FCC Radio Test Report

FCC ID: 2AGK5VMX4S

Original Grant

Report No.	:	TB-FCC145960
Applicant	:	Simple Control
Equipment Under Test (EUT)		
EUT Name	:	Simple Hub
Model No.	:	VM64S
Series Model No.	:	VM24S, VM44S, VM54S
Brand Name	:	N/A
Receipt Date	:	2015-11-09
Test Date	:	2015-11-10 to 2015-11-23
Issue Date	:	2015-11-24
Standards	:	FCC Part 15, Subpart C (15.247:2015)
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 :

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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Contents

1. General Information about EUT

1.1 Client Information

Applicant	:	Simple Control
Address	:	21580 Stevens Creek Blvd., Suite 106, Cupertino, California, 95014, USA
Manufacturer	:	Shenzhen Vipstech Co.,Ltd
Address	:	4th Floor, Lvkai Building, Liuxian 3rd Road, Bao'an71th, Bao'an 71th Dist, Shenzhen, Guangdong, China

1.2 General Description of EUT (Equipment Under Test)

<table>
<tr><td>EUT Name</td><td>:</td><td colspan="2">Simple Hub</td></tr>
<tr><td>Models No.</td><td>:</td><td colspan="2">VM64S, VM24S, VM44S, VM54S</td></tr>
<tr><td>Model Difference</td><td>:</td><td colspan="2">All models are identical in the same PCB layout, interior structure and electrical circuits, the only difference is model name for commercial purpose.</td></tr>
<tr><td rowspan="6">Product Description</td><td rowspan="6">:</td><td colspan="2">Operation Frequency:
WIFI 802.11b/g/n(H20): 2412MHz~2462MHz
802.11n(H40): 2422MHz~2452MHz</td></tr>
<tr><td>Number of Channel:</td><td>802.11b/g/n(HT20):11 channels see note(3)
802.11n(HT40): 9 channels see note(3)</td></tr>
<tr><td>RF Output Power:</td><td>802.11b: 18.03dBm
802.11g: 14.22dBm
802.11n (HT20): 14.74dBm
802.11n (HT40): 13.25dBm</td></tr>
<tr><td>Antenna Gain:</td><td>2 dBi Embedded Antenna</td></tr>
<tr><td>Modulation Type:</td><td>802.11b:DSSS(CCK, DQPSK, DBPSK)
802.11g/n:OFDM(BPSK,QPSK,16QAM,64QAM)</td></tr>
<tr><td>Bit Rate of Transmitter:</td><td>802.11b:11/5.5/2/1 Mbps
802.11g:54/48/36/24/18/12/9/6 Mbps
802.11n:up to 150Mbps</td></tr>
<tr><td>Power Supply</td><td>:</td><td colspan="2">DC power supplied by Switching Adapter.</td></tr>
<tr><td>Power Rating</td><td>:</td><td colspan="2">Switching Adapter:
Input:100~240V, 50/60Hz 0.35A Max
Output:5V, 2000mA</td></tr>
<tr><td>Connecting I/O Port(S)</td><td>:</td><td colspan="2">Please refer to the User's Manual</td></tr>
</table>

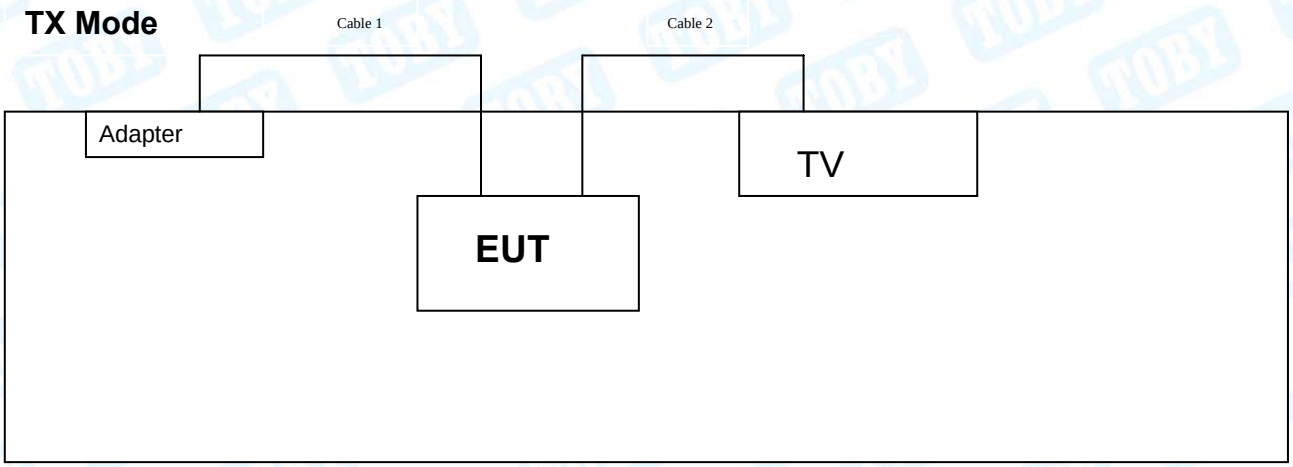
Note:

(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 v03r03.

(2) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
(3) Antenna information provided by the applicant.
(4) 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)					

1.3 Block Diagram Showing the Configuration of System Tested



1.4 Description of Support Units

Equipment Information				
Name	**Model**	**FCC ID/DOC**	**Manufacturer**	**Used "√"**
TV	24PFL3545/T3	DOC	PHILIPS	√
Cable Information				
Number	**Shielded Type**	**Ferrite Core**	**Length**	**Note**
Cable 1	NO	NO	1.2 M	**Accessorise**
Cable 2	YES	NO	1.6 M	**Accessorise**

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 2	TX Mode B Mode Channel 01/06/11
Mode 3	TX Mode G Mode Channel 01/06/11
Mode 4	TX Mode N(HT20) Mode Channel 01/06/11
Mode 5	TX Mode N(HT40) Mode Channel 03/06/9

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, Midle, 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	Realtek MP Tool		
Channel	**CH 01**	**CH 06**	**CH 11**
IEEE 802.11b DSSS	42	42	41
IEEE 802.11g OFDM	43	43	41
IEEE 802.11n (HT20)	43	43	41
Channel	**CH 03**	**CH 06**	**CH 09**
IEEE 802.11n (HT40)	43	43	41

1.7 Measurement Uncertainty

The reported uncertainty of measurement y ± 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 150kHz to 30MHz	 ±3.42 dB ±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

1.8 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.

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

Conducted Emission Test					
Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Last Cal.**	**Cal. Due Date**
EMI Test Receiver	Rohde & Schwarz	ESCI	100321	Aug. 07, 2015	Aug. 06, 2016
RF Switching Unit	Compliance Direction Systems Inc	RSU-A4	34403	Aug. 07, 2015	Aug. 06, 2016
AMN	SCHWARZBECK	NNBL 8226-2	8226-2/164	Aug. 07, 2015	Aug. 06, 2016
LISN	Rohde & Schwarz	ENV216	101131	Aug. 07, 2015	Aug. 06, 2016
Radiation Emission Test					
Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Last Cal.**	**Cal. Due Date**
Spectrum Analyzer	Agilent	E4407B	MY45106456	Aug. 29, 2015	Aug. 28, 2016
EMI Test Receiver	Rohde & Schwarz	ESCI	100010/007	Aug. 07, 2015	Aug. 06, 2016
Bilog Antenna	ETS-LINDGREN	3142E	00117537	Mar. 28, 2015	Mar. 27, 2016
Bilog Antenna	ETS-LINDGREN	3142E	00117542	Mar. 28, 2015	Mar. 27, 2016
Horn Antenna	ETS-LINDGREN	3117	00143207	Mar. 28, 2015	Mar. 27, 2016
Horn Antenna	ETS-LINDGREN	3117	00143209	Mar. 28, 2015	Mar. 27, 2016
Pre-amplifier	Sonoma	310N	185903	Mar. 28, 2015	Mar. 27, 2016
Pre-amplifier	HP	8447B	3008A00849	Mar. 28, 2015	Mar. 27, 2016
Cable	HUBER+SUHNER	100	SUCOFLEX	Mar. 28, 2015	Mar. 27, 2016
Positioning Controller	ETS-LINDGREN	2090	N/A	N/A	N/A

4. Conducted Emission Test

4.1 Test Standard and Limit

4.1.1Test Standard

FCC Part 15.207

4.1.2 Test Limit

Conducted Emission Test Limit

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

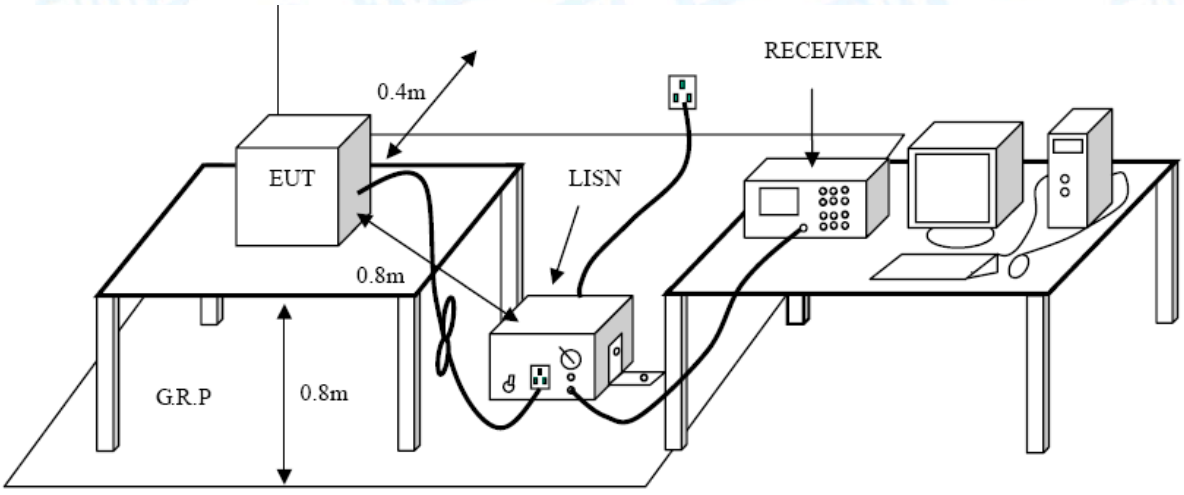
Notes:

(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.

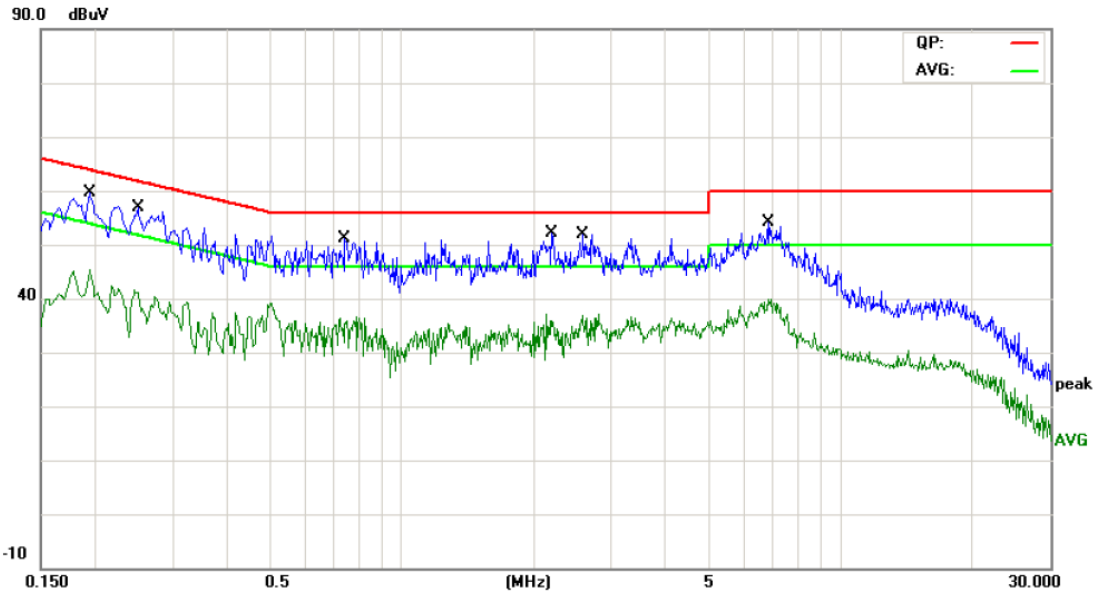
4.4 EUT Operating Mode

Please refer to the description of test mode.

4.5 Test Data

Please see the next page

EUT:	Simple Hub	Model Name :	VM64S
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Terminal:	Line		
Test Mode:	AC Charging with TX B Mode		
Remark:	Only worse case is reported		

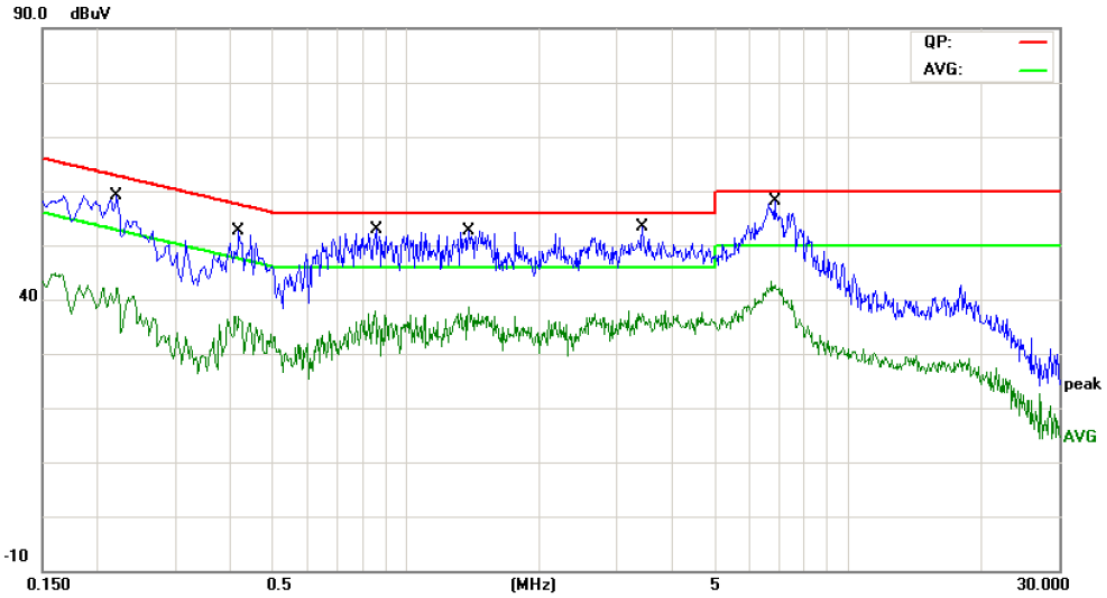


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.1940	45.50	10.12	55.62	63.86	-8.24	QP
2		0.1940	32.84	10.12	42.96	53.86	-10.90	AVG
3		0.2500	46.79	10.10	56.89	61.75	-4.86	QP
4		0.2500	30.28	10.10	40.38	51.75	-11.37	AVG
5		0.7420	40.13	10.04	50.17	56.00	-5.83	QP
6		0.7420	28.97	10.04	39.01	46.00	-6.99	AVG
7	*	2.1980	42.12	10.06	52.18	56.00	-3.82	QP
8		2.1980	30.86	10.06	40.92	46.00	-5.08	AVG
9		2.5940	40.30	10.06	50.36	56.00	-5.64	QP
10		2.5940	29.73	10.06	39.79	46.00	-6.21	AVG
11		6.8140	38.95	10.06	49.01	60.00	-10.99	QP
12		6.8140	27.89	10.06	37.95	50.00	-12.05	AVG

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

Emission Level= Read Level+ Correct Factor

EUT:	Simple Hub	**Model Name :**	VM64S
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	AC 120V/60 Hz		
Terminal:	Neutral		
Test Mode:	AC Charging with TX B Mode		
Remark:	Only worse case is reported		

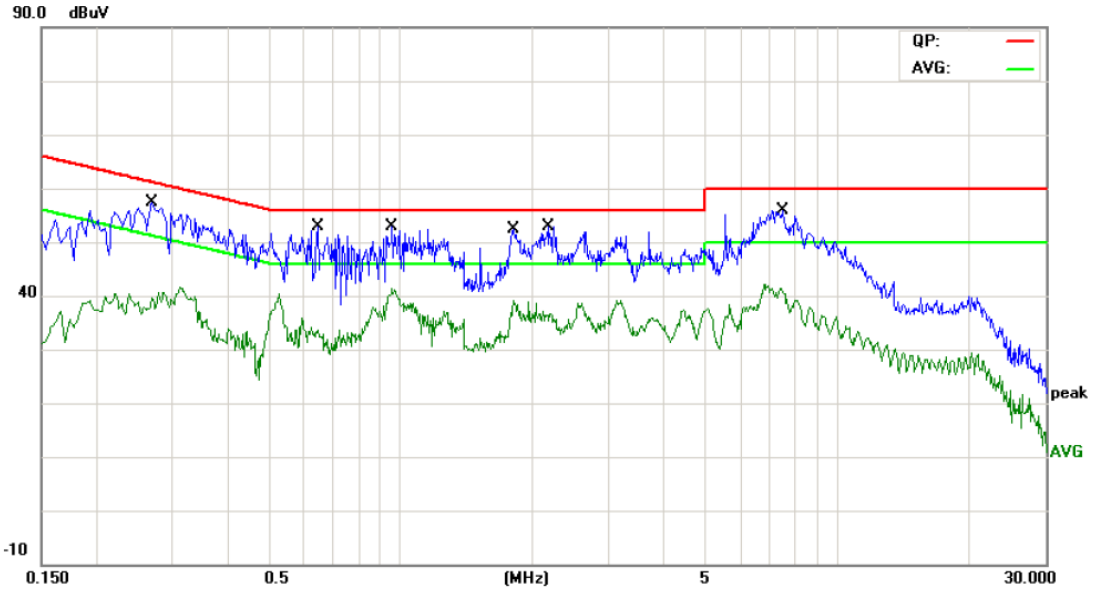


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.2220	47.73	10.11	57.84	62.74	-4.90	QP
2		0.2220	34.57	10.11	44.68	52.74	-8.06	AVG
3	*	0.4180	42.64	10.05	52.69	57.49	-4.80	QP
4		0.4180	26.78	10.05	36.83	47.49	-10.66	AVG
5		0.8540	40.43	10.09	50.52	56.00	-5.48	QP
6		0.8540	28.38	10.09	38.47	46.00	-7.53	AVG
7		1.3820	39.30	10.12	49.42	56.00	-6.58	QP
8		1.3820	28.63	10.12	38.75	46.00	-7.25	AVG
9		3.4220	39.82	10.06	49.88	56.00	-6.12	QP
10		3.4220	29.02	10.06	39.08	46.00	-6.92	AVG
11		6.8060	37.99	10.06	48.05	60.00	-11.95	QP
12		6.8060	28.14	10.06	38.20	50.00	-11.80	AVG

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

Emission Level= Read Level+ Correct Factor

EUT:	Simple Hub	Model Name :	VM64S
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 240V/60 Hz		
Terminal:	Line		
Test Mode:	AC Charging with TX B Mode		
Remark:	Only worse case is reported		

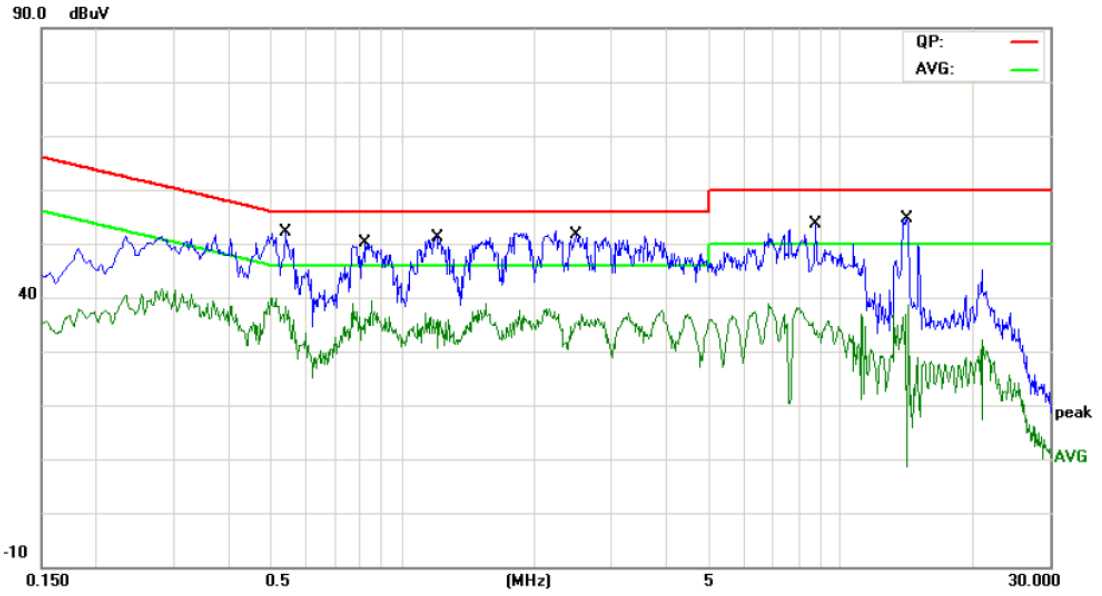


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.2700	27.80	10.10	37.90	61.12	-23.22	QP
2		0.2700	24.41	10.10	34.51	51.12	-16.61	AVG
3		0.6460	28.71	10.02	38.73	56.00	-17.27	QP
4		0.6460	20.60	10.02	30.62	46.00	-15.38	AVG
5		0.9580	31.13	10.14	41.27	56.00	-14.73	QP
6	*	0.9580	27.61	10.14	37.75	46.00	-8.25	AVG
7		1.8100	31.11	10.08	41.19	56.00	-14.81	QP
8		1.8100	15.84	10.08	25.92	46.00	-20.08	AVG
9		2.1780	31.33	10.06	41.39	56.00	-14.61	QP
10		2.1780	26.39	10.06	36.45	46.00	-9.55	AVG
11		7.5140	34.91	10.08	44.99	60.00	-15.01	QP
12		7.5140	23.35	10.08	33.43	50.00	-16.57	AVG

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

Emission Level= Read Level+ Correct Factor

EUT:	Simple Hub	Model Name :	VM64S
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 240V/60 Hz		
Terminal:	Neutral		
Test Mode:	AC Charging with TX B Mode		
Remark:	Only worse case is reported		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1	*	0.5420	41.18	10.02	51.20	56.00	-4.80	QP
2		0.5420	28.35	10.02	38.37	46.00	-7.63	AVG
3		0.8260	37.44	10.08	47.52	56.00	-8.48	QP
4		0.8260	28.63	10.08	38.71	46.00	-7.29	AVG
5		1.2020	36.64	10.14	46.78	56.00	-9.22	QP
6		1.2020	24.39	10.14	34.53	46.00	-11.47	AVG
7		2.4900	32.52	10.06	42.58	56.00	-13.42	QP
8		2.4900	22.89	10.06	32.95	46.00	-13.05	AVG
9		8.7660	33.37	10.12	43.49	60.00	-16.51	QP
10		8.7660	21.06	10.12	31.18	50.00	-18.82	AVG
11		14.1740	20.85	10.49	31.34	60.00	-28.66	QP
12		14.1740	16.84	10.49	27.33	50.00	-22.67	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)

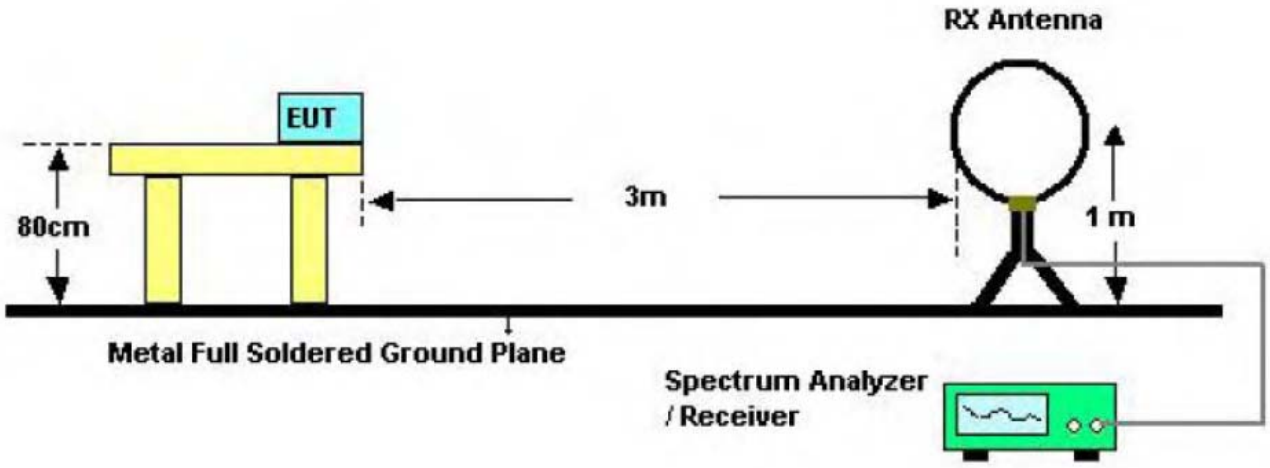
Frequency (MHz)	Class A (dBuV/m)(at 3 M)		Class B (dBuV/m)(at 3 M)	
	Peak	Average	Peak	Average
Above 1000	80	60	74	54

Note:

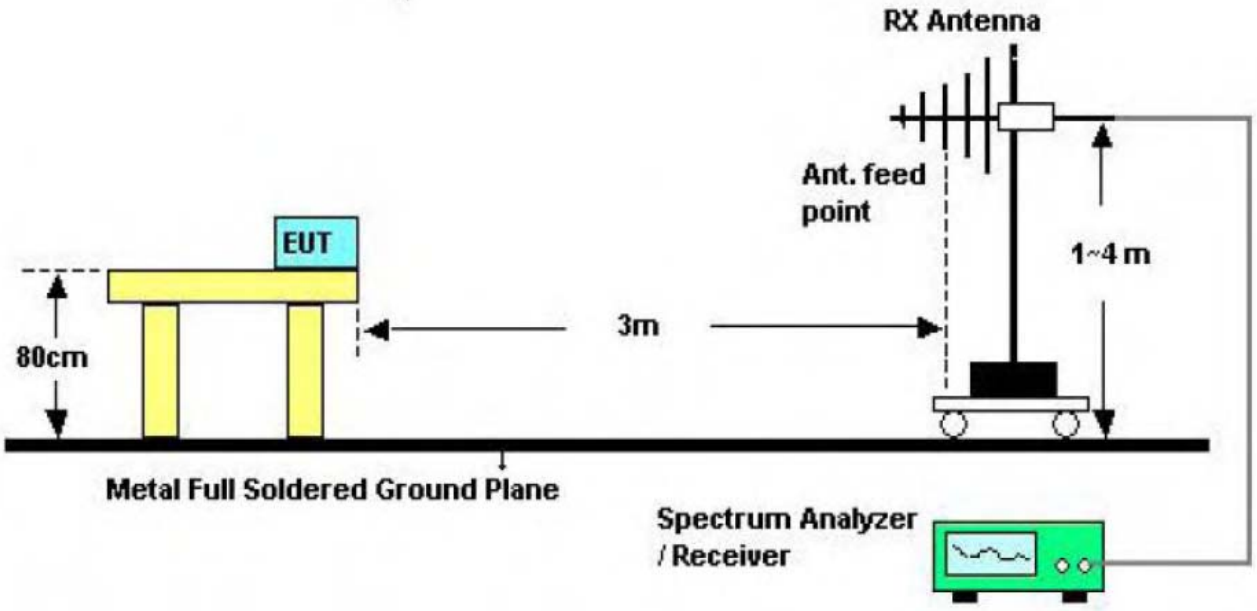
(1) The tighter limit applies at the band edges.

