



Neutron Engineering Inc.

# FCC Radio Test Report

## FCC ID: XCNC210400A

This report concerns (check one) :  Original Grant  Class I Change

Issued Date : Oct. 21, 2010

Project No. : 1009C165

Equipment : BCM3380Z D3.0 Wireless eMTA

Model Name : DWV3201B

Applicant : Ubee Interactive Corp.

Address : 6F-9, No.38, Taiyuan St. Jhubei City  
Hsinchu County 302, Taiwan

Manufacturer : Hon Hai Precision Ind. Co., Ltd.

Address : 5th F1-1 Science Based Industrial Park 5  
Hsin-An Rd. HsinChu 300 Taiwan

**Tested by:**

Neutron Engineering Inc. EMC Laboratory

Date of Receipt: Sep. 20, 2010

Date of Test:

Sep. 20, 2010 ~ Oct. 20, 2010

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**1. CERTIFICATION**

Equipment : BCM3380Z D3.0 Wireless eMTA

Brand Name : Ubee

Model Name : DVW3201B

Applicant : Ubee Interactive Corp.

Factory : 1. Hon Fu Jin Precision Industry (ShenZhen) Co., Ltd.

2. Ambit Microsystems (Shanghai) Ltd.

1. No.2, 2<sup>nd</sup> Donghuan Road, 10<sup>th</sup> Yousong Industrial District, Longhua Town, Baoan, Shenzhen, Guang Dong, China

Address : 2. No.1925, Nanle Road Songjiang Export Processing Zone, Shanghai Chia,

Post code:201613

Date of Test : Sep. 20, 2010 ~ Oct. 20, 2010

Standards : FCC Part15, Subpart E(15.407) / ANSI C63.4 : 2003

The above equipment has been tested and found compliance with the requirement of the relative standards by Neutron Engineering Inc. EMC Laboratory.

The test data, data evaluation, and equipment configuration contained in our test report (Ref No. NEI-FCCP-2-1009C165) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of NVLAP and TAF according to the ISO-17025 quality assessment standard and technical standard(s).



**2. SUMMARY OF TEST RESULTS**

Test procedures according to the technical standards:

<b>FCC Part15, Subpart E</b>			
<b>Standard Section</b>	<b>Test Item</b>	<b>Judgment</b>	<b>Remark</b>
15.207	AC Power Line Conducted Emissions	PASS	
15.407(a)(1) DA 02-2138	26dB Spectrum Bandwidth	PASS	
15.407(a)(1) DA 02-2138	Maximum Conducted Output Power	PASS	
15.407(a)(1) DA 02-2138	Power Spectral Density	PASS	
15.407(a)(6) DA 02-2138	Peak Excursion	PASS	
15.407(b)(1)(6) 15.209	Radiated Emissions	PASS	
15.407(b)	Band Edge Emissions	PASS	
15.407(g)	Frequency Stability	PASS	
15.203	Antenna Requirements	PASS	
1.1307 1.1310 2.1091 2.1093	RF Exposure Compliance	PASS	

**NOTE:**

- (1) "N/A" denotes test is not applicable in this Test Report
- (2) This test report covers EUT radio function only. Its receive function testing is covered in another DOC test report: NEI-FCCE-1-1009C165.
- (3) Test result included in this report is only for the Modular approval  
This test report only covers radio function 802.11a and n (Band I). Its radio function 2.4G Band ~11b/g/n(HT20/HT40) and 5G Band ~11a(Band IV)/11n(HT20/HT40) testing is covered in another test report: NEI-FCCP-1-1009C165.



**2.1 TEST FACILITY**

The test facilities used to collect the test data in this report is **CB03/DG-C03** at the location of No.3,Jinshagang 1st Road, ShiXia, Dalang Town, Dong Guan, China.523792  
 Neutron's test firm number is 319330

**2.2 MEASUREMENT UNCERTAINTY**

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

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

A. Conducted Measurement :

Test Site	Method	Measurement Frequency Range	U , (dB)	NOTE
DG-C03	CISPR	150 KHz ~ 30MHz	1.94	

B. Radiated Measurement :

Test Site	Method	Measurement Frequency Range	Ant. H / V	U , (dB)	NOTE
CB03	CISPR	30MHz ~ 200MHz	V	3.82	
		30MHz ~ 200MHz	H	3.60	
		200MHz ~ 1,000MHz	V	3.86	
		200MHz ~ 1,000MHz	H	3.94	





**3. GENERAL INFORMATION**

**3.1 GENERAL DESCRIPTION OF EUT**

Equipment	BCM3380Z D3.0 Wireless eMTA	
Brand Name	Ubee	
Model Name	DVW3201B	
OEM Brand/Model Name	N/A	
Model Difference	N/A	
Product Description	The EUT is a BCM3380Z D3.0 Wireless eMTA.	
	Operation Frequency:	5150~5250 MHz
	Modulation Type:	OFDM: BPSK, QPSK, 16QAM and 64QAM MIMO: HT20 and HT40
	Bit Rate of Transmitter:	802.11a: 6,9,12,18,24,36,48,54Mbps 802.11n (MIMO): HT20 up to 150Mbps HT40 up to 300Mbps
	Number of Channel:	Please see Note 2.
	Antenna Designation:	Please see Note 3.
	Antenna Gain(Peak):	Please see Note 3.
	Peak Power(Max):	Please see Note 5.
	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.	
	Power Source	DC Voltage supplied from Host system
Power Rating	I/P AC 120V/60Hz O/P DC 3.3V	
Connecting I/O Port(s)	Please refer to the User's Manual	
Products Covered	N/A	

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.



2. 802.11a, 802.11n(20MHz)

Frequency Band	Channel No.	Frequency
5150~5250 MHz Band 1	36	5180 MHz
	40	5200 MHz
	44	5220 MHz
	48	5240 MHz

802.11n(40MHz)

Frequency Band	Channel No.	Frequency
5150~5250 MHz Band 1	38	5190 MHz
	46	5230 MHz

3. Table for Filed Antenna

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	WHA YU	C107-510733-A	Metal PIFA	U.FL	4.1dB@2.4G 4.1dB@5G
2	WHA YU	C107-510734-A	Metal PIFA	U.FL	4.1dB@2.4G 4.4dB@5G

4 The EUT incorporates MIMO function. Physically, the EUT provides two completed transmitters and two receivers (2T2R)

Operating Mode TX Mode	1TX	2TX
	802.11a-5G Band I	V (ANT1 or ANT2)
802.11n(20MHz) -5G Band I	-	V (ANT1 & ANT2)
802.11n(40MHz) -5G Band I	-	V (ANT1 & ANT2)

5.

For 5 GHz Band	
Modulation Type	Max. Peak Power (dBm)
802.11a	9.03
802.11n(20MHz)	12.06
802.11n(40MHz)	12.14



**3.2 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.

Pretest Test Mode	Description
Mode 1	802.11a/CH40
Mode 2	802.11a/CH36, CH40, CH48
Mode 3	802.11n/20M/CH36, CH40, CH48
Mode 4	802.11n/40M/CH38, CH46

The EUT system operated these modes were found to be the worst case during the pre-scanning test as Following:

<b>For Conducted Test</b>	
Final Test Mode	Description
Mode 1	802.11a/CH40

<b>For Radiated Test</b>	
Final Test Mode	Description
Mode 2	802.11a/CH36, CH40, CH48
Mode 3	802.11n/20M/CH36, CH40, CH48
Mode 4	802.11n/40M/CH38, CH46



**3.3 Table of Parameters of Text 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

**5G BAND**

Test software Version	Test Program: DOS Commands		
Frequency	5180 MHz	5200 MHz	5240 MHz
IEEE 802.11a OFDM	40	40	40

Test software Version	Test Program: DOS Commands		
Frequency (MHz)	5180 MHz	5200 MHz	5240 MHz
IEEE 802.11n (20MHz)	40	40	40
Frequency (MHz)	5190 MHz		5230 MHz
IEEE 802.11n (40MHz)	44		44

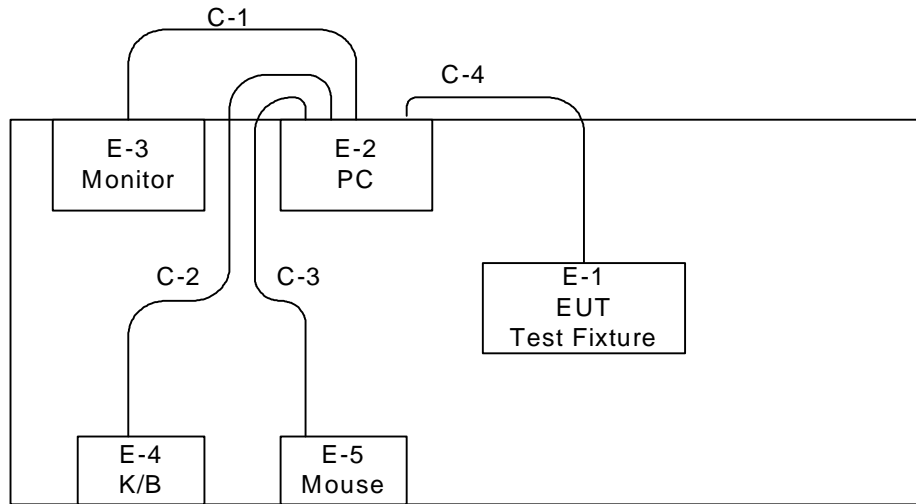
- (1) During the output power test, all data rates have been investigated and the highest output powers were recorded are as follows:  
802.11a mode: OFDM (6Mbps)  
802.11n HT20/HT40 mode : MCS8 (6Mbps)  
For radiated emission tests, the highest output powers were set for final test.



### 3.3 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

#### Modular Approval of Radiated:

The EUT was tested as an external module installed in a test jig board connected to a host Laptop PC.



- C-1: D-SUB Cable
- C-2: USB Cable
- C-3: USB Cable
- C-4: DATA Cable



**3.4 DESCRIPTION OF SUPPORT UNITS**

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

Item	Equipment	Mfr/Brand	Model/Type No.	FCC ID	Series No.	Note
E-1	BCM3380Z D3.0 Wireless eMTAExtension Cradle	Ubee	DVW3201BH	XCNC210400A	N/A	EUT
E-2	PC	Lenovo	H2510	DOC	SS07999198	
E-3	LCD monitor	Dell	E177FPc	DOC	CNOFJ179-641 80-6AG-1WNS	
E-4	Keyboard	Lenovo	LJ4000U	DOC	OL0758492501 446	
E-5	Mouse	Lenovo	MO28UOL	DOC	23-122591	

Item	Shielded Type	Ferrite Core	Length	Note
C-1	YES	YES	1.8M	
C-2	YES	NO	1.8M	
C-3	YES	NO	1.8M	
C-4	NO	NO	0.5M	

Note:

- (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.



**4. EMC EMISSION TEST**

**4.1 CONDUCTED EMISSION MEASUREMENT**

**4.1.1 POWER LINE CONDUCTED EMISSION** (Frequency Range 150KHz-30MHz)

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *
0.50 -5.0	73.00	60.00	56.00	46.00
5.0 -30.0	73.00	60.00	60.00	50.00

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " \* " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

**4.1.2 MEASUREMENT INSTRUMENTS LIST**

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	LISN	EMCO	3816/2	00052765	May.26.2011
2	LISN	Rolf Heine	NNB-2-16Z	99044	May.26.2011
3	50Ω Terminator	SHX	TF2-3G-A	08122901	May.26.2011
4	Transient Limiter	Agilent	11947A	3107A03668	May.26.2011
5	Test Cable	N/A	C-06_C03	N/A	Mar.31.2011
6	EMI TEST RECEIVER	R&S	ESCS30	8333641017	May.27.2011

Remark: " N/A" denotes No Model Name , Serial No. or No Calibration specified.

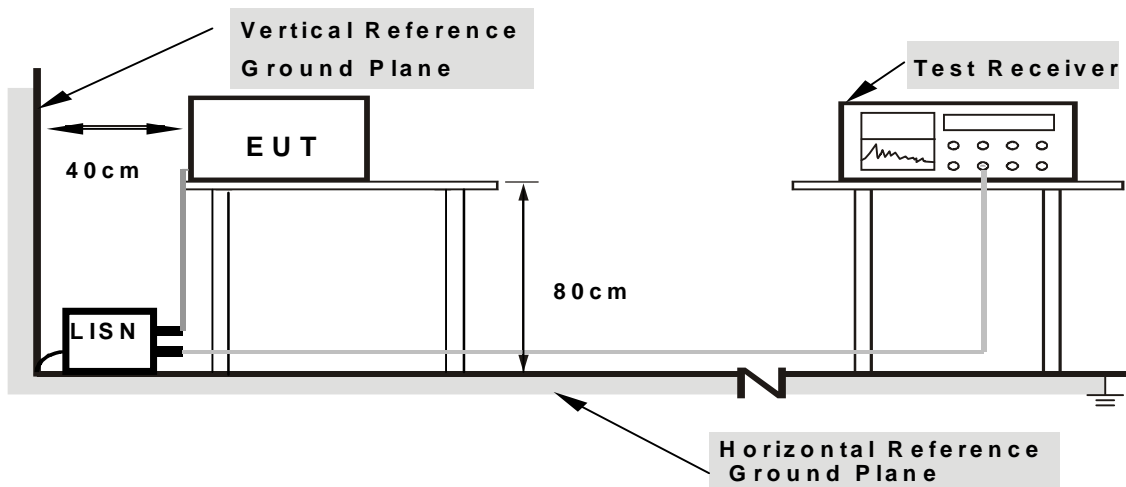
**4.1.3 TEST PROCEDURE**

- a. 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.
- b. 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.
- c. 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.
- d. LISN at least 80 cm from nearest part of EUT chassis.
- e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

**4.1.4 DEVIATION FROM TEST STANDARD**

No deviation

**4.1.5 TEST SETUP**



- Note:**
- 1. Support units were connected to second LISN.
  - 2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

**4.1.6 EUT OPERATING CONDITIONS**

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

The EUT was programmed to be in continuously transmitting mode.





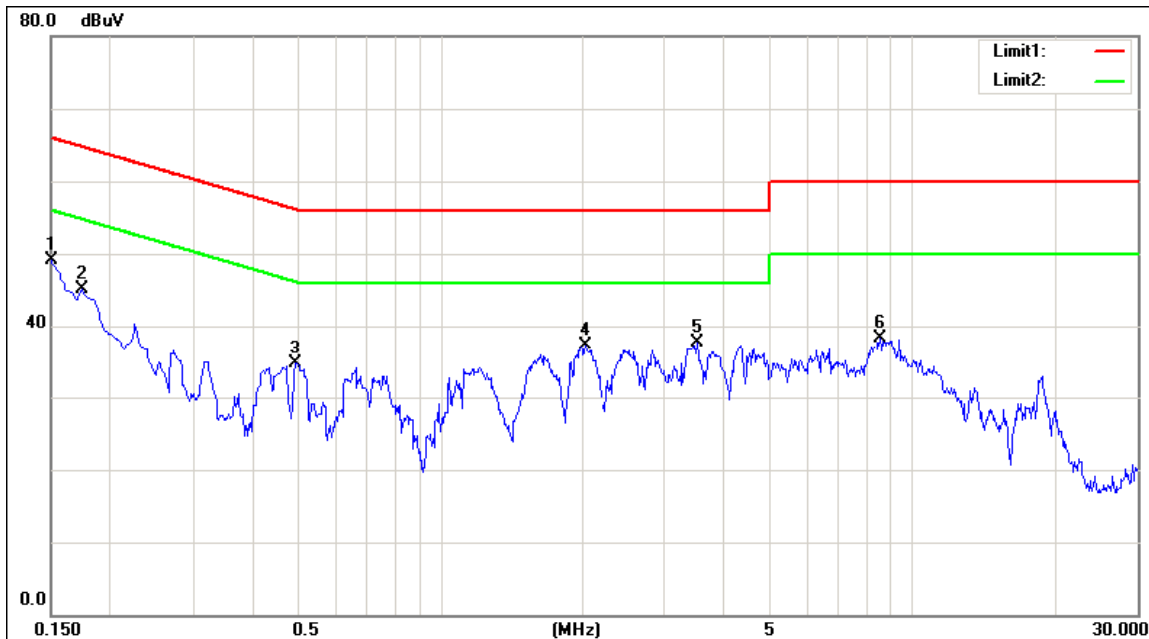
**4.1.7 TEST RESULTS**

EUT :	BCM3380Z D3.0 Wireless eMTA	Model Name :	DVW3201B
Temperature :	28 °C	Relative Humidity :	50%
Test Voltage :	AC 120V/60Hz		
Test Mode :	802.11a/CH40		

Freq. (MHz)	Terminal L/N	Measured(dBuV)		Limits(dBuV)		Margin (dB)	Note
		QP-Mode	AV-Mode	QP-Mode	AV-Mode		
0.15	Line	49.04	*	66.00	56.00	-16.96	(QP)
0.17	Line	45.03	*	64.77	54.77	-19.74	(QP)
0.49	Line	34.67	*	56.10	46.10	-21.43	(QP)
2.03	Line	37.38	*	56.00	46.00	-18.62	(QP)
3.51	Line	37.62	*	56.00	46.00	-18.38	(QP)
8.55	Line	38.40	*	60.00	50.00	-21.60	(QP)

**Remark**

- (1) Reading in which marked as QP means measurements by using are Quasi-Peak Mode with Detector BW=9KHz ; SPA setting in RBW=10KHz,VBW =10KHz, Swp. Time = 0.2 sec./MHz ◦ Reading in which marked as AV means measurements by using are Average Mode with instrument setting in RBW=10KHz,VBW=10KHz, Swp. Time =0.2 sec./MHz ◦
- (2) All readings are QP Mode value unless otherwise stated AVG in column of 'Note'. If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform ◦ In this case, a " \* " marked in AVG Mode column of Interference Voltage Measured ◦
- (3) Measuring frequency range from 150KHz to 30MHz ◦



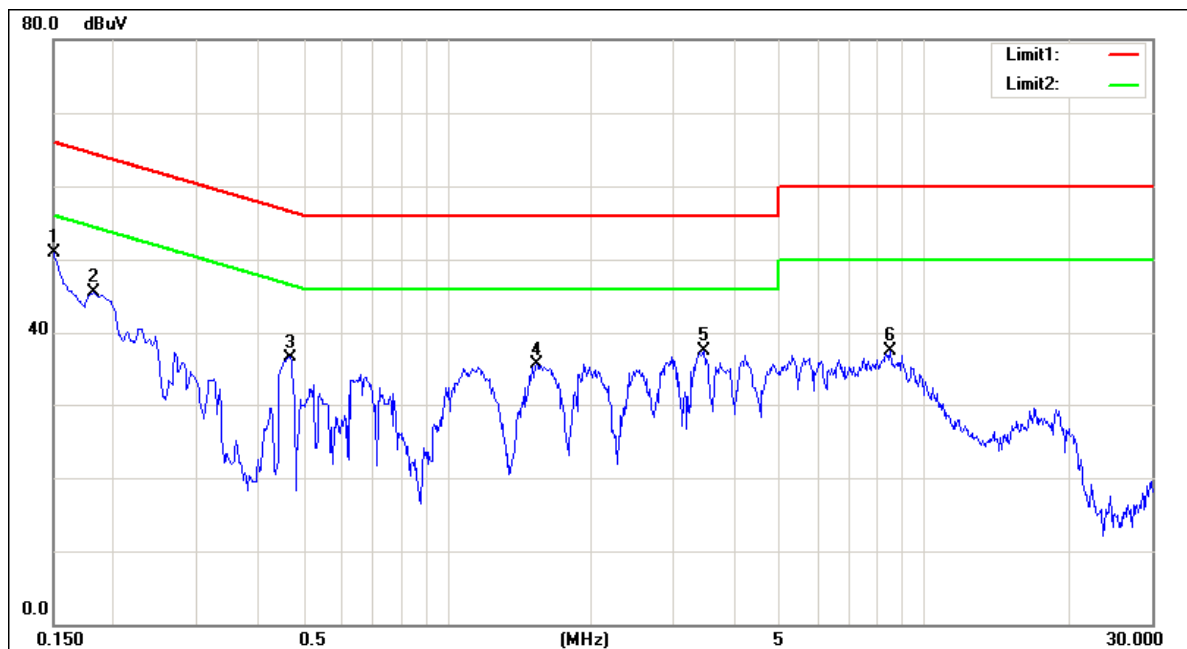


E.U.T :	BCM3380Z D3.0 Wireless eMTA	Model Name :	DVW3201B
Temperature :	28 °C	Relative Humidity :	50%
Test Voltage :	AC 120V/60Hz		
Test Mode :	802.11a/CH40		

Freq. (MHz)	Terminal L/N	Measured(dBuV)		Limits(dBuV)		Margin (dB)	Note
		QP-Mode	AV-Mode	QP-Mode	AV-Mode		
0.15	Neutral	50.91	*	66.00	56.00	-15.09	(QP)
0.18	Neutral	45.48	*	64.39	54.39	-18.91	(QP)
0.47	Neutral	36.49	*	56.51	46.51	-20.02	(QP)
1.54	Neutral	35.58	*	56.00	46.00	-20.42	(QP)
3.49	Neutral	37.51	*	56.00	46.00	-18.49	(QP)
8.51	Neutral	37.50	*	60.00	50.00	-22.50	(QP)

**Remark**

- (1) Reading in which marked as QP means measurements by using are Quasi-Peak Mode with Detector BW=9KHz ; SPA setting in RBW=10KHz,VBW =10KHz, Swp. Time = 0.2 sec./MHz . Reading in which marked as AV means measurements by using are Average Mode with instrument setting in RBW=10KHz,VBW=10KHz, Swp. Time =0.2 sec./MHz .
- (2) All readings are QP Mode value unless otherwise stated AVG in column of 'Note'. If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform . In this case, a " \* " marked in AVG Mode column of Interference Voltage Measured .
- (3) Measuring frequency range from 150KHz to 30MHz .





**4.2 RADIATED EMISSION MEASUREMENT**

**4.2.1 RADIATED EMISSION LIMITS (Frequency Range 9kHz-1000MHz)**

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.

Frequencies (MHz)	Field Strength (microrvolts/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

**LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)**

FREQUENCY (MHz)	(dBuV/m) (at 3m)	
	PEAK	AVERAGE
Above 1000	74	54

**Notes:**

- (1) The limit for radiated test was performed according to FCC PART 15E.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).
- (4) For transmitters operating in the 5.15~5.25GHz band: all emissions outside of the 5.15~5.35GHz band shall not exceed an EIRP of -27 dBm/MHz (68.3dBuV/m at 3m)  
The limits above 5GHz shall be extrapolated to the specified distance using an extrapolation factor of 20dB/decade form 3m to 1.5m  
Distance extrapolation factor = 20 log (3m/1.5m) dB ;  
Limit line = specific limits (dBuV) + 6 dB



**4.2.2 MEASUREMENT INSTRUMENTS LIST**

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Triple Loop Antenna	R&S	HFH2-Z2	830749/020	May.27.2011
2	Bi-log Antenna	Schwarzbeck	VULB9160	9160-3232	May.26.2011
3	Horn Antenna	ETS	3115	00075789	May.12.2011
4	Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170340	Dec.16.2010
5	Amplifier	HP	8447D	2944A09673	May.26.2011
6	Amplifier	Agilent	8449B	3008A02274	May.26.2011
7	Amplifier	EMC	EMC2654045	980039	Aug.12.2011
8	Test Receiver	R&S	ESCI	100895	May.26.2011
9	Spectrum Analyzer	R&S	FSP 40	100185	Nov.27.2010
10	Test Cable	N/A	C-01_CB03	N/A	Jul.05.2011
11	Test Cable	HUBER+SUHNER	SUCOFLEX_8 m	313794/4	Apr.12.2011
12	Controller	CT	SC100	N/A	N/A

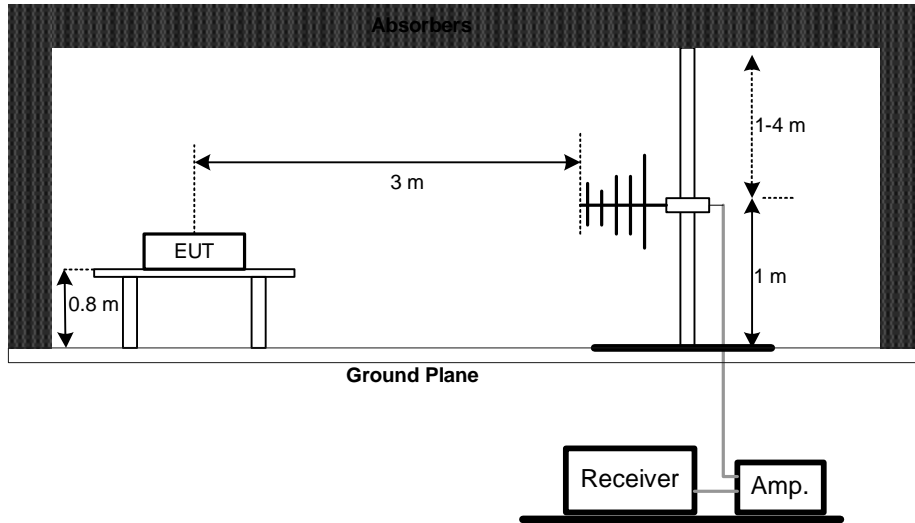
Remark: " N/A" denotes No Model Name / Serial No. and No Calibration specified.

**4.2.3 TEST PROCEDURE**

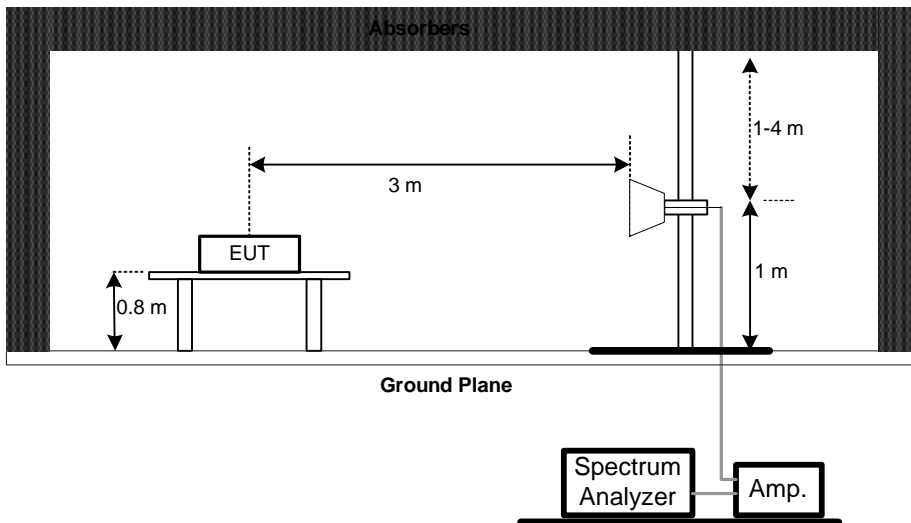
- a. The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
- b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3m semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The height of the equipment or of the substitution antenna shall be 0.8 m; 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.
- d. 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.
- e. 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.
- f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

**4.2.4 TEST SETUP**

(A) Radiated Emission Test Set-Up Frequency Below 1 GHz



(B) Radiated Emission Test Set-Up Frequency Above 1 GHz



**4.2.5 EUT OPERATING CONDITIONS**

The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.



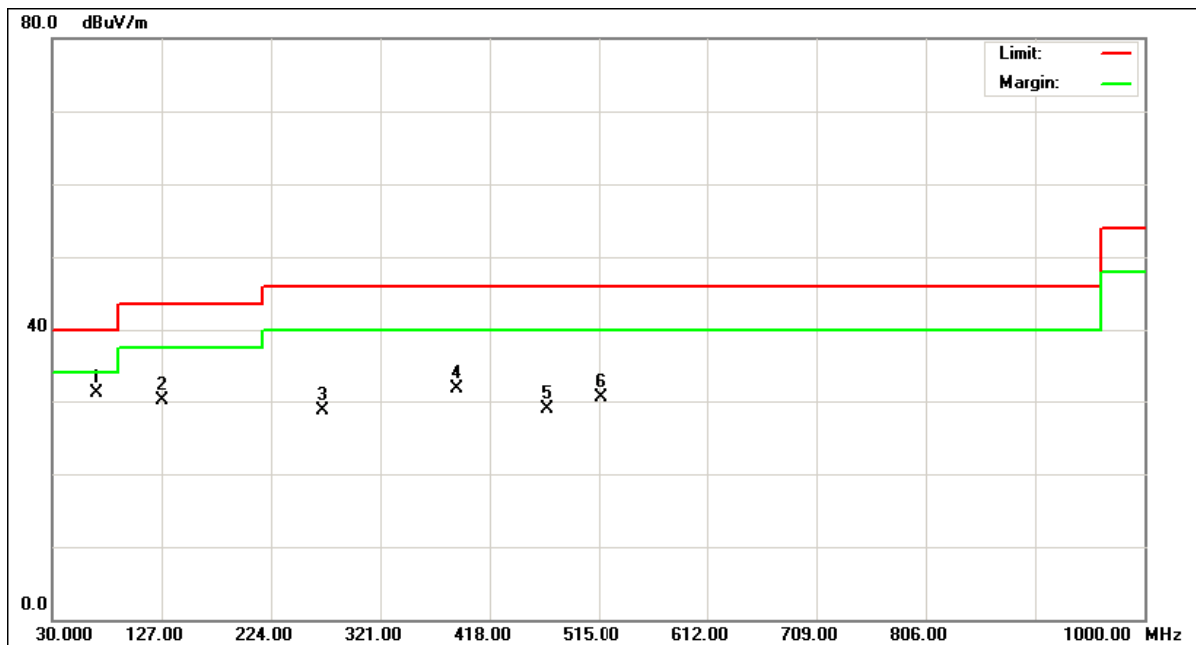
**4.2.6 TEST RESULTS-BETWEEN 30MHZ - 1000MHZ**

EUT :	BCM3380Z D3.0 Wireless eMTA	Model Name :	DVW3201B
Temperature :	26 °C	Relative Humidity :	57%
Test Voltage :	AC 120V/60Hz		
Test Mode :	802.11a/CH40		

Freq. (MHz)	Ant. H/V	Reading(RA) (dBUV)	Corr.Factor(CF) (dB)	Measured(FS) (dBUV/m)	Limits(QP) (dBUV/m)	Margin (dB)	Note
68.69	V	47.21	-16.19	31.02	40.00	- 8.98	
126.99	V	43.17	-12.98	30.19	43.50	- 13.31	
269.98	V	39.19	-10.42	28.77	46.00	- 17.23	
387.46	V	40.12	-8.44	31.68	46.00	- 14.32	
466.99	V	35.79	-6.80	28.99	46.00	- 17.01	
515.64	V	35.91	-5.47	30.44	46.00	- 15.56	

**Remark :**

- (1) Spectrum Setting : 30MHz – 1000MHz , RBW= 100KHz, VBW=100KHz, Sweep time = 200 ms. 1GHz- 40GHz, RBW= 1MHz, VBW= 1MHz, Sweep time = Auto
- (2) All readings are Peak unless otherwise stated QP in column of 『Note 』 . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform .
- (3) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency . “F” denotes fundamental frequency; “ H” denotes spurious frequency. “E” denotes band edge frequency.
- (4) Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Peak detector mode or QP detector mode of the emission .
- (5) Data of measurement within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.



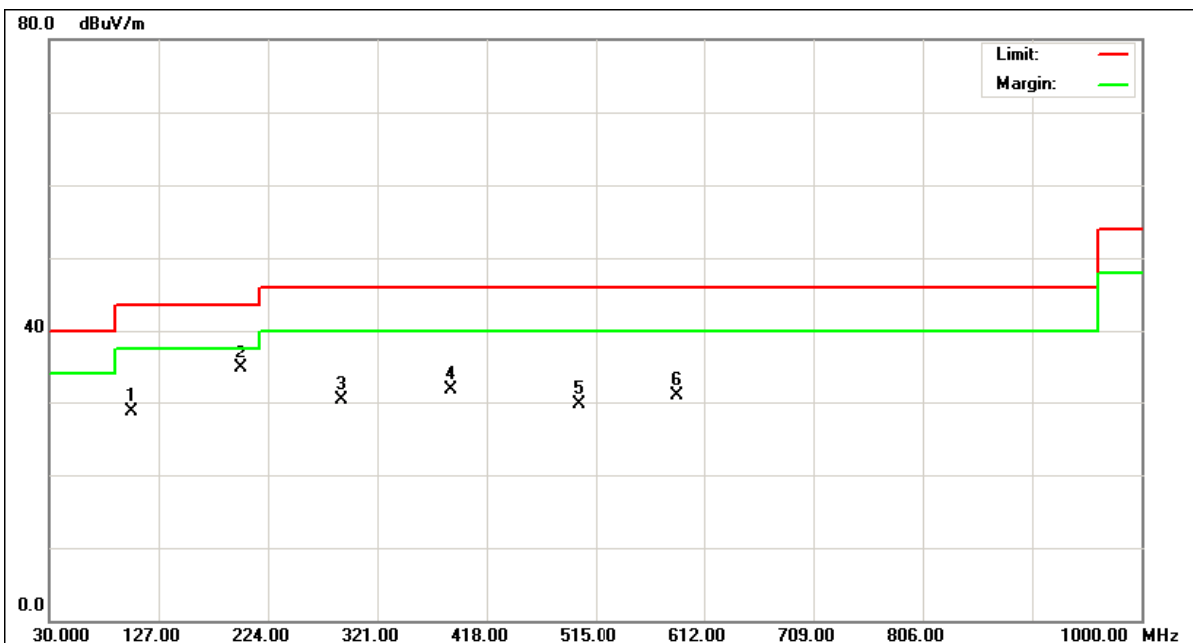


EUT :	BCM3380Z D3.0 Wireless eMTA	Model Name :	DVW3201B
Temperature :	26° C	Relative Humidity :	57%
Test Voltage :	AC 120V/60Hz		
Test Mode :	802.11a/CH40		

Freq. (MHz)	Ant. H/V	Reading(RA) (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits(QP) (dBuV/m)	Margin (dB)	Note
102.54	H	44.07	-15.42	28.65	43.50	- 14.85	
198.65	H	46.98	-12.33	34.65	43.50	- 8.85	
287.43	H	40.04	-9.82	30.22	46.00	- 15.78	
385.56	H	40.22	-8.47	31.75	46.00	- 14.25	
499.65	H	35.54	-5.89	29.65	46.00	- 16.35	
587.13	H	34.95	-3.96	30.99	46.00	- 15.01	

**Remark :**

- (1) Spectrum Setting : 30MHz – 1000MHz , RBW= 100KHz, VBW=100KHz, Sweep time = 200 ms. 1GHz- 25GHz, RBW= 1MHz, VBW= 1MHz, Sweep time = Auto
- (2) All readings are Peak unless otherwise stated QP in column of 『Note 』 . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform .
- (3) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency . “F” denotes fundamental frequency; “ H” denotes spurious frequency. “E” denotes band edge frequency.
- (4) Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Peak detector mode or QP detector mode of the emission .
- (5) Data of measurement within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.





