



FCC RADIO TEST REPORT

Applicant : LITE-ON TECHNOLOGY CORP.

Address : Bldg. C, 90, Chien 1 Rd., Chung-Ho,
New Taipei City, 23585, Taiwan

Equipment : 802.11 b/g/n, 1T1R 2.4GHz WLAN +
Bluetooth 4.2 Module

Model No. : WCBN4609L

Trade Name : LITEON

FCC ID. : PPQ-WCBN4609L

I HEREBY CERTIFY THAT:

The sample was received on Mar. 23, 2023 and the testing was completed on May 10, 2023 at CerpPASS Technology Corp. The test result refers exclusively to the test presented test model / sample. Without written approval of CerpPASS Technology Corp., the test report shall not be reproduced except in full.

Approved by:

Mark Liao / Supervisor

Laboratory Accreditation:

CerpPASS Technology Corporation Test Laboratory





Contents

1. Summary of Test Procedure and Test Results	5
1.1 Applicable Standards	5
2. Test Configuration of Equipment under Test	6
2.1 Feature of Equipment.....	6
2.2 Carrier Frequency of Channels.....	6
2.3 Test Mode and Test Software.....	7
2.4 Description of Test System.....	8
2.5 General Information of Test.....	9
2.6 Measurement Uncertainty	9
3. Test Equipment and Ancillaries Used for Tests	10
4. Antenna Requirements.....	12
4.1 Standard Applicable	12
4.2 Antenna Construction and Directional Gain.....	12
5. Test of AC Power Line Conducted Emission	13
5.1 Test Limit	13
5.2 Test Procedures	13
5.3 Typical Test Setup	14
5.4 Test Result and Data.....	15
5.5 Test Photographs	17
6. Test of Radiated Spurious Emission.....	18
6.1 Test Limit	18
6.2 Test Procedures	19
6.3 Typical Test Setup	20
6.4 Test Result and Data (9KHz ~ 30MHz).....	21
6.5 Test Result and Data (30MHz ~ 1GHz)	21
6.6 Test Result and Data (1GHz ~ 25GHz).....	23
6.7 Restricted Bands of Operation	41
6.8 Test Photographs (30MHz ~ 1GHz).....	42
6.9 Test Photographs (1GHz ~ 25GHz)	43
7. Test of Conducted Spurious Emission	45
7.1 Test Limit	45
7.2 Test Procedure	45
7.3 Test Setup Layout	45
7.4 Test Result and Data.....	45
8. On Time, Duty Cycle and Measurement methods	52
8.1 Test Limit	52
8.2 Test Procedure	52
8.3 Test Setup Layout	52
8.4 Test Result and Data.....	52
9. 6dB Bandwidth Measurement Data.....	54
9.1 Test Limit	54
9.2 Test Procedures	54



9.3	Test Setup Layout	54
9.4	Test Result and Data.....	54
10.	Maximum Peak and Average Output Power	57
10.1	Test Limit	57
10.2	Test Procedures	57
10.3	Test Setup Layout	57
10.4	Test Result and Data.....	58
11.	Power Spectral Density	59
11.1	Test Limit	59
11.2	Test Procedures	59
11.3	Test Setup Layout	59
11.4	Test Result and Data.....	59
12.	Radio Frequency Exposure	62
12.1	Applicable Standards	62
12.2	EUT Specification.....	63
12.3	Results	63



History of this test report

Report No.	Issued Date	Description
23030225-TRFCC01	May 12, 2023	Original



1. Summary of Test Procedure and Test Results

1.1 Applicable Standards

ANSI C63.10:2013

FCC Rules and Regulations Part 15 Subpart C §15.247

FCC Rule	Description of Test	Result
15.203	. Antenna Requirement	PASS
15.207	. AC Power Line Conducted Emission	PASS
15.209 15.205	. Radiated Spurious Emission	PASS
15.247(d)	. Conducted Spurious Emission	PASS
15.247(a)(2)	. 6dB Bandwidth	PASS
15.247(b)	. Maximum Peak and Average Output Power	PASS
15.247(e)	. Power Spectral Density	PASS
2.1091	. Radio Frequency Exposure	PASS

*The lab has reduced the uncertainty risk factor from test equipment, environment and staff technicians which according to the standard on contract. Therefore, the test result will only be determined by standard requirement.

*This EUT has been also tested and compiled with the requirement of FCC Part 15, Subpart B, recorded in a separate test report(23030225-TEFV01).



2. Test Configuration of Equipment under Test

2.1 Feature of Equipment

Operation Frequency Range	WLAN: 802.11b/g/n: 2400MHz ~ 2483.5MHz BLE: 2400MHz ~ 2483.5MHz
Center Frequency Range	WLAN: 802.11b/g/n: 2412MHz~2462MHz BLE: 2402MHz ~ 2480MHz
Modulation Type	WLAN: 802.11b: CCK, DQPSK, DBPSK 802.11g/n: BPSK, QPSK, 16QAM, 64QAM BLE: GFSK
Modulation Technology	DSSS, OFDM, DTS
Data Rate	WLAN: 802.11b: 1, 2, 5.5, 11Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54Mbps 802.11n: MCS0 – MCS7, HT20 BLE: 1Mbps
Antenna Type	Printed Antenna
Antenna Gain	1.8dBi

Note: For more details, please refer to the User's manual of the EUT.

2.2 Carrier Frequency of Channels

802.11b, 802.11g, 802.11n HT20 (2412MHz~2462MHz)

Channel	Frequency(MHz)	Channel	Frequency(MHz)
*01	2412	07	2442
02	2417	08	2447
03	2422	09	2452
04	2427	10	2457
05	2432	*11	2462
*06	2437	---	---

Note: Channels remarked * are selected to perform test.



2.3 Test Mode and Test Software

- During testing, the interface cables and equipment positions were varied according to ANSI C63.10.
- An executive program, "AmebaZ2 ver. 1.0.0.1" under Windows 10 system was executed to transmit and receive data via WLAN.
- The following test mode was performed for the test:

Conducted Emissions from the AC mains power ports	
Test Mode 1	TX Mode, DC 5V/1A from DC Power Supply (120V/60Hz)
Test Mode 2	TX Mode, DC 5V/1A from DC Power Supply (240V/60Hz)
caused "Test Mode 1" generated the worst case, it was reported as the final data.	
Radiated Emissions (Below 1GHz)	
Test Mode 1	TX Mode, DC 5V/1A from DC Power Supply (120V/60Hz)
Radiated Emissions (1GHz ~ 25GHz)	
Test Mode 1	802.11b (1Mbps), TX Mode, DC 5V/1A from DC Power Supply (120V/60Hz)
Test Mode 2	802.11g (6Mbps), TX Mode, DC 5V/1A from DC Power Supply (120V/60Hz)
Test Mode 3	802.11n HT20 (6.5Mbps), TX Mode, DC 5V/1A from DC Power Supply (120V/60Hz)

Modulation Type	TX CONFIGURATION
802.11b	1TX
802.11g	1TX
802.11n HT20	1TX



2.4 Description of Test System

RF Conducted				
Equipment	Brand	Model	Length/Type	Power cord/Length/Type
Notebook	lenovo	S1GL2W	N/A	N/A
Testfixture	YD-TECH	MCS-73-LV	N/A	N/A
DC Power Supply	Gwinstek	SPD-3606	N/A	N/A

Radiated Emissions				
Equipment	Brand	Model	Length/Type	Power cord/Length/Type
Notebook	ASUS	P2430U	N/A	Adapter / 1.8m / NS
USB Cable (A to B)	BENEVO	E210567AWM	1m / NS	N/A
DC Power Supply	Gwinstek	GPR-360600	N/A	N/A
Testfixture	YD-TECH	MCS-73-LV	N/A	N/A

AC Power Line Conducted Emission				
Equipment	Brand	Model	Length/Type	Power cord/Length/Type
Notebook	ASUS	P2430U	N/A	Adapter / 1.8m / NS
DC Power Supply	Gwinstek	GPR-360600	N/A	N/A
Testfixture	YD-TECH	MCS-73-LV	N/A	N/A



2.5 General Information of Test

Test Site	Cerpass Technology Corporation Test Laboratory Address: No.10, Ln. 2, Lianfu St., Luzhu Dist., Taoyuan City 33848, Taiwan (R.O.C.) Tel: +886-3-3226-888 Fax: +886-3-3226-881	
	FCC	TW1439, TW1079
	IC	4934E-1, 4934E-2
	VCCI	T-12205 for Telecommunication test C-14663 for Conducted emission test R-14218 for Radiated emission test G-10812, G-10813 for radiated disturbance above 1GHz
Frequency Range Investigated:	Conducted: from 150kHz to 30 MHz Radiation: from 30 MHz to 25,000MHz	
Test Distance:	The test distance of radiated emission from antenna to EUT is 3 M.	

Test Item	Test Site	Test Period	Environmental Conditions	Tested by
RF Conducted	RFCON01-NK	2023/04/10~ 2023/05/09	23.8°C ~26.8°C / 46~49%	Leon Huang
Radiated Emissions	3M03NK	2023/04/10~ 2023/04/11	22~24°C / 60~65%	Leon Huang
AC Power Line Conducted Emission	CON01-NK	2023/05/10	23°C / 53%	Leon Huang

2.6 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2)).

Measurement Item	Uncertainty
AC Power Line Conduction(150K~30MHz)	±3.28dB
Radiated Spurious Emission(9KHz~30MHz)	±3.4dB
Radiated Spurious Emission(30MHz~1GHz)	±5.7dB
Radiated Spurious Emission(1GHz~25GHz)	±6.8dB
Conducted Spurious Emission	±2.1dB
6dB Bandwidth	±4.4%
20dB Bandwidth	±4.4%
Occupied Bandwidth	±4.4%
Peak Output Power(Conducted Power Meter)	±1.1dB
Dwell Time / Deactivation Time	±1.2%
Power Spectral Density	±1.8dB
Duty Cycle	±1.2%



3. Test Equipment and Ancillaries Used for Tests

Test Item	Radiated Emissions				
Test Site	Semi Anechoic Room(3M03-NK)				
Instrument	Manufacturer	Model No	Serial No	Calibration Date	Valid Date
Bilog Antenna	Sunol	JB1	A051717	2022/07/22	2023/07/21
Active Loop Antenna	EMCO	6507	40855	2022/05/25	2023/05/24
Horn Antenna	EMCO	3116	31970	2023/03/03	2024/03/02
Double Ridged Guide Horn Antenna	RF SPAN	DRH18-E	210309A18-ES	2022/08/24	2023/08/23
Spectrum Analyzer	ROHDE & SCHWARZ	FSP 40	100219	2022/08/16	2023/08/15
EMI Receiver	ROHDE & SCHWARZ	ESCI	101402	2023/03/02	2024/03/01
Preamplifier	Agilent	8449B	3008A01954	2023/03/08	2024/03/07
Preamplifier	EM Electronics corp.	EM330	60644	2022/09/05	2023/09/04
Cable-6m (9k~300M)	NA	EMC5D-BM-BM-6	130605	2022/09/06	2023/09/05
Cable-9m (30M-1G)	HARBOUR INDUSTRIES	RG-214	00402M	2022/09/06	2023/09/05
Cable-1m (30M-1G)	HARBOUR INDUSTRIES	RG-214	05094M	2022/09/06	2023/09/05
Cable-1.5m (30M-1G)	HARBOUR INDUSTRIES	RG-214	00420M	2022/06/21	2023/06/20
Cable-3m (30M-40G)	HUBER SUHNER	SUCOFLEX 102	MY2608/2	2023/03/07	2024/03/06
Cable-3m (10M-40G)	HUBER SUHNER	SF102	804619/2	2022/10/11	2023/10/10
Cable-0.5m (1G-18G)	EMEC	EM104-SMSM-0.5M	CCE1354	2022/05/26	2023/05/25
Cable-3m (1G-18G)	EMEC	EM104-SMSM-3M	CCE1355	2022/05/26	2023/05/25
Cable-8m (10M-26.5G)	HUBER SUHNER	SF126E	587396/126E	2022/10/07	2023/10/06
E3	AUDIX	v8.2014-8-6	RK-000529	NA	NA

Test Item	RF Conducted				
Test Site	RFCON01-NK				
Instrument	Manufacturer	Model No	Serial No	Calibration Date	Valid Date
CAX Signal Analyzer	KEYSIGHT	N9000B	MY57100339	2022/11/29	2023/11/28
Attenuator	KEYSIGHT	8491B	MY39250703	2023/03/07	2024/03/06
Cable-0.5m (1G-26.5G)	HUBER SUHNER	SUCOFLEX 102	28422/2	2023/03/07	2024/03/06
Power Meter	Anritsu	ML2495A	1224005	2023/03/07	2024/03/06
Power Sensor	Anritsu	MA2411B	1207295	2023/03/07	2024/03/06



Test Item	AC Power Line Conducted Emission				
Test Site	CON01-NK				
Instrument	Manufacturer	Model No	Serial No	Calibration Date	Valid Date
EMI Receiver	ROHDE & SCHWARZ	ESCI	101200	2022/08/22	2023/08/21
Line Impedance Stabilization Network	Schwarzbeck	NSLK 8127	8127-740	2022/08/21	2023/08/20
Pulse Limiter	ROHDE & SCHWARZ	ESH3-Z2	101933	2022/09/29	2023/09/28
Cable-6m (9k~300M)	NA	EMC5D-BM-BM-6	130605	2022/09/06	2023/09/05
E3	AUDIX	v8.2014-8-6	RK-000531	NA	NA



4. Antenna Requirements

4.1 Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

4.2 Antenna Construction and Directional Gain

Antenna Type	Printed Antenna
Antenna Gain	1.8dBi



5. Test of AC Power Line Conducted Emission

5.1 Test Limit

Conducted Emissions were measured from 150 kHz to 30 MHz with a bandwidth of 9 KHz, according to the methods defined in ANSI C63.10-2013. The EUT was placed on a nonmetallic stand in a shielded room 0.8 meters above the ground plane. The interface cables and equipment positioning were varied within limits of reasonable applications to determine the position produced maximum conducted emissions.

Frequency (MHz)	Quasi Peak (dB μ V)	Average (dB μ V)
0.15 – 0.5	66-56*	56-46*
0.5 – 5.0	56	46
5.0 – 30.0	60	50

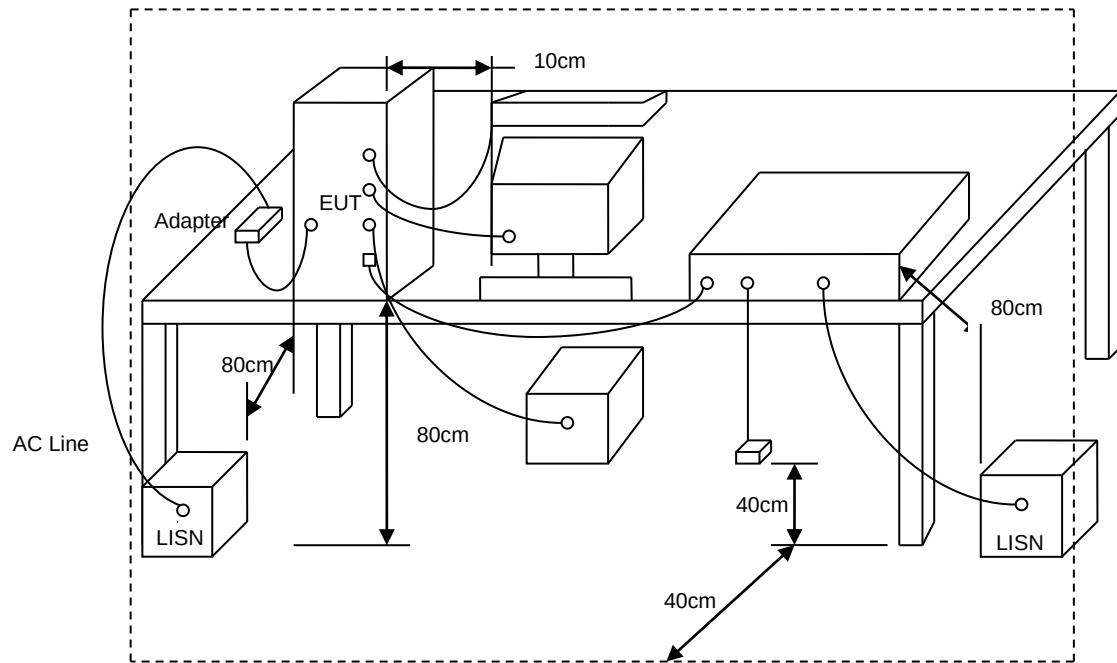
*Decreases with the logarithm of the frequency.