(2) Emission Level(dBuV/m)=20log Emission Level(uV/m)

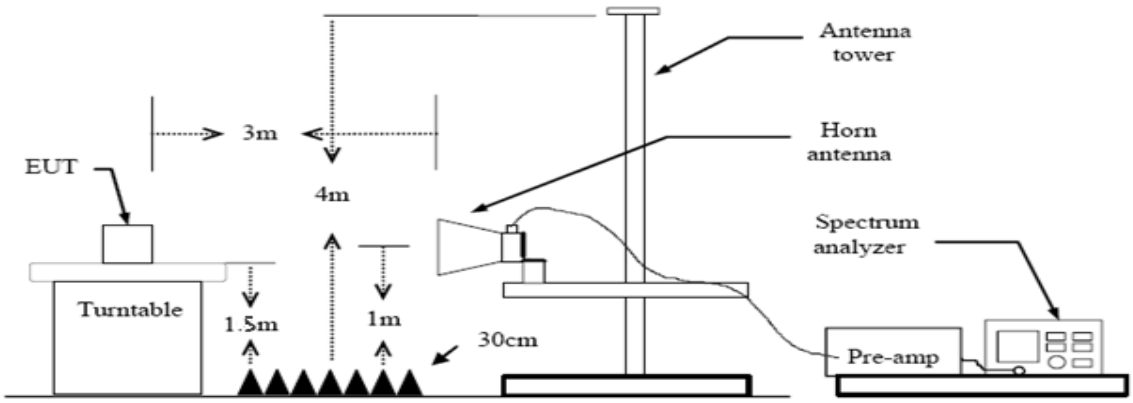
5.2 Test Setup



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. The EUT was placed on a rotating 0.8m high above the 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

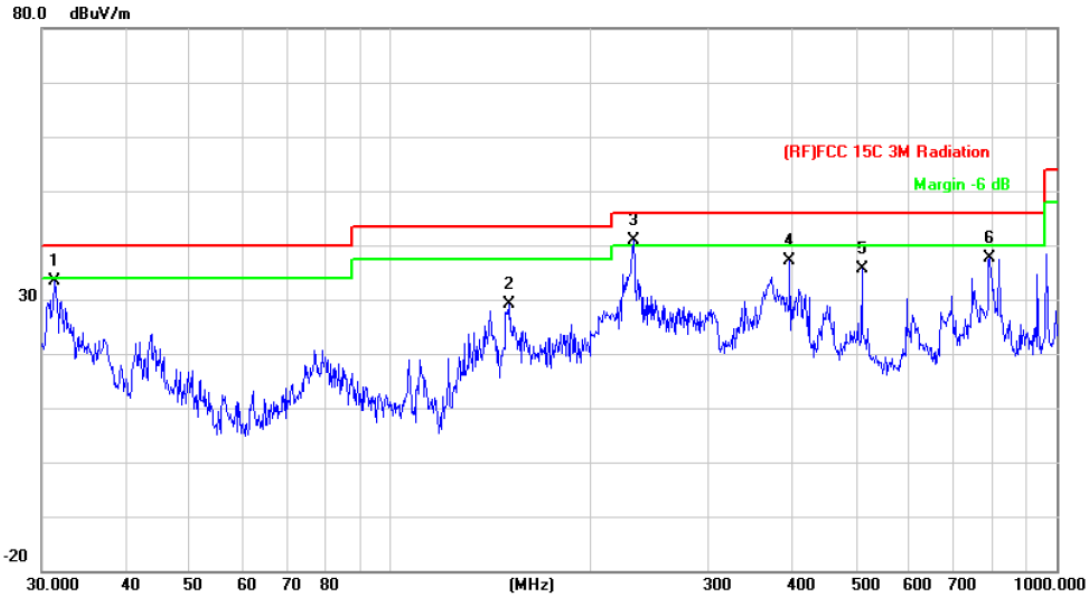
The Equipment Under Test was set to Continual Transmitting in maximum power.

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:	Simple Hub	Model Name :	VM64S
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX B Mode 2412MHz		
Remark:	Only worse case is reported		

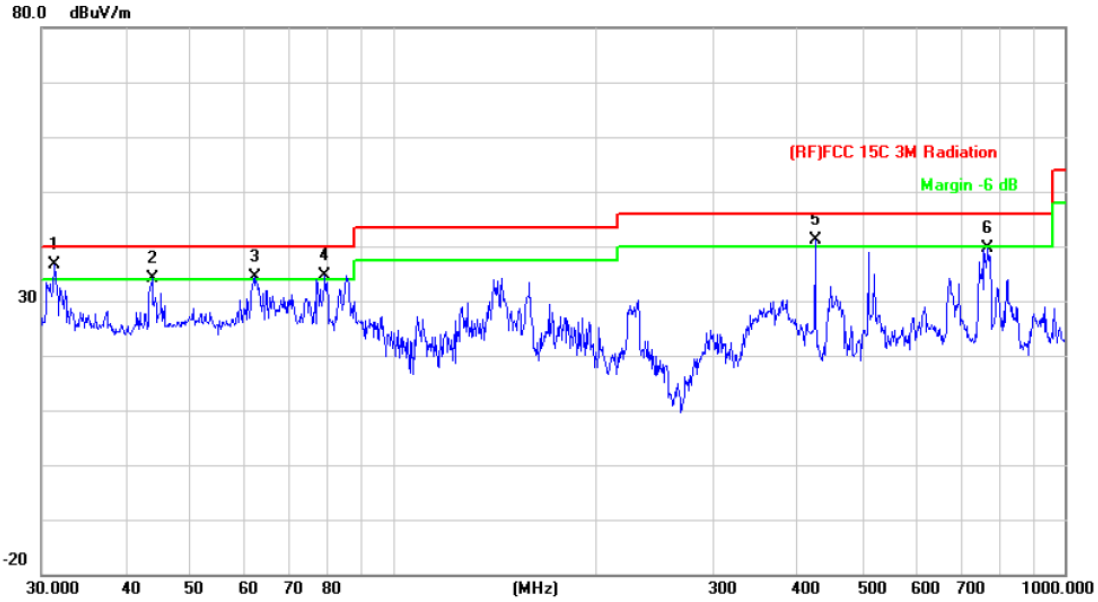


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		31.2893	48.17	-14.76	33.41	40.00	-6.59	peak
2		151.0666	50.21	-21.10	29.11	43.50	-14.39	peak
3	*	231.7179	59.88	-18.99	40.89	46.00	-5.11	peak
4		397.6334	49.99	-12.96	37.03	46.00	-8.97	peak
5		510.0436	46.75	-11.07	35.68	46.00	-10.32	peak
6		793.3960	44.30	-6.57	37.73	46.00	-8.27	peak

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

Emission Level= Read Level+ Correct Factor

EUT:	Simple Hub	**Model Name :**	VM64S
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Vertical		
Test Mode:	TX B Mode 2412MHz		
Remark:	Only worse case is reported		

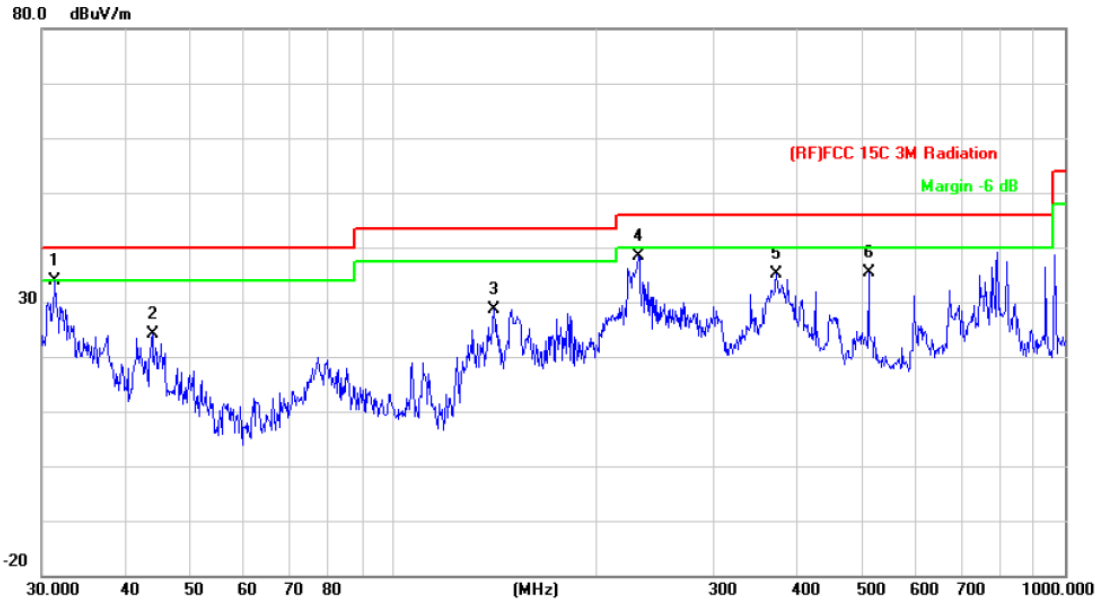


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	31.3992	51.45	-14.83	36.62	40.00	-3.38	peak
2	!	43.8119	55.97	-21.77	34.20	40.00	-5.80	peak
3	!	62.2128	58.61	-24.32	34.29	40.00	-5.71	peak
4	!	79.2426	57.85	-23.31	34.54	40.00	-5.46	peak
5	!	425.0280	54.02	-12.92	41.10	46.00	-4.90	peak
6		768.7481	46.55	-6.82	39.73	46.00	-6.27	peak

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

Emission Level= Read Level+ Correct Factor

EUT:	Simple Hub	Model Name :	VM64S
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX B Mode 2437MHz		
Remark:	Only worse case is reported		

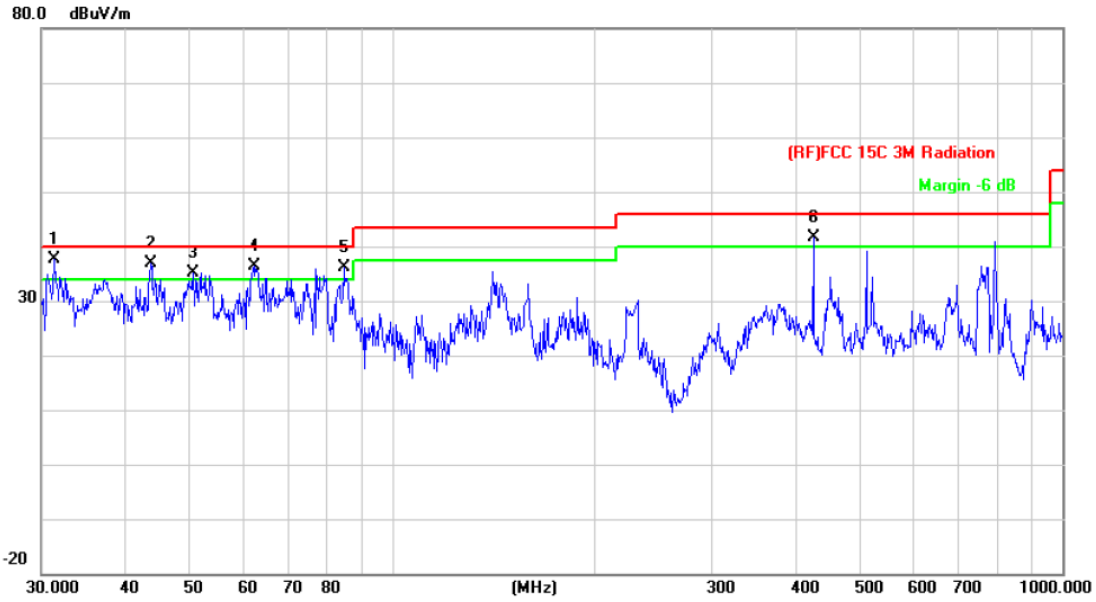


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	31.3992	48.72	-14.83	33.89	40.00	-6.11	peak
2		43.8119	45.93	-21.77	24.16	40.00	-15.84	peak
3		141.3298	50.62	-21.88	28.74	43.50	-14.76	peak
4		231.7179	57.29	-18.99	38.30	46.00	-7.70	peak
5		372.0045	49.71	-14.48	35.23	46.00	-10.77	peak
6		510.0436	46.50	-11.07	35.43	46.00	-10.57	peak

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

Emission Level= Read Level+ Correct Factor

EUT:	Simple Hub	Model Name :	VM64S
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Vertical		
Test Mode:	TX B Mode 2437MHz		
Remark:	Only worse case is reported		

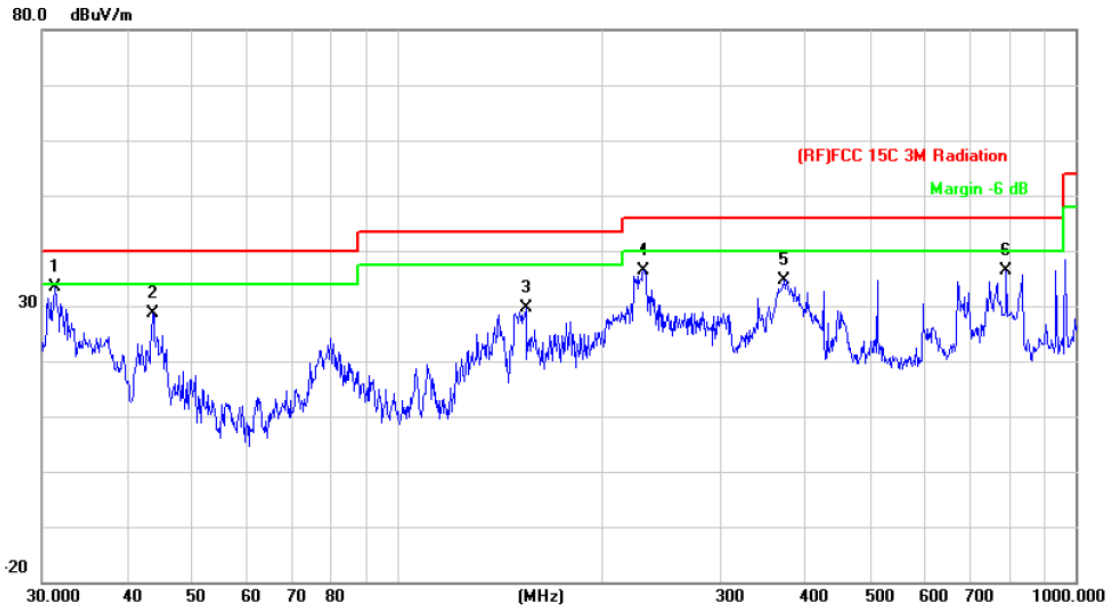


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	31.2893	52.44	-14.76	37.68	40.00	-2.32	peak
2	!	43.6584	58.60	-21.70	36.90	40.00	-3.10	peak
3	!	50.4089	59.54	-24.40	35.14	40.00	-4.86	peak
4	!	62.2128	60.77	-24.32	36.45	40.00	-3.55	peak
5	!	84.7019	59.14	-23.01	36.13	40.00	-3.87	peak
6	!	425.0280	54.59	-12.92	41.67	46.00	-4.33	peak

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

Emission Level= Read Level+ Correct Factor

EUT:	Simple Hub	Model Name :	VM64S
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX B Mode 2462MHz		
Remark:	Only worse case is reported		

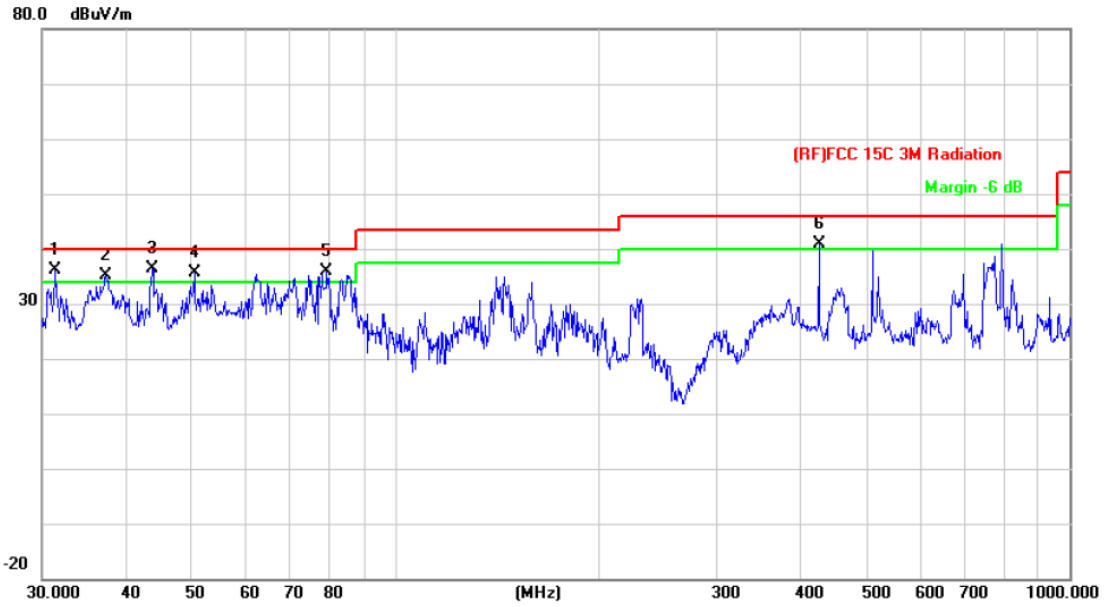


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	31.3992	48.31	-14.83	33.48	40.00	-6.52	peak
2		43.6584	50.25	-21.70	28.55	40.00	-11.45	peak
3		154.8204	50.55	-20.86	29.69	43.50	-13.81	peak
4		230.9068	55.52	-19.03	36.49	46.00	-9.51	peak
5		372.0045	49.21	-14.48	34.73	46.00	-11.27	peak
6		790.6188	43.04	-6.59	36.45	46.00	-9.55	peak

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

Emission Level= Read Level+ Correct Factor

EUT:	Simple Hub	Model Name :	VM64S
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Vertical		
Test Mode:	TX B Mode 2462MHz		
Remark:	Only worse case is reported		

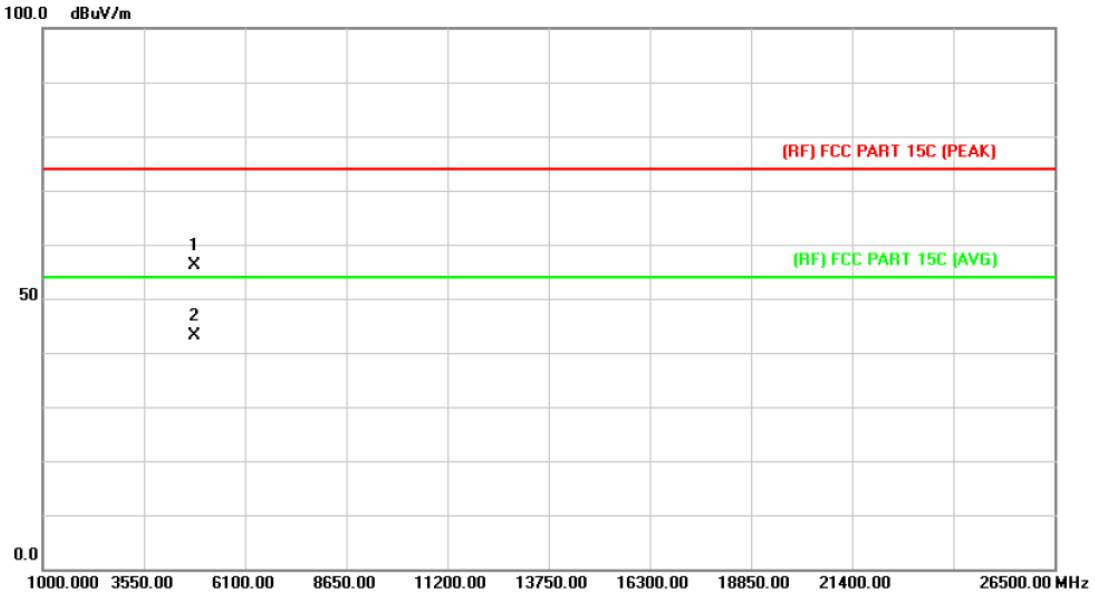


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	!	31.3992	50.92	-14.83	36.09	40.00	-3.91	peak
2	!	37.2855	53.52	-18.47	35.05	40.00	-4.95	peak
3	*	43.6584	58.02	-21.70	36.32	40.00	-3.68	peak
4	!	50.4089	59.93	-24.40	35.53	40.00	-4.47	peak
5	!	79.2426	59.19	-23.31	35.88	40.00	-4.12	peak
6	!	425.0280	53.83	-12.92	40.91	46.00	-5.09	peak

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

Emission Level= Read Level+ Correct Factor

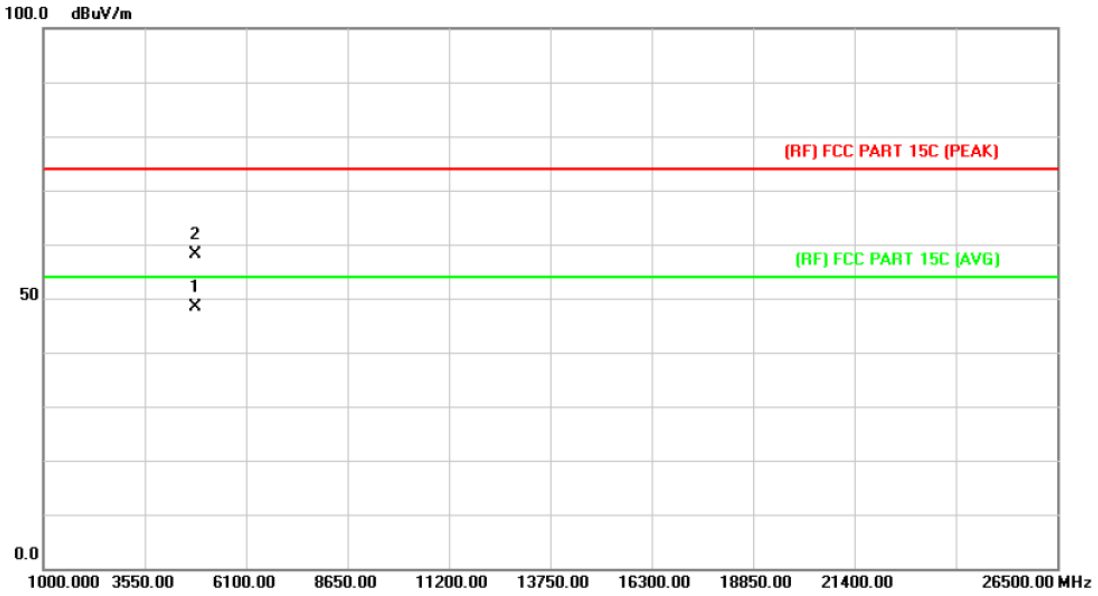
EUT:	Simple Hub	**Model:**	VM64S
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX B Mode 2412MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4823.142	42.53	13.56	56.09	74.00	-17.91	peak
2	*	4823.952	29.47	13.56	43.03	54.00	-10.97	AVG

Emission Level= Read Level+ Correct Factor

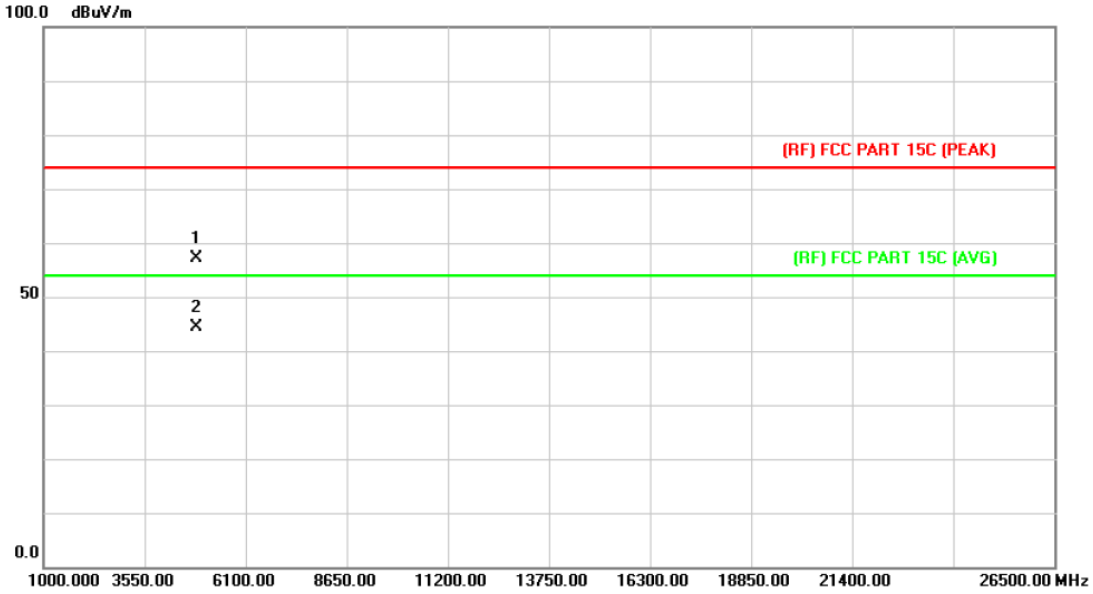
EUT:	Simple Hub	**Model:**	VM64S
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Vertical		
Test Mode:	TX B Mode 2412MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4824.009	34.75	13.56	48.31	54.00	-5.69	AVG
2		4824.249	44.63	13.56	58.19	74.00	-15.81	peak

Emission Level= Read Level+ Correct Factor

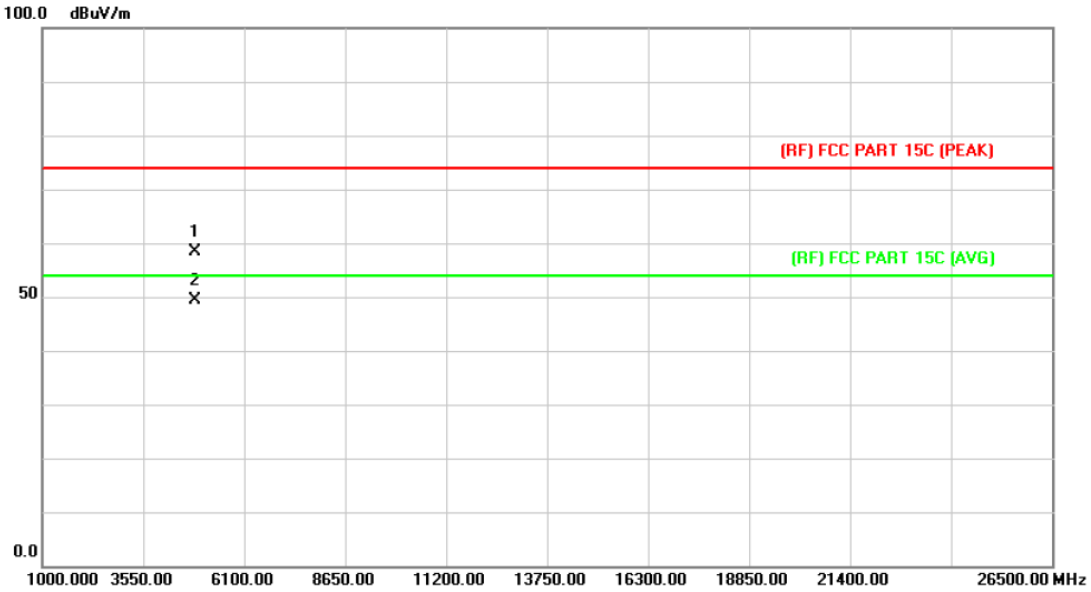
EUT:	Simple Hub	**Model Name :**	VM64S
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX B Mode 2437MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4873.646	43.15	13.86	57.01	74.00	-16.99	peak
2	*	4874.069	30.54	13.86	44.40	54.00	-9.60	AVG

Emission Level= Read Level+ Correct Factor

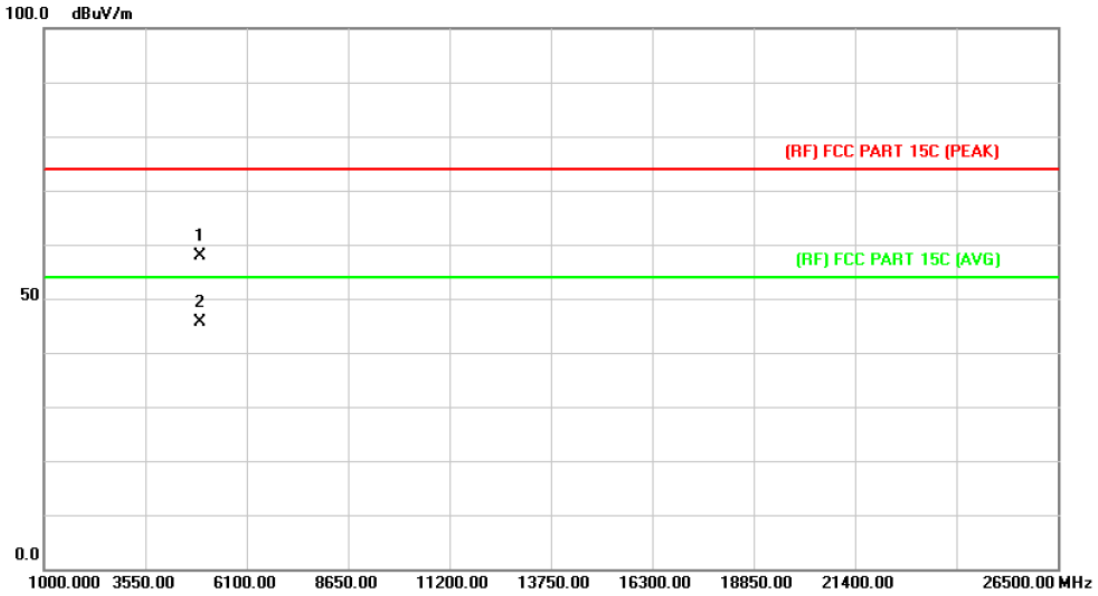
EUT:	Simple Hub	**Model Name :**	VM64S
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Vertical		
Test Mode:	TX B Mode 2437MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4874.048	44.57	13.86	58.43	74.00	-15.57	peak
2	*	4874.081	35.58	13.86	49.44	54.00	-4.56	AVG

