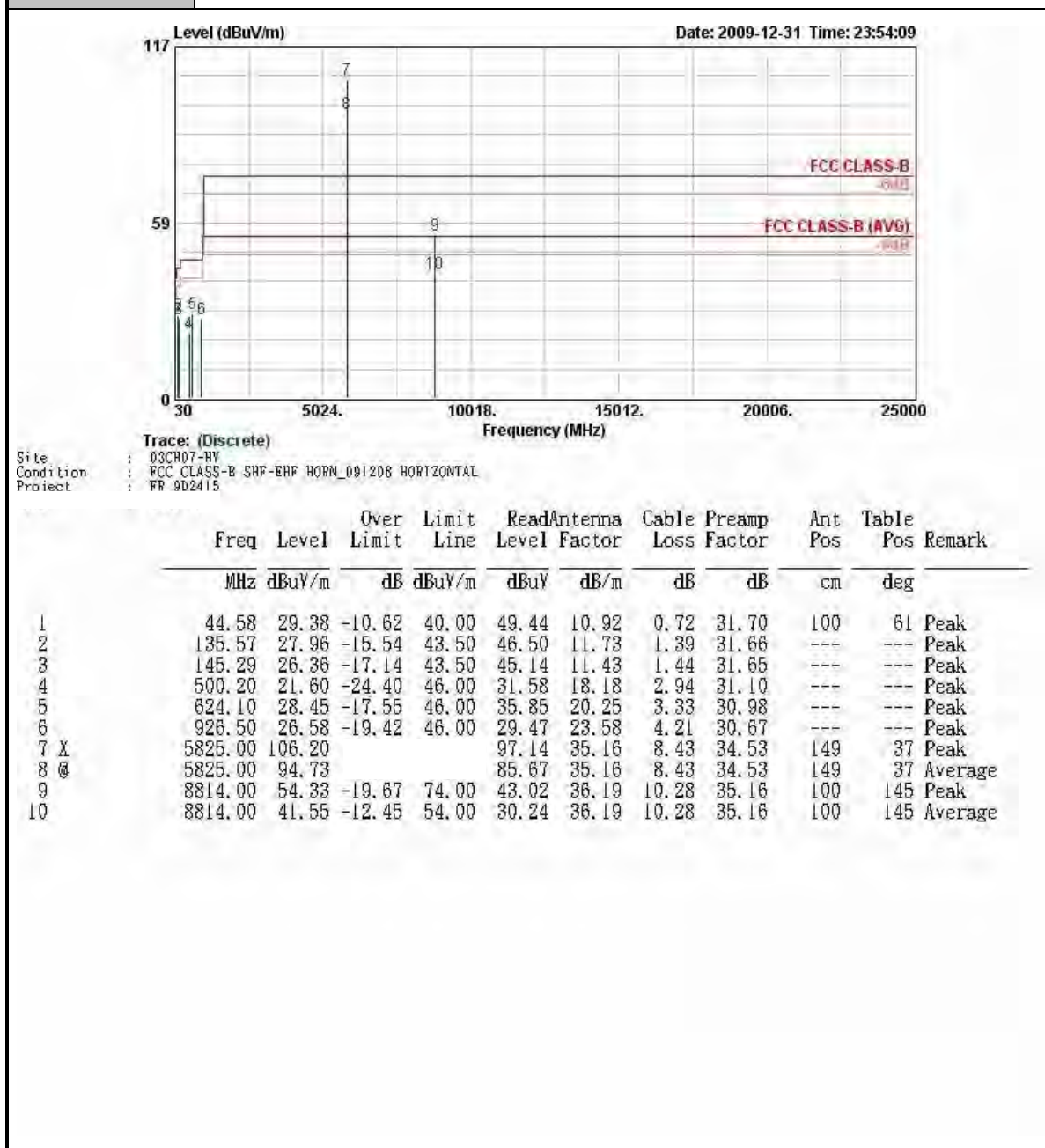
Test Mode :	Mode 19	Temperature :	19~20°C
Test Channel :	157	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	#7 and #8 are Fundamental Signals which can be ignored.		



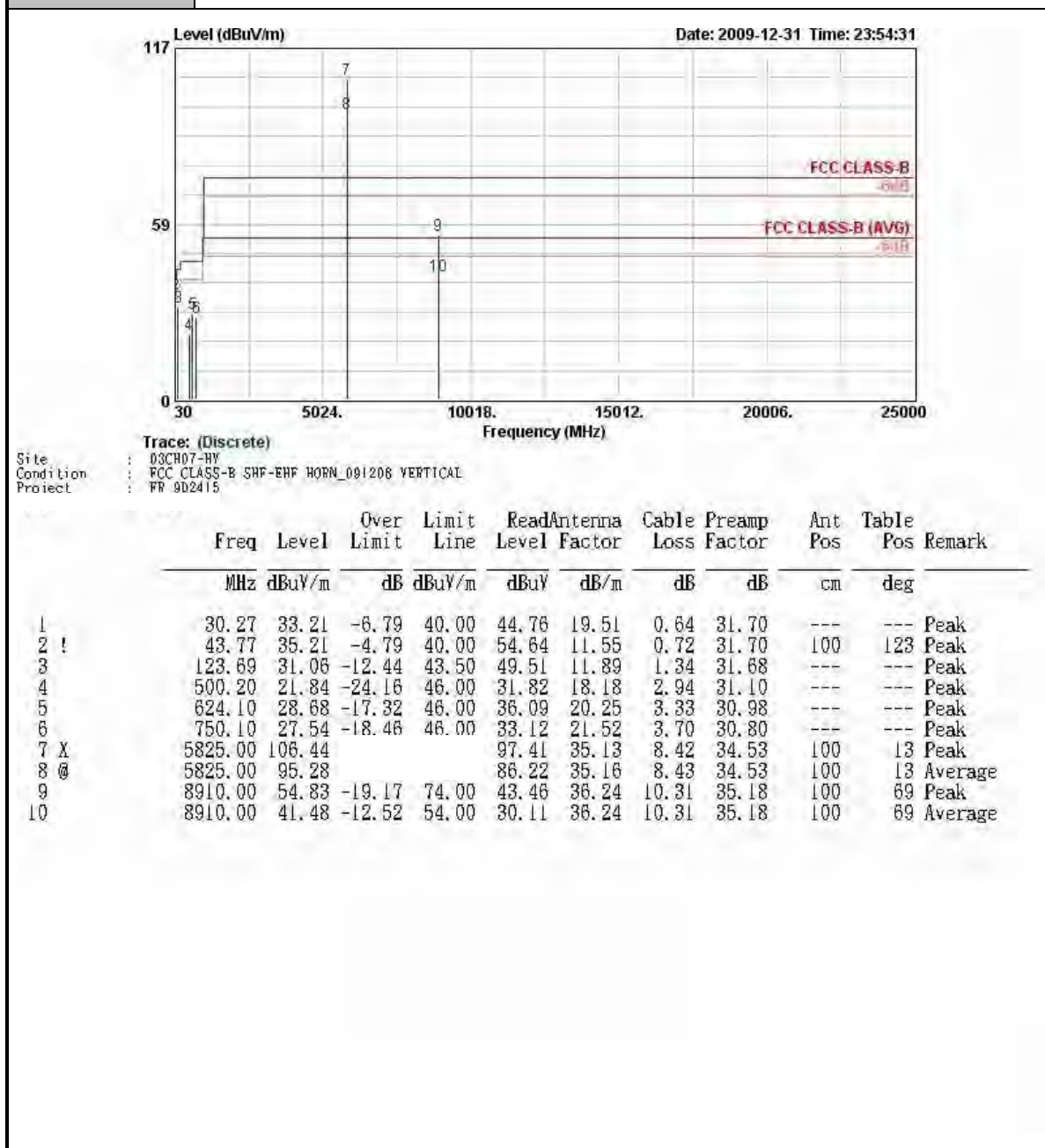
Test Mode :	Mode 19	Temperature :	19~20°C
Test Channel :	157	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	#7 and #8 are Fundamental Signals which can be ignored.		



