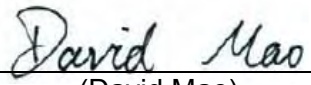
FCC Radio Test Report

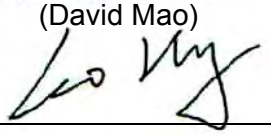
FCC ID: VW3FAST4320US

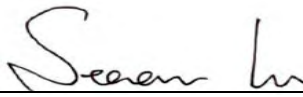
This report concerns (check one) : ■ **Original Grant** □ **Class II Change**

Issued Date	: Nov. 30, 2012
Project No.	: 1211C023
Equipment	: Wireless xDSL Bonding Router
Model Name	: F@ST 4320 US
P/N	253517228
S/N	Test sample
Applicant	: SAGEMCOM SAS
Address	: 250 Route de l'Empereur RUEIL MALMAISON CEDEX 92848 France
Manufacturer	: SAGEMCOM SAS
Address	: 250 Route de l'Empereur RUEIL MALMAISON CEDEX 92848 France

Tested by:
Neutron Engineering Inc. EMC Laboratory
Date of Receipt: Nov. 05, 2012
Date of Test:
Nov. 05, 2012 ~ Nov. 30, 2012

Testing Engineer : 
(David Mao)

Technical Manager : 
(Leo Hung)

Authorized Signatory : 
(Steven Lu)

Neutron Engineering Inc.

No.3,Jinshagang 1st Road, ShiXia, Dalang Town, Dong Guan, China.
TEL : (0769) 8318-3000 FAX : (0769) 8319-6000

Declaration

Neutron represents to the client that testing is done in accordance with standard procedures as applicable and that test instruments used has been calibrated with the standards traceable to National Measurement Laboratory (**NML**) of **R.O.C**, or National Institute of Standards and Technology (**NIST**) of **U.S.A.**

Neutron's reports apply only to the specific samples tested under conditions. It is manufacture's responsibility to ensure that additional production units of this model are manufactured with the identical electrical and mechanical components. **Neutron** shall have no liability for any declarations, inferences or generalizations drawn by the client or others from **Neutron** issued reports.

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Neutron's laboratory quality assurance procedures are in compliance with the **ISO Guide 17025** requirements, and accredited by the conformity assessment authorities listed in this test report.

Limitation

For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.

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1. CERTIFICATION

Equipment	:	Wireless xDSL Bonding Router
Brand Name	:	SAGEMCOM
Model Name	:	F@ST 4320 US
P/N	:	253517228
S/N	:	Test sample
Applicant	:	SAGEMCOM SAS
Factory	:	SHENZHEN GONGJIN Electronics CO., LTD
Address	:	No 2&3 Buildings, Mingwei Factory Area, Songgang Road West,No. A Building, 1#Songgang Road Songgang Sub-District, Shenzhen, Guangdong, 518105, P.R.China
Date of Test	:	Nov. 05, 2012 ~ Nov. 30, 2012
Test Item	:	ENGINEERING SAMPLE
Standards	:	FCC Part15, Subpart C(15.247) / ANSI C63.4-2009

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-1-1211C023) 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

FCC Part15 (15.247) , Subpart C			
Standard Section	Test Item	Judgment	Remark
15.207	Conducted Emission	PASS	
15.247 (d)	Antenna conducted Spurious Emission	PASS	
15.247 (a)(2)	6dB Bandwidth	PASS	
15.247 (b)	Peak Output Power	PASS	
15.247 (e)	Power Spectral Density	PASS	
15.203	Antenna Requirement	PASS	
15.247(d)	Transmitter Radiated Emissions	PASS	

Test procedures according to the technical standards:

NOTE:

(1)" N/A" denotes test is not applicable in this test report.

(2) The test follows FCC KDB Publication No,558074(Measurement Guidelines of DTS)

2.1 TEST FACILITY

The test facilities used to collect the test data in this report is **DG-C02/DG-CB03** 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 ± U，where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2，providing a level of confidence of approximately 95 %。

A. Conducted Measurement :

Test Site	Method	Measurement Frequency Range	U，(dB)	NOTE
DG-C02	CISPR	150 KHz ~ 30MHz	1.94	

B. Radiated Measurement :

Test Site	Method	Measurement Frequency Range	Ant. H / V	U，(dB)	NOTE
DG-CB03	CISPR	30MHz ~ 200MHz	V	3.82	
		30MHz ~ 200MHz	H	3.60	
		200MHz ~ 1,000MHz	V	3.86	
		200MHz ~ 1,000MHz	H	3.94	
		1GHz~18GHz	V	3.12	
		1GHz~18GHz	H	3.68	
		18GHz~40GHz	V	4.15	
		18GHz~40GHz	H	4.14	

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

<table>
<tr><td>Equipment</td><td>Wireless xDSL Bonding Router</td></tr>
<tr><td>Brand Name</td><td>SAGEMCOM</td></tr>
<tr><td>Model Name</td><td>F@ST 4320 US</td></tr>
<tr><td>P/N</td><td>253517228</td></tr>
<tr><td>Model Difference</td><td>N/A</td></tr>
<tr><td>Product Description</td><td>The EUT is a Wireless xDSL Bonding Router.

<table>
<tr><td>Operation Frequency</td><td>2412~2462 MHz</td></tr>
<tr><td>Modulation Technology</td><td>802.11b:DSSS
802.11g:OFDM
802.11n:OFDM</td></tr>
<tr><td>Bit Rate of Transmitter</td><td>802.11b: 11/5.5/2/1 Mbps
802.11g:
54/48/36/24/18/12/9/6 Mbps
802.11n up to 300 Mbps (2T2R)</td></tr>
<tr><td>Number Of Channel</td><td>11 CH, Please see note 2.(Page 9)</td></tr>
<tr><td>Antenna Designation</td><td rowspan="2">Please see note 3.(Page 9)</td></tr>
<tr><td>Antenna Gain(Peak)</td></tr>
<tr><td>Output Power</td><td>802.11b: 18.34 dBm
802.11g: 20.96 dBm
802.11n(20MHz): 21.07 dBm
802.11n(40MHz): 18.63 dBm</td></tr>
</table>

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.</td></tr>
<tr><td>Power Source</td><td>DC voltage supplied from AC adapter.
Brand name: SAGEMCOM
Model name: NBSZ4120200VU</td></tr>
<tr><td>Power Rating</td><td>I/P AC 100-240V~ 50/60Hz 0.6A O/P DC 12.0V 2.0A</td></tr>
<tr><td>Connecting I/O Port(s)</td><td>One xDSL(one xDSL (ADSL,2,2+/VDSL2) bonding port;
Four Ethernet 10Mbps/100Mbps/1000Mbps ports
One 10Mbps/100Mbps/1000Mbps WAN port
Two USB masters</td></tr>
</table>

Note:

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

2. CH 01 – CH 11 for 802.11b, 802.11g, 802.11n(20MHz)
CH 03 – CH 09 for 802.11n(40MHz)

Channel List

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	2412	04	2427	07	2442	10	2457
02	2417	05	2432	08	2447	11	2462
03	2422	06	2437	09	2452		

3. Table for Filed Antenna

Ant.	Manufacturer	Model Name	Antenna Type	Connector	Gain (dBi)
1	Airgain	N2430GNS	Embedded Antenna	N/A	5
2	Airgain	N2430GNS	Embedded Antenna	N/A	5

This EUT supports MIMO 2T2R, All transmit signals are completely uncorrelated, then $\text{Directional gain} = 10\log[(10^{G1/10} + 10^{G2/10} + \ldots + 10^{GN/10})/N]\ \text{dBi}$, that is Directional gain=5;

4.

Operating Mode / TX Mode	1TX	2TX
802.11b	V (ANT1 or ANT2)	-
802.11g	V (ANT1 or ANT2)	-
802.11n(20MHz)	-	V (ANT1 & ANT2)
802.11n(40MHz)	-	V (ANT1 & ANT2)

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 Mode	Description
Mode 1	TX B MODE CHANNEL 01/06/11
Mode 2	TX G MODE CHANNEL 01/06/11
Mode 3	TX N-20MHZ MODE CHANNEL 01/06/11
Mode 4	TX N-40MHZ MODE CHANNEL 03/06/09
Mode 5	ADSL(single mode) + USB sticks + WIFI activated + 1Gbps LAN / WAN connection
Mode 6	ADSL(bonding mode) + USB sticks + WIFI activated + 1Gbps LAN / WAN connection
Mode 7	VDSL(single mode)+ USB sticks + WIFI activated + 1Gbps LAN / WAN connection
Mode 8	VDSL(bonding mode) + USB sticks + WIFI activated + 1Gbps LAN / WAN connection

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

For Conducted Test	
Final Test Mode	Description
Mode 5	ADSL(single mode) + USB sticks + WIFI activated + 1Gbps LAN / WAN connection
Mode 6	ADSL(bonding mode) + USB sticks + WIFI activated + 1Gbps LAN / WAN connection
Mode 7	VDSL(single mode)+ USB sticks + WIFI activated + 1Gbps LAN / WAN connection
Mode 8	VDSL(bonding mode) + USB sticks + WIFI activated + 1Gbps LAN / WAN connection

For Radiated Test	
Final Test Mode	Description
Mode 1	TX B MODE CHANNEL 01/06/11
Mode 2	TX G MODE CHANNEL 01/06/11
Mode 3	TX N-20MHZ MODE CHANNEL 01/06/11
Mode 4	TX N-40MHZ MODE CHANNEL 03/06/09

Note:

(1) The measurements are performed at the high, middle, low available channels.

(2) 802.11b mode: DBPSK (1Mbps)
802.11g mode: OFDM (6Mbps)
802.11n HT20 mode : BPSK (6.5Mbps)
802.11n HT40 mode : BPSK (13.5Mbps)
For radiated emission tests, the highest output powers were set for final test.

3.3 TABLE OF PARAMETERS OF TEXT SOFTWARE SETTING

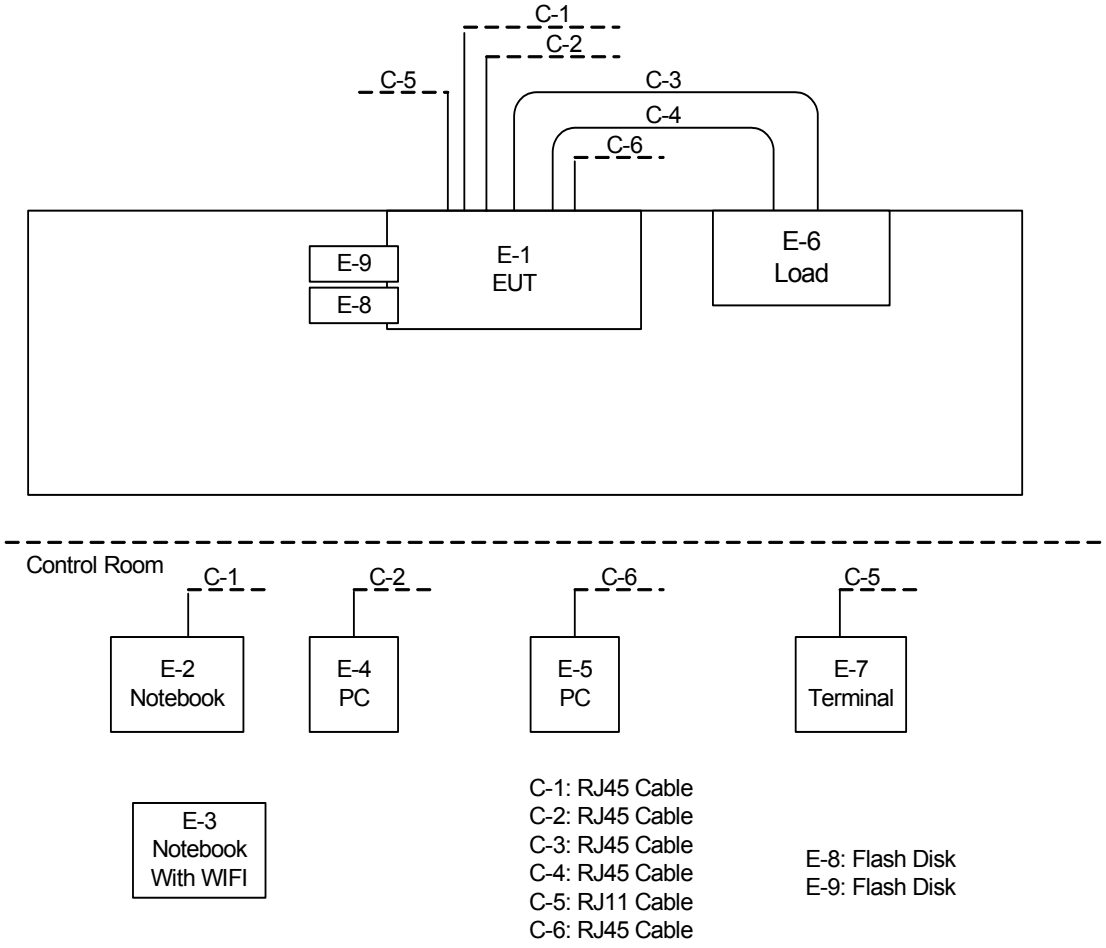
During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product power parameters of WLAN

Test software version	dos		
Frequency	**2412 MHz**	**2437 MHz**	**2462 MHz**
IEEE 802.11b DSSS	14	14	14
IEEE 802.11g OFDM	12	12	13

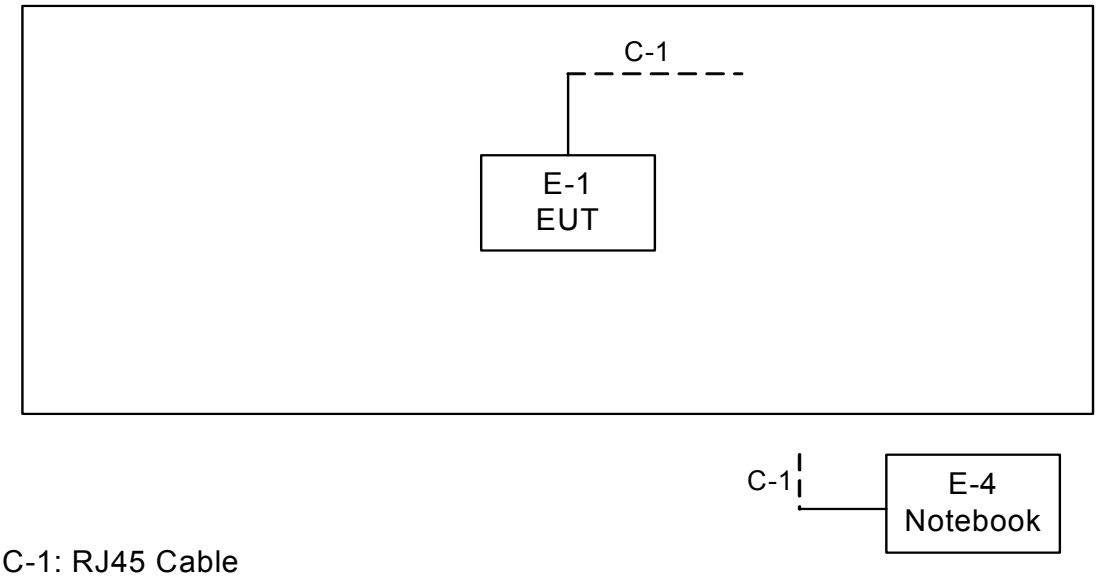
Test software version	dos		
Frequency (MHz)	**2412 MHz**	**2437 MHz**	**2462 MHz**
IEEE 802.11n (20MHz)	9	9	9
Frequency (MHz)	**2422 MHz**	**2437 MHz**	**2452 MHz**
IEEE 802.11n (40MHz)	8	8	8

3.4 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

Conducted Mode:



Radiated TX Mode:



C-1: RJ45 Cable

3.5 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	Wireless N150 Cloud Router	SAGEMCOM	F@ST 4320 US	VW3FAST4320US	N/A	EUT
E-2	NOTEBOOK	DELL	INSPIRON 1420	DOC	JX193A01SDC2	
E-3	NOTEBOOK	ASUS	F9Eseries	DOC	7AN0AS301331	
E-4	PC	HP	Dx7200MT	DOC	CNG60601DV	
E-5	PC	HP	Dx7208	DOC	CNG7050PF6	
E-6	Load	N/A	N/A	N/A	N/A	
E-7	Terminal	BROADCOM	BCM96358M-30-A1	NA	NA	
E-8	Flash Disk	Kingston	DTI/1GB	DOC	520B21E4-819957C	
E-9	Flash Disk	Kingston	DTI/1GB	DOC	39621564-014D517	

Item	Shielded Type	Ferrite Core	Length	Note
C-1	NO	NO	10m	8 wires symmetrical twisted CAT 5e cable
C-2	NO	NO	10m	8 wires symmetrical twisted CAT 5e cable
C-3	NO	NO	1.5m	8 wires symmetrical twisted CAT 5e cable
C-4	NO	NO	1.5m	8 wires symmetrical twisted CAT 5e cable
C-5	NO	NO	10m	4 wires symmetrical cable
C-6	NO	NO	10m	8 wires symmetrical twisted CAT 5e cable

Note:

(1) The support equipment was authorized by Declaration of Confirmation.
(2) For detachable type I/O cable should be specified the length in m in 『Length』 column.

4. EMC EMISSION TEST

4.1 CONDUCTED EMISSION MEASUREMENT

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

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

0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *	FCC
0.50 -5.0	73.00	60.00	56.00	46.00	FCC
5.0 -30.0	73.00	60.00	60.00	50.00	FCC

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 AND SETTING

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Next Calibration
1	LISN	EMCO	3816/2	00052765	May.26.2012	May.04.2013
2	LISN	R&S	ENV216	100087	May.26.2012	May.04.2013
3	Test Cable	N/A	C_17	N/A	Mar.18.2012	Mar.28.2013
4	EMI TEST RECEIVER	R&S	ESCS30	826547/022	May.26.2012	May.04.2013
5	50Ω Terminator	SHX	TF2-3G-A	08122902	May.26.2012	May.04.2013

Remark: “N/A” denotes no model name, serial no. or calibration specified.
All calibration period of Equipment List is One Year.

The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

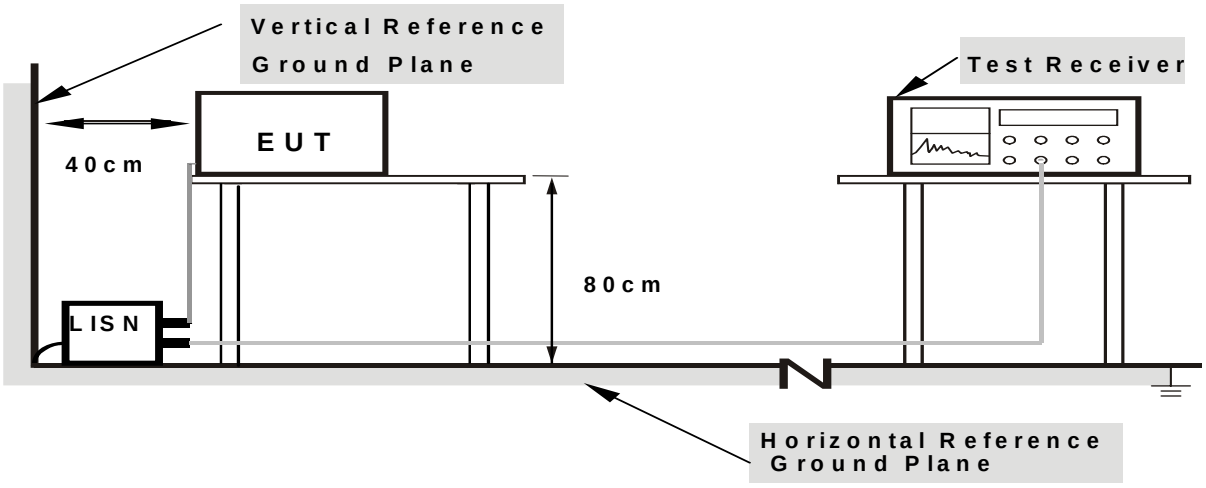
4.1.3 TEST PROCEDURE

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

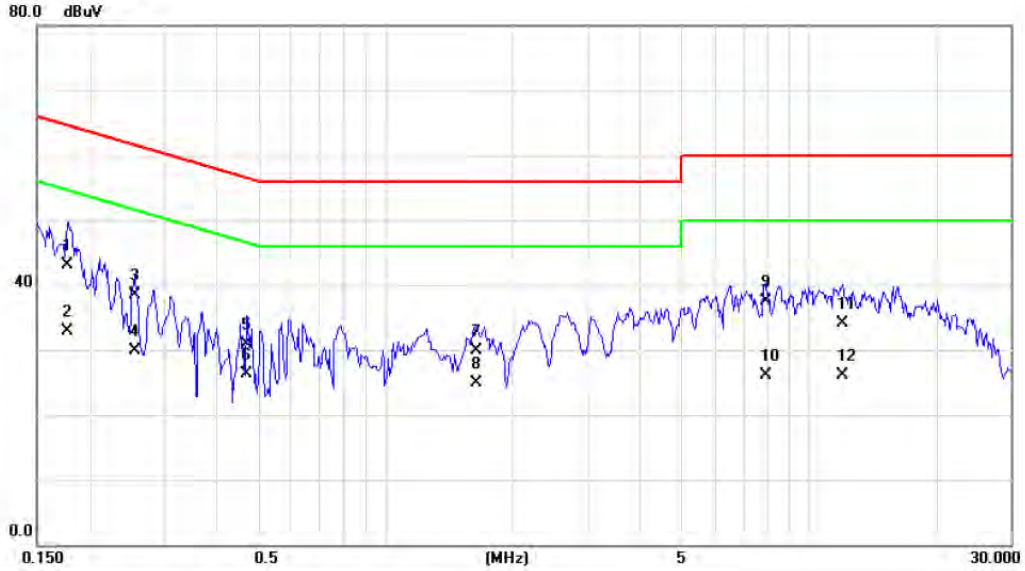
Remark

(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 = 0.3 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 =0.3 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.

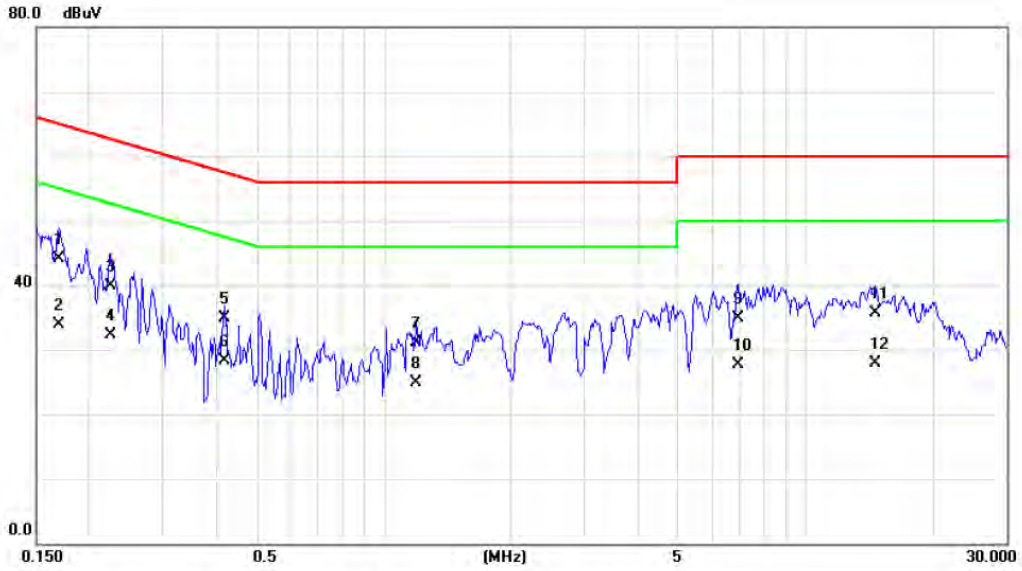
(3) Measuring frequency range from 150KHz to 30MHz.

EUT：	Wireless xDSL Bonding Router	Model Name. ：	F@ST 4320 US
Temperature：	25 ˚C	Relative Humidity :	58 %
Pressure：	1009 hPa	Test Voltage :	AC 120V/60Hz
Test Mode ：	ADSL(single mode) + USB sticks + WIFI activated + 1Gbps LAN / WAN connection	Phase:	Line



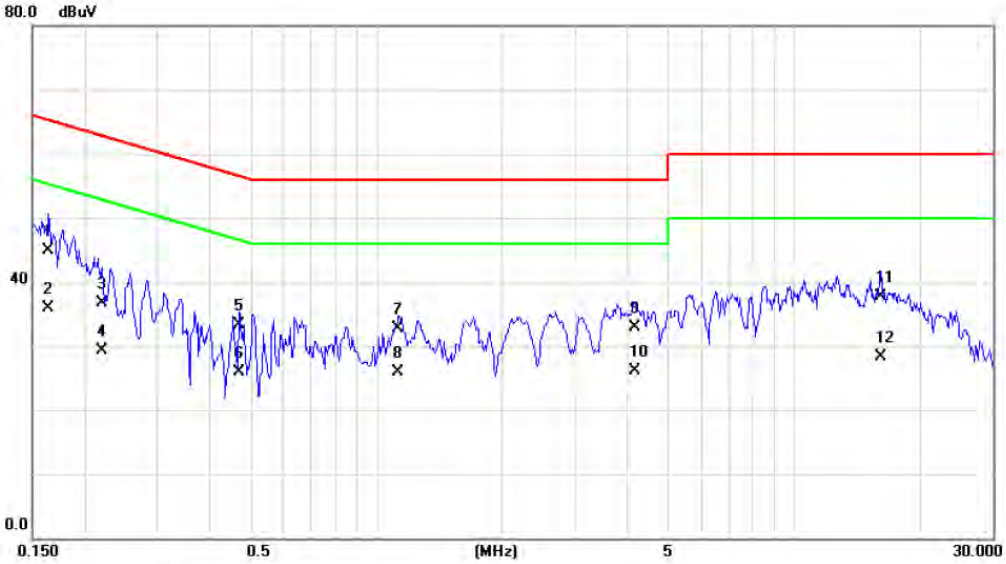
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1768	33.42	9.77	43.19	64.63	-21.44	QP	
2		0.1768	23.12	9.77	32.89	54.63	-21.74	AVG	
3		0.2548	28.70	9.74	38.44	61.60	-23.16	QP	
4		0.2548	20.24	9.74	29.98	51.60	-21.62	AVG	
5		0.4686	21.26	9.71	30.97	56.54	-25.57	QP	
6	*	0.4686	16.52	9.71	26.23	46.54	-20.31	AVG	
7		1.6363	20.12	9.69	29.81	56.00	-26.19	QP	
8		1.6363	15.23	9.69	24.92	46.00	-21.08	AVG	
9		7.8932	27.62	9.81	37.43	60.00	-22.57	QP	
10		7.8932	16.27	9.81	26.08	50.00	-23.92	AVG	
11		11.9961	24.28	9.83	34.11	60.00	-25.89	QP	
12		11.9961	16.21	9.83	26.04	50.00	-23.96	AVG	

EUT：	Wireless xDSL Bonding Router	Model Name. ：	F@ST 4320 US
Temperature：	25 ° C	Relative Humidity：	58 %
Pressure：	1009 hPa	Test Voltage：	AC 120V/60Hz
Test Mode ：	ADSL(single mode) + USB sticks + WIFI activated + 1Gbps LAN / WAN connection	Phase:	Neutral



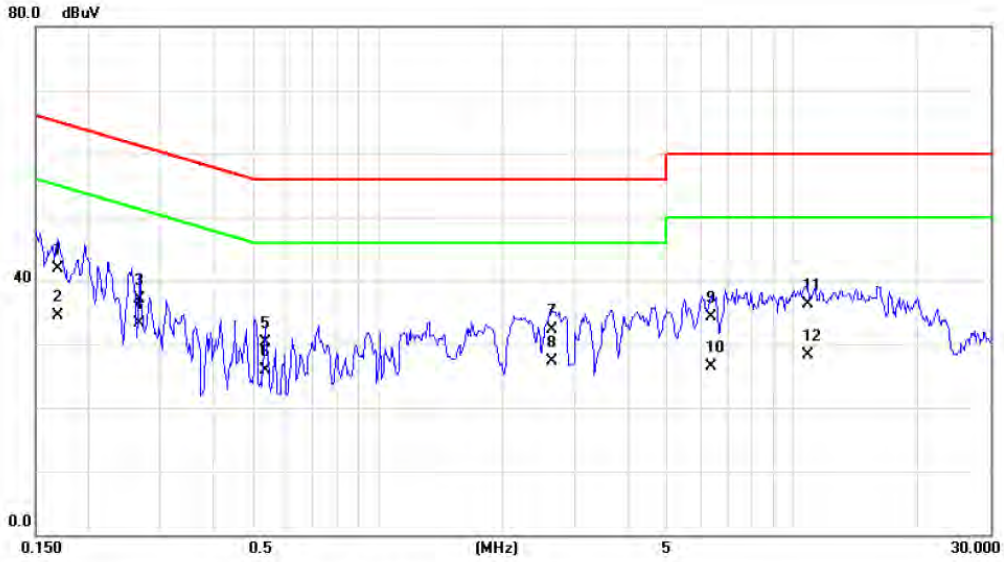
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1693	34.26	9.77	44.03	64.99	-20.96	QP	
2		0.1693	24.14	9.77	33.91	54.99	-21.08	AVG	
3		0.2242	30.11	9.75	39.86	62.66	-22.80	QP	
4		0.2242	22.56	9.75	32.31	52.66	-20.35	AVG	
5		0.4193	25.10	9.71	34.81	57.46	-22.65	QP	
6	*	0.4193	18.52	9.71	28.23	47.46	-19.23	AVG	
7		1.1907	21.32	9.70	31.02	56.00	-24.98	QP	
8		1.1907	15.11	9.70	24.81	46.00	-21.19	AVG	
9		6.9141	25.14	9.81	34.95	60.00	-25.05	QP	
10		6.9141	17.96	9.81	27.77	50.00	-22.23	AVG	
11		14.6714	25.86	9.83	35.69	60.00	-24.31	QP	
12		14.6714	17.99	9.83	27.82	50.00	-22.18	AVG	

EUT：	Wireless xDSL Bonding Router	Model Name. ：	F@ST 4320 US
Temperature：	25 ° C	Relative Humidity：	58 %
Pressure：	1009 hPa	Test Voltage：	AC 120V/60Hz
Test Mode ：	ADSL(bonding mode) + USB sticks + WIFI activated + 1Gbps LAN / WAN connection	Phase:	Line



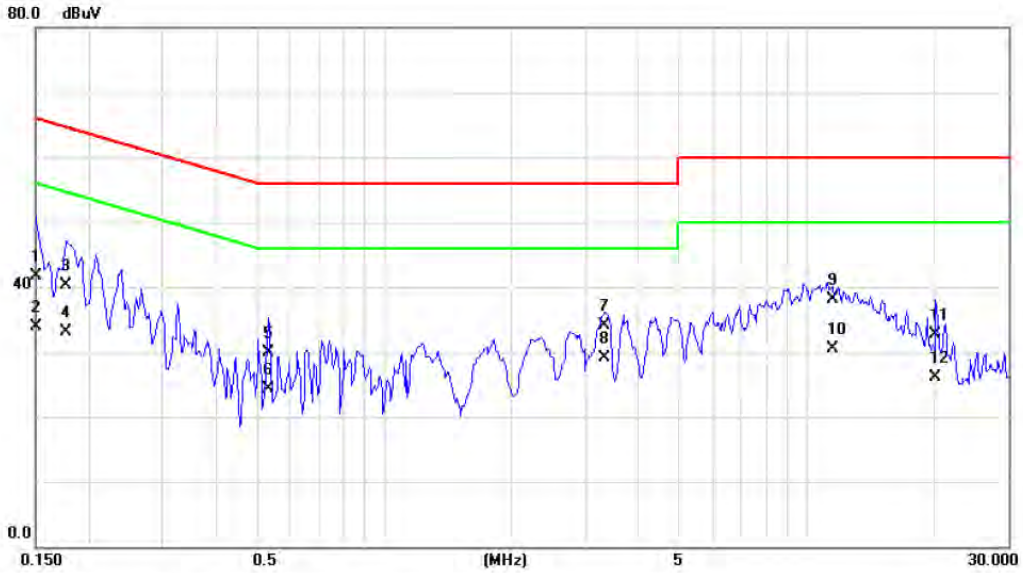
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1640	35.12	9.78	44.90	65.26	-20.36	QP	
2	*	0.1640	26.16	9.78	35.94	55.26	-19.32	AVG	
3		0.2197	27.01	9.75	36.76	62.83	-26.07	QP	
4		0.2197	19.59	9.75	29.34	52.83	-23.49	AVG	
5		0.4686	23.59	9.71	33.30	56.54	-23.24	QP	
6		0.4686	16.16	9.71	25.87	46.54	-20.67	AVG	
7		1.1290	22.92	9.70	32.62	56.00	-23.38	QP	
8		1.1290	16.19	9.70	25.89	46.00	-20.11	AVG	
9		4.1573	23.22	9.77	32.99	56.00	-23.01	QP	
10		4.1573	16.25	9.77	26.02	46.00	-19.98	AVG	
11		16.1400	27.94	9.84	37.78	60.00	-22.22	QP	
12		16.1400	18.43	9.84	28.27	50.00	-21.73	AVG	

EUT：	Wireless xDSL Bonding Router	Model Name. ：	F@ST 4320 US
Temperature：	25 ˚C	Relative Humidity：	58 %
Pressure：	1009 hPa	Test Voltage：	AC 120V/60Hz
Test Mode ：	ADSL(bonding mode) + USB sticks + WIFI activated + 1Gbps LAN / WAN connection	Phase:	Neutral



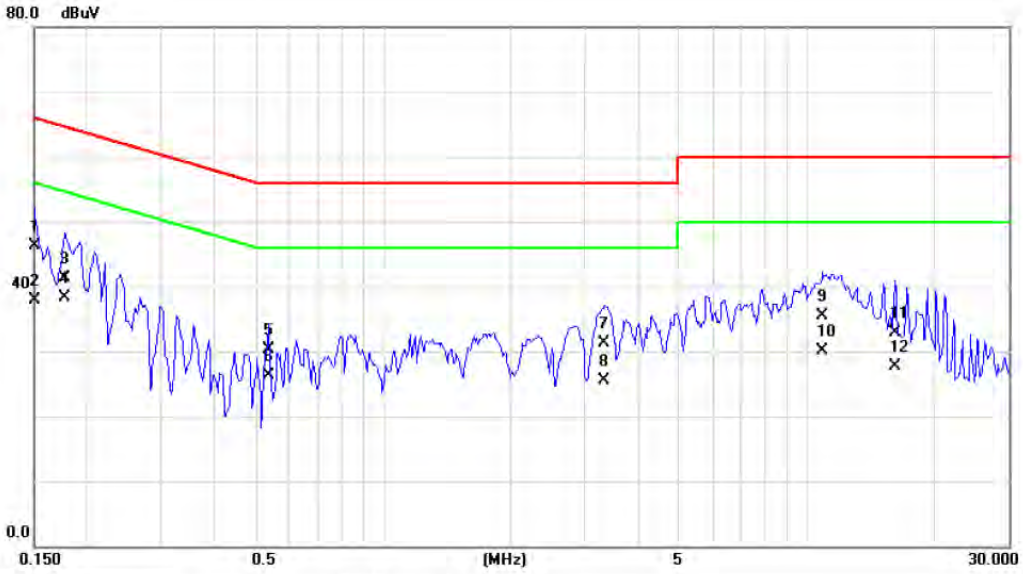
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1693	32.14	9.77	41.91	64.99	-23.08	QP	
2		0.1693	24.71	9.77	34.48	54.99	-20.51	AVG	
3		0.2655	27.45	9.74	37.19	61.26	-24.07	QP	
4	*	0.2655	23.56	9.74	33.30	51.26	-17.96	AVG	
5		0.5350	20.54	9.70	30.24	56.00	-25.76	QP	
6		0.5350	16.28	9.70	25.98	46.00	-20.02	AVG	
7		2.6360	22.68	9.70	32.38	56.00	-23.62	QP	
8		2.6360	17.62	9.70	27.32	46.00	-18.68	AVG	
9		6.3520	24.56	9.81	34.37	60.00	-25.63	QP	
10		6.3520	16.66	9.81	26.47	50.00	-23.53	AVG	
11		10.8473	26.51	9.82	36.33	60.00	-23.67	QP	
12		10.8473	18.55	9.82	28.37	50.00	-21.63	AVG	

EUT：	Wireless xDSL Bonding Router	Model Name. ：	F@ST 4320 US
Temperature：	25 ° C	Relative Humidity：	58 %
Pressure：	1009 hPa	Test Voltage：	AC 120V/60Hz
Test Mode ：	VDSL(single mode)+ USB sticks + WIFI activated + 1Gbps LAN / WAN connection	Phase:	Line



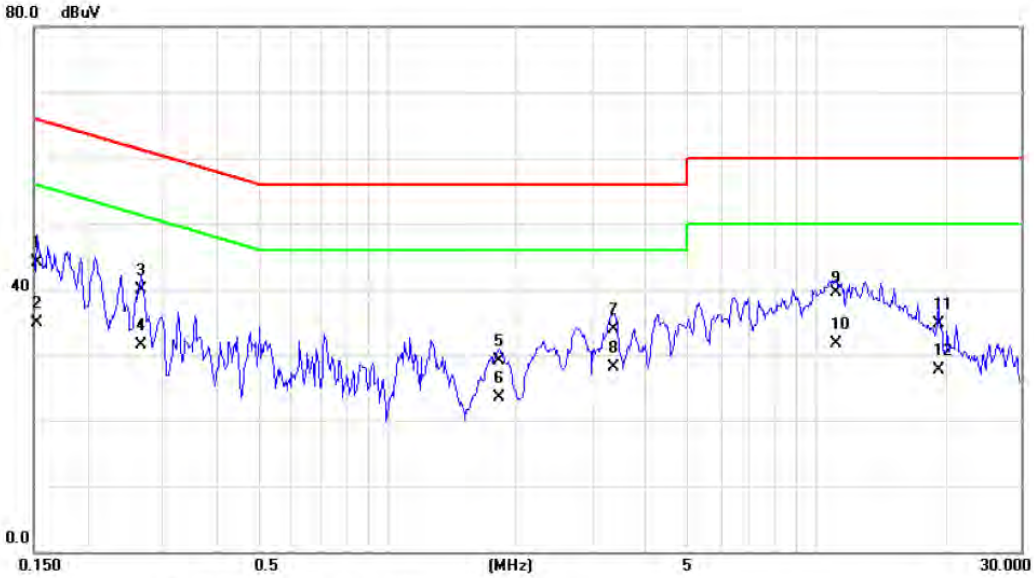
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1500	31.92	9.79	41.71	66.00	-24.29	QP	
2		0.1500	24.21	9.79	34.00	56.00	-22.00	AVG	
3		0.1773	30.57	9.76	40.33	64.61	-24.28	QP	
4		0.1773	23.37	9.76	33.13	54.61	-21.48	AVG	
5		0.5328	20.23	9.69	29.92	56.00	-26.08	QP	
6		0.5328	14.55	9.69	24.24	46.00	-21.76	AVG	
7		3.3397	24.47	9.72	34.19	56.00	-21.81	QP	
8	*	3.3398	19.40	9.72	29.12	46.00	-16.88	AVG	
9		11.5114	28.31	9.83	38.14	60.00	-21.86	QP	
10		11.5117	20.65	9.83	30.48	50.00	-19.52	AVG	
11		20.2420	22.89	9.89	32.78	60.00	-27.22	QP	
12		20.2422	16.17	9.89	26.06	50.00	-23.94	AVG	

EUT：	Wireless xDSL Bonding Router	Model Name. ：	F@ST 4320 US
Temperature：	25 ° C	Relative Humidity：	58 %
Pressure：	1009 hPa	Test Voltage：	AC 120V/60Hz
Test Mode ：	VDSL(single mode)+ USB sticks + WIFI activated + 1Gbps LAN / WAN connection	Phase:	Neutral



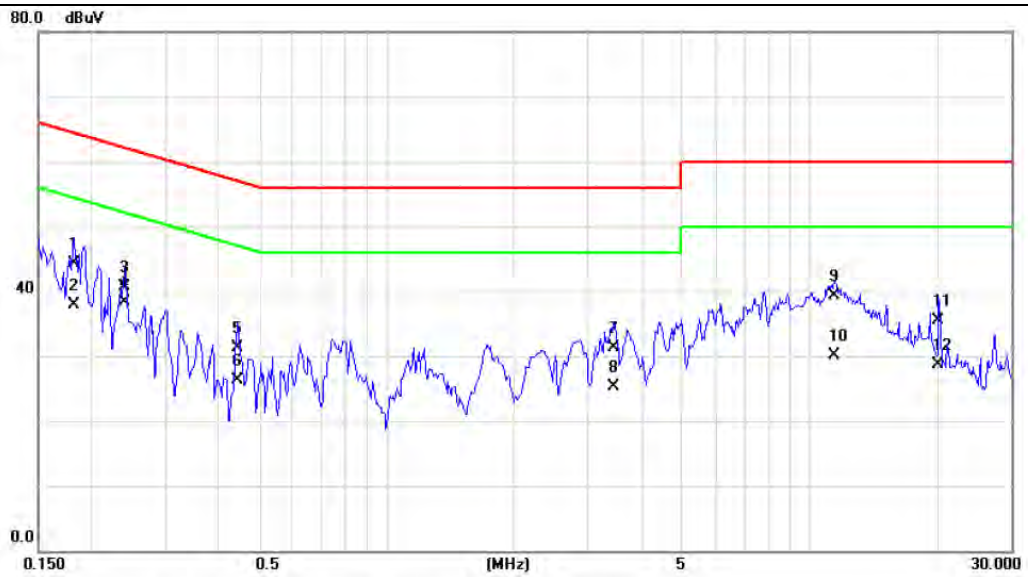
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1500	36.59	9.79	46.38	66.00	-19.62	QP	
2		0.1500	28.16	9.79	37.95	56.00	-18.05	AVG	
3		0.1773	31.53	9.76	41.29	64.61	-23.32	QP	
4	*	0.1773	28.54	9.76	38.30	54.61	-16.31	AVG	
5		0.5364	20.63	9.69	30.32	56.00	-25.68	QP	
6		0.5367	16.60	9.69	26.29	46.00	-19.71	AVG	
7		3.3437	21.49	9.72	31.21	56.00	-24.79	QP	
8		3.3438	15.79	9.72	25.51	46.00	-20.49	AVG	
9		10.9570	25.71	9.82	35.53	60.00	-24.47	QP	
10		10.9570	20.20	9.82	30.02	50.00	-19.98	AVG	
11		16.1951	23.01	9.85	32.86	60.00	-27.14	QP	
12		16.1953	17.80	9.85	27.65	50.00	-22.35	AVG	

EUT：	Wireless xDSL Bonding Router	Model Name. ：	F@ST 4320 US
Temperature：	25 ˚C	Relative Humidity :	58 %
Pressure：	1009 hPa	Test Voltage :	AC 120V/60Hz
Test Mode ：	VDSL(bonding mode) + USB sticks + WIFI activated + 1Gbps LAN / WAN connection	Phase:	Line



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1524	34.40	9.78	44.18	65.87	-21.69	QP	
2		0.1524	25.05	9.78	34.83	55.87	-21.04	AVG	
3		0.2671	30.10	9.73	39.83	61.21	-21.38	QP	
4		0.2671	21.83	9.73	31.56	51.21	-19.65	AVG	
5		1.8218	19.35	9.68	29.03	56.00	-26.97	QP	
6		1.8218	13.74	9.68	23.42	46.00	-22.58	AVG	
7		3.3635	24.27	9.72	33.99	56.00	-22.01	QP	
8	*	3.3635	18.48	9.72	28.20	46.00	-17.80	AVG	
9		11.0797	29.62	9.83	39.45	60.00	-20.55	peak	
10		11.0797	21.81	9.83	31.64	50.00	-18.36	AVG	
11		19.2301	24.85	9.89	34.74	60.00	-25.26	QP	
12		19.2301	17.77	9.89	27.66	50.00	-22.34	AVG	

EUT：	Wireless xDSL Bonding Router	Model Name. ：	F@ST 4320 US
Temperature：	25 ° C	Relative Humidity：	58 %
Pressure：	1009 hPa	Test Voltage：	AC 120V/60Hz
Test Mode ：	VDSL(bonding mode) + USB sticks + WIFI activated + 1Gbps LAN / WAN connection	Phase:	Neutral



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1814	34.59	9.75	44.34	64.42	-20.08	QP	
2		0.1814	28.20	9.75	37.95	54.42	-16.47	AVG	
3		0.2404	30.99	9.73	40.72	62.08	-21.36	QP	
4	*	0.2404	28.57	9.73	38.30	52.08	-13.78	AVG	
5		0.4444	21.53	9.70	31.23	56.98	-25.75	QP	
6		0.4444	16.59	9.70	26.29	46.98	-20.69	AVG	
7		3.4375	21.63	9.72	31.35	56.00	-24.65	QP	
8		3.4375	15.64	9.72	25.36	46.00	-20.64	AVG	
9		11.4882	29.57	9.83	39.40	60.00	-20.60	QP	
10		11.4882	20.26	9.83	30.09	50.00	-19.91	AVG	
11		20.2460	25.60	9.89	35.49	60.00	-24.51	QP	
12		20.2460	18.90	9.89	28.79	50.00	-21.21	AVG	

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 (micorvolts/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
960~1000	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 15C.

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

(3) Emission level (dBuV/m)=20log Emission level (uV/m).

FREQUENCY RANGE OF RADIATED MEASUREMENT (For unintentional radiators)

Highest frequency generated or Upper frequency of measurement used in the device or on which the device operates or tunes (MHz)	Range (MHz)
Below 1.705	30
1.705 – 108	1000
108 – 500	2000
500 – 1000	5000
Above 1000	5^{th} harmonic of the highest frequency or 40 GHz, whichever is lower

4.2.2 MEASUREMENT INSTRUMENTS LIST ANS SETTING

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Next Calibration
1	Antenna	Schwarbeck	VULB9160	9160-3232	Jun .04.2012	May.25.2013
2	Amplifier	HP	8447D	2944A09673	May.26.2012	May.04.2013
3	Test Receiver	R&S	ESCI	100382	May.26.2012	May.04.2013
4	Test Cable	N/A	C-01_CB03	N/A	Jul.01.2011	Jul.01.2013
5	Antenna	ETS	3115	00075789	May.26.2012	May.25.2013
6	Amplifier	Agilent	8449B	3008A02274	May.26.2012	May.04.2013
7	Spectrum	Agilent	E4408B	US39240143	Nov.25.2012	Nov.24.2013
8	Test Cable	HUBER+SUHNER	C-45	N/A	May.04.2012	May.02.2013
9	Controller	CT	SC100	N/A	N/A	N/A
10	Horn Antenna	EMCO	3115	9605-4803	May.26.2012	May.25.2013
11	Active Loop Antenna	R&S	HFH2-Z2	830749/020	Oct.13.2012	May.04.2013
12	Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170319	Oct.13.2011	Oct.12.2013

Remark: “N/A” denotes no model name, serial no. or calibration specified.
All calibration period of Equipment List is One Year.

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

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~90kHz for PK/AVG detector
Start ~ Stop Frequency	90kHz~110kHz for QP detector
Start ~ Stop Frequency	110kHz~490kHz for PK/AVG detector
Start ~ Stop Frequency	490kHz~30MHz for QP detector
Start ~ Stop Frequency	30MHz~1000MHz for QP detector

4.2.3 TEST PROCEDURE

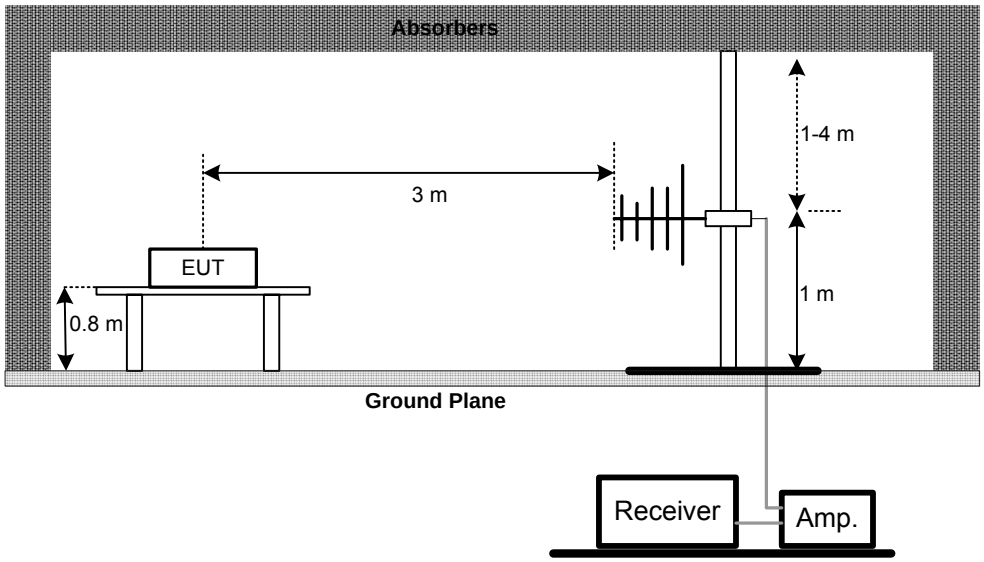
a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(below 1GHz)
b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(above 1GHz)
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 DEVIATION FROM TEST STANDARD

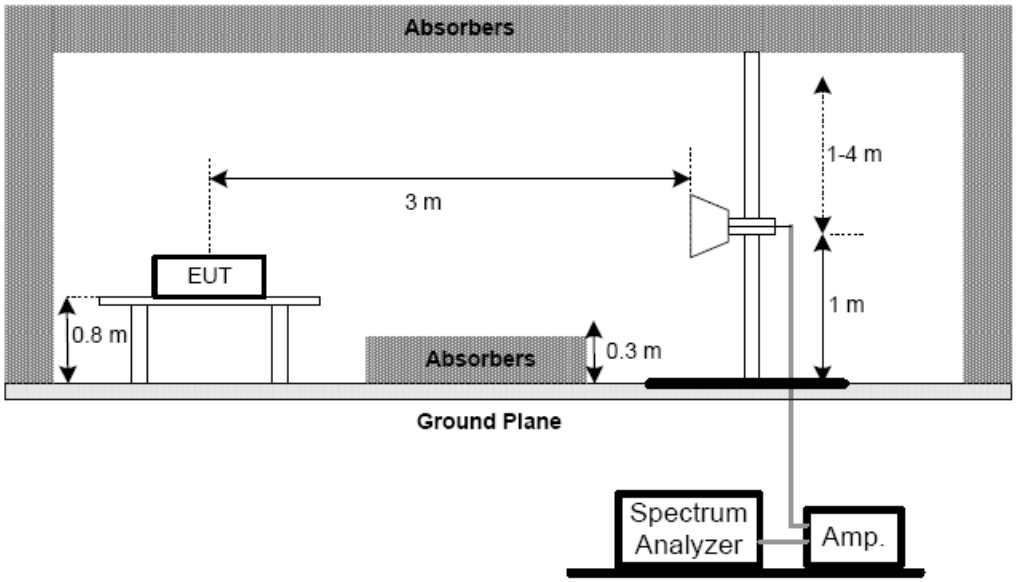
No deviation

4.2.5 TEST SETUP

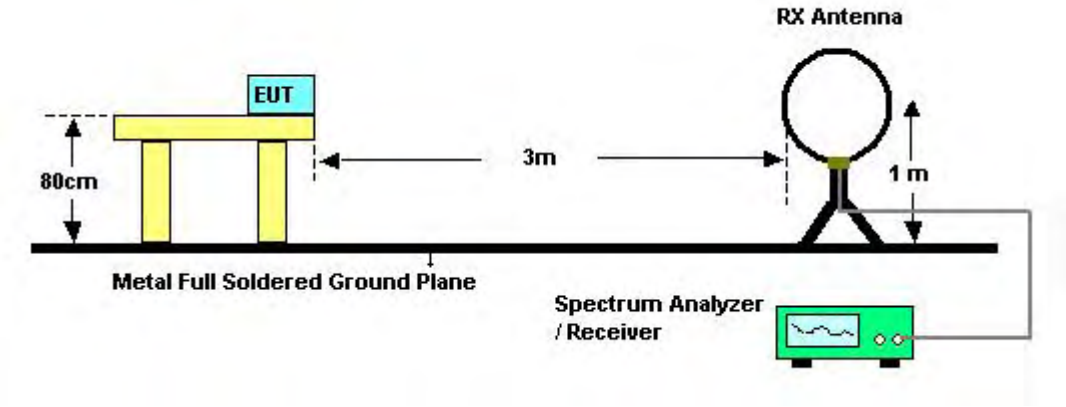
(A) Radiated Emission Test Set-Up Frequency Below 1 GHz



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



(C) For radiated emissions below 30MHz



4.2.6 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.

