

Test Report

FCC ID: 2AI56-SC-4250GTV

Applicant: HKC Corporation Limited

Address: Building 1,2,3, Huike Industrial Park, Minying Industrial Zone, ShuiTian, ShiYan, Baoan

Manufacturer: Guangxi Huike Intelligent Display Co., Ltd

Address: NO.4,NO.5,NO12,NO14,in Xinyuan Science and Technology Park, NO.6 Taiwan Road,Beihai Industrial Park, Guangxi Autonomous Region, P.R.China

Product: LED TV

Brand: HKC, SONIQ, OKANO, RCA, PROSCAN, SLYVANIA, WESTINGHOUSE, IMPECCA, SUPERSONIC

Test Model(s): SC-4250GTV

Series Model(s): 42D1, RTA4202, SL421AN, RLDED4216A-C, RT4238-G, PLDED4216A-G, WD42FB1120-C, WD42FB1200, TL4200H, TL4200F

Test Date: Oct.19, 2020 ~ Oct. 26, 2020

Issued By: Hwa-Hsing (Dongguan) Testing Co., Ltd.

Address: No.101, Bld N1, Yuyuan 2Rd, Yuyuan Industrial Park, HuangJiang Town, Dongguan, China

FCC Designation No.: CN1255

Standards: 47 CFR FCC Part 15, Subpart C (Section 15.247)
ANSI C63.10:2013

The above equipment has been tested by **Hwa-Hsing (Dongguan) Testing Co., Ltd.**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

Prepared by : Scott He
Scott He/ Project Engineer

Date: Oct. 30, 2020

Approved by : Harry Li
Harry Li/ Technical Director

Date: Jan. 06, 2021

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Release Control Record

Issue No.	Description	Date Issued
201031KH11-F2	Original Release	Jan. 06, 2021

1 Summary of Test Results

47 CFR FCC Part 15, Subpart C (Section 15.247) ANSI C63.10:2013 KDB 558074 D01 15.247 Meas Guidance v05r02			
FCC Clause	Test Item	Result	Remarks
15.207	AC Power Conducted Emission	Pass	Meet the requirement of limit.
15.205 & 209	Radiated Emissions	Pass	Meet the requirement of limit.
15.247(d)	Band Edge Measurement	Pass	Meet the requirement of limit.
15.247(d)	Antenna Port Emission	Pass	Meet the requirement of limit.
15.247(a)(2)	6dB Bandwidth	Pass	Meet the requirement of limit.
---	Occupied Bandwidth Measurement	Pass	Reference only
15.247(b)	Conducted power	Pass	Meet the requirement of limit.
15.247(e)	Power Spectral Density	Pass	Meet the requirement of limit.
15.203	Antenna Requirement	Pass	Meet the antenna requirement The device is professionally installed

1.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUTs specified in CISPR 16-4-2:

The listed uncertainties are the worst cases uncertainty for the entire range of measurement. Please note that the uncertainty values are provided for informational purposes only and are not used in determining the PASS/FAIL results.

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150kHz ~ 30MHz	2.66 dB
Radiated Emissions up to 1 GHz	9KHz ~ 30MHz	2.90 dB
	30MHz ~ 1000MHz	3.47 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	4.84 dB
	18GHz ~ 40GHz	4.62 dB

1.2 Modification Record

There were no modifications required for compliance.

2 General Information

2.1 General Description of EUT

Product	LED TV
Brand	HKC, SONIQ, OKANO, RCA, PROSCAN, SLYVANIA, WESTINGHOUSE, IMPECCA, SUPERSONIC
Test Model(s)	SC-4250GTV
Series Model(s)	42D1, RTA4202, SL421AN, RLDED4216A-C, RT4238-G, PLDED4216A-G, WD42FB1120-C, WD42FB1200, TL4200H, TL4200F
FCC ID:	2AI56-SC-4250GTV
Status of EUT	Engineering prototype
Power Supply Rating	AC100-240V~50-60Hz
Status of EUT	Engineering prototype
Modulation Type	CCK, DQPSK, DBPSK for DSSS; 64QAM, 16QAM, QPSK, BPSK for OFDM
Modulation technology	DSSS; OFDM
Transfer Rate	802.11b: 11.0/ 5.5/ 2.0/ 1.0Mbps 802.11g: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11n: up to 300.0Mbps
Operating Frequency	802.11b, 802.11g, 802.11n (20MHz): 2412 ~ 2462MHz 802.11n (40MHz): 2422 ~ 2452MHz
Number of Channel	11 channels for 802.11b, 802.11g, 802.11n (20MHz) 7channels for 802.11n (40MHz)
Maximum Output Power	13.30dBm
Antenna Type	Dipole Antenna with 3.64dBi gain
Antenna Connector	I-PEX

Note:

- Please refer to the EUT photo document (Reference No.: 201031KH11) for detailed product photo.
- The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.
- The EUT incorporates a MIMO function. The WLAN function supports CDD mode with dual antenna transmission and dual antenna reception.

Support mode	Frequency band	Transmit and receive mode	Transmit and Receive Chain
802.11b	2412~2462MHz	MIMO	2TX,2RX
802.11g	2412~2462MHz	MIMO	2TX,2RX
802.11n HT20	2412~2462MHz	MIMO	2TX,2RX
802.11n HT40	2422~2452MHz	MIMO	2TX,2RX

- Model difference: all of these models (SC-4250GTV, 42D1, RTA4202, SL421AN, RLDED4216A-C, RT4238-G, PLDED4216A-G, WD42FB1120-C, WD42FB1200, TL4200H, TL4200F) only difference for brand name and model name for trace purpose.

2.2 Description of Channels List

11 channels are provided for 802.11b, 802.11g and 802.11n (20MHz):

Channel	Frequency	Channel	Frequency
1	2412MHz	7	2442MHz
2	2417MHz	8	2447MHz
3	2422MHz	9	2452MHz
4	2427MHz	10	2457MHz
5	2432MHz	11	2462MHz
6	2437MHz		

7 channels are provided for 802.11n (40MHz):

Channel	Frequency	Channel	Frequency
3	2422MHz	7	2442MHz
4	2427MHz	8	2447MHz
5	2432MHz	9	2452MHz
6	2437MHz		

2.3 Test Mode Applicability and Tested Channel Detail

(EUT Positioned Determined) Radiated Emissions Above 1GHz			
EUT Configure Mode	Test channel& Frequency (MHz)	EUT Positioned	Maximum Emission level of Fundamental frequency (dBuV)
802.11b	CH 1& 2412MHz	X-axis	93.15
		Y-axis	92.22
		Z-axis	91.70
Note: The EUT had been pre-tested on the positioned of each 3 axis. Based on the maximum emission level to determined the final positioned			

Detail test items	EUT Configure Mode	Modulation Type	Data Rate (Mbps)	EUT Positioned
AC Power Conducted Emission	802.11b 802.11g 802.11n (20MHz) 802.11n (40MHz)	√	√	-
Radiated Emissions		√	√	X-axis
Band Edge Measurement		√	√	-
Antenna Port Emission		√	√	-
6dB Bandwidth		√	√	-
Conducted power		√	√	-
Power Spectral Density		√	√	-
Note: “-” means no effect.				

Radiated Emission Test (Above 1GHz):

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Tested Channel	Modulation Type	Data Rate (Mbps)
802.11b	1, 6, 11	DSSS	1.0
802.11g	1, 6, 11	OFDM	6.0
802.11n (20MHz)	1, 6, 11	OFDM	7.2
802.11n (40MHz)	3, 6, 9	OFDM	15.0

Radiated Emission Test (Below 1GHz):

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Tested Channel	Modulation Type	Data Rate (Mbps)
802.11b	1, 6, 11	DSSS	1

Power Line Conducted Emission Test:

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Tested Channel	Modulation Type	Data Rate (Mbps)
802.11b	1, 6, 11	DSSS	1

Antenna Port Conducted Measurement:

- ☒ This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Tested Channel	Modulation Type	Data Rate (Mbps)
802.11b	1 to 11	DSSS	1.0
802.11g	1 to 11	OFDM	6.0
802.11n (20MHz)	1 to 11	OFDM	7.2
802.11n (40MHz)	3 to 9	OFDM	15.0

Test Condition:

Applicable test items	Environmental Conditions	Power supply	Tested by
Radiated Emission Test	25.6deg. C, 62%RH	AC120V/60Hz	Tank Tan
Power Line Conducted Emission Test	25deg. C, 65 %RH	AC120V/60Hz	Tank Tan
Antenna Port Conducted Measurement	25deg. C, 65 %RH	AC120V/60Hz	Harry Li

2.4 Power setting value from test software:

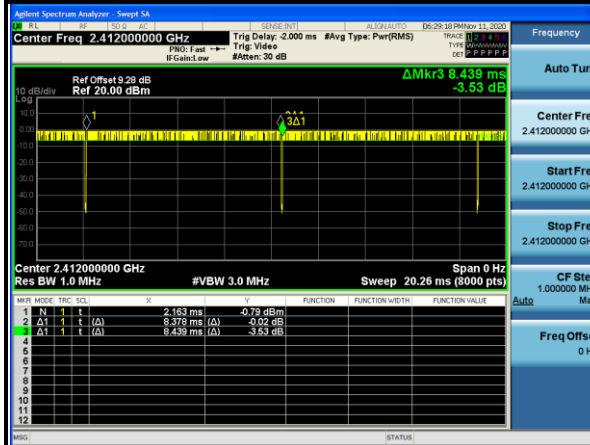
Mode	Channel Number	Freq. (MHz)	Power Setting	
			Ant 0	Ant 1
802.11b	1	2412	1	1
	6	2437	1	1
	11	2462	1	1
802.11g	1	2412	1	1
	6	2437	1	1
	11	2462	1	1
802.11 n20	1	2412	1	1
	6	2437	1	1
	11	2462	1	1
802.11 n40	1	2422	1	1
	6	2437	1	1
	11	2452	1	1

2.5 DutyCycle of Test Signal

Test plots

802.11b: Duty cycle of test signal is >98%

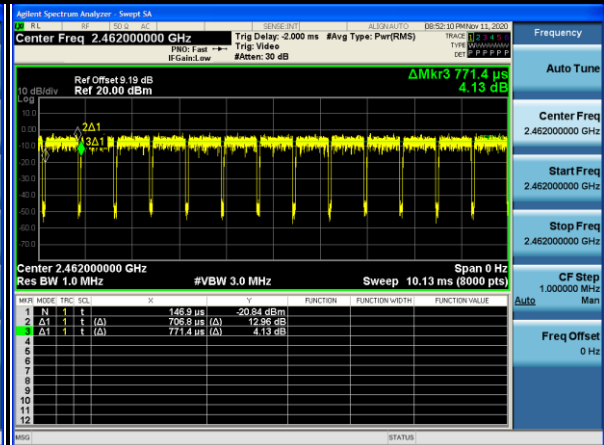
$$\text{Duty cycle} = 8.38/8.44 = 99.28\%$$



802.11g: Duty cycle of test signal is <98%

$$\text{Duty cycle} = 0.71/0.77 = 91.63\%$$

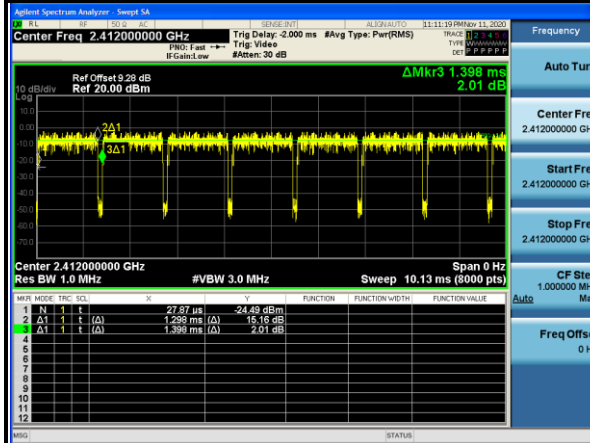
$$\text{Duty factor} = 10 * \log(1/0.9163) = 0.380\text{dB}$$



802.11n HT20: Duty cycle of test signal is <98%

$$\text{Duty cycle} = 1.30/1.40 = 92.84\%$$

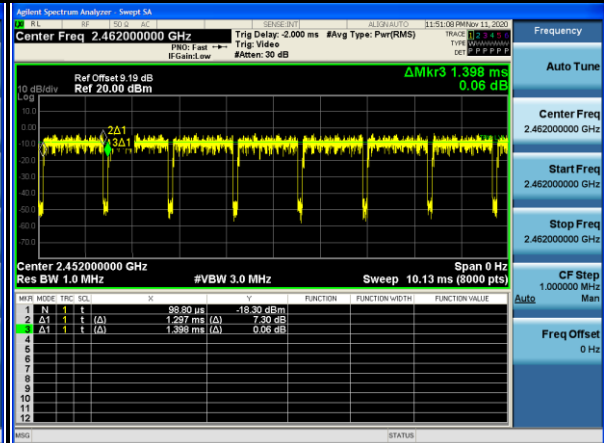
$$\text{Duty factor} = 10 * \log(1/0.9284) = 0.323\text{dB}$$



802.11n HT40: Duty cycle of test signal is <98%

$$\text{Duty cycle} = 1.297/1.398 = 92.78\%$$

$$\text{Duty factor} = 10 * \log(1/0.9278) = 0.325\text{dB}$$



2.6 Description of Support Units

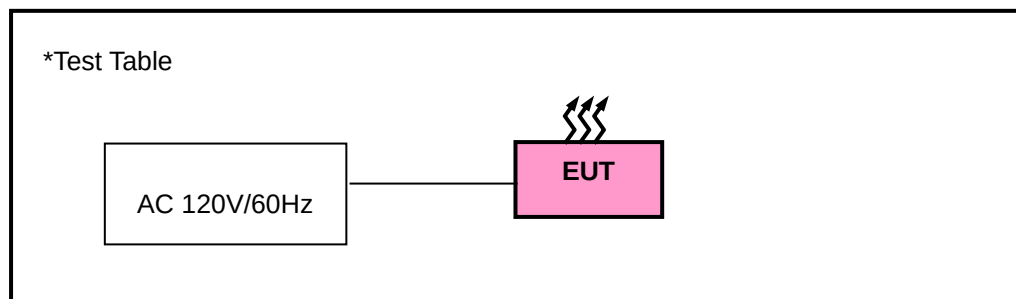
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

No.	Product	Brand	Model No.	Serial No.	FCC ID
1.	Notebook	DELL	Latitude E6420	00426-OEM-8992662-00006	N/A

Insert Cable Connections to/from EUT provided by test team.

No.	Signal Cable Description Of The Above Support Units
1.	USB Line: Un-shieldin 1.5m

2.7 Configuration of System under Test



2.8 General Description of Applied Standards

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC Part 15, Subpart C (15.247)

KDB 558074 D01 15.247 Meas Guidance v05r02

KDB 662911 D01 v02r01

ANSI C63.10-2013

All test items have been performed and recorded as per the above standards.

Note: The EUT has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.

3 Test types and results

3.1 Radiated Emission and Bandedge Measurement

3.1.1 Limits of radiated emission and bandedge measurement

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20dB below the highest level of the desired power:

Frequencies (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

Note:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

3.1.2 Test Instruments

For radiated emission test (9kHz-30MHz)

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver (10kHz~7GHz)	Rohde&Schwarz	ESCI 7	100962	2020/05/14	2021/05/13
Loop antenna (9kHz~30MHz)	TESEQ	HLA 6121	56735	2020/04/15	2021/04/15
3m Semi-anechoic Chamber	MAORUI	9m*6m*6m	NSEMC003	2020/04/15	2021/04/14
Attenuator	R&S	TS2GA-6dB	18101101	N/A	N/A
Test software	EZ	EZ EMC V1.1.4.2	N/A	N/A	N/A

For radiated emission test (30MHz-1GHz) 1GHz)

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver (10kHz~7GHz)	Rohde&Schwarz	ESCI 7	100962	2020/05/14	2021/05/13
Broadband antenna (25MHz~2500MHz)	Schwarzbeck	VULB 9168	00937	2020/04/15	2021/04/15
3m Semi-anechoic Chamber	MAORUI	9m*6m*6m	NSEMC003	2020/04/15	2021/04/14
Signal Amplifier (30MHz~1000MHz)	Com-power	PAM-103	18020051	2020/04/15	2021/04/15
Attenuator	R&S	TS2GA-6dB	18101101	N/A	N/A
Test software	EZ	EZ EMC V1.1.4.2	N/A	N/A	N/A

For radiated emission test (1GHz-40GHz, 966 m Chamber)

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Horn Antenna (1GHz-18GHz)	Schwarzbeck	BBHA 9170	01959	2020/04/15	2021/04/15
Broadband Coaxial Preamplifier (1GHz-18GHz)	Schwarzbeck	BBV 9718	00025	2020/04/15	2021/04/15
Spectrum Analyzer	Rohde&Schwarz	FSV-40N	10783	2020/04/15	2021/04/15
Horn Antenna (18GHz-40GHz)	Schwarzbeck	BBHA 9170	BBHA9170242	2020/04/15	2021/04/15
Pre-Amplifier (18GHz-40GHz)	EMCI	EMC 184045	980102	2020/04/15	2021/04/15
High pass filter	Micro-Tronics	HPM50107	G050	2020/09/16	2021/09/16
High pass filter	Micro-Tronics	HPM50117	G007	2020/09/16	2021/09/16
Test software	EZ	EZ EMC V1.1.4.2	N/A	N/A	N/A
Spectrum (10kHz~26.5GHz)	Keysight	N9020A	MY51240612	2020/09/16	2021/09/16

Note: 1. The calibration interval of the above test instruments is 12/24months and the calibrations are traceable to CEPREI/CHINA.

2. The test was performed in 966.

3.1.3 Test Procedures

- a. The EUT was placed on the top of a rotating table 0.8 meters (below 1GHz) / 1.5 meters (1-18GHz) / 1.5 meters (18-40GHz) above the reference ground. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna (Below 1GHz)& (Above 1-18GHz), which was mounted on the top of a variable-height antenna tower. The EUT was set 1 meters away from the interference-receiving antenna (18-40GHz).
- c. The height of antenna is varied from one meter to four meters above the reference ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- f. The test-receiver system was set to peak and average detected function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

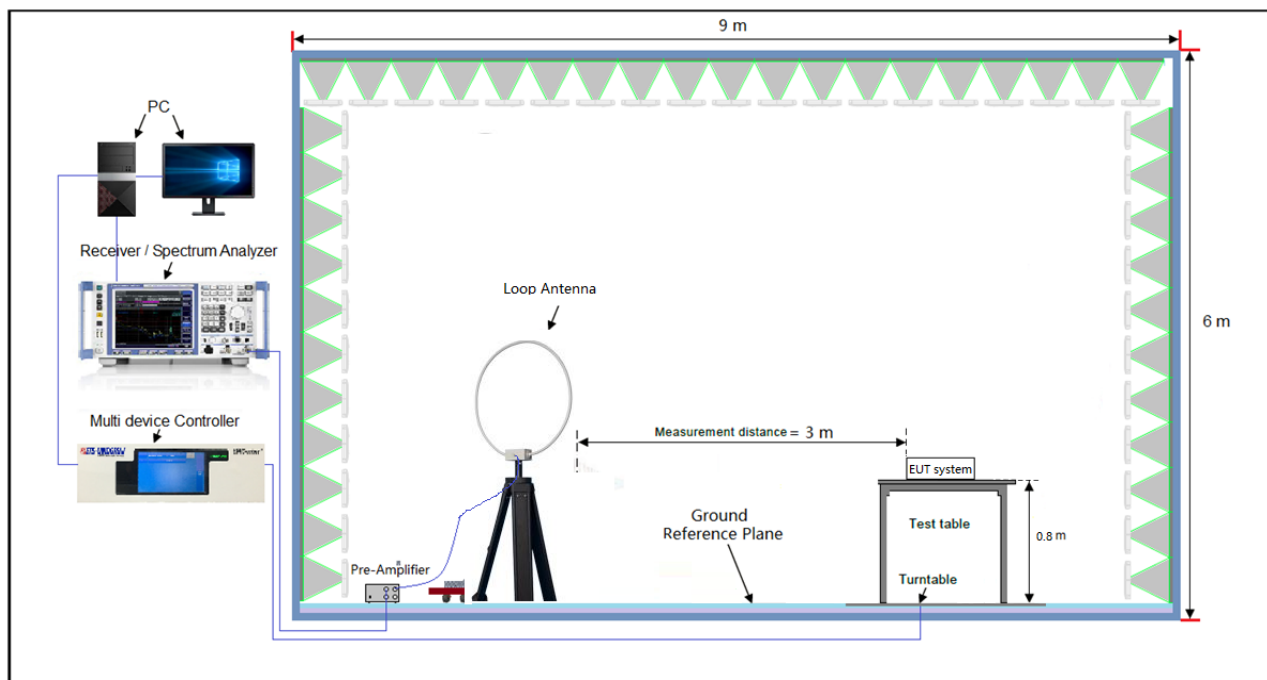
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz & 360kHz for Quasi-peak detection (QP) at frequency below 1 GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 1/T for Average (Duty cycle < 98 %) detection at frequency above 1 GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz (Duty cycle ≥ 98%) for Average detection (AV) at frequency above 1GHz.
5. All modes of operation were investigated and the worst-case emissions are reported.

3.1.4 Deviation from Test Standard

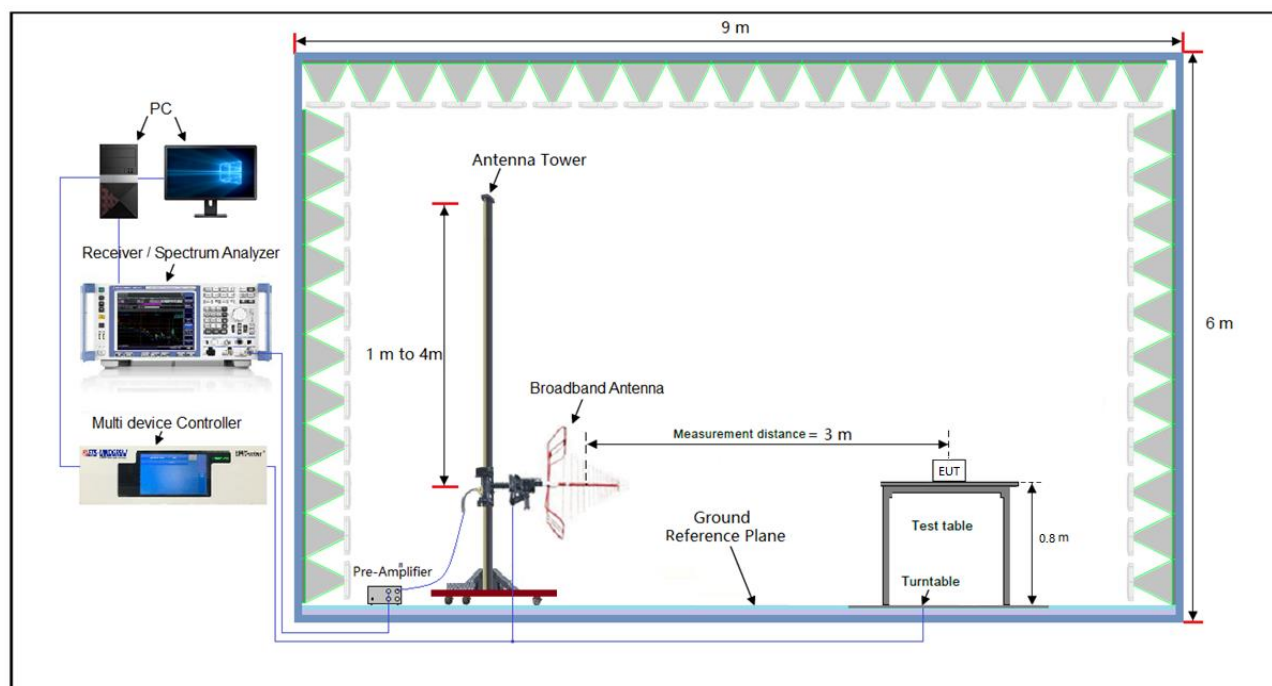
No deviation.

