

# FCC RADIO TEST REPORT

## FCC ID: 2AW69-CWYSTR5G

**Product:** Celerway Stratus 5GR16

**Trade Mark:** Celerway Stratus 5GR16

**Model No.:** CWY-M5.3-E5C2W2R16

**Family Model:** CWY-M5.3-E5C1W2R16

**Report No.:** S24070504205002

**Issue Date:** Dec.23, 2024

**Prepared for**

Celerway Communication AS

Lilleakerveien 2B, 0283 Oslo, Norway

**Prepared by**

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## 1 TEST RESULT CERTIFICATION

Applicant's name .....	Celerway Communication AS
Address .....	Lilleakerveien 2B, 0283 Oslo, Norway
Manufacturer's Name .....	Celerway Communication AS
Address .....	Lilleakerveien 2B, 0283 Oslo, Norway
Product description	
Product name .....	Celerway Stratus 5GR16
Model and/or type reference .....	CWY-M5.3-E5C2W2R16
Family Model .....	CWY-M5.3-E5C1W2R16
Test Sample Number .....	S220324019002 S240705042005
Date of Test .....	Apr. 20, 2022 ~ Jul.08, 2022 Oct. 01, 2024 ~ Dec.20, 2024

Measurement Procedure Used:

APPLICABLE STANDARDS	
APPLICABLE STANDARD/ TEST PROCEDURE	TEST RESULT
FCC 47 CFR Part 2, Subpart J	
FCC 47 CFR Part 15, Subpart C	Complied
ANSI C63.10-2013	
KDB 558074 D01 15.247 Meas Guidance v05r02	

This device described above has been tested by Shenzhen NTEK Testing Technology Co., Ltd., and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

This report shall not be reproduced except in full, without the written approval of Shenzhen NTEK Testing Technology Co., Ltd., this document may be altered or revised by Shenzhen NTEK Testing Technology Co., Ltd., personnel only, and shall be noted in the revision of the document.

The test results of this report relate only to the tested sample identified in this report.

*Note: A Part of test data of this report are based on the original test report  
S22032401905002, dated by Jul.08, 2022*

Prepared : Mary . Hu  
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(Project Engineer)

Reviewed : Aaron Cheng  
By : Aaron Cheng  
(Supervisor)

Approved : Alex Li  
By : Alex Li  
(Manager)

**2 SUMMARY OF TEST RESULTS****FCC Part15 (15.247), Subpart C**

Standard Section	Test Item	Verdict	Remark
15.207	Conducted Emission	PASS	
15.247 (a)(2)	6dB Bandwidth	PASS	
15.247 (b)	Maximum Output Power	PASS	
15.209 (a) 15.205 (a)	Radiated Spurious Emission	PASS	
15.247 (e)	Power Spectral Density	PASS	
15.247 (d)	Band Edge Emission	PASS	
15.247 (d)	Spurious RF Conducted Emission	PASS	
15.203	Antenna Requirement	PASS	

## Remark:

1. "N/A" denotes test is not applicable in this Test Report.
2. All test items were verified and recorded according to the standards and without any deviation during the test.
3. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

### 3 FACILITIES AND ACCREDITATIONS

#### 3.1 FACILITIES

All measurement facilities used to collect the measurement data are located at 1/F, Building E, Fenda Science Park Sanwei, Xixiang, Bao'an District Shenzhen, Guangdong, China.

No. 24 Xinfu East Road, Xiangshan Community, Xinqiao Street, Baoan District, Shenzhen, Guangdong, People's Republic of China.

The sites are constructed in conformance with the requirements of ANSI C63.4, ANSI C63.10 and CISPR Publication 22.

#### 3.2 LABORATORY ACCREDITATIONS AND LISTINGS

##### Site Description

CNAS-Lab. : The Certificate Registration Number is L5516.  
 IC-Registration : The Certificate Registration Number is 9270A.

##### FCC- Accredited

Test Firm Registration Number: 463705.  
 Designation Number: CN1184

##### A2LA-Lab.

The Certificate Registration Number is 4298.01  
 This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 General requirements for the competence of testing and calibration laboratories.

This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated 8 January 2009).

Shenzhen NTEK Testing Technology Co., Ltd.

1/F, Building E, Fenda Science Park Sanwei, Xixiang, Bao'an District Shenzhen, Guangdong, China.  
 No. 24 Xinfu East Road, Xiangshan Community, Xinqiao Street, Baoan District, Shenzhen, Guangdong, People's Republic of China

##### Name of Firm

##### Site Location

#### 3.3 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 %.

No.	Item	Uncertainty
1	Conducted Emission Test	3.6dB
2	RF power, conducted	0.16dB
3	Spurious emissions, conducted	0.21dB
4	All emissions, radiated(30MHz~1GHz)	5.2dB
5	All emissions, radiated(1GHz~6GHz)	5.1dB
6	All emissions, radiated(>6GHz)	5.1dB
7	Temperature	$\pm 0.5^{\circ}\text{C}$
8	Humidity	$\pm 2\%$
9	All emissions, radiated(9KHz~30MHz)	5.2dB

#### 4 GENERAL DESCRIPTION OF EUT

Product Feature and Specification	
Equipment	Celerway Stratus 5GR16
Trade Mark	Celerway Stratus 5GR16
FCC ID	2AW69-CWYSTR5G
Model No.	CWY-M5.3-E5C2W2R16
Family Model	CWY-M5.3-E5C1W2R16
Model Difference	All models have the same circuitry, where the CWY-M5.3-E5C2W2R16 having two NR/LTE/WCDMA modules installed and the CWY-M5.3-E5C1W2R16 having only one.
Operating Frequency	2412-2462MHz for 802.11b/g/11n(HT20); 2422-2452MHz for 802.11n(HT40);
Modulation	DSSS with DBPSK/DQPSK/CCK for 802.11b; OFDM with BPSK/QPSK/16QAM/64QAM for 802.11g/n;
Number of Channels	11 channels for 802.11b/g/11n(HT20); 7 channels for 802.11n(HT40);
Antenna Type	External Antenna
Antenna Gain	5dBi
Smart system	<input checked="" type="checkbox"/> SISO for 802.11b/g/n <input type="checkbox"/> MIMO for 802.11n
Adapter	Model: XDJ961D-240400 Input: 100-240V~50/60Hz 2.0A Output: 24V---4.0A 96.0W
Battery	N/A
Power supply	DC 56V from POE port or DC 24V from Adapter.
HW Version	V1.3
SW Version	V1.7.0-8

Note: Based on the application, features, or specification exhibited in User's Manual, the EUT is considered as an ITE/Computing Device. More details of EUT technical specification, please refer to the User's Manual.

## Revision History

## 5 DESCRIPTION OF TEST MODES

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 above was evaluated respectively.

The Transmitter was operated in the normal operating mode. The TX frequency was fixed which was for the purpose of the measurements.

Test of channel included the lowest and middle and highest frequency to perform the test, then record on this report.

Those data rates (802.11b: 1 Mbps; 802.11g: 6 Mbps; 802.11n (HT20): MCS0; 802.11n (HT40): MCS0) were used for all test.

The EUT was pretested with 3 orientations placed on the table for the radiated emission measurement –X, Y, and Z-plane. The Y-plane results were found as the worst case and were shown in this report.

Frequency and Channel list for 802.11b/g/n (HT20/HT40):

Channel	Frequency(MHz)
1	2412
2	2417
...	...
5	2432
6	2437
...	...
10	2457
11	2462

Note:  $fc = 2412\text{MHz} + (k-1) \times 5\text{MHz}$  k=1 to 11

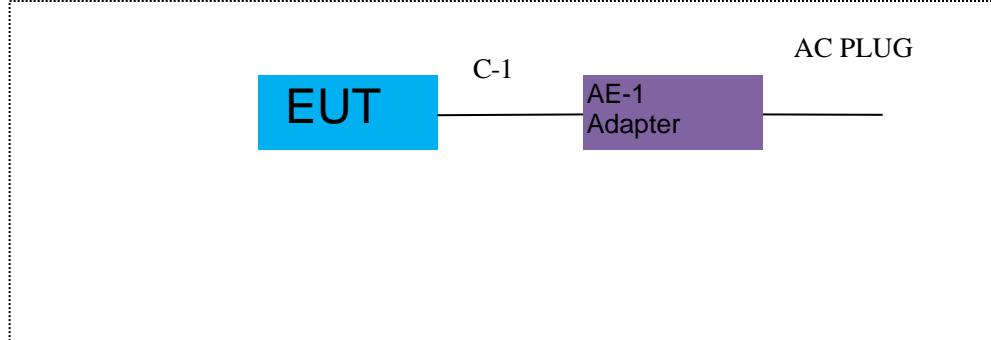
## Test Mode:

Test Items	Mode	Data Rate	Channel	Ant
AC Power Line Conducted Emissions	Normal Link	-	-	-
Maximum Conducted Output Power	11b/CCK	1 Mbps	1/6/11	1/2/3/4
	11g/BPSK	6 Mbps	1/6/11	1/2/3/4
	11n HT20	MCS0	1/6/11	1/2/3/4
	11n HT40	MCS0	3/6/9	1/2/3/4
Power Spectral Density	11b/CCK	1 Mbps	1/6/11	1/2/3/4
	11g/BPSK	6 Mbps	1/6/11	1/2/3/4
	11n HT20	MCS0	1/6/11	1/2/3/4
	11n HT40	MCS0	3/6/9	1/2/3/4
6dB Spectrum Bandwidth	11b/CCK	1 Mbps	1/6/11	1/2/3/4
	11g/BPSK	6 Mbps	1/6/11	1/2/3/4
	11n HT20	MCS0	1/6/11	1/2/3/4
	11n HT40	MCS0	3/6/9	1/2/3/4
Radiated Emissions Below 1GHz	Normal Link	-	-	-
Radiated Emissions Above 1GHz	11b/CCK	1 Mbps	1/6/11	1/2/3/4
	11g/BPSK	6 Mbps	1/6/11	1/2/3/4
	11n HT20	MCS0	1/6/11	1/2/3/4
	11n HT40	MCS0	3/6/9	1/2/3/4
Band Edge Emissions	11b/CCK	1 Mbps	1/6/11	1/2/3/4
	11g/BPSK	6 Mbps	1/6/11	1/2/3/4
	11n HT20	MCS0	1/6/11	1/2/3/4
	11n HT40	MCS0	3/6/9	1/2/3/4

## 6 SETUP OF EQUIPMENT UNDER TEST

### 6.1 BLOCK DIAGRAM CONFIGURATION OF TEST SYSTEM

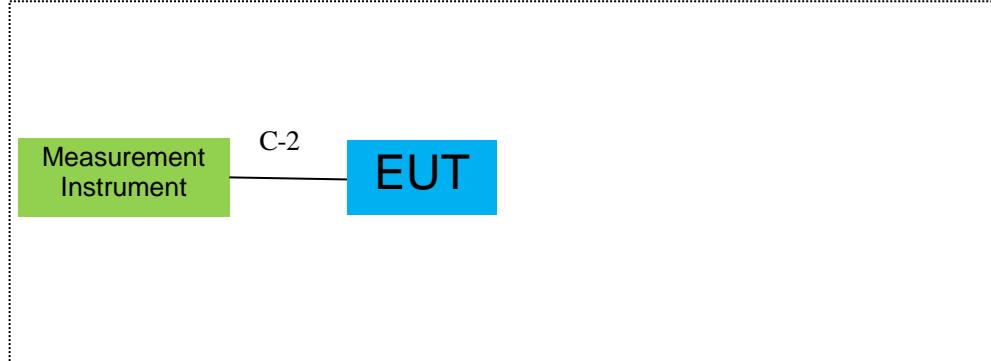
For AC Conducted Emission Mode



For Radiated Test Cases



For Conducted Test Cases



Note: The temporary antenna connector is soldered on the PCB board in order to perform conducted tests and this temporary antenna connector is listed in the equipment list.

## 6.2 SUPPORT EQUIPMENT

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

Item	Equipment	Model/Type No.	Series No.	Note
AE-1	Adapter	XDJ961D-240400	N/A	Peripherals

Item	Cable Type	Shielded Type	Ferrite Core	Length
C-1	DC Cable	YES	NO	1.2m
C-2	RF Cable	YES	NO	0.1m

### Notes:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.
- (3) "YES" is means "shielded" "with core"; "NO" is means "unshielded" "without core".

## 6.3 EQUIPMENTS LIST FOR ALL TEST ITEMS

## Radiation&amp; Conducted Test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	Spectrum Analyzer	Agilent	E4407B	MY45108040	2021.03.30 2022.03.30 2024.04.26	2022.03.29 2023.03.29 2025.04.25	1 year
2	Spectrum Analyzer	Agilent	N9020A	MY49100060	2021.07.01 2022.06.16 2024.04.25	2022.06.30 2023.06.15 2025.04.24	1 year
3	Spectrum Analyzer	R&S	FSV40	101417	2021.07.01 2022.06.16 2024.04.25	2022.06.30 2023.06.15 2025.04.24	1 year
4	Test Receiver	R&S	ESPI7	101318	2022.04.06 2024.04.26	2023.04.05 2025.04.25	1 year
5	Bilog Antenna	TESEQ	CBL6111D	31216	2021.03.30 2022.03.30 2024.05.12	2022.03.29 2023.03.29 2025.05.11	1 year
6	50Ω Coaxial Switch	Anritsu	MP59B	6200983705	2020.05.11 2024.04.26	2023.05.10 2027.04.25	3 year
7	Horn Antenna	EM	EM-AH-10180	2011071402	2021.03.30	2022.03.29	1 year
					2022.03.31	2023.03.30	
					2024.05.12	2027.05.11	3 year
8	Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	803	2021.11.07	2022.11.06	1 year
					2024.05.12	2027.05.11	3 year
9	Amplifier	EMC	EMC051835 SE	980246	2021.07.01 2022.06.17 2024.04.25	2022.06.30 2023.06.16 2025.04.24	1 year
10	Active Loop Antenna	SCHWARZBECK	FMZB 1519 B	055	2021.11.07	2022.11.06	1 year
					2024.05.17	2027.05.16	3 year
11	Power Meter	DARE	RPR3006W	15100041SN 084	2021.07.01 2022.06.17 2024.04.25	2022.06.30 2023.06.16 2025.04.24	1 year
12	Test Cable (9KHz-30MHz)	N/A	R-01	N/A	2019.08.06 2023.05.06	2022.08.05 2026.05.05	3 year
13	Test Cable (30MHz-1GHz)	N/A	R-02	N/A	2019.08.06 2023.05.06	2022.08.05 2026.05.05	3 year
14	High Test Cable(1G-40GHz)	N/A	R-03	N/A	2019.06.28 2022.06.17	2022.06.27 2025.06.16	3 year
15	High Test Cable(1G-40GHz)	N/A	R-04	N/A	2019.08.06 2023.05.06	2022.08.05 2026.05.05	3 year
16	Filter	TRILTHIC	2400MHz	29	2020.04.07 2024.04.26	2023.04.06 2027.04.25	3 year
17	temporary antenna connector (Note)	NTS	R001	N/A	N/A	N/A	N/A

## Note:

We will use the temporary antenna connector (soldered on the PCB board) When conducted test  
And this temporary antenna connector is listed within the instrument list

## AC Conduction Test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	Test Receiver	R&S	ESCI	101160	2022.04.06 2024.04.26	2023.04.05 2025.04.25	1 year
2	LISN	R&S	ENV216	101313	2022.04.06 2024.04.25	2023.04.05 2025.04.24	1 year
3	LISN	SCHWARZBECK	NNLK 8129	8129245	2022.04.06 2024.04.25	2023.04.05 2025.04.24	1 year
4	50Ω Coaxial Switch	ANRITSU CORP	MP59B	6200983704	2020.05.11 2024.04.26	2023.05.10 2027.04.25	3 year
5	Test Cable (9KHz-30MHz)	N/A	C01	N/A	2020.05.11 2023.05.06	2023.05.10 2026.05.05	3 year
6	Test Cable (9KHz-30MHz)	N/A	C02	N/A	2020.05.11 2023.05.06	2023.05.10 2026.05.05	3 year
7	Test Cable (9KHz-30MHz)	N/A	C03	N/A	2020.05.11 2023.05.06	2023.05.10 2026.05.05	3 year

Note: Each piece of equipment is scheduled for calibration once a year except the Aux Equipment & Test Cable which is scheduled for calibration every 2 or 3 years.

## Measurement Software

Item	Manufacturer	Software Name	Software Version	Description
1	MWRFtest	MTS 8310 2.4GHz/5GHz	2.0	RF Conducted Test
2	Farad	EZ-EMC_RE	AIT-03A	Radiated Test
3	Farad	EZ-EMC_CE	AIT-03A	AC Conducted Test

## 7 TEST REQUIREMENTS

### 7.1 CONDUCTED EMISSIONS TEST

#### 7.1.1 Applicable Standard

According to FCC Part 15.207(a)

#### 7.1.2 Conformance Limit

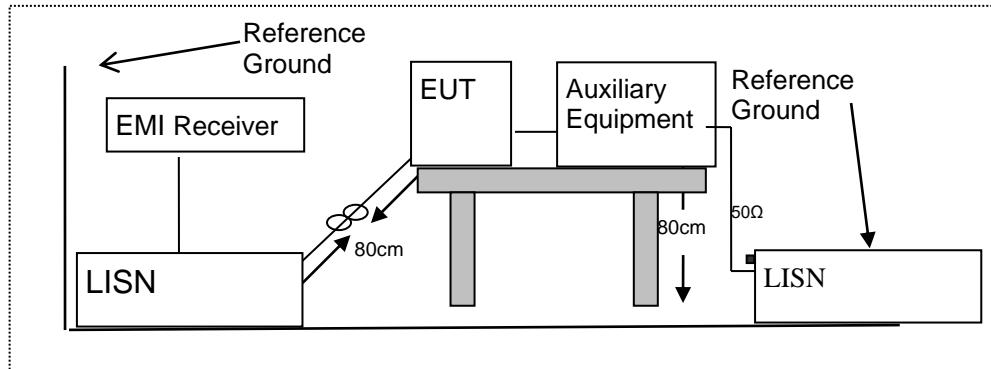
Frequency(MHz)	Conducted Emission Limit	
	Quasi-peak	Average
0.15-0.5	66-56*	56-46*
0.5-5.0	56	46
5.0-30.0	60	50

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

#### 7.1.3 Measuring Instruments

The Measuring equipment is listed in the section 6.3 of this test report.

#### 7.1.4 Test Configuration



#### 7.1.5 Test Procedure

According to the requirements in Section 13.1.4.1 of ANSI C63.10-2013 Conducted emissions the EUT measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-Peak and average detector mode.

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room.
2. The EUT was placed on a table which is 0.8m above ground plane.
3. Connect EUT 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.
4. 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 40cm long.
5. 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.
6. LISN at least 80 cm from nearest part of EUT chassis.
7. The frequency range from 150KHz to 30MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth(IF bandwidth=9KHz) with Maximum Hold Mode
9. For the actual test configuration, please refer to the related Item –EUT Test Photos.

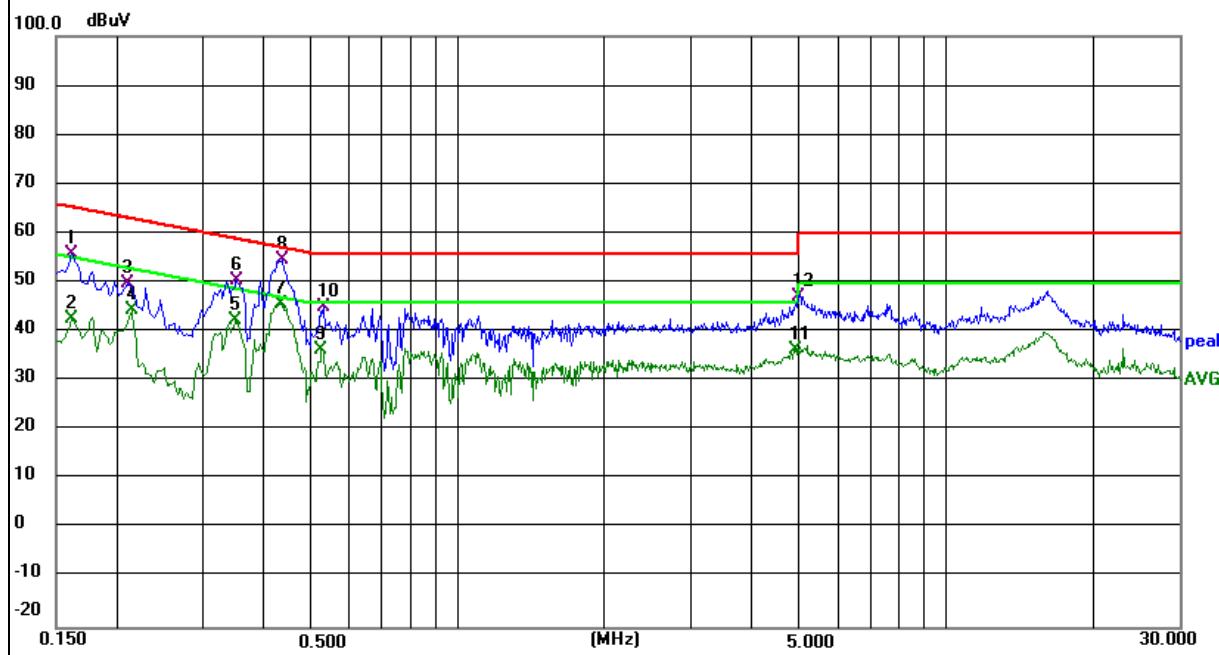
## 7.1.6 Test Results

EUT:	Celerway Stratus 5GR16	Model Name :	CWY-M5.3-E5C2 W2R16
Temperature:	22 °C	Relative Humidity:	57%
Pressure:	1010hPa	Phase :	L
Test Voltage :	DC 56V from POE AC 120V/60Hz	Tested By:	Liumei Huang
Test Mode:	Normal Link		

Frequency (MHz)	Reading Level (dB $\mu$ V)	Correct Factor (dB)	Measure-ment (dB $\mu$ V)	Limits (dB $\mu$ V)	Margin (dB)	Remark
0.1615	45.22	10.74	55.96	65.39	-9.43	QP
0.1615	32.05	10.74	42.79	55.39	-12.60	AVG
0.2094	38.94	10.87	49.81	63.23	-13.42	QP
0.2140	33.71	10.84	44.55	53.05	-8.50	AVG
0.3501	31.20	11.18	42.38	48.96	-6.58	AVG
0.3520	39.23	11.18	50.41	58.92	-8.51	QP
0.4328	34.30	11.29	45.59	47.20	-1.61	AVG
0.4374	43.32	11.31	54.63	57.11	-2.48	QP
0.5237	24.99	11.43	36.42	46.00	-9.58	AVG
0.5292	33.60	11.43	45.03	56.00	-10.97	QP
4.8996	26.14	10.25	36.39	46.00	-9.61	AVG
4.9782	37.03	10.24	47.27	56.00	-8.73	QP

## Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

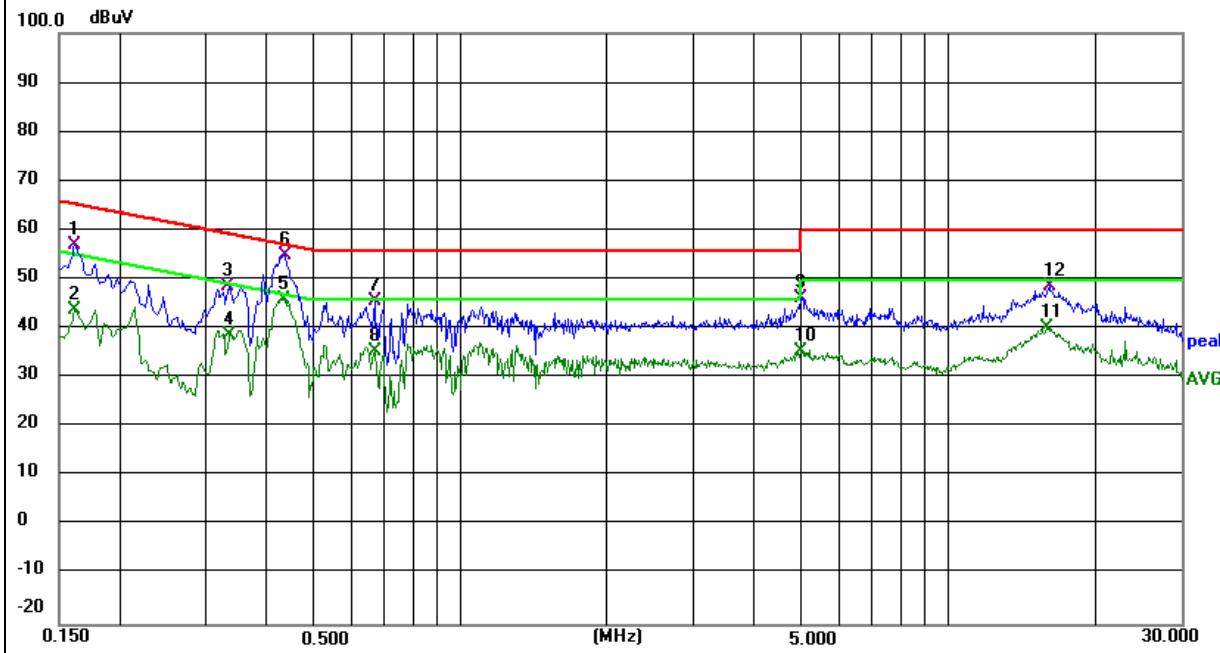


EUT:	Celerway Stratus 5GR16	Model Name :	CWY-M5.3-E5C2W2 R16
Temperature:	22°C	Relative Humidity:	57%
Pressure:	1010hPa	Phase :	N
Test Voltage :	DC 56V from POE AC 120V/60Hz	Tested By:	Liumei Huang
Test Mode:	Normal Link		

Frequency (MHz)	Reading Level (dB $\mu$ V)	Correct Factor (dB)	Measure-ment (dB $\mu$ V)	Limits (dB $\mu$ V)	Margin (dB)	Remark
0.1620	46.72	10.47	57.19	65.36	-8.17	QP
0.1620	33.55	10.47	44.02	55.36	-11.34	AVG
0.3339	37.53	11.02	48.55	59.35	-10.80	QP
0.3356	27.84	11.04	38.88	49.31	-10.43	AVG
0.4340	34.80	11.21	46.01	47.18	-1.17	AVG
0.4380	43.82	11.22	55.04	57.10	-2.06	QP
0.6660	33.70	11.85	45.55	56.00	-10.45	QP
0.6660	23.52	11.85	35.37	46.00	-10.63	AVG
4.9940	36.03	10.18	46.21	56.00	-9.79	QP
4.9940	25.36	10.18	35.54	46.00	-10.46	AVG
15.9420	30.00	10.40	40.40	50.00	-9.60	AVG
16.0900	38.22	10.40	48.62	60.00	-11.38	QP

## Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

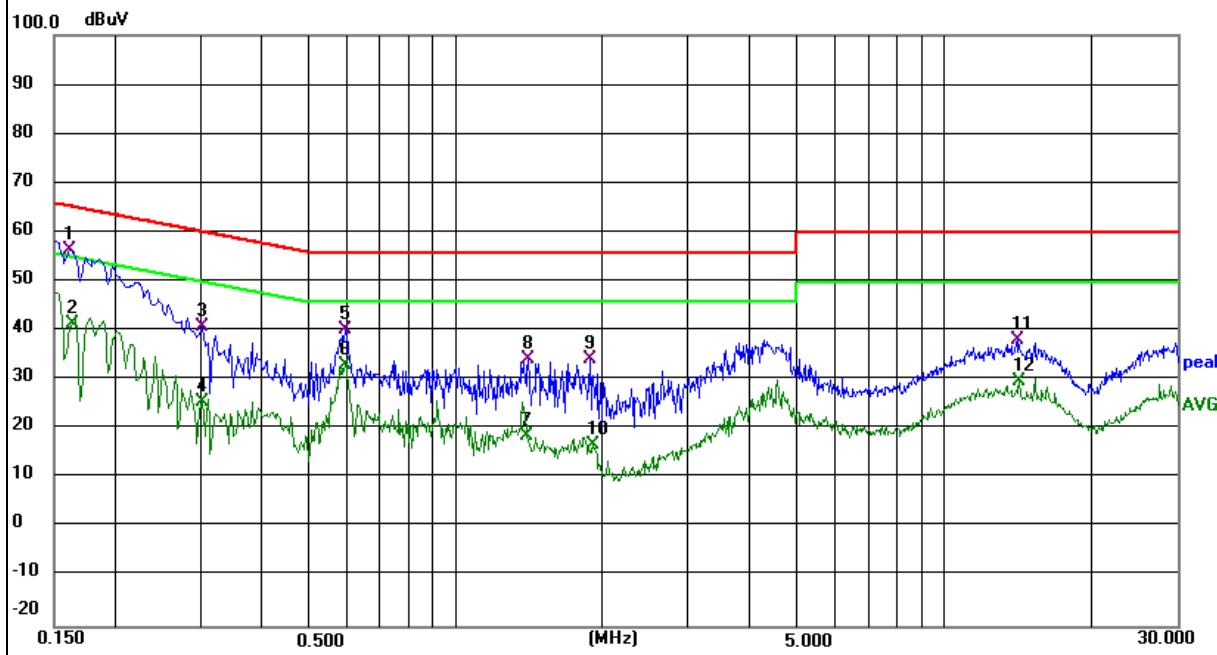


EUT:	Celerway Stratus 5GR16	Model Name :	CWY-M5.3-E5C2W2R16
Temperature:	22 °C	Relative Humidity:	57%
Pressure:	1010hPa	Phase :	L
Test Voltage :	DC 24V from Adapter AC120V/60HZ	Tested By:	Liumei Huang
Test Mode:	Mode 1		

Frequency (MHz)	Reading Level (dB $\mu$ V)	Correct Factor (dB)	Measure-ment (dB $\mu$ V)	Limits (dB $\mu$ V)	Margin (dB)	Remark
0.1620	45.82	10.75	56.57	65.36	-8.79	QP
0.1632	30.72	10.77	41.49	55.30	-13.81	AVG
0.3020	30.14	10.89	41.03	60.19	-19.16	QP
0.3020	14.67	10.89	25.56	50.19	-24.63	AVG
0.5940	28.86	11.37	40.23	56.00	-15.77	QP
0.5940	21.85	11.37	33.22	46.00	-12.78	AVG
1.3980	5.45	13.25	18.70	46.00	-27.30	AVG
1.4060	21.04	13.27	34.31	56.00	-21.69	QP
1.8820	20.17	14.22	34.39	56.00	-21.61	QP
1.9140	2.77	14.28	17.05	46.00	-28.95	AVG
14.1540	27.60	10.54	38.14	60.00	-21.86	QP
14.2140	19.39	10.54	29.93	50.00	-20.07	AVG

## Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

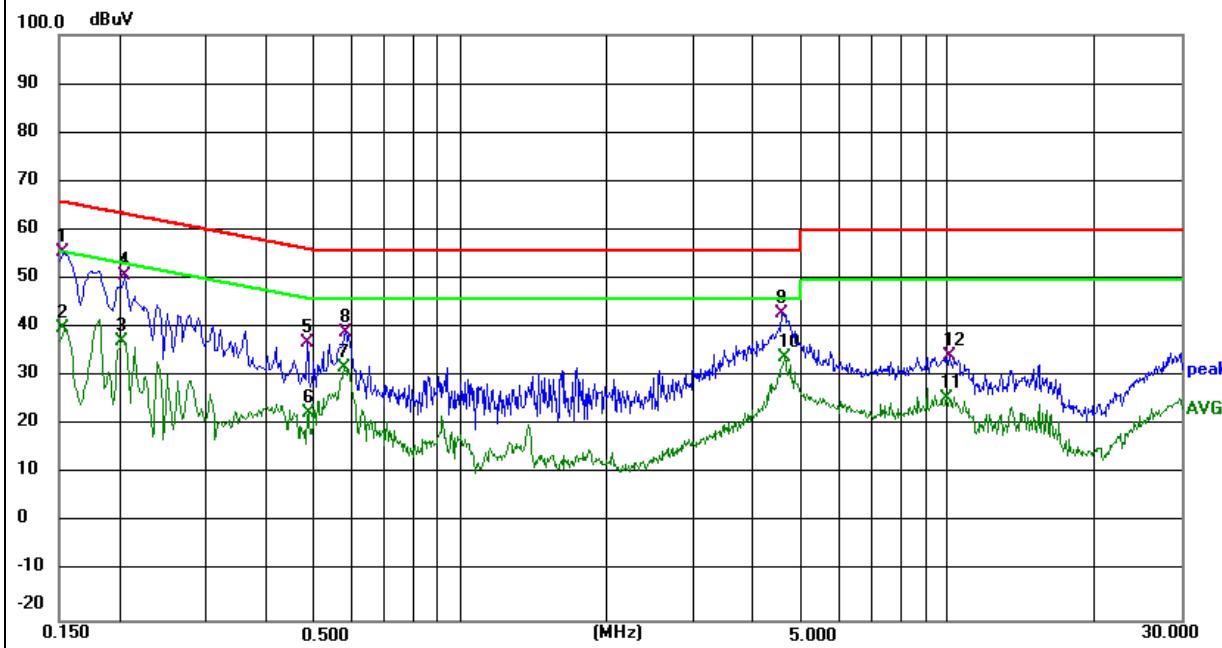


EUT:	Celerway Stratus 5GR16	Model Name :	CWY-M5.3-E5C2W2R1
Temperature:	22°C	Relative Humidity:	57%
Pressure:	1010hPa	Phase :	N
Test Voltage :	DC 24V from Adapter AC120V/60HZ	Tested By:	Liumei Huang
Test Mode:	Mode 1		

Frequency (MHz)	Reading Level (dB $\mu$ V)	Correct Factor (dB)	Measure-ment (dB $\mu$ V)	Limits (dB $\mu$ V)	Margin (dB)	Remark
0.1539	45.19	10.40	55.59	65.79	-10.20	QP
0.1539	29.62	10.40	40.02	55.79	-15.77	AVG
0.2020	26.44	10.84	37.28	53.53	-16.25	AVG
0.2060	39.96	10.85	50.81	63.37	-12.56	QP
0.4860	25.72	11.23	36.95	56.24	-19.29	QP
0.4863	11.52	11.23	22.75	46.23	-23.48	AVG
0.5780	20.21	11.61	31.82	46.00	-14.18	AVG
0.5820	27.54	11.62	39.16	56.00	-16.84	QP
4.5580	32.57	10.32	42.89	56.00	-13.11	QP
4.6060	23.84	10.31	34.15	46.00	-11.85	AVG
9.9420	14.98	10.64	25.62	50.00	-24.38	AVG
10.0620	23.61	10.64	34.25	60.00	-25.75	QP

## Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

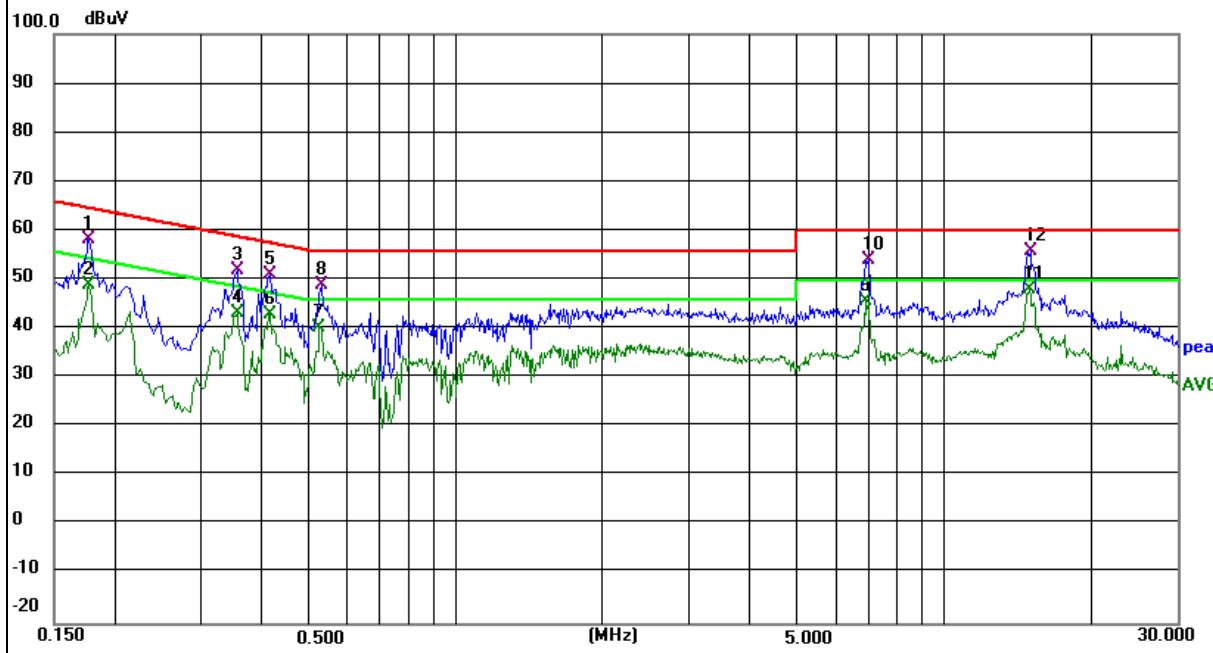


EUT:	Celerway Stratus 5GR16	Model Name :	CWY-M5.3-E5C1 W2R16
Temperature:	22 °C	Relative Humidity:	57%
Pressure:	1010hPa	Phase :	L
Test Voltage :	DC 56V from POE AC 120V/60Hz	Tested By:	Liumei Huang
Test Mode:	Normal Link		

Frequency (MHz)	Reading Level (dB $\mu$ V)	Correct Factor (dB)	Measure-ment (dB $\mu$ V)	Limits (dB $\mu$ V)	Margin (dB)	Remark
0.1766	47.38	10.88	58.26	64.64	-6.38	QP
0.1766	38.02	10.88	48.90	54.64	-5.74	AVG
0.3557	40.91	11.19	52.10	58.83	-6.73	QP
0.3557	32.09	11.19	43.28	48.83	-5.55	AVG
0.4148	39.79	11.25	51.04	57.55	-6.51	QP
0.4148	31.71	11.25	42.96	47.55	-4.59	AVG
0.5237	28.99	11.43	40.42	46.00	-5.58	AVG
0.5292	37.60	11.43	49.03	56.00	-6.97	QP
6.8775	35.47	10.20	45.67	50.00	-4.33	AVG
6.9877	43.98	10.20	54.18	60.00	-5.82	QP
14.9068	37.45	10.58	48.03	50.00	-1.97	AVG
14.9860	45.27	10.59	55.86	60.00	-4.14	QP

## Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.
3. Verified the worst-case of CWY-M5.3-E5C2W2R16

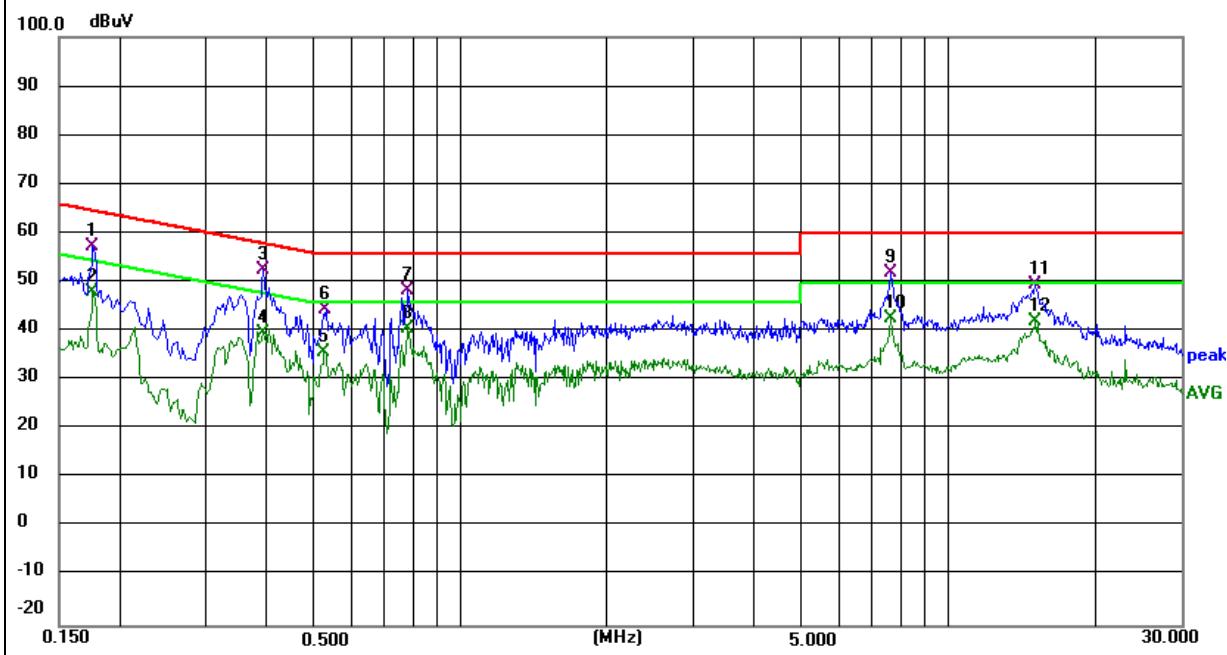


EUT:	Celerway Stratus 5GR16	Model Name :	CWY-M5.3-E5C1W2 R16
Temperature:	22°C	Relative Humidity:	57%
Pressure:	1010hPa	Phase :	N
Test Voltage :	DC 56V from POE AC 120V/60Hz	Tested By:	Liumei Huang
Test Mode:	Normal Link		

Frequency (MHz)	Reading Level (dB $\mu$ V)	Correct Factor (dB)	Measure-ment (dB $\mu$ V)	Limits (dB $\mu$ V)	Margin (dB)	Remark
0.1758	46.88	10.61	57.49	64.68	-7.19	QP
0.1758	37.45	10.61	48.06	54.68	-6.62	AVG
0.3940	41.35	11.18	52.53	57.98	-5.45	QP
0.3940	28.51	11.18	39.69	47.98	-8.29	AVG
0.5260	24.47	11.36	35.83	46.00	-10.17	AVG
0.5299	33.10	11.37	44.47	56.00	-11.53	QP
0.7820	36.59	11.89	48.48	56.00	-7.52	QP
0.7820	28.65	11.89	40.54	46.00	-5.46	AVG
7.6180	41.49	10.44	51.93	60.00	-8.07	QP
7.6180	32.15	10.44	42.59	50.00	-7.41	AVG
15.0220	39.27	10.38	49.65	60.00	-10.35	QP
15.1300	31.73	10.39	42.12	50.00	-7.88	AVG

## Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.
3. Verified the worst-case of CWY-M5.3-E5C2W2R16



## 7.2 RADIATED SPURIOUS EMISSION

### 7.2.1 Applicable Standard

According to FCC Part 15.247(d) and 15.209 and ANSI C63.10-2013

### 7.2.2 Conformance Limit

According to FCC Part 15.247(d): radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).  
According to FCC Part 15.205, Restricted bands

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	(2)
13.36-13.41			

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Restricted Frequency(MHz)	Field Strength ( $\mu$ V/m)	Field Strength ( $\text{dB}\mu$ V/m)	Measurement Distance
0.009~0.490	2400/F(KHz)	20 log ( $\mu$ V/m)	300
0.490~1.705	24000/F(KHz)	20 log ( $\mu$ V/m)	30
1.705~30.0	30	29.5	30
30-88	100	40	3
88-216	150	43.5	3
216-960	200	46	3
Above 960	500	54	3

#### Limits of Radiated Emission Measurement(Above 1000MHz)

Frequency(MHz)	Class B ( $\text{dB}\mu$ V/m) (at 3M)	
	PEAK	AVERAGE
Above 1000	74	54

Remark :1. Emission level in  $\text{dB}\mu$ V/m=20 log ( $\mu$ V/m)

2. Measurement was performed at an antenna to the closed point of EUT distance of meters.

3. For Frequency 9kHz~30MHz:

Distance extrapolation factor =40log(Specific distance/ test distance)(dB);

Limit line=Specific limits( $\text{dB}\mu$ V) + distance extrapolation factor.

For Frequency above 30MHz:

Distance extrapolation factor =20log(Specific distance/ test distance)(dB);

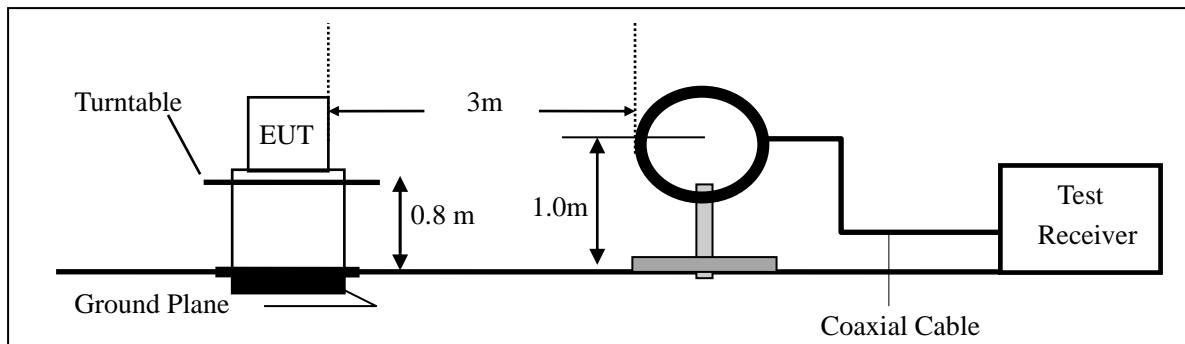
Limit line=Specific limits( $\text{dB}\mu$ V) + distance extrapolation factor.

### 7.2.3 Measuring Instruments

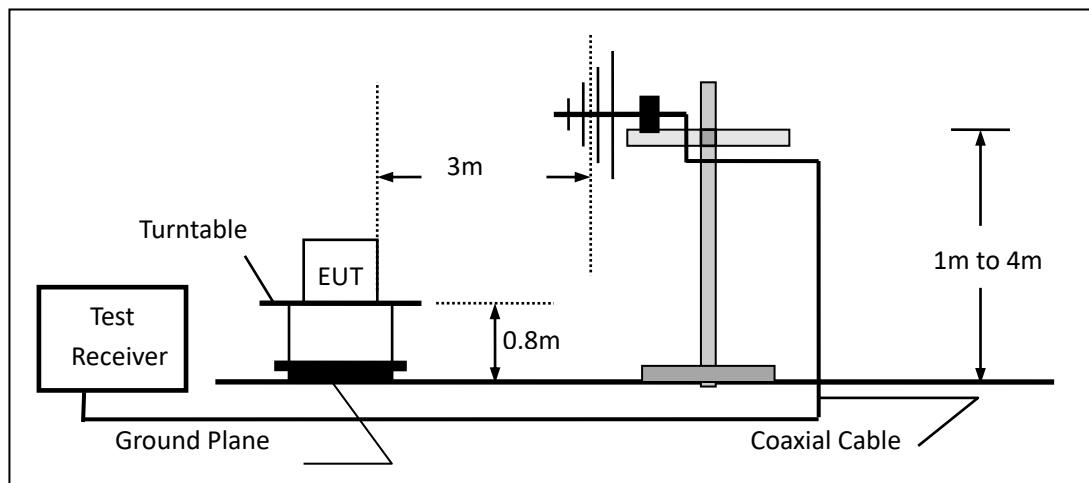
The Measuring equipment is listed in the section 6.3 of this test report.

### 7.2.4 Test Configuration

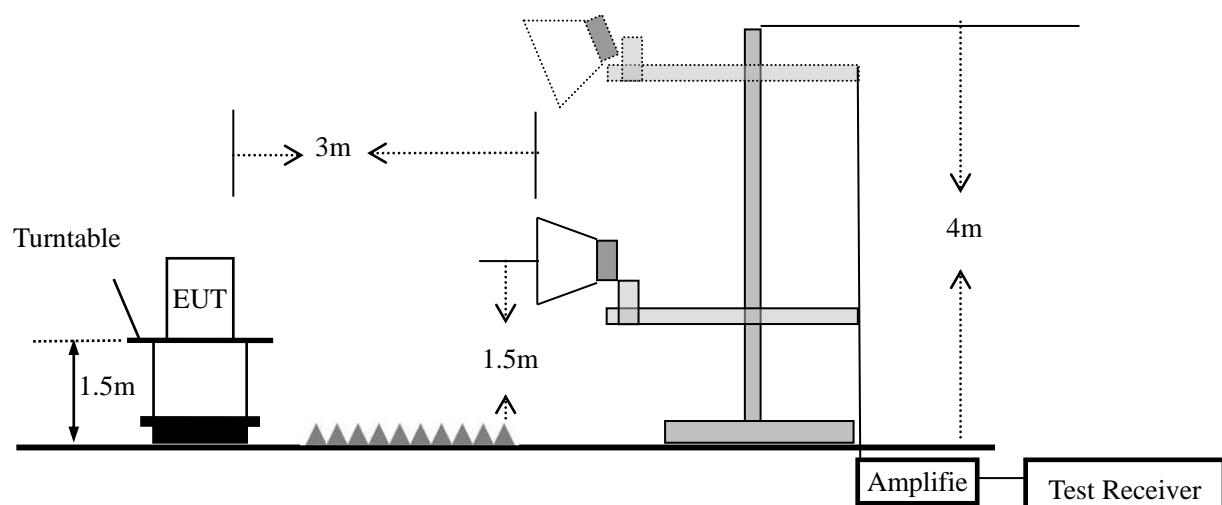
#### (a) For radiated emissions below 30MHz



#### (b) For radiated emissions from 30MHz to 1000MHz



#### (c) For radiated emissions above 1000MHz



### 7.2.5 Test Procedure

The test site semi-anechoic chamber has met the requirement of NSA tolerance 4 dB according to the standards: ANSI C63.10-2013. The test distance is 3m. The setup is according to the requirements in Section 13.1.4.1 of ANSI C63.10-2013 and CAN/CSA-CEI/IEC CISPR 22.

This test is required for any spurious emission that falls in a Restricted Band, as defined in Section 15.205. It must be performed with the highest gain of each type of antenna proposed for use with the EUT. Use the following spectrum analyzer settings:

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (emission in restricted band)	1 MHz / 1 MHz for Peak, 1 MHz / 10Hz for Average

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

- The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz and frequencies above 1GHz,
- The EUT was placed on the top of a rotating table 0.8 m for below 1GHz and 1.5m for above 1GHz the ground at a 3 meter. The table was rotated 360 degrees to determine the position of the highest radiation.
- The height of the equipment or of the substitution antenna shall be 0.8 m for below 1GHz and 1.5m for above 1GHz; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- For the radiated emission test above 1GHz:  
Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.
- 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.
- If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
- For the actual test configuration, please refer to the related Item –EUT Test Photos.

#### Note:

Both horizontal and vertical antenna polarities were tested

and performed pretest to three orthogonal axis. The worst case emissions were reported

During the radiated emission test, the Spectrum Analyzer was set with the following configurations:

For peak measurement:

Set RBW=120 kHz for  $f < 1$  GHz; VBW $\geq$ RBW; Sweep = auto; Detector function = peak; Trace = max hold;

Set RBW = 1 MHz, VBW= 3MHz for  $f \geq 1$  GHz

For average measurement:

VBW = 10 Hz, when duty cycle is no less than 98 percent.

VBW  $\geq 1/T$ , when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

Note: for the frequency ranges below 30 MHz, a narrower RBW is used for these ranges but the measured value should add a RBW correction factor (RBWCF) where RBWCF [dB] =  $10 \times \lg(100 \text{ [kHz]}/\text{narrower RBW [kHz]})$ . , the narrower RBW is 1 kHz and RBWCF is 20 dB for the frequency 9 kHz to 150 kHz, and the narrower RBW is 10 kHz and RBWCF is 10 dB for the frequency 150 kHz to 30 MHz.

## 7.2.6 Test Results

### 7.2.6.1 Test Results of Radiated Spurious Emissions (9kHz to 30MHz)

EUT:	Celerway Stratus 5GR16		Model No.:		CWY-M5.3-E5C2W2R16	
Temperature:	20 °C		Relative Humidity:		48%	
Test Mode:	802.11b/g/n(HT20, HT40)		Tested By:		Re Zeng	

Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
		PK	AV	PK	AV	PK	AV
--	--	--	--	--	--	--	--

Note: the amplitude of spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be reported.

## 7.2.6.2 Test Results of Radiated Spurious Emissions (30MHz to 1GHz)

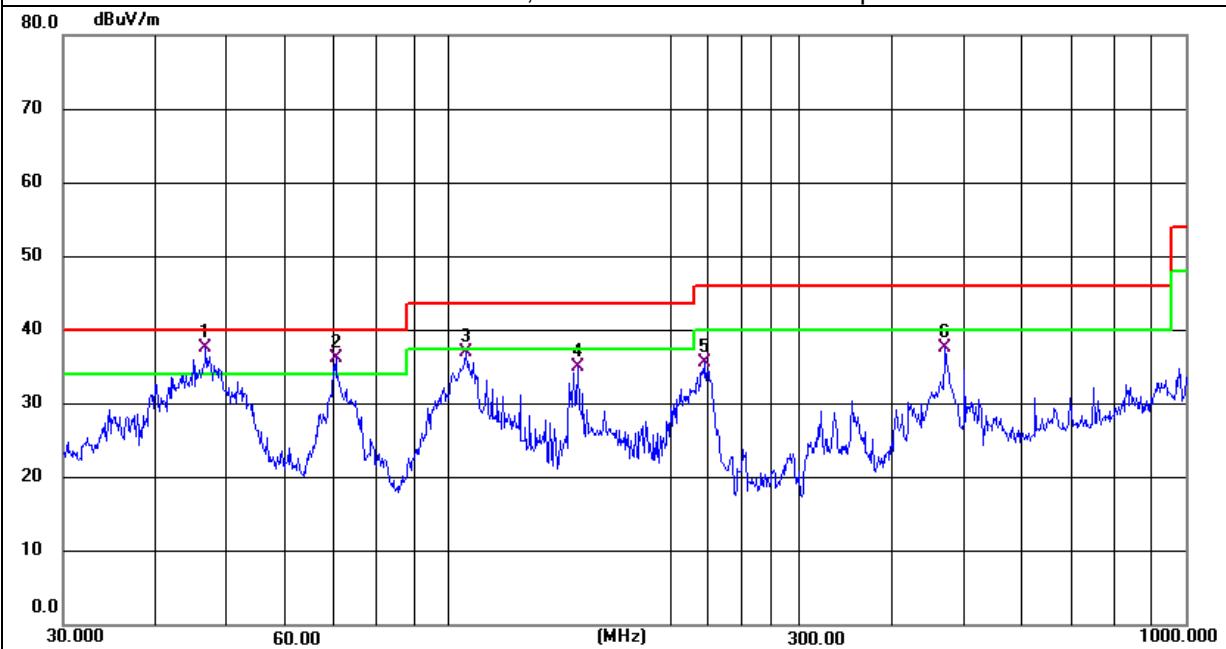
EUT:	Celerway Stratus 5GR16	Model Name :	CWY-M5.3-E5C2W2R1 6
Temperature:	25 °C	Relative Humidity:	55%
Pressure:	1010hPa	Test Mode:	Mode 1
Test Voltage :	DC 56V from POE	Tested By:	Re Zeng

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
V	46.8301	24.05	13.58	37.63	40.00	-2.37	QP
V	70.3365	26.64	9.64	36.28	40.00	-3.72	QP
V	105.6414	24.99	11.99	36.98	43.50	-6.52	QP
V	150.0107	26.55	8.44	34.99	43.50	-8.51	QP
V	222.9500	23.64	12.03	35.67	46.00	-10.33	QP
V	472.1760	19.80	17.79	37.59	46.00	-8.41	QP

**Remark:**

Emission Level = Meter Reading+ Factor, Margin= Emission Level- Limit

All the modulation modes have been tested, and the worst result was report



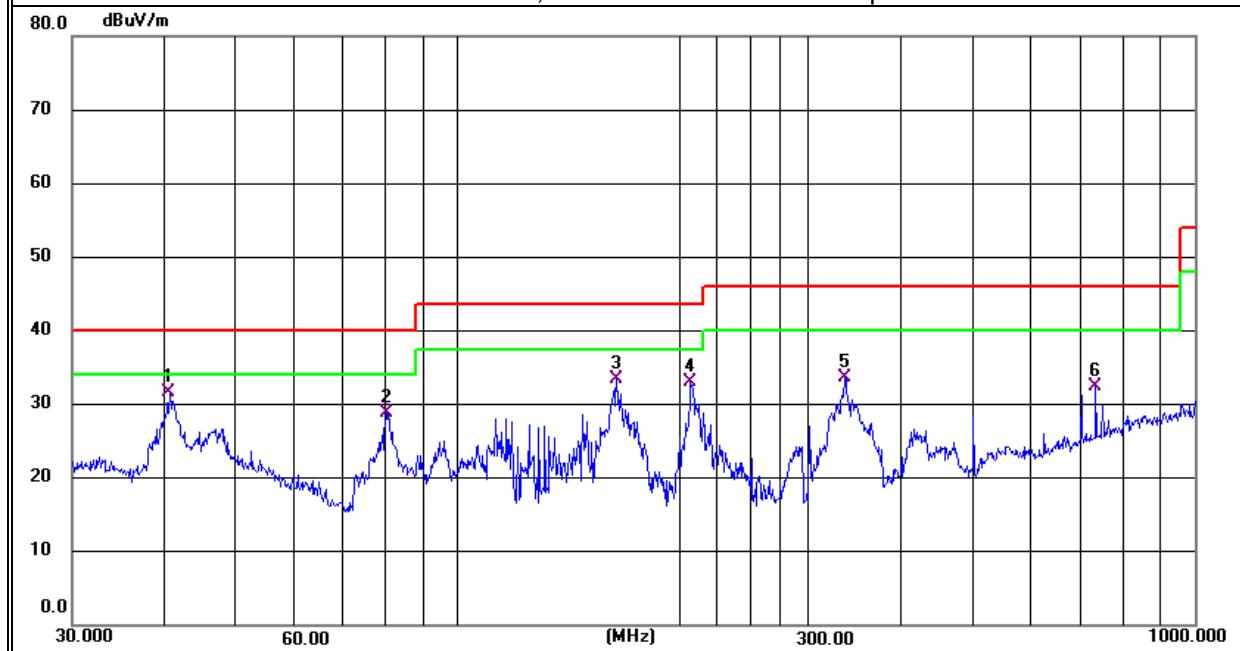
EUT:	Celerway Stratus 5GR16	Model Name :	CWY-M5.3-E5C2W2R16
Temperature:	25 °C	Relative Humidity:	55%
Pressure:	1010hPa	Test Mode:	Mode 1
Test Voltage :	DC 56V from POE	Tested By:	Re Zeng

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
H	40.7014	59.59	-28.04	31.55	40.00	-8.45	QP
H	80.0805	21.23	7.62	28.85	40.00	-11.15	QP
H	164.3300	24.23	9.16	33.39	43.50	-10.11	QP
H	207.1225	21.20	11.85	33.05	43.50	-10.45	QP
H	334.8586	18.41	15.26	33.67	46.00	-12.33	QP
H	734.4913	10.18	22.24	32.42	46.00	-13.58	QP

**Remark:**

Emission Level = Meter Reading+ Factor, Margin= Emission Level- Limit

All the modulation modes have been tested, and the worst result was report



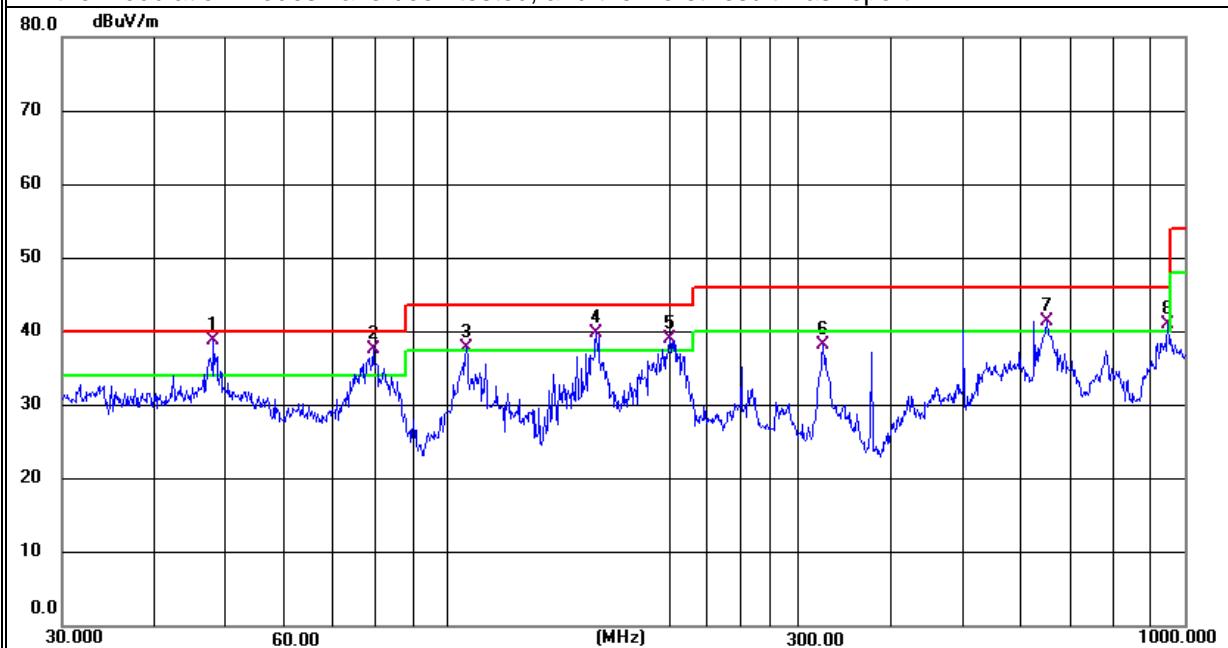
EUT:	Celerway Stratus 5GR16	Model Name :	CWY-M5.3-E5C2W2R16
Temperature:	25 °C	Relative Humidity:	55%
Pressure:	1010hPa	Test Mode:	Mode 1
Test Voltage :	DC 24V from Adapter	Tested By:	Re Zeng

