

FCC Radio Test Report

FCC ID: 2ACXK-W86

Original Grant

Report No. : TB-FCC144495
Applicant : Thread Technology Co., Ltd.
Equipment Under Test (EUT)
EUT Name : NoteBook
Model No. : W86
Series No. : Please see the page of 4
Brand Name : N/A
Receipt Date : 2015-06-11
Test Date : 2015-06-12 to 2015-06-28
Issue Date : 2015-06-30
Standards : FCC Part 15, Subpart C (15.247:2014)
Test Method : ANSI C63.10: 2013
Conclusions : **PASS**

In the configuration tested, the EUT complied with the standards specified above,
The EUT technically complies with the FCC and IC requirements

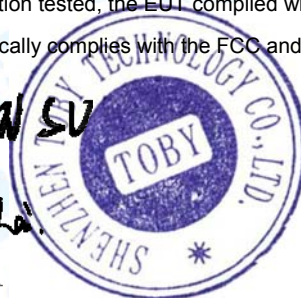
Test/Witness Engineer :

IVAN SU

**Approved &
Authorized**

:

Long



This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in the report.

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1. General Information about EUT

1.1 Client Information

Applicant : Thread Technology Co., Ltd.
Address : 4F, A Block, CYG, NO.2, Mid GaoXin Rd, NanShan District, Shenzhen, China
Manufacturer : Thread Technology Co., Ltd.
Address : 4F, A Block, CYG, NO.2, Mid GaoXin Rd, NanShan District, Shenzhen, China

1.2 General Description of EUT (Equipment Under Test)

EUT Name	:	NoteBook
Models No.	:	W86, M412, TH14-N4.128Y10, TH14-N8.256L, TH14-N8.256Y71P TH14-N8.256Y51 (W,M=0-9,A-Z or Blank for marketing differentiation)
Model Difference	:	All these models are identical in the same PCB, layout and electrical circuit, the only difference is model name for commercial.
Product Description	:	Operation Frequency: 802.11b/g/n(HT20): 2412MHz~2462MHz 802.11n(HT40): 2422MHz~2452MHz
	:	Number of Channel: 802.11b/g/n(HT20):11 channels see note(3) 802.11n(HT40): 7 channels see note(3)
	:	RF Output Power: 802.11b: 9.15dBm 802.11g: 9.13dBm 802.11n (HT20): 9.12 dBm 802.11n (HT40): 9.18 dBm
	:	Antenna Gain: 3 dBi Embedded Antenna
	:	Modulation Type: 802.11b: DSSS (CCK, DQPSK, DBPSK) 802.11g: OFDM 802.11n: OFDM
	:	Bit Rate of Transmitter: 802.11b:11/5.5/2/1 Mbps 802.11g:54/48/36/24/18/12/9/6 Mbps 802.11n:up to 150Mbps
	:	
Power Supply	:	DC Voltage supplied from AC/DC adapter DC power by Li-ion Battery
Power Rating	:	DC 7.4V by 5200mAh/38.48Wh Li-ion Battery. AC/DC Adapter: Input: AC 100~240V, 50/60 Hz, 0.7A Output: DC 12V 2.0A
Connecting I/O Port(S)	:	Please refer to the User's Manual

Note:

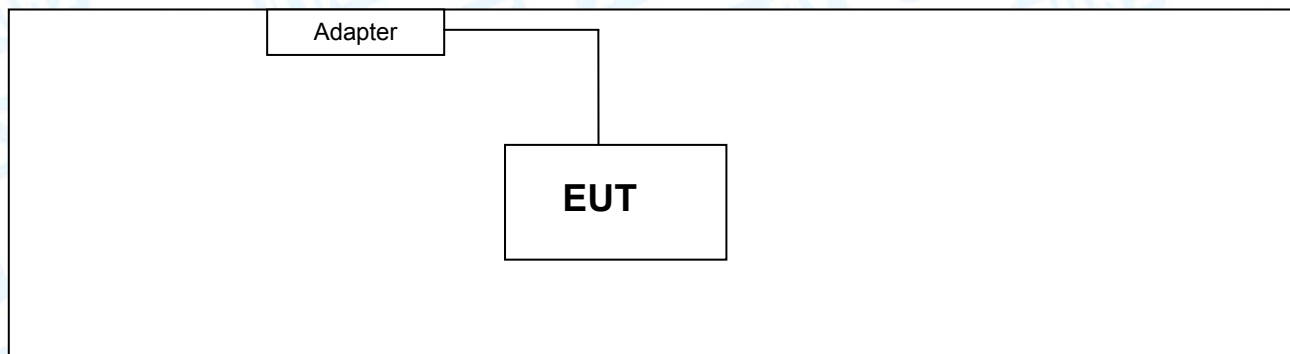
- (1) This Test Report is FCC Part 15.247 for 802.11b/g/n, the test procedure follows the FCC KDB 558074 D01 DTS Meas Guidance v03r02.
- (2) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
- (3) Channel List:

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	2412	05	2432	09	2452
02	2417	06	2437	10	2457
03	2422	07	2442	11	2462
04	2427	08	2447		
Note: CH 01~CH 11 for 802.11b/g/n(HT20) CH 03~CH 09 for 802.11n(HT40)					

- (4) The Antenna information about the equipment is provided by the applicant.

1.3 Block Diagram Showing the Configuration of System Tested

TX Mode



1.4 Description of Support Units

Equipment Information				
Name	Model	S/N	Manufacturer	Used “√”
Cable Information				
Number	Shielded Type	Ferrite Core	Length	Note

1.5 Description of Test Mode

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned follow was evaluated respectively.

For Conducted Test	
Final Test Mode	Description
Mode 1	AC Charging with TX B Mode

For Radiated Test	
Final Test Mode	Description
Mode 3	TX Mode B Mode Channel 01/06/11
Mode 4	TX Mode G Mode Channel 01/06/11
Mode 5	TX Mode N(HT20) Mode Channel 01/06/11
Mode 6	TX Mode N(HT40) Mode Channel 03/06/09

Note:

- (1) For all test, we have verified the construction and function in typical operation. And all the test modes were carried out with the EUT in transmitting operation in maximum power with all kinds of data rate.

According to ANSI C63.10 standards, the measurements are performed at the highest, middle, lowest available channels, and the worst case data rate as follows:

- 802.11b Mode: CCK (1 Mbps)
- 802.11g Mode: OFDM (6 Mbps)
- 802.11n (HT20) Mode: MCS 0 (6.5 Mbps)
- 802.11n (HT40) Mode: MCS 0 (13 Mbps)

- (2) During the testing procedure, the continuously transmitting with the maximum power mode was programmed by the customer.
- (3) The EUT is considered a mobile unit; in normal use it was positioned on X-plane. The worst case was found positioned on X-plane. Therefore only the test data of this X-plane was used for radiated emission measurement test.

1.6 Description of Test Software Setting

During testing channel& Power controlling software provided by the customer was used to control the operating channel as well as the output power level. 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 power parameters of WLAN.

Test Software Version	DRTU-Diagnostics and Regulatory Testing Utility		
Channel	CH 01	CH 06	CH 11
IEEE 802.11b DSSS	DEF	DEF	DEF
IEEE 802.11g OFDM	DEF	DEF	DEF
IEEE 802.11n (HT20)	DEF	DEF	DEF
	CH 03	CH 06	CH 09
IEEE 802.11n (HT40)	DEF	DEF	DEF

1.7 Measurement Uncertainty

The reported uncertainty of measurement $y \pm U$, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %.

Test Item	Parameters	Expanded Uncertainty (U_{Lab})
Conducted Emission	Level Accuracy: 9kHz~150kHz	± 3.42 dB
	150kHz to 30MHz	± 3.42 dB
Radiated Emission	Level Accuracy: 9kHz to 30 MHz	± 4.60 dB
Radiated Emission	Level Accuracy: 30MHz to 1000 MHz	± 4.40 dB
Radiated Emission	Level Accuracy: Above 1000MHz	± 4.20 dB

1.7 Test Facility

The testing report were performed by the Shenzhen Toby Technology Co., Ltd., in their facilities located at 1A/F., Bldg.6, Yusheng Industrial Zone, The National Road No.107 Xixiang Section 467, Xixiang, Bao'an, Shenzhen, Guangdong, China. At the time of testing, the following bodies accredited the Laboratory:

CNAS (L5813)

The Laboratory has been accredited by CNAS to ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories for the competence in the field of testing. And the Registration No.: CNAS L5813.

FCC List No.: (811562)

The Laboratory is listed in the United States of American Federal Communications Commission (FCC), and the registration number is 811562.

IC Registration No.: (11950A-1)

The Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing. The site registration: Site# 11950A-1.

May 22, 2014 certificated by TUV Rheinland(China) Co., Ltd. with TUV certificate No.: UA 50282953 0001 and report No.: 17026822 002. The certificate is valid until the next scheduled audit or up to 18 months, at the discretion of TUV Rhineland.

2. Test Summary

FCC Part 15 Subpart C(15.247)/ RSS 247 Issue 1				
Standard Section		Test Item	Judgment	Remark
FCC	IC			
15.203	/	Antenna Requirement	PASS	N/A
15.207	RSS-GEN 7.2.4	Conducted Emission	PASS	N/A
15.205	RSS-GEN 7.2.2	Restricted Bands	PASS	N/A
15.247(a)(2)	RSS 247 5.2 (1)	6dB Bandwidth	PASS	N/A
15.247(b)	RSS 247 5.4 (4)	Peak Output Power	PASS	N/A
15.247(e)	RSS 247 5.2 (2)	Power Spectral Density	PASS	N/A
15.247(d)	RSS 247 5.5	Transmitter Radiated Spurious Emission	PASS	N/A
Note: “/” for no requirement for this test item. N/A is an abbreviation for Not Applicable.				

3. Test Equipment

AC Main Conducted Emission

Description	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due Date
EMI Test Receiver	ROHDE & SCHWARZ	ESCI	100321	Aug. 08, 2014	Aug. 07, 2015
50Ω Coaxial Switch	Anritsu	MP59B	X10321	Aug. 08, 2014	Aug. 07, 2015
L.I.S.N	Rohde & Schwarz	ENV216	101131	Aug. 08, 2014	Aug. 07, 2015
L.I.S.N	SCHWARZBECK	NNBL 8226-2	8226-2/164	Aug. 08, 2014	Aug. 07, 2015

Radiation Spurious Emission

Description	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	E4407B	MY45106456	Sep. 01, 2014	Aug. 31, 2015
EMI Test Receiver	Rohde & Schwarz	ESCI	100010/007	Aug. 08, 2014	Aug. 07, 2015
Bilog Antenna	ETS-LINDGREN	3142E	00117537	Aug. 08, 2014	Aug. 07, 2015
Horn Antenna	ETS-LINDGREN	3117	00143207	Mar. 06, 2015	Mar. 05, 2016
Pre-amplifier	Sonoma	310N	185903	Mar. 06, 2015	Mar. 05, 2016
Pre-amplifier	HP	8447B	3008A00849	Mar. 06, 2015	Mar. 05, 2016
Cable	HUBER+SUHNER	100	SUCOFLEX	Mar. 06, 2015	Mar. 05, 2016
Positioning Controller	ETS-LINDGREN	2090	N/A	N/A	N/A

Antenna Conducted Emission

Description	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	E4407B	MY45106456	Sep. 01, 2014	Aug. 31, 2015
EMI Test Receiver	Rohde & Schwarz	ESCI	100010/007	Aug. 08, 2014	Aug. 07, 2015

4. Conducted Emission Test

4.1 Test Standard and Limit

4.1.1 Test Standard

FCC Part 15.207

4.1.2 Test Limit

Conducted Emission Test Limit

Frequency	Maximum RF Line Voltage (dB μ V)	
	Quasi-peak Level	Average Level
150kHz~500kHz	66 ~ 56 *	56 ~ 46 *
500kHz~5MHz	56	46
5MHz~30MHz	60	50

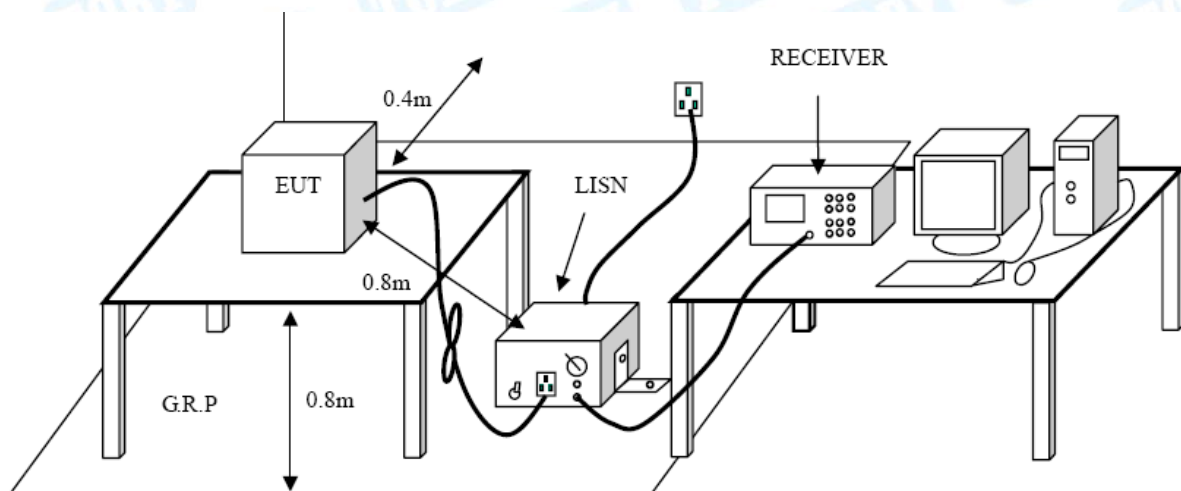
Notes:

(1) *Decreasing linearly with logarithm of the frequency.

(2) The lower limit shall apply at the transition frequencies.

(3) The limit decrease in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

4.2 Test Setup



4.3 Test Procedure

The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.

Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.

I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

LISN at least 80 cm from nearest part of EUT chassis.

The bandwidth of EMI test receiver is set at 9kHz, and the test frequency band is from 0.15MHz to 30MHz.

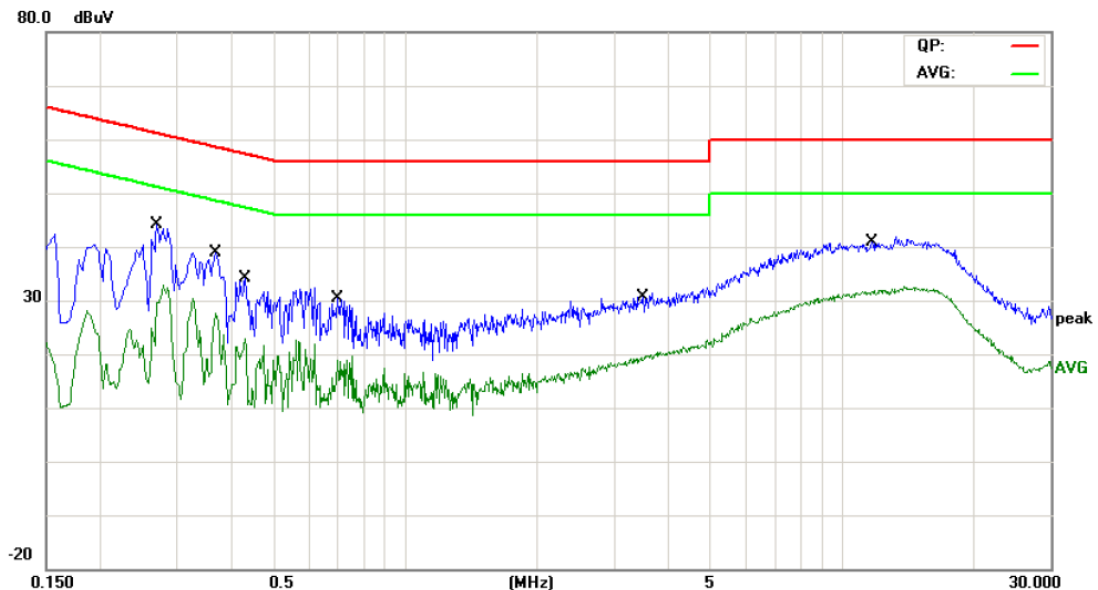
4.4 EUT Operating Mode

Please refer to the description of test mode.

4.5 Test Data

Please see the next page.

EUT:	NoteBook	Model Name :	W86
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Terminal:	Line		
Test Mode:	AC Charging with TX B Mode		
Remark:	Only worse case is reported		

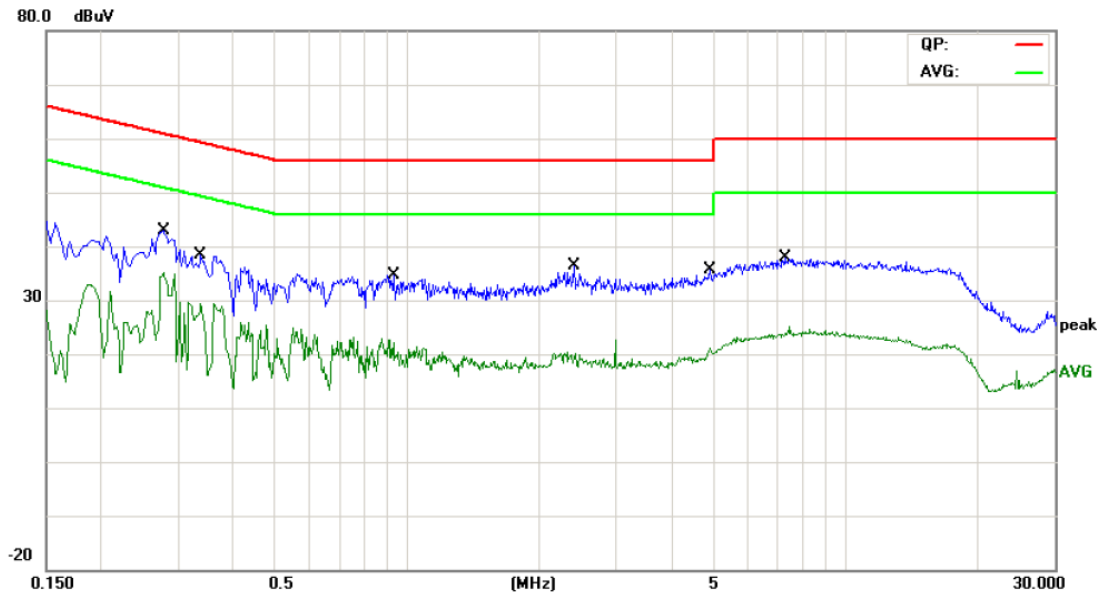


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector
1		0.2700	30.04	10.02	40.06	61.12	-21.06	QP
2		0.2700	16.20	10.02	26.22	51.12	-24.90	AVG
3		0.3660	23.79	10.02	33.81	58.59	-24.78	QP
4		0.3660	12.06	10.02	22.08	48.59	-26.51	AVG
5		0.4300	18.46	10.02	28.48	57.25	-28.77	QP
6		0.4300	6.40	10.02	16.42	47.25	-30.83	AVG
7		0.6980	13.43	10.12	23.55	56.00	-32.45	QP
8		0.6980	4.41	10.12	14.53	46.00	-31.47	AVG
9		3.5020	14.36	10.01	24.37	56.00	-31.63	QP
10		3.5020	8.26	10.01	18.27	46.00	-27.73	AVG
11		11.7420	25.72	10.19	35.91	60.00	-24.09	QP
12	*	11.7420	20.52	10.19	30.71	50.00	-19.29	AVG

*:Maximum data x:Over limit !:over margin

Emission Level= Read Level+ Correct Factor

EUT:	NoteBook	Model Name :	W86
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Terminal:	Neutral		
Test Mode:	AC Charging with TX B Mode		
Remark:	Only worse case is reported		

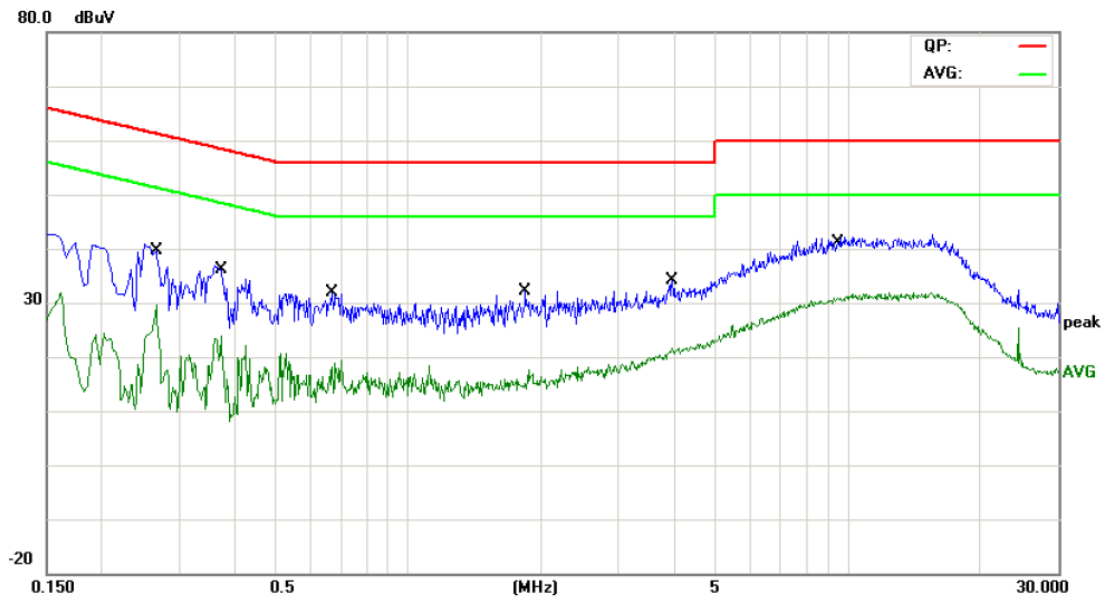


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector
1		0.2779	30.67	10.09	40.76	60.88	-20.12	QP
2	*	0.2779	21.34	10.09	31.43	50.88	-19.45	AVG
3		0.3379	22.88	10.07	32.95	59.25	-26.30	QP
4		0.3379	8.92	10.07	18.99	49.25	-30.26	AVG
5		0.9300	16.19	10.13	26.32	56.00	-29.68	QP
6		0.9300	6.88	10.13	17.01	46.00	-28.99	AVG
7		2.3980	14.95	10.06	25.01	56.00	-30.99	QP
8		2.3980	4.96	10.06	15.02	46.00	-30.98	AVG
9		4.9140	17.47	10.06	27.53	56.00	-28.47	QP
10		4.9140	8.19	10.06	18.25	46.00	-27.75	AVG
11		7.2660	20.11	10.07	30.18	60.00	-29.82	QP
12		7.2660	12.04	10.07	22.11	50.00	-27.89	AVG

*:Maximum data x:Over limit !:over margin

Emission Level= Read Level+ Correct Factor

EUT:	NoteBook	Model Name :	W86
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 240V/60Hz		
Terminal:	Line		
Test Mode:	AC Charging with TX B Mode		
Remark:	Only worse case is reported		

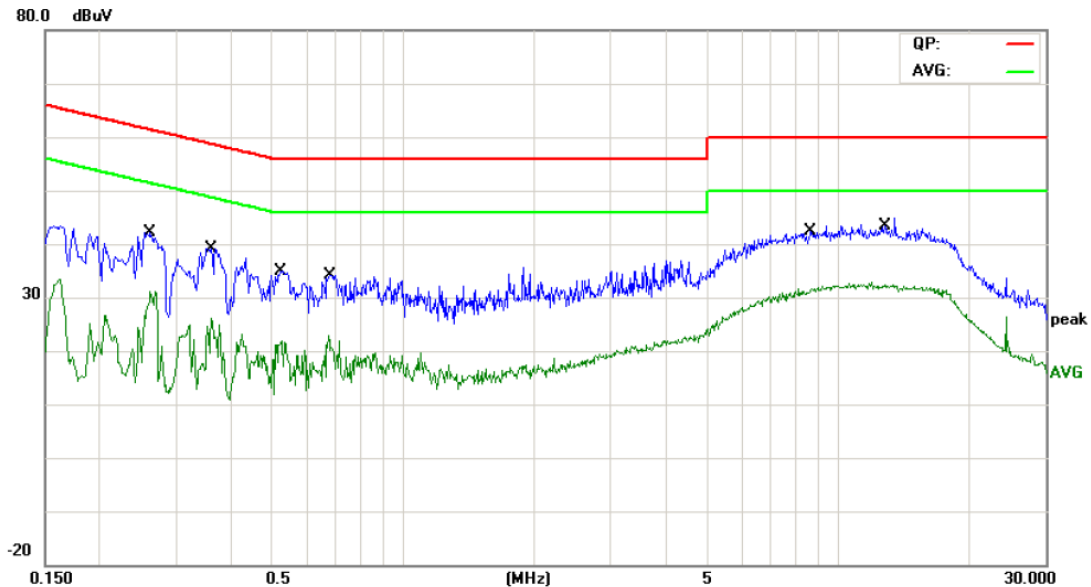


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector
1		0.2660	29.55	10.02	39.57	61.24	-21.67	QP
2		0.2660	19.62	10.02	29.64	51.24	-21.60	AVG
3		0.3738	26.31	10.02	36.33	58.41	-22.08	QP
4		0.3738	13.91	10.02	23.93	48.41	-24.48	AVG
5		0.6700	21.74	10.10	31.84	56.00	-24.16	QP
6		0.6700	8.80	10.10	18.90	46.00	-27.10	AVG
7		1.8420	22.12	10.06	32.18	56.00	-23.82	QP
8		1.8420	7.56	10.06	17.62	46.00	-28.38	AVG
9		3.9740	24.23	9.99	34.22	56.00	-21.78	QP
10		3.9740	11.72	9.99	21.71	46.00	-24.29	AVG
11	*	9.4539	30.98	10.14	41.12	60.00	-18.88	QP
12		9.4539	20.85	10.14	30.99	50.00	-19.01	AVG

*:Maximum data x:Over limit !:over margin

Emission Level= Read Level+ Correct Factor

EUT:	NoteBook	Model Name :	W86
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 240V/60Hz		
Terminal:	Neutral		
Test Mode:	AC Charging with TX B Mode		
Remark:	Only worse case is reported		



No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector
1	0.2620	32.14	10.10	42.24	61.36	-19.12	QP
2	0.2620	20.90	10.10	31.00	51.36	-20.36	AVG
3	0.3618	29.15	10.07	39.22	58.69	-19.47	QP
4	0.3618	16.18	10.07	26.25	48.69	-22.44	AVG
5	0.5220	24.96	10.02	34.98	56.00	-21.02	QP
6	0.5220	11.93	10.02	21.95	46.00	-24.05	AVG
7	0.6780	24.14	10.02	34.16	56.00	-21.84	QP
8	0.6780	12.85	10.02	22.87	46.00	-23.13	AVG
9	8.6819	32.29	10.12	42.41	60.00	-17.59	QP
10	8.6819	21.63	10.12	31.75	50.00	-18.25	AVG
11 *	12.7057	32.93	10.11	43.04	60.00	-16.96	QP
12	12.7057	22.24	10.11	32.35	50.00	-17.65	AVG

*:Maximum data x:Over limit !:over margin

Emission Level= Read Level+ Correct Factor

5. Radiated Emission Test

5.1 Test Standard and Limit

5.1.1 Test Standard
FCC Part 15.209

5.1.2 Test Limit

Radiated Emission Limits (9kHz~1000MHz)