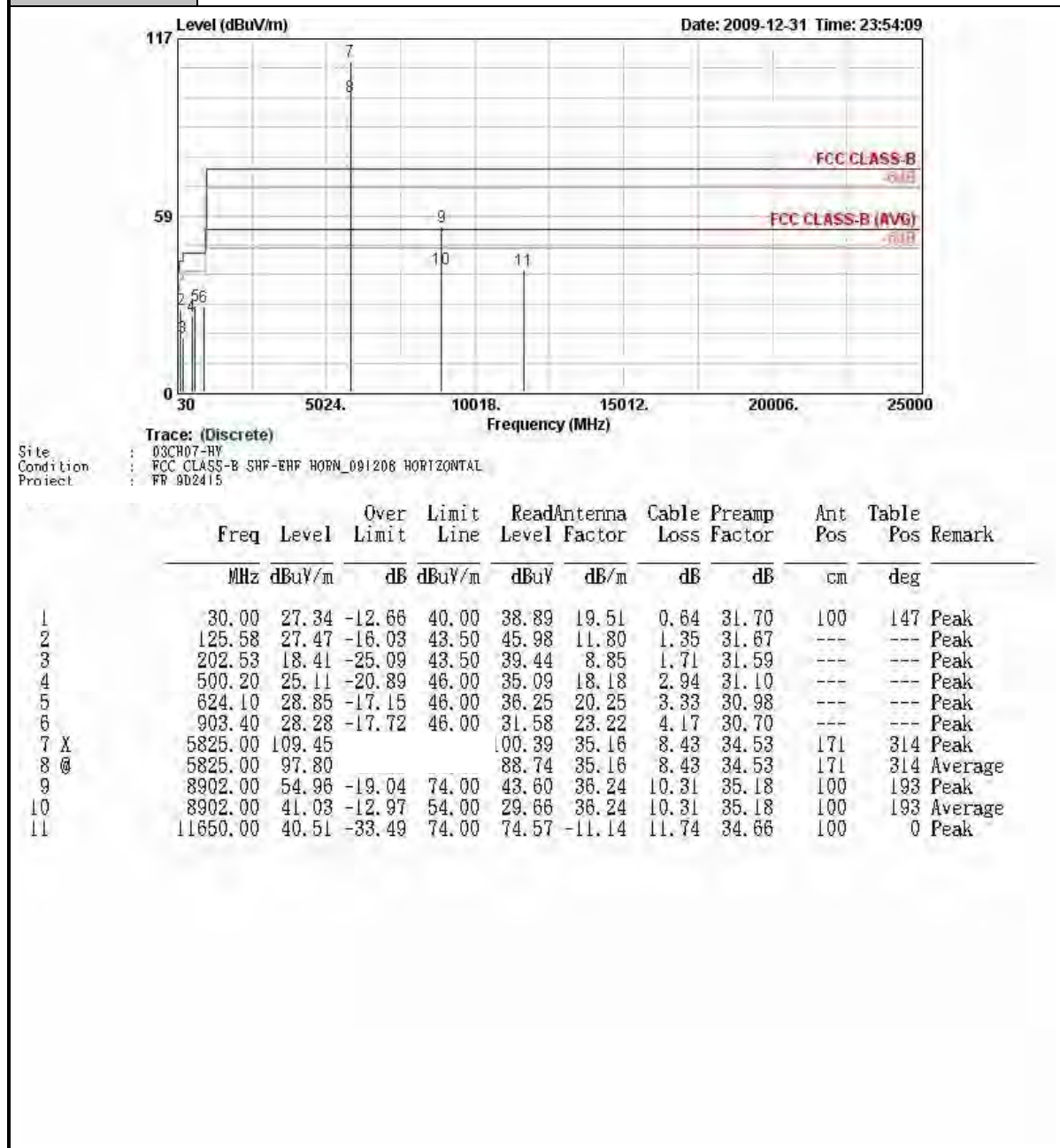
Test Mode :	Mode 20	Temperature :	19~20°C
Test Channel :	165	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	#7 and #8 are Fundamental Signals which can be ignored.		



Test Mode :	Mode 20	Temperature :	19~20°C
Test Channel :	165	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	#7 and #8 are Fundamental Signals which can be ignored.		



Test Mode :	Mode 21	Temperature :	19~20°C
Test Channel :	165	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	#7 and #8 are Fundamental Signals which can be ignored.		