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
V	48.1625	25.15	13.68	38.83	40.00	-1.17	QP
V	79.2425	29.93	7.69	37.62	40.00	-2.38	QP
V	106.0126	25.83	11.99	37.82	43.50	-5.68	QP
V	159.2250	30.78	8.95	39.73	43.50	-3.77	QP
V	199.9855	27.22	11.70	38.92	43.50	-4.58	QP
V	323.3201	23.34	14.83	38.17	46.00	-7.83	QP
V	649.6594	20.72	20.72	41.44	46.00	-4.56	QP
V	948.7610	16.31	24.72	41.03	46.00	-4.97	QP

## Remark:

Emission Level= Meter Reading+ Factor, Margin= Emission Level – Limit

All the modulation modes have been tested, and the worst result was report



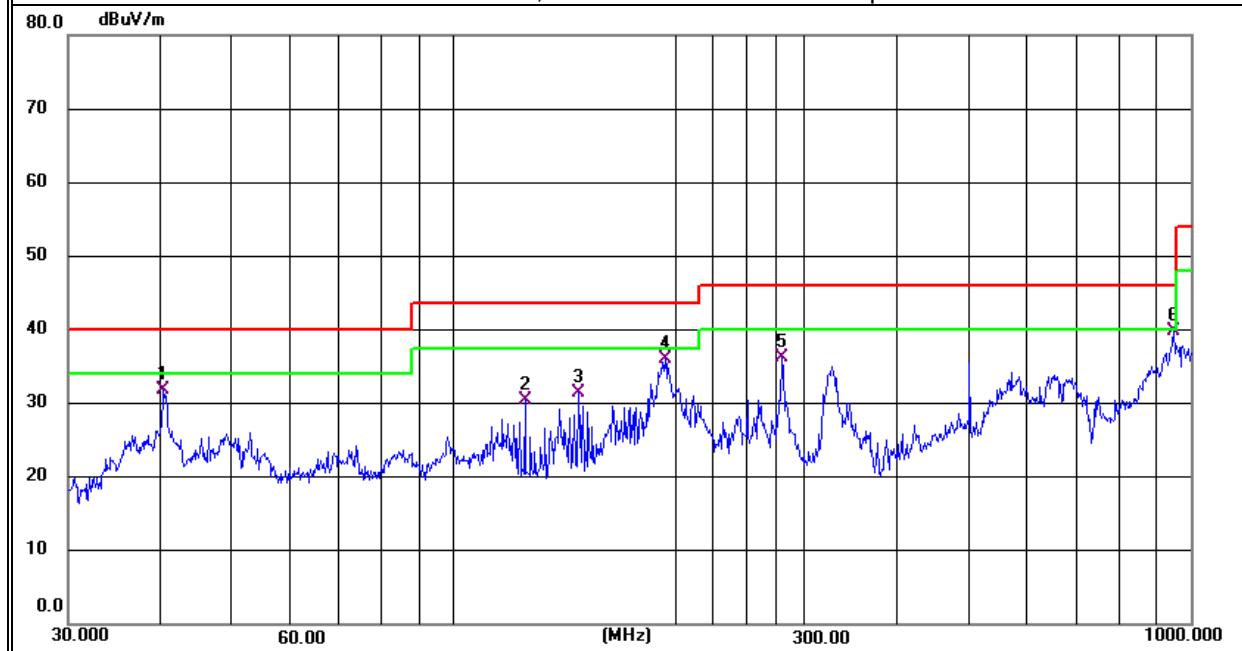
EUT:	Celerway Stratus 5GR16	Model Name :	CWY-M5.3-E5C2W2R16
Temperature:	25 °C	Relative Humidity:	55%
Pressure:	1010hPa	Test Mode:	Mode 1
Test Voltage :	DC 24V from Adapter	Tested By:	Re Zeng

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
H	40.4170	19.21	12.63	31.84	40.00	-8.16	QP
H	125.0065	21.28	9.21	30.49	43.50	-13.01	QP
H	147.9214	23.14	8.34	31.48	43.50	-12.02	QP
H	193.7726	24.45	11.48	35.93	43.50	-7.57	QP
H	279.0436	22.39	13.82	36.21	46.00	-9.79	QP
H	948.7610	15.04	24.72	39.76	46.00	-6.24	QP

## Remark:

Emission Level= Meter Reading+ Factor, Margin= Emission Level – Limit

All the modulation modes have been tested, and the worst result was report



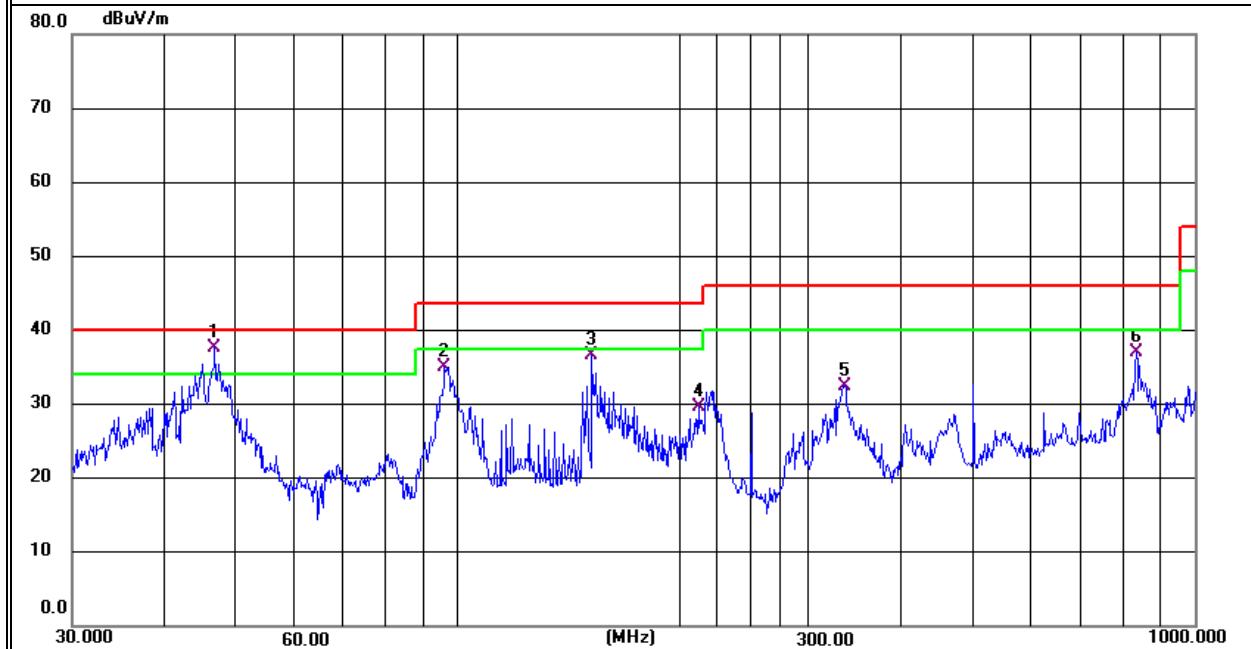
EUT:	Celerway Stratus 5GR16	Model Name :	CWY-M5.3-E5C1W2R16
Temperature:	25 °C	Relative Humidity:	55%
Pressure:	1010hPa	Test Mode:	Mode 1
Test Voltage :	DC 56V from POE	Tested By:	Re Zeng

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
V	46.8301	24.05	13.58	37.63	40.00	-2.37	QP
V	96.0985	23.86	11.09	34.95	43.50	-8.55	QP
V	152.1297	27.97	8.54	36.51	43.50	-6.99	QP
V	212.2692	17.57	11.97	29.54	43.50	-13.96	QP
V	334.8586	17.20	15.26	32.46	46.00	-13.54	QP
V	833.3170	13.40	23.60	37.00	46.00	-9.00	QP

**Remark:**

Emission Level = Meter Reading+ Factor, Margin= Emission Level- Limit

Verified the worst-case of CWY-M5.3-E5C2W2R16



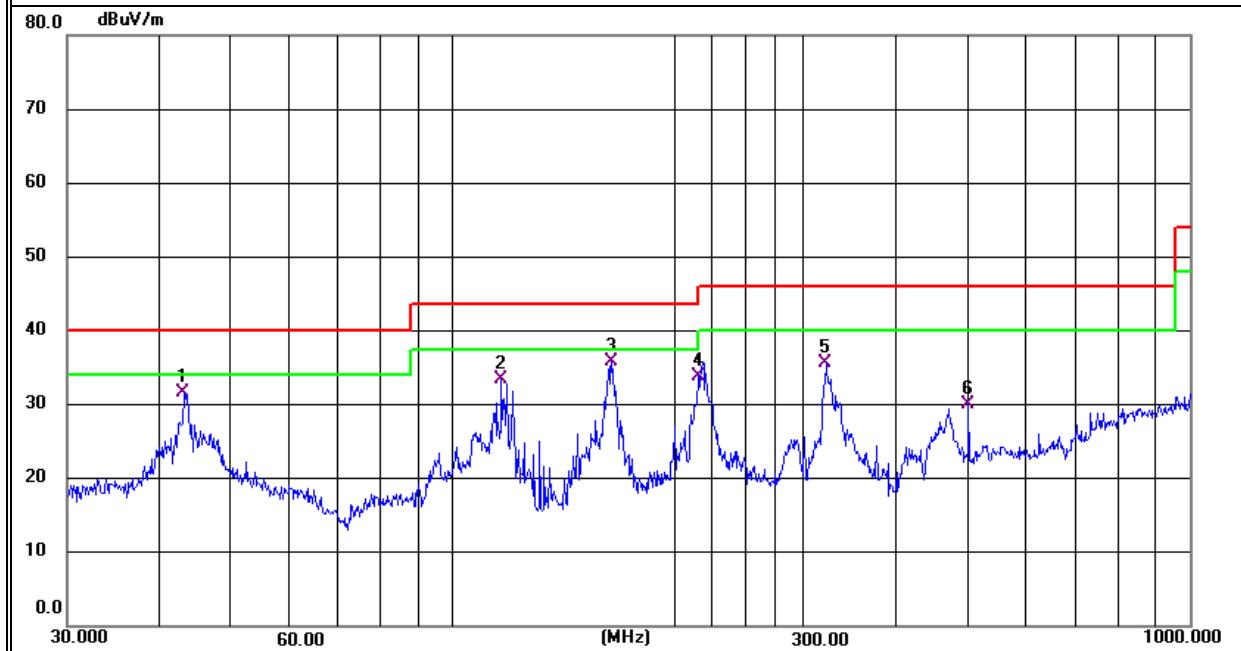
EUT:	Celerway Stratus 5GR16	Model Name :	CWY-M5.3-E5C1W2R16
Temperature:	25 °C	Relative Humidity:	55%
Pressure:	1010hPa	Test Mode:	Mode 1
Test Voltage :	DC 56V from POE	Tested By:	Re Zeng

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
H	43.2014	61.69	-29.99	31.70	40.00	-8.30	QP
H	116.5400	22.90	10.58	33.48	43.50	-10.02	QP
H	164.3300	26.73	9.16	35.89	43.50	-7.61	QP
H	215.2675	21.83	12.02	33.85	43.50	-9.65	QP
H	321.0605	20.78	14.78	35.56	46.00	-10.44	QP
H	501.1790	11.70	18.28	29.98	46.00	-16.02	QP

**Remark:**

Emission Level = Meter Reading+ Factor, Margin= Emission Level- Limit

Verified the worst-case of CWY-M5.3-E5C2W2R16



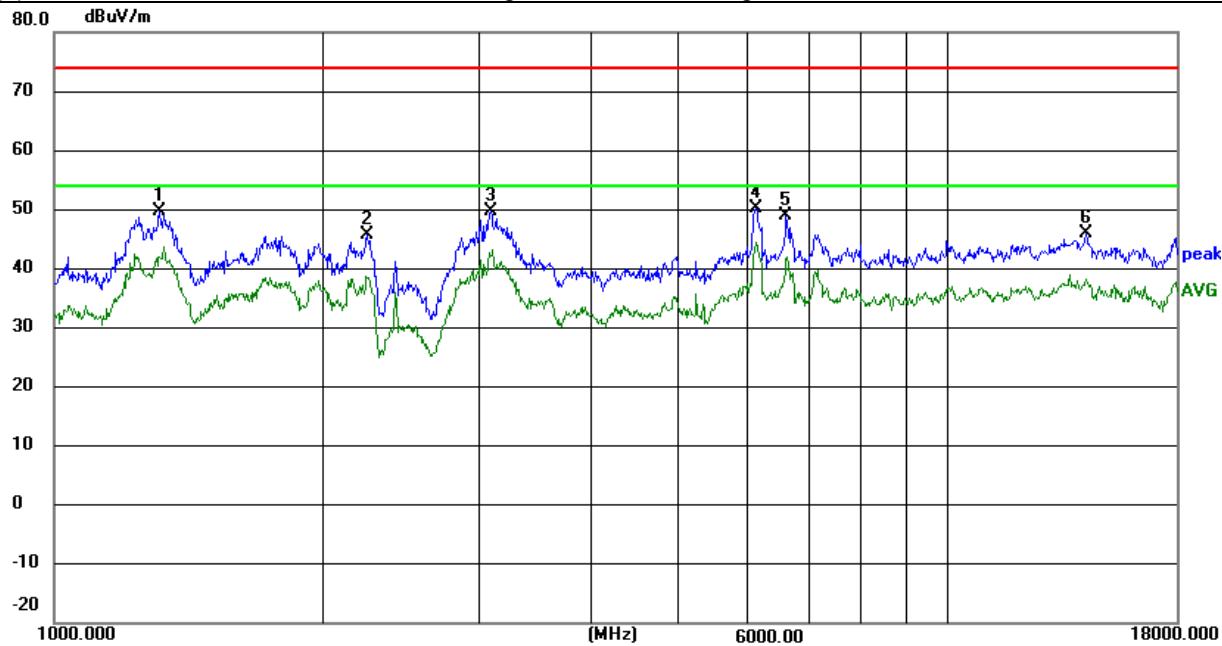
### 7.2.6.3 Test Results of Radiated Spurious Emissions (1GHz to 18GHz)

EUT:	Celerway Stratus 5GR16	Model No.:	CWY-M5.3-E5C2W2R16
Temperature:	20 °C	Relative Humidity:	48%
Test Mode:	802.11b/g/n(HT20, HT40)	Tested By:	Harry Huang

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
V	1315.350	73.62	-23.87	49.75	74.00	-24.25	peak
V	2245.250	64.86	-19.11	45.75	74.00	-28.25	peak
V	3085.900	65.34	-15.56	49.78	74.00	-24.22	peak
V	6099.575	60.86	-10.56	50.30	74.00	-23.70	peak
V	6591.725	58.11	-9.27	48.84	74.00	-25.16	peak
V	14273.175	46.26	-0.23	46.03	74.00	-27.97	peak

#### Remark:

- (1) Emission Level = Meter Reading+ Factor, Margin= Emission Level- Limit, Factor= Antenna Factor + Cable Loss - Preamp Factor
- (2) All the modulation modes and Antenna have been tested, and the worst-case result was 802.11b CH1 and antenna2. Only the worst-case mode and antenna are reported.
- (3) Other emissions are attenuated more than 20dB below the permissible limits, so it does not recorded in the report.
- (4) When PK value is lower than the Average value limit, average don't record.

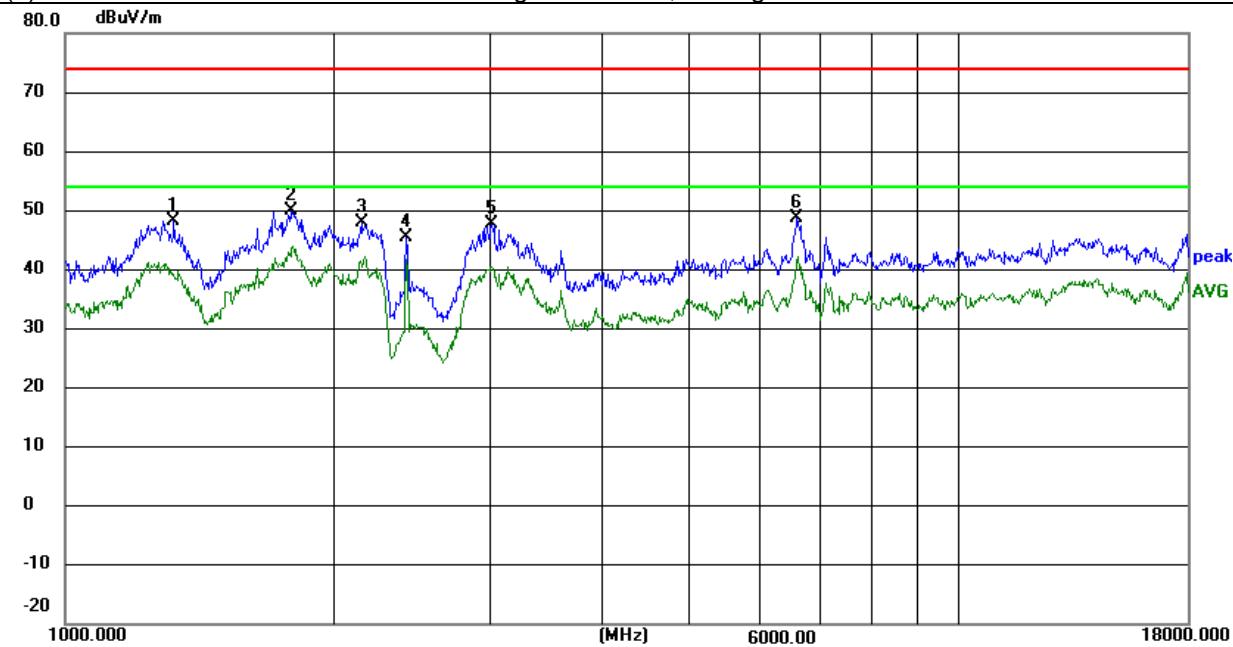


EUT:	Celerway Stratus 5GR16	Model No.:	CWY-M5.3-E5C2W2R16
Temperature:	20 °C	Relative Humidity:	48%
Test Mode:	802.11b/g/n(HT20, HT40)	Tested By:	Harry Huang

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
H	1325.550	72.07	-23.89	48.18	74.00	-25.82	peak
H	1792.200	72.37	-22.45	49.92	74.00	-24.08	peak
H	2146.650	66.65	-18.74	47.91	74.00	-26.09	peak
H	2413.550	64.49	-19.15	45.34	74.00	-28.66	peak
H	3006.850	63.28	-15.49	47.79	74.00	-26.21	peak
H	6592.575	57.89	-9.26	48.63	74.00	-25.37	peak

**Remark:**

- (1) Emission Level = Meter Reading+ Factor, Margin= Emission Level- Limit, Factor= Antenna Factor + Cable Loss - Preamp Factor
- (2) All the modulation modes and Antenna have been tested, and the worst-case result was 802.11b CH1 and antenna2. Only the worst-case mode and antenna are reported.
- (3) Other emissions are attenuated more than 20dB below the permissible limits, so it does not recorded in the report.
- (4) When PK value is lower than the Average value limit, average don't record.

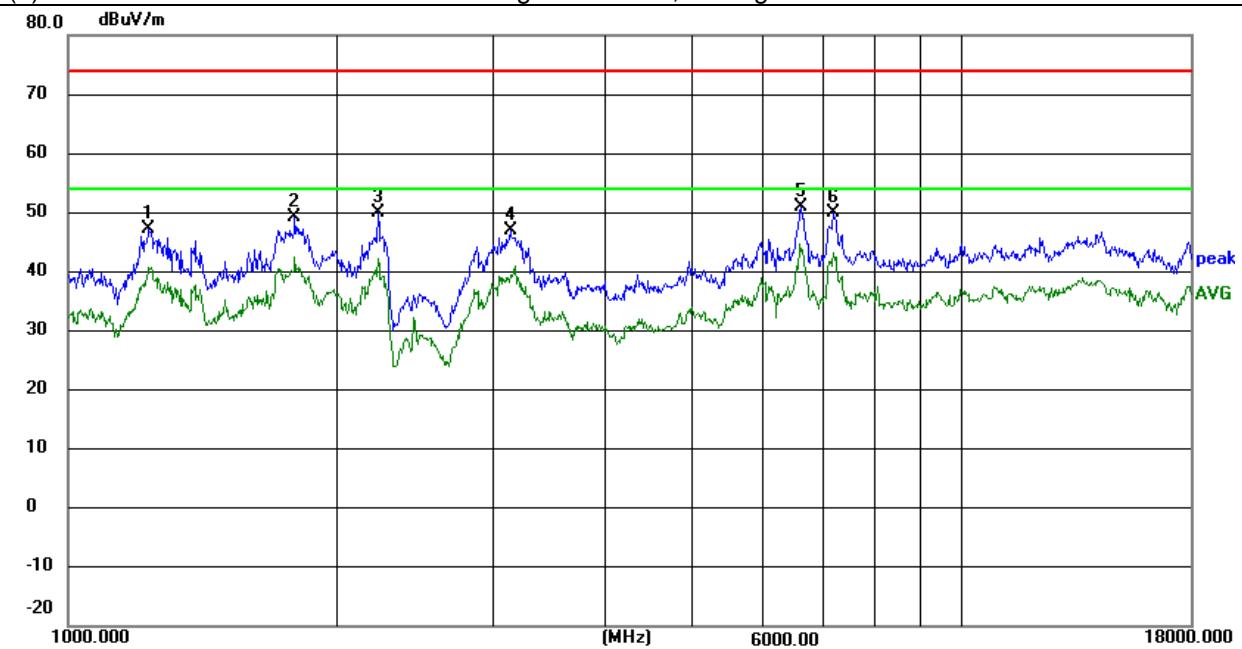


EUT:	Celerway Stratus 5GR16	Model No.:	CWY-M5.3-E5C2W2R16
Temperature:	20 °C	Relative Humidity:	48%
Test Mode:	802.11b/g/n(HT20, HT40)	Tested By:	Harry Huang

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
V	1234.175	71.14	-24.05	47.09	74.00	-26.91	peak
V	1796.450	71.62	-22.42	49.20	74.00	-24.80	peak
V	2224.425	69.28	-19.41	49.87	74.00	-24.13	peak
V	3125.850	62.36	-15.52	46.84	74.00	-27.16	peak
V	6613.400	60.33	-9.36	50.97	74.00	-23.03	peak
V	7190.550	58.18	-8.20	49.98	74.00	-24.02	peak

**Remark:**

- (1) Emission Level = Meter Reading+ Factor, Margin= Emission Level- Limit, Factor= Antenna Factor + Cable Loss - Preamp Factor
- (2) All the modulation modes and Antenna have been tested, and the worst-case result was 802.11b CH6 and antenna2. Only the worst-case mode and antenna are reported.
- (3) Other emissions are attenuated more than 20dB below the permissible limits, so it does not recorded in the report.
- (4) When PK value is lower than the Average value limit, average don't record.

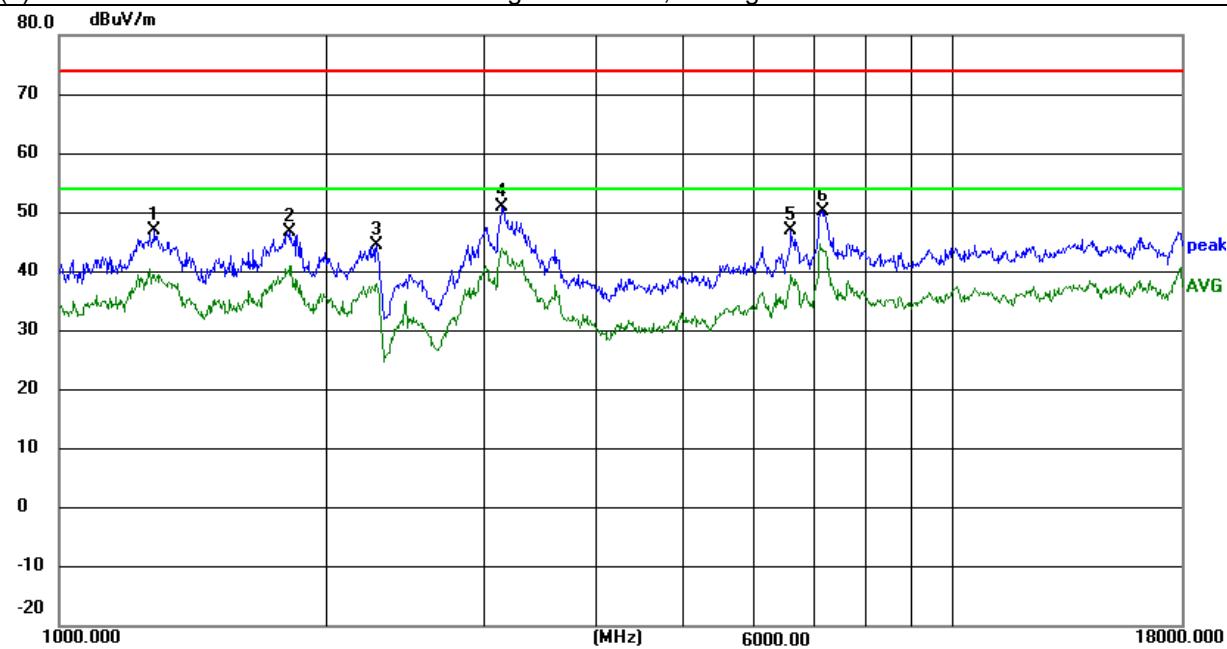


EUT:	Celerway Stratus 5GR16	Model No.:	CWY-M5.3-E5C2W2R16
Temperature:	20 °C	Relative Humidity:	48%
Test Mode:	802.11b/g/n(HT20, HT40)	Tested By:	Harry Huang

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
H	1279.650	70.85	-23.86	46.99	74.00	-27.01	peak
H	1817.275	68.76	-21.94	46.82	74.00	-27.18	peak
H	2269.475	63.59	-19.12	44.47	74.00	-29.53	peak
H	3133.925	66.39	-15.51	50.88	74.00	-23.12	peak
H	6595.550	56.19	-9.26	46.93	74.00	-27.07	peak
H	7167.175	58.95	-8.78	50.17	74.00	-23.83	peak

**Remark:**

- (1) Emission Level = Meter Reading+ Factor, Margin= Emission Level- Limit, Factor= Antenna Factor + Cable Loss - Preamp Factor
- (2) All the modulation modes and Antenna have been tested, and the worst-case result was 802.11b CH6 and antenna2. Only the worst-case mode and antenna are reported.
- (3) Other emissions are attenuated more than 20dB below the permissible limits, so it does not recorded in the report.
- (4) When PK value is lower than the Average value limit, average don't record.

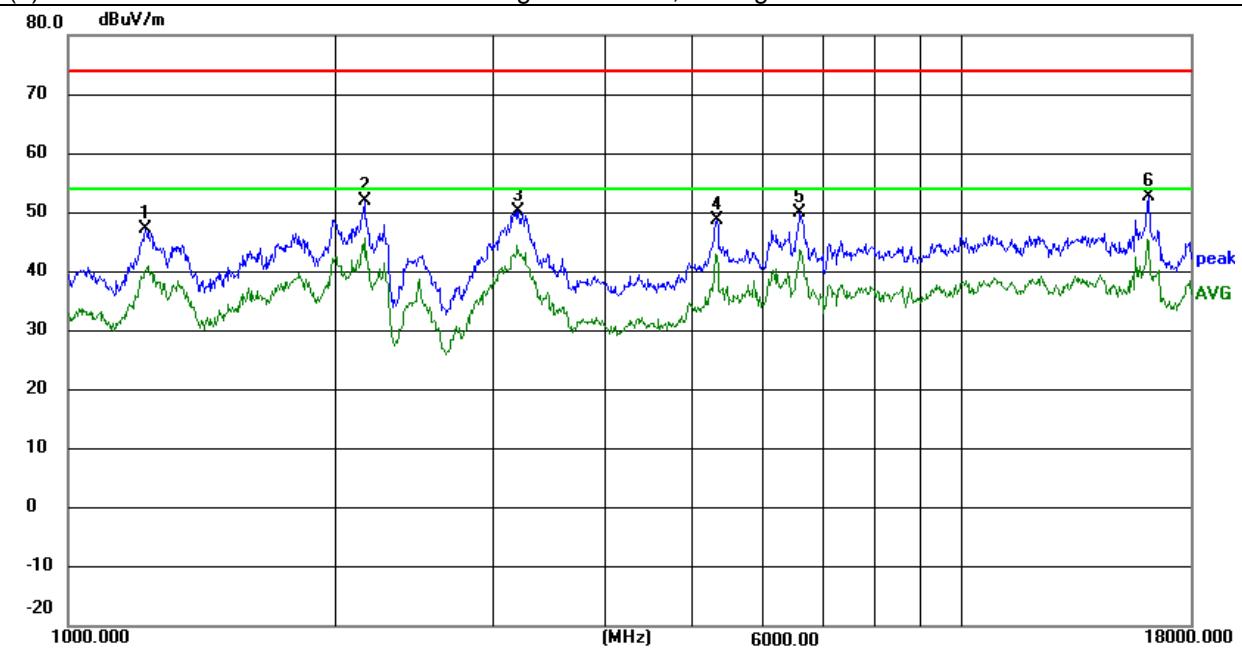


EUT:	Celerway Stratus 5GR16	Model No.:	CWY-M5.3-E5C2W2R16
Temperature:	20 °C	Relative Humidity:	48%
Test Mode:	802.11b/g/n(HT20, HT40)	Tested By:	Harry Huang

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
V	1222.700	71.29	-24.16	47.13	74.00	-26.87	peak
V	2144.950	70.60	-18.74	51.86	74.00	-22.14	peak
V	3191.300	65.39	-15.27	50.12	74.00	-23.88	peak
V	5329.900	61.43	-12.83	48.60	74.00	-25.40	peak
V	6587.900	59.26	-9.27	49.99	74.00	-24.01	peak
V	16220.950	52.49	0.16	52.65	74.00	-21.35	peak

**Remark:**

- (1) Emission Level = Meter Reading+ Factor, Margin= Emission Level- Limit, Factor= Antenna Factor + Cable Loss - Preamp Factor
- (2) All the modulation modes and Antenna have been tested, and the worst-case result was 802.11b CH11 and antenna2. Only the worst-case mode and antenna are reported.
- (3) Other emissions are attenuated more than 20dB below the permissible limits, so it does not recorded in the report.
- (4) When PK value is lower than the Average value limit, average don't record.