3.1.5 Test Set up

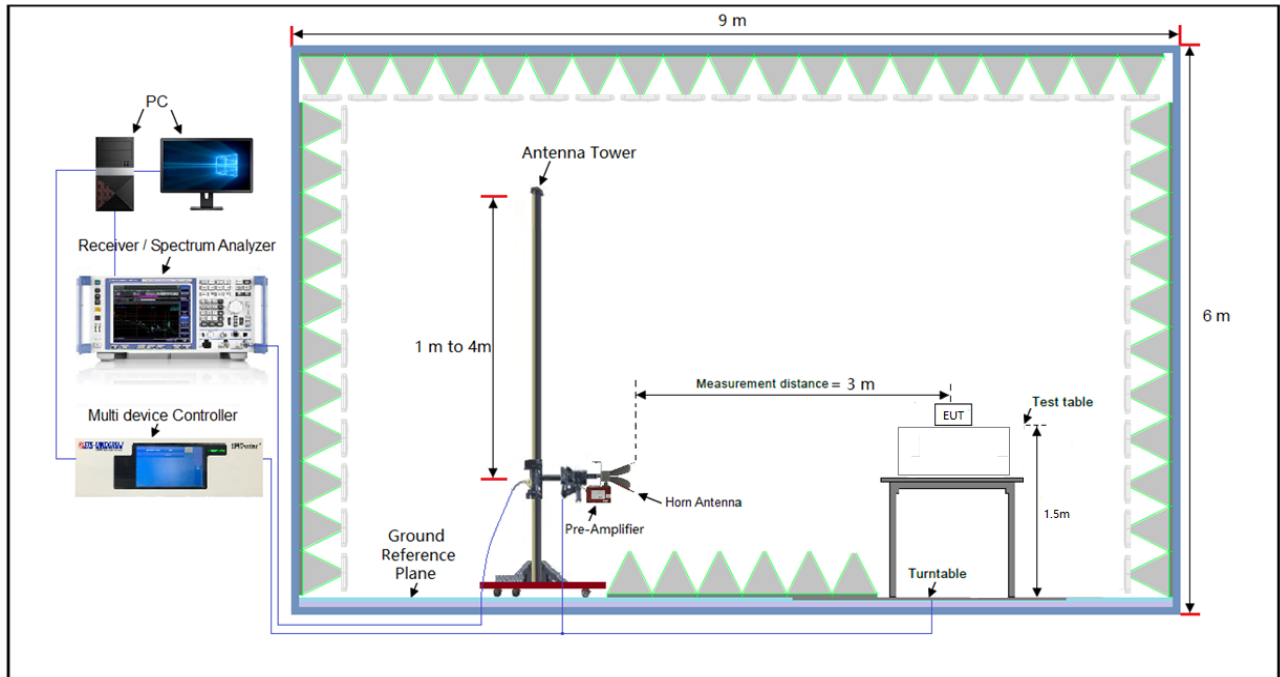
Radiated emission below 30MHz:



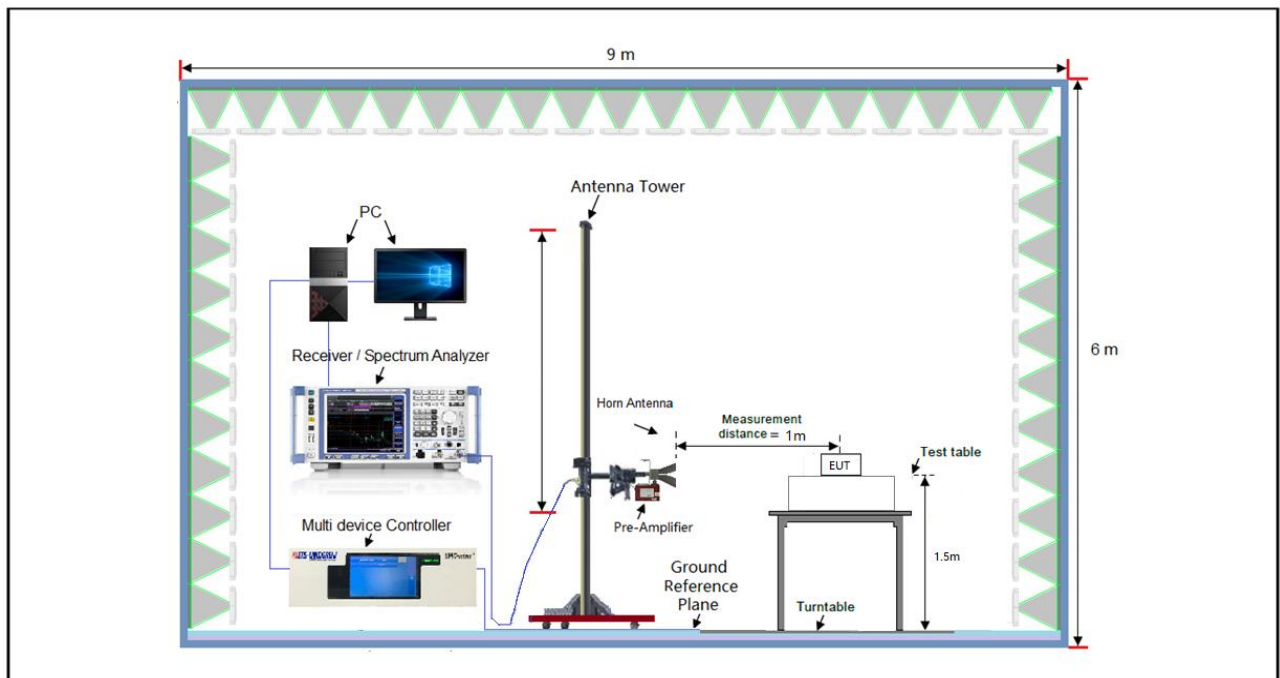
Frequency Range below 1GHz:



Frequency Range above 1-18GHz:



Frequency Range above 18-40GHz:



For the actual test configuration, please refer to the attached file (Test Setup Photo).

3.1.6 EUT Operating Conditions

- Placed the EUT on the testing table.
- Set the EUT under transmission condition continuously at specific channel frequency.

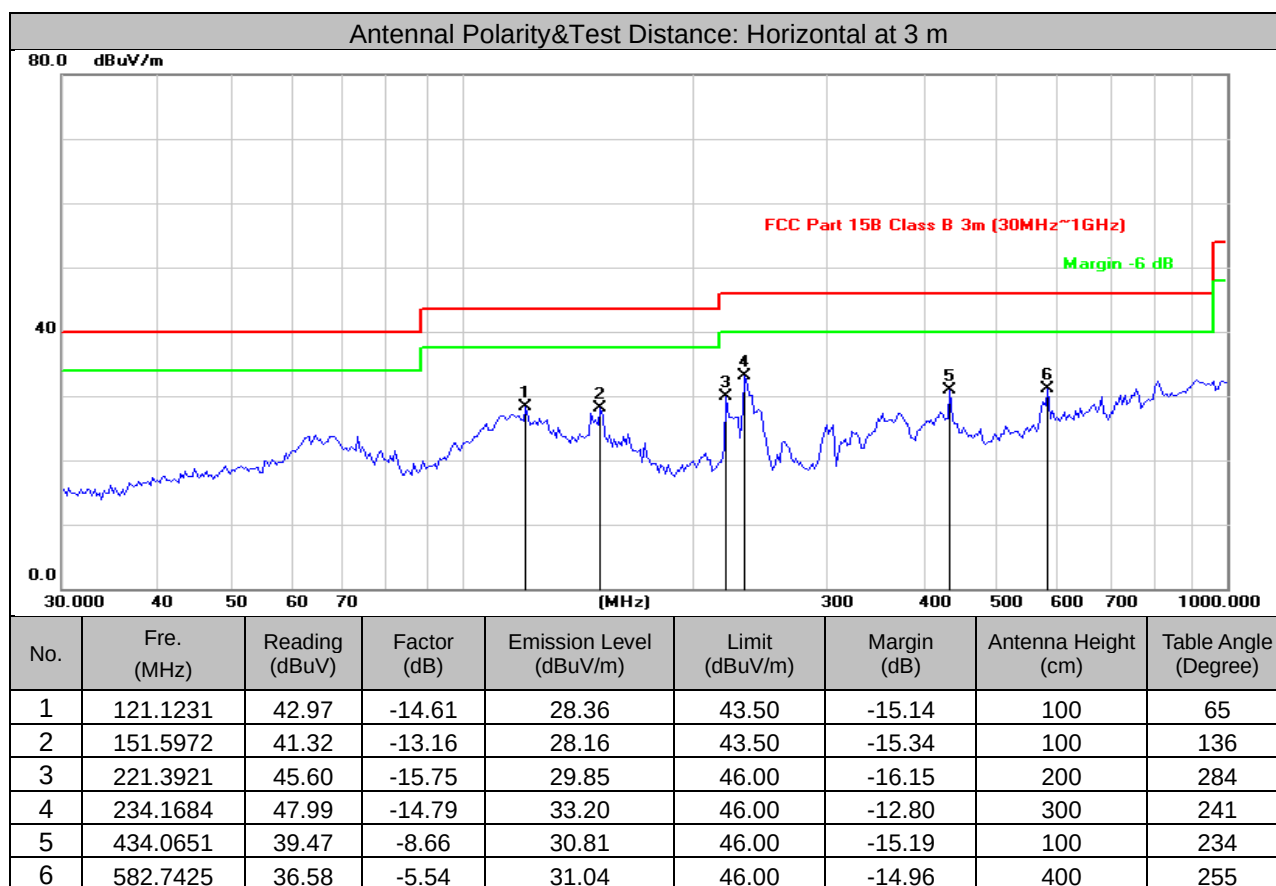
3.1.7 Test Results

9kHz ~ 30MHz Data:

The amplitude of spurious emissions attenuated more than 20dB below the permissible value is not required to be report.

30MHz ~ 1GHz Worst-Case Data:

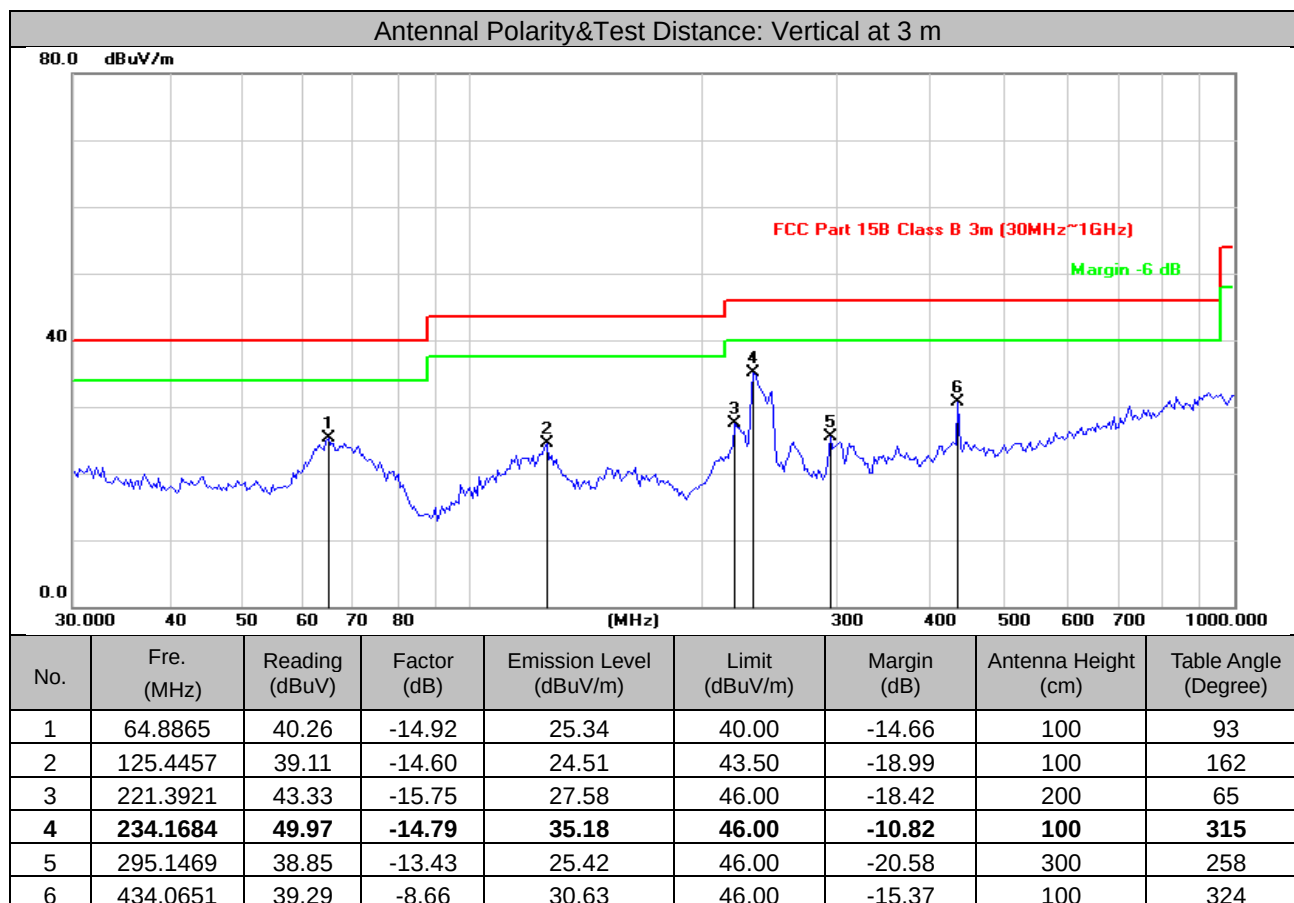
EUT Test Condition	802.11b 2462MHz TX		
Test Channel	Channel 11	Frequency Range	30MHz ~ 1GHz
Power supply	AC 120V/60Hz	Detector Function	Peak (PK) Quasi-peak (QP)
Environmental Conditions	25.6deg. C, 62%RH	Tested By	Tech Chen



Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value

EUT Test Condition	802.11g: 2462MHz TX		
Channel	Channel 11	Frequency Range	30MHz ~ 1GHz
Power supply	AC 120V/60Hz	Detector Function	Peak (PK) Quasi-peak (QP)
Environmental Conditions	25.6deg. C, 62%RH	Tested By	Tech Chen

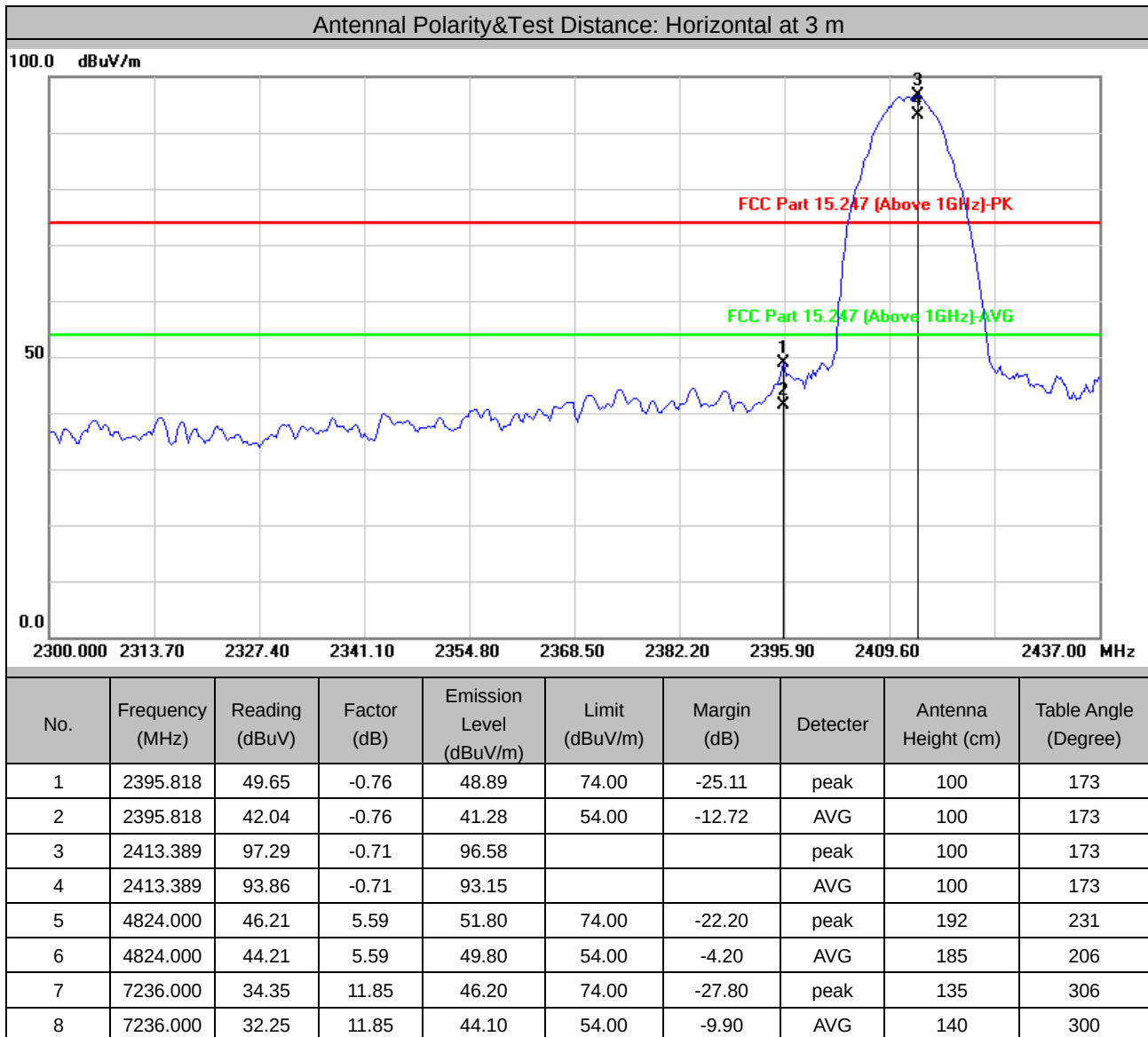


Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value

Above 1GHz Data:

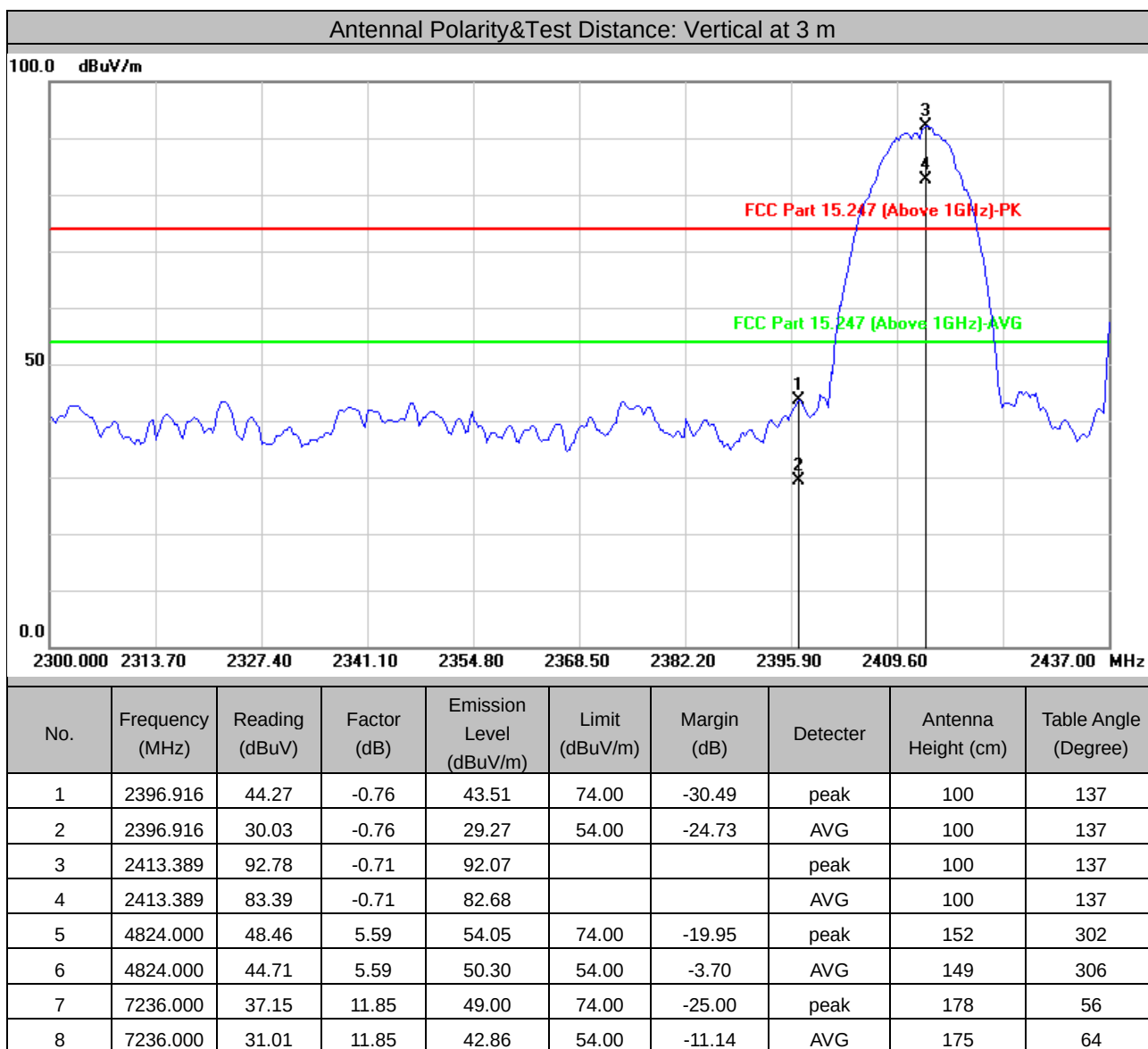
EUT Test Condition:	802.11b: 2412MHz TX		
Test Channel	Channel 1	Frequency Range	Above 1GHz
Power supply	AC120V/60Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25.6deg. C, 62%RH	Tested By	Tech Chen



Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value
3. 2412MHz: Fundamental frequency.