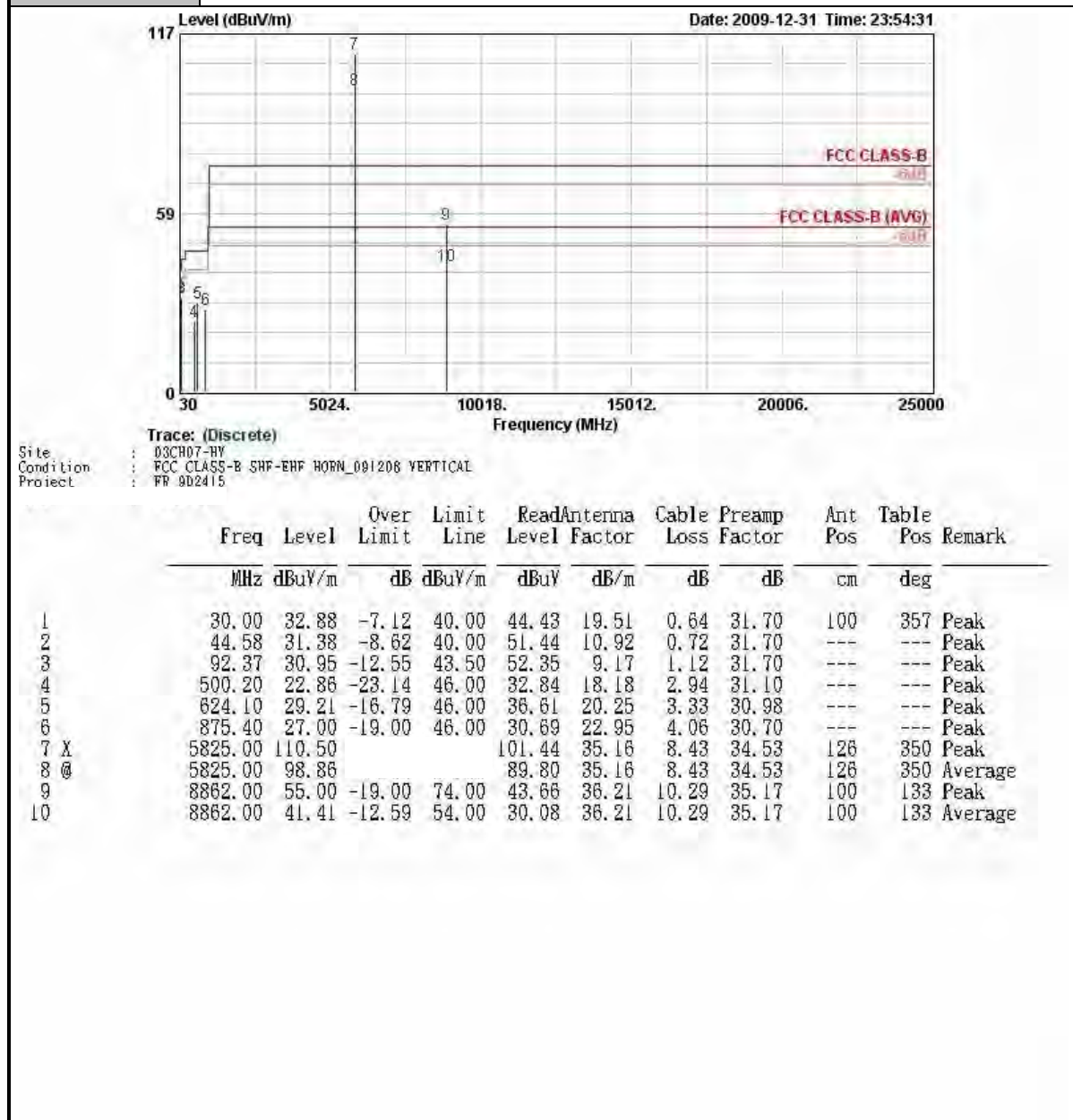




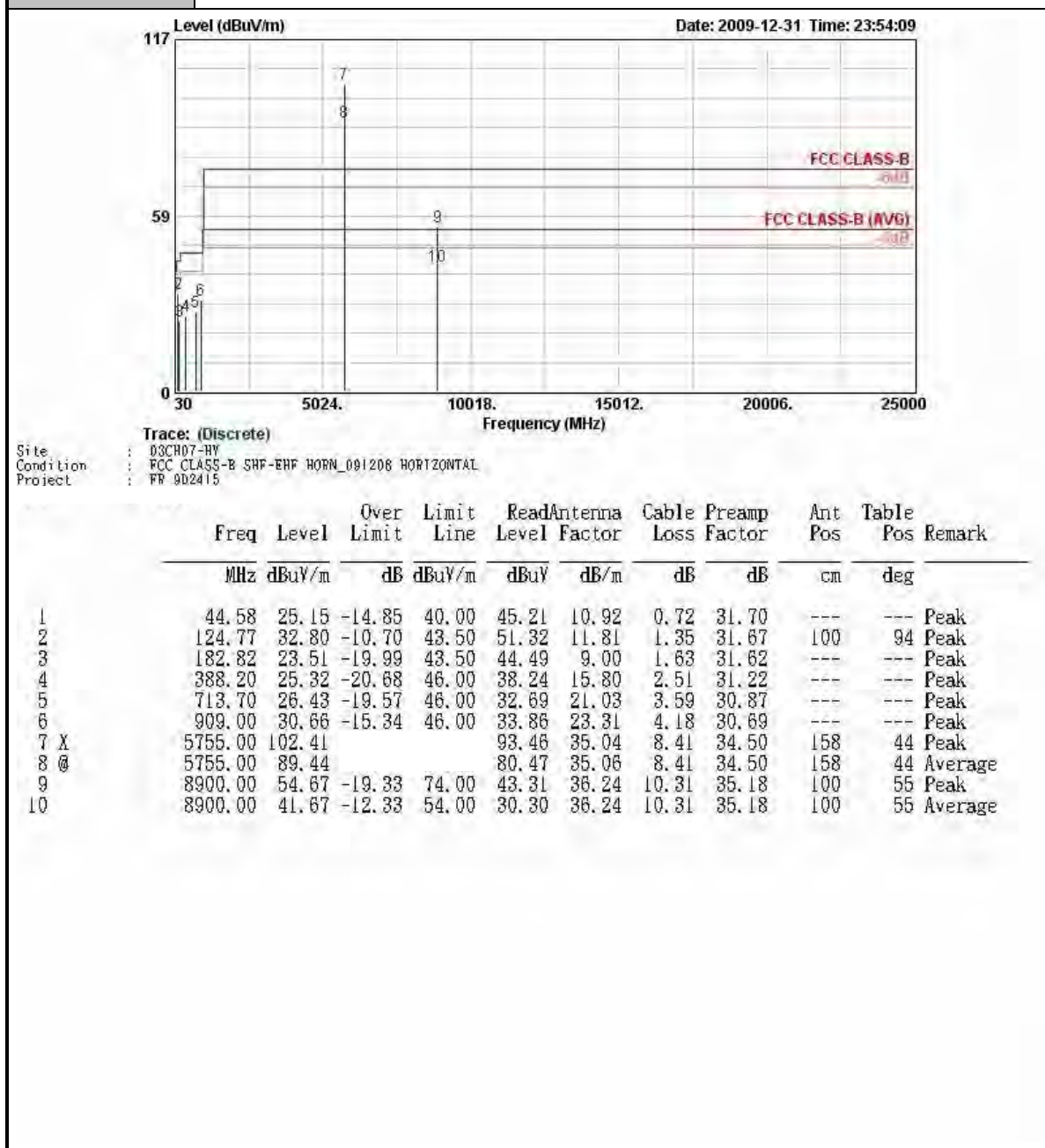
FCC RF Test Report

Report No. : FR9D2415A

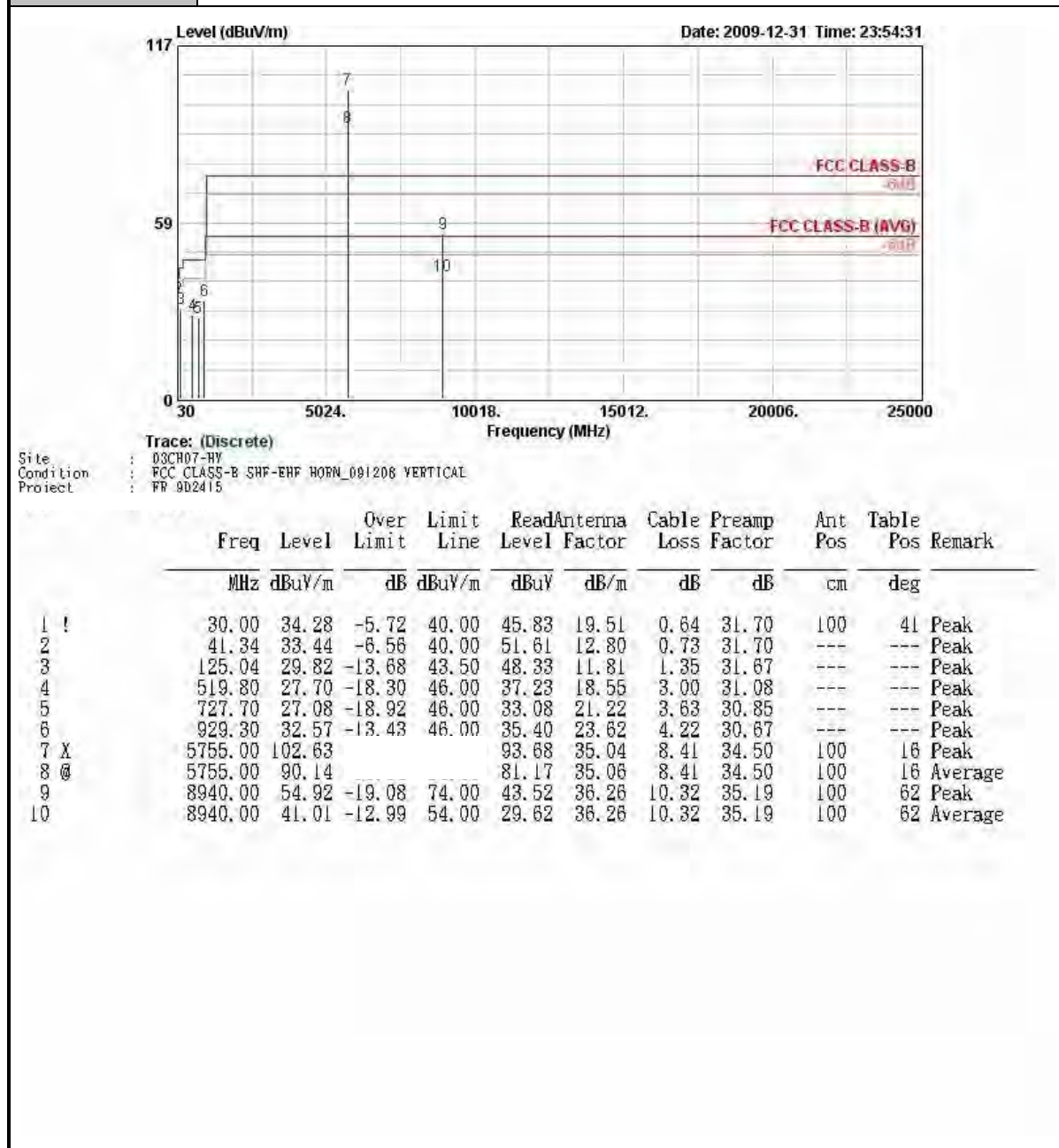
Test Mode :	Mode 21	Temperature :	19~20°C
Test Channel :	165	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	#7 and #8 are Fundamental Signals which can be ignored.		



Test Mode :	Mode 22	Temperature :	19~20°C
Test Channel :	151	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	#7 and #8 are Fundamental Signals which can be ignored.		