**4.2.7 TEST RESULTS - ABOVE 1000MHZ - BAND 1**

EUT :	BCM3380Z D3.0 Wireless eMTA	Model Name :	DVW3201B
Temperature :	34 °C	Relative Humidity :	42 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	802.11a/CH36		

Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
5150.00	V	27.94	15.44	38.83	66.77	54.27	74.30	60.00	X/E
<b>5181.80</b>	<b>V</b>	<b>71.54</b>	<b>59.04</b>	<b>38.97</b>	<b>110.51</b>	<b>98.01</b>			<b>X/F</b>
#10359.35	V	44.69	33.13	12.33	57.02	45.46	74.30	60.00	X/H

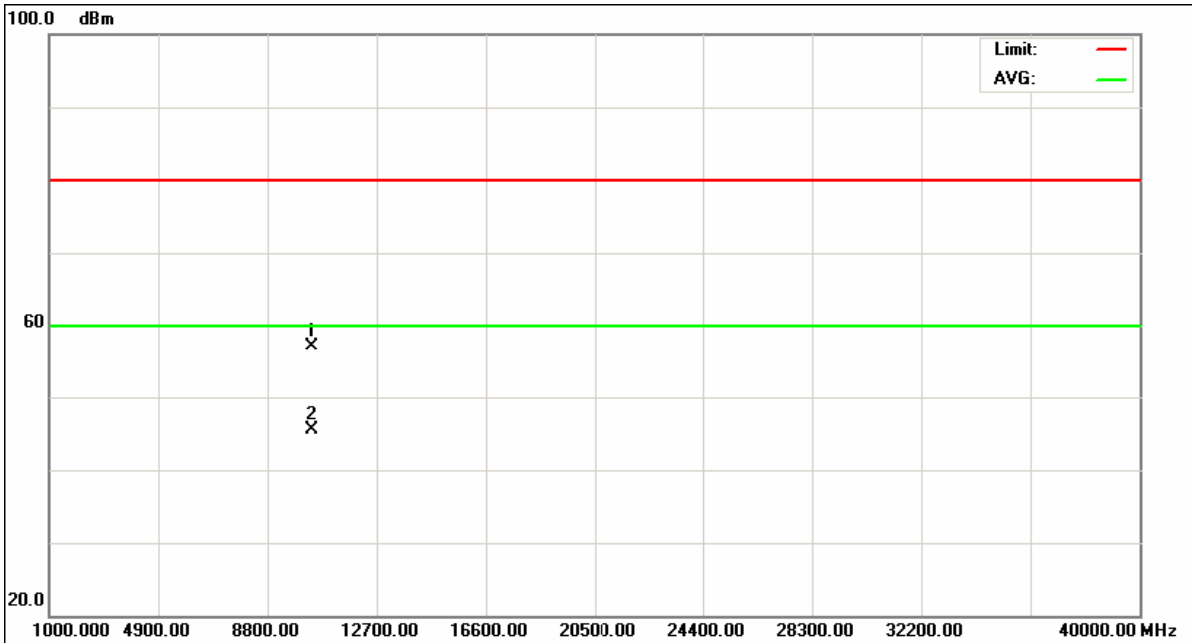
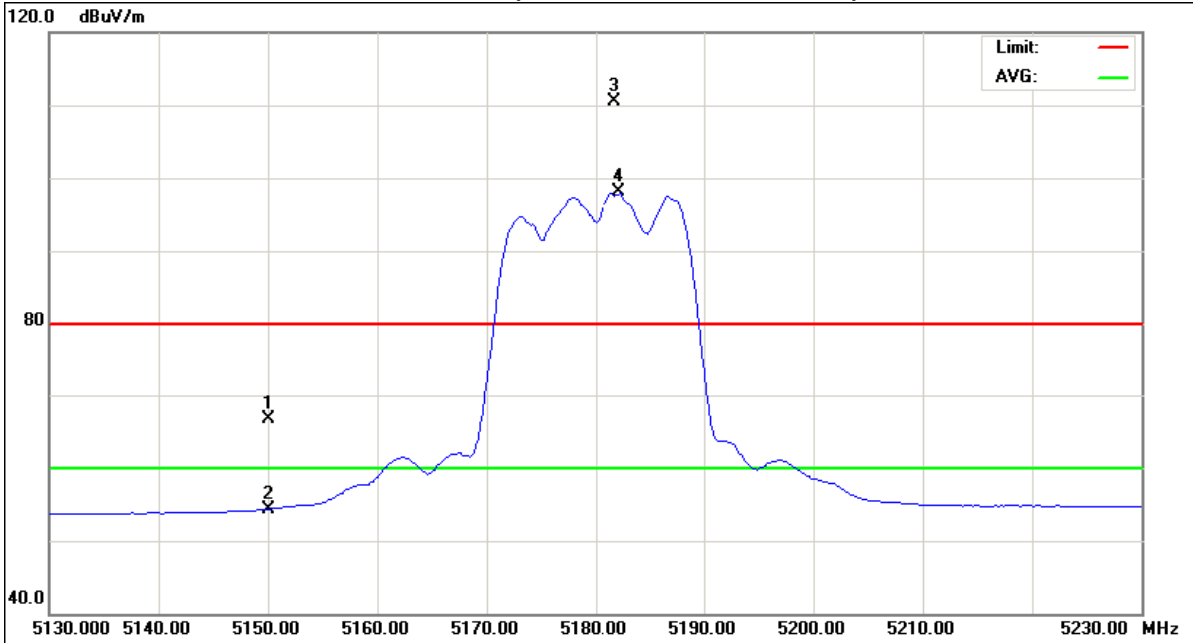
Remark :

- (1) Spectrum Setting : 30MHz – 1000MHz , RBW= 100KHz, VBW=100KHz, Sweep time = 200 ms. 1GHz- 40GHz, RBW= 1MHz, VBW= 1MHz, Sweep time = Auto
- (2) All readings are Peak unless otherwise stated AV in column of 『 Note 』 . Peak denotes that the Peak reading compliance with the AV Limits and then AV Mode measurement didn't perform.
- (3) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency. "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (4) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission .
- (5) Data of measurement within this frequency range shown " \* " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (6) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (7) EUT Orthogonal Axes :  
"X" - denotes Laid on Table ; "Y" - denotes Vertical Stand ; "Z" - denotes Side Stand
- (8) During the measurements above 1GHz it is taken care of that the EUT is always within the 3dB cone of radiation BW of the used antenna.
- (9) The limits above 5GHz shall be extrapolated to the specified distance using an extrapolation factor of 20dB/decade form 3m to 1.5m  
Distance extrapolation factor = 20 log (3m/1.5m) dB ;  
Limit line = specific limits (dBuV) + 6 dB
- (10) The signal of 15-40GHz is lower than the limit 20dB. So the test date of this frequency does not place on the test report.
- (11) "#": The radiated frequency is out the restricted band.





Orthogonal Axis : X  
802.11a/CH36(Above 1000 MHz, Vertical)





EUT :	BCM3380Z D3.0 Wireless eMTA	Model Name :	DVW3201B
Temperature :	34 °C	Relative Humidity :	42 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	802.11a/CH36		

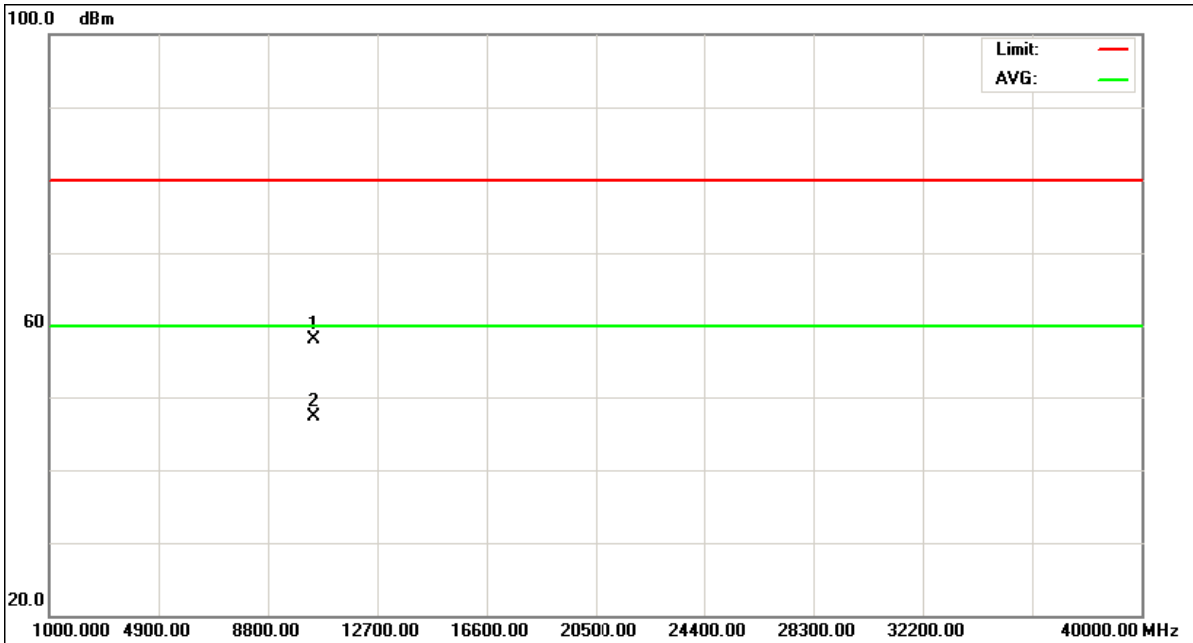
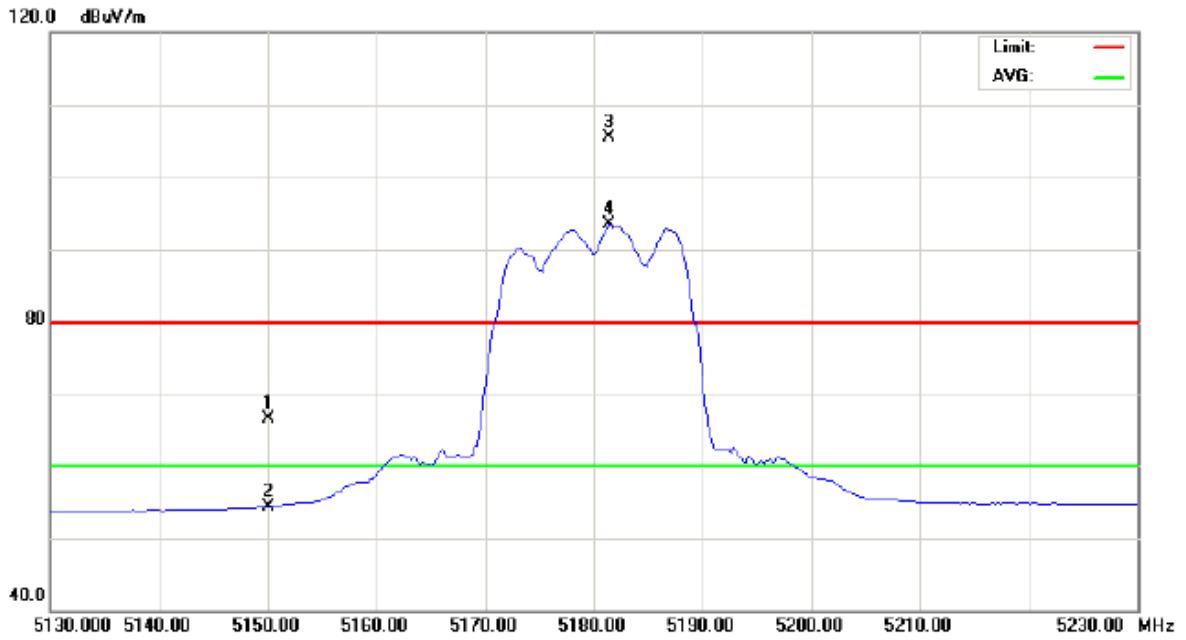
Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
5150.00	H	27.94	15.44	38.83	66.77	54.27	74.30	60.00	X/E
<b>5181.40</b>	<b>H</b>	<b>66.59</b>	<b>54.52</b>	<b>38.97</b>	<b>105.56</b>	<b>93.49</b>			<b>X/F</b>
#10360.17	H	45.71	34.96	12.33	58.04	47.29	74.30	60.00	X/H

Remark :

- (1) Spectrum Setting : 30MHz – 1000MHz , RBW= 100KHz, VBW=100KHz, Sweep time = 200 ms. 1GHz- 40GHz, RBW= 1MHz, VBW= 1MHz, Sweep time = Auto
- (2) All readings are Peak unless otherwise stated AV in column of 『 Note 』 . Peak denotes that the Peak reading compliance with the AV Limits and then AV Mode measurement didn't perform.
- (3) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency. “F” denotes fundamental frequency; “H” denotes spurious frequency. “E” denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (4) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission .
- (5) Data of measurement within this frequency range shown “ \* ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (6) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (7) EUT Orthogonal Axes :  
“X” - denotes Laid on Table ; “Y” - denotes Vertical Stand ; “Z” - denotes Side Stand
- (8) During the measurements above 1GHz it is taken care of that the EUT is always within the 3dB cone of radiation BW of the used antenna.
- (9) The limits above 5GHz shall be extrapolated to the specified distance using an extrapolation factor of 20dB/decade form 3m to 1.5m  
Distance extrapolation factor = 20 log (3m/1.5m) dB ;  
Limit line = specific limits (dBuV) + 6 dB
- (10) The signal of 15-40GHz is lower than the limit 20dB. So the test date of this frequency does not place on the test report.
- (11) “#” : The radiated frequency is out the restricted band.



Orthogonal Axis : X  
802.11a/CH36(Above 1000 MHz, Horizontal)





EUT :	BCM3380Z D3.0 Wireless eMTA	Model Name :	DVW3201B
Temperature :	34 °C	Relative Humidity :	42 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	802.11a/CH40		

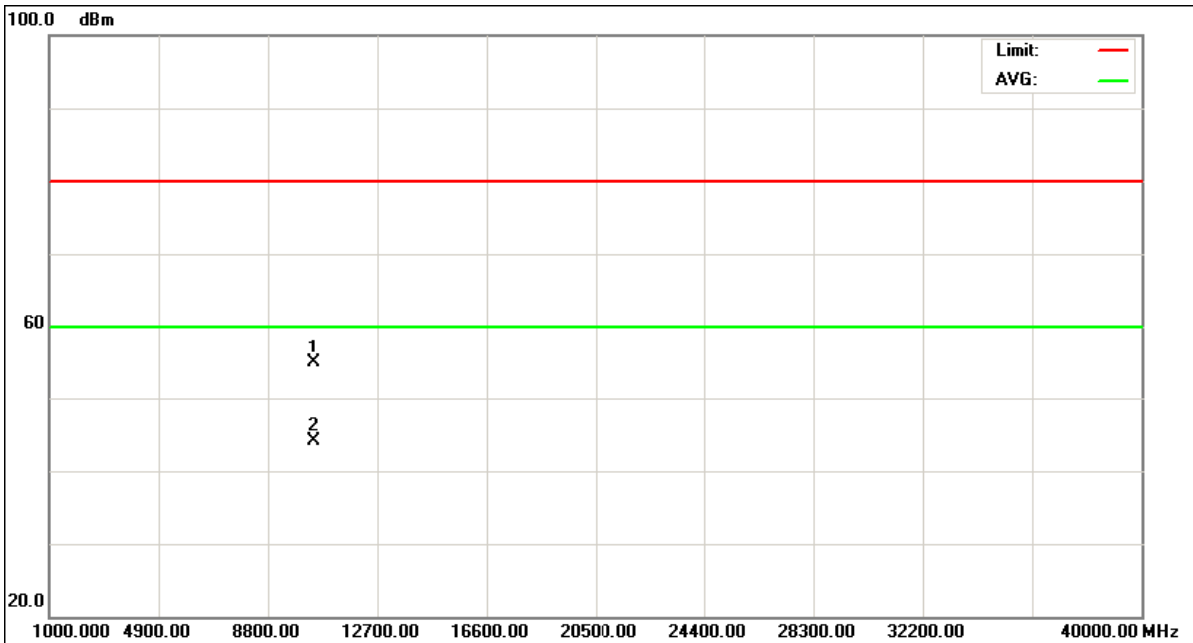
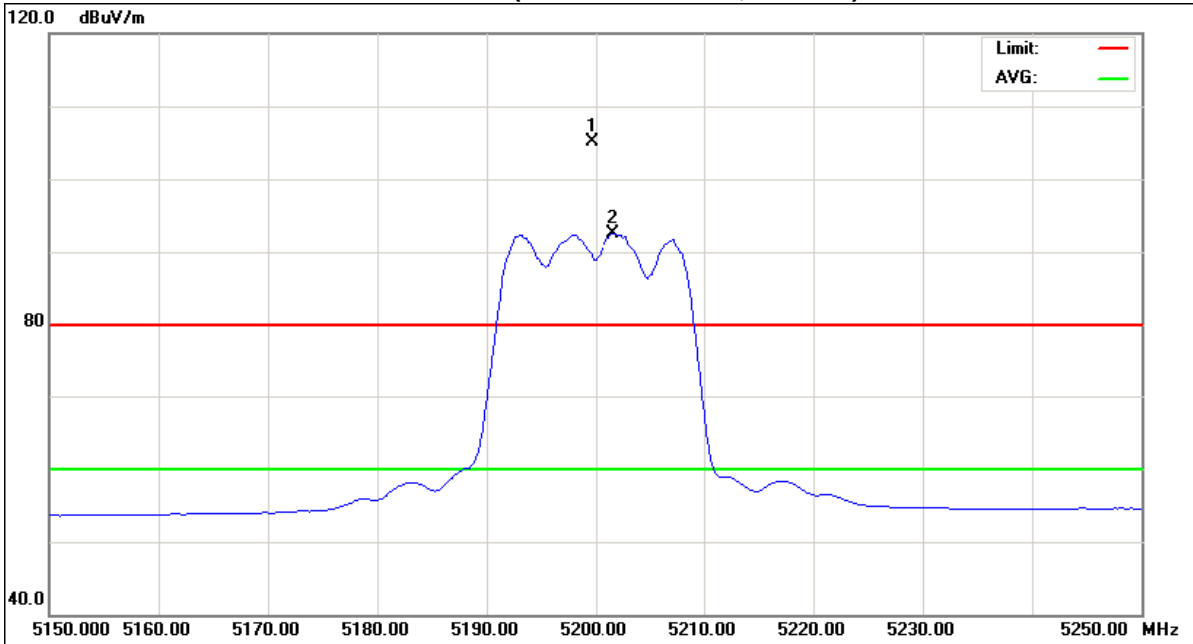
Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
<b>5199.60</b>	<b>V</b>	<b>66.07</b>	<b>53.52</b>	<b>39.06</b>	<b>105.13</b>	<b>92.58</b>			<b>XF</b>
#10400.64	V	42.61	31.83	12.36	54.97	44.19	74.30	60.00	X/H

Remark :

- (1) Spectrum Setting : 30MHz – 1000MHz , RBW= 100KHz, VBW=100KHz, Sweep time = 200 ms. 1GHz- 40GHz, RBW= 1MHz, VBW= 1MHz, Sweep time = Auto
- (2) All readings are Peak unless otherwise stated AV in column of 『 Note 』 . Peak denotes that the Peak reading compliance with the AV Limits and then AV Mode measurement didn't perform.
- (3) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency. “F” denotes fundamental frequency; “H” denotes spurious frequency. “E” denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (4) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission .
- (5) Data of measurement within this frequency range shown “ \* ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (6) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (7) EUT Orthogonal Axes :  
“X” - denotes Laid on Table ; “Y” - denotes Vertical Stand ; “Z” - denotes Side Stand
- (8) During the measurements above 1GHz it is taken care of that the EUT is always within the 3dB cone of radiation BW of the used antenna.
- (9) The limits above 5GHz shall be extrapolated to the specified distance using an extrapolation factor of 20dB/decade form 3m to 1.5m  
Distance extrapolation factor = 20 log (3m/1.5m) dB ;  
Limit line = specific limits (dBuV) + 6 dB
- (10) The signal of 15-40GHz is lower than the limit 20dB. So the test date of this frequency does not place on the test report.
- (11) “#” : The radiated frequency is out the restricted band.



Orthogonal Axis : X  
802.11a/CH40(Above 1000 MHz, Vertical)





EUT :	BCM3380Z D3.0 Wireless eMTA	Model Name :	DVW3201B
Temperature :	34 °C	Relative Humidity :	42 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	802.11a/CH40		

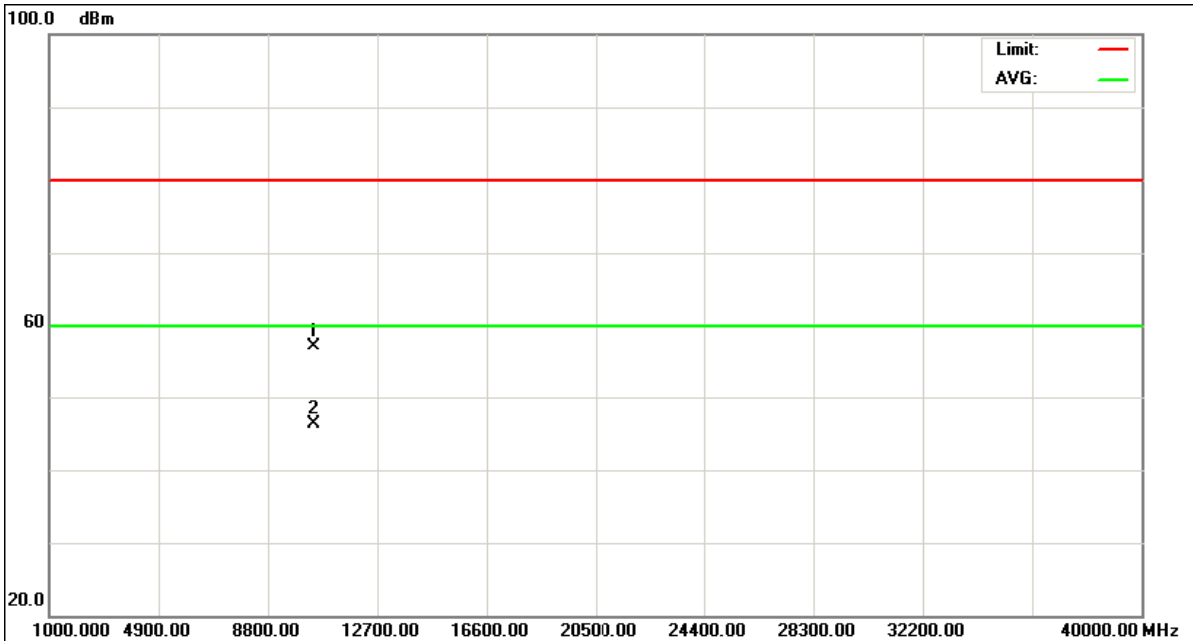
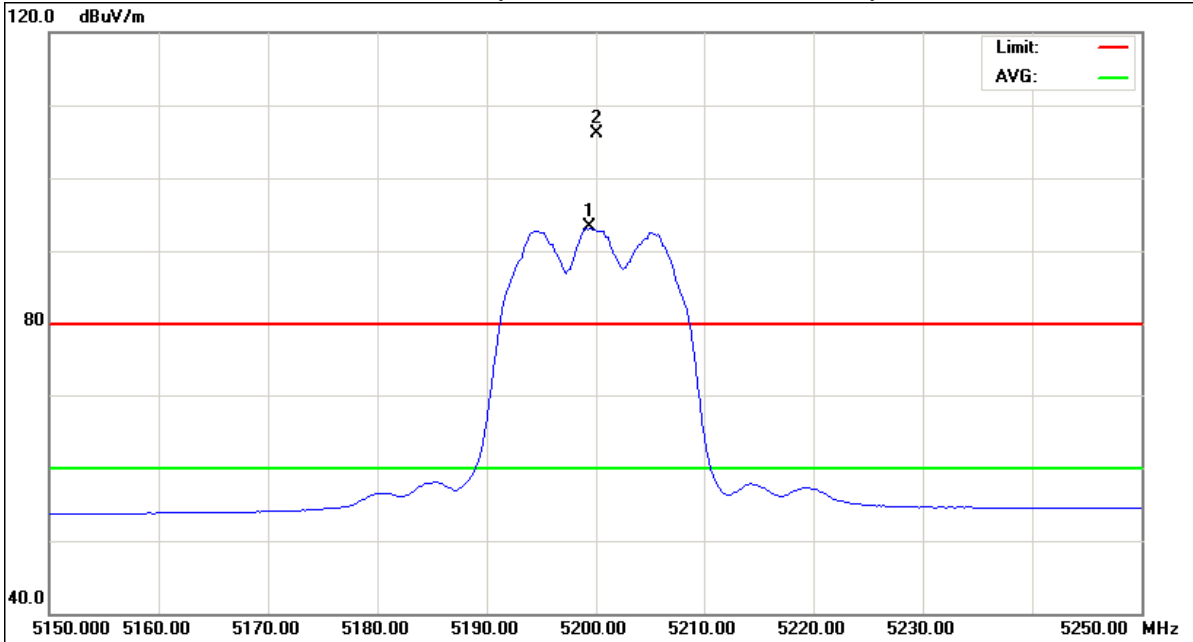
Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
<b>5199.40</b>	<b>H</b>	<b>67.06</b>	<b>54.17</b>	<b>39.06</b>	<b>106.12</b>	<b>93.23</b>			<b>XF</b>
#10400.69	H	44.79	33.85	12.36	57.15	46.21	74.30	60.00	X/H

**Remark :**

- (1) Spectrum Setting : 30MHz – 1000MHz , RBW= 100KHz, VBW=100KHz, Sweep time = 200 ms. 1GHz- 40GHz, RBW= 1MHz, VBW= 1MHz, Sweep time = Auto
- (2) All readings are Peak unless otherwise stated AV in column of 『 Note 』 . Peak denotes that the Peak reading compliance with the AV Limits and then AV Mode measurement didn't perform.
- (3) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency. "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (4) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission .
- (5) Data of measurement within this frequency range shown " \* " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (6) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (7) EUT Orthogonal Axes :  
"X" - denotes Laid on Table ; "Y" - denotes Vertical Stand ; "Z" - denotes Side Stand
- (8) During the measurements above 1GHz it is taken care of that the EUT is always within the 3dB cone of radiation BW of the used antenna.
- (9) The limits above 5GHz shall be extrapolated to the specified distance using an extrapolation factor of 20dB/decade form 3m to 1.5m  
Distance extrapolation factor = 20 log (3m/1.5m) dB ;  
Limit line = specific limits (dBuV) + 6 dB
- (10) The signal of 15-40GHz is lower than the limit 20dB. So the test date of this frequency does not place on the test report.
- (11) "#": The radiated frequency is out the restricted band.



Orthogonal Axis : X  
802.11a/CH40(Above 1000 MHz, Horizontal)





EUT :	BCM3380Z D3.0 Wireless eMTA	Model Name :	DVW3201B
Temperature :	24.9 °C	Relative Humidity :	52 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	802.11a/CH48		

Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
<b>5240.55</b>	<b>V</b>	<b>66.89</b>	<b>52.75</b>	<b>39.24</b>	<b>106.13</b>	<b>91.99</b>			<b>X/F</b>
#10479.61	V	42.72	34.21	12.43	55.15	46.64	74.30	60.00	X/H

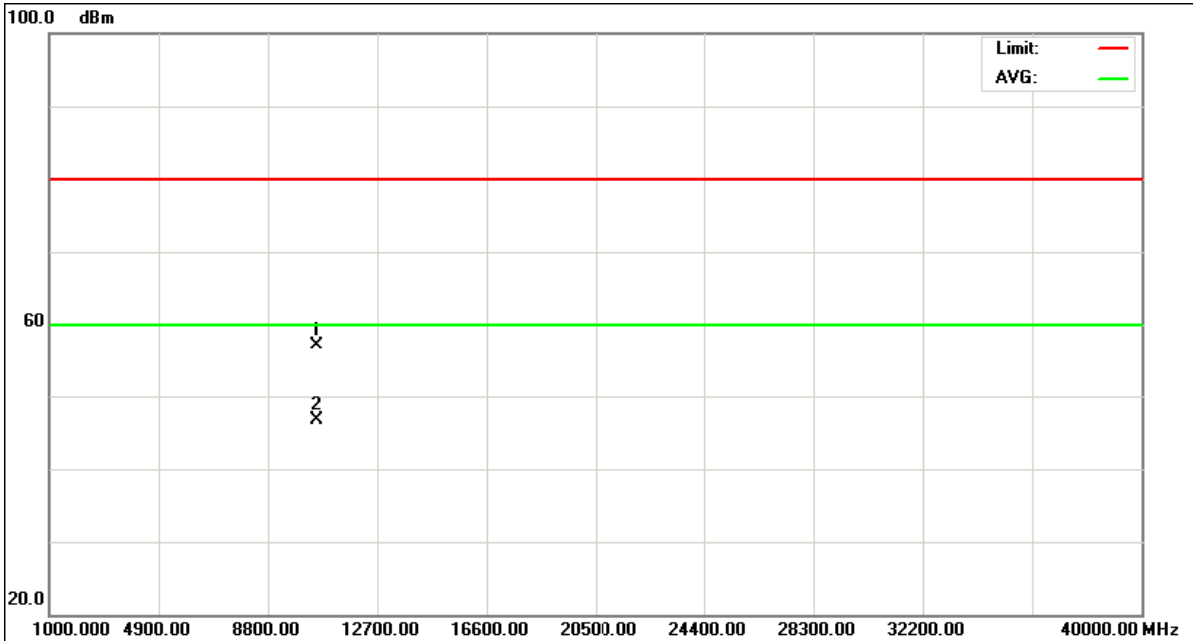
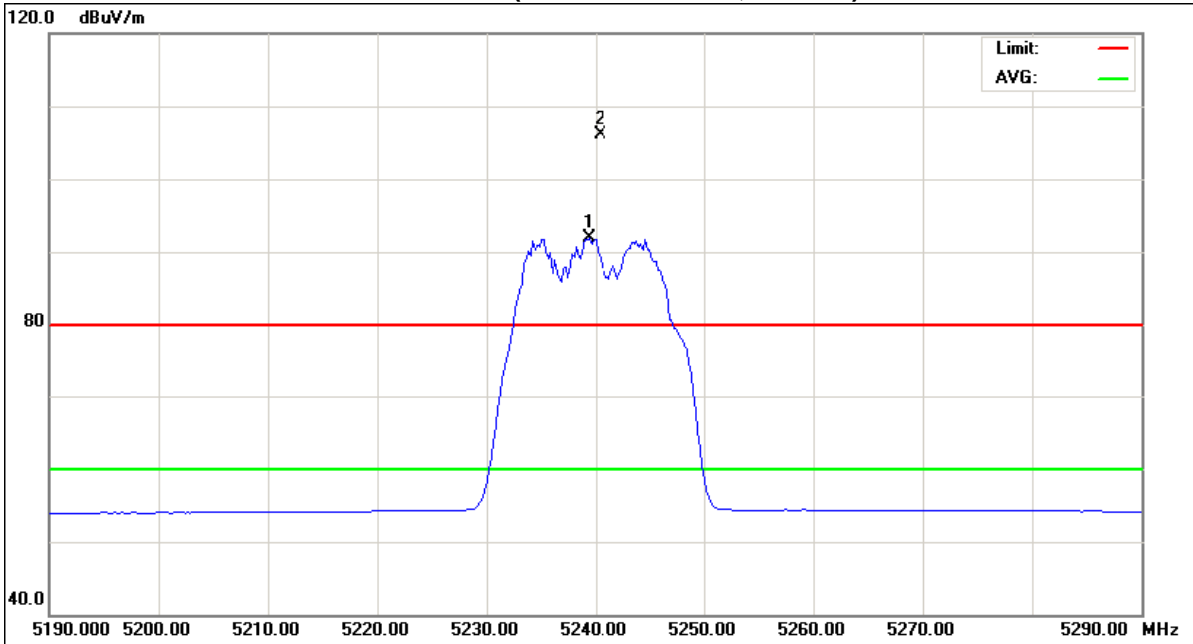
Remark :

- (1) Spectrum Setting : 30MHz – 1000MHz , RBW= 100KHz, VBW=100KHz, Sweep time = 200 ms. 1GHz- 40GHz, RBW= 1MHz, VBW= 1MHz, Sweep time = Auto
- (2) All readings are Peak unless otherwise stated AV in column of 『 Note 』 . Peak denotes that the Peak reading compliance with the AV Limits and then AV Mode measurement didn't perform.
- (3) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency. “F” denotes fundamental frequency; “H” denotes spurious frequency. “E” denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (4) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission .
- (5) Data of measurement within this frequency range shown “ \* ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (6) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (7) EUT Orthogonal Axes :  
“X” - denotes Laid on Table ; “Y” - denotes Vertical Stand ; “Z” - denotes Side Stand
- (8) During the measurements above 1GHz it is taken care of that the EUT is always within the 3dB cone of radiation BW of the used antenna.
- (9) The limits above 5GHz shall be extrapolated to the specified distance using an extrapolation factor of 20dB/decade form 3m to 1.5m  
Distance extrapolation factor = 20 log (3m/1.5m) dB ;  
Limit line = specific limits (dBuV) + 6 dB
- (10) The signal of 15-40GHz is lower than the limit 20dB. So the test date of this frequency does not place on the test report.
- (11) “#” : The radiated frequency is out the restricted band.





Orthogonal Axis : X  
802.11a/CH48(Above 1000 MHz, Vertical)





EUT :	BCM3380Z D3.0 Wireless eMTA	Model Name :	DVW3201B
Temperature :	24.9 °C	Relative Humidity :	52 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	802.11a/CH48		

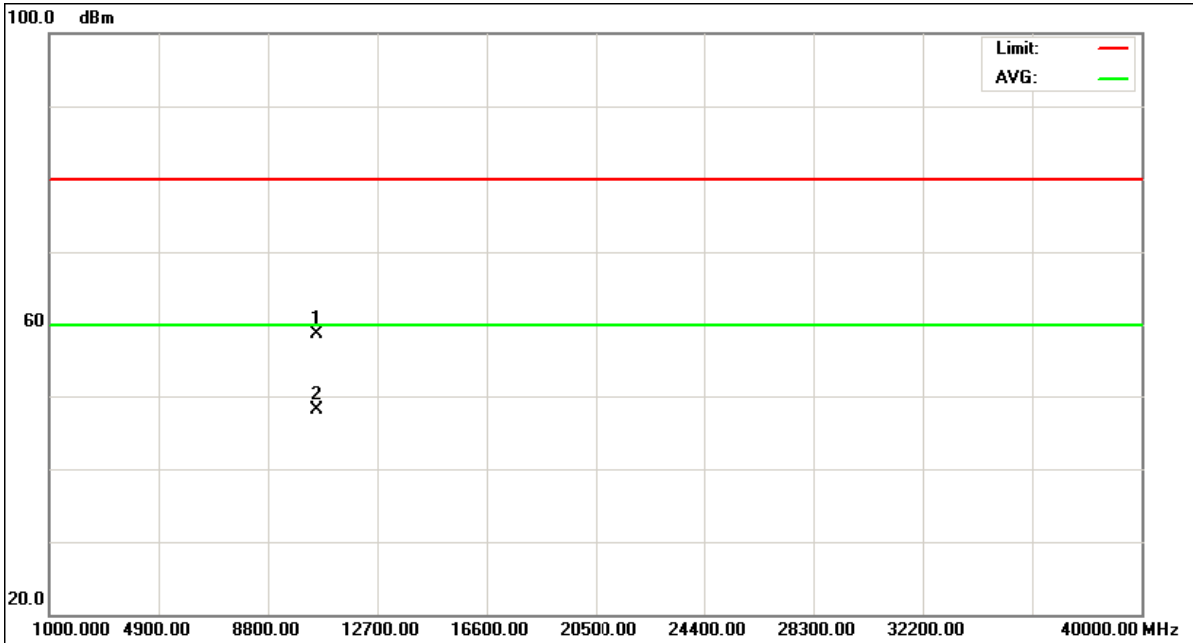
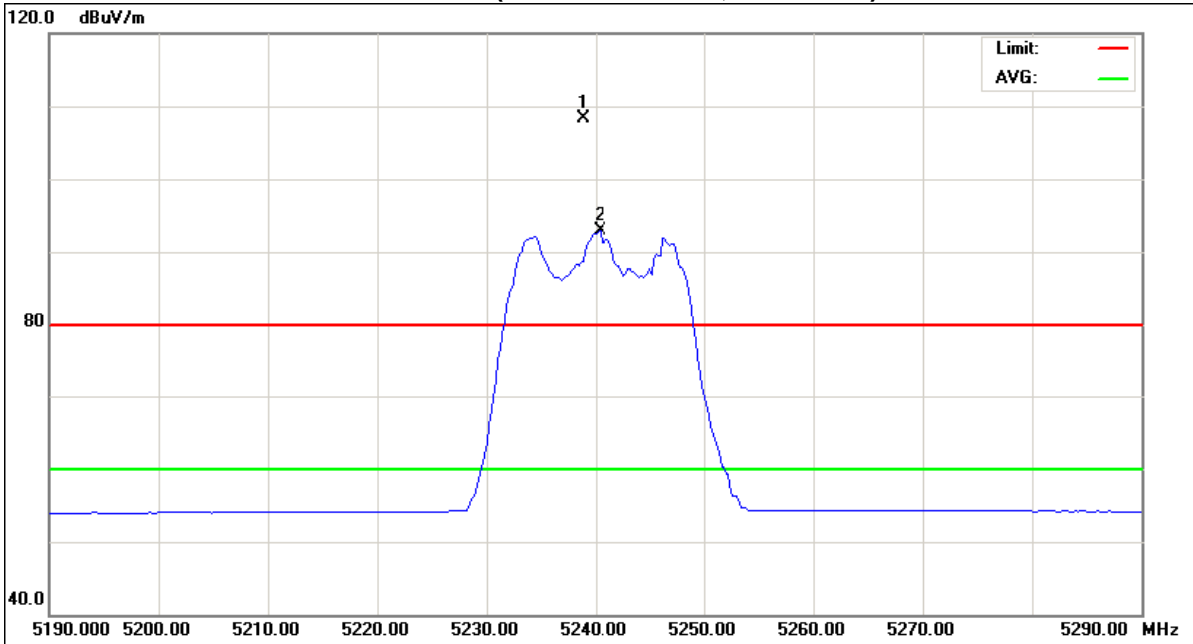
Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
<b>5238.76</b>	<b>H</b>	<b>68.98</b>	<b>53.58</b>	<b>39.23</b>	<b>108.21</b>	<b>92.81</b>			<b>X/F</b>
#10481.02	H	46.28	35.62	12.43	58.71	48.05	74.30	60.00	X/H

Remark :

- (1) Spectrum Setting : 30MHz – 1000MHz , RBW= 100KHz, VBW=100KHz, Sweep time = 200 ms. 1GHz- 40GHz, RBW= 1MHz, VBW= 1MHz, Sweep time = Auto
- (2) All readings are Peak unless otherwise stated AV in column of 『 Note 』 . Peak denotes that the Peak reading compliance with the AV Limits and then AV Mode measurement didn't perform.
- (3) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency. "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (4) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission .
- (5) Data of measurement within this frequency range shown " \* " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (6) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (7) EUT Orthogonal Axes :  
"X" - denotes Laid on Table ; "Y" - denotes Vertical Stand ; "Z" - denotes Side Stand
- (8) During the measurements above 1GHz it is taken care of that the EUT is always within the 3dB cone of radiation BW of the used antenna.
- (9) The limits above 5GHz shall be extrapolated to the specified distance using an extrapolation factor of 20dB/decade form 3m to 1.5m  
Distance extrapolation factor = 20 log (3m/1.5m) dB ;  
Limit line = specific limits (dBuV) + 6 dB
- (10) The signal of 15-40GHz is lower than the limit 20dB. So the test date of this frequency does not place on the test report.
- (11) "#": The radiated frequency is out the restricted band.