Emission Level= Read Level+ Correct Factor

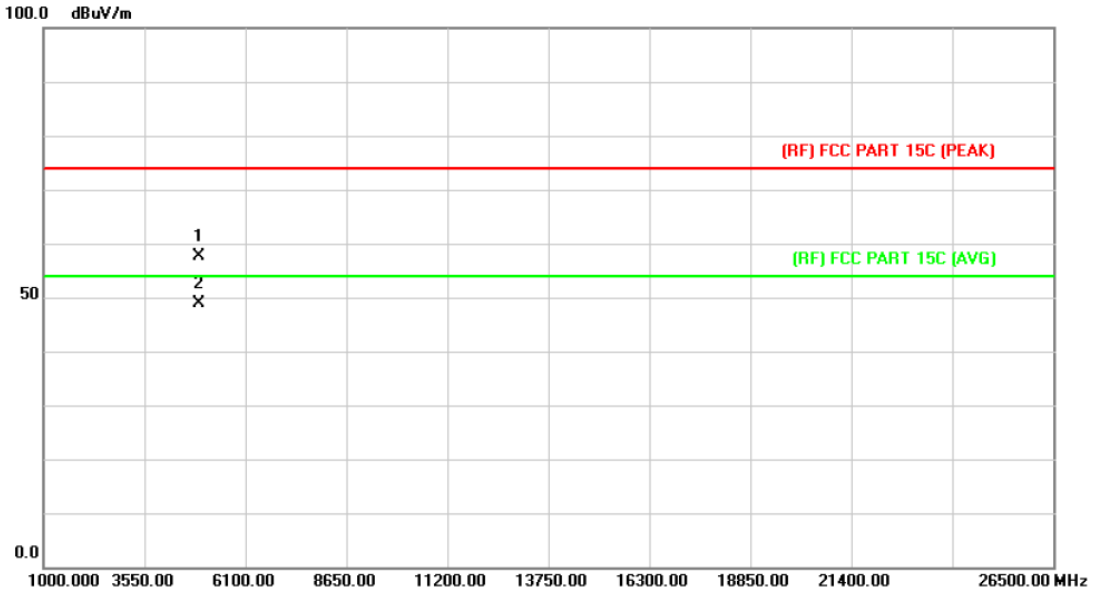
EUT:	Simple Hub	**Model Name :**	VM64S
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX B Mode 2462MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4923.433	43.79	14.15	57.94	74.00	-16.06	peak
2	*	4924.030	31.38	14.15	45.53	54.00	-8.47	AVG

Emission Level= Read Level+ Correct Factor

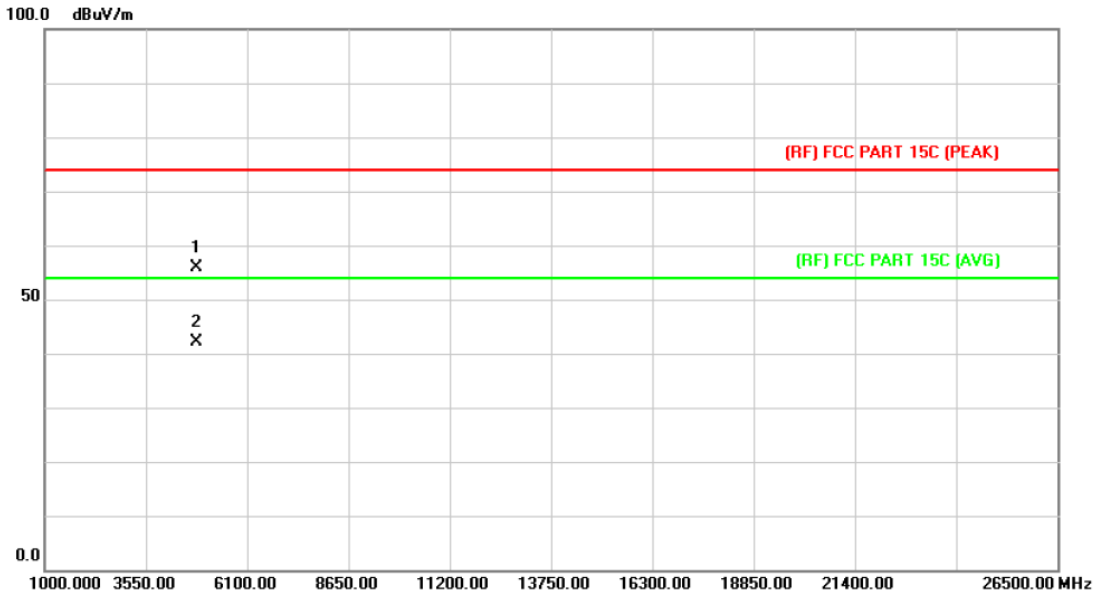
EUT:	Simple Hub	Model Name :	VM64S
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Vertical		
Test Mode:	TX B Mode 2462MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4923.991	43.41	14.15	57.56	74.00	-16.44	peak
2	*	4924.048	34.81	14.15	48.96	54.00	-5.04	AVG

Emission Level= Read Level+ Correct Factor

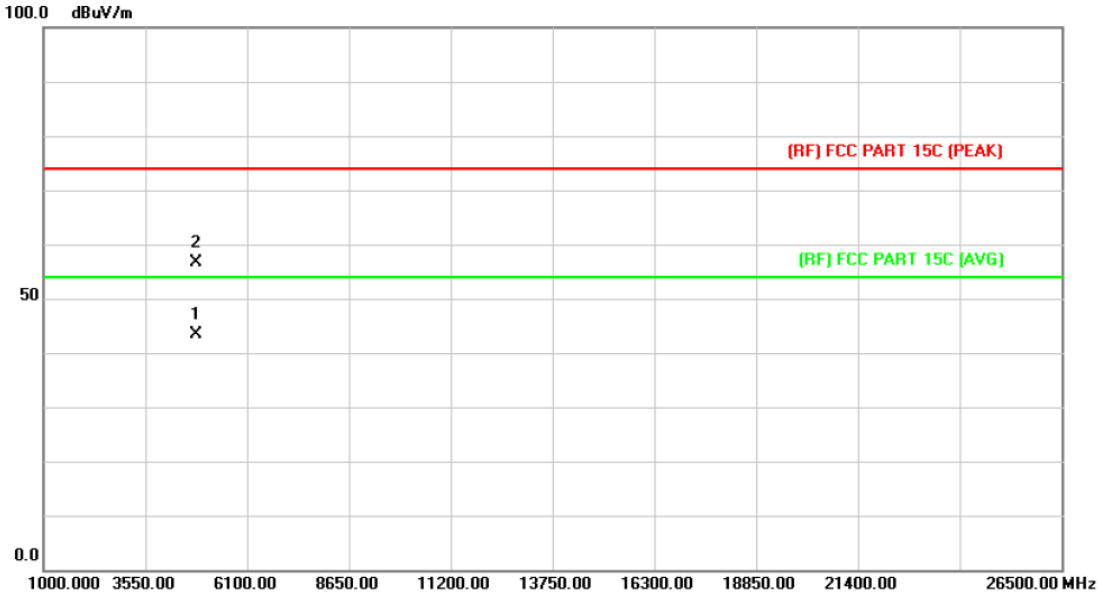
EUT:	Simple Hub	Model Name :	VM64S
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX G Mode 2412MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4823.457	42.42	13.56	55.98	74.00	-18.02	peak
2	*	4824.645	28.66	13.56	42.22	54.00	-11.78	AVG

Emission Level= Read Level+ Correct Factor

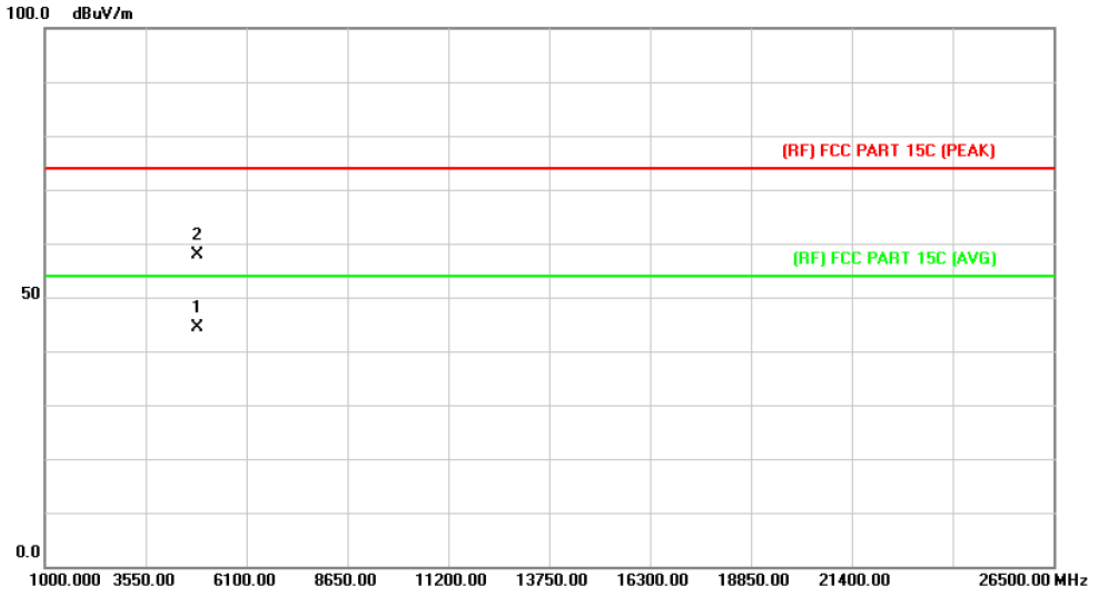
EUT:	Simple Hub	Model Name :	VM64S
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Vertical		
Test Mode:	TX G Mode 2412MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4824.030	29.74	13.56	43.30	54.00	-10.70	AVG
2		4824.816	43.08	13.56	56.64	74.00	-17.36	peak

Emission Level= Read Level+ Correct Factor

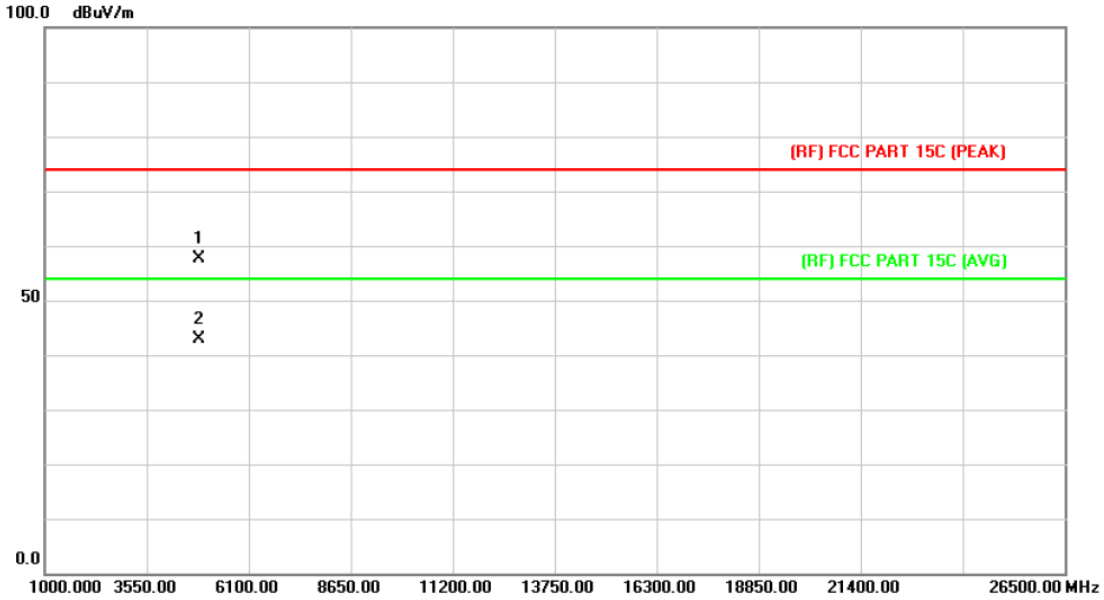
EUT:	Simple Hub	Model Name :	VM64S
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX G Mode 2437MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4873.961	30.62	13.86	44.48	54.00	-9.52	AVG
2		4874.747	44.00	13.86	57.86	74.00	-16.14	peak

Emission Level= Read Level+ Correct Factor

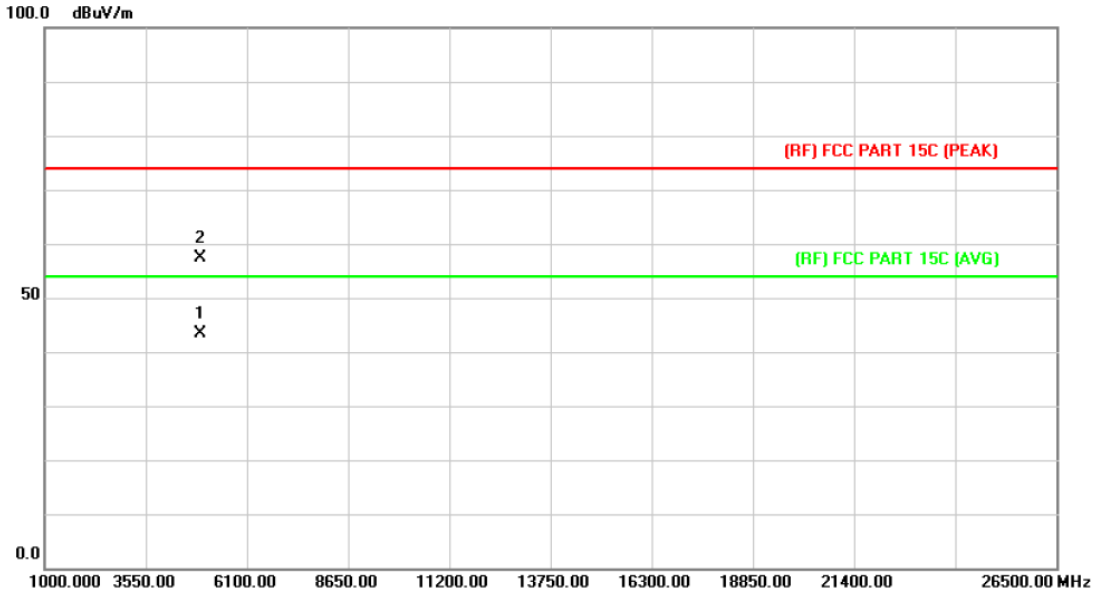
EUT:	Simple Hub	**Model Name :**	VM64S
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Vertical		
Test Mode:	TX G Mode 2437MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4873.757	43.69	13.86	57.55	74.00	-16.45	peak
2	*	4875.104	29.01	13.87	42.88	54.00	-11.12	AVG

Emission Level= Read Level+ Correct Factor

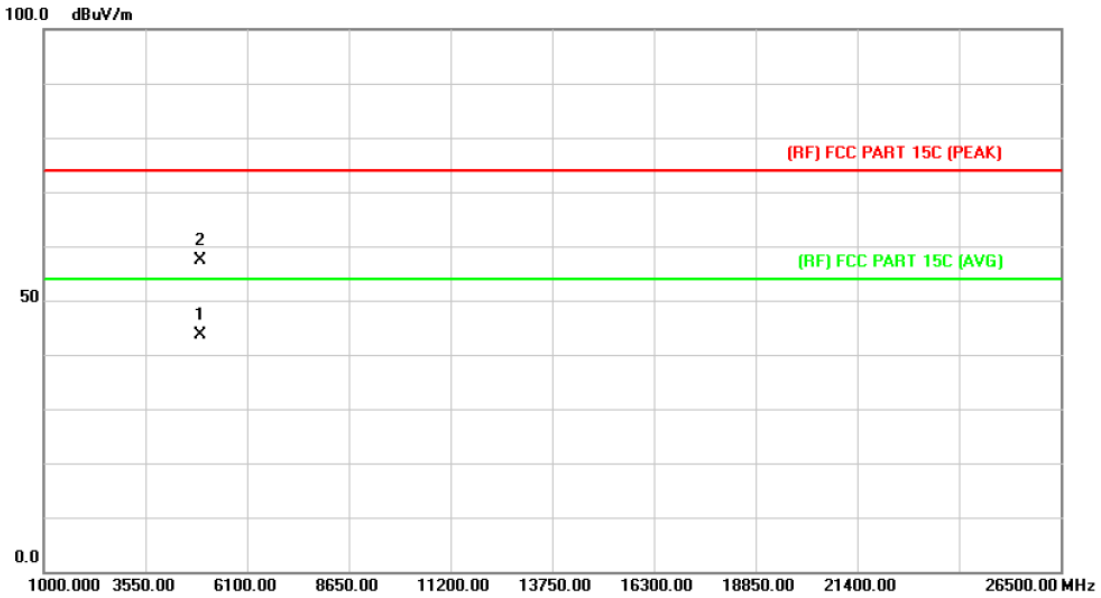
EUT:	Simple Hub	**Model Name :**	VM64S
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX G Mode 2462MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4923.433	29.17	14.15	43.32	54.00	-10.68	AVG
2		4924.024	43.19	14.15	57.34	74.00	-16.66	peak

Emission Level= Read Level+ Correct Factor

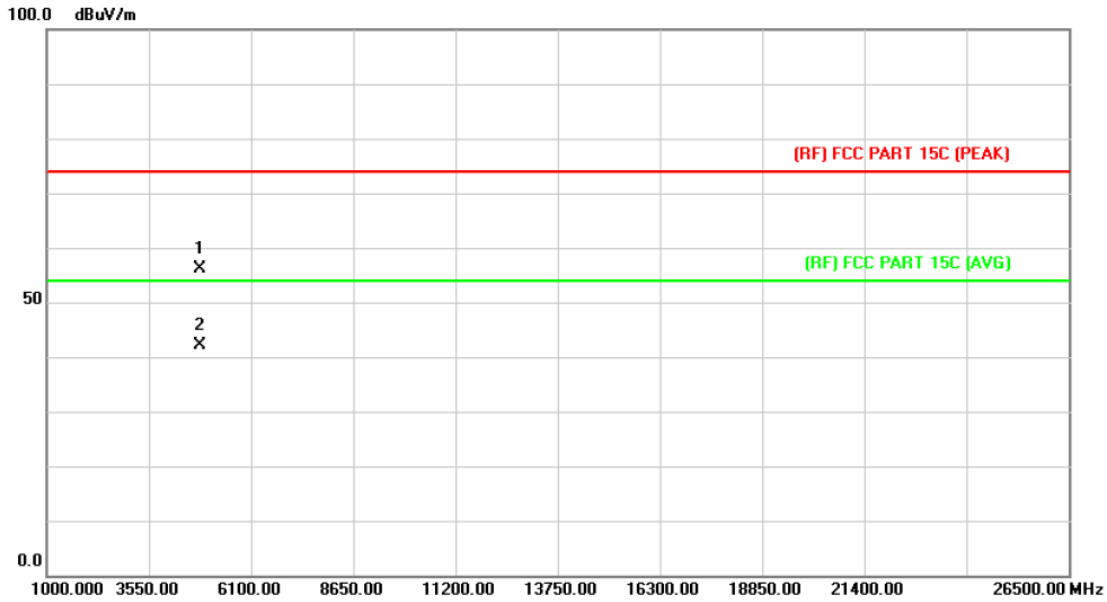
EUT:	Simple Hub	**Model Name :**	VM64S
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Vertical		
Test Mode:	TX G Mode 2462MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4922.938	29.39	14.14	43.53	54.00	-10.47	AVG
2		4923.541	43.25	14.15	57.40	74.00	-16.60	peak

Emission Level= Read Level+ Correct Factor

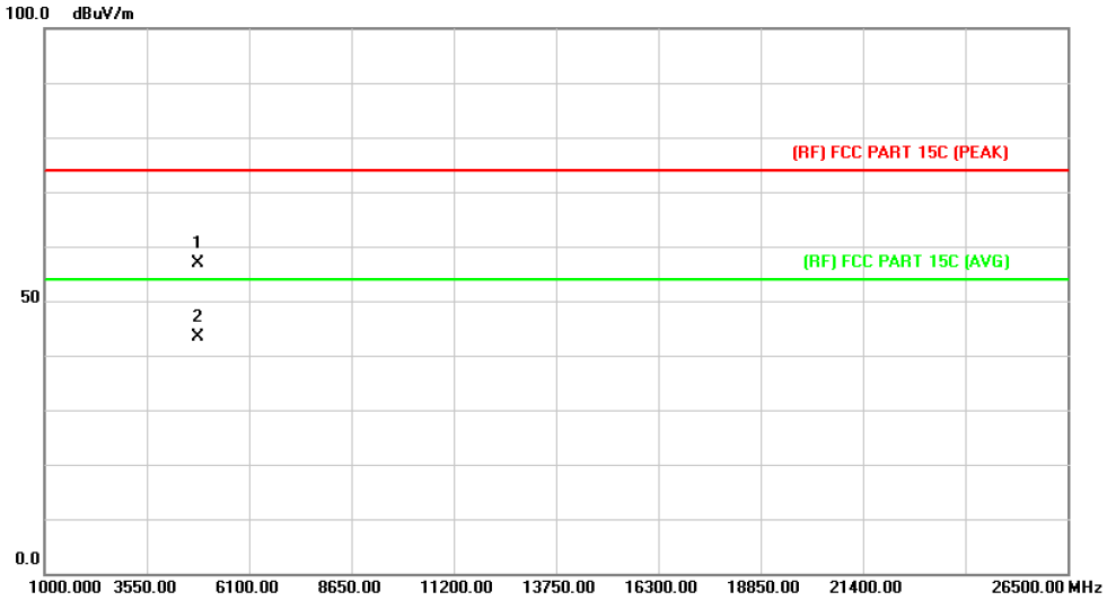
EUT:	Simple Hub	**Model Name :**	VM64S
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX N(HT20) Mode 2412MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4822.686	42.67	13.55	56.22	74.00	-17.78	peak
2	*	4823.136	28.67	13.56	42.23	54.00	-11.77	AVG

Emission Level= Read Level+ Correct Factor

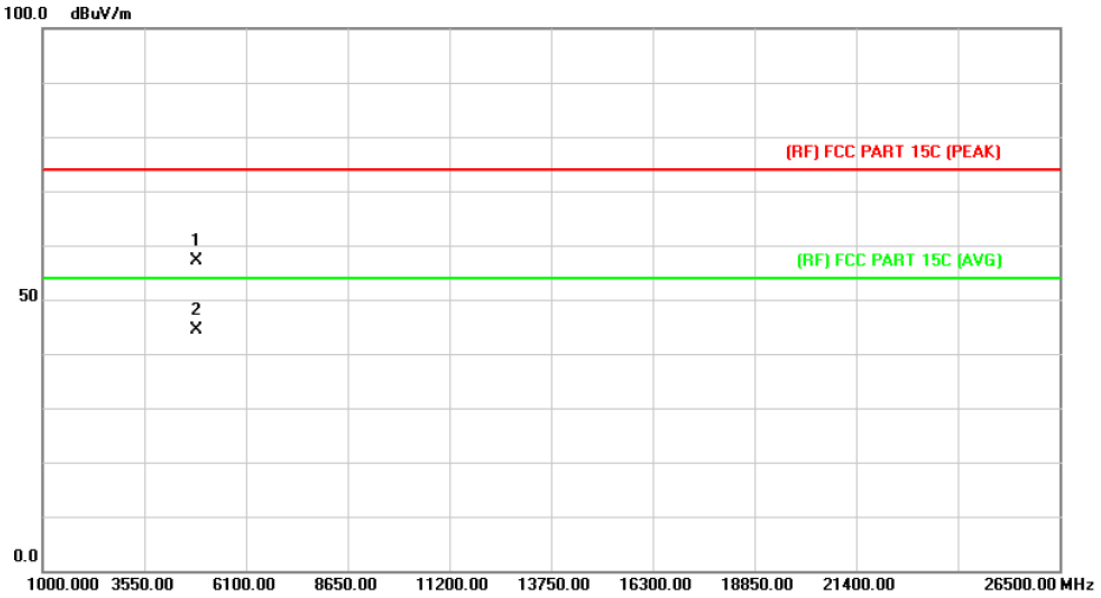
EUT:	Simple Hub	Model Name :	VM64S
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Vertical		
Test Mode:	TX N(HT20) Mode 2412MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4824.027	43.20	13.56	56.76	74.00	-17.24	peak
2	*	4824.084	29.90	13.56	43.46	54.00	-10.54	AVG

Emission Level= Read Level+ Correct Factor

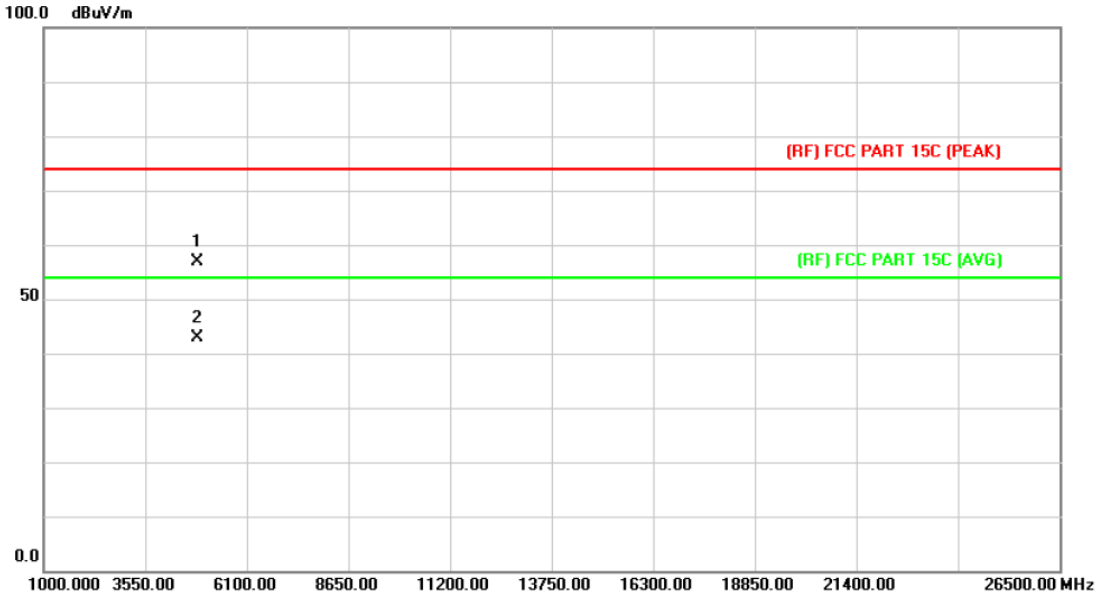
EUT:	Simple Hub	Model Name :	VM64S
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX N(HT20) Mode 2437MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4873.754	43.36	13.86	57.22	74.00	-16.78	peak
2	*	4874.111	30.49	13.86	44.35	54.00	-9.65	AVG

Emission Level= Read Level+ Correct Factor

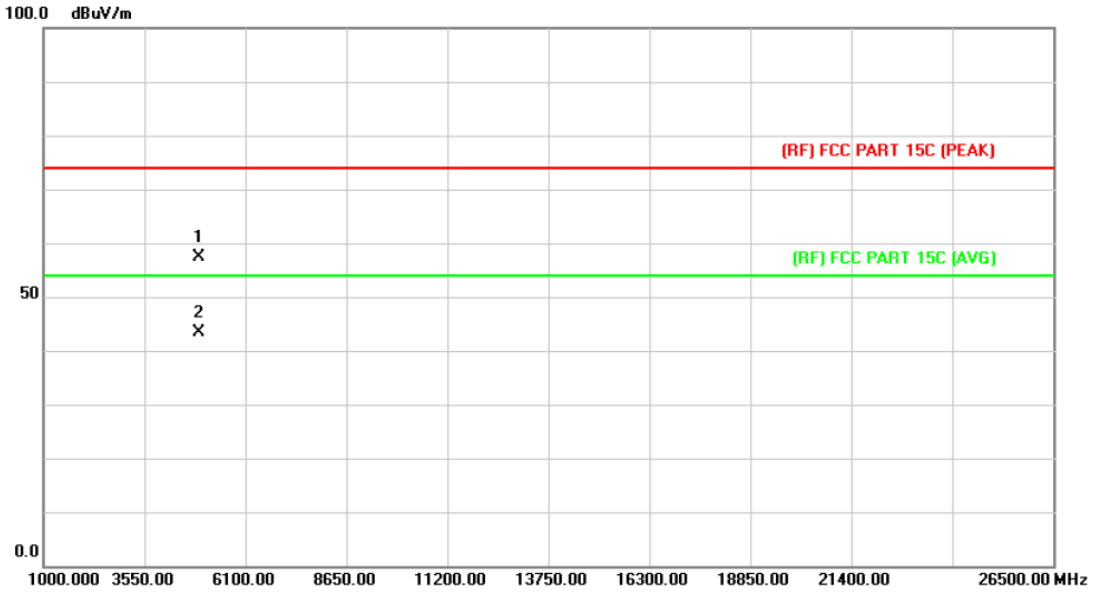
EUT:	Simple Hub	Model Name :	VM64S
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Vertical		
Test Mode:	TX N(HT20) Mode 2437MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4874.204	43.09	13.86	56.95	74.00	-17.05	peak
2	*	4874.450	29.07	13.86	42.93	54.00	-11.07	AVG