4.2.7 TEST RESULTS (BETWEEN 30 – 1000 MHZ)

Remark：

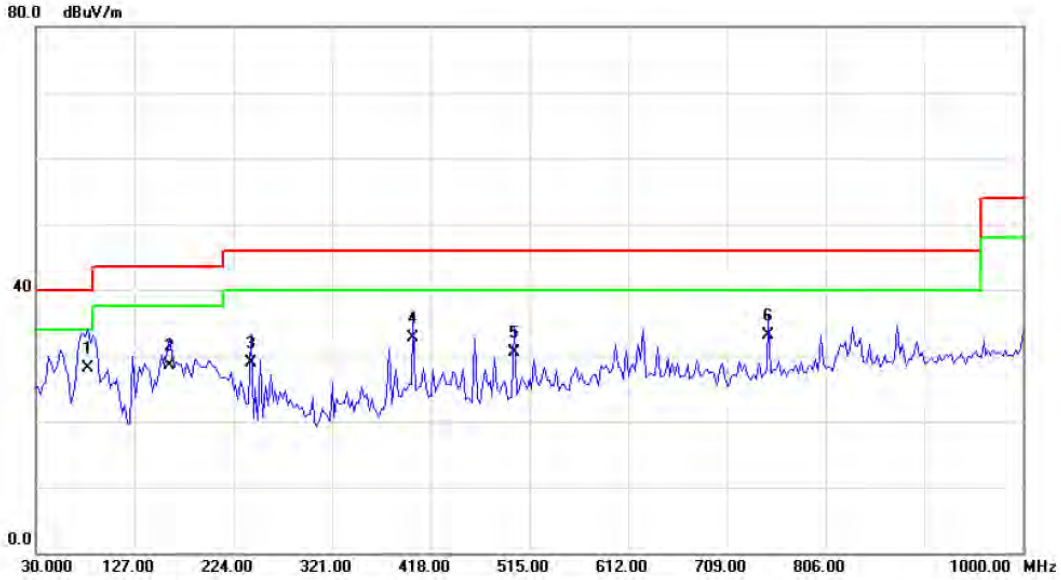
(1) Reading in which marked as QP or Peak means measurements by using are Quasi-Peak Mode or Peak Mode with Detector BW=120KHz;SPA setting in RBW=120KHz, VBW =120KHz, Swp. Time = 0.3 sec./MHz.

(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。

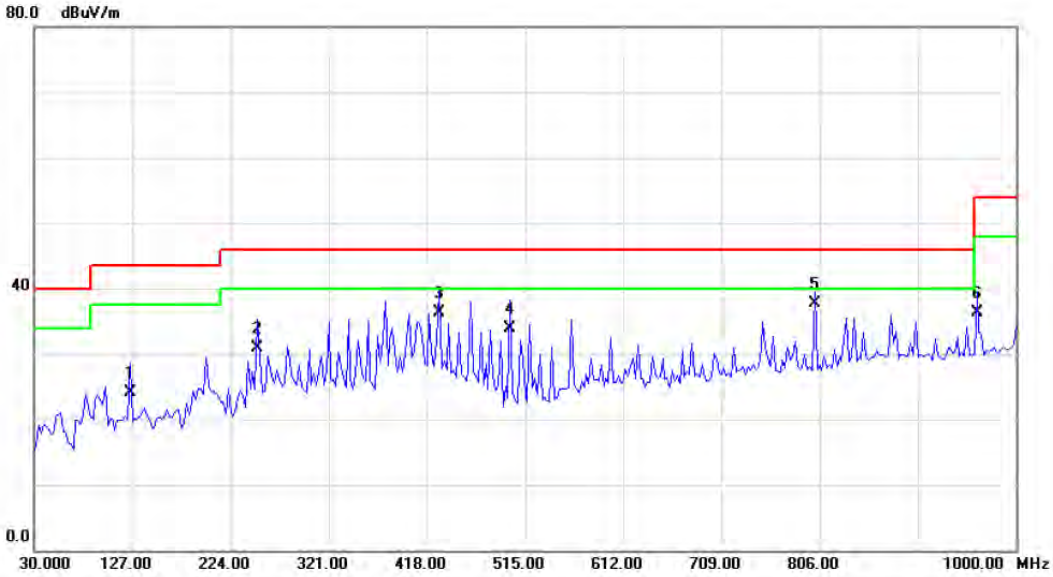
(4) If the peak scan value lower limit more than 20dB, then this signal data does not show in table.

EUT：	Wireless xDSL Bonding Router	Model Name ：	F@ST 4320 US
Temperature：	25 ℃	Relative Humidity：	58 %
Pressure：	1010 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX B MODE CHANNEL 01	Phase:	Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	80.9250	47.35	-19.23	28.12	40.00	-11.88	QP	
2		160.9500	46.52	-17.94	28.58	43.50	-14.92	QP	
3		240.9750	44.56	-15.63	28.93	46.00	-17.07	QP	
4		401.0250	42.43	-9.80	32.63	46.00	-13.37	QP	
5		500.4500	38.78	-8.37	30.41	46.00	-15.59	QP	
6		750.2250	37.42	-4.24	33.18	46.00	-12.82	QP	

EUT：	Wireless xDSL Bonding Router	Model Name ：	F@ST 4320 US
Temperature：	25 ℃	Relative Humidity：	58 %
Pressure：	1010 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX B MODE CHANNEL 01	Phase:	Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		124.5750	42.57	-18.45	24.12	43.50	-19.38	QP	
2		250.6750	45.86	-14.99	30.87	46.00	-15.13	QP	
3		430.1250	45.54	-9.33	36.21	46.00	-9.79	QP	
4		500.4500	42.34	-8.37	33.97	46.00	-12.03	QP	
5	*	801.1500	41.28	-3.60	37.68	46.00	-8.32	QP	
6		961.2000	37.43	-1.10	36.33	54.00	-17.67	QP	

4.2.8 TEST RESULTS (ABOVE 1000 MHZ)

EUT：	Wireless xDSL Bonding Router	Model Name ：	F@ST 4320 US
Temperature：	25 ℃	Relative Humidity：	51 %
Pressure：	1010 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX B MODE 2412MHz		

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		Note
		Peak	AV		Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2390.00	V	21.89	11.92	31.91	53.80	43.83	74.00	54.00	X/E
2413.00	**V**	**77.55**	**68.78**	**31.89**	**109.44**	**100.67**			**X/F**
4823.94	V	49.05	36.27	5.29	54.34	41.56	74.00	54.00	X/H

Remark：

(1) 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。

(2) 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.)

(3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission 。

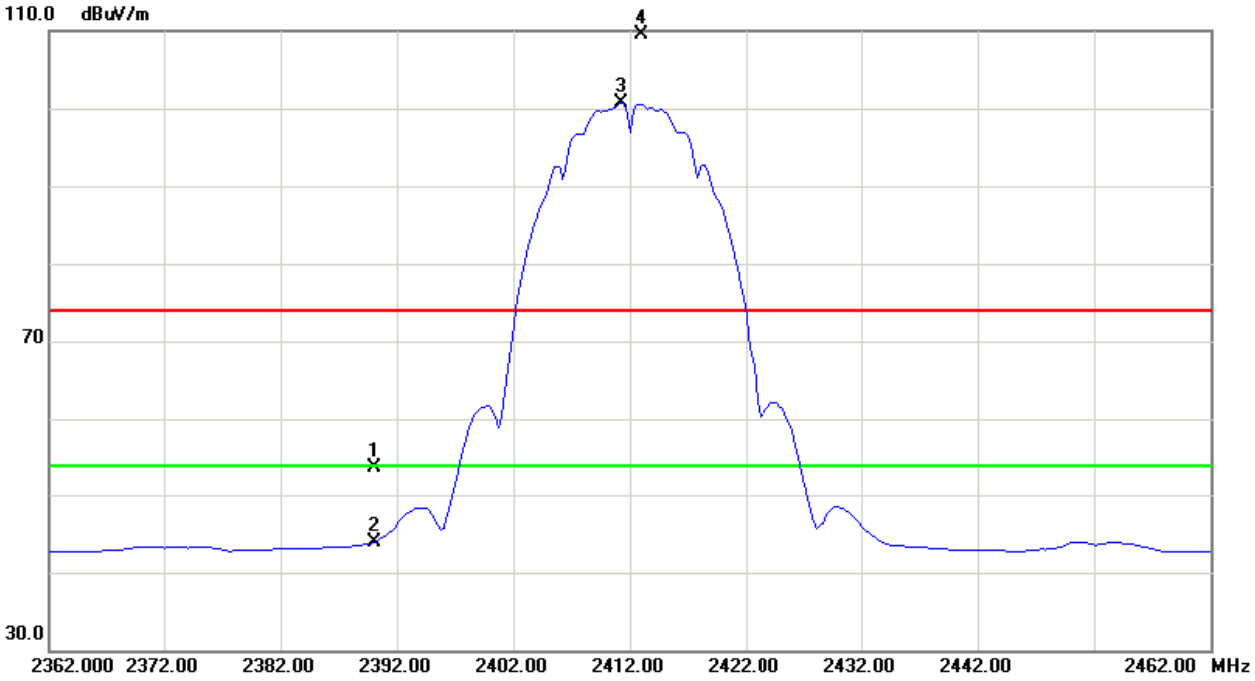
(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

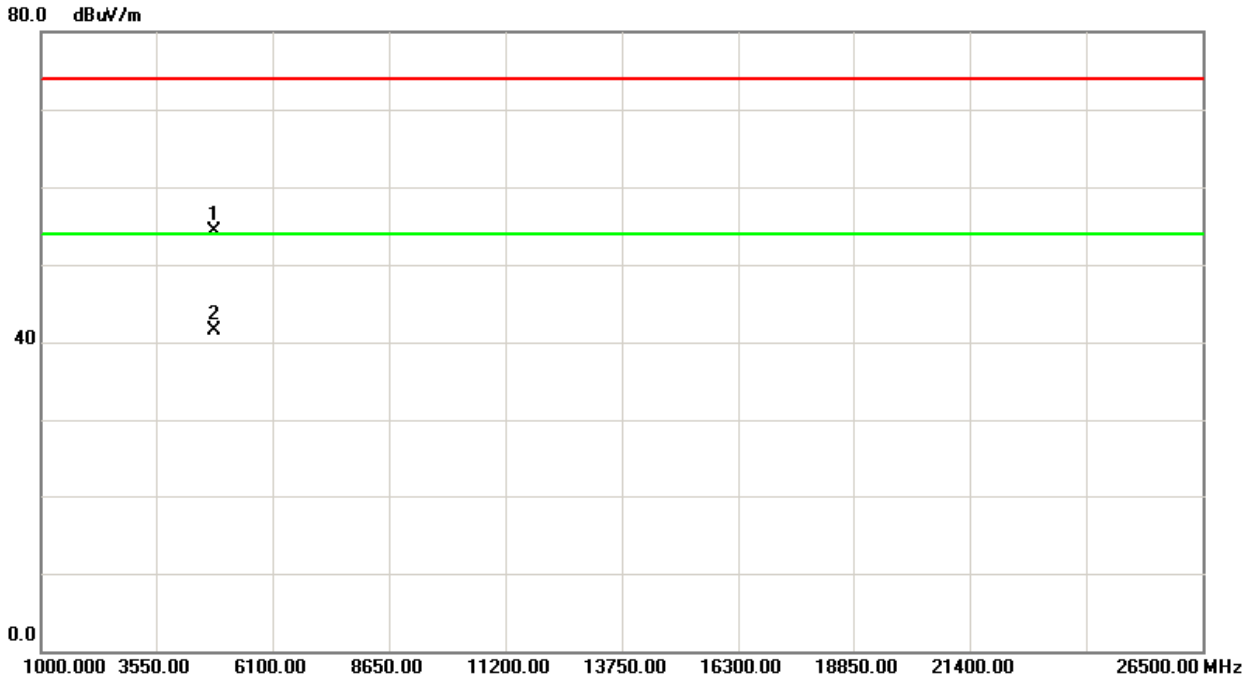
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(6) EUT Orthogonal Axis：
"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

(7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna

TX CH01 (Above 1000 MHz, Vertical)





EUT：	Wireless xDSL Bonding Router	Model Name ：	F@ST 4320 US
Temperature：	25 ℃	Relative Humidity：	51 %
Pressure：	1010 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX B MODE 2412MHz		

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		Note
		Peak	AV		Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2390.00	H	21.62	10.49	31.91	53.53	42.40	74.00	54.00	X/E
2413.00	**H**	**68.90**	**60.62**	**31.88**	**100.78**	**92.50**			**X/F**
4823.89	H	48.24	35.45	5.29	53.53	40.74	74.00	54.00	X/H

Remark：

(1) 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。

(2) 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.)

(3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission 。

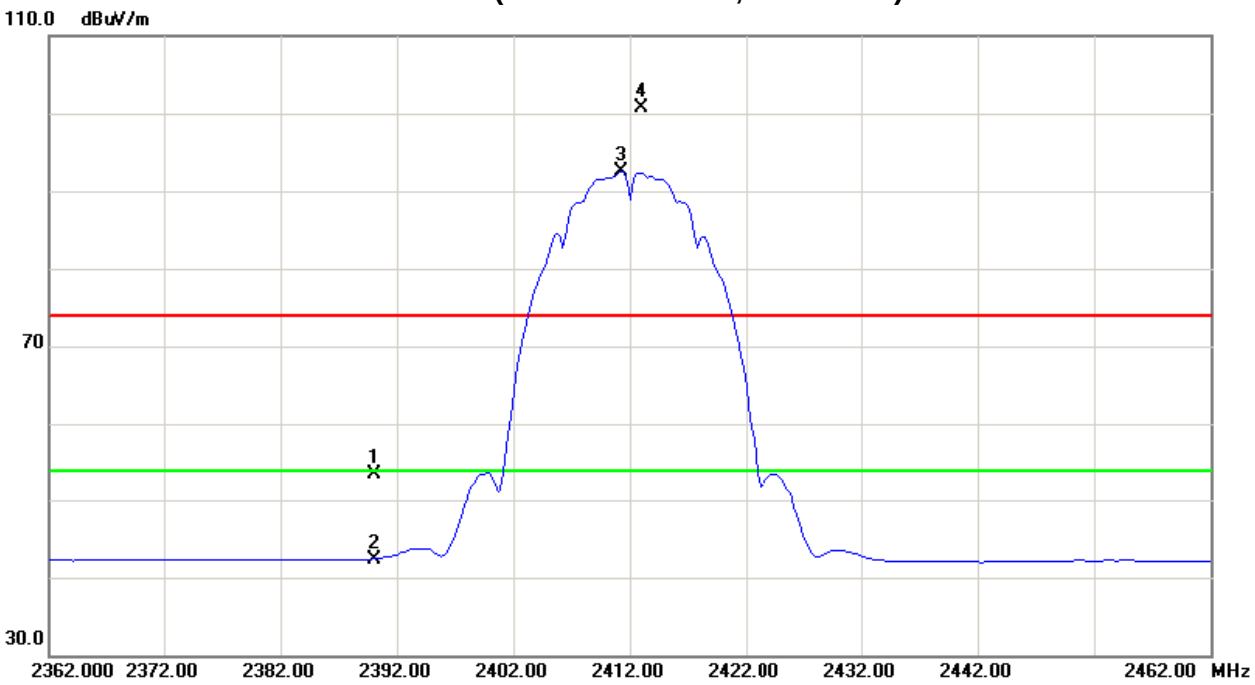
(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

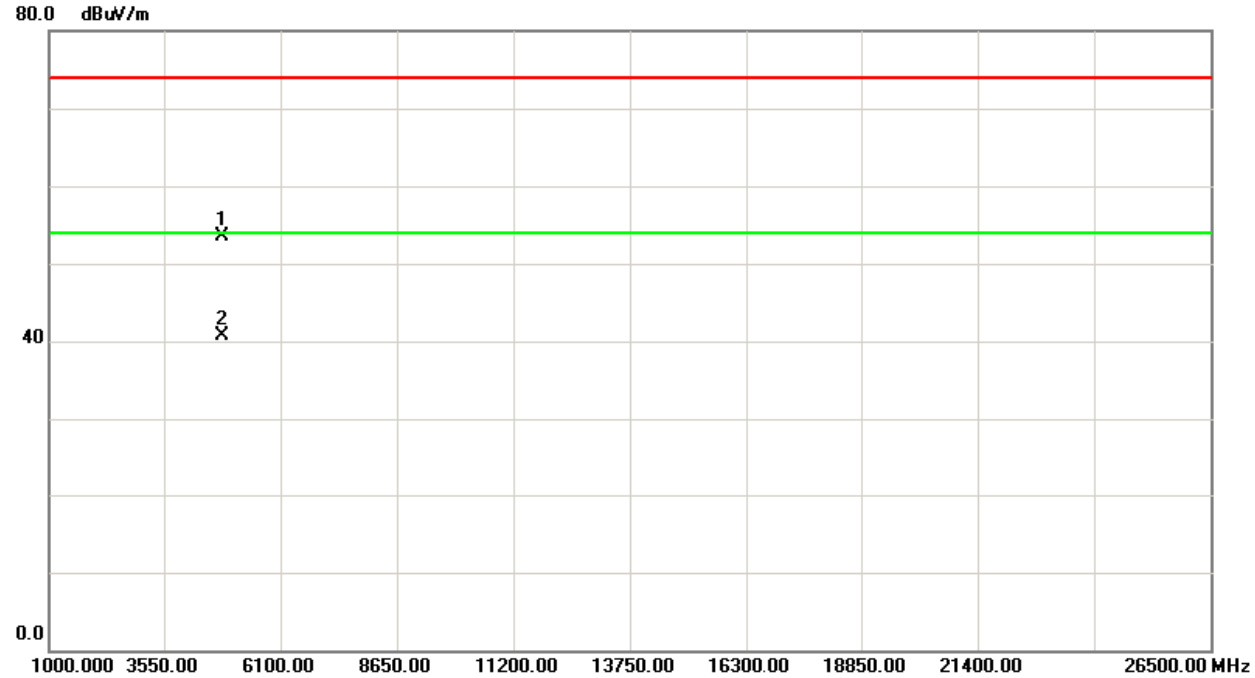
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(6) EUT Orthogonal Axis：
"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

(7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna

TX CH01 (Above 1000 MHz, Horizontal)





EUT：	Wireless xDSL Bonding Router	Model Name ：	F@ST 4320 US
Temperature：	25 ℃	Relative Humidity：	51 %
Pressure：	1010 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX B MODE 2437MHz		

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		Note
		Peak	AV		Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2438.00	**V**	**76.47**	**68.80**	**31.86**	**108.33**	**100.66**			**X/F**
4873.93	V	49.67	36.91	5.47	55.14	42.38	74.00	54.00	X/H

Remark：

(1) 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。

(2) 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.)

(3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission 。

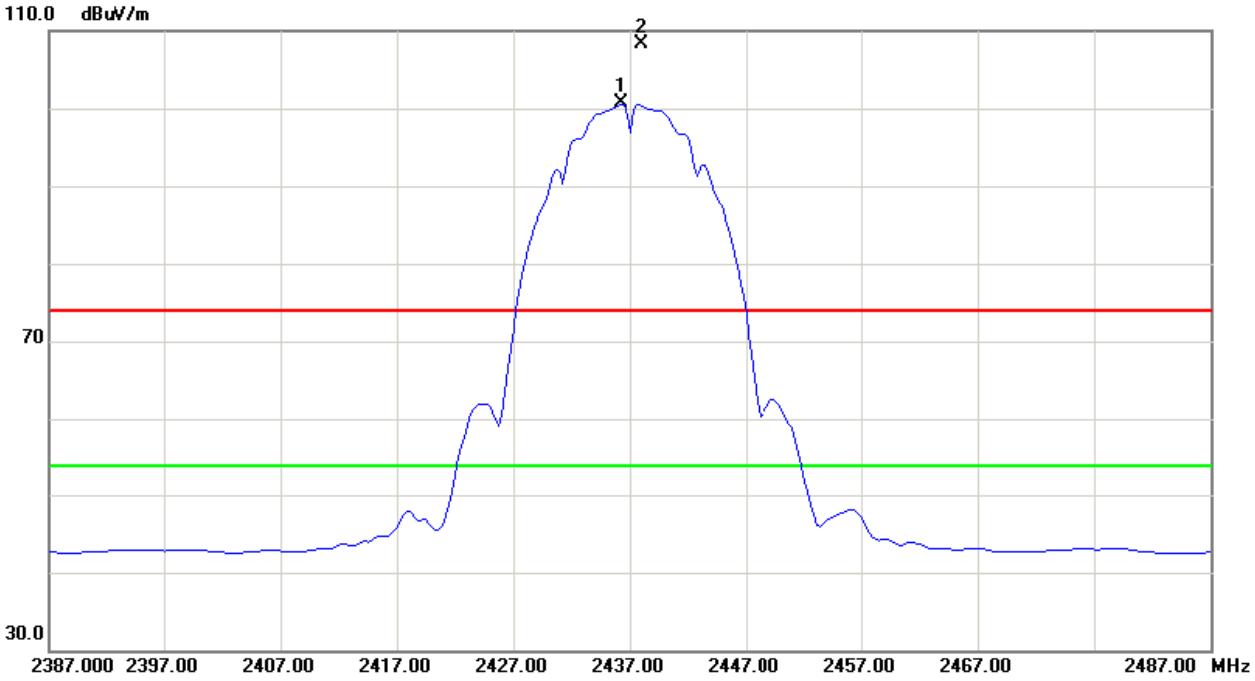
(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

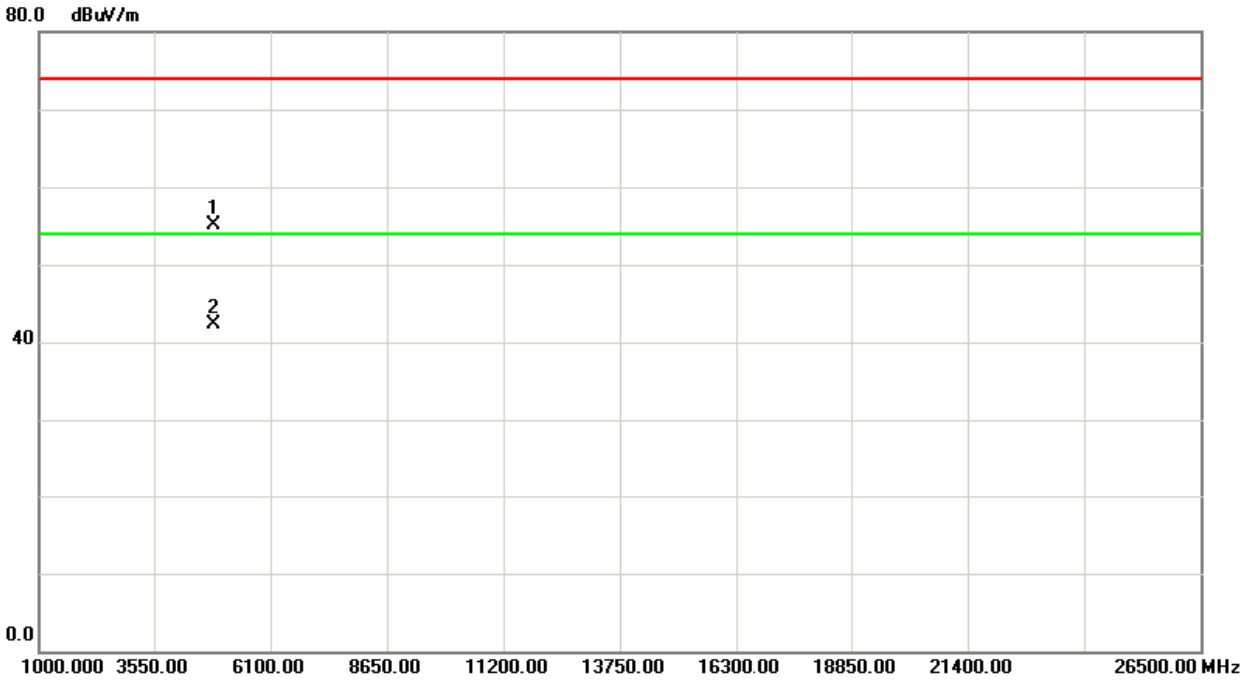
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(6) EUT Orthogonal Axis：
"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

(7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna

TX CH06 (Above 1000 MHz, Vertical)





EUT：	Wireless xDSL Bonding Router	Model Name ：	F@ST 4320 US
Temperature：	25 ℃	Relative Humidity：	51 %
Pressure：	1010 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX B MODE 2437MHz		

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		Note
		Peak	AV		Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2438.00	**H**	**68.86**	**59.93**	**31.85**	**100.71**	**91.78**			**X/F**
4874.06	H	46.87	35.51	5.47	52.34	40.98	74.00	54.00	X/E

Remark：

(1) 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。

(2) 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.)

(3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission 。

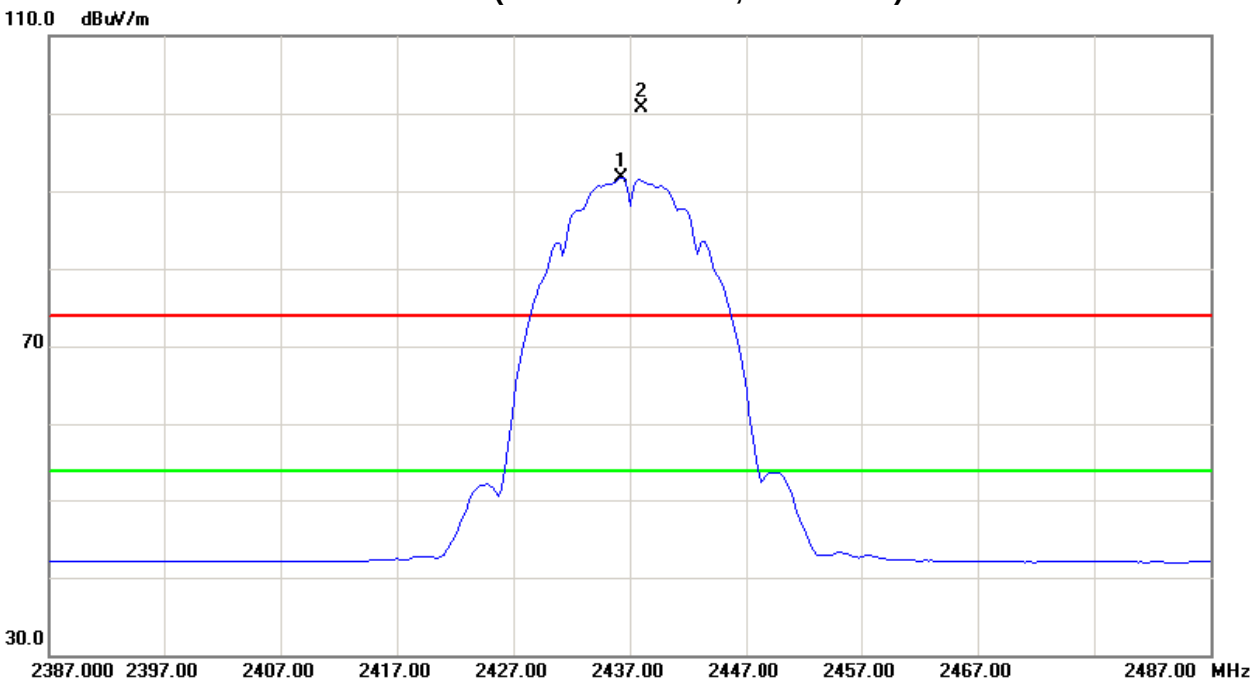
(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

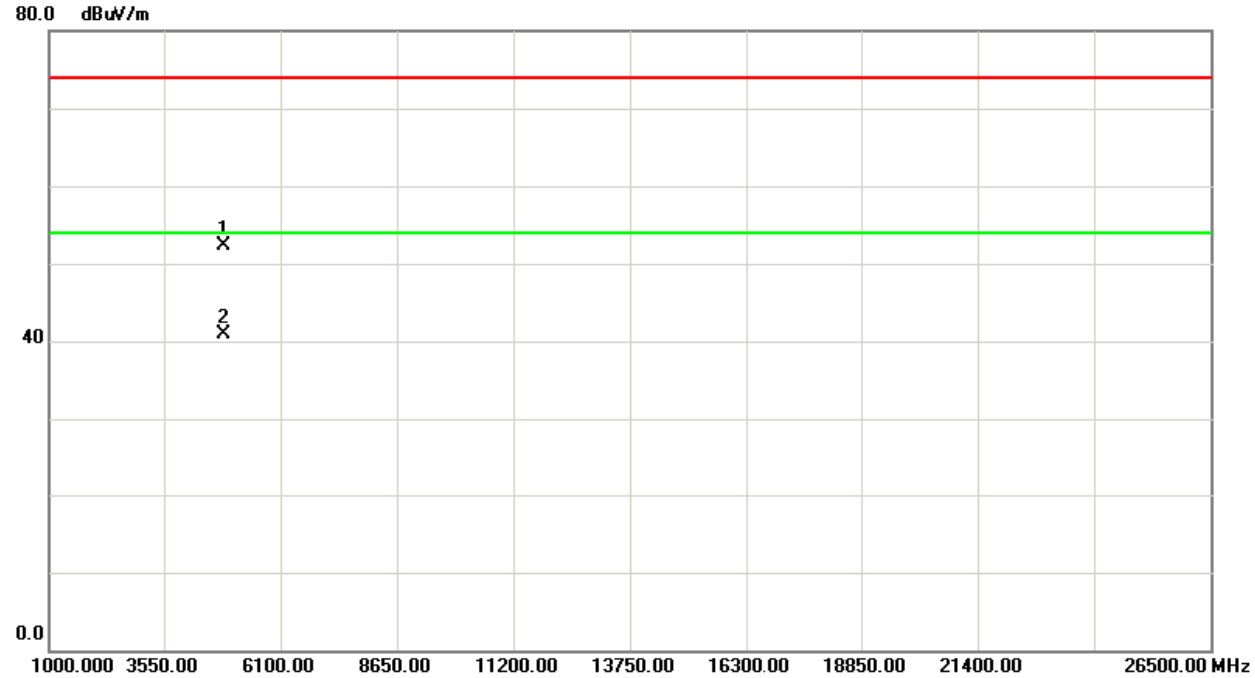
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(6) EUT Orthogonal Axis：
"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

(7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna

TX CH06 (Above 1000 MHz, Horizontal)





EUT：	Wireless xDSL Bonding Router	Model Name ：	F@ST 4320 US
Temperature：	25 ℃	Relative Humidity：	51 %
Pressure：	1010 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX B MODE 2462MHz		

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		Note
		Peak	AV		Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2461.00	**V**	**76.68**	**69.03**	**31.82**	**108.50**	**100.85**			**X/F**
2483.50	V	22.50	12.12	31.80	54.30	43.92	74.00	54.00	X/H
4923.95	V	49.38	37.42	5.65	55.03	43.07	74.00	54.00	X/E

Remark：

(1) 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。

(2) 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.)

(3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission 。

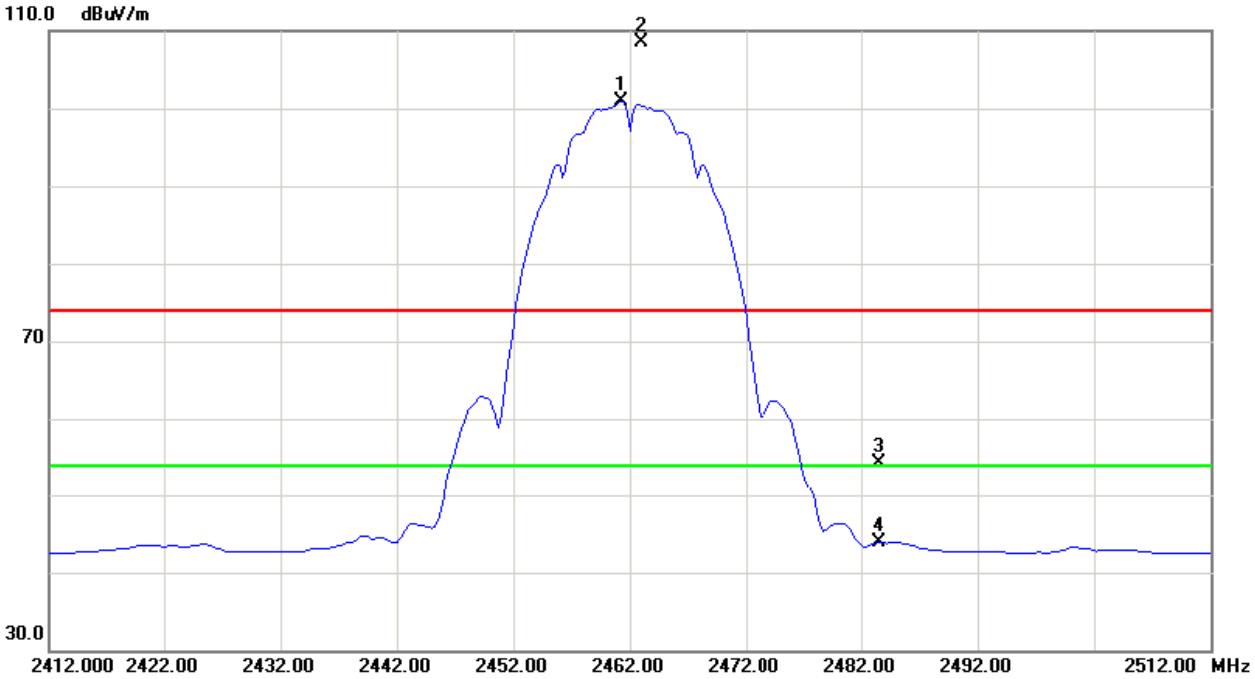
(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

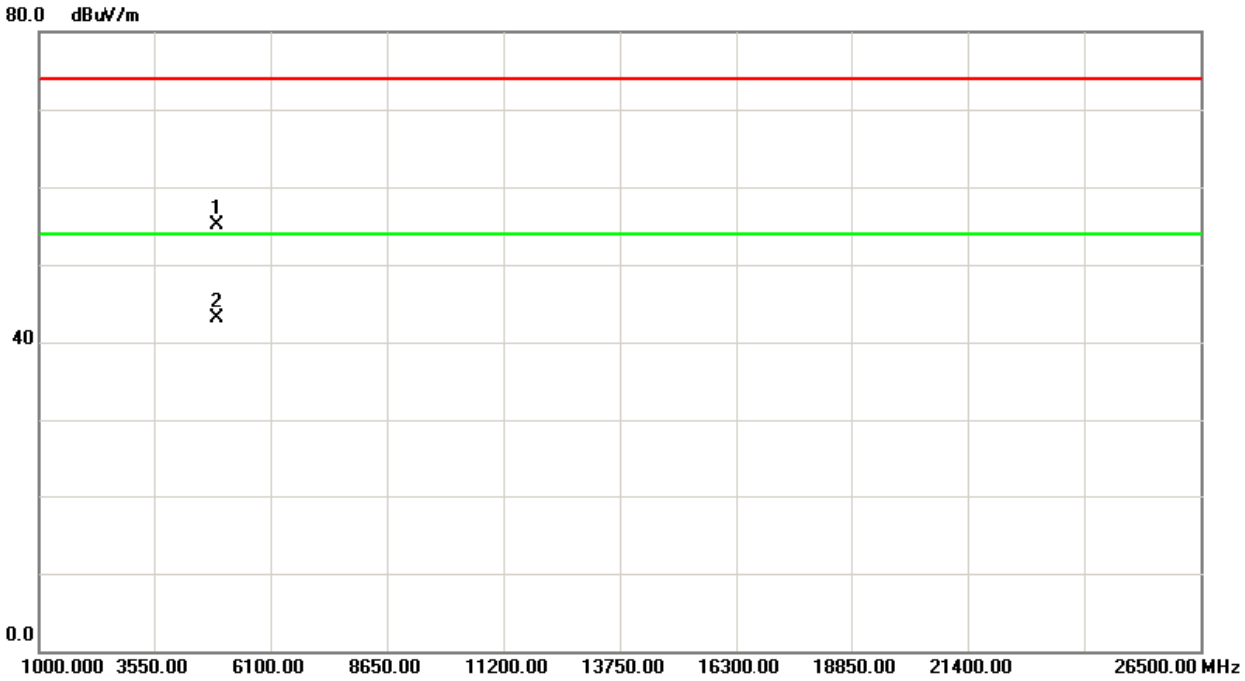
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(6) EUT Orthogonal Axis：
"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

(7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna

TX CH11 (Above 1000 MHz, Vertical)





EUT：	Wireless xDSL Bonding Router	Model Name ：	F@ST 4320 US
Temperature：	25 ℃	Relative Humidity：	51 %
Pressure：	1010 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX B MODE 2462MHz		

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		Note
		Peak	AV		Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2463.00	**H**	**69.86**	**60.26**	**31.82**	**101.68**	**92.08**			**X/F**
2483.50	H	19.89	10.52	31.80	51.69	42.32	74.00	54.00	X/H
4923.84	H	47.79	35.15	5.65	53.44	40.80	74.00	54.00	X/H

Remark：

(1) 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。

(2) 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.)

(3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission 。

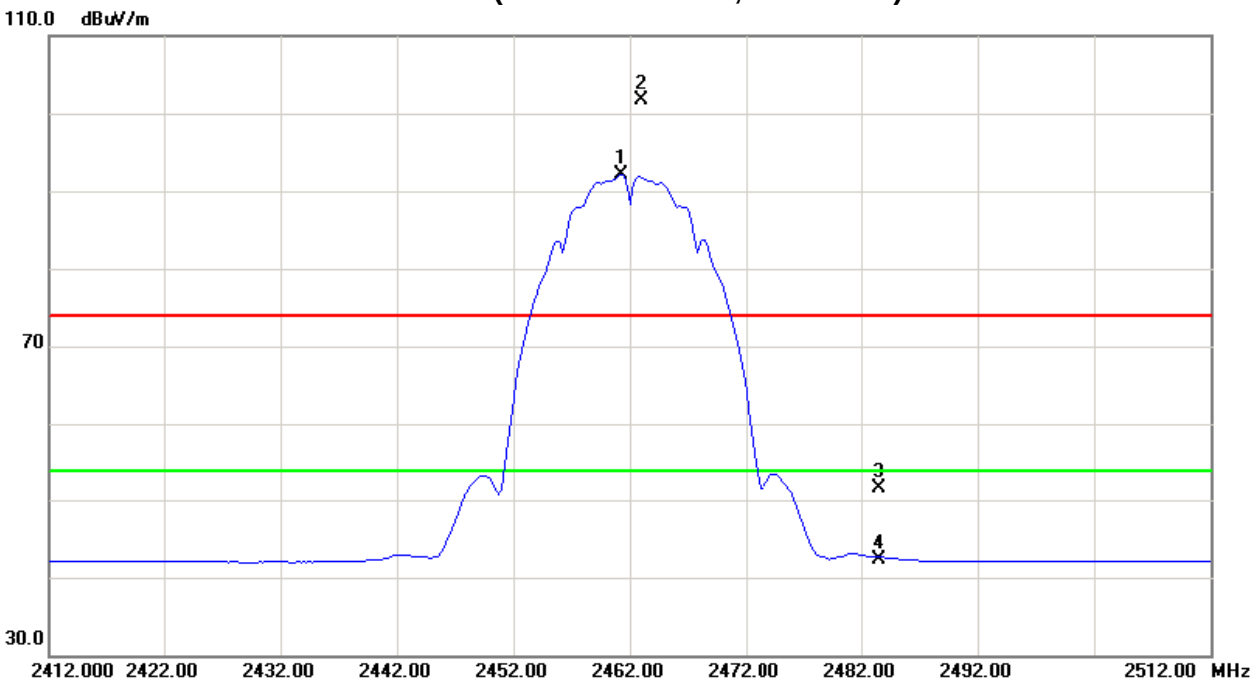
(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

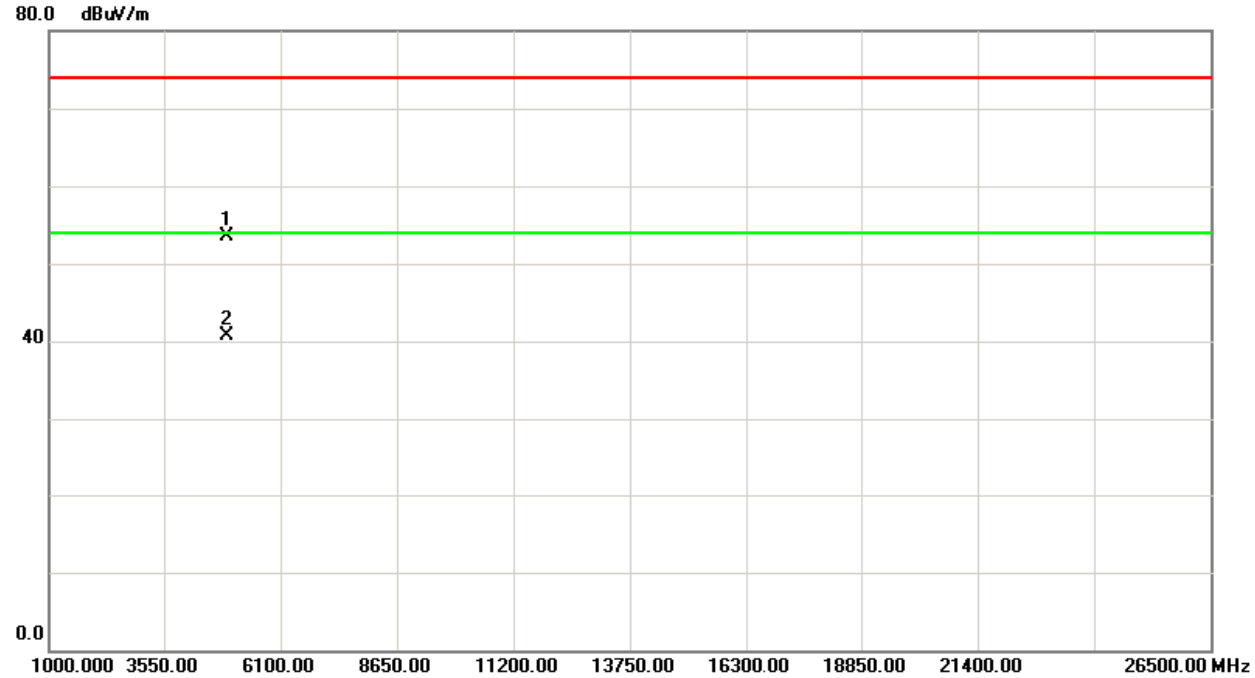
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(6) EUT Orthogonal Axis：
"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

(7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna

TX CH11 (Above 1000 MHz, Horizontal)





EUT：	Wireless xDSL Bonding Router	Model Name ：	F@ST 4320 US
Temperature：	25 ℃	Relative Humidity：	51 %
Pressure：	1010 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX G MODE 2412MHz		

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		Note
		Peak	AV		Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2390.00	V	22.48	13.57	31.91	54.39	45.48	74.00	54.00	X/E
2416.75	**V**	**75.91**	**65.12**	**31.89**	**107.80**	**97.01**			**X/F**
4824.12	V	49.25	36.59	5.29	54.54	41.88	74.00	54.00	X/H

Remark：

(1) 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。

(2) 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.)

(3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission 。

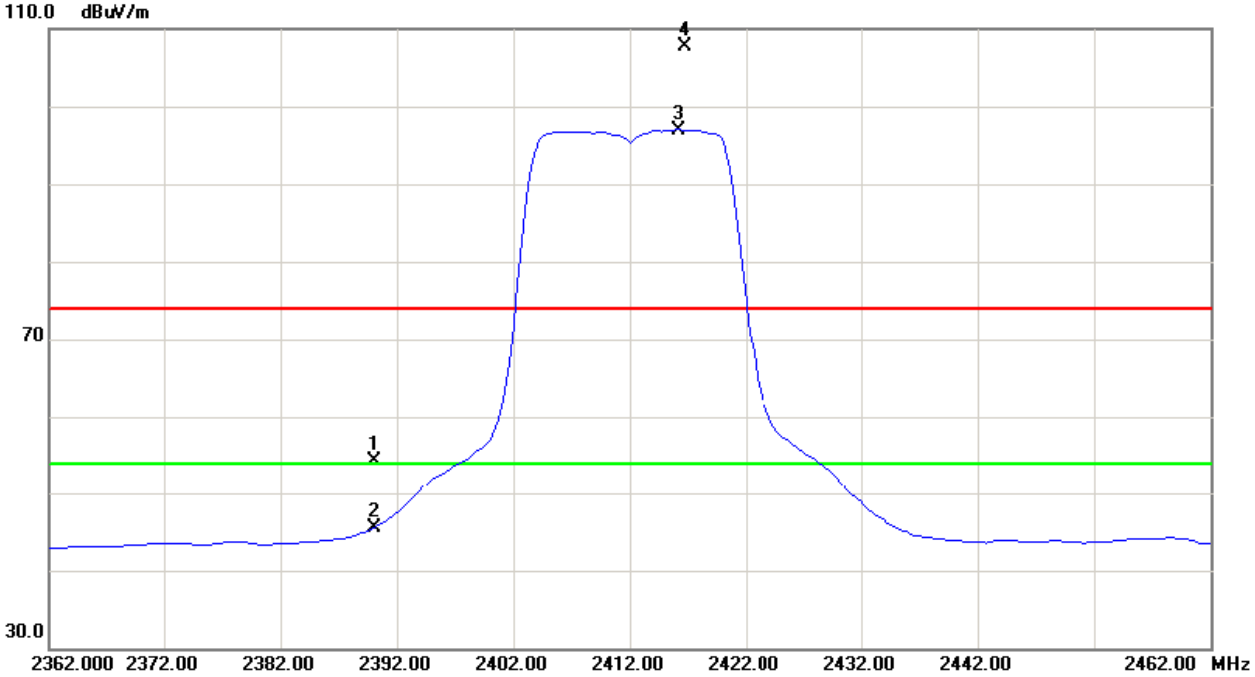
(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

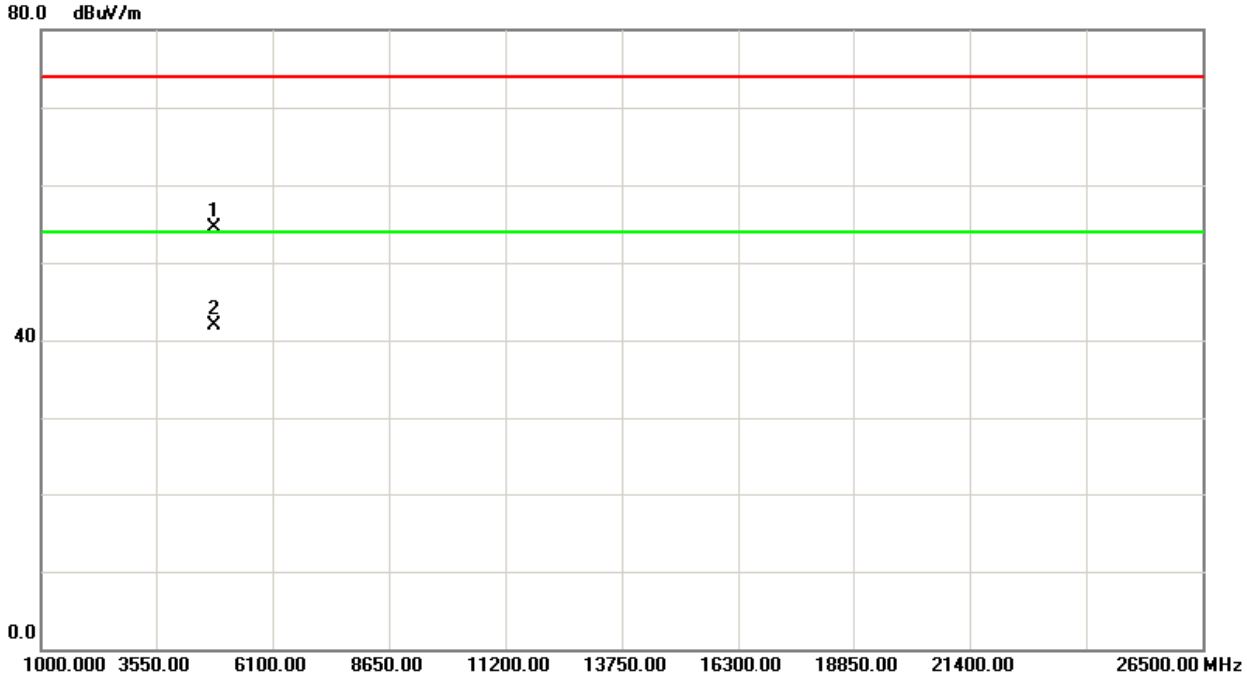
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(6) EUT Orthogonal Axis：
"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

(7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna

TX CH01 (Above 1000 MHz, Vertical)





EUT：	Wireless xDSL Bonding Router	Model Name ：	F@ST 4320 US
Temperature：	25 ℃	Relative Humidity：	51 %
Pressure：	1010 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX G MODE 2412MHz		

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		Note
		Peak	AV		Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2390.00	H	20.01	10.87	31.91	51.92	42.78	74.00	54.00	X/E
2408.75	**H**	**65.00**	**56.05**	**31.89**	**96.89**	**87.94**			**X/F**
4823.94	H	46.23	34.18	5.29	51.52	39.47	74.00	54.00	X/H

Remark：

(1) 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。

(2) 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.)