EUT Test Condition:	802.11b: 2412MHz TX		
Test Channel	Channel 1	Frequency Range	Above 1GHz
Power supply	AC120V/60Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25.6deg. C, 62%RH	Tested By	Tech Chen



Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value
3. 2412MHz: Fundamental frequency.

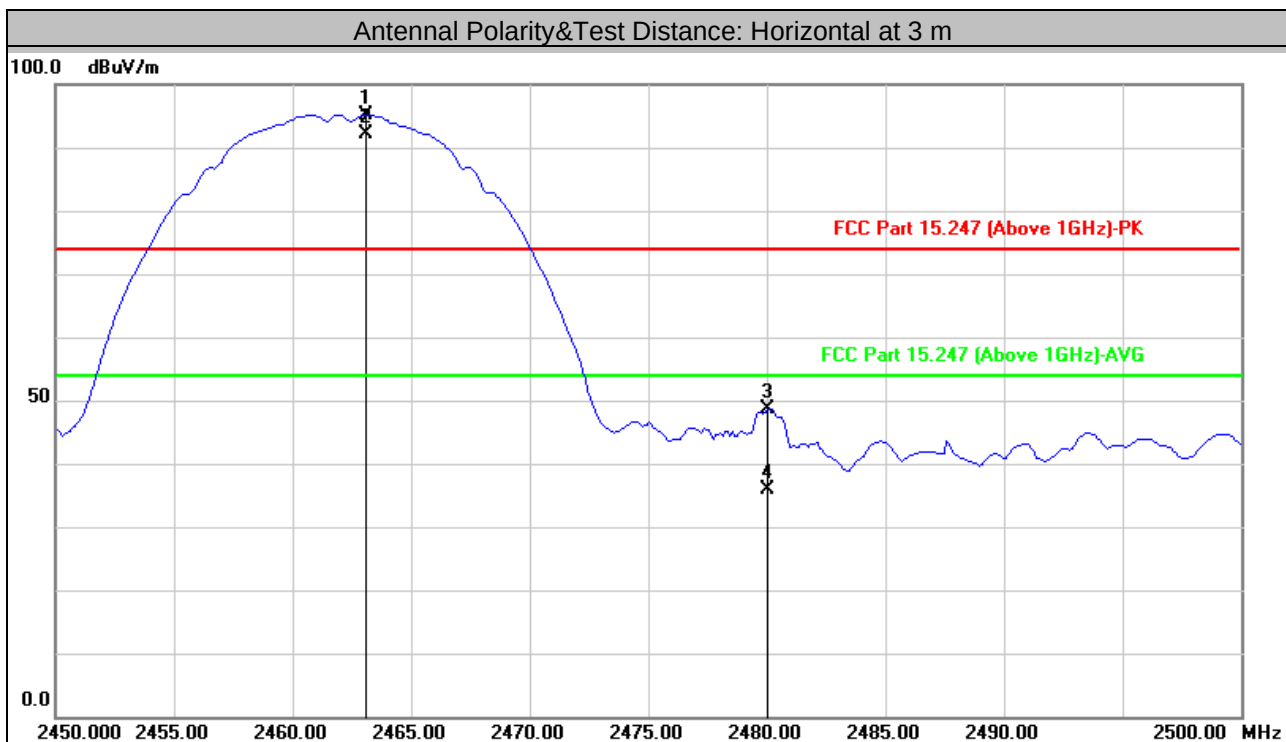
EUT Test Condition	802.11b: 2437MHz TX		
Test Channel	Channel 6	Frequency Range	Above 1GHz
Power supply	AC120V/60Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25.6deg. C, 62%RH	Tested By	Tech Chen

Antennal Polarity&Test Distance: Horizontal at 3 m									
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna Height (cm)	Table Angle (Degree)
1 *	2437.000	97.88	-0.65	97.23	--	--	peak	186	207
2 X	2437.000	76.62	-0.65	75.97	--	--	AVG	186	207
3	4874.000	47.04	6.16	53.20	74.00	-20.80	peak	100	150
4	4874.000	44.22	6.16	50.38	54.00	-3.62	AVG	100	150
5	7311.000	37.97	12.10	50.07	74.00	-23.93	peak	120	153
6	7311.000	33.78	12.10	45.88	54.00	-8.12	AVG	120	153
Antennal Polarity&Test Distance: Vertical at 3 m									
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna Height (cm)	Table Angle (Degree)
1 *	2437.000	92.33	-0.65	91.68	--	--	peak	238	195
2 X	2437.000	69.01	-0.65	68.36	--	--	AVG	238	195
3	4874.000	44.80	6.16	50.96	74.00	-23.04	peak	215	138
4	4874.000	42.16	6.16	48.32	54.00	-5.68	AVG	215	138
5	7311.000	43.00	12.10	55.10	74.00	-18.90	peak	100	198
6	7311.000	35.02	12.10	47.12	54.00	-6.88	AVG	100	198

Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value
3. 2437MHz: Fundamental frequency.

EUT Test Condition	802.11b: 2462MHz TX		
Test channel	Channel 11	Frequency Range	Above 1GHz
Power supply	AC120V/60Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25.6deg. C, 62%RH	Tested By	Tech Chen



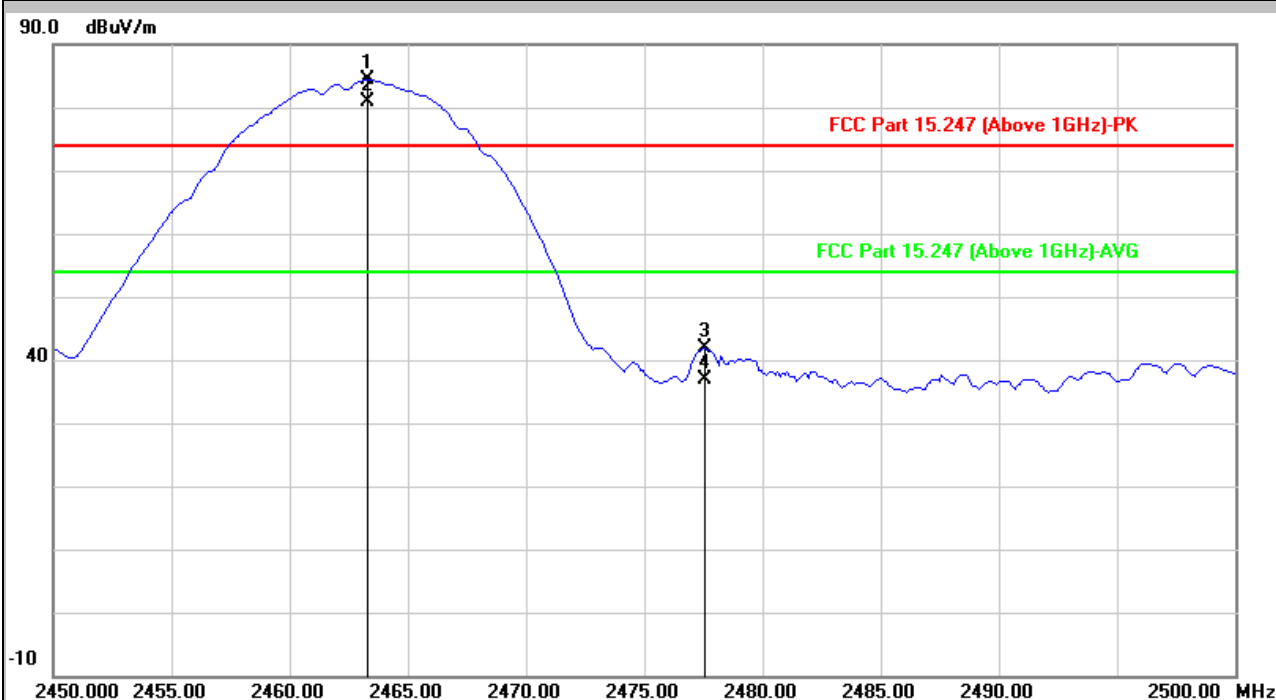
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna Height (cm)	Table Angle (Degree)
1	2463.126	95.81	-0.58	95.23			peak	204	175
2	2463.126	92.62	-0.58	92.04			AVG	204	175
3	2480.060	49.13	-0.52	48.61	74.00	-25.39	peak	220	235
4	2480.060	36.49	-0.52	35.97	54.00	-18.03	AVG	220	235
5	4924.000	43.80	6.32	50.12	74.00	-23.88	peak	135	166
6	4924.000	40.66	6.32	46.98	54.00	-7.02	AVG	135	166
7	7386.000	43.16	12.35	55.51	74.00	-18.49	peak	153	180
8	7386.000	38.64	12.35	50.99	54.00	-3.01	AVG	153	180

Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value
3. 2462MHz: Fundamental frequency.

Test channel	Channel 11	Frequency Range	Above 1GHz
Power supply	AC120V/60Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25.6deg. C, 62%RH	Tested By	Tech Chen

Antennal Polarity&Test Distance: Vertical at 3 m

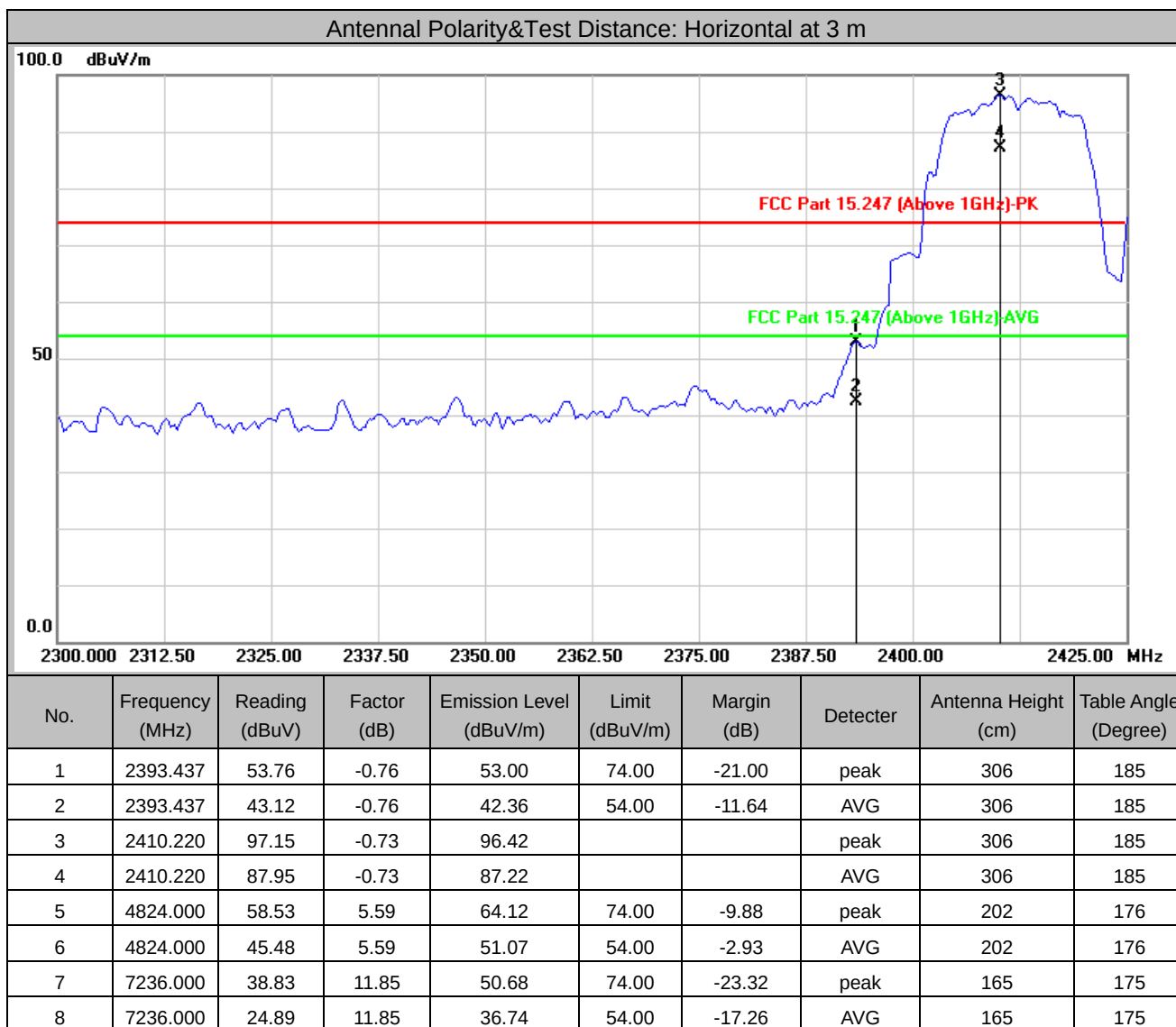


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna Height (cm)	Table Angle (Degree)
1	2463.327	84.92	-0.58	84.34			peak	100	214
2	2463.327	81.38	-0.58	80.80			AVG	100	214
3	2477.555	42.31	-0.53	41.78	74.00	-32.22	peak	100	136
4	2477.555	37.39	-0.53	36.86	54.00	-17.14	AVG	100	136
5	4924.000	38.61	6.32	44.93	74.00	-29.07	peak	110	224
6	4924.000	31.28	6.32	37.60	54.00	-16.40	AVG	110	224
7	7386.000	43.18	12.35	55.53	74.00	-18.47	peak	100	198
8	7386.000	37.76	12.35	50.11	54.00	-3.89	AVG	100	198

Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value
3. 2462MHz: Fundamental frequency.

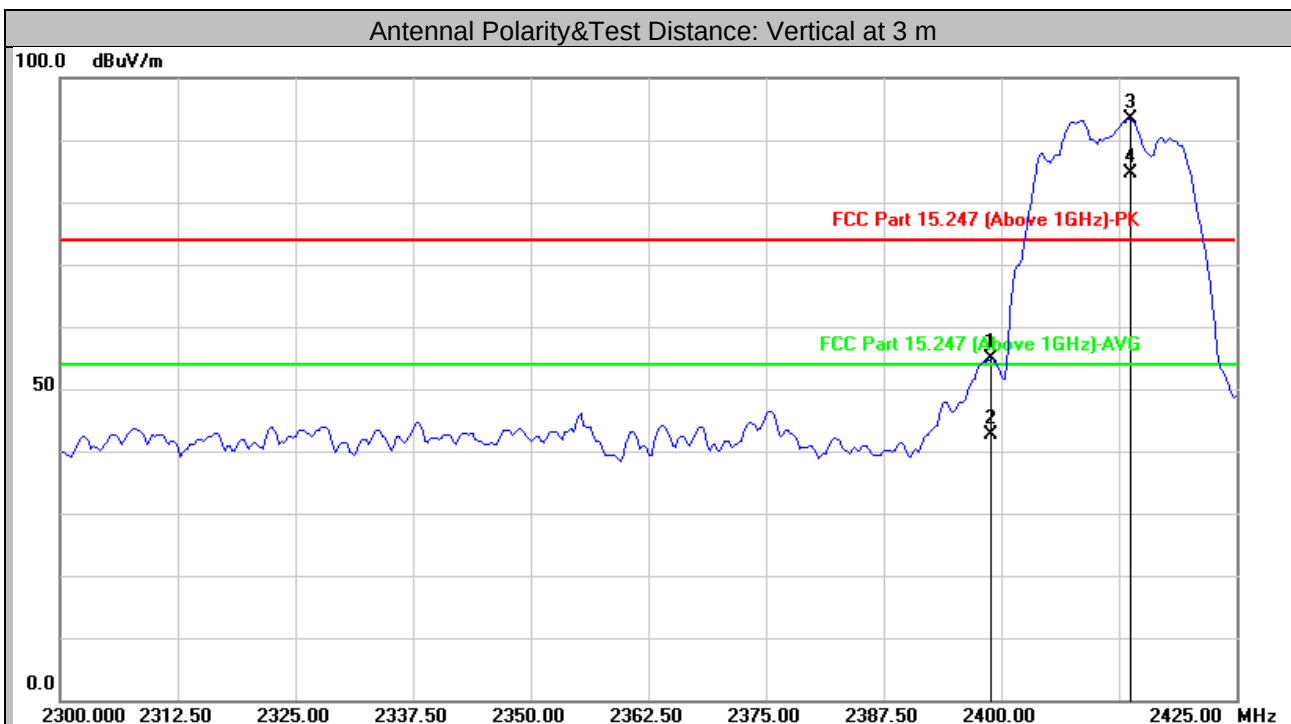
EUT Test Condition:	802.11g: 2412MHz TX		
Test Channel	Channel 1	Frequency Range	Above 1GHz
Power supply	AC 120V/60Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25.6deg. C, 62%RH	Tested By	Tech Chen



Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value
3. 2412MHz: Fundamental frequency.

EUT Test Condition:	802.11g: 2412MHz TX		
Test Channel	Channel 1	Frequency Range	Above 1GHz
Power supply	AC 120V/60Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25.6deg. C, 62%RH	Tested By	Tech Chen



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna Height (cm)	Table Angle (Degree)
1	2398.948	55.59	-0.75	54.84	74.00	-19.16	peak	108	352
2	2398.948	43.39	-0.75	42.64	54.00	-11.36	AVG	108	352
3	2413.727	94.18	-0.71	93.47			peak	108	352
4	2413.727	85.34	-0.71	84.63			AVG	108	352
5	4824.000	55.58	5.59	61.17	74.00	-12.83	peak	215	172
6	4824.000	42.99	5.59	48.58	54.00	-5.42	AVG	215	172
7	7236.000	37.78	11.85	49.63	74.00	-24.37	peak	123	175
8	7236.000	27.70	11.85	39.55	54.00	-14.45	AVG	123	175

Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value
3. 2412MHz: Fundamental frequency.

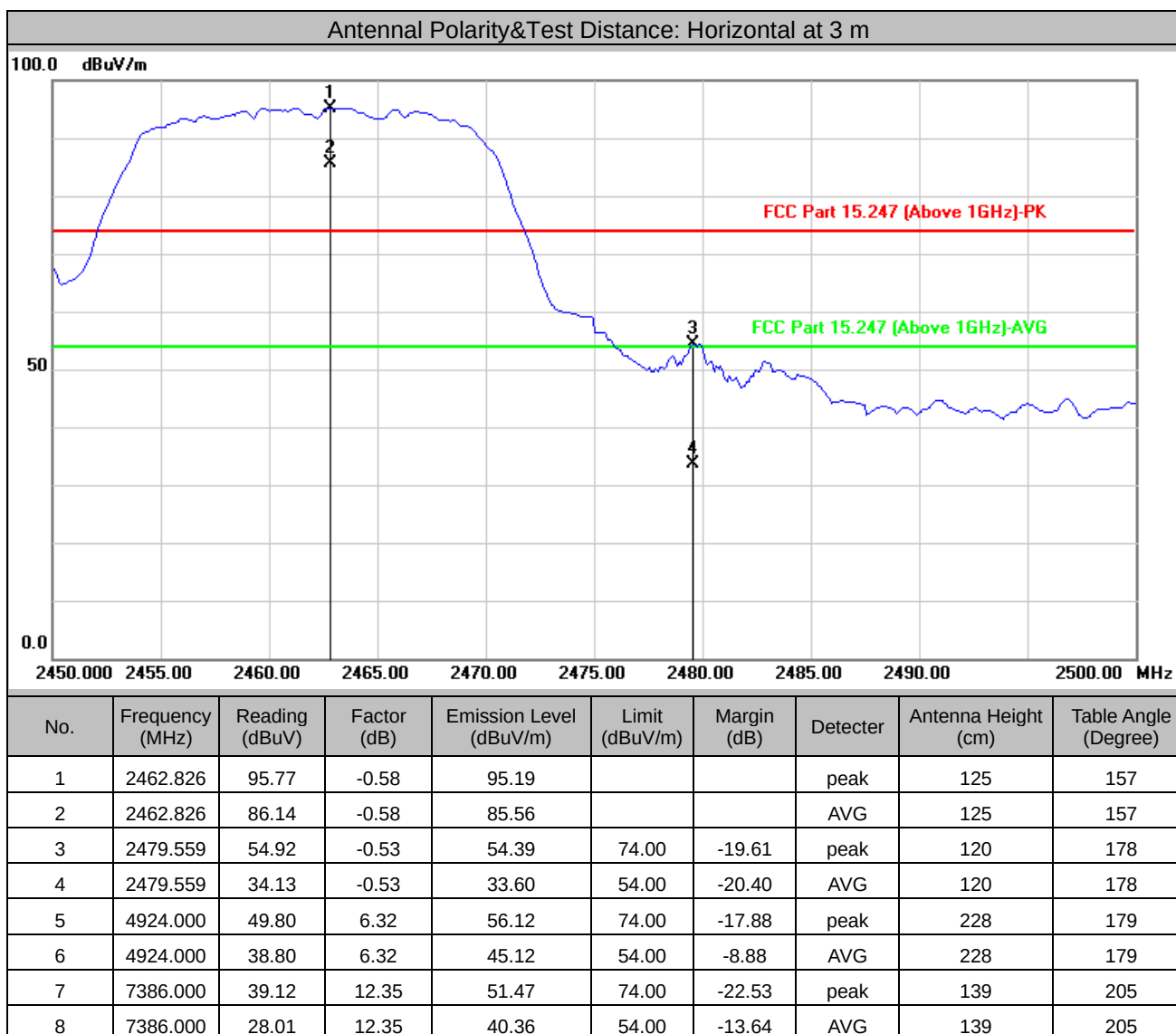
EUT Test Condition	802.11g: 2437MHz TX		
Test Channel	Channel 6	Frequency Range	Above 1GHz
Power supply	AC 120V/60Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25.6deg. C, 62%RH	Tested By	Tech Chen

Antennal Polarity&Test Distance: Horizontal at 3 m									
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna Height (cm)	Table Angle (Degree)
1	2437.000	92.19	-0.65	91.54			peak	176	56
2	2437.000	86.31	-0.65	85.66			AVG	176	56
3	4874.000	50.82	6.16	56.98	74.00	-17.02	peak	195	228
4	4874.000	38.82	6.16	44.98	54.00	-9.02	AVG	195	228
5	7311.000	40.37	12.10	52.47	74.00	-21.53	peak	204	186
6	7311.000	31.58	12.10	43.68	54.00	-10.32	AVG	204	186
Antennal Polarity&Test Distance: Vertical at 3 m									
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna Height (cm)	Table Angle (Degree)
1	2437.000	93.03	-0.65	92.38			peak	230	186
2	2437.000	87.12	-0.65	86.47			AVG	230	186
3	4874.000	44.98	6.16	51.14	74.00	-22.86	peak	135	218
4	4874.000	35.02	6.16	41.18	54.00	-12.82	AVG	135	218
5	7311.000	40.31	12.10	52.41	74.00	-21.59	peak	165	175
6	7311.000	31.58	12.10	43.68	54.00	-10.32	AVG	165	175

Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value
3. 2437MHz: Fundamental frequency.