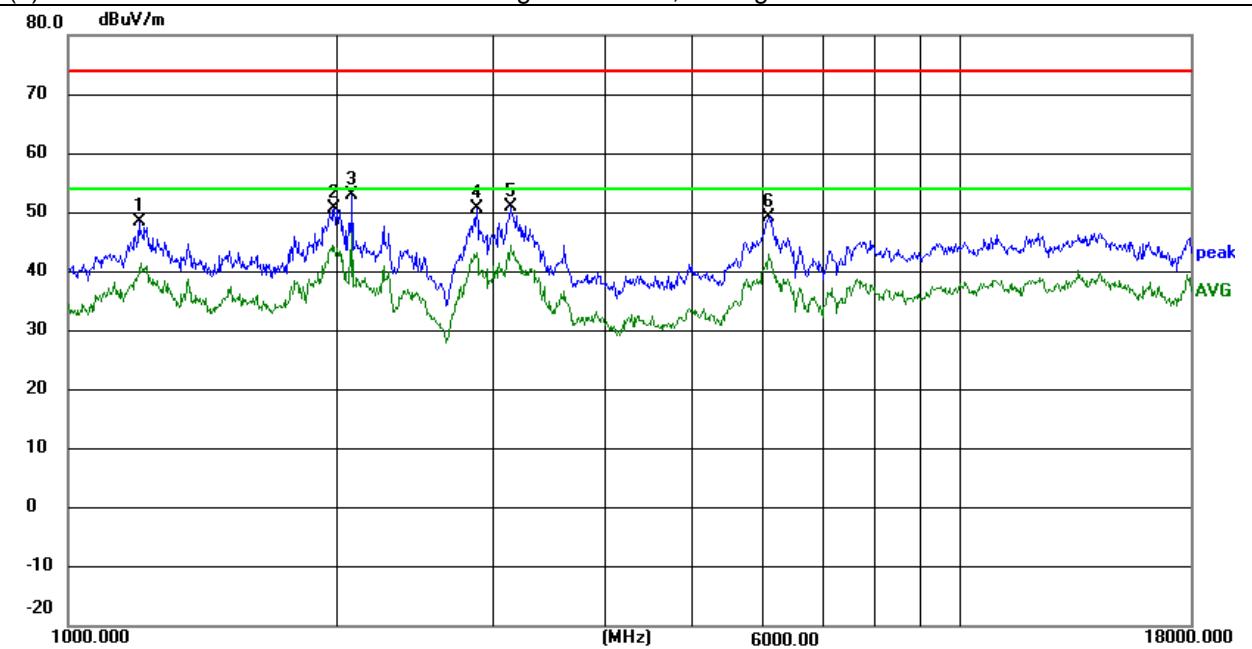


EUT:	Celerway Stratus 5GR16	Model No.:	CWY-M5.3-E5C2W2R16
Temperature:	20 °C	Relative Humidity:	48%
Test Mode:	802.11b/g/n(HT20, HT40)	Tested By:	Harry Huang

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
H	1202.300	72.79	-24.38	48.41	74.00	-25.59	peak
H	1986.000	70.67	-19.92	50.75	74.00	-23.25	peak
H	2079.075	71.67	-18.66	53.01	74.00	-20.99	peak
H	2870.850	66.78	-16.12	50.66	74.00	-23.34	peak
H	3131.375	66.45	-15.51	50.94	74.00	-23.06	peak
H	6086.825	60.11	-10.84	49.27	74.00	-24.73	peak

**Remark:**

- (1) Emission Level = Meter Reading+ Factor, Margin= Emission Level- Limit, Factor= Antenna Factor + Cable Loss - Preamp Factor
- (2) All the modulation modes and Antenna have been tested, and the worst-case result was 802.11b CH11 and antenna2. Only the worst-case mode and antenna are reported.
- (3) Other emissions are attenuated more than 20dB below the permissible limits, so it does not recorded in the report.
- (4) When PK value is lower than the Average value limit, average don't record.



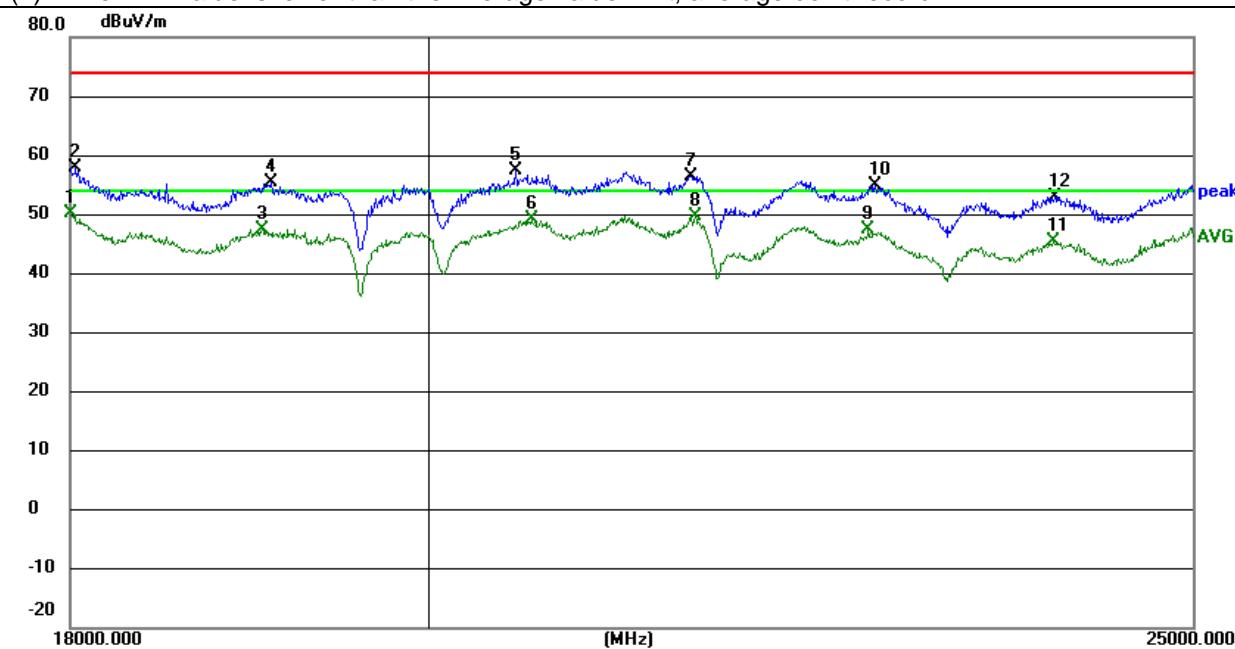
## 7.2.6.4 Test Results of Radiated Spurious Emissions (18GHz to 25GHz)

EUT:	Celerway Stratus 5GR16	Model No.:	CWY-M5.3-E5C2W2R16
Temperature:	20 °C	Relative Humidity:	48%
Test Mode:	802.11b/g/n(HT20, HT40)	Tested By:	Harry Huang

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
V	18000.000	59.27	-9.19	50.08	54.00	-3.92	AVG
V	18034.125	90.99	-32.99	58.00	74.00	-16.00	peak
V	19040.200	80.33	-32.87	47.46	54.00	-6.54	AVG
V	19093.925	88.36	-32.87	55.49	74.00	-18.51	peak
V	20511.775	89.37	-32.02	57.35	74.00	-16.65	peak
V	20603.300	80.97	-31.89	49.08	54.00	-4.92	AVG
V	21590.300	86.97	-30.44	56.53	74.00	-17.47	peak
V	21618.300	80.15	-30.41	49.74	54.00	-4.26	AVG
V	22743.025	76.20	-28.80	47.40	54.00	-6.60	AVG
V	22782.050	83.60	-28.74	54.86	74.00	-19.14	peak
V	24006.700	72.53	-27.03	45.50	54.00	-8.50	AVG
V	24014.400	80.03	-27.02	53.01	74.00	-20.99	peak

**Remark:**

- (1) Emission Level = Meter Reading+ Factor, Margin= Emission Level- Limit, Factor= Antenna Factor + Cable Loss - Preamp Factor
- (2) All the modulation modes and Antenna have been tested, and the worst-case result was 802.11b CH1 and antenna2. Only the worst-case mode and antenna are reported.
- (3) Other emissions are attenuated more than 20dB below the permissible limits, so it does not record in the report.
- (4) When PK value is lower than the Average value limit, average don't record.

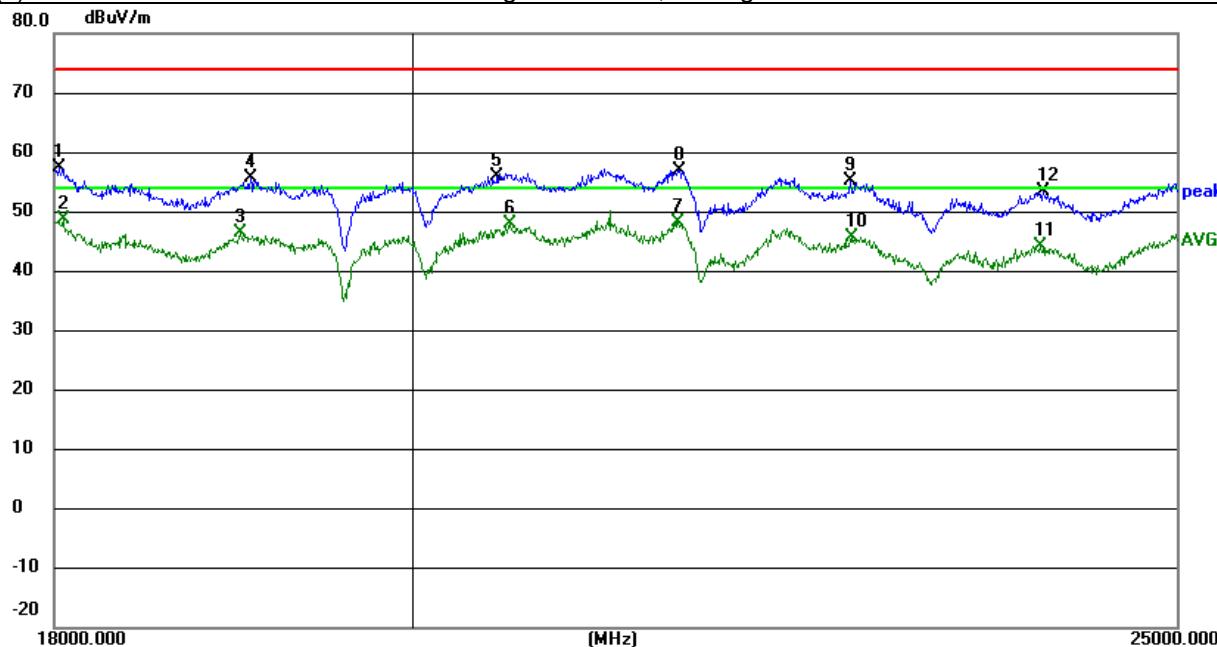


EUT:	Celerway Stratus 5GR16	Model No.:	CWY-M5.3-E5C2W2R16
Temperature:	20 °C	Relative Humidity:	48%
Test Mode:	802.11b/g/n(HT20, HT40)	Tested By:	Harry Huang

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
H	18026.600	53.04	4.42	57.46	74.00	-16.54	peak
H	18048.650	44.33	4.44	48.77	54.00	-5.23	AVG
H	19014.475	41.61	4.94	46.55	54.00	-7.45	AVG
H	19070.650	50.59	5.00	55.59	74.00	-18.41	peak
H	20495.500	48.79	7.25	56.04	74.00	-17.96	peak
H	20570.225	40.65	7.37	48.02	54.00	-5.98	AVG
H	21610.250	39.94	8.29	48.23	54.00	-5.77	AVG
H	21614.800	48.68	8.30	56.98	74.00	-17.02	peak
H	22723.425	44.98	10.10	55.08	74.00	-18.92	peak
H	22735.500	35.55	10.11	45.66	54.00	-8.34	AVG
H	24031.725	32.31	12.00	44.31	54.00	-9.69	AVG
H	24045.025	41.36	11.97	53.33	74.00	-20.67	peak

**Remark:**

- (1) Emission Level = Meter Reading+ Factor, Margin= Emission Level- Limit, Factor= Antenna Factor + Cable Loss - Preamp Factor
- (2) All the modulation modes and Antenna have been tested, and the worst-case result was 802.11b CH1 and antenna2. Only the worst-case mode and antenna are reported.
- (3) Other emissions are attenuated more than 20dB below the permissible limits, so it does not recorded in the report.
- (4) When PK value is lower than the Average value limit, average don't record.

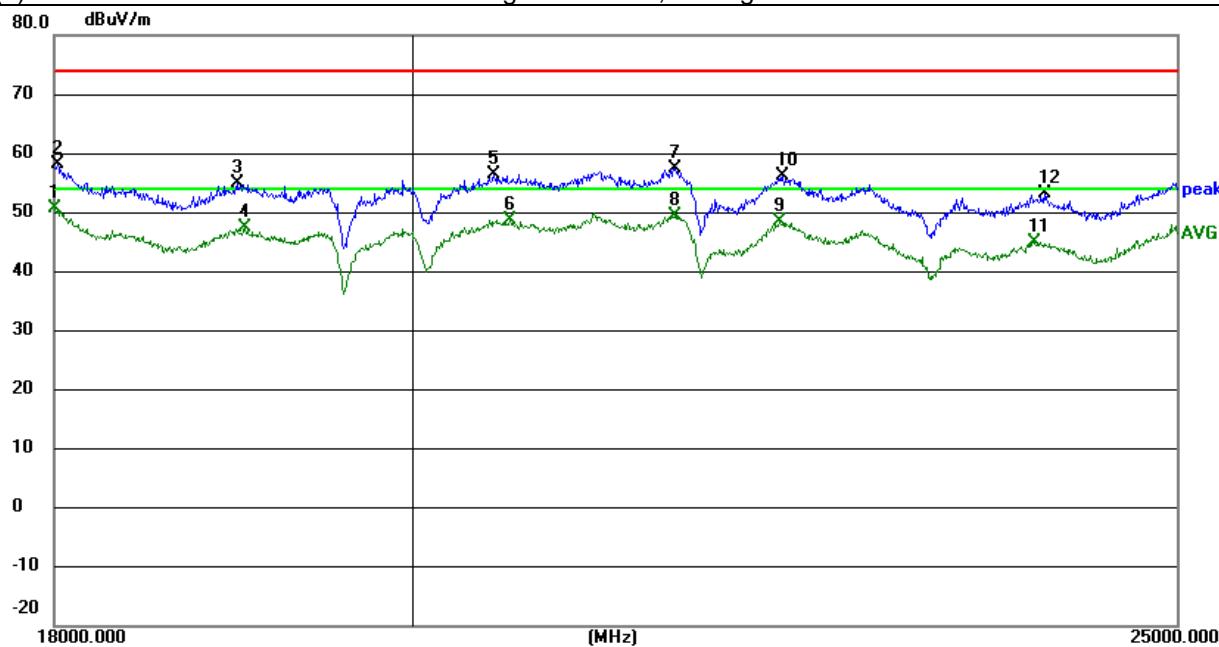


EUT:	Celerway Stratus 5GR16	Model No.:	CWY-M5.3-E5C2W2R16
Temperature:	20 °C	Relative Humidity:	48%
Test Mode:	802.11b/g/n(HT20, HT40)	Tested By:	Harry Huang

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
V	18000.000	60.01	-9.19	50.82	54.00	-3.18	AVG
V	18019.250	91.05	-32.98	58.07	74.00	-15.93	peak
V	18996.275	87.70	-32.88	54.82	74.00	-19.18	peak
V	19034.950	80.39	-32.87	47.52	54.00	-6.48	AVG
V	20477.300	88.51	-32.06	56.45	74.00	-17.55	peak
V	20570.225	80.63	-31.93	48.70	54.00	-5.30	AVG
V	21590.825	87.87	-30.44	57.43	74.00	-16.57	peak
V	21590.825	79.93	-30.44	49.49	54.00	-4.51	AVG
V	22262.300	78.04	-29.48	48.56	54.00	-5.44	AVG
V	22278.225	85.63	-29.45	56.18	74.00	-17.82	peak
V	23993.225	72.13	-27.05	45.08	54.00	-8.92	AVG
V	24050.100	80.09	-26.99	53.10	74.00	-20.90	peak

**Remark:**

- (1) Emission Level = Meter Reading+ Factor, Margin= Emission Level- Limit, Factor= Antenna Factor + Cable Loss - Preamp Factor
- (2) All the modulation modes and Antenna have been tested, and the worst-case result was 802.11b CH6 and antenna2. Only the worst-case mode and antenna are reported.
- (3) Other emissions are attenuated more than 20dB below the permissible limits, so it does not recorded in the report.
- (4) When PK value is lower than the Average value limit, average don't record.

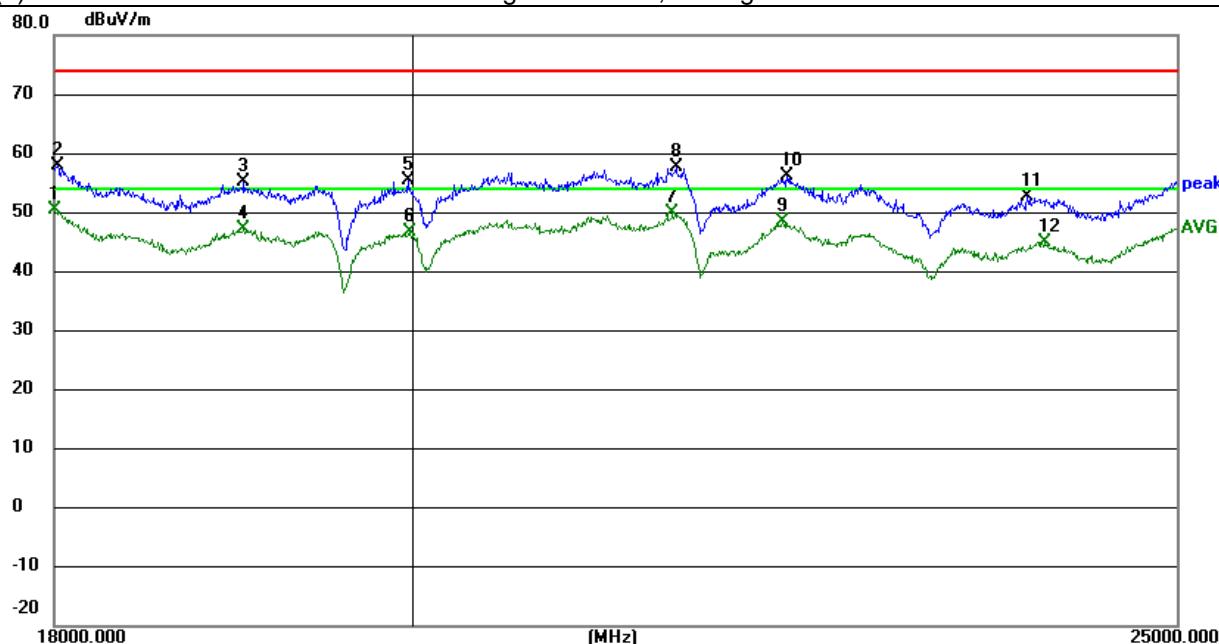


EUT:	Celerway Stratus 5GR16	Model No.:	CWY-M5.3-E5C2W2R16
Temperature:	20 °C	Relative Humidity:	48%
Test Mode:	802.11b/g/n(HT20, HT40)	Tested By:	Harry Huang

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
H	18000.000	39.95	10.41	50.36	54.00	-3.64	AVG
H	18019.250	53.55	4.43	57.98	74.00	-16.02	peak
H	19032.150	50.21	4.96	55.17	74.00	-18.83	peak
H	19032.150	42.32	4.96	47.28	54.00	-6.72	AVG
H	19963.675	49.36	6.20	55.56	74.00	-18.44	peak
H	19979.250	40.44	6.21	46.65	54.00	-7.35	AVG
H	21573.850	41.58	8.27	49.85	54.00	-4.15	AVG
H	21597.300	49.39	8.29	57.68	74.00	-16.32	peak
H	22282.775	38.90	9.49	48.39	54.00	-5.61	AVG
H	22309.725	46.58	9.56	56.14	74.00	-17.86	peak
H	23938.450	40.72	11.88	52.60	74.00	-21.40	peak
H	24051.325	33.13	11.95	45.08	54.00	-8.92	AVG

**Remark:**

- (1) Emission Level = Meter Reading+ Factor, Margin= Emission Level- Limit, Factor= Antenna Factor + Cable Loss - Preamp Factor
- (2) All the modulation modes and Antenna have been tested, and the worst-case result was 802.11b CH6 and antenna2. Only the worst-case mode and antenna are reported.
- (3) Other emissions are attenuated more than 20dB below the permissible limits, so it does not recorded in the report.
- (4) When PK value is lower than the Average value limit, average don't record.

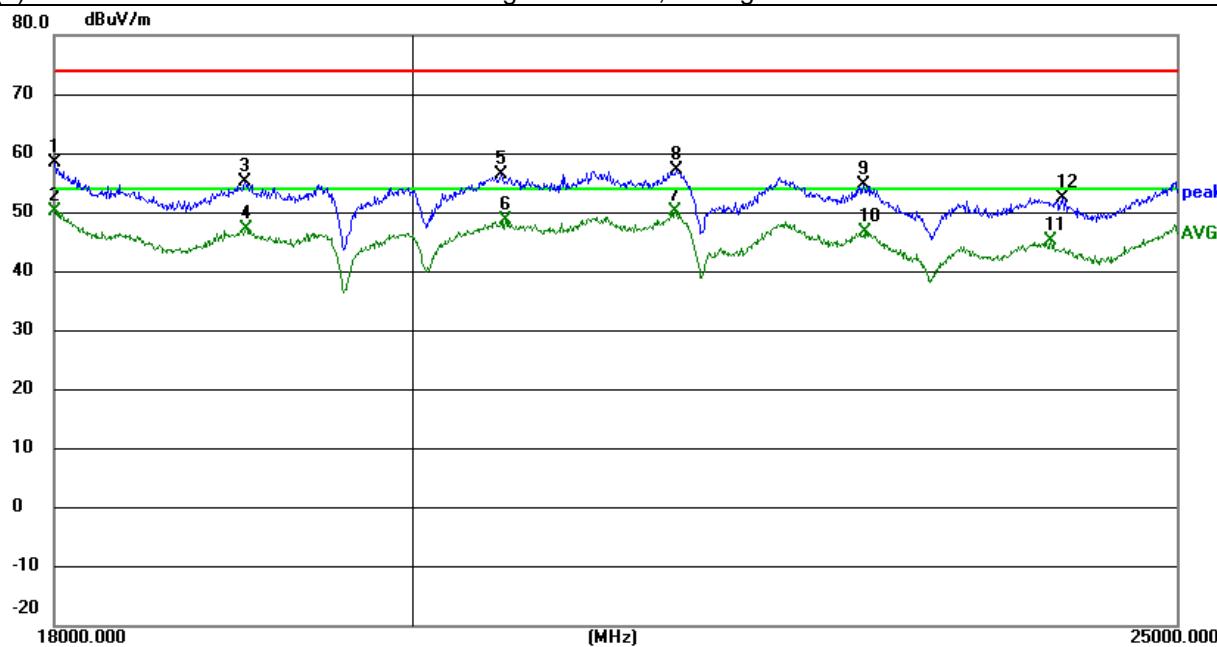


EUT:	Celerway Stratus 5GR16	Model No.:	CWY-M5.3-E5C2W2R16
Temperature:	20 °C	Relative Humidity:	48%
Test Mode:	802.11b/g/n(HT20, HT40)	Tested By:	Harry Huang

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
V	18006.300	91.40	-32.99	58.41	74.00	-15.59	peak
V	18006.300	83.10	-32.99	50.11	54.00	-3.89	AVG
V	19039.850	88.00	-32.87	55.13	74.00	-18.87	peak
V	19040.375	80.03	-32.87	47.16	54.00	-6.84	AVG
V	20518.250	88.36	-32.00	56.36	74.00	-17.64	peak
V	20541.700	80.63	-31.97	48.66	54.00	-5.34	AVG
V	21591.175	80.58	-30.44	50.14	54.00	-3.86	AVG
V	21595.900	87.64	-30.44	57.20	74.00	-16.80	peak
V	22813.025	83.52	-28.71	54.81	74.00	-19.19	peak
V	22823.000	75.33	-28.69	46.64	54.00	-7.36	AVG
V	24101.550	72.25	-26.95	45.30	54.00	-8.70	AVG
V	24177.500	79.35	-26.88	52.47	74.00	-21.53	peak

**Remark:**

- (1) Emission Level = Meter Reading+ Factor, Margin= Emission Level- Limit, Factor= Antenna Factor + Cable Loss - Preamp Factor
- (2) All the modulation modes and Antenna have been tested, and the worst-case result was 802.11b CH11 and antenna2. Only the worst-case mode and antenna are reported.
- (3) Other emissions are attenuated more than 20dB below the permissible limits, so it does not recorded in the report.
- (4) When PK value is lower than the Average value limit, average don't record.

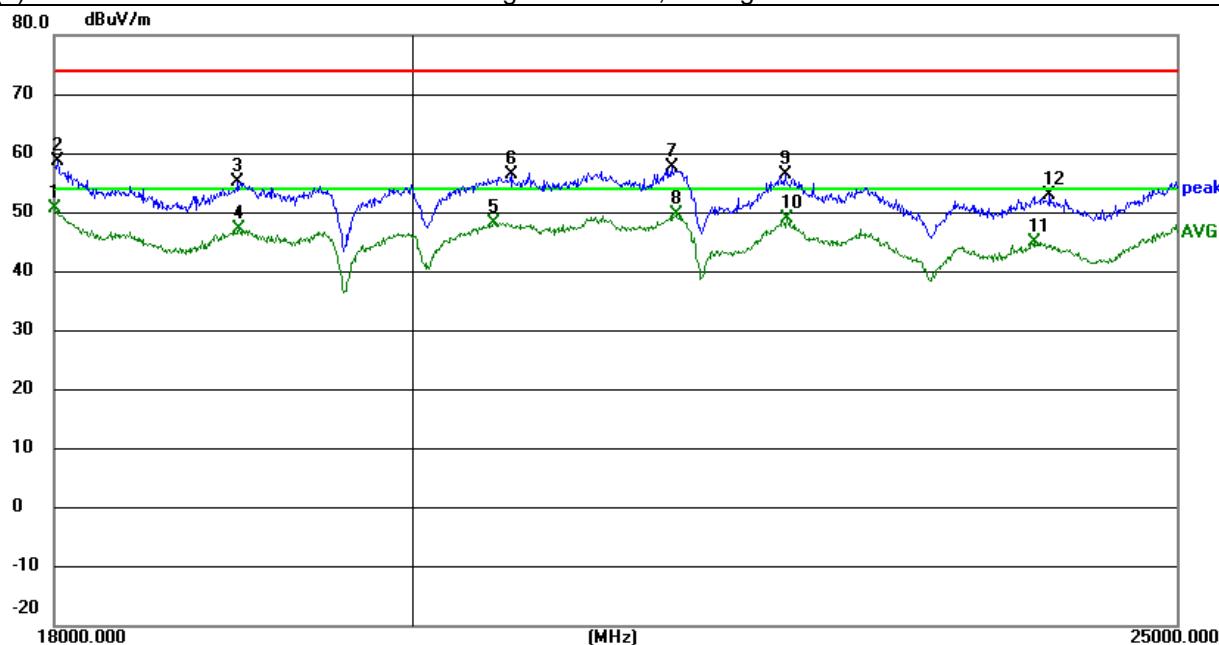


EUT:	Celerway Stratus 5GR16	Model No.:	CWY-M5.3-E5C2W2R16
Temperature:	20 °C	Relative Humidity:	48%
Test Mode:	802.11b/g/n(HT20, HT40)	Tested By:	Harry Huang

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
H	18006.650	46.39	4.41	50.80	54.00	-3.20	AVG
H	18020.475	54.18	4.43	58.61	74.00	-15.39	peak
H	18998.725	50.22	4.92	55.14	74.00	-18.86	peak
H	19004.500	42.34	4.93	47.27	54.00	-6.73	AVG
H	20478.525	41.04	7.19	48.23	54.00	-5.77	AVG
H	20577.750	49.08	7.38	56.46	74.00	-17.54	peak
H	21568.075	49.41	8.27	57.68	74.00	-16.32	peak
H	21595.375	41.51	8.28	49.79	54.00	-4.21	AVG
H	22292.050	46.97	9.51	56.48	74.00	-17.52	peak
H	22313.225	39.26	9.57	48.83	54.00	-5.17	AVG
H	23989.900	32.92	12.03	44.95	54.00	-9.05	AVG
H	24090.350	41.06	11.85	52.91	74.00	-21.09	peak

**Remark:**

- (1) Emission Level = Meter Reading+ Factor, Margin= Emission Level- Limit, Factor= Antenna Factor + Cable Loss - Preamp Factor
- (2) All the modulation modes and Antenna have been tested, and the worst-case result was 802.11b CH11 and antenna2. Only the worst-case mode and antenna are reported.
- (3) Other emissions are attenuated more than 20dB below the permissible limits, so it does not recorded in the report.
- (4) When PK value is lower than the Average value limit, average don't record.



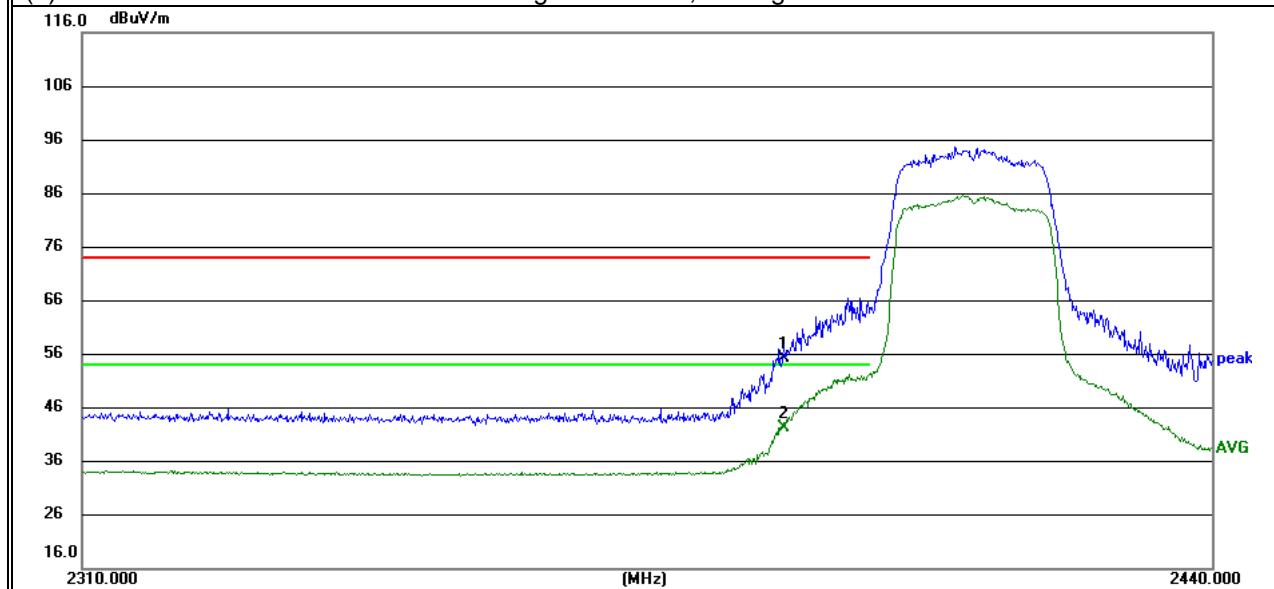
### 7.2.6.5 Test Results of Radiated Spurious at Band Edges

EUT:	Celerway Stratus 5GR16	Model No.:	CWY-M5.3-E5C2W2R16
Temperature:	20 °C	Relative Humidity:	48%
Test Mode:	802.11b/g/n(HT20, HT40)	Tested By:	Harry Huang

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
V	2390.000	67.53	-12.17	55.36	74.00	-18.64	peak
V	2390.000	54.52	-12.17	42.35	54.00	-11.65	AVG

**Remark:**

- (1) Emission Level = Meter Reading+ Factor, Margin= Emission Level- Limit, Factor= Antenna Factor + Cable Loss - Preamp Factor
- (2) All the modulation modes and Antenna have been tested, and the worst-case result was 802.11n(HT20) CH1 and antenna2. Only the worst-case mode and antenna are reported.
- (3) Other emissions are attenuated more than 20dB below the permissible limits, so it does not record in the report.
- (4) When PK value is lower than the Average value limit, average don't record.

