FCC Radio Test Report

FCC ID: QGH-47611-WG4

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

Issued Date	:	Jan. 27, 2014
Project No.	:	1401C081
Equipment	:	300Mbps Dual Band 802.11n Wireless Gigabit Router
Model Name	:	47611-WG4
Applicant	:	Leviton Manufacturing Co., Inc.
Address	:	201 North Service Road Melville,NY 11747

Tested by: Neutron Engineering Inc. EMC Laboratory
Date of Receipt: Jan.14, 2014
Date of Test: Jan.14, 2014 ~ Jan. 24, 2014

Testing Engineer : David Mao
(David Mao)

Technical Manager : Leo Hung
(Leo Hung)

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(Steven Lu)

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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.**

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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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REPORT ISSUED HISTORY

Issued No.	Description	Issued Date
NEI-FCCP-1-1401C081	Original Issue.	Jan. 27, 2014

1. CERTIFICATION

Equipment	:	300Mbps Dual Band 802.11n Wireless Gigabit Router
Brand Name	:	Leviton
Model Name	:	47611-WG4
Applicant		Leviton Manufacturing Co., Inc.
Date of Test	:	Jan.14, 2014 ~ Jan. 24, 2014
Test Item	:	ENGINEERING SAMPLE
Standard(s)	:	FCC Part15, Subpart E(15.407) / ANSI C63.4 : 2009; FCC KDB 789033 D01 General UNII Test Procedures v01r03 .

The above equipment has been tested and found compliance with the requirement of the relative standards by Neutron Engineering Inc. EMC Laboratory.
The test data, data evaluation, and equipment configuration contained in our test report (Ref No. NEI-FCCP-2-1401C081) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of TAF according to the ISO-17025 quality assessment standard and technical standard(s).

2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

FCC Part15, Subpart E			
Standard(s) Section FCC	Test Item	Judgment	Remark
15.207	AC Power Line Conducted Emissions	PASS	
15.407(a)	26dB Spectrum Bandwidth	PASS	
15.407(a)	Maximum Conducted Output Power	PASS	
15.407(a)	Power Spectral Density	PASS	
15.407(a)	Peak Excursion	PASS	
15.407(a)	Radiated Emissions	PASS	
15.407(b)	Band Edge Emissions	PASS	
15.407(g)	Frequency Stability	PASS	
15.203	Antenna Requirements	PASS	

NOTE:

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

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 for FCC: 319330

2.2 MEASUREMENT UNCERTAINTY

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

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	9KHz~30MHz	V	3.79	
		9KHz~30MHz	H	3.57	
		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

Equipment	300Mbps Dual Band 802.11n Wireless Gigabit Router	
Brand Name	Leviton	
Model Name	47611-WG4	
Mode Different	N/A	
Product Description	Operation Frequency	Band 1:5150MHz~5250MHz
	Modulation Type	OFDM
	Bit Rate of Transmitter	11a:6/ 9/12/18/24/36/48/54Mbps 11n:300Mbps
	Output Power (Max.)-Band 1	802.11a:15.58dBm 802.11N20:14.50 dBm 802.11N40:14.46 dBm
Power Source	DC voltage supplied from AC/DC adapter. Brand/Model: Powertron Electronics Corp./ PA1015-2DU	
Power Rating	I/P: AC 100-240V~50/60Hz 0.4A O/P: DC 12V 1.0A 12W Max	
Connecting I/O Port(s)	Please refer to the User's Manual	

Note:

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

2. Channel List:

802.11a/n20 MHz		802.11n 40MHz	
Band 1			
Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	38	5190
40	5200	46	5230
44	5220		
48	5240		

3. Antenna Specification:

Ant.	Manufacturer	Model Name	Antenna Type	Connector	Gain (dBi)	Note
1	N/A	Q5062	Dipole	N/A	3.8	TX/RX
2	N/A	Q5063	Dipole	N/A	3.72	TX/RX

Note:
(1) The EUT incorporates a MIMO function. Physically, the EUT provides two completed two transmitters and two receivers (2T2R), all transmit signals are completely uncorrelated, then, **Direction gain = G_{ANT}**, that is Directional gain=3.8.

4.