(3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission 。

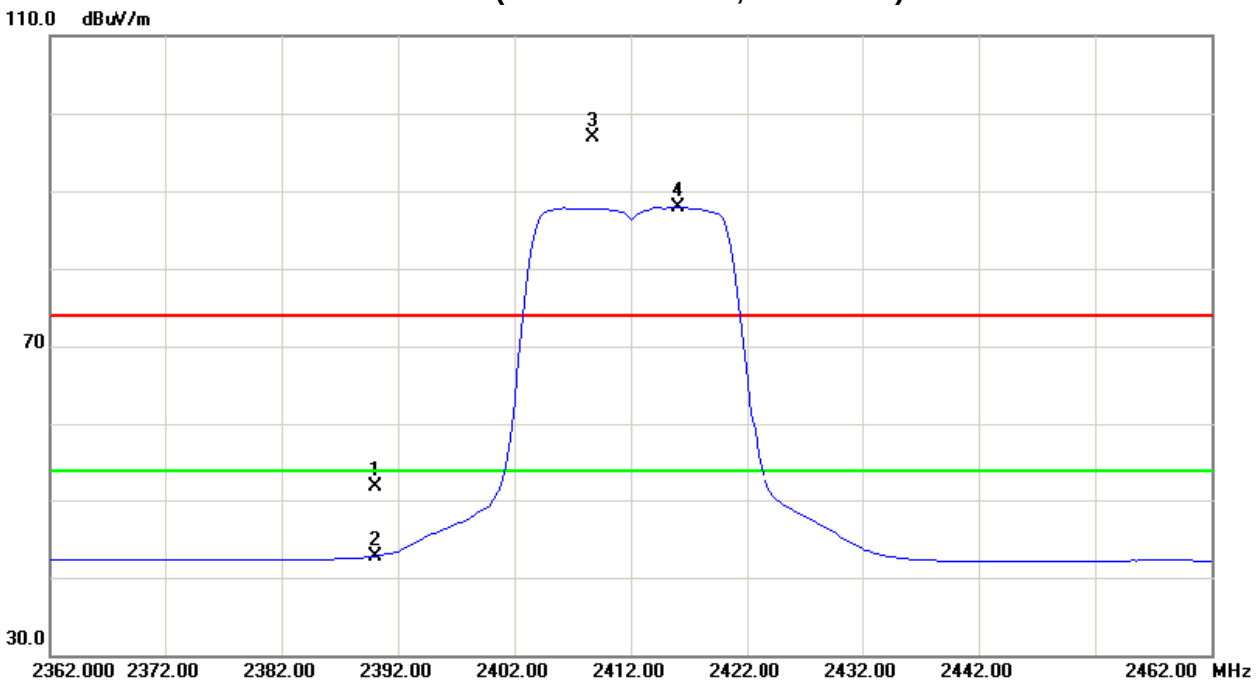
(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

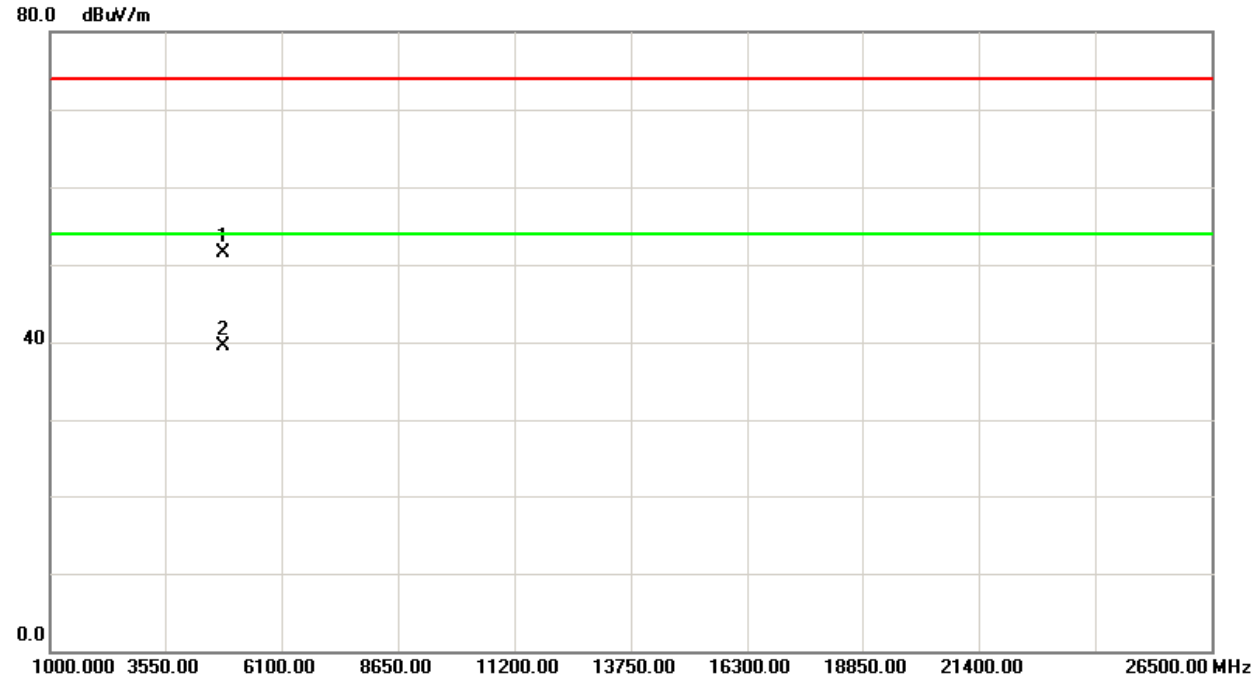
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(6) EUT Orthogonal Axis：
"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

(7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna

TX CH01 (Above 1000 MHz, Horizontal)





EUT：	Wireless xDSL Bonding Router	Model Name ：	F@ST 4320 US
Temperature：	25 ℃	Relative Humidity：	51 %
Pressure：	1010 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX G MODE 2437MHz		

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		Note
		Peak	AV		Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2441.50	**V**	**74.57**	**63.69**	**31.85**	**106.42**	**95.54**			**X/F**
4873.97	V	48.84	34.31	5.47	54.31	39.78	74.00	54.00	X/H

Remark：

(1) 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。

(2) 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.)

(3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission 。

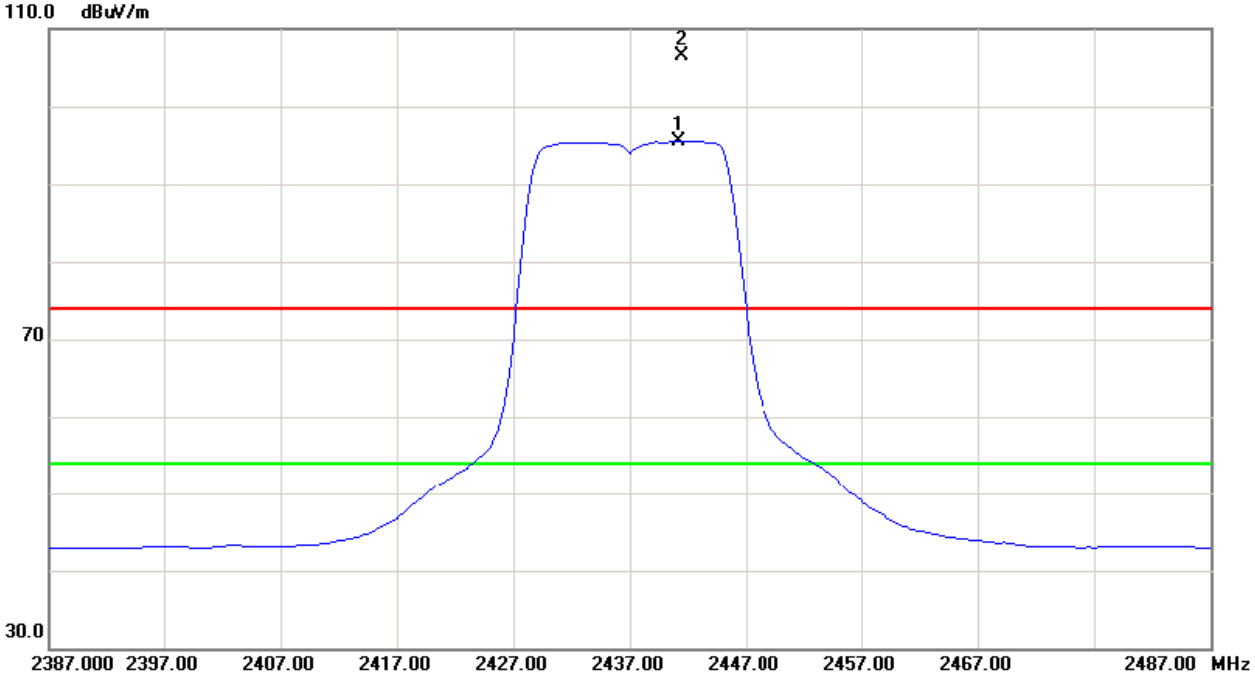
(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

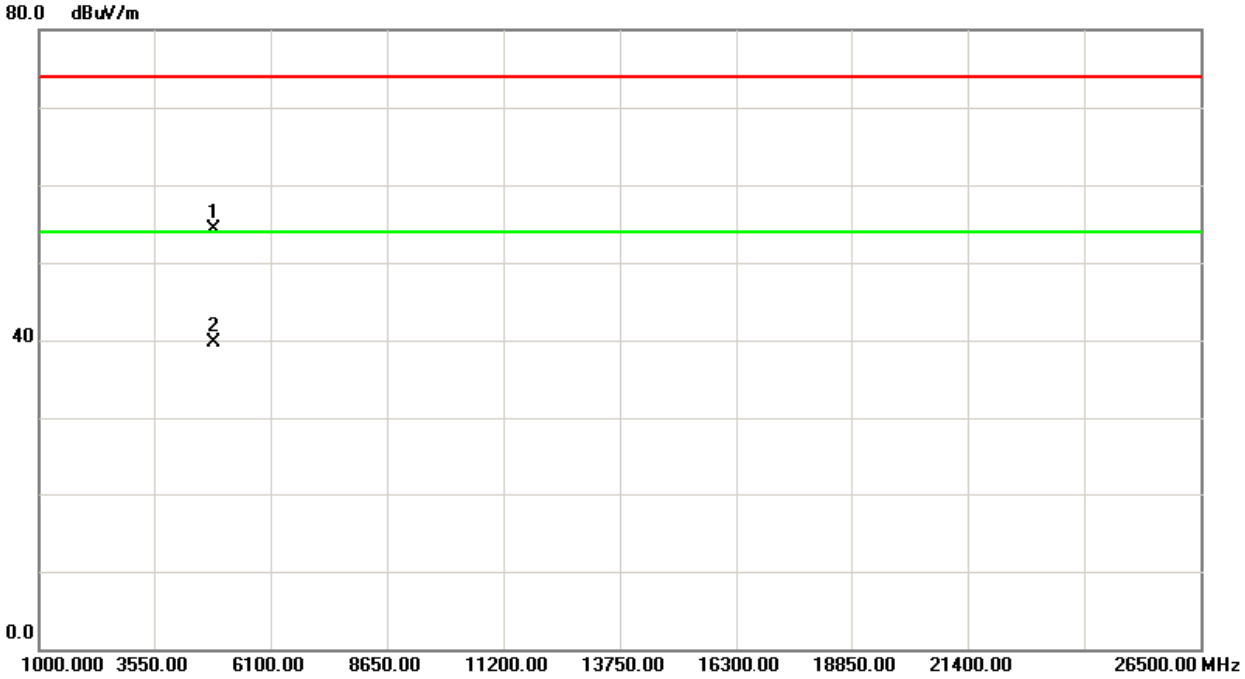
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(6) EUT Orthogonal Axis：
"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

(7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna

TX CH06 (Above 1000 MHz, Vertical)





EUT：	Wireless xDSL Bonding Router	Model Name ：	F@ST 4320 US
Temperature：	25 ℃	Relative Humidity：	51 %
Pressure：	1010 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX G MODE 2437MHz		

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		Note
		Peak	AV		Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2438.50	**H**	**69.92**	**55.82**	**31.85**	**101.77**	**87.67**			**X/F**
4873.90	H	45.83	36.48	5.47	51.30	41.95	74.00	54.00	X/H

Remark：

(1) 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。

(2) 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.)

(3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission 。

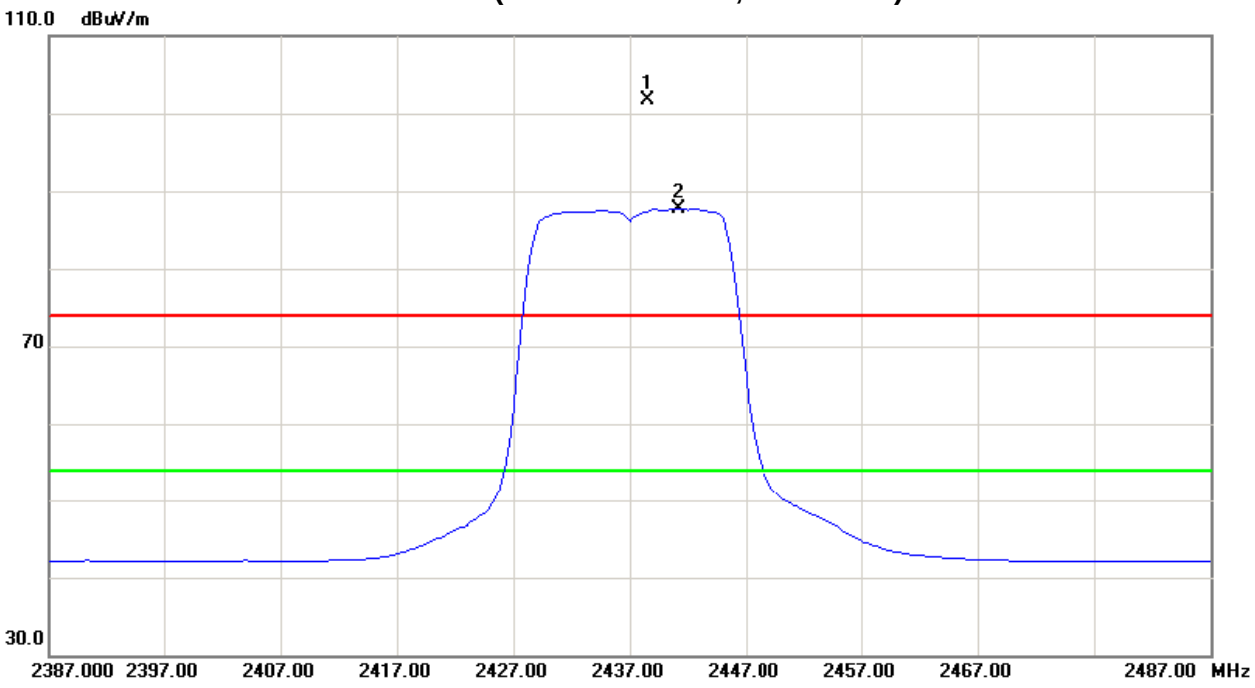
(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

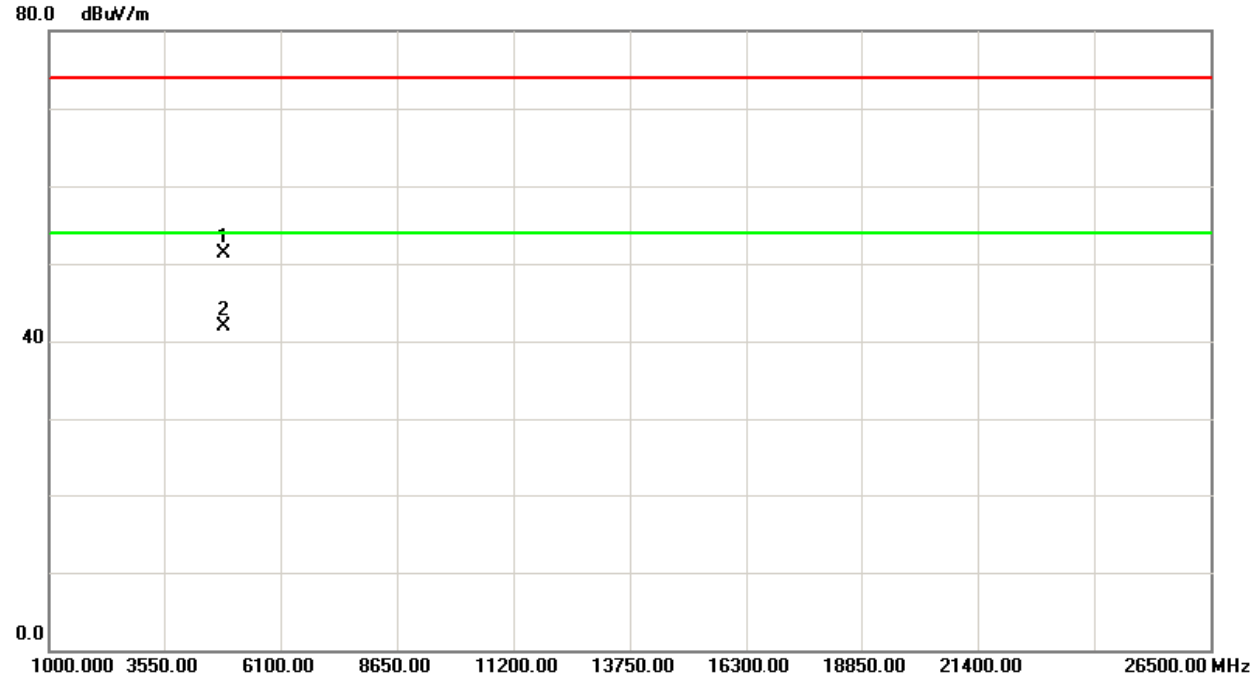
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(6) EUT Orthogonal Axis：
"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

(7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna

TX CH06 (Above 1000 MHz, Horizontal)





EUT：	Wireless xDSL Bonding Router	Model Name ：	F@ST 4320 US
Temperature：	25 ℃	Relative Humidity：	51 %
Pressure：	1010 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX G MODE 2462MHz		

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		Note
		Peak	AV		Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2459.50	**V**	**76.61**	**64.65**	**31.83**	**108.44**	**96.48**			**X/F**
2483.50	V	30.78	17.68	31.80	62.58	49.48	74.00	54.00	X/E
4924.14	V	48.75	35.14	5.65	54.40	40.79	74.00	54.00	X/H

Remark：

(1) 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。

(2) 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.)

(3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission 。

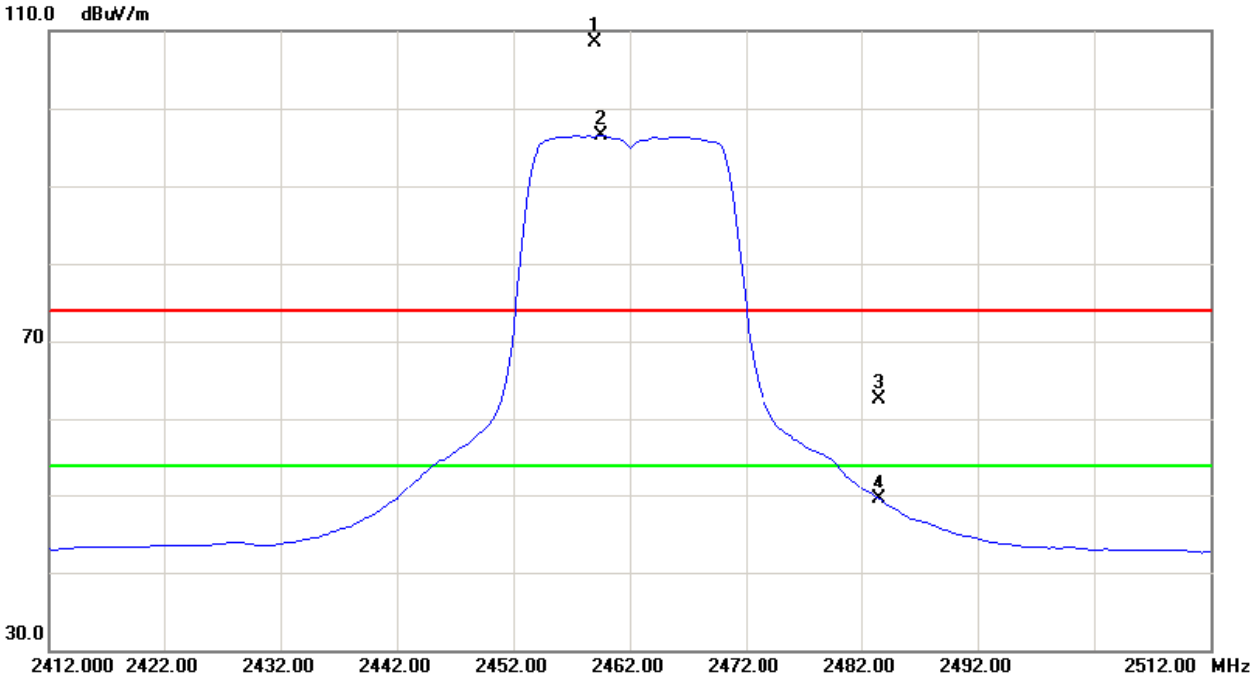
(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

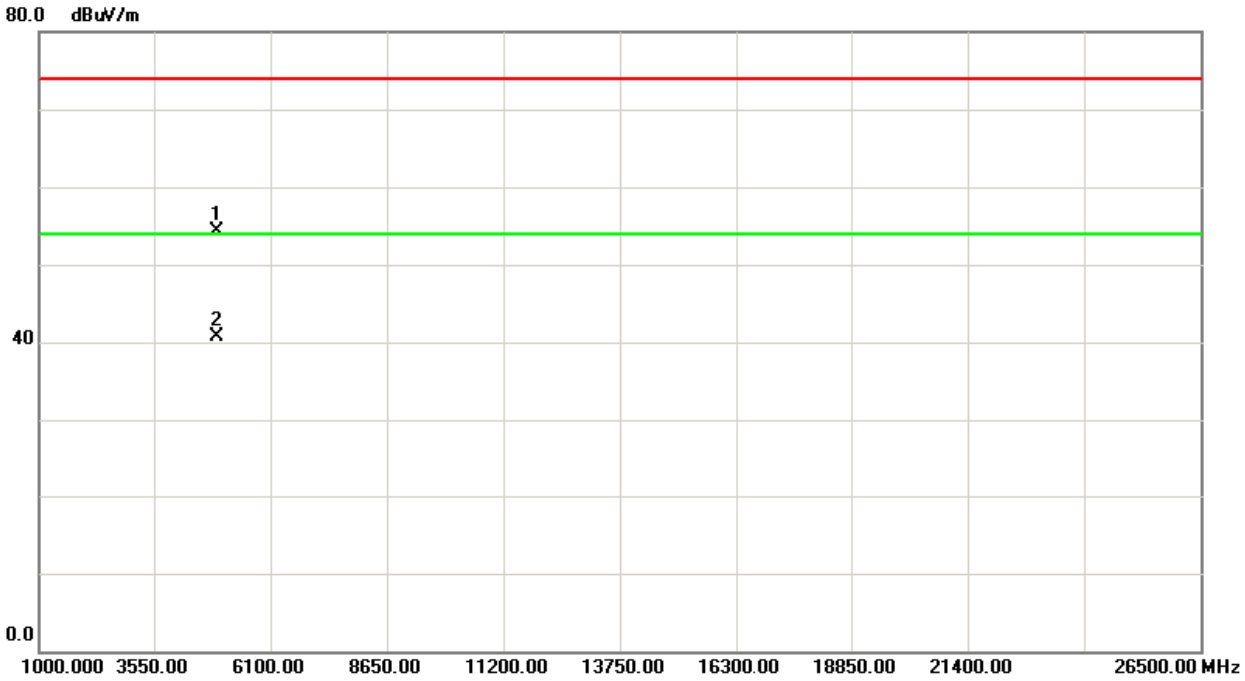
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(6) EUT Orthogonal Axis：
"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

(7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna

TX CH11 (Above 1000 MHz, Vertical)





EUT：	Wireless xDSL Bonding Router	Model Name ：	F@ST 4320 US
Temperature：	25 ℃	Relative Humidity：	51 %
Pressure：	1010 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX G MODE 2462MHz		

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		Note
		Peak	AV		Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2455.75	**H**	**69.62**	**56.90**	**31.84**	**101.46**	**88.74**			**X/F**
2483.50	H	23.73	13.00	31.80	55.53	44.80	74.00	54.00	X/E
4924.16	H	45.72	34.77	5.65	51.37	40.42	74.00	54.00	X/H

Remark：

(1) 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。

(2) 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.)

(3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission 。

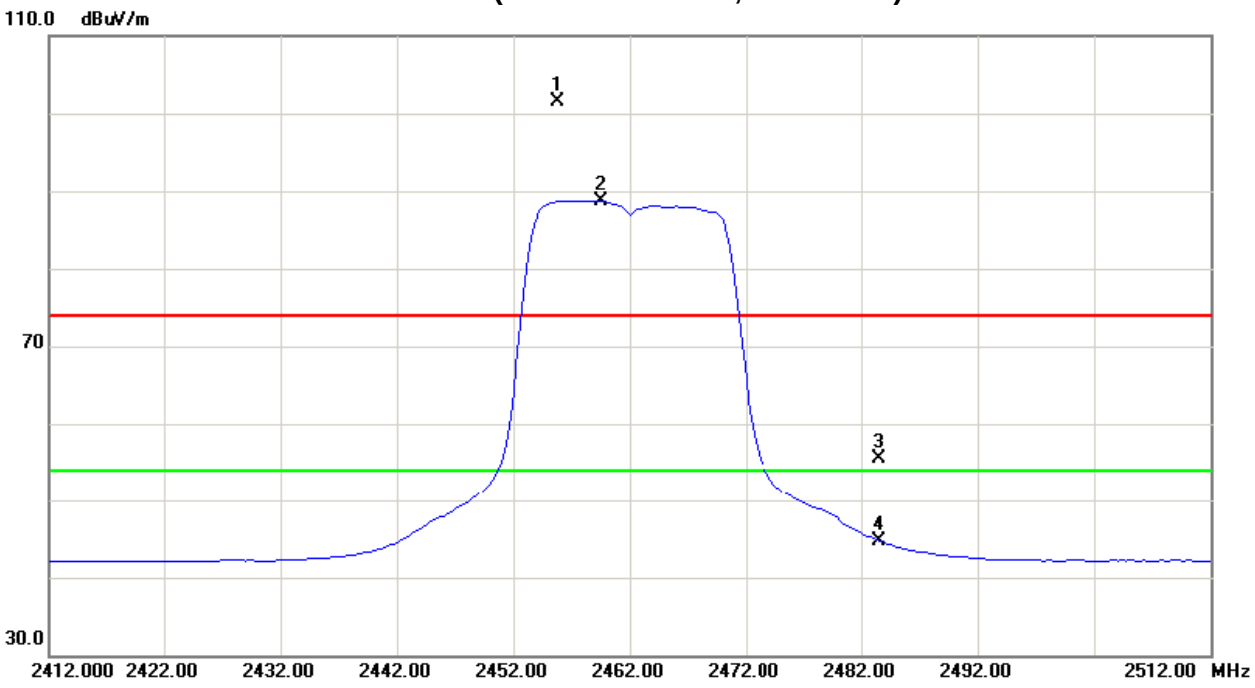
(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

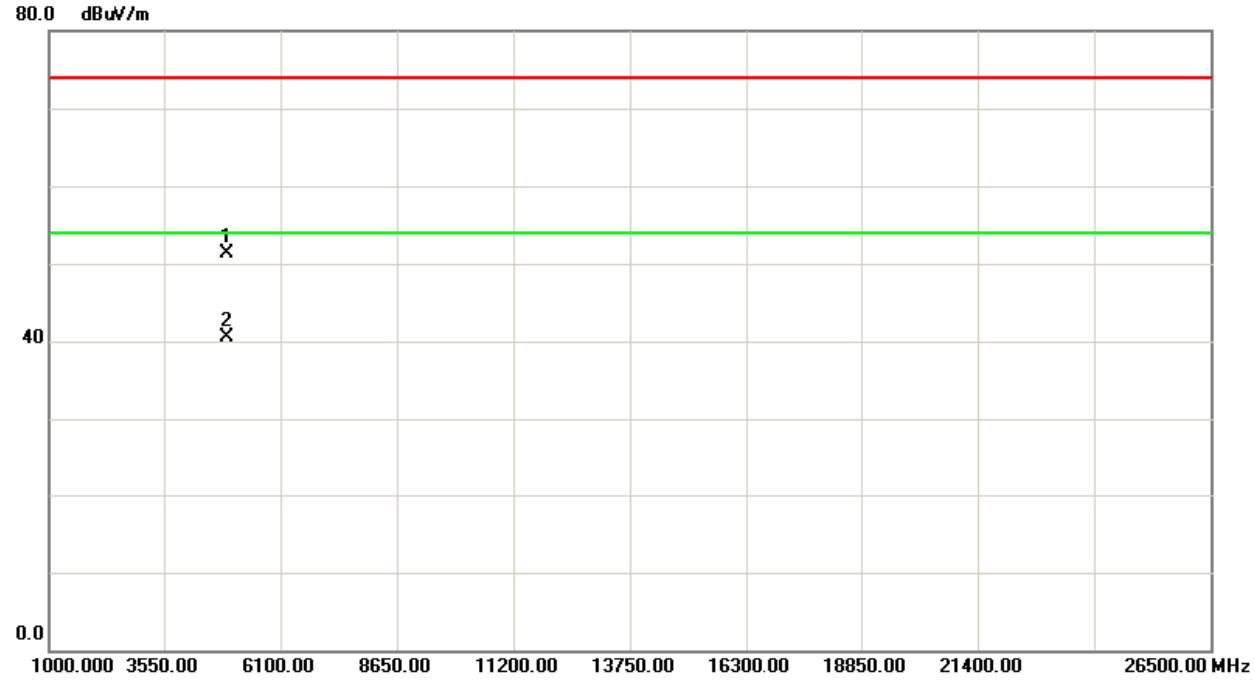
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(6) EUT Orthogonal Axis：
"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

(7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna

TX CH11 (Above 1000 MHz, Horizontal)





EUT：	Wireless xDSL Bonding Router	Model Name ：	F@ST 4320 US
Temperature：	25 ℃	Relative Humidity：	51 %
Pressure：	1010 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX N-20M MODE 2412MHz		

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		Note
		Peak	AV		Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2390.00	V	22.87	11.20	31.91	54.78	43.11	74.00	54.00	X/E
24155.75	**V**	**70.17**	**60.36**	**31.90**	**102.07**	**92.26**			**X/F**
4823.94	V	47.62	35.27	5.29	52.91	40.56	74.00	54.00	X/H

Remark：

(1) 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。

(2) 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.)

(3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission 。

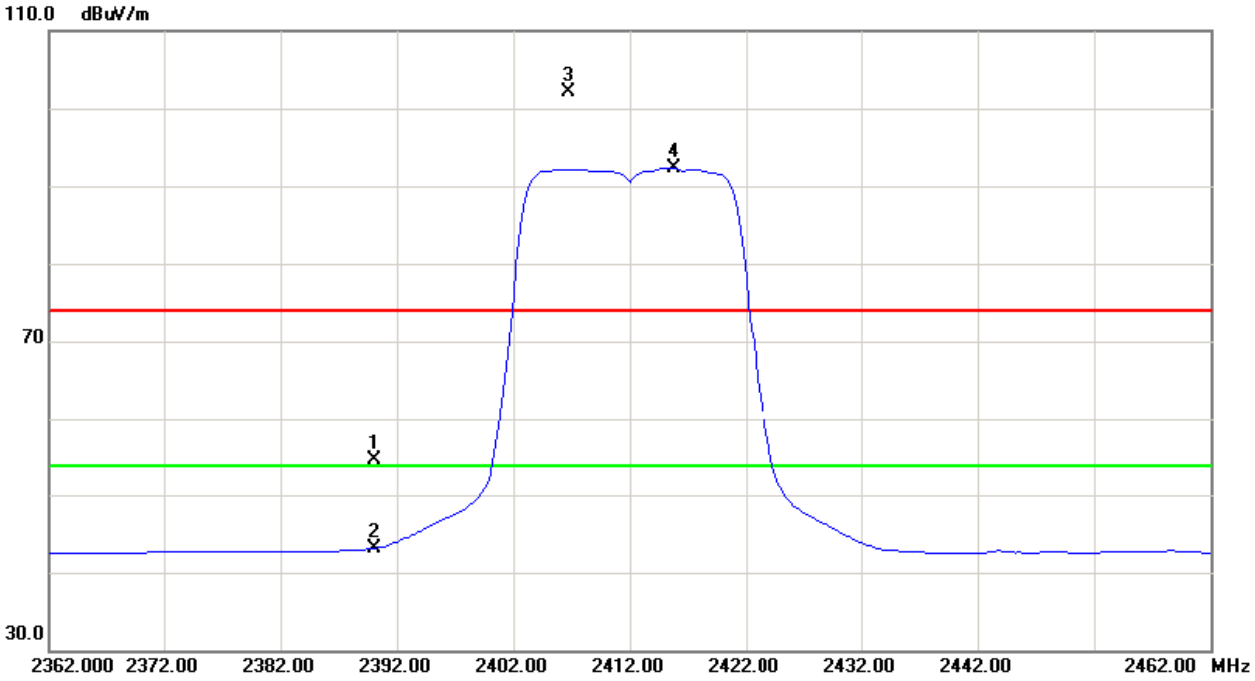
(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

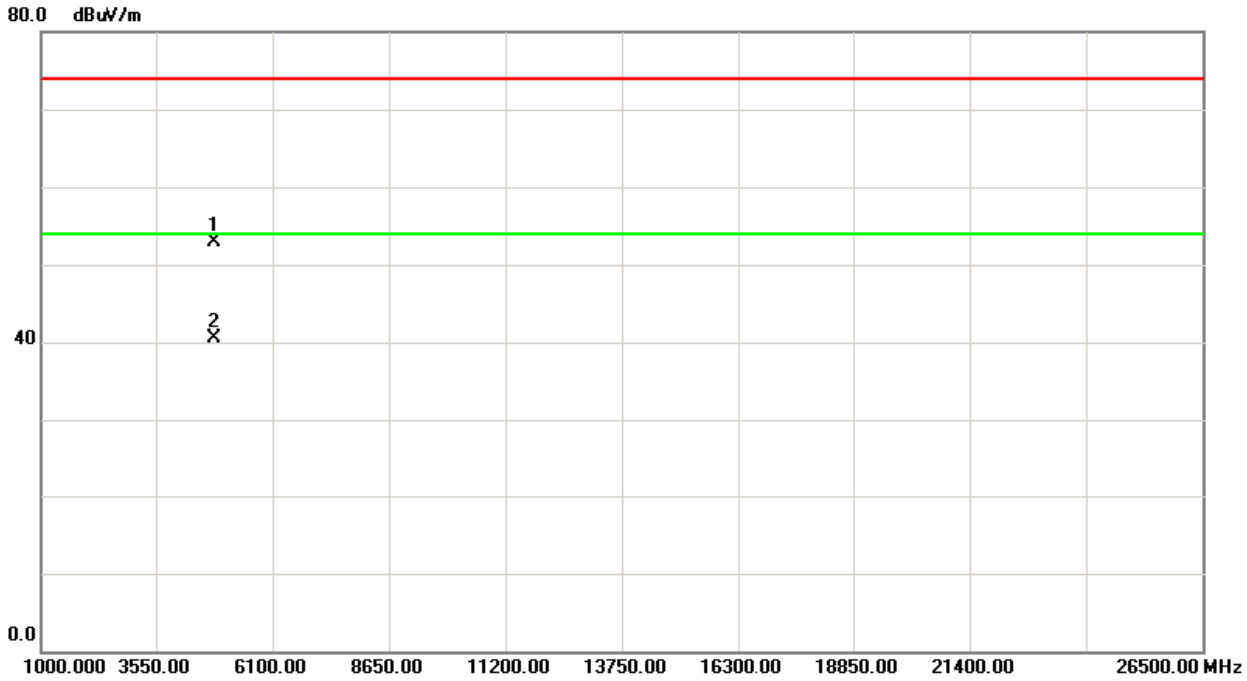
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(6) EUT Orthogonal Axis：
"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

(7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna

TX CH01 (Above 1000 MHz, Vertical)





EUT：	Wireless xDSL Bonding Router	Model Name ：	F@ST 4320 US
Temperature：	25 ℃	Relative Humidity：	51 %
Pressure：	1010 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX N-20M MODE 2412MHz		

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		Note
		Peak	AV		Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2390.00	H	20.85	10.27	31.91	52.76	42.18	74.00	54.00	X/E
2416.50	**H**	**64.90**	**51.68**	**31.88**	**96.78**	**83.56**			**X/F**
4823.84	H	44.27	33.54	5.29	49.56	38.83	74.00	54.00	X/H

Remark：

(1) 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。

(2) 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.)

(3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission 。

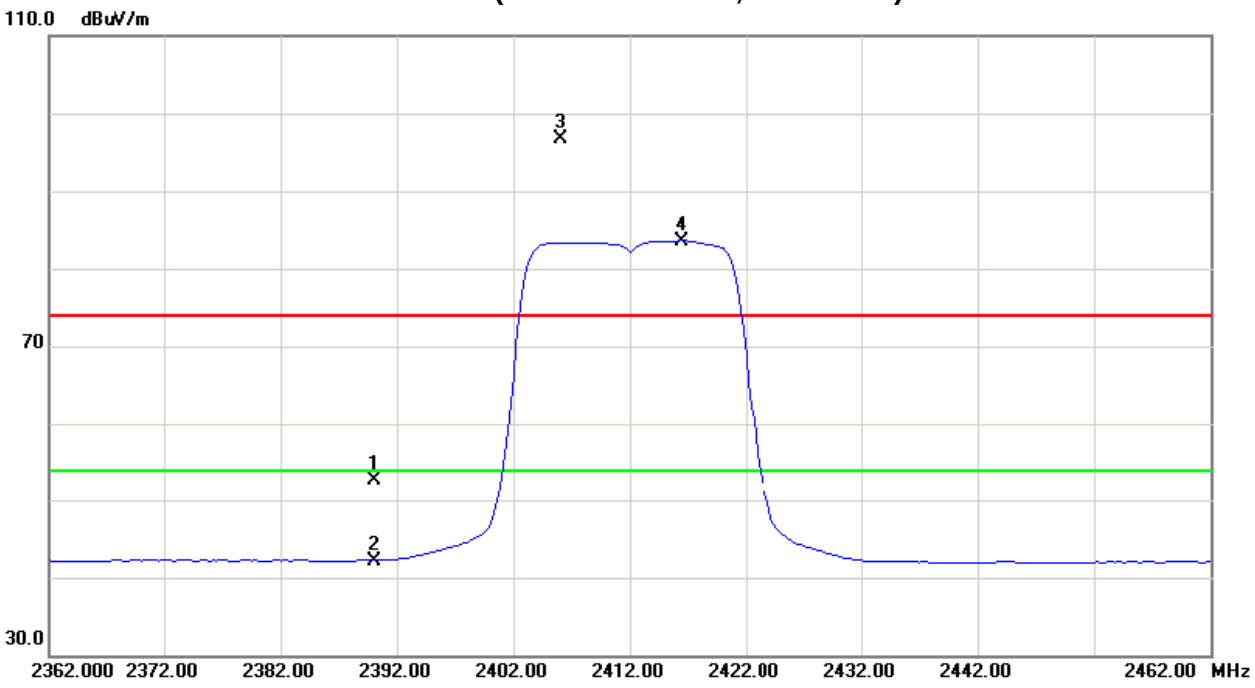
(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

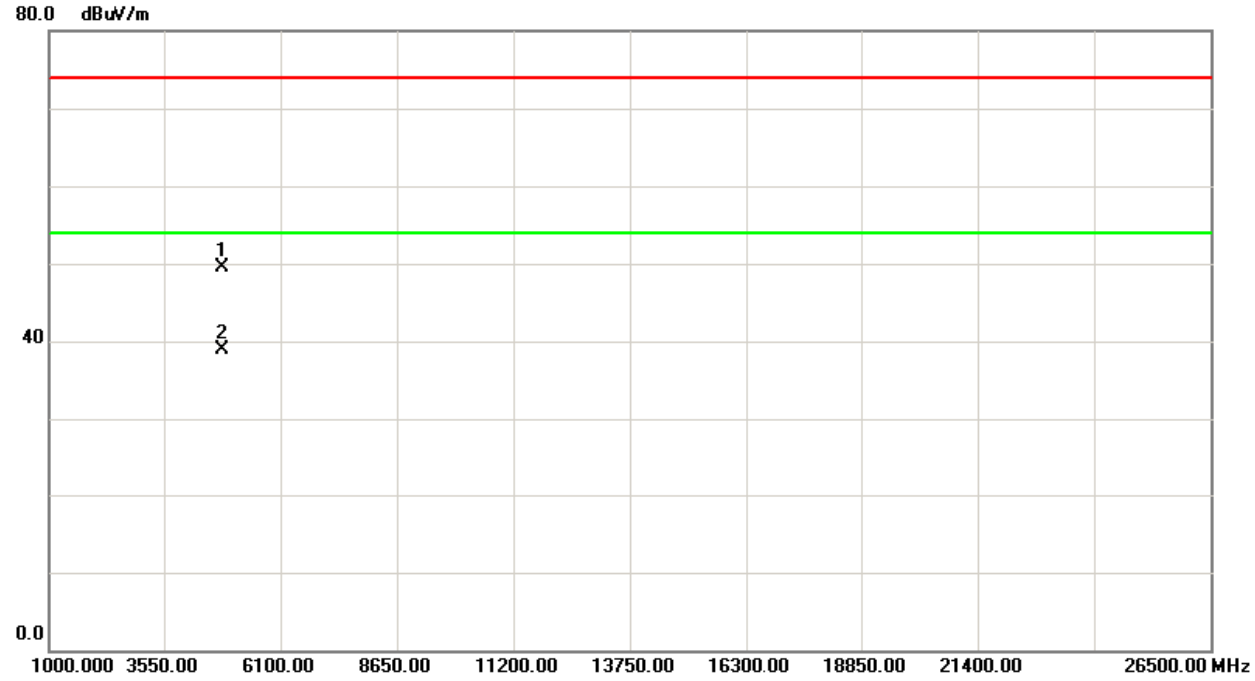
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(6) EUT Orthogonal Axis：
"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

(7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna

TX CH01 (Above 1000 MHz, Horizontal)





EUT：	Wireless xDSL Bonding Router	Model Name ：	F@ST 4320 US
Temperature：	25 ℃	Relative Humidity：	51 %
Pressure：	1010 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX N-20M MODE 2437MHz		

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		Note
		Peak	AV		Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
24.32.50	**V**	**68.37**	**59.95**	**31.87**	**100.24**	**91.82**			**X/F**
4874.18	V	47.90	36.37	5.47	53.37	41.84	74.00	54.00	X/H

Remark：

(1) 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。

(2) 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.)

(3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission 。

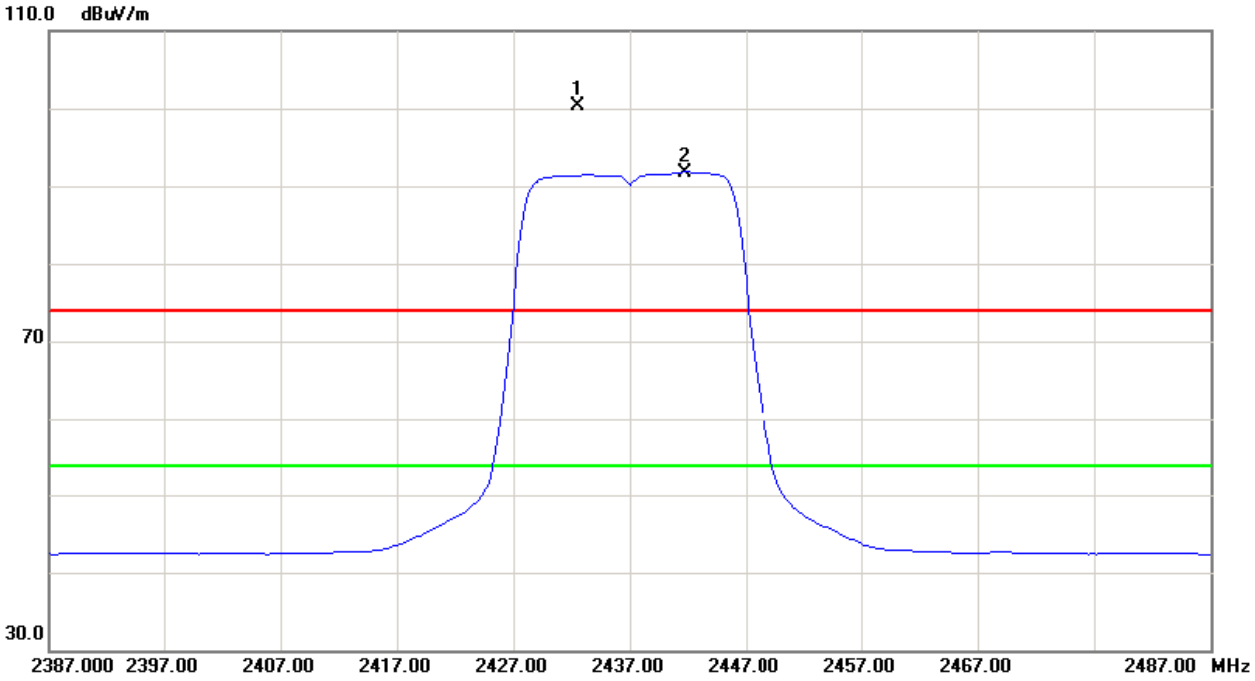
(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

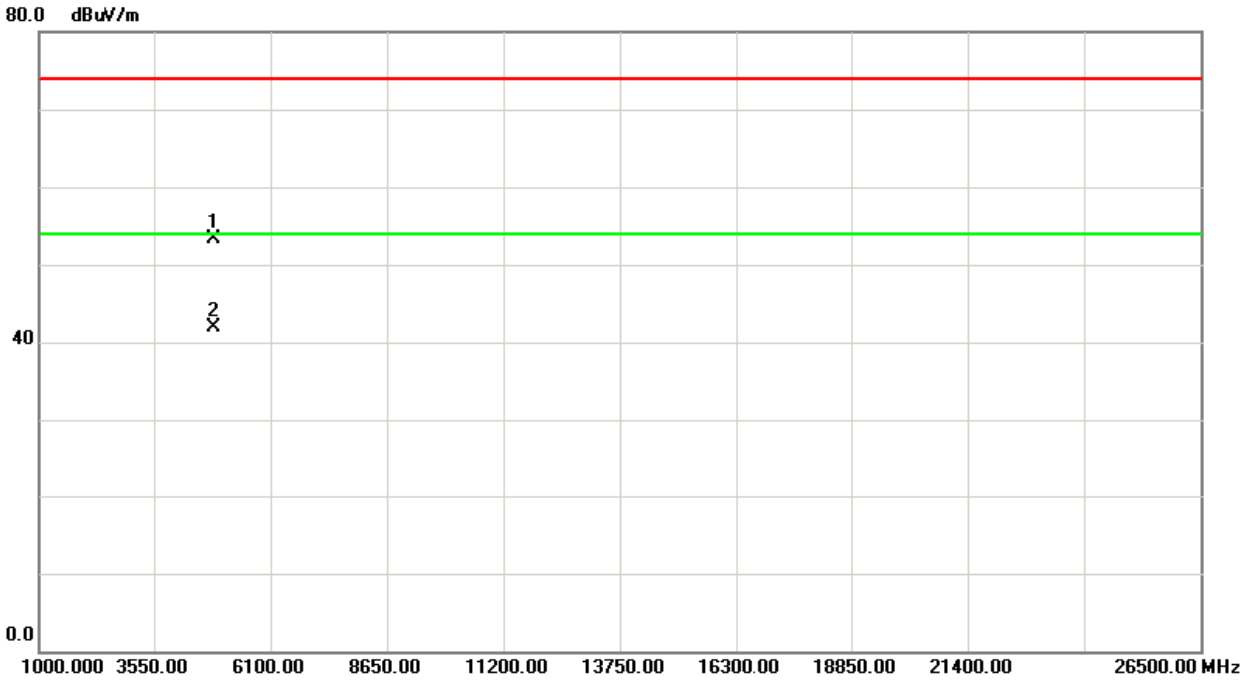
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(6) EUT Orthogonal Axis：
"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

(7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna

TX CH06 (Above 1000 MHz, Vertical)





EUT：	Wireless xDSL Bonding Router	Model Name ：	F@ST 4320 US
Temperature：	25 ℃	Relative Humidity：	51 %
Pressure：	1010 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX N-20M MODE 2437MHz		

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		Note
		Peak	AV		Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2438.00	**H**	**64.99**	**50.71**	**31.85**	**96.84**	**82.56**			**X/F**
4873.85	H	44.76	33.88	5.47	50.23	39.35	74.00	54.00	X/H

Remark：

(1) 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。

(2) 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.)