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

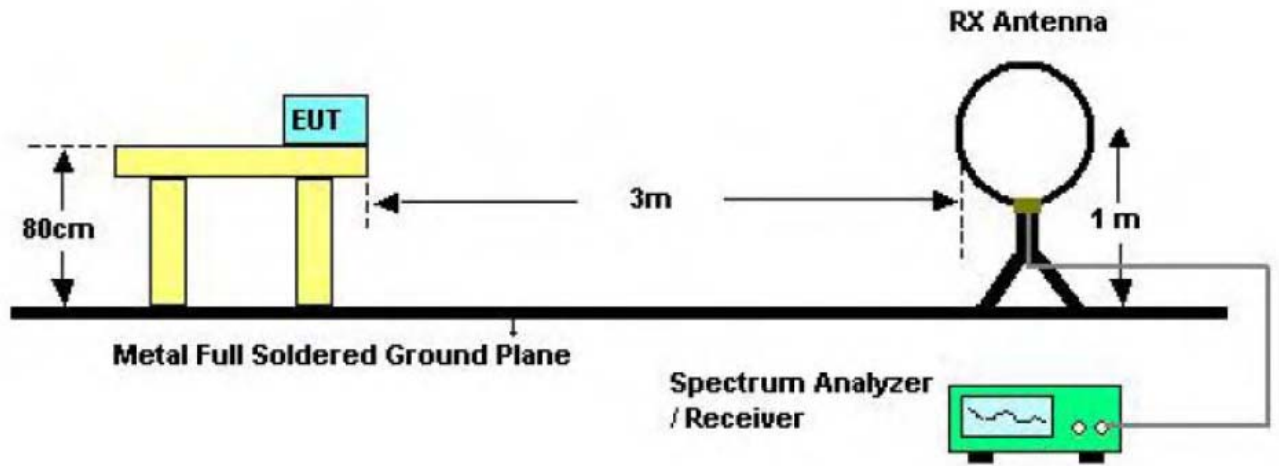
Radiated Emission Limit (Above 1000MHz)

Frequency (MHz)	Class A (dBUV/m)(at 3 M)		Class B (dBUV/m)(at 3 M)	
	Peak	Average	Peak	Average
Above 1000	80	60	74	54

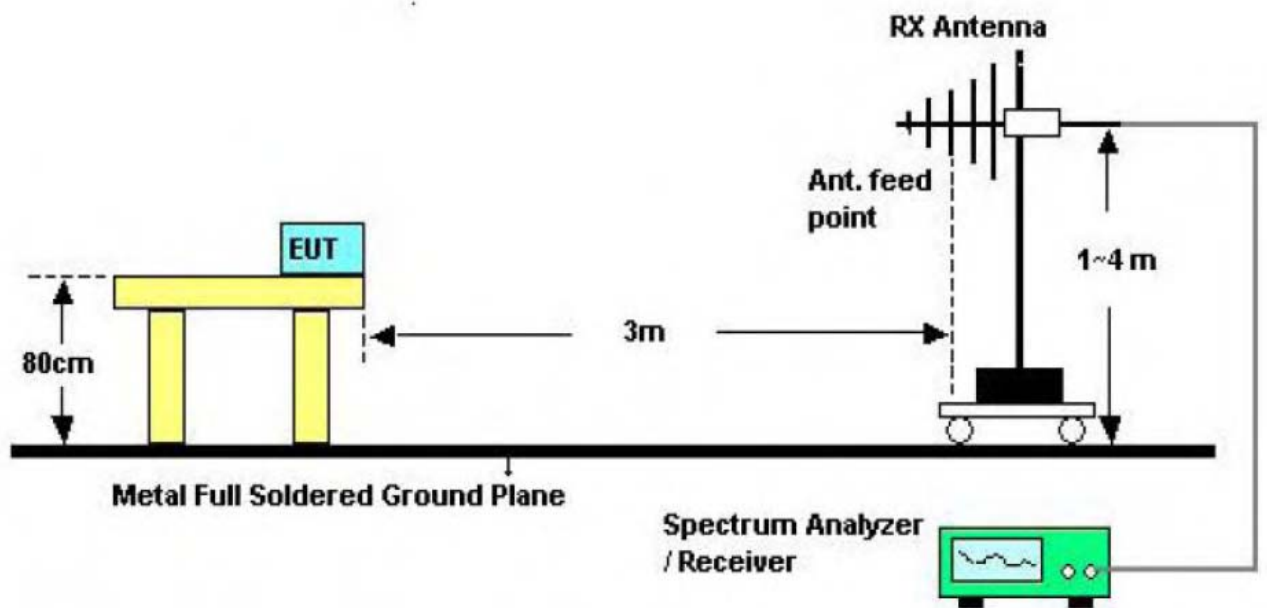
Note:

- (1) The tighter limit applies at the band edges.
- (2) Emission Level(dBUV/m)=20log Emission Level(uV/m)

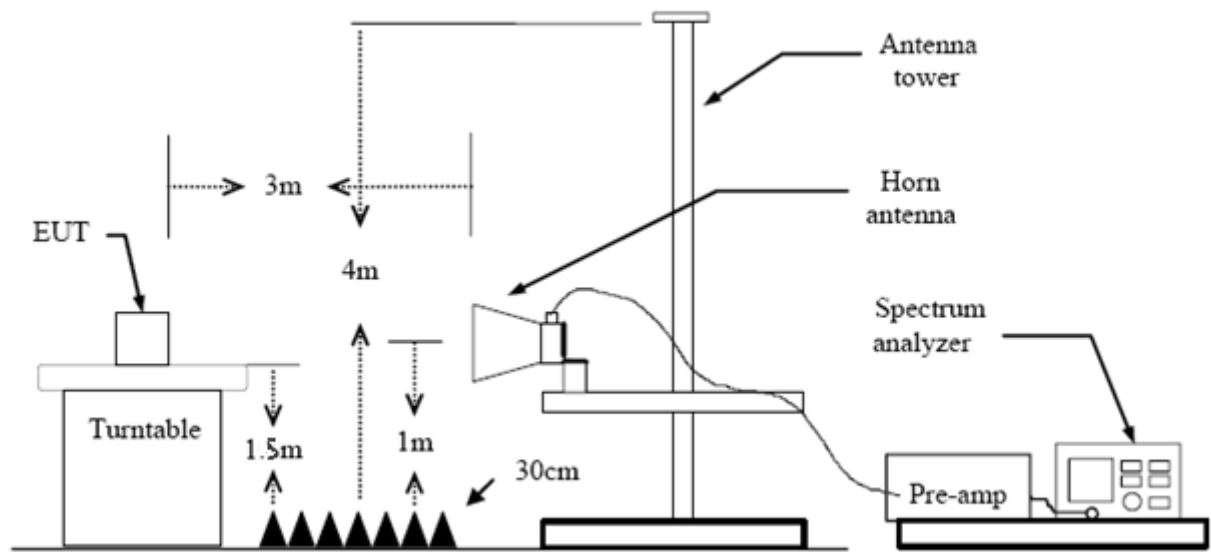
5.2 Test Setup



Below 30MHz Test Setup



Below 1000MHz Test Setup



Above 1GHz Test Setup

5.3 Test Procedure

- (1) The measuring distance of 3m shall be used for measurements at frequency up to 1GHz and above 1 GHz. The EUT was placed on a rotating 0.8m high above ground, the table was rotated 360 degrees to determine the position of the highest radiation.
- (2) Measurements at frequency above 1GHz. The EUT was placed on a rotating 1.5m high above the ground. RF absorbers covered the ground plane with a minimum area of 3.0m by 3.0m between the EUT and measurement receiver antenna. The RF absorber shall not exceed 30cm in high above the conducting floor. The table was rotated 360 degrees to determine the position of the highest radiation.
- (3) The Test antenna shall vary between 1m and 4m, Both Horizontal and Vertical antenna are set to make measurement.
- (4) The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- (5) If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit Bellow 1 GHz, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed. But the Peak Value and average value both need to comply with applicable limit above 1 GHz.
- (6) Testing frequency range below 1GHz the measuring instrument use VBW=120 kHz with Quasi-peak detection.
- (7) Testing frequency range above 1GHz the measuring instrument use RBW=1 MHz and VBW=3 MHz with Peak Detector for Peak Values, and use RBW=1 MHz and VBW=10 Hz with Peak Detector for Average Values.
- (8) For the actual test configuration, please see the test setup photo.

5.4 EUT Operating Condition

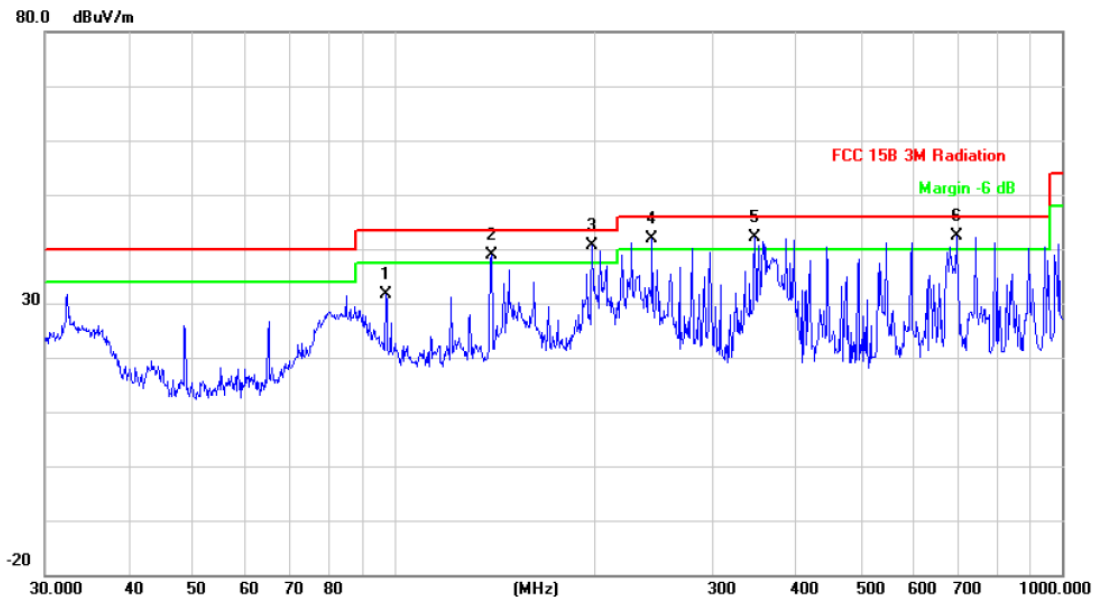
The Equipment Under Test was set to Continual Transmitting in maximum power.

5.5 Test Data

Remark: During testing above 1GHz the measuring instrument use RBW=1 MHz and VBW=3 MHz with Peak Detector for Peak Values, and use RBW=1 MHz and VBW=10 Hz with Peak Detector for Average Values.

Test data please refer the following pages.

EUT:	NoteBook	Model:	W86
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX B Mode 2412MHz		
Remark:	Only worse case is reported		

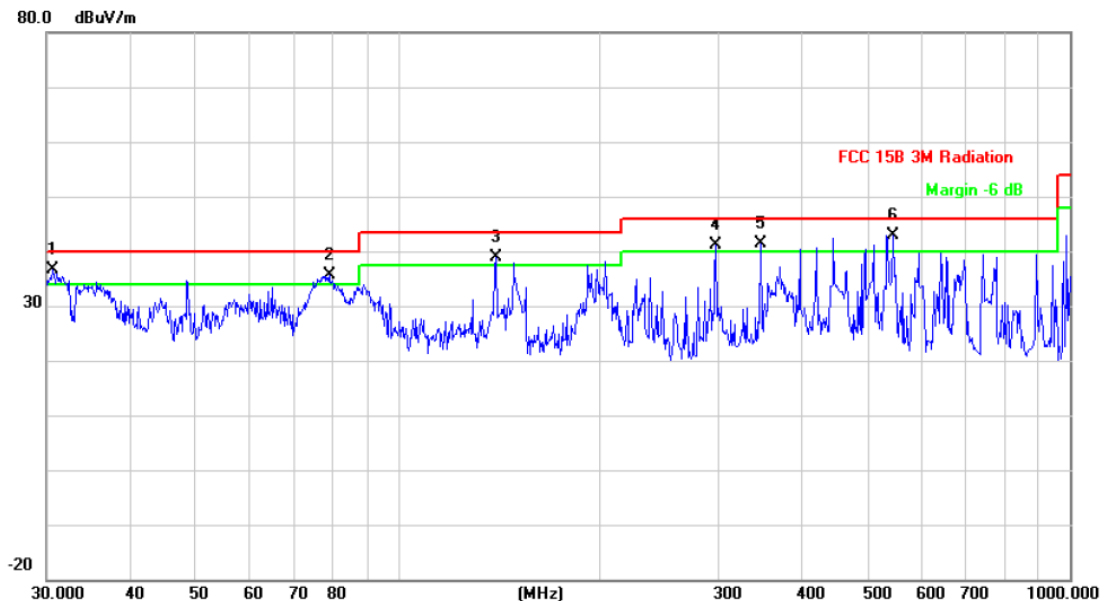


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB/m	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector
1		97.1148	53.69	-22.08	31.61	43.50	-11.89	peak
2	!	139.8505	60.88	-21.99	38.89	43.50	-4.61	peak
3	*	197.8925	61.14	-20.49	40.65	43.50	-2.85	peak
4	!	243.3771	60.21	-18.43	41.78	46.00	-4.22	peak
5	!	346.8091	56.82	-14.81	42.01	46.00	-3.99	peak
6	!	694.4174	49.43	-7.01	42.42	46.00	-3.58	peak

*:Maximum data x:Over limit !:over margin

Emission Level= Read Level+ Correct Factor

EUT:	NoteBook	Model:	W86
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Ant. Pol.	Vertical		
Test Mode:	TX B Mode 2412MHz		
Remark:	Only worse case is reported		

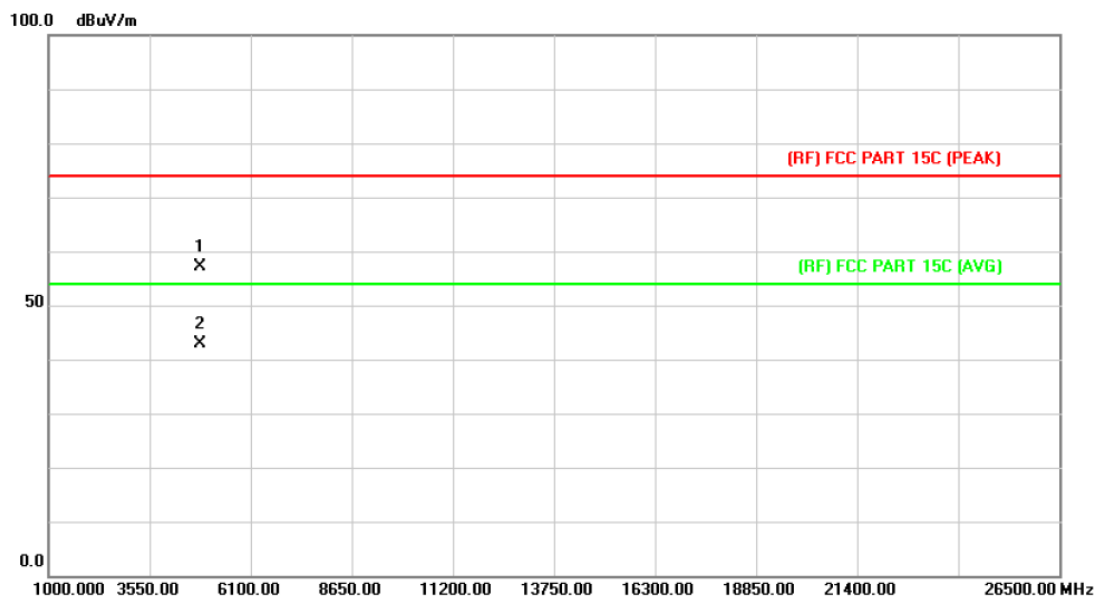


No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	!	30.6371	51.07	-14.35	36.72	40.00	-3.28	peak
2	!	78.9651	58.96	-23.32	35.64	40.00	-4.36	peak
3	!	139.8505	60.88	-21.99	38.89	43.50	-4.61	peak
4	!	297.2241	58.38	-17.14	41.24	46.00	-4.76	peak
5	!	346.8091	56.26	-14.81	41.45	46.00	-4.55	peak
6	*	545.1825	53.02	-10.13	42.89	46.00	-3.11	peak

*:Maximum data x:Over limit !:over margin

Emission Level= Read Level+ Correct Factor

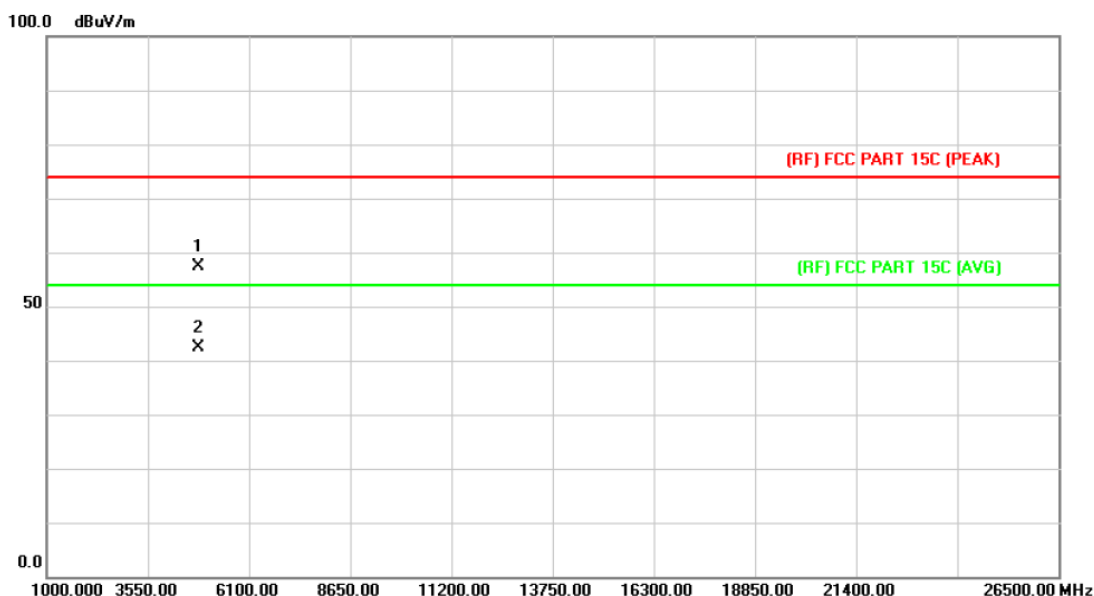
EUT:	NoteBook	Model:	W86
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX B Mode 2412MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4823.790	43.66	13.56	57.22	74.00	-16.78	peak
2	*	4824.153	29.20	13.56	42.76	54.00	-11.24	AVG

Emission Level= Read Level+ Correct Factor

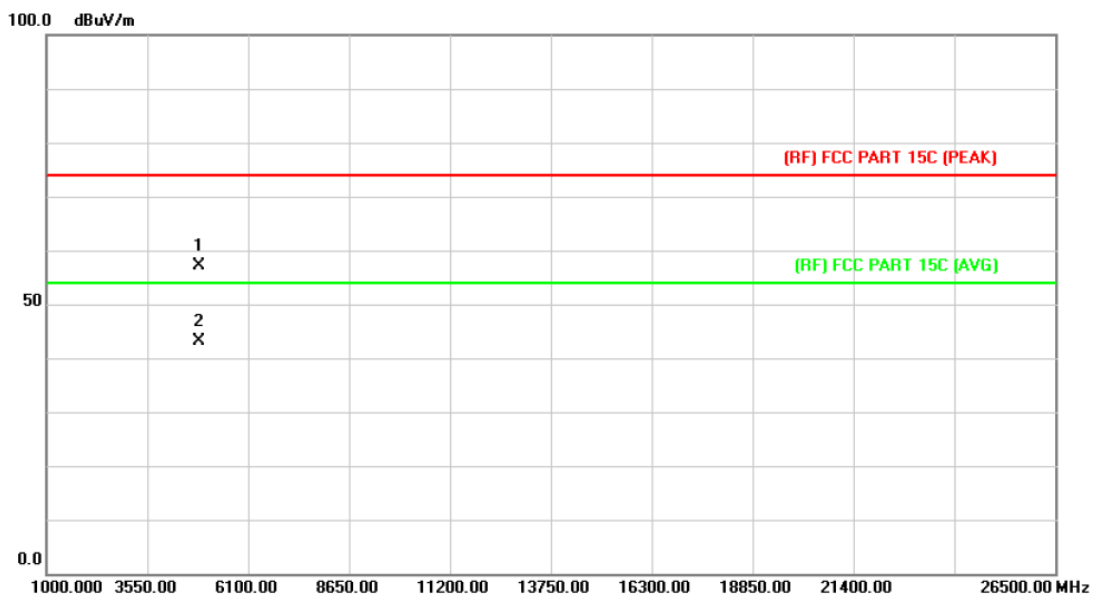
EUT:	NoteBook	Model:	W86
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Ant. Pol.	Vertical		
Test Mode:	TX B Mode 2412MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4824.211	43.71	13.56	57.27	74.00	-16.73	peak
2	*	4824.316	28.84	13.56	42.40	54.00	-11.60	AVG

Emission Level= Read Level+ Correct Factor

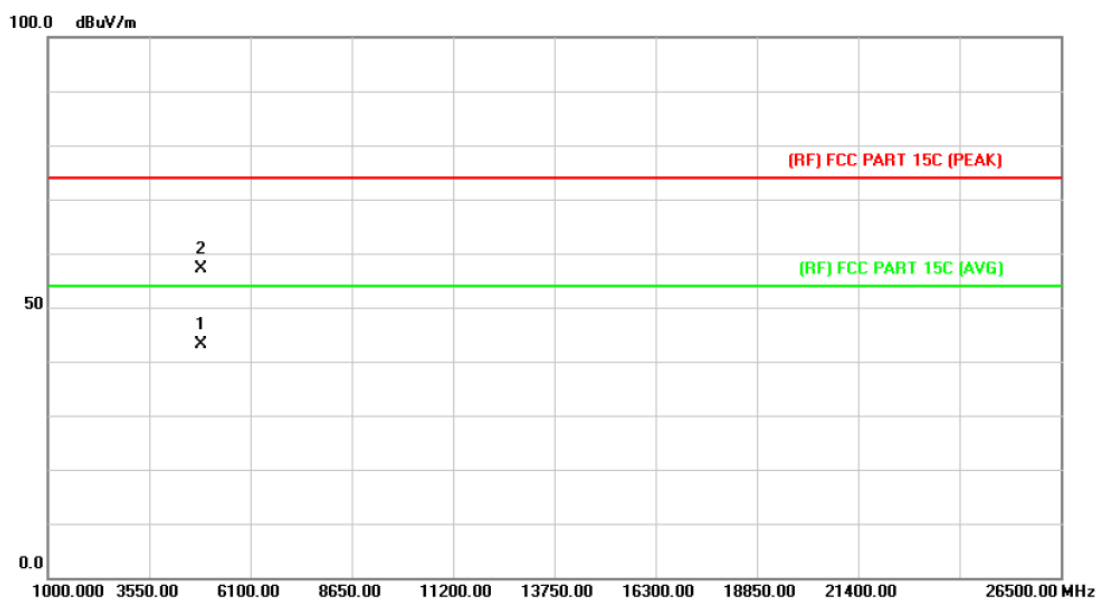
EUT:	NoteBook	Model:	W86
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX B Mode 2437MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB/m	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector
1		4873.812	43.39	13.86	57.25	74.00	-16.75	peak
2	*	4873.847	29.21	13.86	43.07	54.00	-10.93	AVG

Emission Level= Read Level+ Correct Factor

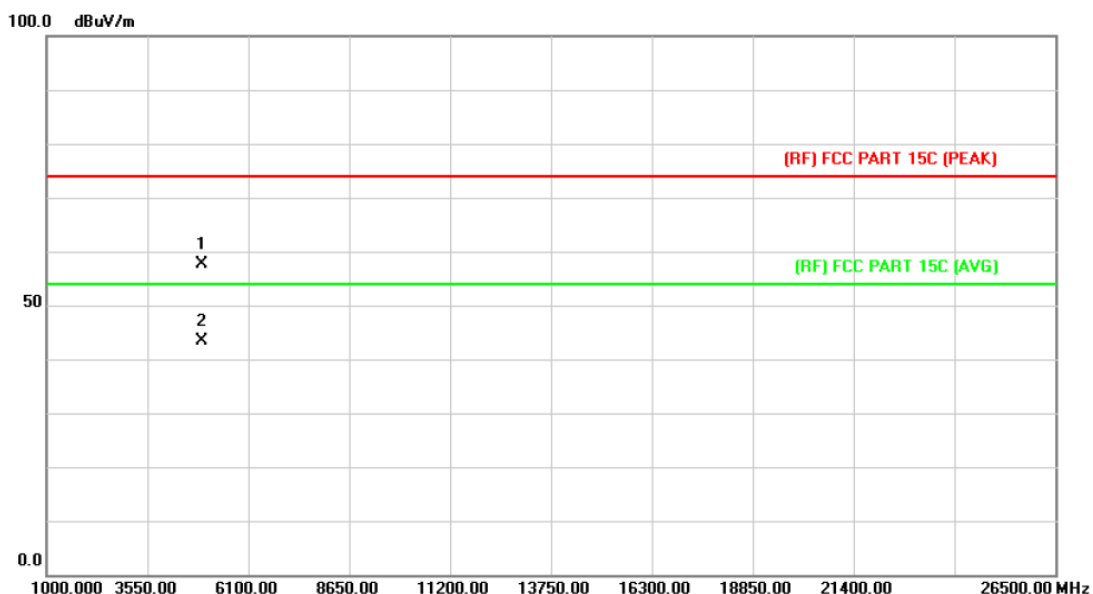
EUT:	NoteBook	Model:	W86
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Ant. Pol.	Vertical		
Test Mode:	TX B Mode 2437MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4873.888	29.20	13.86	43.06	54.00	-10.94	AVG
2		4874.332	43.18	13.86	57.04	74.00	-16.96	peak

Emission Level= Read Level+ Correct Factor

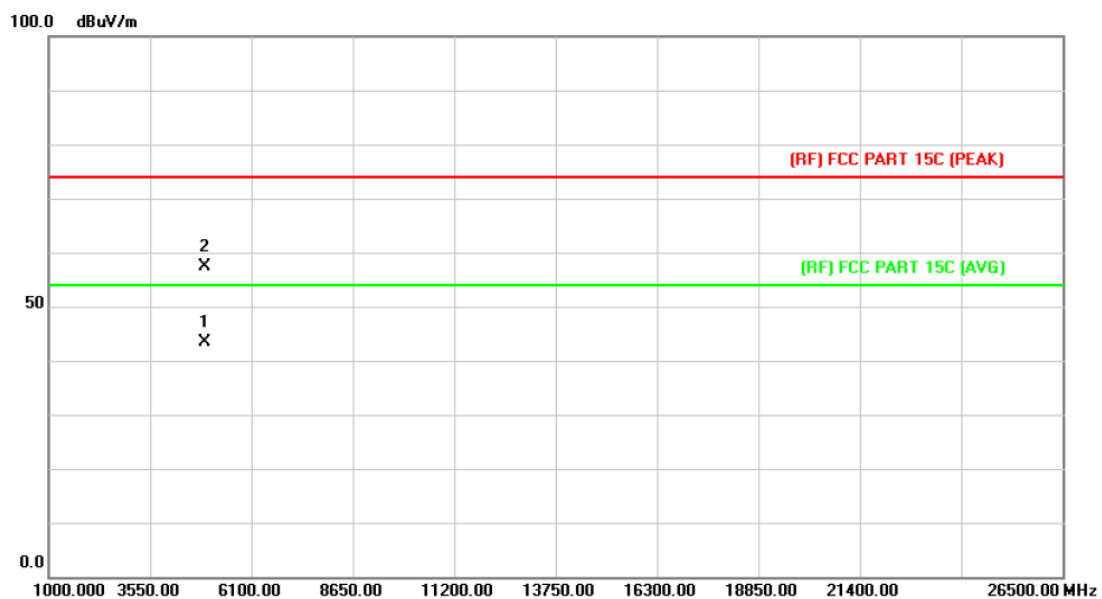
EUT:	NoteBook	Model:	W86
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX B Mode 2462MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4923.774	43.58	14.15	57.73	74.00	-16.27	peak
2	*	4924.030	29.34	14.15	43.49	54.00	-10.51	AVG