Orthogonal Axis : X  
802.11a/CH48(Above 1000 MHz, Horizontal)





EUT :	BCM3380Z D3.0 Wireless eMTA	Model Name :	DVW3201B
Temperature :	23 °C	Relative Humidity :	42%
Test Voltage :	AC 120V/60Hz		
Test Mode :	802.11n/20M/CH36		

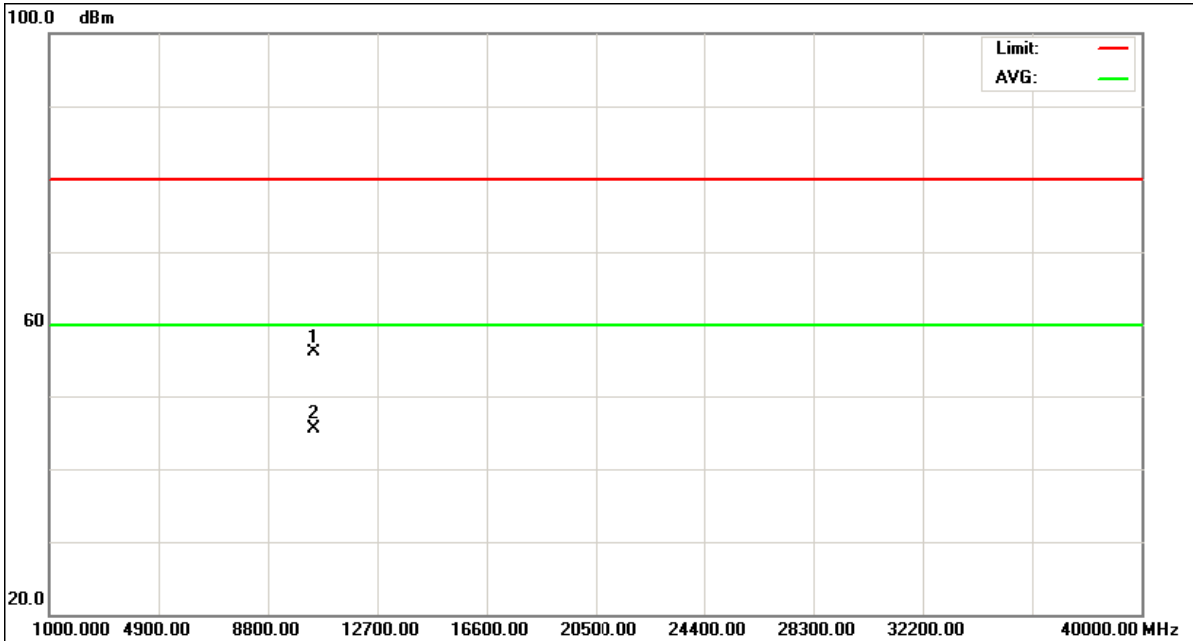
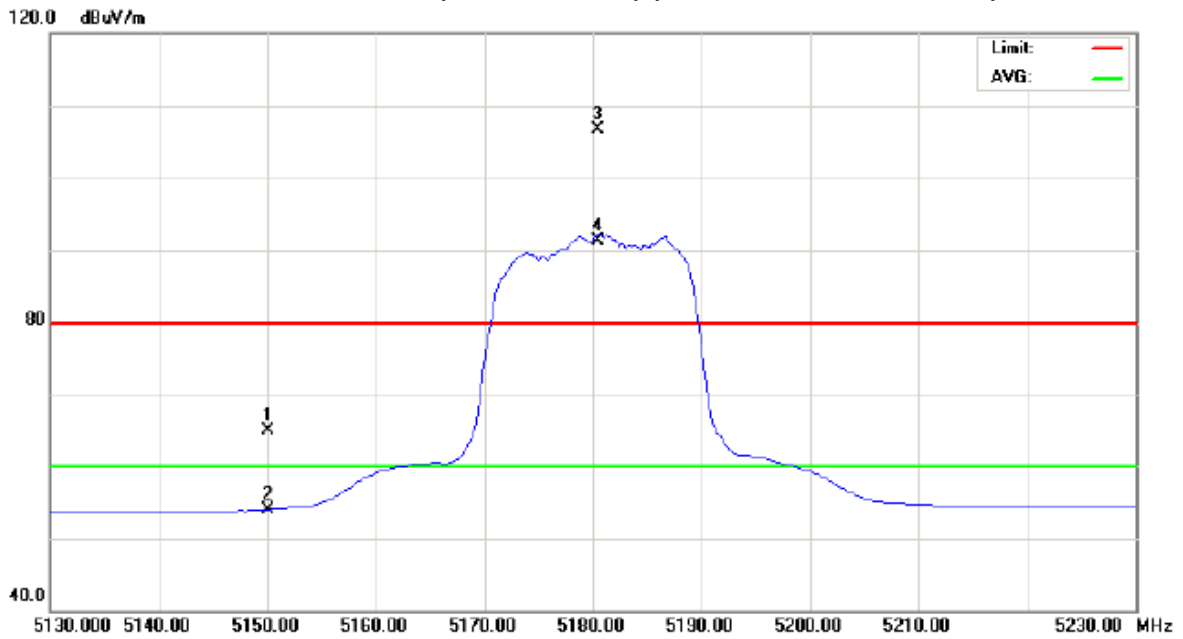
Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
5150.00	V	26.29	15.13	38.83	65.12	53.96	74.30	60.00	X/E
<b>5180.40</b>	<b>V</b>	<b>67.70</b>	<b>52.39</b>	<b>38.96</b>	<b>106.66</b>	<b>91.35</b>			<b>X/F</b>
#10360.04	V	43.78	33.09	12.33	56.11	45.42	74.30	60.00	X/H

Remark :

- (1) Spectrum Setting : 30MHz – 1000MHz , RBW= 100KHz, VBW=100KHz, Sweep time = 200 ms. 1GHz- 40GHz, RBW= 1MHz, VBW= 1MHz, Sweep time = Auto
- (2) All readings are Peak unless otherwise stated AV in column of 『 Note 』 . Peak denotes that the Peak reading compliance with the AV Limits and then AV Mode measurement didn't perform.
- (3) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency. "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (4) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission .
- (5) Data of measurement within this frequency range shown " \* " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (6) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (7) EUT Orthogonal Axes :  
"X" - denotes Laid on Table ; "Y" - denotes Vertical Stand ; "Z" - denotes Side Stand
- (8) During the measurements above 1GHz it is taken care of that the EUT is always within the 3dB cone of radiation BW of the used antenna.
- (9) The limits above 5GHz shall be extrapolated to the specified distance using an extrapolation factor of 20dB/decade form 3m to 1.5m  
Distance extrapolation factor = 20 log (3m/1.5m) dB ;  
Limit line = specific limits (dBuV) + 6 dB
- (10) The signal of 15-40GHz is lower than the limit 20dB. So the test date of this frequency does not place on the test report.
- (11) "#" : The radiated frequency is out the restricted band.



Orthogonal Axis : X  
802.11n/20M/CH36(Port 0 + Port 1) (Above 1000 MHz, Vertical)





EUT :	BCM3380Z D3.0 Wireless eMTA	Model Name :	DVW3201B
Temperature :	23 °C	Relative Humidity :	42%
Test Voltage :	AC 120V/60Hz		
Test Mode :	802.11n/20M/CH36		

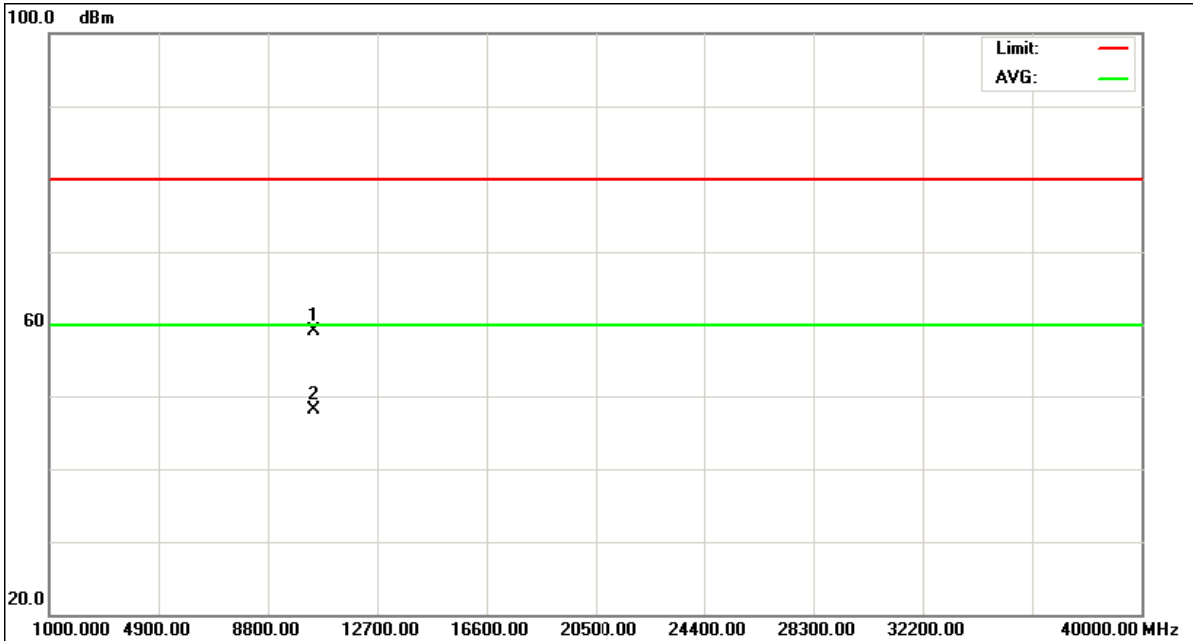
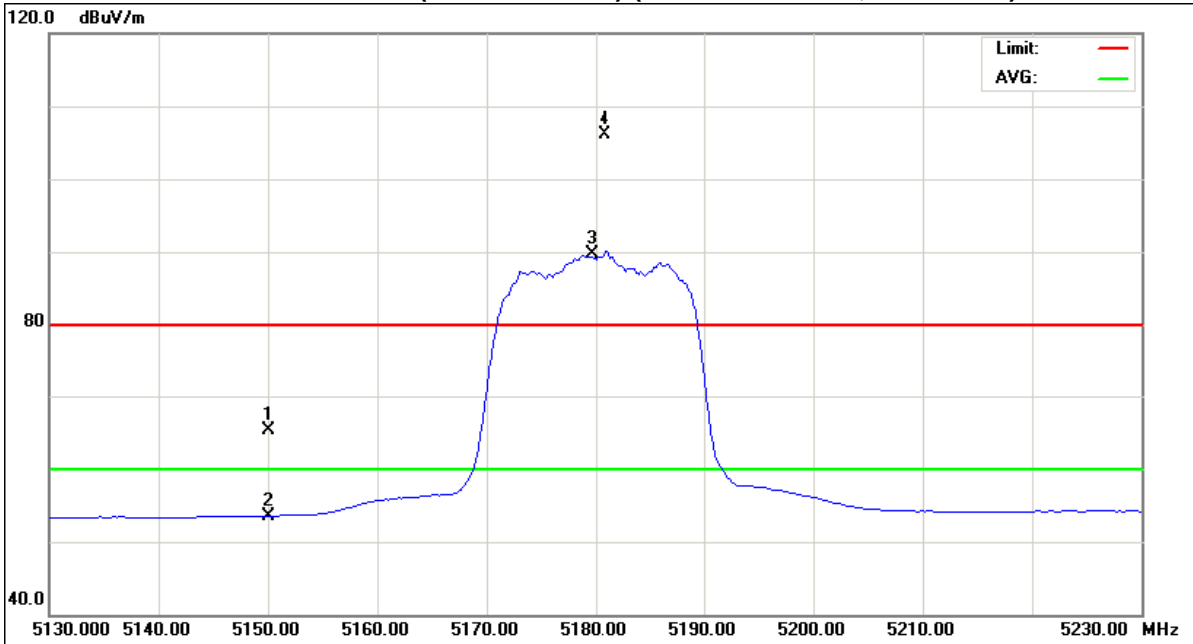
Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
5150.00	H	26.45	14.71	38.83	65.28	53.54	74.30	60.00	X/E
<b>5180.80</b>	<b>H</b>	<b>67.06</b>	<b>50.65</b>	<b>38.97</b>	<b>106.03</b>	<b>89.62</b>			<b>X/F</b>
#10360.91	H	46.82	35.87	12.33	59.15	48.20	74.30	60.00	X/H

Remark :

- (1) Spectrum Setting : 30MHz – 1000MHz , RBW= 100KHz, VBW=100KHz, Sweep time = 200 ms. 1GHz- 40GHz, RBW= 1MHz, VBW= 1MHz, Sweep time = Auto
- (2) All readings are Peak unless otherwise stated AV in column of 『 Note 』 . Peak denotes that the Peak reading compliance with the AV Limits and then AV Mode measurement didn't perform.
- (3) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency. “F” denotes fundamental frequency; “H” denotes spurious frequency. “E” denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (4) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission .
- (5) Data of measurement within this frequency range shown “ \* ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (6) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (7) EUT Orthogonal Axes :  
“X” - denotes Laid on Table ; “Y” - denotes Vertical Stand ; “Z” - denotes Side Stand
- (8) During the measurements above 1GHz it is taken care of that the EUT is always within the 3dB cone of radiation BW of the used antenna.
- (9) The limits above 5GHz shall be extrapolated to the specified distance using an extrapolation factor of 20dB/decade form 3m to 1.5m  
Distance extrapolation factor = 20 log (3m/1.5m) dB ;  
Limit line = specific limits (dBuV) + 6 dB
- (10) The signal of 15-40GHz is lower than the limit 20dB. So the test date of this frequency does not place on the test report.
- (11) “#” : The radiated frequency is out the restricted band.



Orthogonal Axis : X  
802.11n/20M/CH36(Port 0 + Port 1) (Above 1000 MHz, Horizontal)





EUT :	BCM3380Z D3.0 Wireless eMTA	Model Name :	DVW3201B
Temperature :	23 °C	Relative Humidity :	42%
Test Voltage :	AC 120V/60Hz		
Test Mode :	802.11n/20M/CH40		

Freq. (MHz)	Ant. Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
<b>5201.00</b>	<b>V</b>	<b>64.55</b>	<b>48.23</b>	<b>39.06</b>	<b>103.61</b>	<b>87.29</b>			<b>X/F</b>
#10400.6	V	43.79	34.06	12.36	56.15	46.42	74.30	60.00	X/H

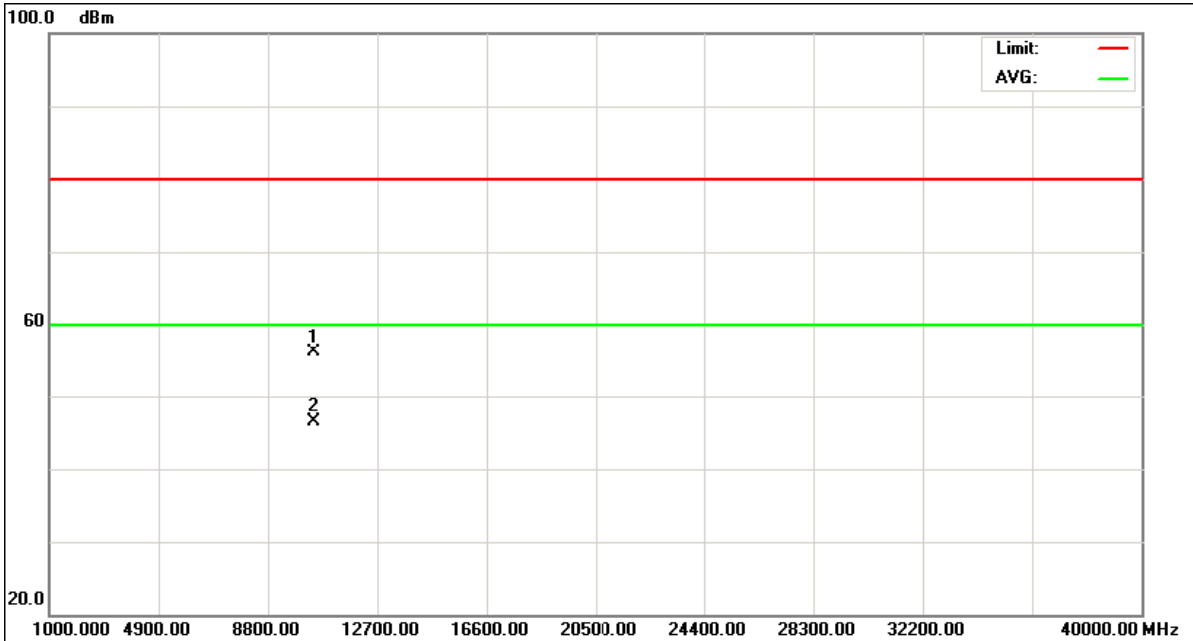
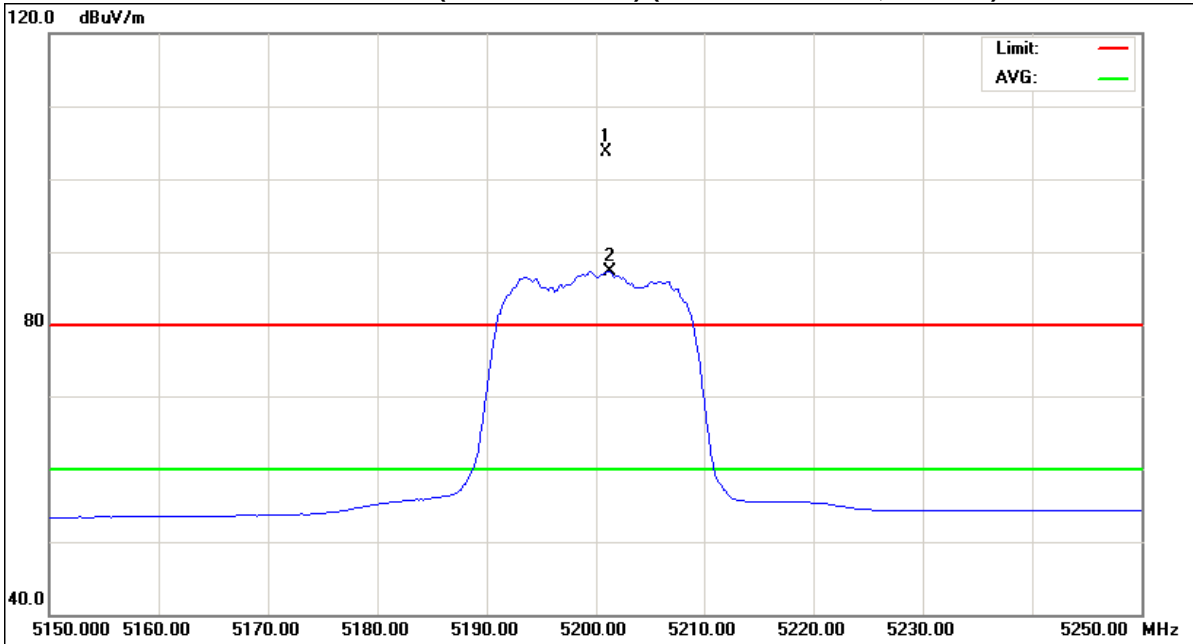
Remark :

- (1) Spectrum Setting : 30MHz – 1000MHz , RBW= 100KHz, VBW=100KHz, Sweep time = 200 ms. 1GHz- 40GHz, RBW= 1MHz, VBW= 1MHz, Sweep time = Auto
- (2) All readings are Peak unless otherwise stated AV in column of 『 Note 』 . Peak denotes that the Peak reading compliance with the AV Limits and then AV Mode measurement didn't perform.
- (3) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency. “F” denotes fundamental frequency; “H” denotes spurious frequency. “E” denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (4) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission .
- (5) Data of measurement within this frequency range shown “ \* ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (6) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (7) EUT Orthogonal Axes :  
“X” - denotes Laid on Table ; “Y” - denotes Vertical Stand ; “Z” - denotes Side Stand
- (8) During the measurements above 1GHz it is taken care of that the EUT is always within the 3dB cone of radiation BW of the used antenna.
- (9) The limits above 5GHz shall be extrapolated to the specified distance using an extrapolation factor of 20dB/decade form 3m to 1.5m  
Distance extrapolation factor = 20 log (3m/1.5m) dB ;  
Limit line = specific limits (dBuV) + 6 dB
- (10) The signal of 15-40GHz is lower than the limit 20dB. So the test date of this frequency does not place on the test report.
- (11) “#” : The radiated frequency is out the restricted band.





Orthogonal Axis : X  
802.11n/20M/CH40(Port 0 + Port 1) (Above 1000 MHz, Vertical)





EUT :	BCM3380Z D3.0 Wireless eMTA	Model Name :	DVW3201B
Temperature :	23 °C	Relative Humidity :	42%
Test Voltage :	AC 120V/60Hz		
Test Mode :	802.11n/20M/CH40		

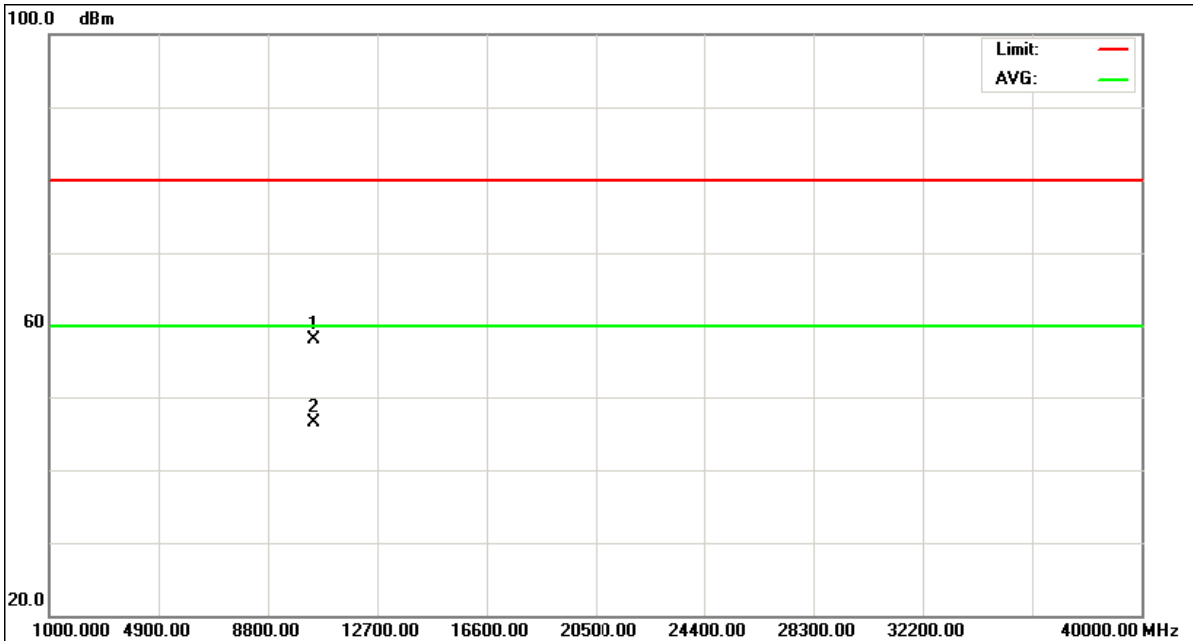
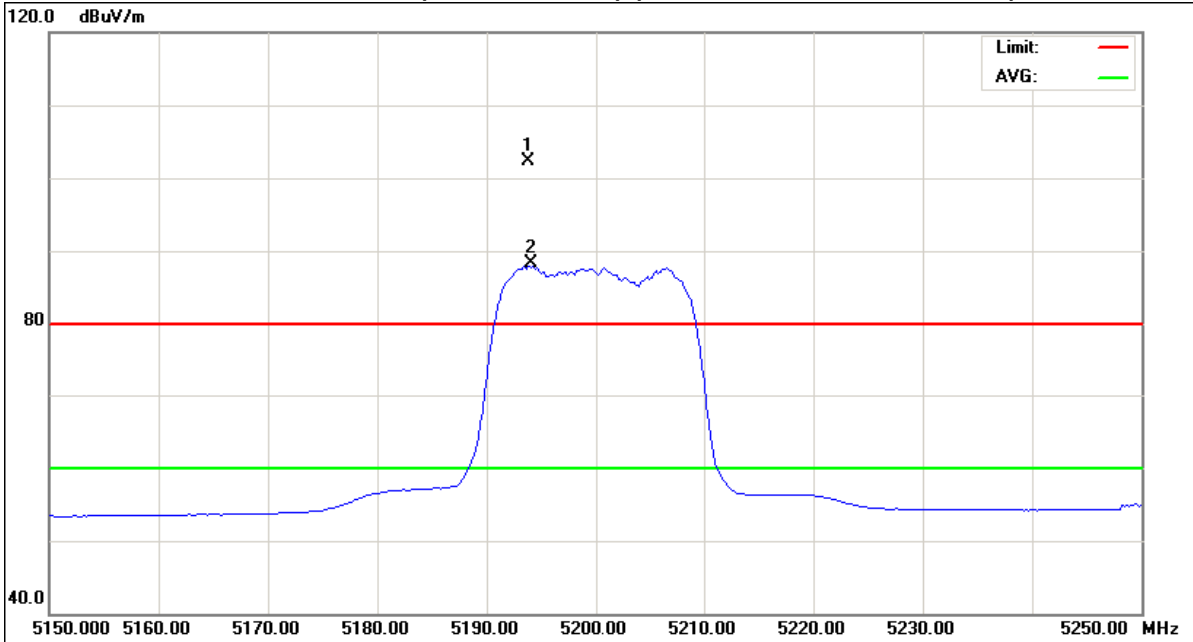
Freq. (MHz)	Ant. Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
<b>5193.80</b>	<b>H</b>	<b>63.28</b>	<b>49.28</b>	<b>39.03</b>	<b>102.31</b>	<b>88.31</b>			<b>X/F</b>
#10400.21	H	45.69	34.19	12.36	58.05	46.55	74.30	60.00	X/H

**Remark :**

- (1) Spectrum Setting : 30MHz – 1000MHz , RBW= 100KHz, VBW=100KHz, Sweep time = 200 ms. 1GHz- 40GHz, RBW= 1MHz, VBW= 1MHz, Sweep time = Auto
- (2) All readings are Peak unless otherwise stated AV in column of 『 Note 』 . Peak denotes that the Peak reading compliance with the AV Limits and then AV Mode measurement didn't perform.
- (3) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency. "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (4) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission .
- (5) Data of measurement within this frequency range shown " \* " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (6) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (7) EUT Orthogonal Axes :  
"X" - denotes Laid on Table ; "Y" - denotes Vertical Stand ; "Z" - denotes Side Stand
- (8) During the measurements above 1GHz it is taken care of that the EUT is always within the 3dB cone of radiation BW of the used antenna.
- (9) The limits above 5GHz shall be extrapolated to the specified distance using an extrapolation factor of 20dB/decade form 3m to 1.5m  
Distance extrapolation factor = 20 log (3m/1.5m) dB ;  
Limit line = specific limits (dBuV) + 6 dB
- (10) The signal of 15-40GHz is lower than the limit 20dB. So the test date of this frequency does not place on the test report.
- (11) "#": The radiated frequency is out the restricted band.



Orthogonal Axis : X  
802.11n/20M/CH40(Port 0 + Port 1) (Above 1000 MHz, Horizontal)





EUT :	BCM3380Z D3.0 Wireless eMTA	Model Name :	DVW3201B
Temperature :	24.9 °C	Relative Humidity :	52%
Test Voltage :	AC 120V/60Hz		
Test Mode :	802.11n/20M/CH48		

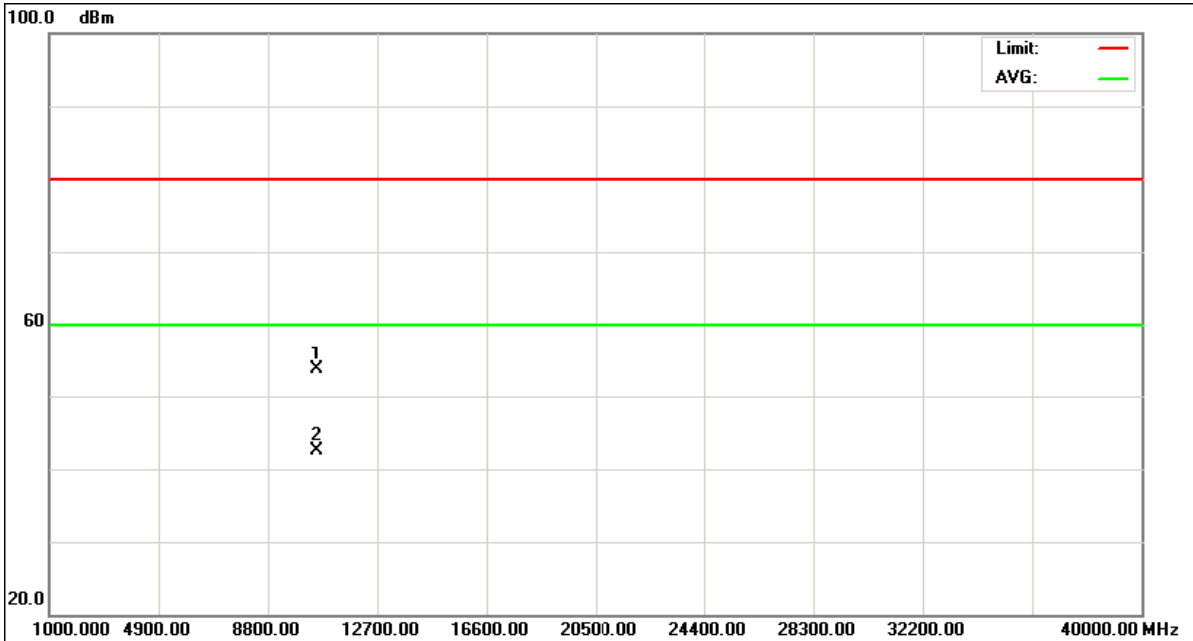
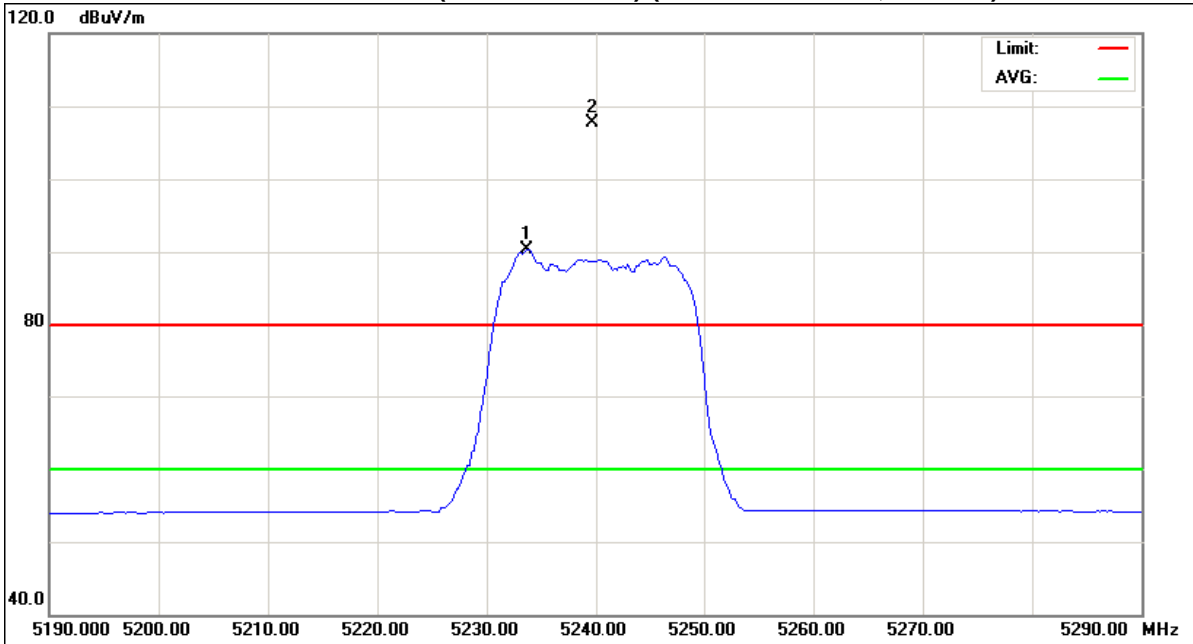
Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
<b>5239.67</b>	<b>V</b>	<b>68.44</b>	<b>51.04</b>	<b>39.23</b>	<b>107.67</b>	<b>90.27</b>			<b>X/F</b>
#10481.37	V	41.18	30.06	12.43	53.61	42.49	74.30	60.00	X/E

Remark :

- (1) Spectrum Setting : 30MHz – 1000MHz , RBW= 100KHz, VBW=100KHz, Sweep time = 200 ms. 1GHz- 40GHz, RBW= 1MHz, VBW= 1MHz, Sweep time = Auto
- (2) All readings are Peak unless otherwise stated AV in column of 『 Note 』 . Peak denotes that the Peak reading compliance with the AV Limits and then AV Mode measurement didn't perform.
- (3) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency. “F” denotes fundamental frequency; “H” denotes spurious frequency. “E” denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (4) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission .
- (5) Data of measurement within this frequency range shown “ \* ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (6) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (7) EUT Orthogonal Axes :  
“X” - denotes Laid on Table ; “Y” - denotes Vertical Stand ; “Z” - denotes Side Stand
- (8) During the measurements above 1GHz it is taken care of that the EUT is always within the 3dB cone of radiation BW of the used antenna.
- (9) The limits above 5GHz shall be extrapolated to the specified distance using an extrapolation factor of 20dB/decade form 3m to 1.5m  
Distance extrapolation factor = 20 log (3m/1.5m) dB ;  
Limit line = specific limits (dBuV) + 6 dB
- (10) The signal of 15-40GHz is lower than the limit 20dB. So the test date of this frequency does not place on the test report.
- (11) “#” : The radiated frequency is out the restricted band.