(3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission 。

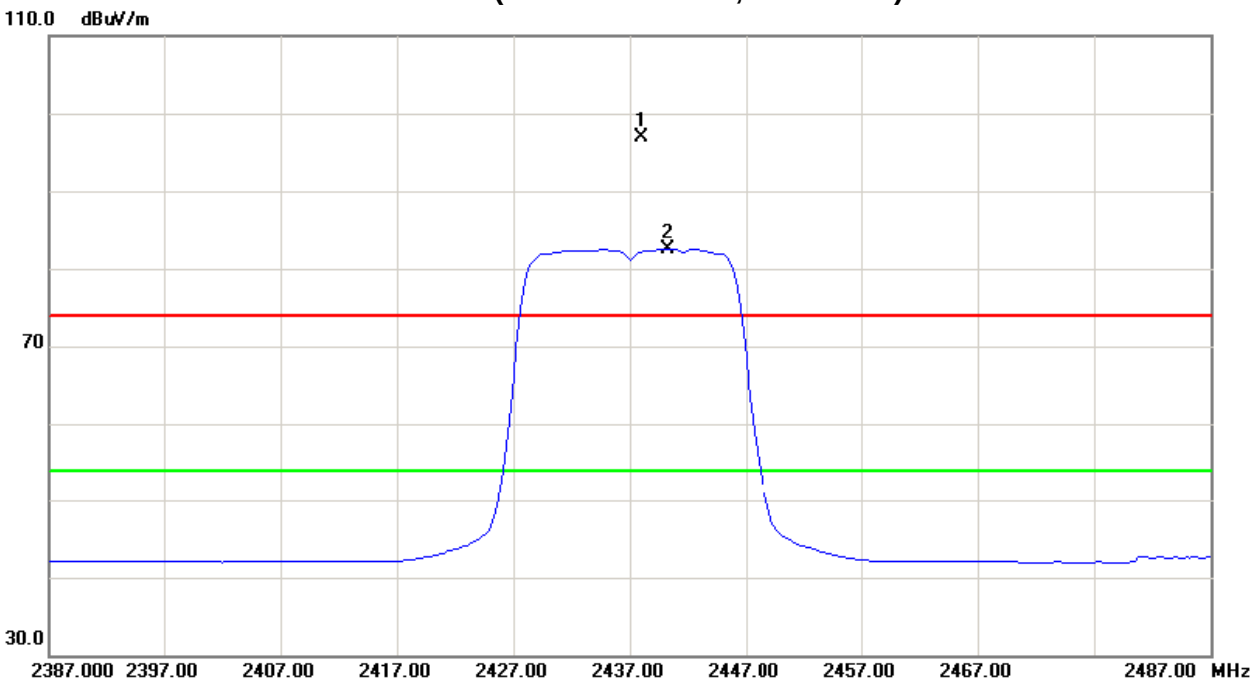
(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

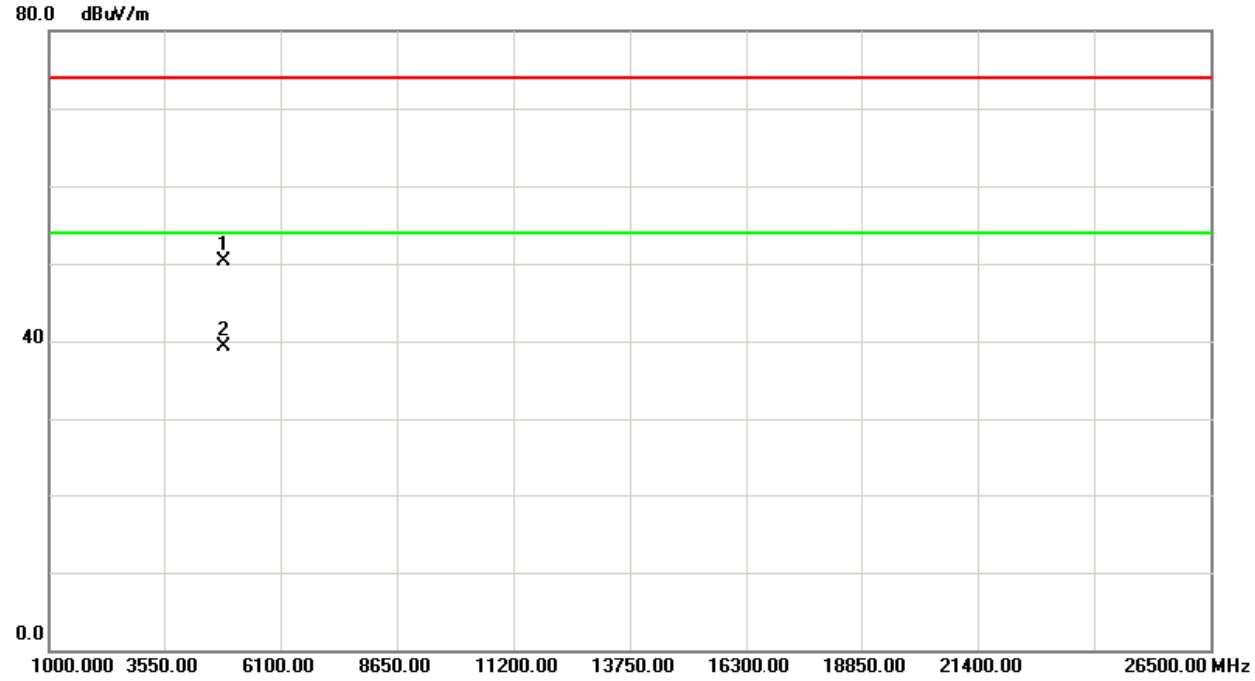
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(6) EUT Orthogonal Axis：
"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

(7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna

TX CH06 (Above 1000 MHz, Horizontal)





EUT：	Wireless xDSL Bonding Router	Model Name ：	F@ST 4320 US
Temperature：	25 ℃	Relative Humidity：	51 %
Pressure：	1010 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX N-20M MODE 2462MHz		

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		Note
		Peak	AV		Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2458.75	**V**	**72.57**	**59.74**	**31.82**	**104.39**	**91.56**			**X/F**
2483.50	V	22.80	11.00	31.80	54.60	42.80	74.00	54.00	X/E
4924.10	V	47.52	35.80	5.65	53.17	41.45	74.00	54.00	X/H

Remark：

(1) 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。

(2) 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.)

(3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission 。

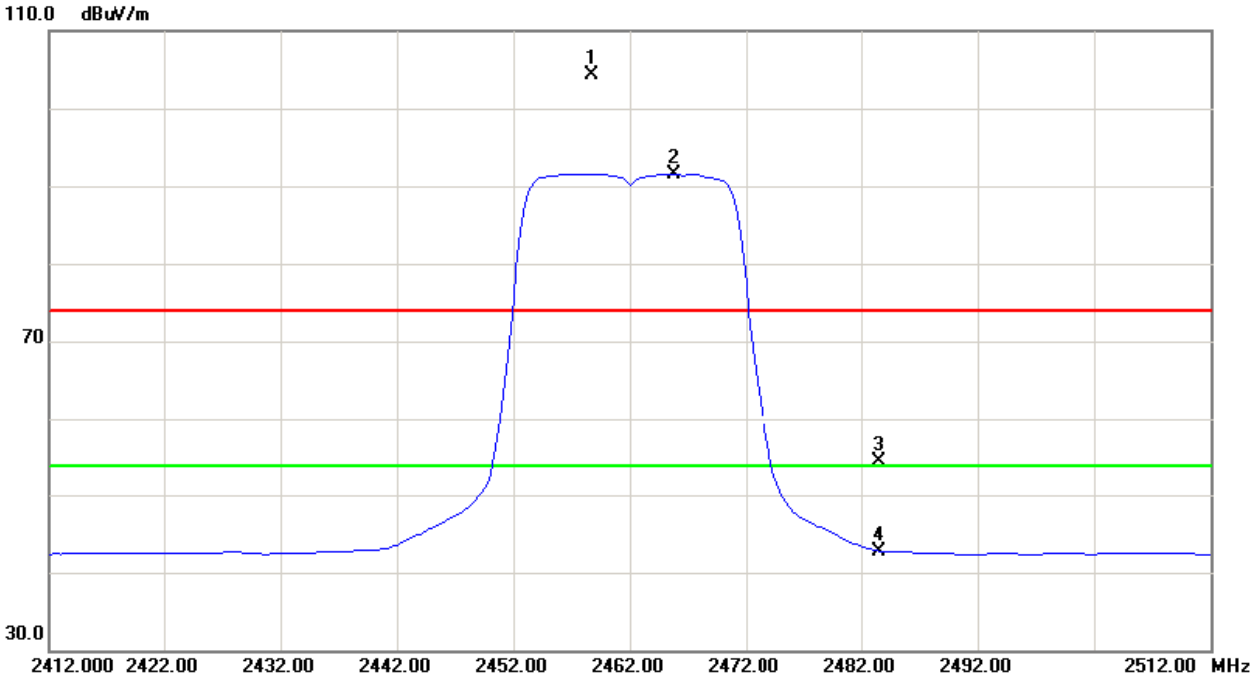
(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

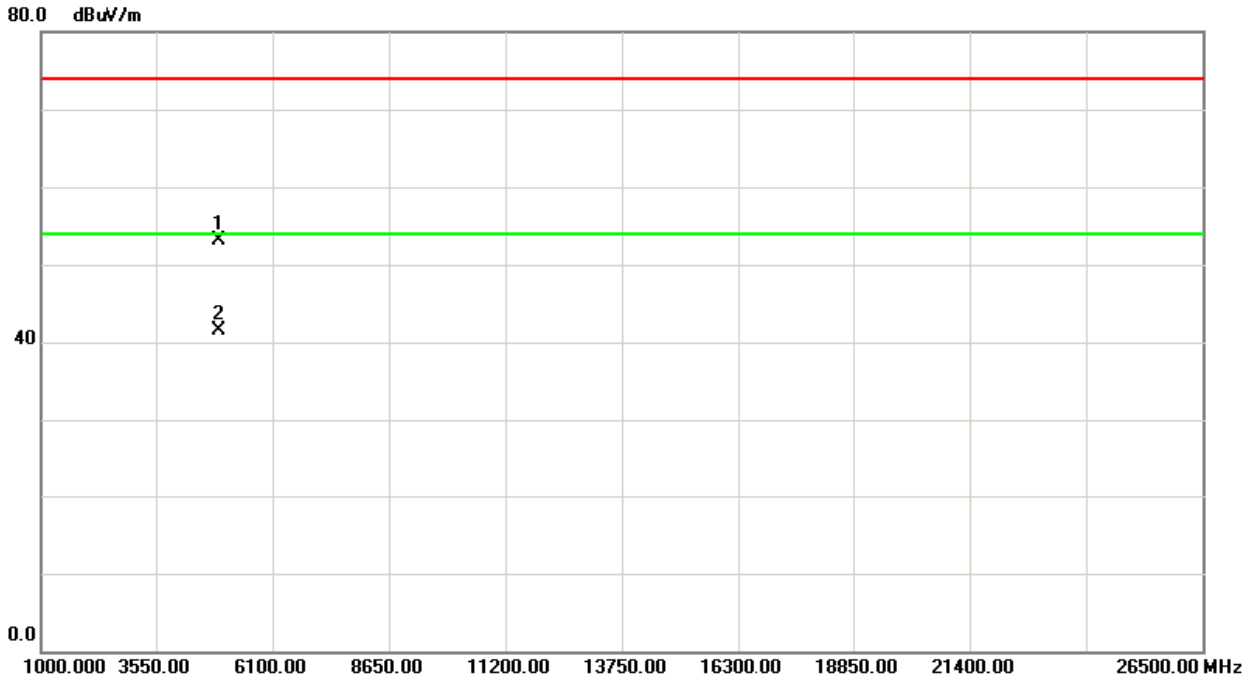
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(6) EUT Orthogonal Axis：
"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

(7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna

TX CH11 (Above 1000 MHz, Vertical)





EUT：	Wireless xDSL Bonding Router	Model Name ：	F@ST 4320 US
Temperature：	25 ℃	Relative Humidity：	51 %
Pressure：	1010 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX N-20M MODE 2462MHz		

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		Note
		Peak	AV		Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2457.25	**H**	**65.65**	**51.32**	**31.84**	**97.49**	**83.16**			**X/F**
2483.50	H	21.18	10.20	31.80	52.98	42.00	74.00	54.00	X/E
4924.15	H	44.60	32.49	5.65	50.25	38.14	74.00	54.00	X/H

Remark：

(1) 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。

(2) 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.)

(3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission 。

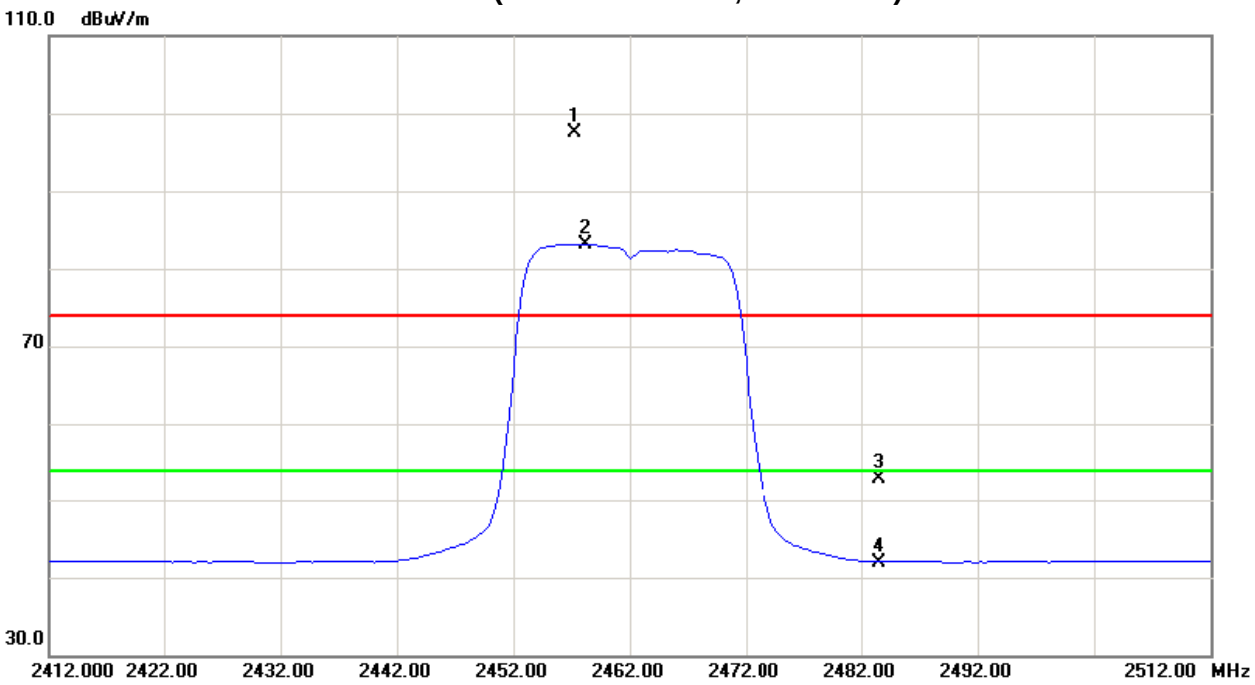
(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

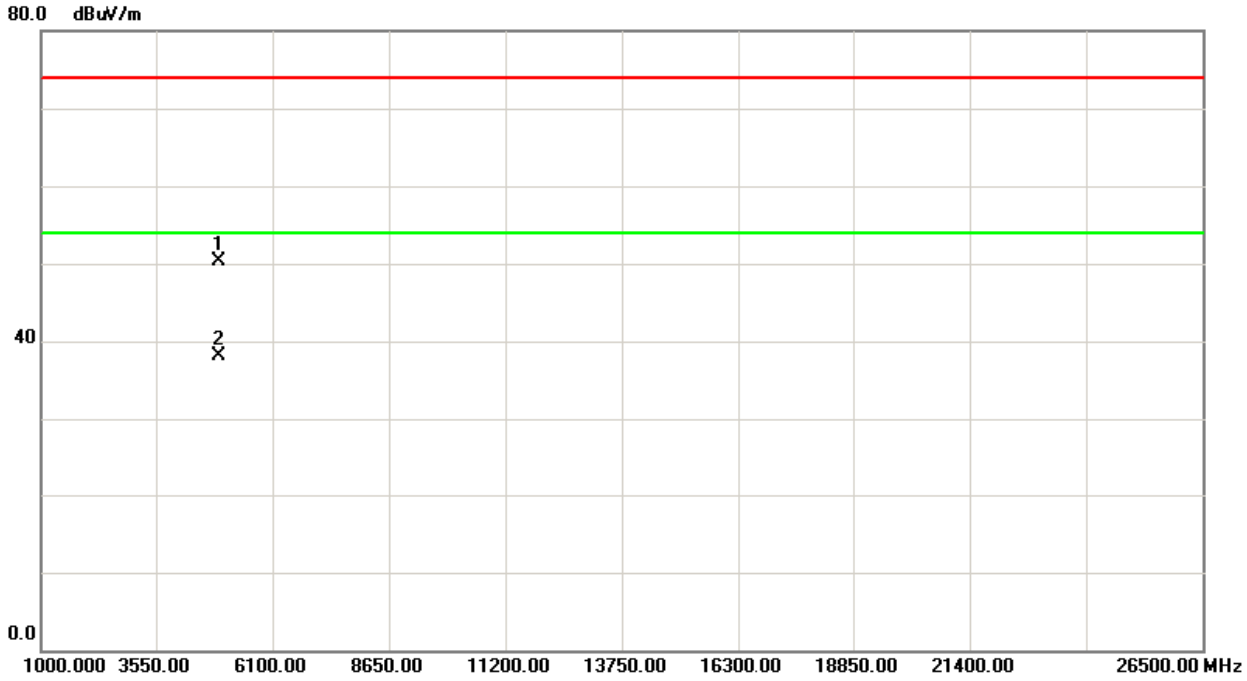
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(6) EUT Orthogonal Axis：
"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

(7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna

TX CH11 (Above 1000 MHz, Horizontal)





EUT：	Wireless xDSL Bonding Router	Model Name ：	F@ST 4320 US
Temperature：	25 ℃	Relative Humidity：	51 %
Pressure：	1010 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX N-40M MODE 2422MHz		

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		Note
		Peak	AV		Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2390.00	V	21.36	11.46	31.91	53.27	43.37	74.00	54.00	X/E
2418.50	**V**	**67.28**	**57.50**	**31.88**	**99.16**	**89.38**			**X/F**
4844.17	V	45.21	33.74	5.36	50.57	39.10	74.00	54.00	X/H

Remark：

(1) 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。

(2) 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.)

(3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission 。

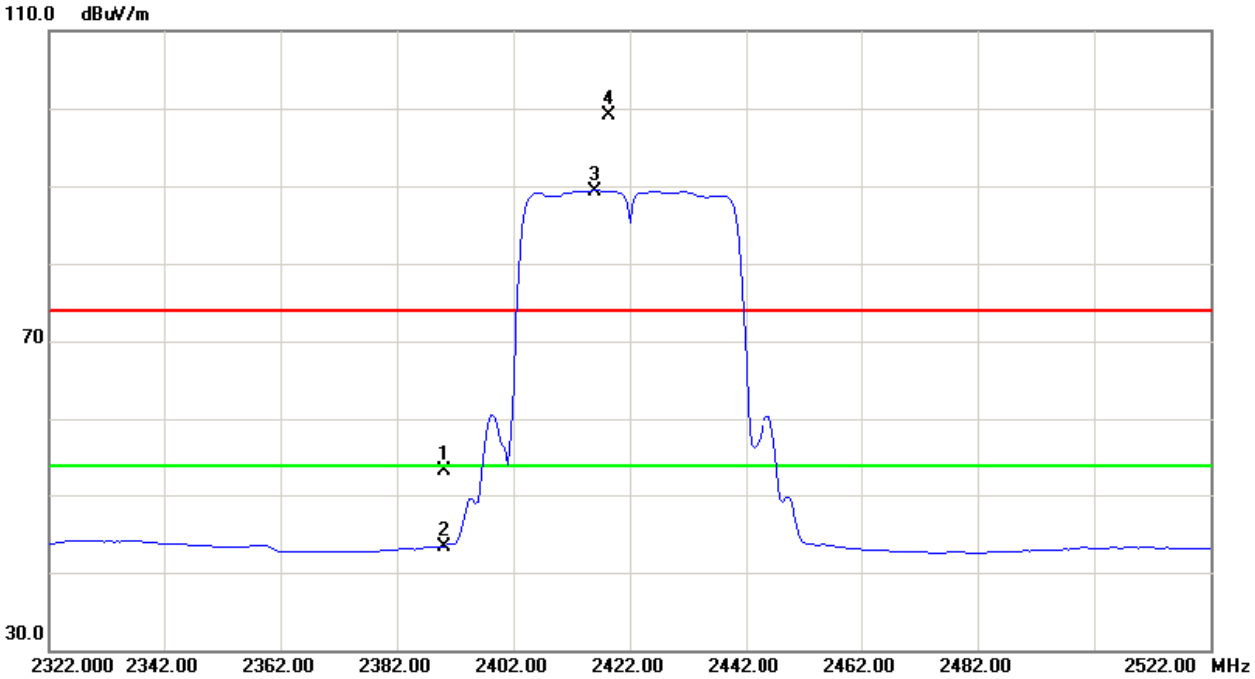
(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

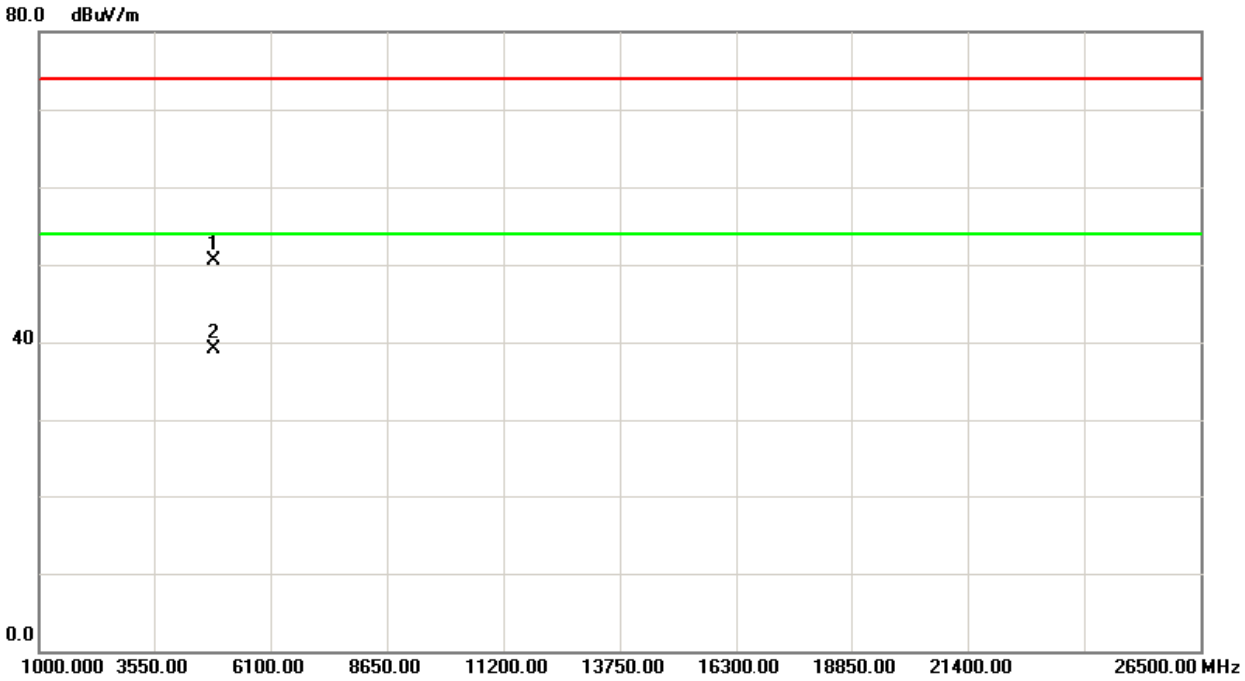
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(6) EUT Orthogonal Axis：
"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

(7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna

TX CH03 (Above 1000 MHz, Vertical)





EUT：	Wireless xDSL Bonding Router	Model Name ：	F@ST 4320 US
Temperature：	25 ℃	Relative Humidity：	51 %
Pressure：	1010 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX N-40M MODE 2422MHz		

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		Note
		Peak	AV		Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2390.00	H	20.29	10.35	31.91	52.20	42.26	74.00	54.00	X/E
2418.00	**H**	**58.44**	**48.38**	**31.88**	**90.32**	**80.26**			**X/F**
4844.16	H	43.56	32.42	5.36	48.92	37.78	74.00	54.00	X/H

Remark：

(1) 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。

(2) 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.)

(3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission 。

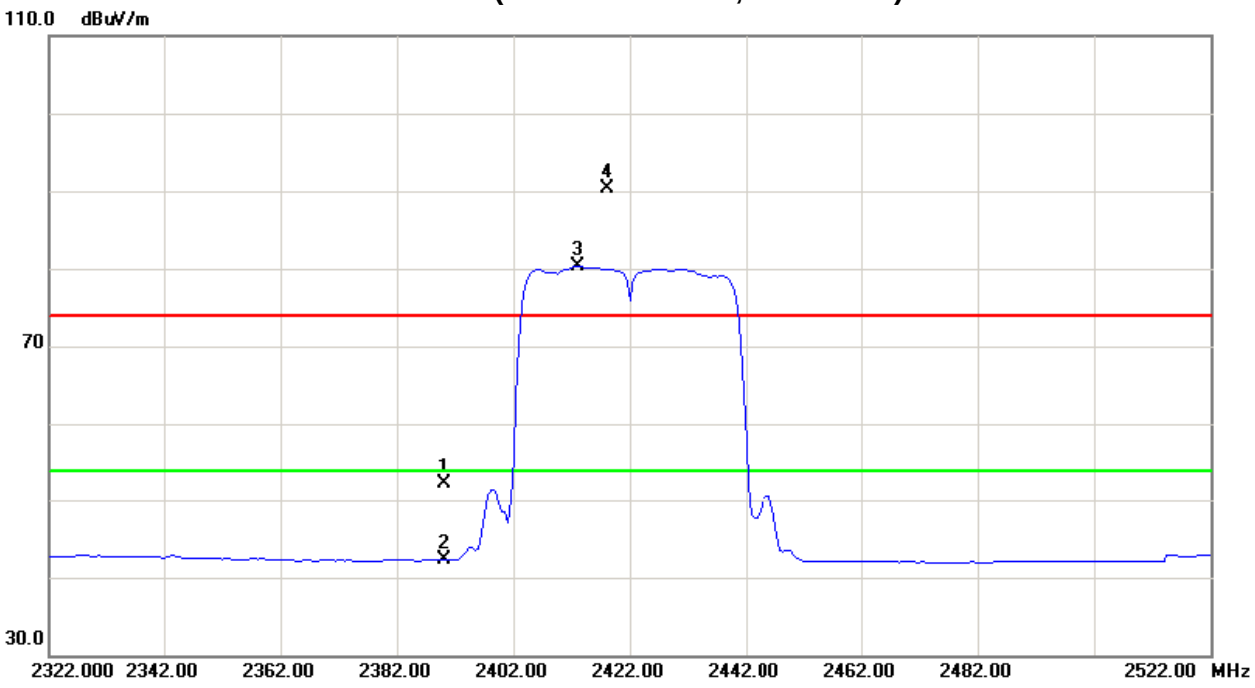
(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

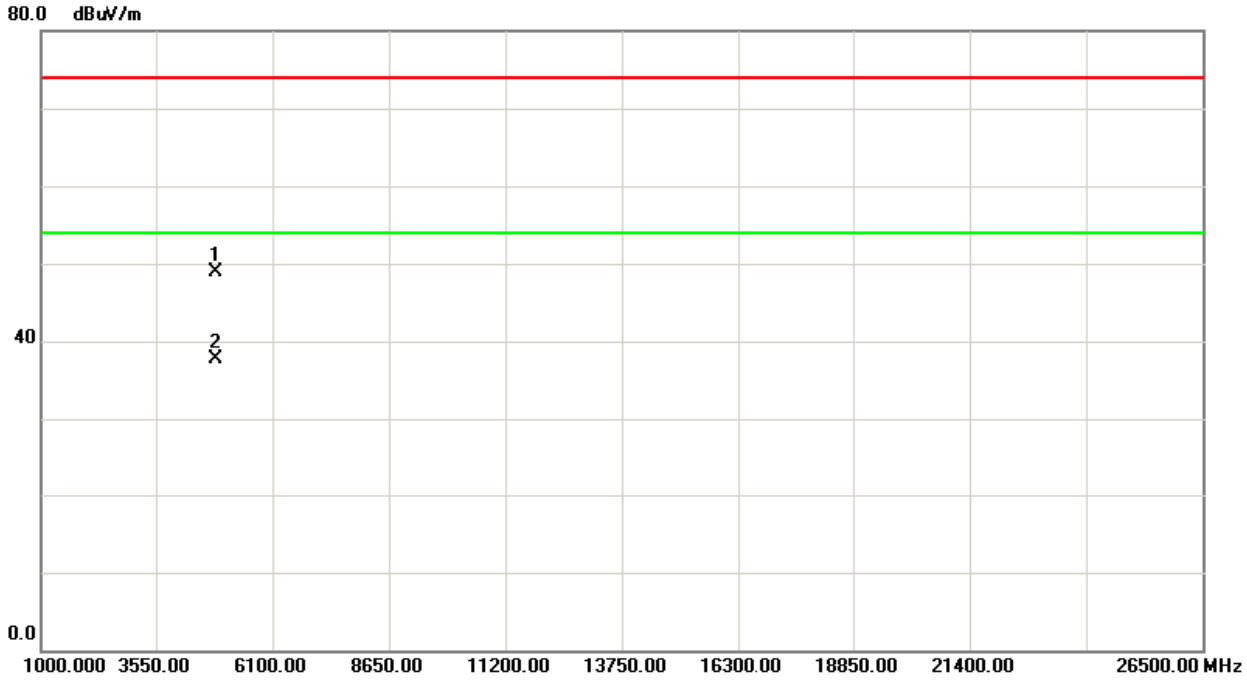
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(6) EUT Orthogonal Axis：
"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

(7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna

TX CH03 (Above 1000 MHz, Horizontal)





EUT：	Wireless xDSL Bonding Router	Model Name ：	F@ST 4320 US
Temperature：	25 ℃	Relative Humidity：	51 %
Pressure：	1010 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX N-40M MODE 2437MHz		

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		Note
		Peak	AV		Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2446.00	**V**	**66.09**	**57.23**	**31.85**	**97.94**	**89.08**			**X/F**
4873.79	V	45.37	32.25	5.47	50.84	37.72	74.00	54.00	X/H

Remark：

(1) 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。

(2) 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.)

(3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission 。

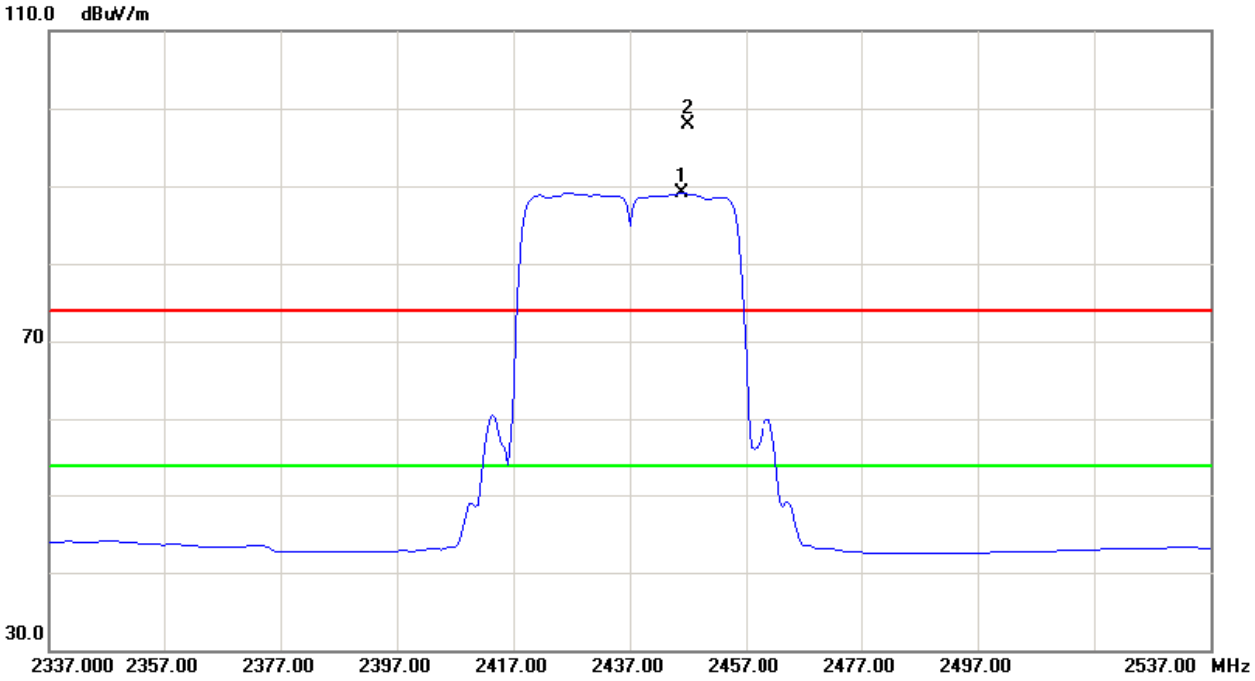
(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

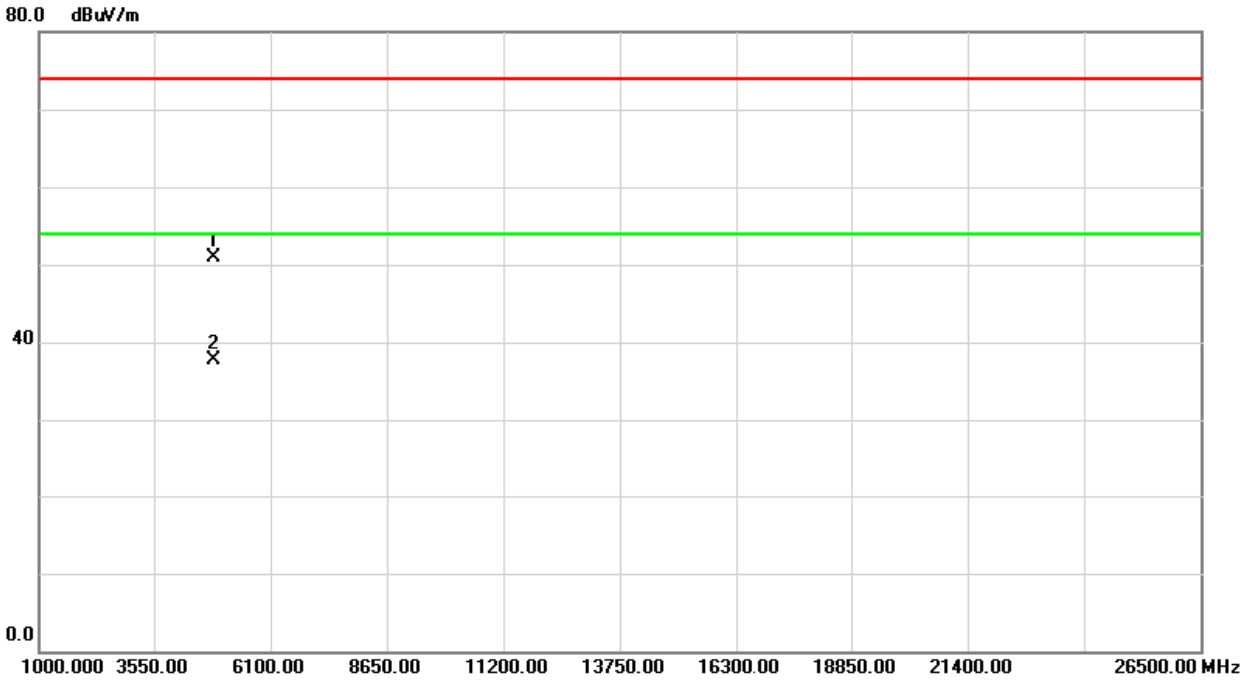
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(6) EUT Orthogonal Axis：
"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

(7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna

TX CH06 (Above 1000 MHz, Vertical)





EUT：	Wireless xDSL Bonding Router	Model Name ：	F@ST 4320 US
Temperature：	25 ℃	Relative Humidity：	51 %
Pressure：	1010 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX N-40M MODE 2437MHz		

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		Note
		Peak	AV		Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2432.50	**H**	**57.48**	**47.99**	**31.87**	**89.35**	**79.86**			**X/F**
4873.85	H	43.29	31.19	5.47	48.76	36.66	74.00	54.00	X/H

Remark：

(1) 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。

(2) 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.)

(3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission 。

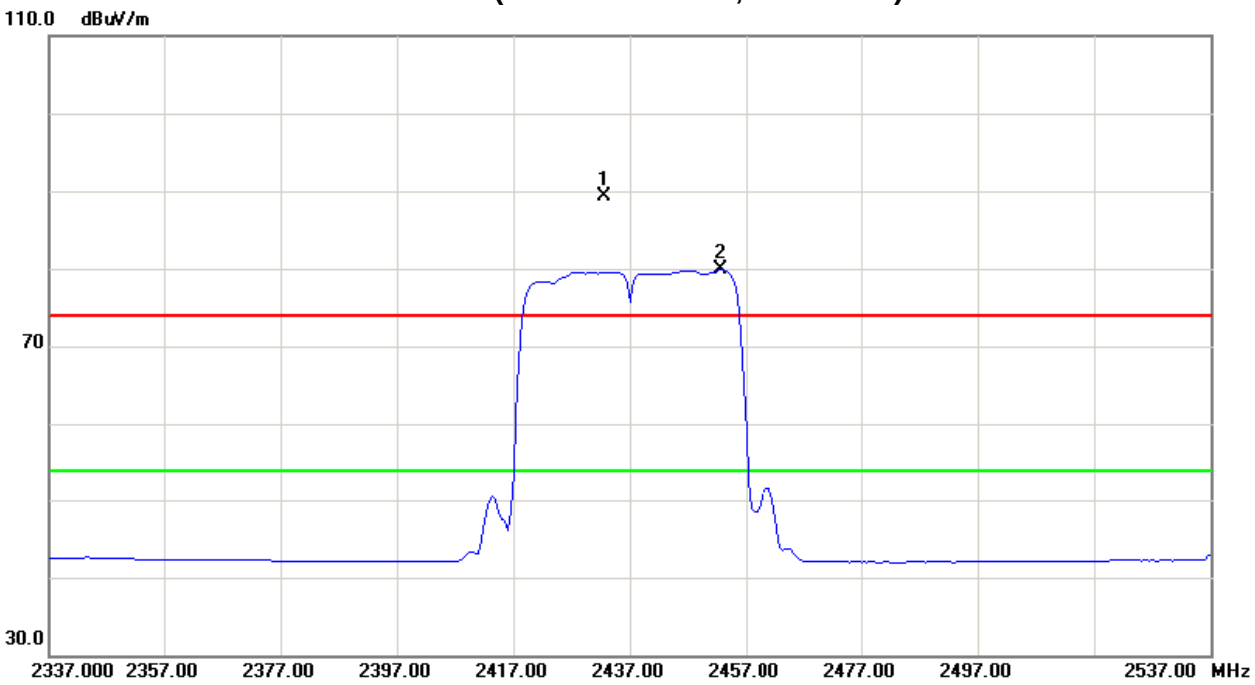
(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

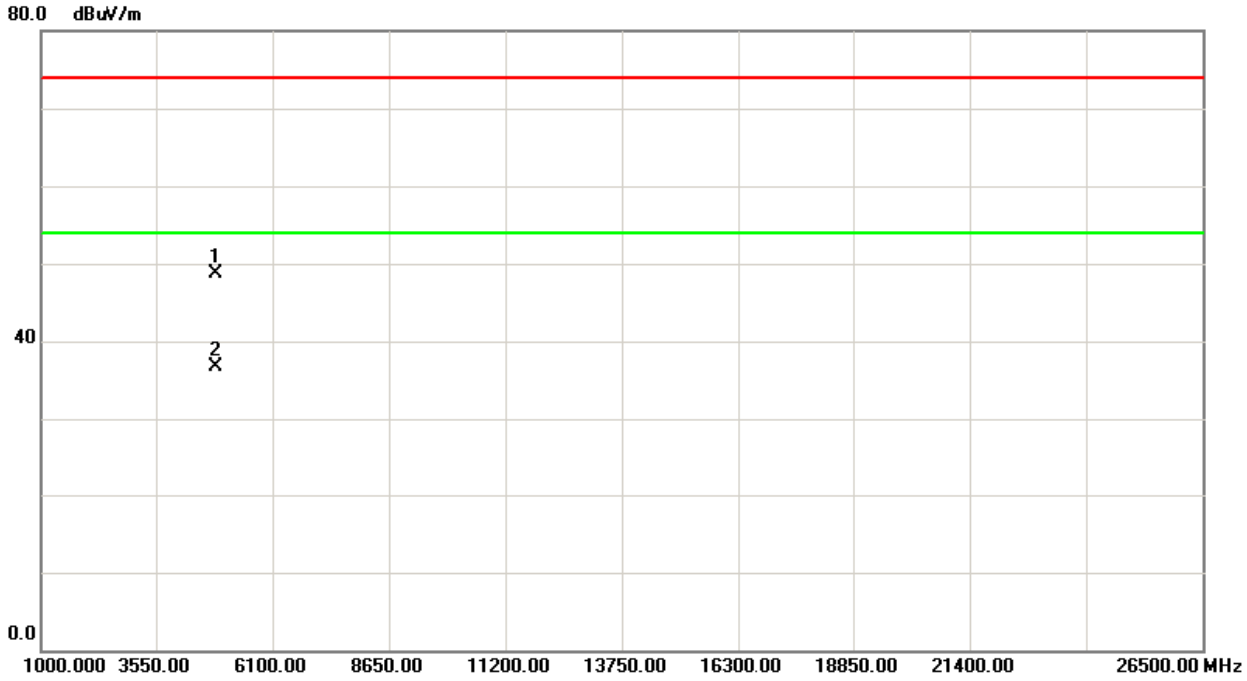
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(6) EUT Orthogonal Axis：
"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

(7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna

TX CH06 (Above 1000 MHz, Horizontal)





EUT：	Wireless xDSL Bonding Router	Model Name ：	F@ST 4320 US
Temperature：	25 ℃	Relative Humidity：	51 %
Pressure：	1010 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX N-40M MODE 2452MHz		

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		Note
		Peak	AV		Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2436.00	**V**	**66.80**	**57.06**	**31.86**	**98.66**	**88.92**			**X/F**
2483.50	V	20.11	11.18	31.80	51.91	42.98	74.00	54.00	X/E
4904.18	V	45.17	32.08	5.58	50.75	37.66	74.00	54.00	X/H

Remark：

(1) 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。

(2) 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.)

(3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission 。

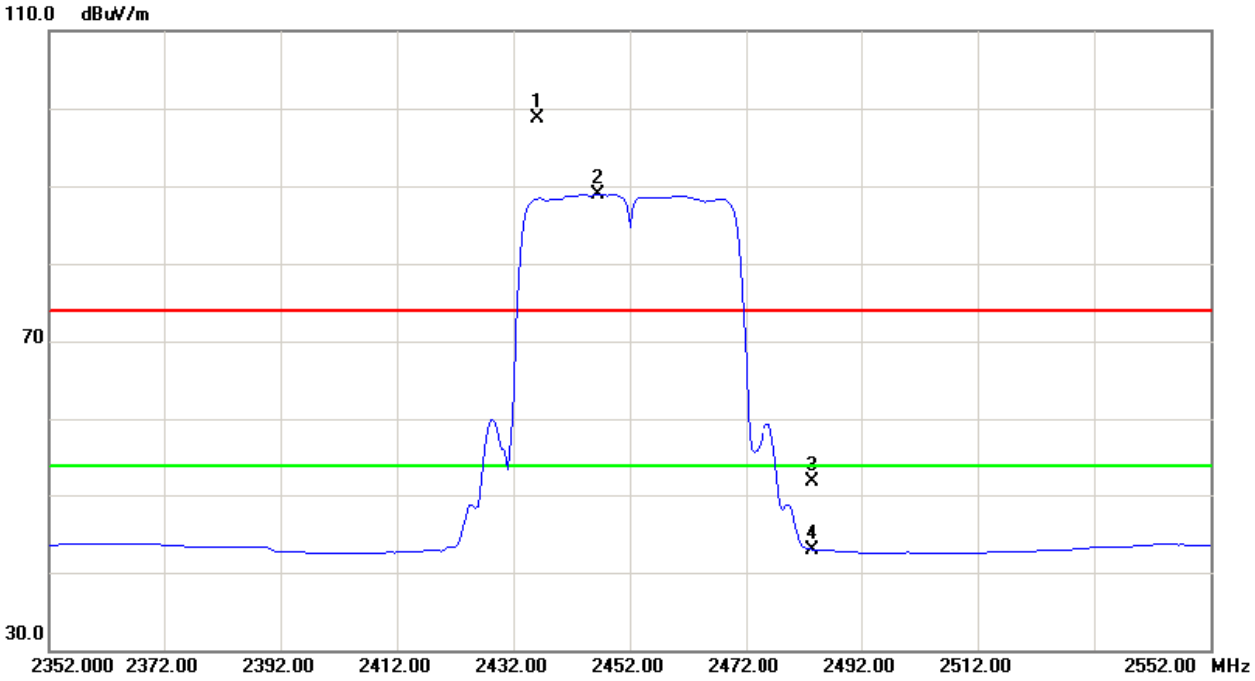
(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

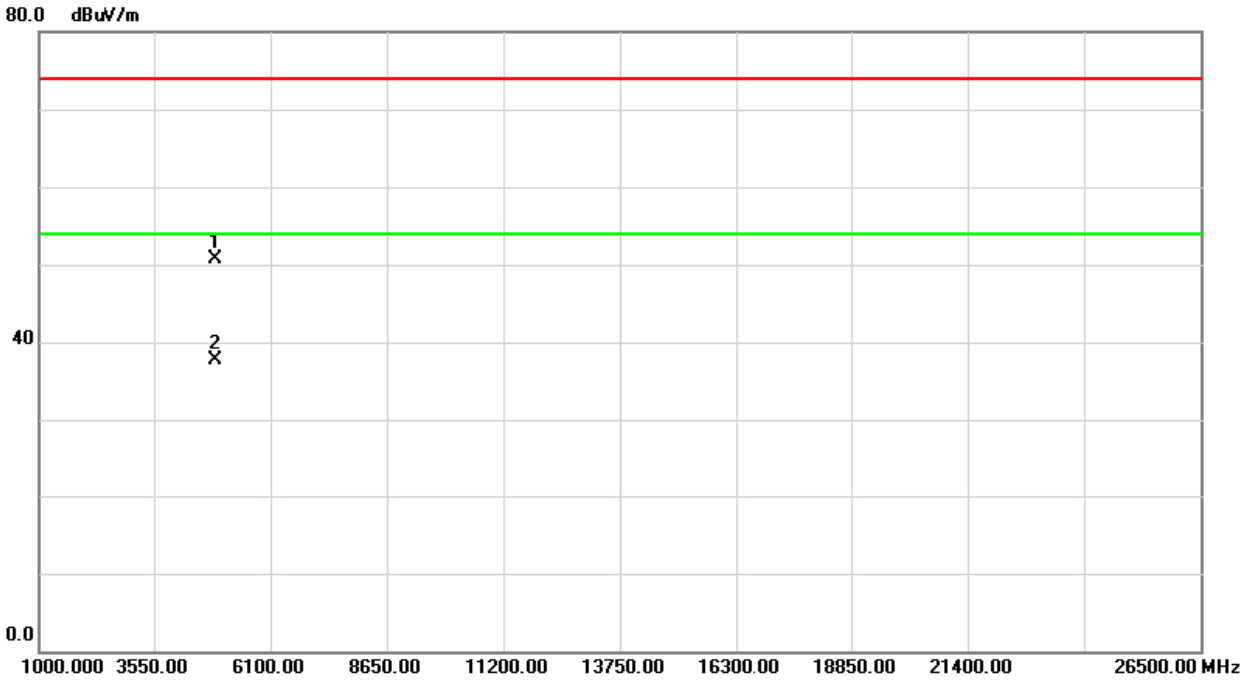
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(6) EUT Orthogonal Axis：
"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

(7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna

TX CH09 (Above 1000 MHz, Vertical)





EUT：	Wireless xDSL Bonding Router	Model Name ：	F@ST 4320 US
Temperature：	25 ℃	Relative Humidity：	51 %
Pressure：	1010 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX N-40M MODE 2452MHz		

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		Note
		Peak	AV		Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2449.00	**H**	**58.02**	**47.82**	**31.84**	**89.86**	**79.66**			**X/F**
2483.50	H	20.17	10.30	31.80	51.97	42.10	74.00	54.00	X/E
4903.84	H	43.08	33.12	5.58	48.66	38.70	74.00	54.00	X/H

Remark：

(1) 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。

(2) 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.)