Operating Mode / TX Mode	1TX	2TX
802.11a	V (ANT 1 or ANT 2)	-
802.11n(20MHz)	-	V (ANT 1 + ANT 2)
802.11n(40MHz)	-	V (ANT 1 + ANT 2)

3.2 DESCRIPTION OF TEST MODES

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

Pretest Test Mode	Description
Mode 1	TX A Mode / CH36, CH40, CH48(Band 1)
Mode 2	TX N20 Mode / CH36, CH40, CH48(Band 1)
Mode 3	TX N40 Mode / CH38, CH46 (Band 1)
Mode 4	TX Mode

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 4	TX Mode

For Radiated Test	
Final Test Mode	Description
Mode 1	TX A Mode / CH36, CH40, CH48(Band 1)
Mode 2	TX N20 Mode / CH36, CH40, CH48(Band 1)
Mode 3	TX N40 Mode / CH38, CH46 (Band 1)

Note: For Radiated Below 1G test, the 802.11a mode is found to be the worst case and recorded.

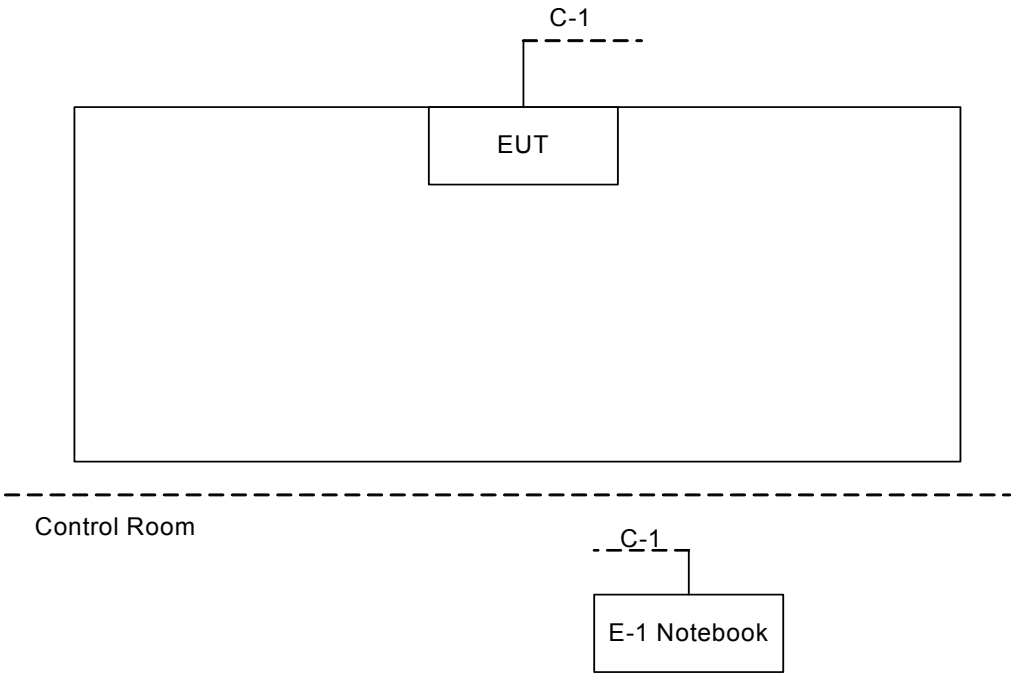
3.3 TABLE OF PARAMETERS OF TEXT SOFTWARE SETTING

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

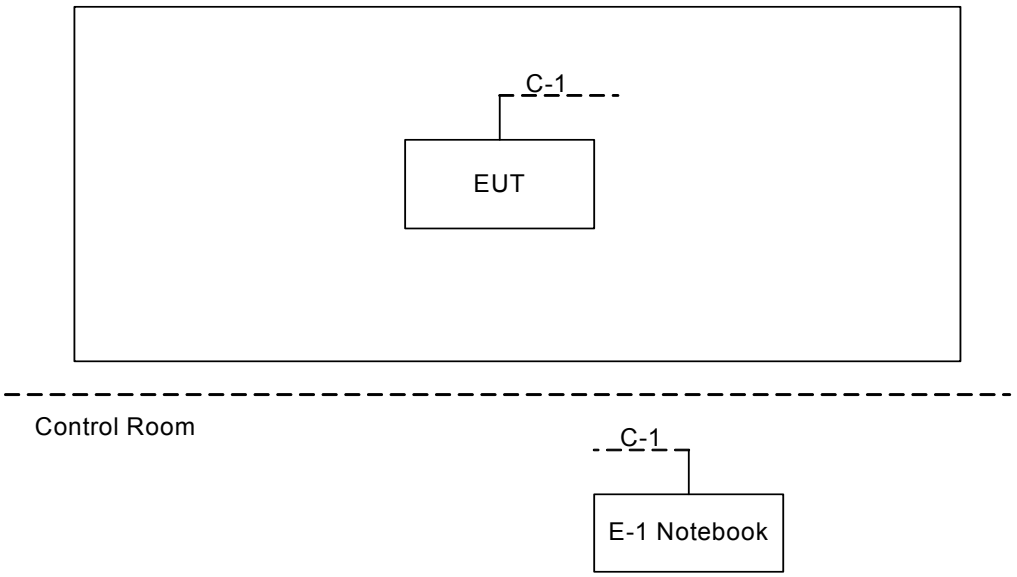
Test software version	MTool_2.0.0.3		
Frequency	5180 MHz	5200MHz	5240 MHz