5.2 Test Procedures

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

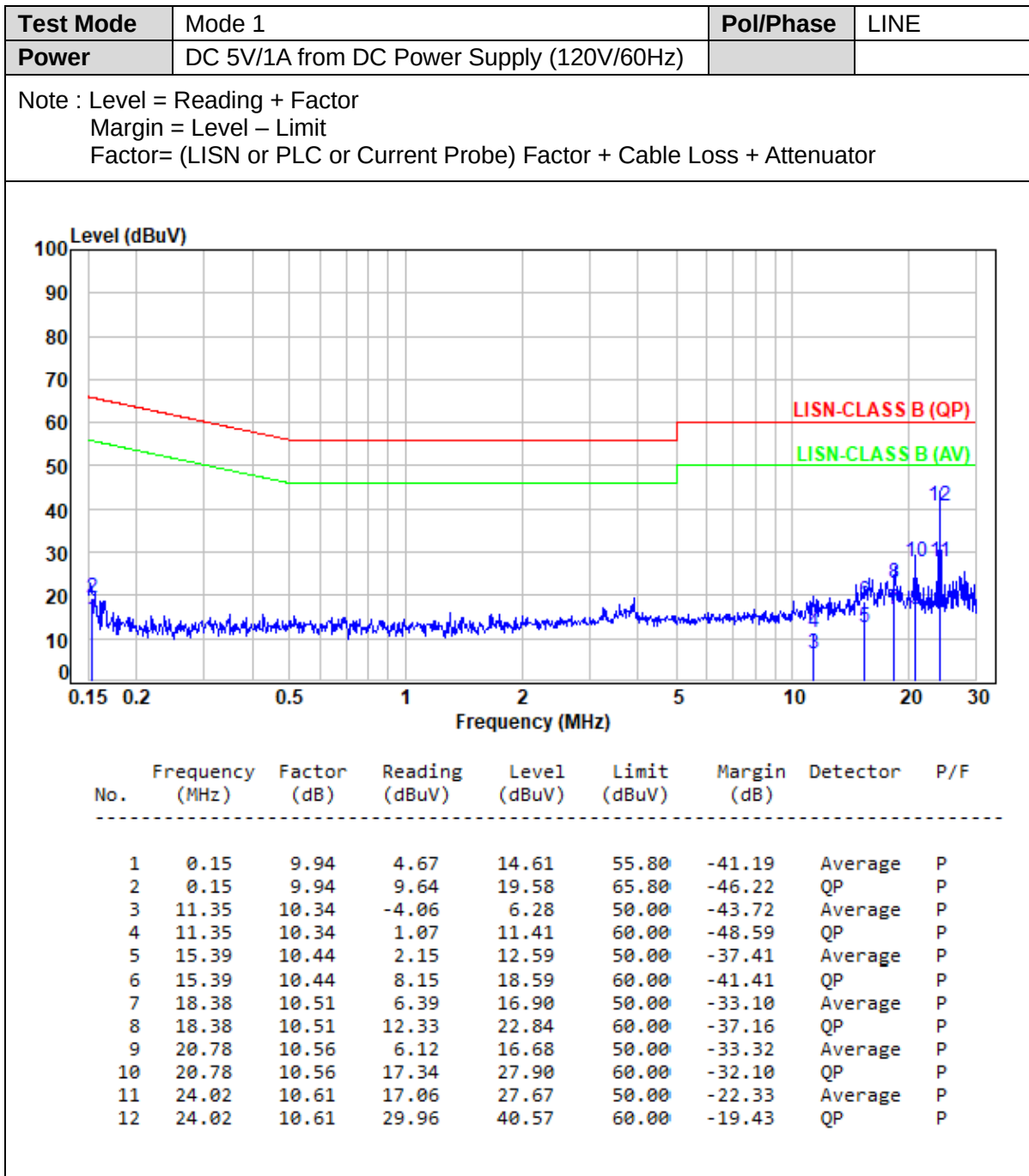


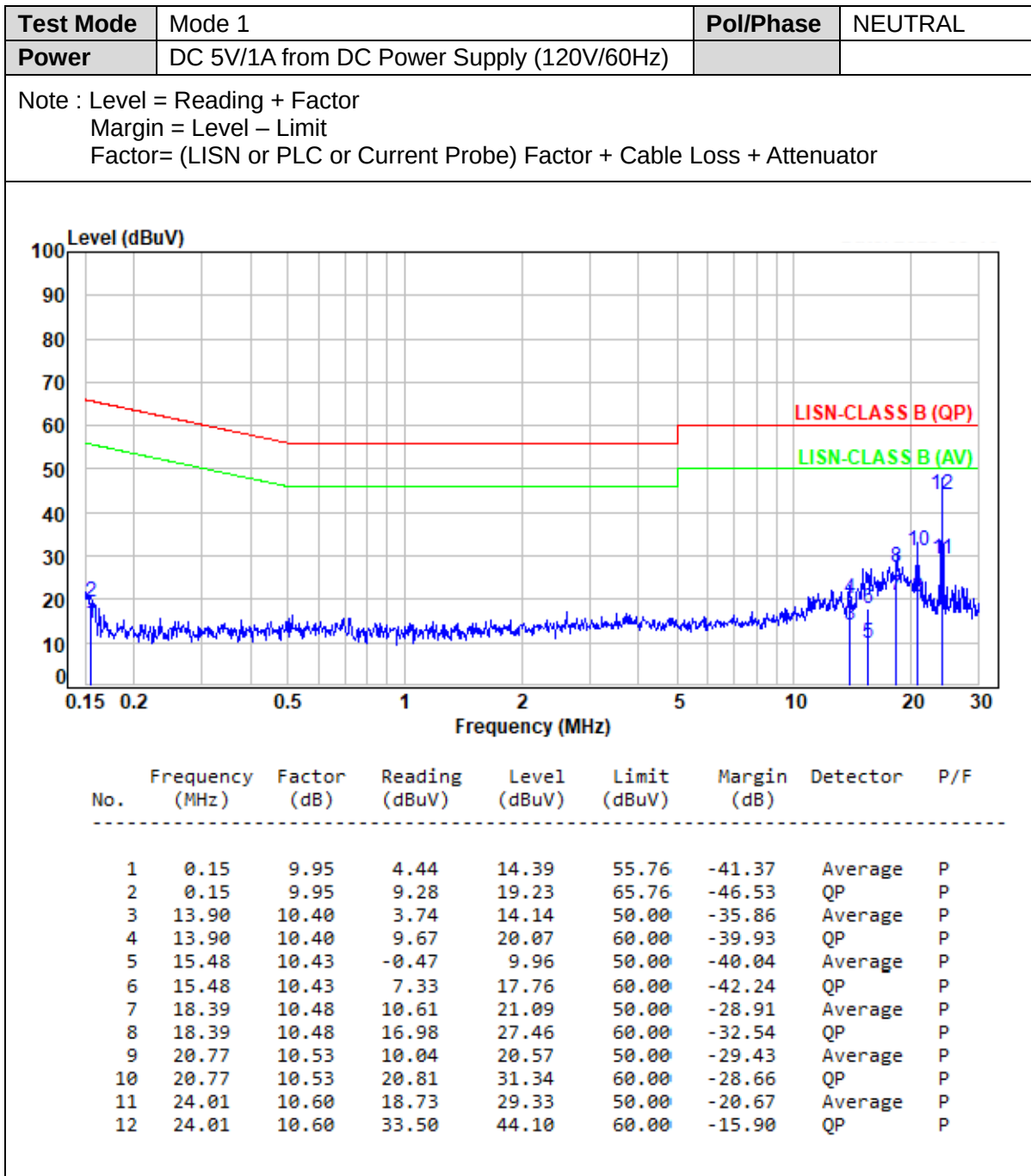
5.3 Typical Test Setup





5.4 Test Result and Data







6. Test of Radiated Spurious Emission

6.1 Test Limit

In any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. If the transmitter measurement is based on the maximum conducted output power, the attenuation required under this paragraph shall be 30dB instead of 20dB. In addition, radiated emissions which fall in section 15.205(a) the restricted bands must also comply with the radiated emission limit specified in section 15.209(a).

Frequency (MHz)	Field Strength (microvolt/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



6.2 Test Procedures

- a. The EUT was placed on a rotatable table top 0.8 meter above ground.
- b. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
- c. The table was rotated 360 degrees to determine the position of the highest radiation.
- d. The antenna is a broadband antenna and its height is varied between one meter and four meters above ground to find the maximum value of the field strength both horizontal polarization and vertical polarization of the antenna are set to make the measurement.
- e. For each suspected emission the EUT was arranged to its worst case and then tune the antenna tower (from 1 M to 4 M) and turn table (from 0 degree to 360 degrees) to find the maximum reading.
- f. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function and specified bandwidth with Maximum Hold Mode.
- g. If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method and reported.
- h. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
- i. "Cone of radiation" has been considered to be 3dB bandwidth of the measurement antenna.

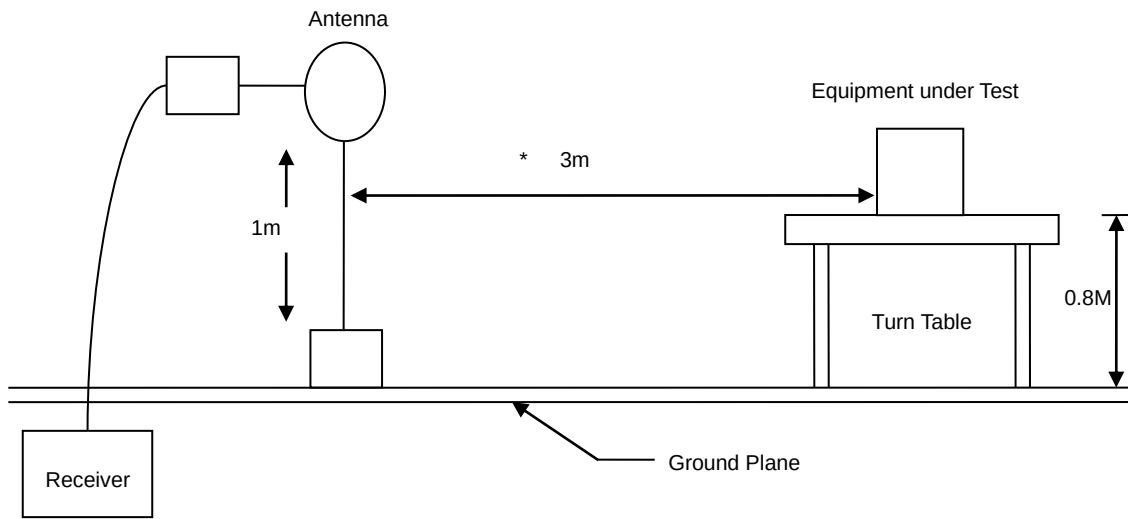
Note:

- 1.The supporting fixture shall permit orientation of the EUT in each of three orthogonal axis positions such that emissions from the EUT are maximized.
(Z-AXIS is the worst.)
- 2.Due to the test software function limit the operation band setting(200dBuV/m).
There's no corresponding limitation in the actual test item.