Emission Level= Read Level+ Correct Factor

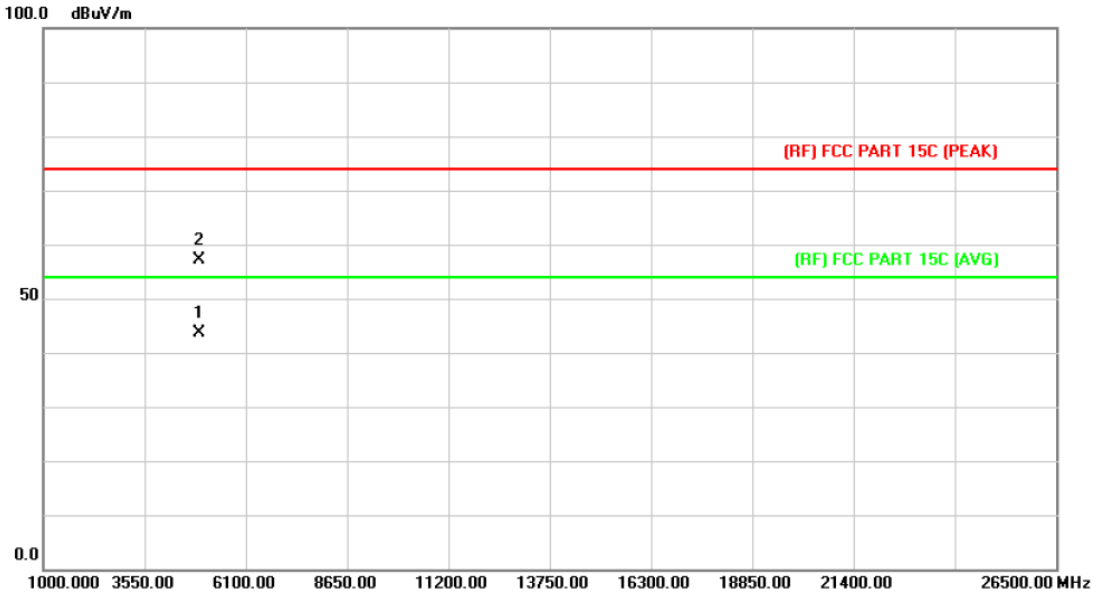
EUT:	Simple Hub	Model Name :	VM64S
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX N(HT20) Mode 2462MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4922.863	43.21	14.14	57.35	74.00	-16.65	peak
2	*	4923.772	29.24	14.15	43.39	54.00	-10.61	AVG

Emission Level= Read Level+ Correct Factor

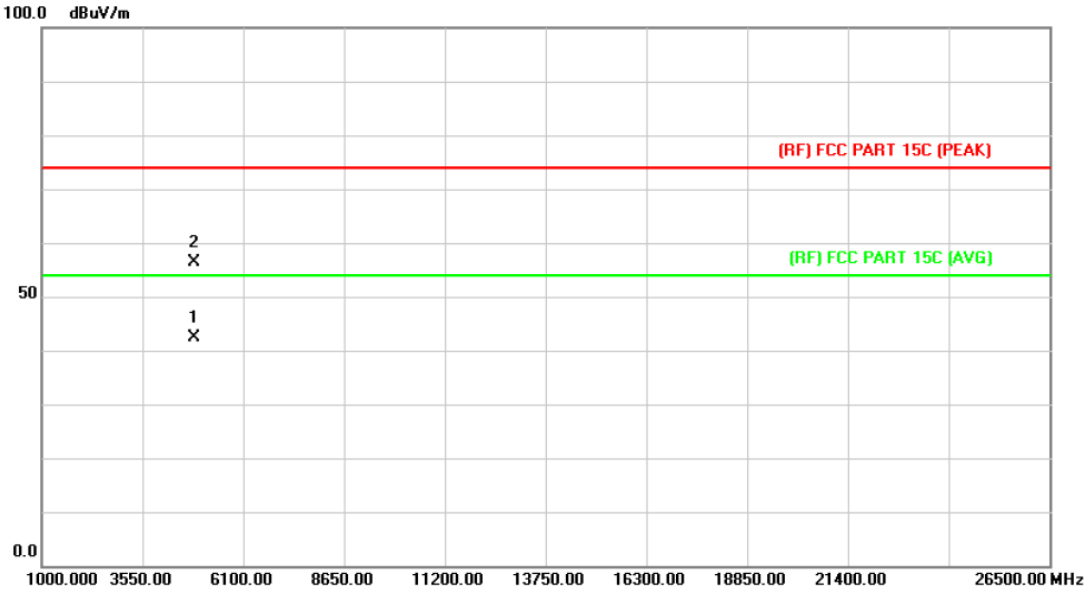
EUT:	Simple Hub	Model Name :	VM64S
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Vertical		
Test Mode:	TX N(HT20) Mode 2462MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4922.836	29.41	14.14	43.55	54.00	-10.45	AVG
2		4923.583	42.95	14.15	57.10	74.00	-16.90	peak

Emission Level= Read Level+ Correct Factor

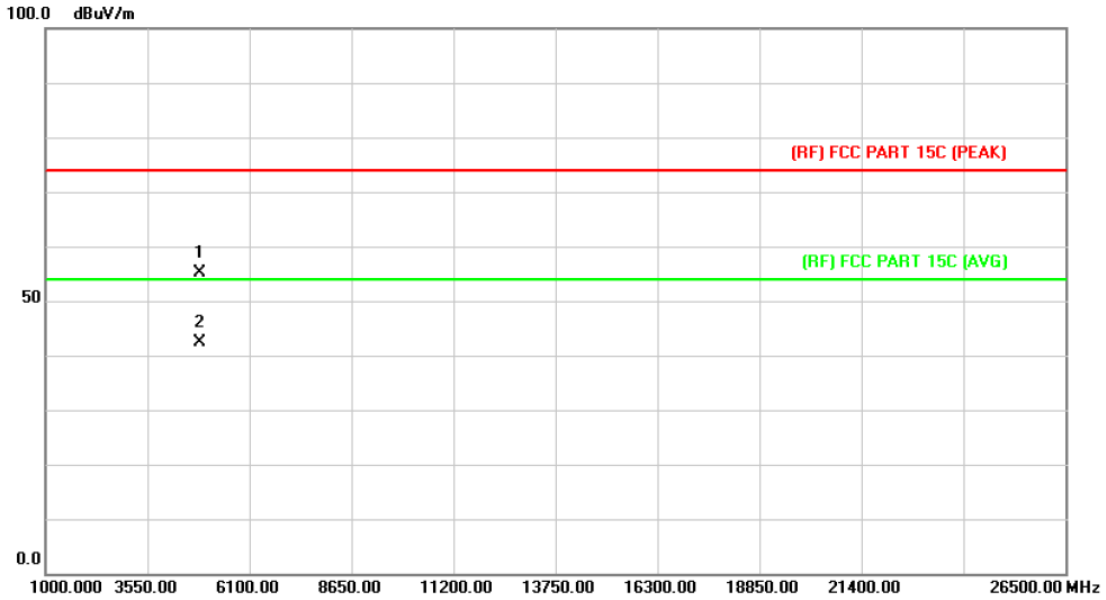
EUT:	Simple Hub	**Model Name :**	VM64S
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX N(HT40) Mode 2422MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4844.684	28.69	13.68	42.37	54.00	-11.63	AVG
2		4844.882	42.74	13.68	56.42	74.00	-17.58	peak

Emission Level= Read Level+ Correct Factor

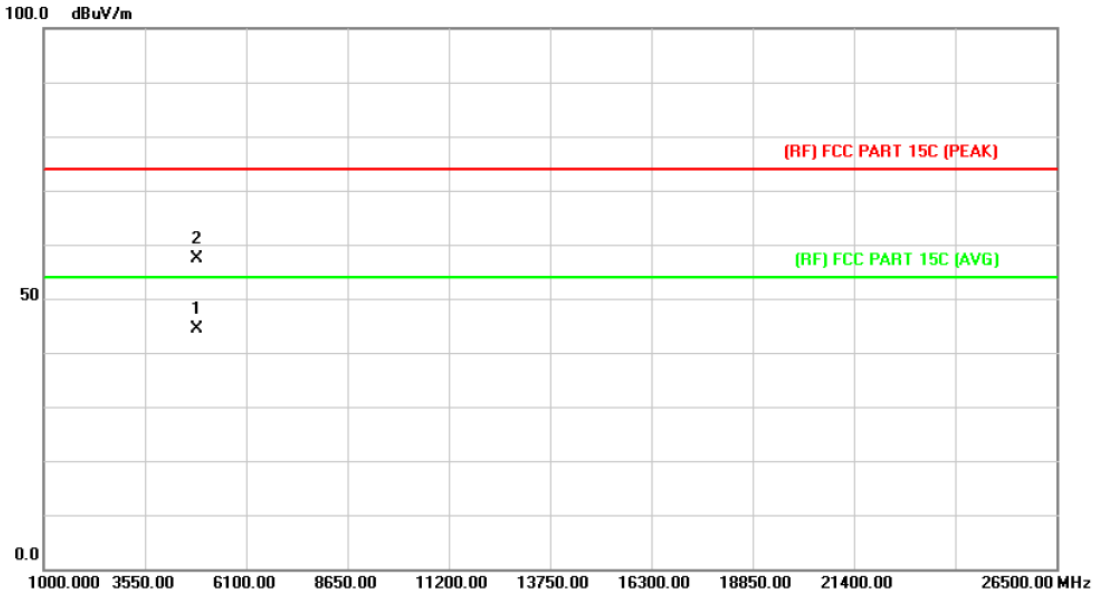
EUT:	Simple Hub	Model Name :	VM64S
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Vertical		
Test Mode:	TX N(HT40) Mode 2422MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4843.745	41.43	13.68	55.11	74.00	-18.89	peak
2	*	4844.753	28.72	13.68	42.40	54.00	-11.60	AVG

Emission Level= Read Level+ Correct Factor

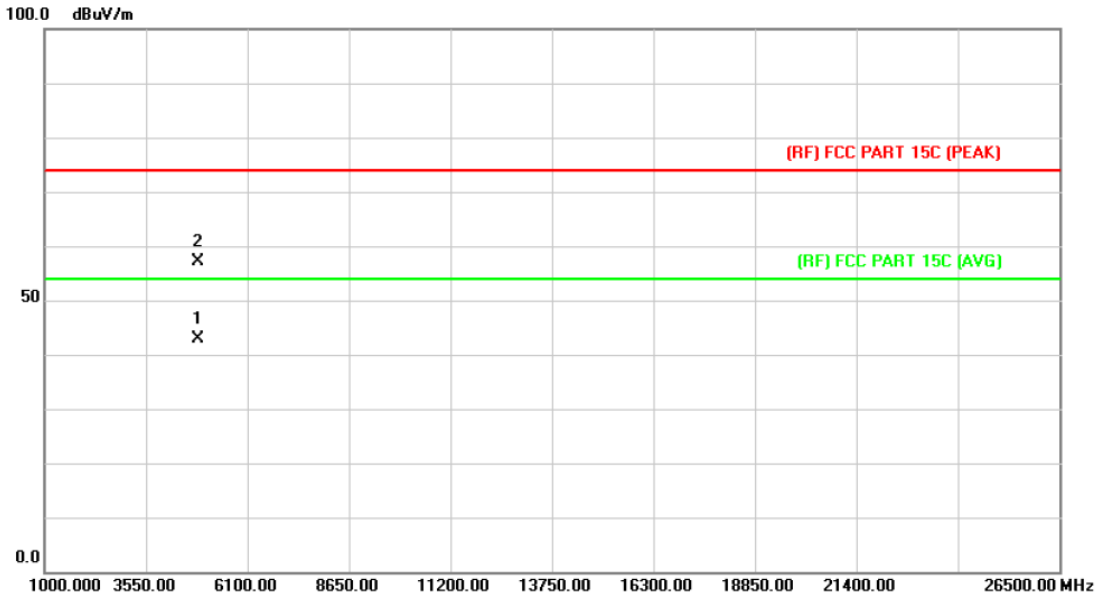
EUT:	Simple Hub	Model Name :	VM64S
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX N(HT40) Mode 2437MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4874.066	30.56	13.86	44.42	54.00	-9.58	AVG
2		4874.936	43.57	13.86	57.43	74.00	-16.57	peak

Emission Level= Read Level+ Correct Factor

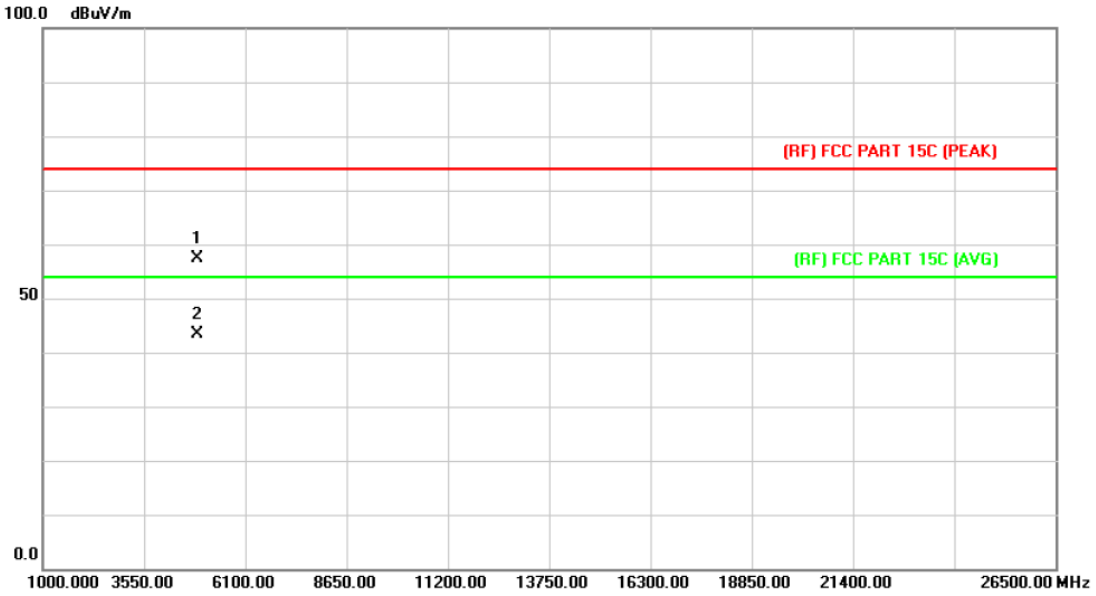
EUT:	Simple Hub	**Model Name :**	VM64S
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Vertical		
Test Mode:	TX N(HT40) Mode 2437MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4874.186	29.09	13.86	42.95	54.00	-11.05	AVG
2		4874.450	43.19	13.86	57.05	74.00	-16.95	peak

Emission Level= Read Level+ Correct Factor

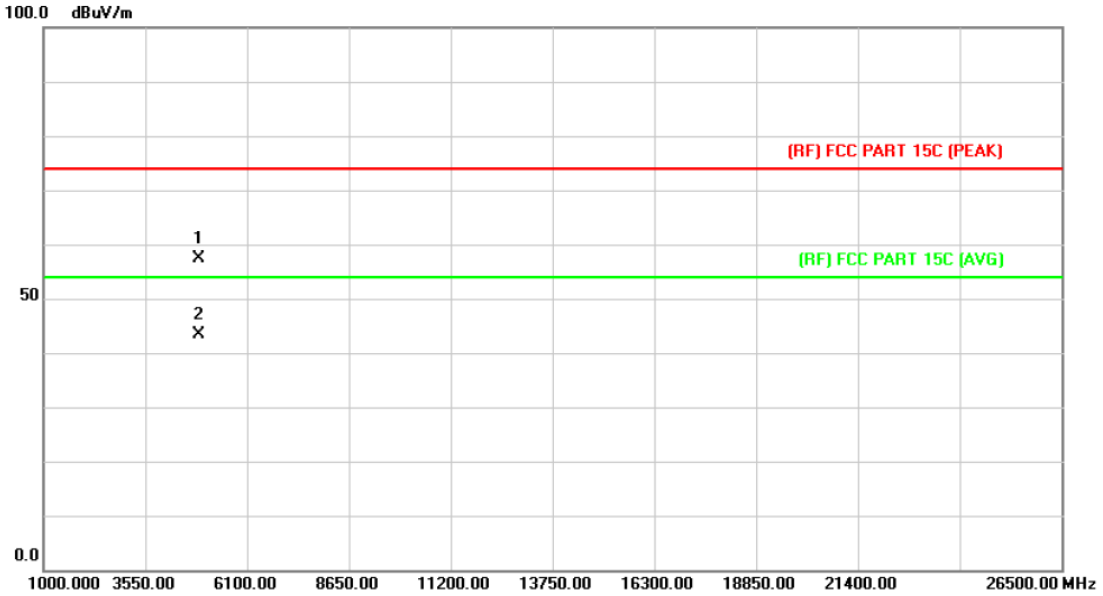
EUT:	Simple Hub	**Model Name :**	VM64S
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX N(HT40) Mode 2452MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4903.436	43.44	14.03	57.47	74.00	-16.53	peak
2	*	4903.790	29.26	14.03	43.29	54.00	-10.71	AVG

Emission Level= Read Level+ Correct Factor

EUT:	Simple Hub	**Model Name :**	VM64S
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	AC 120V/60 Hz		
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	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4902.974	43.43	14.02	57.45	74.00	-16.55	peak
2	*	4905.080	29.34	14.04	43.38	54.00	-10.62	AVG

Emission Level= Read Level+ Correct Factor

6. Restricted Bands Requirement

6.1 Test Standard and Limit

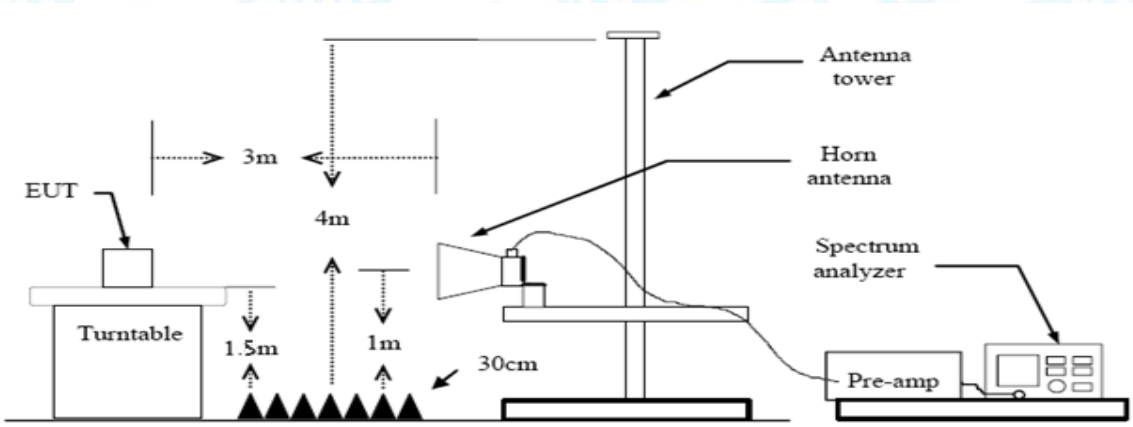
5.1.1 Test Standard

FCC Part 15.209 FCC Part 15.205

5.1.2 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. The EUT was placed on a rotating 0.8m high above the 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

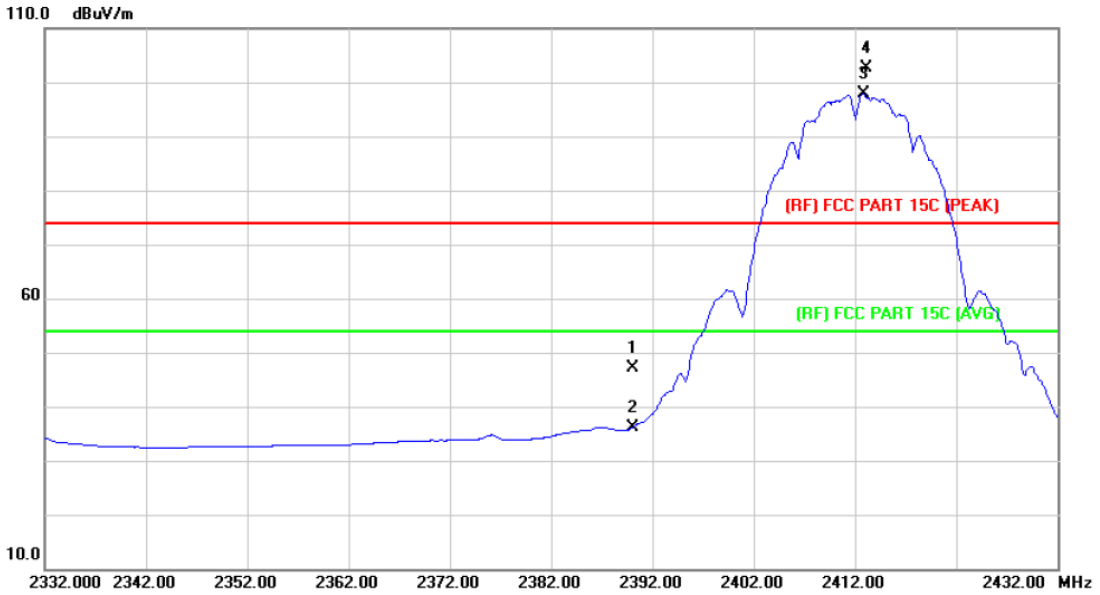
The Equipment Under Test was set to Continual Transmitting in maximum power.

6.5 Test Data

Please see the next page.

(1) Radiation Test

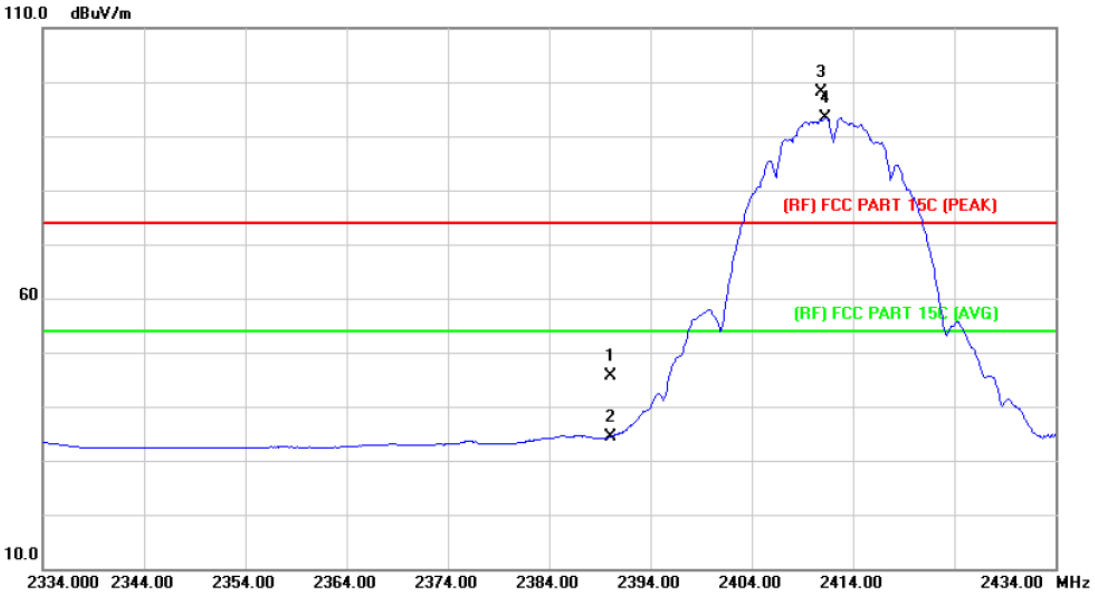
EUT:	Simple Hub	Model Name :	VM64S
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX B Mode 2412MHz		
Remark:	N/A		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		2390.000	46.43	0.77	47.20	74.00	-26.80	peak
2		2390.000	35.35	0.77	36.12	54.00	-17.88	AVG
3	*	2412.800	97.03	0.86	97.89	Fundamental Frequency		AVG
4	X	2413.100	101.72	0.86	102.58	Fundamental Frequency		peak

Emission Level= Read Level+ Correct Factor

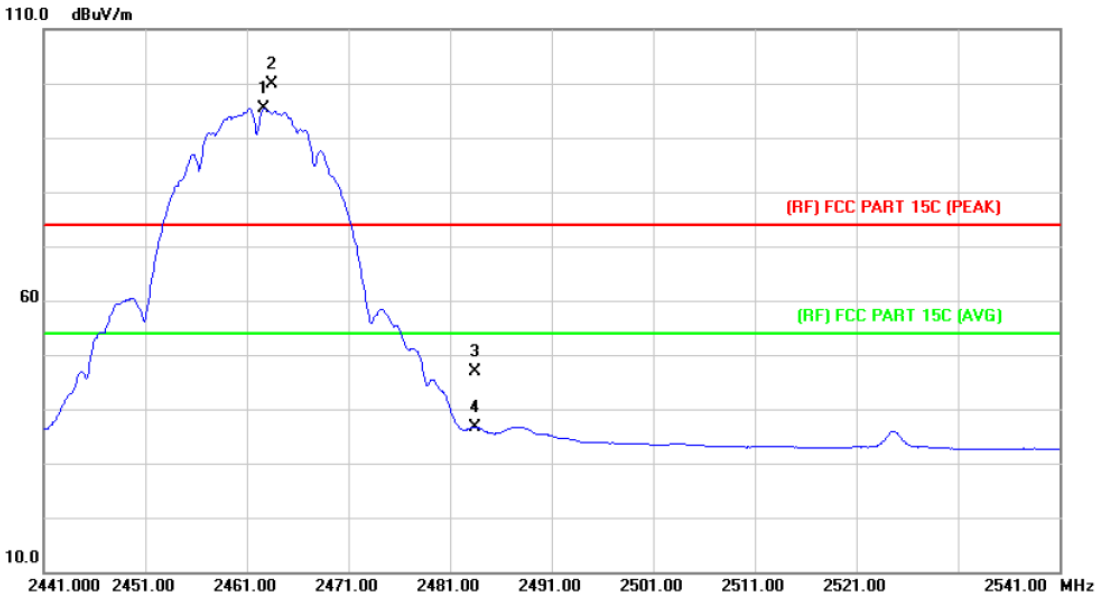
EUT:	Simple Hub	Model Name :	VM64S
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Vertical		
Test Mode:	TX B Mode 2412MHz		
Remark:	N/A		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		2390.000	44.79	0.77	45.56	74.00	-28.44	peak
2		2390.000	33.62	0.77	34.39	54.00	-19.61	AVG
3	X	2410.900	97.26	0.86	98.12	Fundamental Frequency		peak
4	*	2411.300	92.60	0.86	93.46	Fundamental Frequency		AVG

Emission Level= Read Level+ Correct Factor

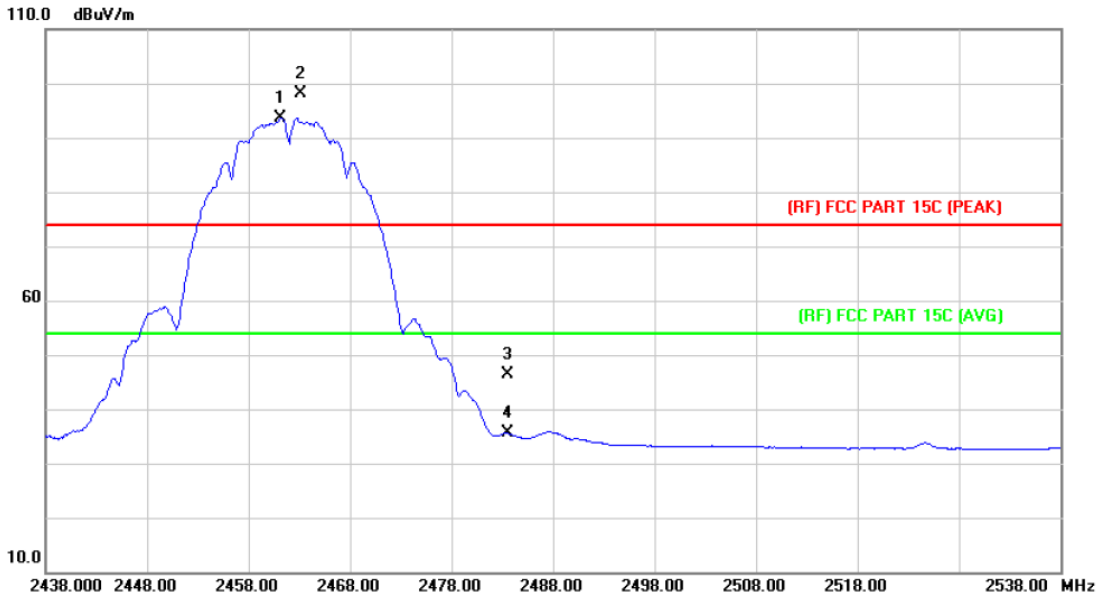
EUT:	Simple Hub	Model Name :	VM64S
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX B Mode 2462MHz		
Remark:	N/A		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	2462.700	94.33	1.08	95.41	Fundamental Frequency		AVG
2	X	2463.400	98.79	1.08	99.87	Fundamental Frequency		peak
3		2483.500	45.70	1.17	46.87	74.00	-27.13	peak
4		2483.500	35.54	1.17	36.71	54.00	-17.29	AVG