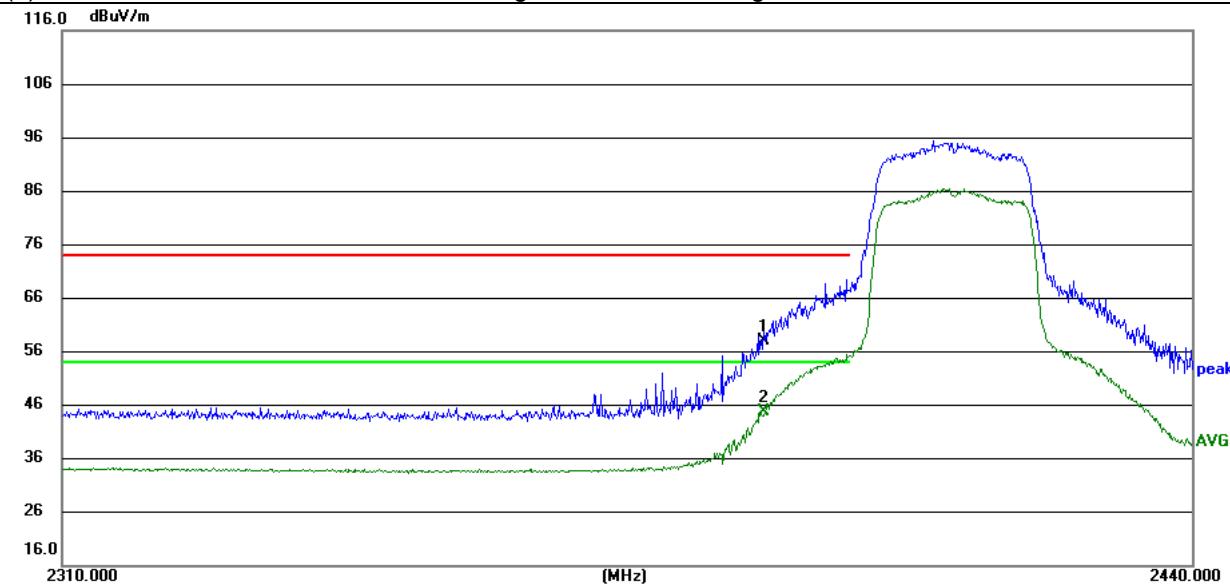


EUT:	Celerway Stratus 5GR16	Model No.:	CWY-M5.3-E5C2W2R16
Temperature:	20 °C	Relative Humidity:	48%
Test Mode:	802.11b/g/n(HT20, HT40)	Tested By:	Harry Huang

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
H	2390.000	70.07	-12.17	57.90	74.00	-16.10	peak
H	2390.000	56.98	-12.17	44.81	54.00	-9.19	AVG

**Remark:**

- (1) Emission Level = Meter Reading+ Factor, Margin= Emission Level- Limit, Factor= Antenna Factor + Cable Loss - Preamp Factor
- (2) All the modulation modes and Antenna have been tested, and the worst-case result was 802.11n(HT20) CH1 and antenna2. Only the worst-case mode and antenna are reported.
- (3) Other emissions are attenuated more than 20dB below the permissible limits, so it does not recorded in the report.
- (4) When PK value is lower than the Average value limit, average don't record.

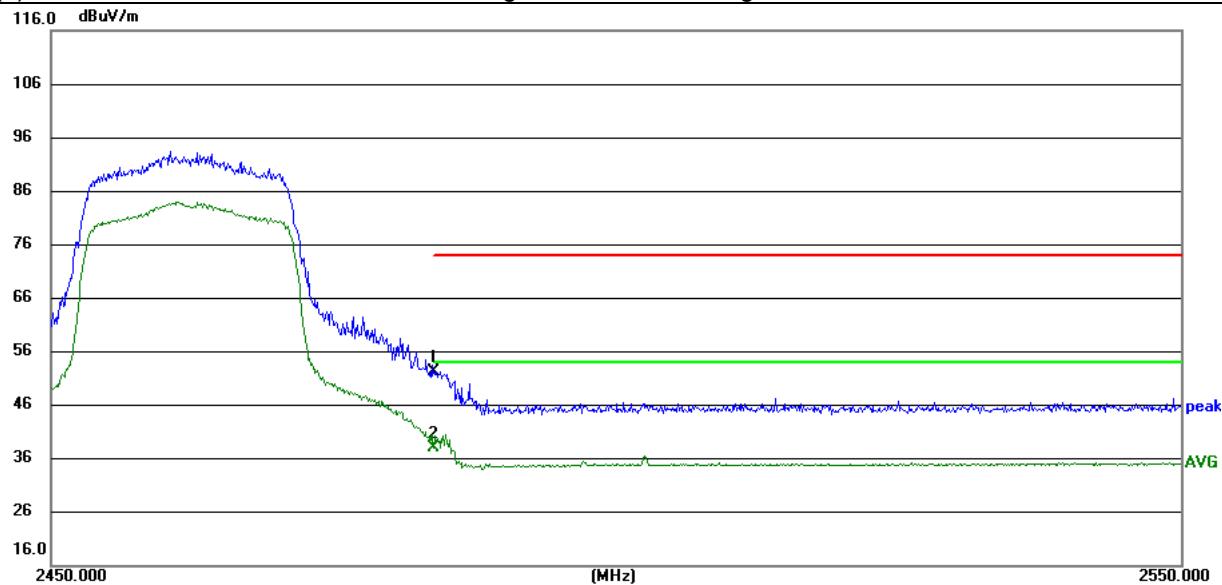


EUT:	Celerway Stratus 5GR16	Model No.:	CWY-M5.3-E5C2W2R16
Temperature:	20 °C	Relative Humidity:	48%
Test Mode:	802.11b/g/n(HT20, HT40)	Tested By:	Harry Huang

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
V	2483.500	63.58	-11.33	52.25	74.00	-21.75	peak
V	2483.500	49.49	-11.33	38.16	54.00	-15.84	AVG

**Remark:**

- (1) Emission Level = Meter Reading+ Factor, Margin= Emission Level- Limit, Factor= Antenna Factor + Cable Loss - Preamp Factor
- (2) All the modulation modes and Antenna have been tested, and the worst-case result was 802.11n(HT20) CH11 and antenna2. Only the worst-case mode and antenna are reported.
- (3) Other emissions are attenuated more than 20dB below the permissible limits, so it does not record in the report.
- (4) When PK value is lower than the Average value limit, average don't record.

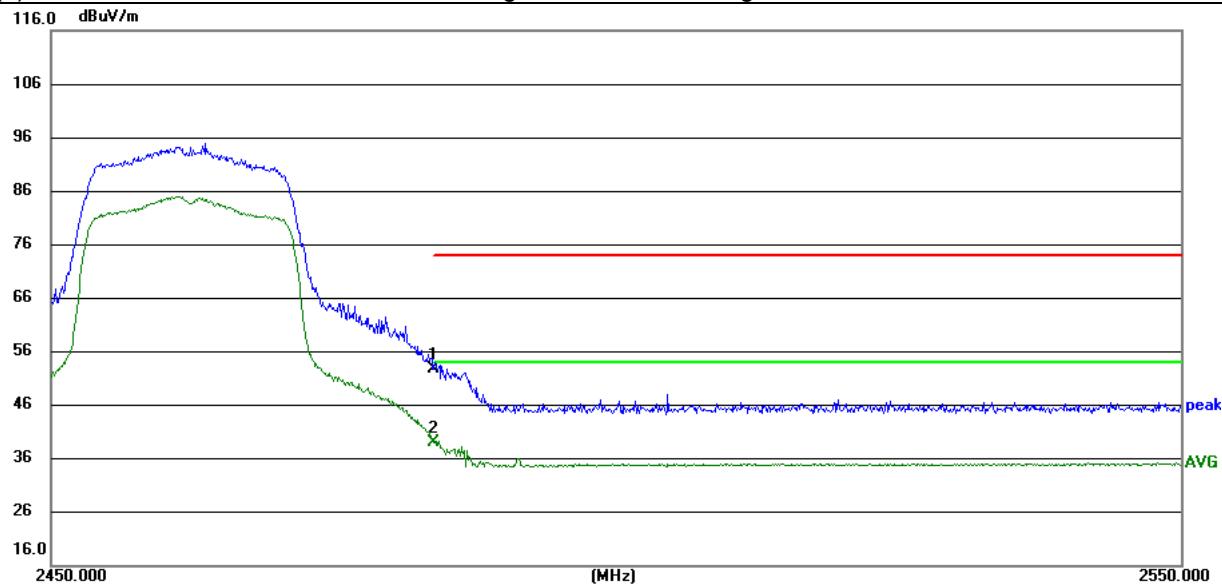


EUT:	Celerway Stratus 5GR16	Model No.:	CWY-M5.3-E5C2W2R16
Temperature:	20 °C	Relative Humidity:	48%
Test Mode:	802.11b/g/n(HT20, HT40)	Tested By:	Harry Huang

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
H	2483.500	64.16	-11.33	52.83	74.00	-21.17	peak
H	2483.500	50.42	-11.33	39.09	54.00	-14.91	AVG

**Remark:**

- (1) Emission Level = Meter Reading+ Factor, Margin= Emission Level- Limit, Factor= Antenna Factor + Cable Loss - Preamp Factor
- (2) All the modulation modes and Antenna have been tested, and the worst-case result was 802.11n(HT20) CH11 and antenna2. Only the worst-case mode and antenna are reported.
- (3) Other emissions are attenuated more than 20dB below the permissible limits, so it does not record in the report.
- (4) When PK value is lower than the Average value limit, average don't record.



### 7.3 6DB BANDWIDTH

#### 7.3.1 Applicable Standard

According to FCC Part 15.247(a)(2) and KDB 558074 D01 15.247 Meas Guidance v05r02 Section 8.2.

#### 7.3.2 Conformance Limit

The minimum permissible 6dB bandwidth is 500 kHz.

#### 7.3.3 Measuring Instruments

The Measuring equipment is listed in the section 6.3 of this test report.

#### 7.3.4 Test Setup

Please refer to Section 6.1 of this test report.

#### 7.3.5 Test Procedure

The testing follows Subclause 11.8 of ANSI C63.10.

The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator.

The path loss was compensated to the results for each measurement.

Set to the maximum power setting and enable the EUT transmit continuously.

The EUT was operating in controlled its channel.

Use the following spectrum analyzer settings:

Span = the frequency band of operation

RBW = 100KHz

VBW  $\geq$  3\*RBW

Sweep = auto

Detector function = peak

Trace = max hold

#### 7.3.6 Test Results

EUT:	Celerway Stratus 5GR16	Model No.:	CWY-M5.3-E5C2W2R16
Temperature:	20 °C	Relative Humidity:	48%
Test Mode:	802.11b/g/n20/n40	Tested By:	Leo Wang

Test data reference attachment.

## 7.4 DUTY CYCLE

### 7.4.1 Applicable Standard

According to KDB 558074 D01 15.247 Meas Guidance v05r02 Section 6.

### 7.4.2 Conformance Limit

No limit requirement.

### 7.4.3 Measuring Instruments

The Measuring equipment is listed in the section 6.3 of this test report.

### 7.4.4 Test Setup

Please refer to Section 6.1 of this test report.

### 7.4.5 Test Procedure

The zero-span mode on a spectrum analyzer or EMI receiver if the response time and spacing between bins on the sweep are sufficient to permit accurate measurements of the on and off times of the transmitted signal. Set the center frequency of the instrument to the center frequency of the transmission. Set RBW  $\geq$  OBW if possible; otherwise, set RBW to the largest available value. Set VBW  $\geq$  RBW. Set detector = peak or average. The zero-span measurement method shall not be used unless both RBW and VBW are  $> 50/T$  and the number of sweep points across duration T exceeds 100. (For example, if VBW and/or RBW are limited to 3 MHz, then the zero-span method of measuring duty cycle shall not be used if  $T \leq 16.7$  microseconds.)

The transmitter output is connected to the Spectrum Analyzer. We tested according to the zero-span measurement method, 6.0(b) in KDB 558074

The largest available value of RBW is 8 MHz and VBW is 50 MHz. The zero-span method of measuring duty cycle shall not be used if  $T \leq 6.25$  microseconds. ( $50/6.25 = 8$ )

The zero-span method was used because all measured T data are  $> 6.25$  microseconds and both RBW and VBW are  $> 50/T$ .

The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator.

The path loss was compensated to the results for each measurement.

Set to the maximum power setting and enable the EUT transmit continuously.

The EUT was operating in controlled its channel.

Use the following spectrum analyzer settings:

Span = Zero Span

RBW = 10MHz(the largest available value)

VBW = 10MHz ( $\geq$  RBW)

Number of points in Sweep  $> 100$

Detector function = peak

Trace = Clear write

Measure  $T_{\text{total}}$  and  $T_{\text{on}}$

Calculate Duty Cycle =  $T_{\text{on}} / T_{\text{total}}$

#### 7.4.6 Test Results

EUT:	Celerway Stratus 5GR16	Model No.:	CWY-M5.3-E5C2W2R16
Temperature:	20 °C	Relative Humidity:	48%
Test Mode:	802.11b/g/n20/n40	Tested By:	Leo Wang

Note: Test data reference attachment.

## 7.5 MAXIMUM OUTPUT POWER

### 7.5.1 Applicable Standard

According to FCC Part 15.247(b)(3) and KDB 558074 D01 15.247 Meas Guidance v05r02 Section 8.3.2.3.

### 7.5.2 Conformance Limit

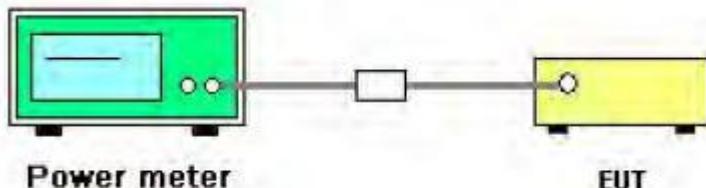
The maximum peak conducted output power of the intentional radiator for systems using digital modulation in the 2400 - 2483.5 MHz bands shall not exceed: 1 Watt (30dBm). As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. If transmitting antenna of directional gain greater than 6dBi is used, the conducted output power limit from the intentional radiator shall be reduced below the above stated value by the amount in dB that the directional gain of the antenna exceeds 6 dBi. In case of point-to-point operation, the limit has to be reduced by 1dB for every 3dB that the directional gain of the antenna exceeds 6dBi.

### 7.5.3 Measuring Instruments

The following table is the setting of the power meter.

Power meter parameter	Setting
Detector	Peak

### 7.5.4 Test Setup



### 7.5.5 Test Procedure

The maximum conducted output power may be measured using a RF power meter.

### 7.5.6 EUT operation during Test

The EUT was programmed to be in continuously transmitting mode.

EUT:	Celerway Stratus 5GR16	Model No.:	CWY-M5.3-E5C2W2R16
Temperature:	20 °C	Relative Humidity:	48%
Test Mode:	802.11b/g/n20/n40	Tested By:	Leo Wang

Test data reference attachment.

## 7.6 POWER SPECTRAL DENSITY

### 7.6.1 Applicable Standard

According to FCC Part 15.247(e) and KDB 558074 D01 15.247 Meas Guidance v05r02 Section 8.4.

### 7.6.2 Conformance Limit

The transmitter power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

### 7.6.3 Measuring Instruments

The Measuring equipment is listed in the section 6.3 of this test report.

### 7.6.4 Test Setup

Please refer to Section 6.1 of this test report.

### 7.6.5 Test Procedure

The testing follows Measurement Procedure Subclause 11.10.2 of ANSI C63.10

This procedure shall be used if maximum peak conducted output power was used to demonstrate compliance, and is optional if the maximum conducted (average) output power was used to demonstrate compliance.

- a) Set analyzer center frequency to DTS channel center frequency.
- b) Set the span to 1.5 times the DTS bandwidth.
- c) Set the RBW to:  $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$ .
- d) Set the VBW  $\geq 3 * \text{RBW}$ .
- e) Detector = peak.
- f) Sweep time = auto couple.
- g) Trace mode = max hold.
- h) Allow trace to fully stabilize.
- i) Use the peak marker function to determine the maximum amplitude level within the RBW.
- j) If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

### 7.6.6 Test Results

EUT:	Celerway Stratus 5GR16	Model No.:	CWY-M5.3-E5C2W2R16
Temperature:	20 °C	Relative Humidity:	48%
Test Mode:	802.11b/g/n20/n40	Tested By:	Leo Wang

Test data reference attachment.

## 7.7 CONDUCTED BAND EDGE MEASUREMENT

### 7.7.1 Applicable Standard

According to FCC Part 15.247(d) and KDB 558074 D01 15.247 Meas Guidance v05r02 Section 8.7.

### 7.7.2 Conformance Limit

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

### 7.7.3 Measuring Instruments

The Measuring equipment is listed in the section 6.3 of this test report.

### 7.7.4 Test Setup

Please refer to Section 6.1 of this test report.

### 7.7.5 Test Procedure

The testing follows FCC KDB 558074 D01 15.247 Meas Guidance v05r02 Section 8.7.

The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator.

The path loss was compensated to the results for each measurement.

Set to the maximum power setting and enable the EUT transmit continuously.

The EUT was operating in controlled its channel.

Set RBW to 100 kHz and VBW of spectrum analyzer to 300 kHz with a convenient frequency span including 100 kHz bandwidth from band edge.

Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.

Repeat above procedures until all measured frequencies were complete.

### 7.7.6 Test Results

EUT:	Celerway Stratus 5GR16	Model No.:	CWY-M5.3-E5C2W2R16
Temperature:	20 °C	Relative Humidity:	48%
Test Mode:	802.11b/g/n20/n40	Tested By:	Leo Wang

Test data reference attachment.

## 7.8 SPURIOUS RF CONDUCTED EMISSIONS

### 7.8.1 Conformance Limit

1. Below -20dB of the highest emission level in operating band.
2. Fall in the restricted bands listed in section 15.205. The maximum permitted average field strength is listed in section 15.209.

### 7.8.2 Measuring Instruments

The Measuring equipment is listed in the section 6.3 of this test report.

### 7.8.3 Test Setup

Please refer to Section 6.1 of this test report.

### 7.8.4 Test Procedure

The Spurious RF conducted emissions compliance of RF radiated emission should be measured by following the guidance in ANSI C63.10-2013 with respect to maximizing the emission by rotating the EUT, measuring the emission while the EUT is situated in three orthogonal planes (if appropriate), adjusting the measurement antenna height and polarization etc. Set RBW=100kHz and VBW= 300KHz to measure the peak field strength , and measure frequency range from 30MHz to 26.5GHz.

### 7.8.5 Test Results

EUT:	Celerway Stratus 5GR16	Model No.:	CWY-M5.3-E5C2W2R16
Temperature:	20 °C	Relative Humidity:	48%
Test Mode:	802.11b/g/n20/n40	Tested By:	Leo Wang

Remark: The measurement frequency range is from 30MHz to the 10th harmonic of the fundamental frequency. The lowest, middle and highest channels are tested to verify the spurious emissions and bandedge measurement data.

Test data reference attachment.

## 7.9 ANTENNA APPLICATION

### 7.9.1 Antenna Requirement

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

### 7.9.2 Result

The EUT antenna is permanent attached reversed-SMA antenna connector. It comply with the standard requirement.

## 8 TEST RESULTS

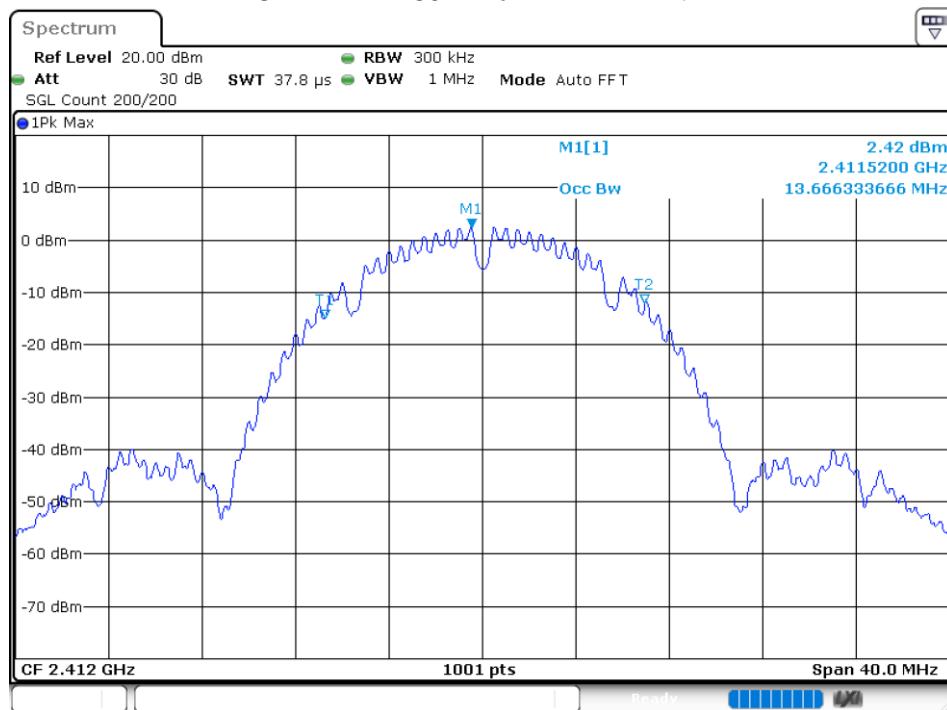
### 8.1 MAXIMUM CONDUCTED OUTPUT POWER

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	802.11b	2412	Ant 1	18.04	30	Pass
NVNT	802.11b	2437	Ant 1	17.7	30	Pass
NVNT	802.11b	2462	Ant 1	17.81	30	Pass
NVNT	802.11b	2412	Ant 2	18.25	30	Pass
NVNT	802.11b	2437	Ant 2	17.99	30	Pass
NVNT	802.11b	2462	Ant 2	18.04	30	Pass
NVNT	802.11b	2412	Ant 3	17.98	30	Pass
NVNT	802.11b	2437	Ant 3	18.2	30	Pass
NVNT	802.11b	2462	Ant 3	18.03	30	Pass
NVNT	802.11b	2412	Ant 4	18.18	30	Pass
NVNT	802.11b	2437	Ant 4	18.06	30	Pass
NVNT	802.11b	2462	Ant 4	18.16	30	Pass
NVNT	802.11g	2412	Ant 1	15.5	30	Pass
NVNT	802.11g	2437	Ant 1	15.42	30	Pass
NVNT	802.11g	2462	Ant 1	15.49	30	Pass
NVNT	802.11g	2412	Ant 2	15.91	30	Pass
NVNT	802.11g	2437	Ant 2	15.68	30	Pass
NVNT	802.11g	2462	Ant 2	15.91	30	Pass
NVNT	802.11g	2412	Ant 3	16.02	30	Pass
NVNT	802.11g	2437	Ant 3	15.54	30	Pass
NVNT	802.11g	2462	Ant 3	15.88	30	Pass
NVNT	802.11g	2412	Ant 4	15.94	30	Pass
NVNT	802.11g	2437	Ant 4	15.85	30	Pass
NVNT	802.11g	2462	Ant 4	16.21	30	Pass
NVNT	802.11n(HT20)	2412	Ant 1	15.66	30	Pass
NVNT	802.11n(HT20)	2437	Ant 1	15.6	30	Pass
NVNT	802.11n(HT20)	2462	Ant 1	15.99	30	Pass
NVNT	802.11n(HT20)	2412	Ant 2	16.16	30	Pass
NVNT	802.11n(HT20)	2437	Ant 2	15.95	30	Pass
NVNT	802.11n(HT20)	2462	Ant 2	16.18	30	Pass
NVNT	802.11n(HT20)	2412	Ant 3	16.29	30	Pass
NVNT	802.11n(HT20)	2437	Ant 3	16.06	30	Pass
NVNT	802.11n(HT20)	2462	Ant 3	16.12	30	Pass
NVNT	802.11n(HT20)	2412	Ant 4	16.12	30	Pass
NVNT	802.11n(HT20)	2437	Ant 4	15.99	30	Pass
NVNT	802.11n(HT20)	2462	Ant 4	16.46	30	Pass
NVNT	802.11n(HT40)	2422	Ant 1	14.94	30	Pass
NVNT	802.11n(HT40)	2437	Ant 1	15.13	30	Pass
NVNT	802.11n(HT40)	2452	Ant 1	15.01	30	Pass
NVNT	802.11n(HT40)	2422	Ant 2	15.6	30	Pass
NVNT	802.11n(HT40)	2437	Ant 2	15.42	30	Pass
NVNT	802.11n(HT40)	2452	Ant 2	15.35	30	Pass
NVNT	802.11n(HT40)	2422	Ant 3	15.62	30	Pass
NVNT	802.11n(HT40)	2437	Ant 3	15.43	30	Pass
NVNT	802.11n(HT40)	2452	Ant 3	15.36	30	Pass
NVNT	802.11n(HT40)	2422	Ant 4	15.09	30	Pass
NVNT	802.11n(HT40)	2437	Ant 4	15.46	30	Pass
NVNT	802.11n(HT40)	2452	Ant 4	15.38	30	Pass

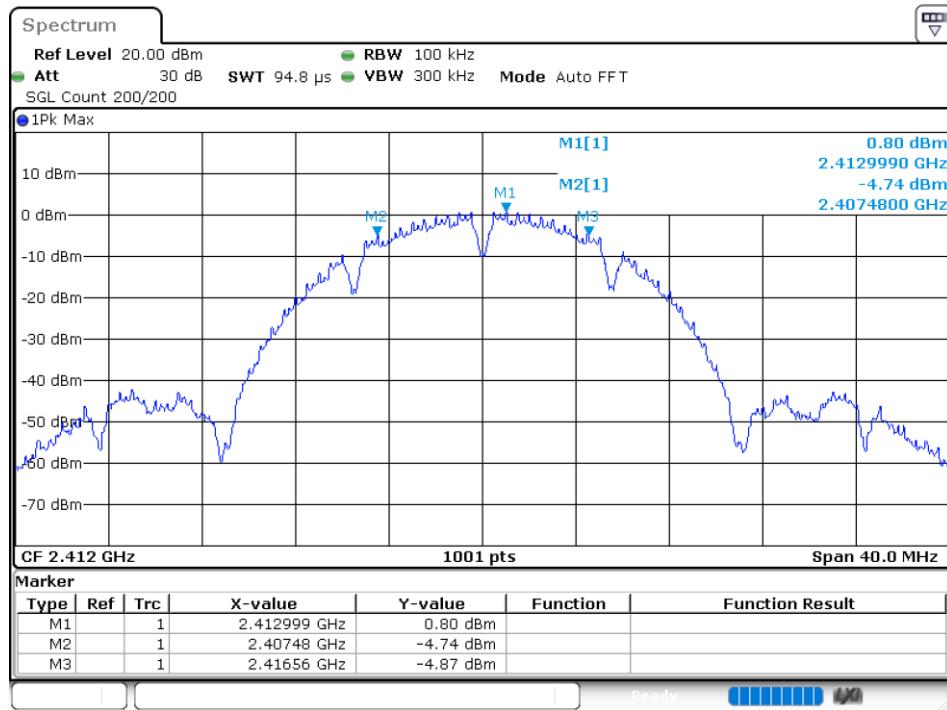
## 8.2 OCCUPIED CHANNEL BANDWIDTH

Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	802.11b	2412	Ant 1	13.6663	9.08	0.5	Pass
NVNT	802.11b	2437	Ant 1	13.5465	9.04	0.5	Pass
NVNT	802.11b	2462	Ant 1	13.6264	9.08	0.5	Pass
NVNT	802.11b	2412	Ant 2	13.7063	9.04	0.5	Pass
NVNT	802.11b	2437	Ant 2	13.5864	9.08	0.5	Pass
NVNT	802.11b	2462	Ant 2	13.6663	9.04	0.5	Pass
NVNT	802.11b	2412	Ant 3	13.7063	9.08	0.5	Pass
NVNT	802.11b	2437	Ant 3	13.5864	9.08	0.5	Pass
NVNT	802.11b	2462	Ant 3	13.7063	9.04	0.5	Pass
NVNT	802.11b	2412	Ant 4	13.5864	9.08	0.5	Pass
NVNT	802.11b	2437	Ant 4	13.7063	9.04	0.5	Pass
NVNT	802.11b	2462	Ant 4	13.4266	8.56	0.5	Pass
NVNT	802.11g	2412	Ant 1	16.7033	15.92	0.5	Pass
NVNT	802.11g	2437	Ant 1	16.8232	11	0.5	Pass
NVNT	802.11g	2462	Ant 1	16.6234	16.32	0.5	Pass
NVNT	802.11g	2412	Ant 2	16.7433	15.8	0.5	Pass
NVNT	802.11g	2437	Ant 2	16.6234	14.2	0.5	Pass
NVNT	802.11g	2462	Ant 2	17.1429	15.72	0.5	Pass
NVNT	802.11g	2412	Ant 3	16.7033	15.48	0.5	Pass
NVNT	802.11g	2437	Ant 3	16.5435	16.32	0.5	Pass
NVNT	802.11g	2462	Ant 3	16.7832	15	0.5	Pass
NVNT	802.11g	2412	Ant 4	16.4635	15.48	0.5	Pass
NVNT	802.11g	2437	Ant 4	16.7033	15	0.5	Pass
NVNT	802.11g	2462	Ant 4	16.6234	16.04	0.5	Pass
NVNT	802.11n(HT20)	2412	Ant 1	17.7023	17.56	0.5	Pass
NVNT	802.11n(HT20)	2437	Ant 1	17.5824	15.12	0.5	Pass
NVNT	802.11n(HT20)	2462	Ant 1	17.5425	15.12	0.5	Pass
NVNT	802.11n(HT20)	2412	Ant 2	17.6224	17.56	0.5	Pass
NVNT	802.11n(HT20)	2437	Ant 2	17.6224	15.12	0.5	Pass
NVNT	802.11n(HT20)	2462	Ant 2	17.8621	15.04	0.5	Pass
NVNT	802.11n(HT20)	2412	Ant 3	17.5824	17.2	0.5	Pass
NVNT	802.11n(HT20)	2437	Ant 3	17.6623	15.68	0.5	Pass
NVNT	802.11n(HT20)	2462	Ant 3	17.6224	15.08	0.5	Pass
NVNT	802.11n(HT20)	2412	Ant 4	17.7423	17.6	0.5	Pass
NVNT	802.11n(HT20)	2437	Ant 4	17.7023	15.08	0.5	Pass
NVNT	802.11n(HT20)	2462	Ant 4	17.5824	15.08	0.5	Pass
NVNT	802.11n(HT40)	2422	Ant 1	36.7632	33.76	0.5	Pass
NVNT	802.11n(HT40)	2437	Ant 1	35.8841	33.84	0.5	Pass
NVNT	802.11n(HT40)	2452	Ant 1	36.044	32.56	0.5	Pass
NVNT	802.11n(HT40)	2422	Ant 2	37.0829	35.12	0.5	Pass
NVNT	802.11n(HT40)	2437	Ant 2	36.2038	33.84	0.5	Pass
NVNT	802.11n(HT40)	2452	Ant 2	35.964	33.84	0.5	Pass
NVNT	802.11n(HT40)	2422	Ant 3	37.0829	35.12	0.5	Pass
NVNT	802.11n(HT40)	2437	Ant 3	36.2038	33.84	0.5	Pass
NVNT	802.11n(HT40)	2452	Ant 3	36.044	33.84	0.5	Pass
NVNT	802.11n(HT40)	2422	Ant 4	37.0829	35.12	0.5	Pass
NVNT	802.11n(HT40)	2437	Ant 4	36.5235	35.12	0.5	Pass
NVNT	802.11n(HT40)	2452	Ant 4	36.2837	33.84	0.5	Pass