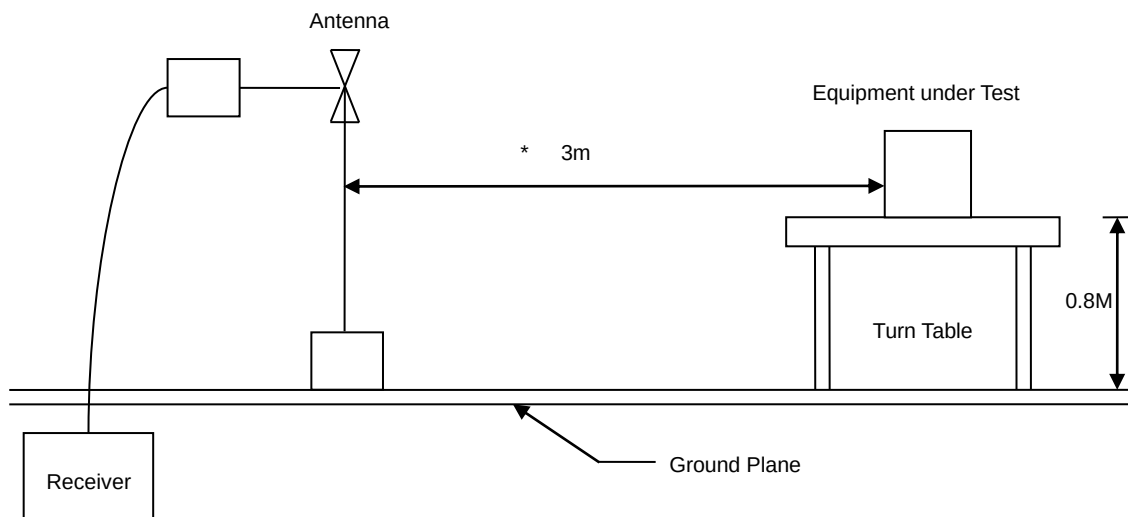


6.3 Typical Test Setup

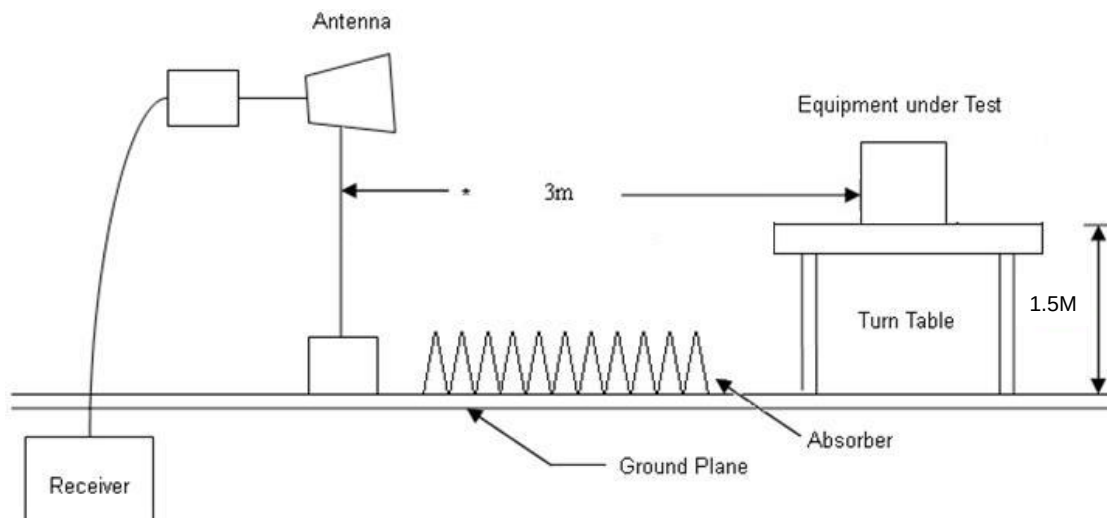
Below 30MHz test setup



30MHz- 1GHz Test Setup



Above 1GHz Test Setup

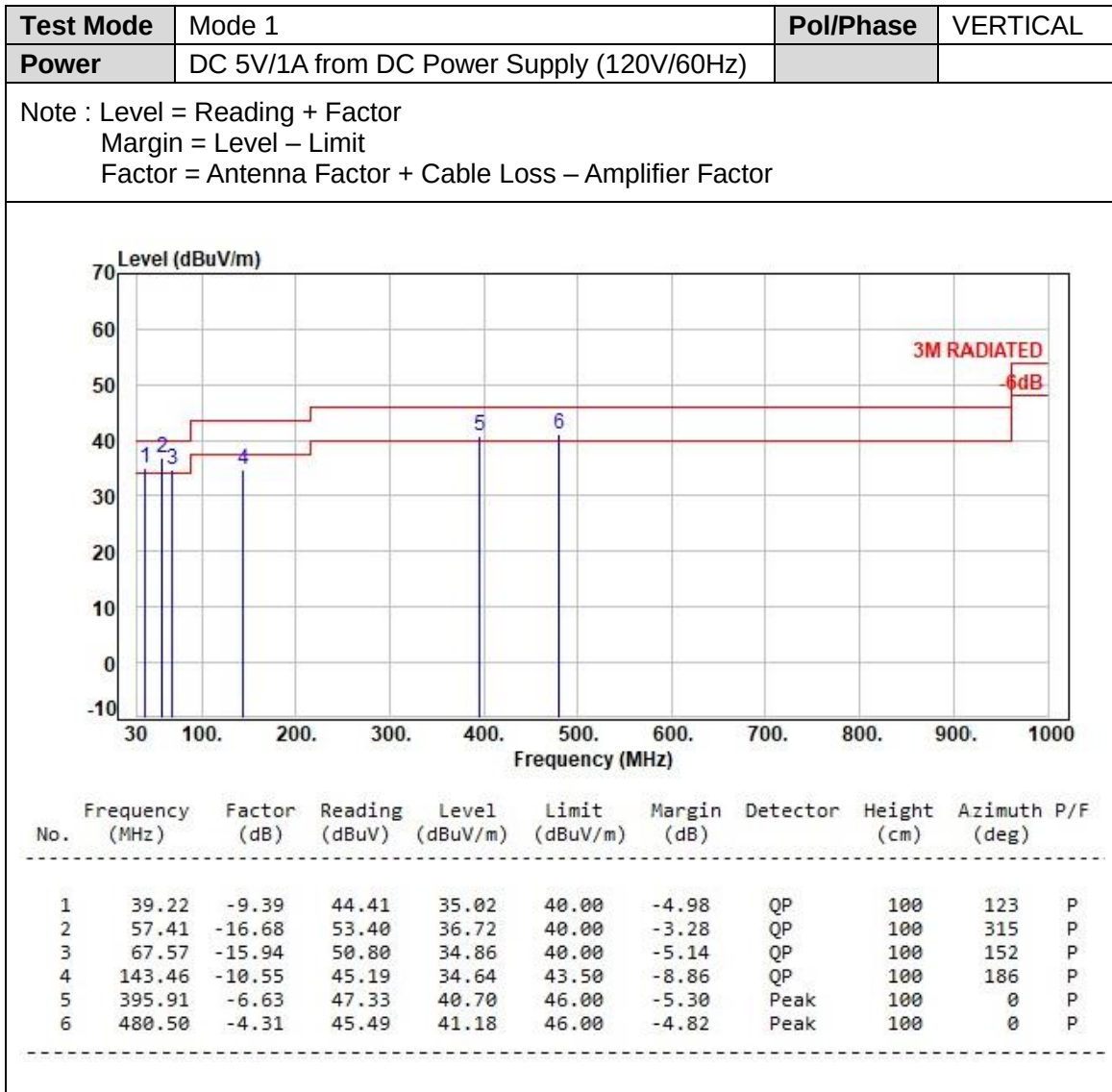


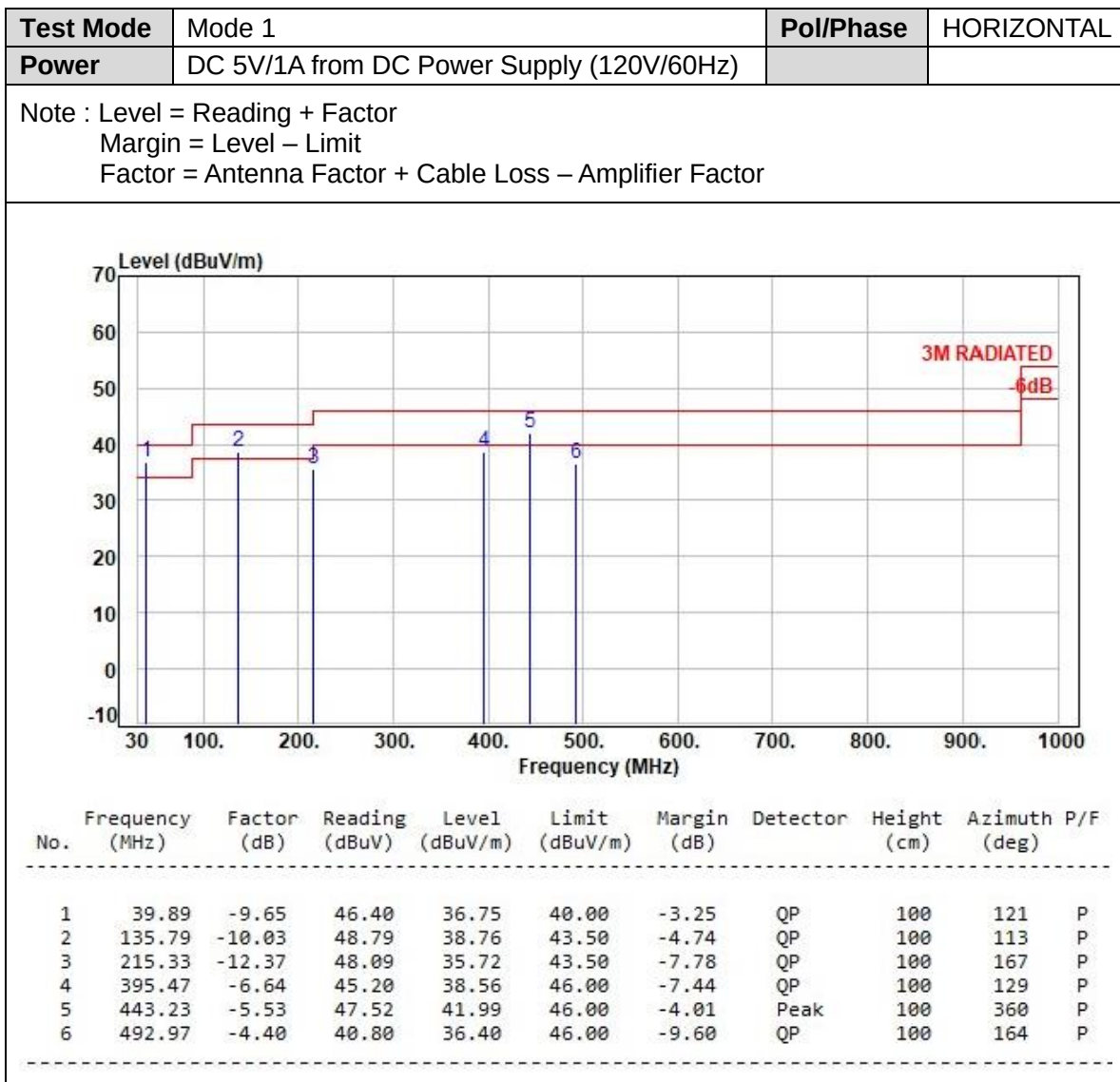


6.4 Test Result and Data (9KHz ~ 30MHz)

The 9kHz - 30MHz spurious emission is under limit 20dB more.

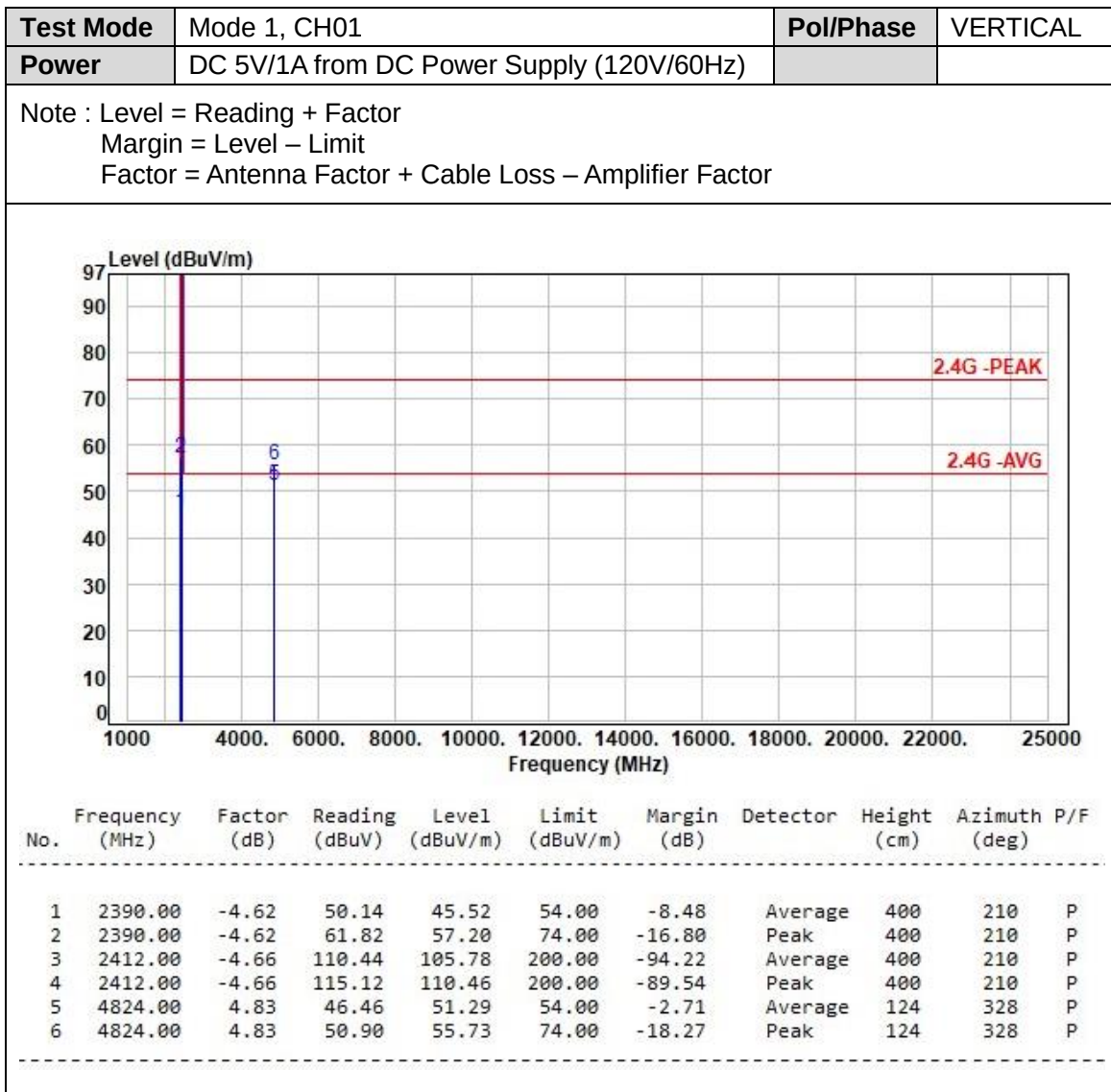
6.5 Test Result and Data (30MHz ~ 1GHz)