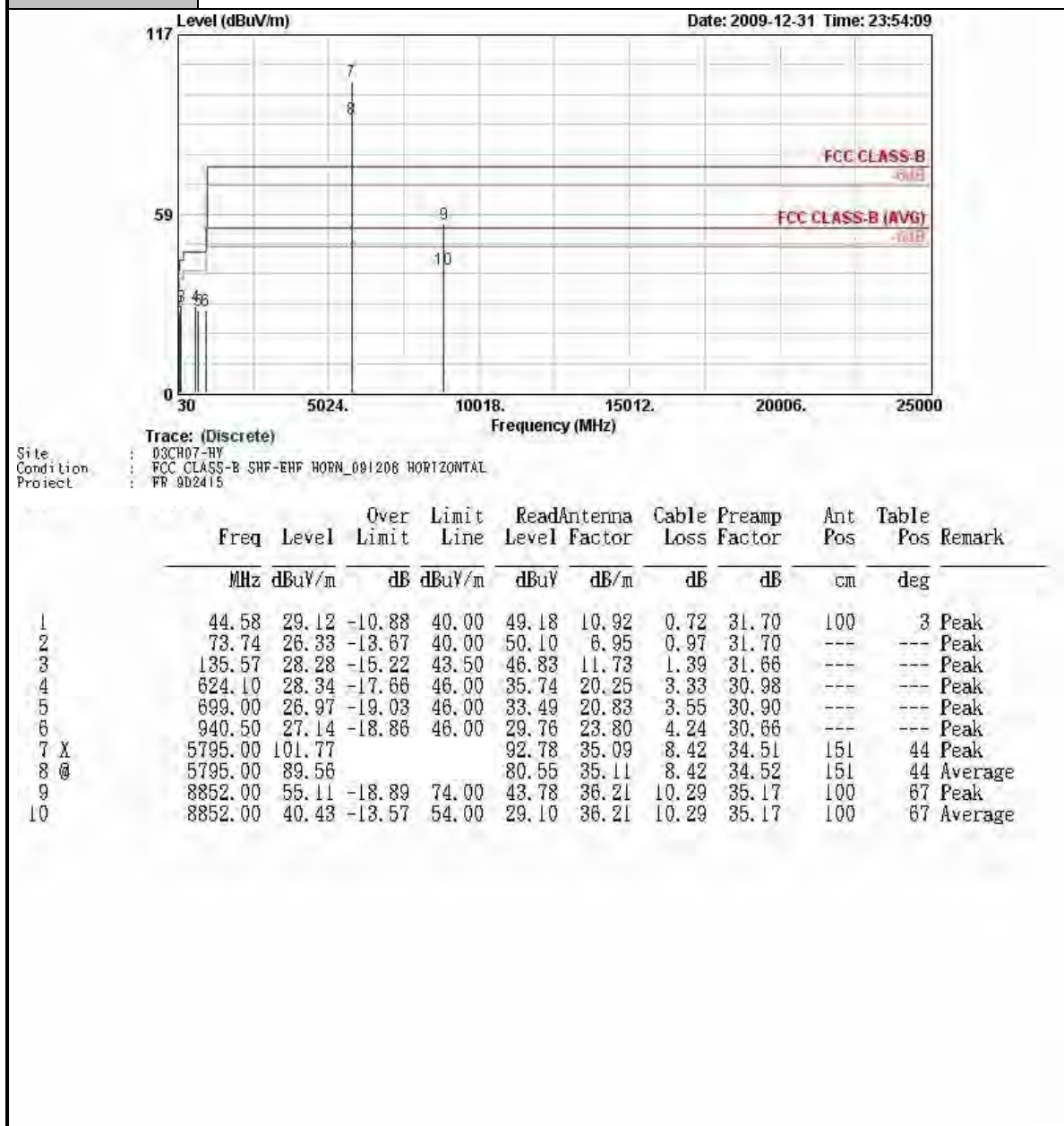


Test Mode :	Mode 22	Temperature :	19~20°C
Test Channel :	151	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	#7 and #8 are Fundamental Signals which can be ignored.		