Emission Level= Read Level+ Correct Factor

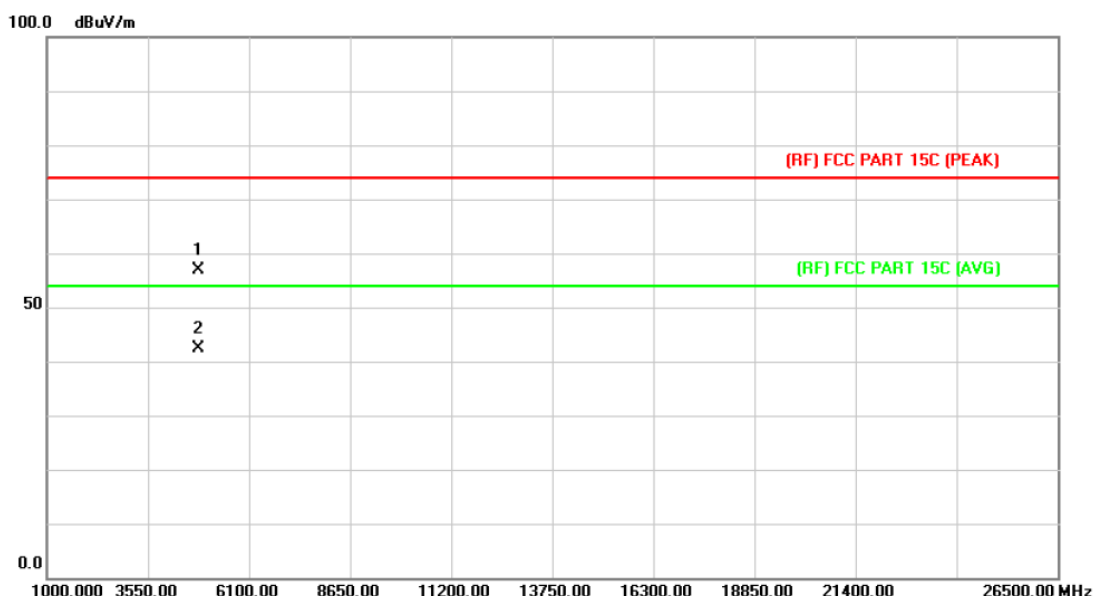
EUT:	NoteBook	Model:	W86
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Ant. Pol.	Vertical		
Test Mode:	TX B Mode 2462MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4924.255	29.33	14.15	43.48	54.00	-10.52	AVG
2		4924.477	43.29	14.15	57.44	74.00	-16.56	peak

Emission Level= Read Level+ Correct Factor

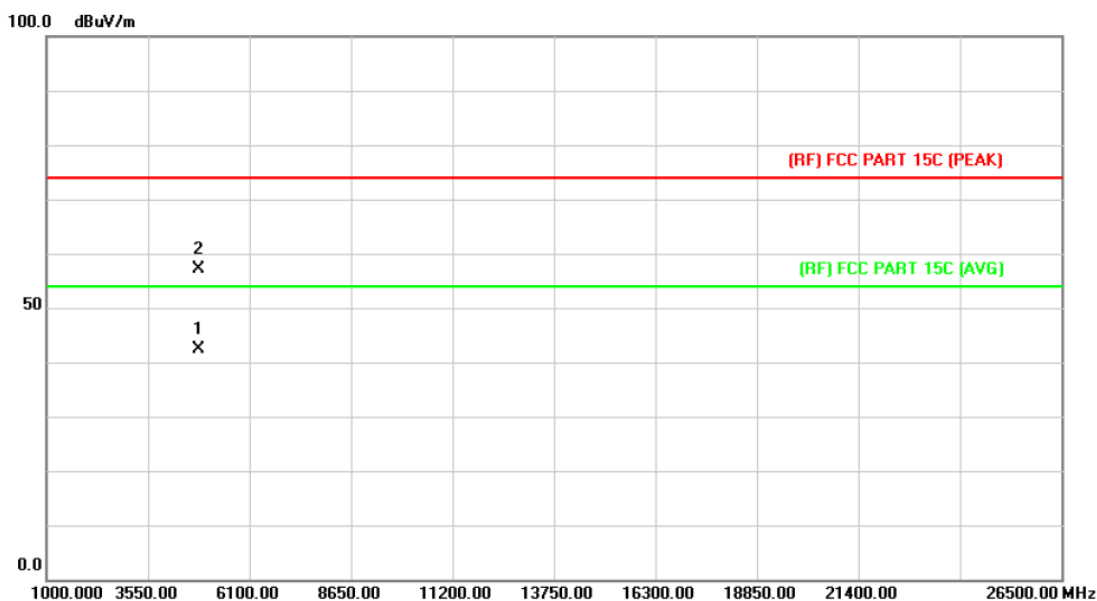
EUT:	NoteBook	Model:	W86
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX G Mode 2412MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4824.159	43.41	13.56	56.97	74.00	-17.03	peak
2	*	4824.296	28.85	13.56	42.41	54.00	-11.59	AVG

Emission Level= Read Level+ Correct Factor

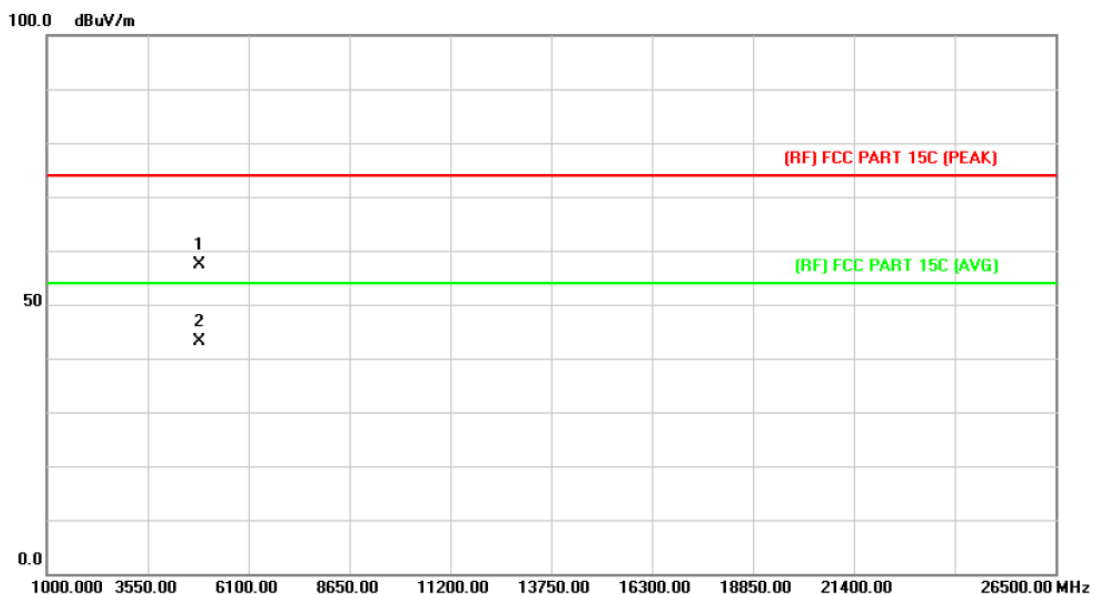
EUT:	NoteBook	Model:	W86
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Ant. Pol.	Vertical		
Test Mode:	TX G Mode 2412MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4823.806	28.87	13.56	42.43	54.00	-11.57	AVG
2		4824.329	43.69	13.56	57.25	74.00	-16.75	peak

Emission Level= Read Level+ Correct Factor

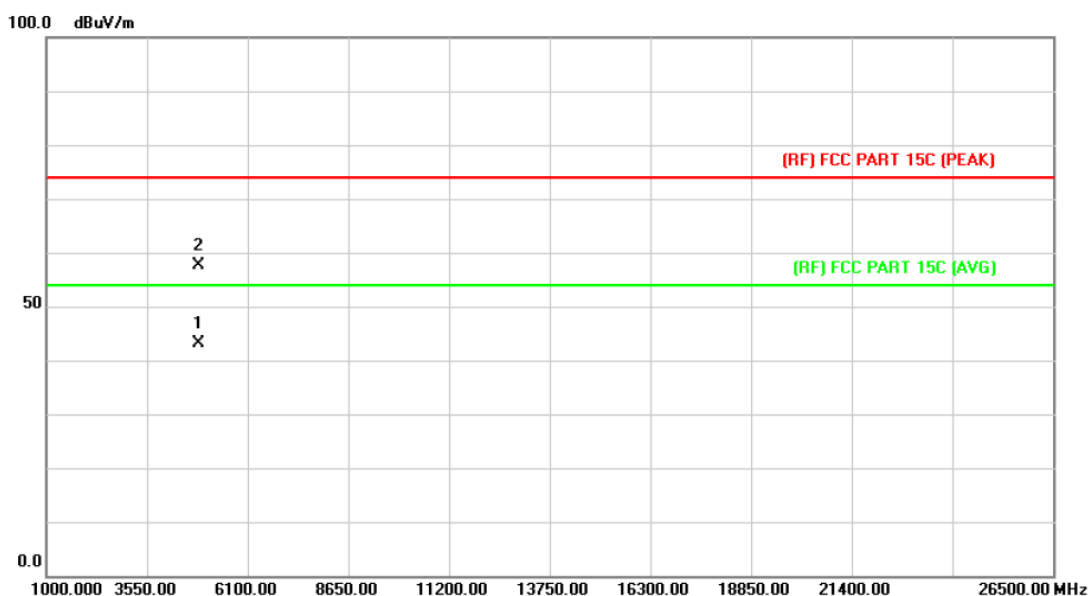
EUT:	NoteBook	Model:	W86
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX G Mode 2437MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4873.799	43.54	13.86	57.40	74.00	-16.60	peak
2	*	4873.804	29.24	13.86	43.10	54.00	-10.90	AVG

Emission Level= Read Level+ Correct Factor

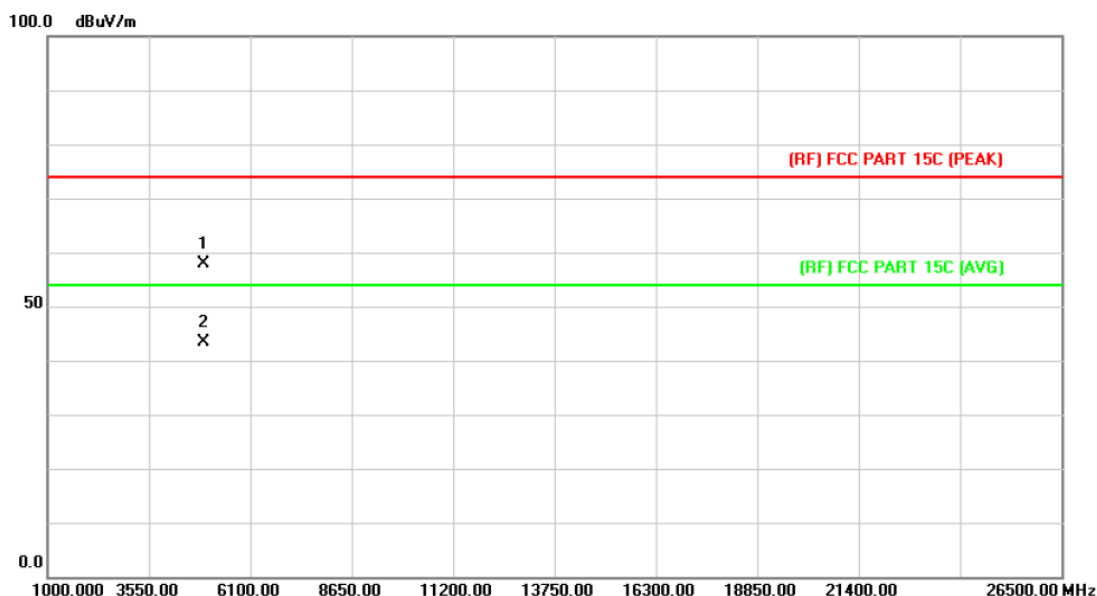
EUT:	NoteBook	Model:	W86
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Ant. Pol.	Vertical		
Test Mode:	TX G Mode 2437MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4873.949	29.25	13.86	43.11	74.00	-30.89	peak
2	*	4873.986	43.87	13.86	57.73	74.00	-16.27	peak

Emission Level= Read Level+ Correct Factor

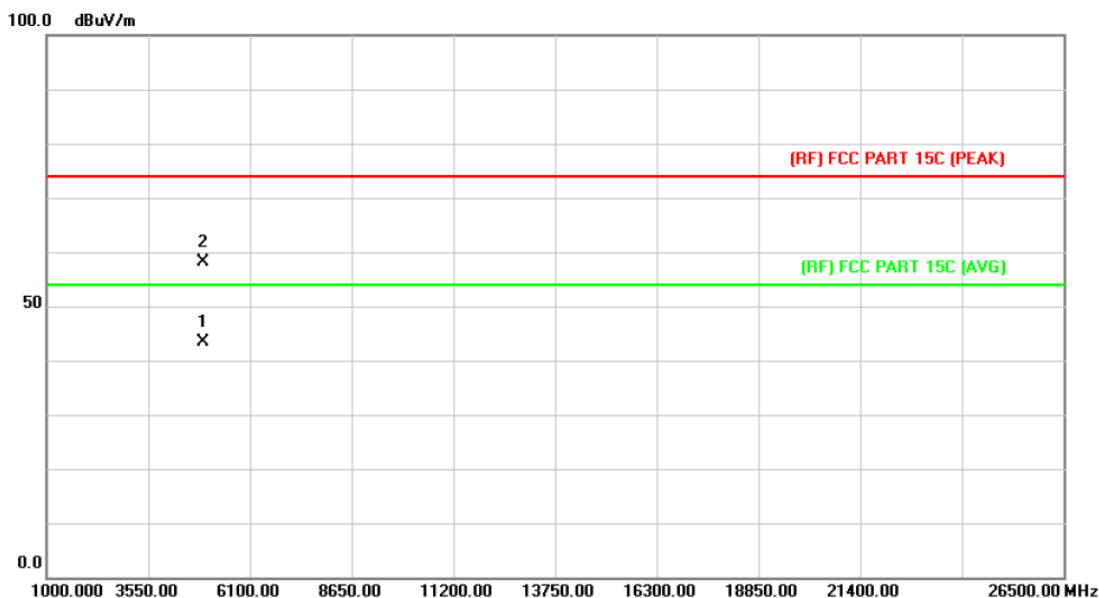
EUT:	NoteBook	Model:	W86
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX G Mode 2462MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4923.672	43.84	14.15	57.99	74.00	-16.01	peak
2	*	4923.910	29.32	14.15	43.47	54.00	-10.53	AVG

Emission Level= Read Level+ Correct Factor

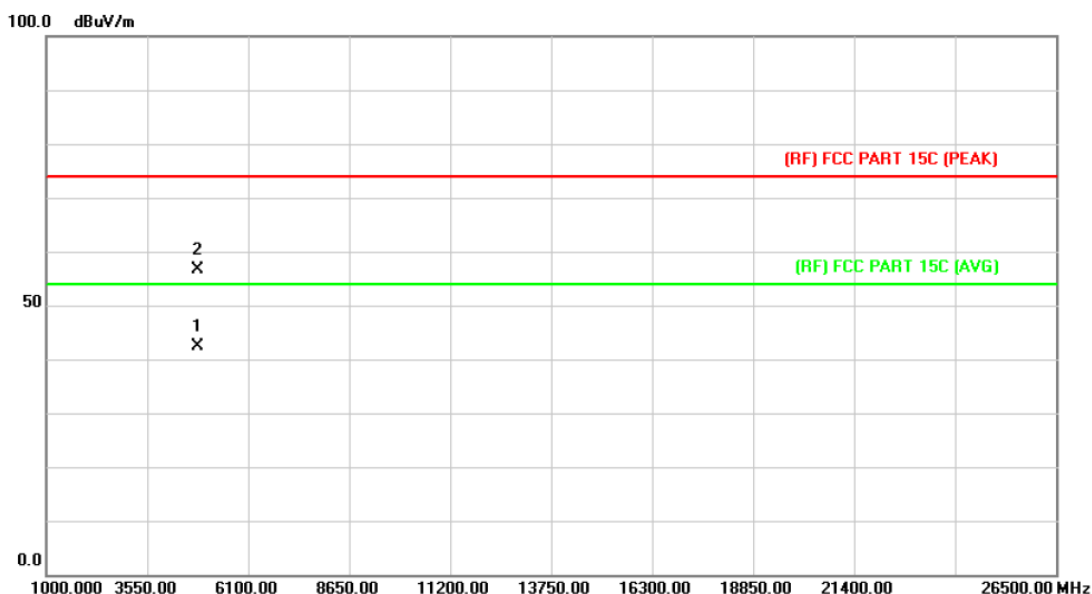
EUT:	NoteBook	Model:	W86
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Ant. Pol.	Vertical		
Test Mode:	TX G Mode 2462MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4923.942	29.31	14.15	43.46	54.00	-10.54	AVG
2		4924.290	44.01	14.15	58.16	74.00	-15.84	peak

Emission Level= Read Level+ Correct Factor

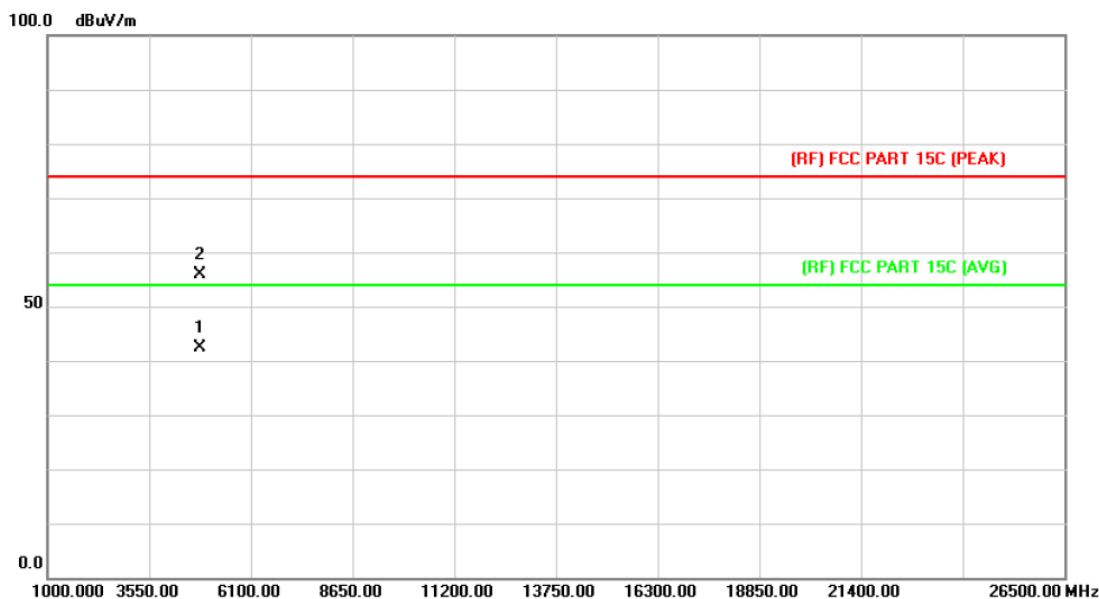
EUT:	NoteBook	Model:	W86
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX N(HT20) Mode 2412MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4823.581	28.87	13.56	42.43	54.00	-11.57	AVG
2		4823.973	42.97	13.56	56.53	74.00	-17.47	peak

Emission Level= Read Level+ Correct Factor

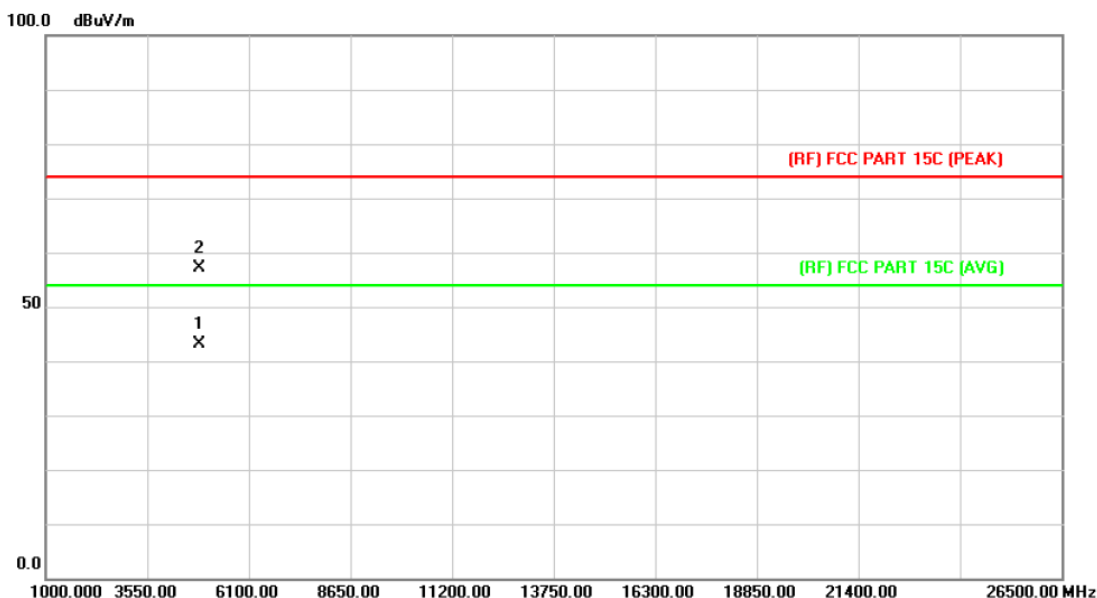
EUT:	NoteBook	Model:	W86
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Ant. Pol.	Vertical		
Test Mode:	TX N(HT20) Mode 2412MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4823.500	28.87	13.56	42.43	54.00	-11.57	AVG
2		4824.088	42.29	13.56	55.85	74.00	-18.15	peak

Emission Level= Read Level+ Correct Factor

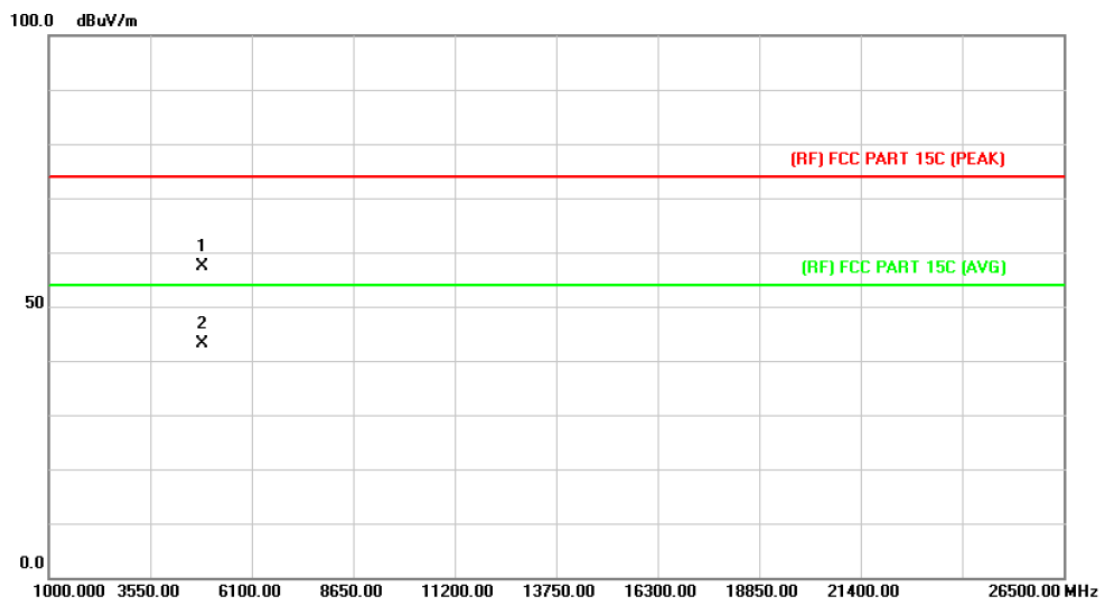
EUT:	NoteBook	Model:	W86
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX N(HT20) Mode 2437MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB Detector
1		4873.541	29.26	13.86	43.12	74.00	-30.88 peak
2	*	4873.938	43.16	13.86	57.02	74.00	-16.98 peak

Emission Level= Read Level+ Correct Factor

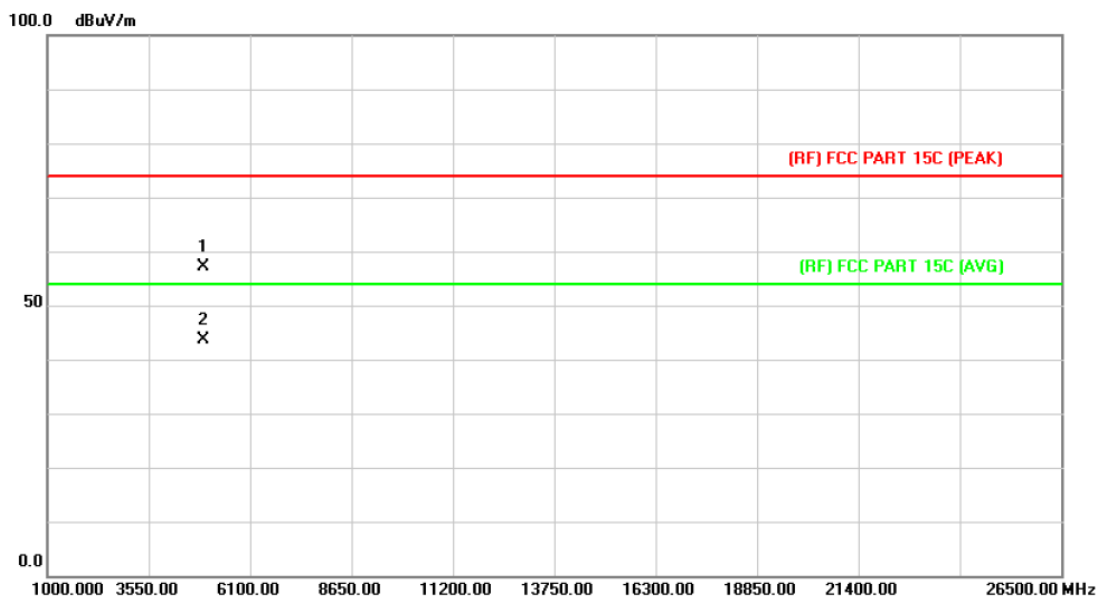
EUT:	NoteBook	Model:	W86
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Ant. Pol.	Vertical		
Test Mode:	TX N(HT20) Mode 2437MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4873.844	43.57	13.86	57.43	74.00	-16.57	peak
2	*	4873.844	29.22	13.86	43.08	54.00	-10.92	AVG

Emission Level= Read Level+ Correct Factor

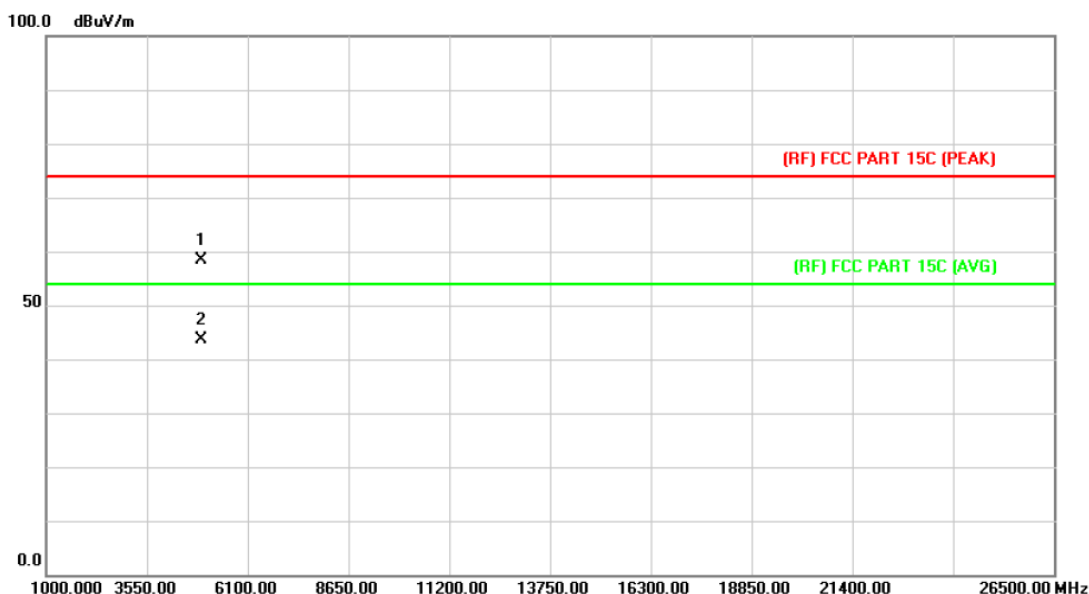
EUT:	NoteBook	Model:	W86
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX N(HT20) Mode 2462MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4924.160	43.08	14.15	57.23	74.00	-16.77	peak
2	*	4924.480	29.38	14.15	43.53	54.00	-10.47	AVG