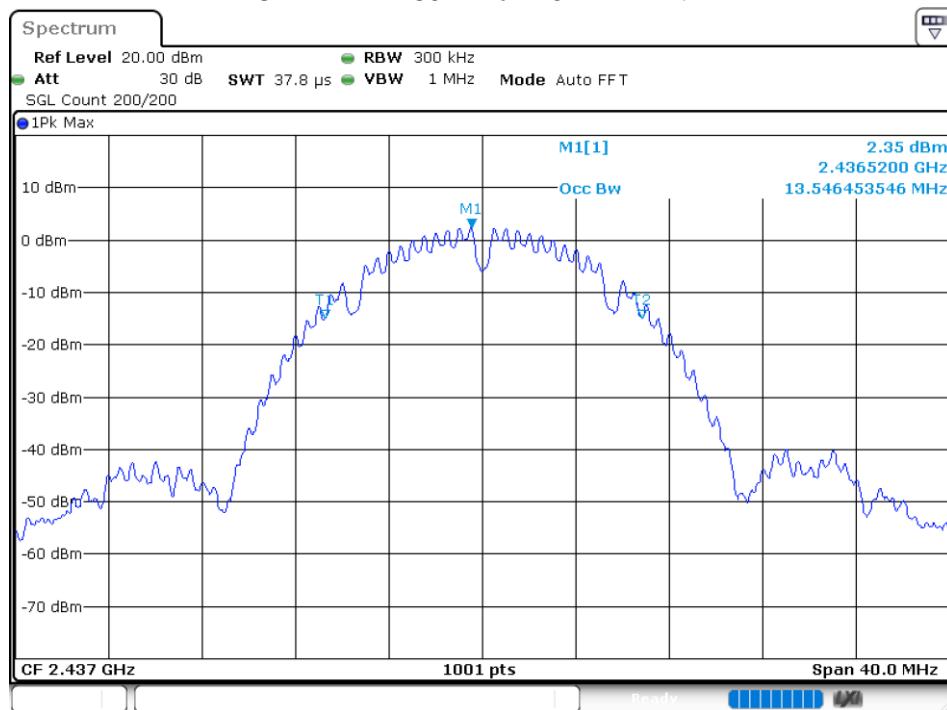
## OBW NVNT 802.11b 2412MHz Ant 1



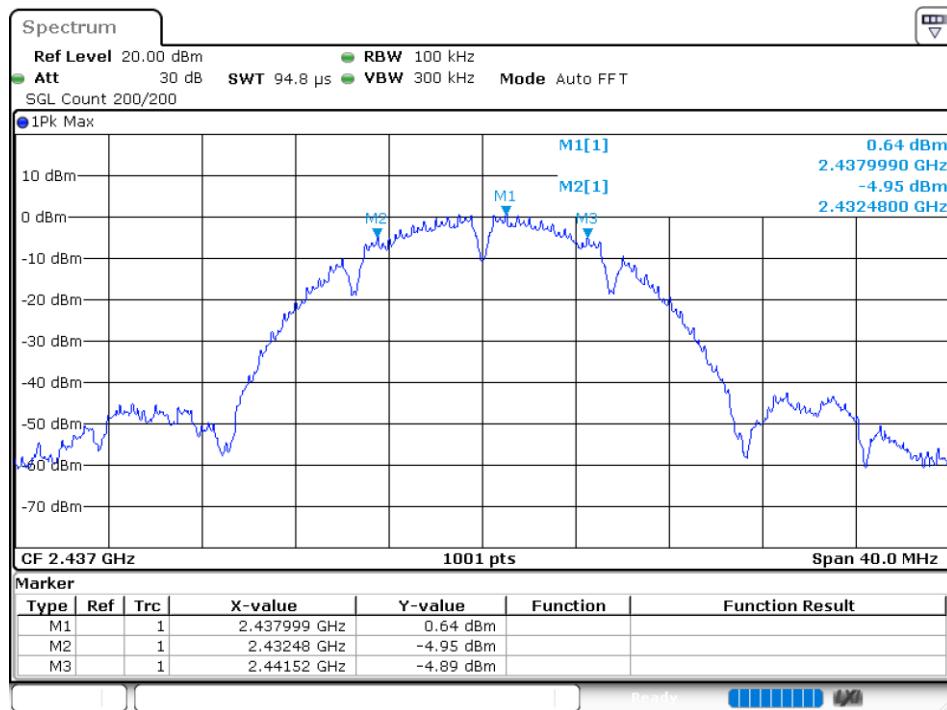
## -6 dB BW NVNT 802.11b 2412MHz Ant 1



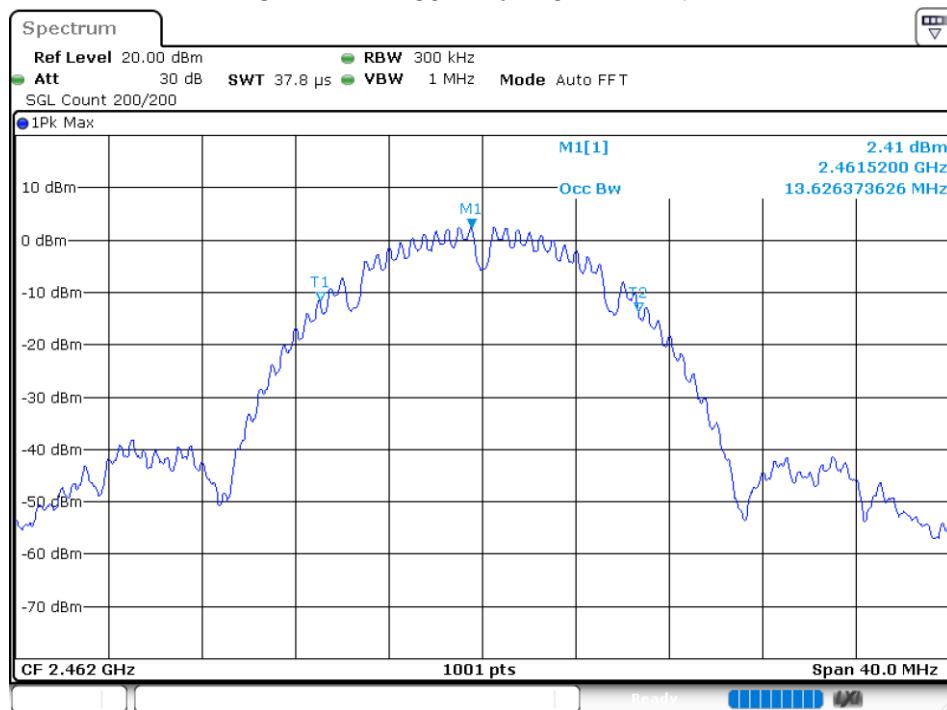
## OBW NVNT 802.11b 2437MHz Ant 1



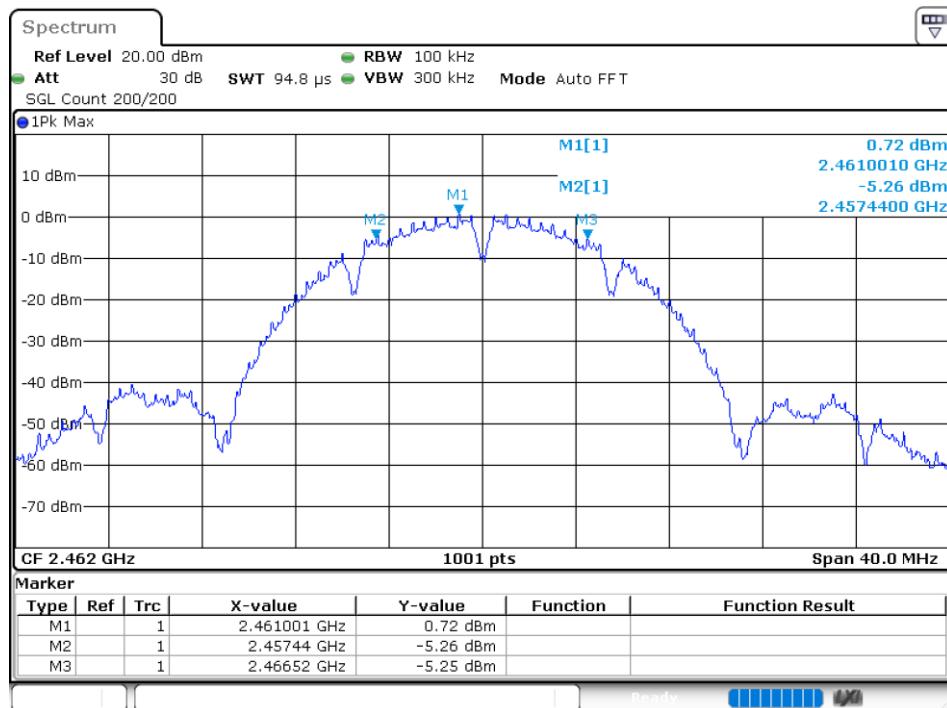
## -6 dB BW NVNT 802.11b 2437MHz Ant 1



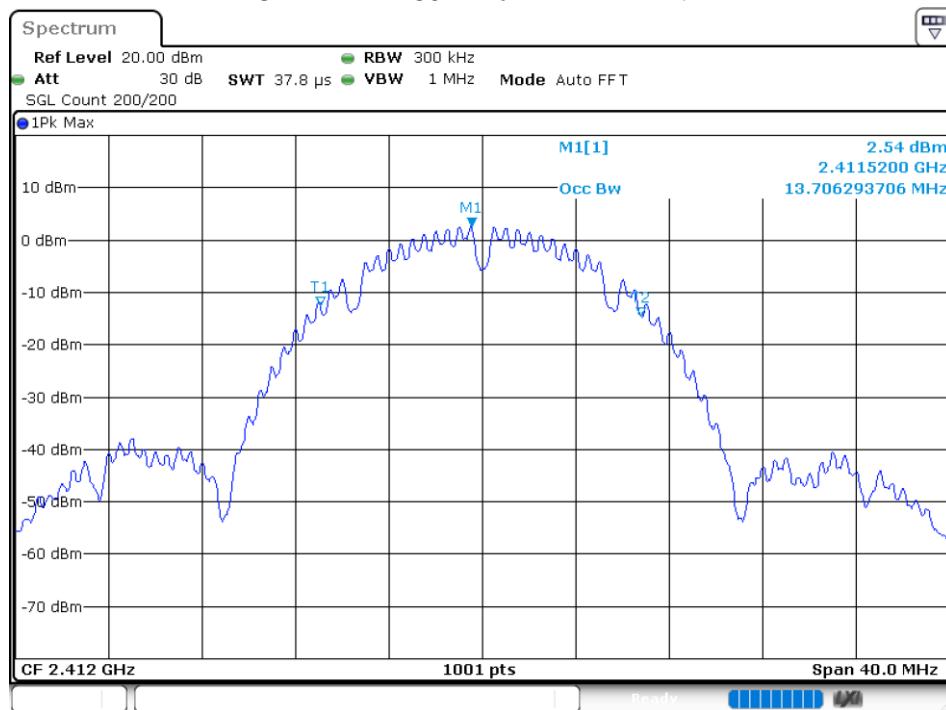
## OBW NVNT 802.11b 2462MHz Ant 1



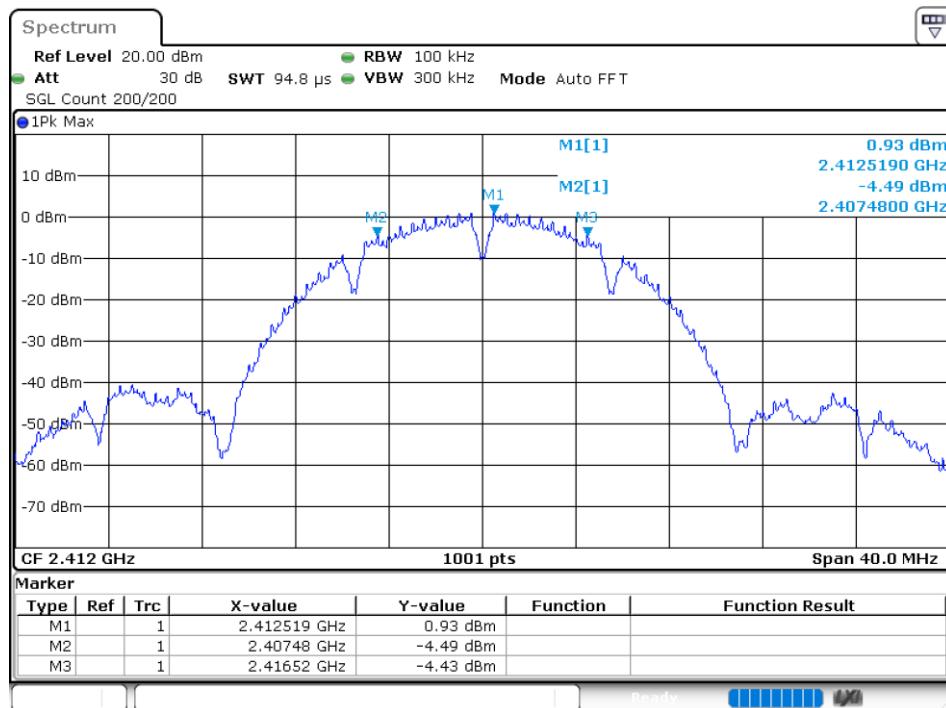
## -6 dB BW NVNT 802.11b 2462MHz Ant 1



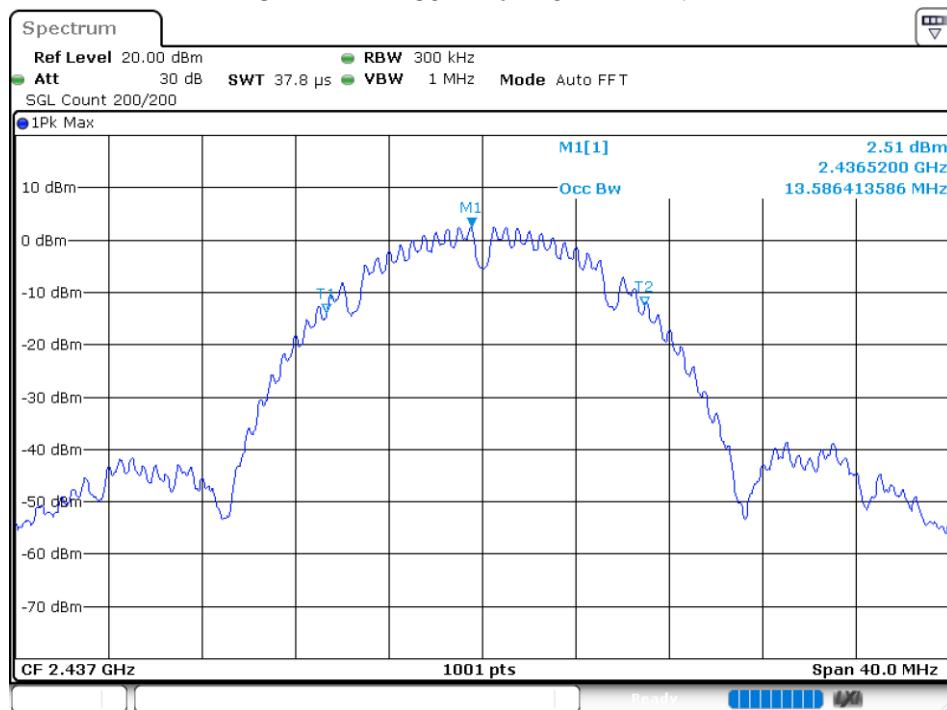
## OBW NVNT 802.11b 2412MHz Ant 2



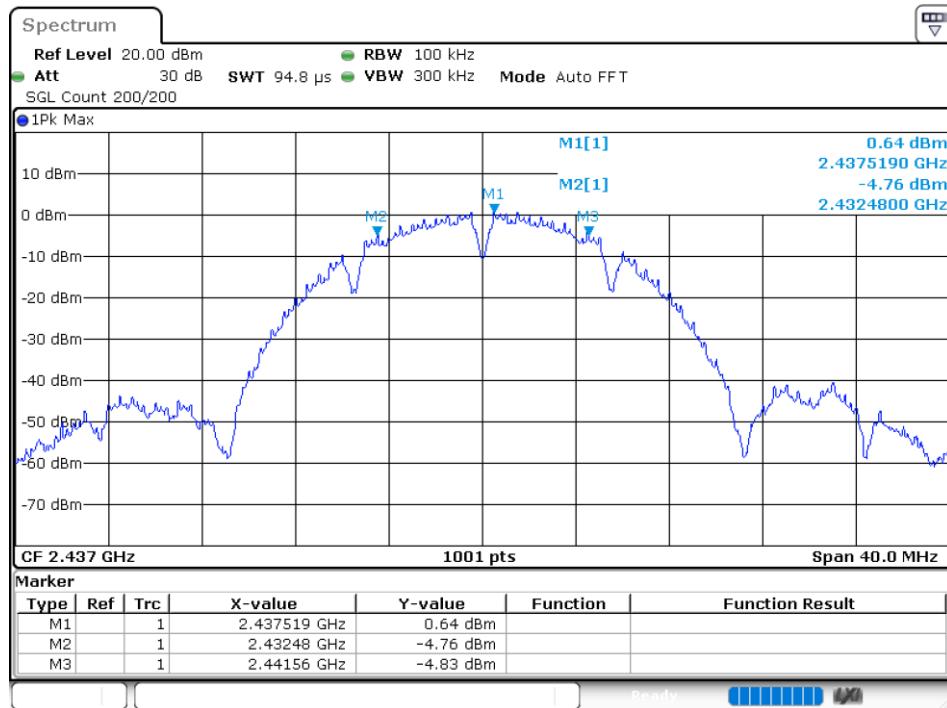
## -6 dB BW NVNT 802.11b 2412MHz Ant 2



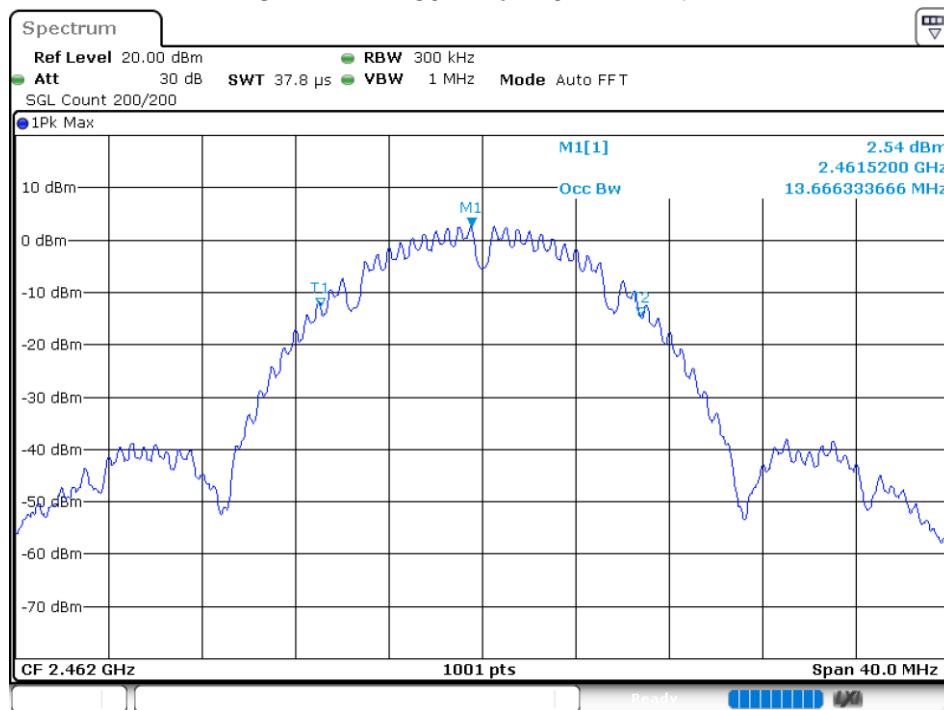
## OBW NVNT 802.11b 2437MHz Ant 2



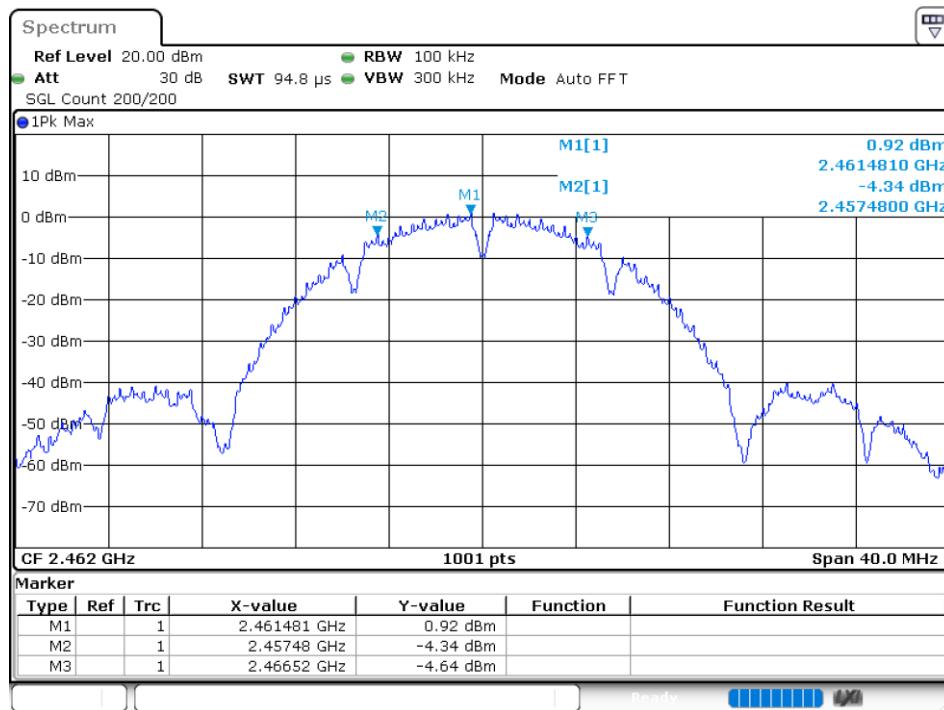
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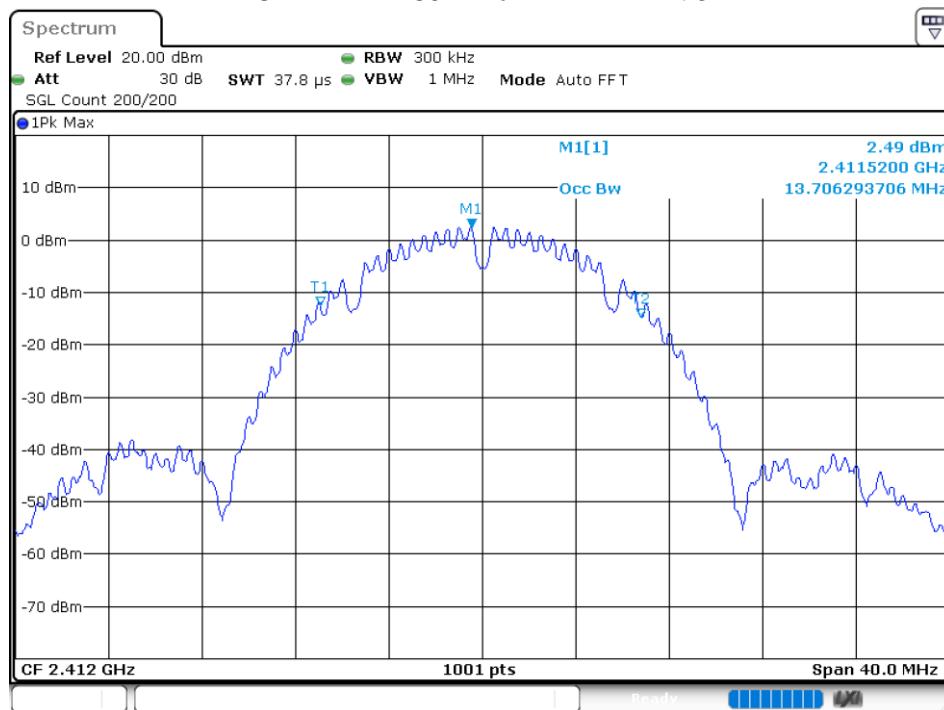
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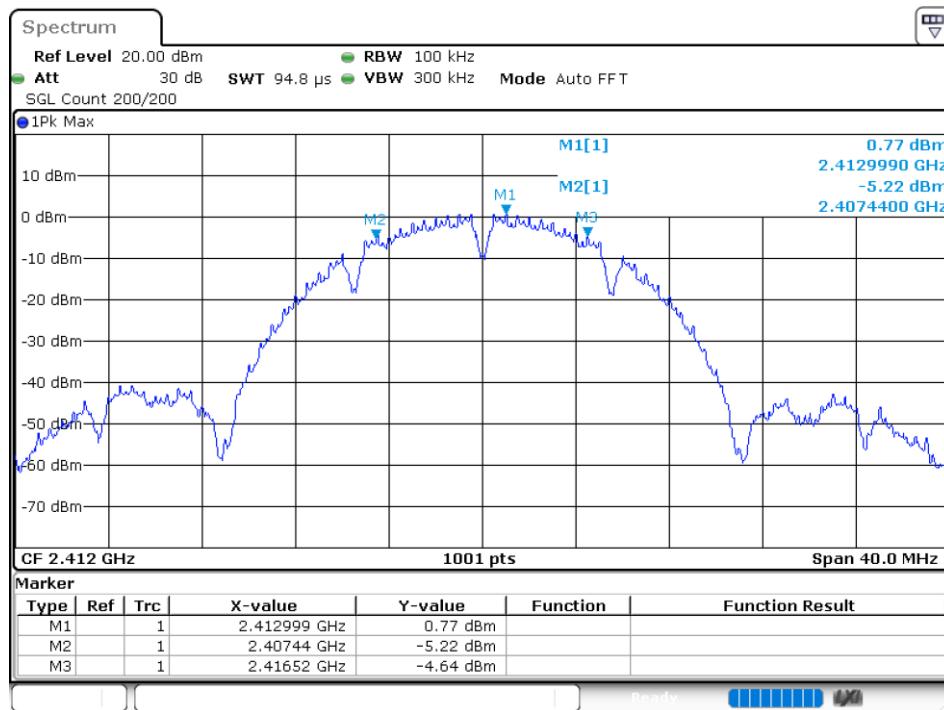
## -6 dB BW NVNT 802.11b 2462MHz Ant 2



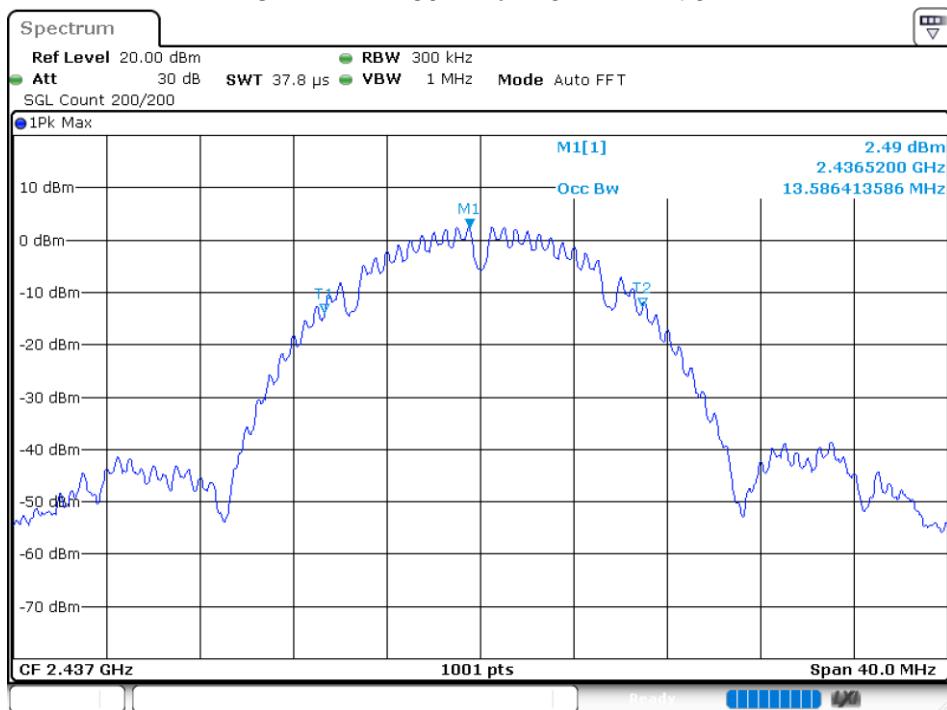
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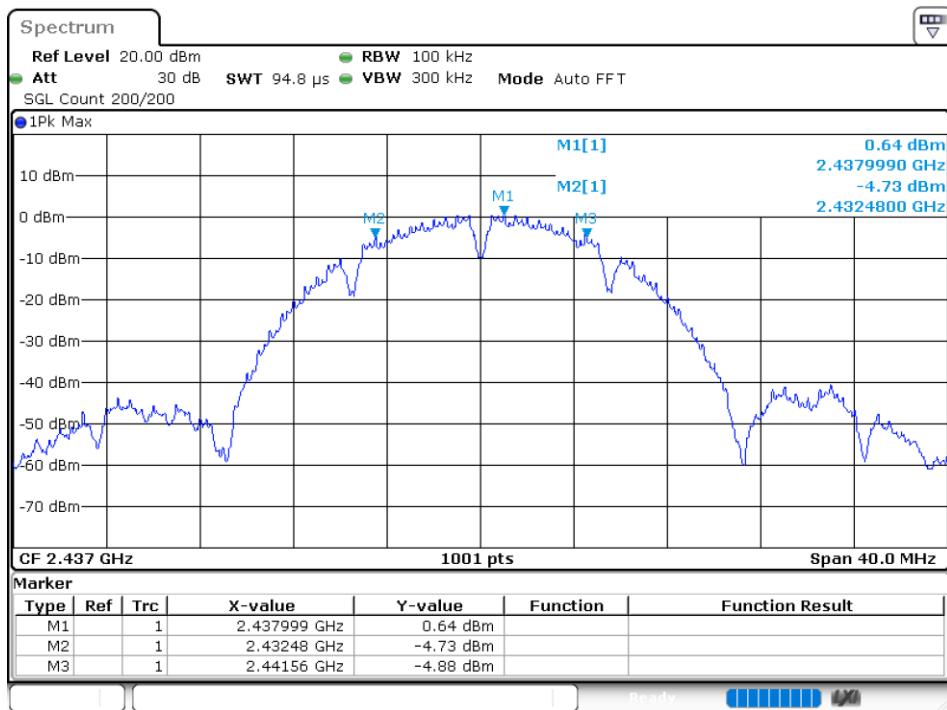
## -6 dB BW NVNT 802.11b 2412MHz Ant 3