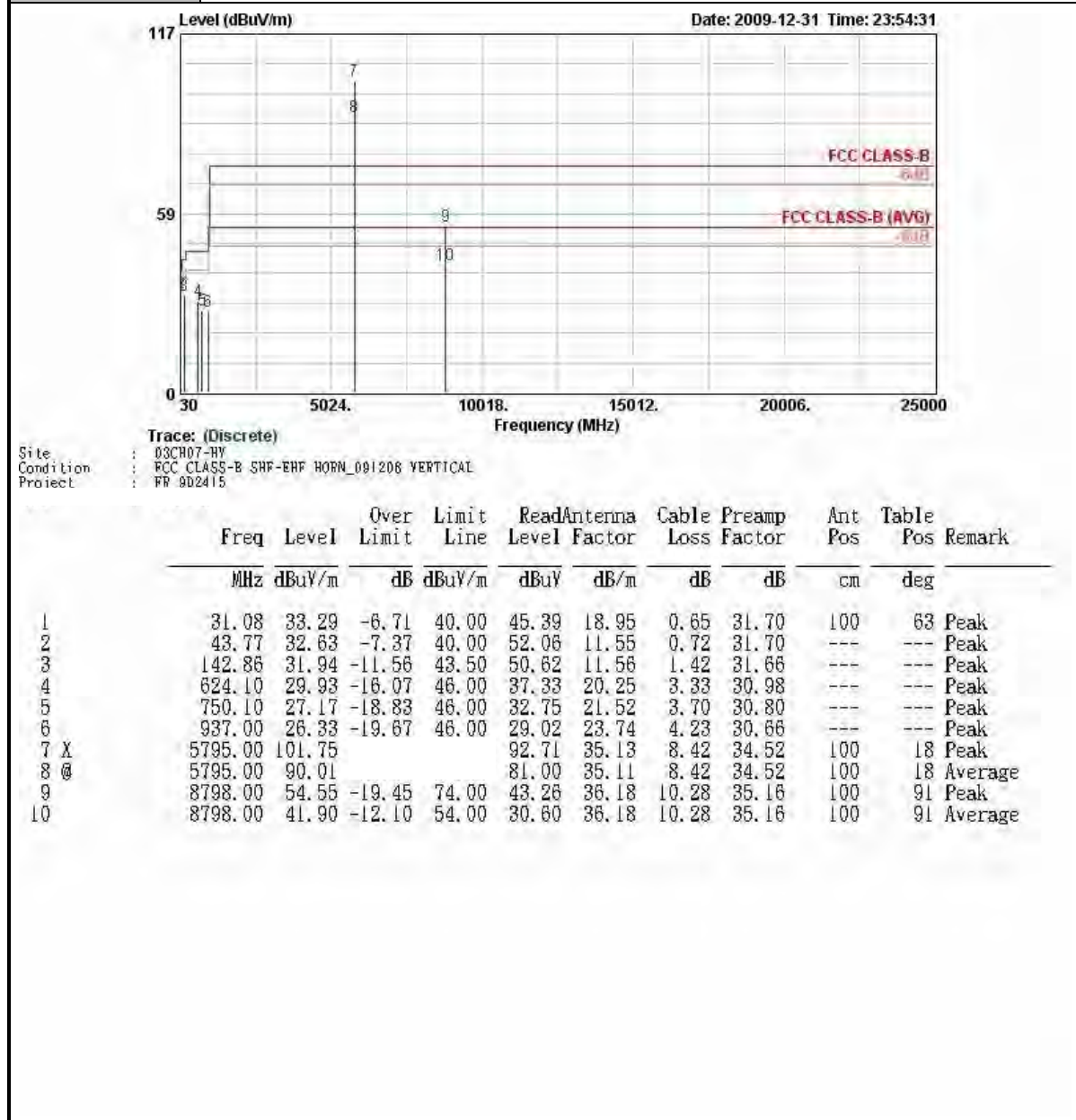




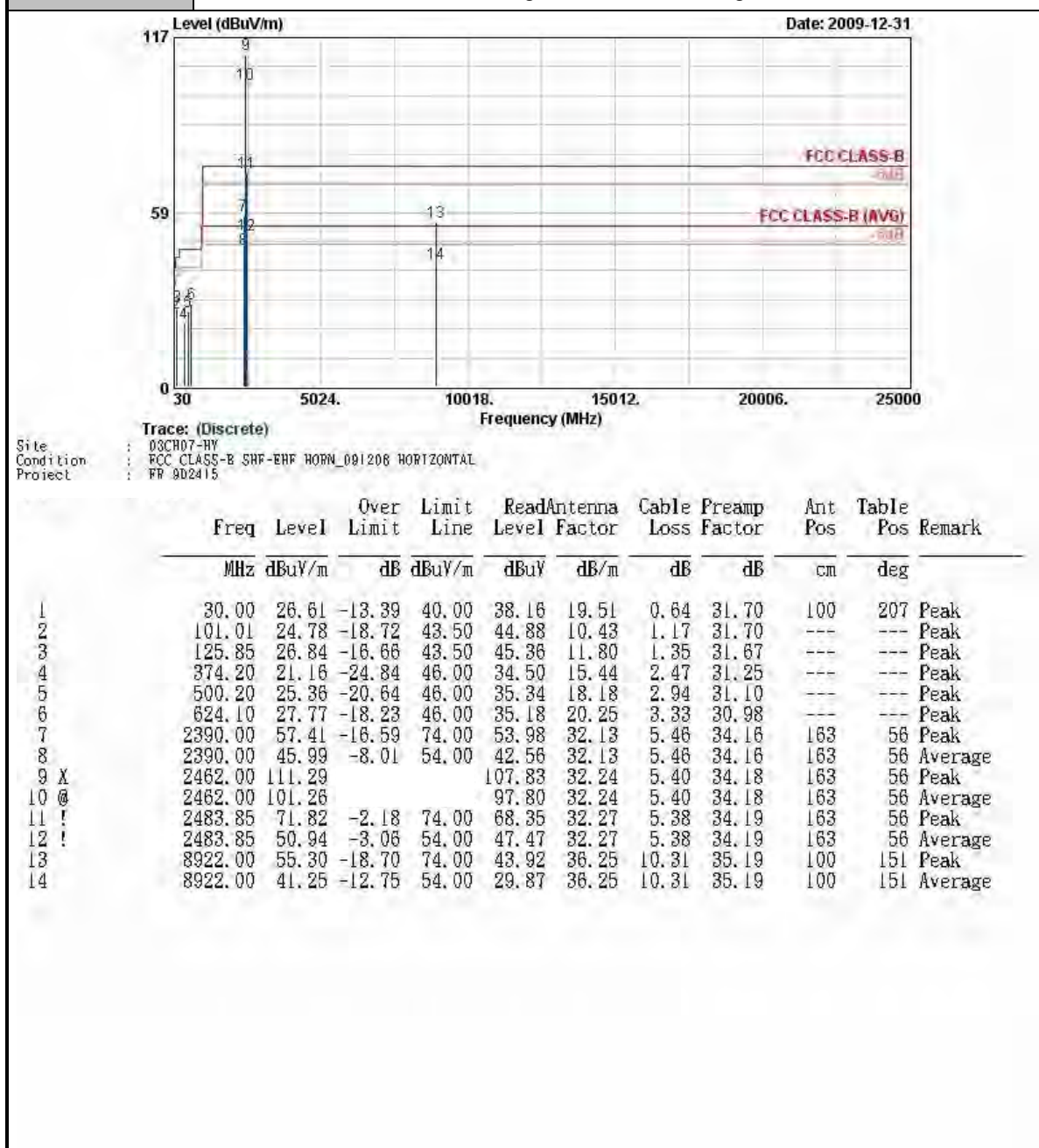
Test Mode :	Mode 23	Temperature :	19~20°C
Test Channel :	159	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	#7 and #8 are Fundamental Signals which can be ignored.		



Test Mode :	Mode 23	Temperature :	19~20°C
Test Channel :	159	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	#7 and #8 are Fundamental Signals which can be ignored.		