Emission Level= Read Level+ Correct Factor

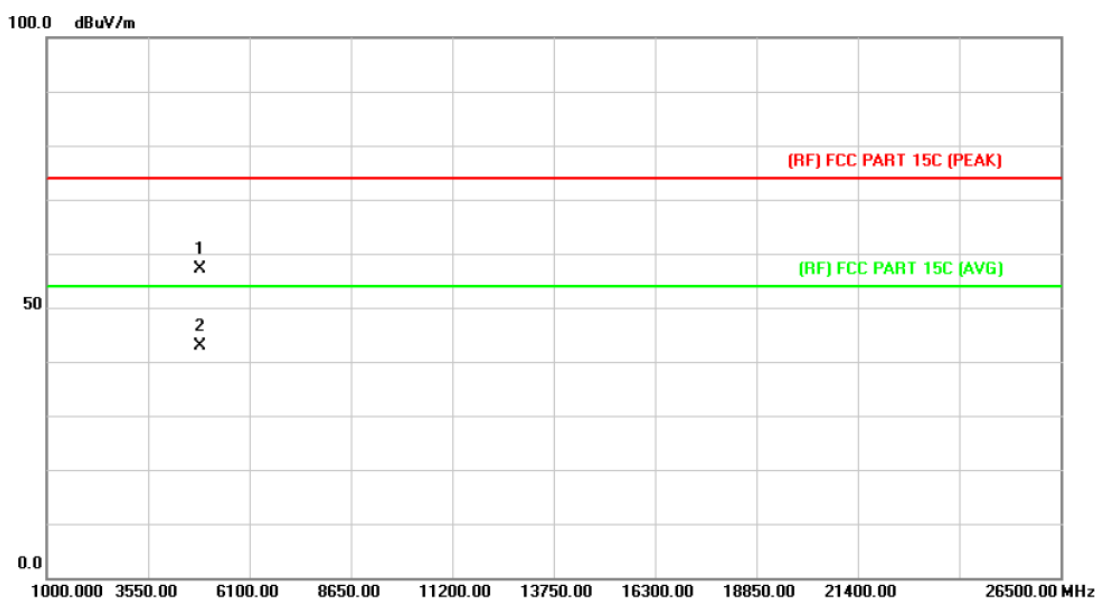
EUT:	NoteBook	Model:	W86
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Ant. Pol.	Vertical		
Test Mode:	TX N(HT20) Mode 2462MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4923.525	44.31	14.15	58.46	74.00	-15.54	peak
2	*	4924.398	29.39	14.15	43.54	54.00	-10.46	AVG

Emission Level= Read Level+ Correct Factor

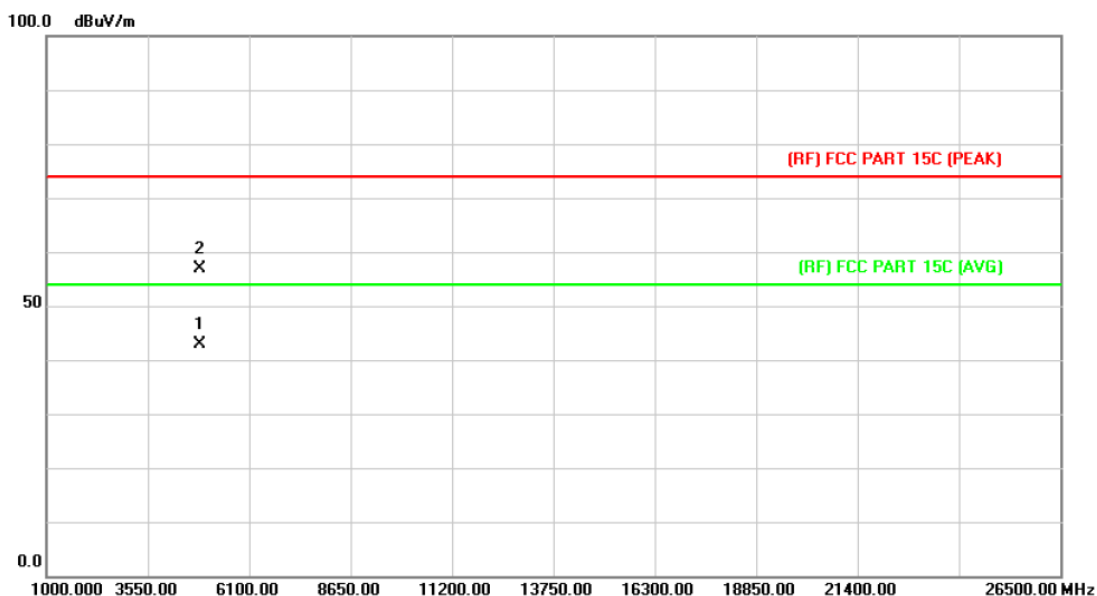
EUT:	NoteBook	Model:	W86
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX N(HT40) Mode 2422MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No. Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	4843.799	43.47	13.68	57.15	74.00	-16.85	peak
2 *	4844.316	29.18	13.68	42.86	54.00	-11.14	AVG

Emission Level= Read Level+ Correct Factor

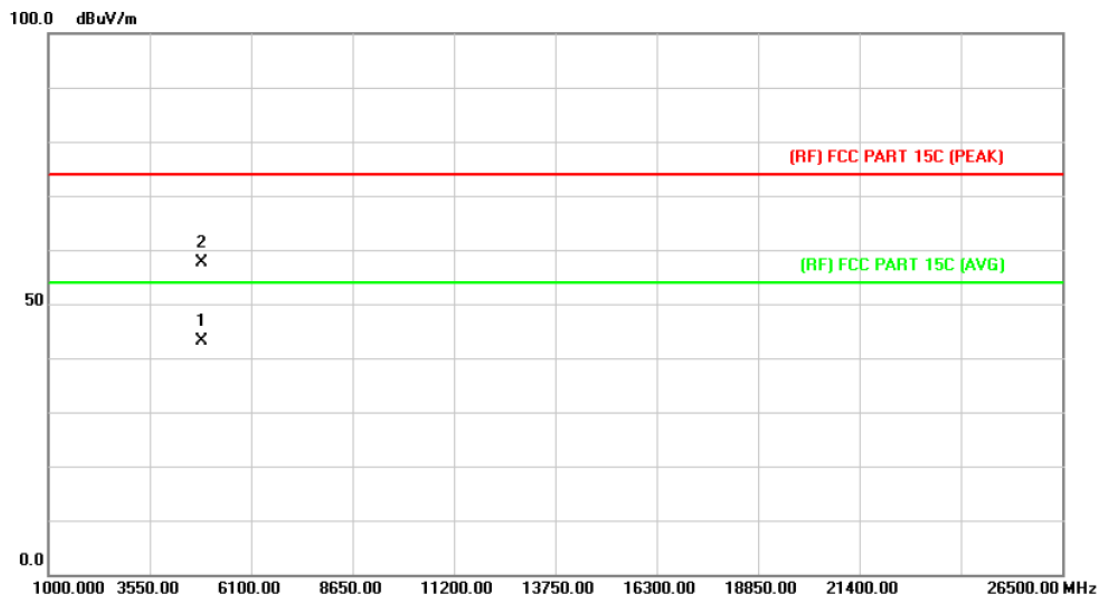
EUT:	NoteBook	Model:	W86
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Ant. Pol.	Vertical		
Test Mode:	TX N(HT40) Mode 2422MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4843.704	29.17	13.68	42.85	54.00	-11.15	AVG
2		4843.739	43.20	13.68	56.88	74.00	-17.12	peak

Emission Level= Read Level+ Correct Factor

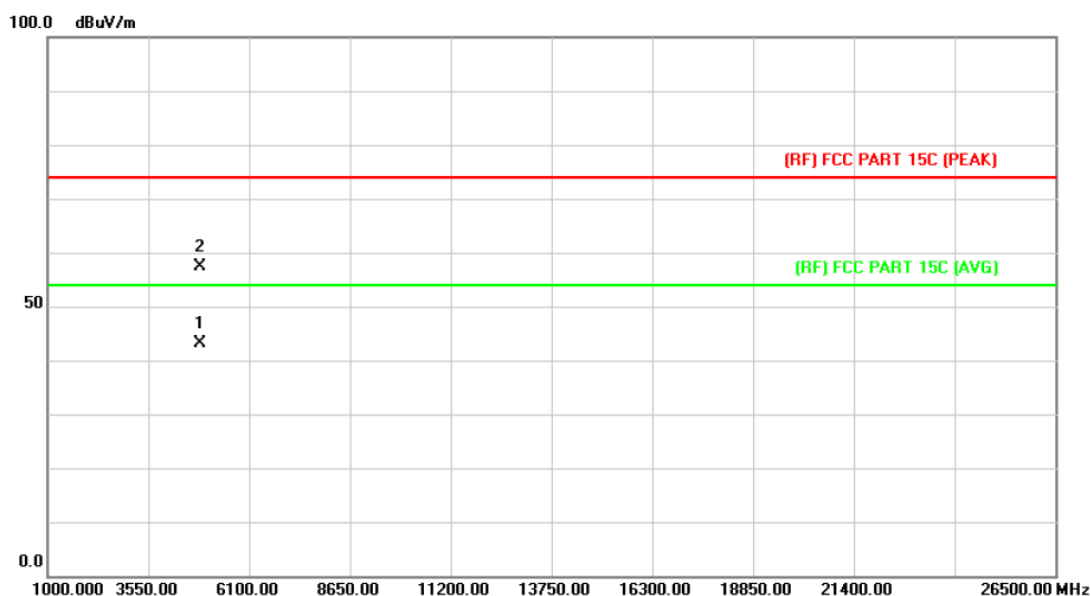
EUT:	NoteBook	Model:	W86
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX N(HT40) Mode 2437MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4873.500	29.30	13.86	43.16	54.00	-10.84	AVG
2		4873.622	43.85	13.86	57.71	74.00	-16.29	peak

Emission Level= Read Level+ Correct Factor

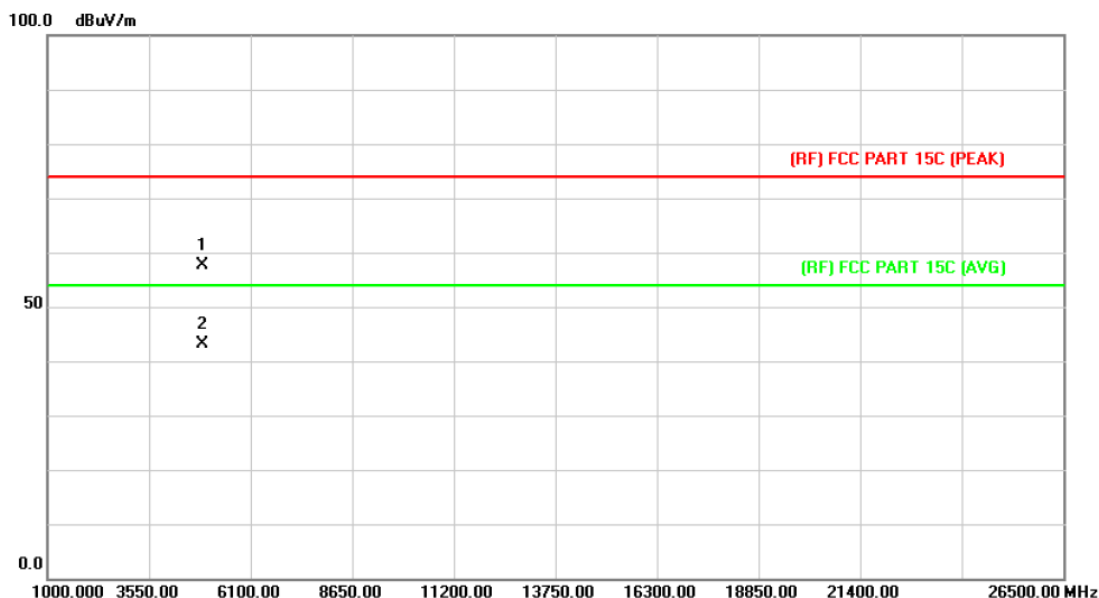
EUT:	NoteBook	Model:	W86
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Ant. Pol.	Vertical		
Test Mode:	TX N(HT40) Mode 2437MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4873.876	29.26	13.86	43.12	54.00	-10.88	AVG
2		4874.270	43.42	13.86	57.28	74.00	-16.72	peak

Emission Level= Read Level+ Correct Factor

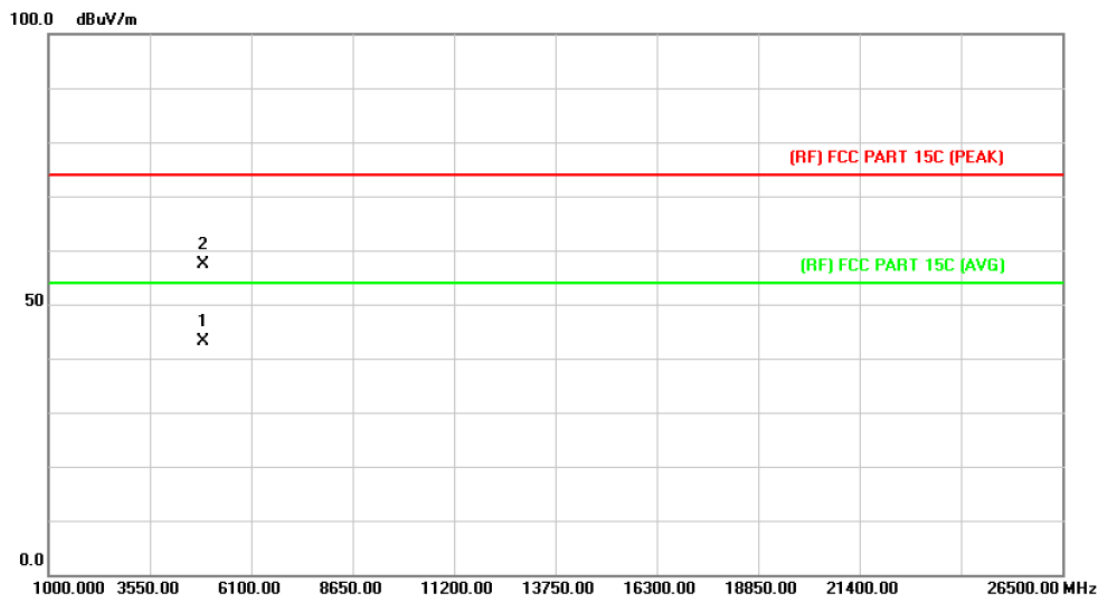
EUT:	NoteBook	Model:	W86
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX N(HT40) Mode 2452MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB/m	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector
1		4903.598	43.52	14.03	57.55	74.00	-16.45	peak
2	*	4903.684	29.15	14.03	43.18	54.00	-10.82	AVG

Emission Level= Read Level+ Correct Factor

EUT:	NoteBook	Model:	W86
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Ant. Pol.	Vertical		
Test Mode:	TX N(HT40) Mode 2452MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4903.581	29.17	14.03	43.20	54.00	-10.80	AVG
2		4904.063	43.37	14.03	57.40	74.00	-16.60	peak

Emission Level= Read Level+ Correct Factor

6. Restricted Bands Requirement

6.1 Test Standard and Limit

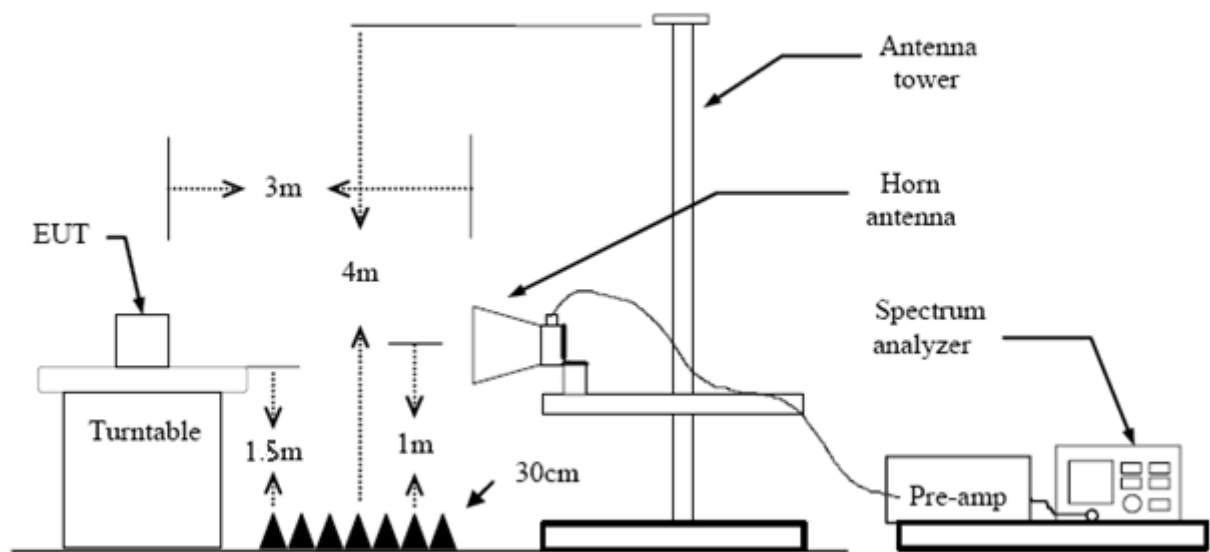
6.1.1 Test Standard

FCC Part 15.209 FCC Part 15.205

6.1.2 Test Limit

Restricted Frequency Band (MHz)	Class B (dBuV/m)(at 3 M)	
	Peak	Average
2310 ~2390	74	54
2483.5 ~2500	74	54

6.2 Test Setup



6.3 Test Procedure

- (1) The measuring distance of 3m shall be used for measurements at frequency up to 1GHz and above 1 GHz. The EUT was placed on a rotating 0.8m high above ground, the table was rotated 360 degrees to determine the position of the highest radiation.
- (2) Measurements at frequency above 1GHz. The EUT was placed on a rotating 1.5m high above the ground. RF absorbers covered the ground plane with a minimum area of 3.0m by 3.0m between the EUT and measurement receiver antenna. The RF absorber shall not exceed 30cm in high above the conducting floor. The table was rotated 360 degrees to determine the position of the highest radiation.
- (3) The Test antenna shall vary between 1m and 4m, Both Horizontal and Vertical antenna are set to make measurement.

-
- (4) The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
 - (5) If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit Bellow 1 GHz, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed. But the Peak Value and average value both need to comply with applicable limit above 1 GHz.
 - (6) Testing frequency range below 1GHz the measuring instrument use VBW=120 kHz with Quasi-peak detection.
 - (7) Testing frequency range above 1GHz the measuring instrument use RBW=1 MHz and VBW=3 MHz with Peak Detector for Peak Values, and use RBW=1 MHz and VBW=10 Hz with Peak Detector for Average Values.
 - (8) For the actual test configuration, please see the test setup photo.

6.4 EUT Operating Condition

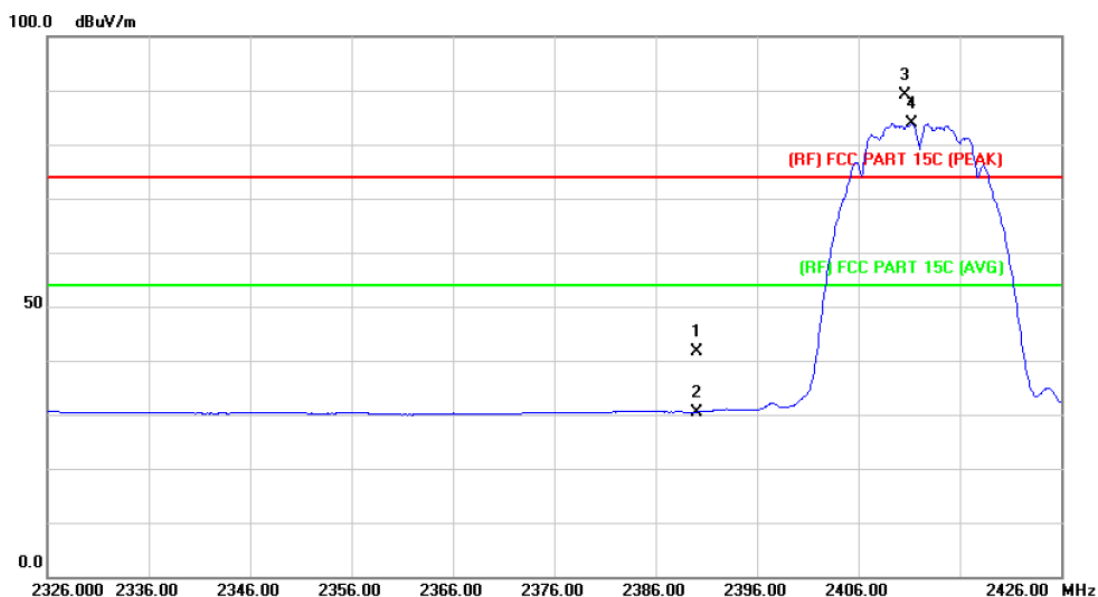
The Equipment Under Test was set to Continual Transmitting in maximum power.

6.5 Test Data

Please see the next page.

(1) Radiation Test

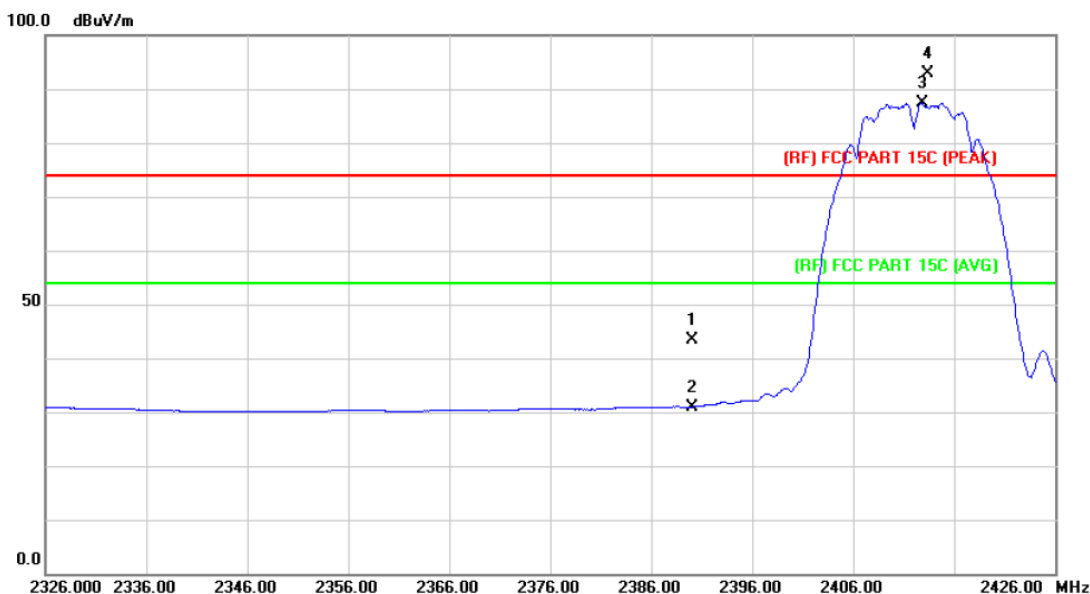
EUT:	NoteBook	Model:	W86
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX B Mode 2412MHz		
Remark:	N/A		



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB/m	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector
1		2390.000	40.80	0.77	41.57	74.00	-32.43	peak
2		2390.000	29.69	0.77	30.46	54.00	-23.54	AVG
3	X	2410.600	88.35	0.86	89.21	Fundamental Frequency		peak
4	*	2411.300	82.97	0.86	83.83	Fundamental Frequency		AVG

Emission Level= Read Level+ Correct Factor

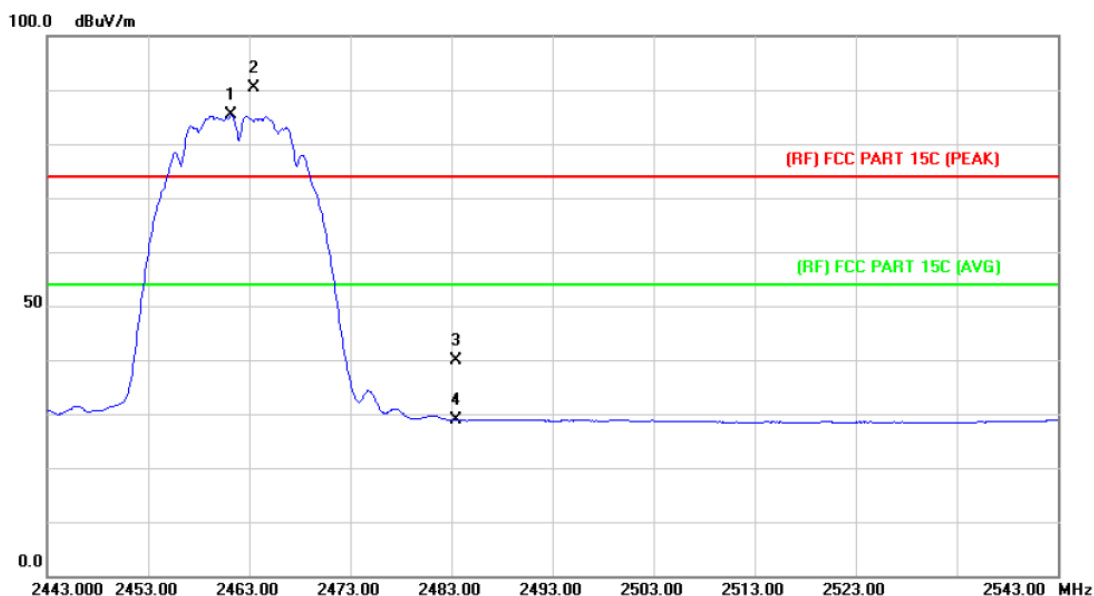
EUT:	NoteBook	Model:	W86
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Ant. Pol.	Vertical		
Test Mode:	TX B Mode 2412MHz		
Remark:	N/A		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB Detector
1		2390.000	42.67	0.77	43.44	74.00	-30.56 peak
2		2390.000	30.19	0.77	30.96	54.00	-23.04 AVG
3	*	2412.800	86.52	0.86	87.38	Fundamental Frequency AVG	
4	X	2413.400	92.09	0.86	92.95	Fundamental Frequency peak	

Emission Level= Read Level+ Correct Factor

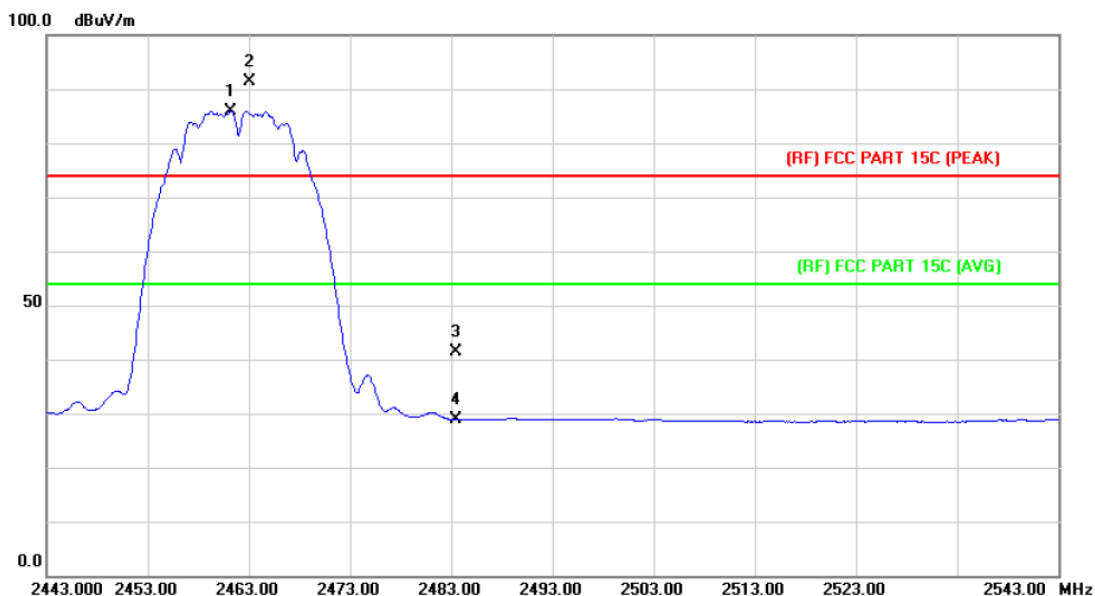
EUT:	NoteBook	Model:	W86
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX B Mode 2462MHz		
Remark:	N/A		