Emission Level= Read Level+ Correct Factor

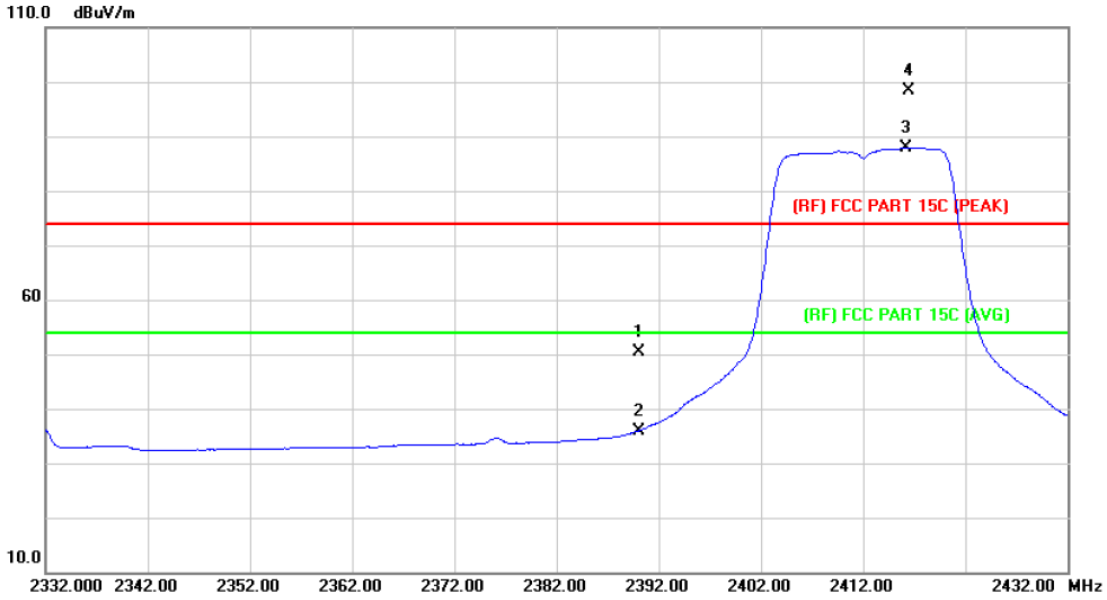
EUT:	Simple Hub	Model Name :	VM64S
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Vertical		
Test Mode:	TX B Mode 2462MHz		
Remark:	N/A		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	2461.200	92.57	1.07	93.64	Fundamental Frequency		AVG
2	X	2463.100	97.07	1.08	98.15	Fundamental Frequency		peak
3		2483.500	45.24	1.17	46.41	74.00	-27.59	peak
4		2483.500	34.40	1.17	35.57	54.00	-18.43	AVG

Emission Level= Read Level+ Correct Factor

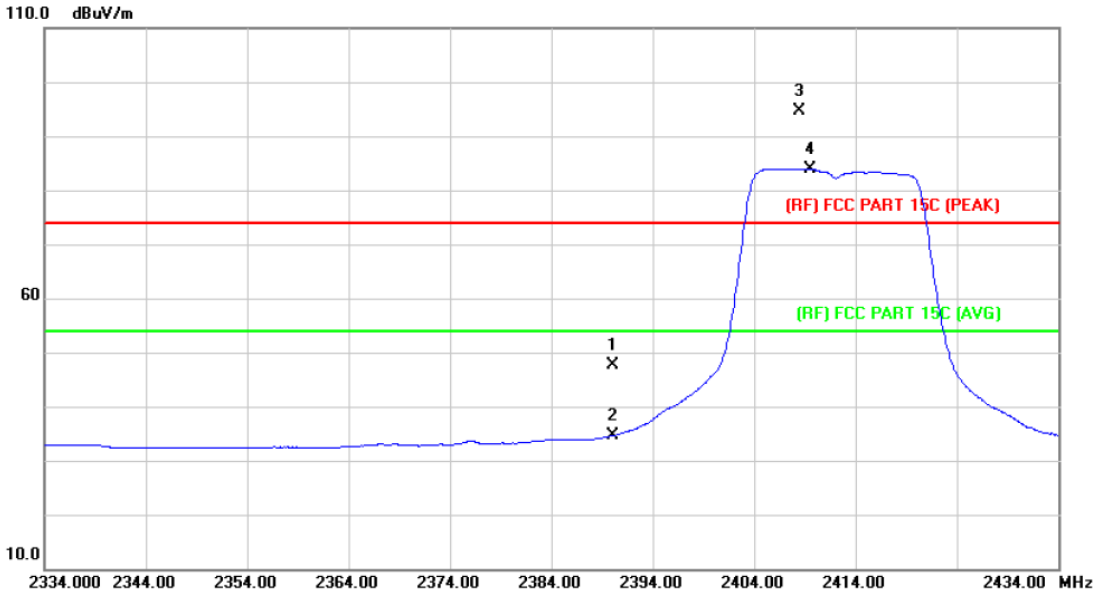
EUT:	Simple Hub	Model Name :	VM64S
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX G Mode 2412MHz		
Remark:	N/A		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		2390.000	49.57	0.77	50.34	74.00	-23.66	peak
2		2390.000	35.19	0.77	35.96	54.00	-18.04	AVG
3	*	2416.200	86.99	0.88	87.87	Fundamental Frequency		AVG
4	X	2416.500	97.39	0.88	98.27	Fundamental Frequency		peak

Emission Level= Read Level+ Correct Factor

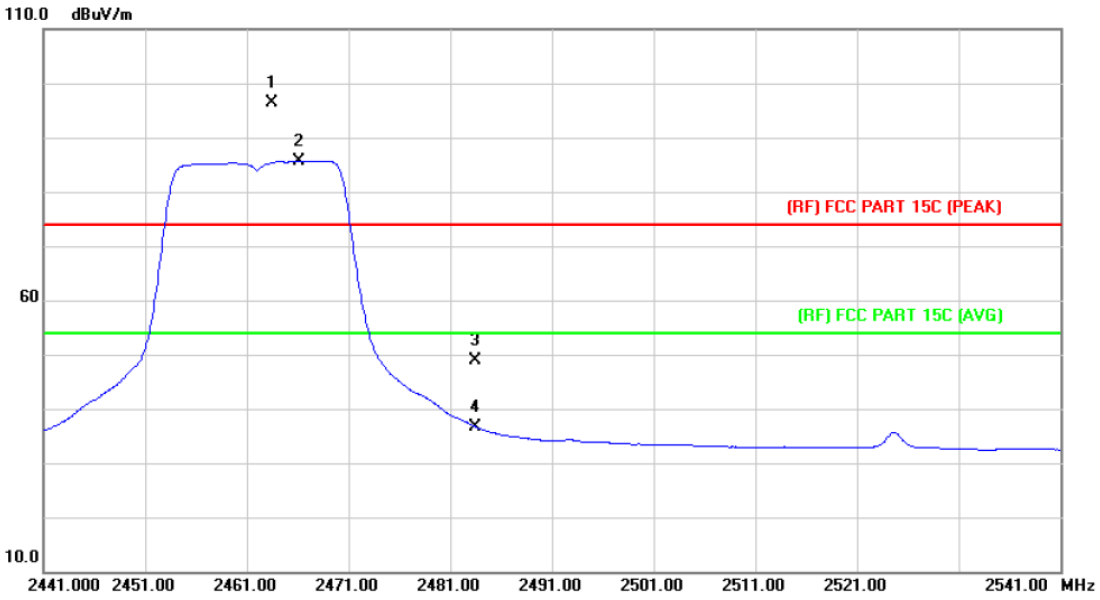
EUT:	Simple Hub	Model Name :	VM64S
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Vertical		
Test Mode:	TX G Mode 2412MHz		
Remark:	N/A		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		2390.000	46.98	0.77	47.75	74.00	-26.25	peak
2		2390.000	33.84	0.77	34.61	54.00	-19.39	AVG
3	X	2408.500	93.70	0.85	94.55	Fundamental Frequency		peak
4	*	2409.500	83.13	0.85	83.98	Fundamental Frequency		AVG

Emission Level= Read Level+ Correct Factor

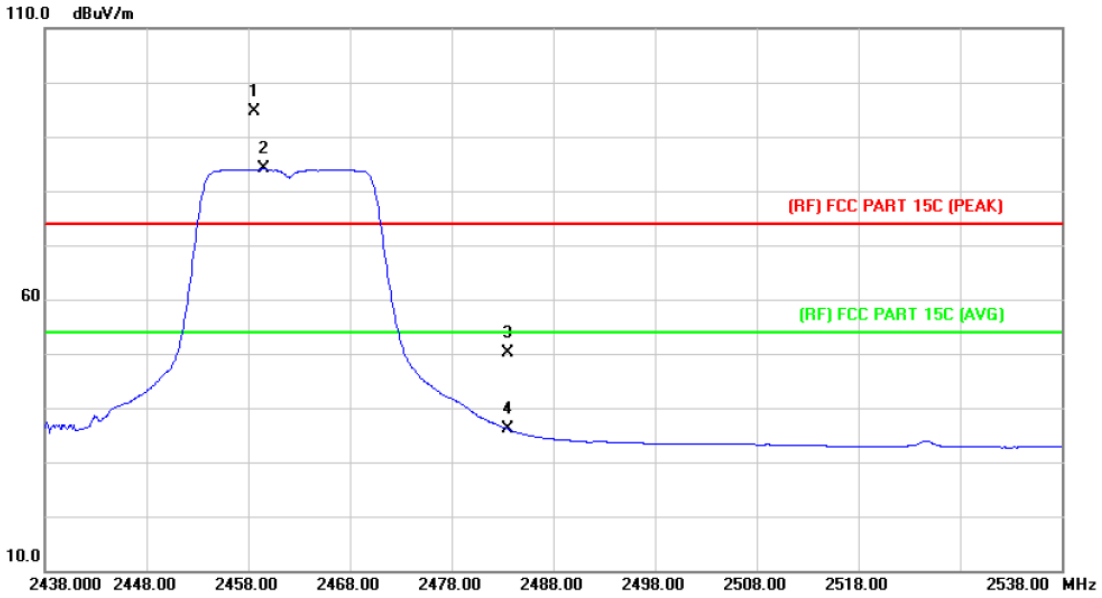
EUT:	Simple Hub	Model Name :	VM64S
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX G Mode 2462MHz		
Remark:	N/A		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	X	2463.500	95.19	1.08	96.27	Fundamental Frequency		peak
2	*	2466.200	84.60	1.09	85.69	Fundamental Frequency		AVG
3		2483.500	47.74	1.17	48.91	74.00	-25.09	peak
4		2483.500	35.52	1.17	36.69	54.00	-17.31	AVG

Emission Level= Read Level+ Correct Factor

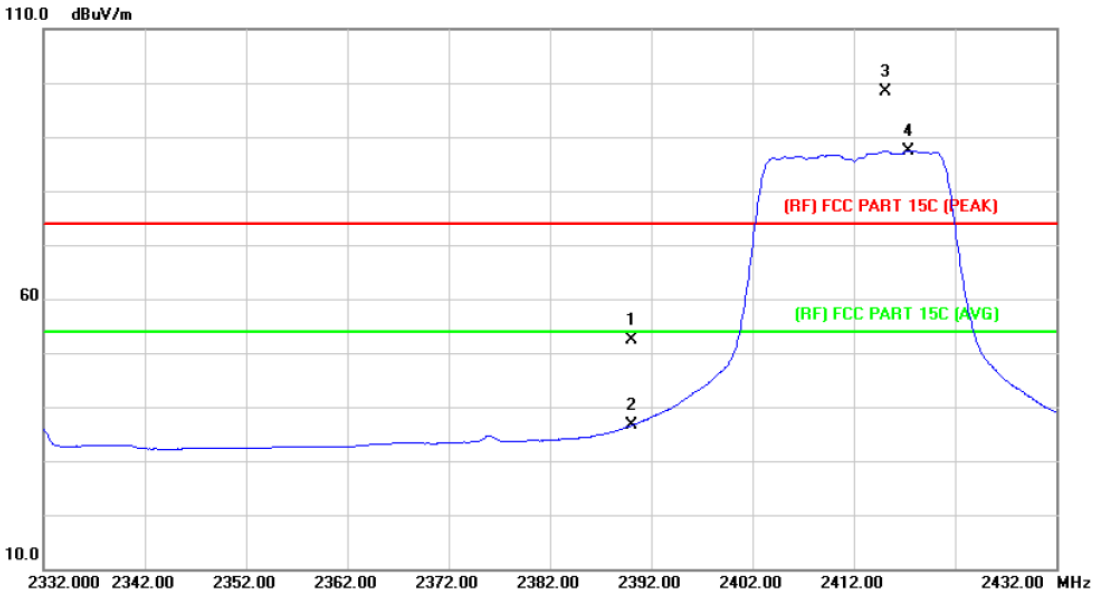
EUT:	Simple Hub	Model Name :	VM64S
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Vertical		
Test Mode:	TX G Mode 2462MHz		
Remark:	N/A		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	X	2458.600	93.64	1.06	94.70	Fundamental Frequency		peak
2	*	2459.500	83.03	1.06	84.09	Fundamental Frequency		AVG
3		2483.500	48.84	1.17	50.01	74.00	-23.99	peak
4		2483.500	35.02	1.17	36.19	54.00	-17.81	AVG

Emission Level= Read Level+ Correct Factor

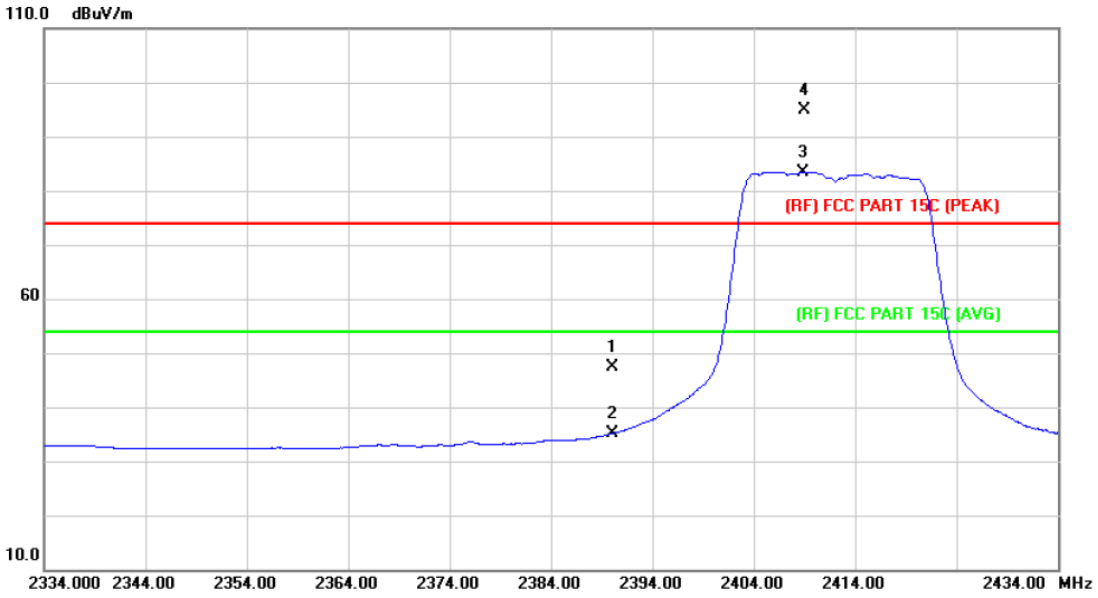
EUT:	Simple Hub	Model Name :	VM64S
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX N(HT20) Mode 2412MHz		
Remark:	N/A		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		2390.000	51.59	0.77	52.36	74.00	-21.64	peak
2		2390.000	35.79	0.77	36.56	54.00	-17.44	AVG
3	X	2415.200	97.55	0.88	98.43	Fundamental Frequency		peak
4	*	2417.400	86.55	0.89	87.44	Fundamental Frequency		AVG

Emission Level= Read Level+ Correct Factor

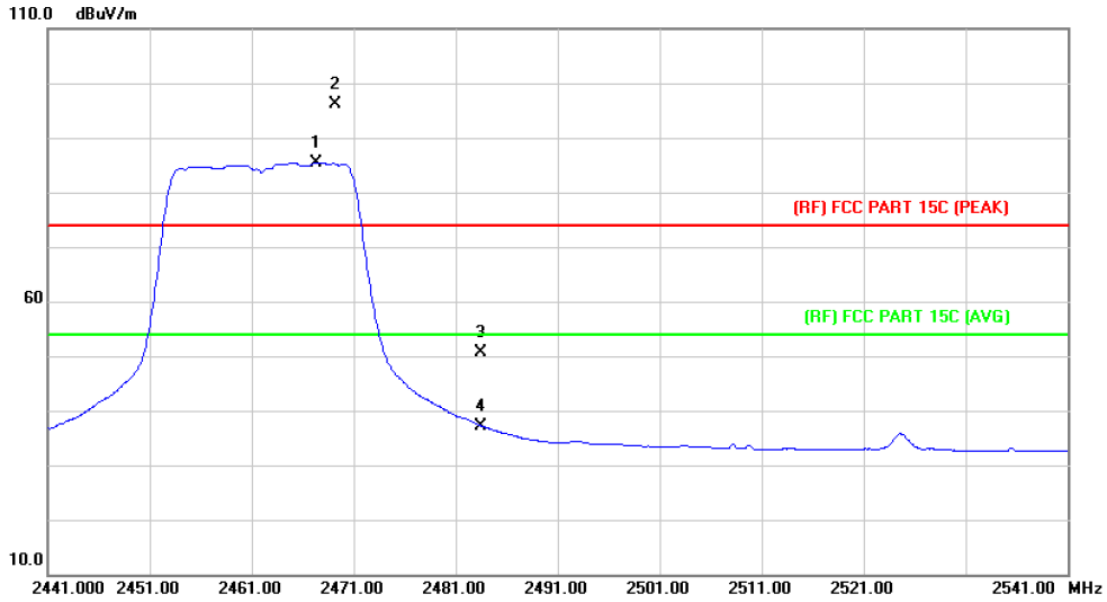
EUT:	Simple Hub	Model Name :	VM64S
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Vertical		
Test Mode:	TX N(HT20) Mode 2412MHz		
Remark:	N/A		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		2390.000	46.64	0.77	47.41	74.00	-26.59	peak
2		2390.000	34.37	0.77	35.14	54.00	-18.86	AVG
3	*	2408.800	82.62	0.85	83.47	Fundamental Frequency		AVG
4	X	2409.000	94.10	0.85	94.95	Fundamental Frequency		peak

Emission Level= Read Level+ Correct Factor

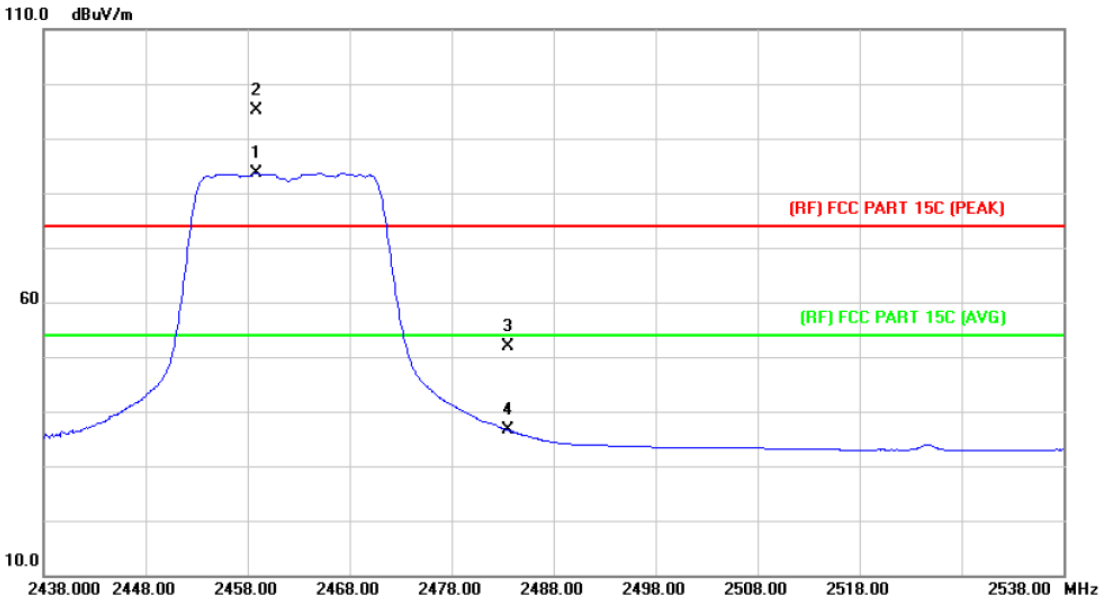
EUT:	Simple Hub	Model Name :	VM64S
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX N(HT20) Mode 2462MHz		
Remark:	N/A		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	2467.300	84.37	1.10	85.47	Fundamental Frequency		AVG
2	X	2469.200	95.06	1.11	96.17	Fundamental Frequency		peak
3		2483.500	49.58	1.17	50.75	74.00	-23.25	peak
4		2483.500	36.07	1.17	37.24	54.00	-16.76	AVG

Emission Level= Read Level+ Correct Factor

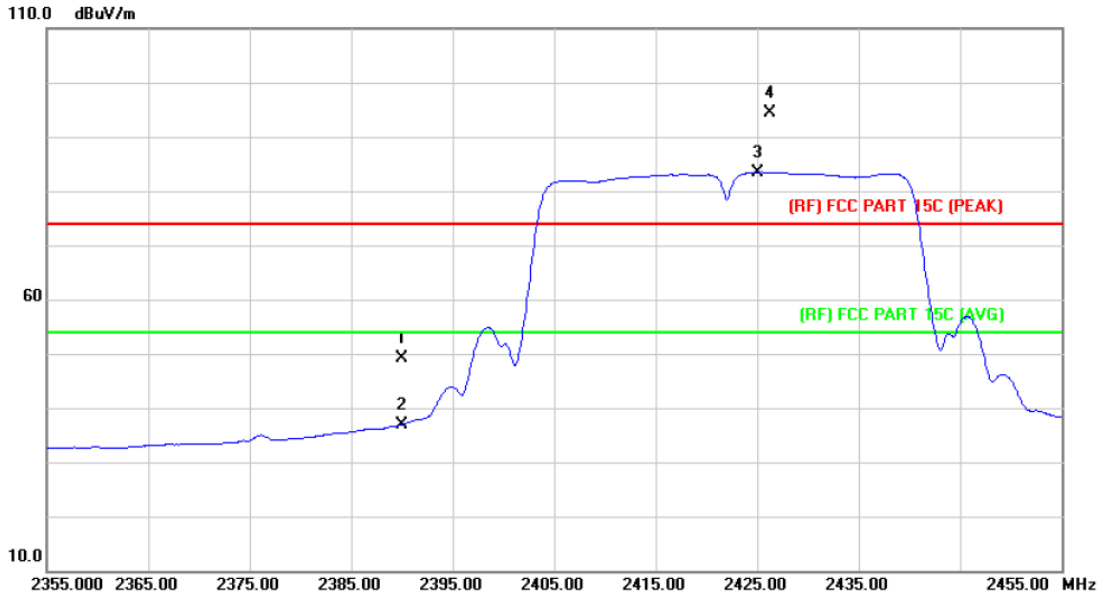
EUT:	Simple Hub	Model Name :	VM64S
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Vertical		
Test Mode:	TX N(HT20) Mode 2462MHz		
Remark:	N/A		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	2458.800	82.53	1.06	83.59	Fundamental Frequency		AVG
2	X	2458.900	93.97	1.06	95.03	Fundamental Frequency		peak
3		2483.500	50.82	1.17	51.99	74.00	-22.01	peak
4		2483.500	35.38	1.17	36.55	54.00	-17.45	AVG

Emission Level= Read Level+ Correct Factor

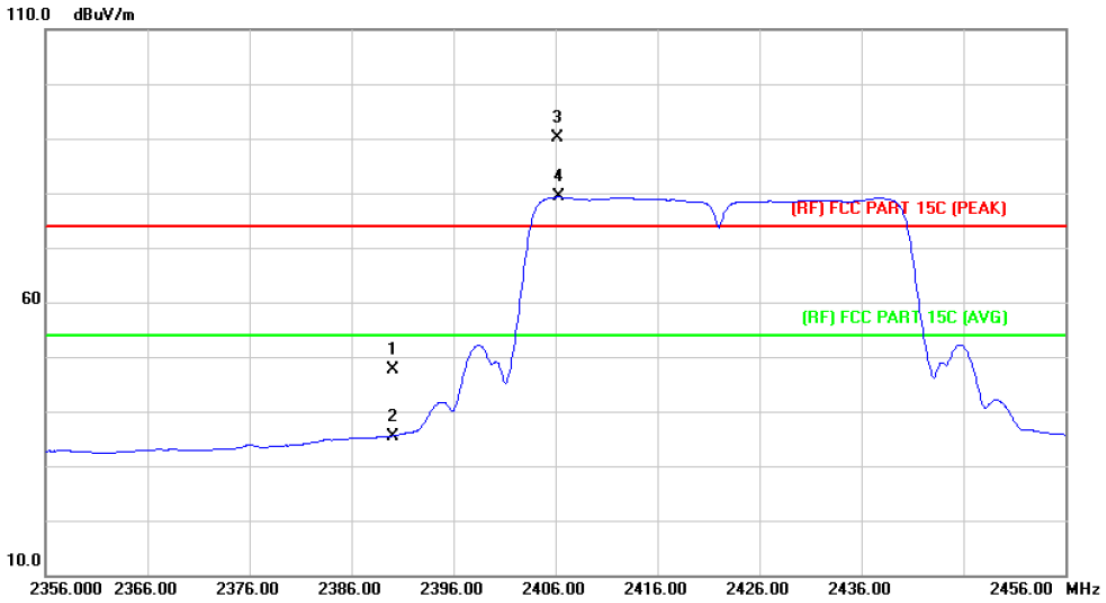
EUT:	Simple Hub	Model Name :	VM64S
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX N(HT40) Mode 2422MHz		
Remark:	N/A		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		2390.000	48.24	0.77	49.01	74.00	-24.99	peak
2		2390.000	36.14	0.77	36.91	54.00	-17.09	AVG
3	*	2425.100	82.57	0.93	83.50	Fundamental Frequency		AVG
4	X	2426.300	93.47	0.93	94.40	Fundamental Frequency		peak

Emission Level= Read Level+ Correct Factor

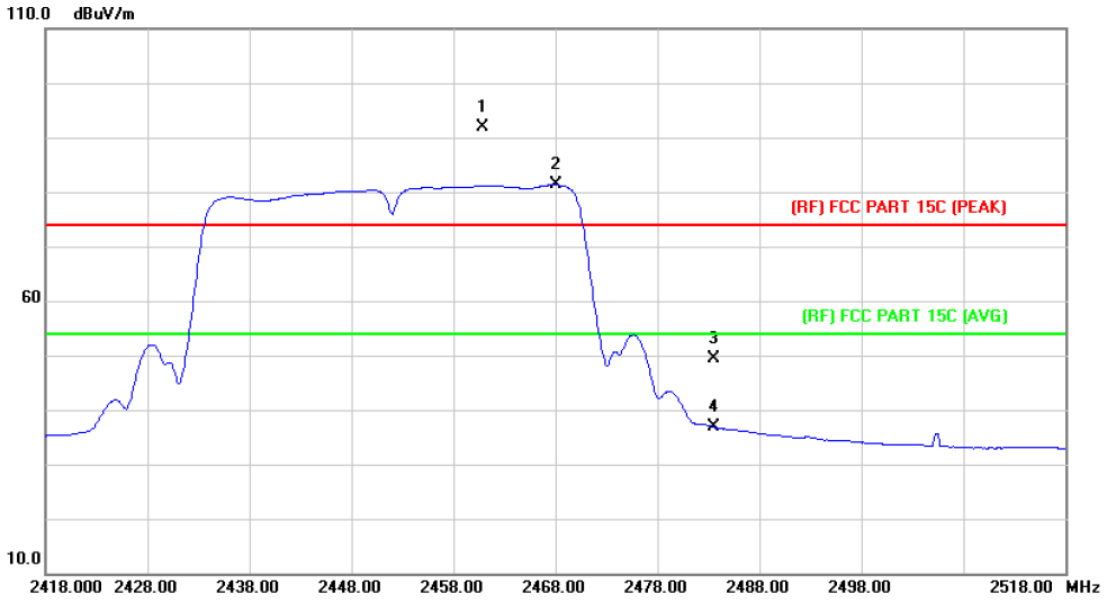
EUT:	Simple Hub	Model Name :	VM64S
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Vertical		
Test Mode:	TX N(HT40) Mode 2422MHz		
Remark:	N/A		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		2390.000	46.82	0.77	47.59	74.00	-26.41	peak
2		2390.000	34.73	0.77	35.50	54.00	-18.50	AVG
3	X	2406.200	89.31	0.84	90.15	Fundamental Frequency		peak
4	*	2406.300	78.44	0.84	79.28	Fundamental Frequency		AVG