A Mode	62	73	74
N20 Mode	50	50	50
Frequency	5190 MHz	5230MHz	
N40 Mode	50	50	

3.4 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

Conducted TX Mode:



Radiated TX Mode:



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/IC	Series No.	Note
E-1	Notebook	HP	HP NB 331	DOC	N/A	

Item	Shielded Type	Ferrite Core	Length	Note
C-1	NO	NO	10m	RJ45 Cable

4. EMC EMISSION TEST

4.1 CONDUCTED EMISSION MEASUREMENT

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

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

Note:

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

(2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

4.1.2 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.

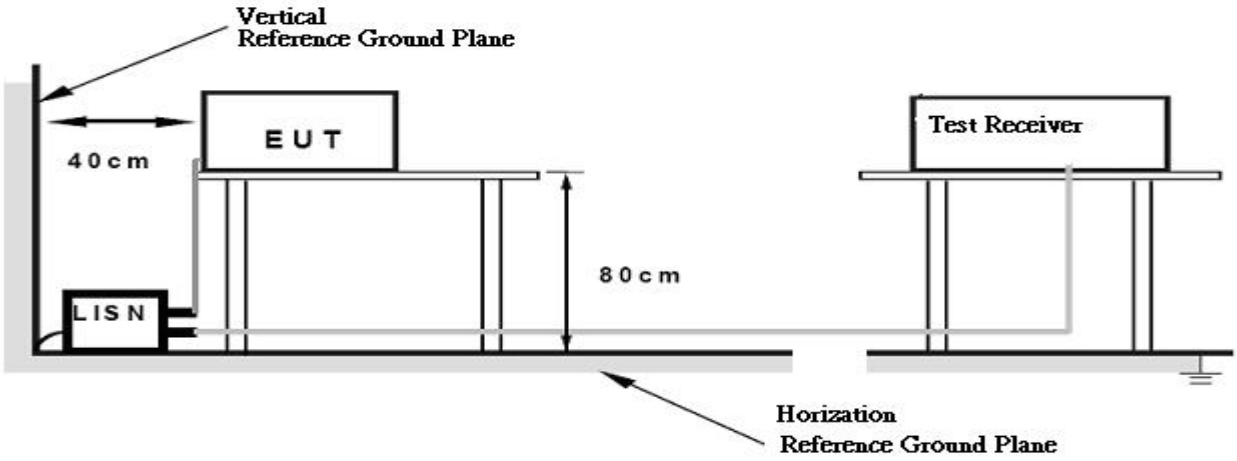
d. LISN at least 80 cm from nearest part of EUT chassis.

e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

4.1.3 DEVIATION FROM TEST STANDARD

No deviation

4.1.4 TEST SETUP



4.1.5 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.