Orthogonal Axis : X  
802.11n/20M/CH48(Port 0 + Port 1) (Above 1000 MHz, Vertical)





EUT :	BCM3380Z D3.0 Wireless eMTA	Model Name :	DVW3201B
Temperature :	24.9 °C	Relative Humidity :	52%
Test Voltage :	AC 120V/60Hz		
Test Mode :	802.11n/20M/CH48		

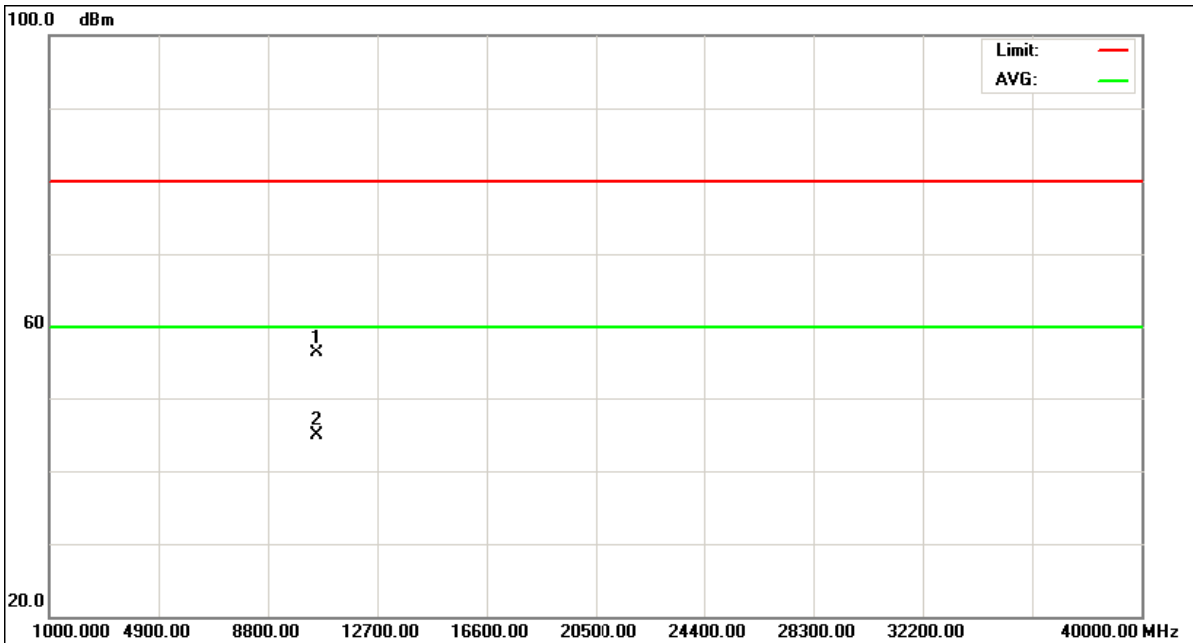
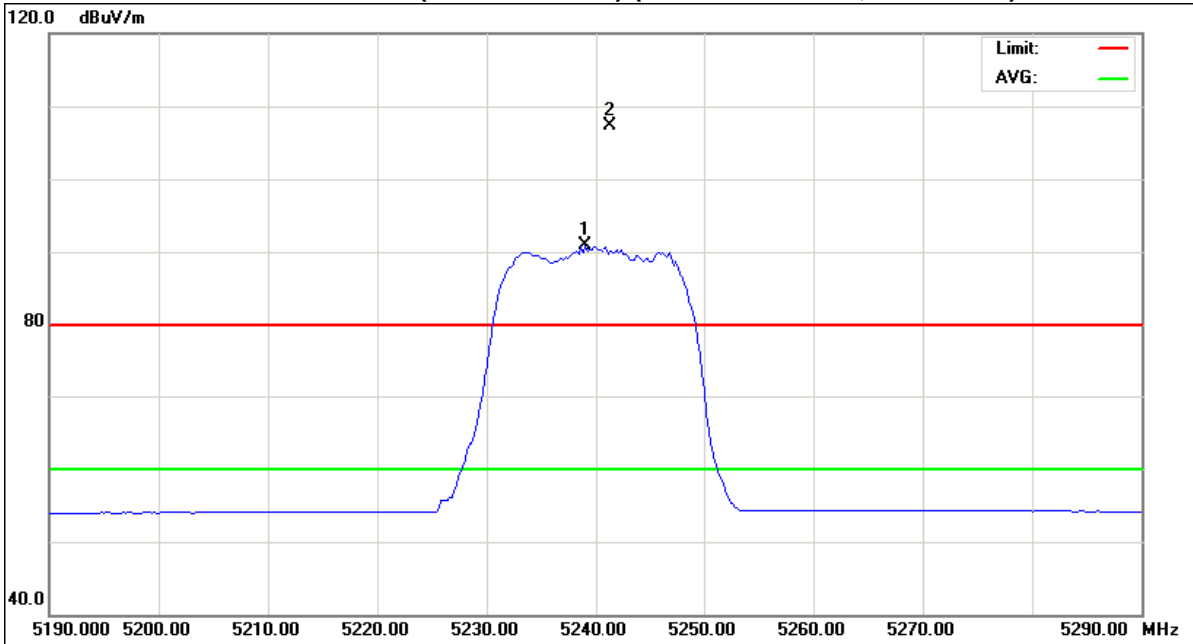
Freq. (MHz)	Ant. Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
<b>5241.28</b>	<b>H</b>	<b>67.99</b>	<b>51.58</b>	<b>39.24</b>	<b>107.23</b>	<b>90.82</b>			<b>X/F</b>
#10480.05	H	43.92	32.57	12.43	56.35	45.00	74.30	60.00	X/H

**Remark :**

- (1) Spectrum Setting : 30MHz – 1000MHz , RBW= 100KHz, VBW=100KHz, Sweep time = 200 ms. 1GHz- 40GHz, RBW= 1MHz, VBW= 1MHz, Sweep time = Auto
- (2) All readings are Peak unless otherwise stated AV in column of 『 Note 』 . Peak denotes that the Peak reading compliance with the AV Limits and then AV Mode measurement didn't perform.
- (3) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency. "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (4) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission .
- (5) Data of measurement within this frequency range shown " \* " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (6) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (7) EUT Orthogonal Axes :  
"X" - denotes Laid on Table ; "Y" - denotes Vertical Stand ; "Z" - denotes Side Stand
- (8) During the measurements above 1GHz it is taken care of that the EUT is always within the 3dB cone of radiation BW of the used antenna.
- (9) The limits above 5GHz shall be extrapolated to the specified distance using an extrapolation factor of 20dB/decade form 3m to 1.5m  
Distance extrapolation factor = 20 log (3m/1.5m) dB ;  
Limit line = specific limits (dBuV) + 6 dB
- (10) The signal of 15-40GHz is lower than the limit 20dB. So the test date of this frequency does not place on the test report.
- (11) "#": The radiated frequency is out the restricted band.



Orthogonal Axis : X  
802.11n/20M/CH48(Port 0 + Port 1) (Above 1000 MHz, Horizontal)





EUT :	BCM3380Z D3.0 Wireless eMTA	Model Name :	DVW3201B
Temperature :	23 °C	Relative Humidity :	42%
Test Voltage :	AC 120V/60Hz		
Test Mode :	802.11n/40M/CH38		

Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
5150.00	V	36.14	19.05	38.83	74.97	57.88	74.30	60.00	X/E
<b>5192.00</b>	<b>V</b>	<b>68.04</b>	<b>47.22</b>	<b>39.02</b>	<b>107.06</b>	<b>86.24</b>			<b>X/F</b>
#10381.61	V	44.51	33.72	12.35	56.86	46.07	74.30	60.00	X/H

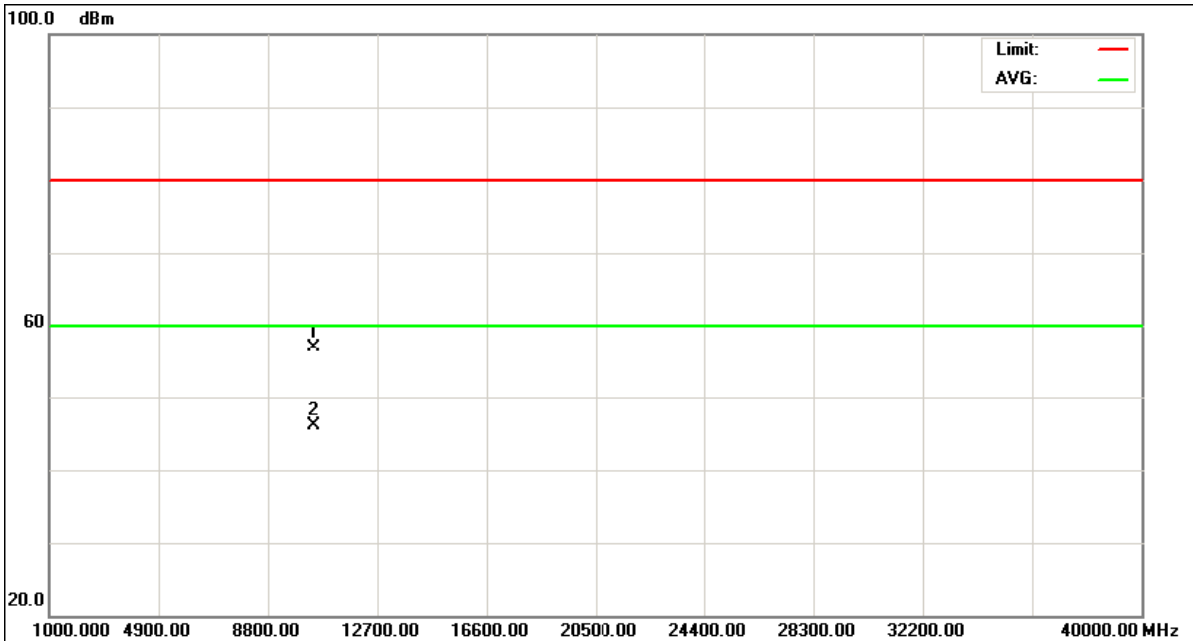
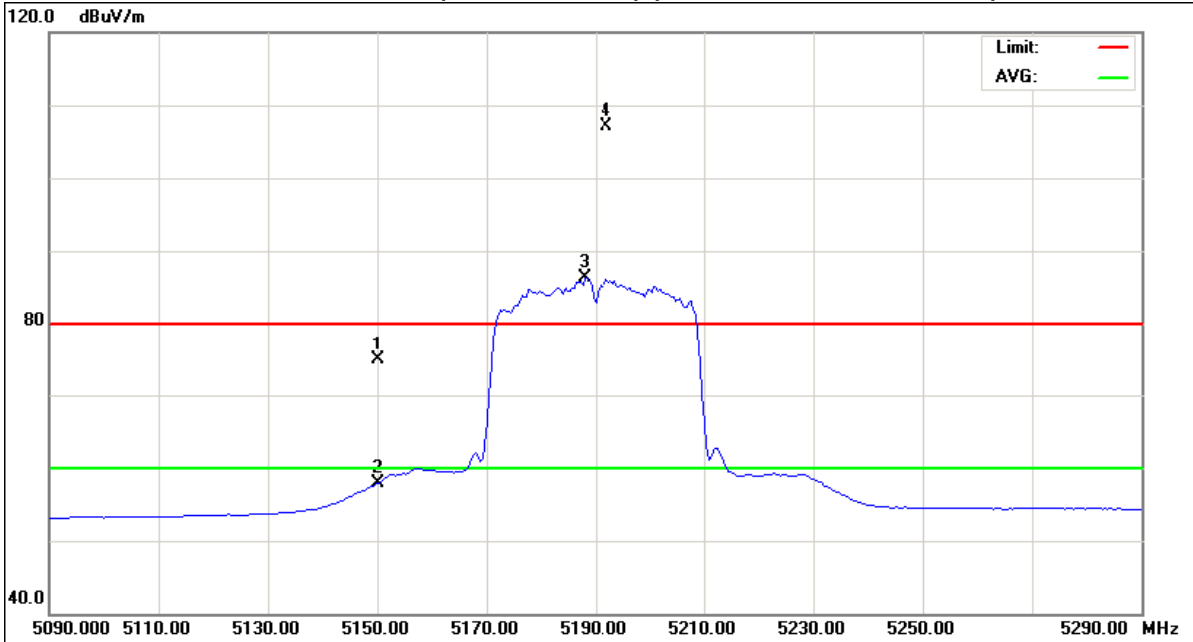
Remark :

- (1) Spectrum Setting : 30MHz – 1000MHz , RBW= 100KHz, VBW=100KHz, Sweep time = 200 ms. 1GHz- 40GHz, RBW= 1MHz, VBW= 1MHz, Sweep time = Auto
- (2) All readings are Peak unless otherwise stated AV in column of 『 Note 』 . Peak denotes that the Peak reading compliance with the AV Limits and then AV Mode measurement didn't perform.
- (3) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency. "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (4) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission .
- (5) Data of measurement within this frequency range shown " \* " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (6) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (7) EUT Orthogonal Axes :  
"X" - denotes Laid on Table ; "Y" - denotes Vertical Stand ; "Z" - denotes Side Stand
- (8) During the measurements above 1GHz it is taken care of that the EUT is always within the 3dB cone of radiation BW of the used antenna.
- (9) The limits above 5GHz shall be extrapolated to the specified distance using an extrapolation factor of 20dB/decade form 3m to 1.5m  
Distance extrapolation factor = 20 log (3m/1.5m) dB ;  
Limit line = specific limits (dBuV) + 6 dB
- (10) The signal of 15-40GHz is lower than the limit 20dB. So the test date of this frequency does not place on the test report.
- (11) "#": The radiated frequency is out the restricted band.





Orthogonal Axis : X  
802.11n/40M/CH38(Port 0 + Port 1) (Above 1000 MHz, Vertical)





EUT :	BCM3380Z D3.0 Wireless eMTA	Model Name :	DVW3201B
Temperature :	23 °C	Relative Humidity :	42%
Test Voltage :	AC 120V/60Hz		
Test Mode :	802.11n/40M/CH38		

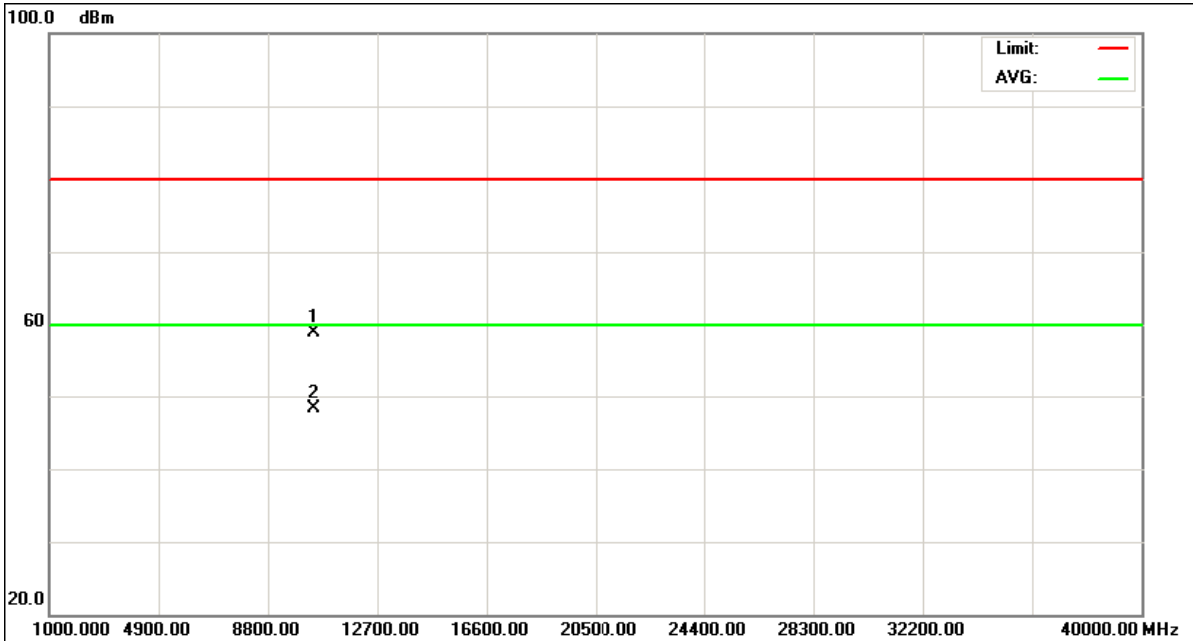
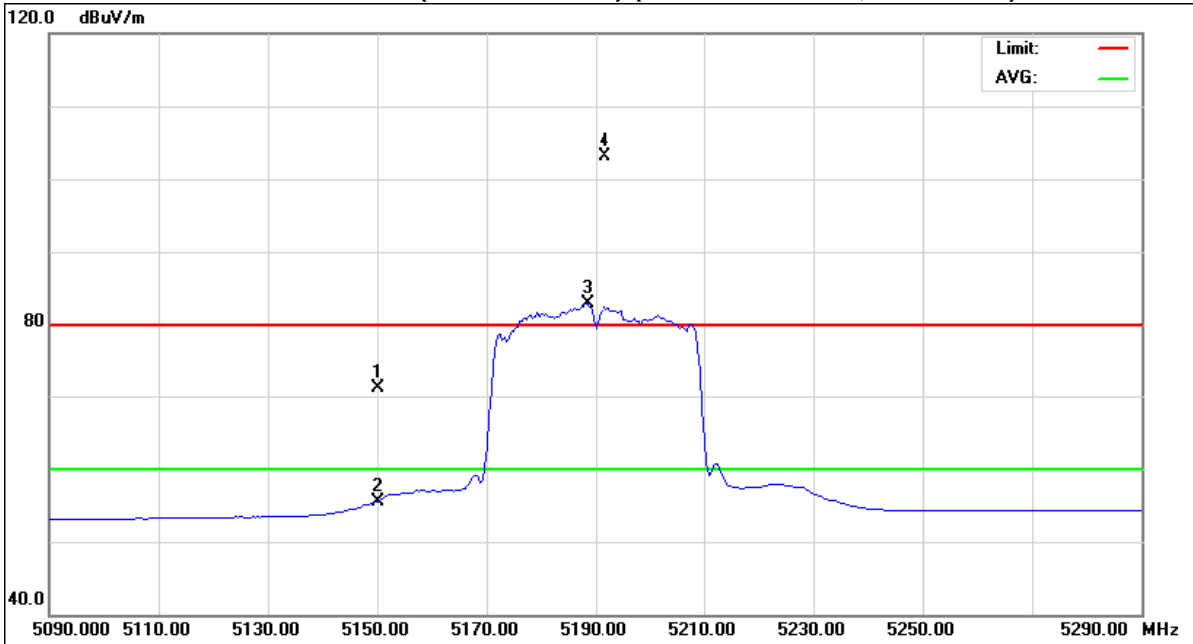
Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
5150.00	H	32.21	16.76	38.83	71.04	55.59	74.30	60.00	X/E
<b>5191.60</b>	<b>H</b>	<b>63.99</b>	<b>43.85</b>	<b>39.02</b>	<b>103.01</b>	<b>82.87</b>			<b>X/F</b>
#10380.89	H	46.48	35.90	12.35	58.83	48.25	74.30	60.00	X/H

Remark :

- (1) Spectrum Setting : 30MHz – 1000MHz , RBW= 100KHz, VBW=100KHz, Sweep time = 200 ms. 1GHz- 40GHz, RBW= 1MHz, VBW= 1MHz, Sweep time = Auto
- (2) All readings are Peak unless otherwise stated AV in column of 『 Note 』 . Peak denotes that the Peak reading compliance with the AV Limits and then AV Mode measurement didn't perform.
- (3) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency. “F” denotes fundamental frequency; “H” denotes spurious frequency. “E” denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (4) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission .
- (5) Data of measurement within this frequency range shown “ \* ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (6) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (7) EUT Orthogonal Axes :  
“X” - denotes Laid on Table ; “Y” - denotes Vertical Stand ; “Z” - denotes Side Stand
- (8) During the measurements above 1GHz it is taken care of that the EUT is always within the 3dB cone of radiation BW of the used antenna.
- (9) The limits above 5GHz shall be extrapolated to the specified distance using an extrapolation factor of 20dB/decade form 3m to 1.5m  
Distance extrapolation factor = 20 log (3m/1.5m) dB ;  
Limit line = specific limits (dBuV) + 6 dB
- (10) The signal of 15-40GHz is lower than the limit 20dB. So the test date of this frequency does not place on the test report.
- (11) “#” : The radiated frequency is out the restricted band.



Orthogonal Axis : X  
802.11n/40M/CH38(Port 0 + Port 1) (Above 1000 MHz, Horizontal)





EUT :	BCM3380Z D3.0 Wireless eMTA	Model Name :	DVW3201B
Temperature :	23 °C	Relative Humidity :	42%
Test Voltage :	AC 120V/60Hz		
Test Mode :	802.11n/40M/CH46		

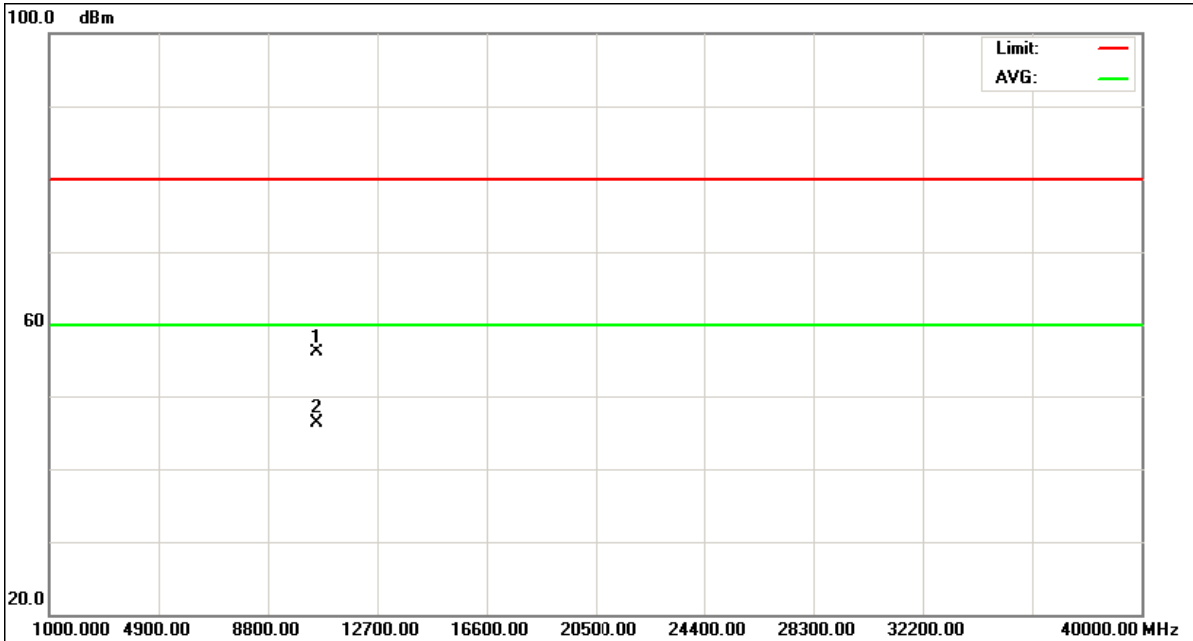
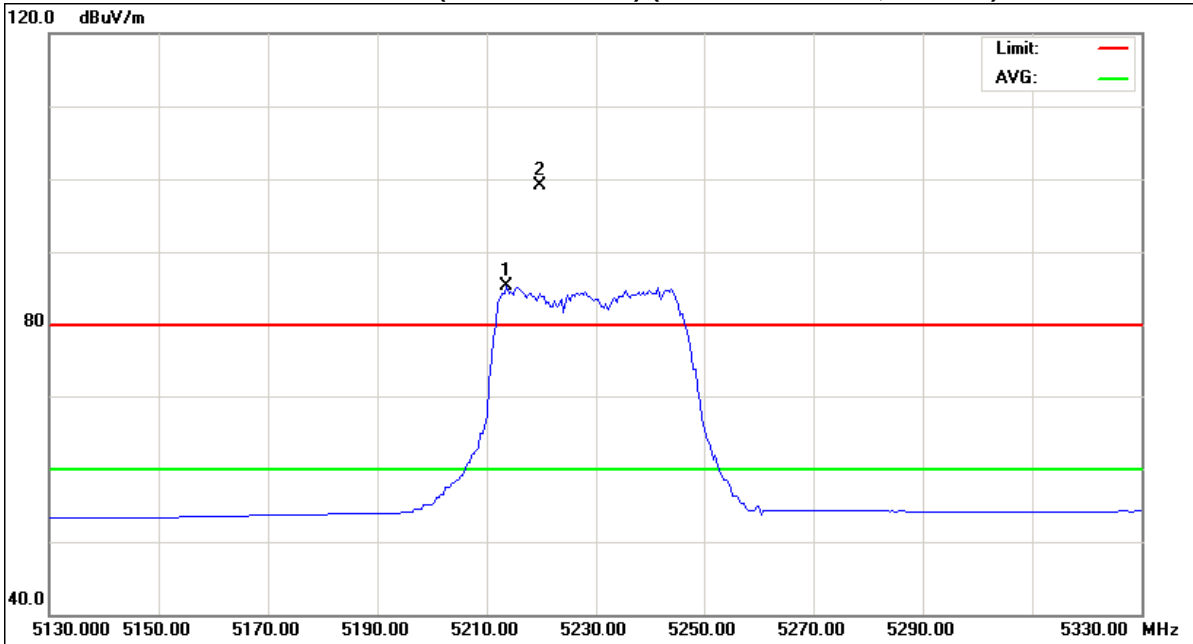
Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
<b>5213.60</b>	<b>V</b>	<b>67.18</b>	<b>46.09</b>	<b>39.15</b>	<b>106.33</b>	<b>85.24</b>			<b>X/F</b>
#10462.03	V	43.67	33.81	12.41	56.08	46.22	74.30	60.00	X/H

Remark :

- (1) Spectrum Setting : 30MHz – 1000MHz , RBW= 100KHz, VBW=100KHz, Sweep time = 200 ms. 1GHz- 40GHz, RBW= 1MHz, VBW= 1MHz, Sweep time = Auto
- (2) All readings are Peak unless otherwise stated AV in column of 『 Note 』 . Peak denotes that the Peak reading compliance with the AV Limits and then AV Mode measurement didn't perform.
- (3) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency. “F” denotes fundamental frequency; “H” denotes spurious frequency. “E” denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (4) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission .
- (5) Data of measurement within this frequency range shown “ \* ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (6) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (7) EUT Orthogonal Axes :  
“X” - denotes Laid on Table ; “Y” - denotes Vertical Stand ; “Z” - denotes Side Stand
- (8) During the measurements above 1GHz it is taken care of that the EUT is always within the 3dB cone of radiation BW of the used antenna.
- (9) The limits above 5GHz shall be extrapolated to the specified distance using an extrapolation factor of 20dB/decade form 3m to 1.5m  
Distance extrapolation factor = 20 log (3m/1.5m) dB ;  
Limit line = specific limits (dBuV) + 6 dB
- (10) The signal of 15-40GHz is lower than the limit 20dB. So the test date of this frequency does not place on the test report.
- (11) “#” : The radiated frequency is out the restricted band.



Orthogonal Axis : X  
802.11n/40M/CH46(Port 0 + Port 1) (Above 1000 MHz, Vertical)





EUT :	BCM3380Z D3.0 Wireless eMTA	Model Name :	DVW3201B
Temperature :	23 °C	Relative Humidity :	42%
Test Voltage :	AC 120V/60Hz		
Test Mode :	802.11n/40M/CH46		

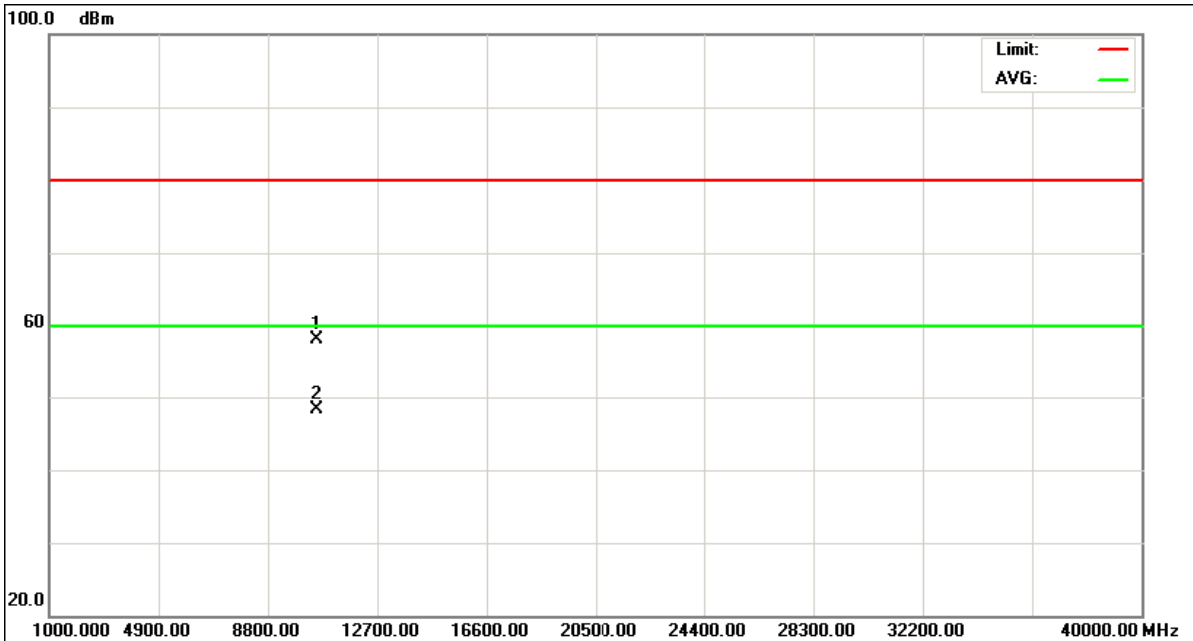
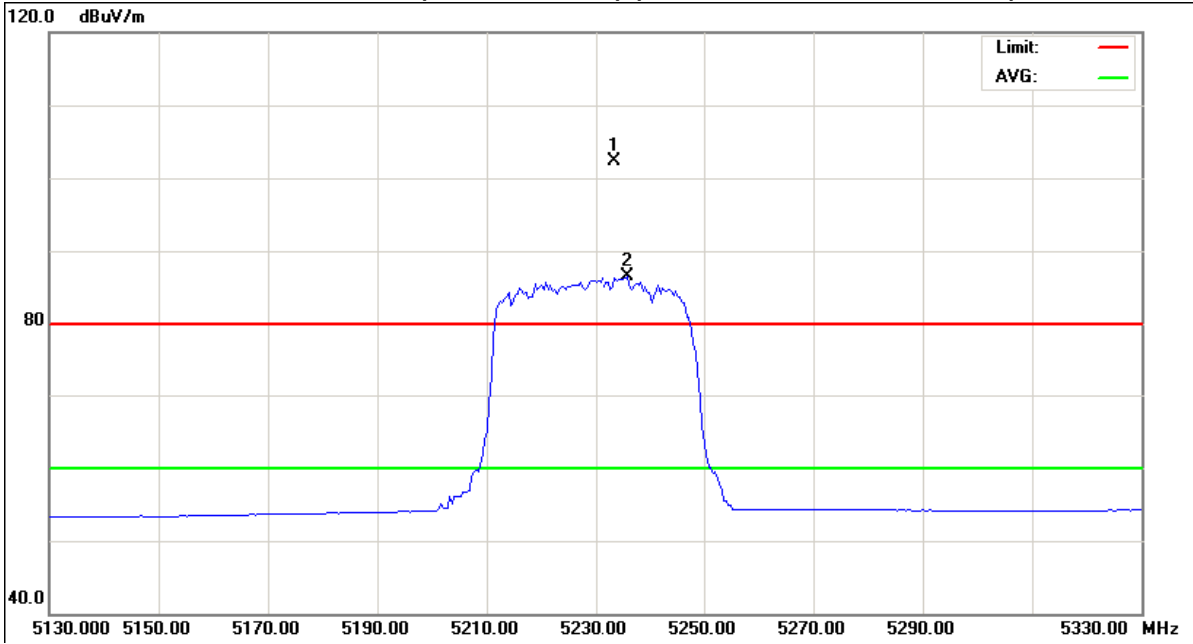
Freq. (MHz)	Ant. Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
<b>5233.54</b>	<b>H</b>	<b>63.00</b>	<b>47.27</b>	<b>39.21</b>	<b>102.21</b>	<b>86.48</b>			<b>X/F</b>
#10459.77	H	45.71	35.81	12.41	58.12	48.22	74.30	60.00	X/H

**Remark :**

- (1) Spectrum Setting : 30MHz – 1000MHz , RBW= 100KHz, VBW=100KHz, Sweep time = 200 ms. 1GHz- 40GHz, RBW= 1MHz, VBW= 1MHz, Sweep time = Auto
- (2) All readings are Peak unless otherwise stated AV in column of 『 Note 』 . Peak denotes that the Peak reading compliance with the AV Limits and then AV Mode measurement didn't perform.
- (3) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency. "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (4) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission .
- (5) Data of measurement within this frequency range shown " \* " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (6) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (7) EUT Orthogonal Axes :  
"X" - denotes Laid on Table ; "Y" - denotes Vertical Stand ; "Z" - denotes Side Stand
- (8) During the measurements above 1GHz it is taken care of that the EUT is always within the 3dB cone of radiation BW of the used antenna.
- (9) The limits above 5GHz shall be extrapolated to the specified distance using an extrapolation factor of 20dB/decade form 3m to 1.5m  
Distance extrapolation factor = 20 log (3m/1.5m) dB ;  
Limit line = specific limits (dBuV) + 6 dB
- (10) The signal of 15-40GHz is lower than the limit 20dB. So the test date of this frequency does not place on the test report.
- (11) "#": The radiated frequency is out the restricted band.



Orthogonal Axis : X  
802.11n/40M/CH46(Port 0 + Port 1) (Above 1000 MHz, Horizontal)





**5. 26dB Spectrum Bandwidth**

**5.1 APPLIED PROCEDURES / LIMIT**

FCC Part15, Subpart E			
Test Item	Limit	Frequency Range (MHz)	Result
26 dB Bandwidth	None For reporting purposes only	5150 - 5250 5250 - 5350 5470 - 5725 5725 - 5825	PASS

**5.1.1 MEASUREMENT INSTRUMENTS LIST**

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP-40	100185	Nov.27.2010

Remark: " N/A" denotes No Model Name , Serial No. or No Calibration specified.