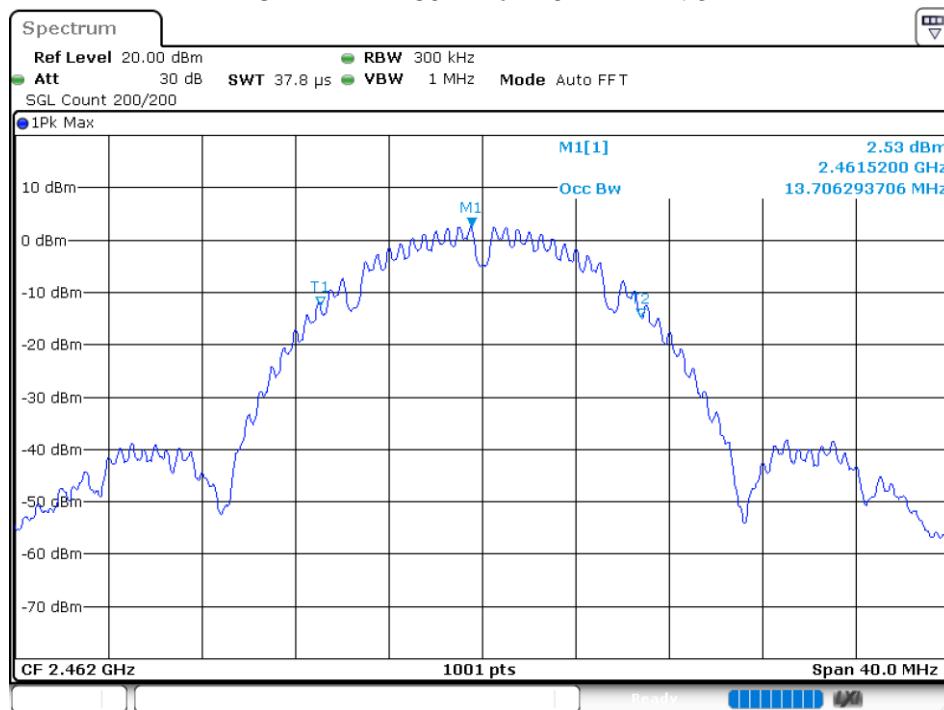
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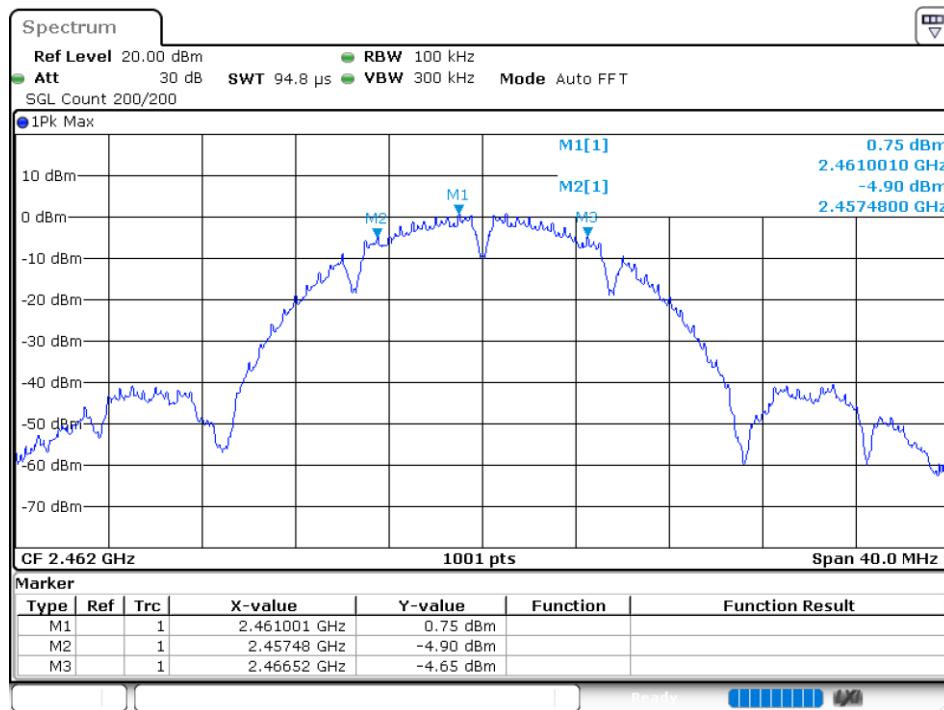
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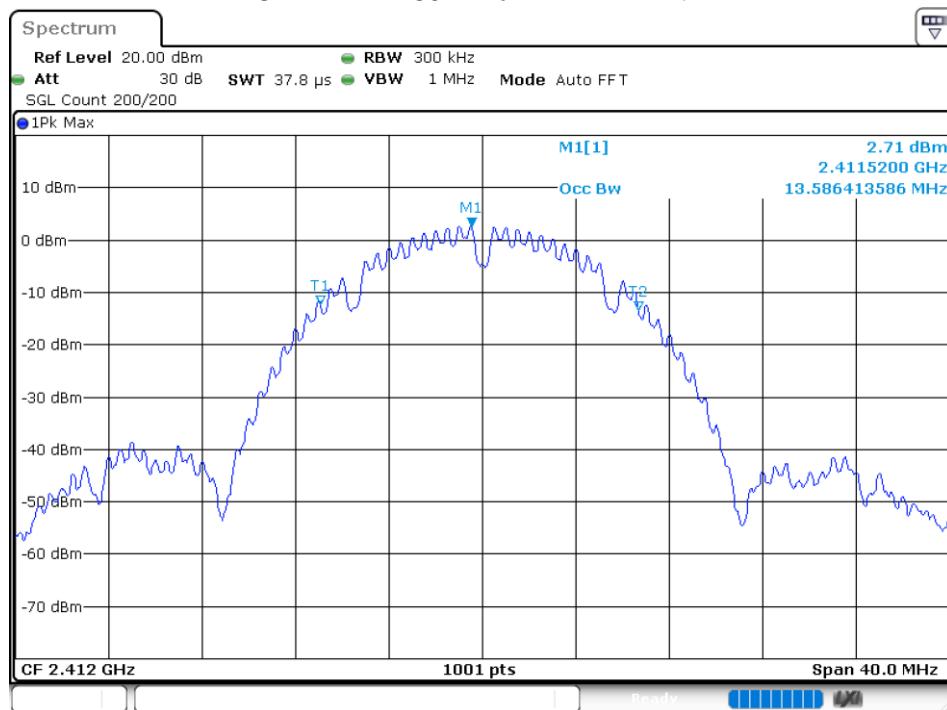
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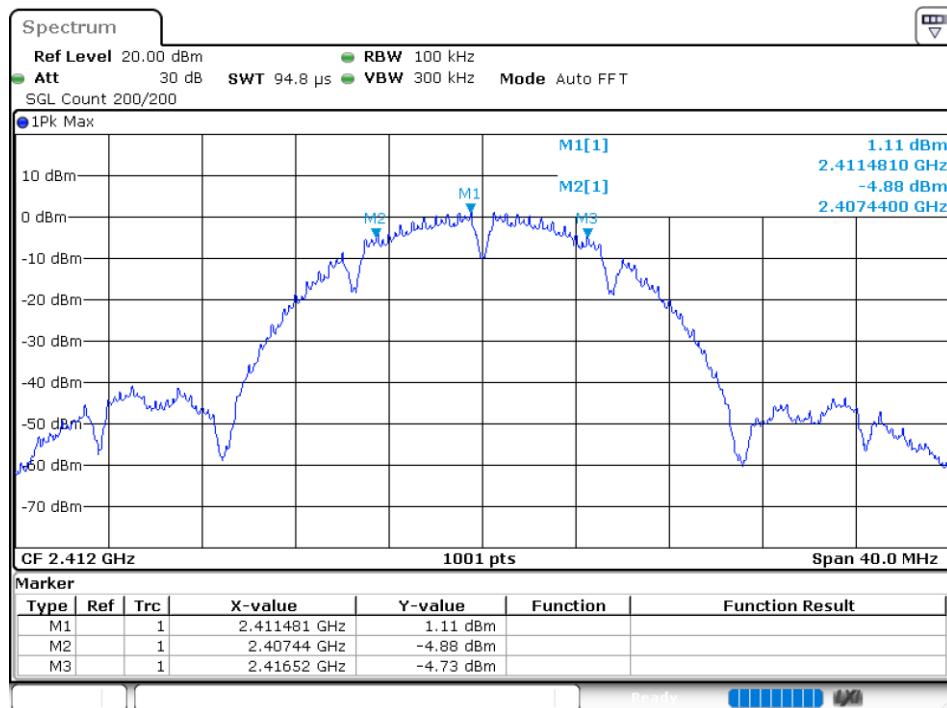
## -6 dB BW NVNT 802.11b 2462MHz Ant 3



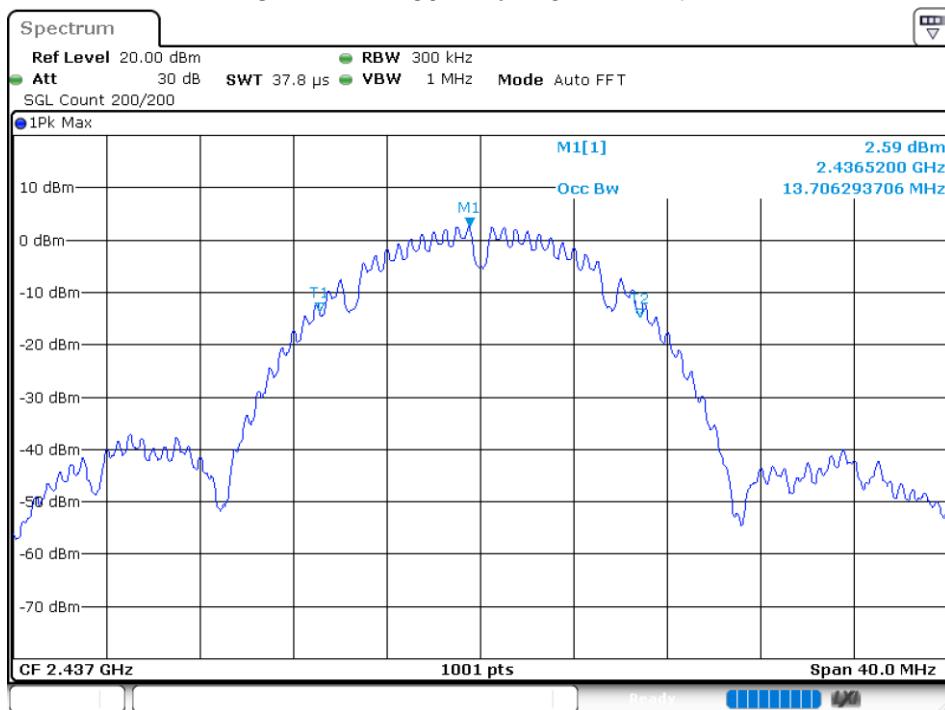
## OBW NVNT 802.11b 2412MHz Ant 4



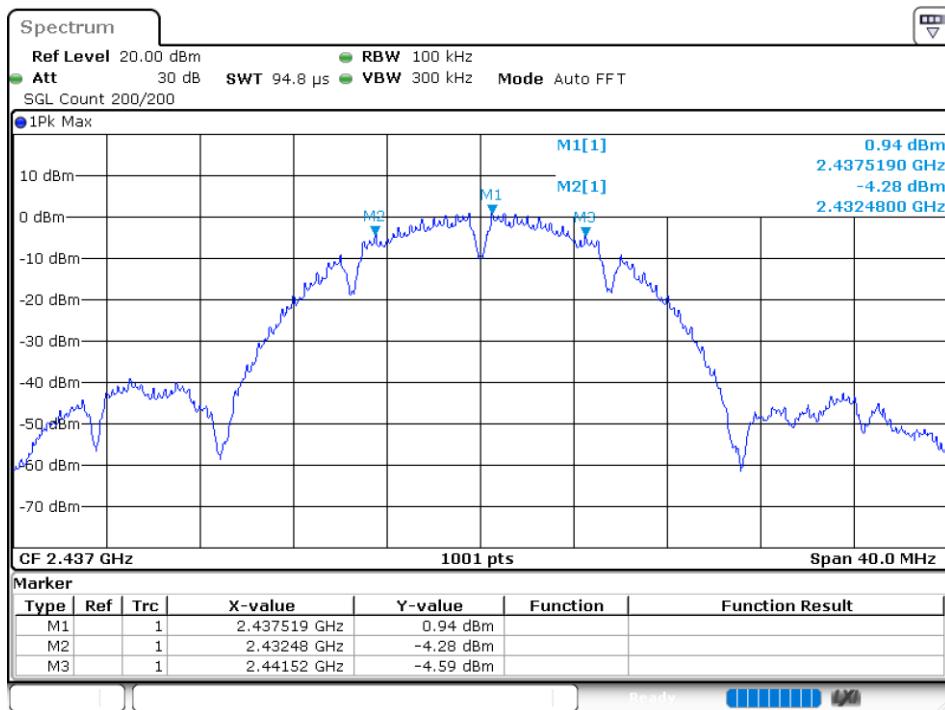
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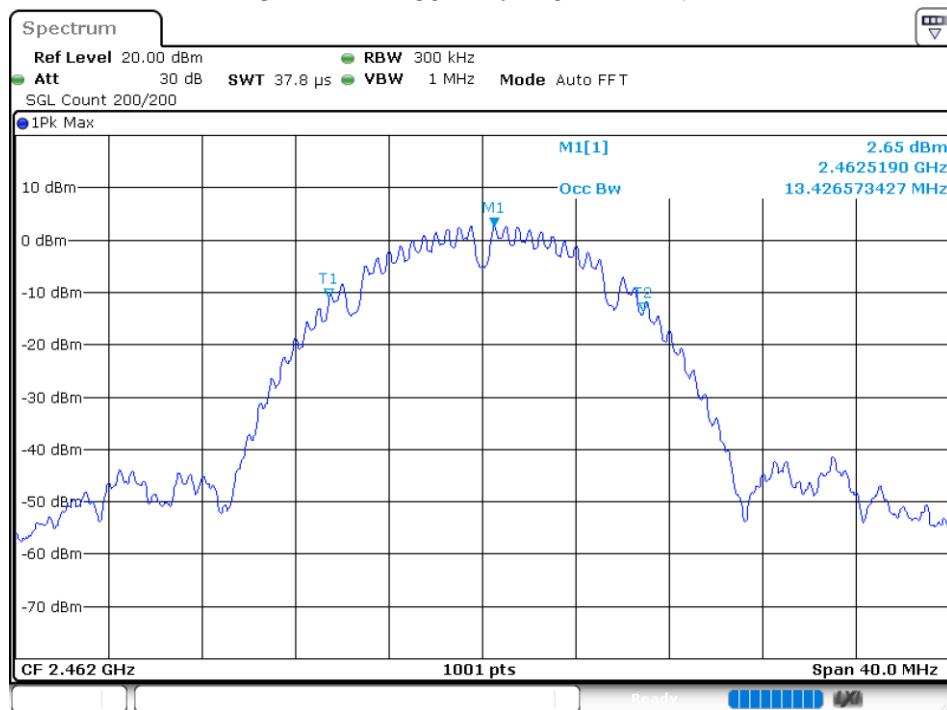
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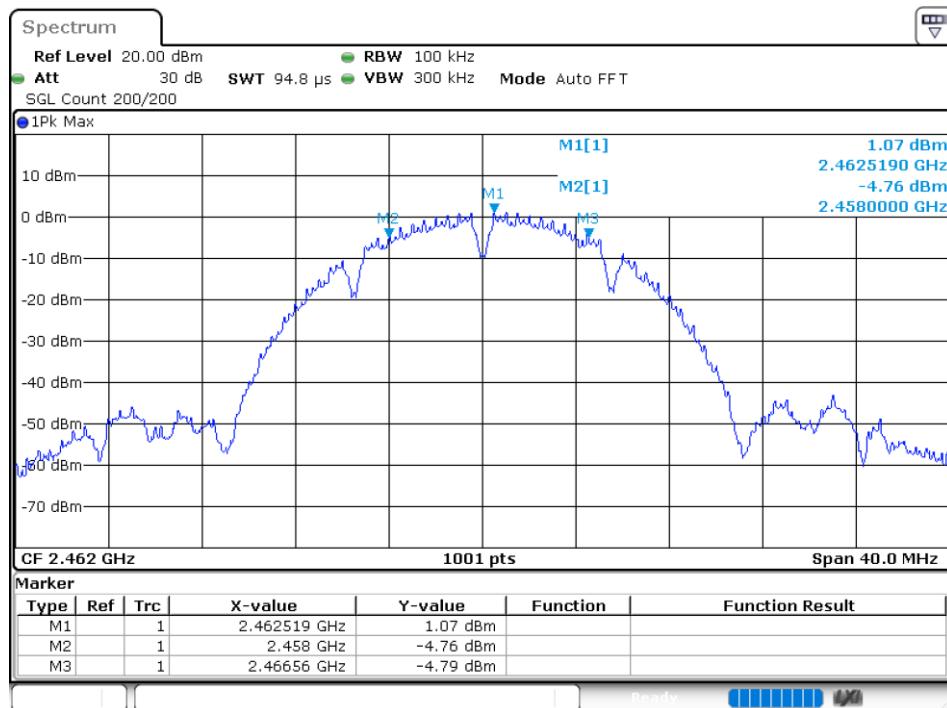
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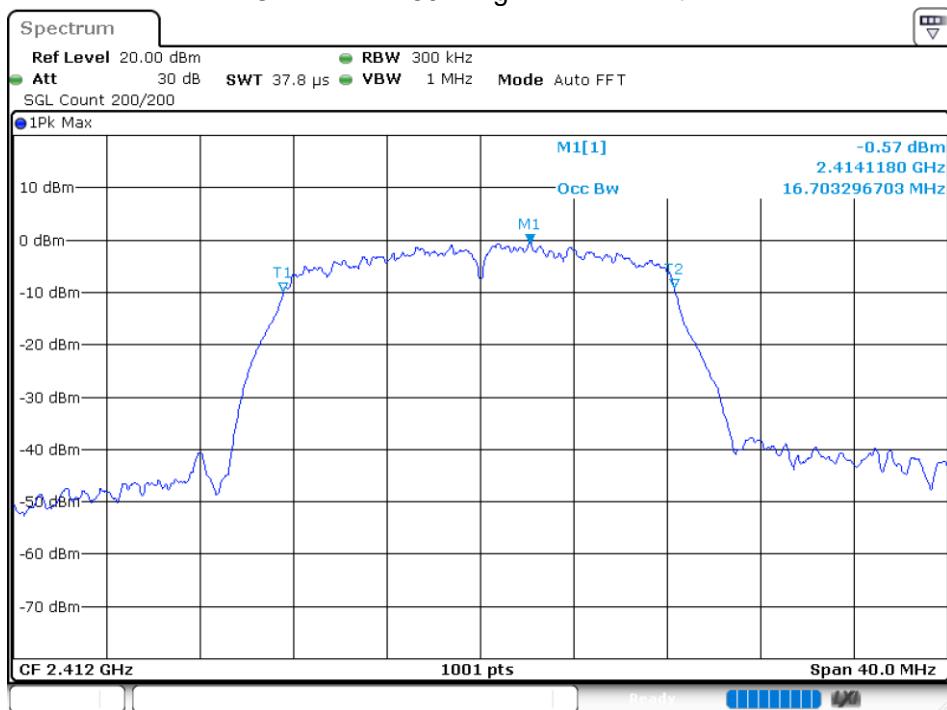
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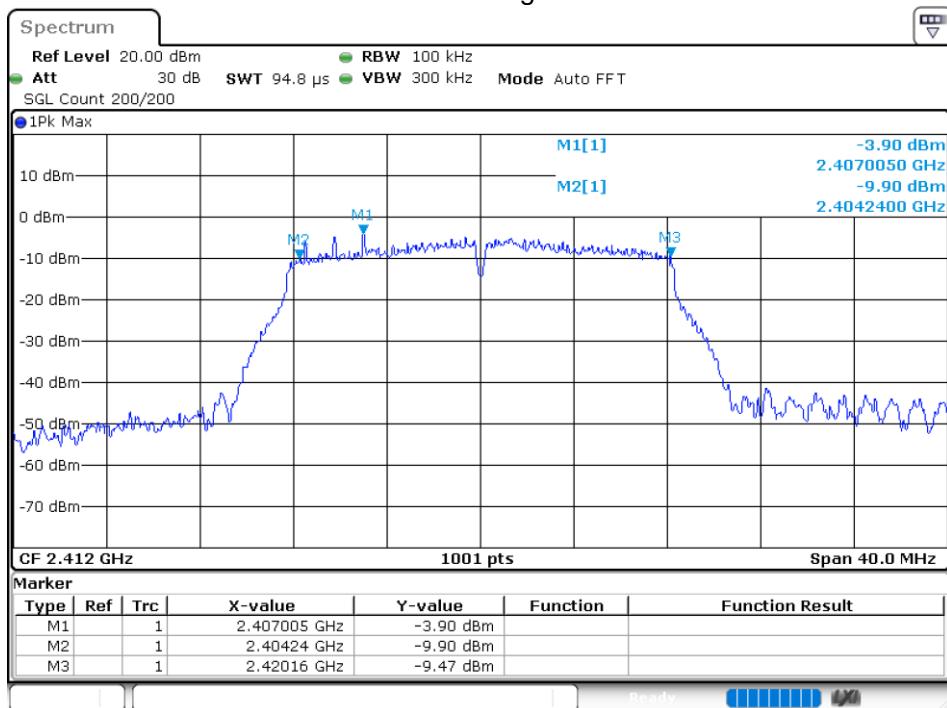
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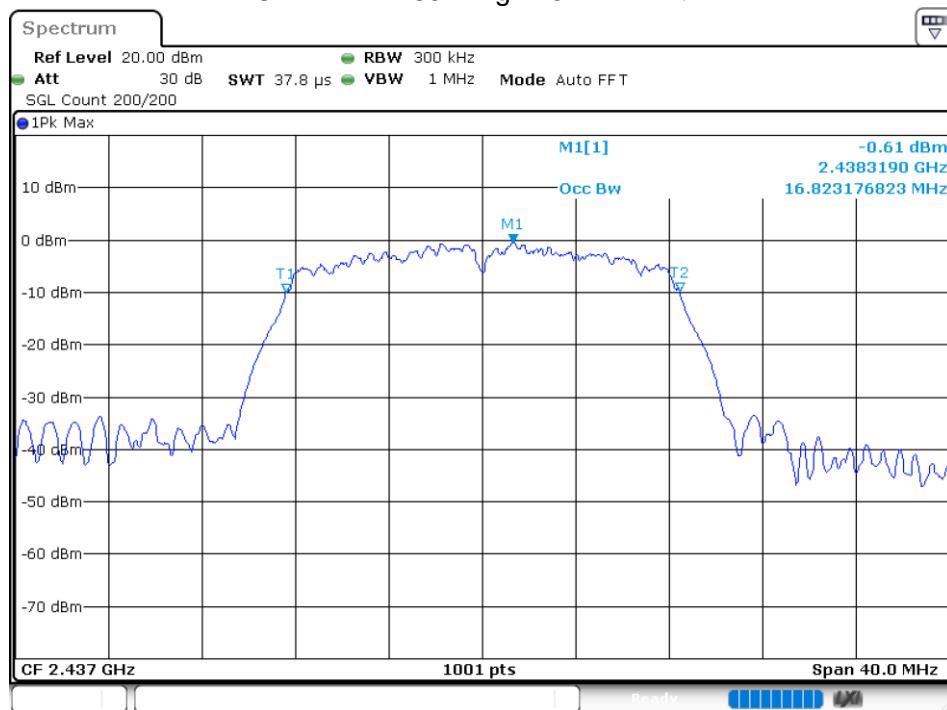
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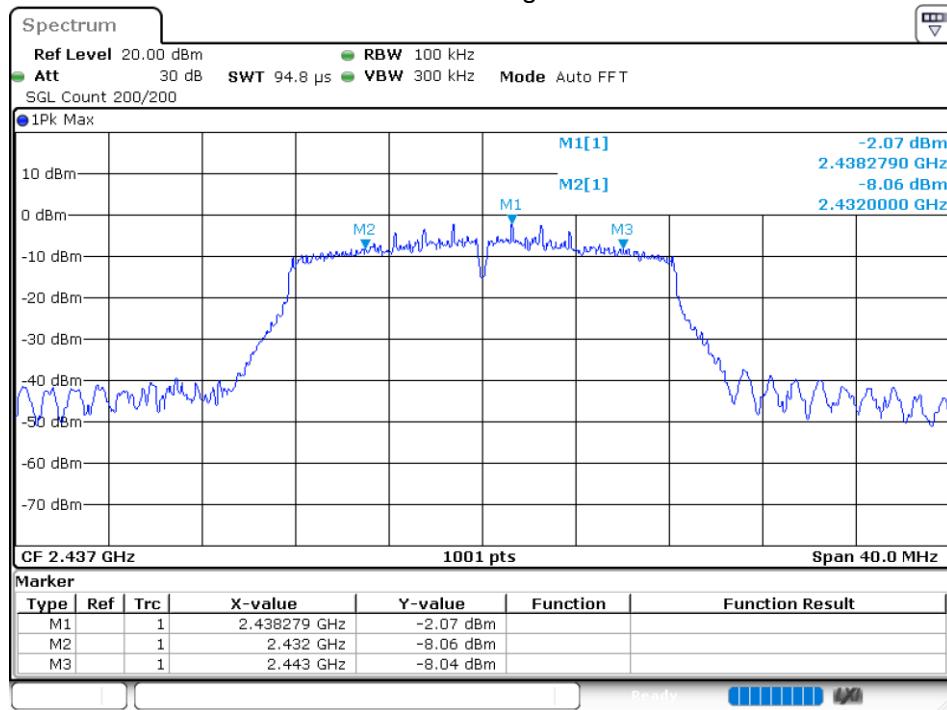
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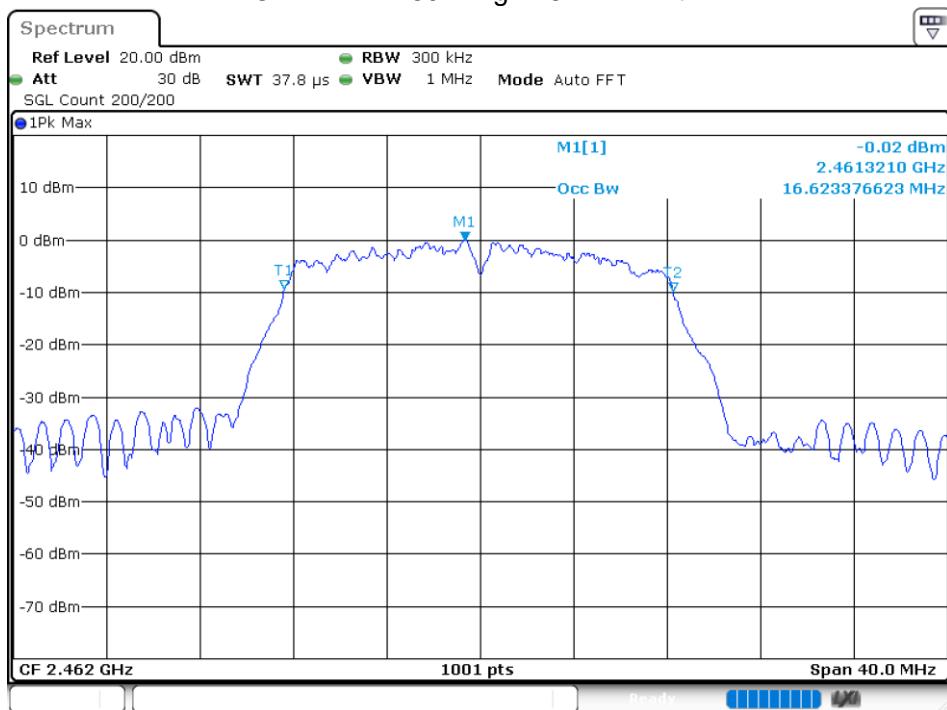
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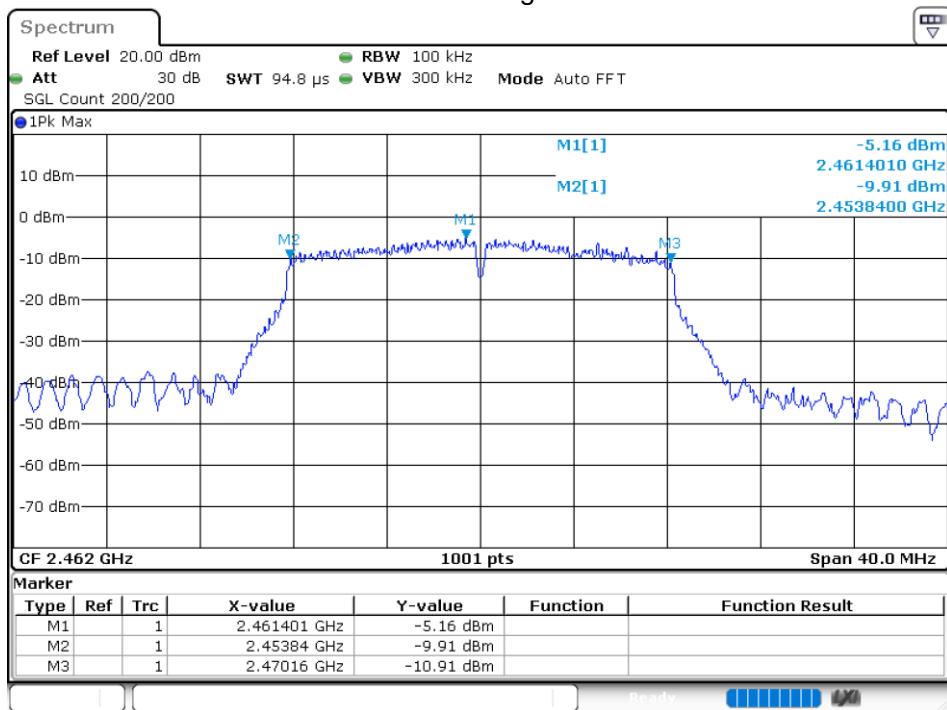
## -6 dB BW NVNT 802.11g 2437MHz Ant 1