(3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission 。

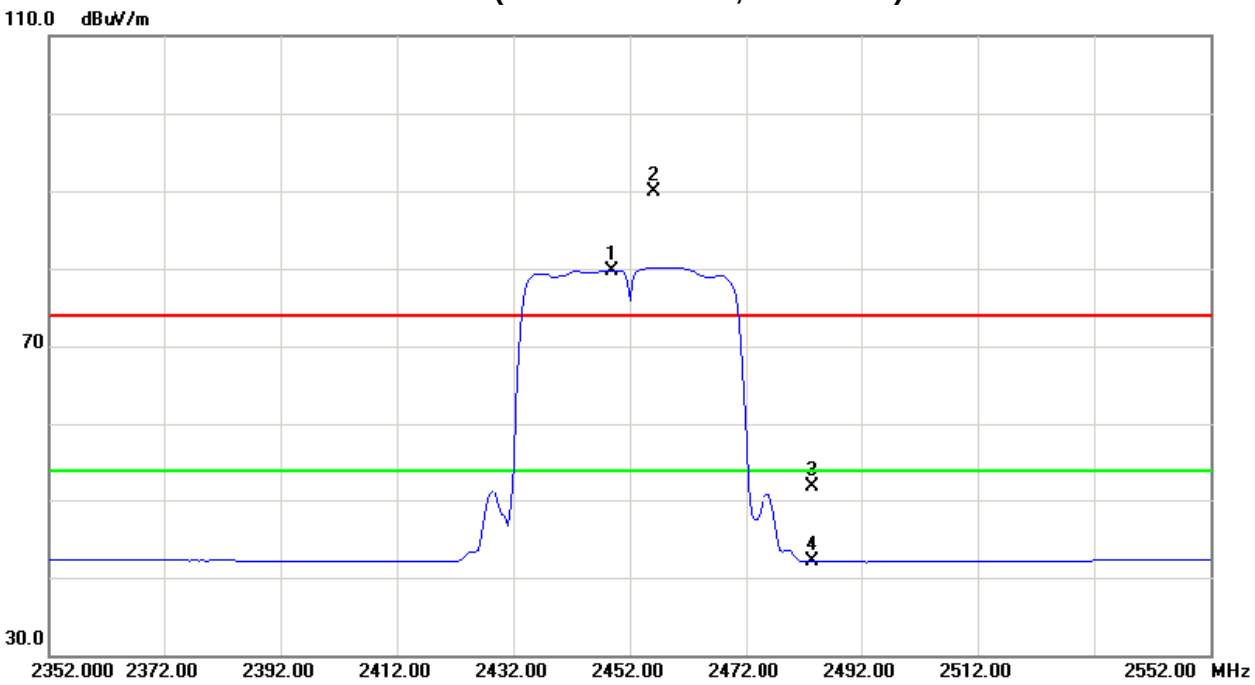
(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

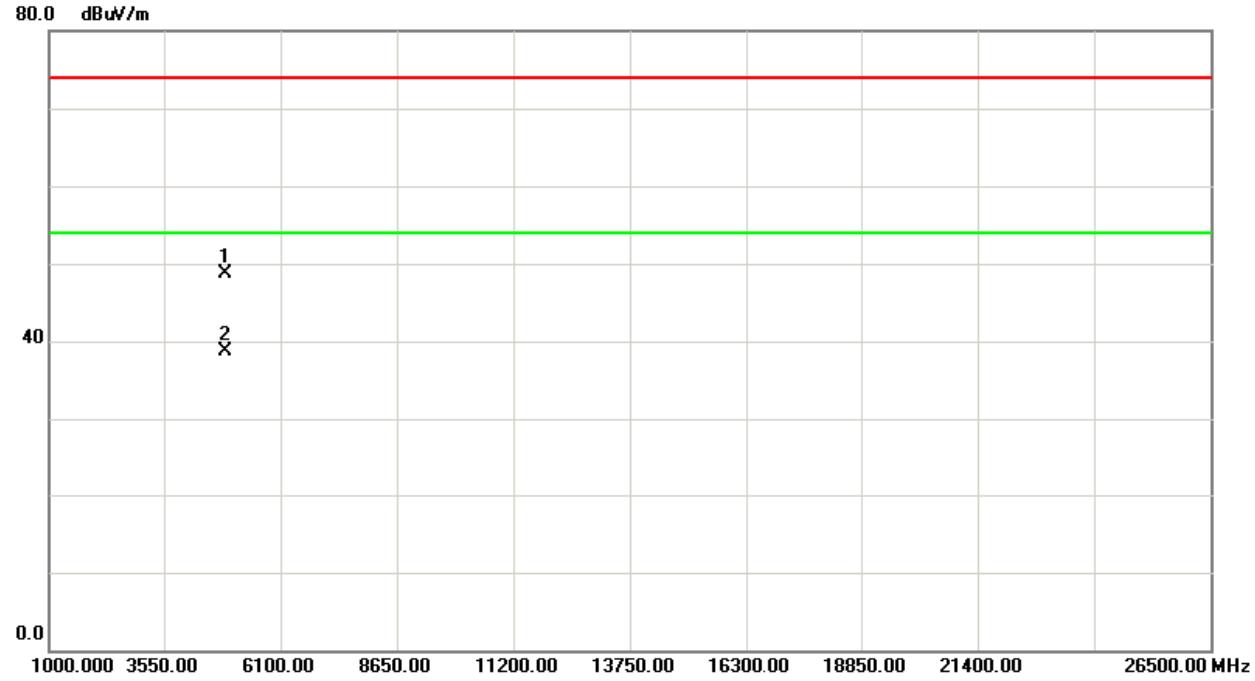
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(6) EUT Orthogonal Axis：
"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

(7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna

TX CH09 (Above 1000 MHz, Horizontal)





5. BANDWIDTH TEST

5.1 Applied procedures / limit

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(a)(2)	Bandwidth	>= 500KHz (6dB bandwidth)	2400-2483.5	PASS

5.1.1 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Next Calibration
1	Spectrum Analyzer	R&S	FSP_40	100185	Nov.25.2012	Nov.25.2013

Remark: “N/A” denotes no model name, serial no. or calibration specified.
All calibration period of Equipment List is One Year.

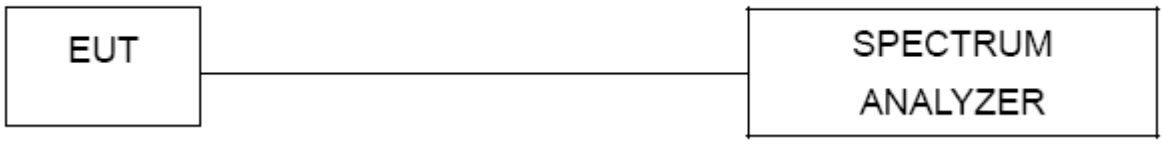
5.1.2 TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
b. Spectrum Setting : RBW= 300KHz, VBW=1MHz, Sweep time = 2.5 ms.

5.1.3 DEVIATION FROM STANDARD

No deviation.

5.1.4 TEST SETUP



5.1.5 EUT OPERATION CONDITIONS

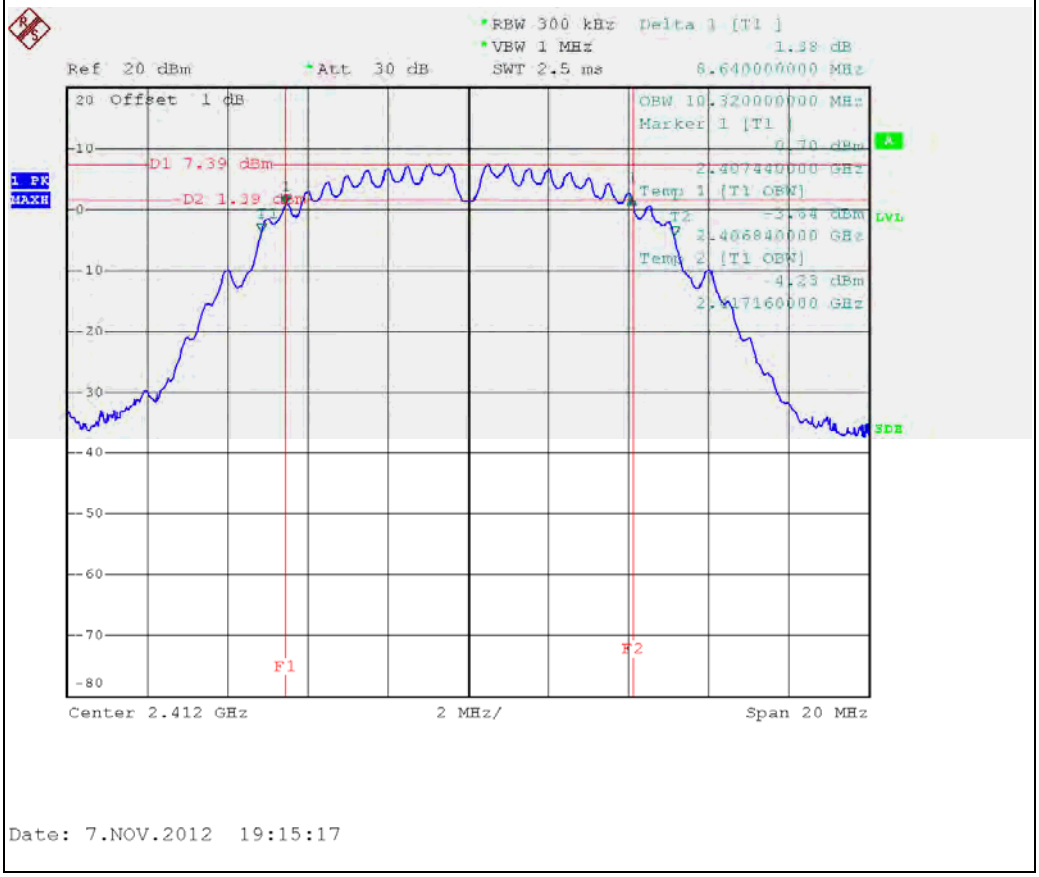
The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.

5.1.6 TEST RESULTS

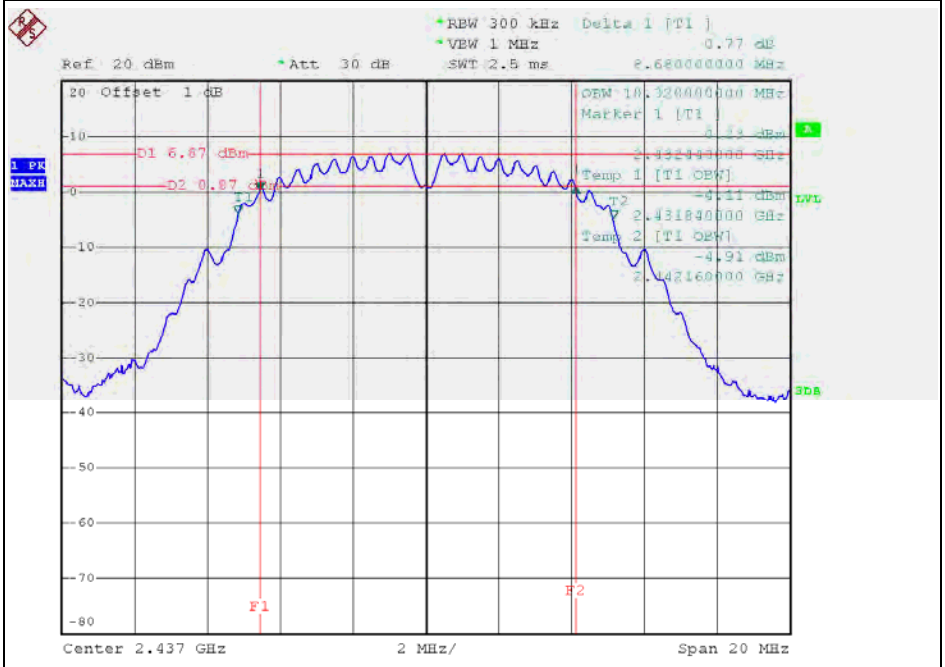
EUT：	Wireless xDSL Bonding Router	Model Name. ：	F@ST 4320 US
Temperature：	24 ℃	Relative Humidity：	60 %
Pressure：	1016 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX B MODE /CH01, CH06, CH11		

Test Channel	Frequency (MHz)	Bandwidth (MHz)	99% Occupied BW (MHz)	LIMIT (MHz)
CH01	2412	8.64	10.32	>=500KHz
CH06	2437	8.68	10.32	>=500KHz
CH11	2462	8.28	10.32	>=500KHz

TX CH 01

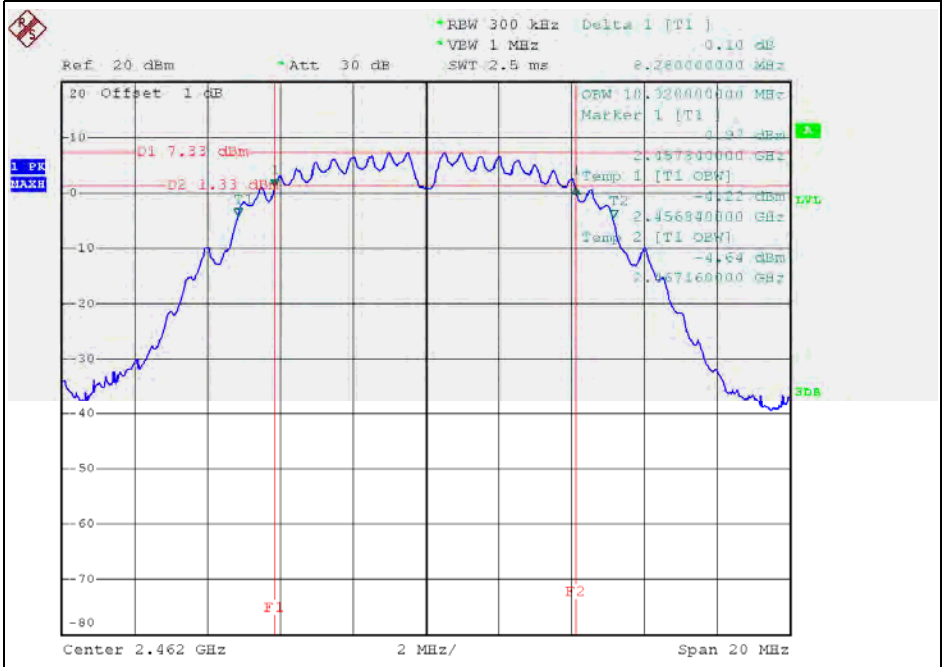


TX CH 06



Date: 7.NOV.2012 19:12:22

TX CH 11

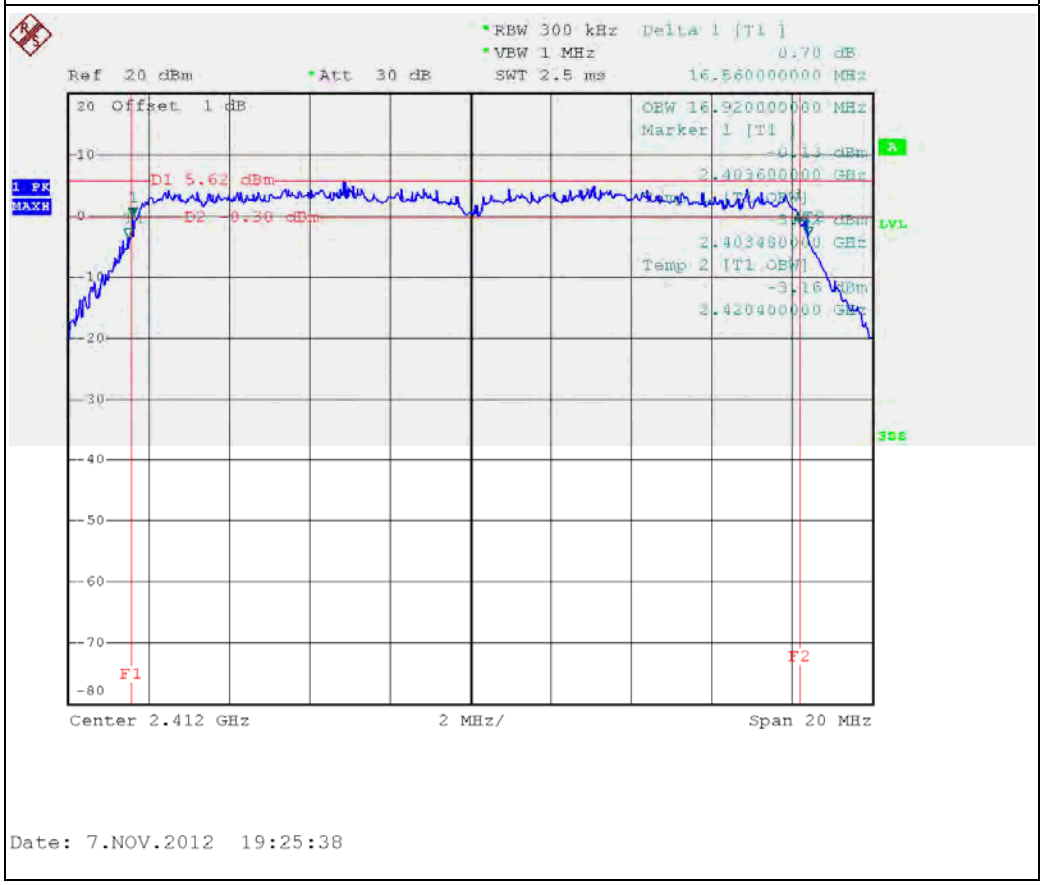


Date: 7.NOV.2012 19:07:16

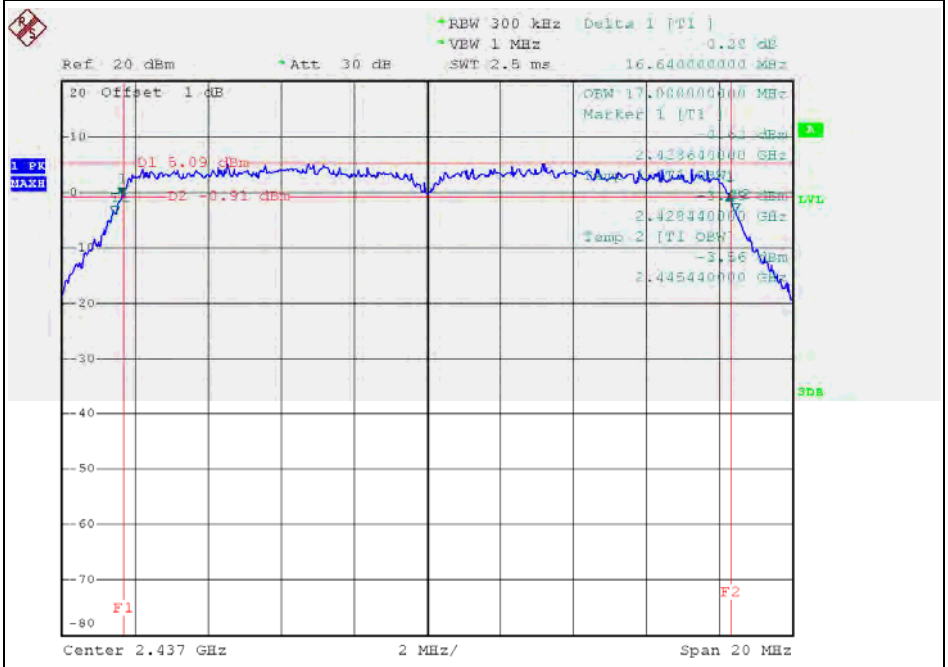
EUT：	Wireless xDSL Bonding Router	Model Name. ：	F@ST 4320 US
Temperature：	24 ℃	Relative Humidity：	60 %
Pressure：	1016 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX G MODE /CH01, CH06, CH11		

Test Channel	Frequency (MHz)	Bandwidth (MHz)	99% Occupied BW (MHz)	LIMIT (MHz)
CH01	2412	16.56	16.92	>=500KHz
CH06	2437	16.64	17.00	>=500KHz
CH11	2462	16.60	16.92	>=500KHz

TX CH 01

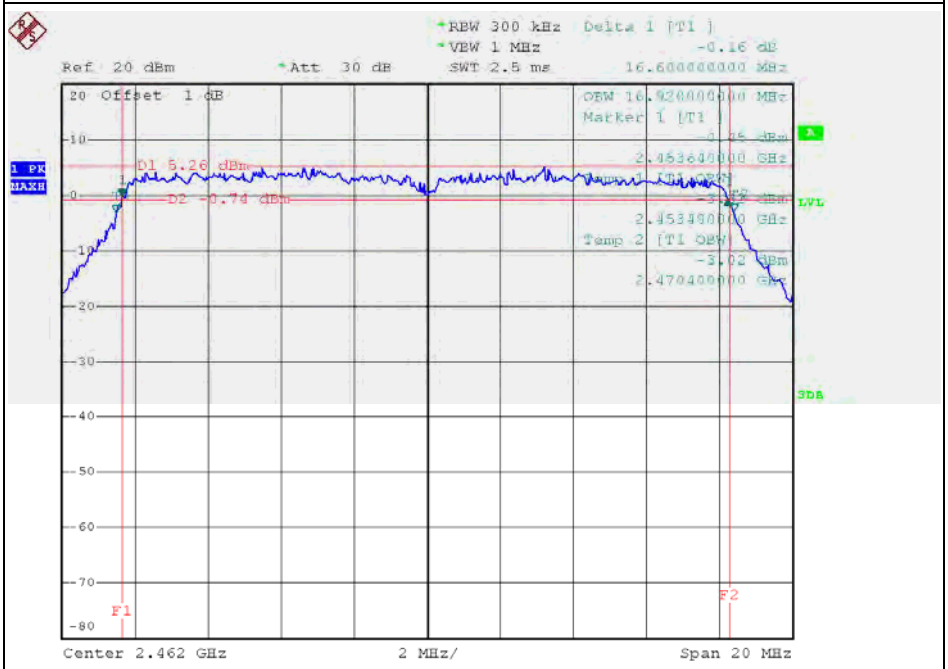


TX CH 06



Date: 7.NOV.2012 19:32:03

TX CH 11

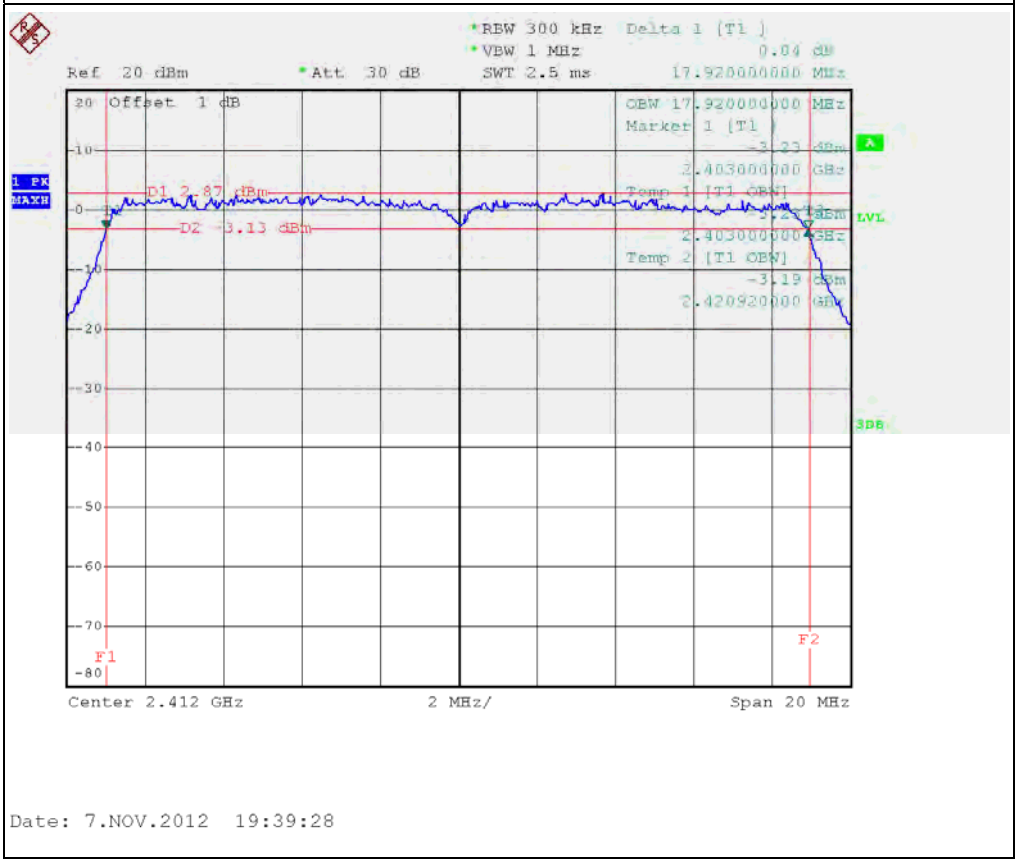


Date: 7.NOV.2012 19:35:14

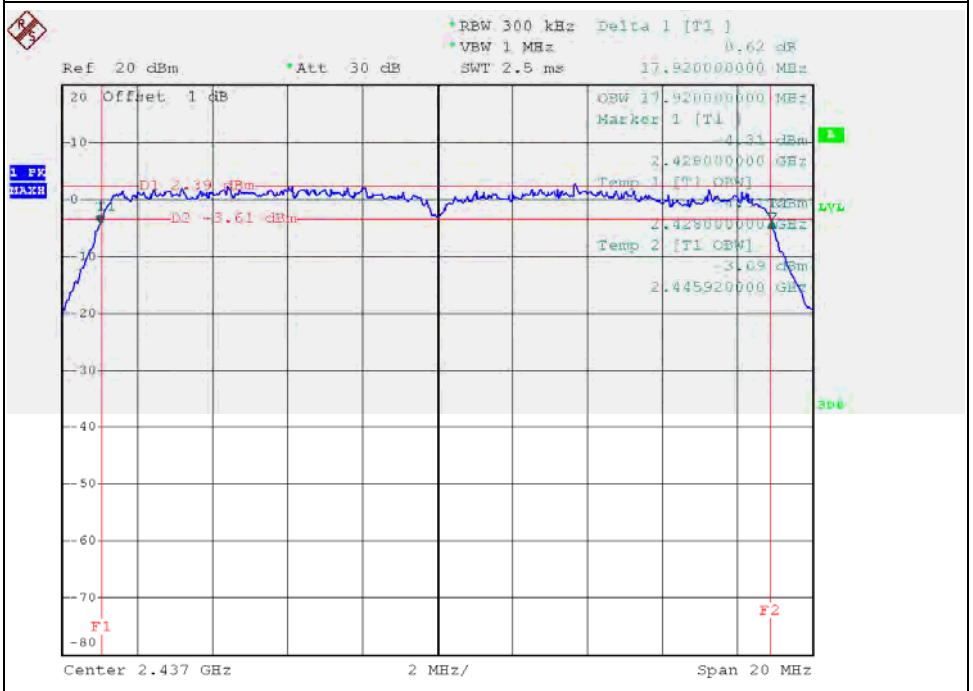
EUT：	Wireless xDSL Bonding Router	Model Name. ：	F@ST 4320 US
Temperature：	24 ℃	Relative Humidity：	60 %
Pressure：	1016 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX N MODE -20MHz/ CH01, CH06, CH11—ANT 1		

Test Channel	Frequency (MHz)	Bandwidth (MHz)	99% Occupied BW (MHz)	LIMIT (MHz)
CH01	2412	17.92	17.92	>=500KHz
CH06	2437	17.92	17.92	>=500KHz
CH11	2462	17.88	17.92	>=500KHz

TX CH 01

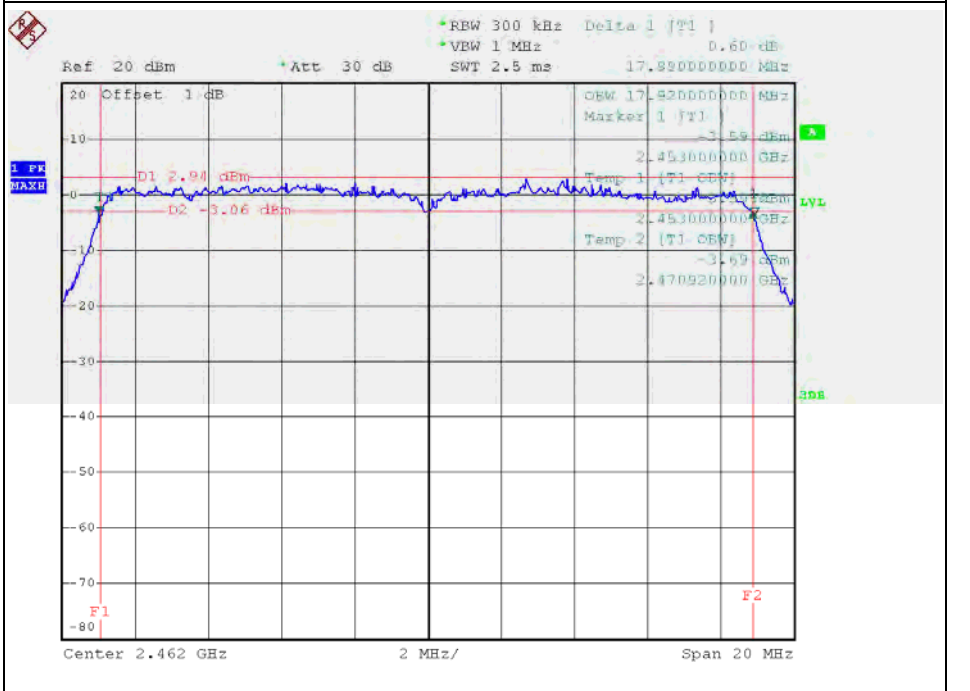


TX CH 06



Date: 7.NOV.2012 19:43:58

TX CH 11

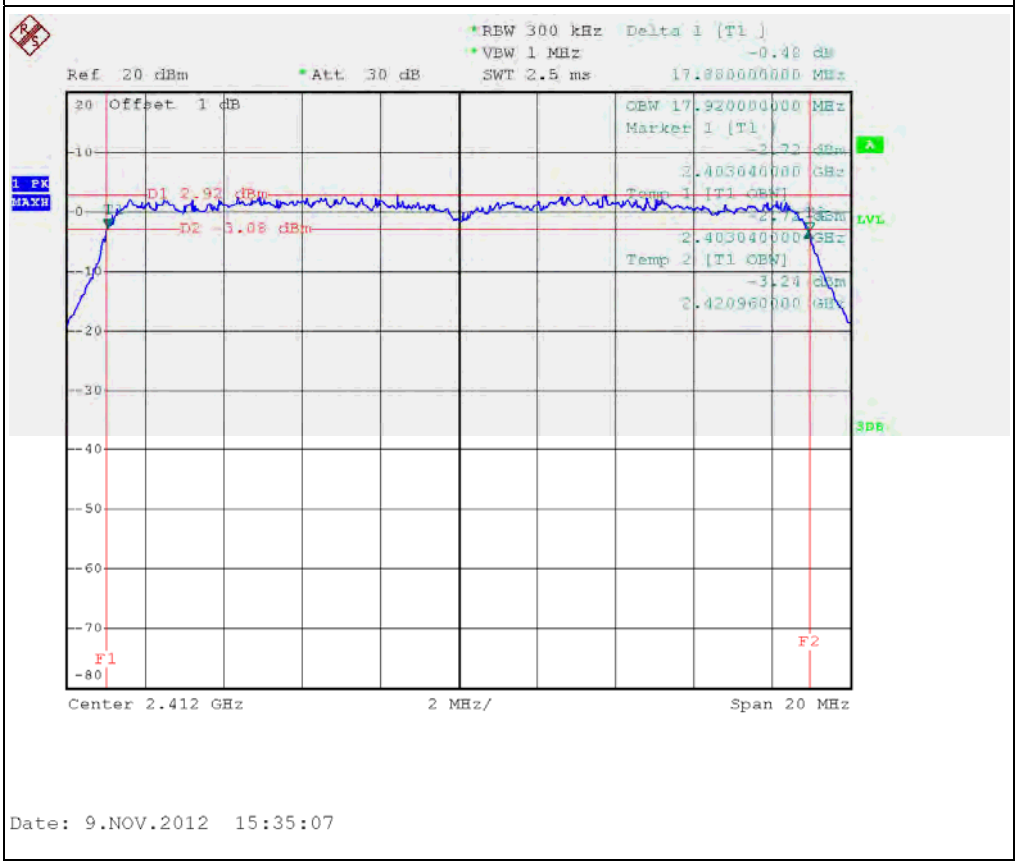


Date: 7.NOV.2012 19:50:09

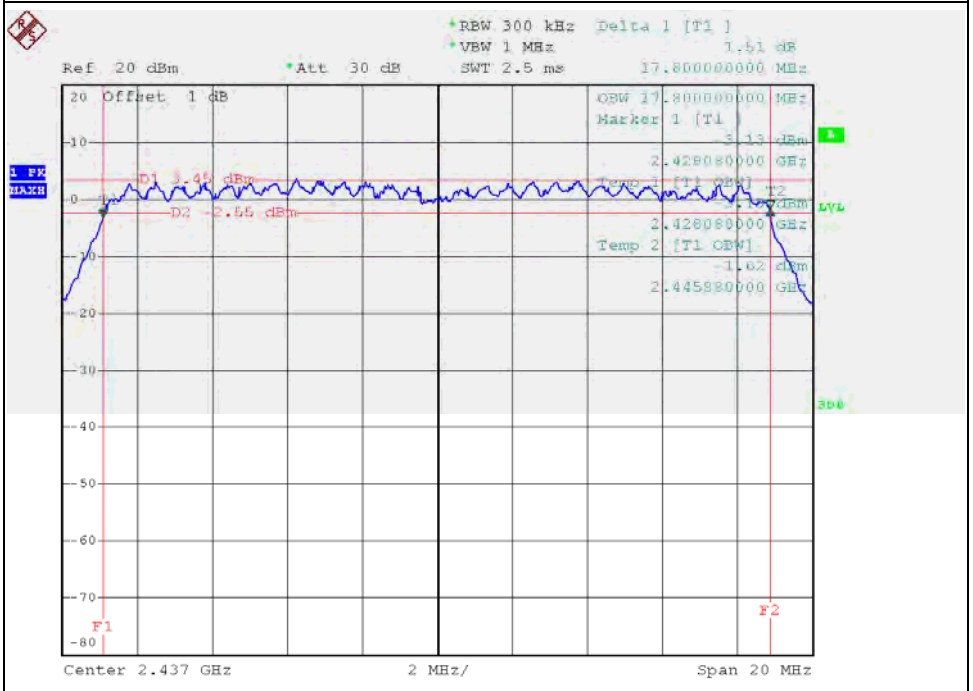
EUT：	Wireless xDSL Bonding Router	Model Name. ：	F@ST 4320 US
Temperature：	24 ℃	Relative Humidity：	60 %
Pressure：	1016 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX N MODE -20MHz/ CH01, CH06, CH11—ANT 2		

Test Channel	Frequency (MHz)	Bandwidth (MHz)	99% Occupied BW (MHz)	LIMIT (MHz)
CH01	2412	17.88	17.92	>=500KHz
CH06	2437	17.80	17.80	>=500KHz
CH11	2462	17.72	17.84	>=500KHz

TX CH 01

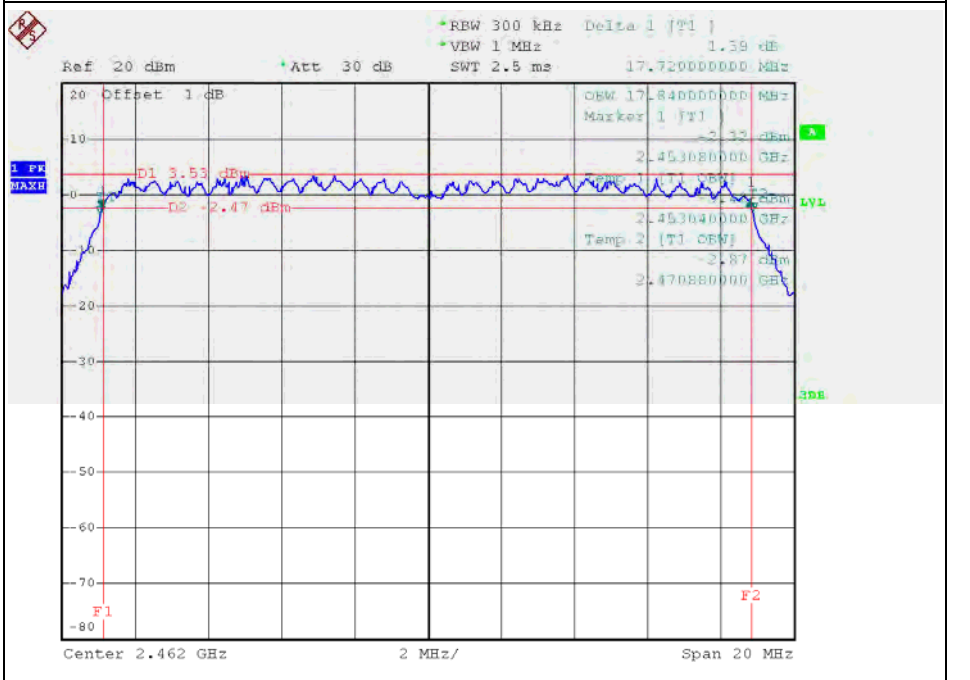


TX CH 06



Date: 9.NOV.2012 15:37:15

TX CH 11

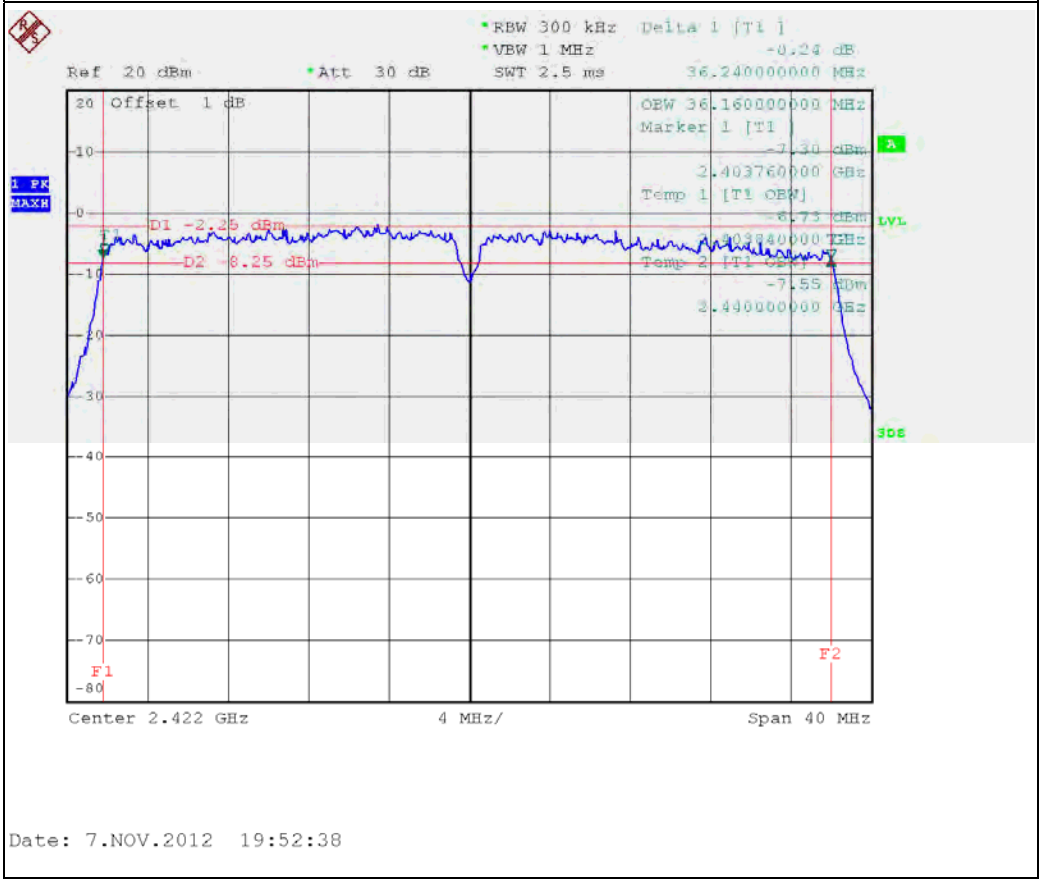


Date: 9.NOV.2012 15:43:22

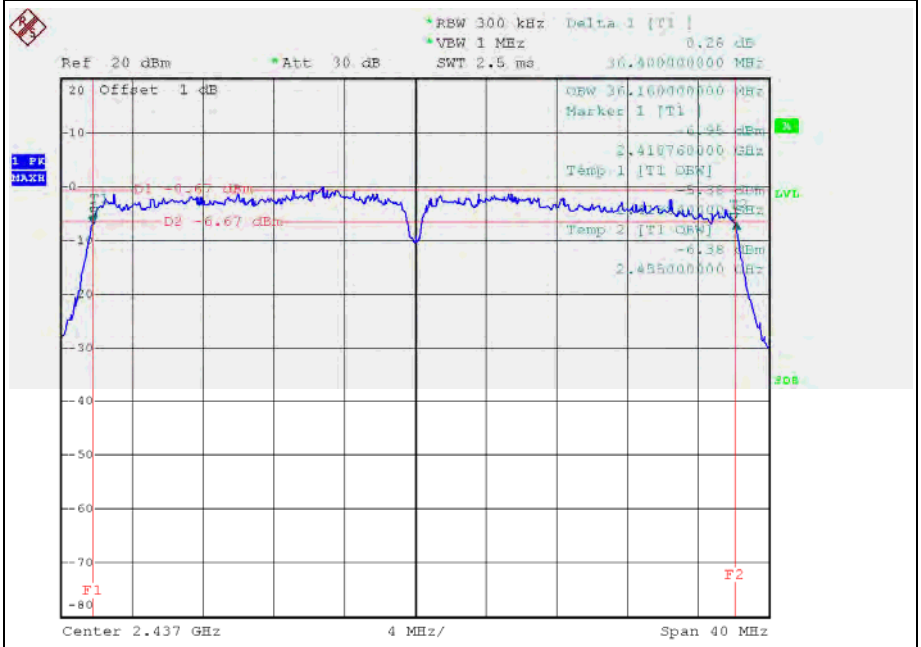
EUT：	Wireless xDSL Bonding Router	Model Name. ：	F@ST 4320 US
Temperature：	24 ℃	Relative Humidity：	60 %
Pressure：	1016 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX N MODE -40MHz/ CH03, CH06, CH09 —ANT 1		

Test Channel	Frequency (MHz)	Bandwidth (MHz)	99% Occupied BW (MHz)	LIMIT (MHz)
CH01	2412	36.24	36.16	>=500KHz
CH06	2437	36.40	36.16	>=500KHz
CH11	2462	36.40	36.16	>=500KHz

TX CH 03

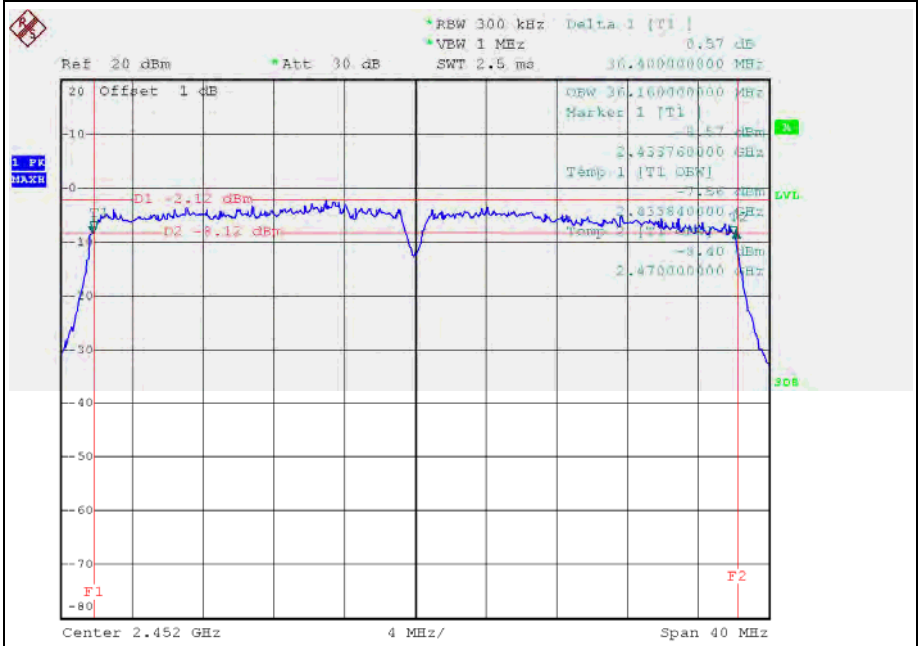


TX CH 06



Date: 7.NOV.2012 19:57:47

TX CH 09

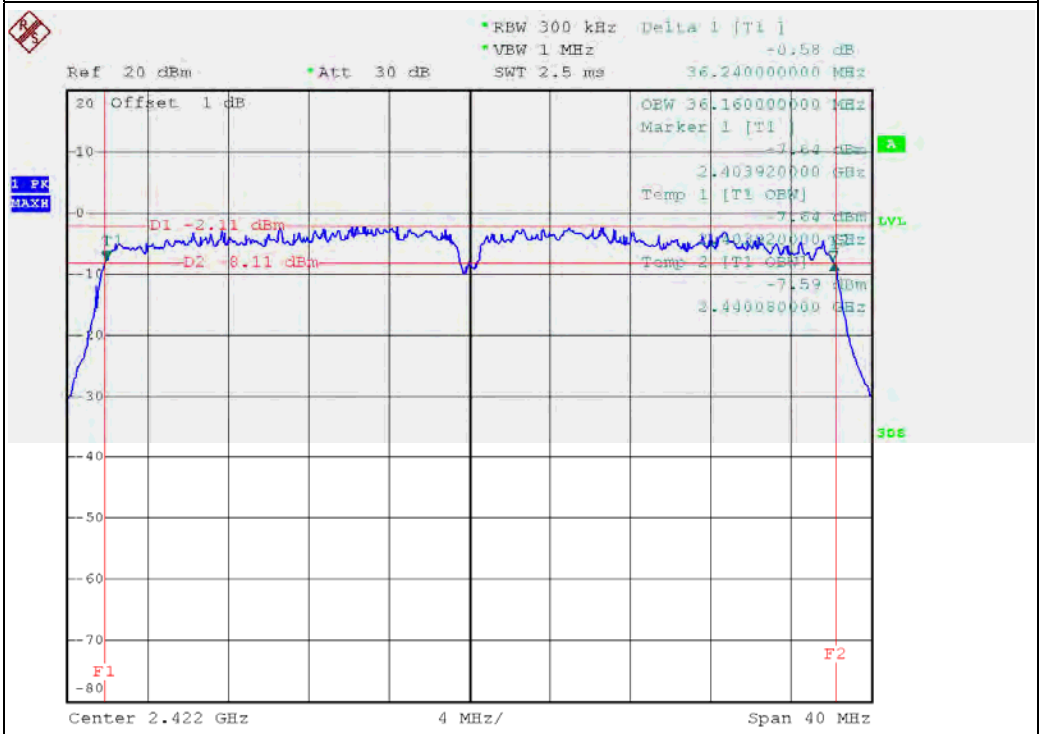


Date: 7.NOV.2012 20:00:48

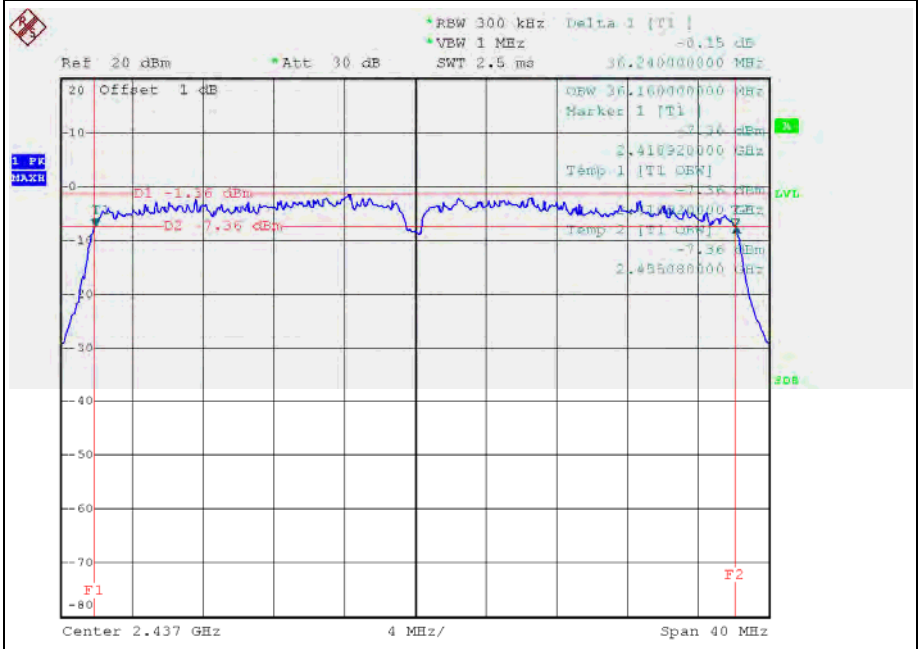
EUT：	Wireless xDSL Bonding Router	Model Name. ：	F@ST 4320 US
Temperature：	24 ℃	Relative Humidity：	60 %
Pressure：	1016 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX N MODE -40MHz/ CH03, CH06, CH09 —ANT 2		

Test Channel	Frequency (MHz)	Bandwidth (MHz)	99% Occupied BW (MHz)	LIMIT (MHz)
CH01	2412	36.24	36.16	>=500KHz
CH06	2437	36.24	36.16	>=500KHz
CH11	2462	36.08	36.16	>=500KHz

TX CH 03

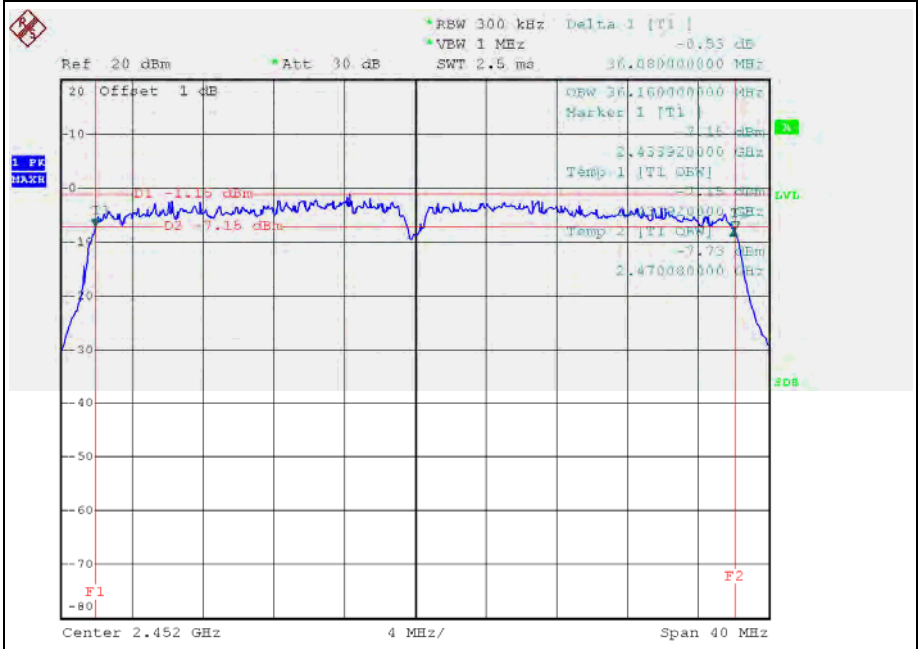


TX CH 06



Date: 9.NOV.2012 15:50:31

TX CH 09



Date: 9.NOV.2012 15:55:55

6. MAXIMUM OUTPUT POWER TEST

6.1 Applied procedures / limit

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(b)(3)	Maximum Output Power	1 watt or 30dBm	2400-2483.5	PASS

6.1.1 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Next Calibration
1	Spectrum Analyzer	R&S	FSP_40	100129	Nov.25.2012	Nov.25.2013

Remark: “N/A” denotes no model name, serial no. or calibration specified.
All calibration period of Equipment List is One Year.