4.1.6 EUT TEST CONDITIONS

Temperature: 25°C
Relative Humidity: 55%
Test Voltage: 120V/60Hz

4.1.7 TEST RESULTS

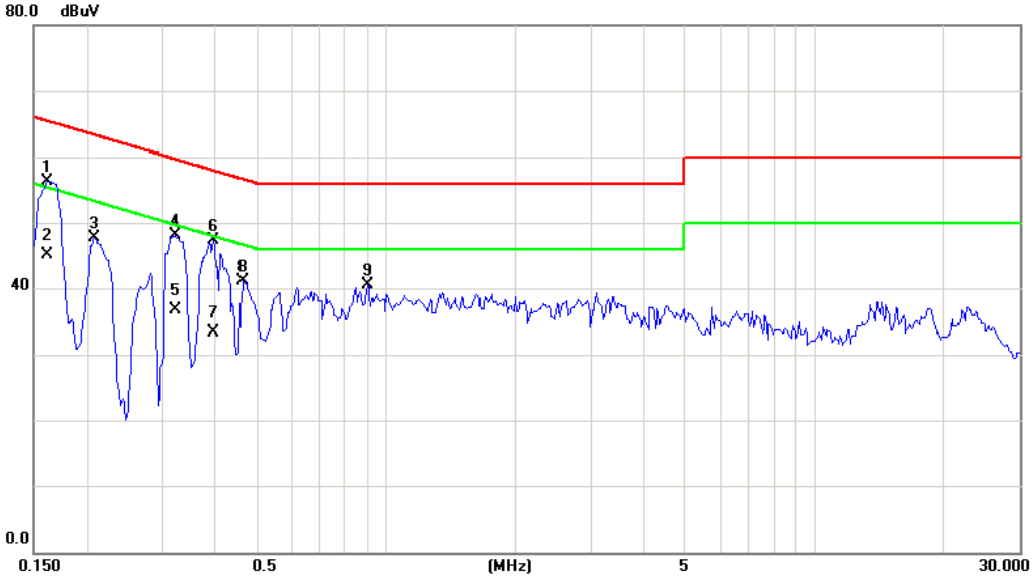
Remark:

(1) 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 ◦

(2) Measuring frequency range from 150KHz to 30MHz ◦

Test Mode :	TX Mode

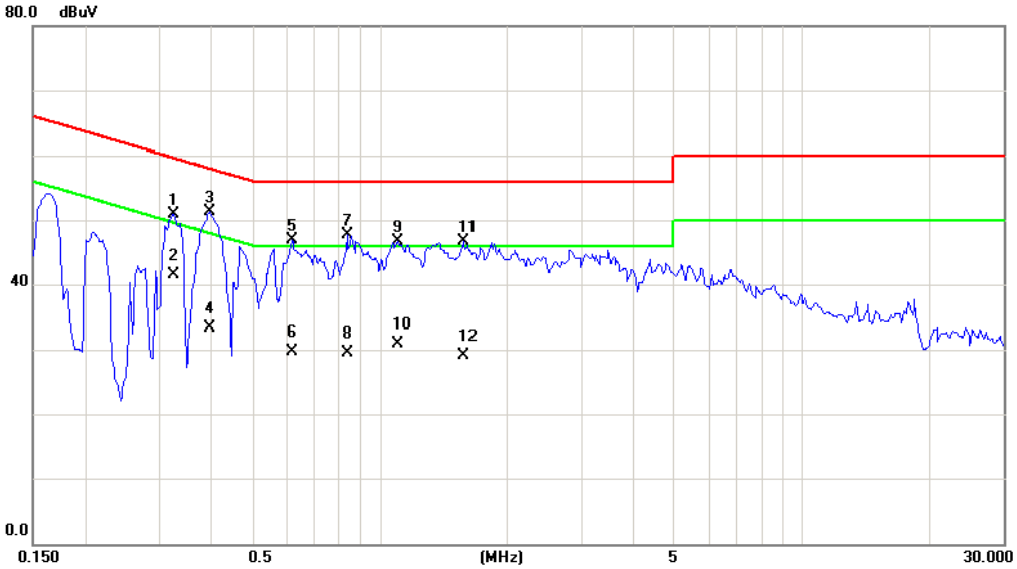
Line



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1617	46.64	9.63	56.27	65.38	-9.11	peak	
2		0.1617	35.40	9.63	45.03	55.38	-10.35	AVG	
3		0.2086	38.09	9.65	47.74	63.26	-15.52	peak	
4		0.3220	38.34	9.67	48.01	59.66	-11.65	peak	
5		0.3220	27.00	9.67	36.67	49.66	-12.99	AVG	
6		0.3961	37.67	9.68	47.35	57.93	-10.58	peak	
7		0.3961	23.60	9.68	33.28	47.93	-14.65	AVG	
8		0.4625	31.34	9.70	41.04	56.65	-15.61	peak	
9		0.9078	30.75	9.74	40.49	56.00	-15.51	peak	

Test Mode :	TX Mode

Neutral



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.3258	41.20	9.72	50.92	59.56	-8.64	peak	
2		0.3258	31.70	9.72	41.42	49.56	-8.14	AVG	
3	*	0.3961	41.48	9.73	51.21	57.93	-6.72	peak	
4		0.3961	23.60	9.73	33.33	47.93	-14.60	AVG	
5		0.6188	37.21	9.74	46.95	56.00	-9.05	peak	
6		0.6188	19.90	9.74	29.64	46.00	-16.36	AVG	
7		0.8375	37.94	9.75	47.69	56.00	-8.31	peak	
8		0.8375	19.80	9.75	29.55	46.00	-16.45	AVG	
9		1.1031	37.02	9.78	46.80	56.00	-9.20	peak	
10		1.1031	21.10	9.78	30.88	46.00	-15.12	AVG	
11		1.5797	36.80	9.83	46.63	56.00	-9.37	peak	
12		1.5797	19.20	9.83	29.03	46.00	-16.97	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)
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

Notes:

(1) The limit for radiated test was performed according to FCC PART 15C.

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

LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS

Frequencies (MHz)	EIRP Limit (dBm)	Equivalent Field Strength at 3m (dBμV/m)
5150~5250	-27	68.3
5250~5350	-27	68.3
5470~5725	-27	68.3
5725~5825	-27	68.3
	-17	78.3

NOTE: The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

$$E=\frac{1000000\sqrt{30P}}{3}$$ μV/m, where P is the eirp (Watts)

4.2.2 TEST PROCEDURE

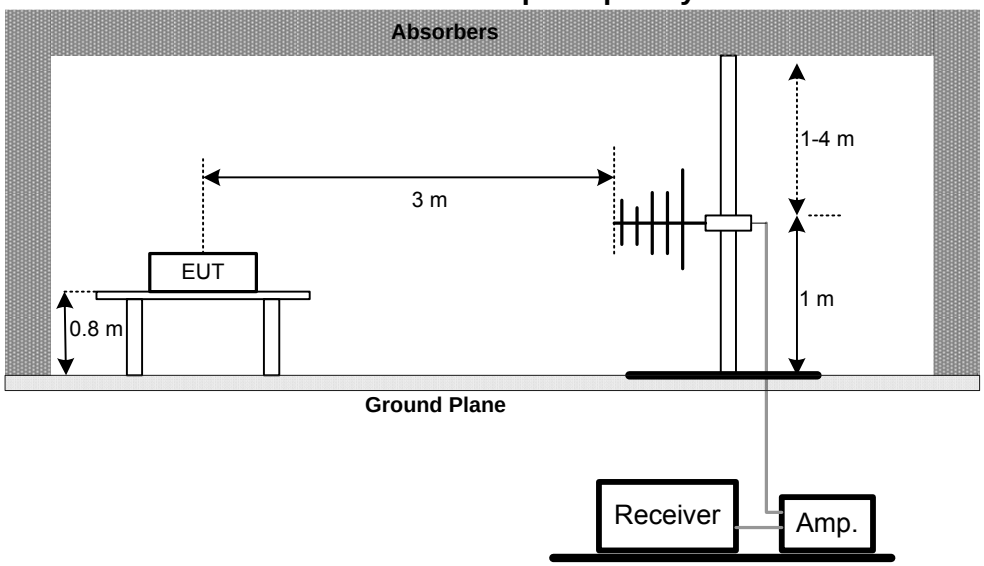
a. The measuring distance of at 1.5m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
c. The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