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB/m	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector
1	*	2461.200	84.24	1.07	85.31	Fundamental Frequency		AVG
2	X	2463.400	89.38	1.08	90.46	Fundamental Frequency		peak
3		2483.500	38.83	1.17	40.00	74.00	-34.00	peak
4		2483.500	27.63	1.17	28.80	54.00	-25.20	AVG

Emission Level= Read Level+ Correct Factor

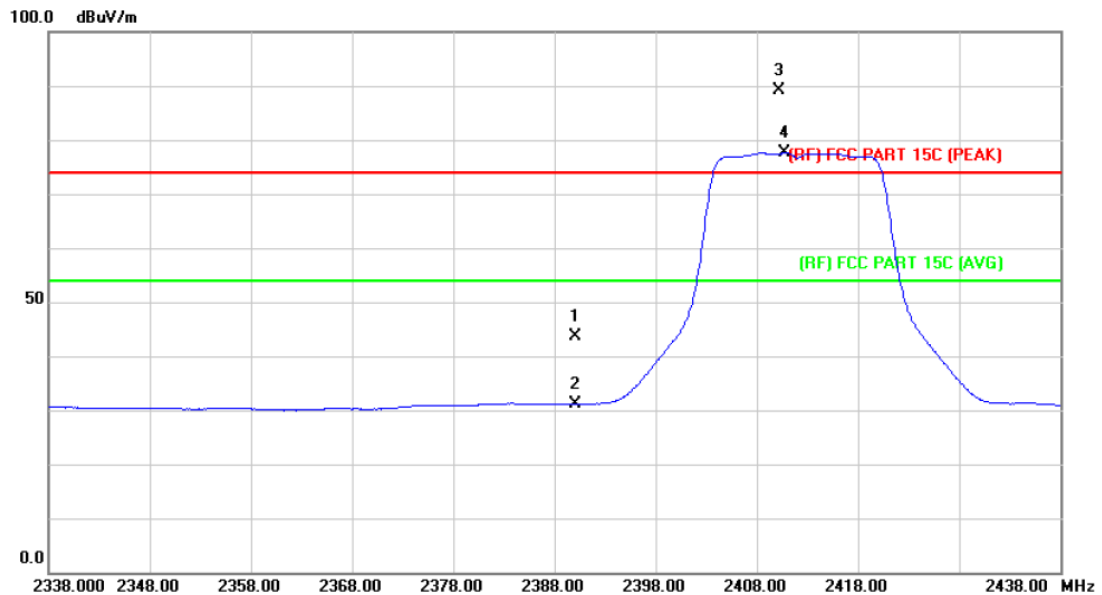
EUT:	NoteBook	Model:	W86
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Ant. Pol.	Vertical		
Test Mode:	TX B Mode 2462MHz		
Remark:	N/A		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB Detector
1	*	2461.200	84.89	1.07	85.96	Fundamental Frequency	AVG
2	X	2463.000	90.23	1.08	91.31	Fundamental Frequency	peak
3		2483.500	40.15	1.17	41.32	74.00	-32.68 peak
4		2483.500	27.67	1.17	28.84	54.00	-25.16 AVG

Emission Level= Read Level+ Correct Factor

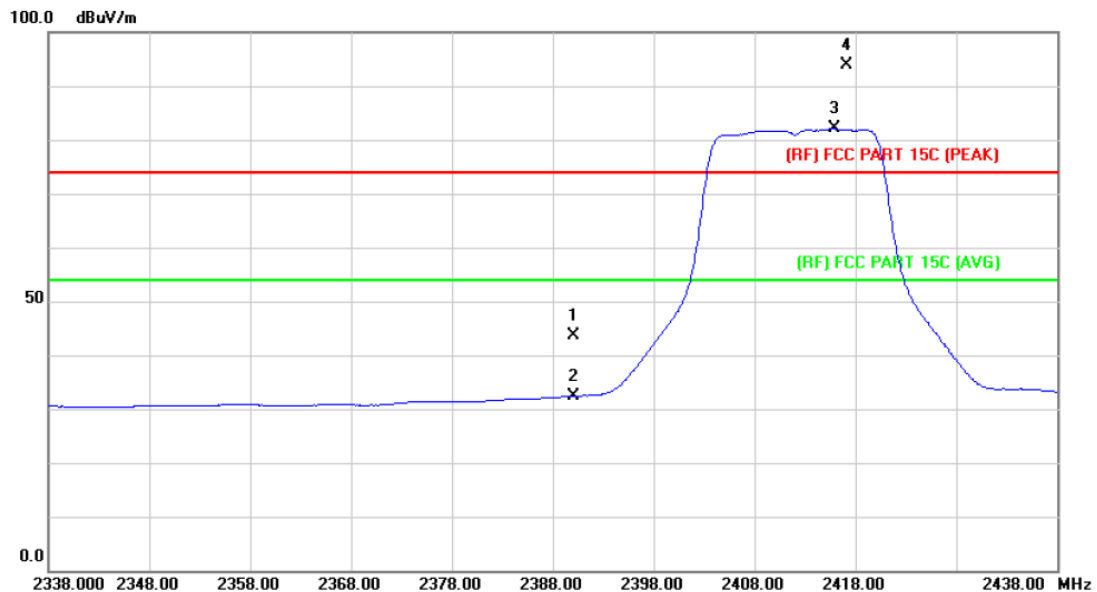
EUT:	NoteBook	Model:	W86
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX G Mode 2412MHz		
Remark:	N/A		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		2390.000	42.82	0.77	43.59	74.00	-30.41	peak
2		2390.000	30.32	0.77	31.09	54.00	-22.91	AVG
3	X	2410.200	88.22	0.85	89.07	Fundamental Frequency		peak
4	*	2410.700	76.75	0.86	77.61	Fundamental Frequency		AVG

Emission Level= Read Level+ Correct Factor

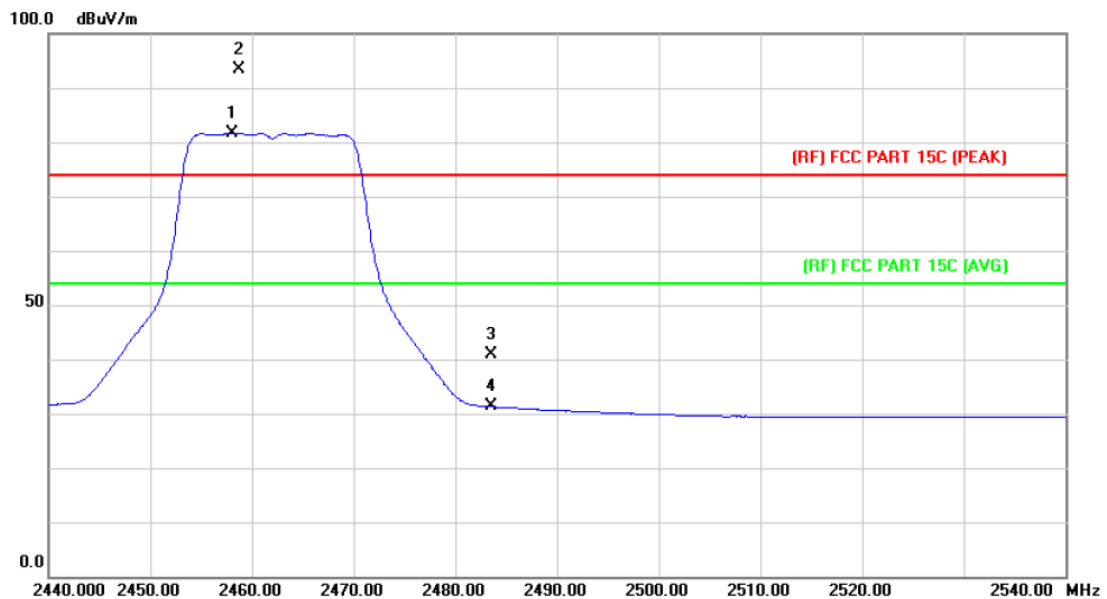
EUT:	NoteBook	Model:	W86
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Ant. Pol.	Vertical		
Test Mode:	TX G Mode 2412MHz		
Remark:	N/A		



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB/m	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector
1		2390.000	42.96	0.77	43.73	74.00	-30.27	peak
2		2390.000	31.60	0.77	32.37	54.00	-21.63	AVG
3	*	2415.900	81.21	0.88	82.09	Fundamental Frequency		AVG
4	X	2417.100	92.88	0.88	93.76	Fundamental Frequency		peak

Emission Level= Read Level+ Correct Factor

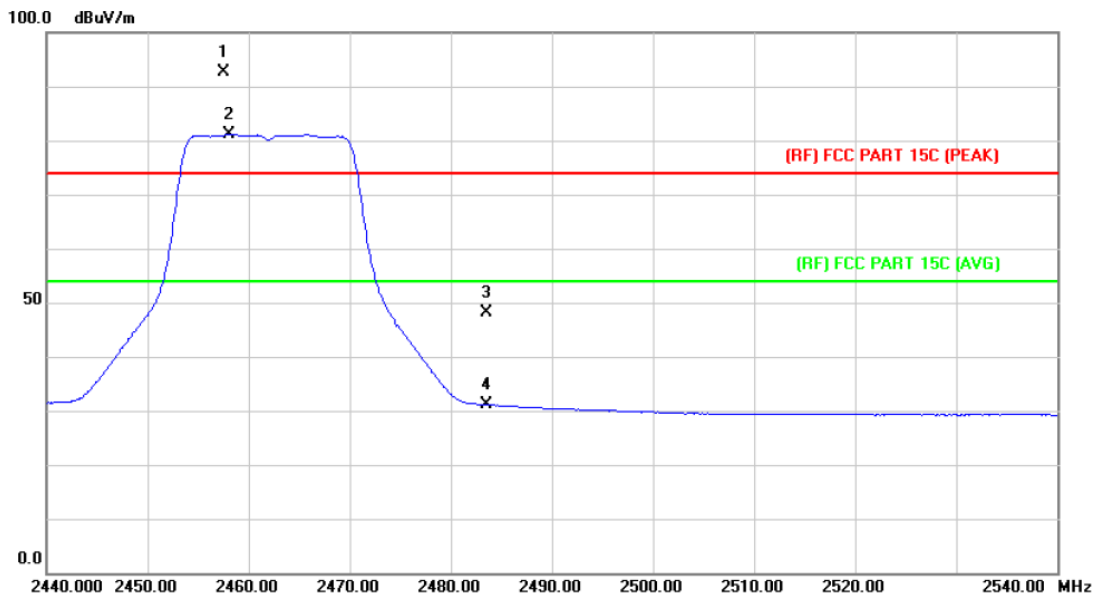
EUT:	NoteBook	Model:	W86
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX G Mode 2462MHz		
Remark:	N/A		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	2458.100	80.63	1.06	81.69	Fundamental Frequency		AVG
2	X	2458.700	92.41	1.06	93.47	Fundamental Frequency		peak
3		2483.500	39.78	1.17	40.95	74.00	-33.05	peak
4		2483.500	30.12	1.17	31.29	54.00	-22.71	AVG

Emission Level= Read Level+ Correct Factor

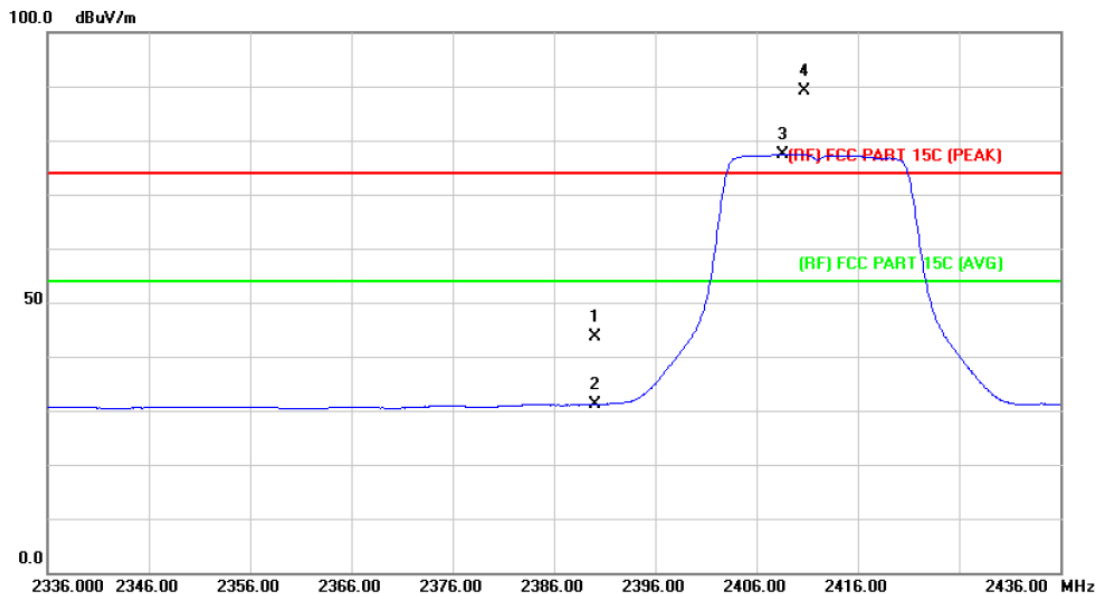
EUT:	NoteBook	Model:	W86
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Ant. Pol.	Vertical		
Test Mode:	TX G Mode 2462MHz		
Remark:	N/A		



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB/m	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector
1	X	2457.600	91.54	1.05	92.59	Fundamental Frequency		peak
2	*	2458.100	80.07	1.06	81.13	Fundamental Frequency		AVG
3		2483.500	47.03	1.17	48.20	74.00	-25.80	peak
4		2483.500	29.93	1.17	31.10	54.00	-22.90	AVG

Emission Level= Read Level+ Correct Factor

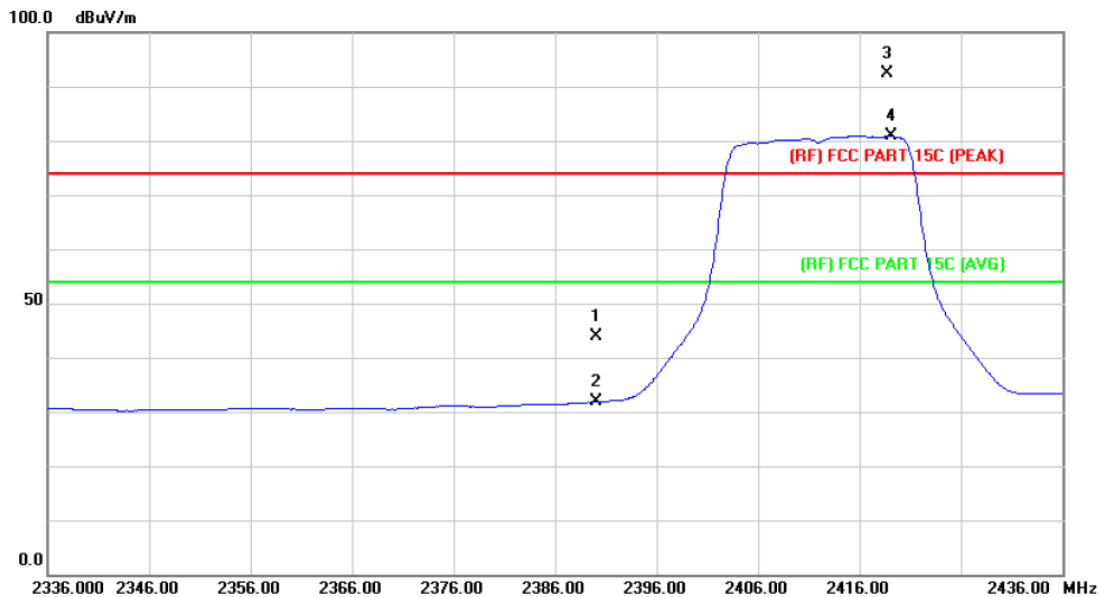
EUT:	NoteBook	Model:	W86
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX N(HT20) Mode 2412MHz		
Remark:	N/A		



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB/m	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector
1		2390.000	42.80	0.77	43.57	74.00	-30.43	peak
2		2390.000	30.35	0.77	31.12	54.00	-22.88	AVG
3	*	2408.600	76.60	0.85	77.45	Fundamental Frequency		AVG
4	X	2410.700	88.24	0.86	89.10	Fundamental Frequency		peak

Emission Level= Read Level+ Correct Factor

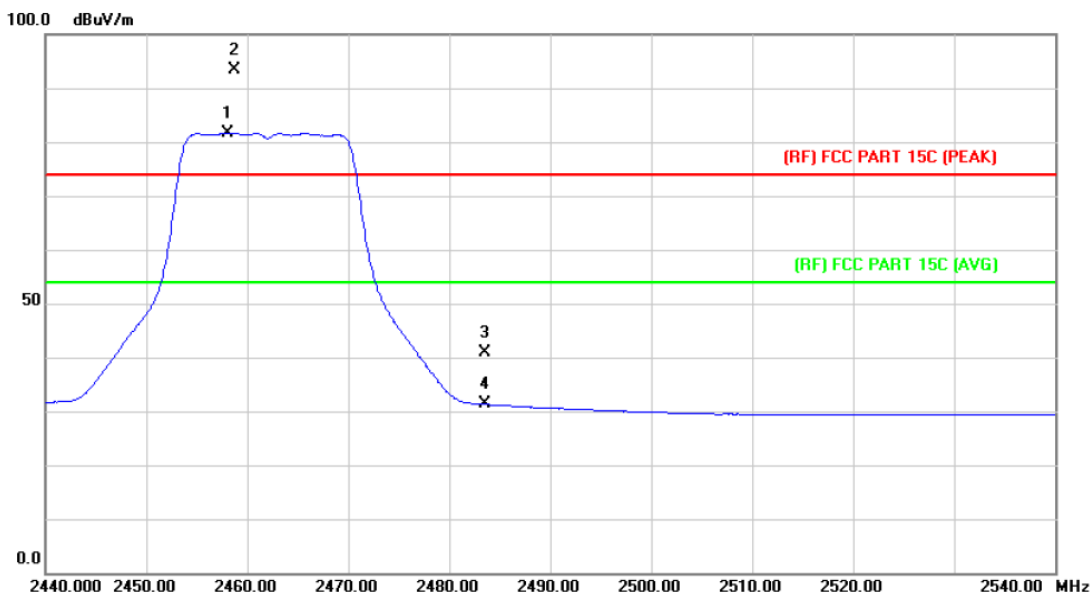
EUT:	NoteBook	Model:	W86
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Ant. Pol.	Vertical		
Test Mode:	TX N(HT20) Mode 2412MHz		
Remark:	N/A		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB Detector
1		2390.000	43.02	0.77	43.79	74.00	-30.21 peak
2		2390.000	31.05	0.77	31.82	54.00	-22.18 AVG
3	X	2418.700	91.53	0.89	92.42	Fundamental Frequency	peak
4	*	2419.200	80.00	0.89	80.89	Fundamental Frequency	AVG

Emission Level= Read Level+ Correct Factor

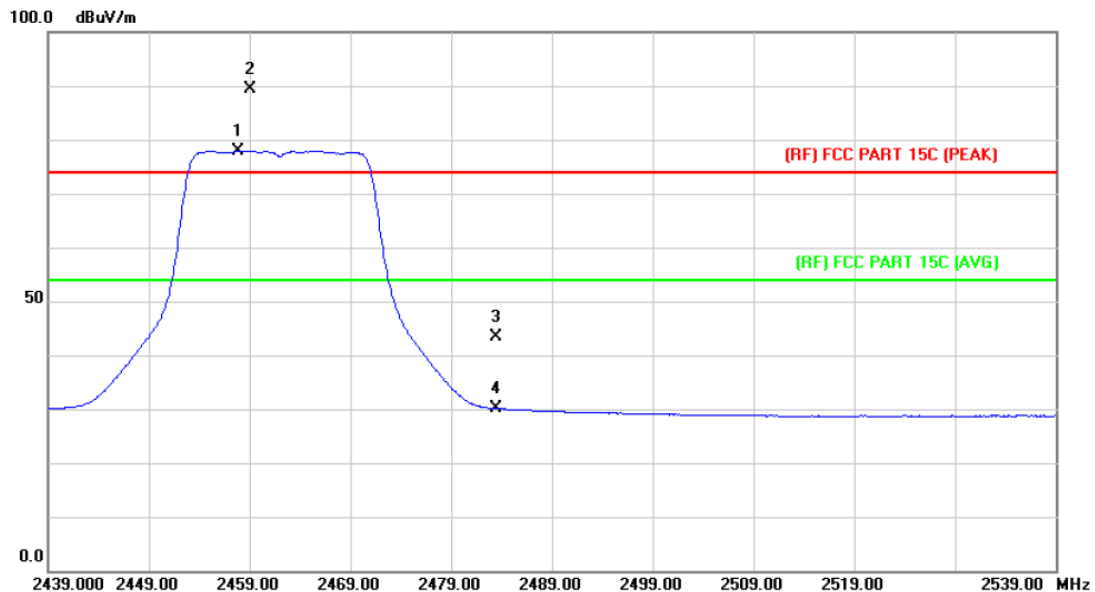
EUT:	NoteBook	Model:	W86
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX N(HT20) Mode 2462MHz		
Remark:	N/A		



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB/m	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector
1	*	2458.100	80.63	1.06	81.69	Fundamental Frequency		AVG
2	X	2458.700	92.41	1.06	93.47	Fundamental Frequency		peak
3		2483.500	39.78	1.17	40.95	74.00	-33.05	peak
4		2483.500	30.12	1.17	31.29	54.00	-22.71	AVG

Emission Level= Read Level+ Correct Factor

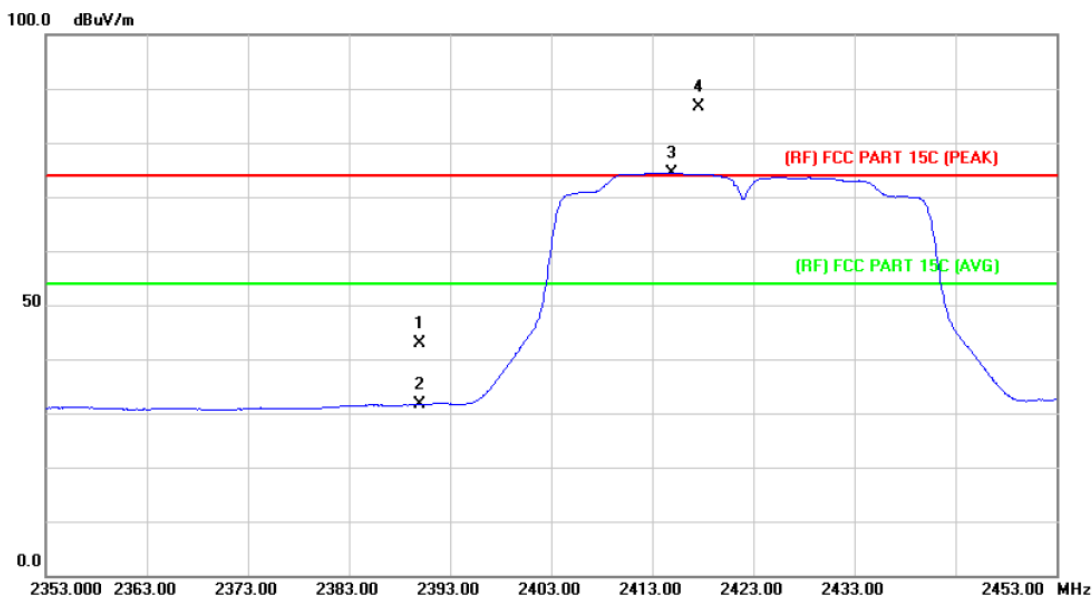
EUT:	NoteBook	Model:	W86
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Ant. Pol.	Vertical		
Test Mode:	TX N(HT20) Mode 2462MHz		
Remark:	N/A		



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB/m	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector
1	*	2457.800	76.90	1.06	77.96	Fundamental Frequency		AVG
2	X	2459.100	88.34	1.06	89.40	Fundamental Frequency		peak
3		2483.500	42.32	1.17	43.49	74.00	-30.51	peak
4		2483.500	28.90	1.17	30.07	54.00	-23.93	AVG

Emission Level= Read Level+ Correct Factor

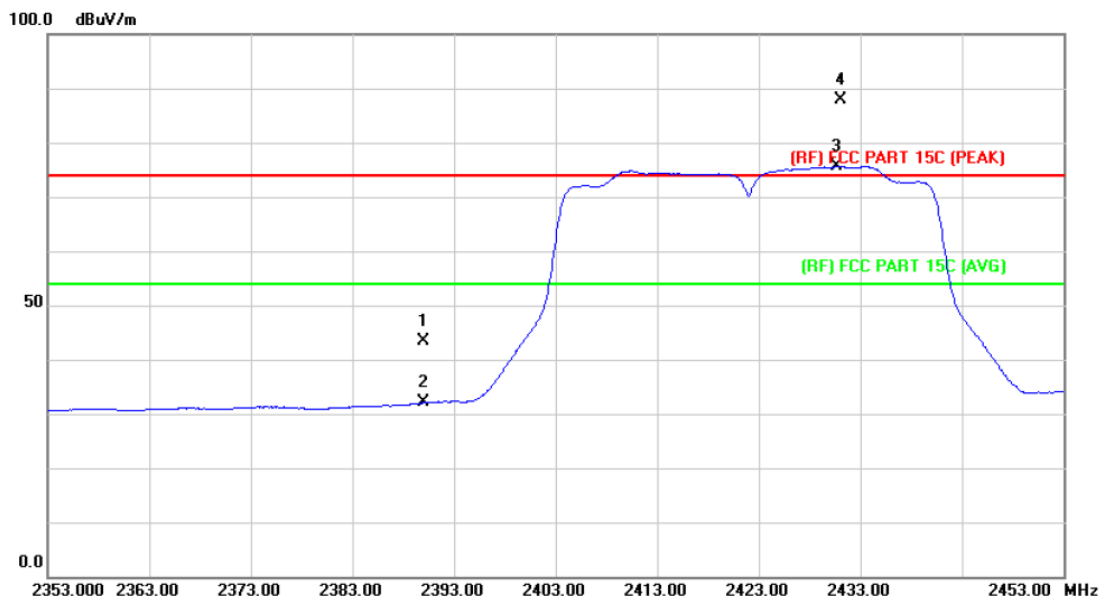
EUT:	NoteBook	Model:	W86
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX N(HT40) Mode 2422MHz		
Remark:	N/A		



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB/m	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector
1		2390.000	42.23	0.77	43.00	74.00	-31.00	peak
2		2390.000	30.88	0.77	31.65	54.00	-22.35	AVG
3	*	2414.900	73.60	0.88	74.48	Fundamental Frequency		AVG
4	X	2417.600	85.62	0.89	86.51	Fundamental Frequency		peak