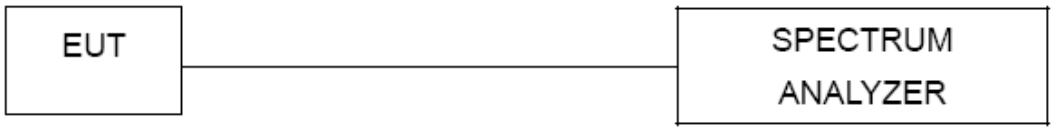
6.1.2 TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
b. Spectrum Setting : RBW= 1MHz, VBW=3MHz, Sample detector,Sweep time = Auto.

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.
Transmit output power was measured while the host equipment supply voltage was varied from 85 % to 115 % of the nominal rated supply voltage. No change in transmit output power was observed.

6.1.6 TEST RESULTS

EUT：	Wireless xDSL Bonding Router	Model Name ：	F@ST 4320 US
Temperature：	24 ℃	Relative Humidity：	60 %
Pressure：	1016 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX B MODE /CH01, CH06, CH11		

Maximum Output Power

Test Channel	Frequency (MHz)	Output Power (dBm)	LIMIT (dBm)	LIMIT (W)
CH01	2412 MHz	18.34	30	1
CH06	2437 MHz	17.75	30	1
CH11	2462 MHz	17.56	30	1

EUT：	Wireless xDSL Bonding Router	Model Name ：	F@ST 4320 US
Temperature：	24 ℃	Relative Humidity：	60 %
Pressure：	1016 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX G MODE /CH01, CH06, CH11		

Maximum Output Power

Test Channel	Frequency (MHz)	Output Power (dBm)	LIMIT (dBm)	LIMIT (W)
CH01	2412 MHz	20.76	30	1
CH06	2437 MHz	20.39	30	1
CH11	2462 MHz	20.96	30	1

EUT：	Wireless xDSL Bonding Router	Model Name ：	F@ST 4320 US
Temperature：	24 ℃	Relative Humidity：	60 %
Pressure：	1016 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX N-20M MODE /CH01, CH06, CH11		

Maximum Output Power

ANT 1				
Test Channel	Frequency (MHz)	Output Power (dBm)	LIMIT (dBm)	LIMIT (W)
CH01	2412 MHz	18.02	30	1
CH06	2437 MHz	17.92	30	1
CH11	2462 MHz	17.40	30	1

ANT 2				
Test Channel	Frequency (MHz)	Output Power (dBm)	LIMIT (dBm)	LIMIT (W)
CH01	2412 MHz	17.58	30	1
CH06	2437 MHz	18.20	30	1
CH11	2462 MHz	18.23	30	1

ANT 1+ANT 2				
Test Channel	Frequency (MHz)	Output Power (dBm)	LIMIT (dBm)	LIMIT (W)
CH03	2422 MHz	20.82	30	1
CH06	2437 MHz	21.07	30	1
CH09	2452 MHz	20.85	30	1

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:
((dBm/Chain 1)/10^Log) + ((dBm/Chain 2)/10^log) + ((dBm/ChainN)/10^log) = Combined peak output power in mW.

(2) **Antenna Gain=5 dBi.**

(3) This EUT supports MIMO 2T2R, All transmit signals are completely uncorrelated, then $\text{Directional gain} = 10\log[(10^{G1/10} + 10^{G2/10} + \ldots + 10^{GN/10})/N]\ \text{dBi}$, that is Directional gain=5;

EUT：	Wireless xDSL Bonding Router	Model Name ：	F@ST 4320 US
Temperature：	24 ℃	Relative Humidity：	60 %
Pressure：	1016 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX N-40M MODE /CH03, CH06, CH09--ANT 1		

Maximum Output Power

ANT 1				
Test Channel	Frequency (MHz)	Output Power (dBm)	LIMIT (dBm)	LIMIT (W)
CH03	2422 MHz	15.37	30	1
CH06	2437 MHz	15.20	30	1
CH09	2452 MHz	15.03	30	1

15.86

ANT 2				
Test Channel	Frequency (MHz)	Output Power (dBm)	LIMIT (dBm)	LIMIT (W)
CH03	2422 MHz	15.86	30	1
CH06	2437 MHz	15.62	30	1
CH09	2452 MHz	15.56	30	1

ANT 1+ANT 2				
Test Channel	Frequency (MHz)	Output Power (dBm)	LIMIT (dBm)	LIMIT (W)
CH03	2422 MHz	18.63	30	1
CH06	2437 MHz	18.43	30	1
CH09	2452 MHz	18.31	30	1

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:
((dBm/Chain 1)/10^Log) + ((dBm/Chain 2)/10^log) + ((dBm/ChainN)/10^log) = Combined peak output power in mW.

(2) **Antenna Gain=5 dBi.**

(3) This EUT supports MIMO 2T2R, All transmit signals are completely uncorrelated, then $\text{Directional gain} = 10\log[(10^{G1/10} + 10^{G2/10} + \ldots + 10^{GN/10})/N]\ \text{dBi}$, that is Directional gain=5;

7. ANTENNA CONDUCTED SPURIOUS EMISSION

7.1 Applied procedures / limit

30dBc 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 (micorvolts/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
960~1000	500	3

7.1.1 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Next Calibration
1	Spectrum Analyzer	R&S	FSP_40	100185	Nov.25.2012	Nov.25.2013

Remark: “N/A” denotes no model name, serial no. or calibration specified.
All calibration period of Equipment List is One Year.

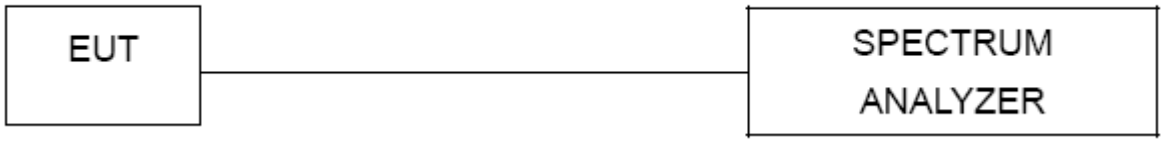
7.1.2 TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
b. Spectrum Setting : RBW= 100KHz, VBW=300KHz, Sweep time = 10 ms.

7.1.3 DEVIATION FROM STANDARD

No deviation.

7.1.4 TEST SETUP



7.1.5 EUT OPERATION CONDITIONS

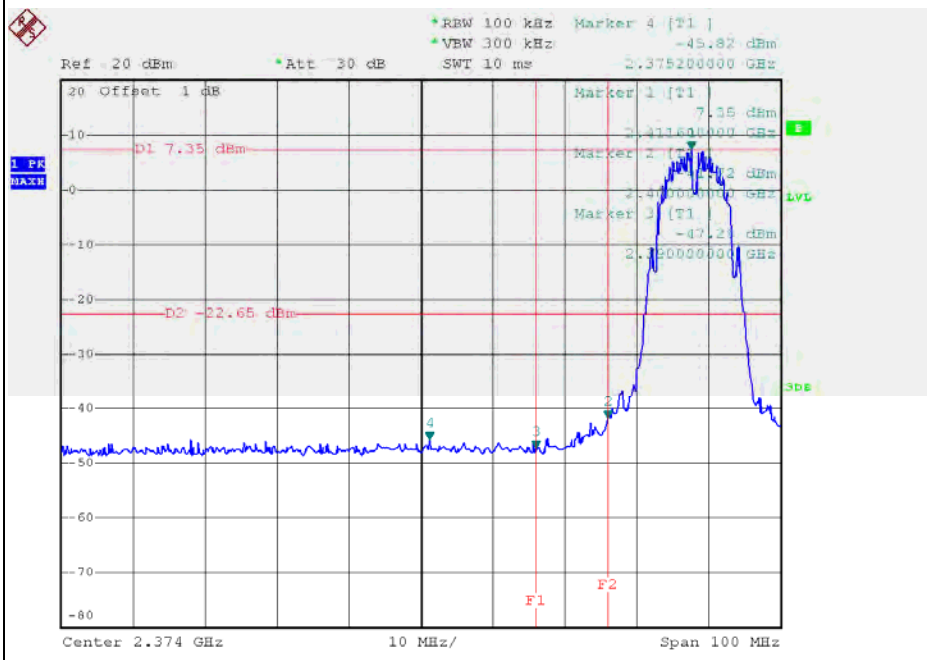
The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.

7.1.6 TEST RESULTS

EUT：	Wireless xDSL Bonding Router	Model Name ：	F@ST 4320 US
Temperature：	24 ℃	Relative Humidity：	60 %
Pressure：	1016 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX B MODE /CH01, CH06 , CH11		

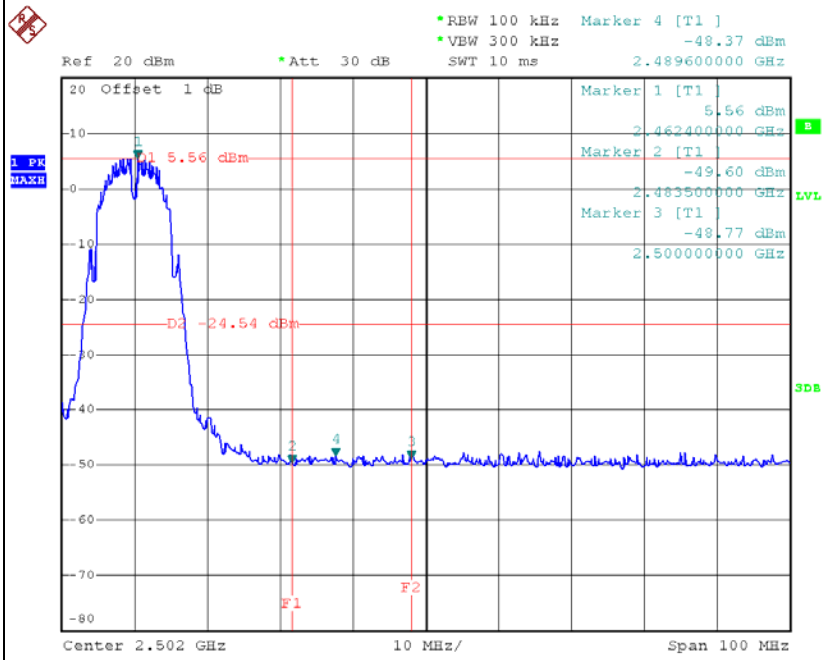
Channel of Worst Data: CH01			
The max. radio frequency power in any 100kHz bandwidth outside the frequency band		The max. radio frequency power in any 100 kHz bandwidth outside the frequency band.	
FREQUENCY(MHz)	POWER(dBm)	FREQUENCY(MHz)	POWER(dBm)
2410.00	-41.72	2489.60	-48.37
Result			
In any 100kHz 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 lever of the desired power.			

TX B mode CH01



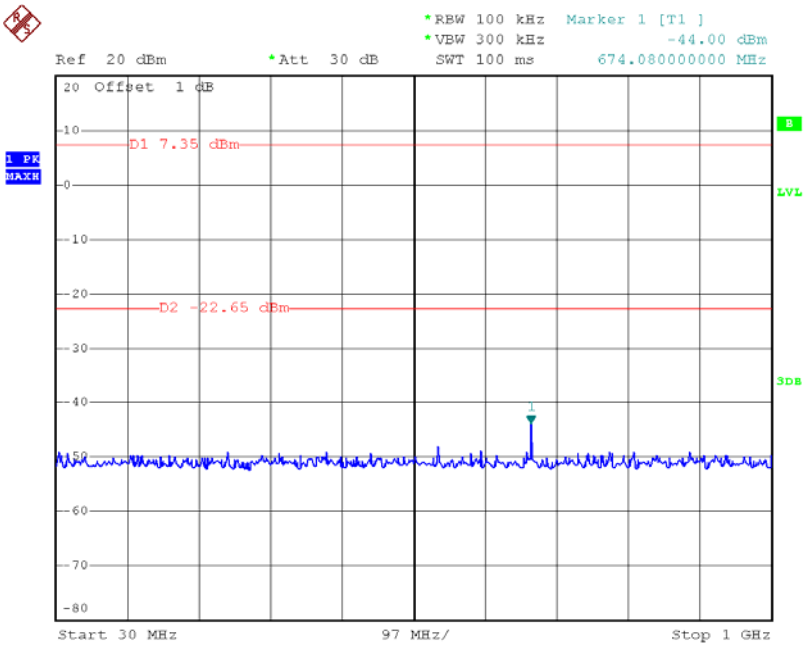
Date: 7.NOV.2012 19:04:06

TX B mode CH11



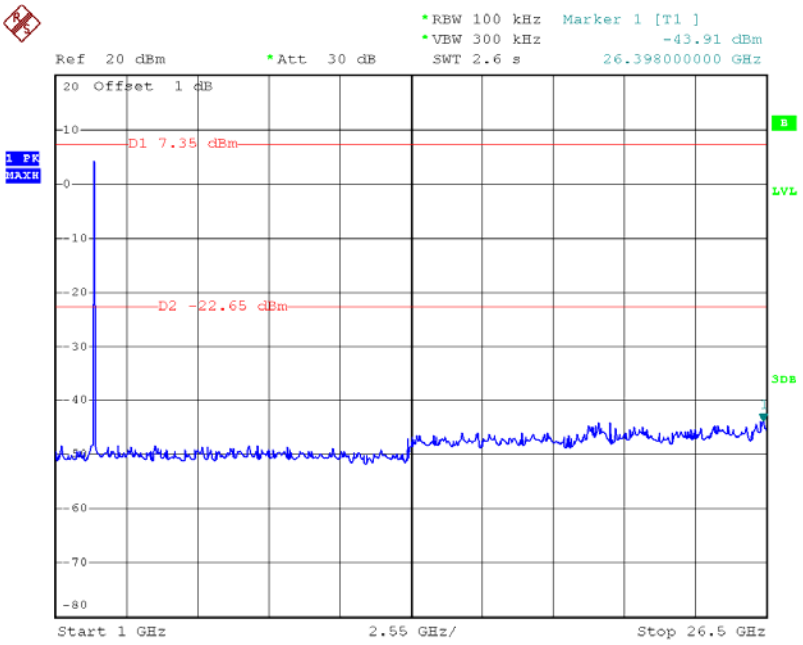
Date: 7.NOV.2012 19:10:29

TX B mode CH01 (30M~1000MHz)



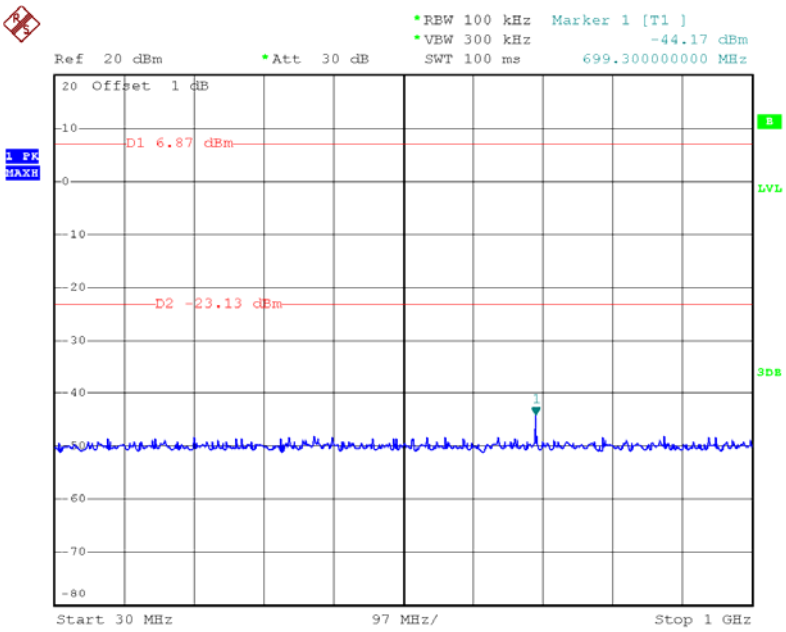
Date: 7.NOV.2012 19:04:19

TX B mode CH01 (1000MHz~10th Harmonic)



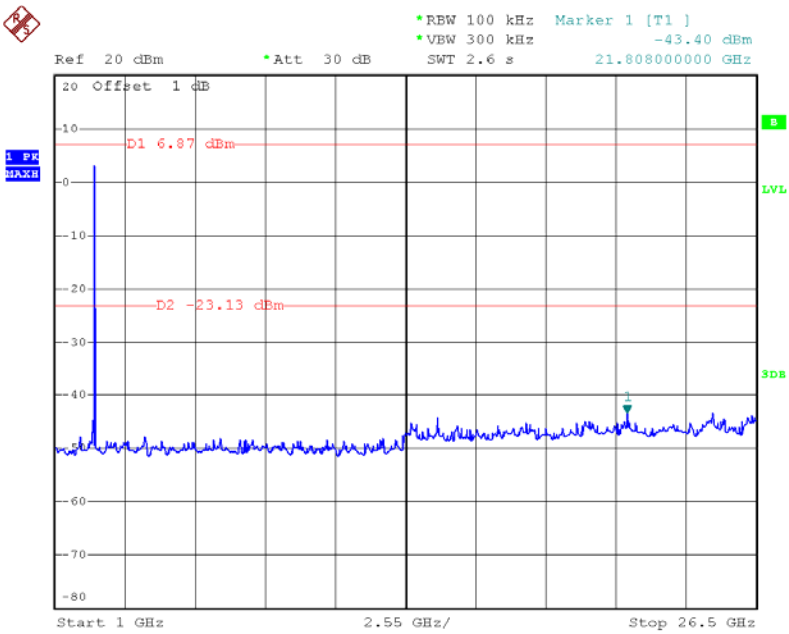
Date: 7.NOV.2012 19:04:31

TX B mode CH06 (30M~1000MHz)



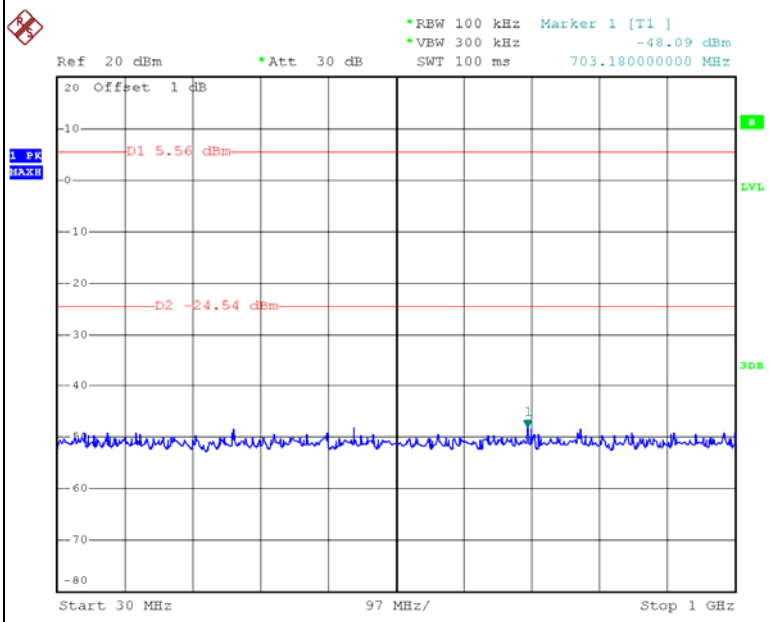
Date: 7.NOV.2012 18:59:58

TX B mode CH06 (1000MHz~10th Harmonic)



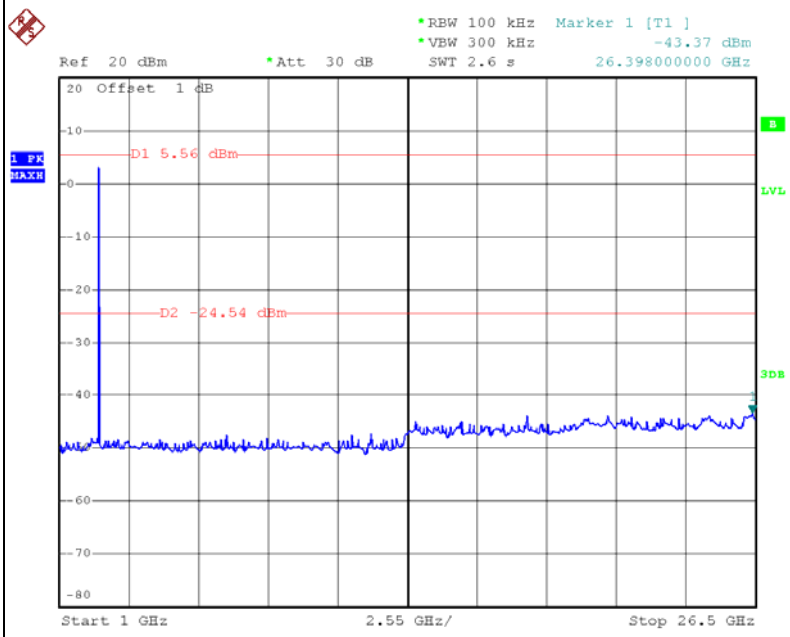
Date: 7.NOV.2012 19:00:13

TX B mode CH11 (30M~1000MHz)



Date: 7.NOV.2012 19:10:42

TX B mode CH11 (1000MHz~10th Harmonic)

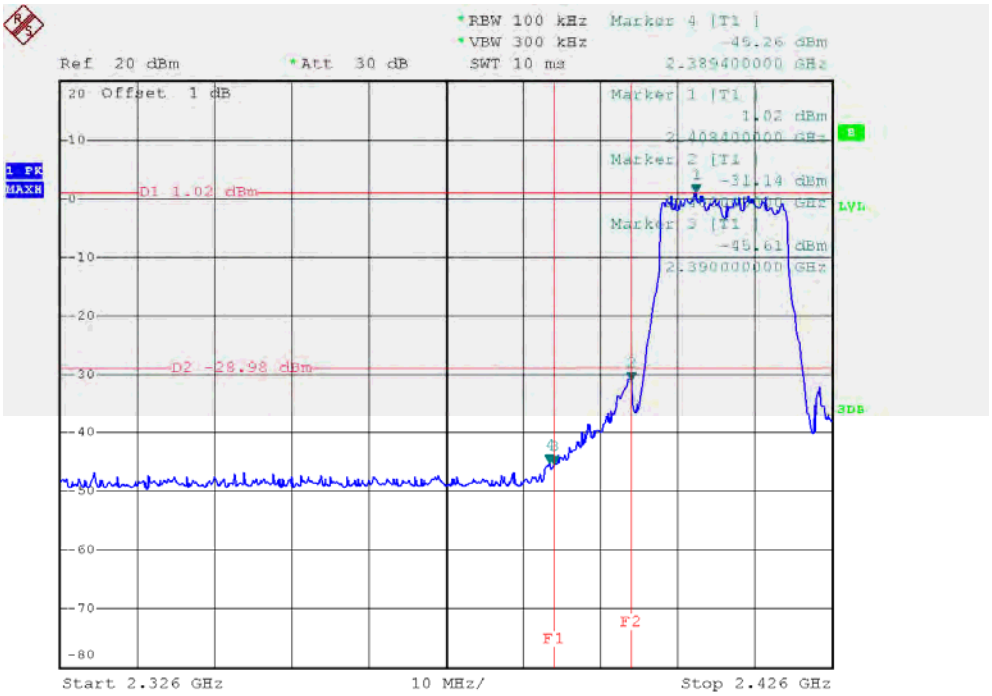


Date: 7.NOV.2012 19:11:05

EUT：	Wireless xDSL Bonding Router	Model Name ：	F@ST 4320 US
Temperature：	24 ℃	Relative Humidity：	60 %
Pressure：	1016 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX G MODE / CH01, CH06 , CH11		

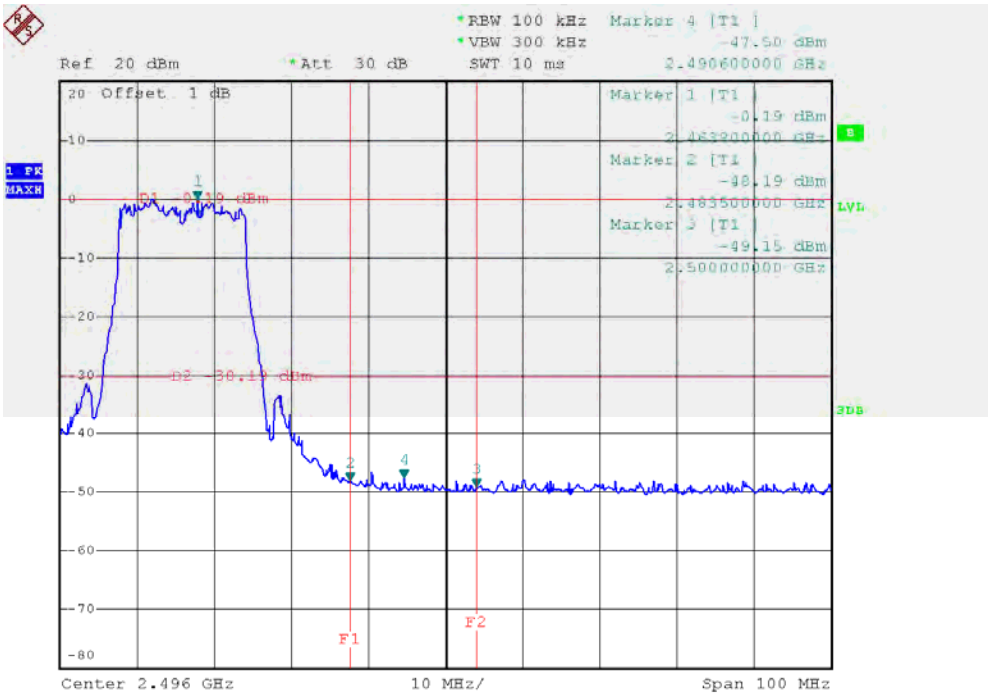
Channel of Worst Data: CH01			
The max. radio frequency power in any 100kHz bandwidth within the frequency band		The max. radio frequency power in any 100 kHz bandwidth outside the frequency band.	
FREQUENCY(MHz)	POWER(dBm)	FREQUENCY(MHz)	POWER(dBm)
2400.00	-31.14	2490.60	-47.50
Result			
In any 100kHz 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 lever of the desired power.			

TX G mode CH01



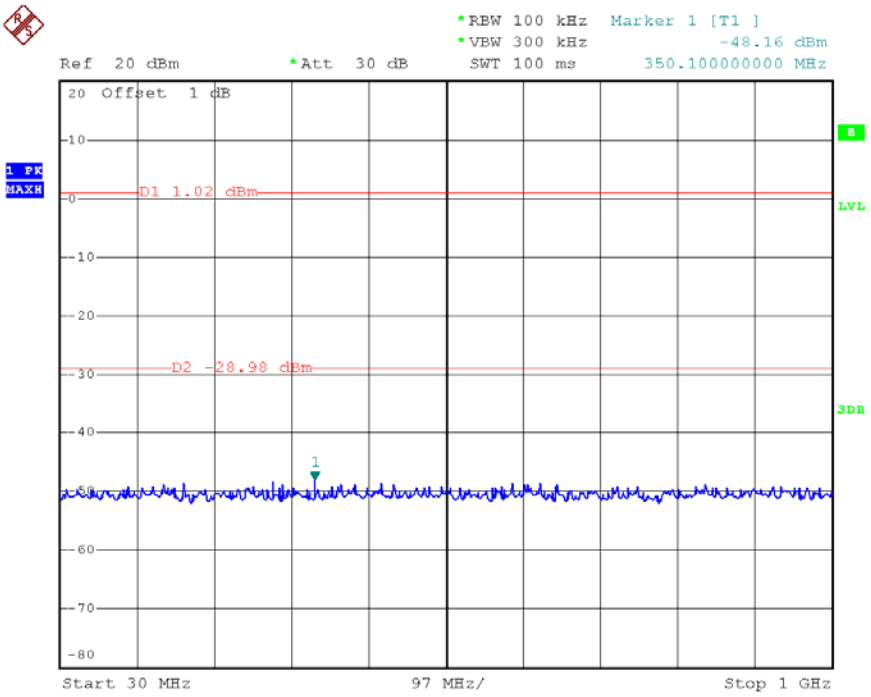
Date: 7.NOV.2012 19:30:01

TX G mode CH11



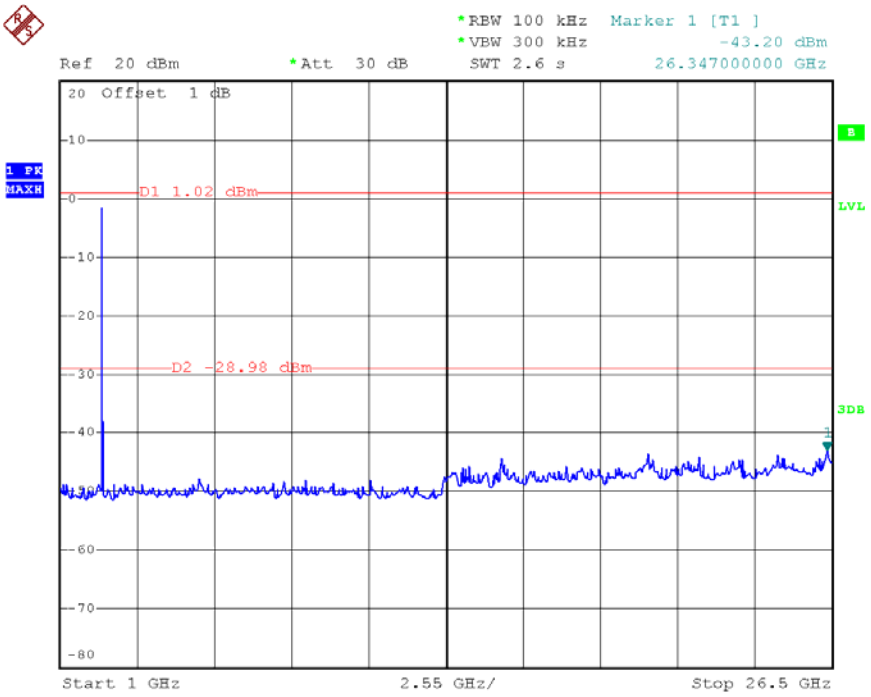
Date: 7.NOV.2012 19:36:38

TX G mode CH01 (30M~1000MHz)



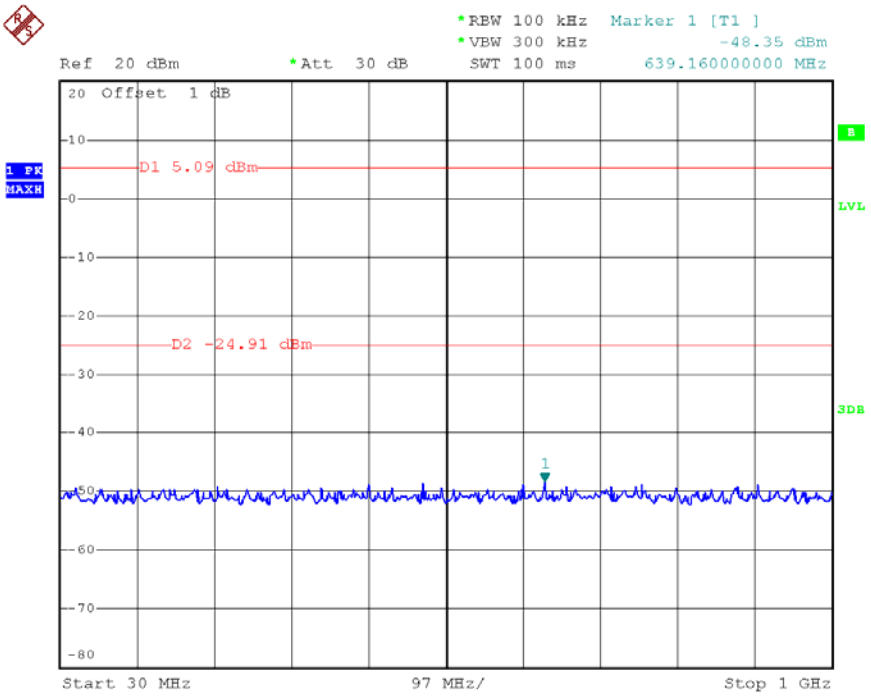
Date: 7.NOV.2012 19:30:27

TX G mode CH01 (1000MHz~10th Harmonic)



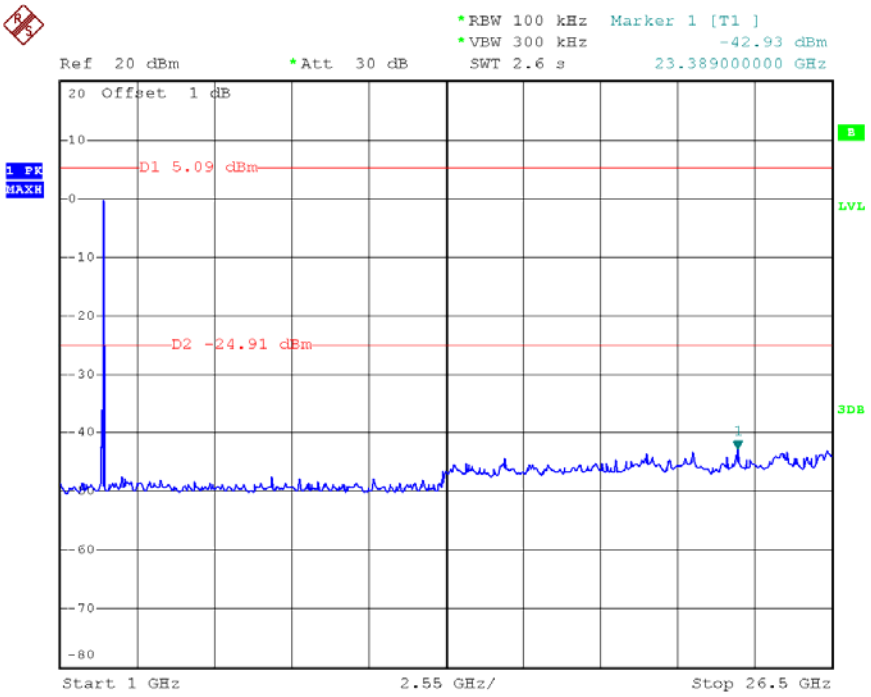
Date: 7.NOV.2012 19:30:39

TX G mode CH06 (30M~1000MHz)



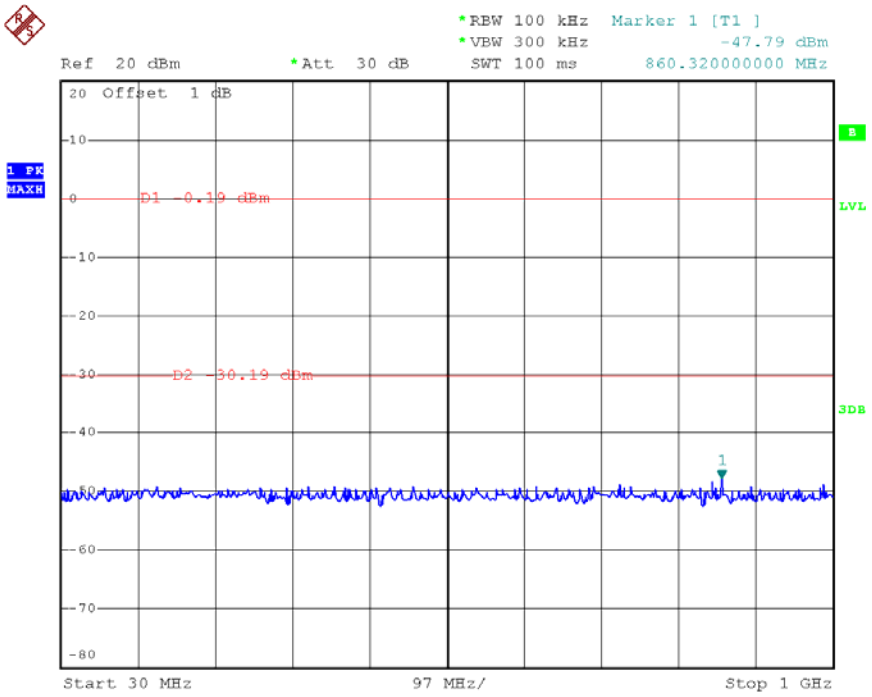
Date: 7.NOV.2012 19:33:00

TX G mode CH06 (1000MHz~10th Harmonic)



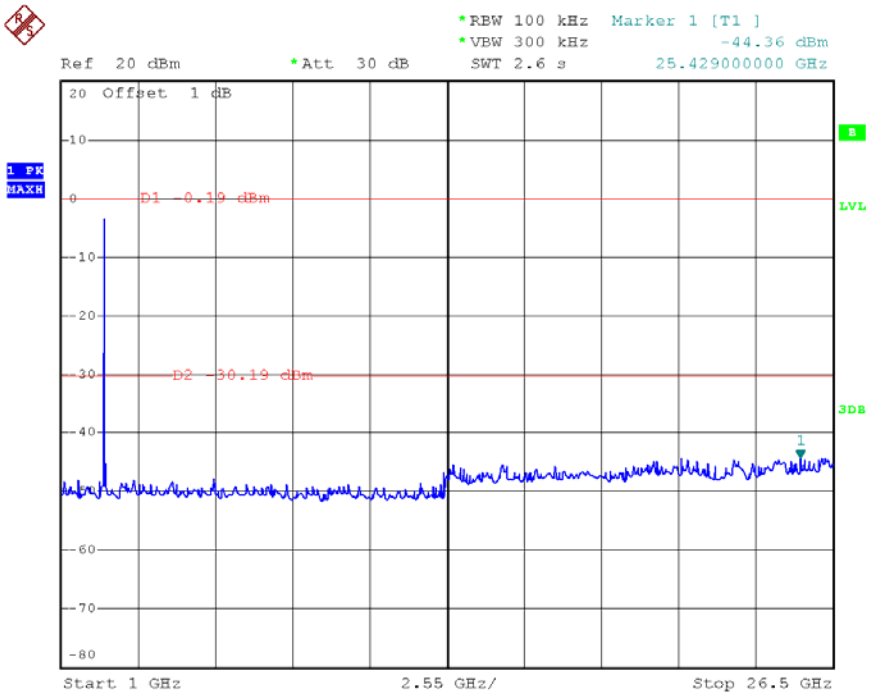
Date: 7.NOV.2012 19:32:47

TX G mode CH11 (30M~1000MHz)



Date: 7.NOV.2012 19:36:54

TX G mode CH11 (1000MHz~10th Harmonic)

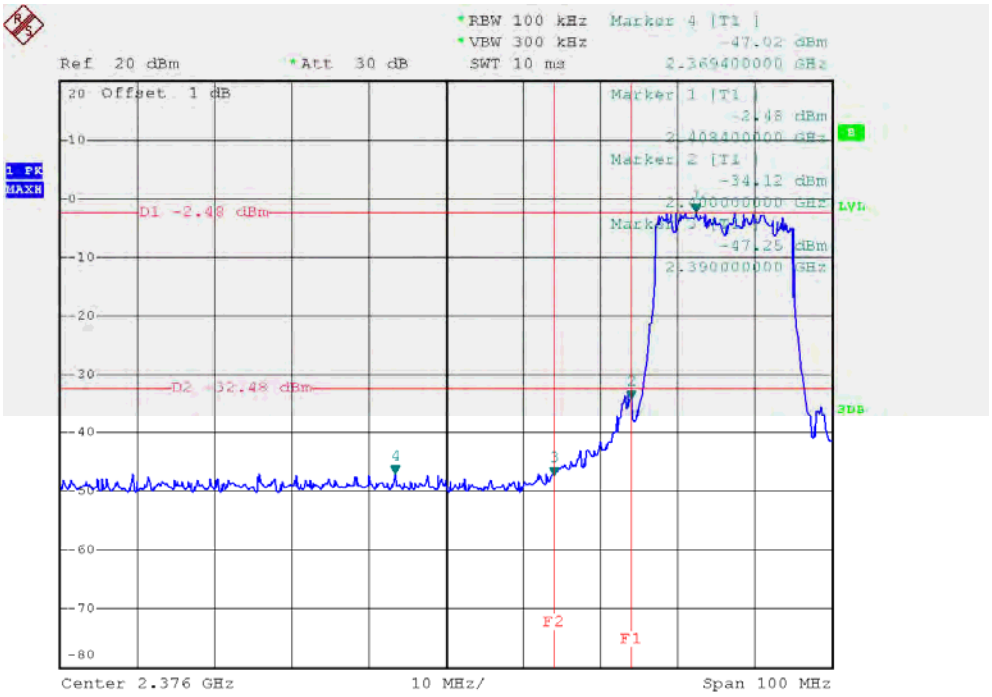


Date: 7.NOV.2012 19:37:08

EUT：	Wireless xDSL Bonding Router	Model Name ：	F@ST 4320 US
Temperature：	24 ℃	Relative Humidity：	60 %
Pressure：	1016 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX N-20M MODE / CH01, CH06 , CH11 --ANT 1		

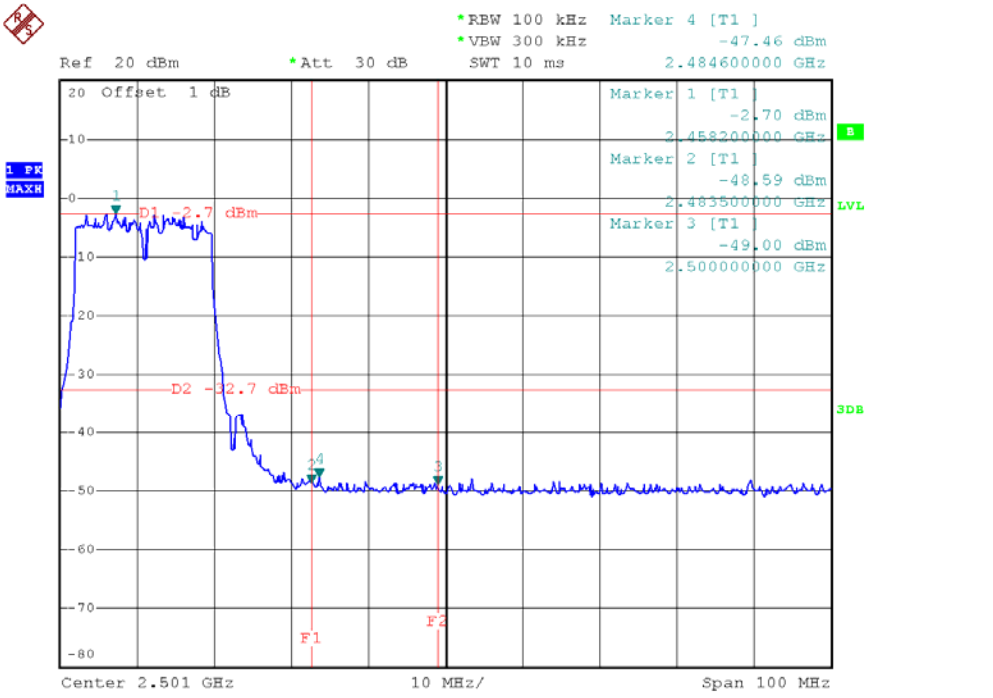
Channel of Worst Data: CH01			
The max. radio frequency power in any 100kHz bandwidth within the frequency band		The max. radio frequency power in any 100 kHz bandwidth within the frequency band.	
FREQUENCY(MHz)	POWER(dBm)	FREQUENCY(MHz)	POWER(dBm)
2400.00	-34.12	2484.60	-47.46
Result			
In any 100kHz 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 lever of the desired power.			