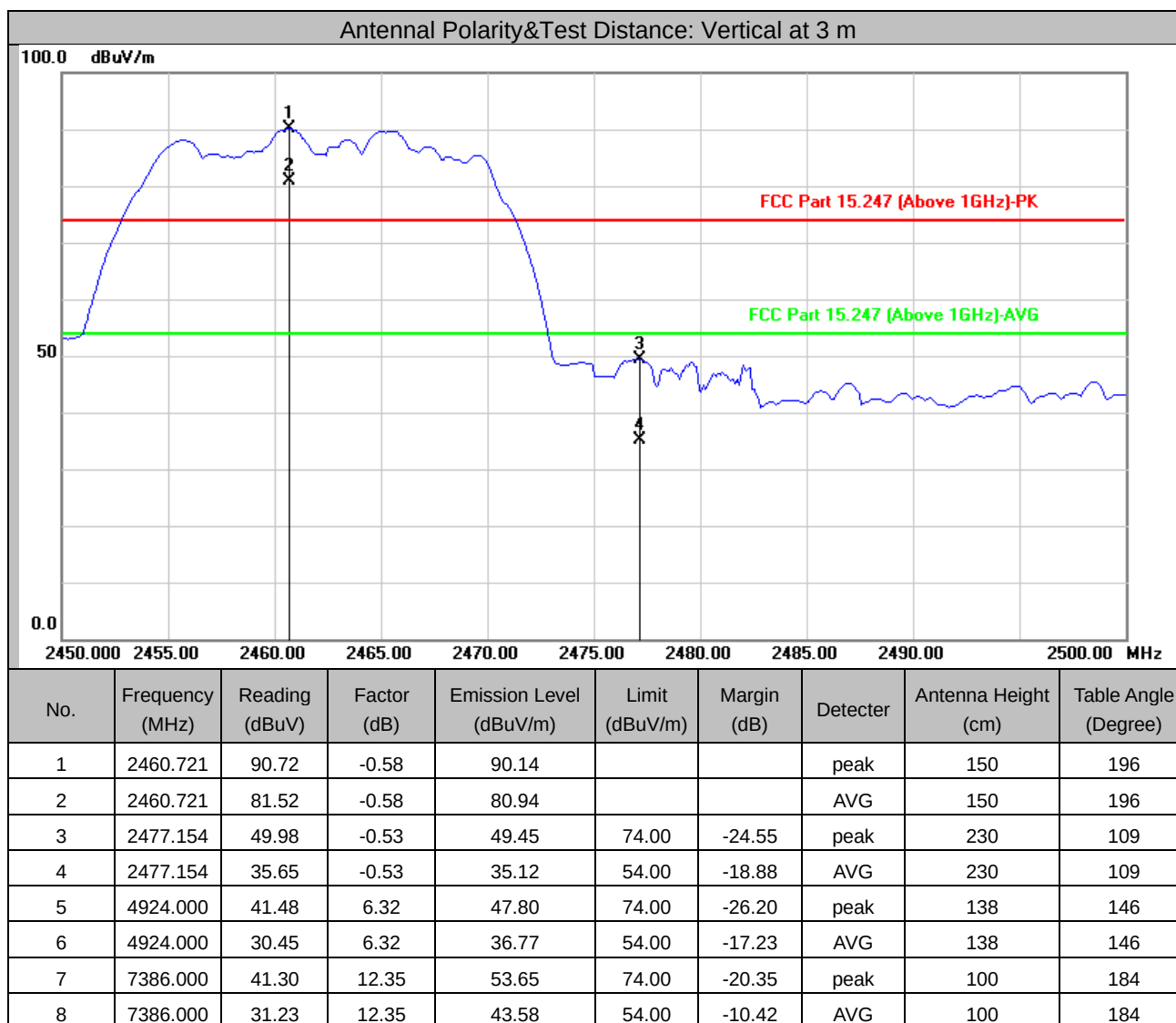
EUT Test Condition	802.11g: 2462MHz TX		
Test channel	Channel 11	Frequency Range	Above 1GHz
Power supply	AC 120V/60Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25.6deg. C, 62%RH	Tested By	Tech Chen



Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value
3. 2462MHz: Fundamental frequency.

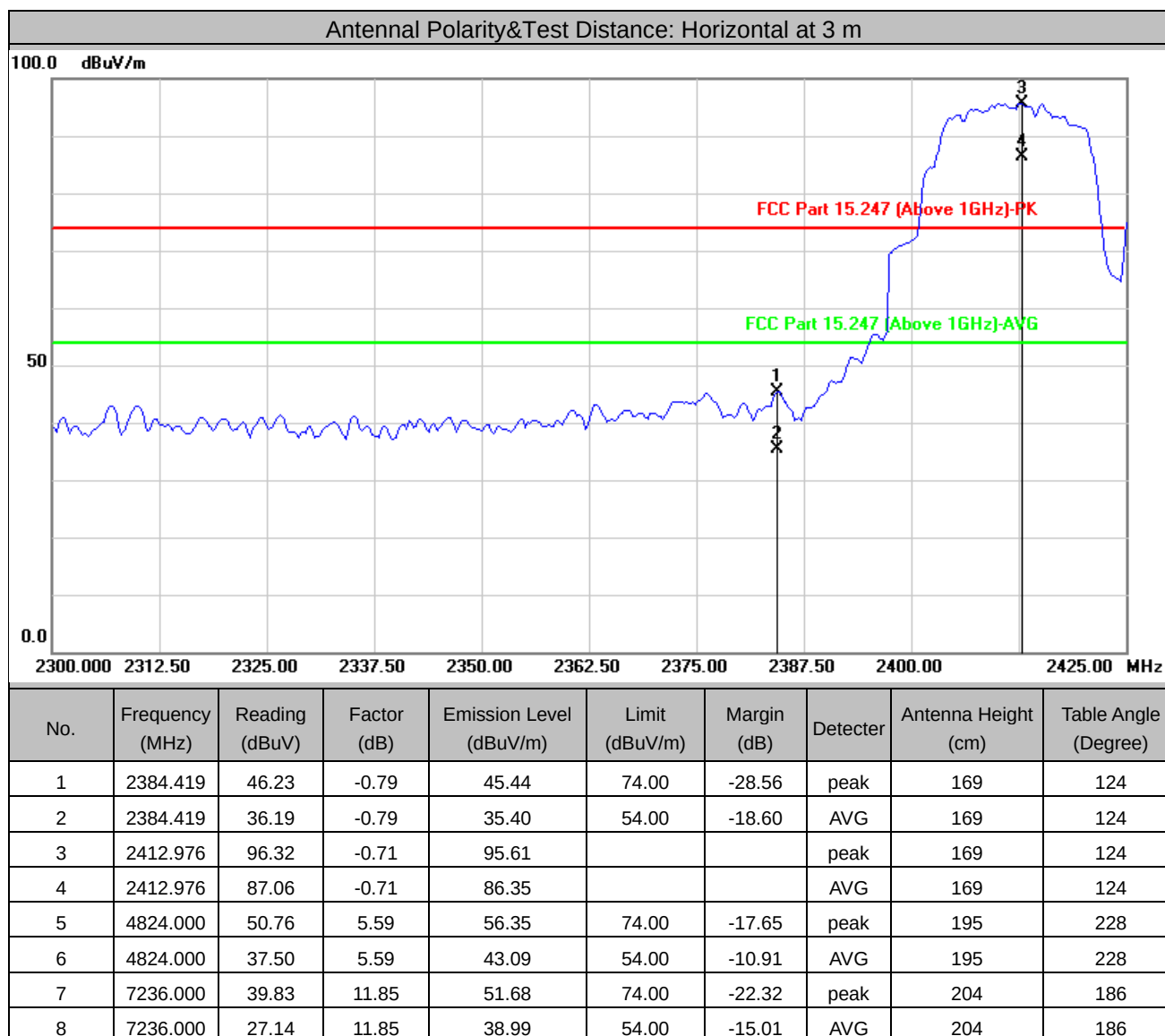
EUT Test Condition	802.11g: 2462MHz TX		
Test channel	Channel 11	Frequency Range	Above 1GHz
Power supply	AC 120V/60Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25.6deg. C, 62%RH	Tested By	Tech Chen



Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value
3. 2462MHz: Fundamental frequency.

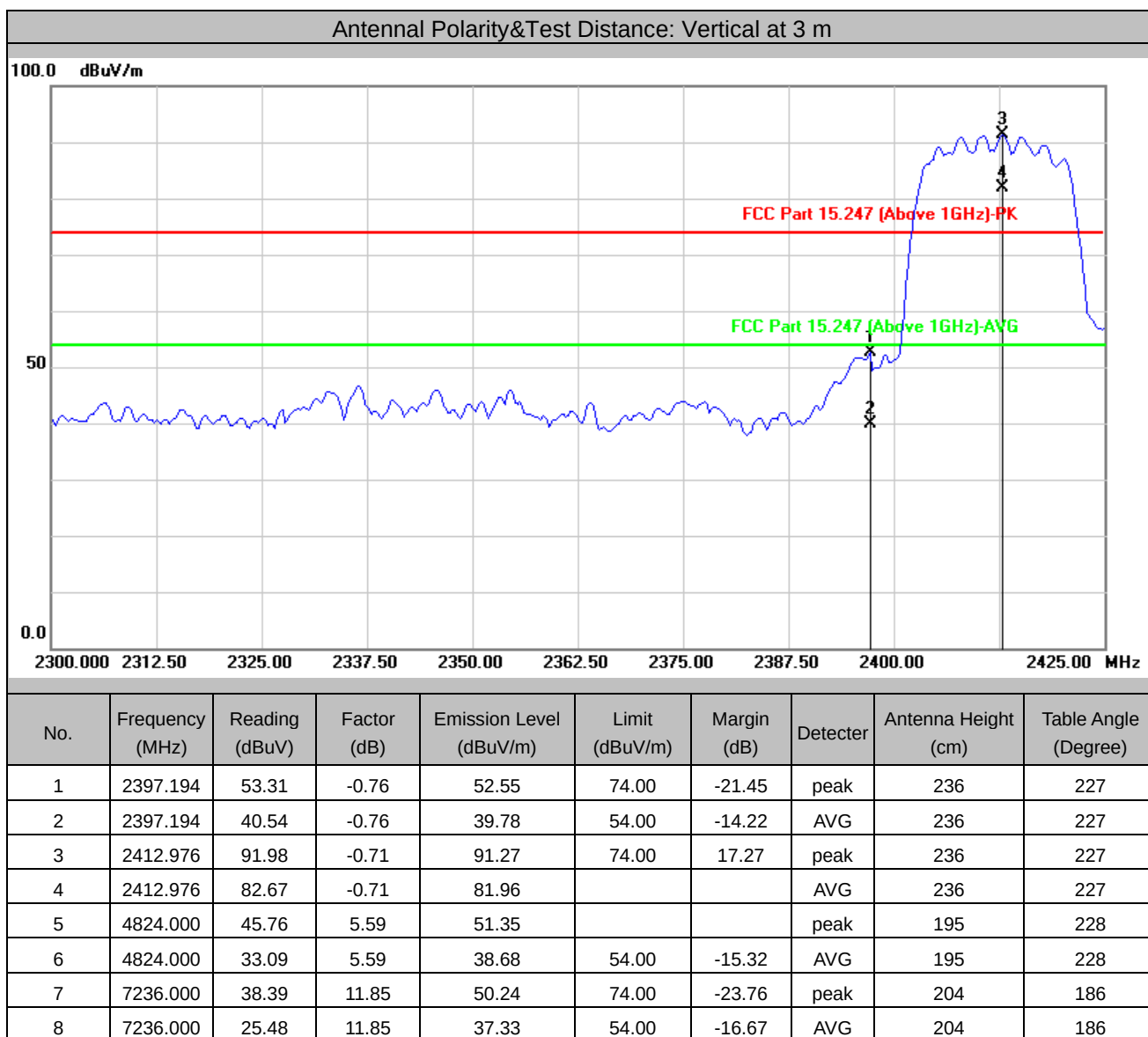
EUT Test Condition:	802.11n HT20: 2412MHz TX		
Test Channel	Channel 1	Frequency Range	Above 1GHz
Power supply	AC 120V/60Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25.6deg. C, 62%RH	Tested By	Tech Chen



Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value
3. 2412MHz: Fundamental frequency.

EUT Test Condition:	802.11n HT20: 2412MHz TX		
Test Channel	Channel 1	Frequency Range	Above 1GHz
Power supply	AC 120V/60Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25.6deg. C, 62%RH	Tested By	Tech Chen



Remarks:

- Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
- Margin value = Emission level – Limit value
- 2412MHz: Fundamental frequency.

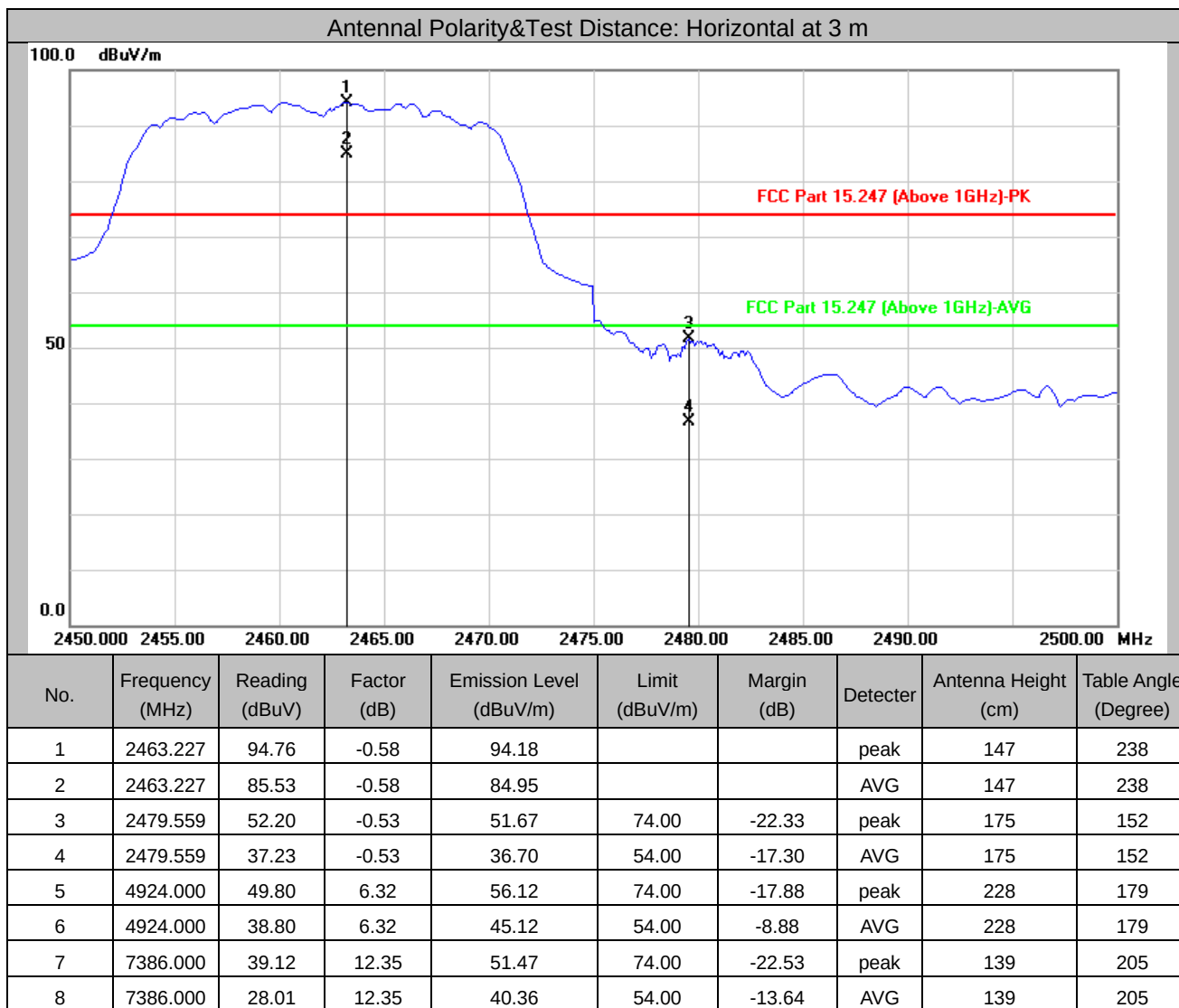
EUT Test Condition	802.11n HT20: 2437MHz TX		
Test Channel	Channel 6	Frequency Range	Above 1GHz
Power supply	AC 120V/60Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25.6deg. C, 62%RH	Tested By	Tech Chen

Antennal Polarity&Test Distance: Horizontal at 3 m									
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna Height (cm)	Table Angle (Degree)
1	2437.000	91.60	-0.65	90.95			peak	175	113
2	2437.000	83.63	-0.65	82.98			AVG	175	113
3	4874.000	50.82	6.16	56.98	74.00	-17.02	peak	195	228
4	4874.000	42.11	6.16	48.27	54.00	-5.73	AVG	195	228
5	7311.000	39.29	12.10	51.39	74.00	-22.61	peak	204	186
6	7311.000	29.55	12.10	41.65	54.00	-12.35	AVG	204	186
Antennal Polarity&Test Distance: Vertical at 3 m									
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna Height (cm)	Table Angle (Degree)
1	2437.000	91.83	-0.65	91.18			peak	158	220
2	2437.000	85.32	-0.65	84.67			AVG	158	220
3	4874.000	51.63	6.16	57.79	74.00	-16.21	peak	195	228
4	4874.000	37.51	6.16	43.67	54.00	-10.33	AVG	195	228
5	7311.000	40.07	12.10	52.17	74.00	-21.83	peak	204	186
6	7311.000	30.58	12.10	42.68	54.00	-11.32	AVG	204	186

Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value
3. 2437MHz: Fundamental frequency.

EUT Test Condition	802.11n HT20: 2462MHz TX		
Test channel	Channel 11	Frequency Range	Above 1GHz
Power supply	AC 120V/60Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25.6deg. C, 62%RH	Tested By	Tech Chen

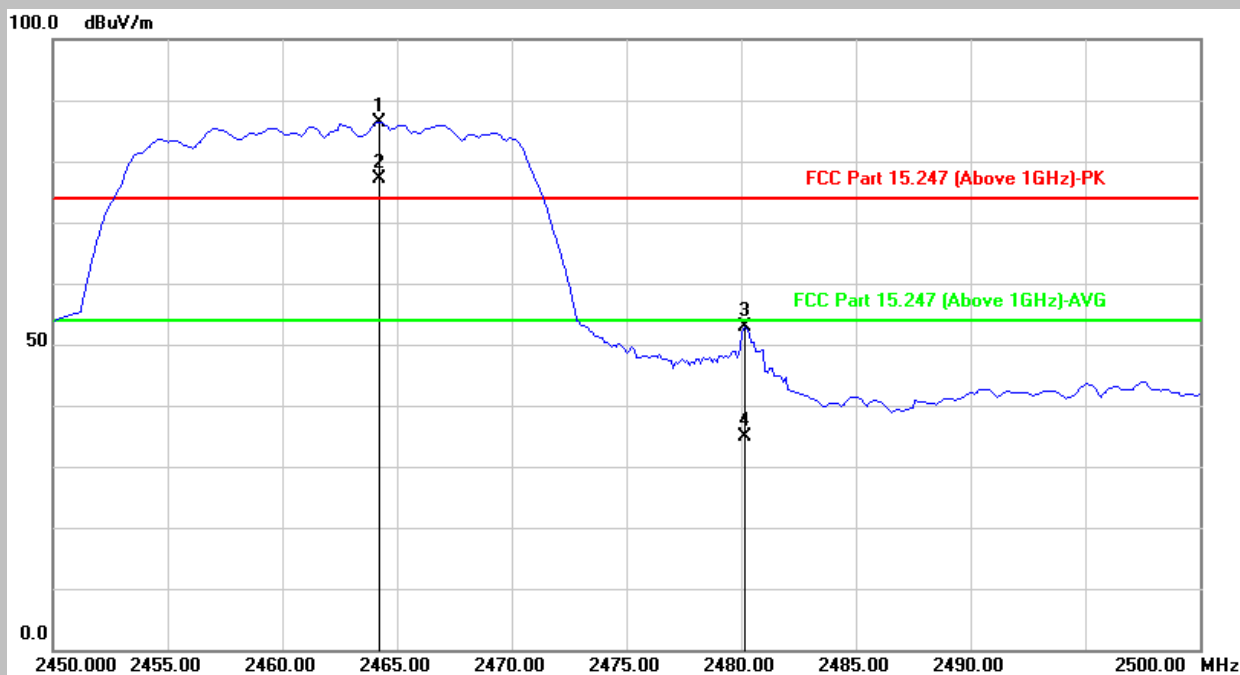


Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value
3. 2462MHz: Fundamental frequency.