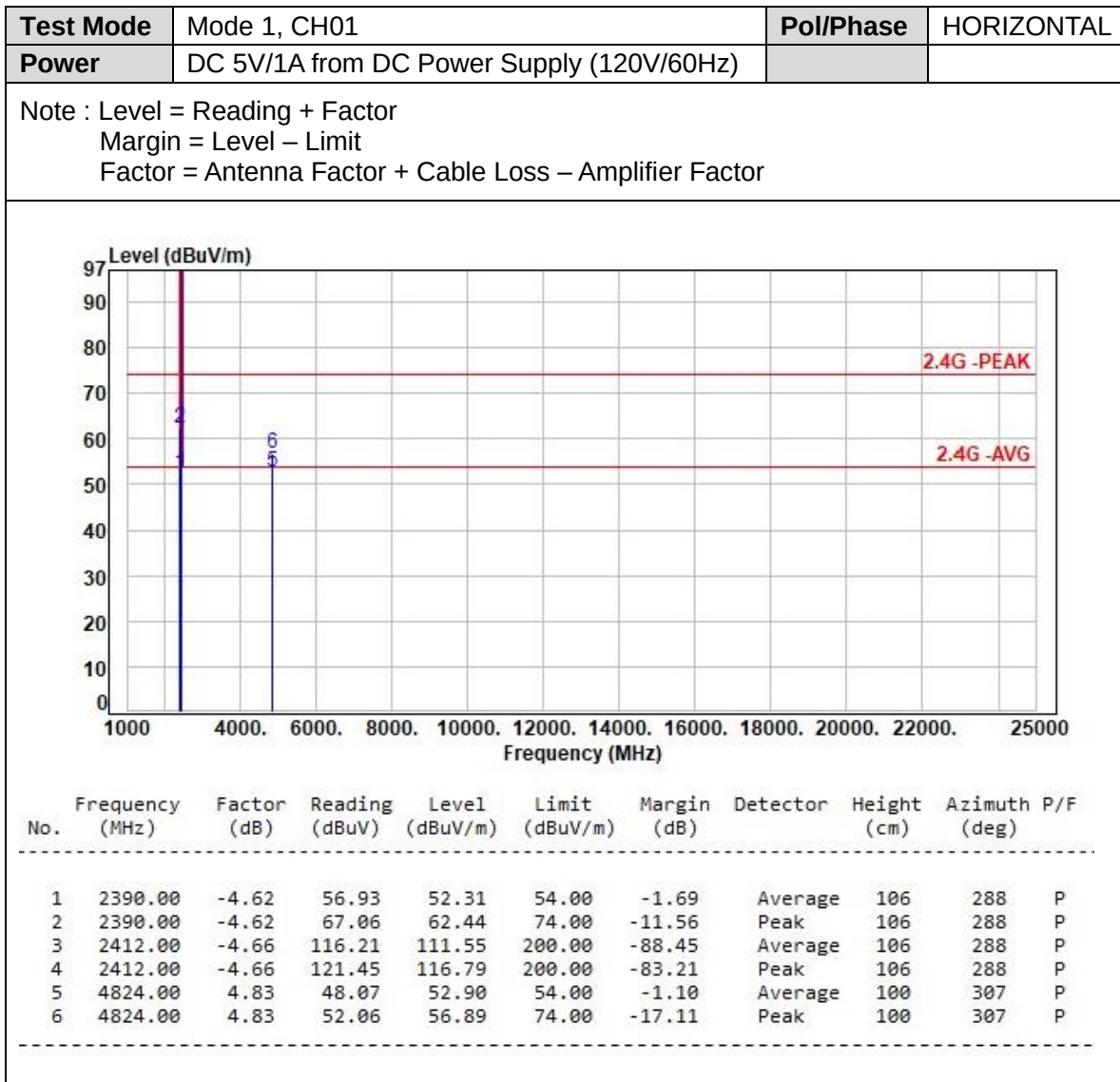


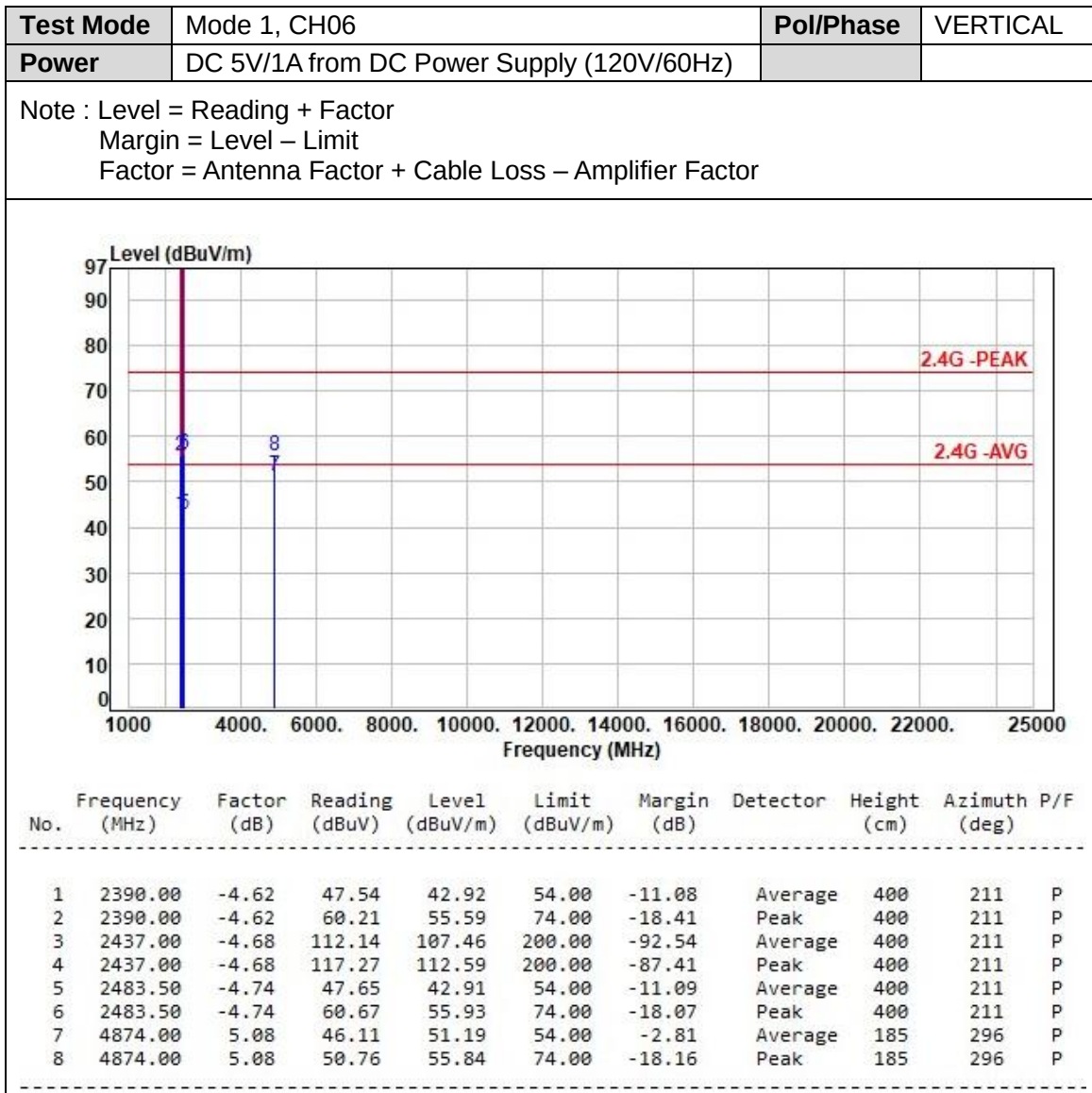


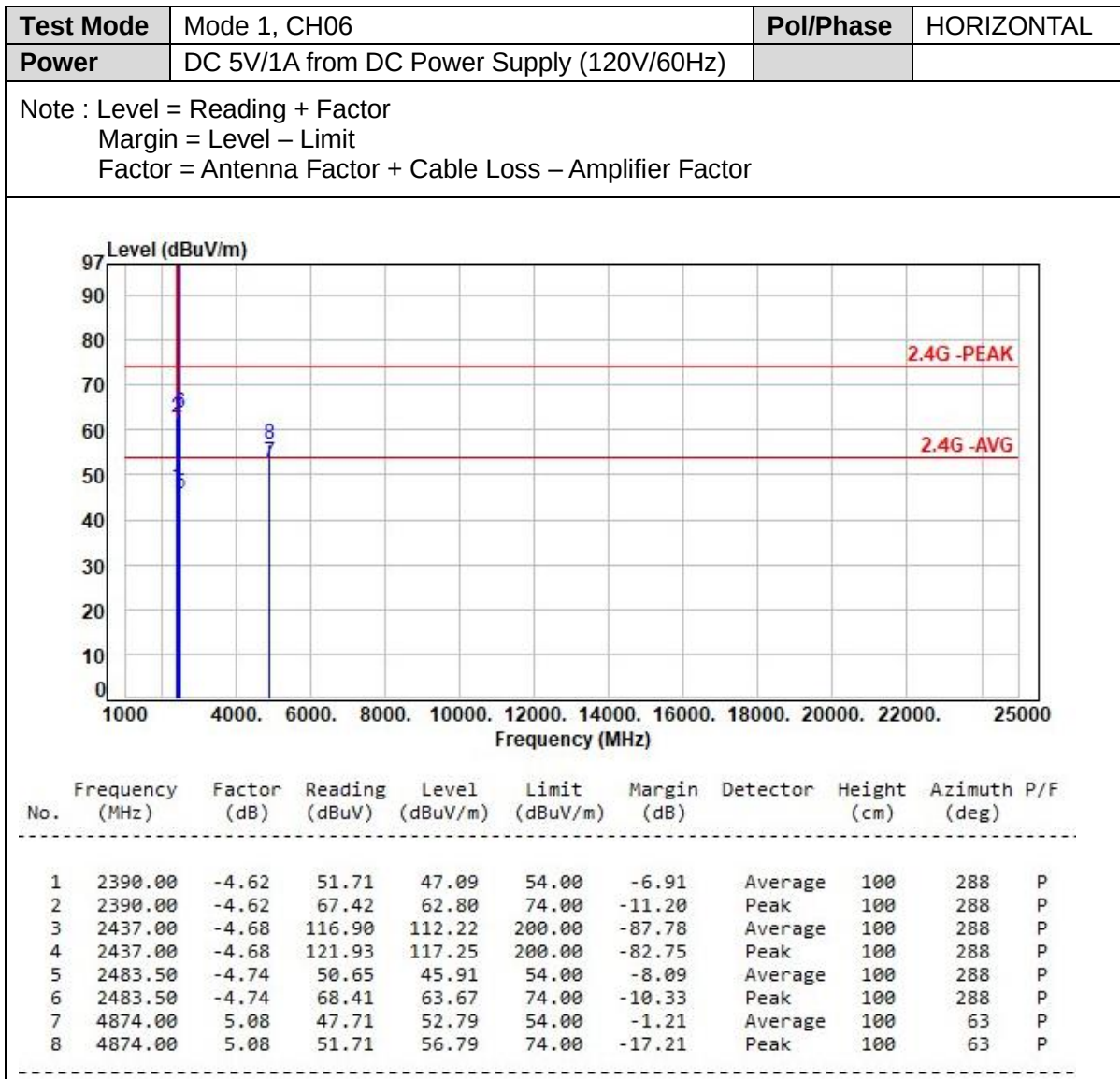


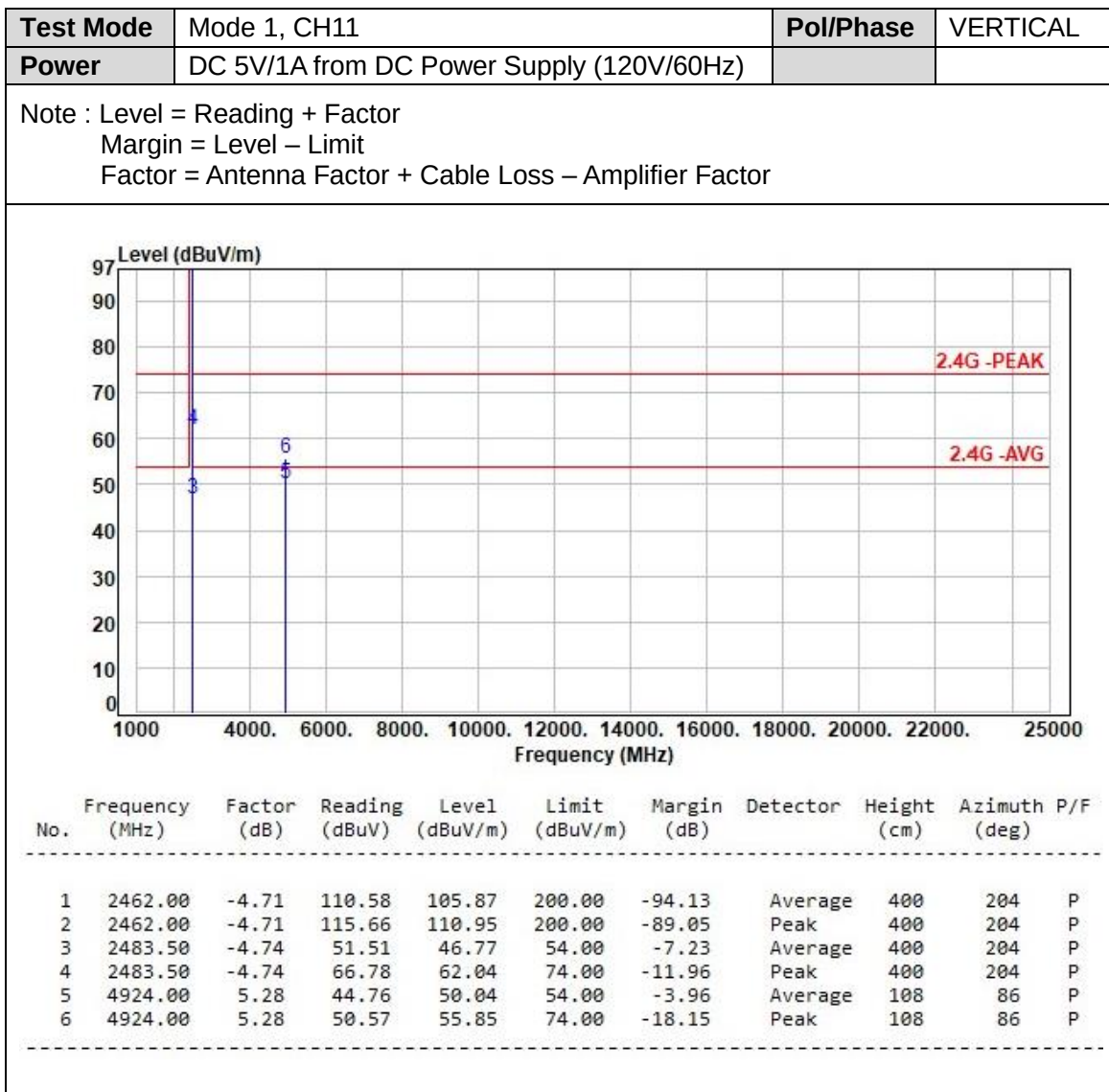
6.6 Test Result and Data (1GHz ~ 25GHz)