**5.1.2 TEST PROCEDURE**

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
- b. RBW is set to 1% to 3% of the measured bandwidth  
VBW is set to 3 times the RBW  
Do not use the Max Hold function. Rather ,use the view button to capture the emission.
- c. Measured the spectrum width with power higher than 26dB below carrier

**5.1.3 DEVIATION FROM STANDARD**

No deviation.

**5.1.4 TEST SETUP**



**5.1.5 EUT OPERATION CONDITIONS**

The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.



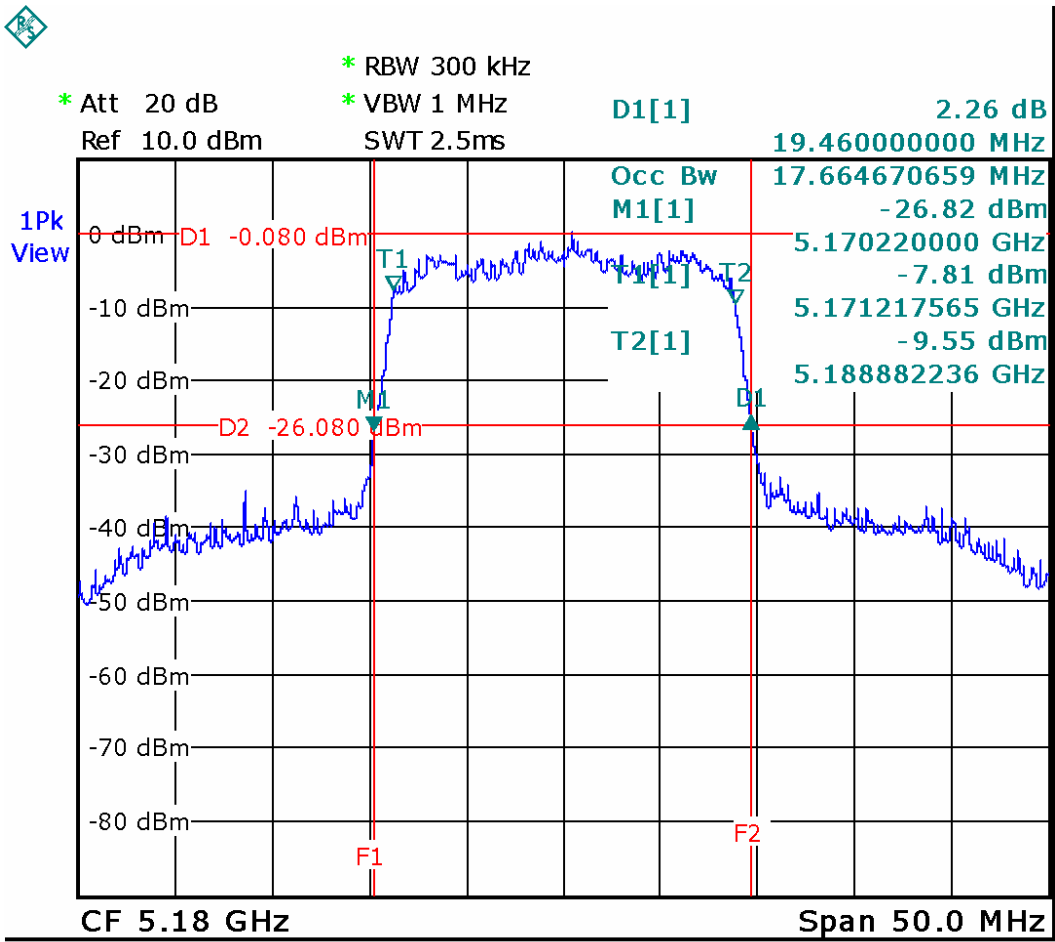


**5.1.6 TEST RESULTS - BAND 1**

EUT :	BCM3380Z D3.0 Wireless eMTA	Model Name :	DVW3201B
Temperature :	23 °C	Relative Humidity :	64 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	802.11a/CH36, CH40, CH48		

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
36	5180	19.46	17.66
40	5200	19.66	17.56
48	5240	19.46	16.47

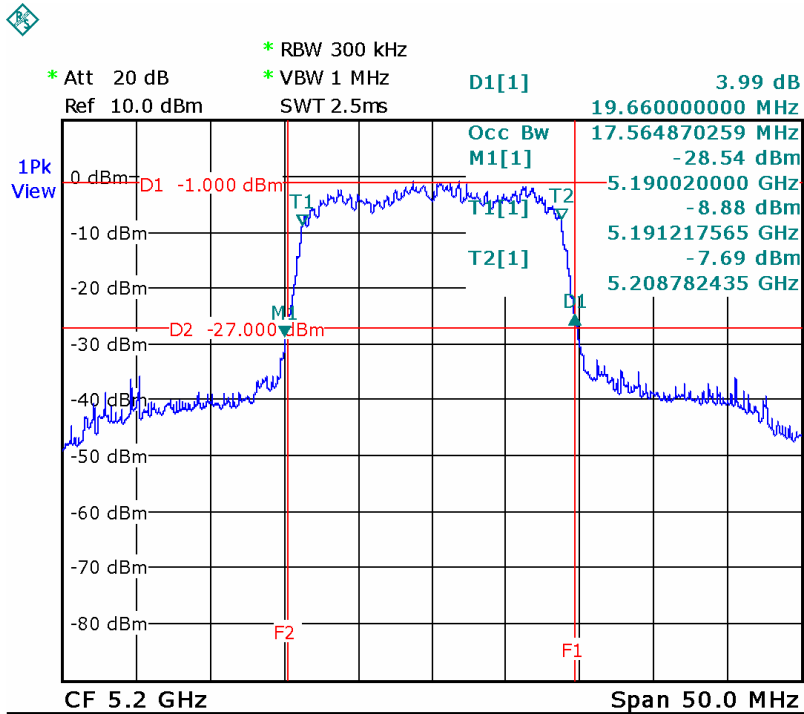
**CH36 (ANT.2)**



Date: 18.OCT.2010 20:54:55

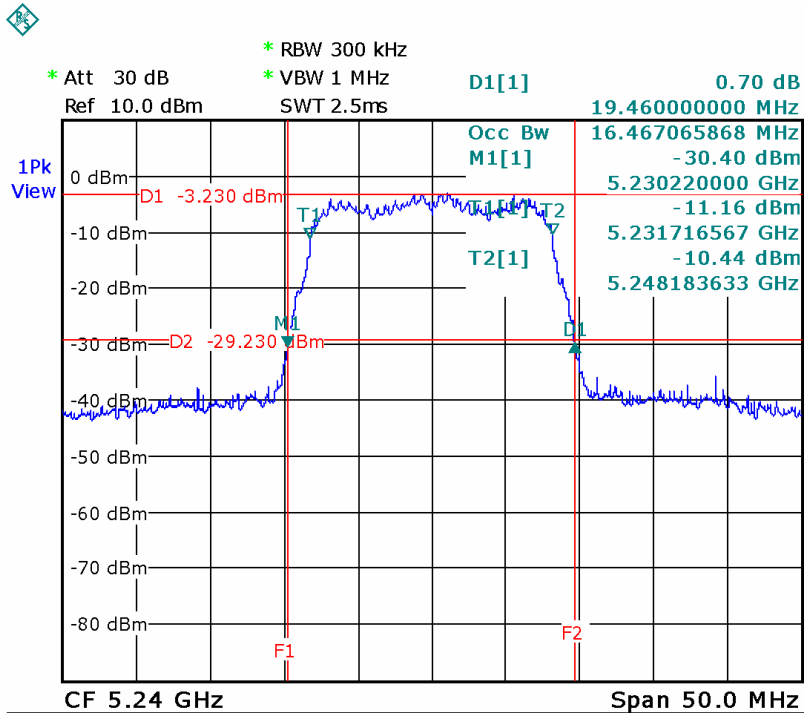


**CH40 (ANT.2)**



Date: 18.OCT.2010 21:08:11

**CH48 (ANT.2)**



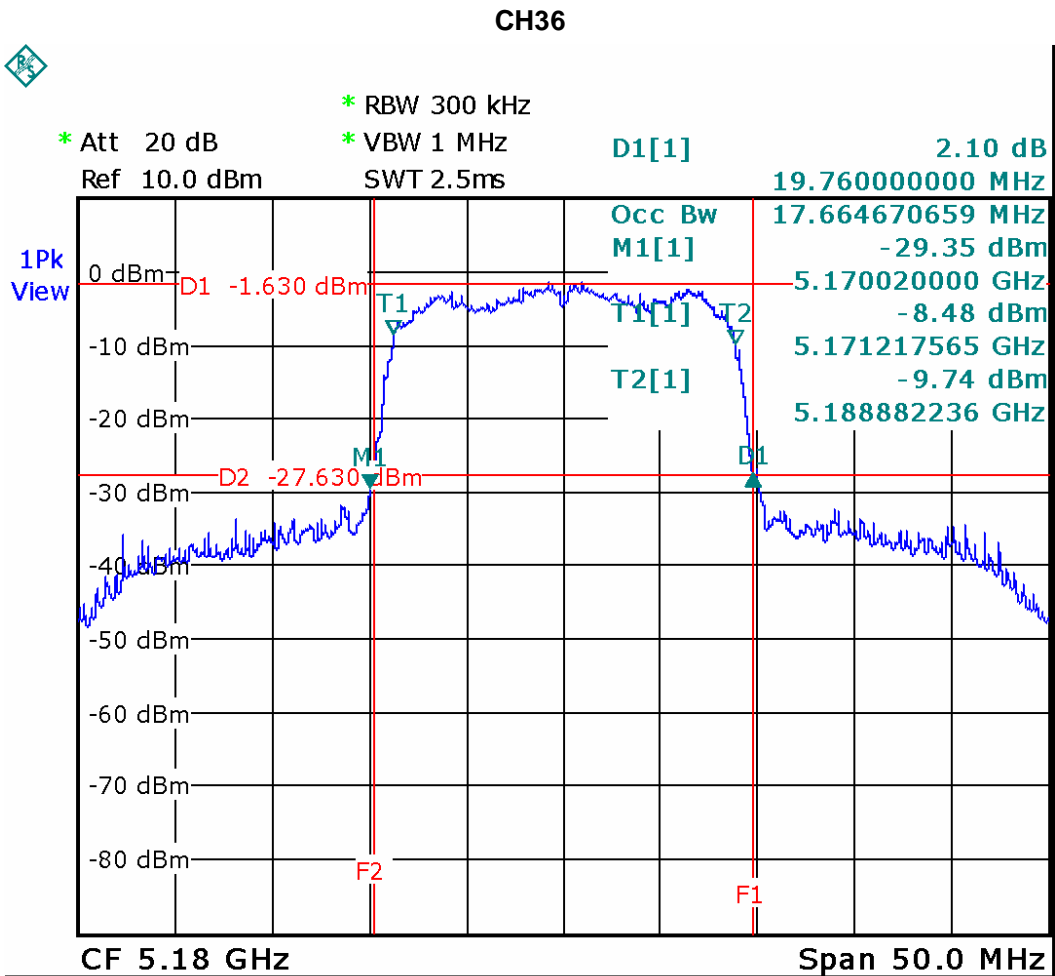
Date: 20.OCT.2010 22:14:05



# Neutron Engineering Inc.

EUT :	BCM3380Z D3.0 Wireless eMTA	Model Name :	DVW3201B
Temperature :	23 °C	Relative Humidity :	64 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	802.11n/20M/CH36, CH40, CH48		

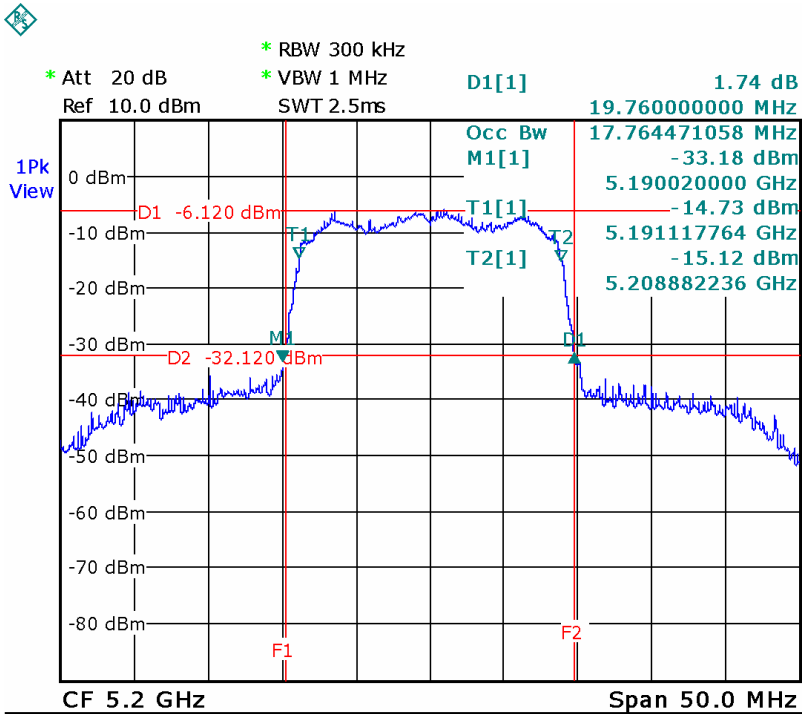
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
36	5180	19.76	17.66
40	5200	19.76	17.76
48	5240	19.66	17.56



Date: 19.OCT.2010 00:32:59

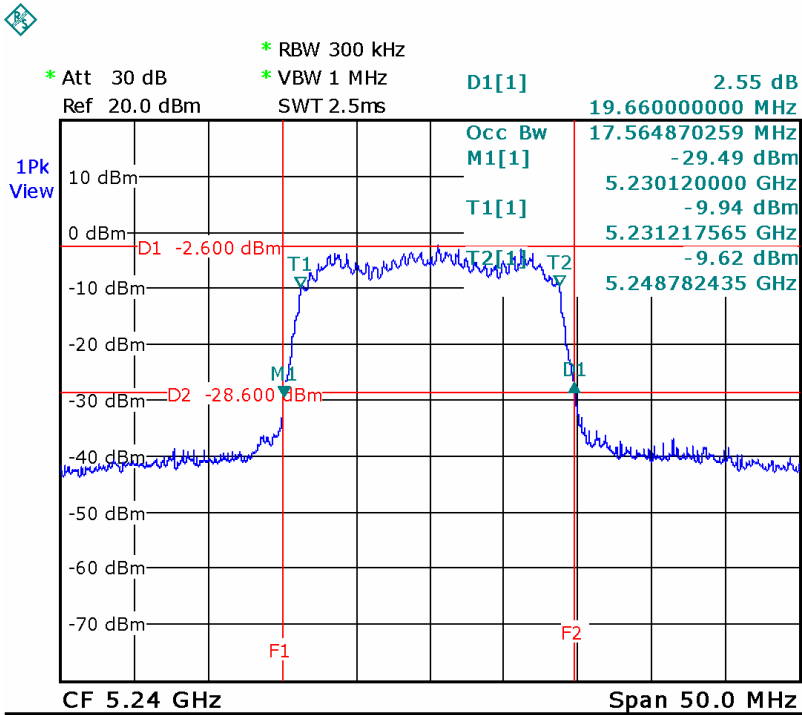


**CH40**



Date: 19.OCT.2010 00:51:32

**CH48**



Date: 20.OCT.2010 22:56:42



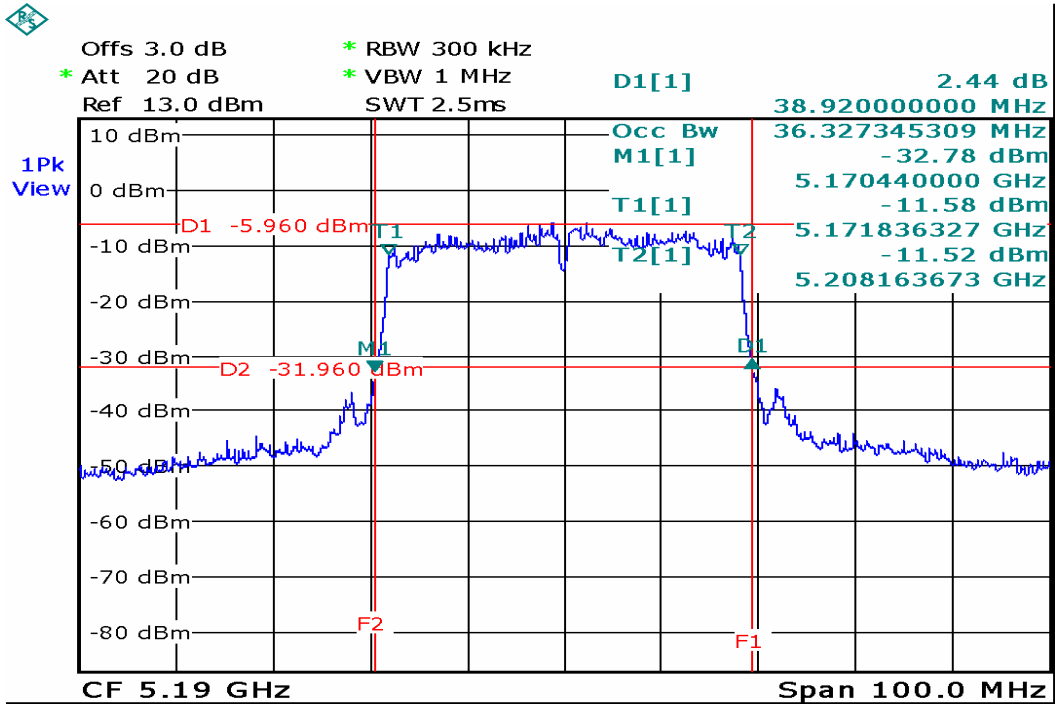
## Neutron Engineering Inc.

EUT :	BCM3380Z D3.0 Wireless eMTA	Model Name :	DVW3201B
Temperature :	23 °C	Relative Humidity :	64 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	802.11n/40M/CH38, CH46		

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
38	5190	38.92	36.33
46	5230	39.12	36.33

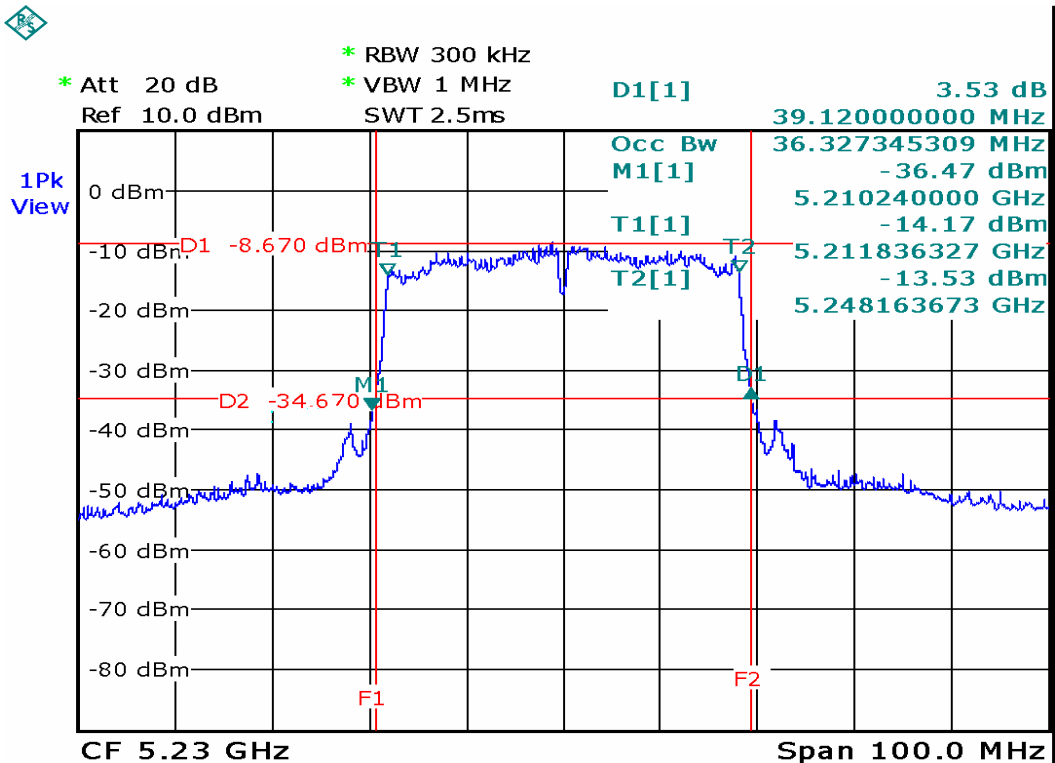


CH38



Date: 20.OCT.2010 23:51:52

CH46



Date: 20.OCT.2010 23:43:10



**6. Maximum Conducted Output Power**

**6.1 APPLIED PROCEDURES / LIMIT**

FCC Part15, Subpart E			
Test Item	Frequency Range (MHz)	Limit	Result
Peak Output Power	5150 - 5250	not exceed the lesser of 50 mW (17dBm) or 4 dBm + 10log B,	PASS
	5250 - 5350	not exceed the lesser of 250 mW (24dBm) or 11 dBm + 10log B	N/A
	5470 - 5725	not exceed the lesser of 250 mW (24dBm) or 11 dBm + 10log B	N/A
	5725 - 5825	not exceed the lesser of 1 W (30dBm) or 17 dBm + 10log B.	N/A

**Note:** where “B” is the 26 dB emissions bandwidth in MHz.

**6.1.1 MEASUREMENT INSTRUMENTS LIST**

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP-40	100185	Nov.27.2010

Remark: ” N/A” denotes No Model Name , Serial No. or No Calibration specified.

**6.1.2 TEST PROCEDURE**

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,

b.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Encompass the entire emissions bandwidth (EBW) of the signal
RB	1MHz
VB	3MHz
Detector	Sample
Use a video trigger with the trigger level set to enable triggering only on full power pulses. Trace average 100 traces in power averaging mode.. Compute power by integrating the spectrum across the 26 dB EBW of the signal.	

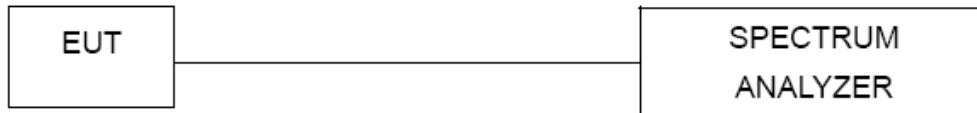
c. The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002. The transmitter output operates continuously therefore Method # 1 is used.



**6.1.3 DEVIATION FROM STANDARD**

No deviation.

**6.1.4 TEST SETUP**



**6.1.5 EUT OPERATION CONDITIONS**

The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.





**6.1.6 TEST RESULTS - BAND 1**

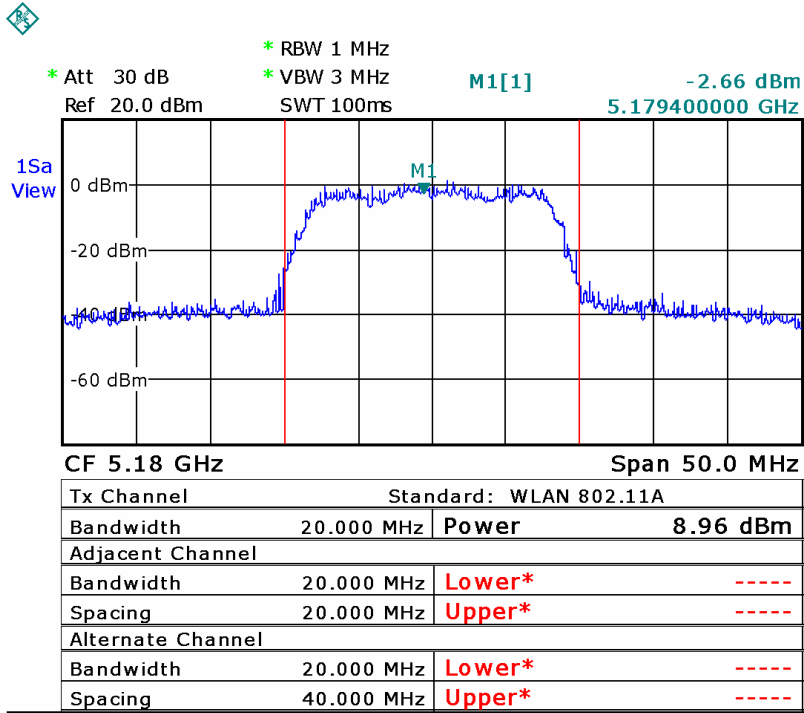
EUT :	BCM3380Z D3.0 Wireless eMTA	Model Name :	DVW3201B
Temperature :	23 °C	Relative Humidity :	64 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	802.11a/CH36, CH40, CH48 (ANT.2)		

Limit						
Channel	Frequency (MHz)	Fixed Limit (dBm)	B (MHz)	4+10 Log B Limit (dBm)	Effective Antenna Gain (dBi)	LIMIT (dBm)
36	5180	17.00	19.46	16.89	4.4.	16.89
40	5200	17.00	19.66	16.93	4.4	16.93
48	5240	17.00	19.46	16.89	4.4	16.89

Individual Chain Results						
Channel	Frequency (MHz)	ANT.1 Power (dBm)	ANT.2 Power (dBm)	Total Power (dBm)	Limit (dBm)	Margin (dB)
36	5180	-	8.96	8.96	16.89	-7.93
40	5200	-	8.53	8.53	16.93	-8.40
48	5240	-	9.03	9.03	16.89	-7.86

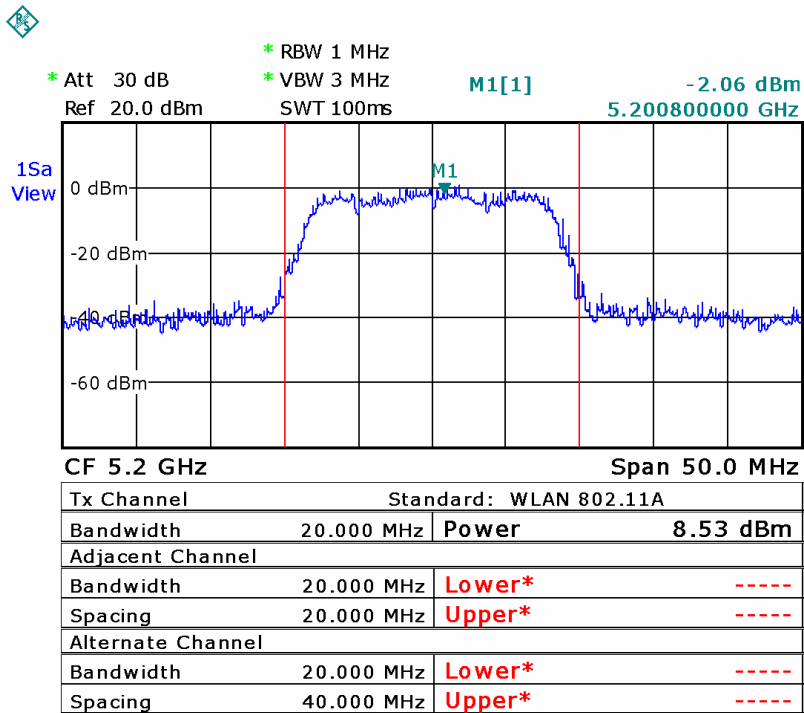


CH48(ANT.2)



Date: 20.OCT.2010 21:35:56

CH48(ANT.2)



Date: 20.OCT.2010 21:53:39

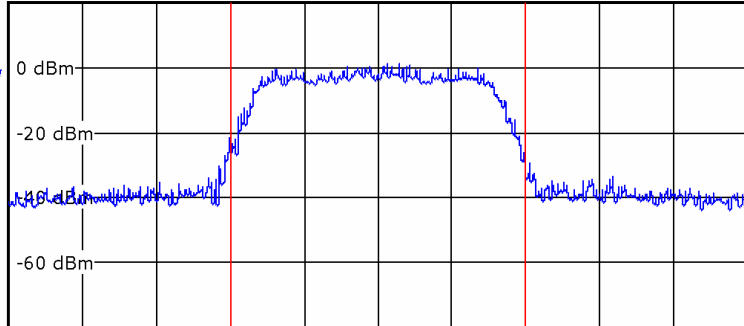


**CH48(ANT.2)**



\* Att 30 dB      \* RBW 1 MHz  
 Ref 20.0 dBm    \* VBW 3 MHz  
                       SWT 100ms

1Sa  
View



CF 5.24 GHz		Span 50.0 MHz	
Tx Channel		Standard: WLAN 802.11A	
Bandwidth	20.000 MHz	Power	9.03 dBm
Adjacent Channel			
Bandwidth	20.000 MHz	Lower*	-----
Spacing	20.000 MHz	Upper*	-----
Alternate Channel			
Bandwidth	20.000 MHz	Lower*	-----
Spacing	40.000 MHz	Upper*	-----

Date: 20.OCT.2010 22:08:06



EUT :	BCM3380Z D3.0 Wireless eMTA	Model Name :	DVW3201B
Temperature :	23 °C	Relative Humidity :	64 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	802.11n/20M/CH36, CH40, CH48		

Limit						
Channel	Frequency (MHz)	Fixed Limit (dBm)	B (MHz)	4+10 Log B Limit (dBm)	Effective Antenna Gain (dBi)	LIMIT (dBm)
36	5180	17.00	19.76	16.96	7.26	15.70
40	5200	17.00	19.76	16.96	7.26	15.70
48	5240	17.00	19.66	16.98	7.26	15.72

Individual Chain Results						
Channel	Frequency (MHz)	ANT.1 Power (dBm)	ANT.2 Power (dBm)	Total Power (dBm)	Limit (dBm)	Margin (dB)
36	5180	8.96	9.14	12.06	15.70	-2.92
40	5200	8.56	8.90	11.74	15.70	-3.96
48	5240	8.42	8.73	11.59	15.72	-4.13

Remark :

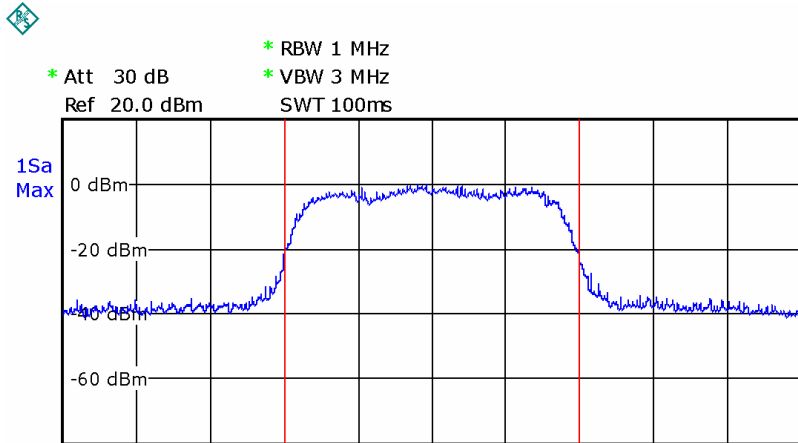
- (1) **The MIMO test requirement, RF conducted output power shall measure each transmitter chain by using channel power method.**  
**And after obtain each individual transmitter chain power, then sum the output power by using the following formula:**  

$$((\text{dBm}/\text{Chain 1})/10^{\text{Log}}) + ((\text{dBm}/\text{Chain 2})/10^{\text{log}}) + ((\text{dBm}/\text{Chain N})/10^{\text{log}}) =$$
**Combined peak output power in mW.**
- (2) **Antenna Gain=4.1 dBi. (ANT.1) Antenna Gain=4.4 dBi. (ANT.2)**
- (3) **Sum the Antenna Gain by using the following formula:**  

$$((\text{dBi}/\text{ANT 1})/10^{\text{Log}}) + ((\text{dBi}/\text{ANT 2})/10^{\text{log}}) + ((\text{dBi}/\text{ANT N})/10^{\text{log}}) = 7.26\text{dBi}$$
**(Output power needs to reduce by 1.26 dBi so the highest conducted output power allowed is 15.74dBm(used fixed limit calculation).**



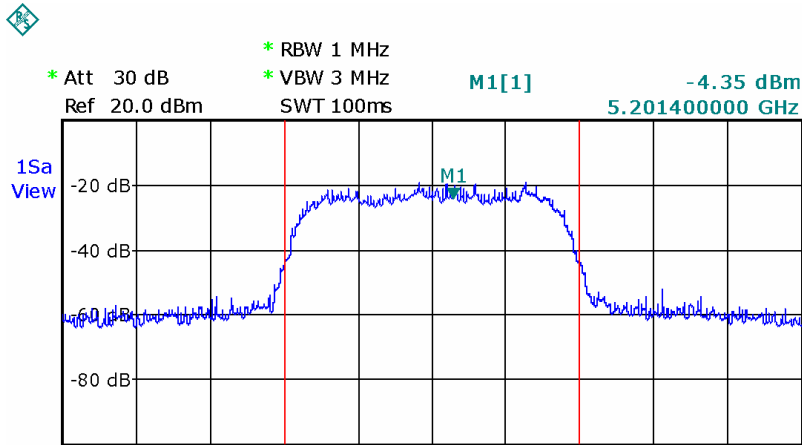
CH36 (ANT.1)



CF 5.18 GHz		Span 50.0 MHz	
Tx Channel		Standard: WLAN 802.11A	
Bandwidth	20.000 MHz	Power	8.96 dBm
Adjacent Channel			
Bandwidth	20.000 MHz	Lower*	----
Spacing	20.000 MHz	Upper*	----
Alternate Channel			
Bandwidth	20.000 MHz	Lower*	----
Spacing	40.000 MHz	Upper*	----

Date: 20.OCT.2010 22:21:39

CH40 (ANT.1)

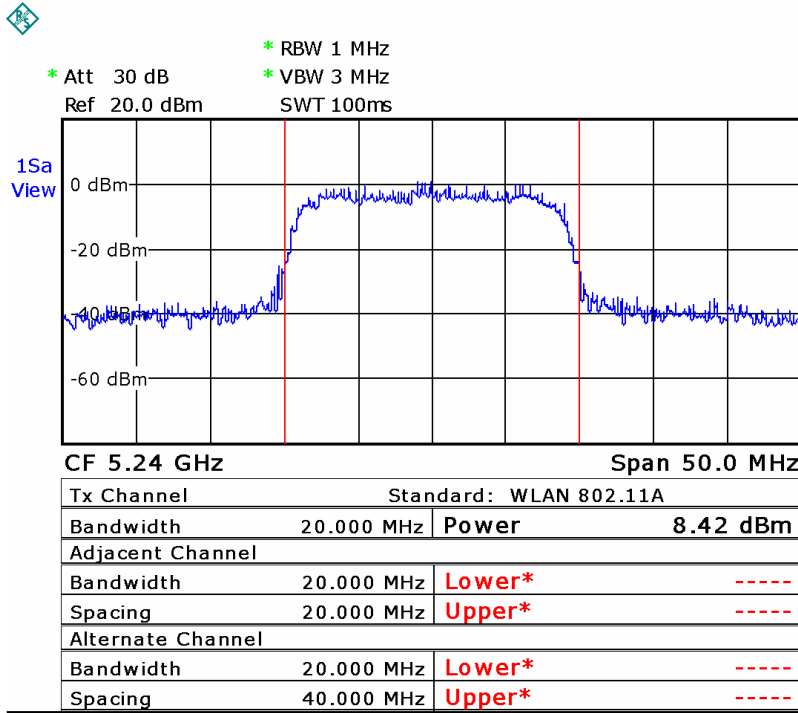


CF 5.2 GHz		Span 50.0 MHz	
Tx Channel		Standard: WLAN 802.11A	
Bandwidth	20.000 MHz	Power	8.56 dBm
Adjacent Channel			
Bandwidth	20.000 MHz	Lower*	----
Spacing	20.000 MHz	Upper*	----
Alternate Channel			
Bandwidth	20.000 MHz	Lower*	----
Spacing	40.000 MHz	Upper*	----