EUT Test Condition	802.11n HT20: 2462MHz TX		
Test channel	Channel 11	Frequency Range	Above 1GHz
Power supply	AC 120V/60Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25.6deg. C, 62%RH	Tested By	Tech Chen

Antennal Polarity&Test Distance: Vertical at 3 m

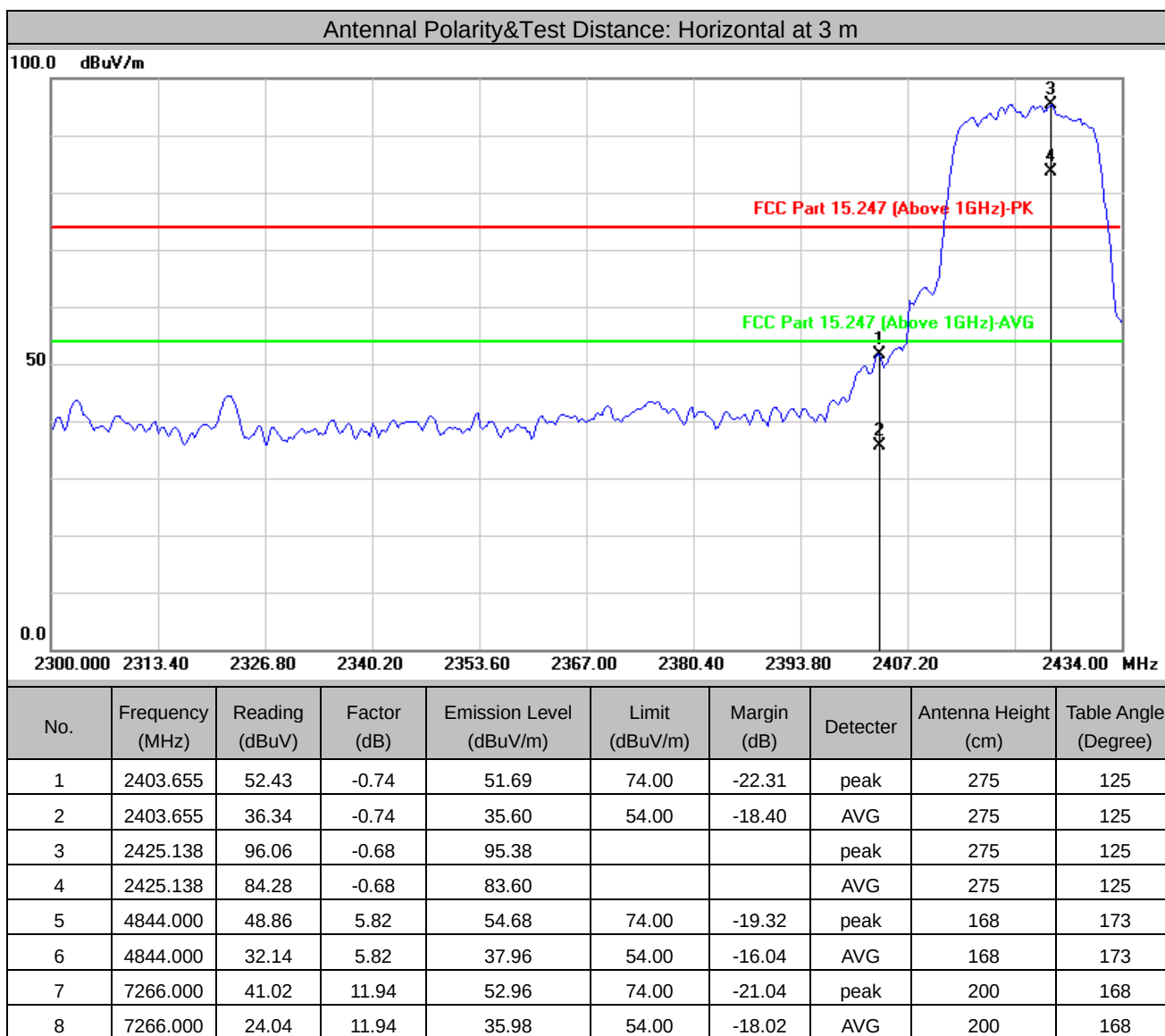


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna Height (cm)	Table Angle (Degree)
1	2464.229	86.96	-0.58	86.38			peak	168	275
2	2464.229	77.76	-0.58	77.18			AVG	168	275
3	2480.160	53.44	-0.52	52.92	74.00	-21.08	peak	186	245
4	2480.160	35.42	-0.52	34.90	54.00	-19.10	AVG	186	245
5	4926.000	48.81	6.31	55.12	74.00	-18.88	peak	205	188
6	4926.000	36.18	6.31	42.49	54.00	-11.51	AVG	205	188
7	7386.000	40.84	12.35	53.19	74.00	-20.81	peak	165	235
8	7386.000	29.66	12.35	42.01	54.00	-11.99	AVG	165	235

Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value
3. 2462MHz: Fundamental frequency.

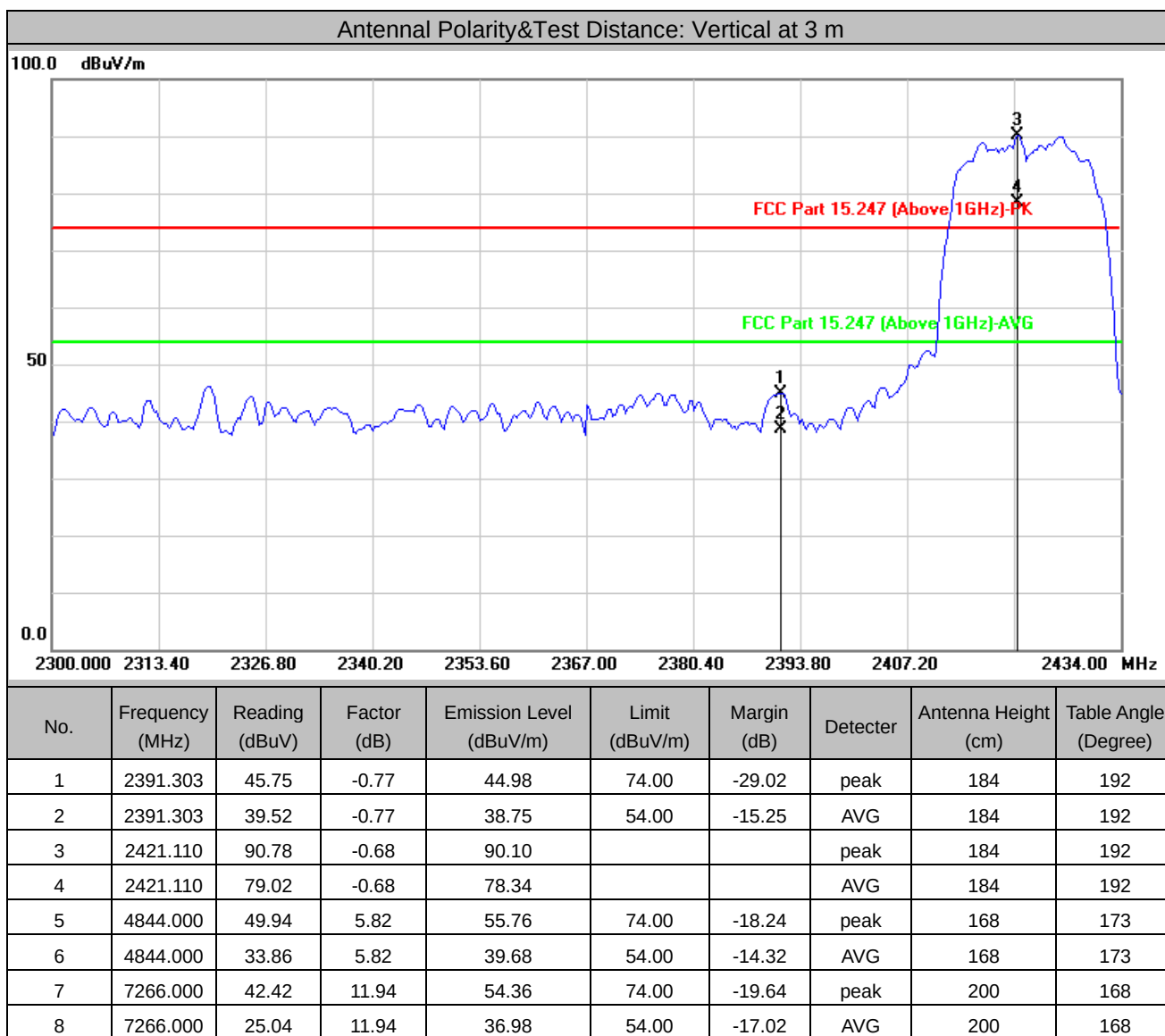
EUT Test Condition:	802.11n HT40: 2422MHz TX		
Test Channel	Channel 3	Frequency Range	Above 1GHz
Power supply	AC 120V/60Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25.6deg. C, 62%RH	Tested By	Tech Chen



Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value
3. 2422MHz: Fundamental frequency.

EUT Test Condition:	802.11n HT40: 2422MHz TX		
Test Channel	Channel 3	Frequency Range	Above 1GHz
Power supply	AC 120V/60Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25.6deg. C, 62%RH	Tested By	Tech Chen



Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value
3. 2422MHz: Fundamental frequency.

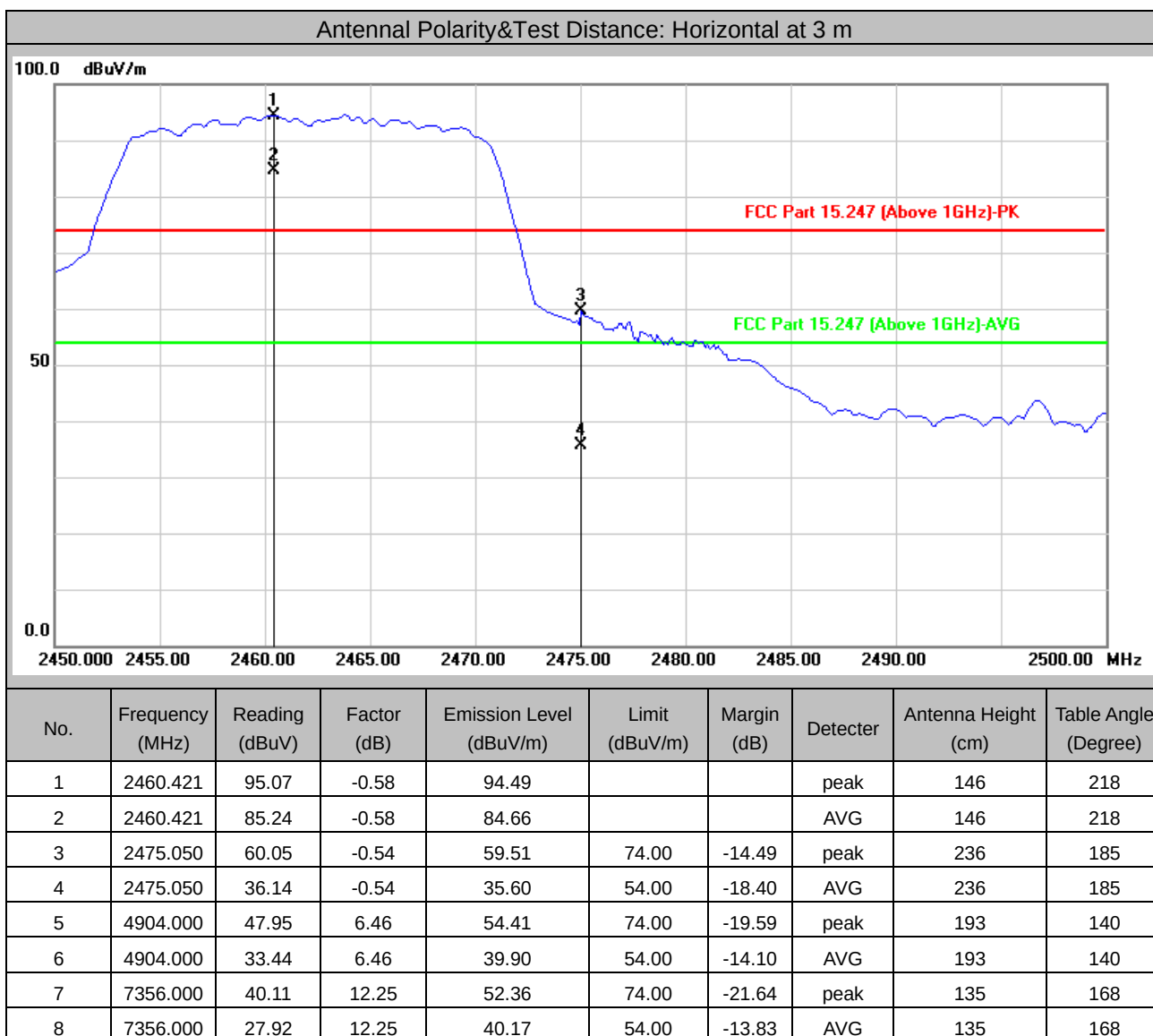
EUT Test Condition	802.11n HT40: 2437MHz TX		
Test Channel	Channel 6	Frequency Range	Above 1GHz
Power supply	AC 120V/60Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25.6deg. C, 62%RH	Tested By	Tech Chen

Antennal Polarity&Test Distance: Horizontal at 3 m									
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna Height (cm)	Table Angle (Degree)
1	2437.000	94.51	-0.65	93.86			peak	169	236
2	2437.000	84.00	-0.65	83.35			AVG	169	236
3	4874.000	50.22	6.16	56.38	74.00	-17.62	peak	221	151
4	4874.000	36.41	6.16	42.57	54.00	-11.43	AVG	221	151
5	7311.000	40.26	12.10	52.36	74.00	-21.64	peak	100	196
6	7311.000	26.46	12.10	38.56	54.00	-15.44	AVG	100	196
Antennal Polarity&Test Distance: Vertical at 3 m									
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna Height (cm)	Table Angle (Degree)
1	2437.000	94.33	-0.65	93.68			peak	100	199
2	2437.000	87.40	-0.65	86.75			AVG	100	199
3	4874.000	49.69	6.16	55.85	74.00	-18.15	peak	135	214
4	4874.000	35.96	6.16	42.12	54.00	-11.88	AVG	135	214
5	7311.000	40.28	12.10	52.38	74.00	-21.62	peak	100	179
6	7311.000	27.79	12.10	39.89	54.00	-14.11	AVG	100	179

Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value
3. 2437MHz: Fundamental frequency.

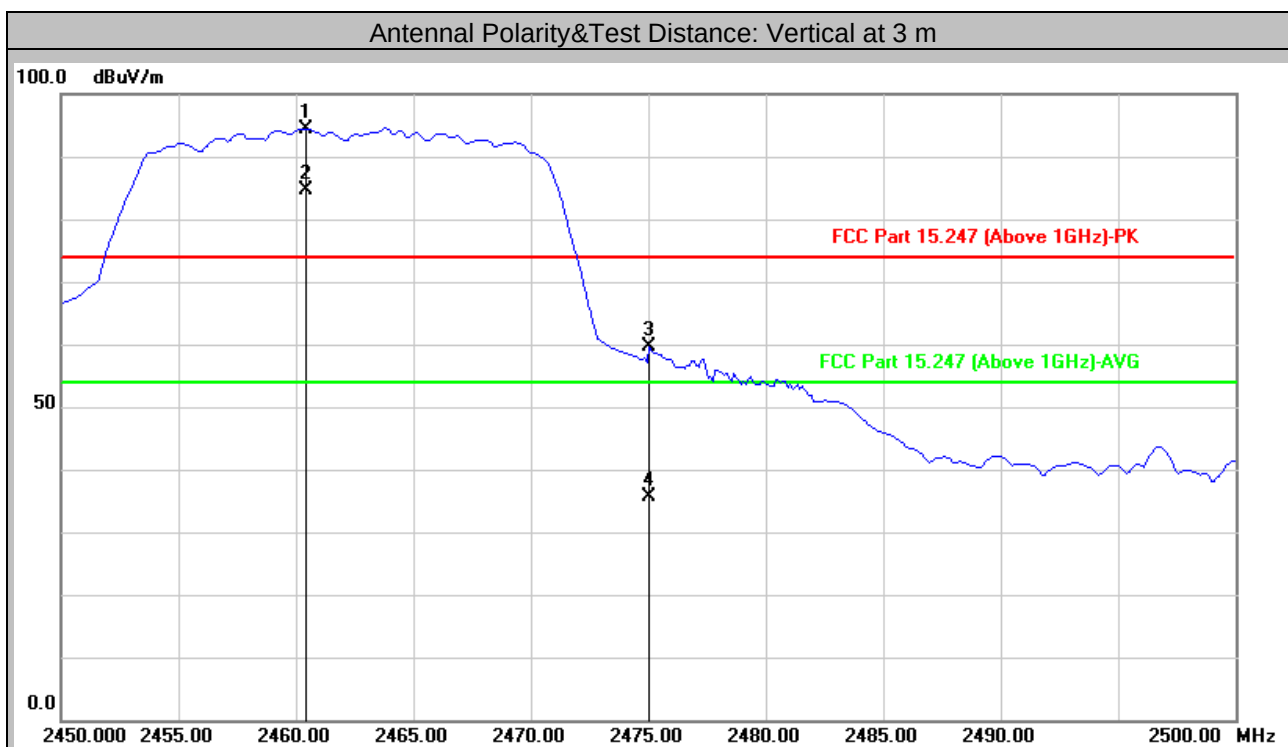
EUT Test Condition	802.11n HT40: 2452MHz TX		
Test Channel	Channel 9	Frequency Range	Above 1GHz
Power supply	AC 120V/60Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25.6deg. C, 62%RH	Tested By	Tech Chen



Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value
3. 2452MHz: Fundamental frequency.

EUT Test Condition	802.11n HT40: 2452MHz TX		
Test Channel	Channel 9	Frequency Range	Above 1GHz
Power supply	AC 120V/60Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25.6deg. C, 62%RH	Tested By	Tech Chen



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna Height (cm)	Table Angle (Degree)
1	2463.627	88.38	-0.58	87.80			peak	139	217
2	2463.627	78.93	-0.58	78.35			AVG	139	217
3	2475.050	52.27	-0.54	51.73	74.00	-22.27	peak	139	217
4	2475.050	36.68	-0.54	36.14	54.00	-17.86	AVG	139	217
5	4904.000	42.71	6.46	49.17	74.00	-24.83	peak	192	203
6	4904.000	31.68	6.46	38.14	54.00	-15.86	AVG	192	203
7	7356.000	39.73	12.25	51.98	74.00	-22.02	peak	158	178
8	7356.000	28.25	12.25	40.50	54.00	-13.50	AVG	158	178

Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamplifier Factor)
2. Margin value = Emission level – Limit value
3. 2452MHz: Fundamental frequency.

3.2 Conducted Emission Measurement

3.2.1 Limits of Conducted Emission Measurement

Frequency (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15 - 0.5	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

Note: 1. The lower limit shall apply at the transition frequencies.
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

3.2.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Due Date of Calibration
EMI Test Receiver Rohde&Schwarz	ESCI3	101418	2020-10-17
Artificial Mains Network Rohde&Schwarz	ENV216	3560.6550.15	2020-10-17
Test software FARAD	EZ EMC V1.1.4.2	N/A	N/A
Hygrothermograph Yuhuaze	HTC-1	NA	2020-10-19
Digital Multimeter FLUKE	15B+	43512617WS	2020-10-17

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA.
2. The test was performed in Shielded Room 1.

3.2.3 Test Procedures

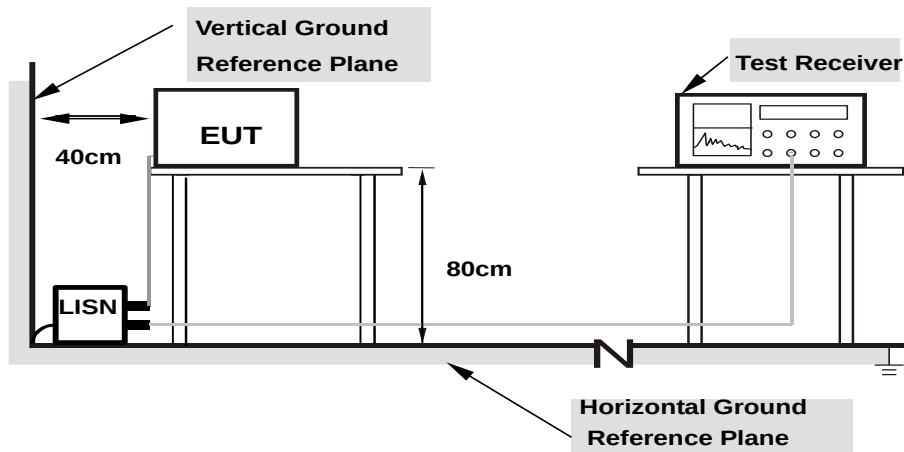
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/50uH of coupling impedance for the measuring instrument.
- Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit – 20dB) was not recorded.

Note: All modes of operation were investigated and the worst-case emissions are reported.

3.2.4 Deviation from Test Standard

No deviation.

3.2.5 Test setup



Note: 1.Support units were connected to second LISN.

2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

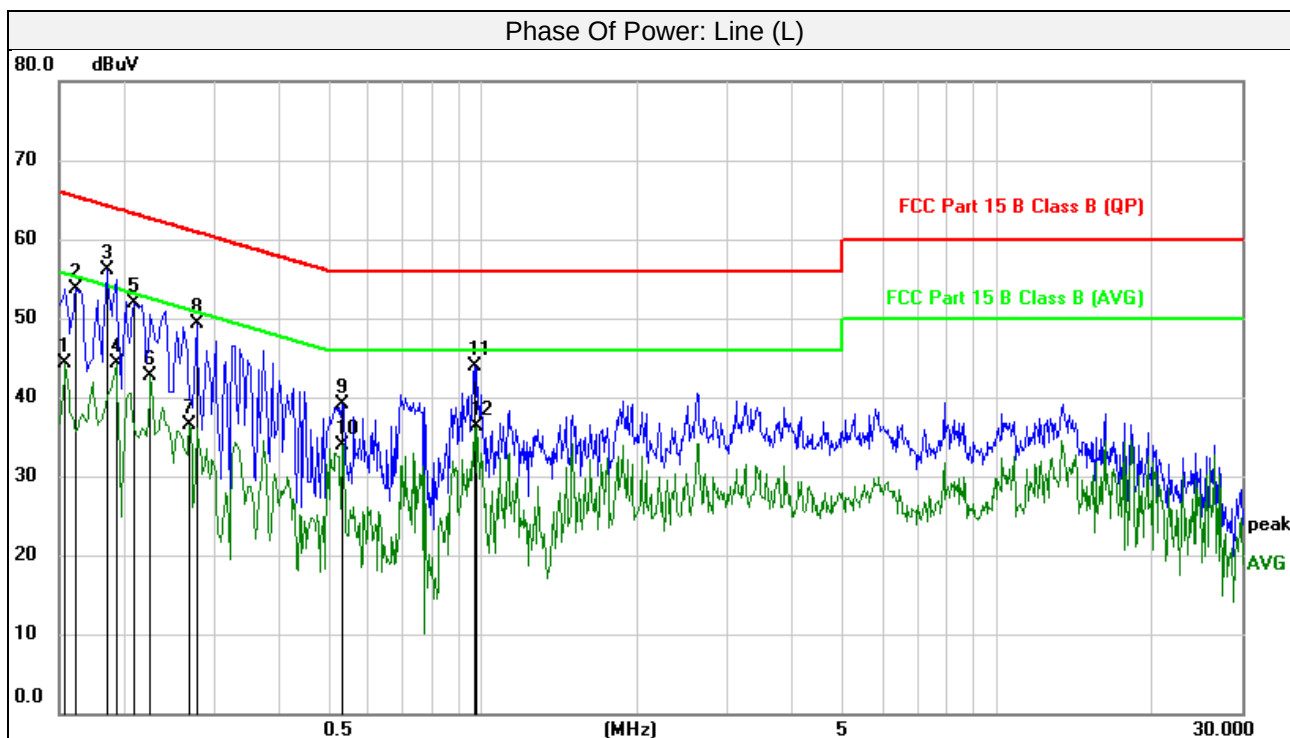
3.2.6 EUT Operating Conditions

- a. Placed the EUT on the testing table.
- b. Set the EUT under transmission condition continuously at specific channel frequency.