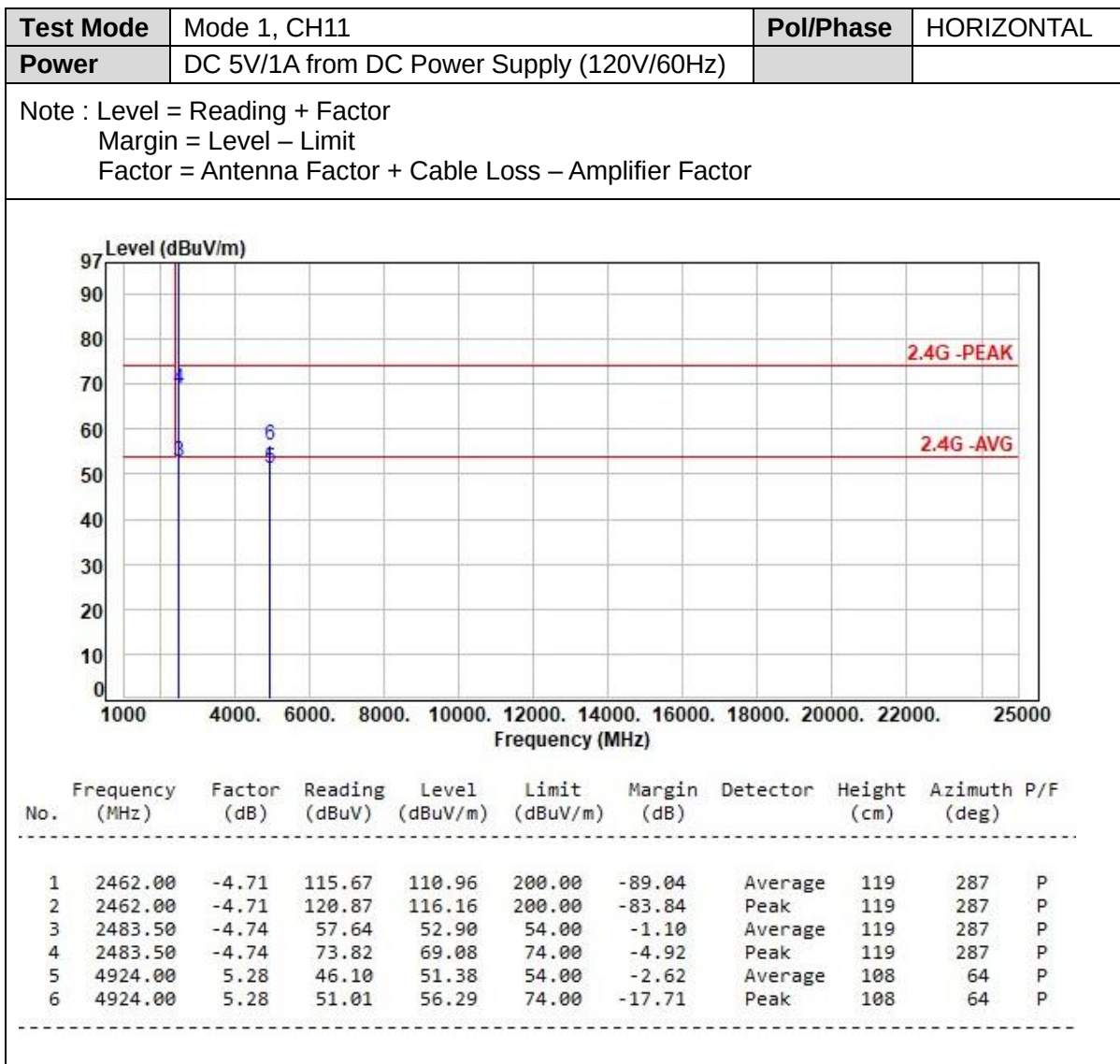


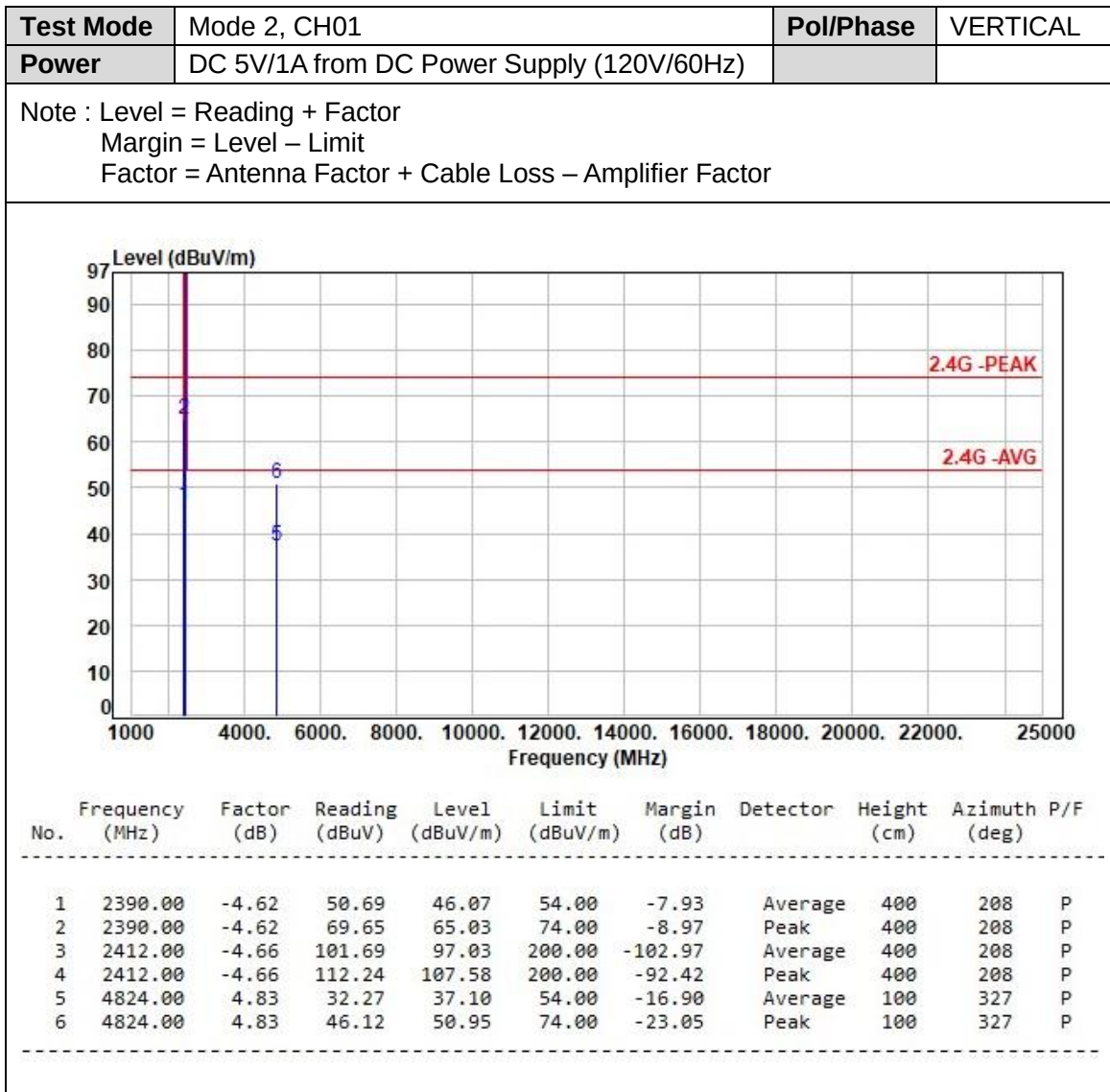


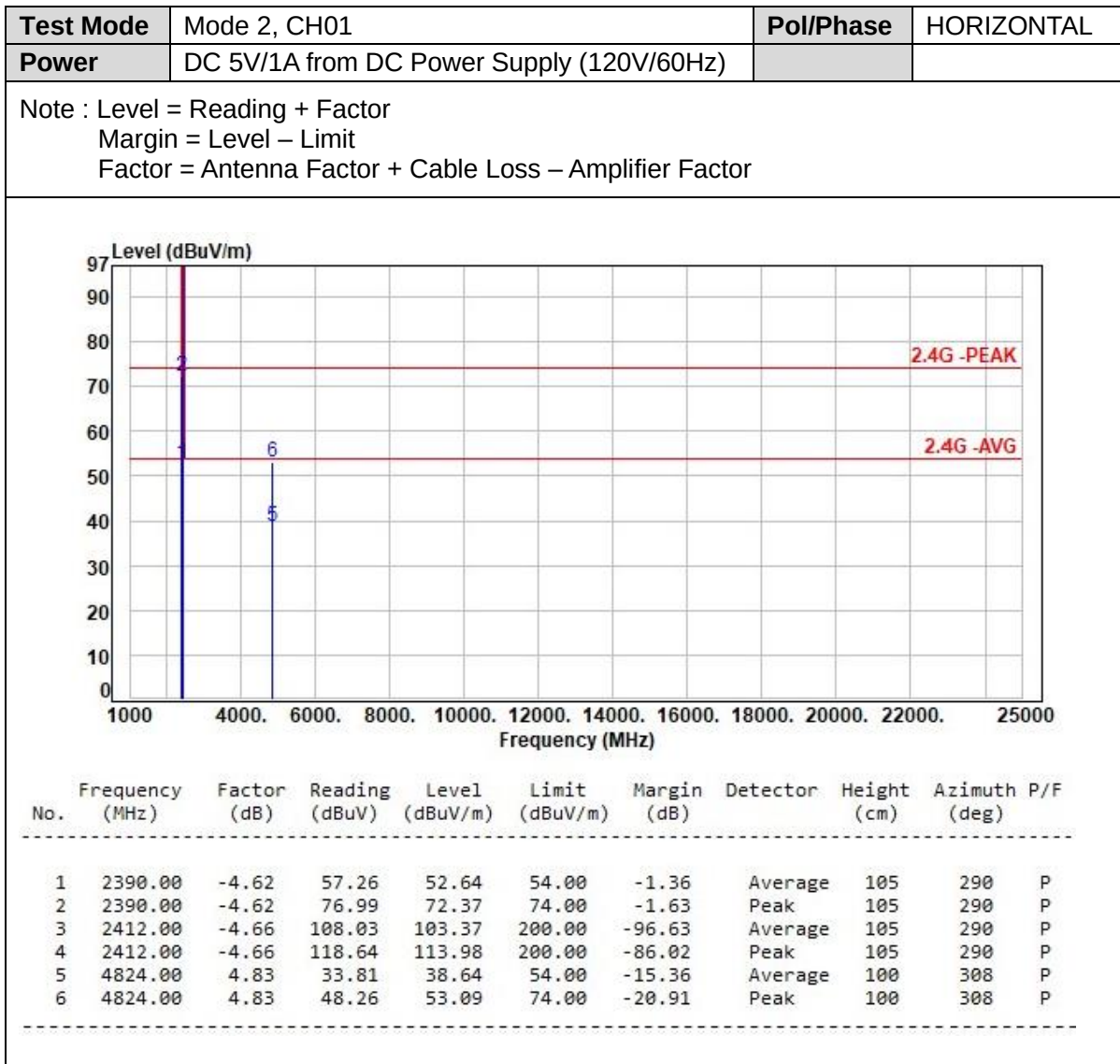


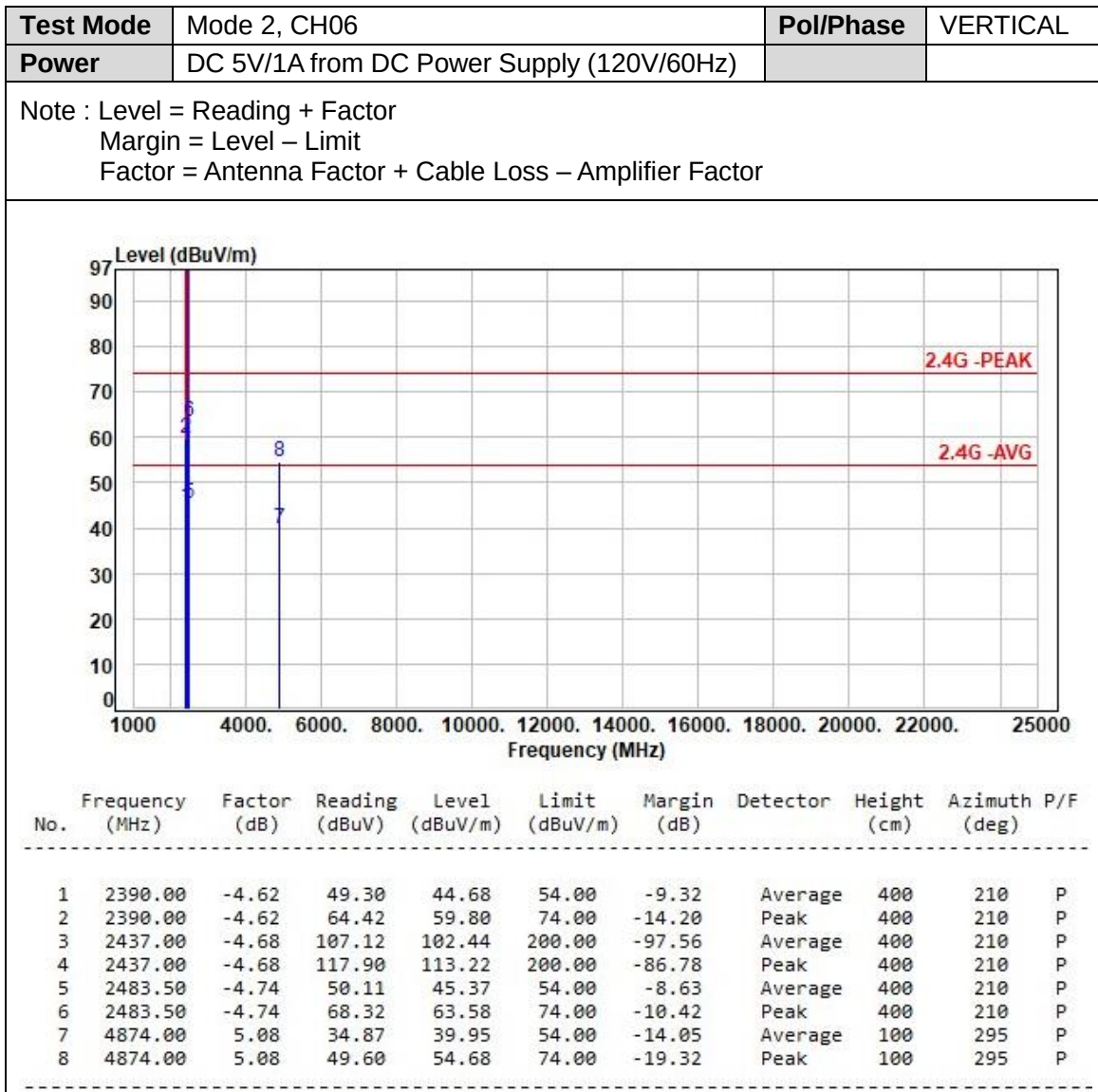


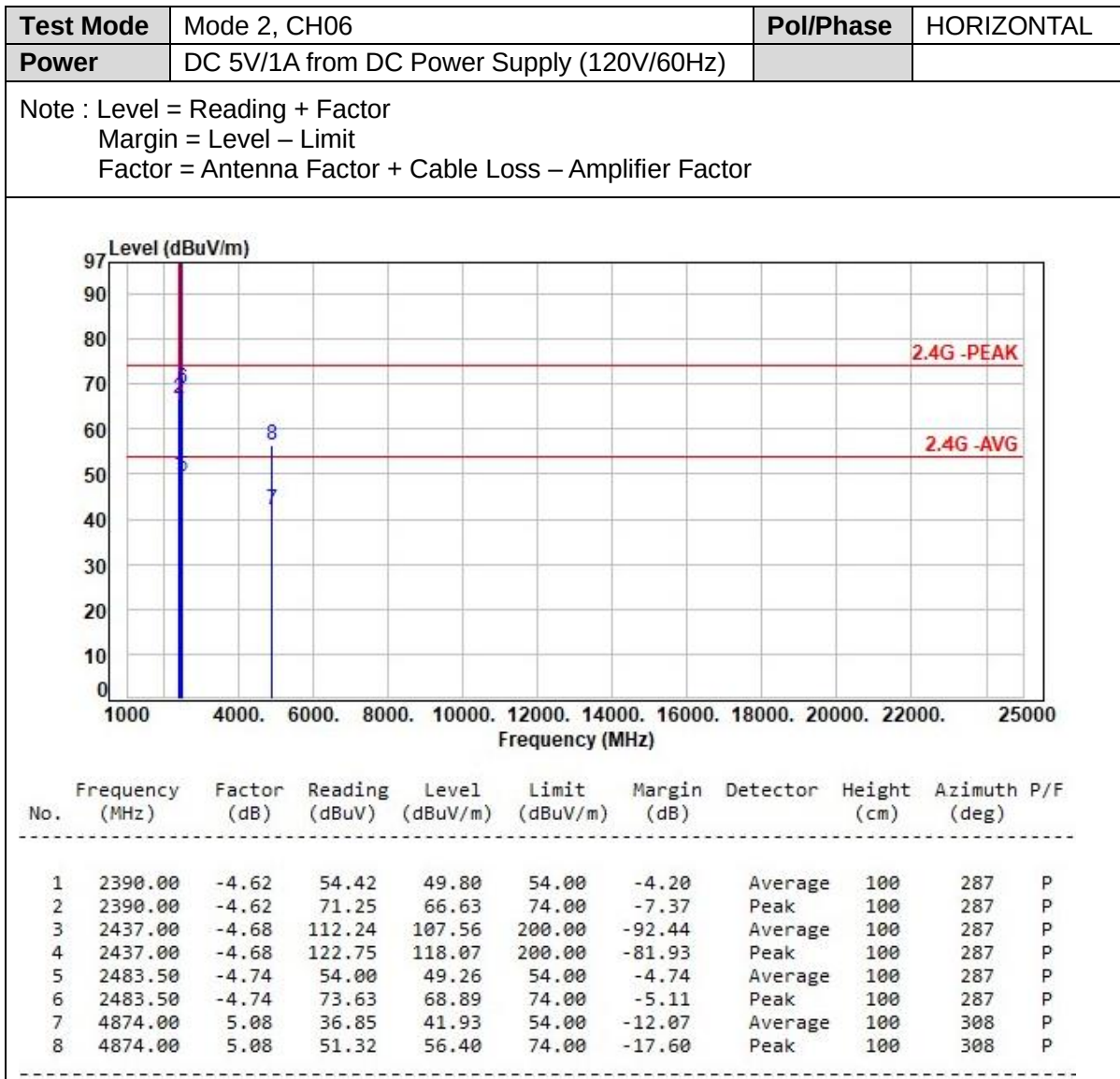


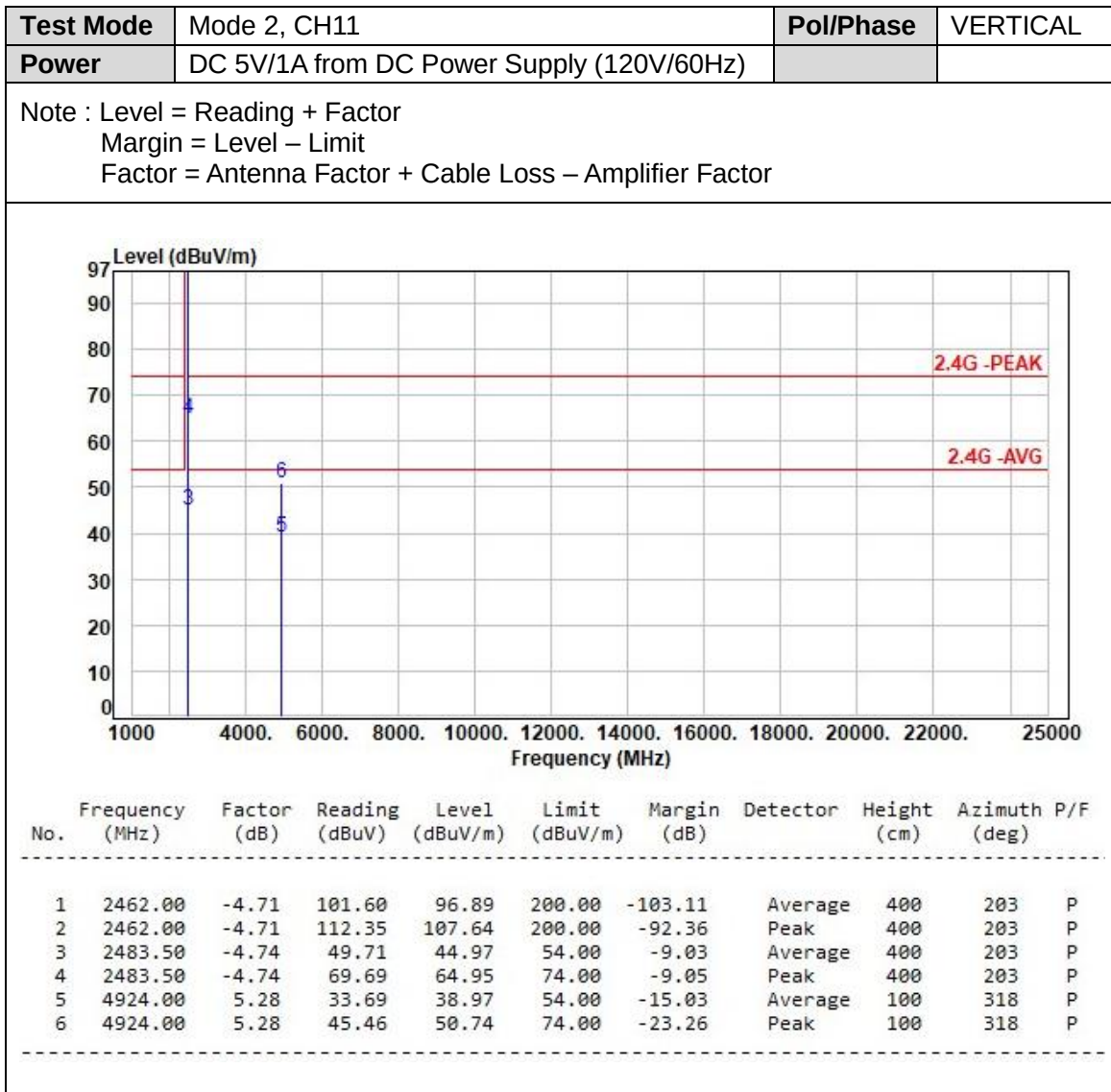


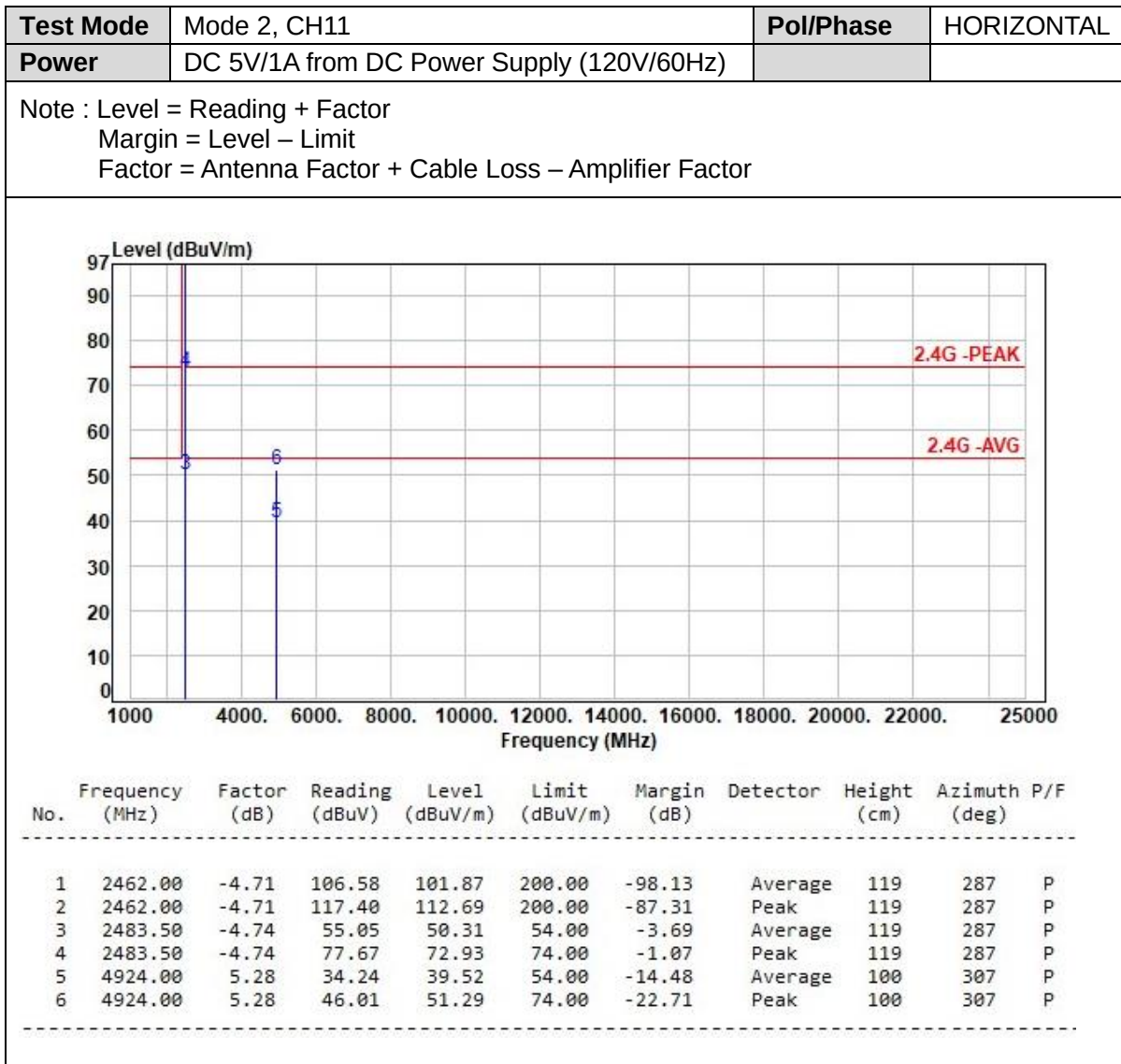


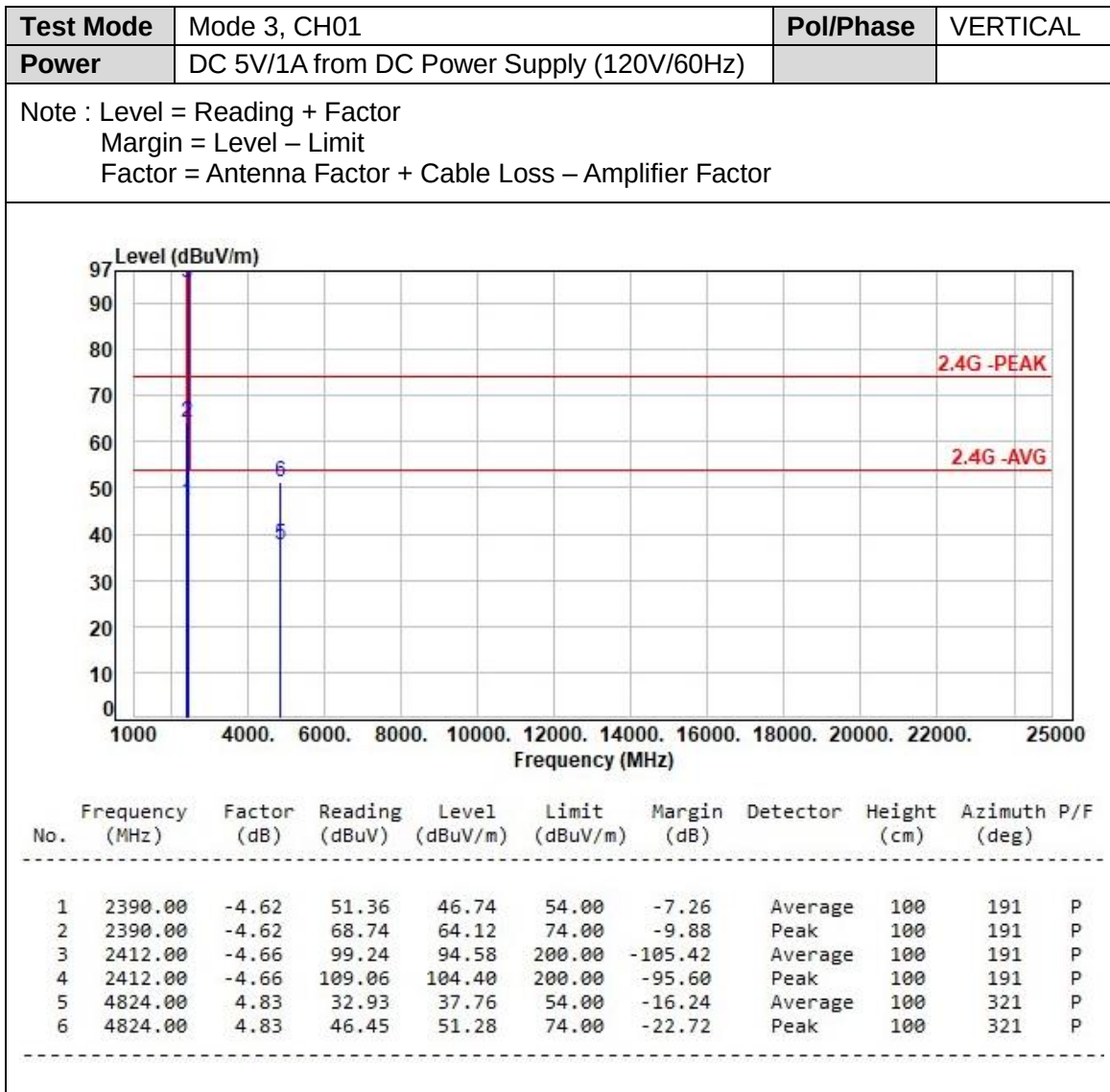


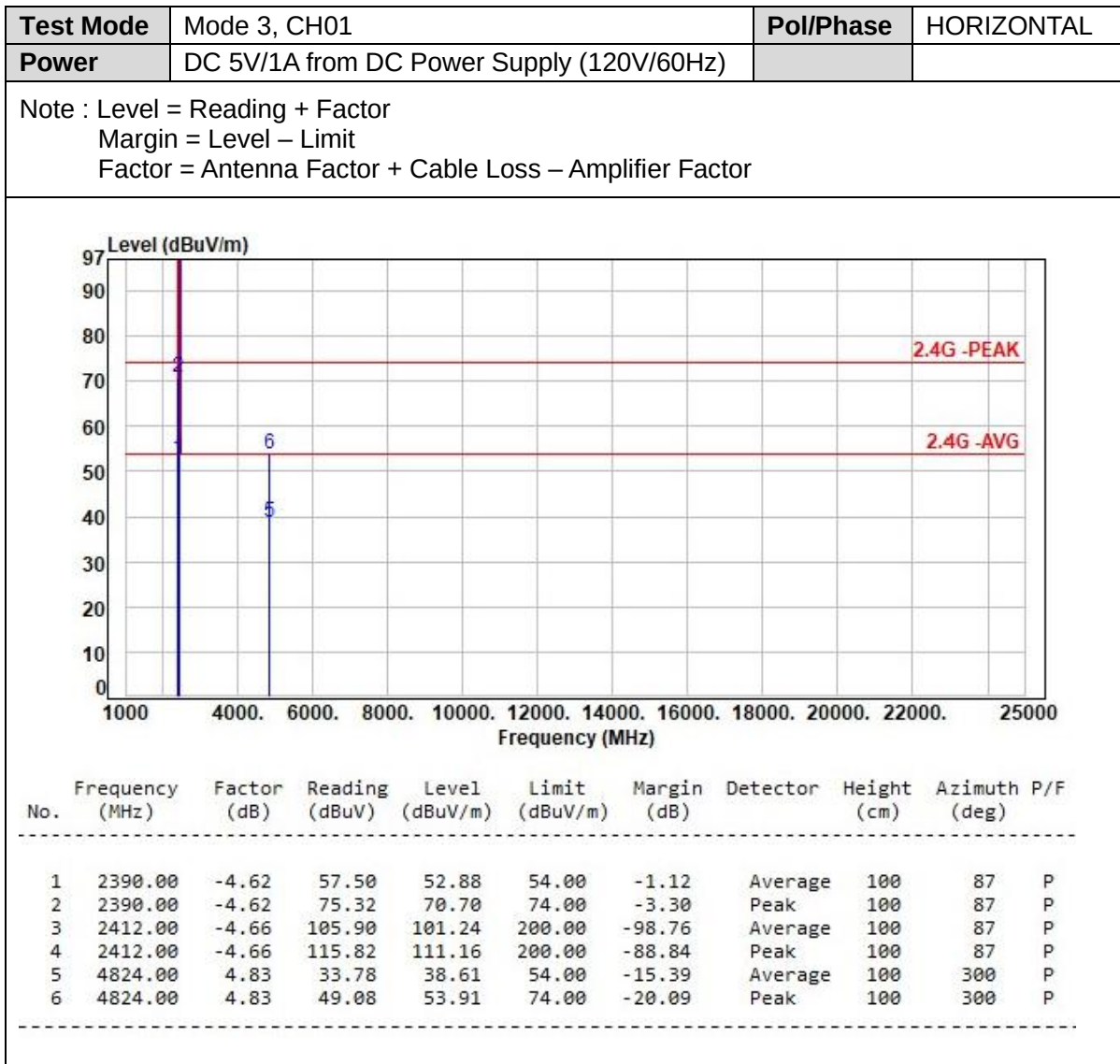


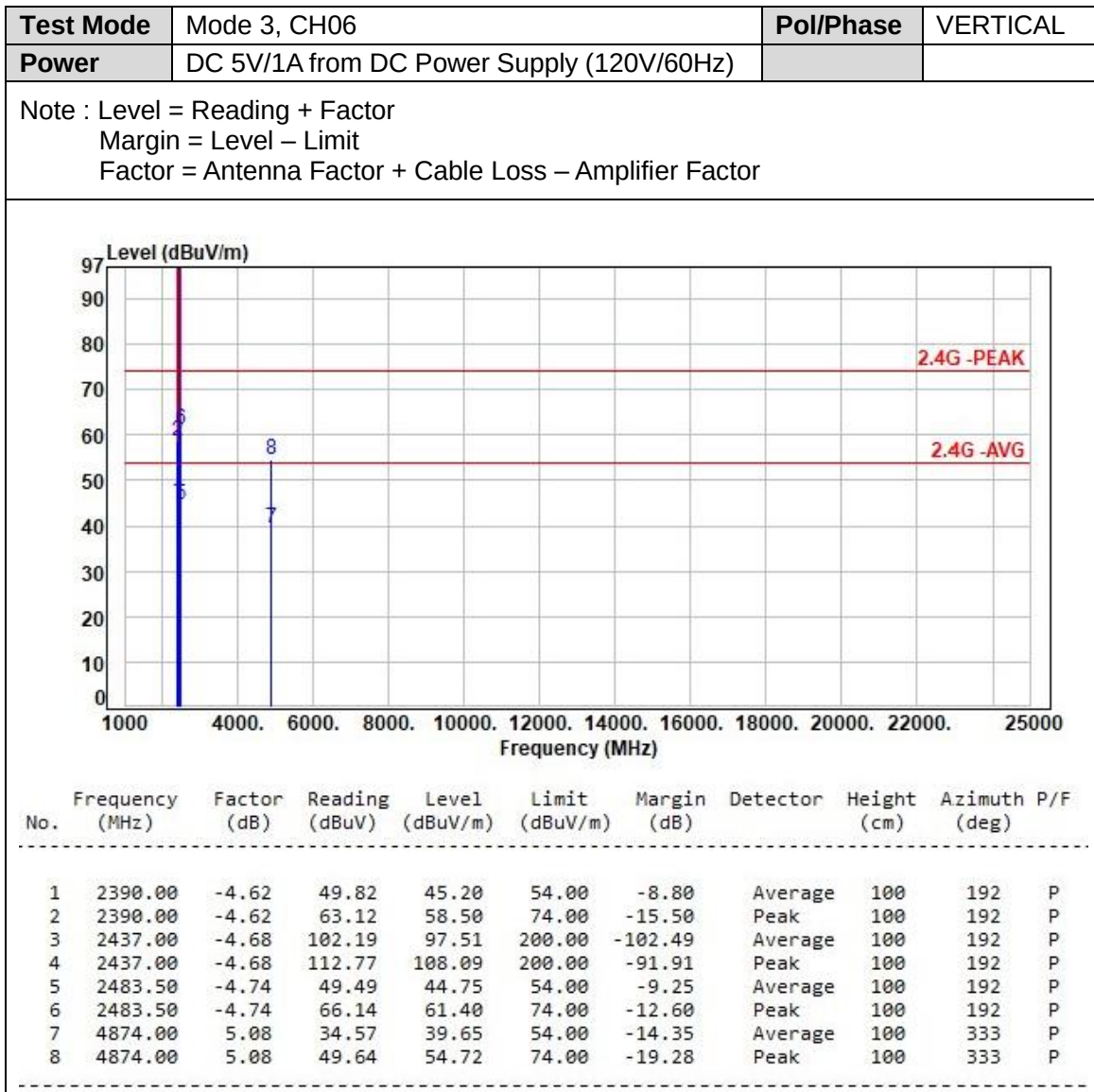


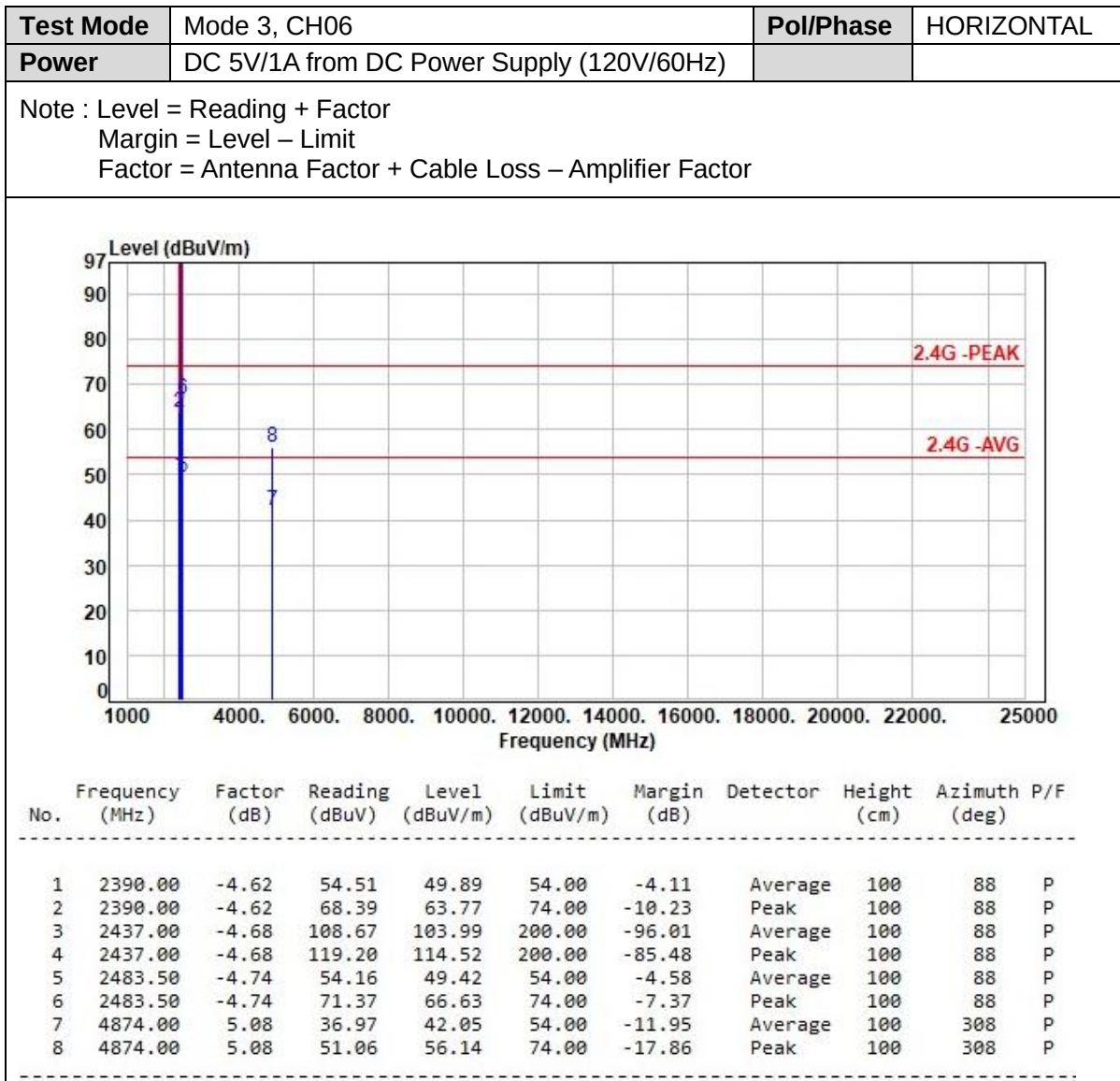


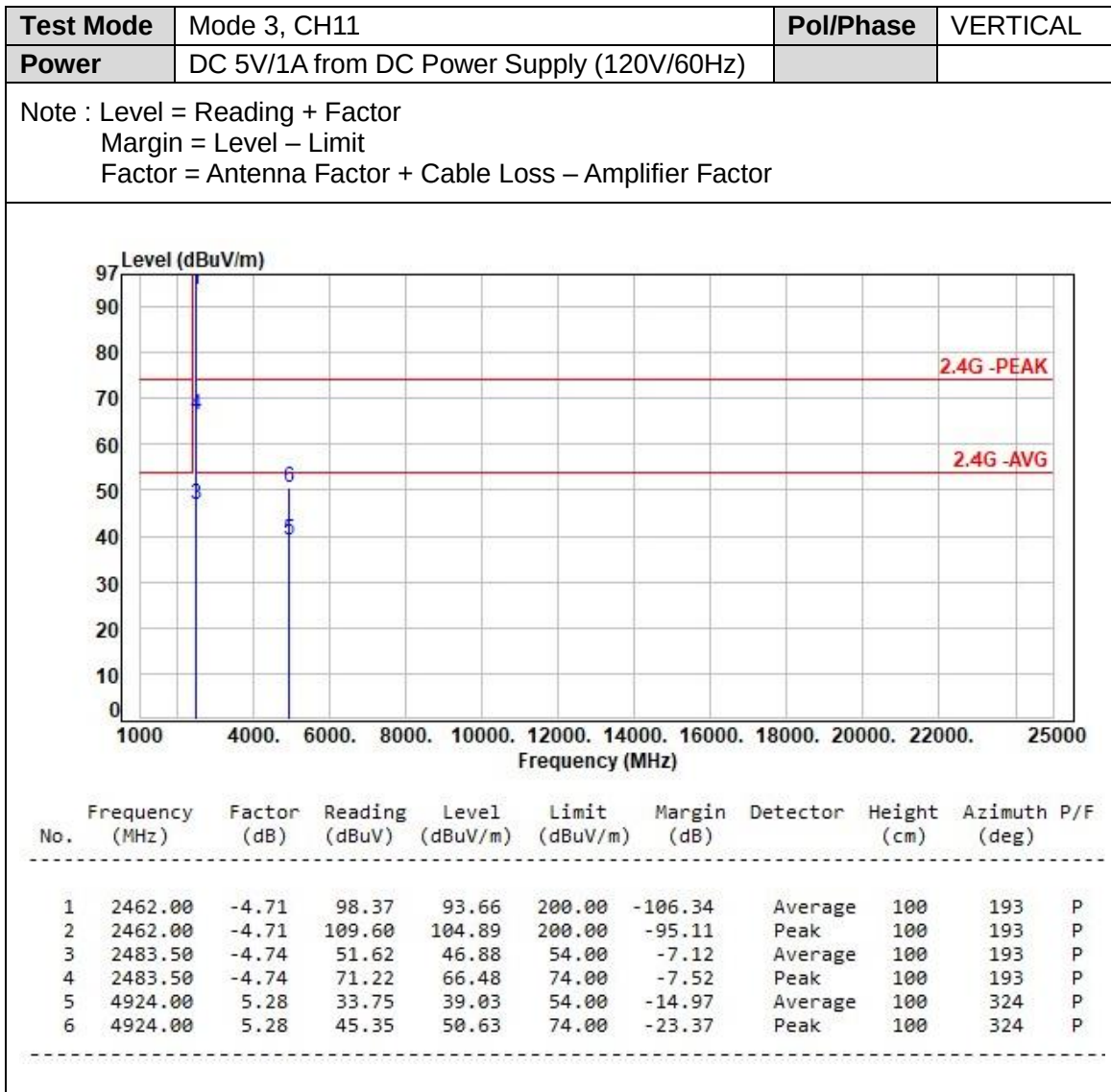


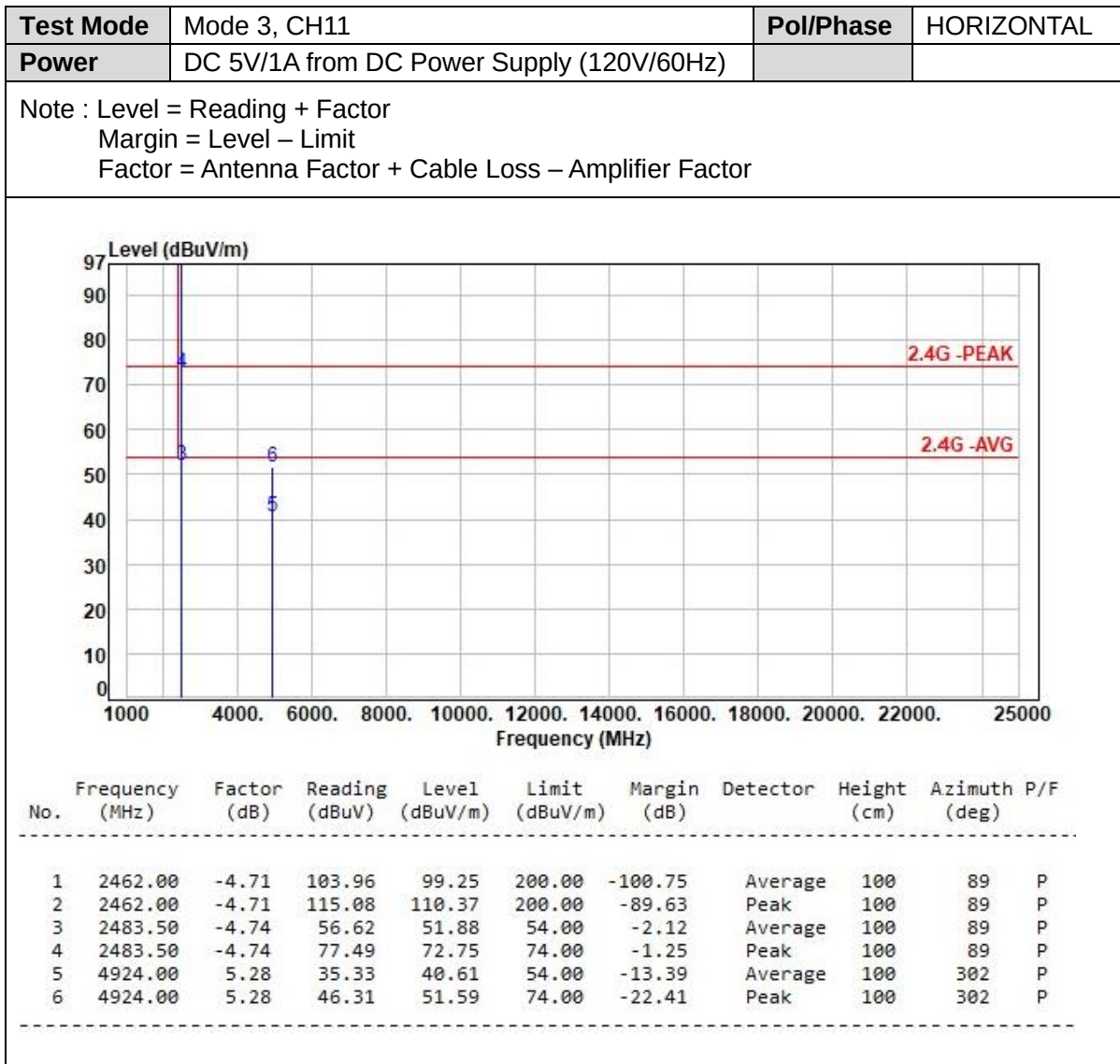














6.7 Restricted Bands of Operation

Only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.09000 – 0.11000	16.42000 – 16.42300	399.9 – 410.0	4.500 – 5.250
0.49500 – 0.505**	16.69475 – 16.69525	608.0 – 614.0	5.350 – 5.460
2.17350 – 2.19050	16.80425 – 16.80475	960.0 – 1240.0	7.250 – 7.750
4.12500 – 4.12800	25.50000 – 25.67000	1300.0 – 1427.0	8.025 – 8.500