Date: 20.OCT.2010 22:27:13

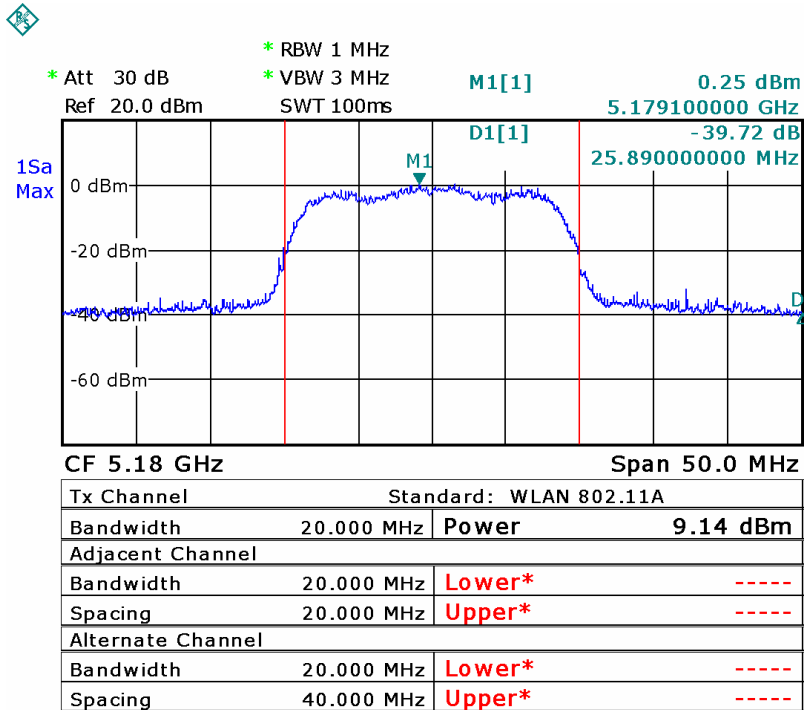


**CH48 (ANT.1)**



Date: 20.OCT.2010 22:52:17

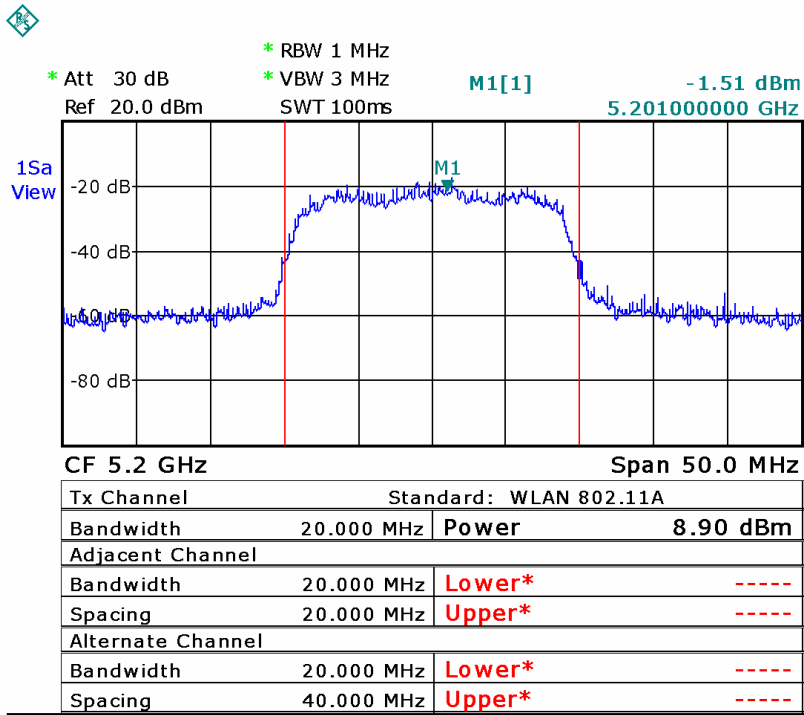
**CH36 (ANT.2)**



Date: 20.OCT.2010 22:21:11

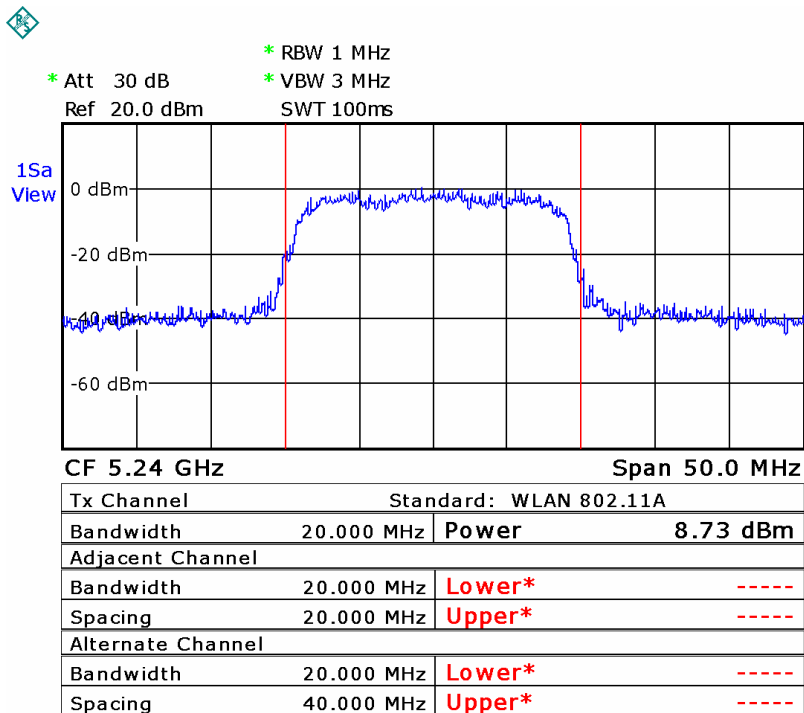


CH40 (ANT.2)



Date: 20.OCT.2010 22:26:58

CH48 (ANT.2)



Date: 20.OCT.2010 22:51:53



EUT :	BCM3380Z D3.0 Wireless eMTA	Model Name :	DVW3201B
Temperature :	23 °C	Relative Humidity :	64 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	802.11n/40M/CH38, CH46		

Limit						
Channel	Frequency (MHz)	Fixed Limit (dBm)	B (MHz)	4+10 Log B Limit (dBm)	Effective Antenna Gain (dBi)	Limit (dBm)
38	5190	17.00	38.92	19.90	7.26	15.74
46	5230	17.00	39.12	19.92	7.26	15.74

Individual Chain Results						
Channel	Frequency (MHz)	ANT.1 Power (dBm)	ANT.2 Power (dBm)	Total Power (dBm)	Limit (dBm)	Margin (dB)
38	5190	8.94	9.09	12.03	15.74	-3.71
46	5230	9.09	9.16	12.14	15.74	-3.60

Remark :

- (1) **The MIMO test requirement, RF conducted output power shall measure each transmitter chain by using channel power method.**  
**And after obtain each individual transmitter chain power, then sum the output power by using the following formula:**  

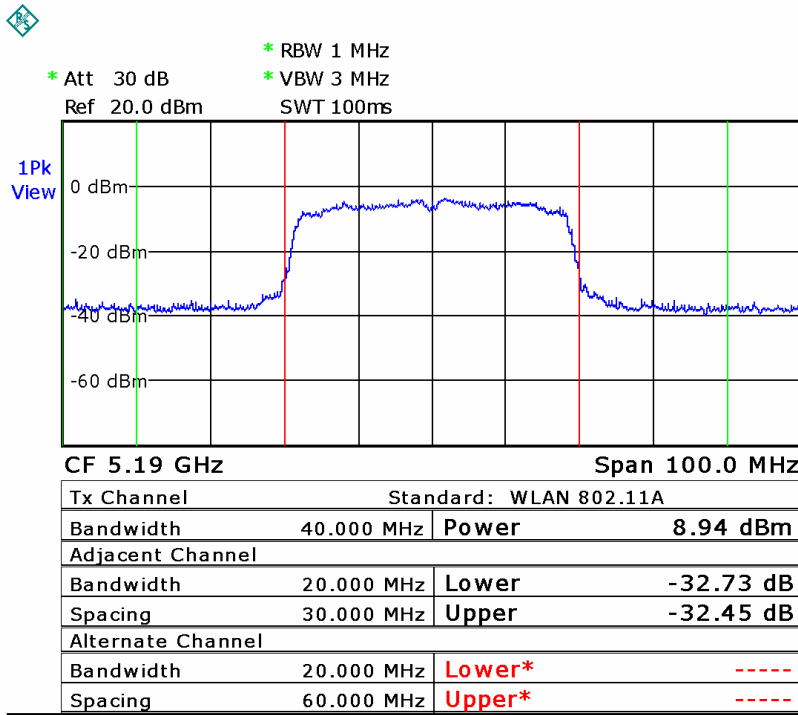
$$((\text{dBm}/\text{Chain 1})/10^{\wedge}\text{Log}) + ((\text{dBm}/\text{Chain 2})/10^{\wedge}\text{log}) + ((\text{dBm}/\text{ChainN})/10^{\wedge}\text{log}) =$$
**Combined peak output power in mW.**
- (2) **Antenna Gain=4.1 dBi. (ANT.1) Antenna Gain=4.4 dBi. (ANT.2)**
- (3) **Sum the Antenna Gain by using the following formula:**  

$$((\text{dBi}/\text{ANT 1})/10^{\wedge}\text{Log}) + ((\text{dBi}/\text{ANT 2})/10^{\wedge}\text{log}) + ((\text{dBi}/\text{ANT N})/10^{\wedge}\text{log}) = 7.26\text{dBi}$$
**(Output power needs to reduce by 1.26 dBi so the highest conducted output power allowed is 15.74dBm(used fixed limit calculation).**



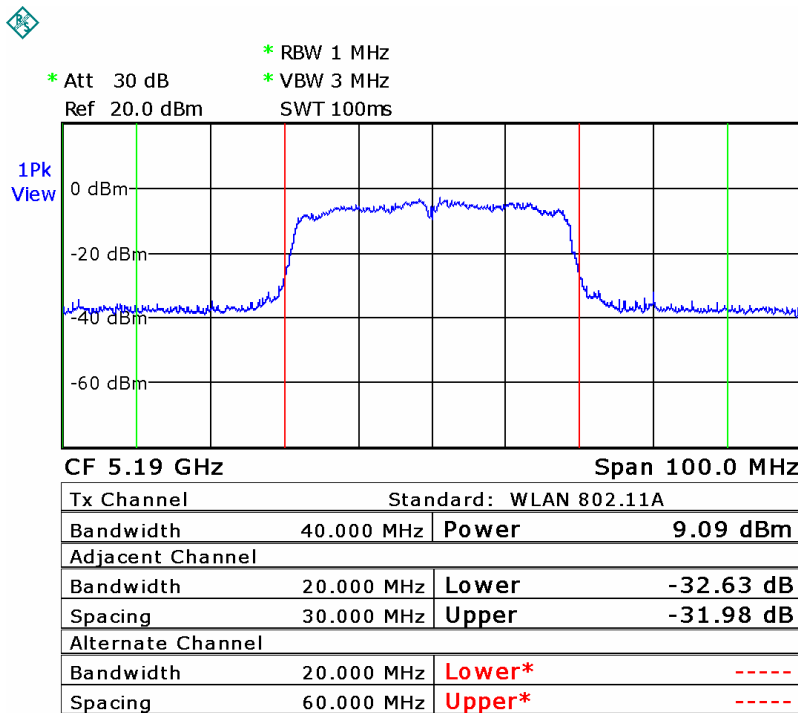


**CH38 (ANT.1)**



Date: 20.OCT.2010 23:14:28

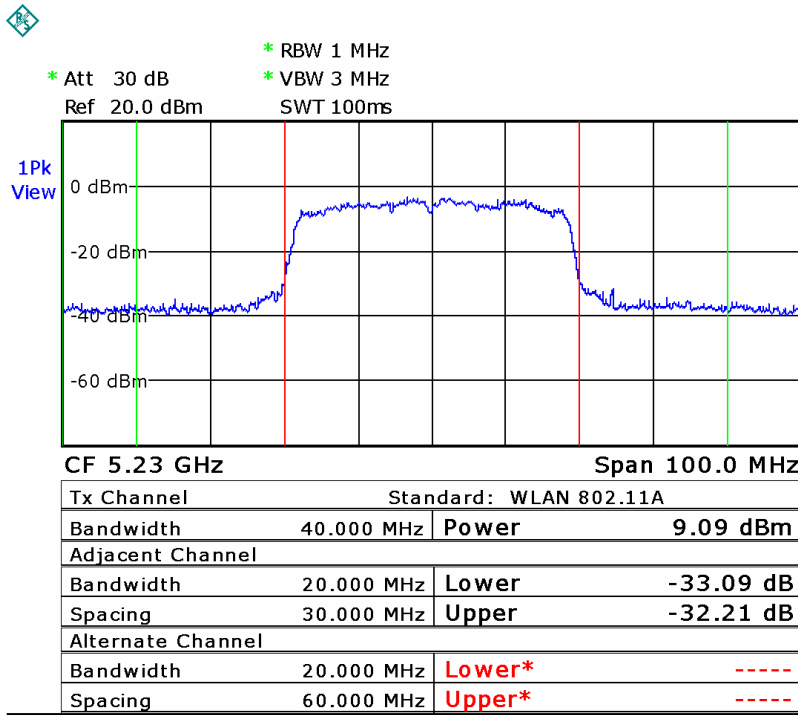
**CH46 (ANT.1)**



Date: 20.OCT.2010 23:14:19

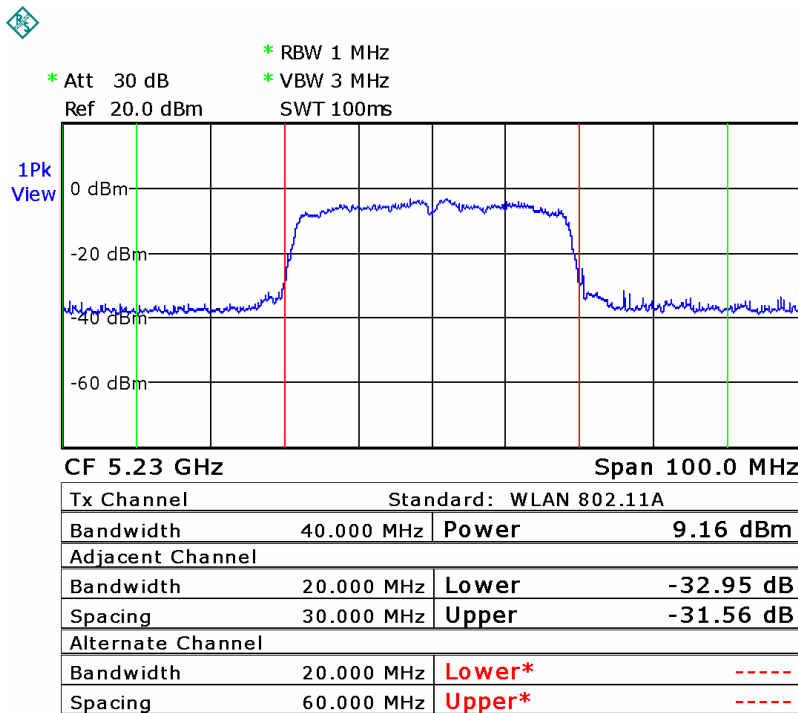


**CH38 (ANT.2)**



Date: 20.OCT.2010 23:31:42

**CH46 (ANT.2)**



Date: 20.OCT.2010 23:31:52



**7. ANTENNA CONDUCTED SPURIOUS EMISSION**

**7.1 APPLIED PROCEDURES / LIMIT**

FCC Part15, Subpart E		
Test Item	Limit Frequency Range (MHz)	Result
Antenna conducted Spurious Emission	For transmitters operating in the 5.15-5.25 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm / MHz.	PASS

**7.1.1 MEASUREMENT INSTRUMENTS LIST**

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP-40	100185	Nov.27.2010

Remark: " N/A" denotes No Model Name , Serial No. or No Calibration specified.

**7.1.2 TEST PROCEDURE**

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,

b.

Spectrum Parameter	Setting
Attenuation	Auto
RB	1000 kHz
VB	1000 kHz
Trace	Max Hold
Sweep Time	Auto

c. Measurements are made over the 30 MHz to 40 GHz range with the transmitter set to the lowest, middle, and highest channels.

**7.1.3 DEVIATION FROM STANDARD**

No deviation.

**7.1.4 TEST SETUP**



**7.1.5 EUT OPERATION CONDITIONS**

The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.



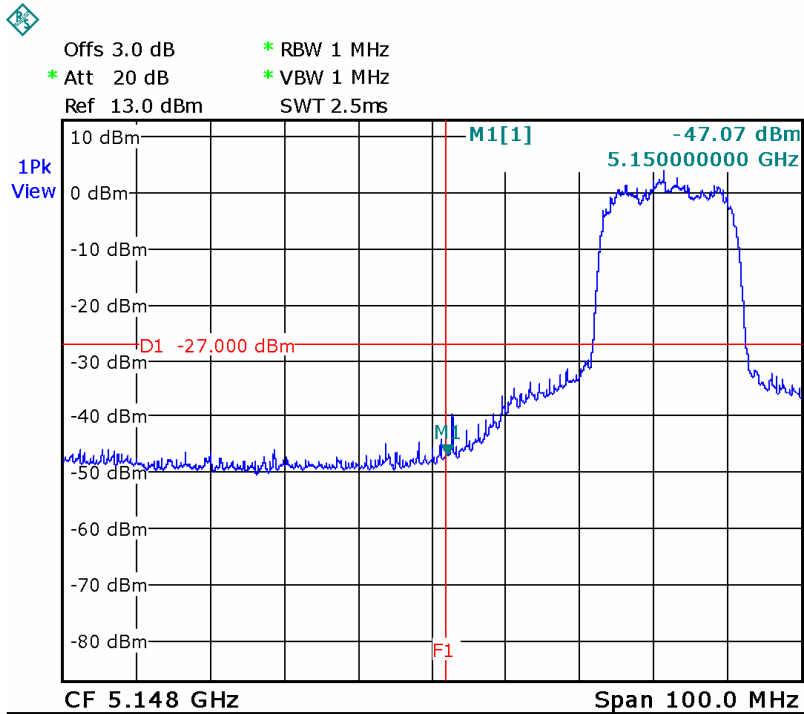
**7.1.6 TEST RESULTS**

EUT :	BCM3380Z D3.0 Wireless eMTA	Model Name :	DVW3201B
Temperature :	23 °C	Relative Humidity :	64 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	802.11a/CH36, CH40, CH48 <b>(ANT.2)</b>		

Channel of Worst Data: CH48			
The max. radio frequency power in any 1000kHz bandwidth outside the frequency band		The max. radio frequency power in any 1000kHz bandwidth within the frequency band.	
FREQUENCY(MHz)	POWER(dBm)	FREQUENCY(MHz)	POWER(dBm)
5150MHz	-47.07	5358.57	-45.51
Result			
In any 100kHz bandwidth outside the frequency band, the radio frequency power is at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power.			

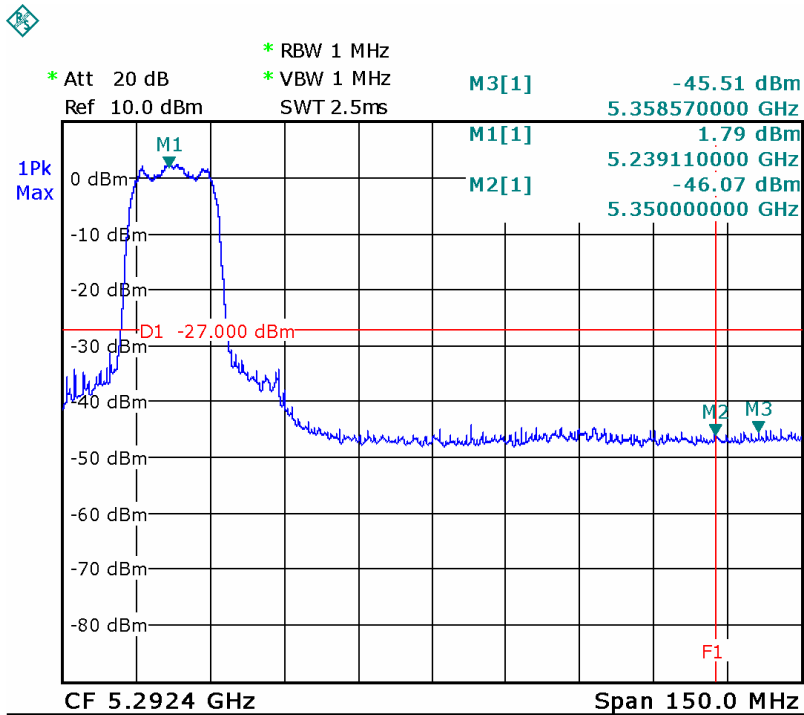


**TX 11a mode CH36**

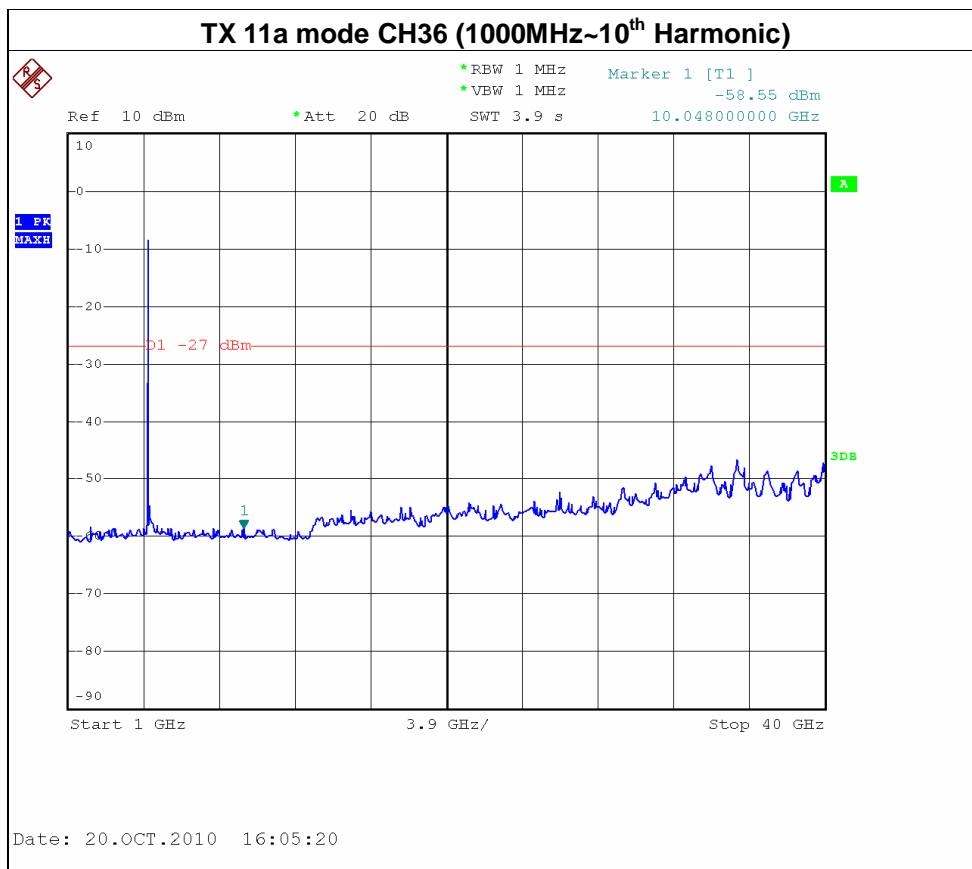
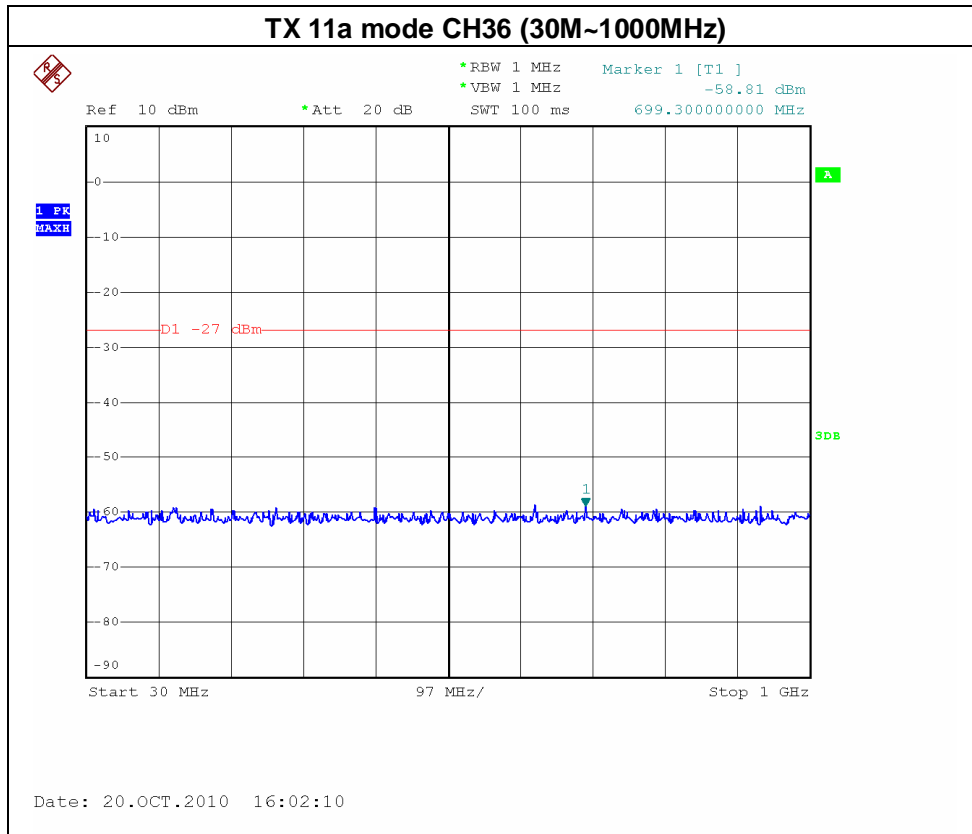


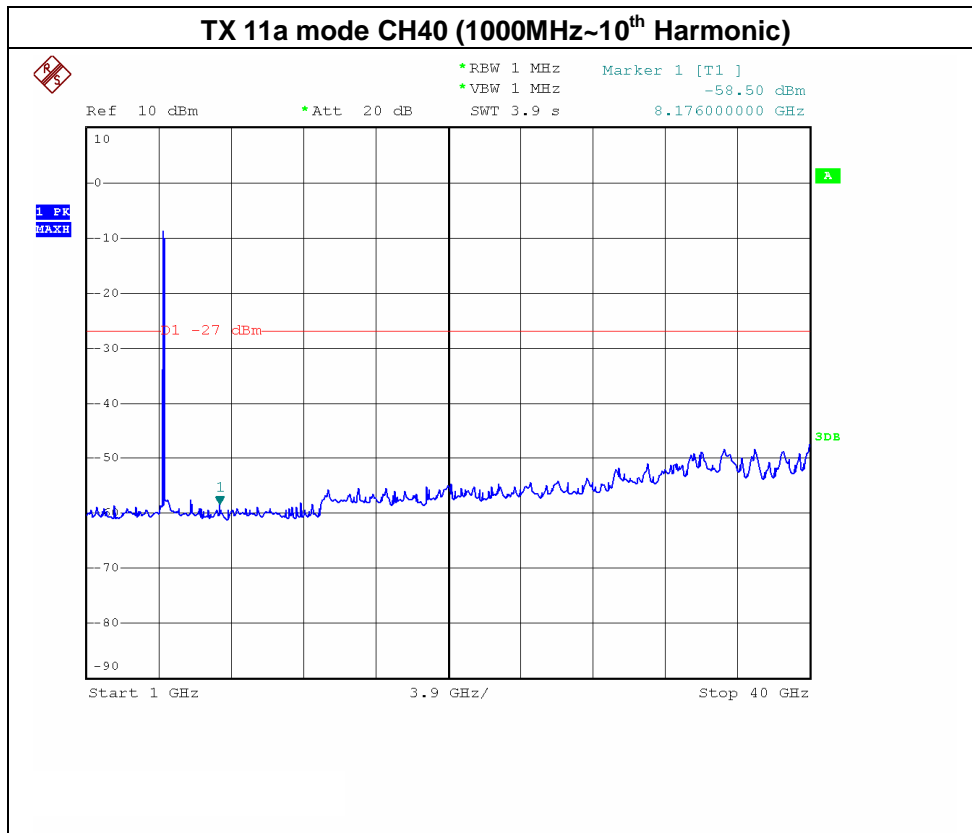
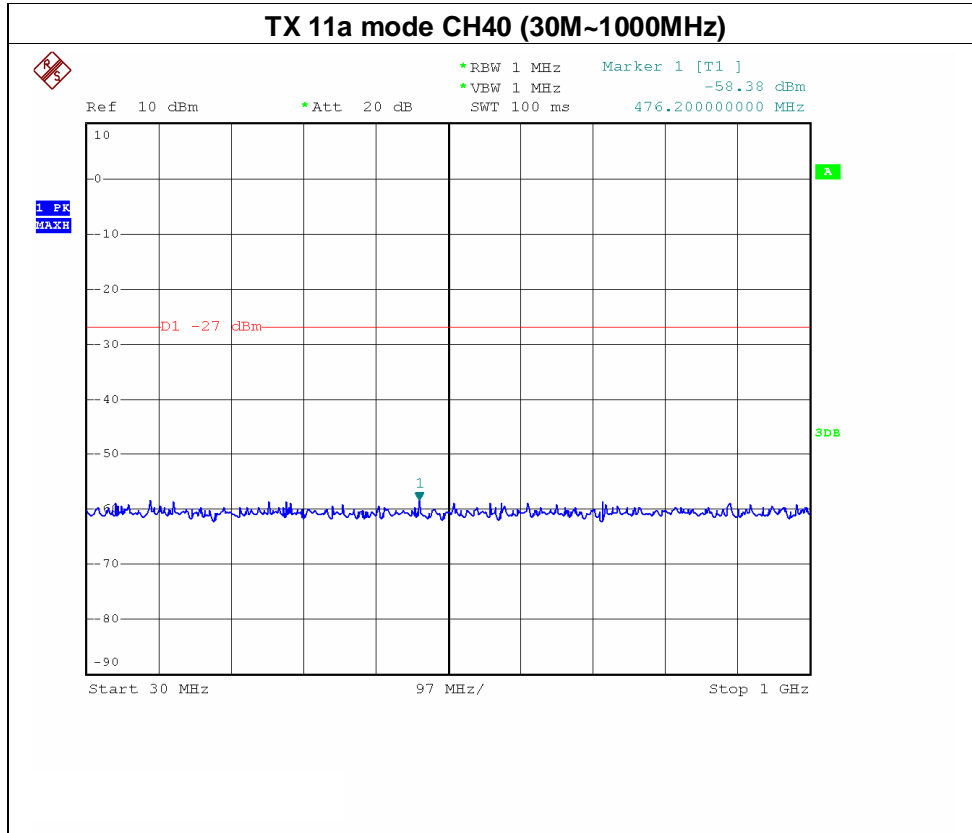
Date: 19.OCT.2010 04:23:33

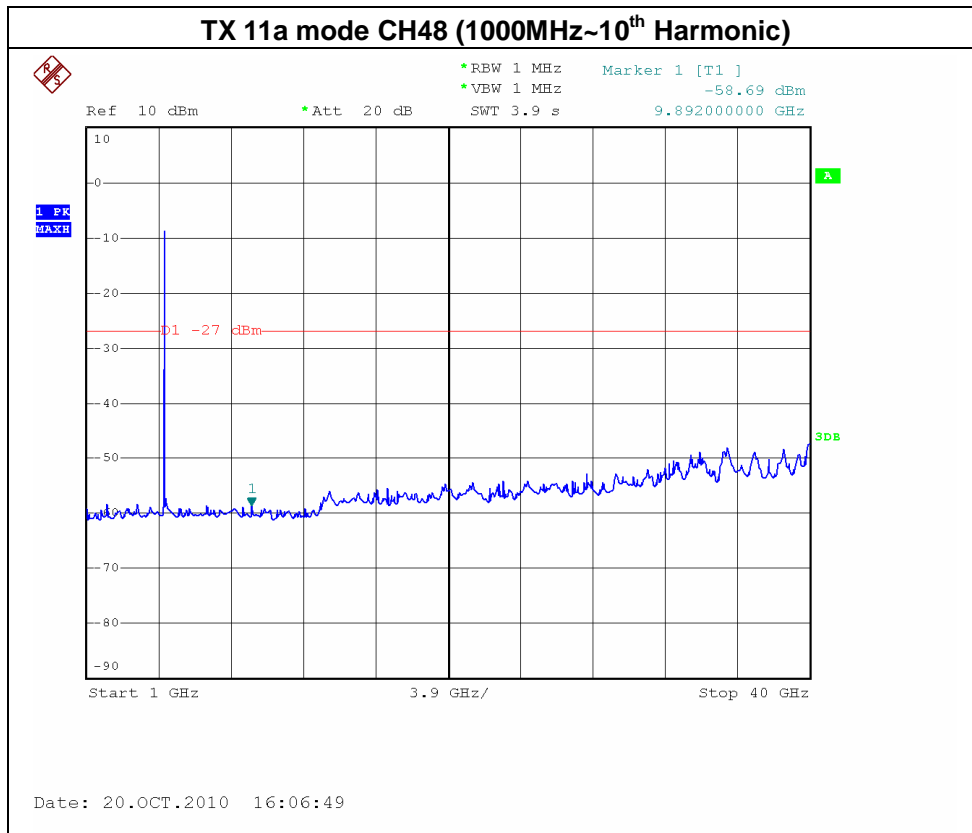
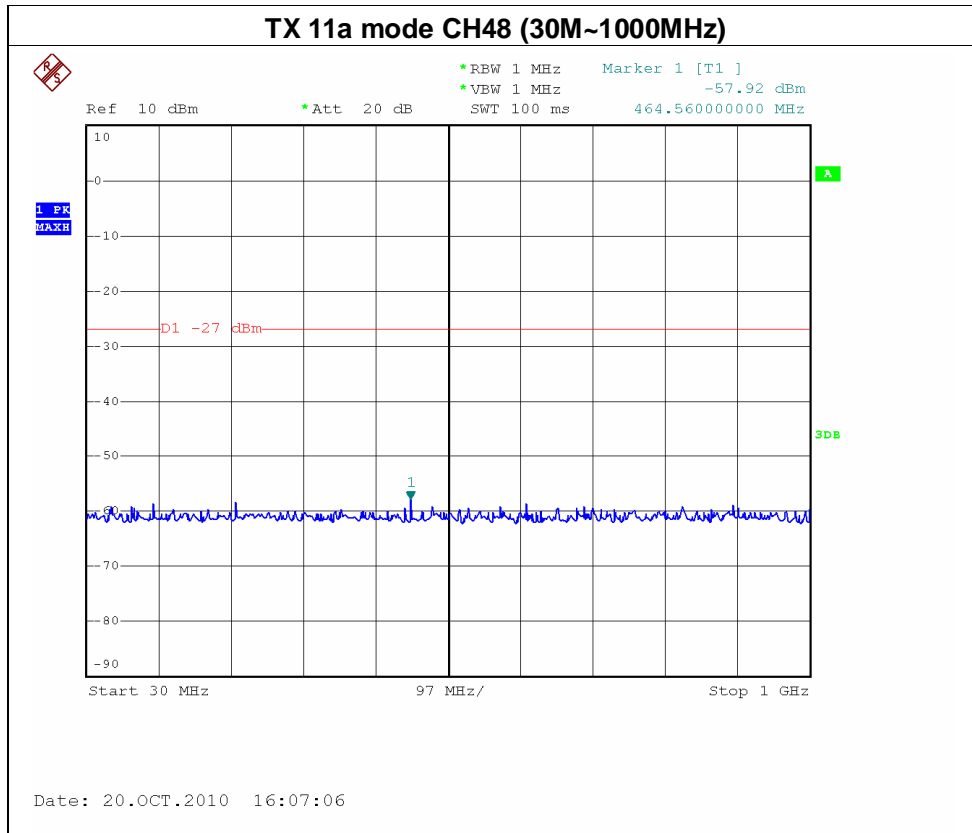
**TX 11a mode CH48**



Date: 20.OCT.2010 23:00:39









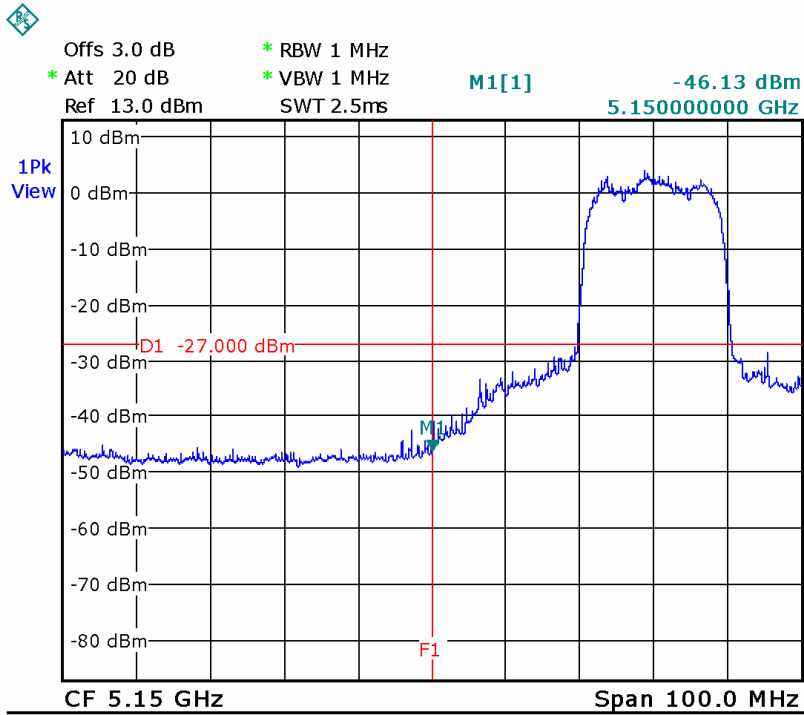


EUT :	BCM3380Z D3.0 Wireless eMTA	Model Name :	DVW3201B
Temperature :	23 °C	Relative Humidity :	64 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	802.11n/20M/CH36, CH40, CH48 <b>(WITH COMBINER)</b>		

Channel of Worst Data: CH48 <b>(WITH COMBINER)</b>			
The max. radio frequency power in any 1000kHz bandwidth outside the frequency band		The max. radio frequency power in any 1000kHz bandwidth within the frequency band.	
FREQUENCY(MHz)	POWER(dBm)	FREQUENCY(MHz)	POWER(dBm)
5150.0MHz	-46.13	5357.07MHz	-46.05
Result			
In any 100kHz bandwidth outside the frequency band, the radio frequency power is at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power.			