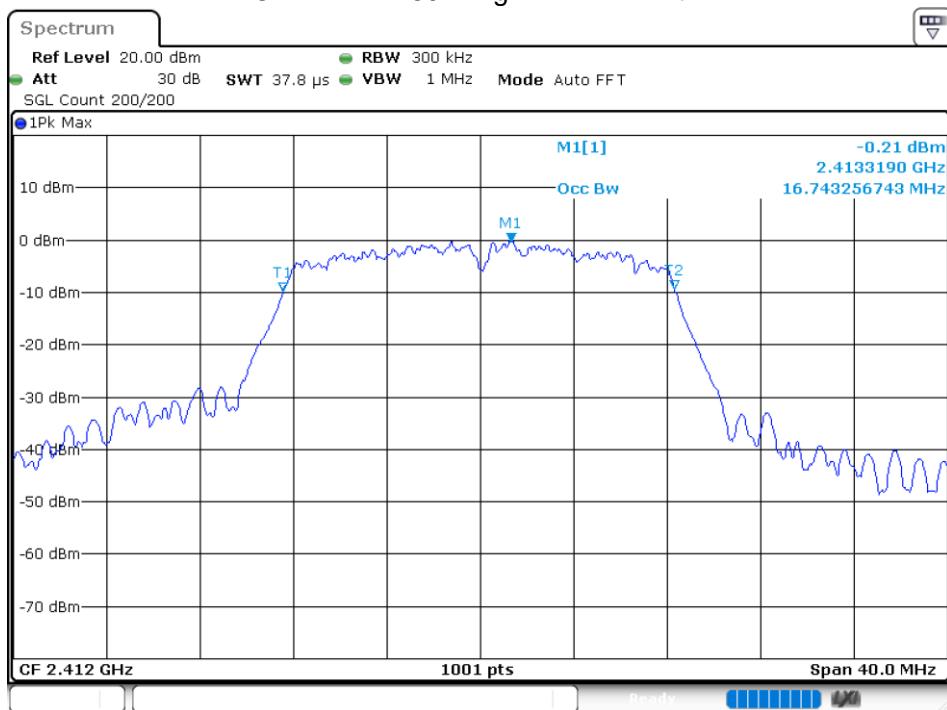
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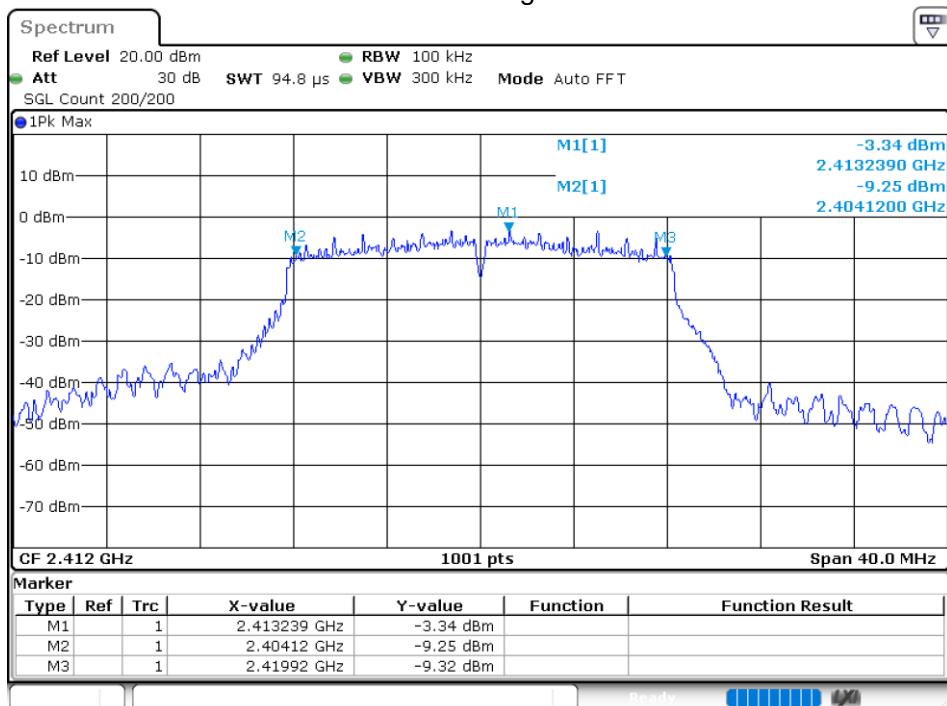
## -6 dB BW NVNT 802.11g 2462MHz Ant 1



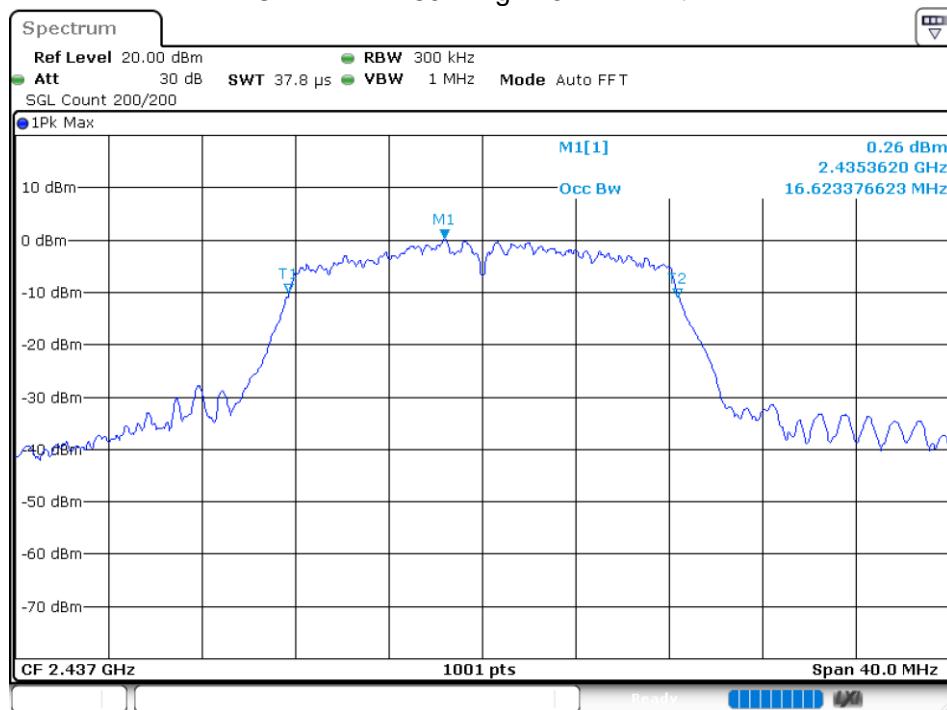
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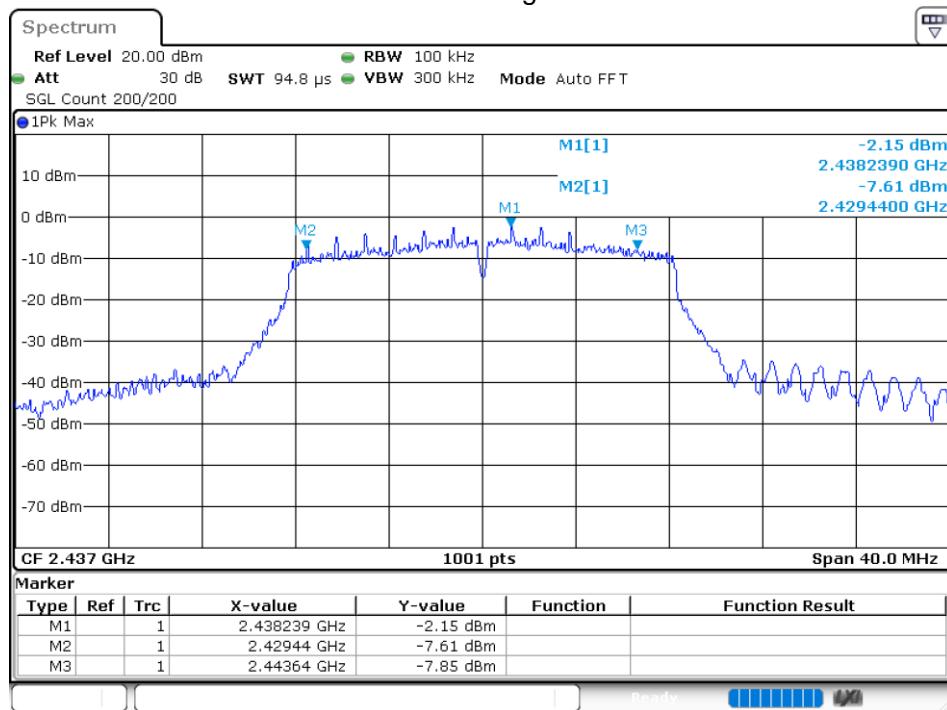
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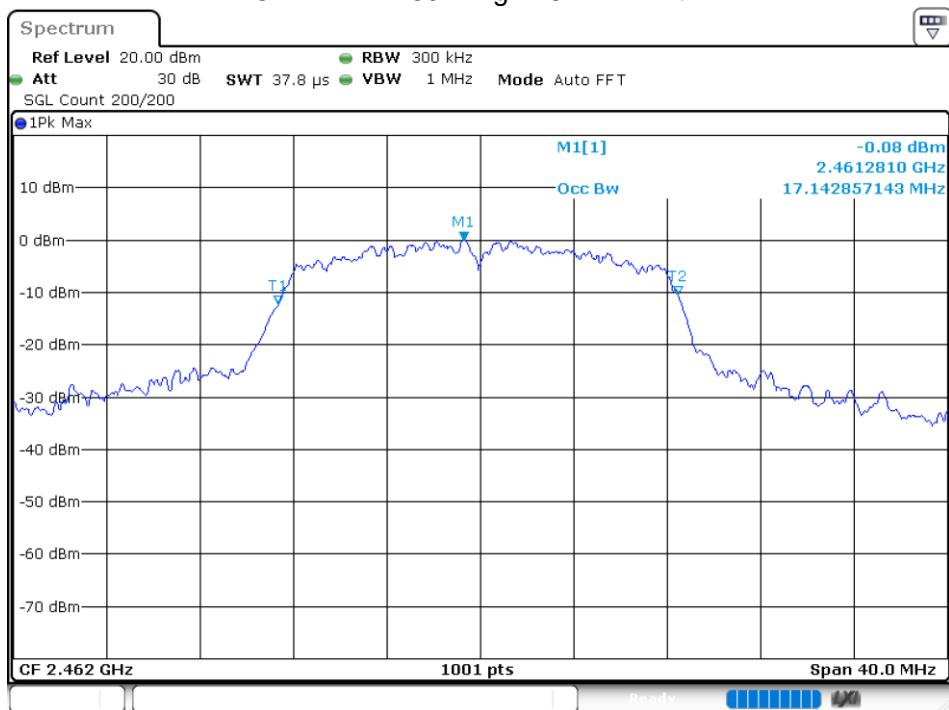
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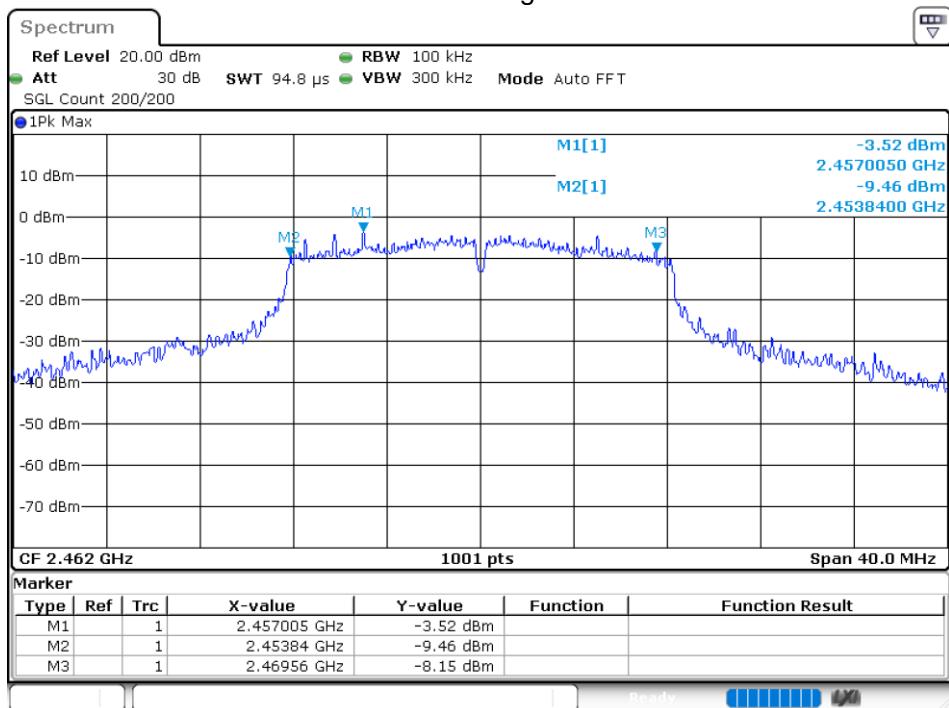
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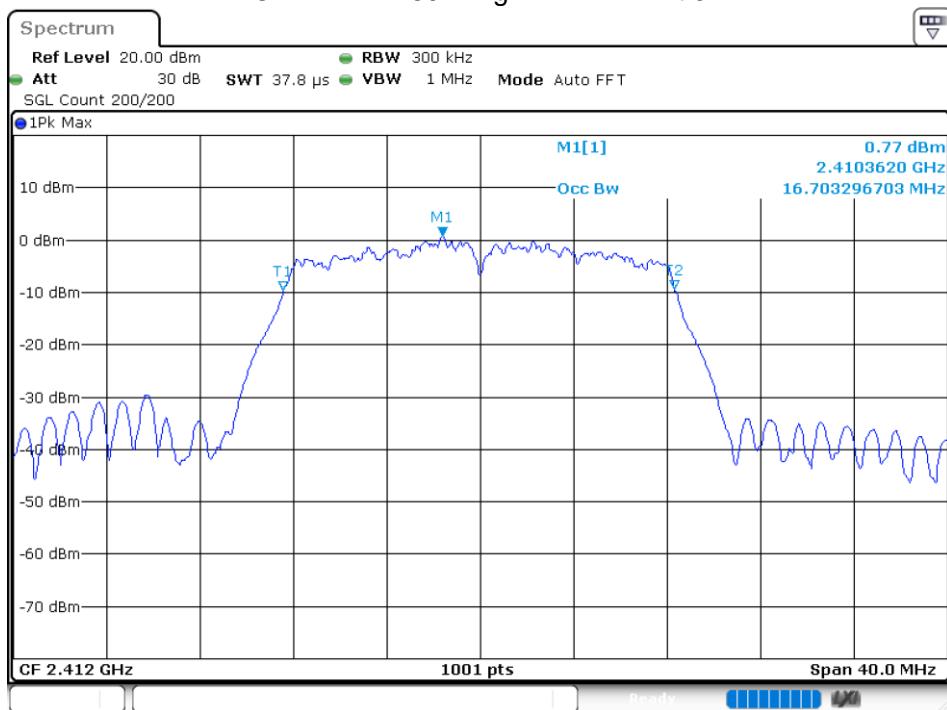
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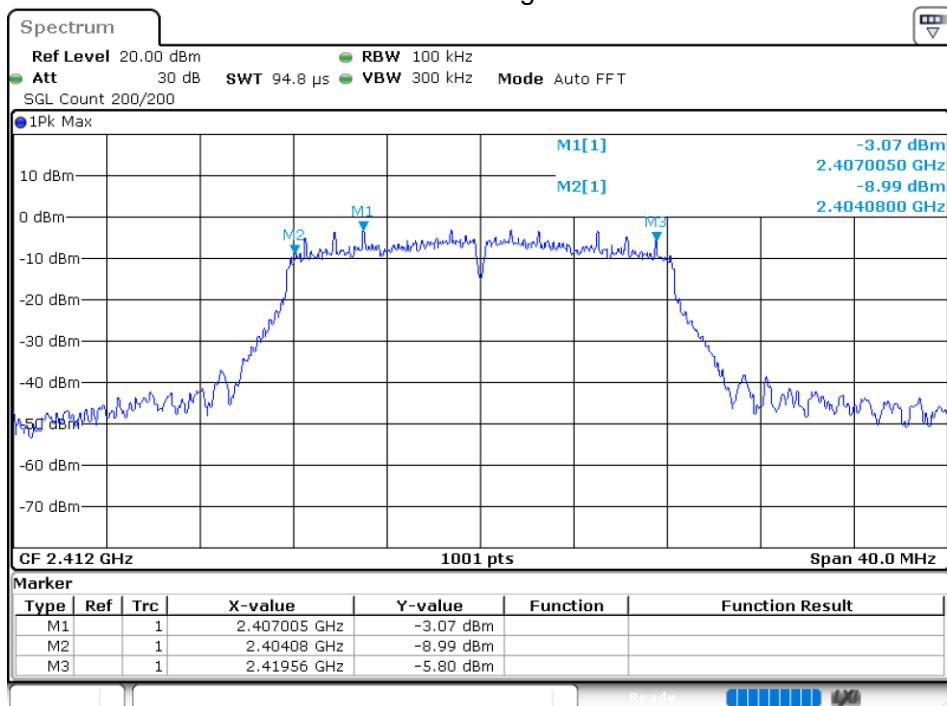
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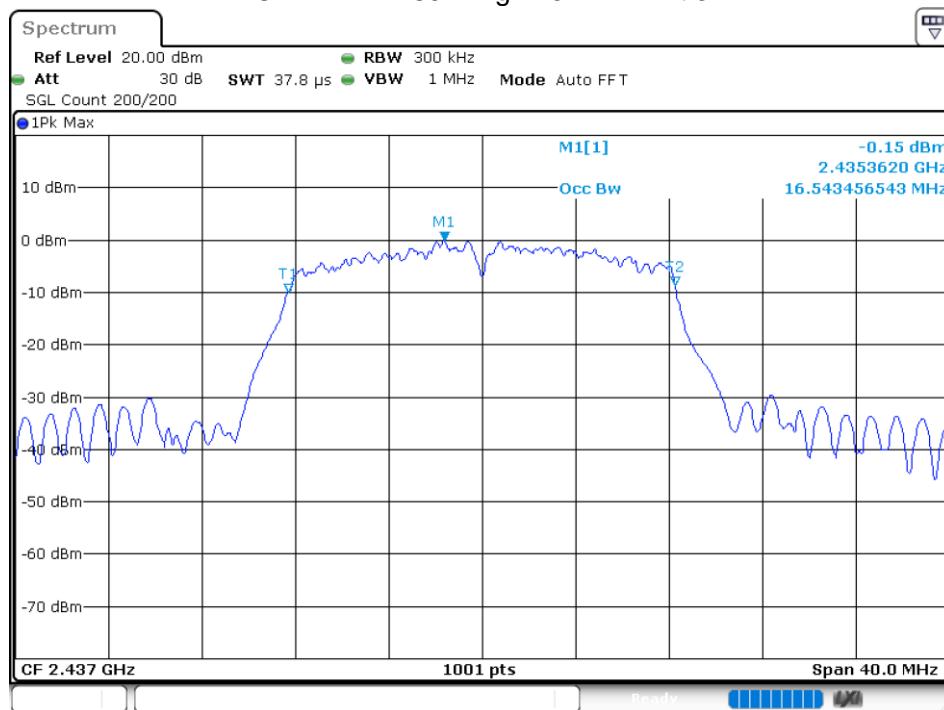
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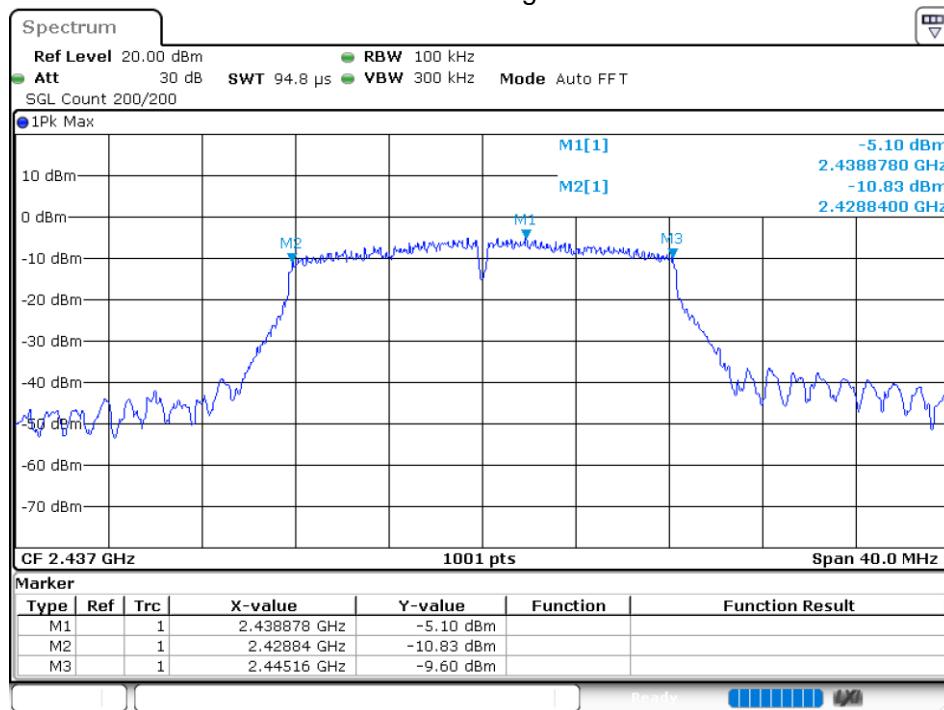
## -6 dB BW NVNT 802.11g 2412MHz Ant 3



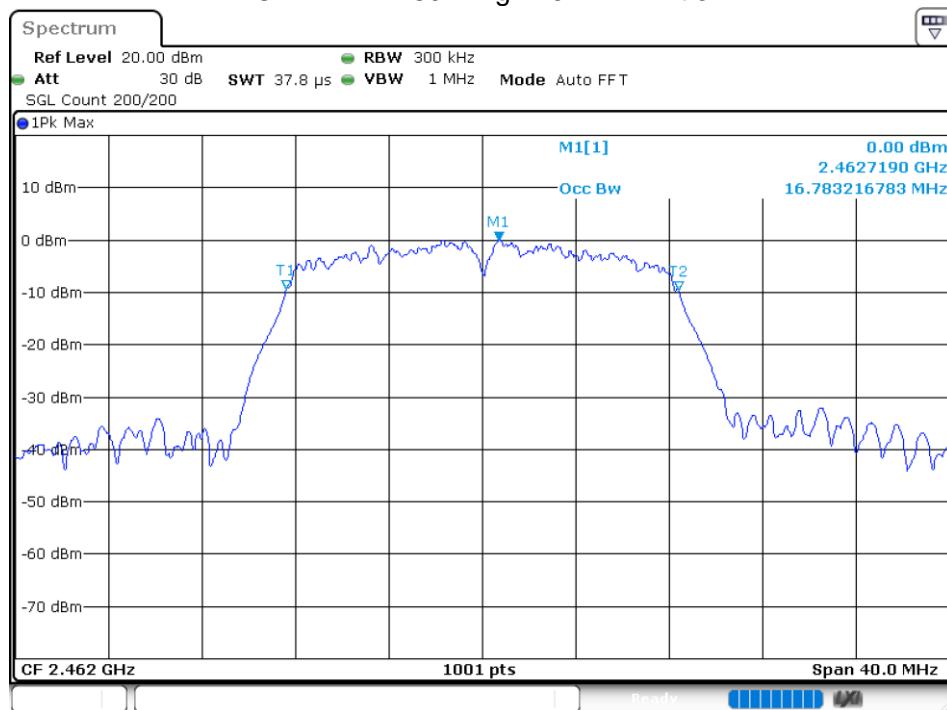
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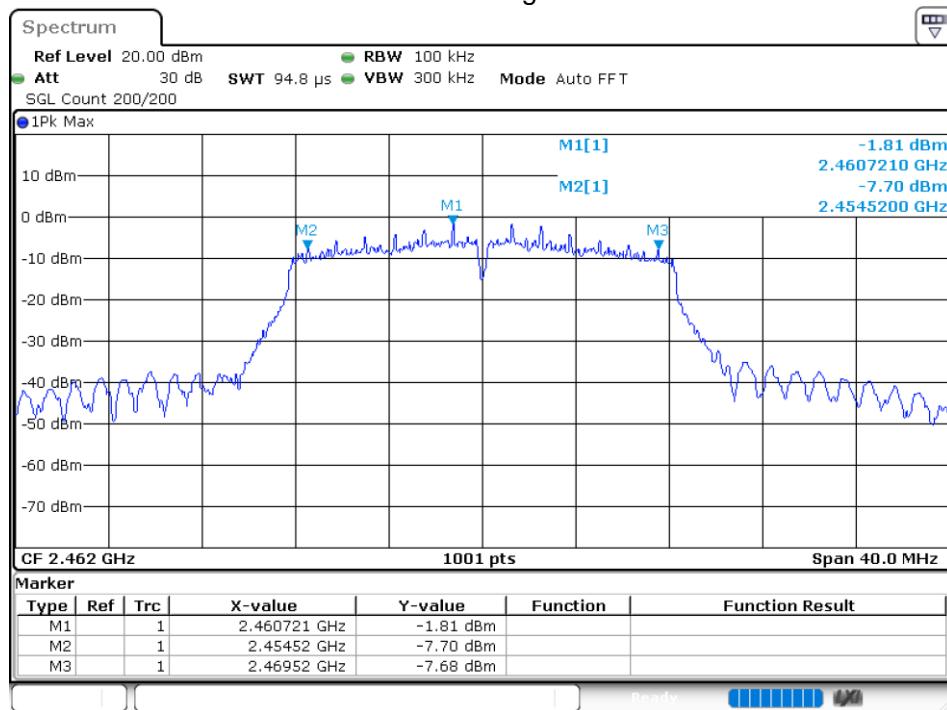
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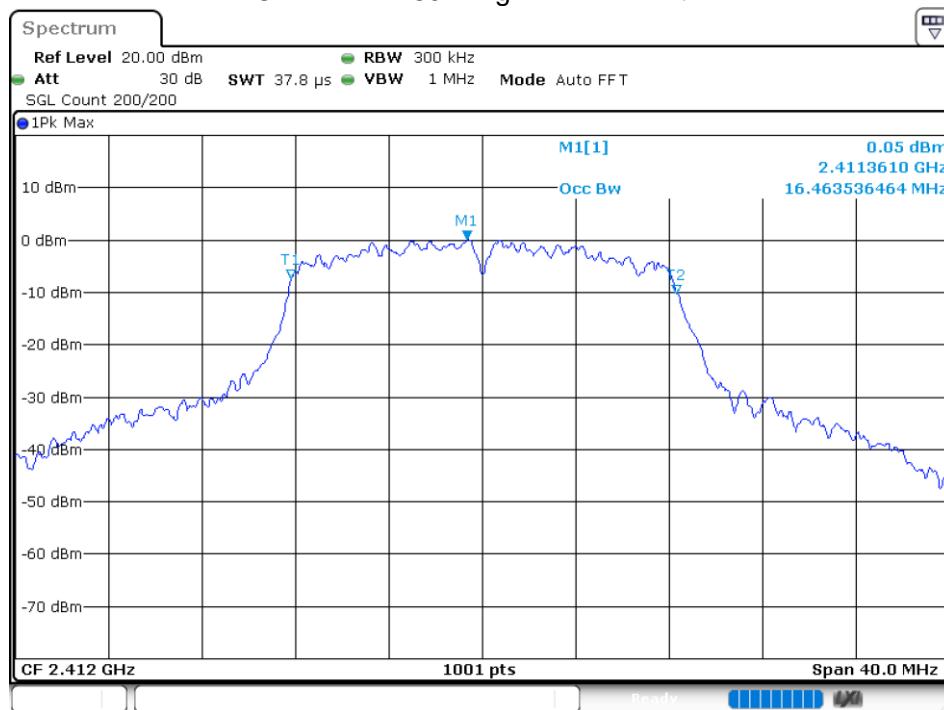
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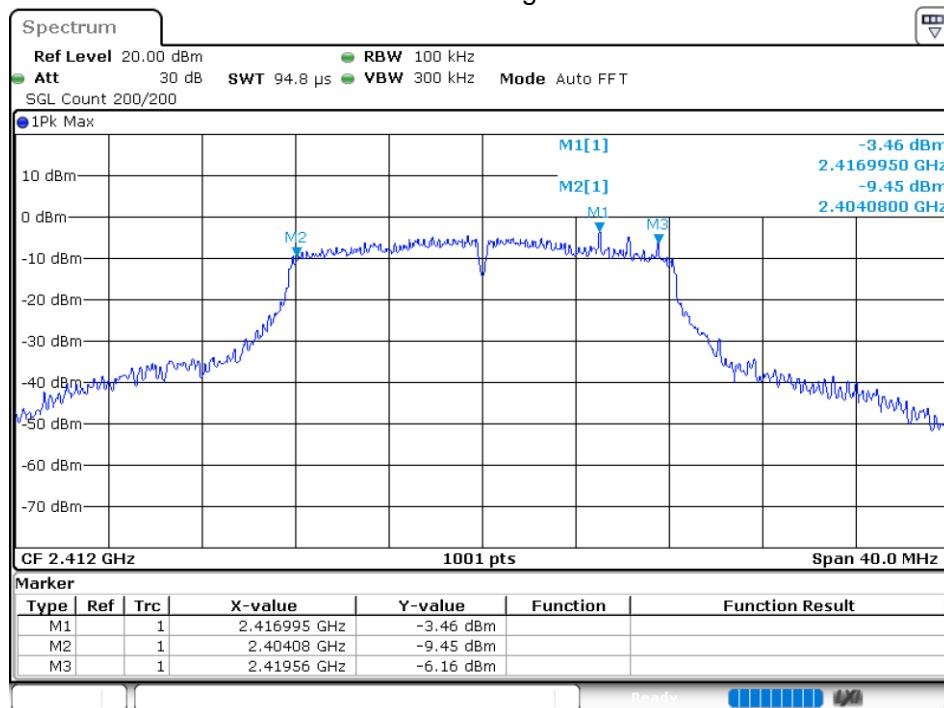
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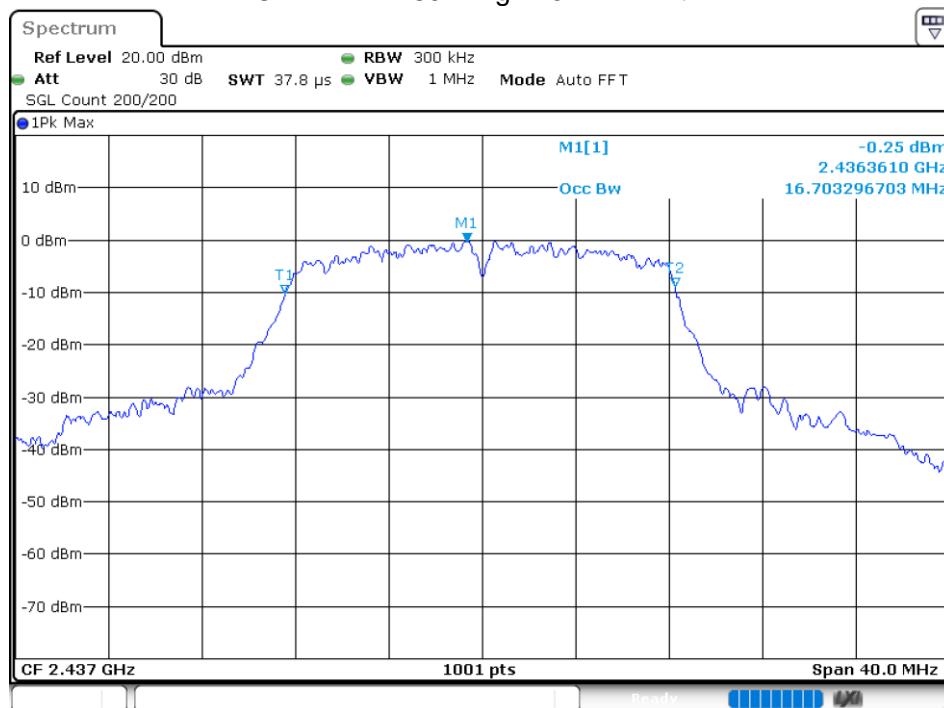
## OBW NVNT 802.11g 2412MHz Ant 4



## -6 dB BW NVNT 802.11g 2412MHz Ant 4



## OBW NVNT 802.11g 2437MHz Ant 4



## -6 dB BW NVNT 802.11g 2437MHz Ant 4