4.17725 – 4.17775	37.50000 – 38.25000	1435.0 – 1626.5	9.000 – 9.200
4.20725 – 4.20775	73.00000 – 74.60000	1645.5 – 1646.5	9.300 – 9.500
6.21500 – 6.21800	74.80000 – 75.20000	1660.0 – 1710.0	10.600 – 12.700
6.26775 – 6.26825	108.00000 – 121.94000	1718.8 – 1722.2	13.250 – 13.400
6.31175 – 6.31225	123.00000 – 138.00000	2200.0 – 2300.0	14.470 – 14.500
8.29100 – 8.29400	149.90000 – 150.05000	2310.0 – 2390.0	15.350 – 16.200
8.36200 – 8.36600	156.52475 – 156.52525	2483.5 – 2500.0	17.700 – 21.400
8.37625 – 8.38675	156.70000 – 156.90000	2655.0 – 2900.0	22.010 – 23.120
8.41425 – 8.41475	162.01250 – 167.17000	3260.0 – 3267.0	23.600 – 24.000
12.29000 – 12.29300	167.72000 – 173.20000	3332.0 – 3339.0	31.200 – 31.800
12.51975 – 12.52025	240.00000 – 285.00000	3345.8 – 3358.0	36.430 – 36.500
12.57675 – 12.57725	322.00000 – 335.40000	3600.0 – 4400.0	Above 38.6
13.36000 – 13.41000			

** : Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz



7. Test of Conducted Spurious Emission

7.1 Test Limit

According to the methods defined in ANSI C63.10-2013 Section 11.11.1

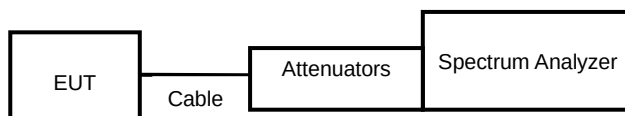
Below -20dB of the highest emission level of operating band (In 100 kHz Resolution Bandwidth)

7.2 Test Procedure

According to the methods defined in ANSI C63.10-2013 Section 11.11.2 & 11.11.3

- The transmitter output was connected to the spectrum analyzer via a low loss cable.
- Set RBW of spectrum analyzer to 100 KHz and VBW of spectrum analyzer to 300 KHz with convenient frequency span including 100 KHz bandwidth from band edge.
- Peak conducted output power measured within any 100 kHz outside the authorized frequency band shall be attenuated by at least 20dB relative to the maximum measured in-band peak PSD level.
- The band edges was measured and recorded.

7.3 Test Setup Layout

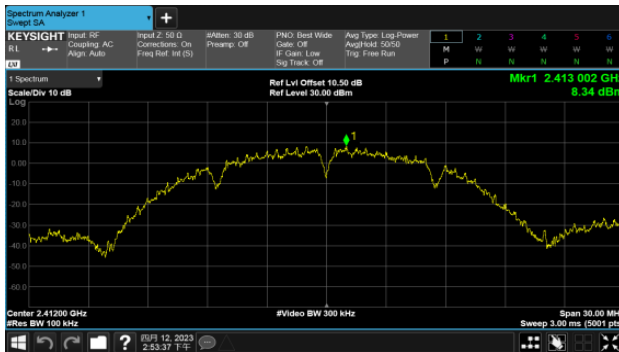


7.4 Test Result and Data

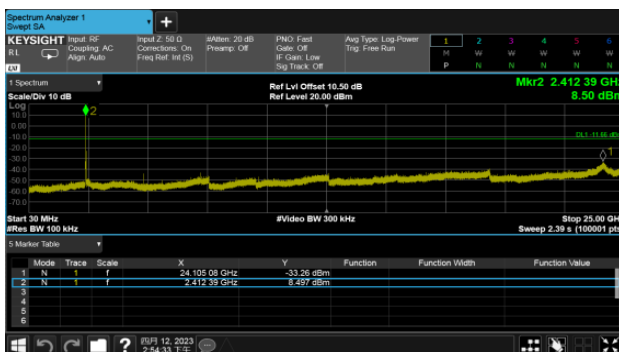
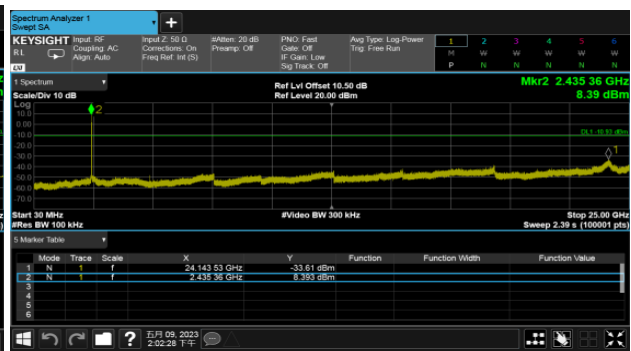
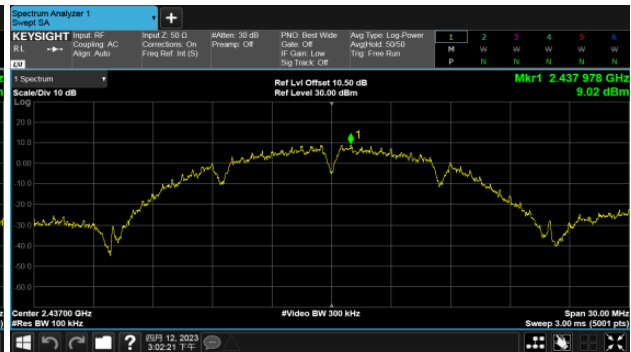
Note: Test plots refers to the following pages.



Modulation Type: 802.11b(1Mbps)
CH01

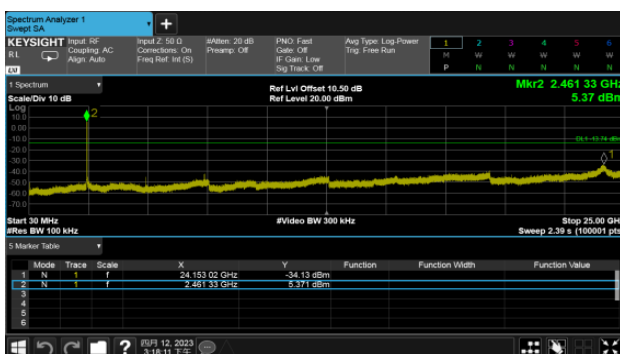
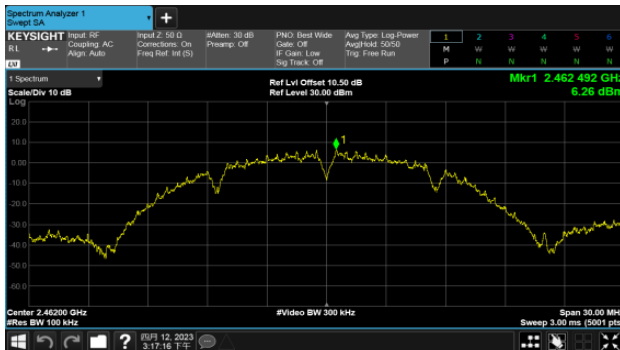


CH06



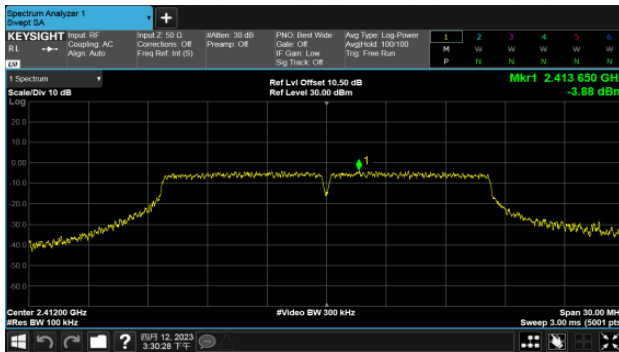


Modulation Type: 802.11b(1Mbps)
CH11

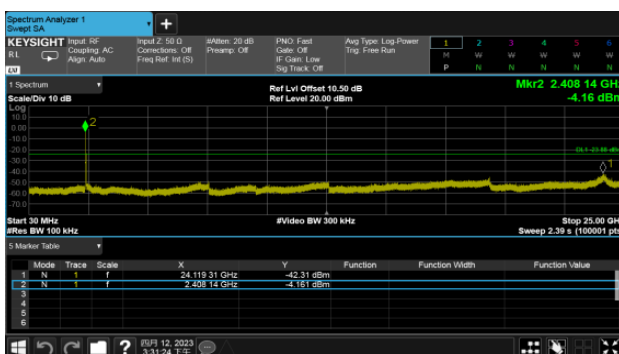
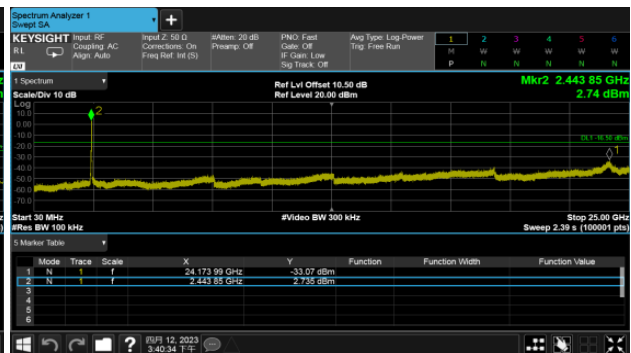
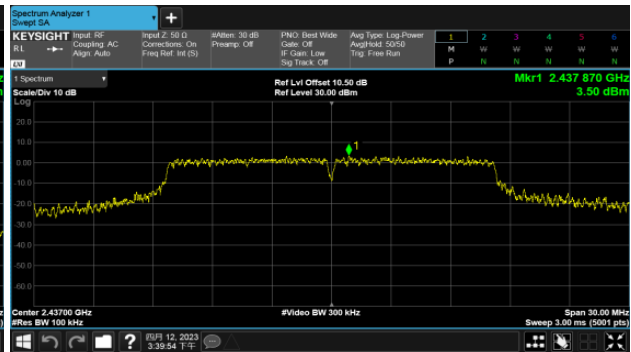




Modulation Type: 802.11g(6Mbps)
CH01

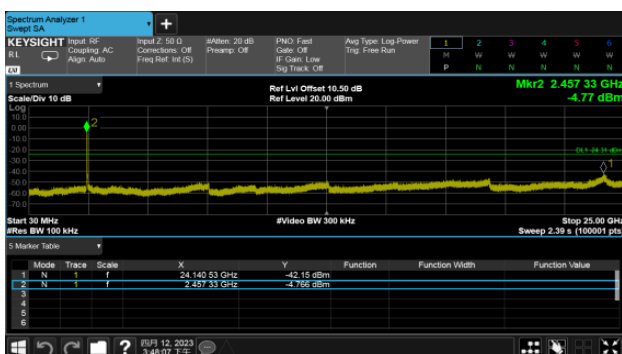
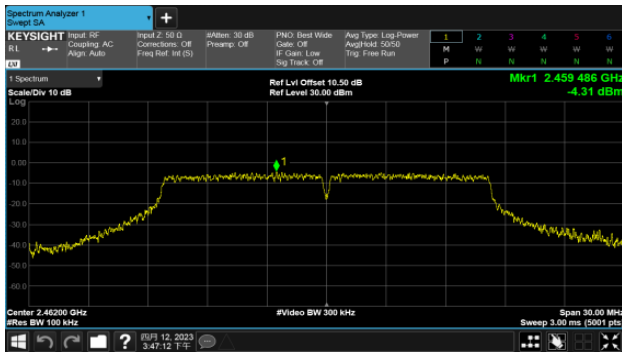


CH06



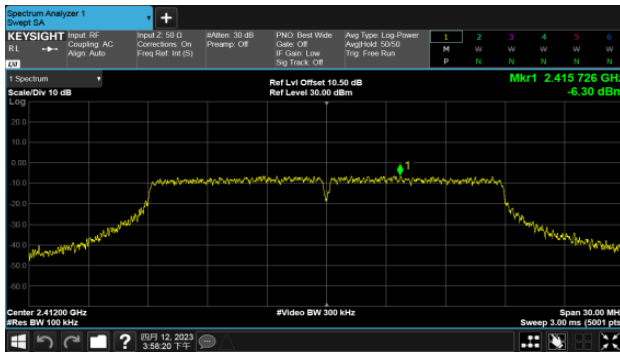


Modulation Type: 802.11g(6Mbps)
CH11

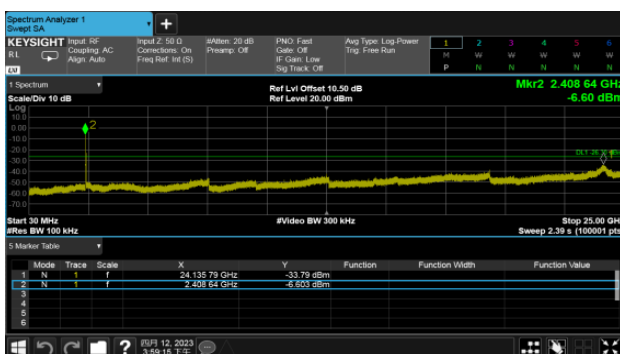
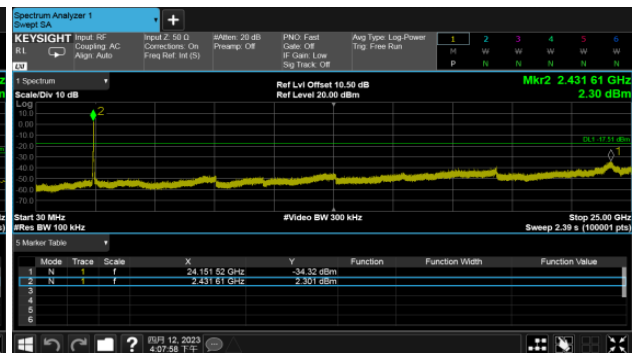
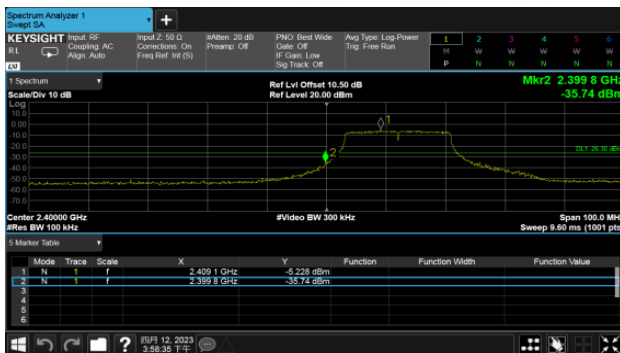
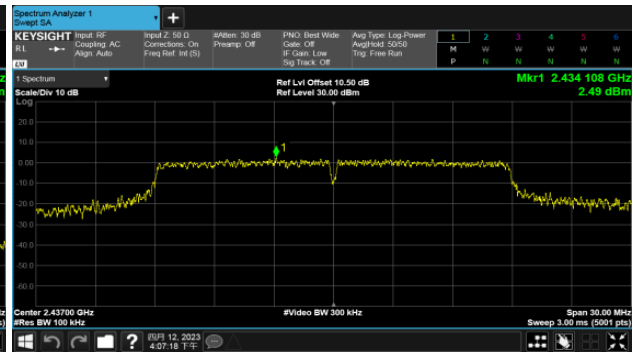




Modulation Type: 802.11n HT20(6.5Mbps)
CH01

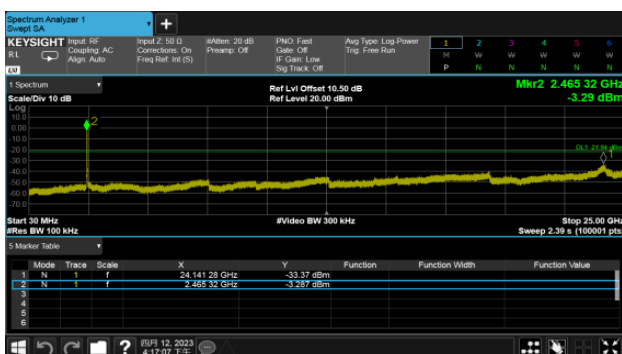
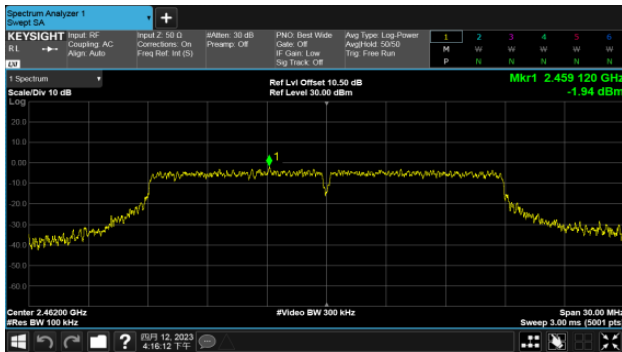


CH06





Modulation Type: 802.11n HT20(6.5Mbps)
CH11





8. On Time, Duty Cycle and Measurement methods

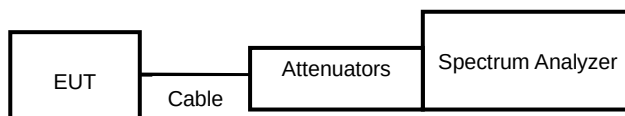
8.1 Test Limit

None; for reporting purposes only.

8.2 Test Procedure

According to the methods defined in ANSI C63.10-2013 Section 11.6
Zero-Span Spectrum Analyzer Method.