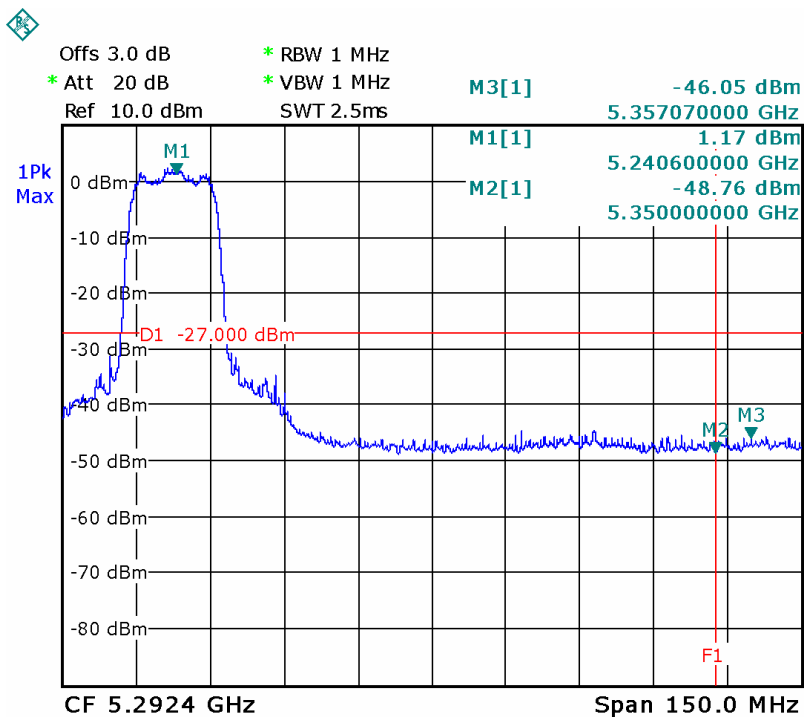


**TX 11n(HT20) mode CH36 (WITH COMBINER)**



Date: 19.OCT.2010 04:31:03

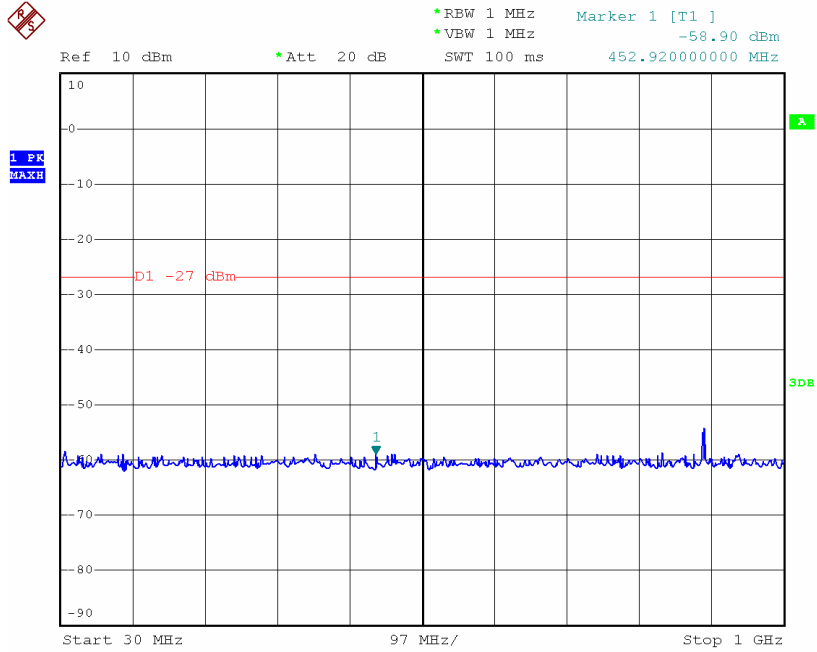
**TX 11n(HT20) mode CH48 (WITH COMBINER)**



Date: 20.OCT.2010 23:00:24

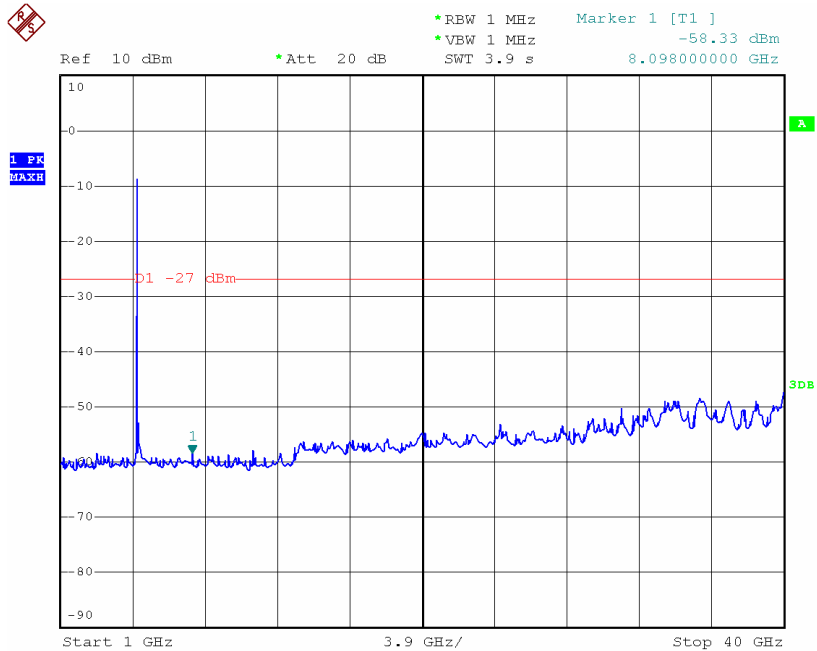


### TX 11n(HT20) mode CH36 (30M~1000MHz) (WITH COMBINER)



Date: 20.OCT.2010 16:08:37

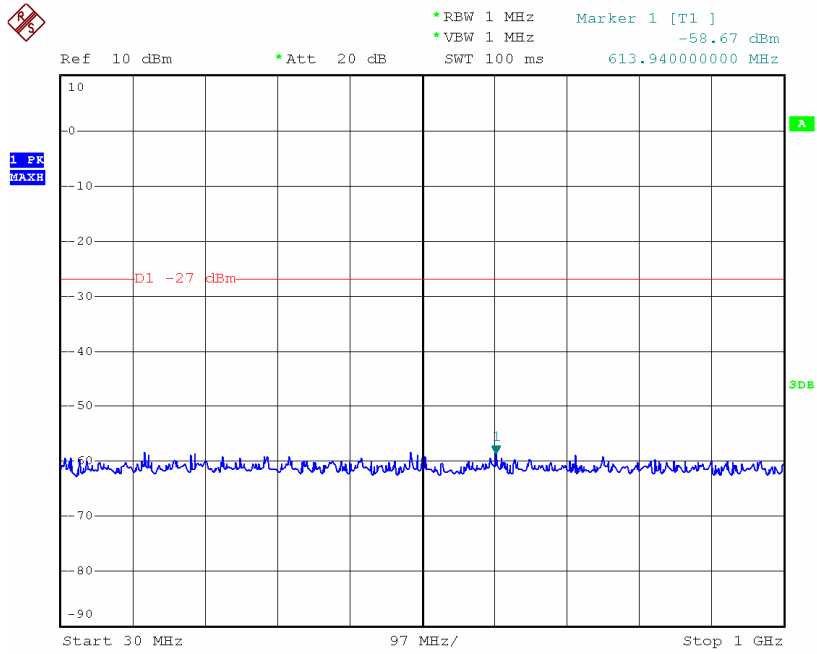
### TX 11n(HT20) mode CH36 (1000MHz~10<sup>th</sup> Harmonic) (WITH COMBINER)



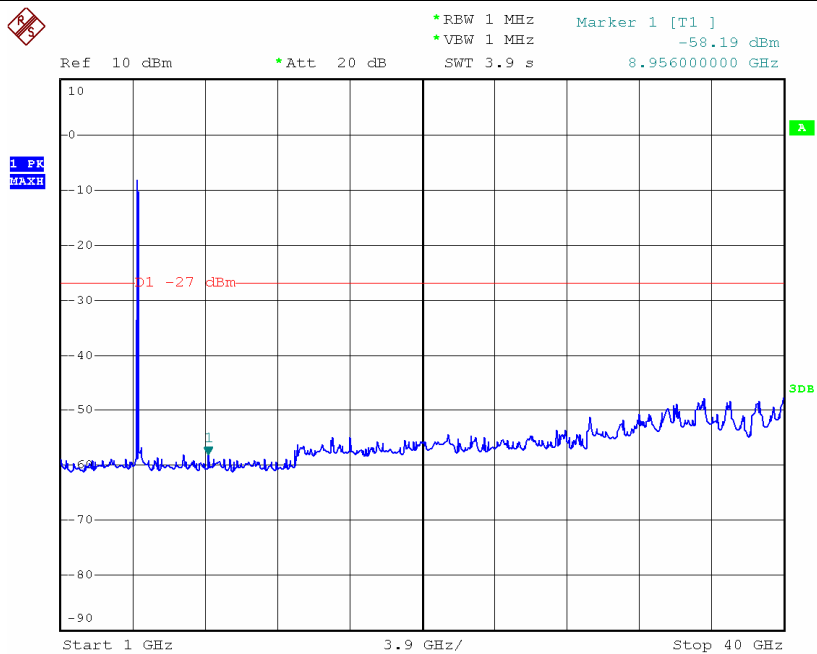
Date: 20.OCT.2010 16:08:56



### TX 11n(HT20) mode CH40 (30M~1000MHz) (WITH COMBINER)

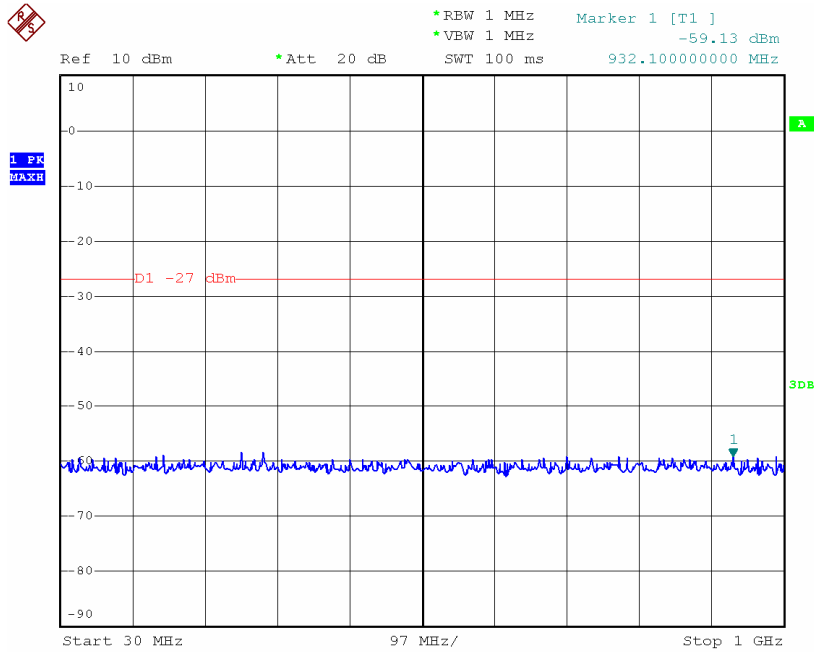


### TX 11n(HT20) mode CH40 (1000MHz~10<sup>th</sup> Harmonic) (WITH COMBINER)



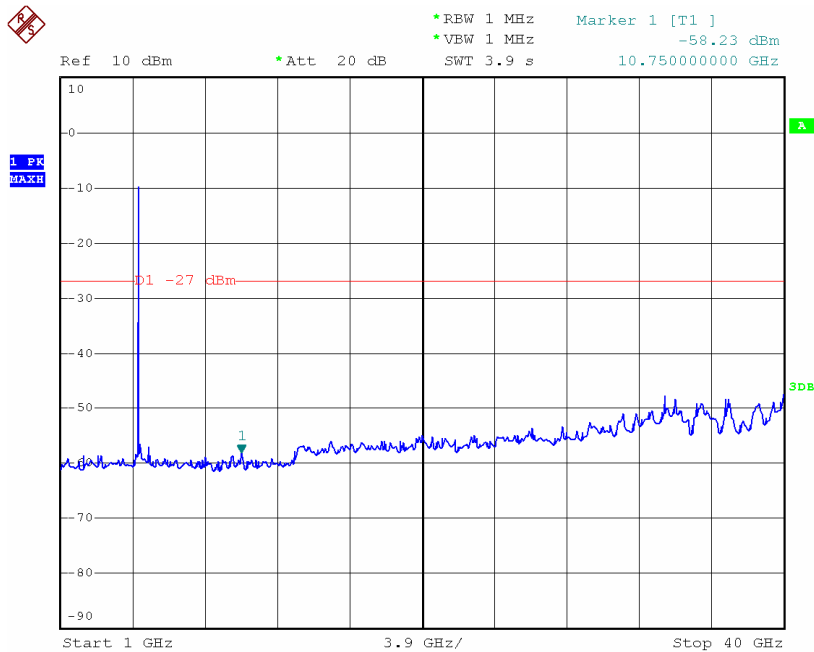


### TX 11n(HT20) mode CH48 (30M~1000MHz) (WITH COMBINER)



Date: 20.OCT.2010 16:12:30

### TX 11n(HT20) mode CH48 (1000MHz~10<sup>th</sup> Harmonic) (WITH COMBINER)



Date: 20.OCT.2010 16:12:48

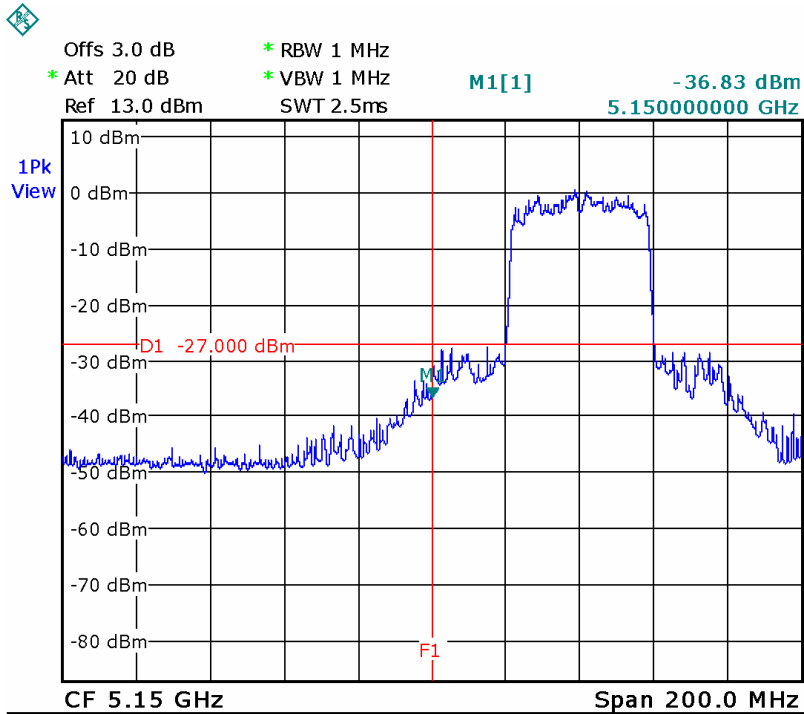


EUT :	BCM3380Z D3.0 Wireless eMTA	Model Name :	DVW3201B
Temperature :	23 °C	Relative Humidity :	64 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	802.11n/40M/CH38, CH46 <b>(WITH COMBINER)</b>		

Channel of Worst Data: CH38 <b>(WITH COMBINER)</b>			
The max. radio frequency power in any 1000kHz bandwidth outside the frequency band		The max. radio frequency power in any 1000kHz bandwidth within the frequency band.	
FREQUENCY(MHz)	POWER(dBm)	FREQUENCY(MHz)	POWER(dBm)
5150.0MHz	-36.83	5350.0MHz	-50.44
Result			
In any 100kHz bandwidth outside the frequency band, the radio frequency power is at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power.			

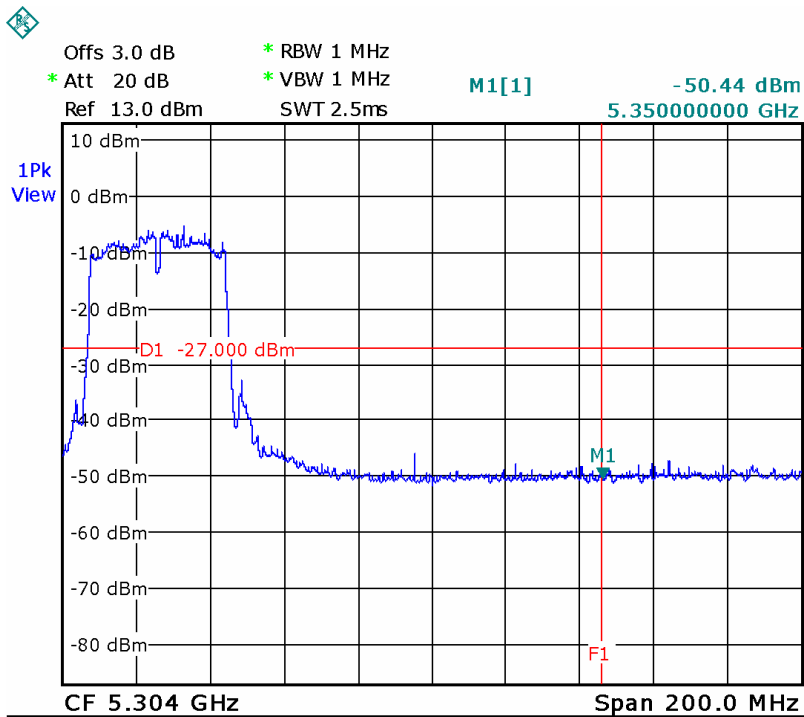


### TX 11n(HT40) mode CH38 (WITH COMBINER)



Date: 19.OCT.2010 04:37:00

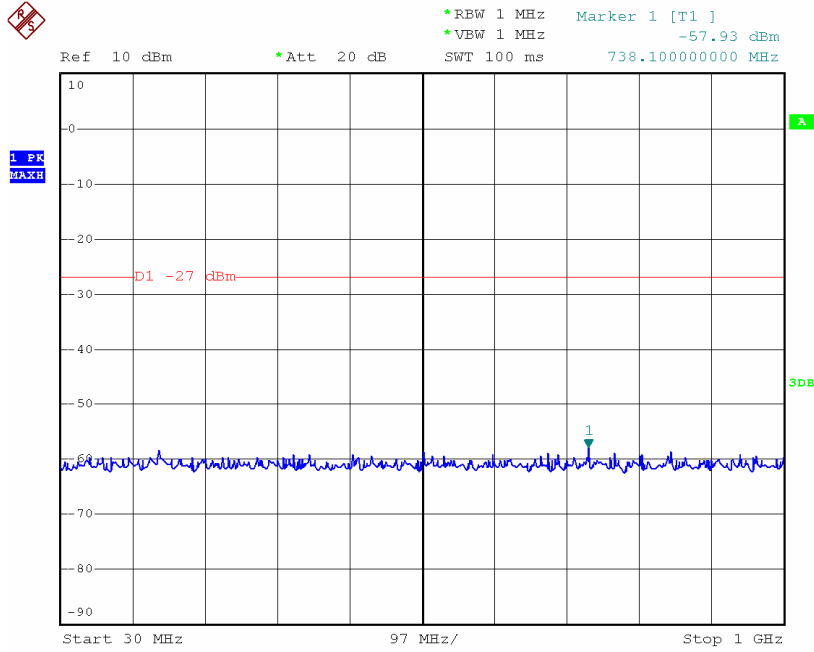
### TX 11n(HT40) mode CH46 (WITH COMBINER)



Date: 20.OCT.2010 23:48:08

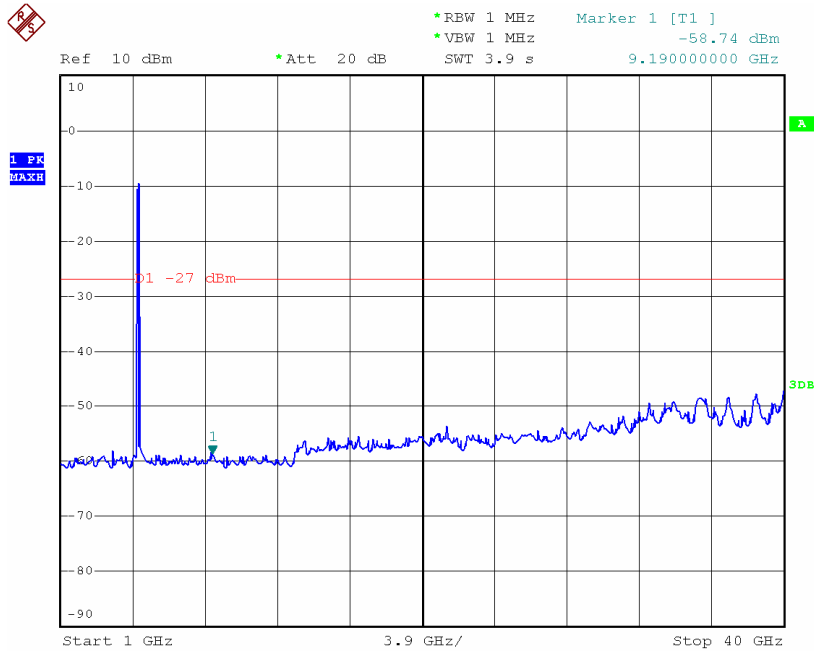


### TX 11n(HT40) mode CH38 (30M~1000MHz) (WITH COMBINER)



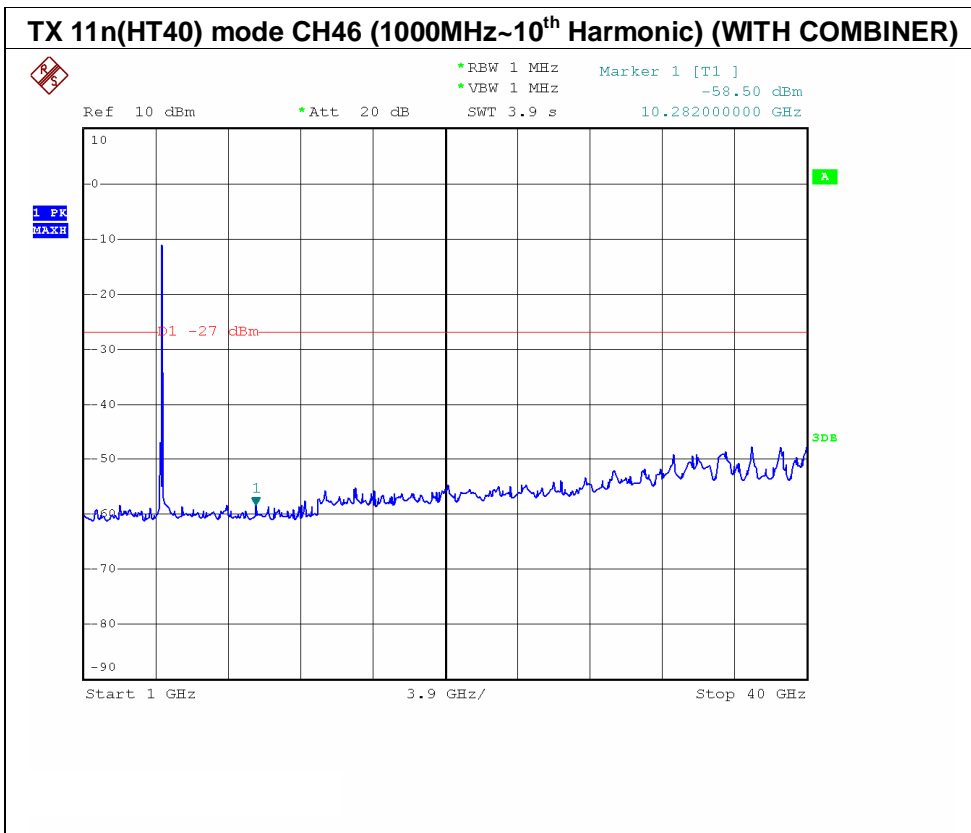
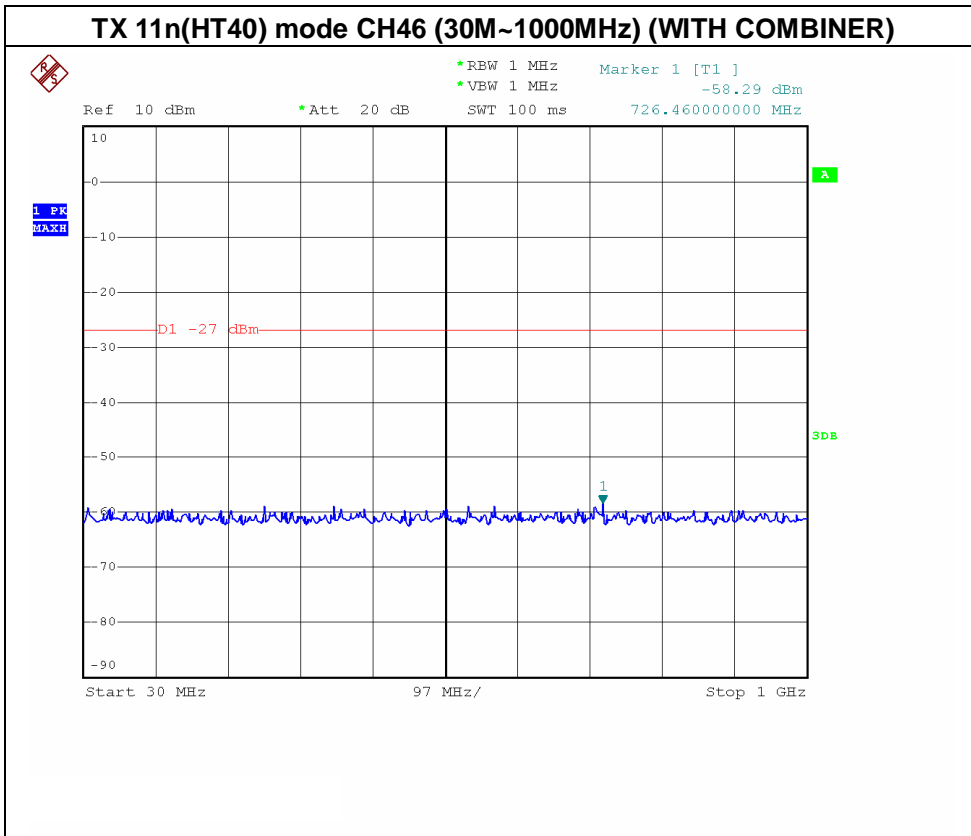
Date: 20.OCT.2010 16:16:36

### TX 11n(HT40) mode CH38 (1000MHz~10<sup>th</sup> Harmonic) (WITH COMBINER)



Date: 20.OCT.2010 16:16:21







**8. POWER SPECTRAL DENSITY TEST**

**8.1 APPLIED PROCEDURES / LIMIT**

FCC Part15, Subpart E			
Test Item	Limit	Frequency Range (MHz)	Result
Power Spectral Density	4 dBm	5150 - 5250	<b>PASS(Note)</b>
	11 dBm	5250 - 5350	N/A
	11 dBm	5470 - 5725	N/A
	17 dBm	5725 - 5825	N/A

**Note:**

The maximum effective antenna gain is 7.26 dBi, therefore the limit is 2.74 dBm.

**8.1.1 MEASUREMENT INSTRUMENTS LIST**

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP-40	100185	Nov.27.2010

Remark: " N/A" denotes No Model Name, Serial No. or No Calibration specified.

**8.1.2 TEST PROCEDURE**

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
- b. The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002. The transmitter output operates continuously therefore Method # 1 is used.

**8.1.3 DEVIATION FROM STANDARD**

No deviation.

**8.1.4 TEST SETUP**



**8.1.5 EUT OPERATION CONDITIONS**

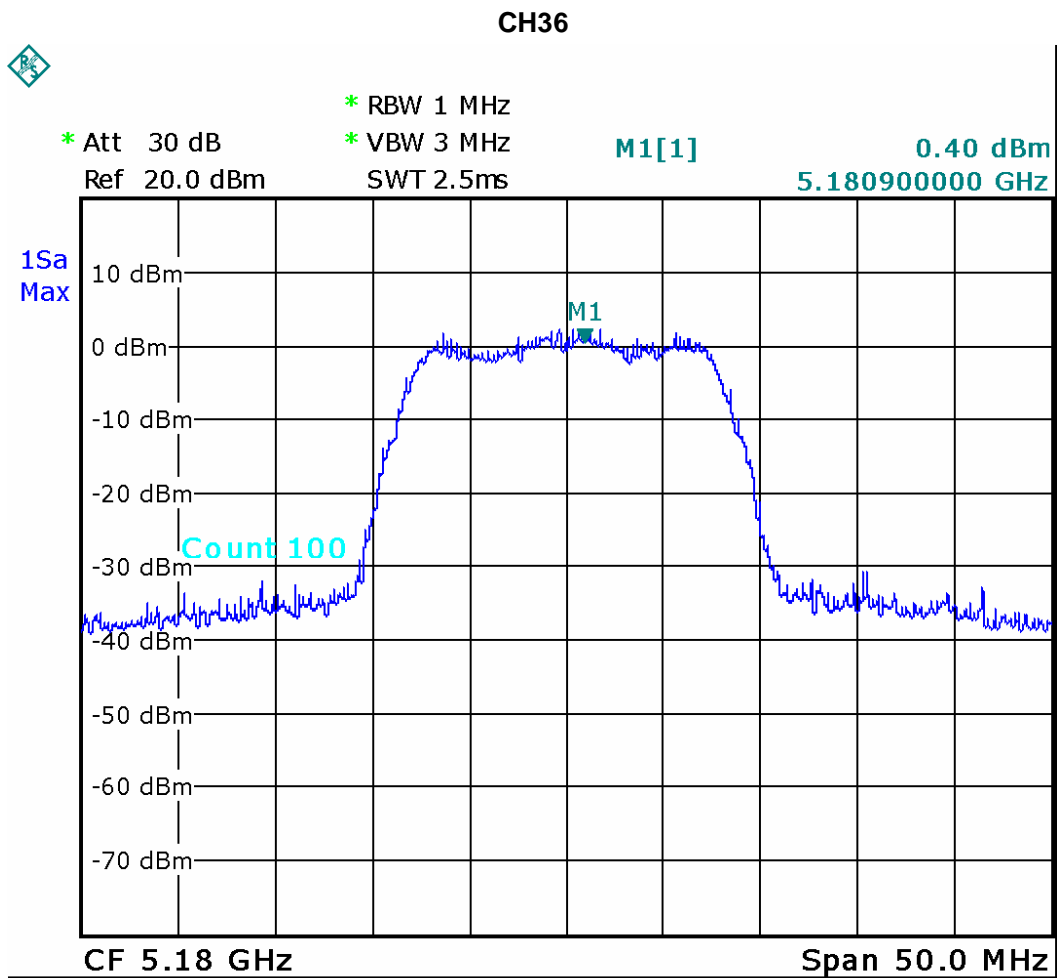
The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.