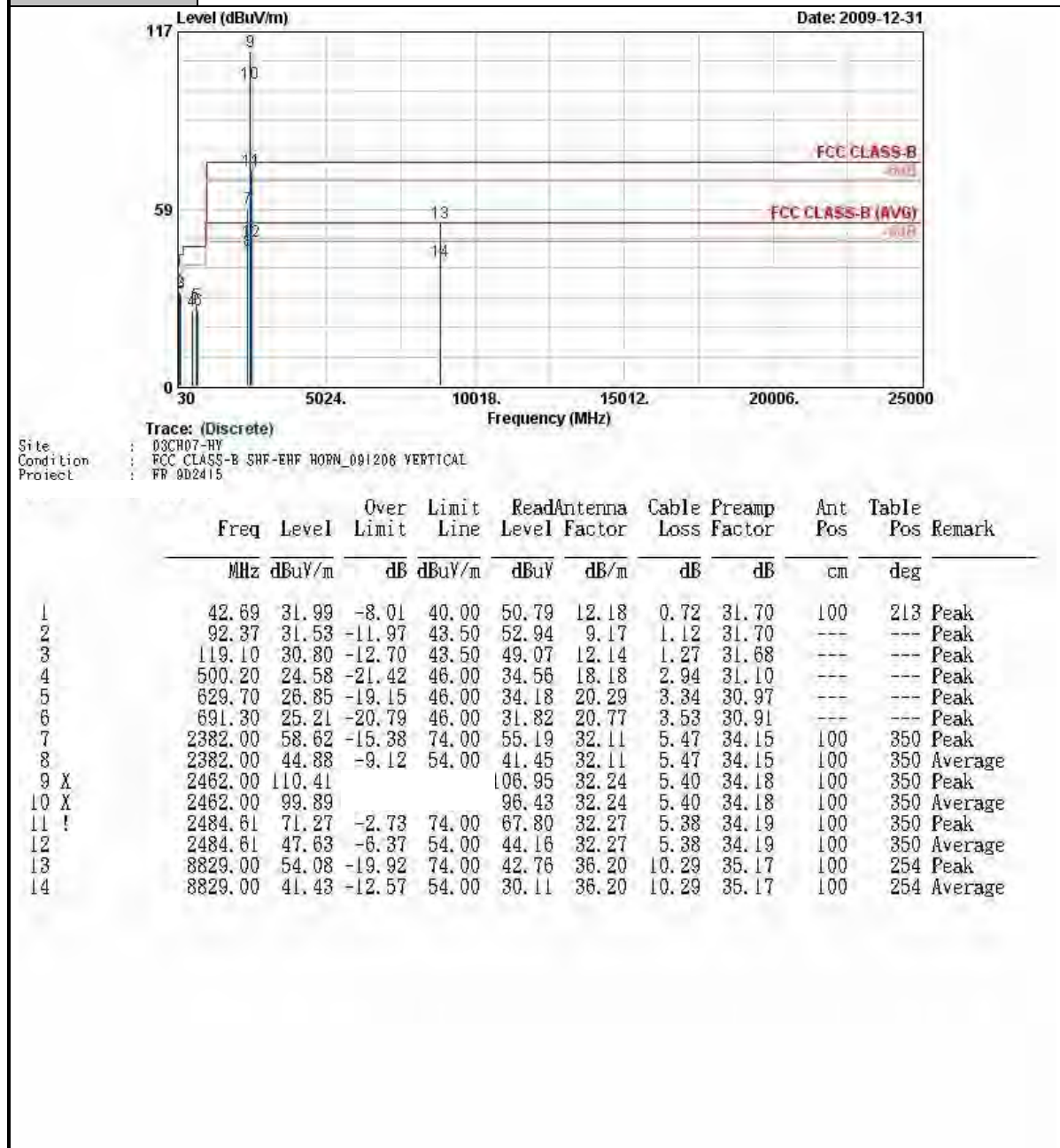


Test Mode :	Mode 24	Temperature :	19~20°C
Test Channel :	11	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		



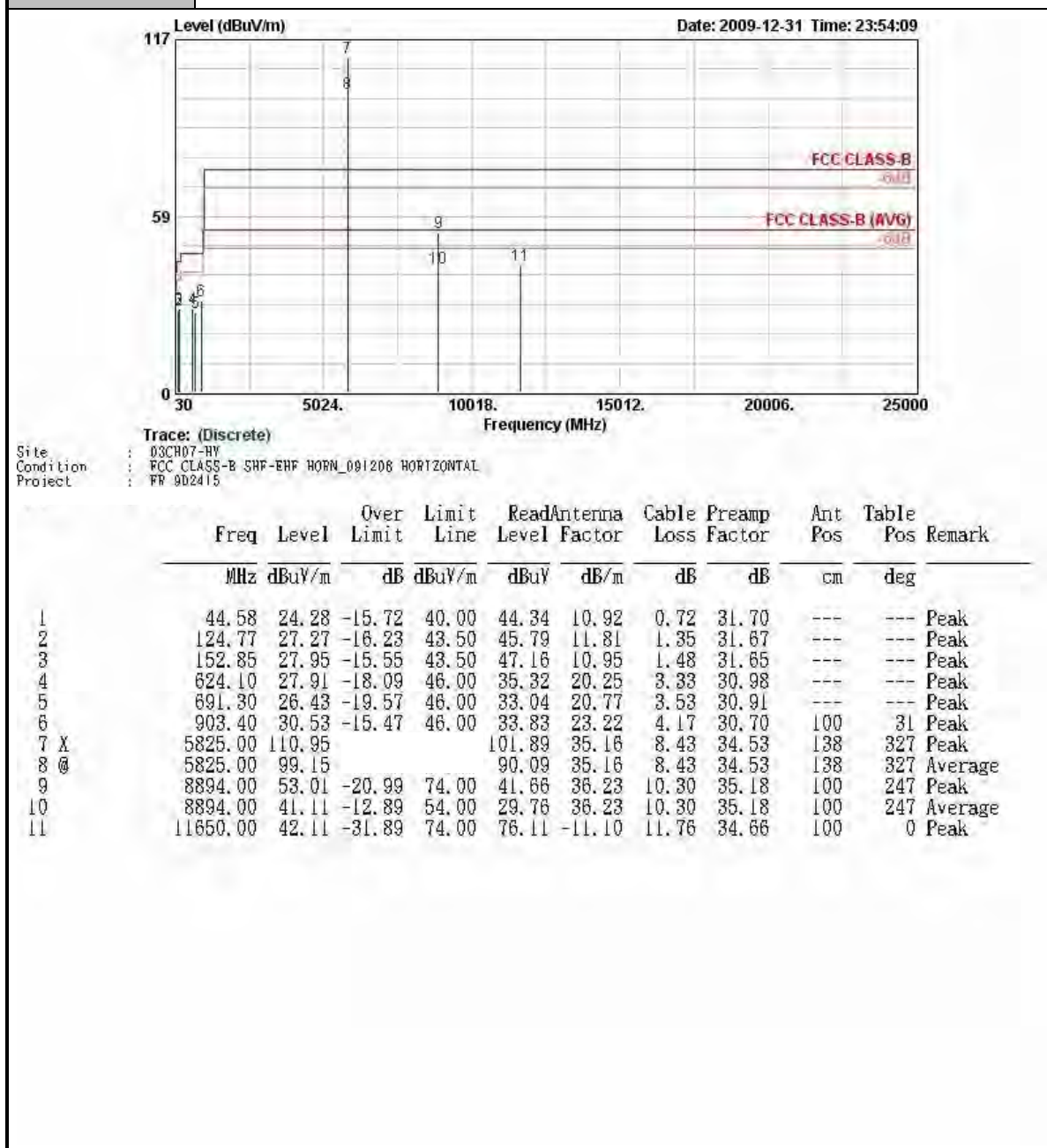


Test Mode :	Mode 24	Temperature :	19~20°C
Test Channel :	11	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		