8.3 Test Setup Layout

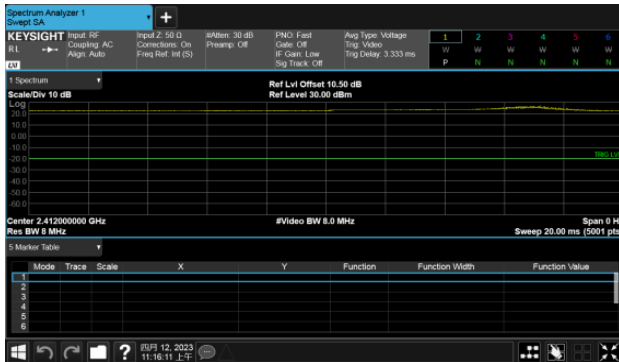


8.4 Test Result and Data

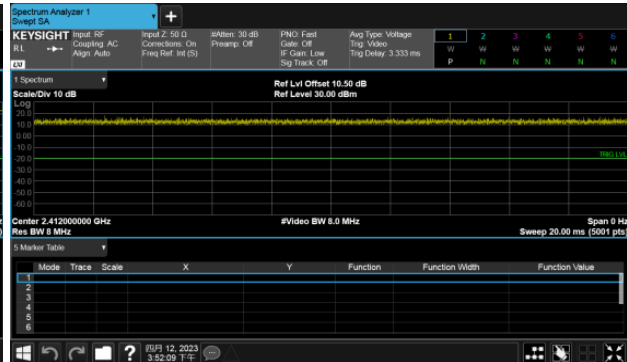
Modulation Type	On Time (ms)	Period Time (ms)	Duty Cycle (%)
11b,1M	100.00	100.00	100.00%
11g,6M	100.00	100.00	100.00%
11n HT20	100.00	100.00	100.00%



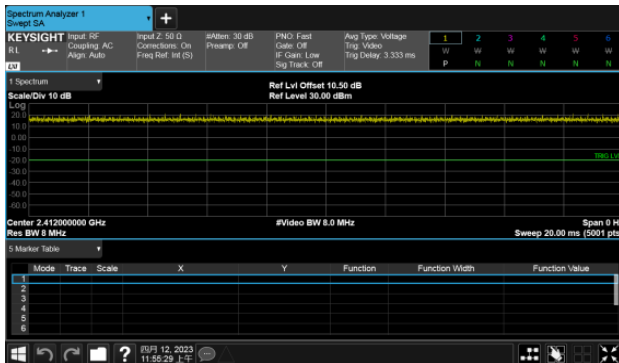
Modulation Type: 802.11b(1Mbps)



Modulation Type: 802.11n HT20(6.5Mbps)



Modulation Type: 802.11g(6Mbps)





9. 6dB Bandwidth Measurement Data

9.1 Test Limit

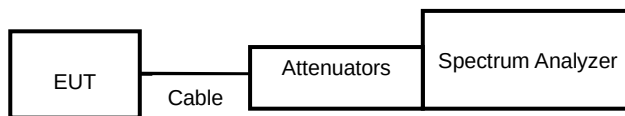
The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

9.2 Test Procedures

According to the methods defined in ANSI C63.10-2013 Section 11.8

- The transmitter output was connected to the spectrum analyzer.
- Set RBW of spectrum analyzer to 100 KHz and VBW to 300 KHz.
- The 6 dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6 dB.
- The 6dB Bandwidth was measured and recorded.

9.3 Test Setup Layout

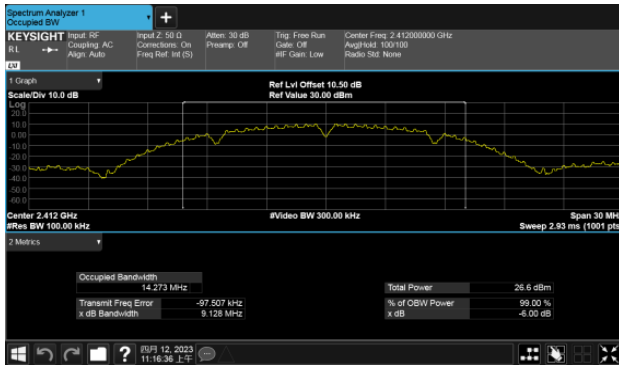


9.4 Test Result and Data

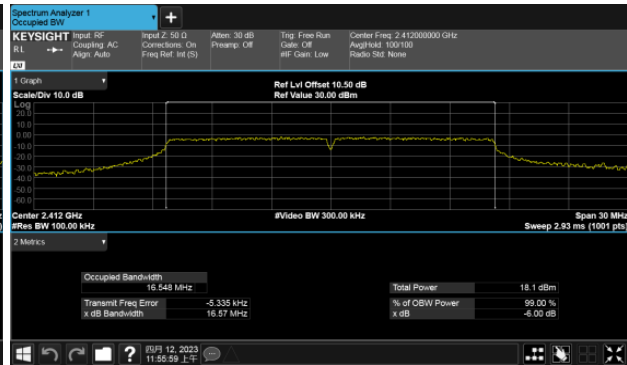
Modulation Type	Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (MHz)
11b	1	2412	9.13	0.5
	6	2437	9.59	0.5
	11	2462	9.12	0.5
11g	1	2412	16.57	0.5
	6	2437	16.53	0.5
	11	2462	16.56	0.5
11n HT20	1	2412	17.76	0.5
	6	2437	17.83	0.5
	11	2462	17.78	0.5



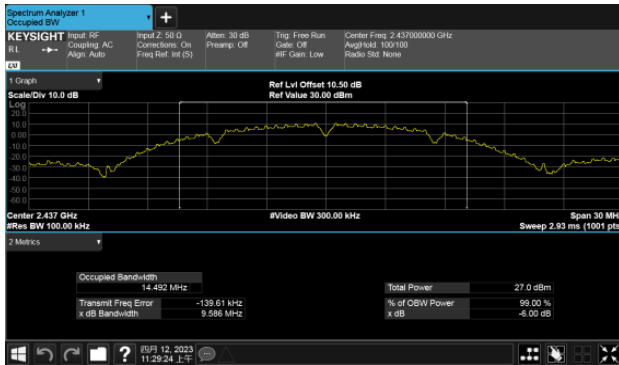
Modulation Type: 802.11b(1Mbps)
CH01



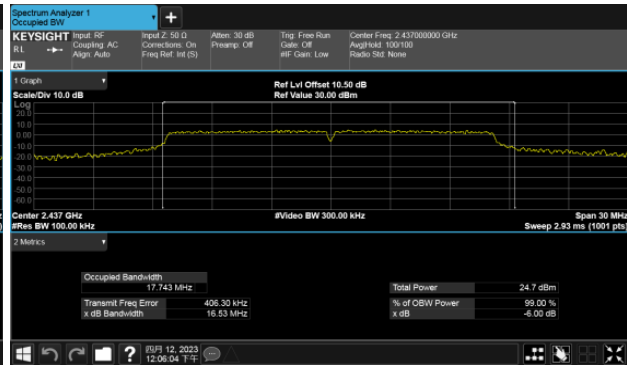
Modulation Type: 802.11g(6Mbps)
CH01



CH06



CH06



CH11

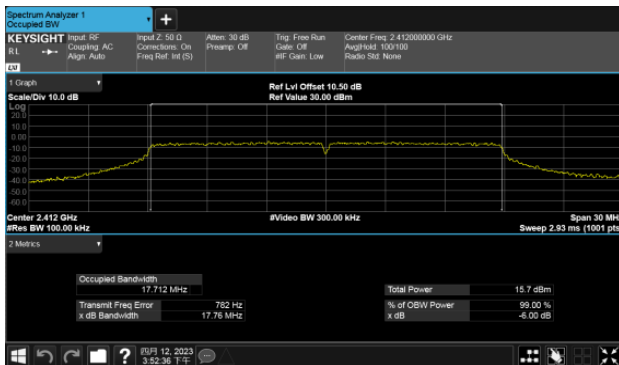


CH11

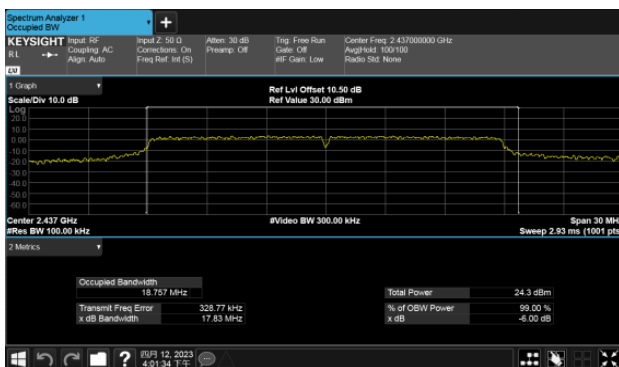




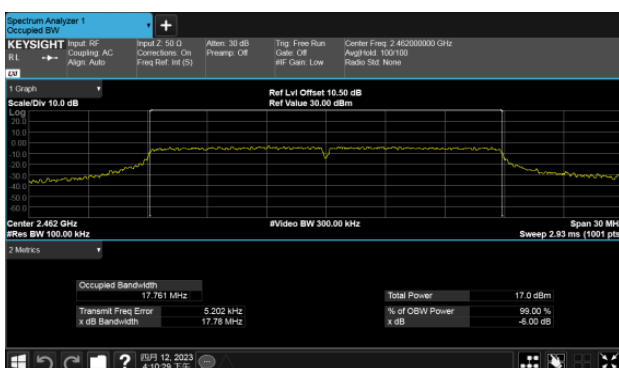
Modulation Type: 802.11n HT20(6.5Mbps)
CH01



CH06



CH11





10. Maximum Peak and Average Output Power

10.1 Test Limit

The Maximum Peak Output Power Measurement is 30dBm.

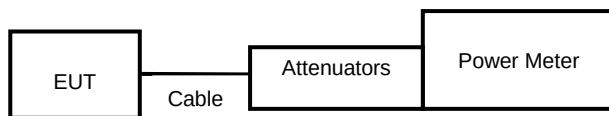
If transmitting antennas of directional gain greater than 6 dBi are used, the peak output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi

10.2 Test Procedures

According to the methods defined in ANSI C63.10-2013 Section 11.9.2.3.2

The antenna port (RF output) of the EUT was connected to the input (RF input) of a power meter. Power was read directly from the meter and cable loss connection was added to the reading to obtain power at the EUT antenna terminal. The EUT Output Power was set to maximum to produce the worse case test result.

10.3 Test Setup Layout





10.4 Test Result and Data

Setting	Modulation Mode	Channel	Frequency (MHz)	Conducted(peak) output power (dBm)	Total PK power (dBm)	Total PK power (mW)
114	11b	1	2412	21.22	21.22	132.434
118		6	2437	21.58	21.58	143.880
110		11	2462	19.92	19.92	98.175
107	11g	1	2412	20.04	20.04	100.925
127		6	2437	23.61	23.61	229.615
99		11	2462	19.52	19.52	89.536
110	11n HT20	1	2412	21.29	21.29	134.586
127		6	2437	23.30	23.30	213.796
102		11	2462	18.68	18.68	73.790

Setting	Modulation Mode	Channel	Frequency (MHz)	Conducted(average) output power (dBm)	Total AV power (dBm)	Total AV power (mW)
114	11b	1	2412	19.08	19.08	80.910
118		6	2437	19.73	19.73	93.972
110		11	2462	17.54	17.54	56.754
107	11g	1	2412	12.24	12.24	16.749
127		6	2437	18.66	18.66	73.451
99		11	2462	11.54	11.54	14.256
110	11n HT20	1	2412	13.65	13.65	23.174
127		6	2437	18.19	18.19	65.917
102		11	2462	10.56	10.56	11.376

*Average power is for reference only.



11. Power Spectral Density

11.1 Test Limit

The Maximum of Power Spectral Density Measurement is 8dBm.

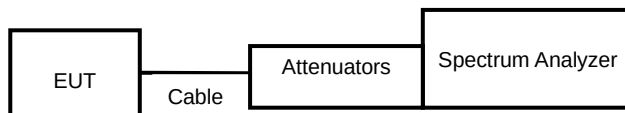
If transmitting antennas of directional gain greater than 6 dBi are used, the power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi

11.2 Test Procedures

According to the methods defined in ANSI C63.10-2013 Section 11.10

- The transmitter output was connected to spectrum analyzer.
- The spectrum analyzer's resolution bandwidth were set at 3kHz RBW and 10KHz VBW as that of the fundamental frequency. Set the sweep time=auto couple.
- The power spectral density was measured and recorded.

11.3 Test Setup Layout

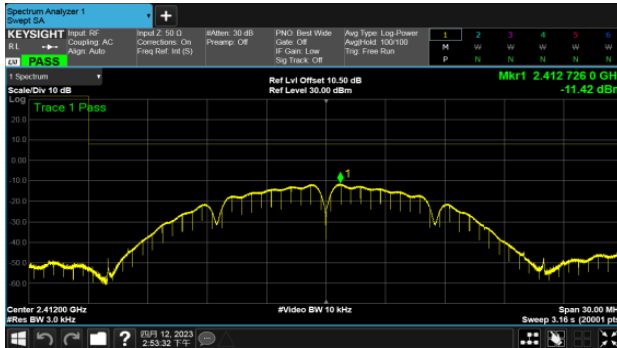


11.4 Test Result and Data

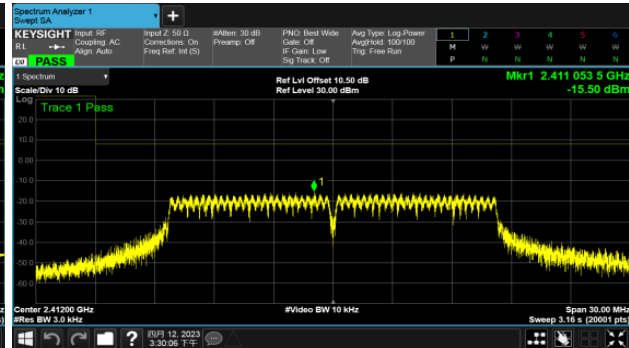
Modulation Type	Channel	Frequency (MHz)	Maximum Power Density of 3KHz Bandwidth(dBm)	Sum chain (dBm)	Duty Cycle CF(dB)	Total PSD (dBm)	Limit (dBm)
11b	1	2412	-11.42	-11.42	0.00	-11.42	8.00
	6	2437	-10.13	-10.13	0.00	-10.13	8.00
	11	2462	-11.95	-11.95	0.00	-11.95	8.00
11g	1	2412	-15.5	-15.50	0.00	-15.50	8.00
	6	2437	-10.62	-10.62	0.00	-10.62	8.00
	11	2462	-17.94	-17.94	0.00	-17.94	8.00
11n HT20	1	2412	-18.58	-18.58	0.00	-18.58	8.00
	6	2437	-9.99	-9.99	0.00	-9.99	8.00
	11	2462	-15.73	-15.73	0.00	-15.73	8.00



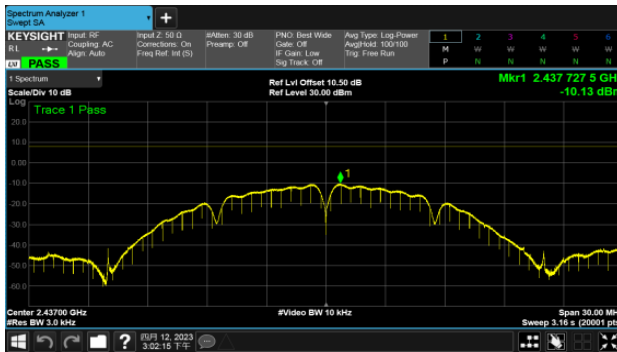
Modulation Type: 802.11b(1Mbps)
CH01



Modulation Type: 802.11g(6Mbps)
CH01



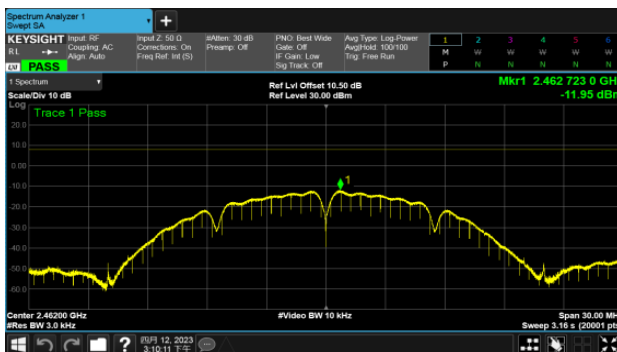
CH06



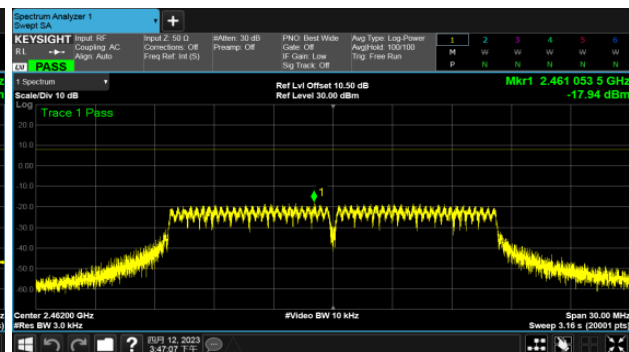
CH06



CH11



CH11

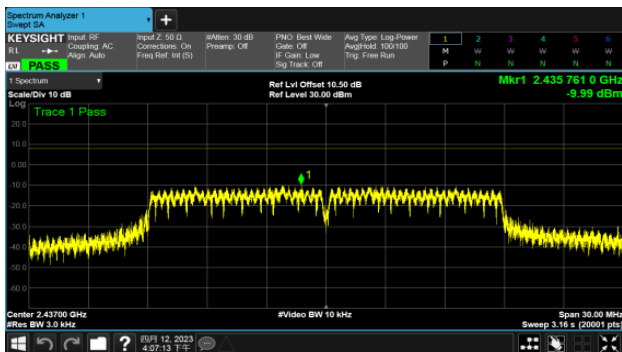




Modulation Type: 802.11n HT20(6.5Mbps)
CH01



CH06



CH11