4.2.3 DEVIATION FROM TEST STANDARD

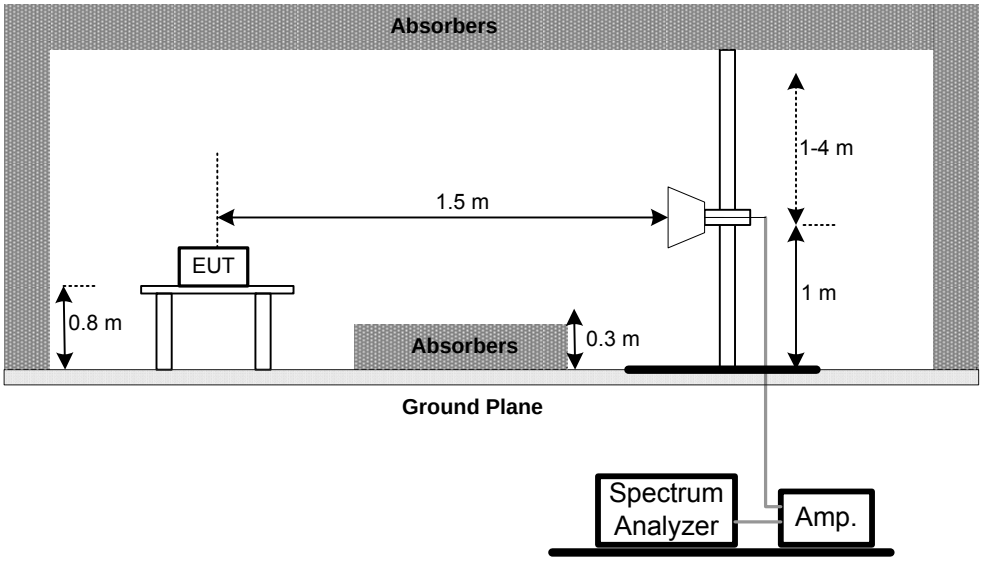
No deviation

4.2.4 TEST SETUP

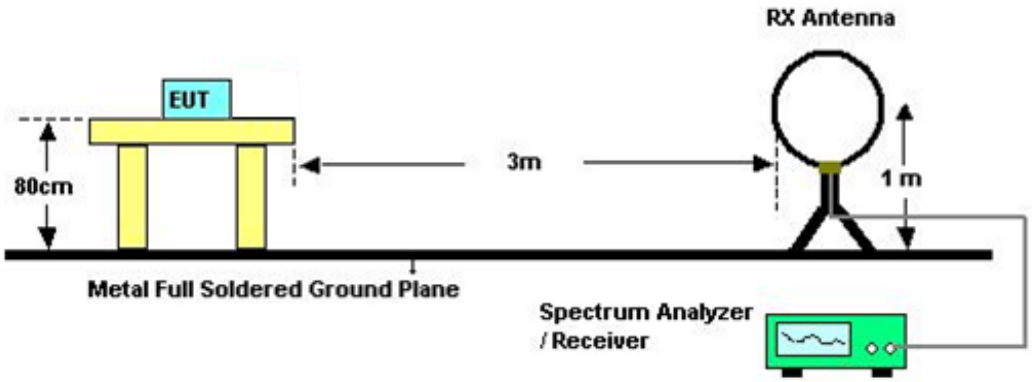
Radiated Emission Test Set-Up Frequency30 - 1000MHz



Radiated Emission Test Set-Up Frequency Above 1 GHz



Radiated emissions below 30MHz



4.2.5 EUT OPERATING CONDITIONS

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

4.2.6 EUT TEST CONDITIONS

Temperature: 25°C
Relative Humidity: 55%
Test Voltage: 120V/60Hz

4.2.7 TEST RESULTS (9K~ 30MHz)

Test Mode :	TX Mode

Freq. (MHz)	Ant. 0°/90°	Reading(RA) (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits(QP) (dBuV/m)	Margin (dB)	Note
0.0075	0°	25.59	24.30	49.89	130.10	-80.21	AV
0.0075	0°	29.57	24.30	53.87	150.10	-96.23	PK
0.0255	0°	21.64	23.95	45.59	119.46	-73.87	AV
0.0255	0°	24.31	23.95	48.26	139.46	-91.20	PK
0.0388	0°	21.51	23.11	44.62	115.84	-71.22	AV
0.0388	0°	24.38	23.11	47.49	135.84	-88.35	PK
0.0635	0°	18.73	22.13	40.86	111.55	-70.69	AV
0.0635	0°	23.92	22.13	46.05	131.55	-85.50	PK
0.2672	0°	20.63	20.36	40.99	99.07	-58.08	AVG
0.2672	0°	22.88	20.36	43.24	119.07	-75.83	PK
1.4736	0°	27.12	19.55	46.67	64.24	-17.56	QP