3.2.7 Test Results

Conducted worst-case data (802.11b CH1)

Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution andwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Power supply	AC 120V/60Hz	Environmental Conditions	25°C, 60%RH
Tested by	Tech Chen	Test Date	2020/12/11

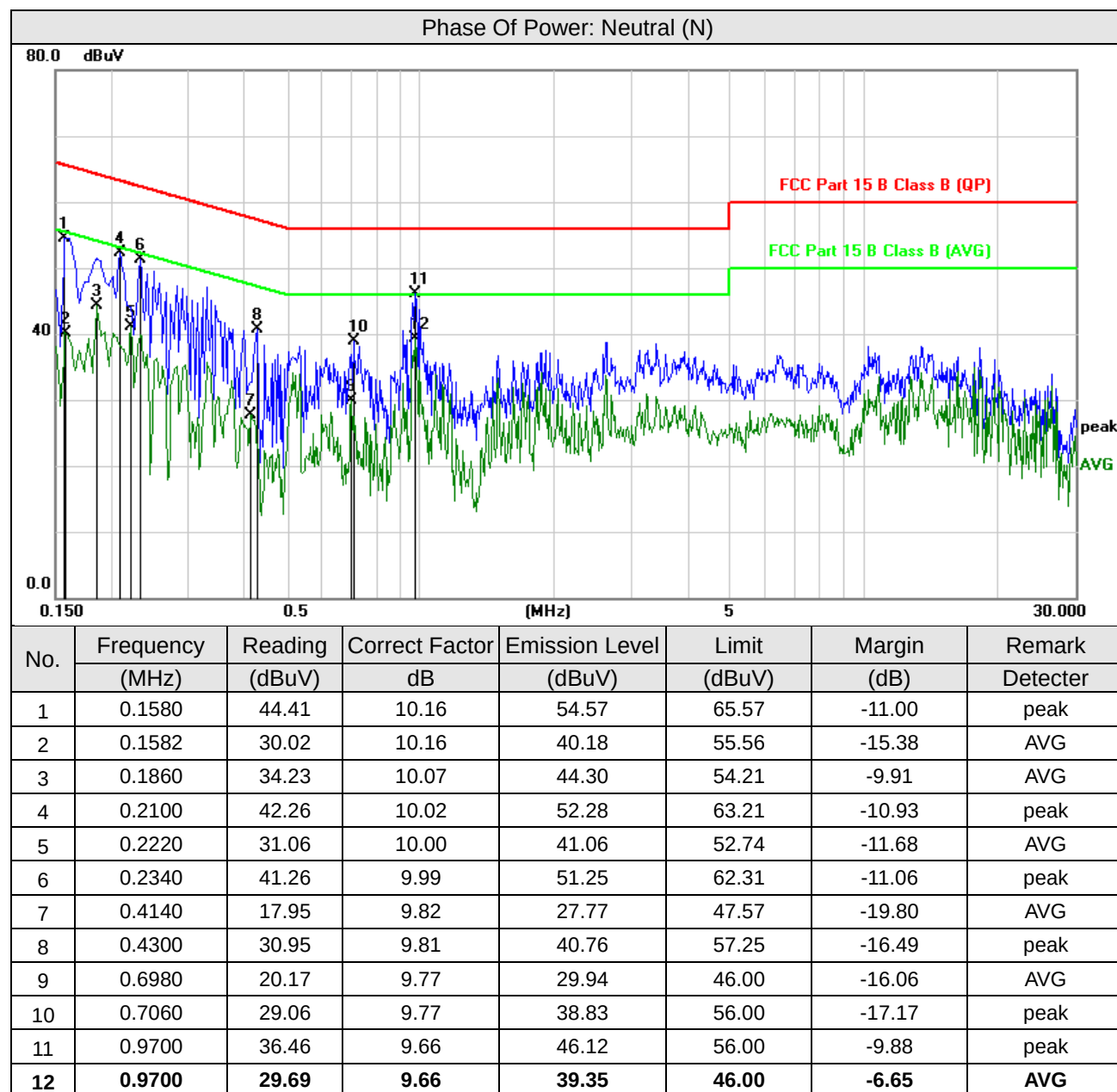


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB)	Emission Level (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1539	34.12	10.18	44.30	55.79	-11.49	AVG
2	0.1620	43.49	10.15	53.64	65.36	-11.72	peak
3	0.1860	45.99	10.07	56.06	64.21	-8.15	peak
4	0.1940	34.27	10.05	44.32	53.86	-9.54	AVG
5	0.2100	41.96	10.02	51.98	63.21	-11.23	peak
6	0.2260	32.75	10.00	42.75	52.60	-9.85	AVG
7	0.2700	26.50	9.94	36.44	51.12	-14.68	AVG
8	0.2779	39.41	9.93	49.34	60.88	-11.54	peak
9	0.5340	29.33	9.78	39.11	56.00	-16.89	peak
10	0.5340	24.10	9.78	33.88	46.00	-12.12	AVG
11	0.9660	34.23	9.66	43.89	56.00	-12.11	peak
12	0.9780	26.68	9.65	36.33	46.00	-9.67	AVG

REMARKS:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution andwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Power supply	AC 120V/60Hz	Environmental Conditions	25°C, 60%RH
Tested by	Tech Chen	Test Date	2020/12/11


REMARKS:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

3.3 6dB Bandwidth Measurement

3.3.1 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

3.3.2 Test Setup



3.3.3 Test Instruments

Refer to section 10.1 to get information of above instrument.

3.3.4 Test Procedure

- Set resolution bandwidth (RBW) = 100kHz
- Set the video bandwidth (VBW) $\geq 3 \times$ RBW, Detector = Peak.
- Trace mode = max hold.
- Sweep = auto couple.
- Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission

3.3.5 Deviation from Test Standard

No deviation.

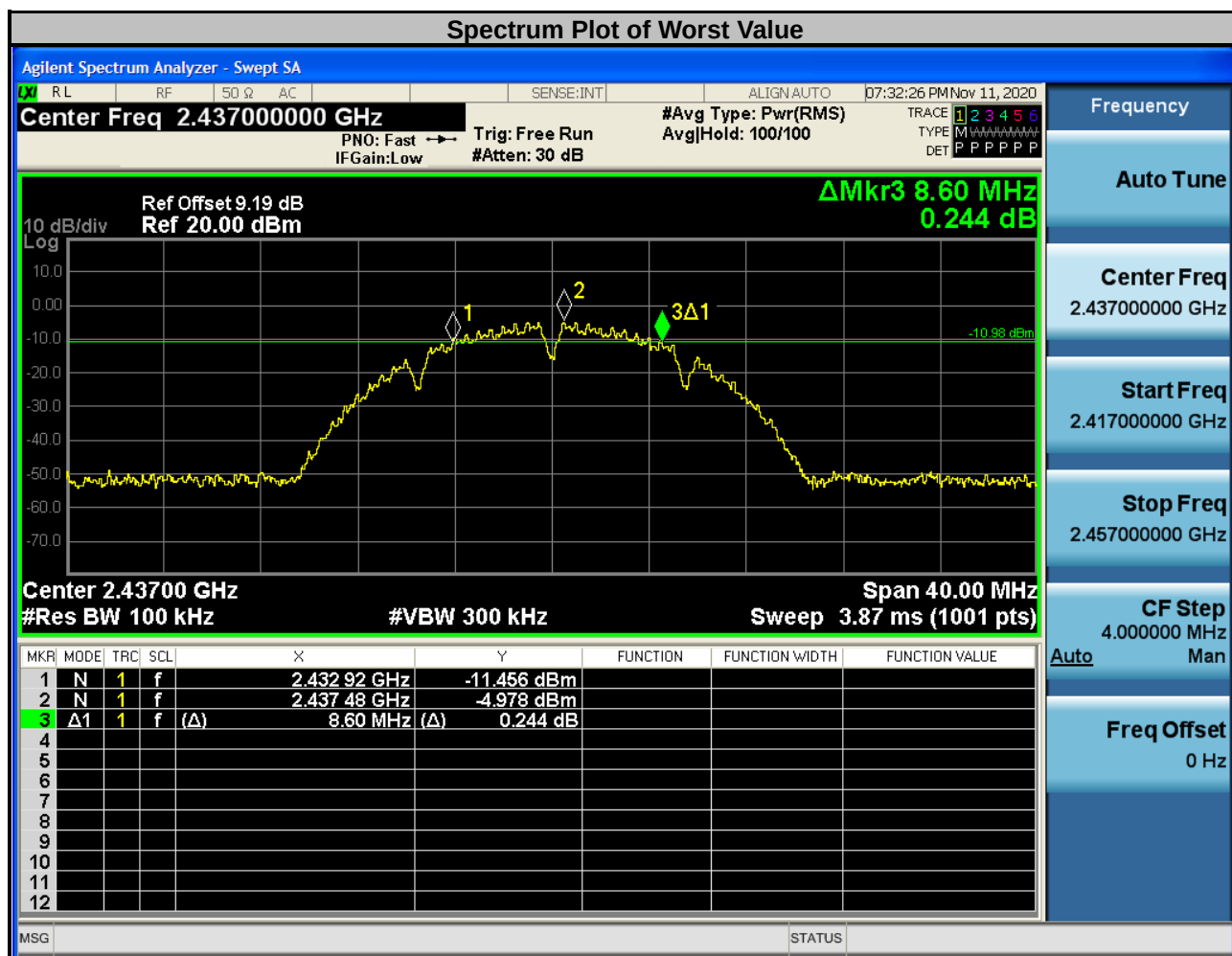
3.3.6 EUT Operating Conditions

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

3.3.7 Test Result

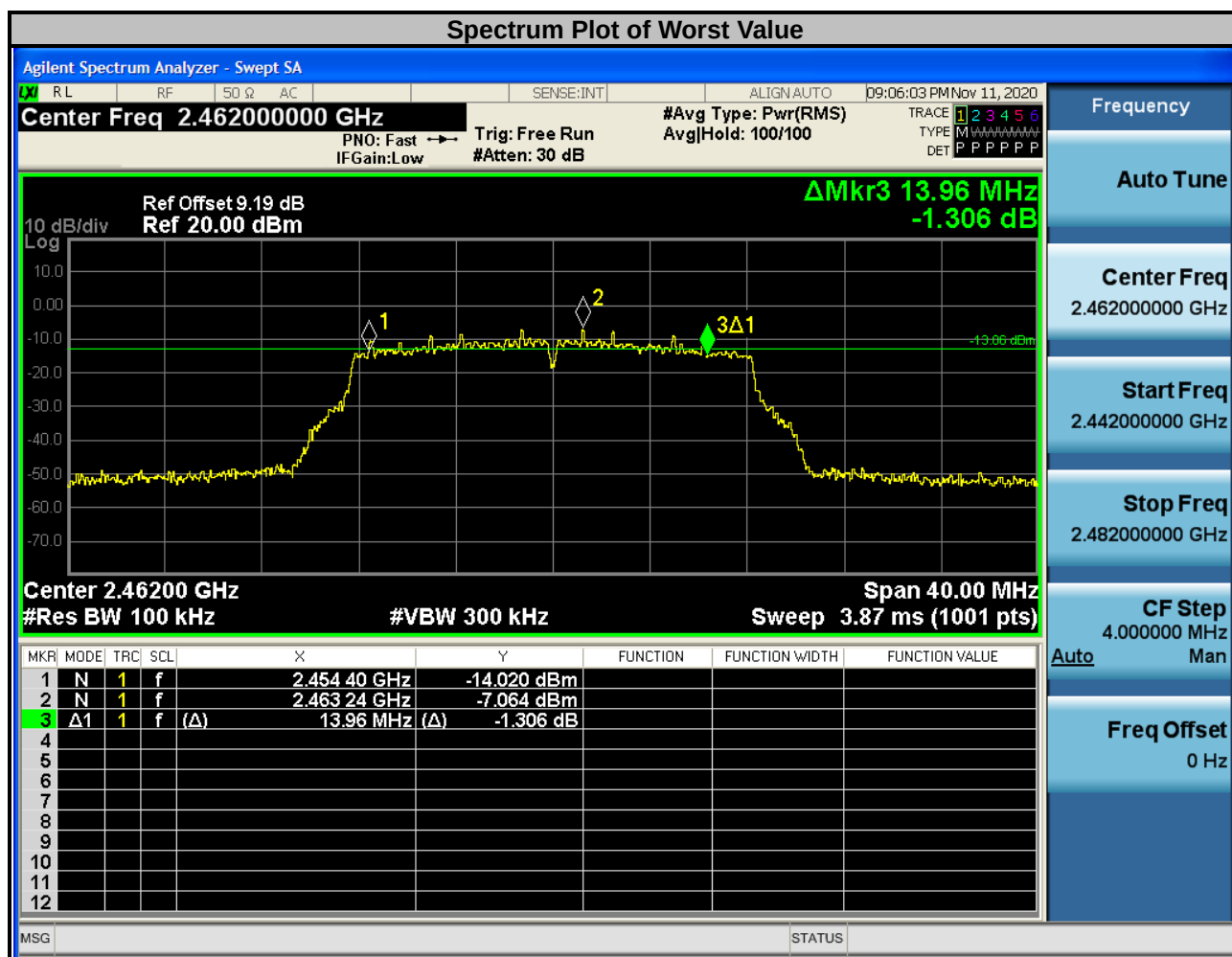
802.11b

Channel	Frequency (MHz)	6dB Bandwidth(MHz)		Minimum Limit (MHz)	Pass / Fail
		Ant 0	Ant 1		
1	2412	9.12	9.12	0.5	Pass
6	2437	8.68	8.60	0.5	Pass
11	2462	9.16	9.12	0.5	Pass



802.11g

Channel	Frequency (MHz)	6dB Bandwidth(MHz)		Minimum Limit (MHz)	Pass / Fail
		Ant 0	Ant 1		
1	2412	14.84	15.20	0.5	Pass
6	2437	15.20	15.44	0.5	Pass
11	2462	15.20	13.96	0.5	Pass



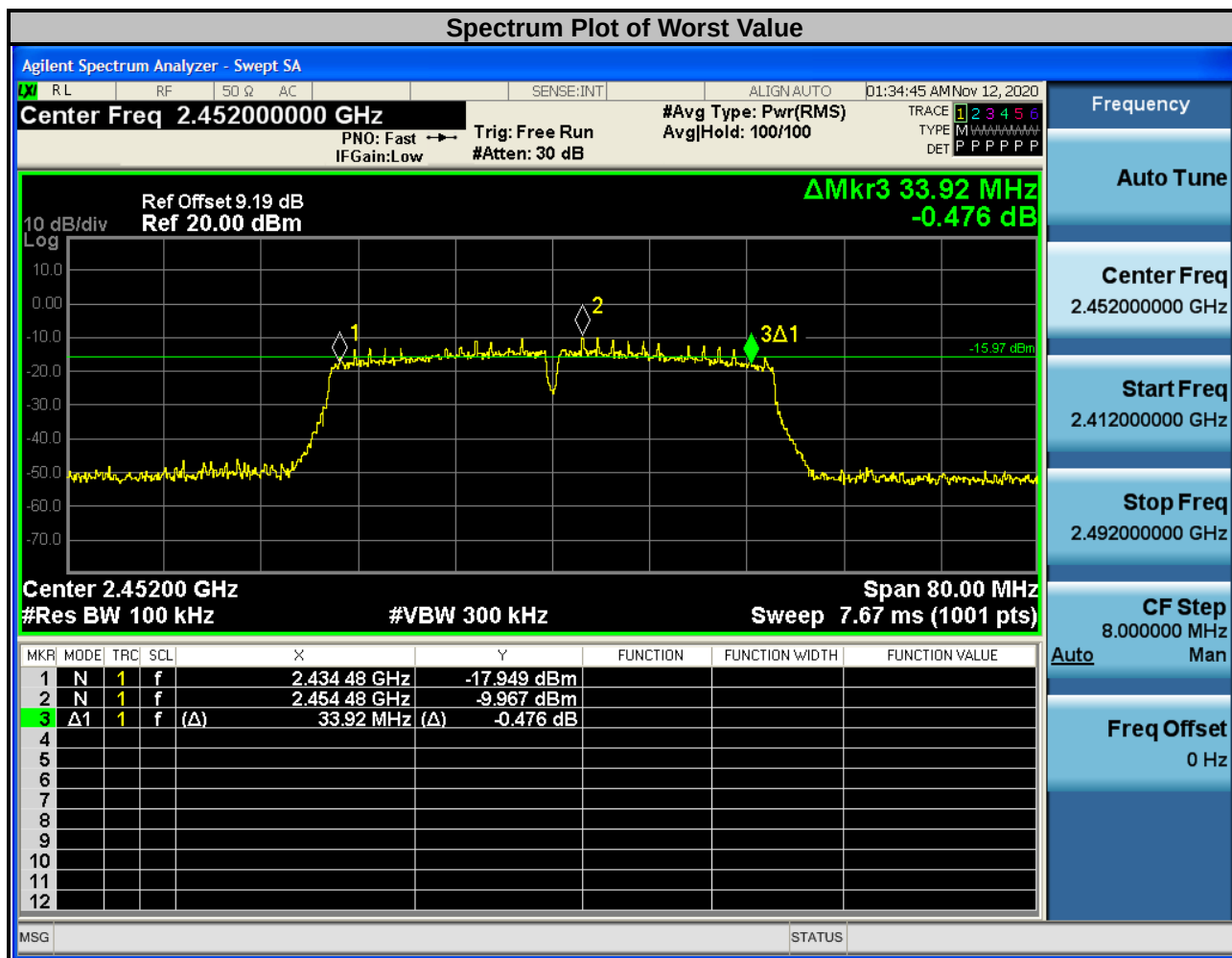
802.11n HT20

Channel	Frequency (MHz)	6dB Bandwidth(MHz)		Minimum Limit (MHz)	Pass / Fail
		Ant 0	Ant 1		
1	2412	14.28	15.72	0.5	Pass
6	2437	13.00	16.00	0.5	Pass
11	2462	15.40	16.36	0.5	Pass



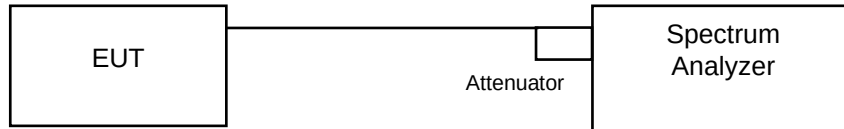
802.11n HT40

Channel	Frequency (MHz)	6dB Bandwidth(MHz)		Minimum Limit (MHz)	Pass / Fail
		Ant 0	Ant 1		
3	2422	35.12	35.84	0.5	Pass
6	2437	35.20	35.20	0.5	Pass
9	2452	33.92	35.20	0.5	Pass



3.4 Occupied Bandwidth Measurement

3.4.1 Test Setup



3.4.2 Test Instruments

Refer to section 10.1 to get information of above instrument.

3.4.3 Test Procedure

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with resolution bandwidth in the range of 1% to 5% of the anticipated emission bandwidth, and a video bandwidth at least 3x the resolution bandwidth and set the detector to peak. The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5 %of the total mean power of a given emission.

3.4.4 Deviation from Test Standard

No deviation.

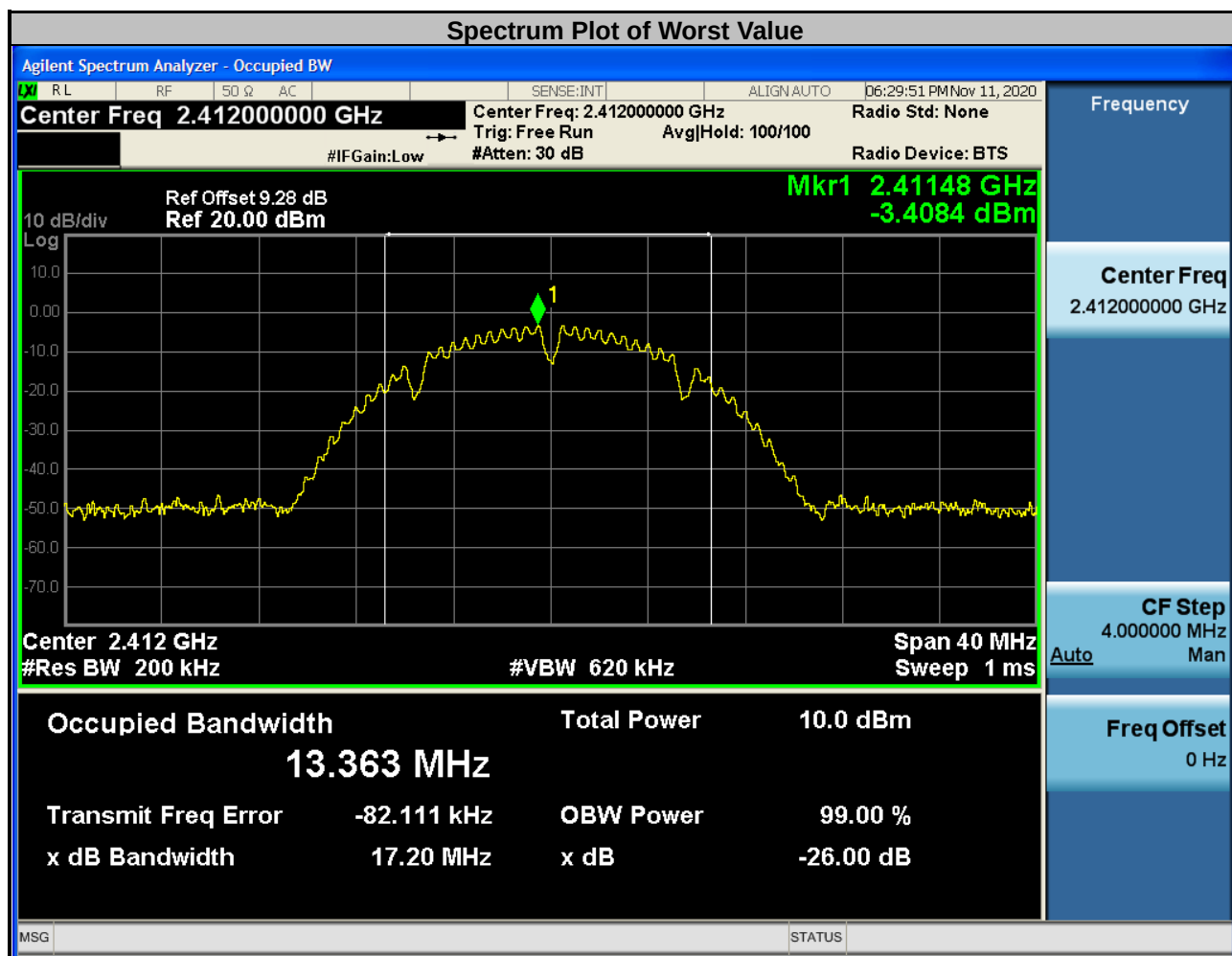
3.4.5 EUT Operating Conditions

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

3.4.6 Test Results

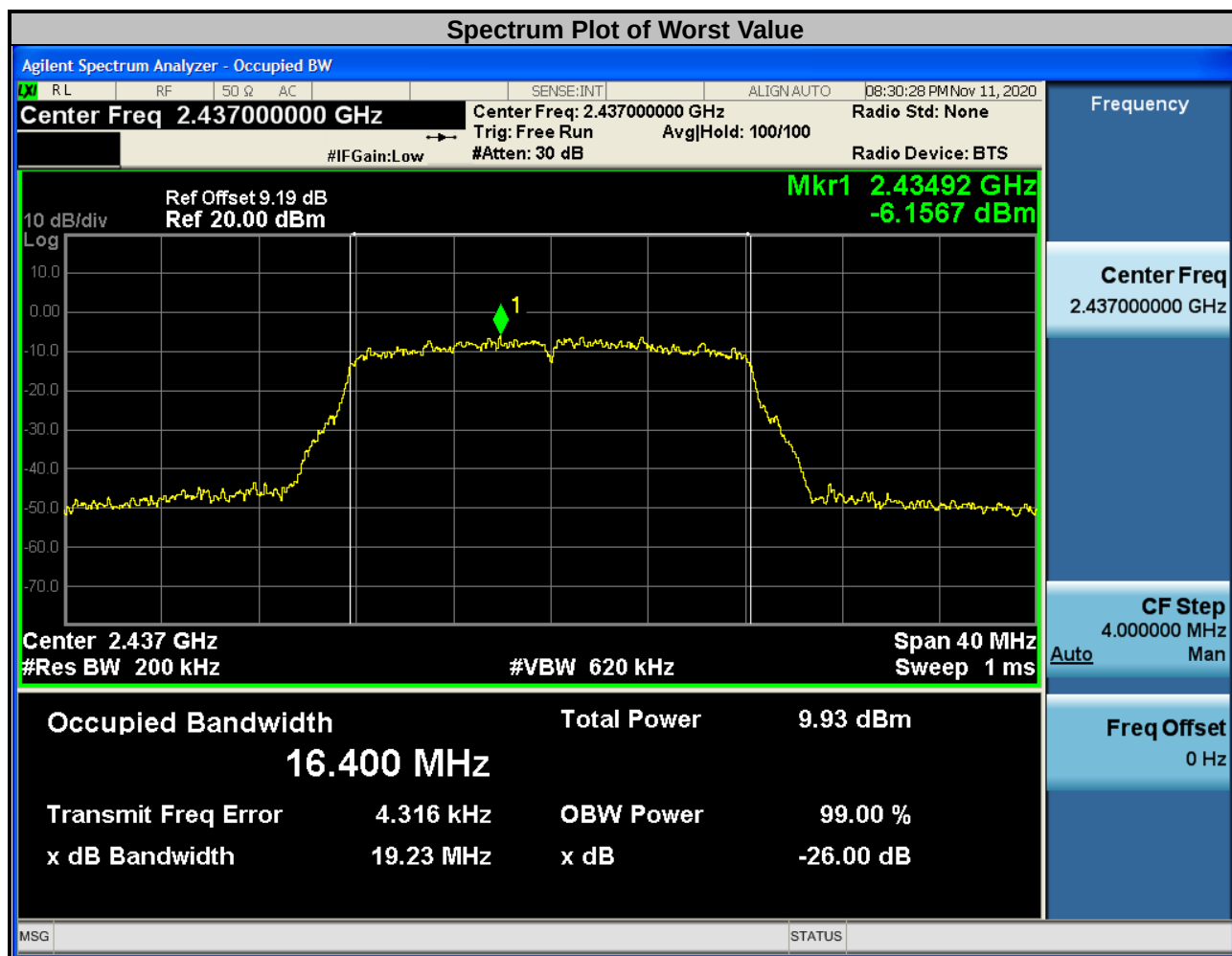
802.11b

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)		Pass / Fail
		Ant 0	Ant 1	
1	2412	13.363	13.327	Pass
6	2437	13.326	13.326	Pass
11	2462	13.305	13.255	Pass