Emission Level= Read Level+ Correct Factor

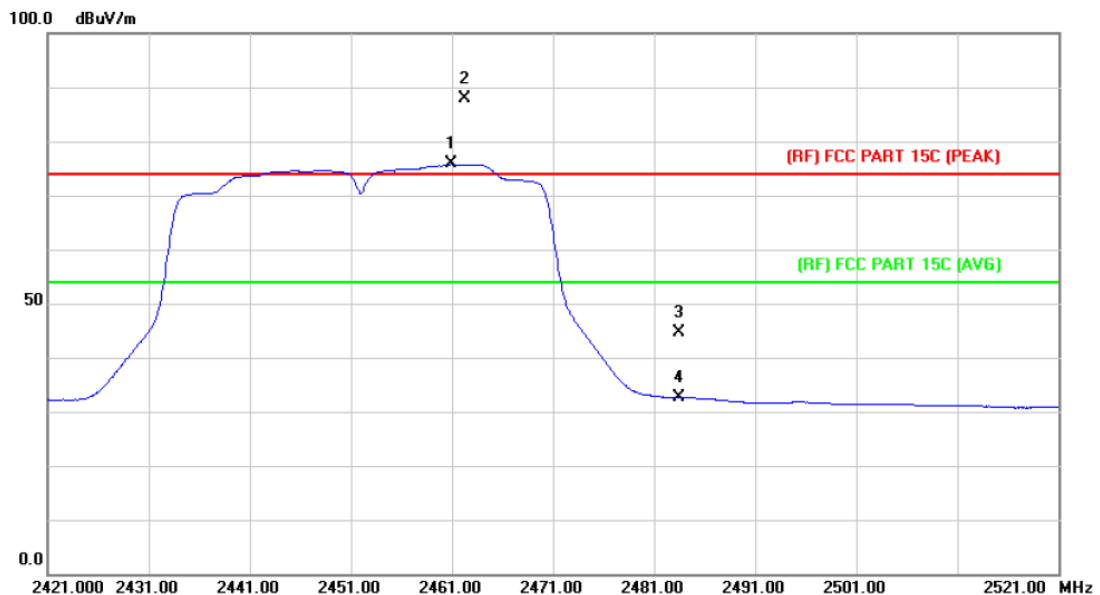
EUT:	NoteBook	Model:	W86
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Ant. Pol.	Vertical		
Test Mode:	TX N(HT40) Mode 2422MHz		
Remark:	N/A		



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB/m	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector
1		2390.000	42.57	0.77	43.34	74.00	-30.66	peak
2		2390.000	31.25	0.77	32.02	54.00	-21.98	AVG
3	*	2430.700	74.66	0.94	75.60	Fundamental Frequency		AVG
4	X	2431.000	86.82	0.95	87.77	Fundamental Frequency		peak

Emission Level= Read Level+ Correct Factor

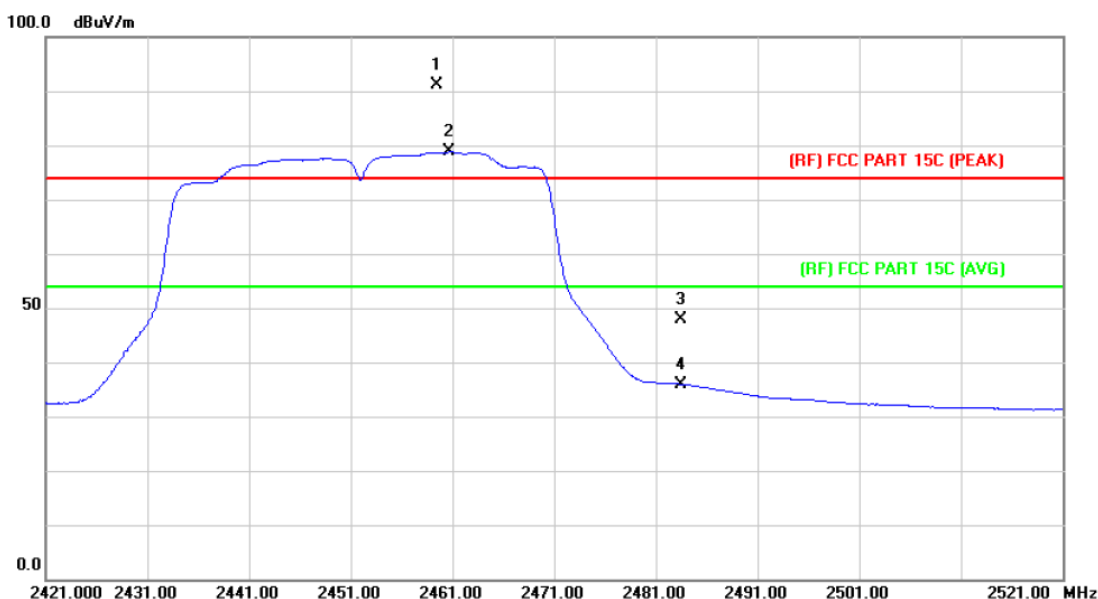
EUT:	NoteBook	Model:	W86
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX N(HT40) Mode 2452MHz		
Remark:	N/A		



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB/m	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector
1	*	2460.900	74.71	1.06	75.77	Fundamental Frequency		AVG
2	X	2462.300	86.82	1.08	87.90	Fundamental Frequency		peak
3		2483.500	43.34	1.17	44.51	74.00	-29.49	peak
4		2483.500	31.47	1.17	32.64	54.00	-21.36	AVG

Emission Level= Read Level+ Correct Factor

EUT:	NoteBook	Model:	W86
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Ant. Pol.	Vertical		
Test Mode:	TX N(HT40) Mode 2452MHz		
Remark:	N/A		

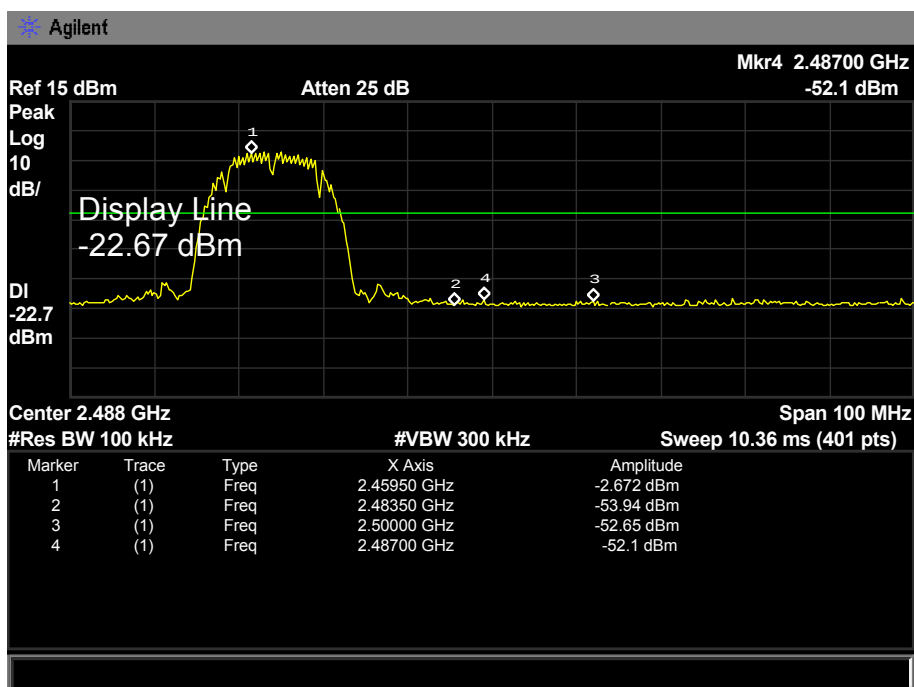
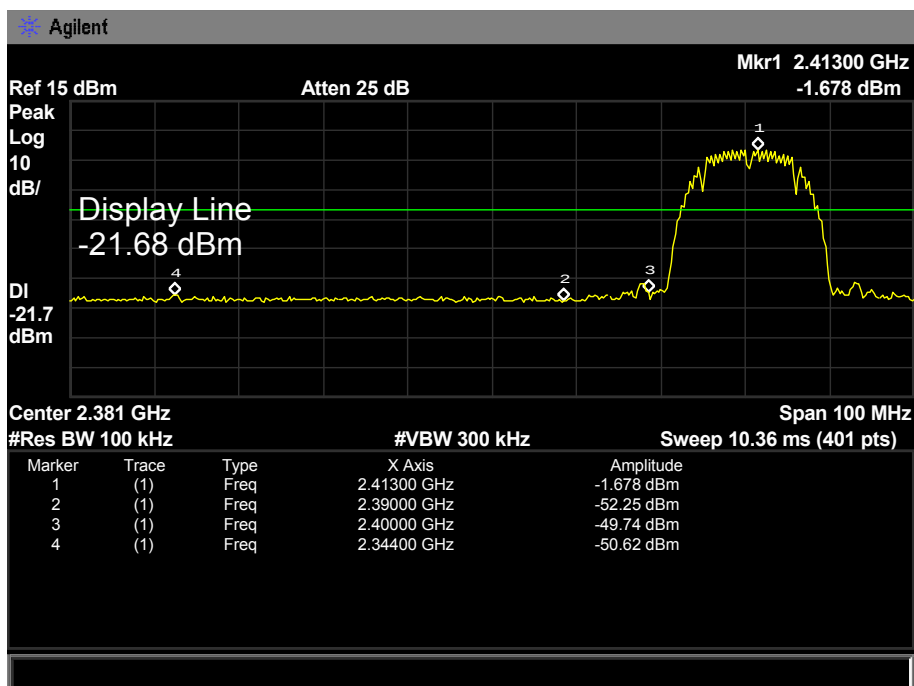


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB/m	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector
1	X	2459.400	90.10	1.06	91.16	Fundamental Frequency		peak
2	*	2460.700	77.71	1.06	78.77	Fundamental Frequency		AVG
3		2483.500	46.81	1.17	47.98	74.00	-26.02	peak
4		2483.500	34.78	1.17	35.95	54.00	-18.05	AVG

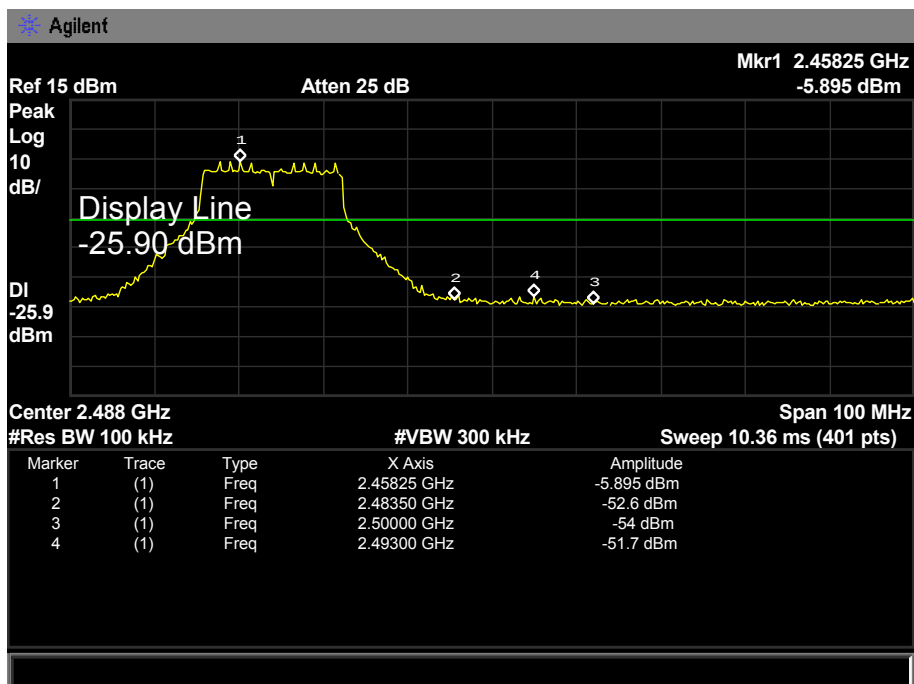
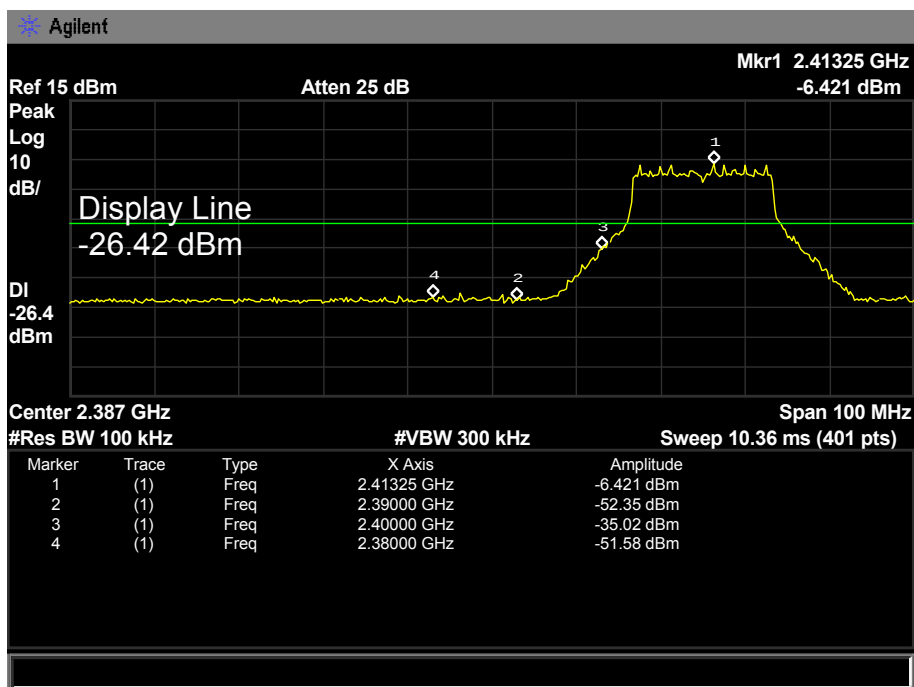
Emission Level= Read Level+ Correct Factor

(2) Conducted Test

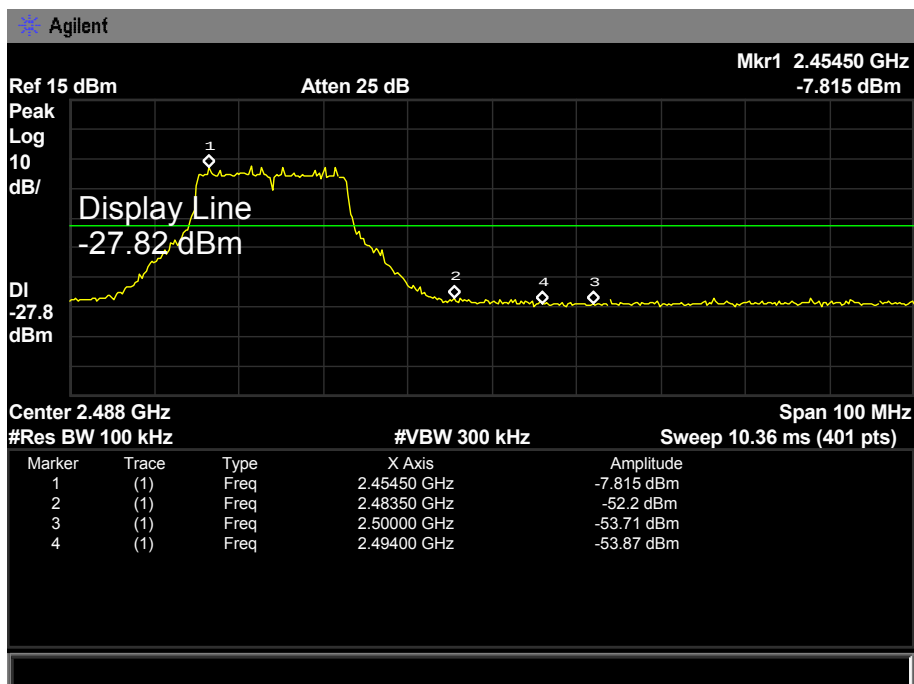
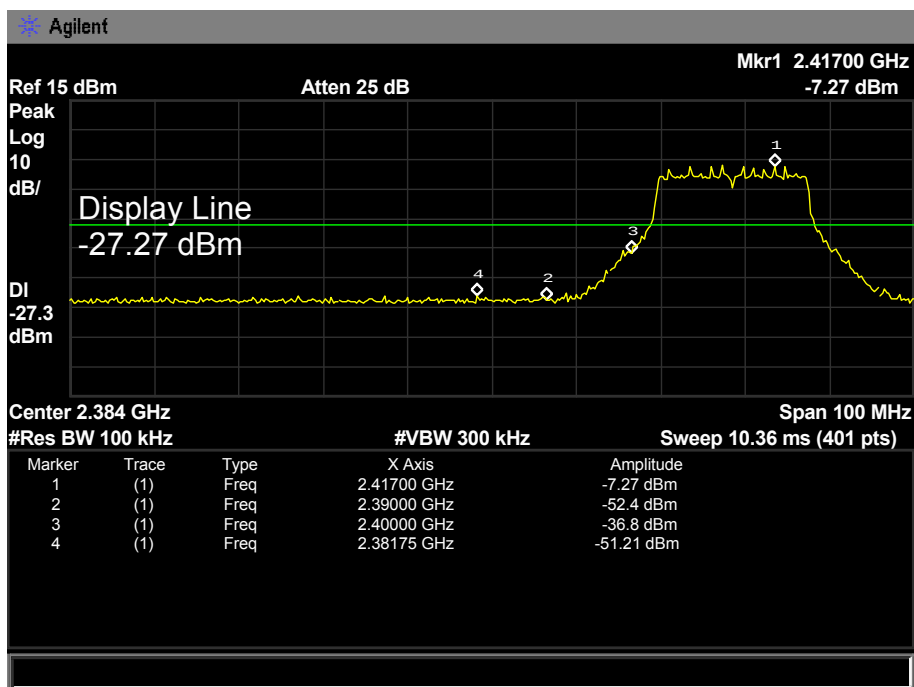
EUT:	NoteBook	Model:	W86
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Test Mode:	TX B Mode 2412MHz / TX B Mode 2462MHz		
Remark:	The EUT is programed in continuously transmitting mode		



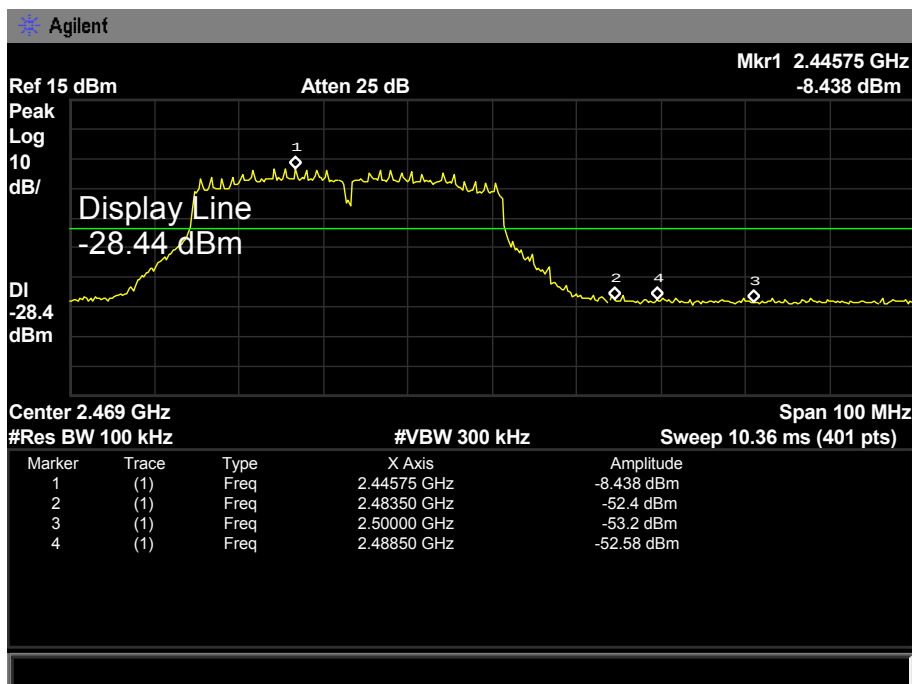
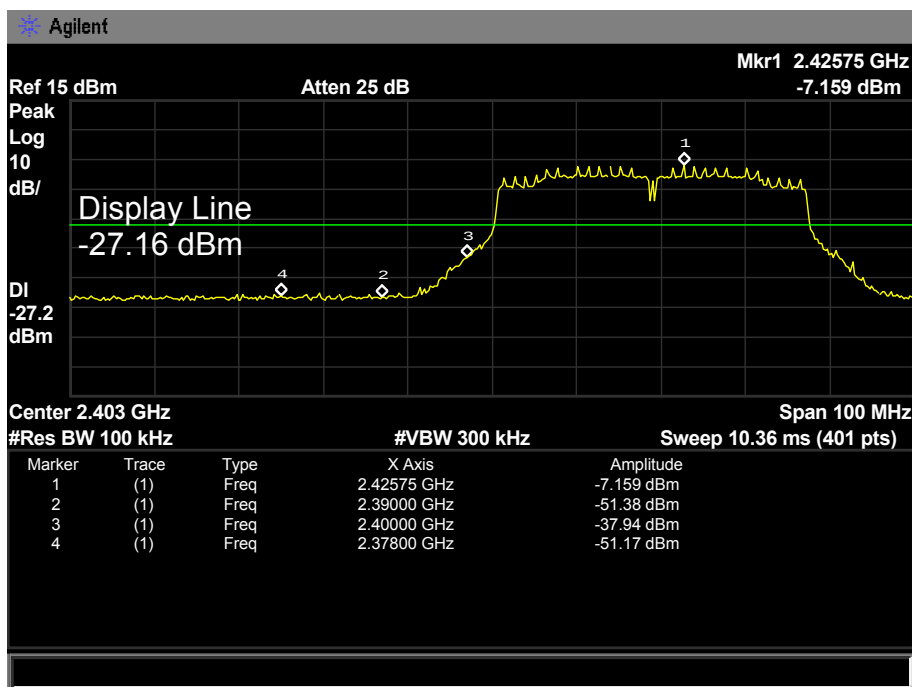
EUT:	NoteBook	Model:	W86
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Test Mode:	TX G Mode 2412MHz / TX G Mode 2462MHz		
Remark:	The EUT is programed in continuously transmitting mode		



EUT:	NoteBook	Model:	W86
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Test Mode:	TX N(HT20) Mode 2412MHz / TX N(HT20) Mode 2462MHz		
Remark:	The EUT is programed in continuously transmitting mode		



EUT:	NoteBook	Model:	W86
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Test Mode:	TX N(HT40) Mode 2422MHz / TX N(HT40) Mode 2452MHz		
Remark:	The EUT is programed in continuously transmitting mode		



7. Bandwidth Test

7.1 Test Standard and Limit

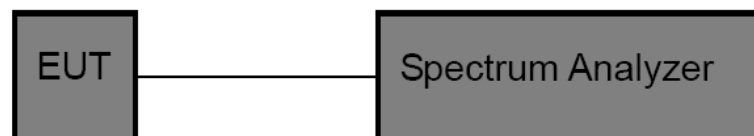
7.1.1 Test Standard

FCC Part 15.247 (a)(2)

7.1.2 Test Limit

FCC Part 15 Subpart C(15.247)/RSS-210		
Test Item	Limit	Frequency Range(MHz)
Bandwidth	≥ 500 KHz (6dB bandwidth)	2400~2483.5

7.2 Test Setup



7.3 Test Procedure

- (1) The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
- (2) The bandwidth is measured at an amplitude level reduced 6dB from the reference level. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. Once the reference level is established, the equipment is conditioned with typical modulating signal to produce the worst –case (i.e the widest) bandwidth.
- (3) Measure the channel separation the spectrum analyzer was set to Resolution Bandwidth:100 kHz, and Video Bandwidth:300 kHz, Detector: Peak, Sweep Time set auto.

7.4 EUT Operating Condition

The EUT was set to continuously transmitting in each mode and low, middle and high channel for the test.

7.5 Test Data

EUT:	NoteBook	Model:	W86
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Test Mode:	TX 802.11B Mode		
Channel frequency (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	Limit (MHz)
2412	10.174	13.9955	>=0.5
2437	10.170	13.9536	
2462	11.092	13.9991	
802.11B Mode			
2412 MHz			

Agilent

Ref 15 dBm

Atten 25 dB

#Peak

Log

10

dB/

Center 2.41200000 GHz

Center 2.412 GHz

#Res BW 100 kHz

#VBW 300 kHz

Span 20 MHz

Sweep 4 ms (401 pts)

Occupied Bandwidth

13.9955 MHz

Occ BW % Pwr

99.00 %

x dB

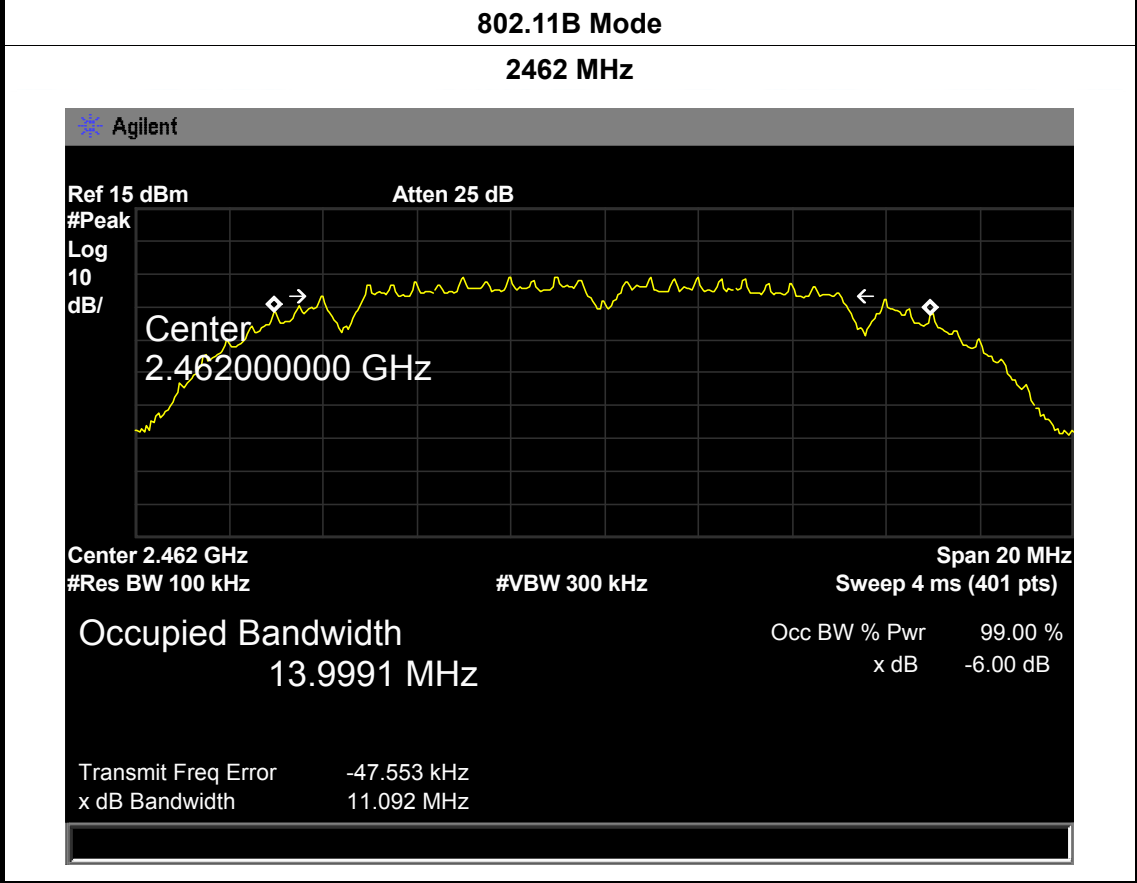
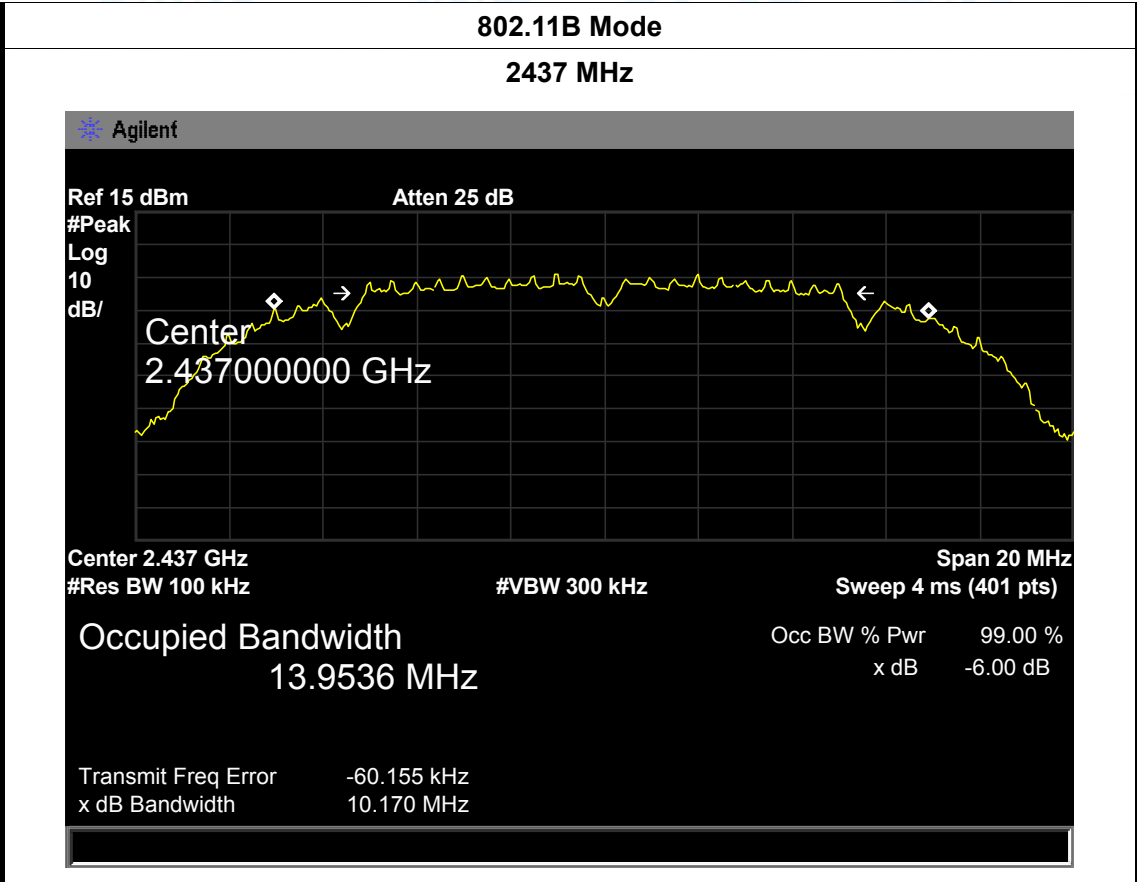
-6.00 dB