TX HT20 mode CH01



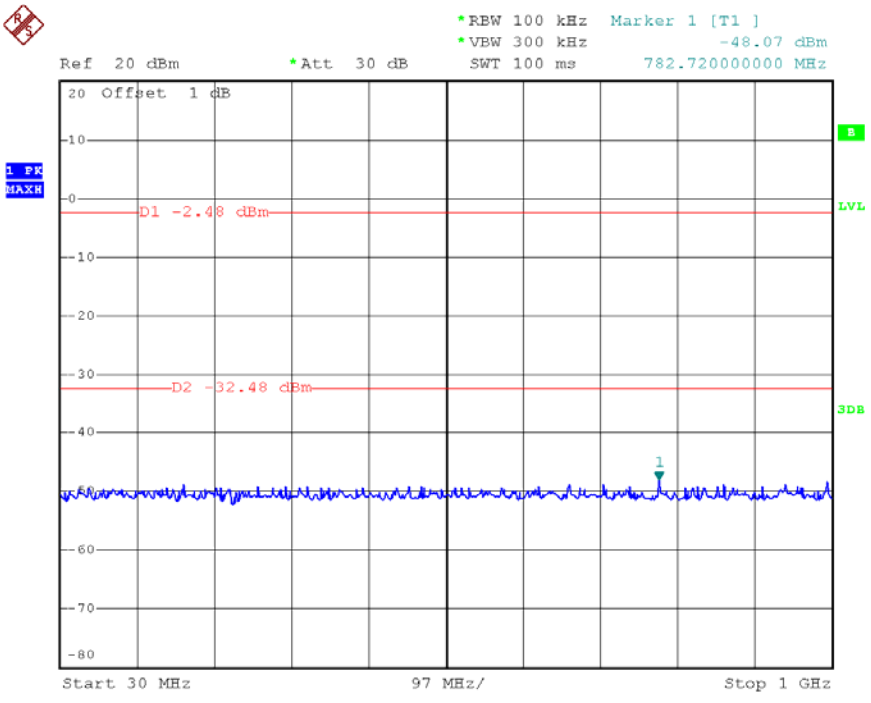
Date: 7.NOV.2012 19:41:48

TX HT20 mode CH11

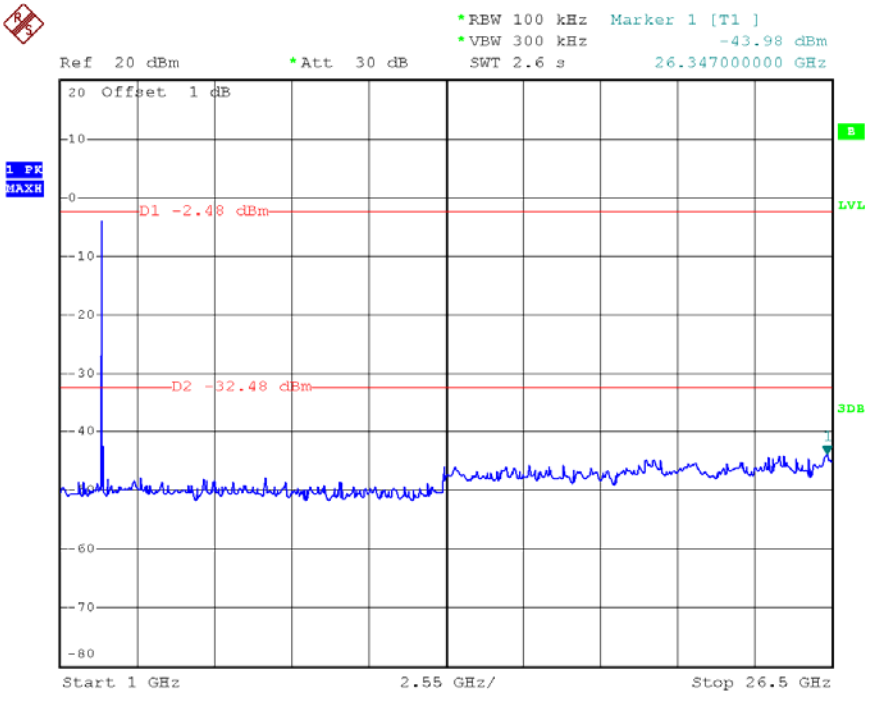


Date: 7.NOV.2012 19:48:11

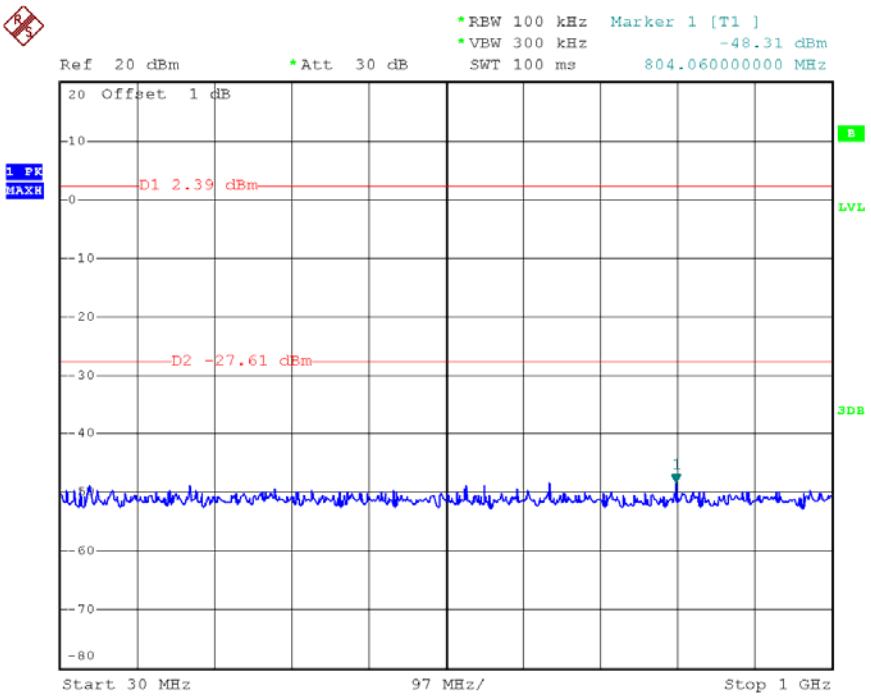
TX HT20 mode CH01 (30M~1000MHz)



TX HT20 mode CH01 (1000MHz~10th Harmonic)

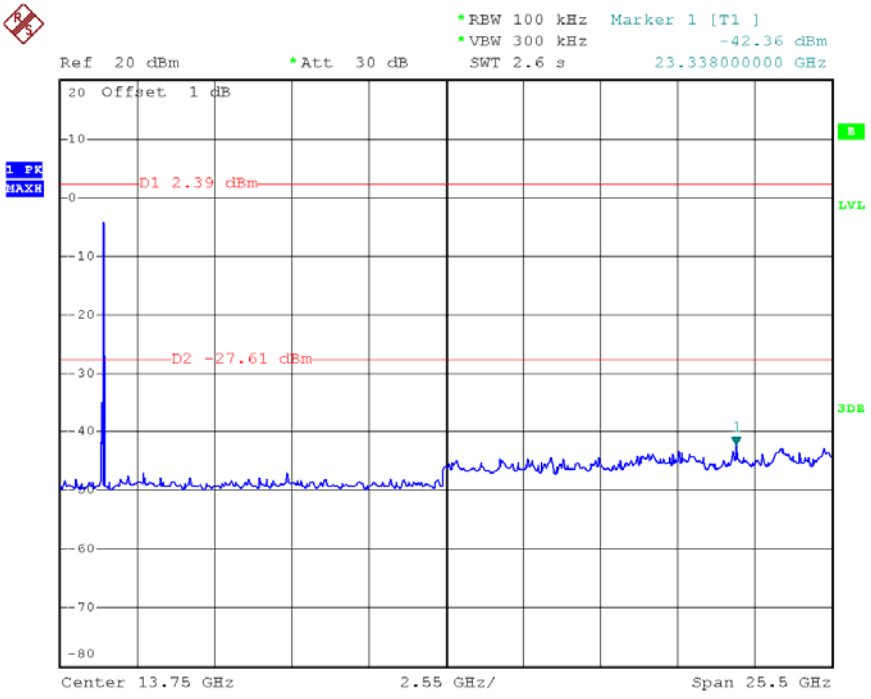


TX HT20 mode CH06 (30M~1000MHz)



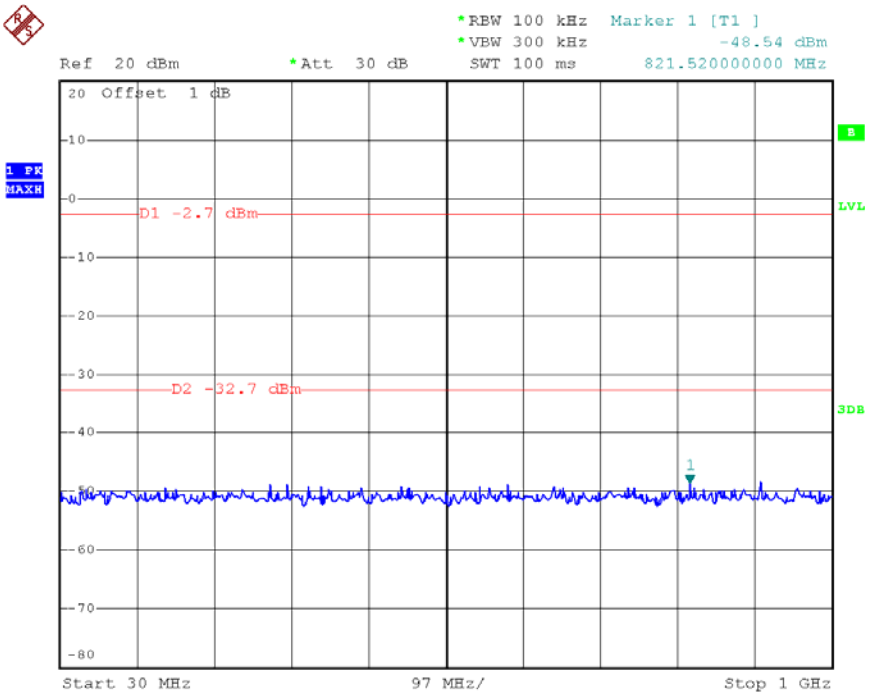
Date: 7.NOV.2012 19:45:41

TX HT20 mode CH06 (1000MHz~10th Harmonic)

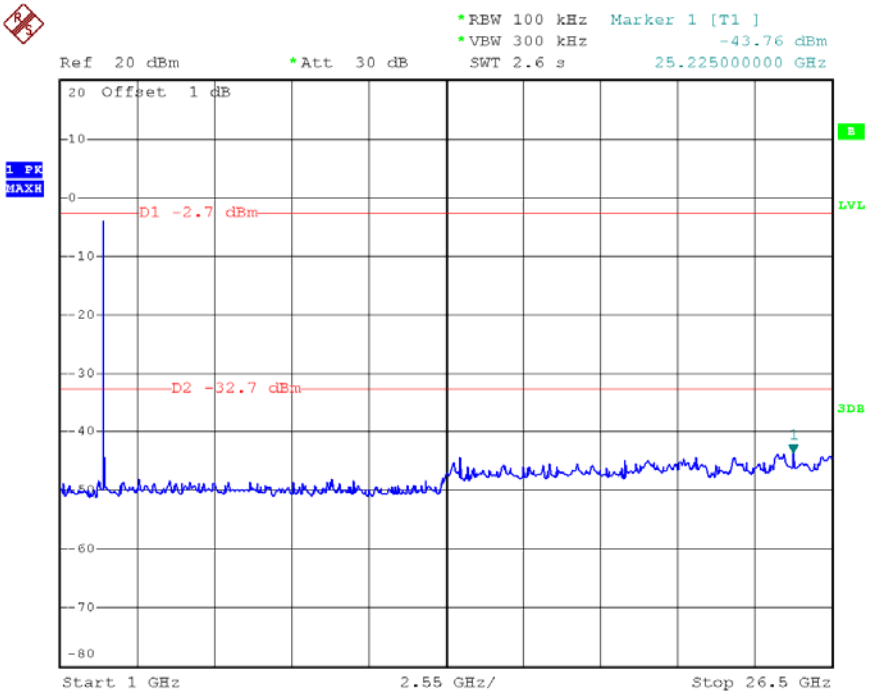


Date: 7.NOV.2012 19:45:30

TX HT20 mode CH11 (30M~1000MHz)



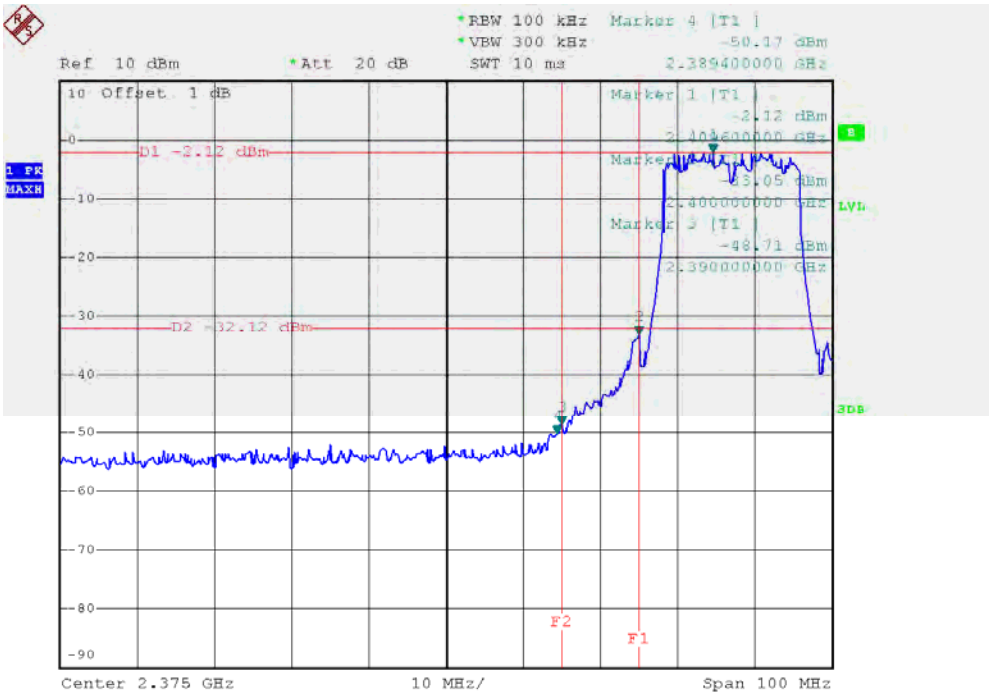
TX HT20 mode CH11 (1000MHz~10th Harmonic)



EUT：	Wireless xDSL Bonding Router	Model Name ：	F@ST 4320 US
Temperature：	24 ℃	Relative Humidity：	60 %
Pressure：	1016 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX N-20M MODE / CH01, CH06 , CH11 --ANT 2		

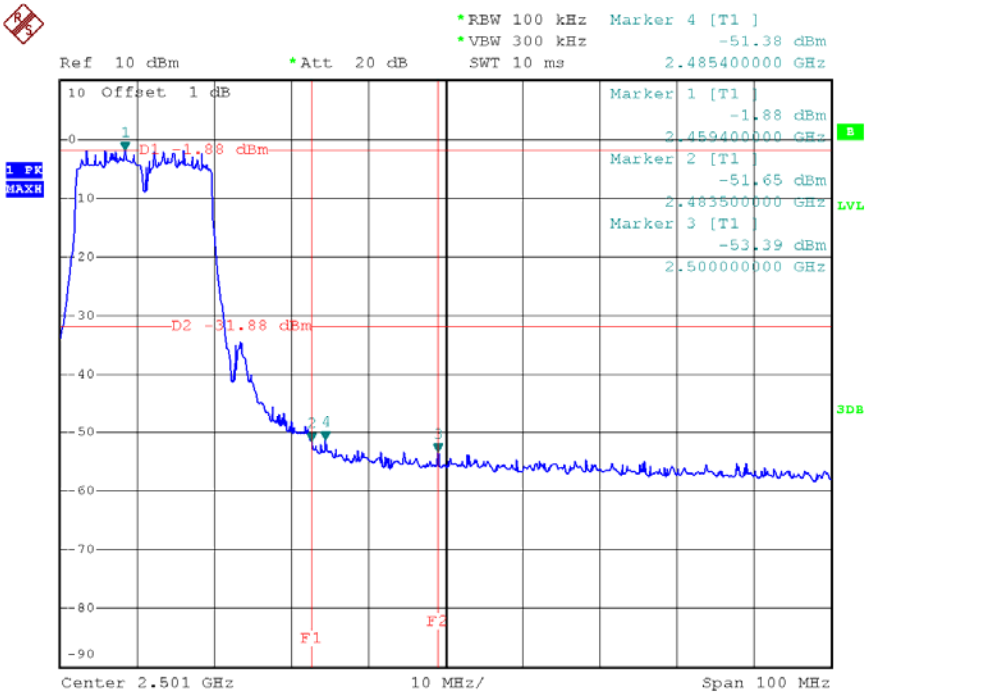
Channel of Worst Data: CH01			
The max. radio frequency power in any 100kHz bandwidth within the frequency band		The max. radio frequency power in any 100 kHz bandwidth within the frequency band.	
FREQUENCY(MHz)	POWER(dBm)	FREQUENCY(MHz)	POWER(dBm)
2400.00	-33.05	2485.40	-51.38
Result			
In any 100kHz 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 lever of the desired power.			

TX HT20 mode CH01



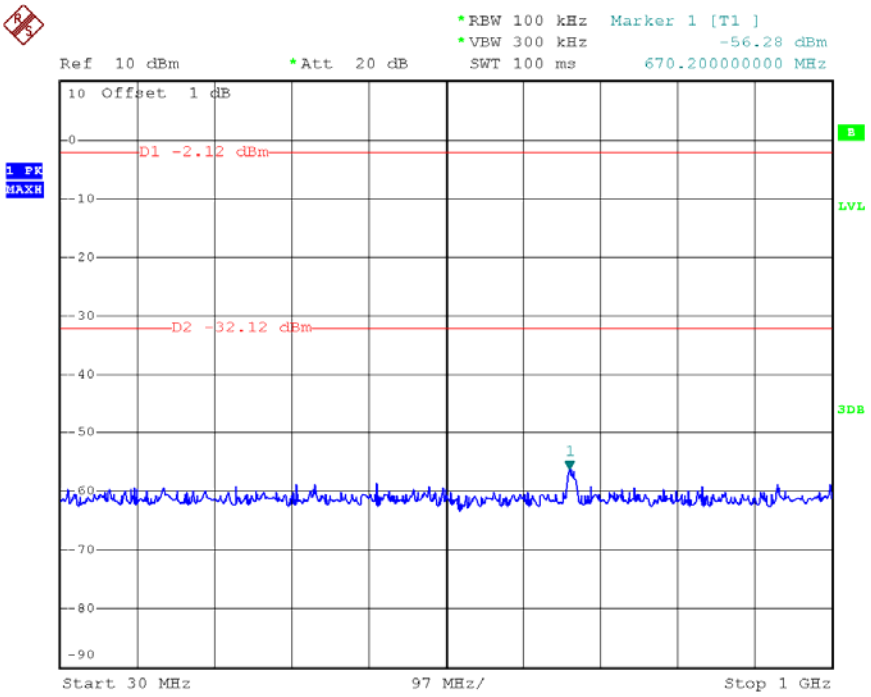
Date: 9.NOV.2012 15:33:27

TX HT20 mode CH11



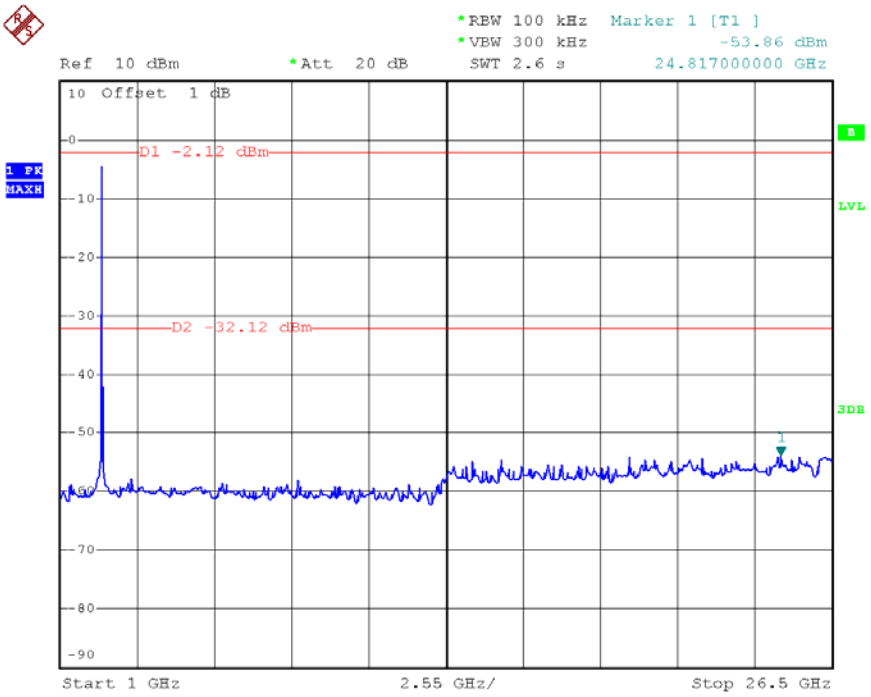
Date: 9.NOV.2012 15:41:07

TX HT20 mode CH01 (30M~1000MHz)



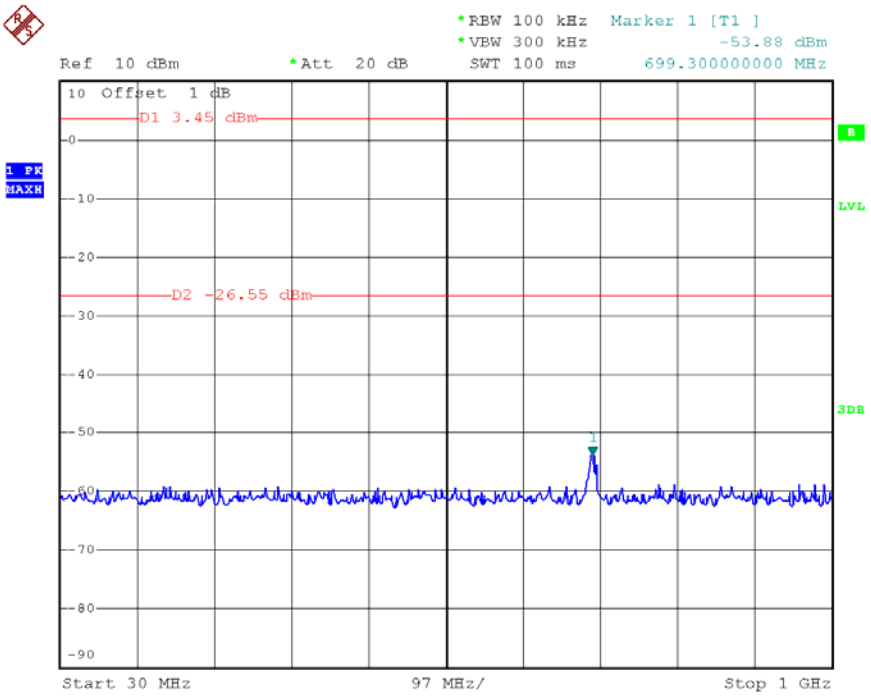
Date: 9.NOV.2012 15:33:40

TX HT20 mode CH01 (1000MHz~10th Harmonic)



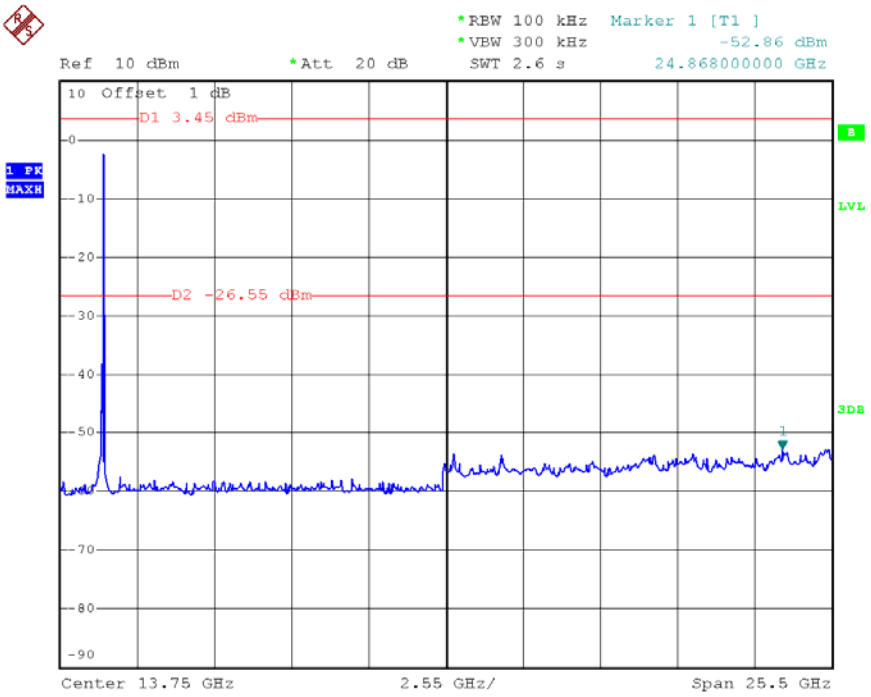
Date: 9.NOV.2012 15:33:53

TX HT20 mode CH06 (30M~1000MHz)



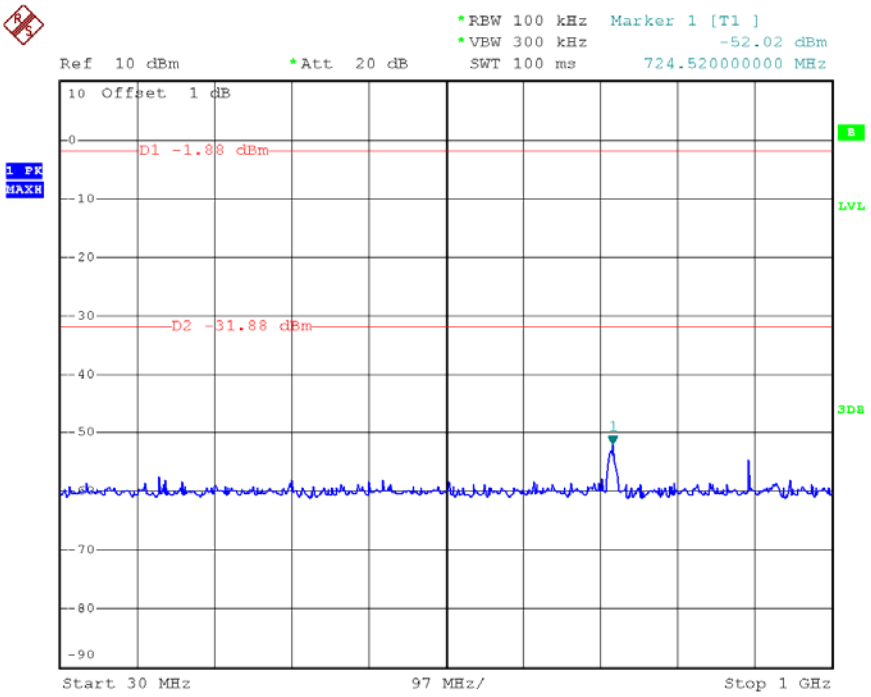
Date: 9.NOV.2012 15:38:35

TX HT20 mode CH06 (1000MHz~10th Harmonic)



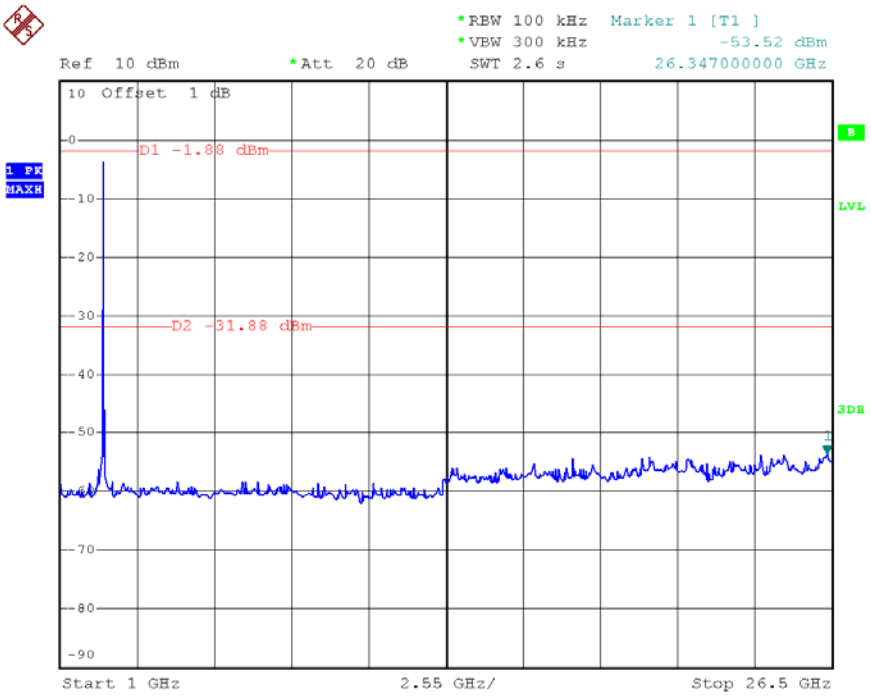
Date: 9.NOV.2012 15:38:26

TX HT20 mode CH11 (30M~1000MHz)



Date: 9.NOV.2012 15:42:25

TX HT20 mode CH11 (1000MHz~10th Harmonic)

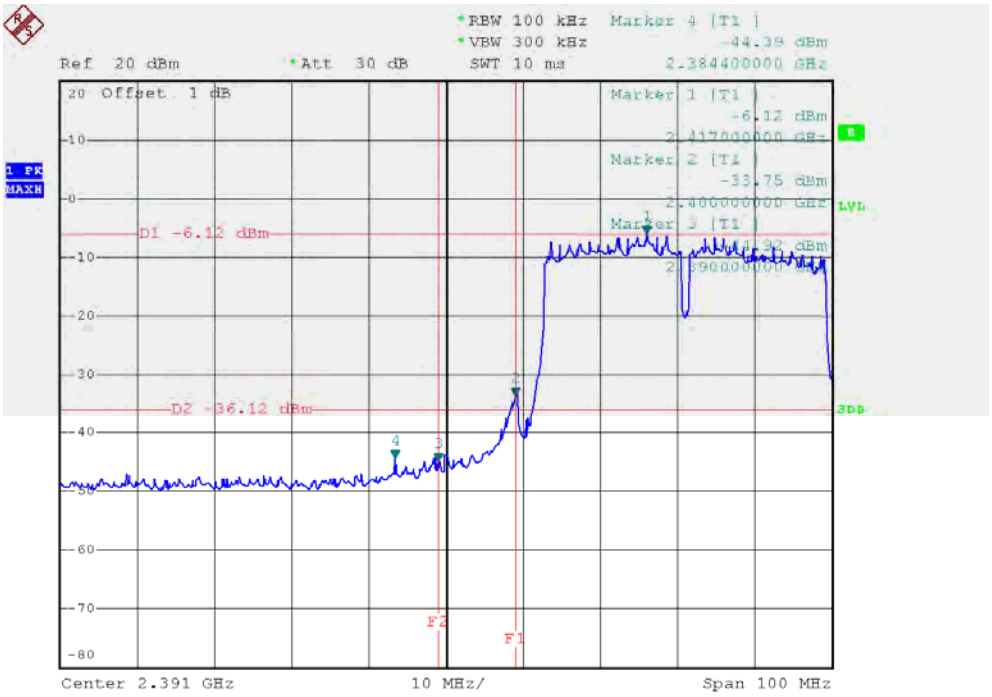


Date: 9.NOV.2012 15:42:37

EUT：	Wireless xDSL Bonding Router	Model Name ：	F@ST 4320 US
Temperature：	24 ℃	Relative Humidity：	60 %
Pressure：	1016 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX N-40M MODE / CH03, CH06 , CH09 --ANT 1		

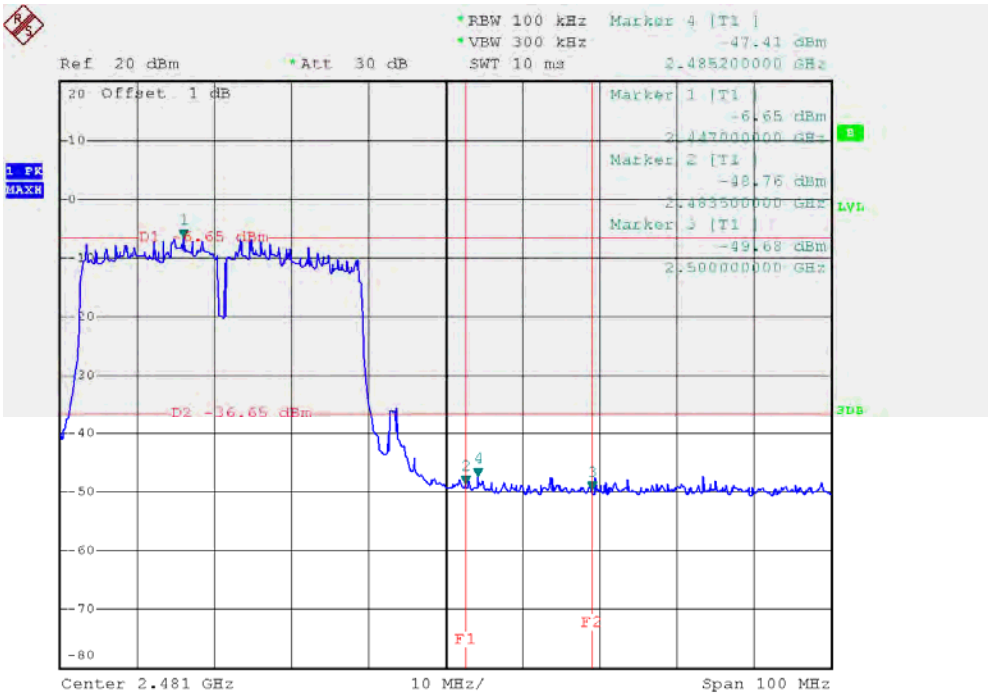
Channel of Worst Data: CH03			
The max. radio frequency power in any 100kHz bandwidth within the frequency band		The max. radio frequency power in any 100 kHz bandwidth within the frequency band.	
FREQUENCY(MHz)	POWER(dBm)	FREQUENCY(MHz)	POWER(dBm)
2400.00	-33.75	2485.20	-47.41
Result			
In any 100kHz 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 lever of the desired power.			

TX HT40 mode CH03



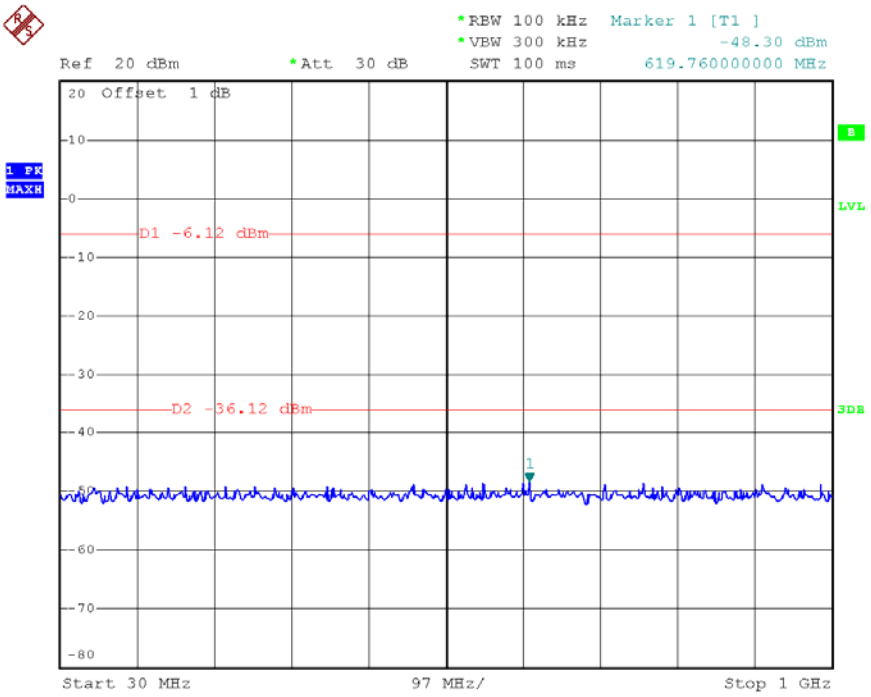
Date: 7.NOV.2012 19:55:04

TX HT40 mode CH09



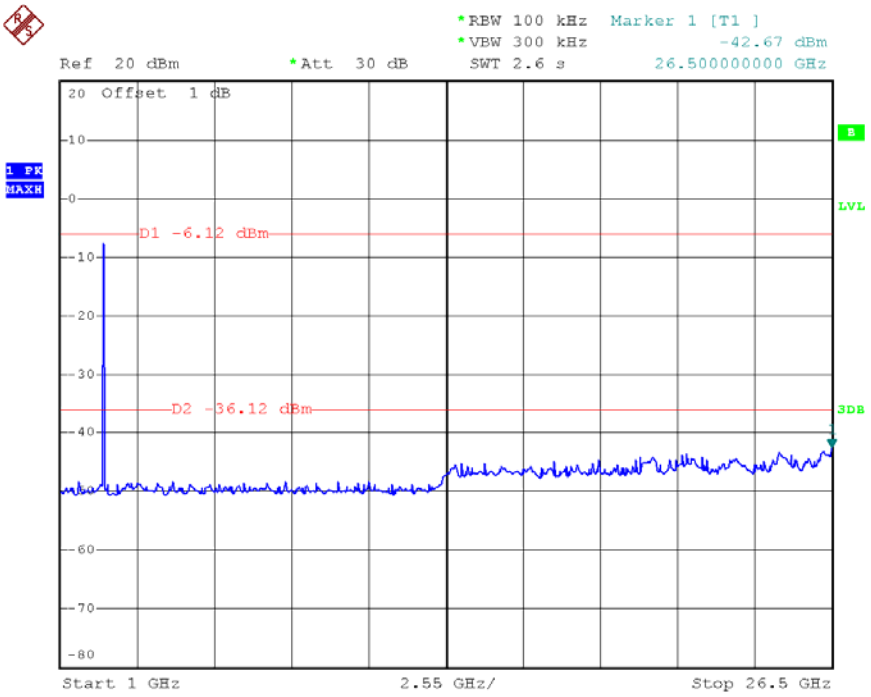
Date: 7.NOV.2012 20:02:25

TX HT40 mode CH03 (30M~1000MHz)



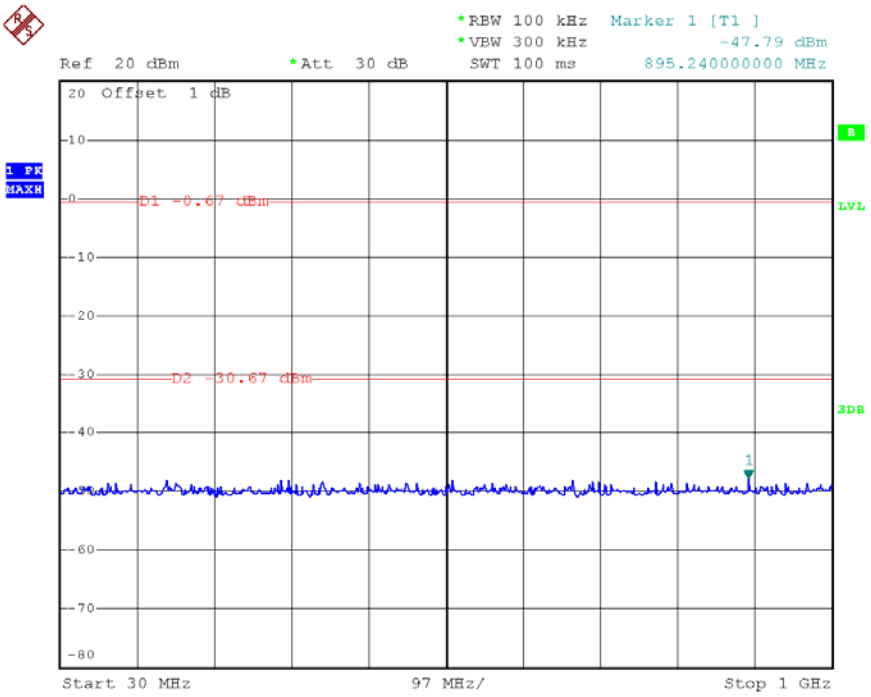
Date: 7.NOV.2012 19:55:28

TX HT40 mode CH03 (1000MHz~10th Harmonic)



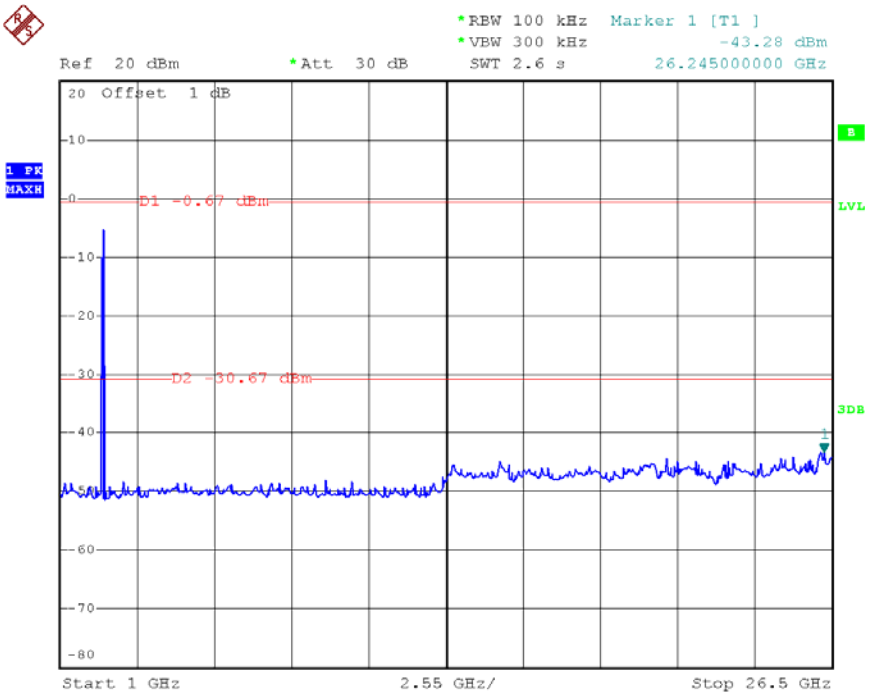
Date: 7.NOV.2012 19:55:56

TX HT40 mode CH06 (30M~1000MHz)



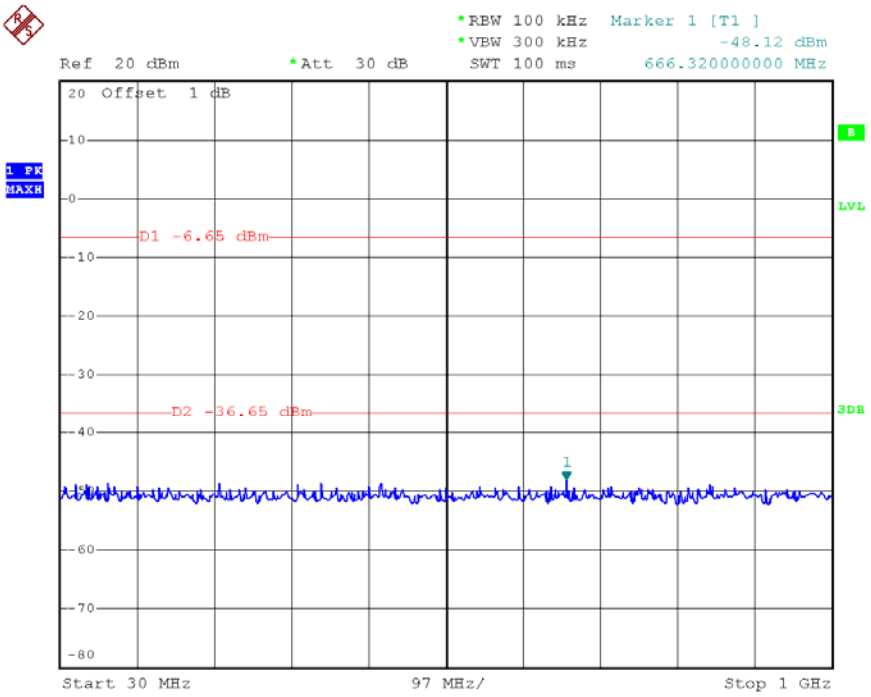
Date: 7.NOV.2012 19:59:08

TX HT40 mode CH06 (1000MHz~10th Harmonic)



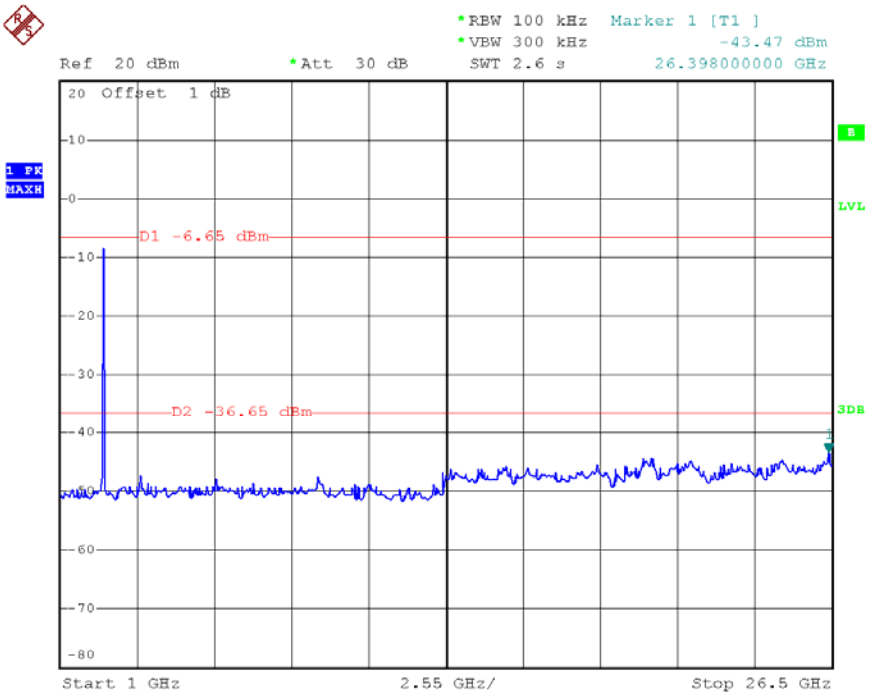
Date: 7.NOV.2012 19:59:24

TX HT40 mode CH09 (30M~1000MHz)



Date: 7.NOV.2012 20:03:14

TX HT40 mode CH09 (1000MHz~10th Harmonic)

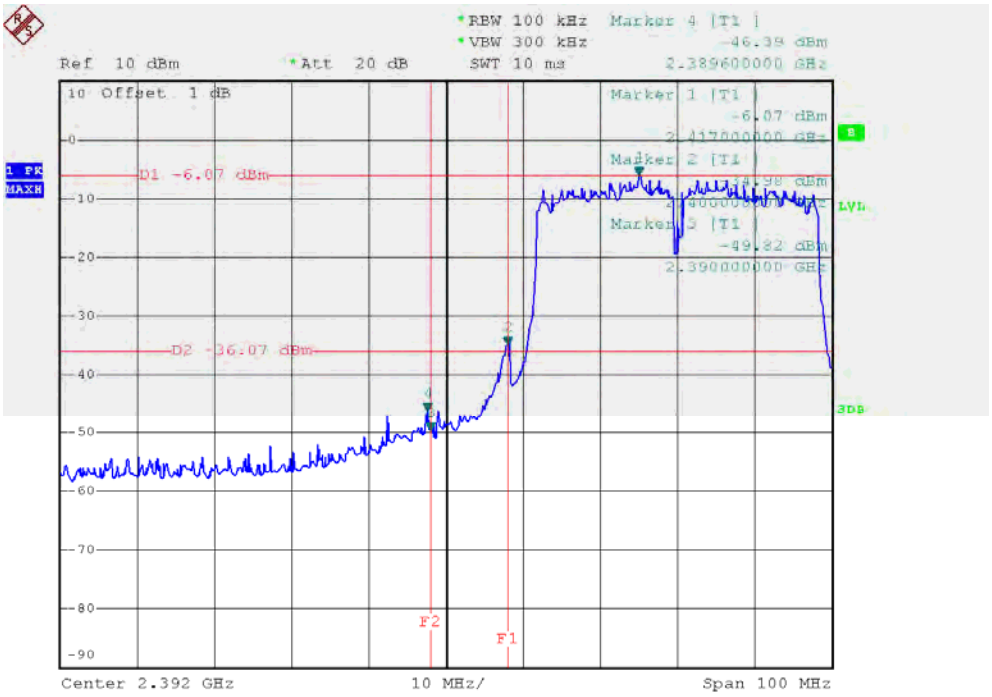


Date: 7.NOV.2012 20:03:32

EUT：	Wireless xDSL Bonding Router	Model Name ：	F@ST 4320 US
Temperature：	24 ℃	Relative Humidity：	60 %
Pressure：	1016 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX N-40M MODE /CH03, CH06, CH09--ANT 2		

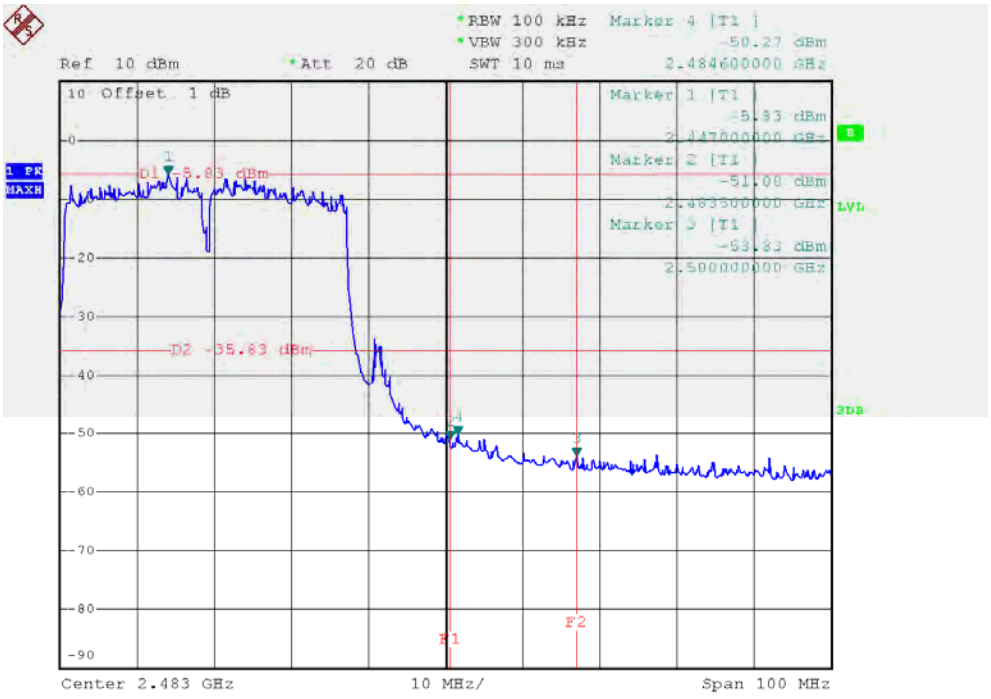
Channel of Worst Data: CH03			
The max. radio frequency power in any 100kHz bandwidth within the frequency band		The max. radio frequency power in any 100 kHz bandwidth outside the frequency band.	
FREQUENCY(MHz)	POWER(dBm)	FREQUENCY(MHz)	POWER(dBm)
2400.00	-34.98	2484.60	-50.27
Result			
In any 100kHz 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 lever of the desired power.			