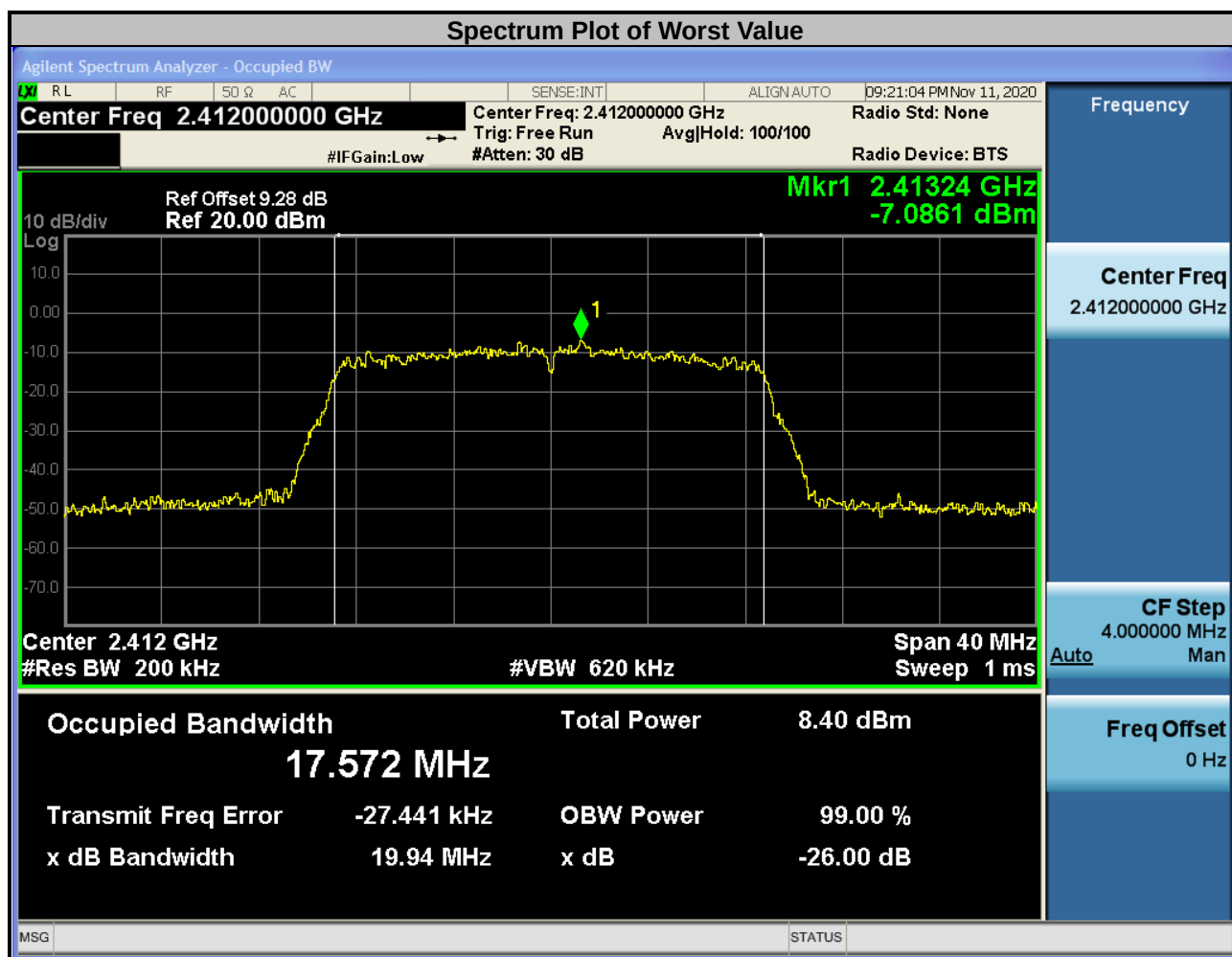
802.11g

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)		Pass / Fail
		Ant 0	Ant 1	
1	2412	16.398	16.347	Pass
6	2437	16.400	16.369	Pass
11	2462	16.399	16.385	Pass



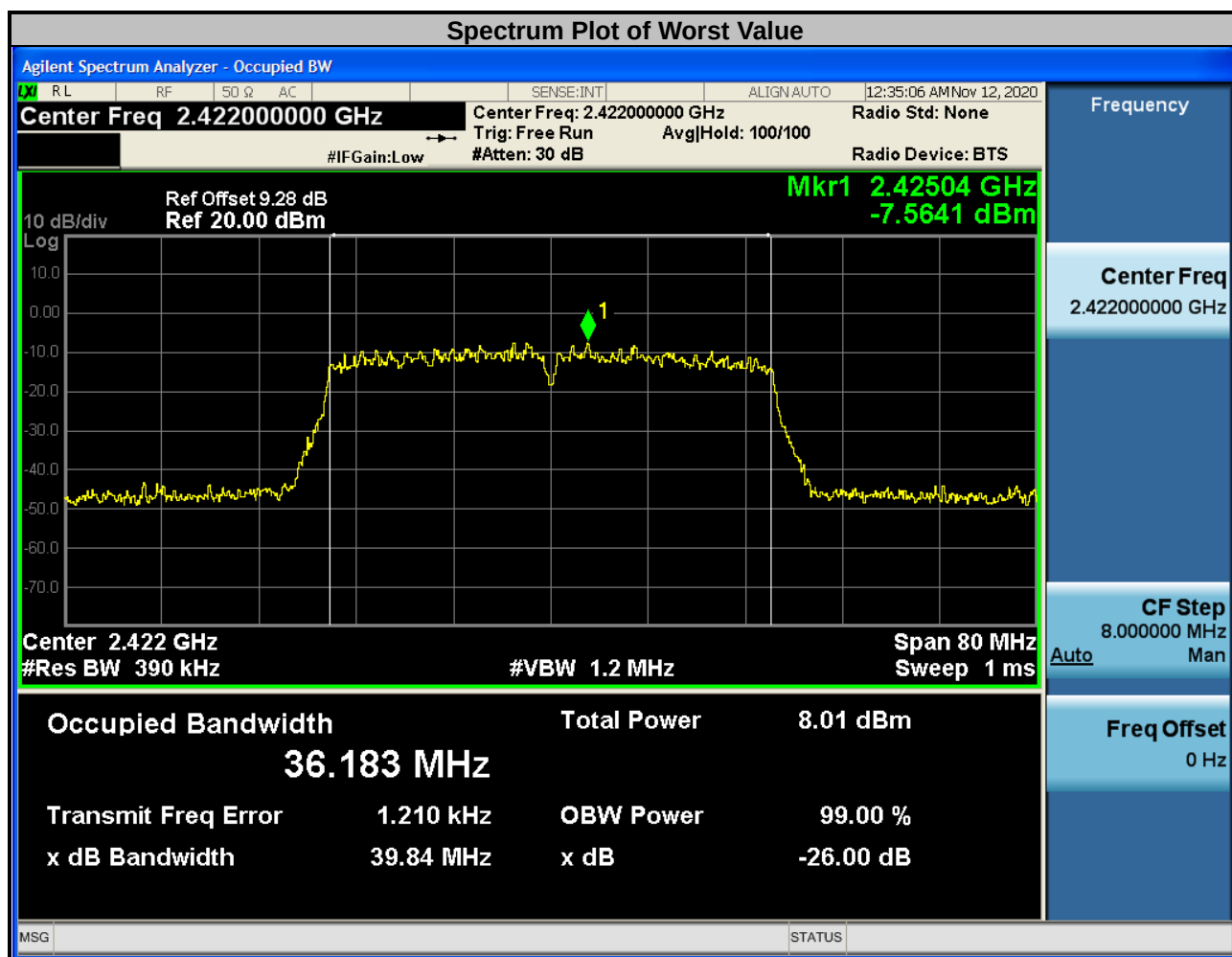
802.11n HT20

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)		Pass / Fail
		Ant 0	Ant 1	
1	2412	17.572	17.500	Pass
6	2437	17.568	17.529	Pass
11	2462	17.566	17.484	Pass



802.11n HT40

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)		Pass / Fail
		Ant 0	Ant 1	
3	2422	36.133	36.183	Pass
6	2437	36.125	36.126	Pass
9	2452	36.028	36.037	Pass

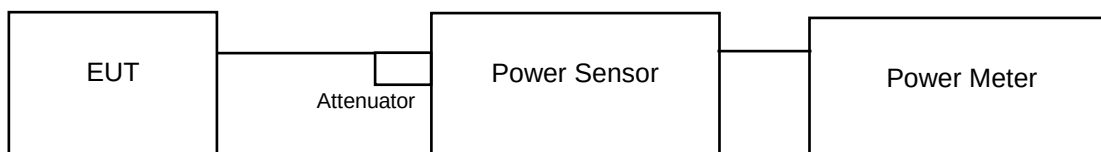


3.5 Conducted Output Power Measurement

3.5.1 Limits of Conducted Output Power Measurement

For systems using digital modulation in the 2400–2483.5 MHzbands: 1 Watt (30dBm)

3.5.2 Test Setup



3.5.3 Test Instruments

Refer to section 10.1 to get information of above instrument.

3.5.4 Test Procedures

A peak / average power sensor was used on the output port of the EUT. A power meter was used to read the response of the peak / average power sensor. Record the power level.

3.5.5 Deviation from Test Standard

No deviation.

3.5.6 EUT Operating Conditions

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

3.5.7 Test Results

PK power:

802.11b

CH.	Fre. (MHz)	Average Power (mW)		Average Power (dBm)		Total power (mW)	Total power (dBm)	Limit (dBm)
		Ant 0	Ant1	Ant 0	Ant1			
1	2412	5.31	4.60	7.25	6.63	10.00	10.00	29.35
6	2437	6.11	4.80	7.86	6.81	10.96	10.40	29.35
11	2462	3.51	5.15	5.45	7.12	8.71	9.40	29.35

802.11g

CH.	Fre. (MHz)	Average Power (mW)		Average Power (dBm)		Total power (mW)	Total power (dBm)	Limit (dBm)
		Ant 0	Ant1	Ant 0	Ant1			
1	2412	10.26	8.34	10.11	9.21	18.62	12.70	29.35
6	2437	11.12	9.33	10.46	9.70	20.42	13.10	29.35
11	2462	6.03	9.06	7.80	9.57	15.14	11.80	29.35

802.11n HT20

CH.	Fre. (MHz)	Average Power (mW)		Average Power (dBm)		Total power (mW)	Total power (dBm)	Limit (dBm)
		Ant 0	Ant1	Ant 0	Ant1			
1	2412	8.24	7.98	9.16	9.02	16.22	12.10	29.35
6	2437	8.53	9.10	9.31	9.59	17.78	12.50	29.35
11	2462	4.86	9.08	6.87	9.58	13.80	11.40	29.35

802.11n HT40

CH.	Fre. (MHz)	Average Power (mW)		Average Power (dBm)		Total power (mW)	Total power (dBm)	Limit (dBm)
		Ant 0	Ant1	Ant 0	Ant1			
1	2422	9.29	7.71	9.68	8.87	16.98	12.30	29.35
6	2437	10.54	8.63	10.23	9.36	19.05	12.80	29.35
11	2452	11.02	10.28	10.42	10.12	21.38	13.30	29.35

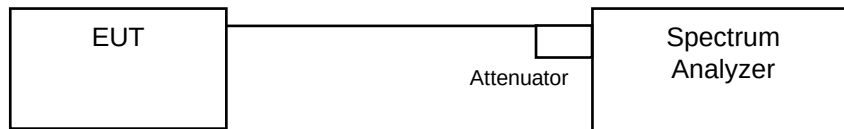
Directional gain = 3.64dBi + 10*log(2)=6.65dBi >6dBi, so the power density limit need to reduce 0.65dB

3.6 Power Spectral Density Measurement

3.6.1 Limits of Power Spectral Density Measurement

The Maximum of Power Spectral Density Measurement is 8dBm.

3.6.2 Test Setup



3.6.3 Test Instruments

Refer to section 10.1 to get information of above instrument.

3.6.4 Test Procedure

- Set the RBW = 3 kHz, VBW = 10 kHz, Detector = peak.
- Sweep time = auto couple, Trace mode = max hold, allow trace to fully stabilize.
- Use the peak marker function to determine the maximum power level in any 100 kHz bandsegment within the fundamental EBW.

3.6.5 Deviation from Test Standard

No deviation.

3.6.6 EUT Operating Condition

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

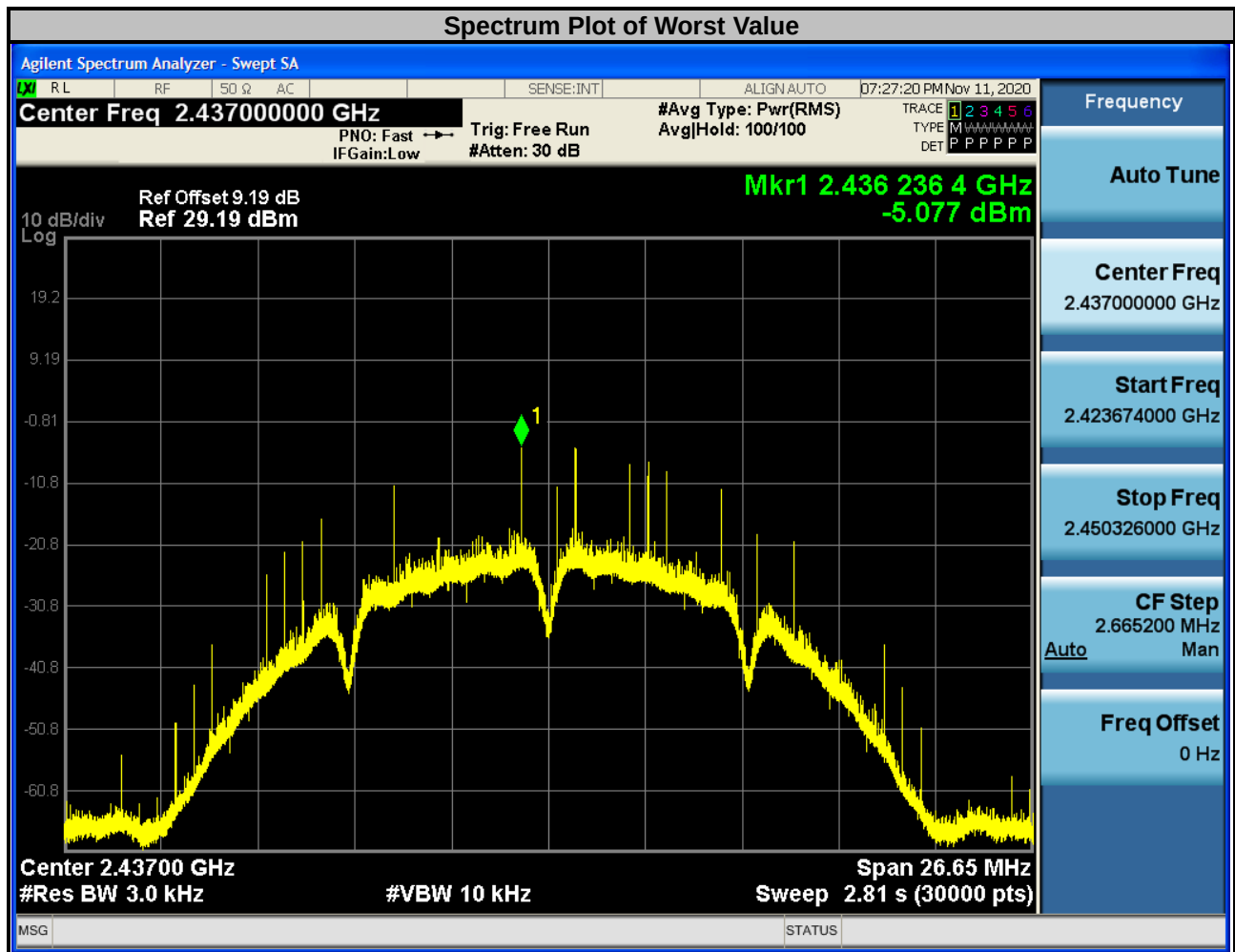
3.6.7 Test Results

802.11b:

Channel	Frequency (MHz)	PSD (dBm/3kHz)		Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass / Fail
		Ant 0	Ant 1			
1	2412	-5.71	-6.39	-3.03	7.35	Pass
6	2437	-5.08	-6.09	-2.55	7.35	Pass
11	2462	-7.51	-7.49	-4.49	7.35	Pass

Note:

1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across ponding frequency bins on the various outputs by computer
2. Directional gain = $3.64\text{dBi} + 10 \cdot \log(2) = 6.65\text{dBi} > 6\text{dBi}$, so the power density limit need to reduce 0.65dB

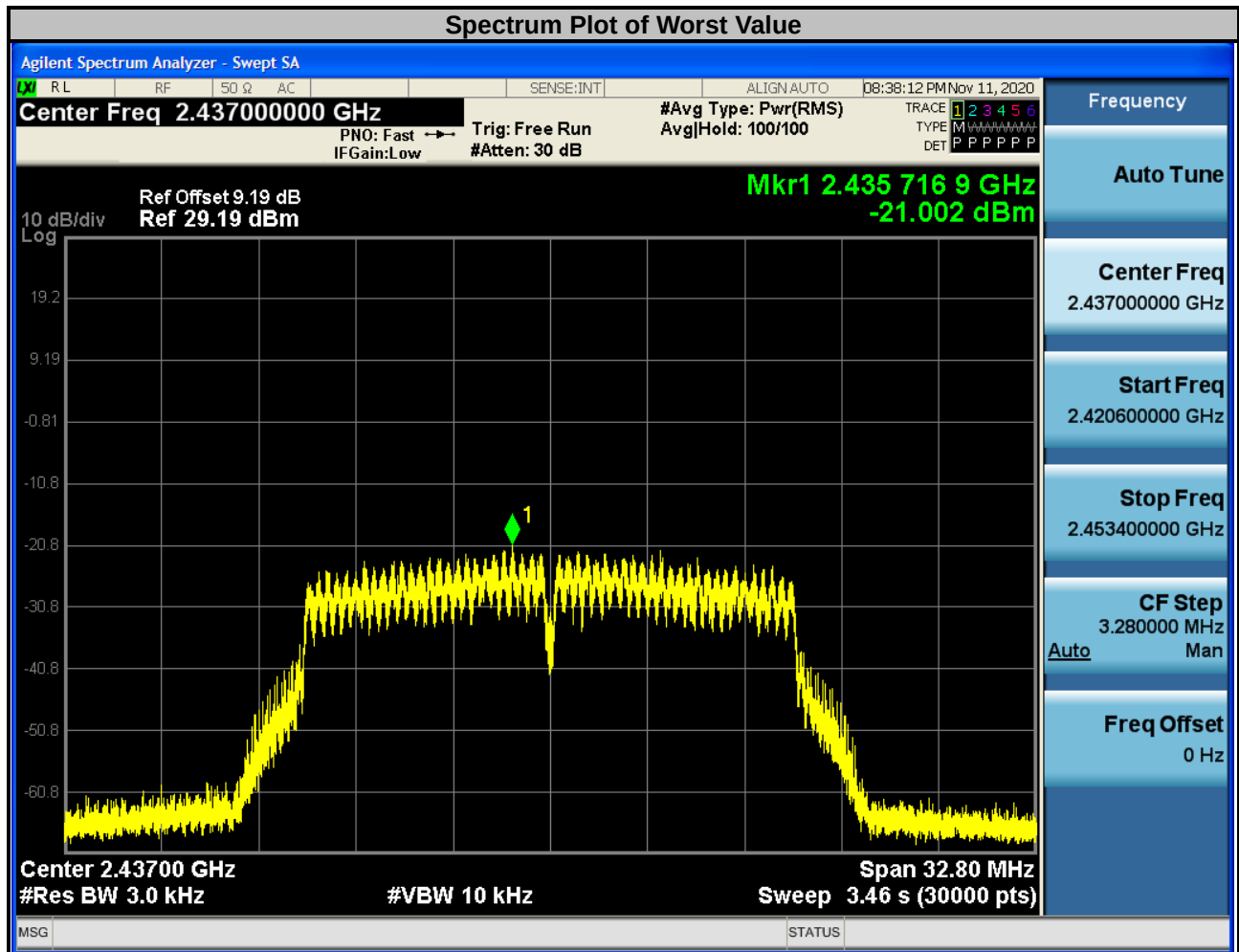


802.11g:

Channel	Frequency (MHz)	PSD (dBm/3kHz)		Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass / Fail
		Ant 0	Ant 1			
1	2412	-21.18	-23.08	-19.02	7.35	Pass
6	2437	-21.00	-21.91	-18.42	7.35	Pass
11	2462	-24.00	-21.77	-19.73	7.35	Pass

Note:

1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across ponding frequency bins on the various outputs by computer
2. Directional gain = 3.64dBi + 10*log(2) = 6.65dBi > 6dBi, so the power density limit need to reduce 0.65dB

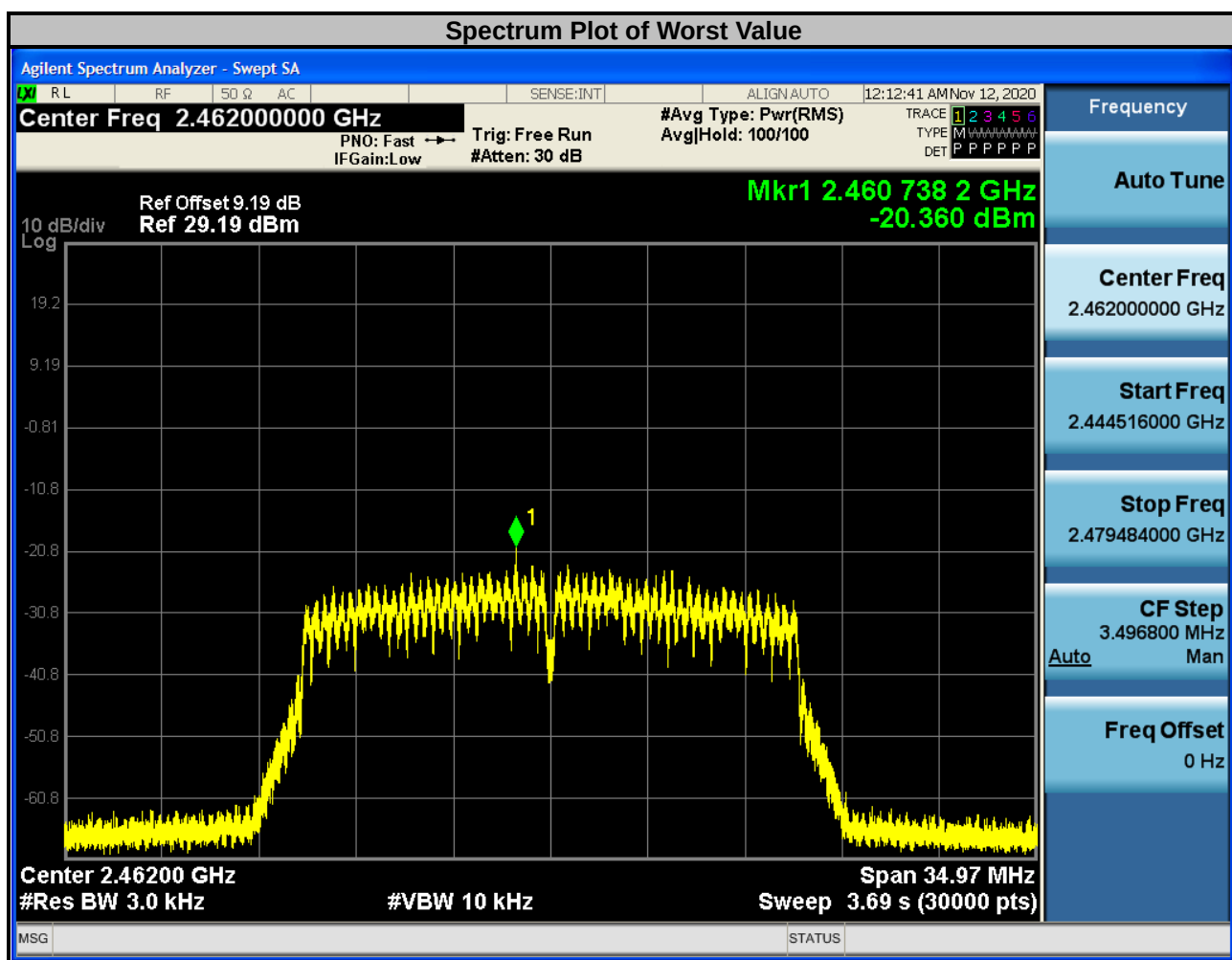


802.11n HT20:

Channel	Frequency (MHz)	PSD (dBm/3kHz)		Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass / Fail
		Ant 0	Ant 1			
1	2412	-21.78	-21.12	-18.56	7.35	Pass
6	2437	-21.93	-22.01	-18.96	7.35	Pass
11	2462	-23.20	-20.36	-18.54	7.35	Pass

Note:

1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across ponding frequency bins on the various outputs by computer
2. Directional gain = $3.64\text{dBi} + 10 \cdot \log(2) = 6.65\text{dBi} > 6\text{dBi}$, so the power density limit need to reduce 0.65dB


802.11n HT40:

Hwa-Hsing (Dongguan) Testing Co., Ltd.

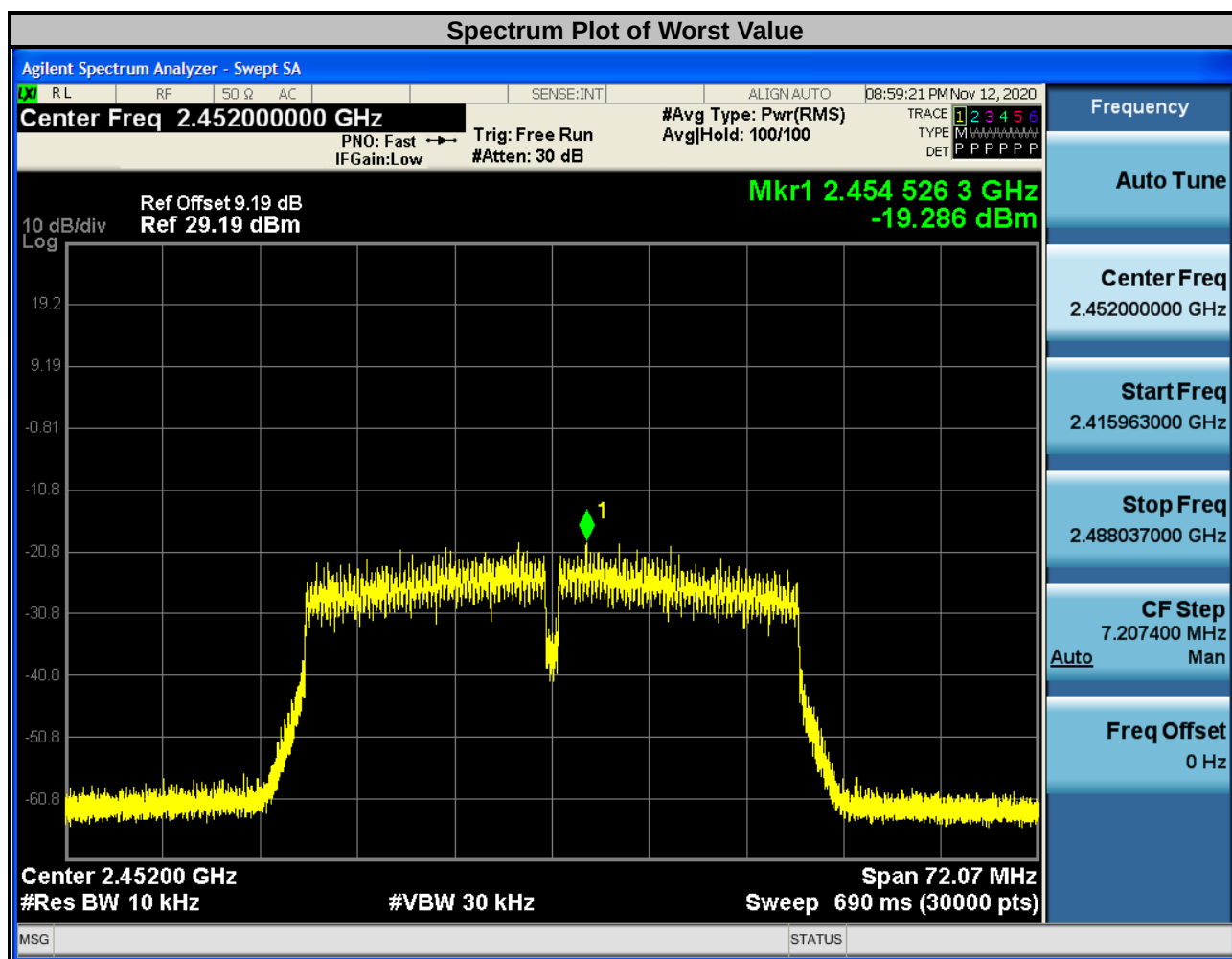
No.101, Bld N1, Yuyuan 2Rd, Yuyuan
Industrial Park, HuangJiang Town, Dongguan,
China

Tel: 0769-83078199
Web.: www.hwa-hsing.com
E-Mail: customerservice.dg@hwa-hsing.com

Channel	Frequency (MHz)	PSD (dBm/3kHz)		Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass / Fail
		Ant 0	Ant 1			
3	2422	-25.32	-26.69	-22.94	7.35	Pass
6	2437	-24.54	-25.93	-22.17	7.35	Pass
9	2452	-24.33	-19.29	-18.11	7.35	Pass

Note:

1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across ponding frequency bins on the various outputs by computer
2. Directional gain = $3.64\text{dBi} + 10 \cdot \log(2) = 6.65\text{dBi} > 6\text{dBi}$, so the power density limit need to reduce 0.65dB



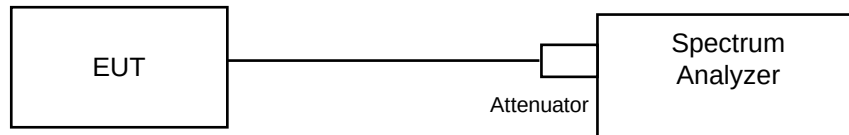
3.7 Conducted Out of Band Emission Measurement

3.7.1 Limits of Conducted Out of Band Emission Measurement

For average power: -30dBc of the highest emission level of operating band /100kHz Resolution Bandwidth.

For peak power: -20dBc of the highest emission level of operating band /100kHz Resolution Bandwidth.

3.7.2 Test Setup



3.7.3 Test Instruments

Refer to section 10.1 to get information of above instrument.

3.7.4 Test Procedure

Measurement procedure REF

1. Set the RBW = 100 kHz.
2. Set the VBW $\geq$ 300 kHz.
3. Detector = peak.
4. Sweep time = auto couple.
5. Trace mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum power level in any 100 kHzband segment within the fundamental EBW.

3.7.5 Measurement procedure OOBE

1. Set RBW = 100 kHz.
2. Set VBW $\geq$ 300 kHz.
3. Detector = peak.
4. Sweep = auto couple.
5. Trace Mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum amplitude level.

3.7.6 Deviation from Test Standard

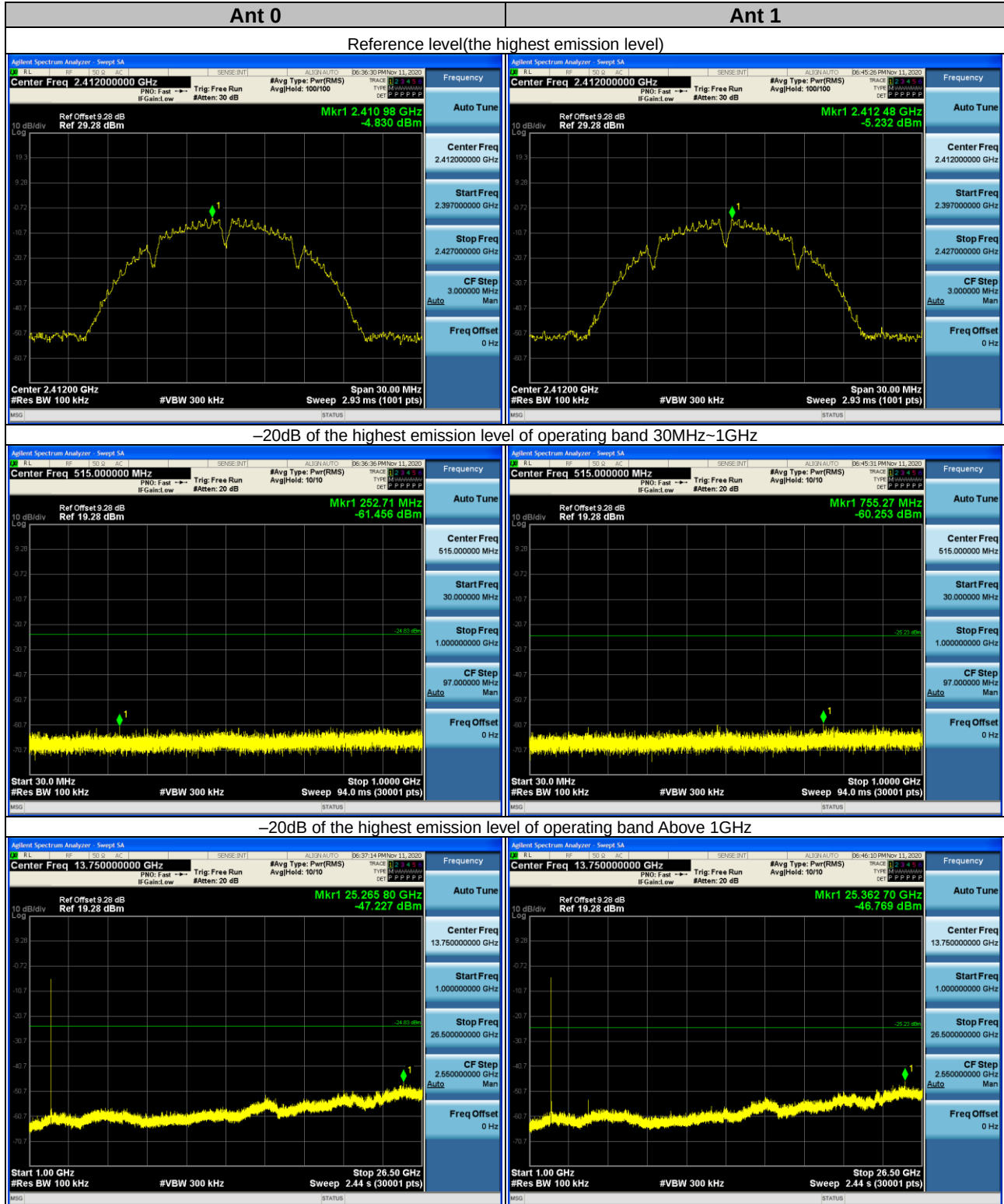
No deviation.

3.7.7 EUT Operating Condition

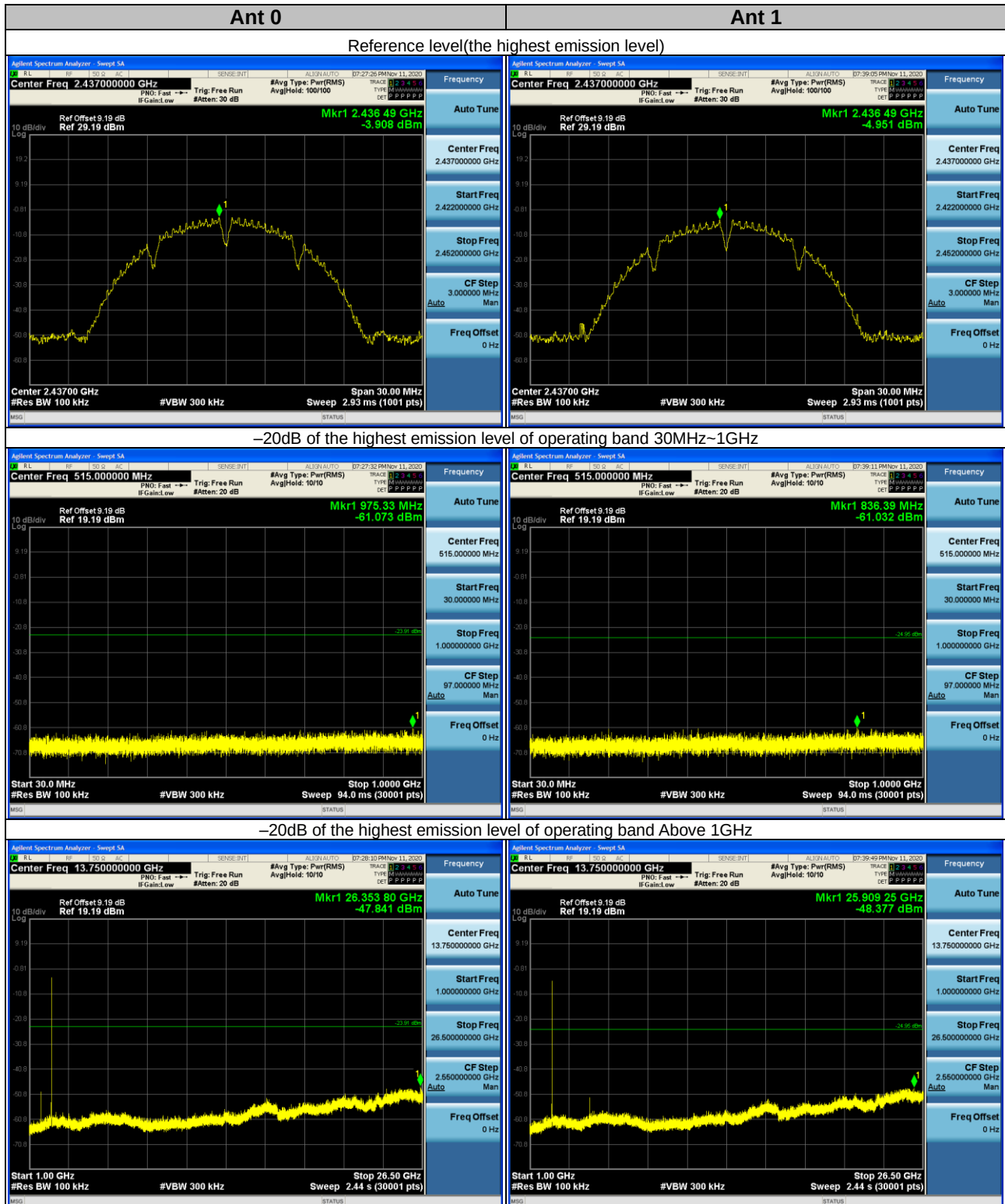
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

3.7.8 Test results

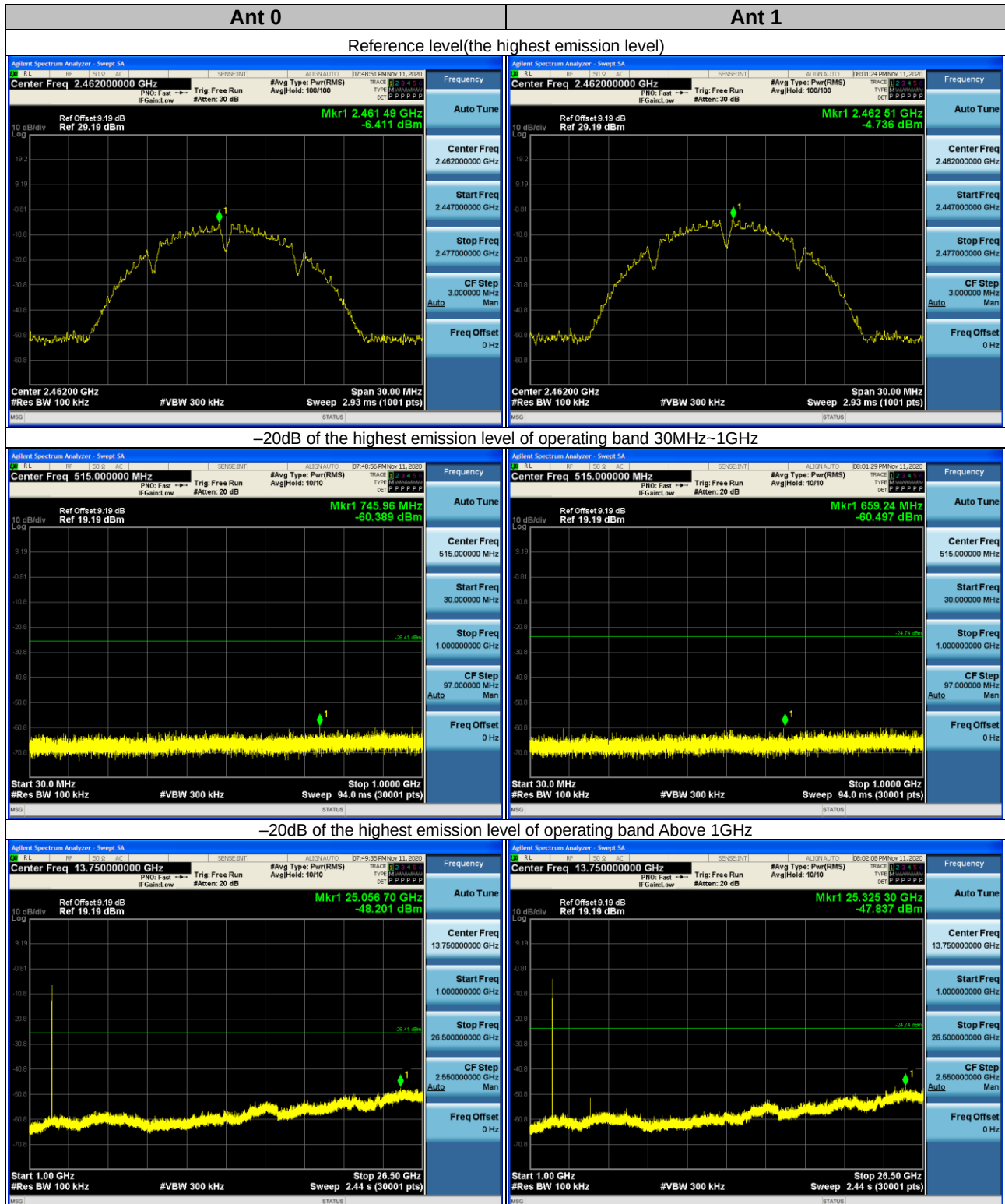
802.11b-Channel 1-2412MHz



802.11b-Channel 6-2437MHz



802.11b-Channel 11-2462MHz



802.11g-Channel 1-2412MHz