Emission Level= Read Level+ Correct Factor

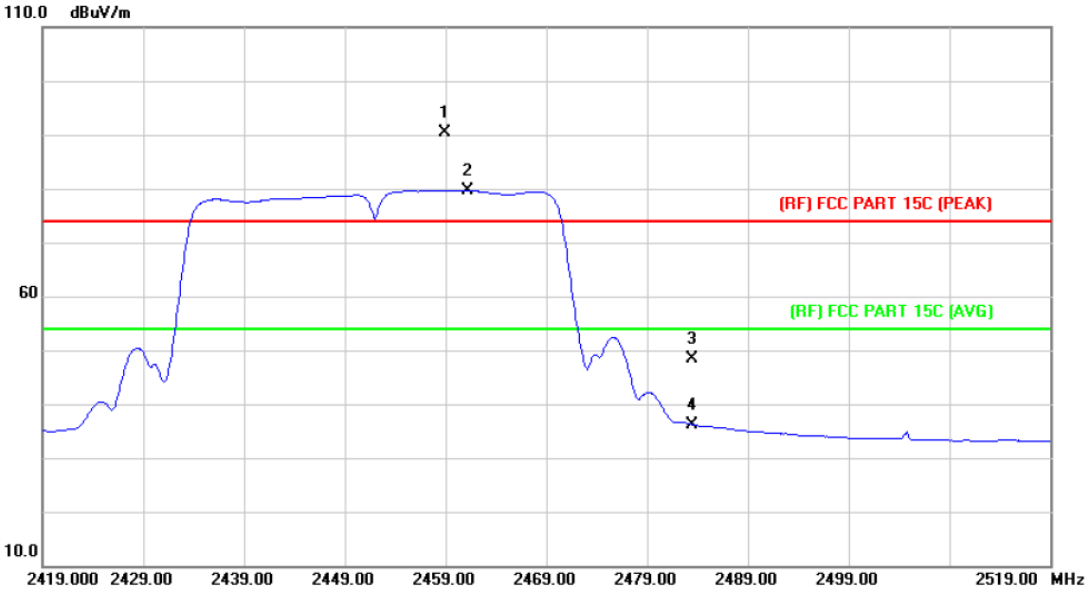
EUT:	Simple Hub	Model Name :	VM64S
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX N(HT40) Mode 2452MHz		
Remark:	N/A		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	X	2460.900	90.90	1.06	91.96	Fundamental Frequency		peak
2	*	2468.000	80.23	1.11	81.34	Fundamental Frequency		AVG
3		2483.500	48.10	1.17	49.27	74.00	-24.73	peak
4		2483.500	35.64	1.17	36.81	54.00	-17.19	AVG

Emission Level= Read Level+ Correct Factor

EUT:	Simple Hub	Model Name :	VM64S
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Vertical		
Test Mode:	TX N(HT40) Mode 2452MHz		
Remark:	N/A		

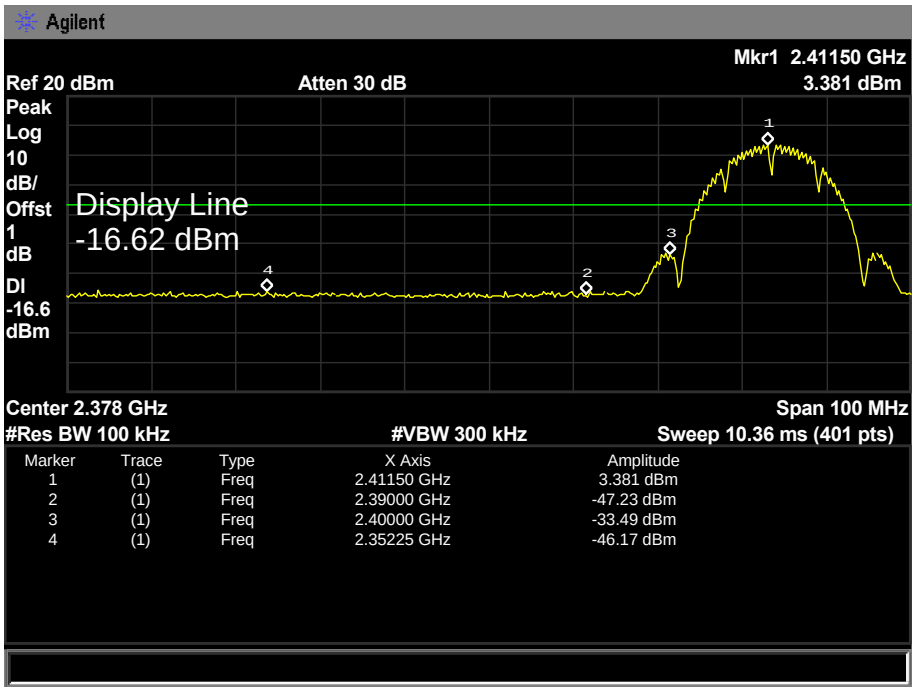


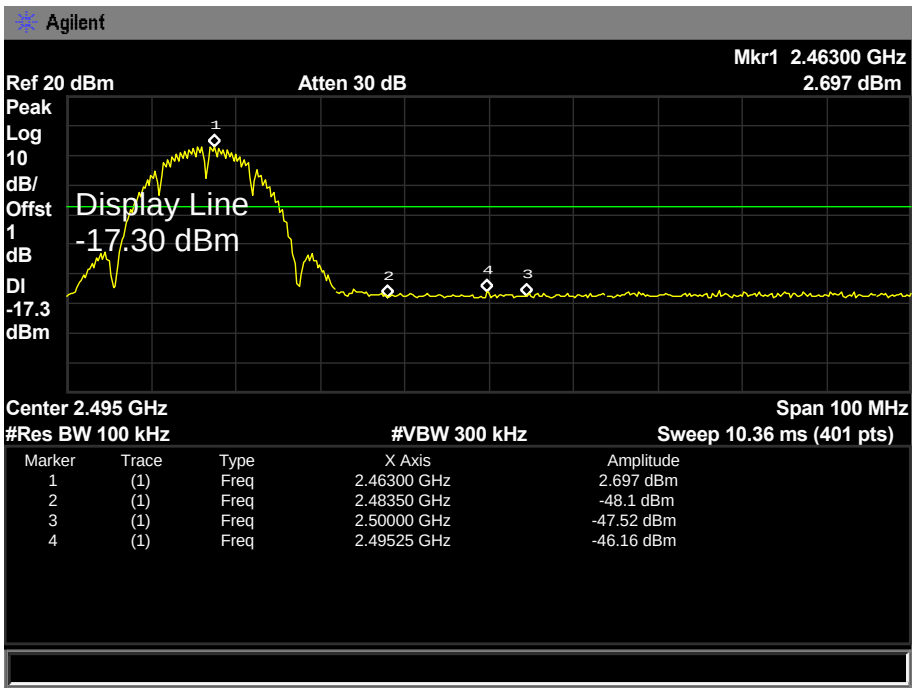
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	X	2458.900	89.27	1.06	90.33	Fundamental Frequency		peak
2	*	2461.200	78.61	1.07	79.68	Fundamental Frequency		AVG
3		2483.500	47.24	1.17	48.41	74.00	-25.59	peak
4		2483.500	35.01	1.17	36.18	54.00	-17.82	AVG

Emission Level= Read Level+ Correct Factor

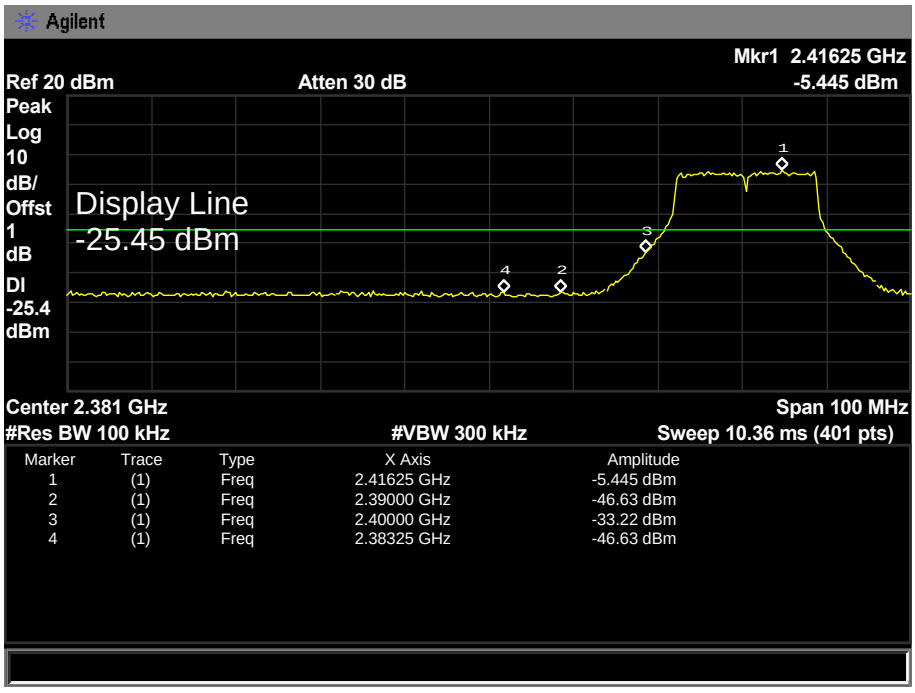
(2) Conducted Test

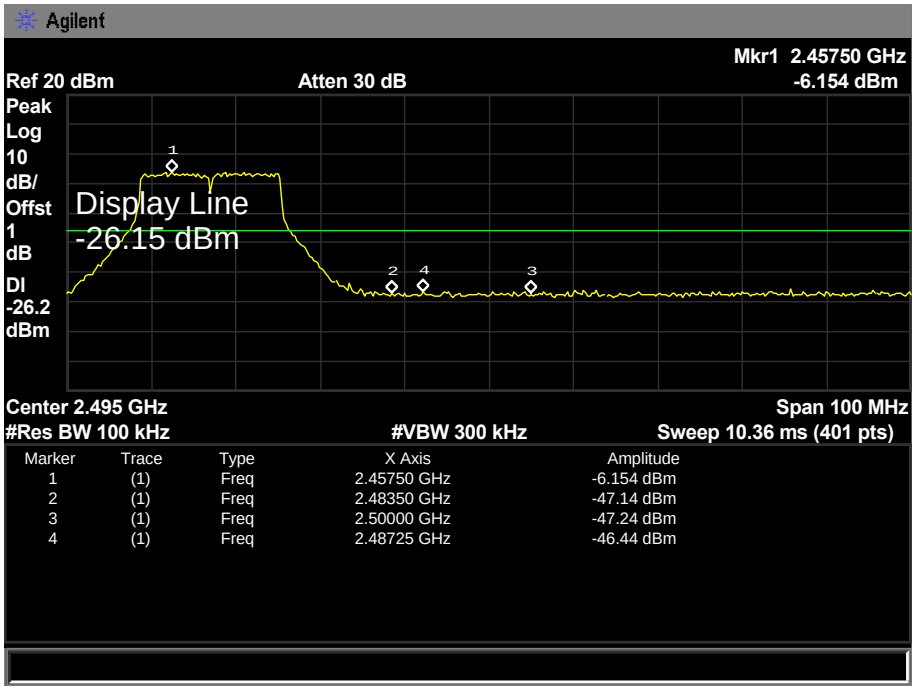
EUT:	Simple Hub	Model Name :	VM64S
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Test Mode:	TX B Mode 2412MHz / TX B Mode 2462MHz		
Remark:	The EUT is programed in continuously transmitting mode		



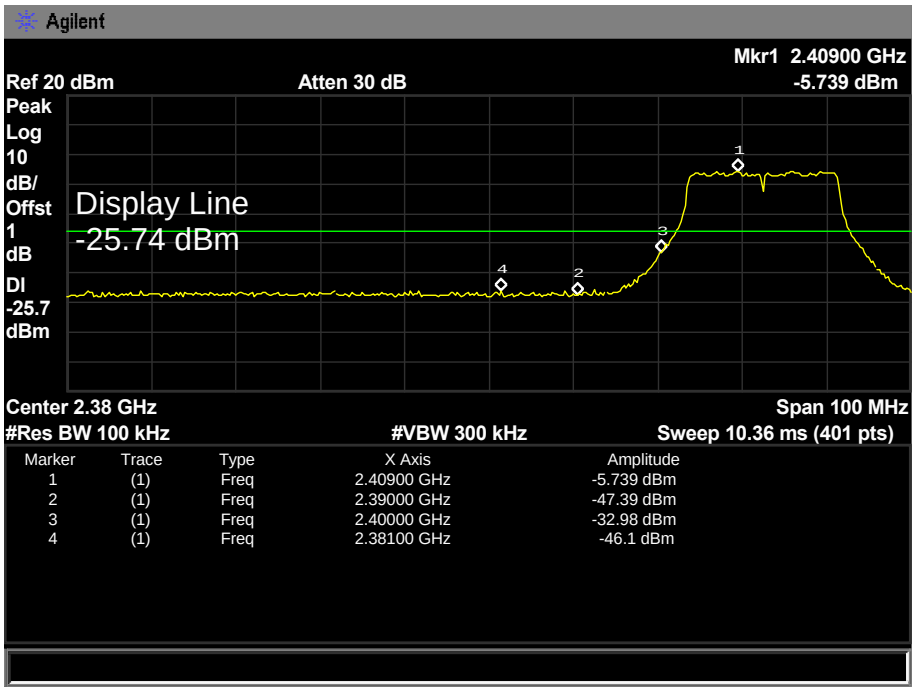


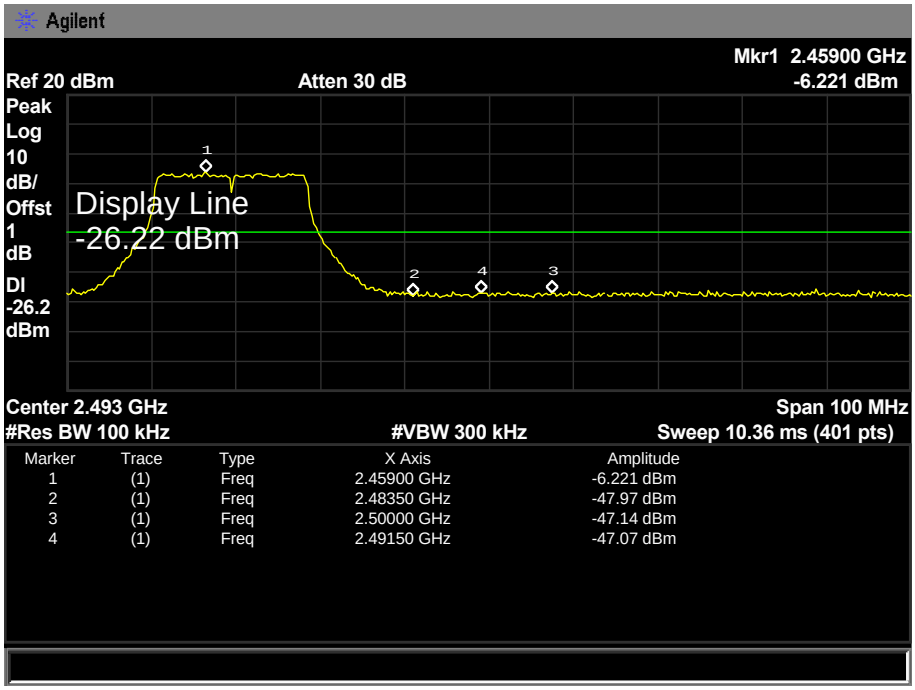
EUT:	Simple Hub	Model Name :	VM64S
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Test Mode:	TX G Mode 2412MHz / TX G Mode 2462MHz		
Remark:	The EUT is programed in continuously transmitting mode		



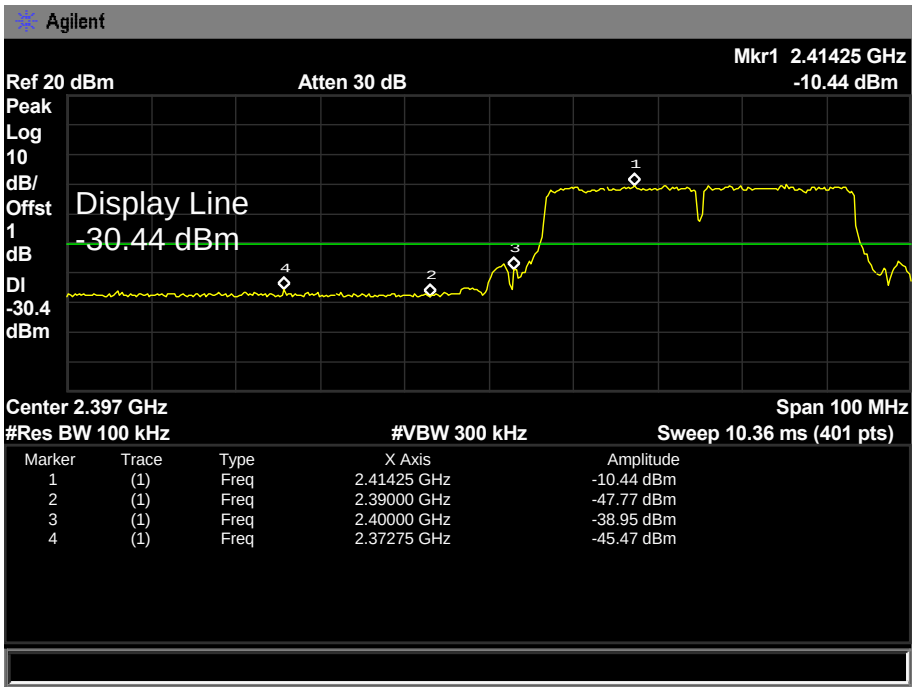


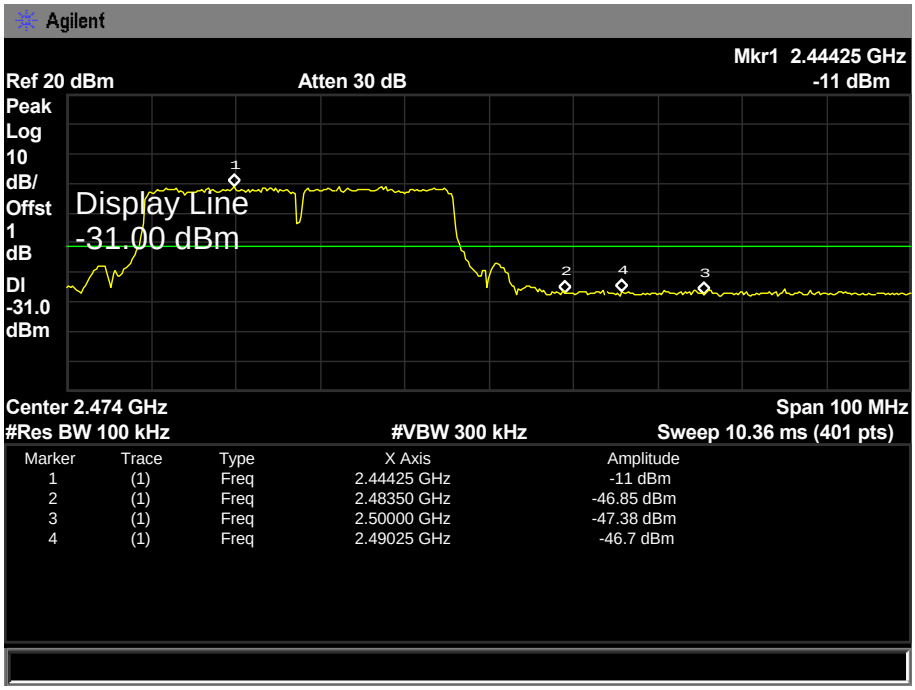
EUT:	Simple Hub	Model Name :	VM64S
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Test Mode:	TX N(HT20) Mode 2412MHz / TX N(HT20) Mode 2462MHz		
Remark:	The EUT is programed in continuously transmitting mode		





EUT:	Simple Hub	Model Name :	VM64S
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
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

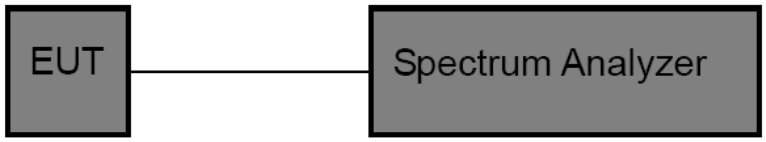
7.1.1 Test Standard

FCC Part 15.247 (a)(2)

7.1.2 Test Limit

FCC Part 15 Subpart C(15.247)/ RSS 247 Issue 1		
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, Midle and high channel for the test.

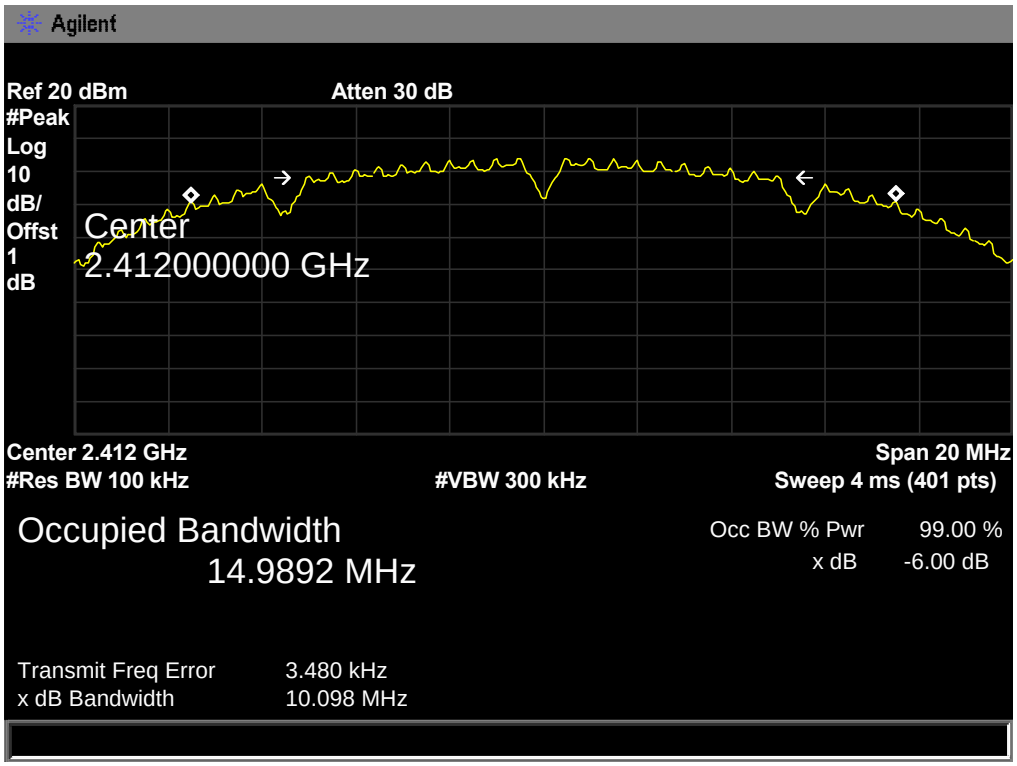
7.5 Test Data

EUT:	Simple Hub	Model Name :	VM64S
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Test Mode:	TX 802.11B Mode		

Channel frequency (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	Limit (MHz)
2412	10.098	14.9892	>=0.5
2437	10.066	14.9804	
2462	10.102	14.9837	

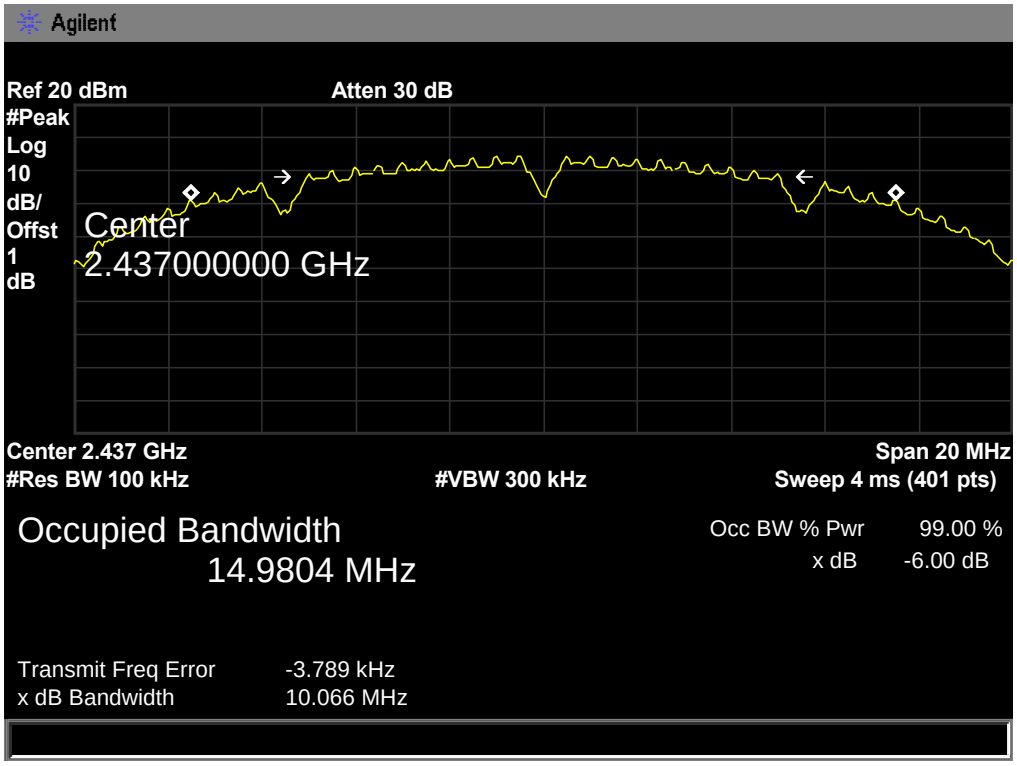
802.11B Mode

2412 MHz



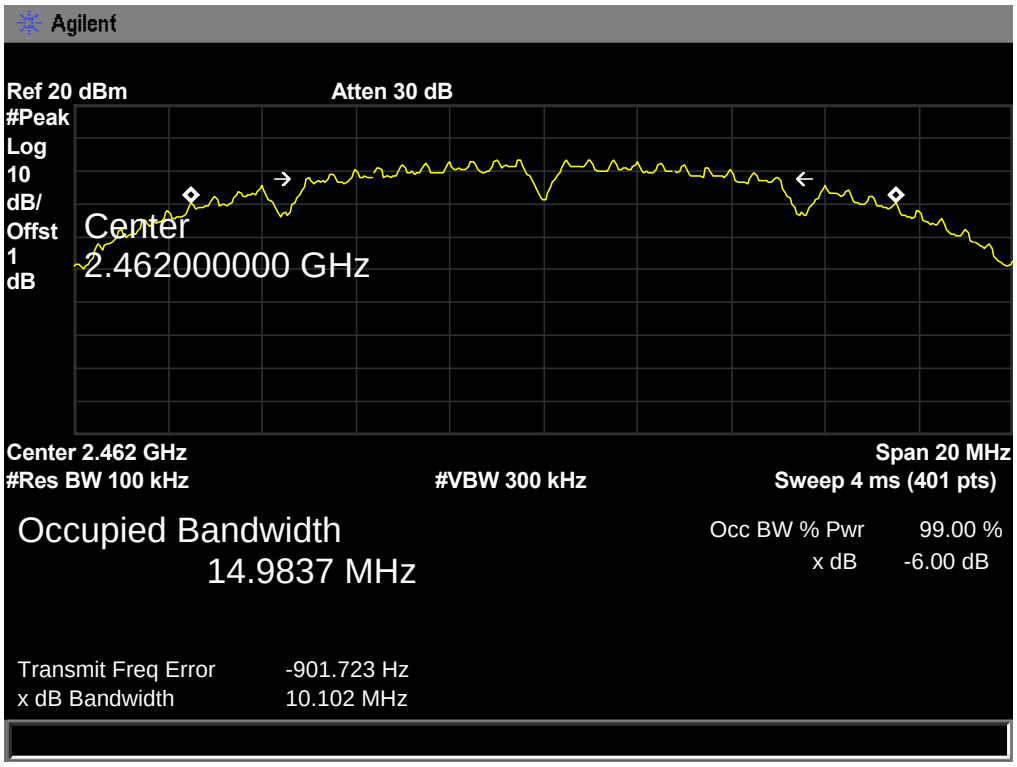
802.11B Mode

2437 MHz



802.11B Mode

2462 MHz

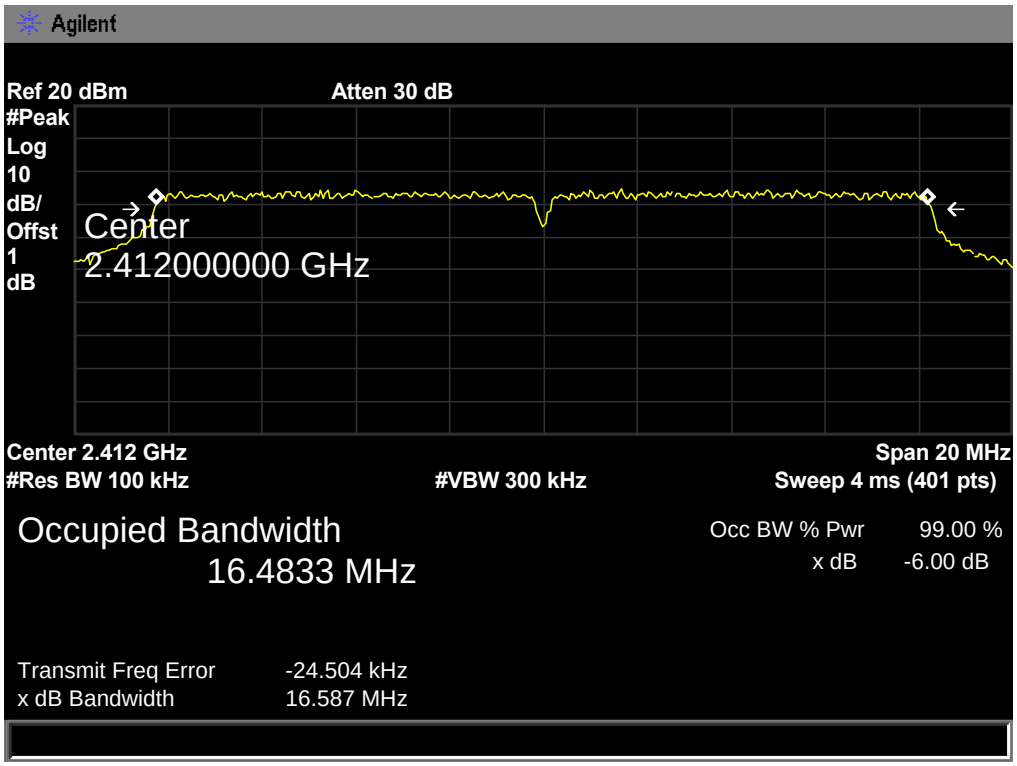


EUT:	Simple Hub	Model Name :	VM64S
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Test Mode:	TX 802.11G Mode		