**8.1.6 TEST RESULTS - BAND 1**

EUT :	BCM3380Z D3.0 Wireless eMTA	Model Name :	DVW3201B
Temperature :	23 °C	Relative Humidity :	64 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	802.11a/CH36, CH40, CH48 (ANT.2)		

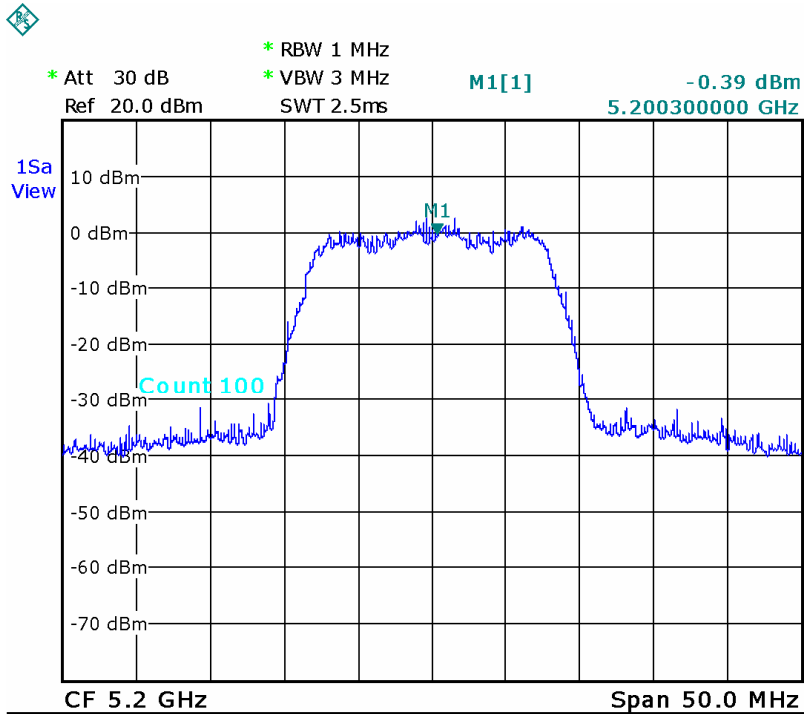
Test Channel	Frequency (MHz)	Power Density (dBm)	LIMIT (dBm)
36	5180	0.40	4.00
40	5200	-0.39	4.00
48	5240	0.71	4.00



Date: 20.OCT.2010 22:00:51

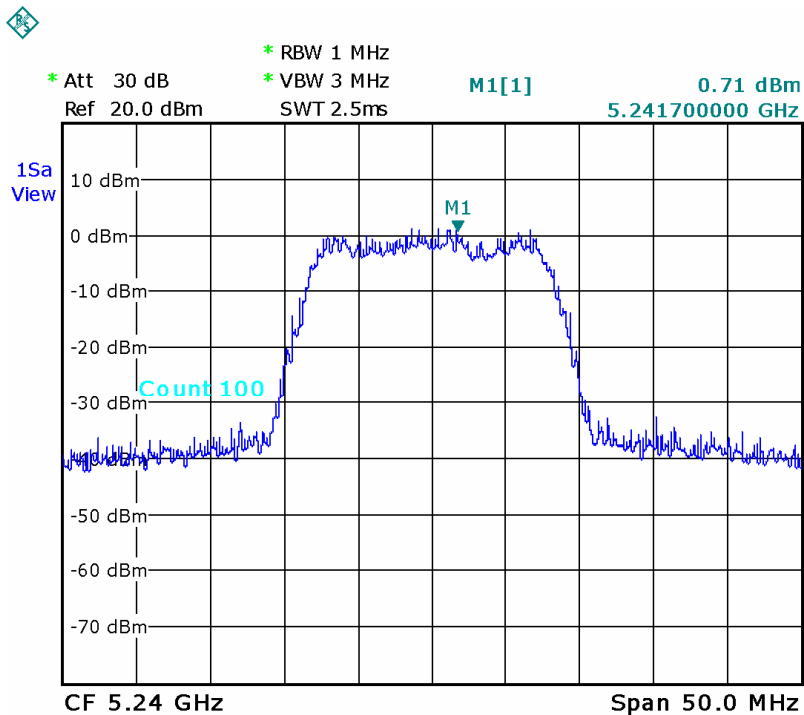


### CH40



Date: 20.OCT.2010 21:52:38

### CH48



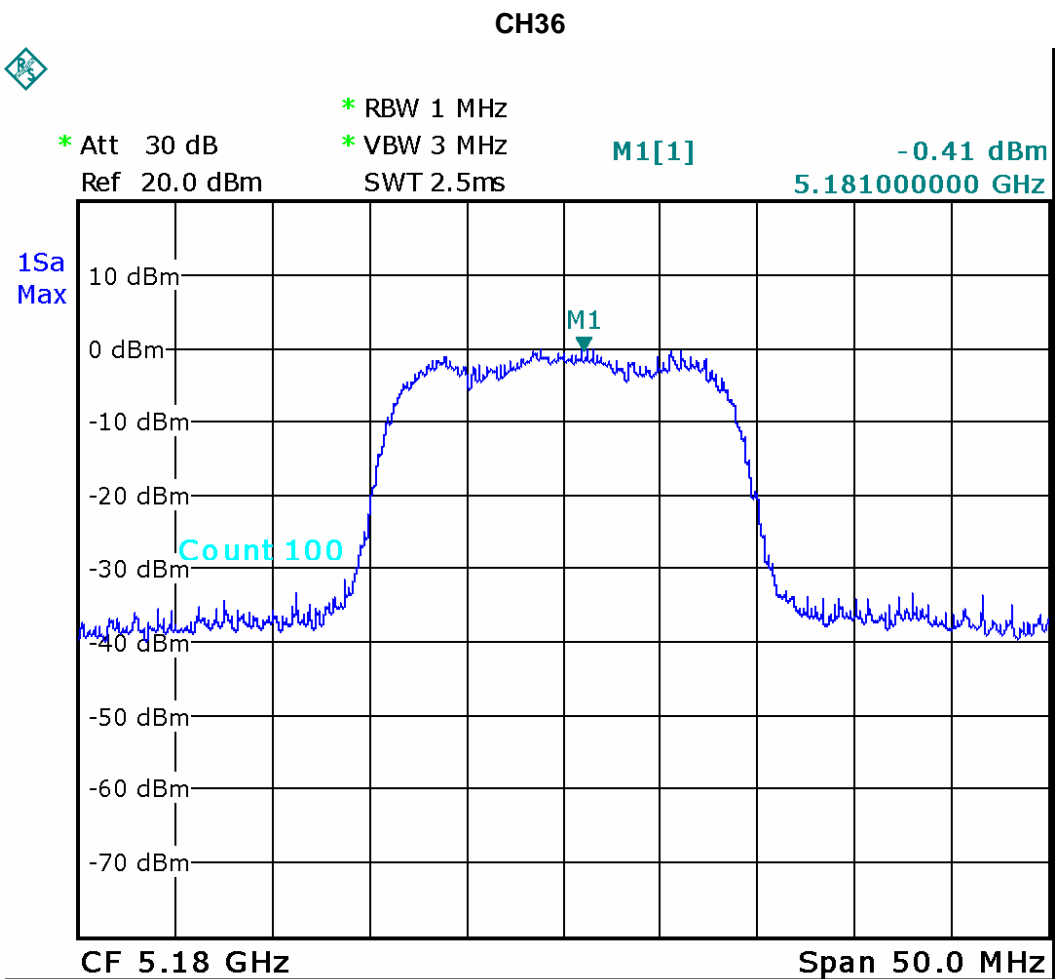
Date: 20.OCT.2010 22:05:14



# Neutron Engineering Inc.

EUT :	BCM3380Z D3.0 Wireless eMTA	Model Name :	DVW3201B
Temperature :	23 °C	Relative Humidity :	64 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	802.11n/20M/CH36, CH40, CH48 (WITH COMBINER)		

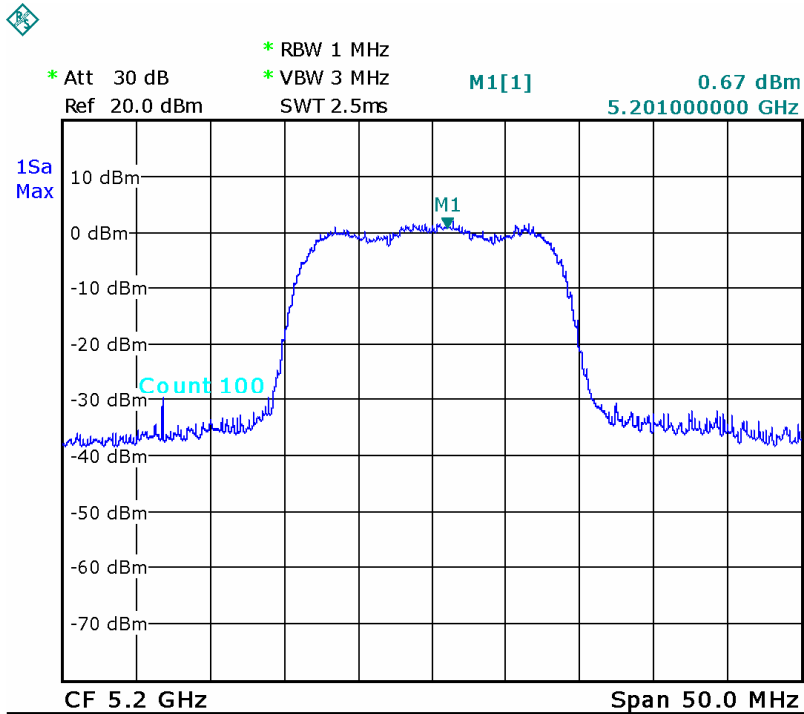
Test Channel	Frequency (MHz)	Power Density (dBm)	LIMIT (dBm)
36	5180	-0.41	2.74
40	5200	0.67	2.74
48	5240	0.32	2.74



Date: 20.OCT.2010 22:22:54

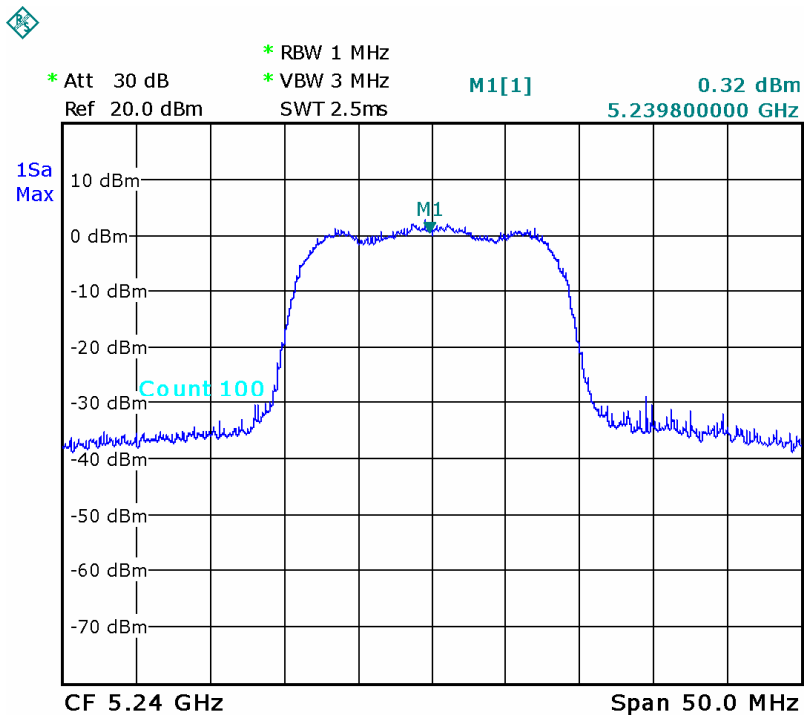


### CH40



Date: 20.OCT.2010 22:25:39

### CH48



Date: 20.OCT.2010 22:43:27



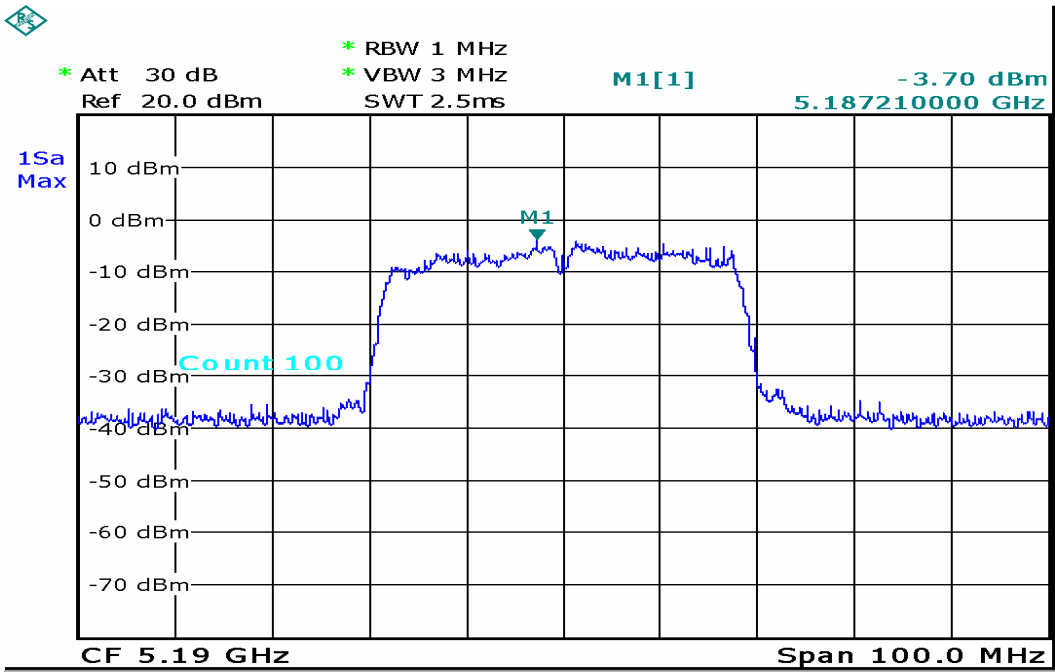
## Neutron Engineering Inc.

EUT :	BCM3380Z D3.0 Wireless eMTA	Model Name :	DVW3201B
Temperature :	23 °C	Relative Humidity :	64 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	802.11n/40M/CH38, CH46 <b>(WITH COMBINER)</b>		

Test Channel	Frequency (MHz)	Power Density (dBm)	LIMIT (dBm)
38	5190	-3.70	2.74
46	5230	-3.41	2.74

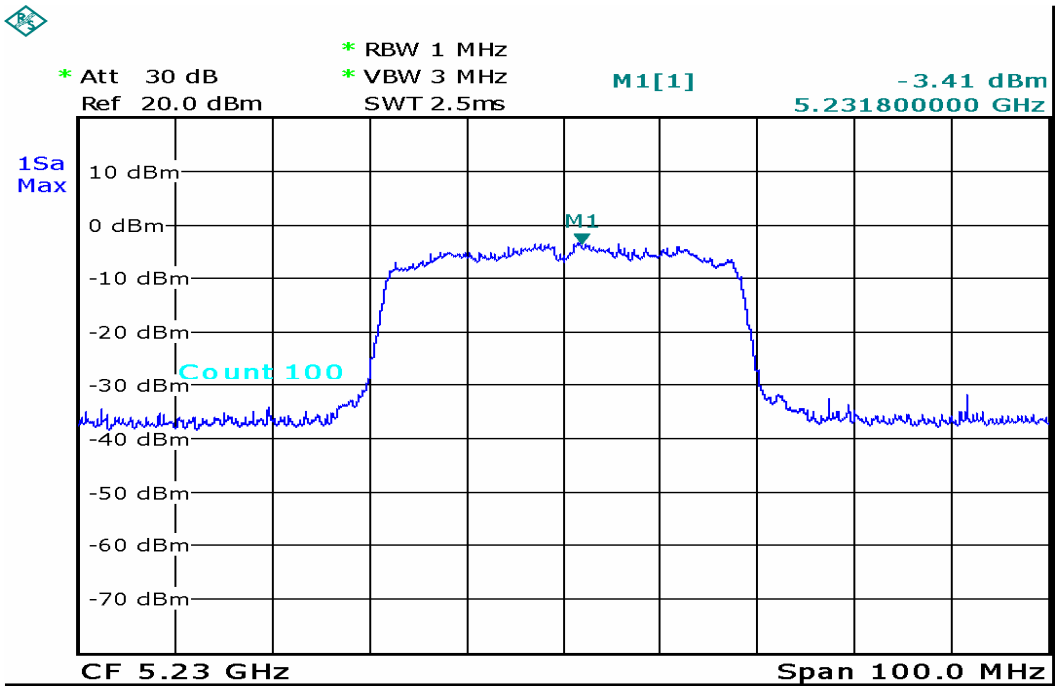


CH38



Date: 20.OCT.2010 23:21:32

CH46



Date: 20.OCT.2010 23:33:16





**9. Peak Excursion Measurement**

**9.1 APPLIED PROCEDURES / LIMIT**

FCC Part15, Subpart E			
Test Item	Limit	Frequency Range (MHz)	Result
Peak Excursion Measurement	13 dB	5150 - 5250	PASS
		5250 - 5350	N/A
		5470 - 5725	N/A
		5725 - 5825	N/A

**9.1.1 MEASUREMENT INSTRUMENTS LIST**

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP-40	100185	Nov.27.2010

Remark: " N/A" denotes No Model Name, Serial No. or No Calibration specified.

**9.1.2 TEST PROCEDURE**

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
- d. The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002. Since Method # 1 was used for peak power measurements, Method # 1 settings are used for the second PPSD trace.

**9.1.3 DEVIATION FROM STANDARD**

No deviation.

**9.1.4 TEST SETUP**



**9.1.5 EUT OPERATION CONDITIONS**

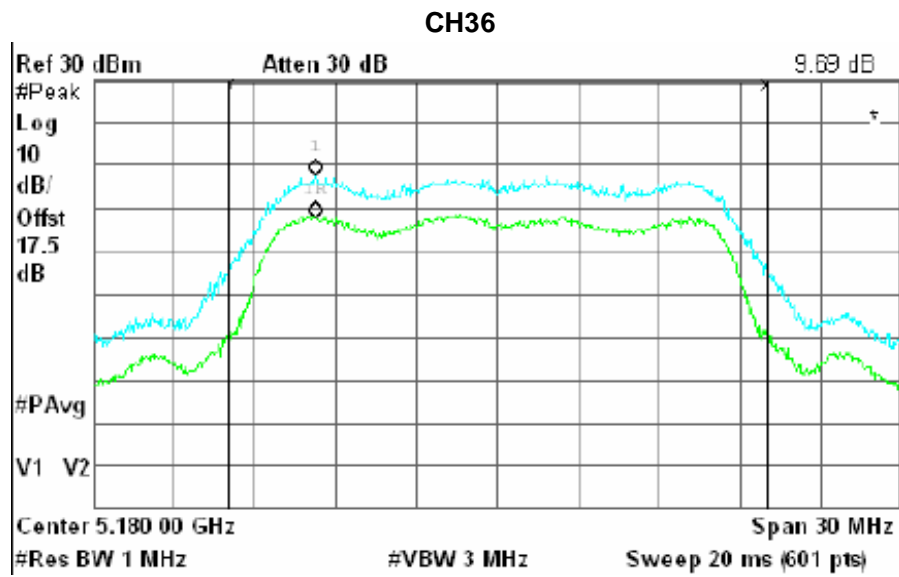
The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.



**9.1.6 TEST RESULTS - BAND 1**

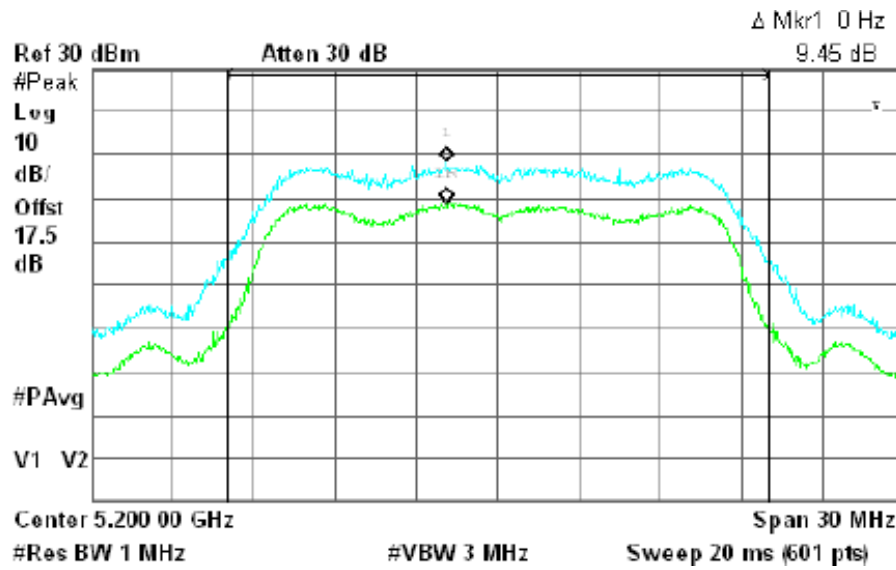
EUT :	BCM3380Z D3.0 Wireless eMTA	Model Name :	DVW3201B
Temperature :	23 °C	Relative Humidity :	64 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	802.11a/CH36, CH40, CH48		

Test Channel	Frequency (MHz)	Peak Excursion (dB)	LIMIT (dB)
CH36	5180	9.69	13
CH40	5200	9.45	13
CH48	5240	10.20	13

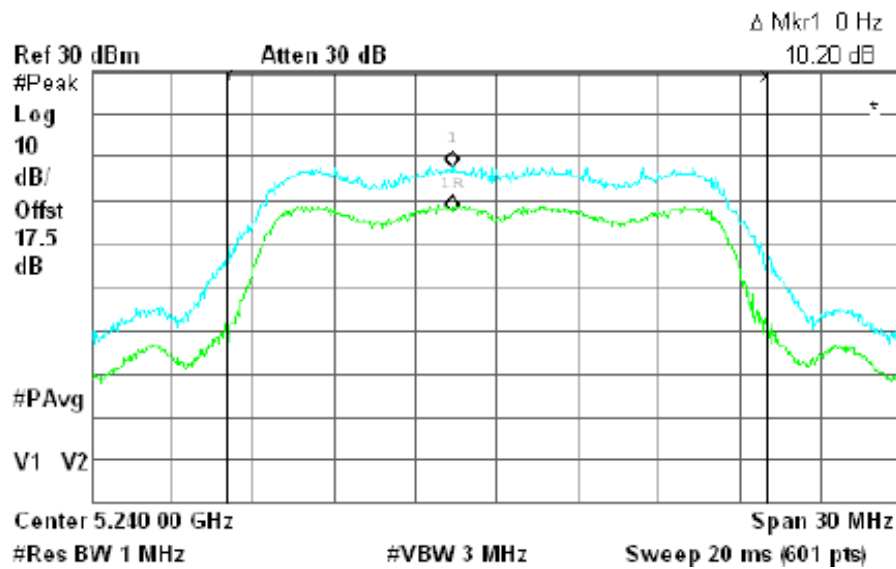




### CH40



### CH48

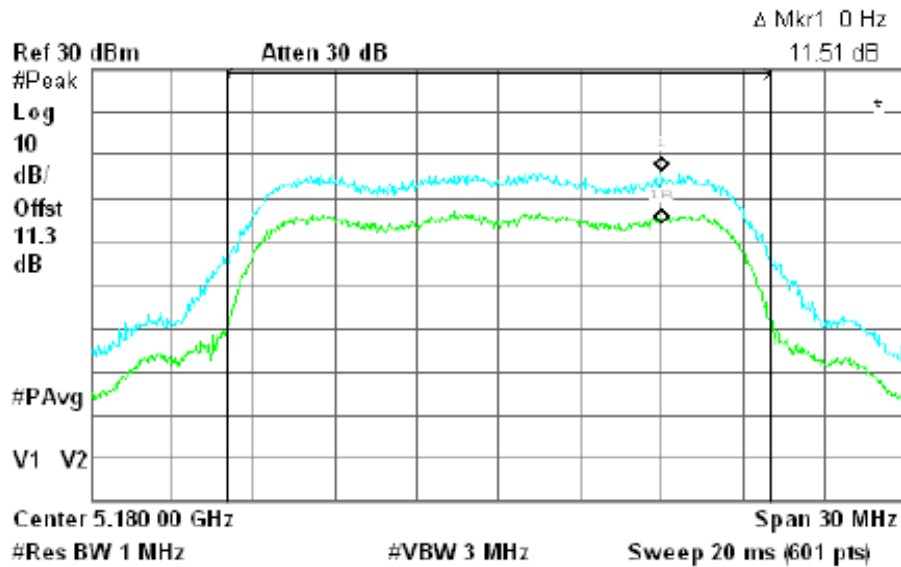




EUT :	BCM3380Z D3.0 Wireless eMTA	Model Name :	DVW3201B
Temperature :	23 °C	Relative Humidity :	64 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	802.11n/20M/CH36, CH40, CH48		

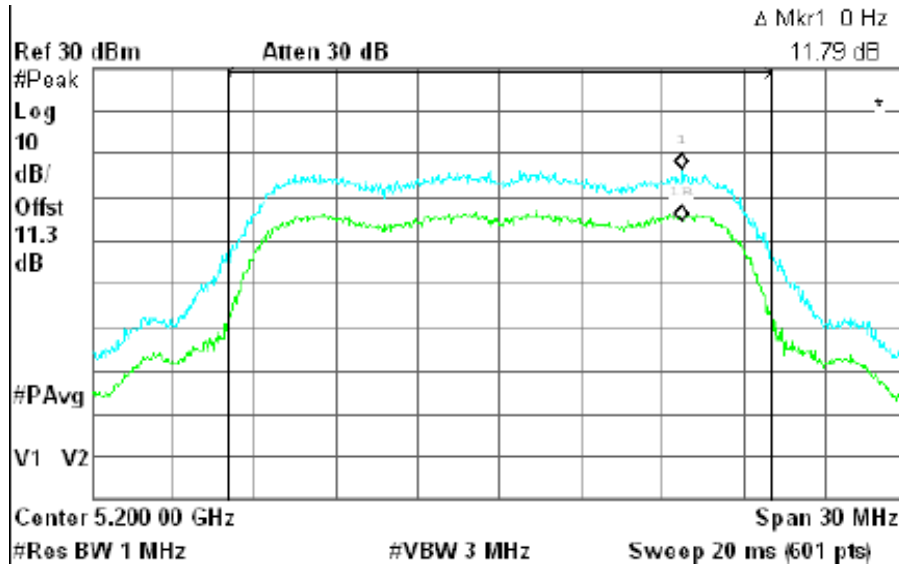
Test Channel	Frequency (MHz)	Peak Excursion (dB)	LIMIT (dB)
CH36	5180	11.51	13
CH40	5200	11.79	13
CH48	5240	9.82	13

**CH36**

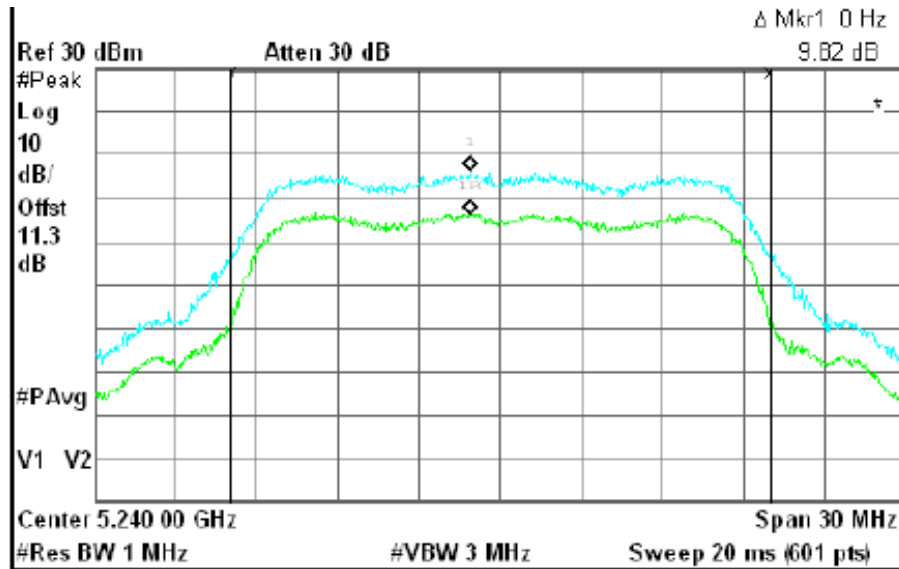




### CH40



### CH48





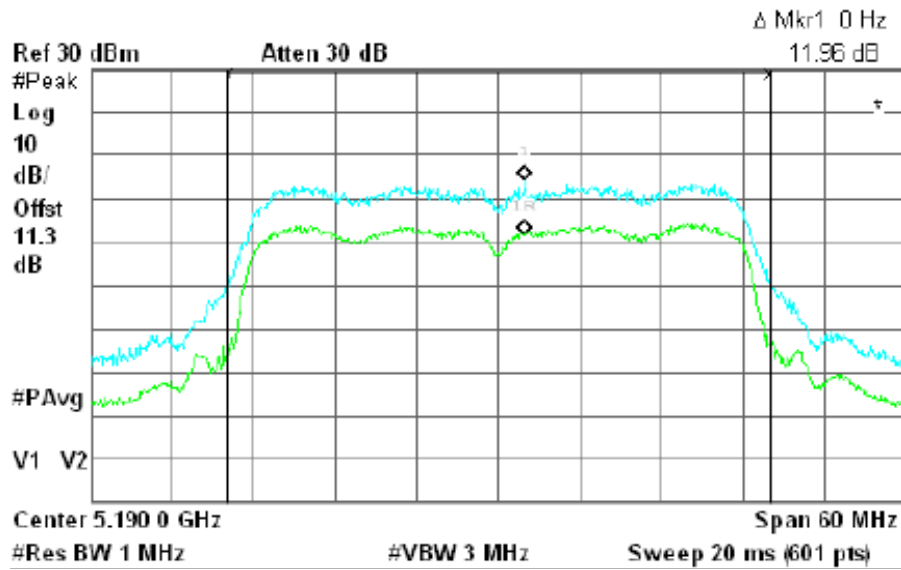
## Neutron Engineering Inc.

EUT :	BCM3380Z D3.0 Wireless eMTA	Model Name :	DVW3201B
Temperature :	23 °C	Relative Humidity :	64 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	802.11n/40M/CH38, CH46		

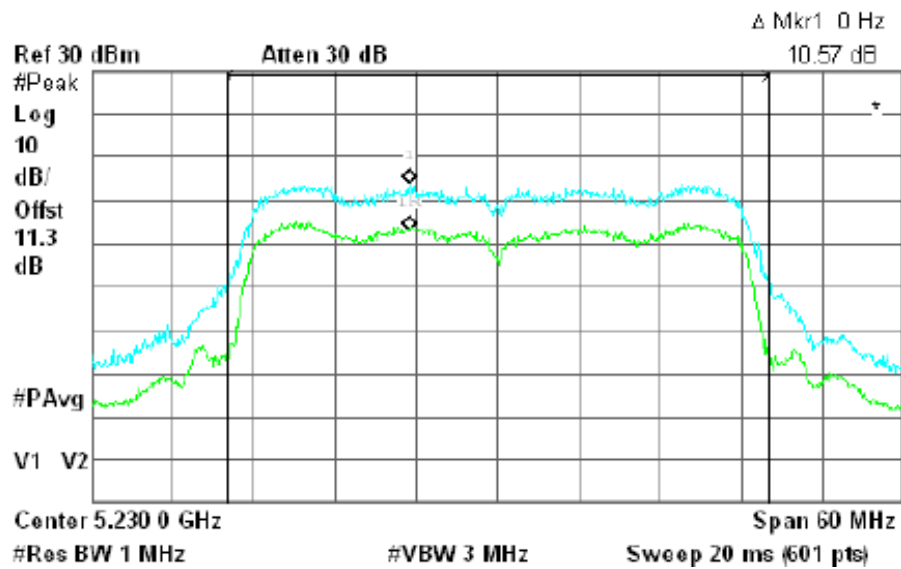
Test Channel	Frequency (MHz)	Peak Excursion (dB)	LIMIT (dB)
CH38	5190	11.96	13
CH46	5230	10.57	13



### CH38



### CH46





**10. Frequency Stability Measurement**

**10.1 APPLIED PROCEDURES / LIMIT**

FCC Part15, Subpart E			
Test Item	Limit	Frequency Range (MHz)	Result
Frequency Stability	specified in the user's manual or $\pm 20$ ppm (IEEE 802.11a specification)	5150 - 5250	PASS
		5250 - 5350	N/A
		5470 - 5725	N/A
		5725 - 5825	N/A

**10.1.1 MEASUREMENT INSTRUMENTS LIST**

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP-40	100185	Nov.27.2010
2	Temp. & Humid. Chamber	GIANT FORCE	ITH-225-20-S	IAB0309-001	Nov. 27, 2010

Remark: " N/A" denotes No Model Name, Serial No. or No Calibration specified.

**10.1.2 TEST PROCEDURE**

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,

b.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Entire absence of modulation emissions bandwidth
RB	10 kHz
VB	10 kHz
Sweep Time	Auto

c. The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value.

d. Extreme temperature rule is -30°C~50°C.

**10.1.3 DEVIATION FROM STANDARD**

No deviation.





**10.1.4 TEST SETUP**



**10.1.5 EUT OPERATION CONDITIONS**

The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.



**10.1.6 TEST RESULTS**

EUT :	BCM3380Z D3.0 Wireless eMTA	Model Name :	DVW3201B
Temperature :	23 °C	Relative Humidity :	64 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	802.11a/CH36, CH40, CH48		

**Voltage vs. Frequency Stability**

Voltage (V)	Measurement Frequency (MHz)	
	5200	-
126.50	5200.004123	
110.00	5200.004214	
93.50	5200.004167	
Max. Deviation (MHz)	0.004214	
Max. Deviation (ppm)	0.81	

**Temperature vs. Frequency Stability**

Temperature (°C)	Measurement Frequency (MHz)	
	5200	-
-30	5200.074740	
-20	5200.069340	
-10	5200.064460	
0	5200.050400	
10	5200.025800	
20	5200.004140	
30	5199.982200	
40	5199.967600	
50	5199.961440	
Max. Deviation (MHz)	0.074740	
Max. Deviation (ppm)	14.37	



**11. RF EXPOSURE TEST**

**11.1 APPLIED PROCEDURES / LIMIT**

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 0.2 m normally can be maintained between the user and the device.

(A) Limits for Occupational / Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm <sup>2</sup> )	Averaging Time  E  <sup>2</sup> , H  <sup>2</sup> or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842 / f	4.89 / f	(900 / f)*	6
30-300	61.4	0.163	1.0	6
300-1500			F/300	6
1500-100,000			5	6

(B) Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm <sup>2</sup> )	Averaging Time  E  <sup>2</sup> , H  <sup>2</sup> or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000			1.0	30

Note: f = frequency in MHz ; \*Plane-wave equivalent power density

**11.1.1 MEASUREMENT INSTRUMENTS LIST**

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP-40	100185	Nov.27.2010

Remark: " N/A" denotes No Model Name , Serial No. or No Calibration specified.

**11.1.2 MPE CALCULATION METHOD**

$$E \text{ (V/m)} = \frac{\sqrt{30 \times P \times G}}{d} \qquad \text{Power Density: } Pd \text{ (W/m}^2\text{)} = \frac{E^2}{377}$$

**E** = Electric field (V/m)

**P** = Peak RF output power (W)

**G** = EUT Antenna numeric gain (numeric)

**d** = Separation distance between radiator and human body (m)

The formula can be changed to

$$Pd = \frac{30 \times P \times G}{377 \times d^2}$$

From the peak EUT RF output power, the minimum mobile separation distance, d=0.2m, as well as the gain of the used antenna, the RF power density can be obtained



**11.1.3 DEVIATION FROM STANDARD**

No deviation.

**11.1.4 TEST SETUP**



**11.1.5 EUT OPERATION CONDITIONS**

The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.



**11.1.6 TEST RESULTS - BAND 1**

EUT :	BCM3380Z D3.0 Wireless eMTA	Model Name :	DVW3201B
Temperature :	23 °C	Relative Humidity :	64 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	802.11a CH36, CH40, CH 48 <b>(ANT.2)</b>		

Frequency (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )
5180	4.4	2.7542	8.96	7.8705	0.004315	1
5200	4.4	2.7542	8.53	7.1285	0.003908	1
5240	4.4	2.7542	9.03	7.9983	0.004385	1

EUT :	BCM3380Z D3.0 Wireless eMTA	Model Name :	DVW3201B
Temperature :	23 °C	Relative Humidity :	64 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	802.11n HT20 CH36, CH40, CH 48 <b>(WITH COMBINER)</b>		

Frequency (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )
5180	7.26	5.3211	12.06	16.0694	0.017020	1
5200	7.26	5.3211	11.74	14.9279	0.015811	1
5240	7.26	5.3211	11.59	14.4212	0.015274	1

EUT :	BCM3380Z D3.0 Wireless eMTA	Model Name :	DVW3201B
Temperature :	23 °C	Relative Humidity :	64 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	802.11n HT40 CH38, CH46 <b>(WITH COMBINER)</b>		

Frequency (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )
5190	7.26	5.3211	12.03	15.9588	0.016902	1
5230	7.26	5.3211	12.14	16.3682	0.017336	1

Remark :

- (1) The MIMO test requirement, MPE shall measure by using the total sum power of each transmitter chain.



**12. EUT TEST PHOTO**

**Conducted Measurement Photos**





**Radiated Measurement Photos**