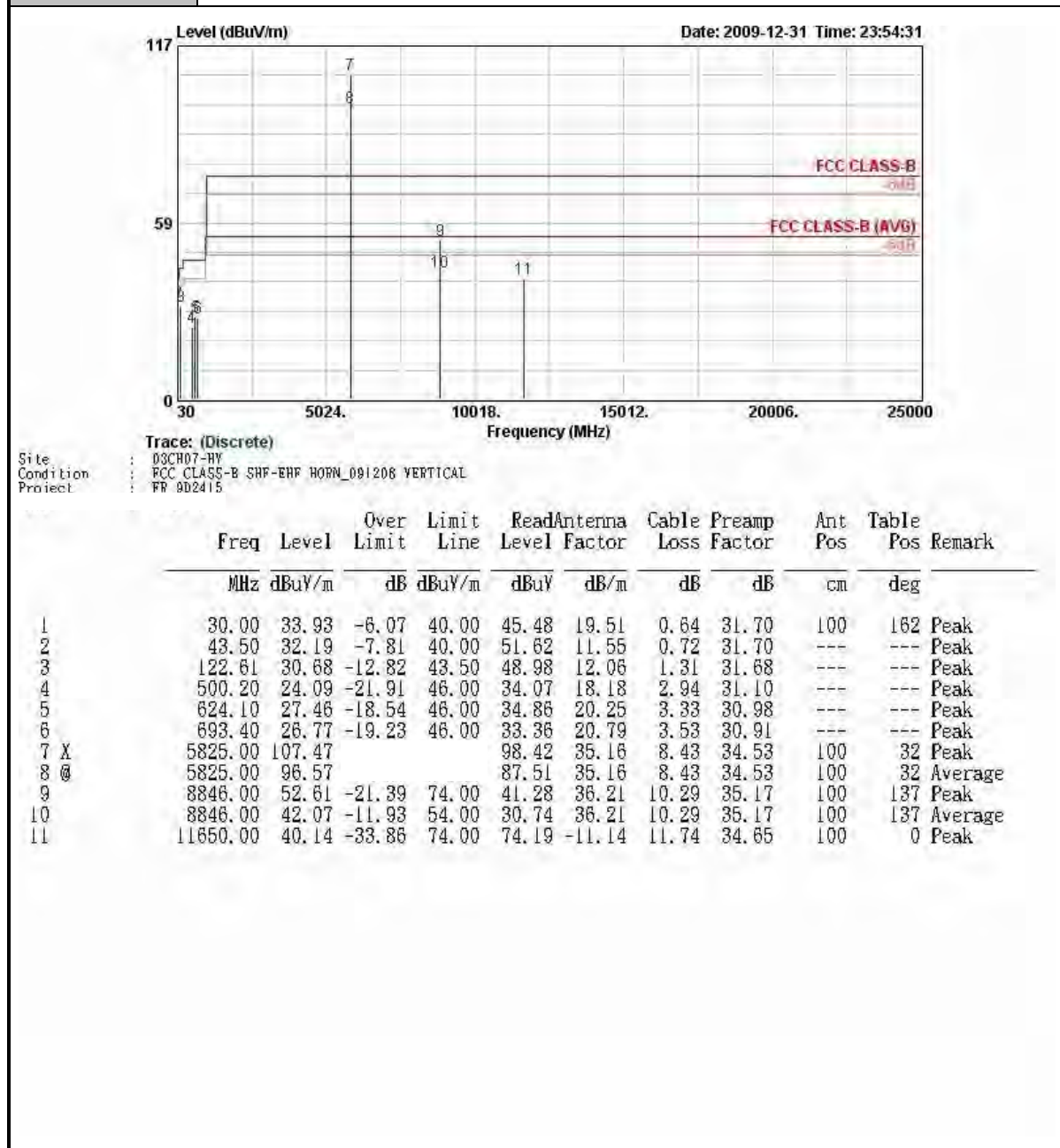




Test Mode :	Mode 25	Temperature :	19~20°C
Test Channel :	165	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	#7 and #8 are Fundamental Signals which can be ignored.		



Test Mode :	Mode 25	Temperature :	19~20°C
Test Channel :	165	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	#7 and #8 are Fundamental Signals which can be ignored.		



3.4 Antenna Requirements

3.4.1 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.

3.4.2 Antenna Connected Construction

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

3.4.3 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
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)
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.32dB.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 (150kHz ~ 30MHz)

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 (30MHz ~ 1000MHz)

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 (1GHz ~ 40GHz)

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



The image shows a TAF Accreditation Certificate for Sporton International Inc. The certificate is framed in a purple border. At the top center is the TAF logo, which consists of the letters 'TAF' in a stylized font inside a purple oval. To the right of the logo, the text 'Certificate No. : L1190-090417' is printed. Below the logo, the name of the organization is written in Chinese and English: '財團法人全國認證基金會' and 'Taiwan Accreditation Foundation'. The title 'Certificate of Accreditation' is centered below the organization's name. The text 'This is to certify that' is followed by the name of the laboratory, 'Sporton International Inc.', and its full address: 'EMC & Wireless Communications Laboratory, No.52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.'. Below this, it states 'is accredited in respect of laboratory'. A list of accreditation details follows, including the criteria (ISO/IEC 17025:2005), the accreditation number (1190), the original accreditation date (December 15, 2003), the effective period (January 10, 2007 to January 09, 2010), the accredited scope (Testing Field, see described in the Appendix), and the 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). The signature of Jay-San Chen is written in blue ink. Below the signature, his name and title are printed: 'Jay-San Chen, President, Taiwan Accreditation Foundation'. The date of issuance is 'Date : April 17, 2009'. At the bottom left, it says 'PI, total 20 pages'.

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

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

PI, 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 EP9D2415 as below.



Appendix C. Product Equality Declaration

Meru Networks Inc.

894 Ross Drive Sunnyvale, CA 94089 USA

Tel: 408 431 6032 ; Fax: 408 215 5301

Federal Communications Commission
Authorization and Evaluation Division
1435 Oakland Mills Road
Columbia, MD 21046

SUBJECT: Class II Permissive Change for FCC ID: RE7-AP300

The product, Multi Radio 802.11a/b/g/n Wireless LAN Access Point, has been granted by FCC dated 10/15/2007, FCC ID: RE7-AP300. The intension of this application is to apply for Class II Permissive Change for the modification of antenna type. Except the modification above, the other portions are remained the same as previous version.

Contact Person: Srinivas Sivaprakasam

Company: Meru Networks Inc.

TEL: 408 431 6032

FAX: 408 215 5301

E-mail: ssrinivas@merunetworks.com



Appendix D. Original Report

Please refer to Sporton Report Number FR791302A as below.