Channel frequency (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	Limit (MHz)
2412	16.587	16.4833	>=0.5
2437	16.584	16.4773	
2462	16.615	16.4944	

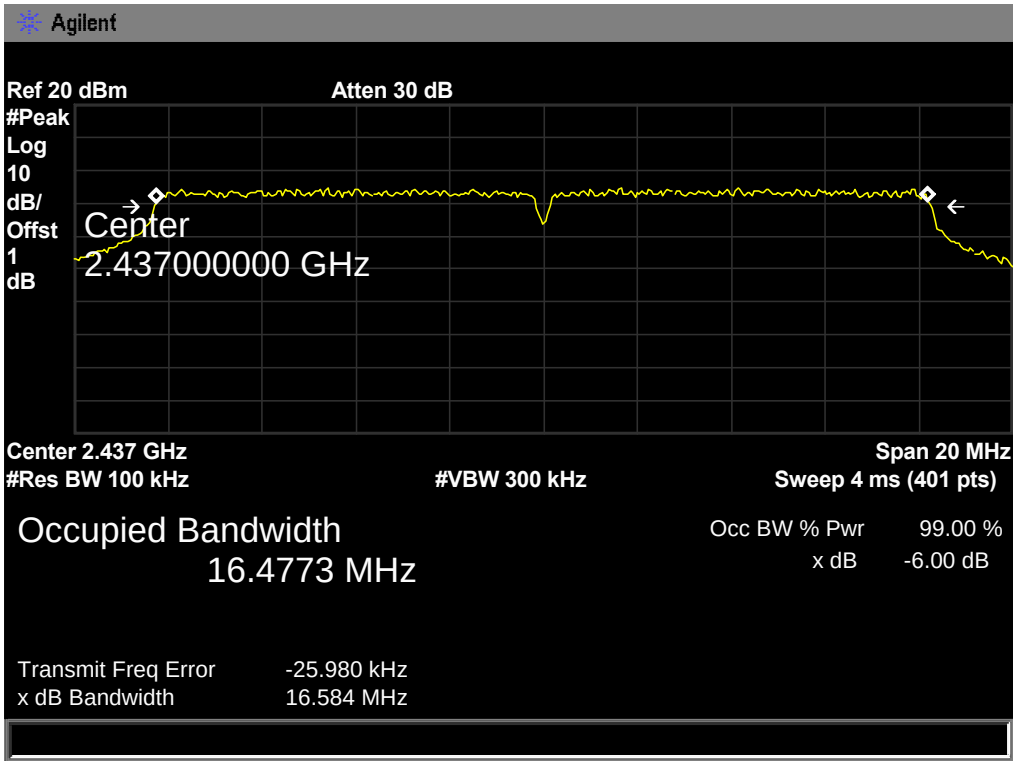
802.11G Mode

2412 MHz



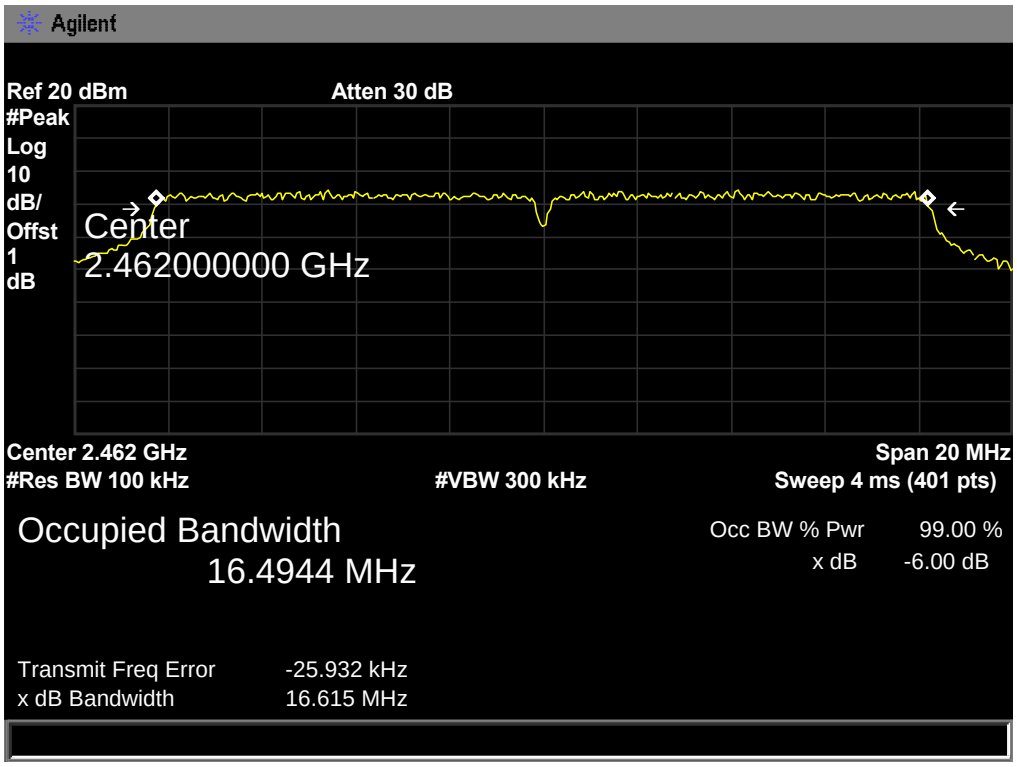
802.11G Mode

2437 MHz



802.11G Mode

2462 MHz

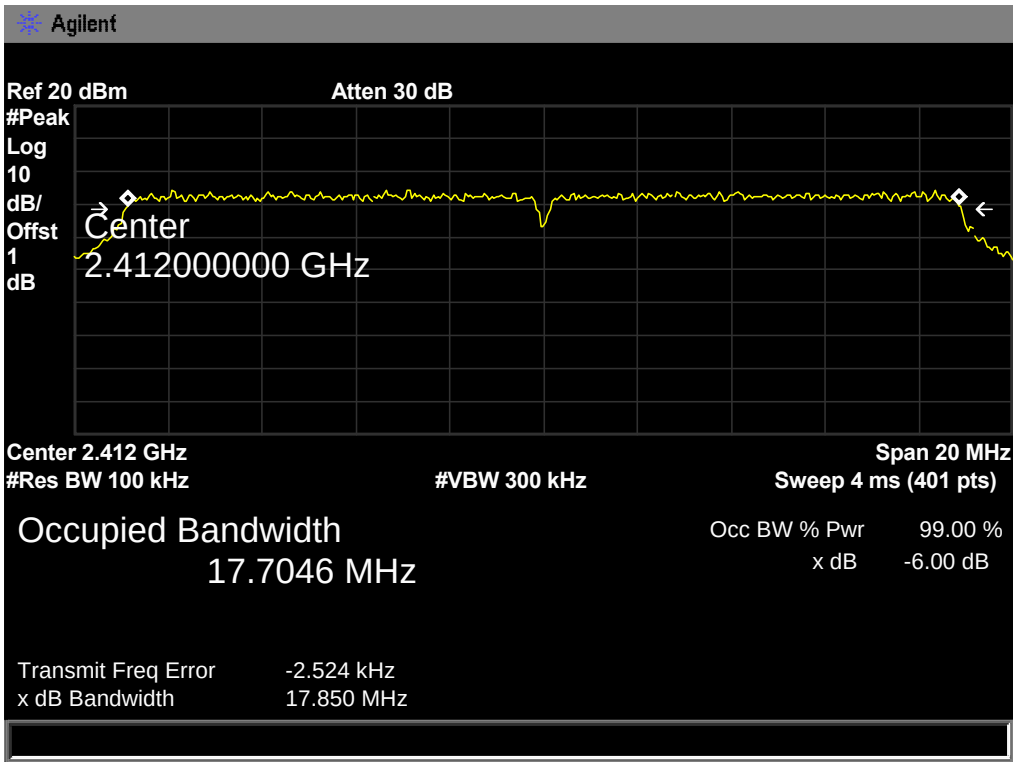


EUT:	Simple Hub	Model Name :	VM64S
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Test Mode:	TX 802.11N(HT20) Mode		

Channel frequency (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	Limit (MHz)
2412	17.850	17.7046	>=0.5
2437	17.865	17.7094	
2462	17.856	17.7014	

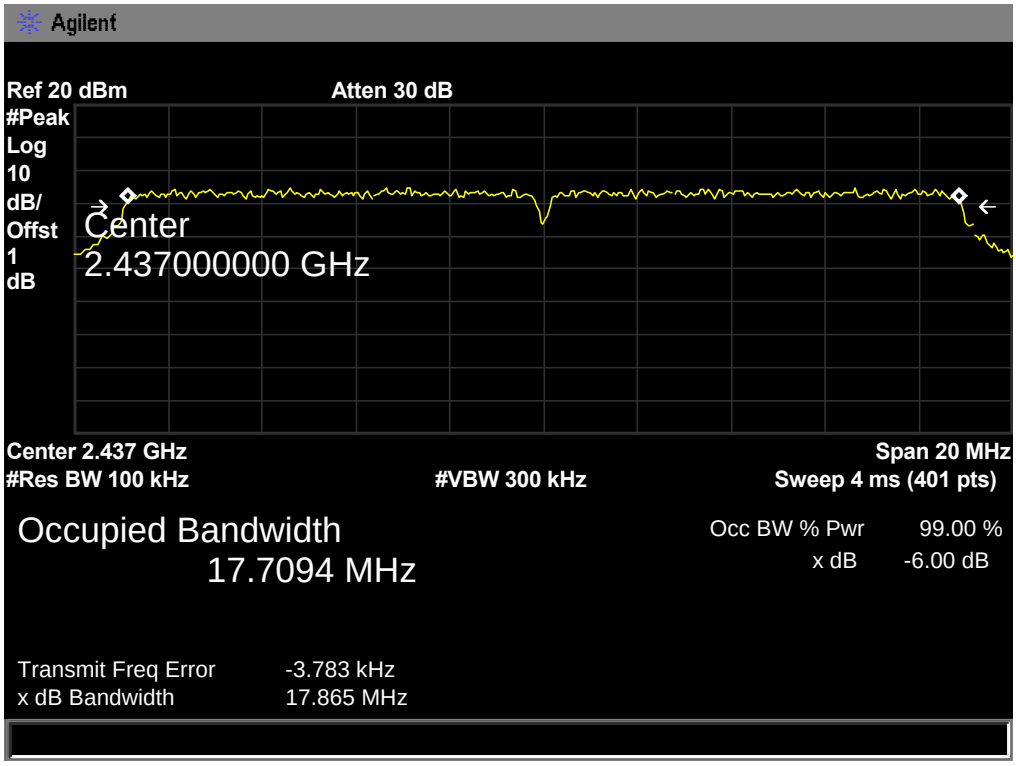
802.11N(HT20) Mode

2412 MHz



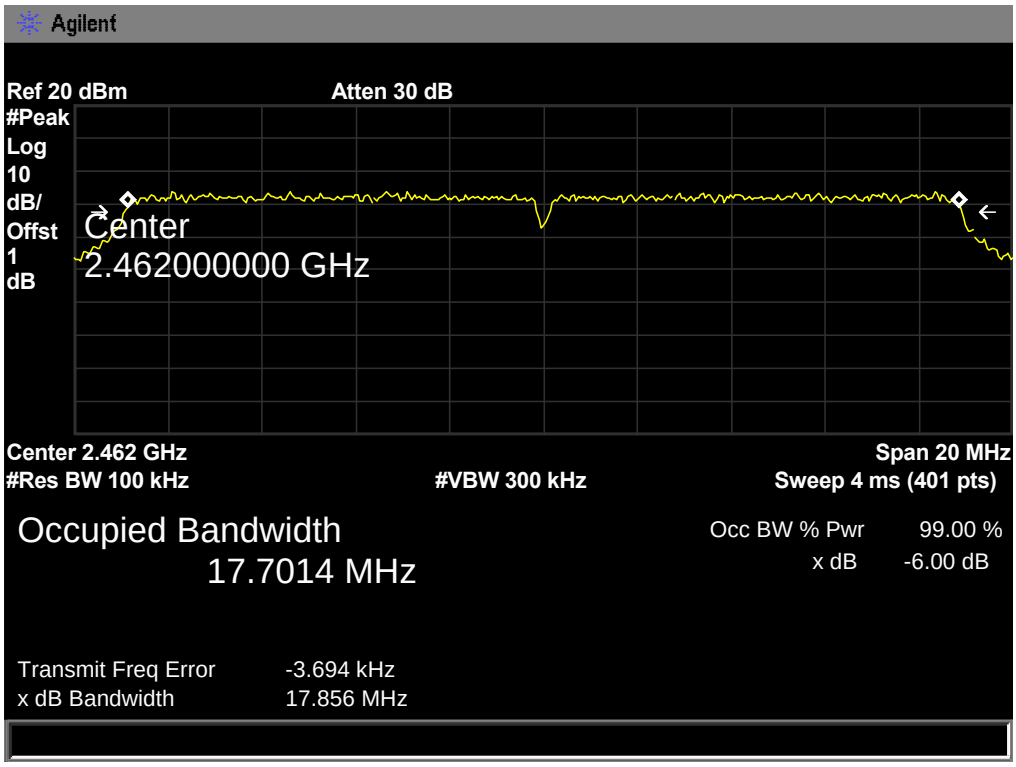
802.11N(HT20) Mode

2437 MHz



802.11N(HT20) Mode

2462 MHz

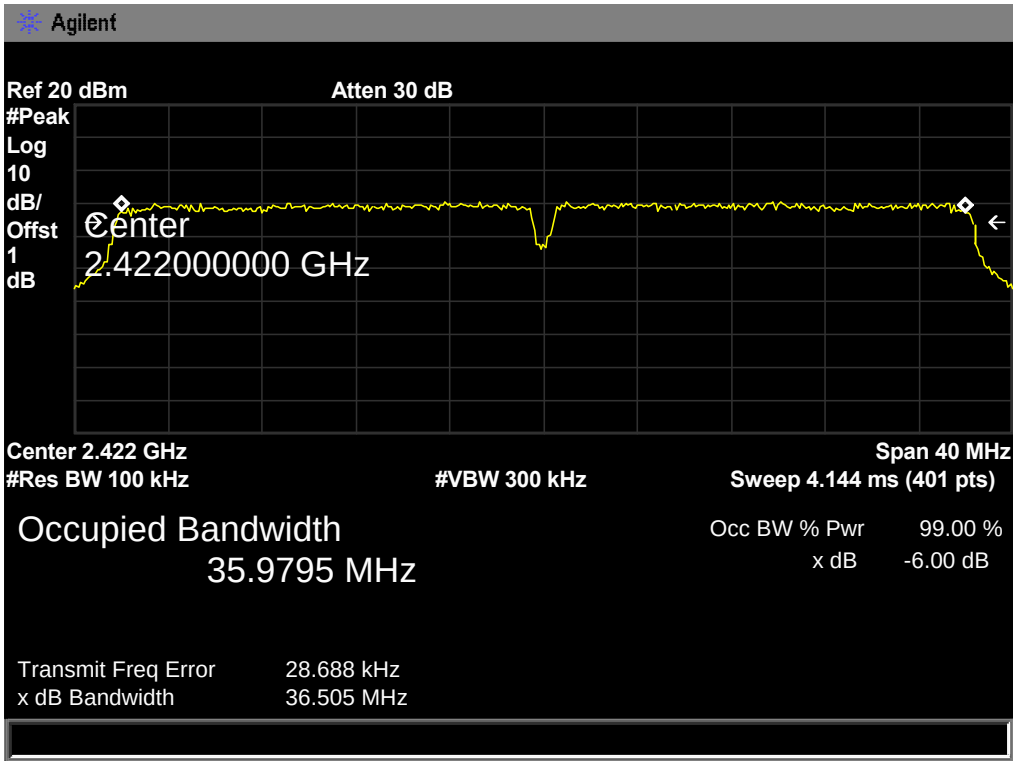


EUT:	Simple Hub	Model Name :	VM64S
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Test Mode:	TX 802.11N(HT40) Mode		

Channel frequency (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	Limit (MHz)
2422	36.505	35.9795	>=0.5
2437	36.520	35.9739	
2452	36.486	35.9712	

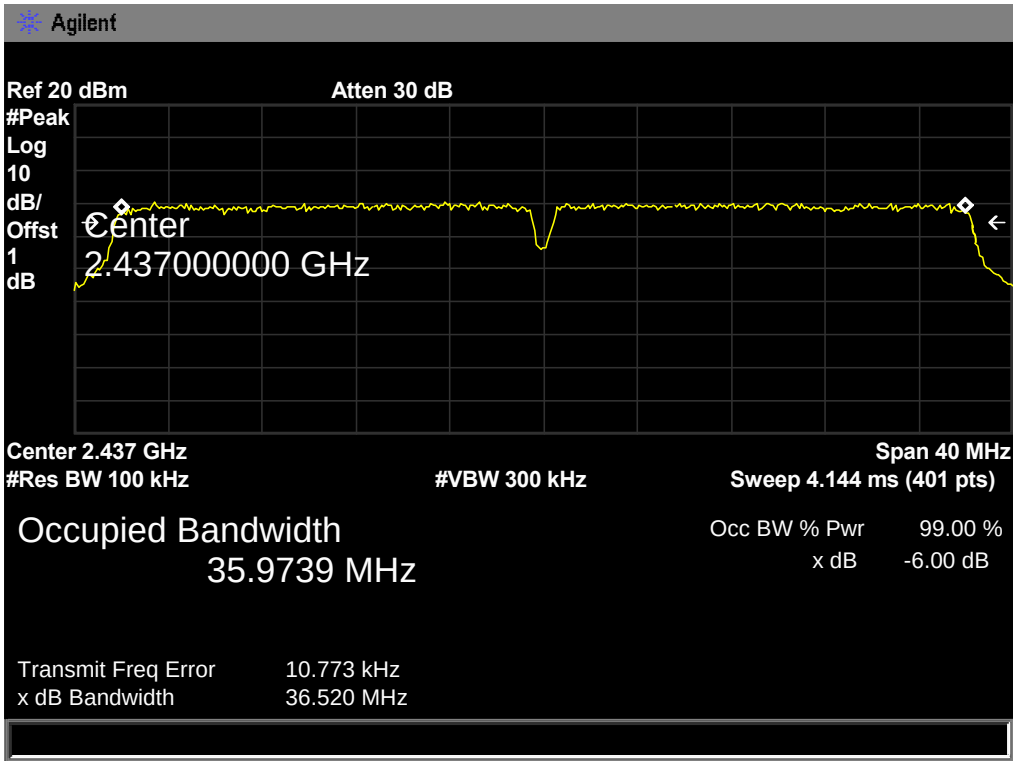
802.11N(HT40) Mode

2422 MHz



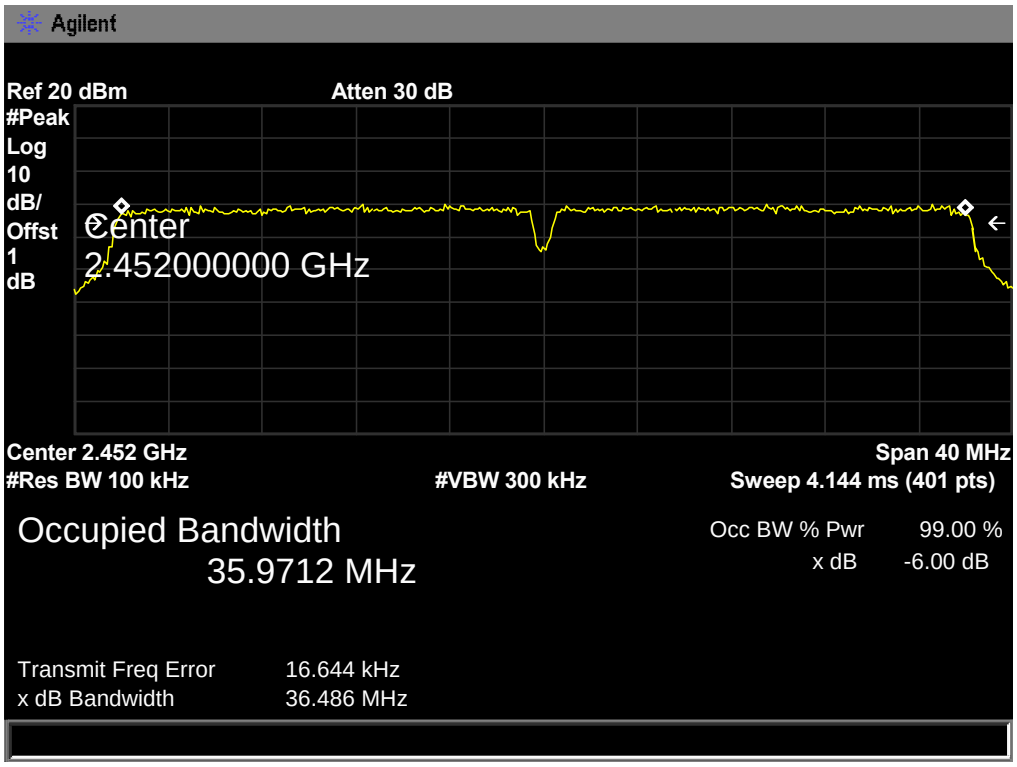
802.11N(HT40) Mode

2437 MHz



802.11N(HT40) Mode

2452 MHz



8. Peak Output Power Test

8.1 Test Standard and Limit

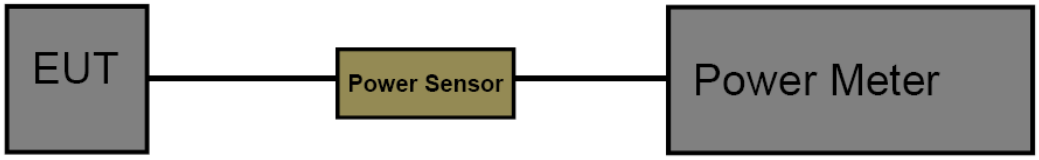
8.1.1 Test Standard

FCC Part 15.247 (b)

8.1.2 Test Limit

FCC Part 15 Subpart C(15.247)/ RSS 247 Issue 1		
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 v03r03.
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:	Simple Hub	Model Name :	VM64S
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		

Mode	Channel frequency (MHz)	Test Result (dBm)	Limit (dBm)
802.11b	2412	17.75	30
	2437	18.03	
	2462	17.06	
802.11g	2412	14.19	
	2437	14.22	
	2462	13.66	
802.11n (HT20)	2412	14.50	
	2437	14.74	
	2462	13.90	
802.11n (HT40)	2422	13.23	
	2437	13.25	
	2452	12.40	

9. Power Spectral Density Test

9.1 Test Standard and Limit

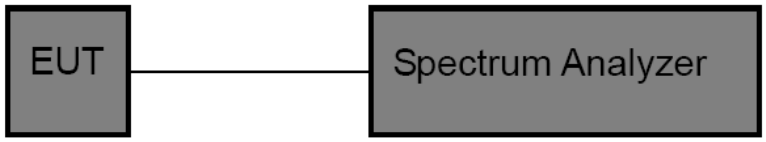
9.1.1 Test Standard

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 v03r03.

(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, Midle and high channel for the test.