TX HT40 mode CH03



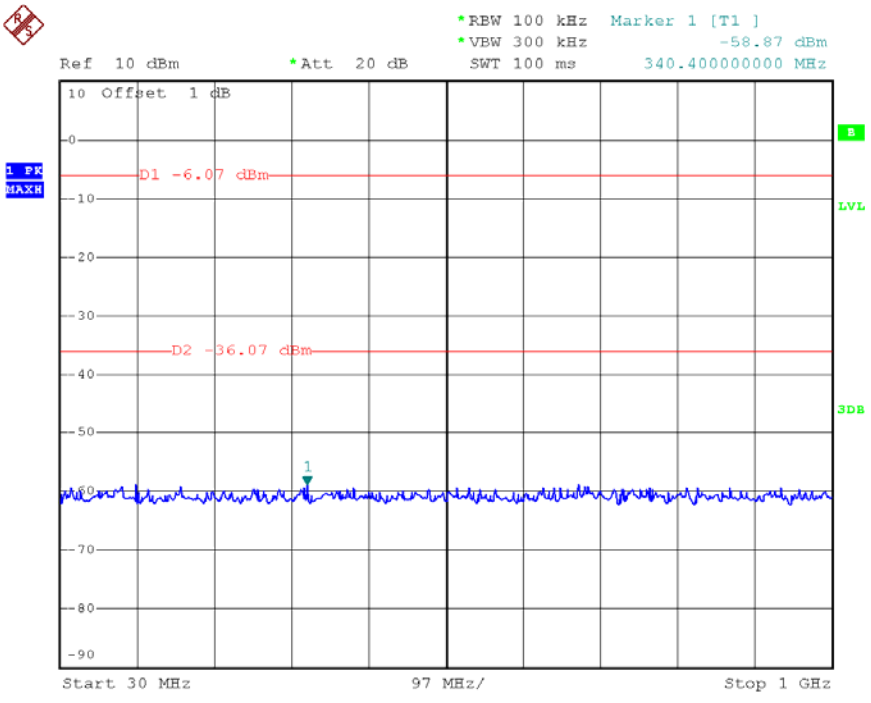
Date: 9.NOV.2012 15:47:57

TX HT40 mode CH09



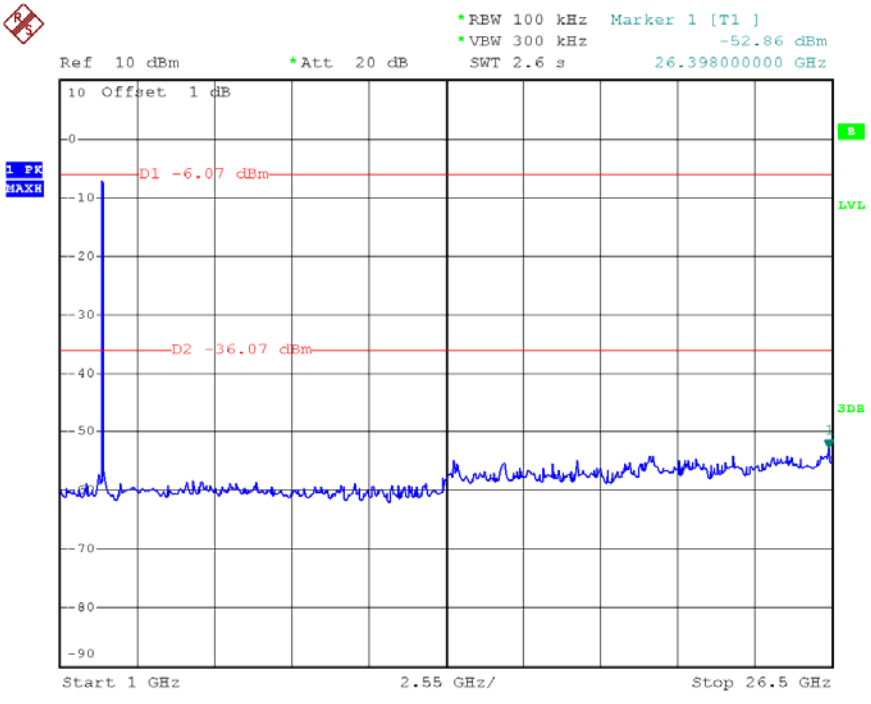
Date: 9.NOV.2012 15:54:06

TX HT40 mode CH03 (30M~1000MHz)



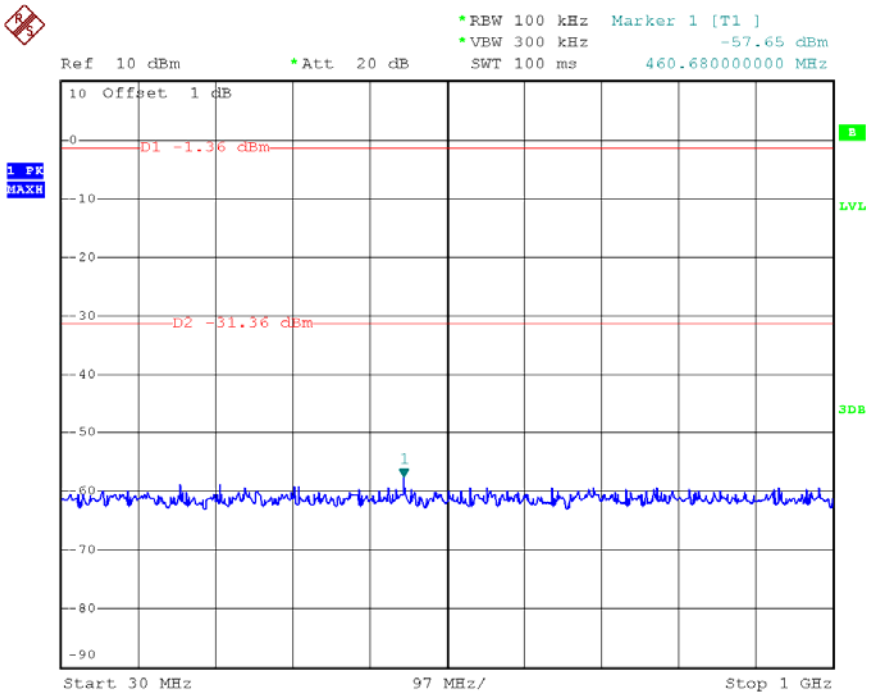
Date: 9.NOV.2012 15:48:12

TX HT40 mode CH03 (1000MHz~10th Harmonic)



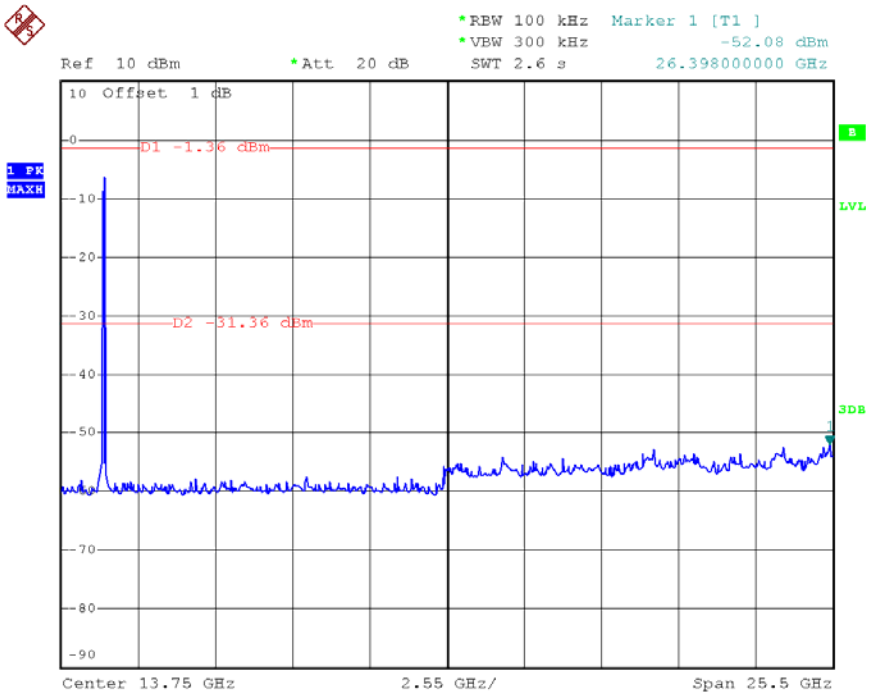
Date: 9.NOV.2012 15:48:24

TX HT40 mode CH06 (30M~1000MHz)



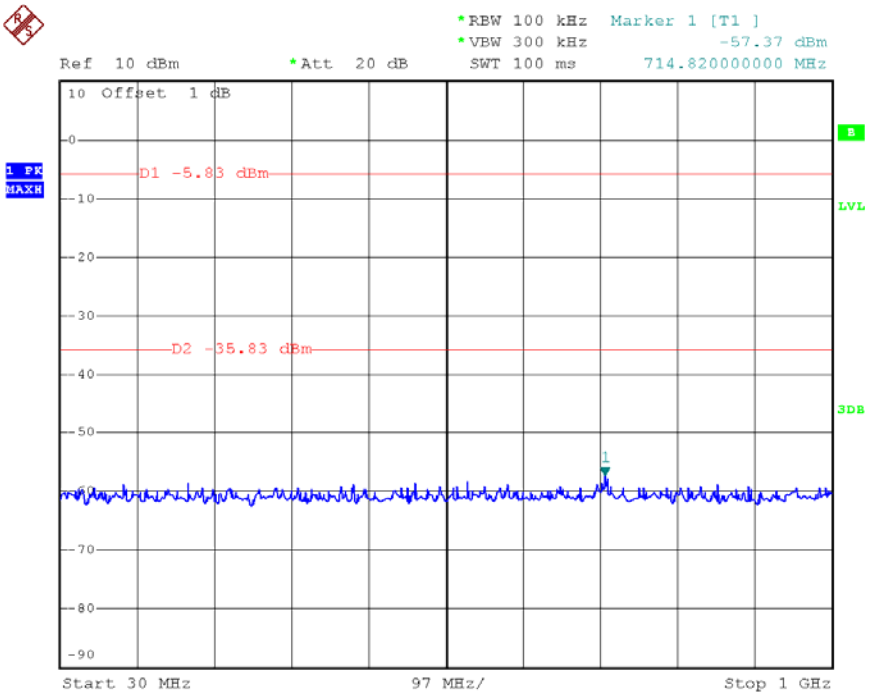
Date: 9.NOV.2012 15:51:03

TX HT40 mode CH06 (1000MHz~10th Harmonic)



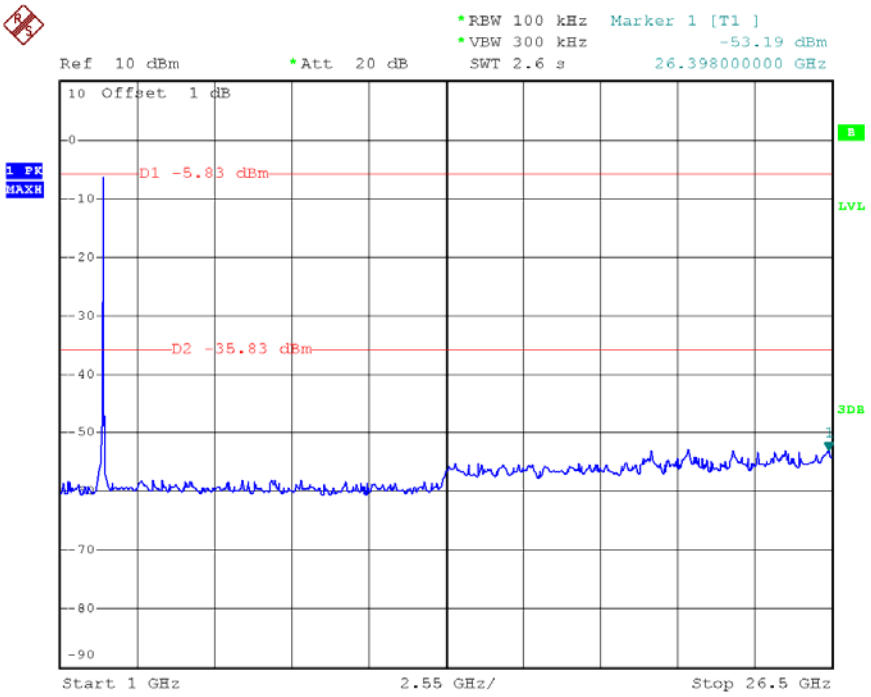
Date: 9.NOV.2012 15:50:55

TX HT40 mode CH09 (30M~1000MHz)



Date: 9.NOV.2012 15:54:23

TX HT40 mode CH09 (1000MHz~10th Harmonic)



Date: 9.NOV.2012 15:54:57

8. POWER SPECTRAL DENSITY TEST

8.1 Applied procedures / limit

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(e)	Power Spectral Density	8 dBm (in any 3KHz)	2400-2483.5	PASS

8.1.1 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Next Calibration
1	Spectrum Analyzer	R&S	FSP_40	100185	Nov.25.2012	Nov.25.2013

Remark: “N/A” denotes no model name, serial no. or calibration specified.
All calibration period of Equipment List is One Year.

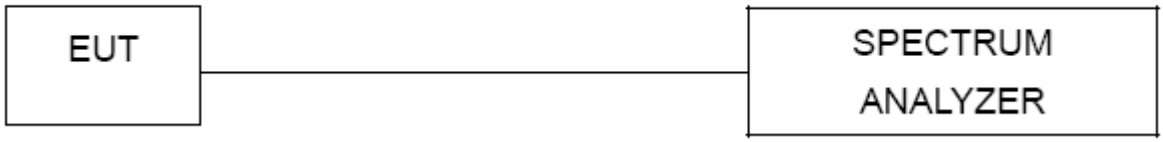
8.1.2 TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
b. Spectrum Setting : RBW=100KHz, VBW=300 KHz, Sweep time = 2.5ms.

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.

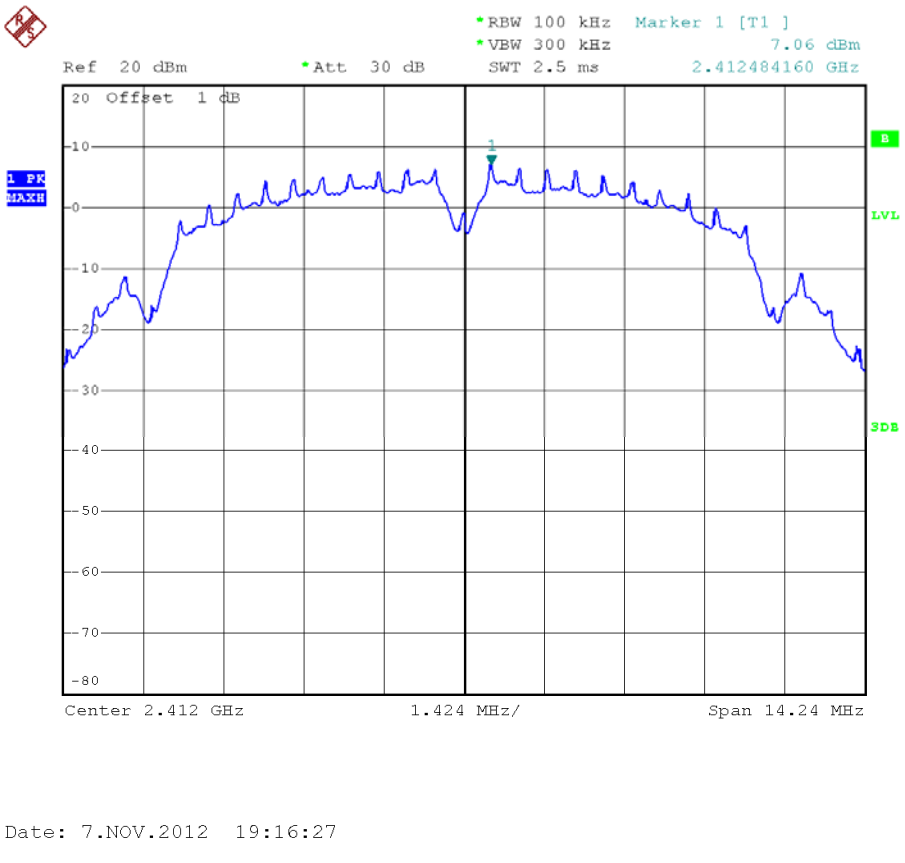
8.1.6 TEST RESULTS

EUT：	Wireless xDSL Bonding Router	Model Name ：	F@ST 4320 US
Temperature：	24 ℃	Relative Humidity：	60 %
Pressure：	1016 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX B MODE /CH01, CH06, CH11		

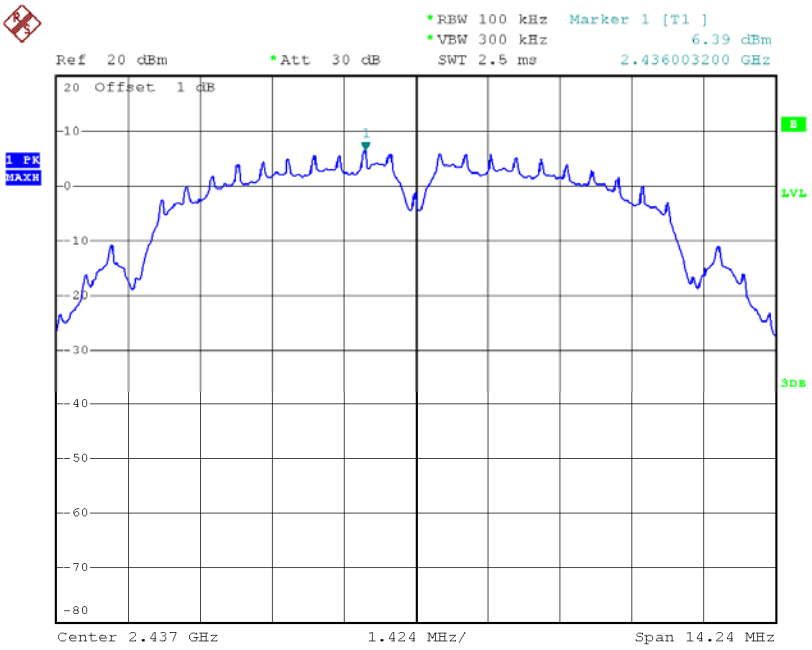
Test Channel	Frequency (MHz)	Power Density (dBm)	LIMIT (dBm)
CH01	2412 MHz	-8.16	8
CH06	2437 MHz	-8.83	8
CH11	2462 MHz	-9.31	8

Note: Scale the observed power level to an equivalent value in 3 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where BWCF = 10log (3 kHz/ 100kHz = -15.22 dB).

TX CH01

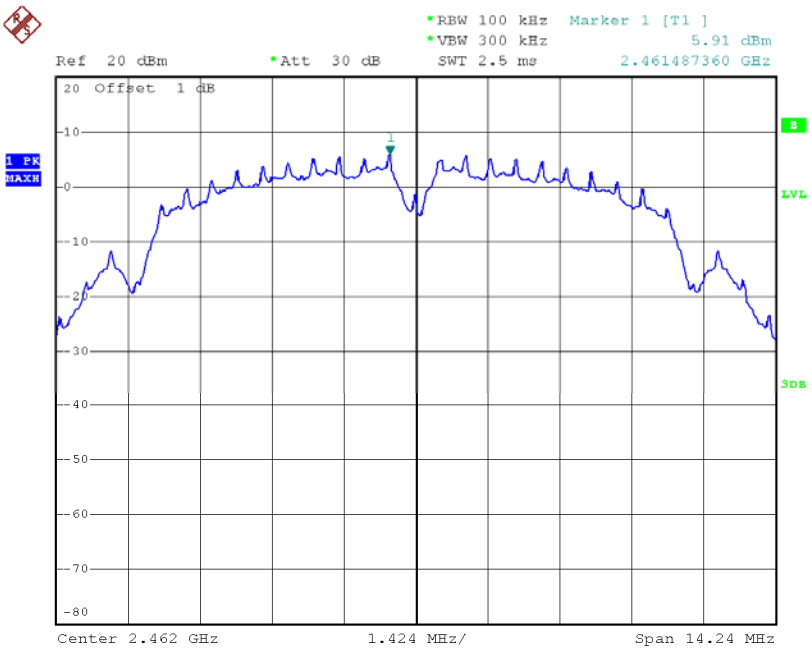


TX CH06



Date: 7.NOV.2012 18:58:11

TX CH11



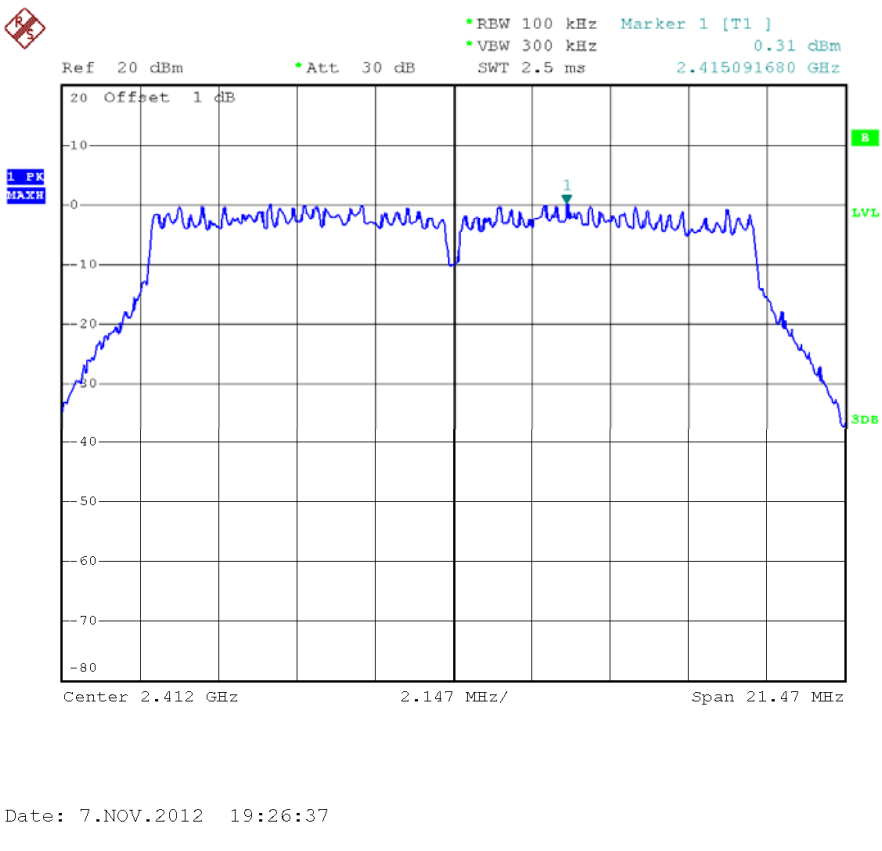
Date: 7.NOV.2012 19:07:57

EUT：	Wireless xDSL Bonding Router	Model Name ：	F@ST 4320 US
Temperature：	24 ℃	Relative Humidity：	60 %
Pressure：	1016 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX G MODE /CH01, CH06, CH11		

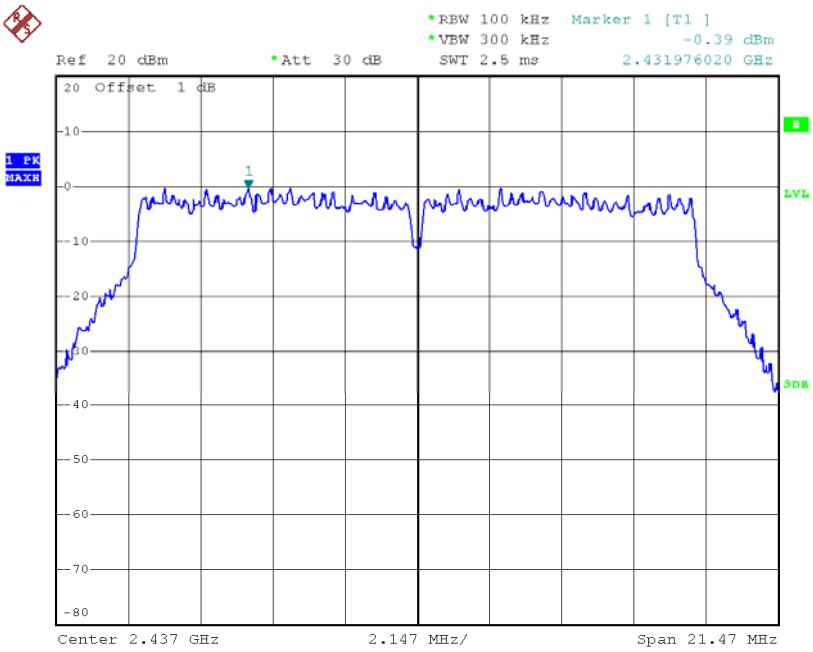
Test Channel	Frequency (MHz)	Power Density (dBm)	LIMIT (dBm)
CH01	2412 MHz	-14.91	8
CH06	2437 MHz	-15.61	8
CH11	2462 MHz	-15.86	8

Note: Scale the observed power level to an equivalent value in 3 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where BWCF = 10log (3 kHz/ 100kHz = -15.22 dB).

TX CH01

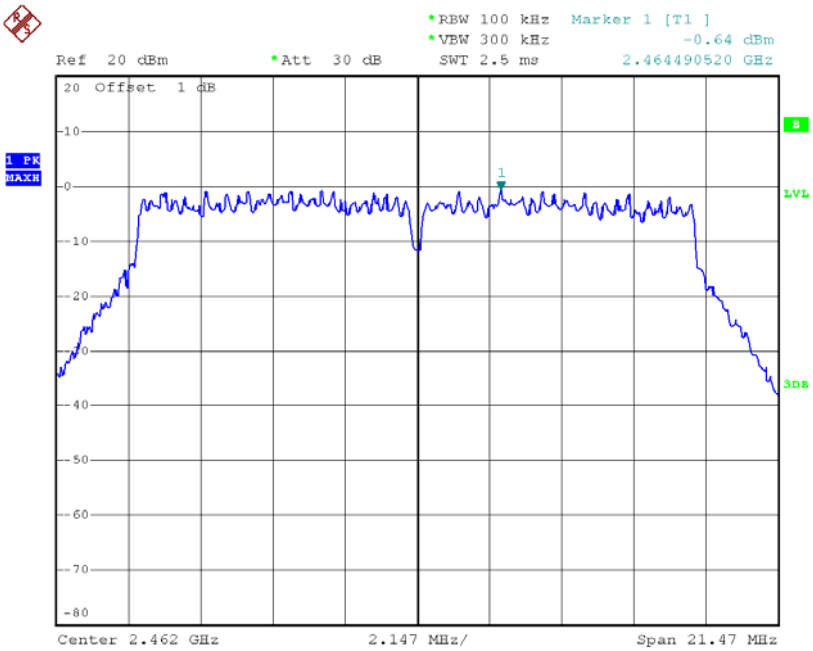


TX CH06



Date: 7.NOV.2012 19:33:49

TX CH11



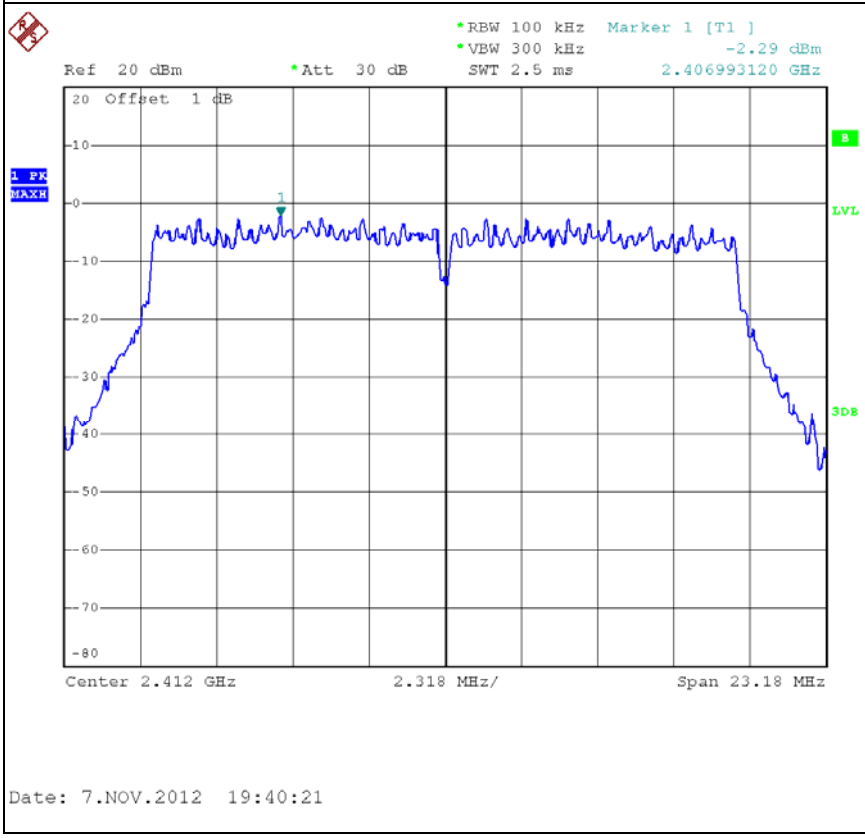
Date: 7.NOV.2012 19:34:23

EUT：	Wireless xDSL Bonding Router	Model Name ：	F@ST 4320 US
Temperature：	24 ℃	Relative Humidity：	60 %
Pressure：	1016 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX N MODE-20MHz /CH01, CH06, CH11 --ANT 1		

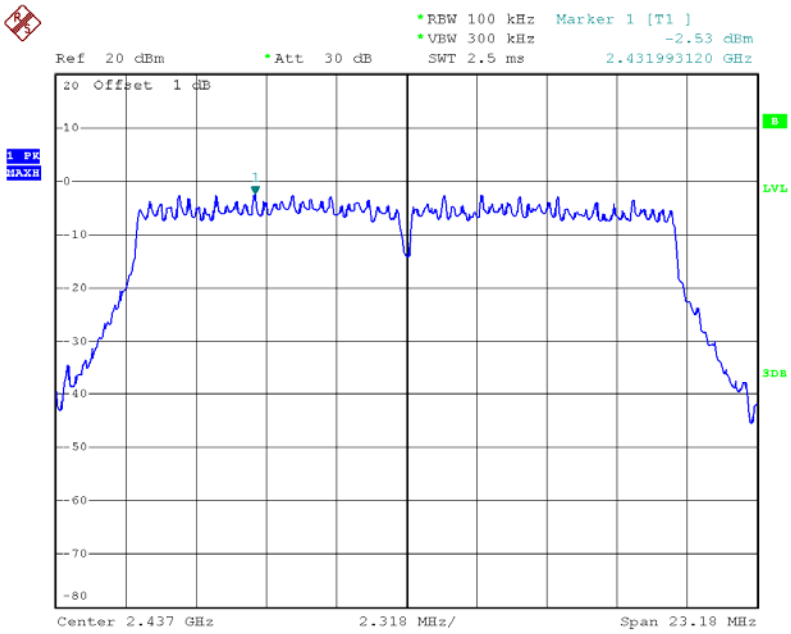
Test Channel	Frequency (MHz)	Power Density (dBm)	LIMIT (dBm)
CH01	2412 MHz	-17.51	8
CH06	2437 MHz	-17.75	8
CH11	2462 MHz	-18.11	8

Note: Scale the observed power level to an equivalent value in 3 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where BWCF = 10log (3 kHz/ 100kHz = -15.22 dB).

TX CH01

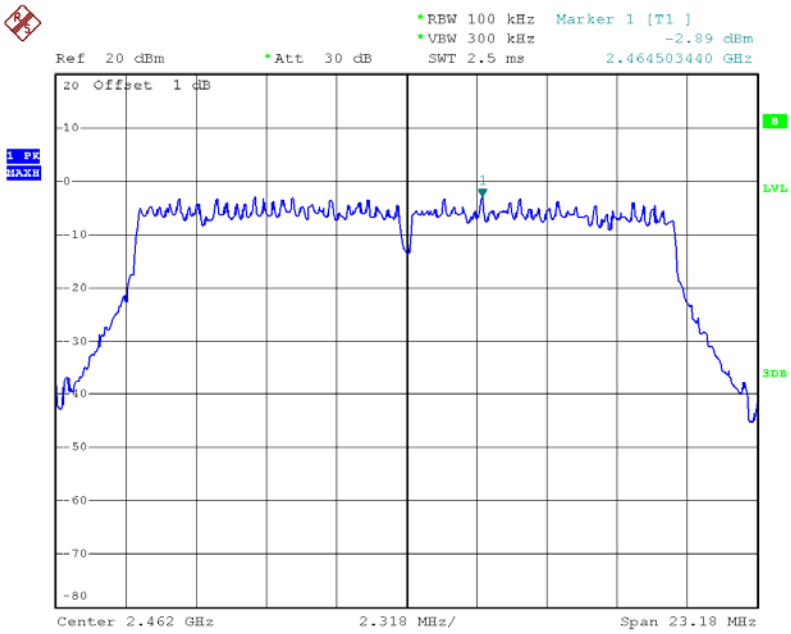


TX CH06



Date: 7.NOV.2012 19:46:24

TX CH11



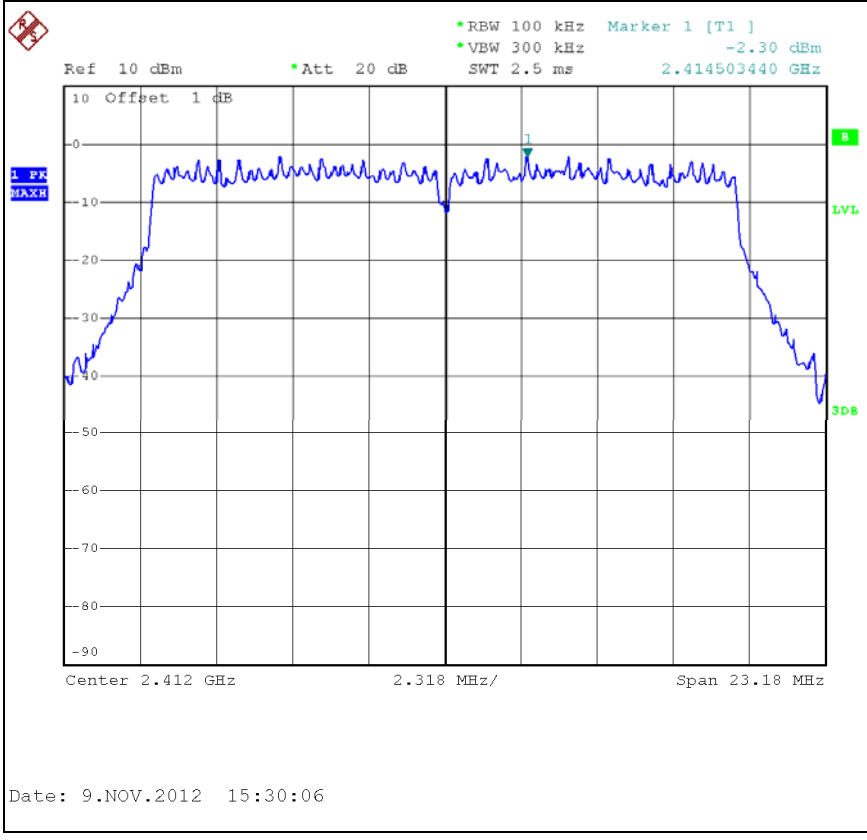
Date: 7.NOV.2012 19:47:22

EUT：	Wireless xDSL Bonding Router	Model Name ：	F@ST 4320 US
Temperature：	24 ℃	Relative Humidity：	60 %
Pressure：	1016 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX N MODE-20MHz /CH01, CH06, CH11 --ANT 2		

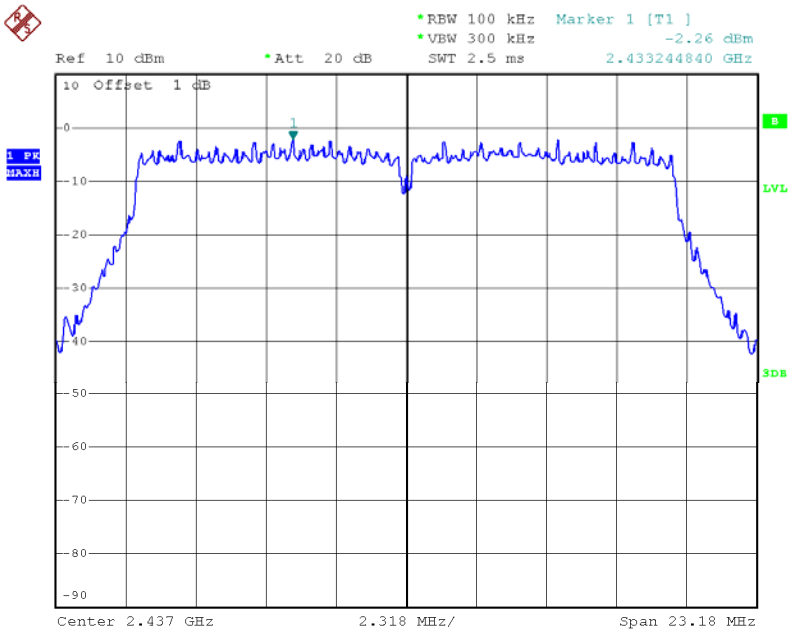
Test Channel	Frequency (MHz)	Power Density (dBm)	LIMIT (dBm)
CH01	2412 MHz	-17.52	8
CH06	2437 MHz	-17.48	8
CH11	2462 MHz	-17.24	8

Note: Scale the observed power level to an equivalent value in 3 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where BWCF = 10log (3 kHz/ 100kHz = -15.22 dB).

TX CH01

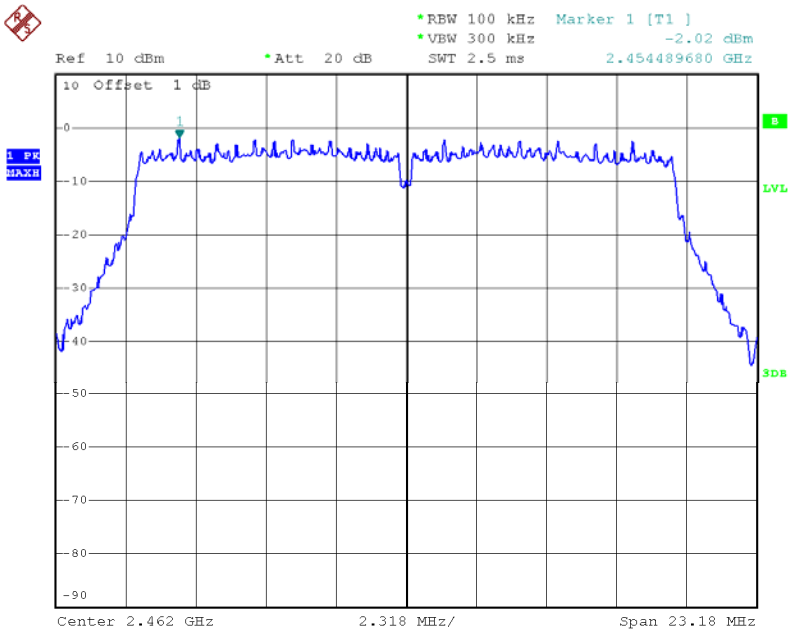


TX CH06



Date: 9.NOV.2012 15:39:06

TX CH11



Date: 9.NOV.2012 15:39:58

EUT：	Wireless xDSL Bonding Router	Model Name ：	F@ST 4320 US
Temperature：	24 ℃	Relative Humidity：	60 %
Pressure：	1016 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX N MODE-20MHz /CH01, CH06, CH11 –ANT1+ANT2		

Total (Ant 1 + Ant 2)					
Test Channel	**Frequency (MHz)**	**Power density (dBm)**	**(mW)**	**LIMIT (dBm)**	**PASS/FAIL**
CH01	2412	-14.50	0.04	8	PASS
CH06	2437	-14.60	0.03	8	PASS
CH11	2462	-14.64	0.03	8	PASS

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:
((dBm/Chain 1)/10^Log) + ((dBm/Chain 2)/10^log) + ((dBm/ChainN)/10^log) = Combined peak output power in mW.

(2) **Antenna Gain=5 dBi.**

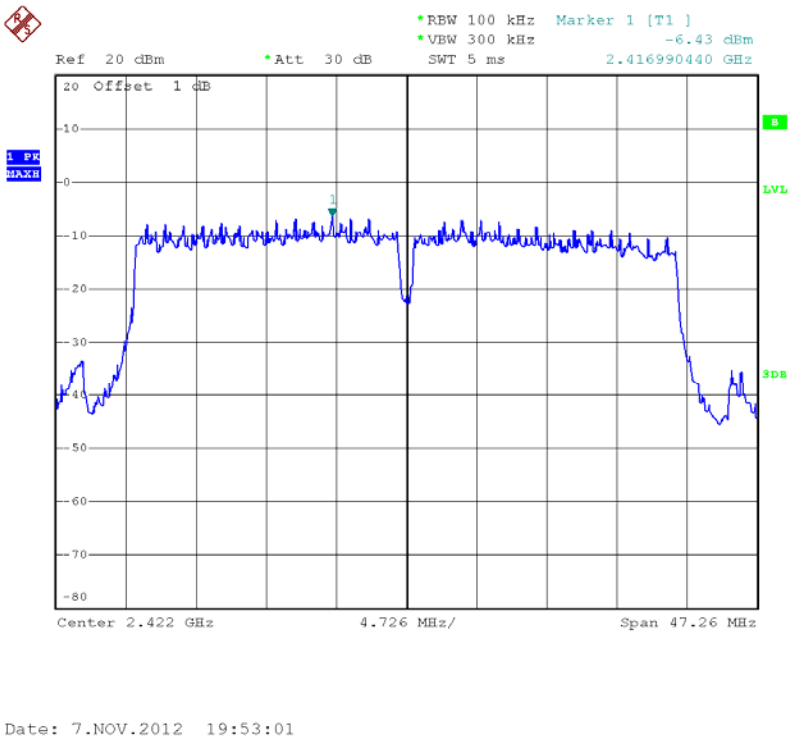
(3) This EUT supports MIMO 2T2R, All transmit signals are completely uncorrelated, then $\text{Directional gain} = 10\log[(10^{G1/10} + 10^{G2/10} + \ldots + 10^{GN/10})/N]\ \text{dBi}$, that is Directional gain=5;

EUT：	Wireless xDSL Bonding Router	Model Name ：	F@ST 4320 US
Temperature：	24 ℃	Relative Humidity：	60 %
Pressure：	1016 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX N MODE-40MHz /CH03, CH06, CH09 –ANT 1		

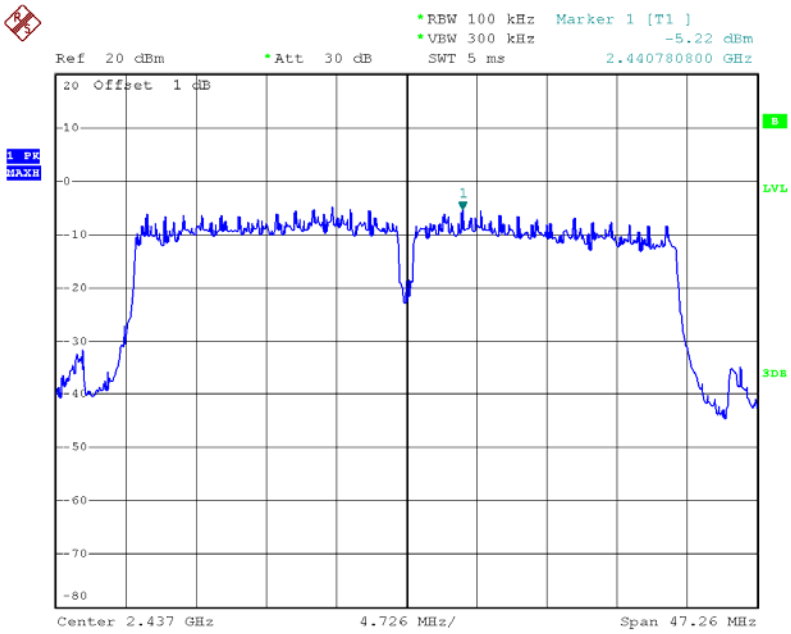
Test Channel	Frequency (MHz)	Power Density (dBm)	LIMIT (dBm)
CH03	2422 MHz	-21.65	8
CH06	2437 MHz	-20.44	8
CH09	2462 MHz	-22.62	8

Note: Scale the observed power level to an equivalent value in 3 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where BWCF = 10log (3 kHz/ 100kHz = -15.22 dB).

TX CH03

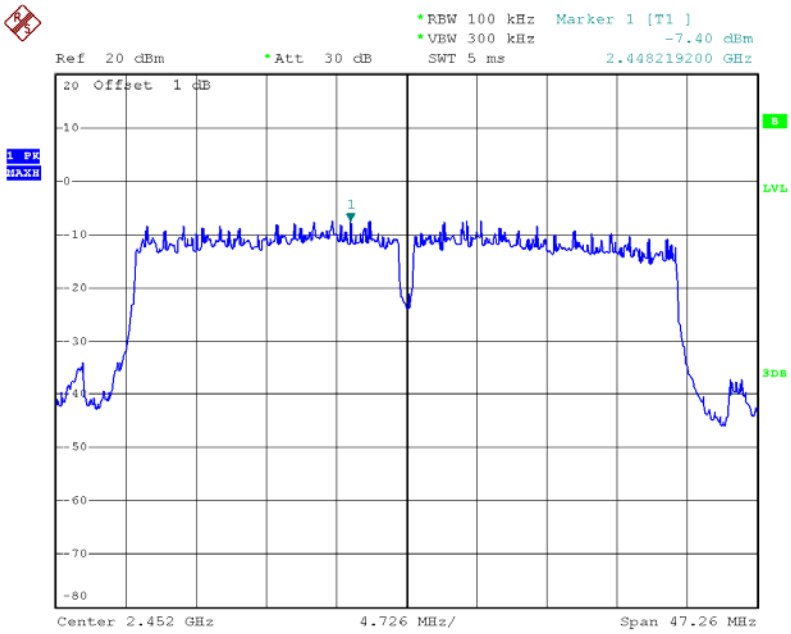


TX CH06



Date: 7.NOV.2012 19:58:10

TX CH09



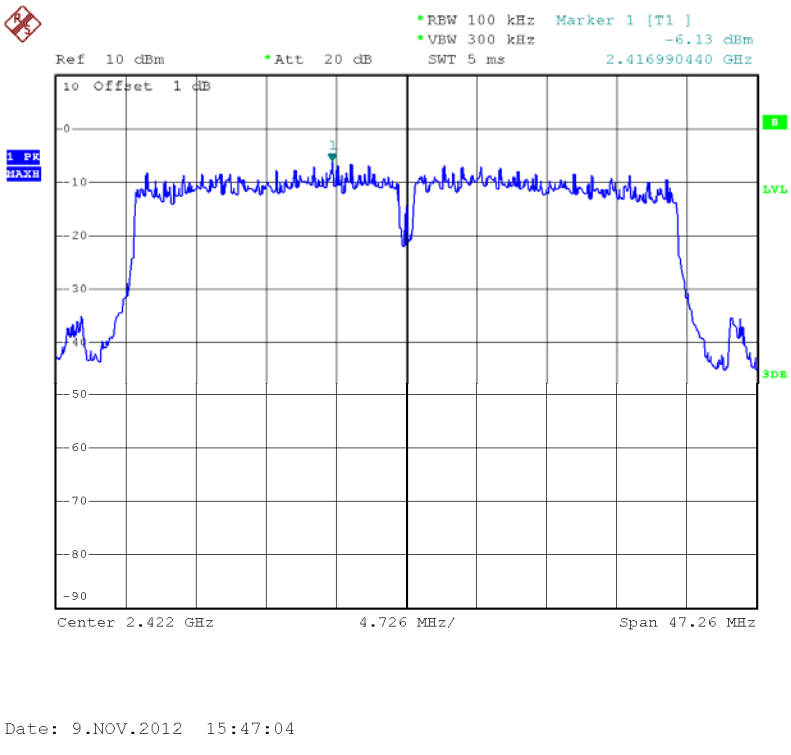
Date: 7.NOV.2012 20:01:08

EUT：	Wireless xDSL Bonding Router	Model Name ：	F@ST 4320 US
Temperature：	24 ℃	Relative Humidity：	60 %
Pressure：	1016 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX N MODE-40MHz /CH03, CH06, CH09 –ANT 2		

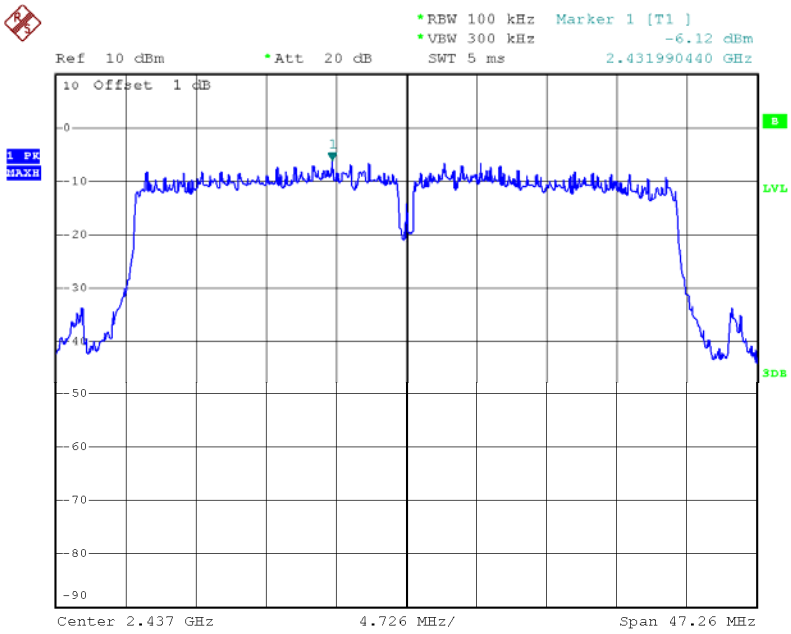
Test Channel	Frequency (MHz)	Power Density (dBm)	LIMIT (dBm)
CH03	2422 MHz	-21.35	8
CH06	2437 MHz	-21.34	8
CH09	2462 MHz	-21.26	8

Note: Scale the observed power level to an equivalent value in 3 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where BWCF = 10log (3 kHz/ 100kHz = -15.22 dB).

TX CH03

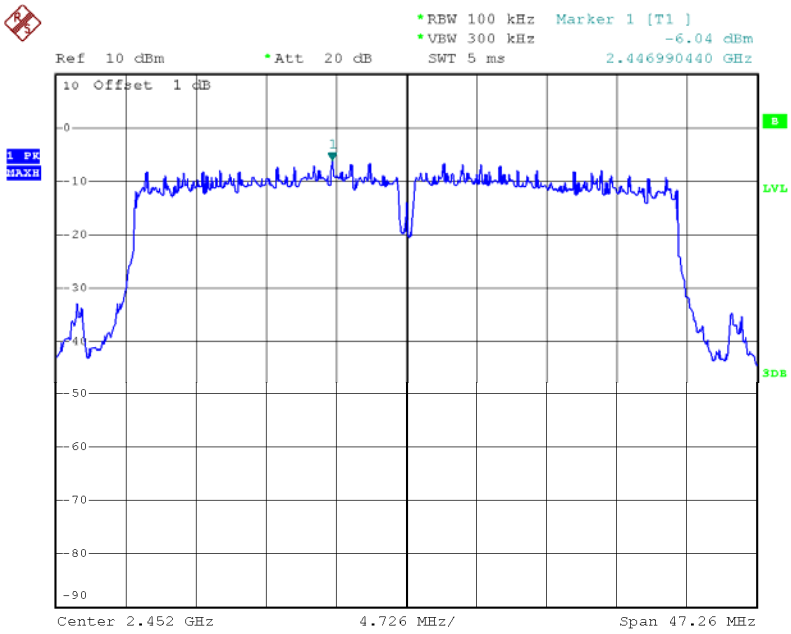


TX CH06



Date: 9.NOV.2012 15:51:40

TX CH09



Date: 9.NOV.2012 15:52:51

EUT：	Wireless xDSL Bonding Router	Model Name ：	F@ST 4320 US
Temperature：	24 ℃	Relative Humidity：	60 %
Pressure：	1016 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX N MODE-40MHz /CH03, CH06, CH09 –ANT 1+ANT 2		

Total (Ant 1 + Ant 2)					
Test Channel	**Frequency (MHz)**	**Power density (dBm)**	**(mW)**	**LIMIT (dBm)**	**PASS/FAIL**
CH03	2422	-18.49	0.01	8	PASS
CH06	2437	-17.86	0.02	8	PASS
CH09	2452	-18.88	0.01	8	PASS

Remark：

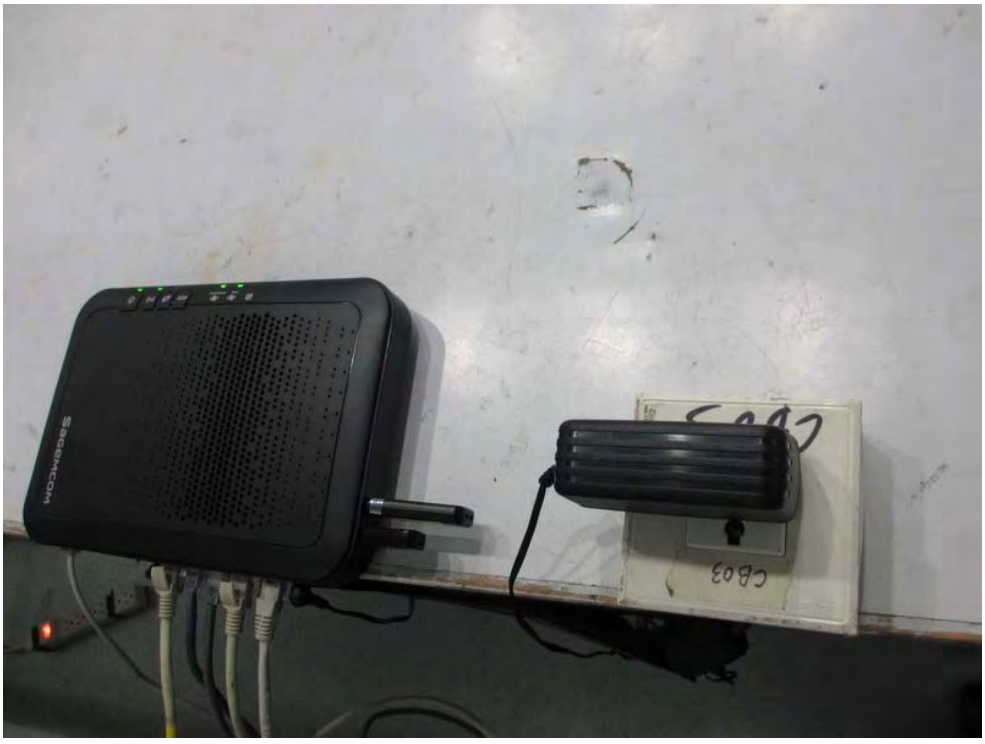
(1) **The MIMO test requirement, RF conducted output power shall measure each transmitter chain by using channel power method.**
And after obtain each individual transmitter chain power, then sum the output power by using the following formula:
((dBm/Chain 1)/10^Log) + ((dBm/Chain 2)/10^log) + ((dBm/ChainN)/10^log) = Combined peak output power in mW.

(2) **Antenna Gain=5 dBi.**

(3) This EUT supports MIMO 2T2R, All transmit signals are completely uncorrelated, then $\text{Directional gain} = 10\log[(10^{G1/10} + 10^{G2/10} + \ldots + 10^{GN/10})/N]\ \text{dBi}$, that is Directional gain=5;

9. EUT TEST PHOTO

Conducted Measurement Photos



Radiated Measurement Photos