Transmit Freq Error

-17.912 kHz

x dB Bandwidth

10.174 MHz



EUT:	NoteBook	Model:	W86
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Test Mode:	TX 802.11G Mode		
Channel frequency (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	Limit (MHz)
2412	16.381	16.4378	>=0.5
2437	16.392	16.4432	
2462	16.383	16.4582	

802.11G Mode

2412 MHz

Agilent

Ref 15 dBm

Atten 25 dB

#Peak

Log

10

dB/

Center

2.41200000 GHz

Center 2.412 GHz

#Res BW 100 kHz

#VBW 300 kHz

Span 20 MHz

Sweep 4 ms (401 pts)

Occupied Bandwidth

16.4378 MHz

Occ BW % Pwr

99.00 %

x dB

-6.00 dB

Transmit Freq Error

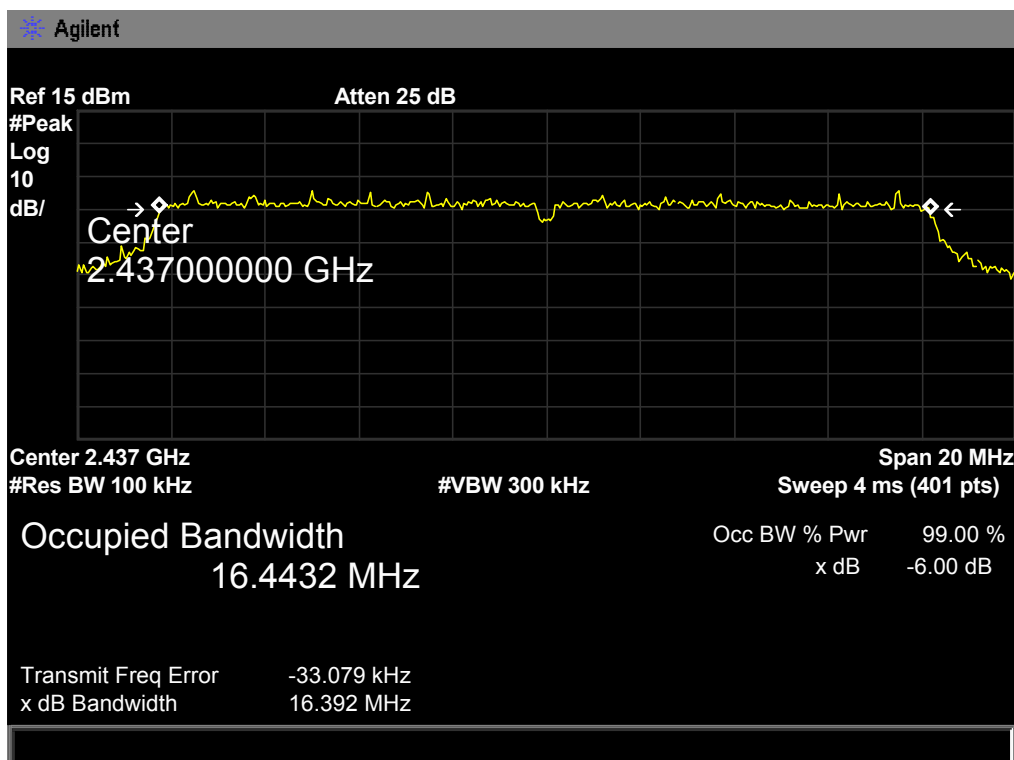
-22.773 kHz

x dB Bandwidth

16.381 MHz

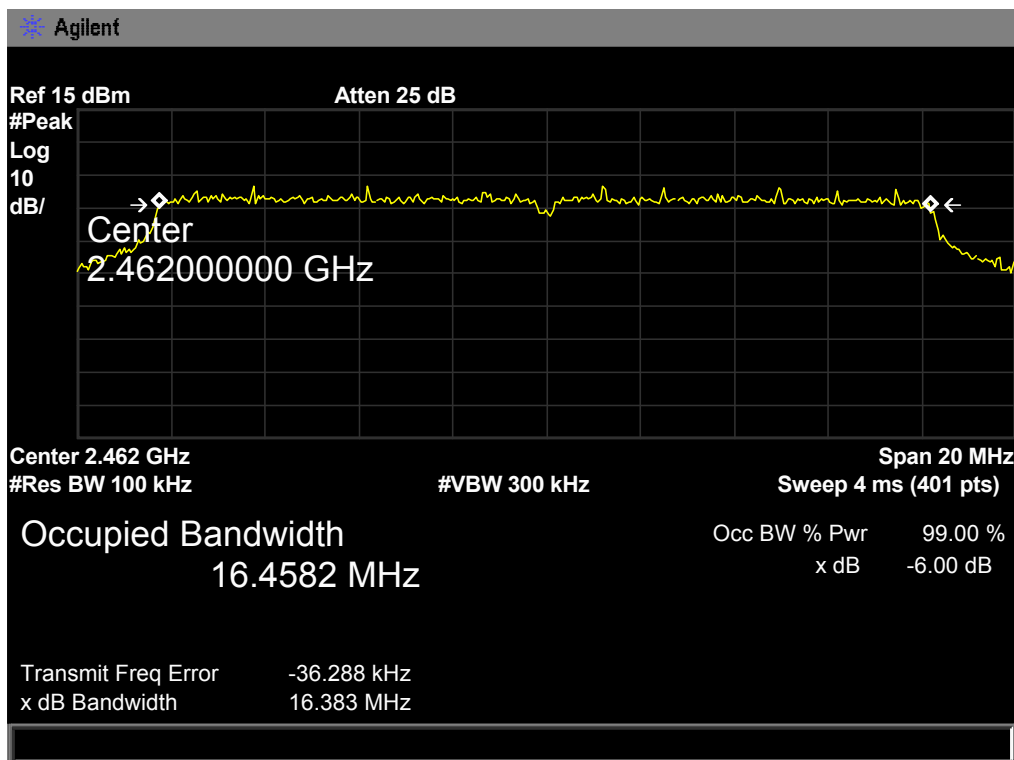
802.11G Mode

2437 MHz



802.11G Mode

2462 MHz



EUT:	NoteBook	Model:	W86
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Test Mode:	TX 802.11N(HT20) Mode		
Channel frequency (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	Limit (MHz)
2412	17.624	17.6330	>=0.5
2437	17.661	17.6248	
2462	17.587	17.6285	

802.11N(HT20) Mode

2412 MHz

Agilent

Ref 15 dBm

Atten 25 dB

#Peak

Log

10

dB/

→

Center

2.41200000 GHz

←

Center 2.412 GHz

#Res BW 100 kHz

#VBW 300 kHz

Span 20 MHz

Sweep 4 ms (401 pts)

Occupied Bandwidth

17.6330 MHz

Occ BW % Pwr

99.00 %

x dB

-6.00 dB

Transmit Freq Error

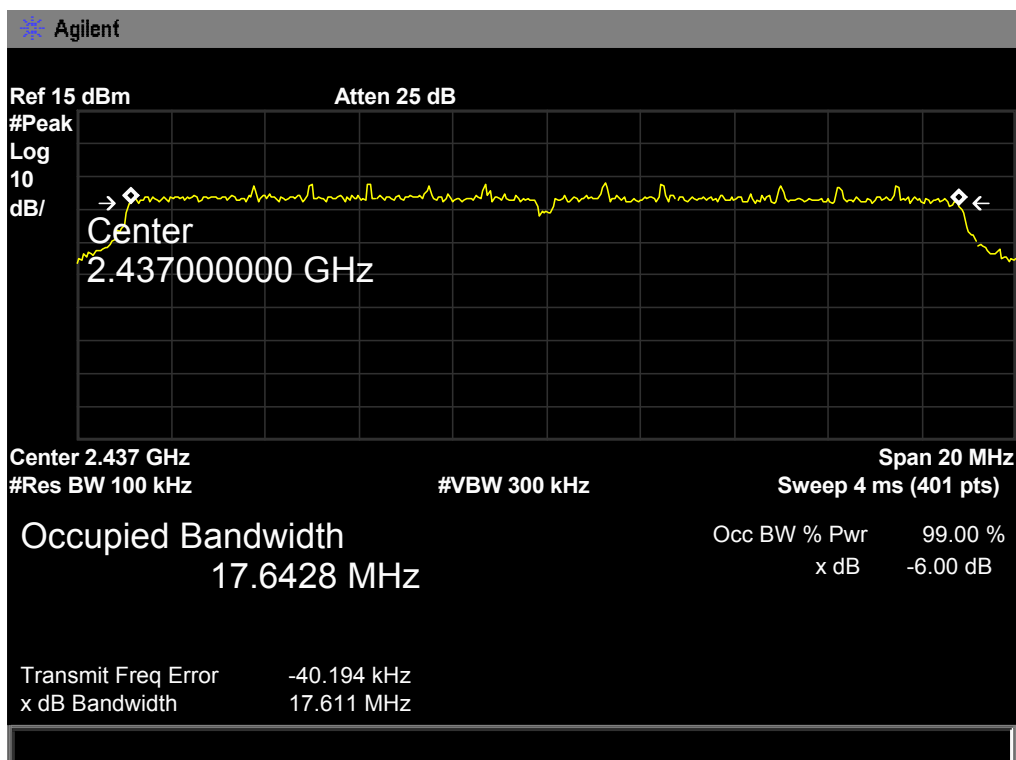
-24.759 kHz

x dB Bandwidth

17.624 MHz

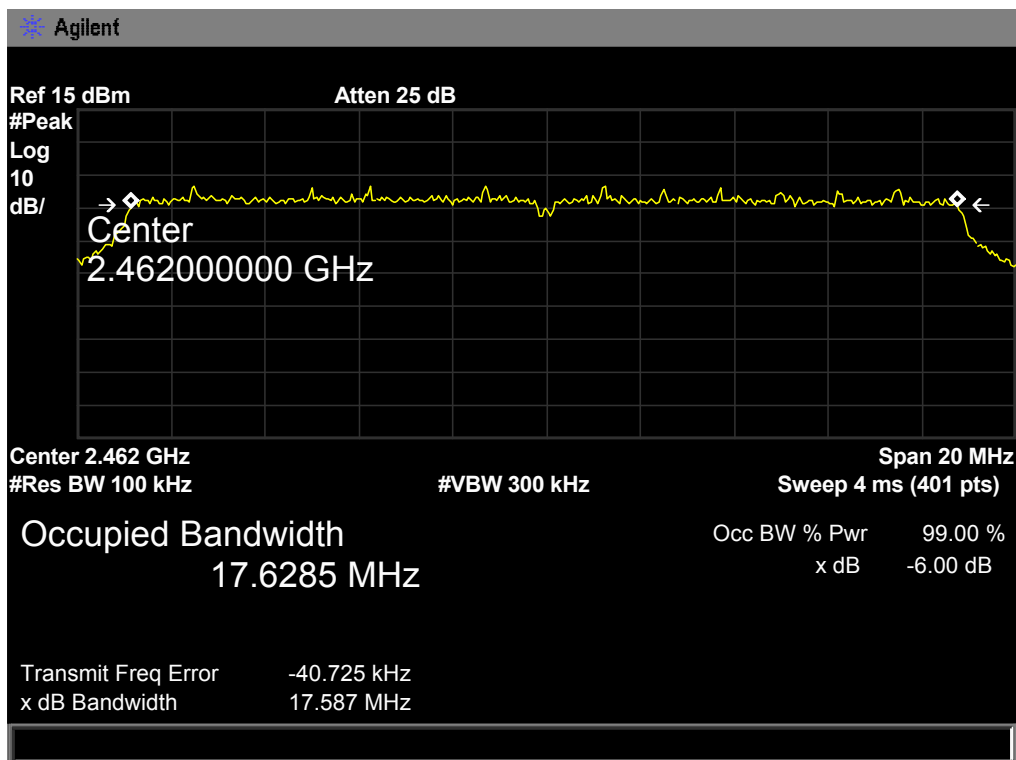
802.11N(HT20) Mode

2437 MHz



802.11N(HT20) Mode

2462 MHz



EUT:	NoteBook	Model:	W86
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Test Mode:	TX 802.11N(HT40) Mode		
Channel frequency (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	Limit (MHz)
2412	33.918	35.6924	>=0.5
2437	35.156	35.6528	
2462	35.160	35.6970	
802.11N(HT40) Mode			
2422 MHz			

Agilent

Ref 15 dBm

Atten 25 dB

#Peak

Log

10

dB/

Center

2.422000000 GHz

Center 2.422 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 4.144 ms (401 pts)

Span 40 MHz

Occupied Bandwidth

35.6924 MHz

Occ BW % Pwr

99.00 %

x dB

-6.00 dB

Transmit Freq Error

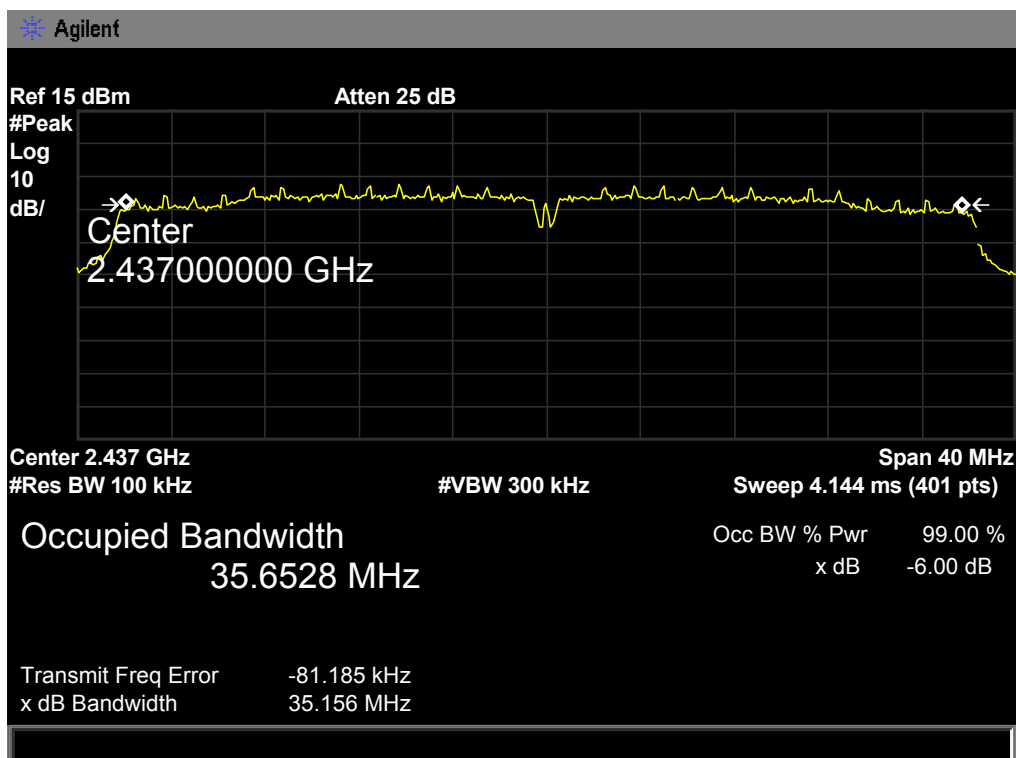
-37.346 kHz

x dB Bandwidth

33.918 MHz

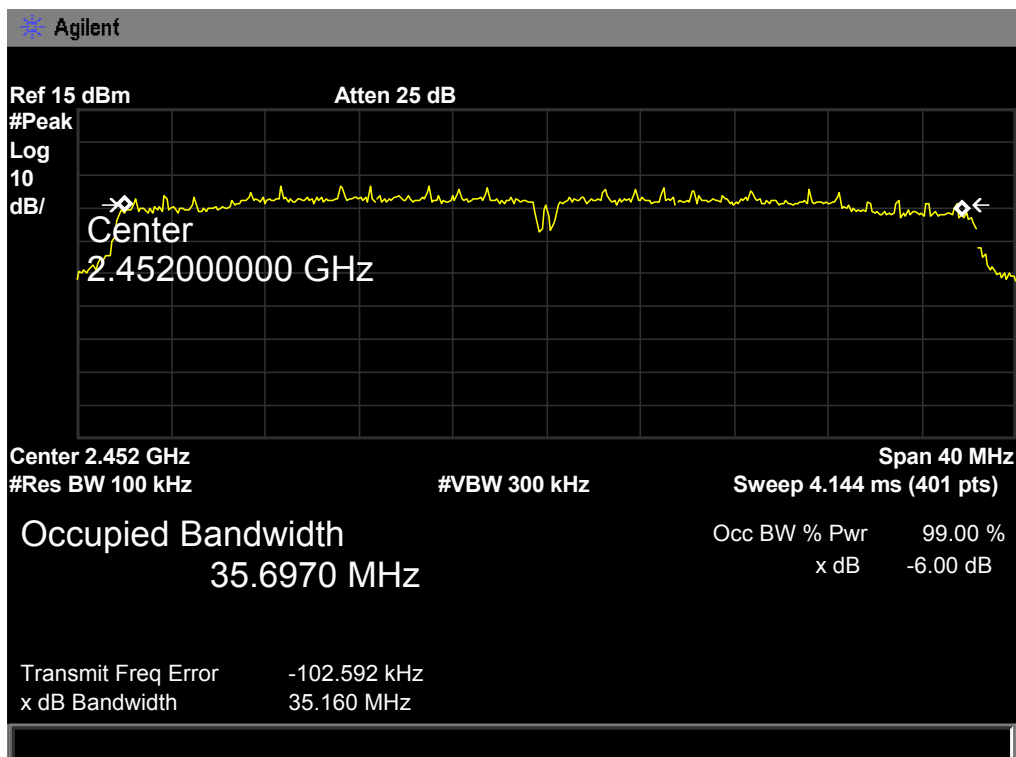
802.11N(HT40) Mode

2437 MHz



802.11N(HT40) Mode

2452 MHz



8. Peak Output Power Test

8.1 Test Standard and Limit

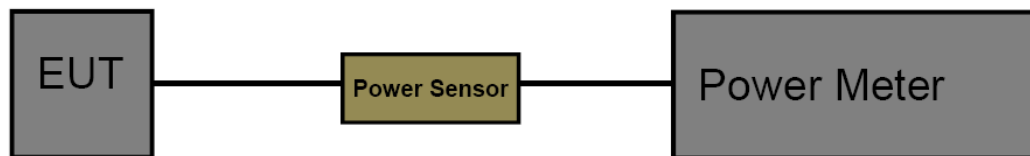
8.1.1 Test Standard

FCC Part 15.247 (b)

8.1.2 Test Limit

FCC Part 15 Subpart C(15.247)/RSS-210		
Test Item	Limit	Frequency Range(MHz)
Peak Output Power	1 Watt or 30 dBm	2400~2483.5

8.2 Test Setup



8.3 Test Procedure

The measurement is according to section 9.1.2 of KDB 558074 D01 DTS Meas Guidance v03r02.

The EUT was connected to RF power meter via a broadband power sensor as show the block above. The power sensor video bandwidth is greater than or equal to the DTS bandwidth of the equipment.

8.4 EUT Operating Condition

The EUT was set to continuously transmitting in the max power during the test.

8.5 Test Data

EUT:	NoteBook	Model Name :	W86
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Mode	Channel frequency (MHz)	Test Result (dBm)	Limit (dBm)
802.11b	2412	9.11	30
	2437	8.62	
	2462	9.15	
802.11g	2412	9.00	
	2437	9.13	
	2462	8.98	
802.11n (HT20)	2412	9.12	
	2437	9.05	
	2462	8.94	
802.11n (HT40)	2422	9.14	
	2437	8.81	
	2452	9.18	
Result: PASS			

9. Power Spectral Density Test

9.1 Test Standard and Limit

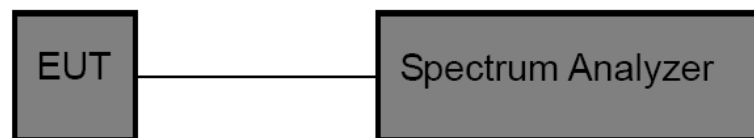
9.1.1 Test Standard

FCC Part 15.247 (e)

9.1.2 Test Limit

FCC Part 15 Subpart C(15.247)		
Test Item	Limit	Frequency Range(MHz)
Power Spectral Density	8dBm(in any 3 kHz)	2400~2483.5

9.2 Test Setup



9.3 Test Procedure

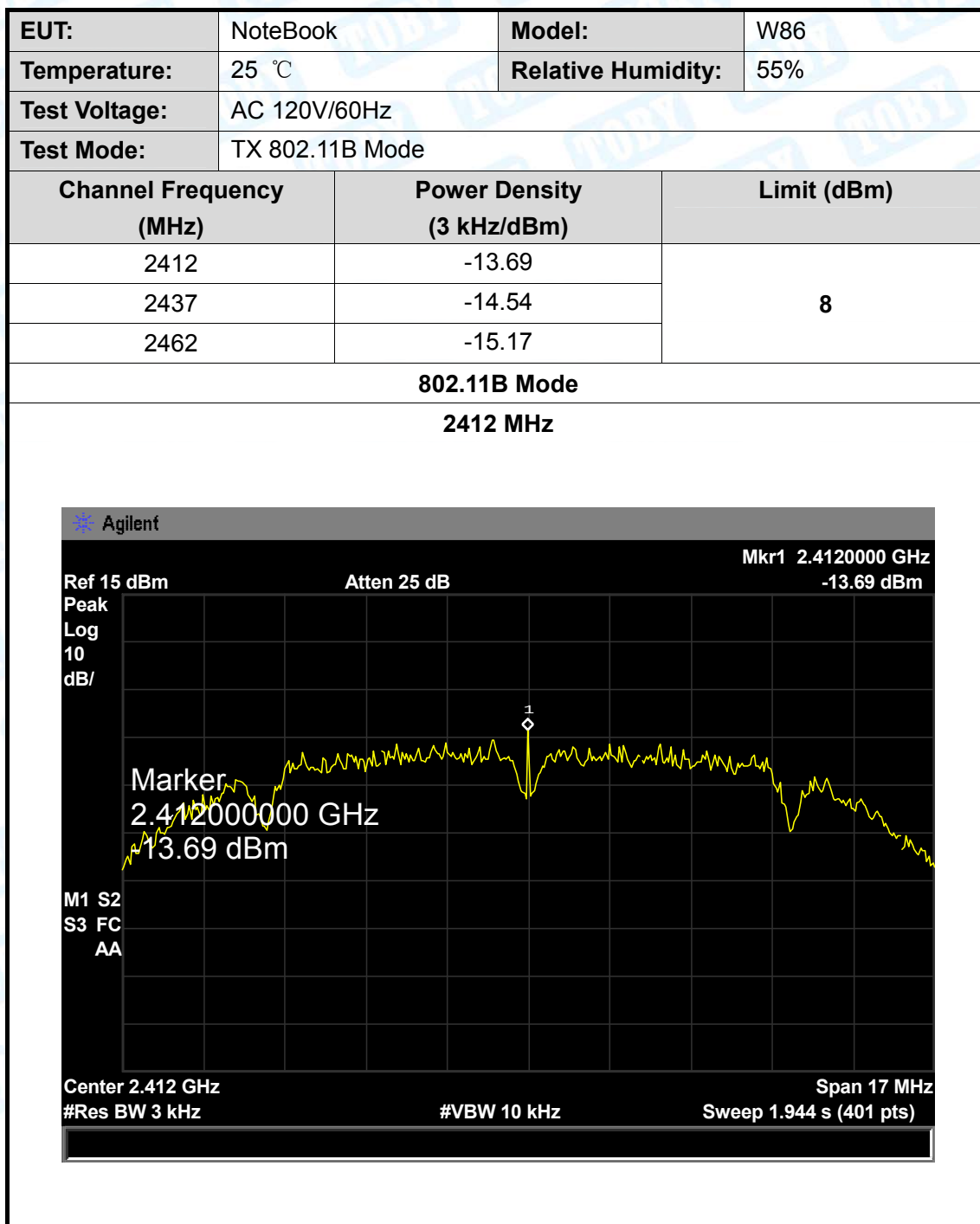
The EUT was directly connected to the Spectrum Analyzer and antenna output port as show in the block diagram above. The measurement according to section 10.2 of KDB 558074 D01 DTS Meas Guidance v03r02.

- (1) The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
- (2) Set analyser center frequency to DTS channel center frequency.
- (3) Set the span to 1.5 times the DTS bandwidth.
- (4) Set the RBW to: 3 kHz
- (5) Set the VBW to: 10 kHz
- (6) Detector: peak
- (7) Sweep time: auto
- (8) Allow trace to fully stabilize. Then use the peak marker function to determine the maximum amplitude level.