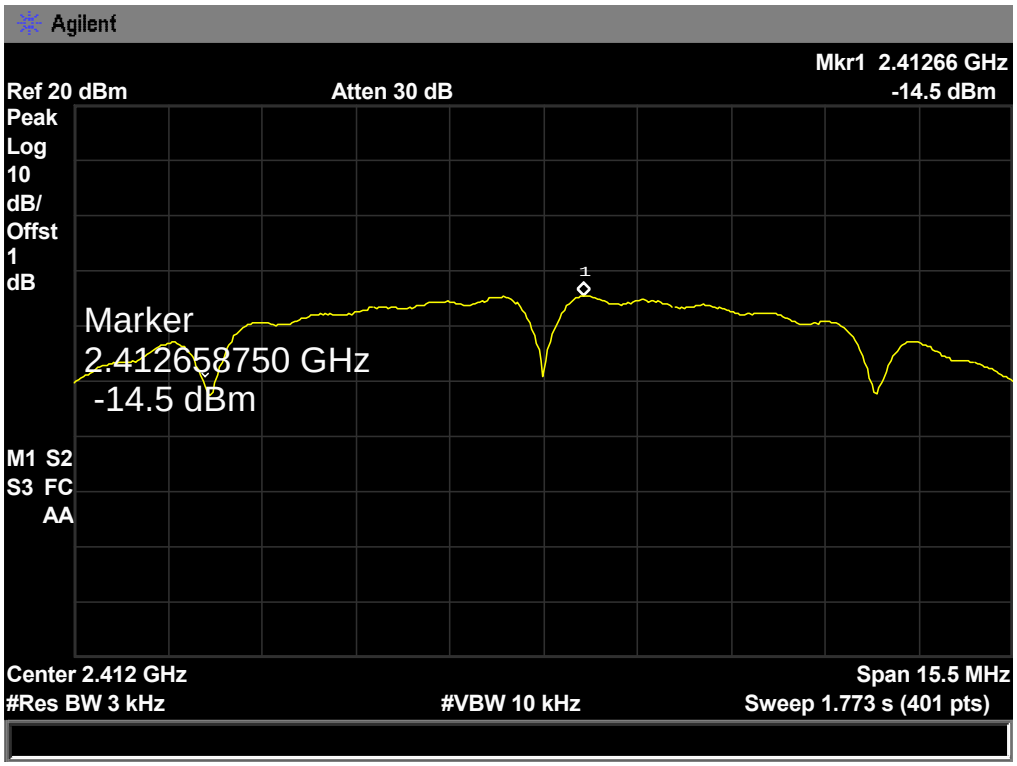
9.5 Test Data

EUT:	Simple Hub	Model Name :	VM64S
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Test Mode:	TX 802.11B Mode		

Channel Frequency (MHz)	Power Density (3 kHz/dBm)	Limit (dBm)
2412	-14.50	8
2437	-14.33	
2462	-15.10	

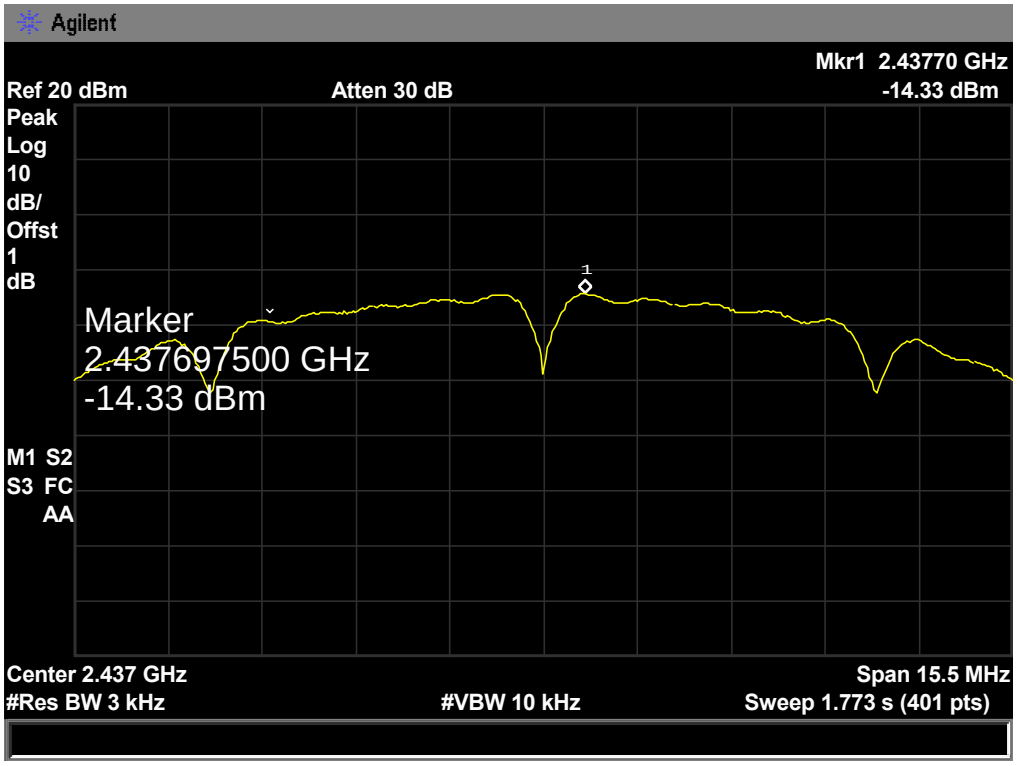
802.11B Mode

2412 MHz



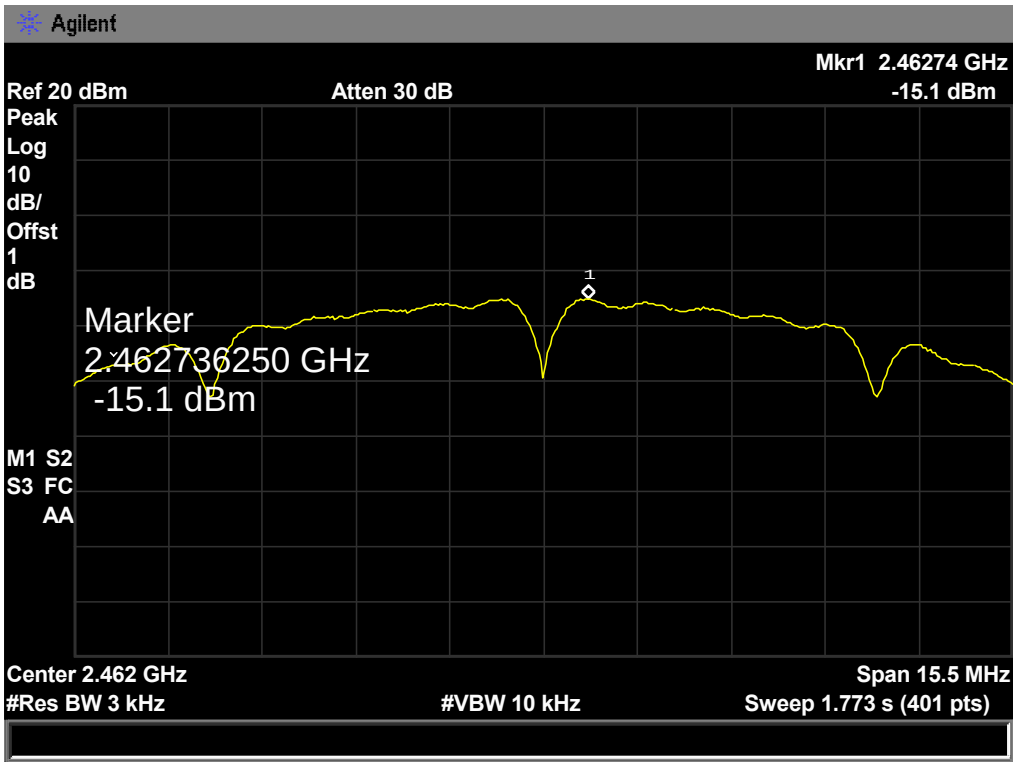
802.11B Mode

2437 MHz



802.11B Mode

2462 MHz

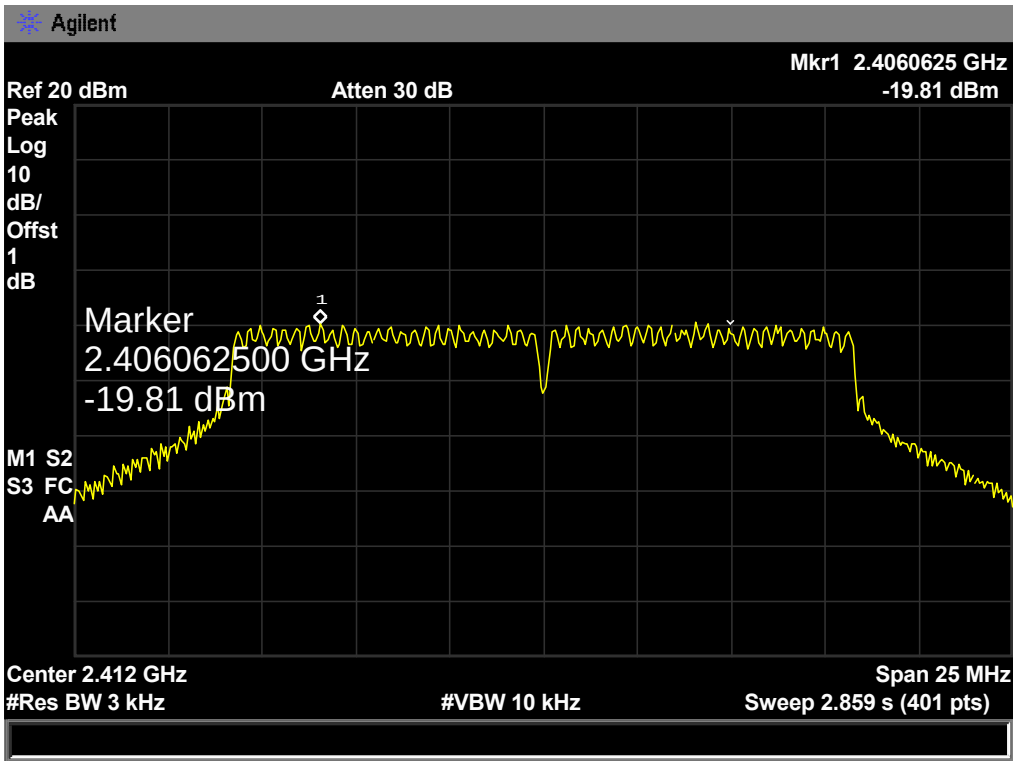


EUT:	Simple Hub	Model Name :	VM64S
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Test Mode:	TX 802.11G Mode		

Channel Frequency (MHz)	Power Density (3 kHz/dBm)	Limit (dBm)
2412	-19.81	8
2437	-19.39	
2462	-20.14	

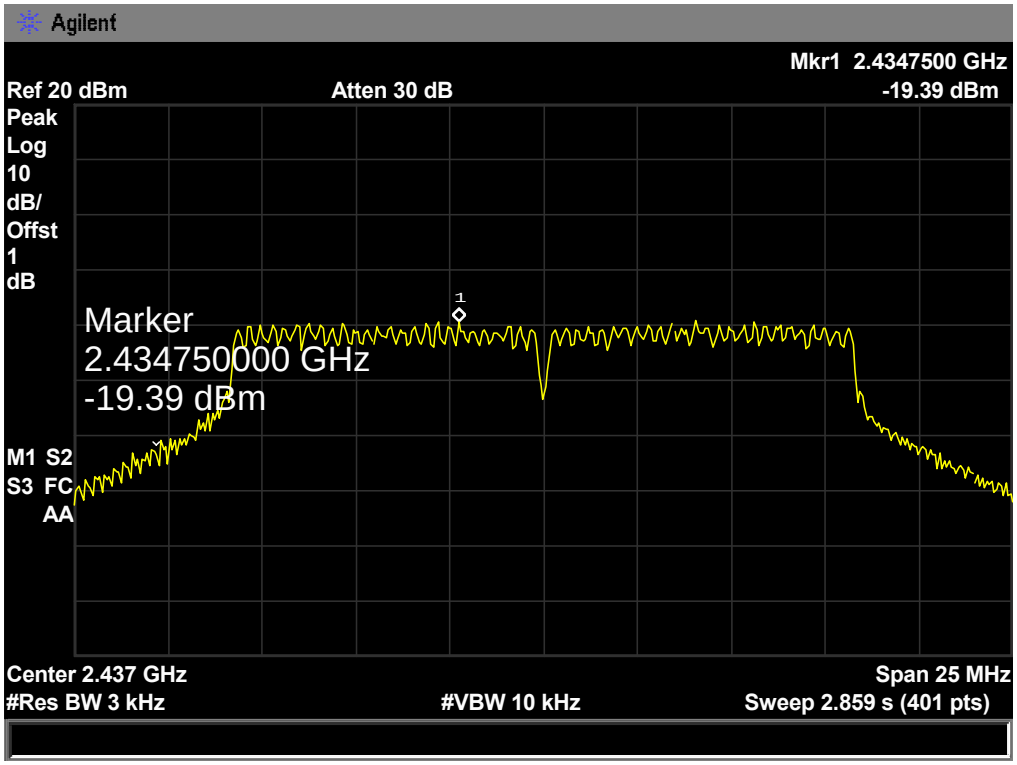
802.11G Mode

2412 MHz



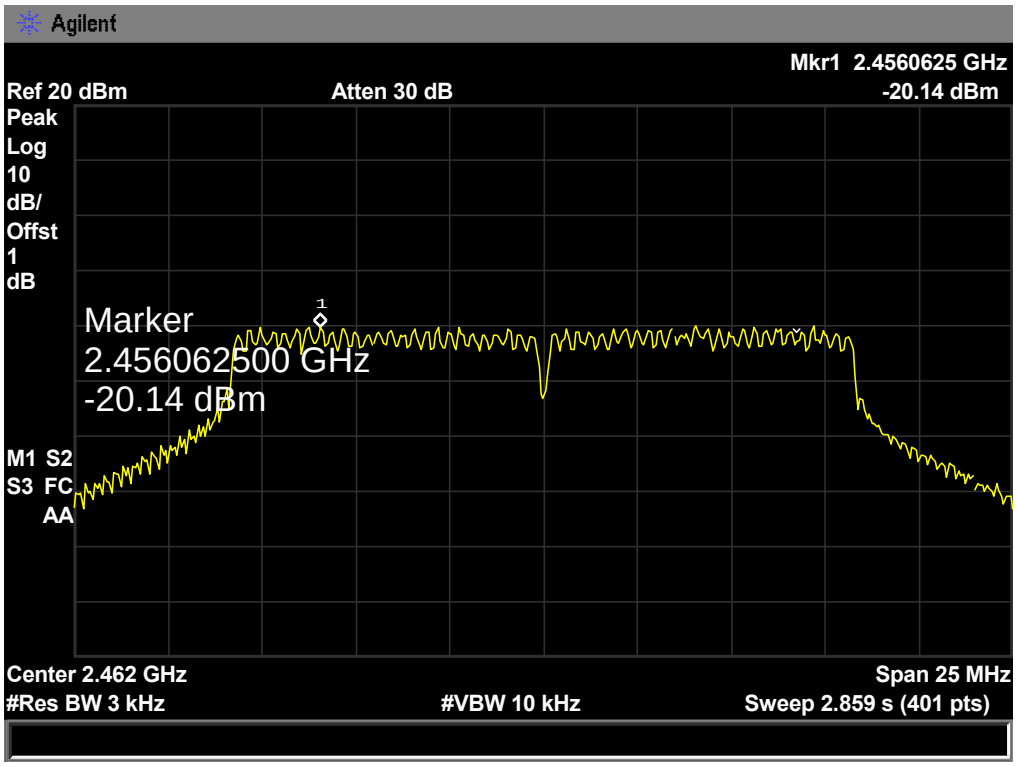
802.11G Mode

2437 MHz



802.11G Mode

2462 MHz

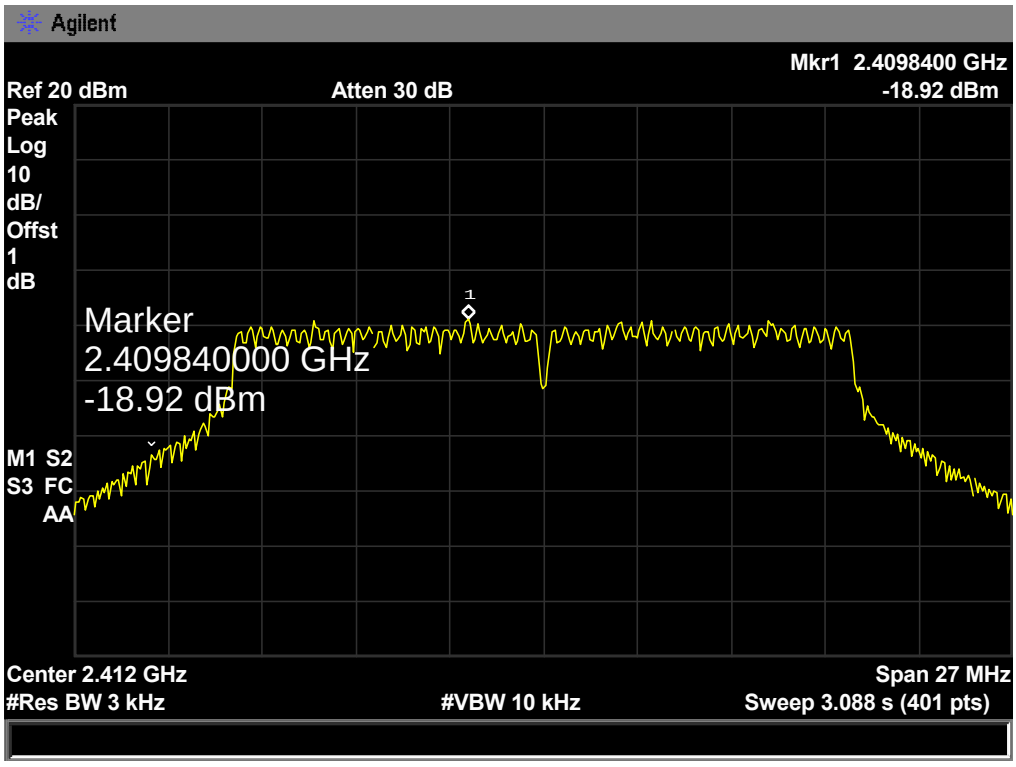


EUT:	Simple Hub	Model Name :	VM64S
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Test Mode:	TX 802.11N(HT20) Mode		

Channel Frequency (MHz)	Power Density (3 kHz/dBm)	Limit (dBm)
2412	-18.92	8
2437	-19.53	
2462	-19.54	

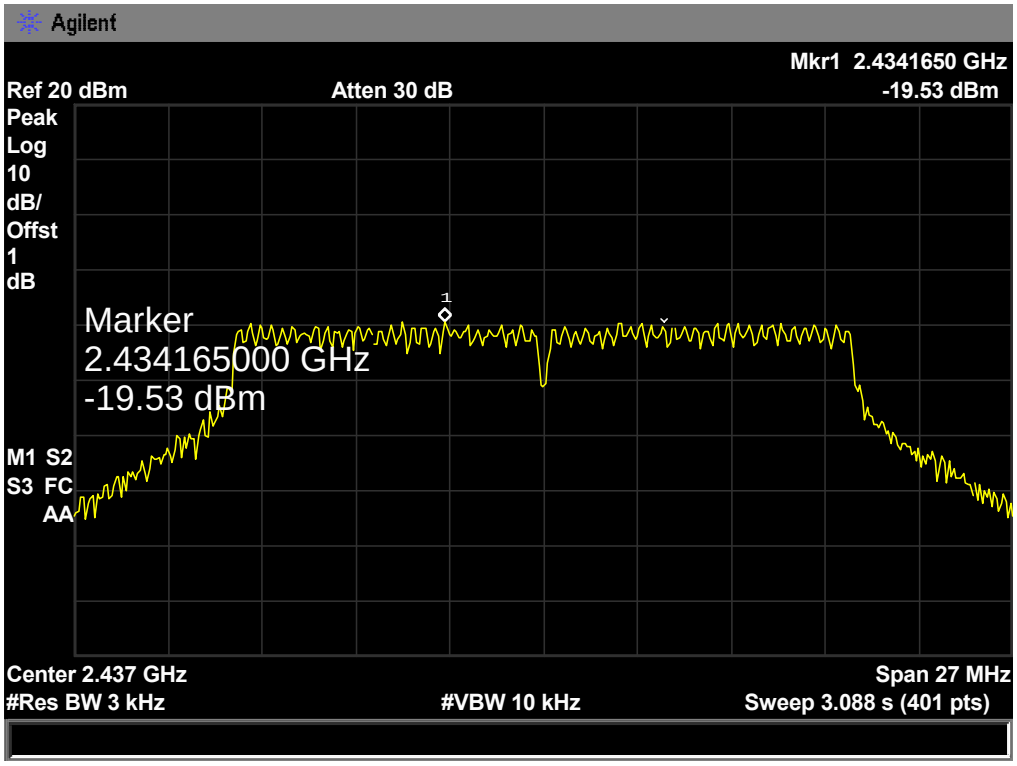
802.11N(HT20) Mode

2412 MHz



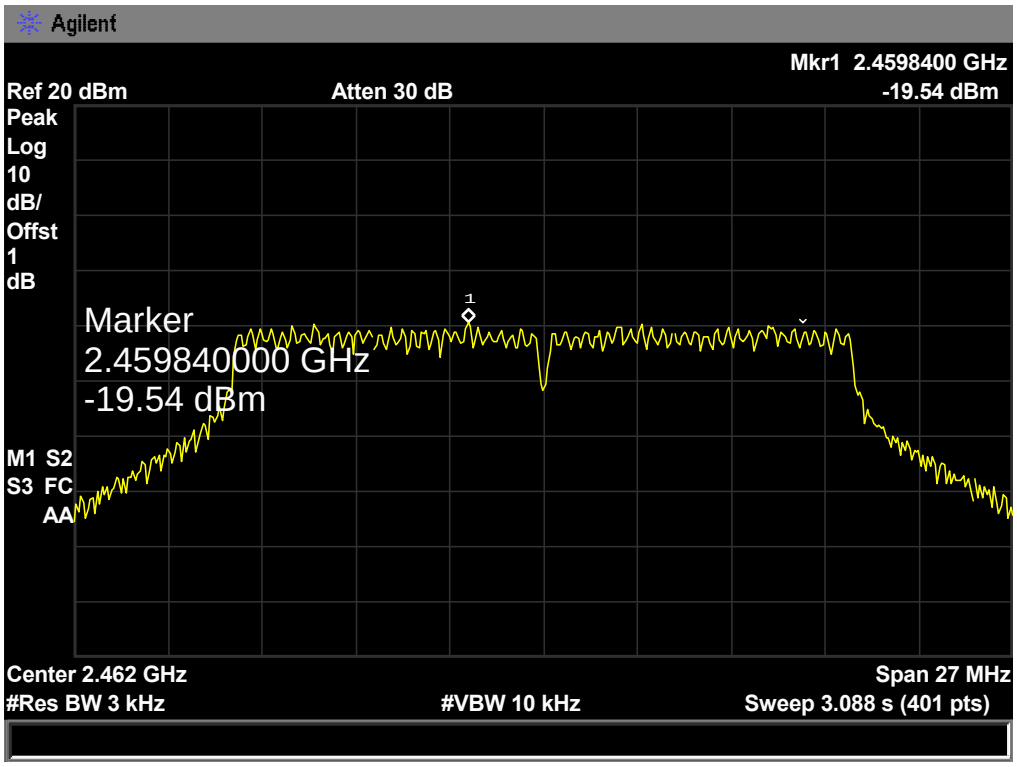
802.11N(HT20) Mode

2437 MHz



802.11N(HT20) Mode

2462 MHz

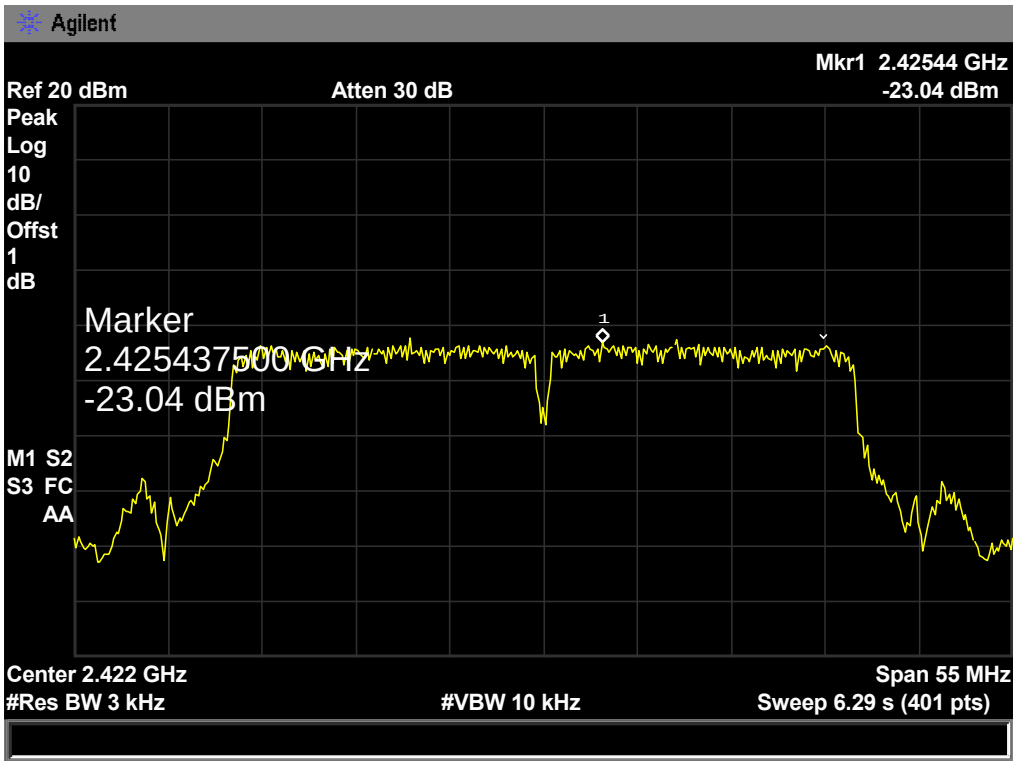


EUT:	Simple Hub	Model Name :	VM64S
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Test Mode:	TX 802.11N(HT40) Mode		

Channel Frequency (MHz)	Power Density (3 kHz/dBm)	Limit (dBm)
2422	-23.04	8
2437	-20.41	
2452	-22.31	

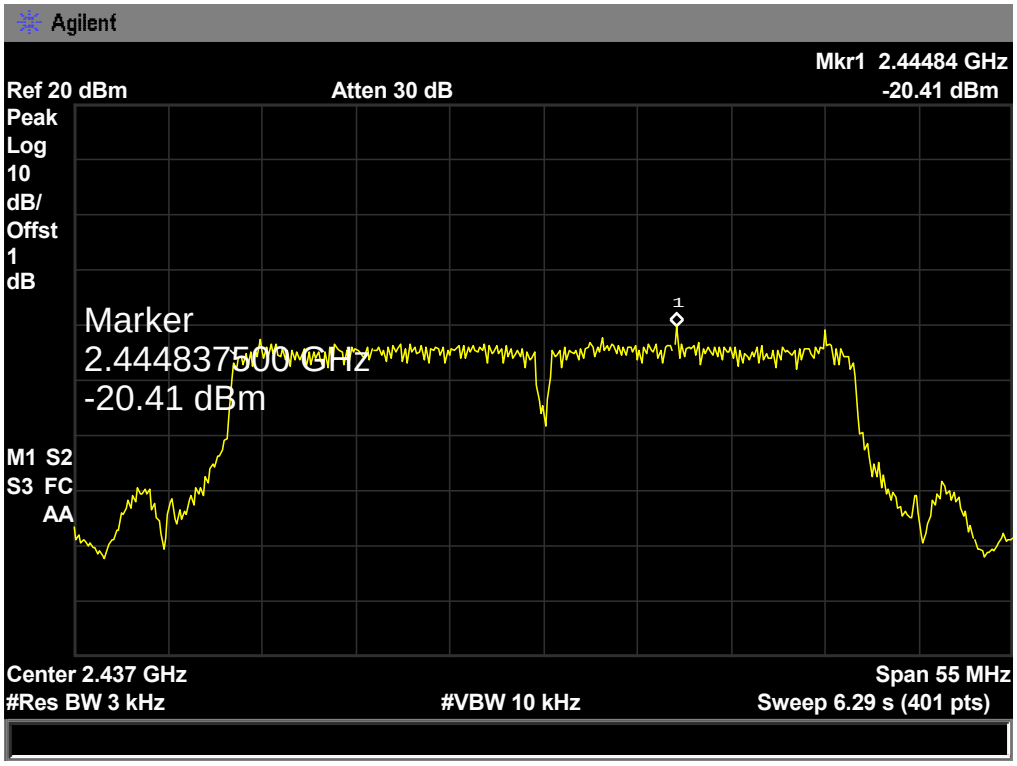
802.11N(HT40) Mode

2422 MHz



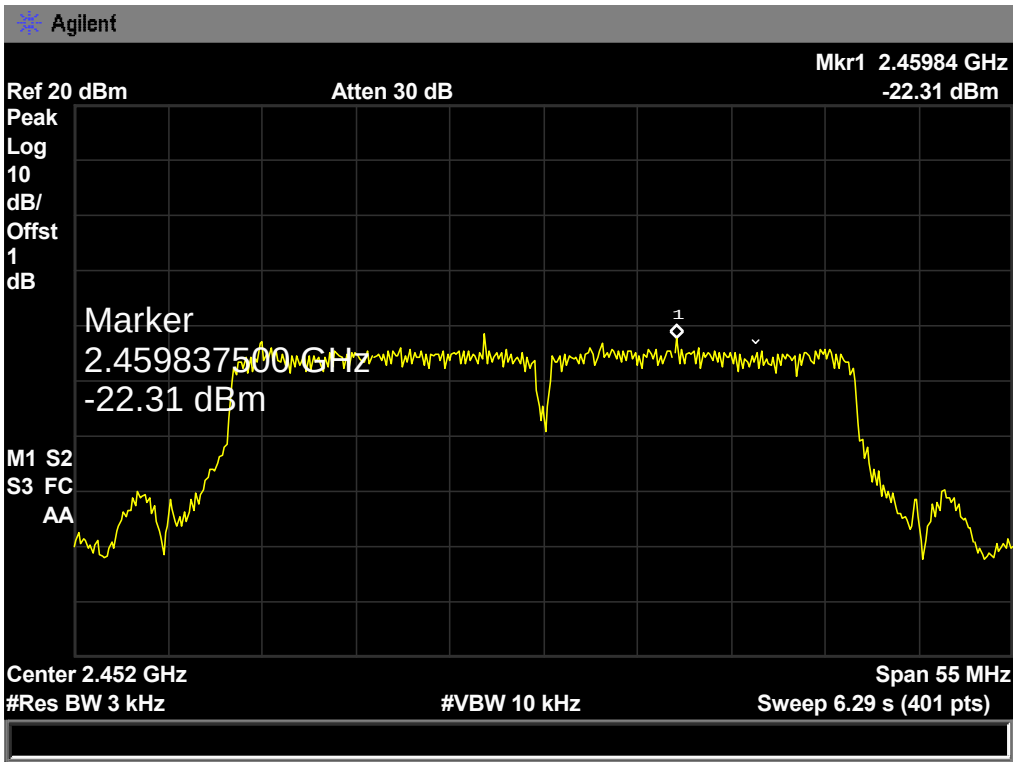
802.11N(HT40) Mode

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 2 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