9.4 EUT Operating Condition

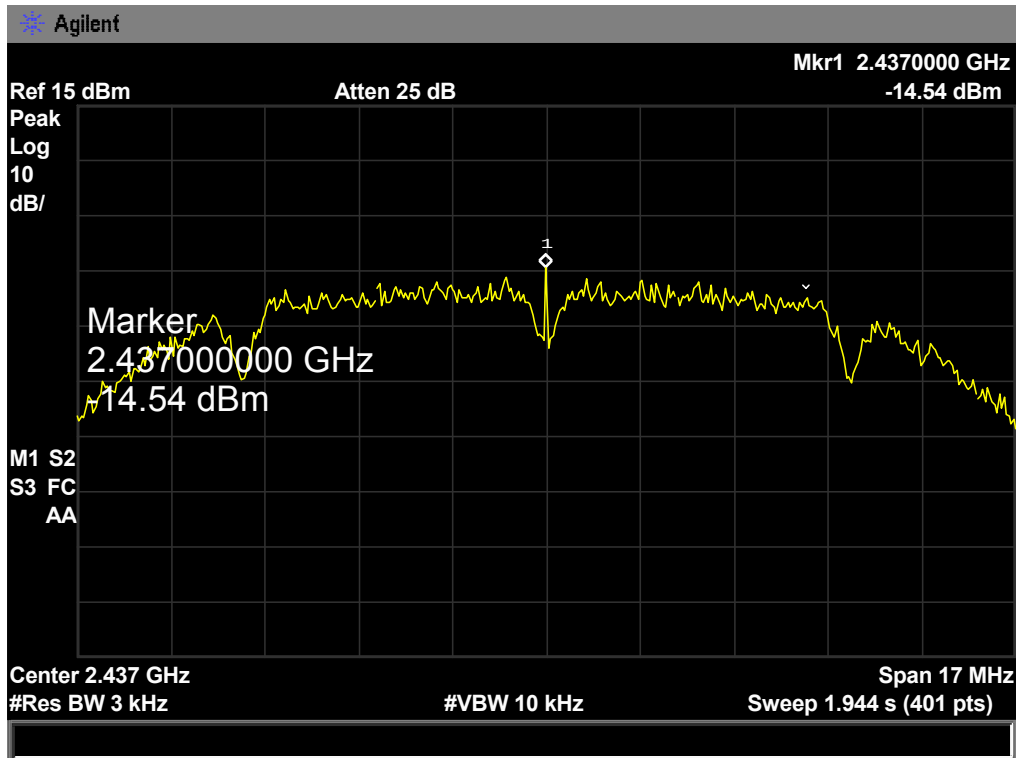
The EUT was set to continuously transmitting in each mode and low, middle and high channel for the test.

9.5 Test Data



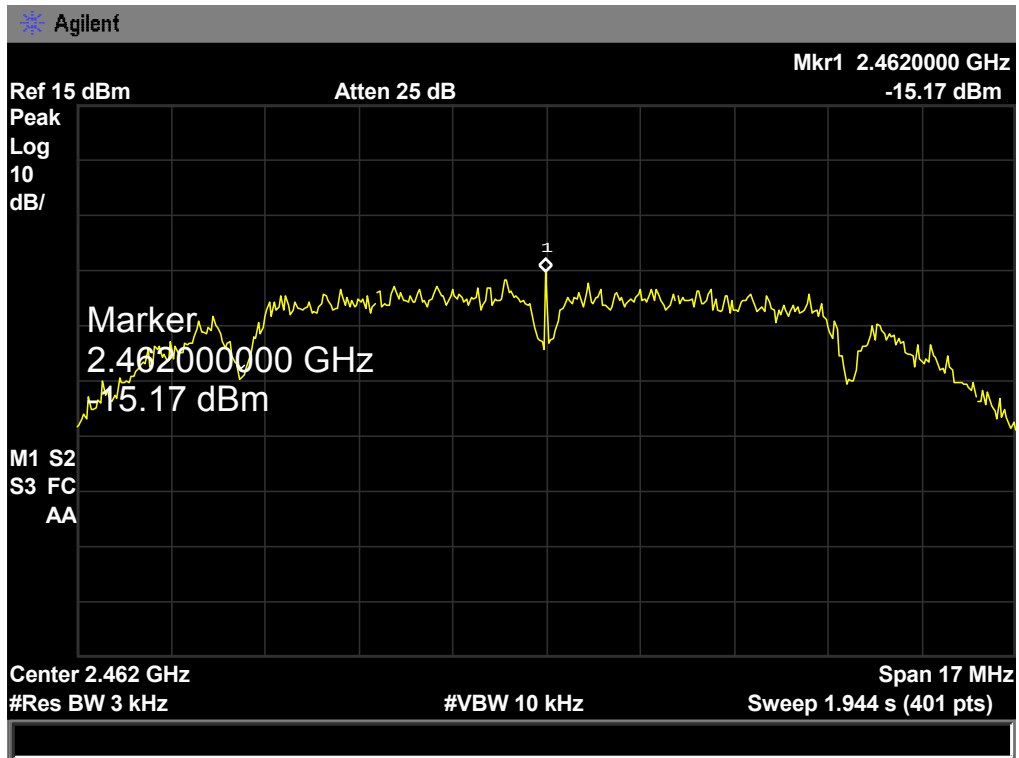
802.11B Mode

2437 MHz



802.11B Mode

2462 MHz



EUT:	NoteBook	Model:	W86
Temperature:	25 °C	Temperature:	25 °C
Test Voltage:	AC 120V/60Hz		
Test Mode:	TX 802.11G Mode		
Channel Frequency (MHz)	Power Density (3 kHz/dBm)	Limit (dBm)	
2412	-20.13	8	
2437	-20.43		
2462	-21.03		
802.11G Mode			
2412 MHz			

Agilent

Ref 15 dBmAtten 25 dB

Mkr1 2.4120000 GHz-20.13 dBm

PeakLog10dB/

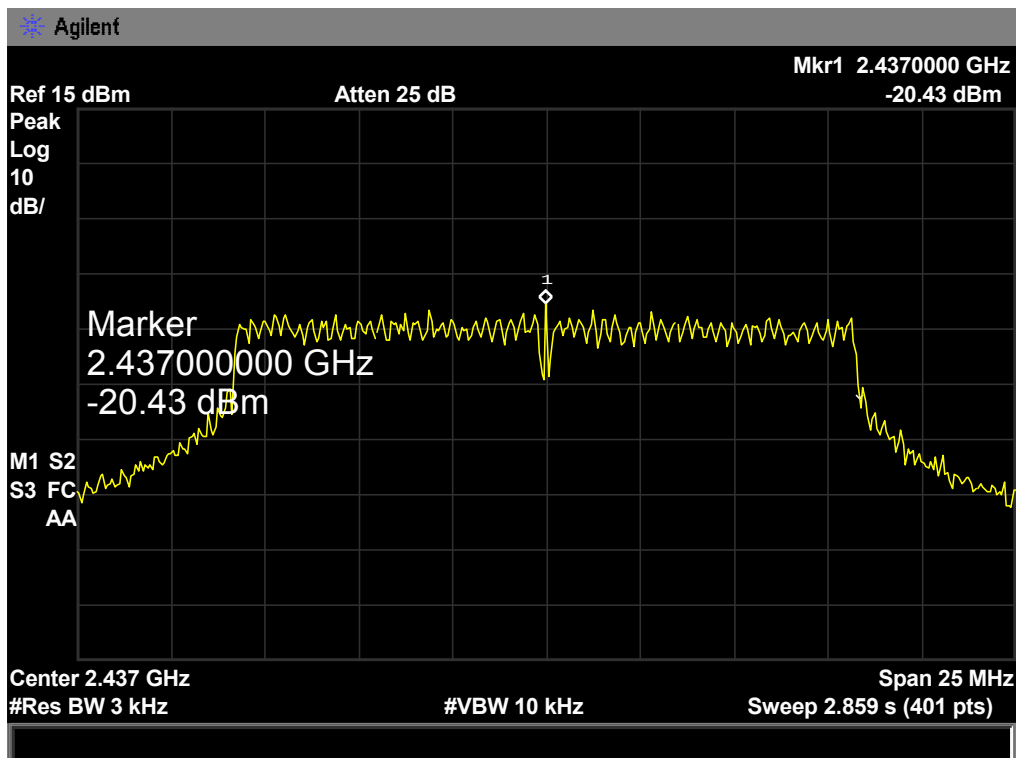
Marker2.412000000 GHz-20.13 dBm

M1 S2S3 FC AA

Center 2.412 GHz#Res BW 3 kHz#VBW 10 kHzSweep 2.859 s (401 pts)Span 25 MHz

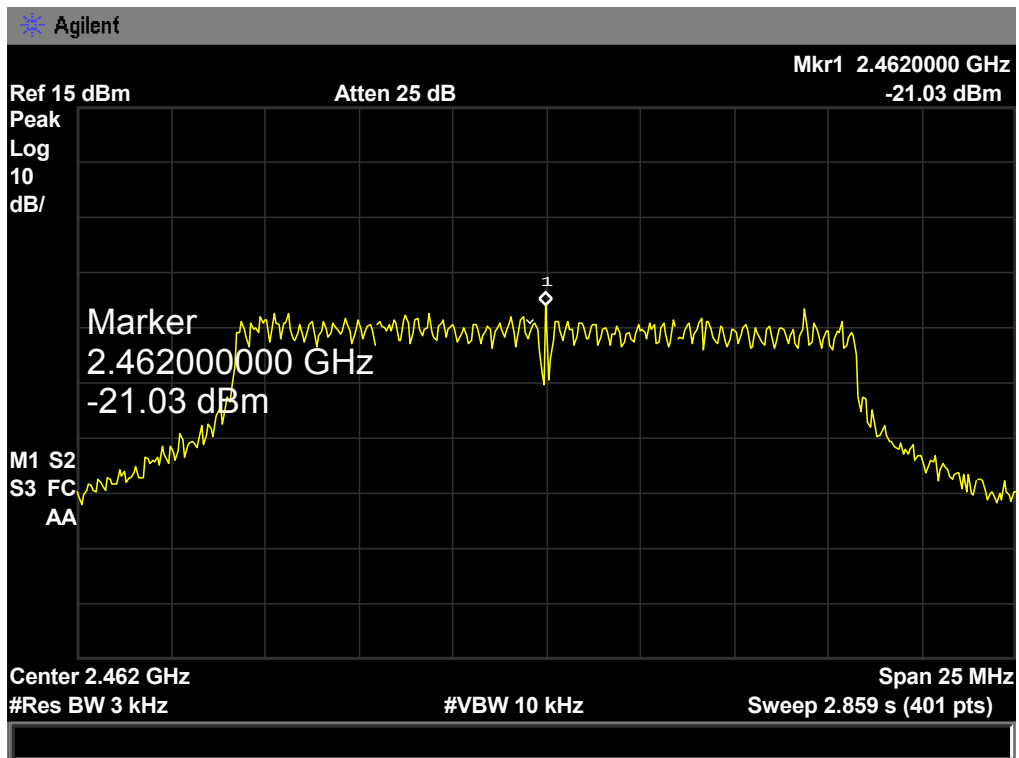
802.11G Mode

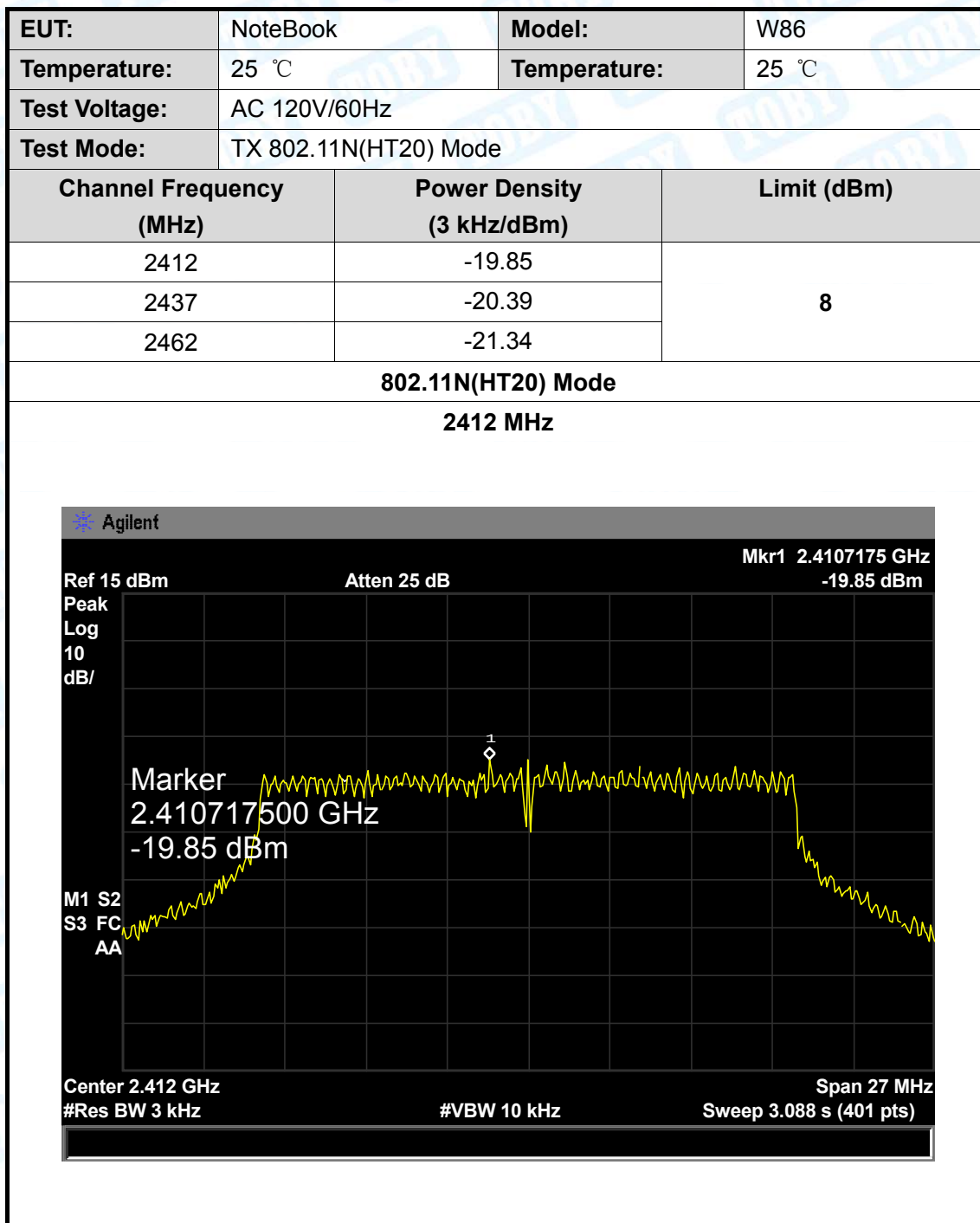
2437 MHz



802.11G Mode

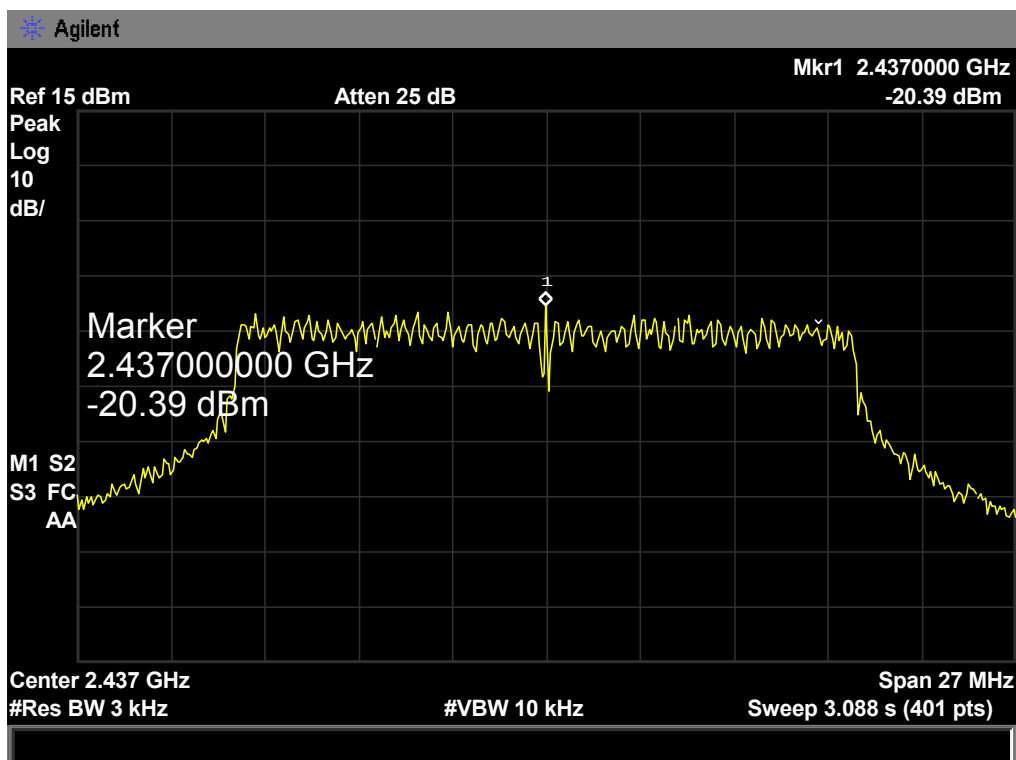
2462 MHz





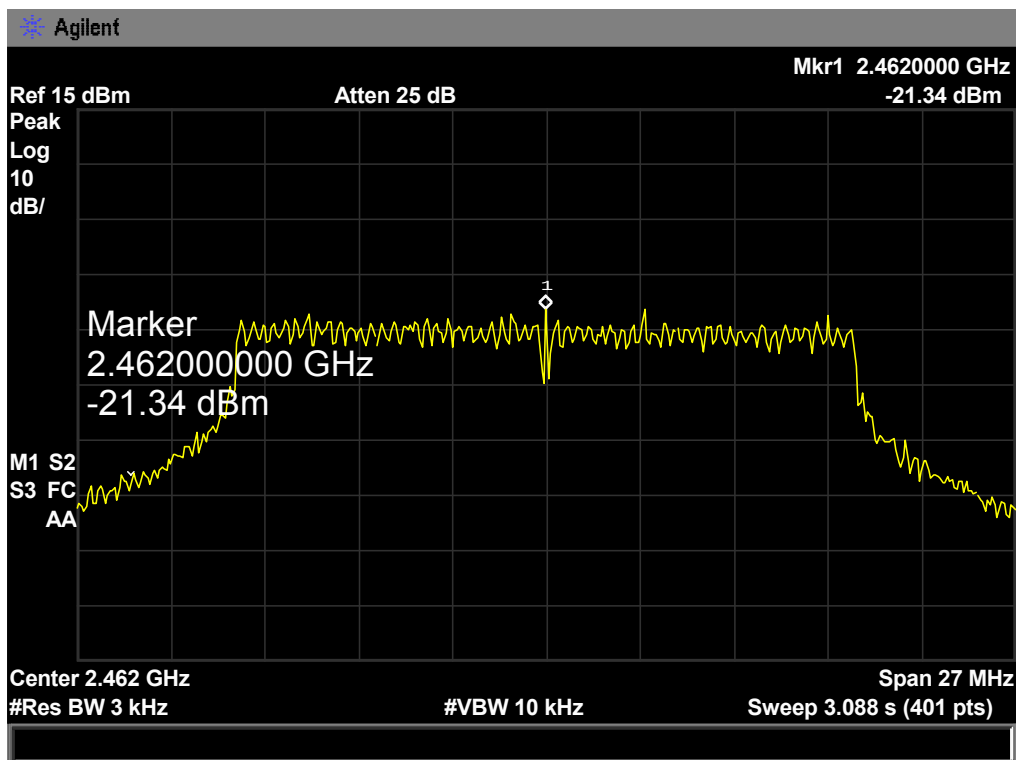
802.11N(HT20) Mode

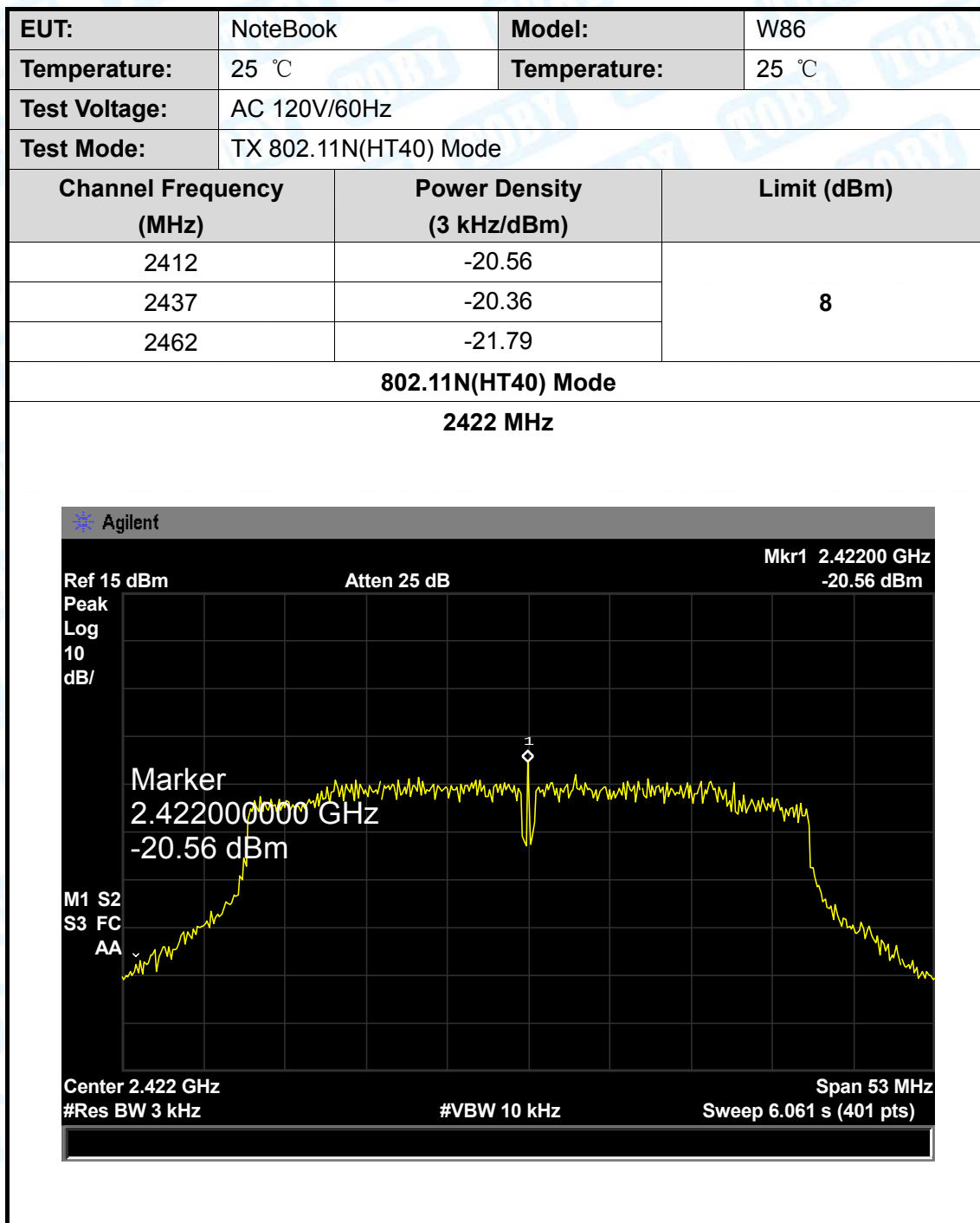
2437 MHz



802.11N(HT20) Mode

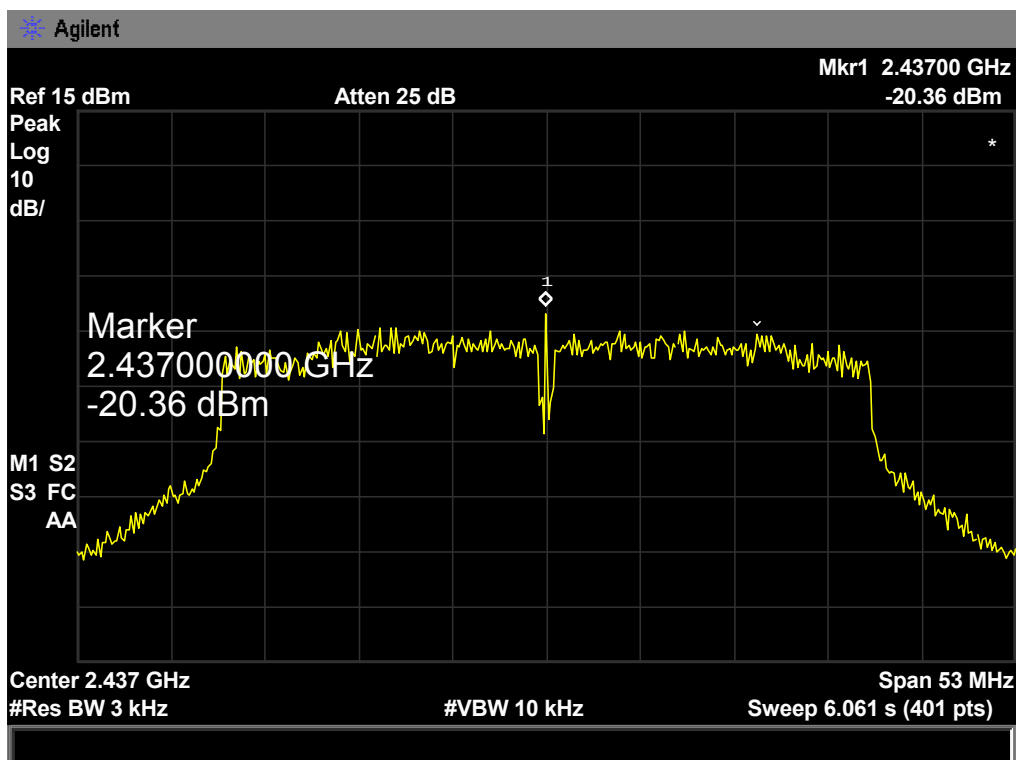
2462 MHz





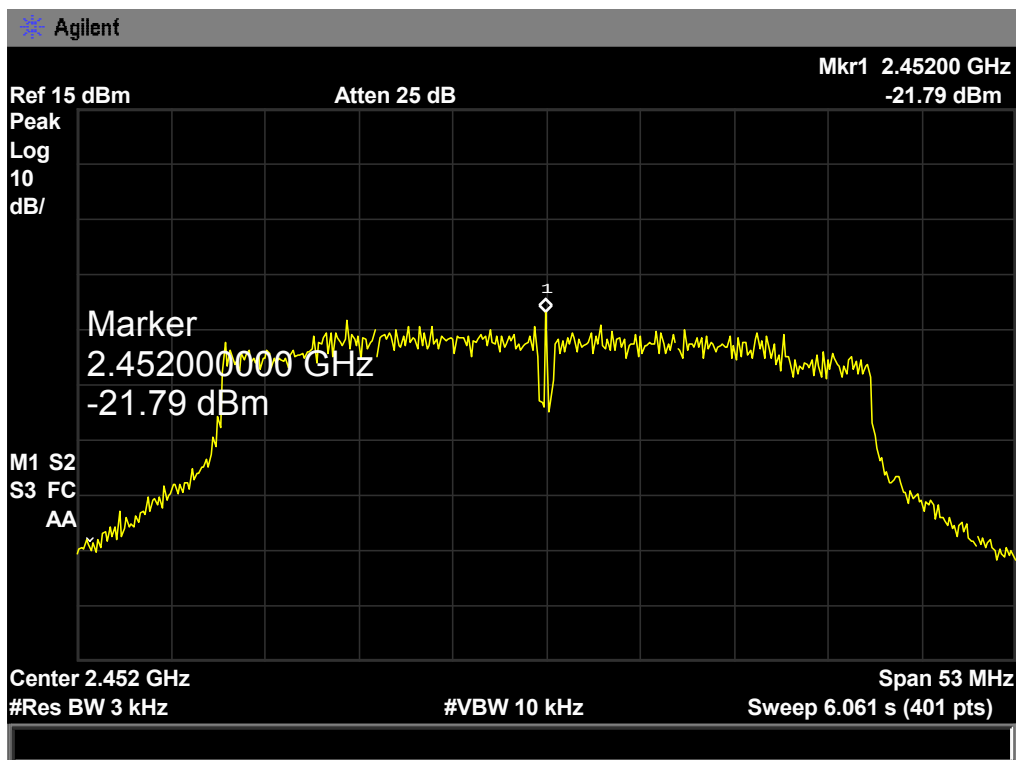
802.11N(HT40) Mode

2437 MHz



802.11N(HT40) Mode

2452 MHz



10. Antenna Requirement

10.1 Standard Requirement

10.1.1 Standard

FCC Part 15.203

10.1.2 Requirement

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. 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 provisions of this Section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

10.2 Antenna Connected Construction

The directional gains of the antenna used for transmitting is 3 dBi, and the antenna de-signed with permanent attachment and no consideration of replacement. Please see the EUT photo for details.

Result

The EUT antenna is an Embedded Antenna. It complies with the standard requirement.

Antenna Type
☒ Permanent attached antenna
☐ Unique connector antenna
☐ Professional installation antenna