Freq. (MHz)	Ant. 0°/90°	Reading(RA) (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits(QP) (dBuV/m)	Margin (dB)	Note
0.0097	90°	19.42	24.30	43.72	127.85	-84.13	AVG
0.0097	90°	20.28	24.30	44.58	147.85	-103.27	PK
0.0223	90°	15.54	24.15	39.69	120.63	-80.94	AVG
0.0223	90°	17.42	24.15	41.57	140.63	-99.06	PK
0.0462	90°	18.95	22.64	41.59	114.32	-72.72	AVG
0.0462	90°	21.27	22.64	43.91	134.32	-90.40	PK
0.0773	90°	21.11	21.85	42.96	109.84	-66.88	AVG
0.0773	90°	22.27	21.85	44.12	129.84	-85.72	PK
0.3758	90°	21.38	20.10	41.48	96.10	-54.63	AVG
0.3758	90°	24.55	20.10	44.65	116.10	-71.46	PK
1.7162	90°	25.95	19.53	45.48	69.54	-24.06	QP

Remark:

(1) The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.
(2) Distance extrapolation factor = 40 log (specific distance / test distance) (dB);
(3) Limit line = specific limits (dBuV) + distance extrapolation factor.

4.2.8 TEST RESULTS-BETWEEN 30MHZ - 1000MHZ

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 ◦

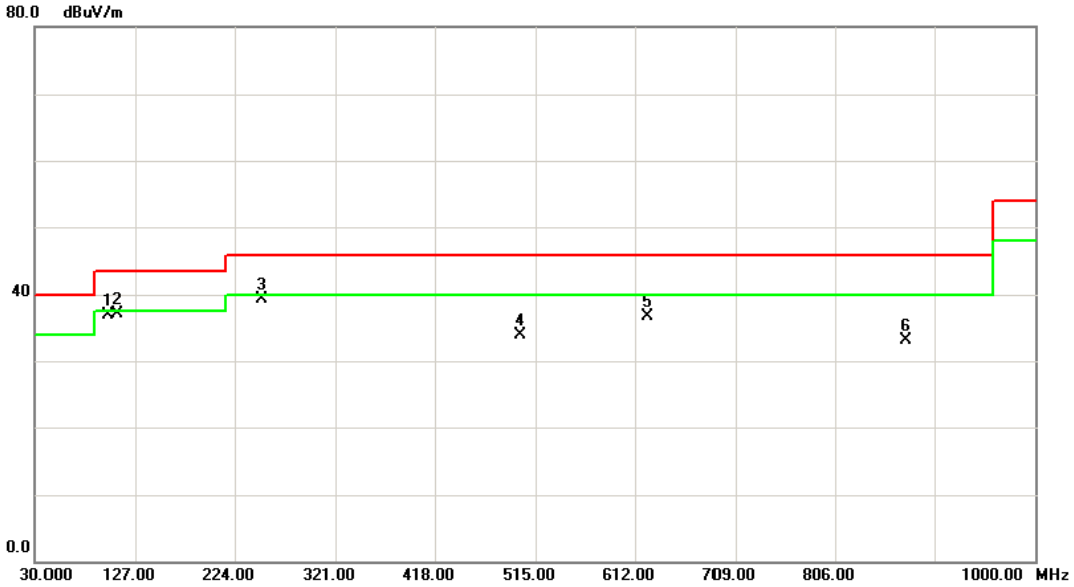
(2) All readings are Peak unless otherwise stated QP in column of 『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform ◦

(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 ◦

Test Mode :	Band 1/TX A Mode 5180MHz

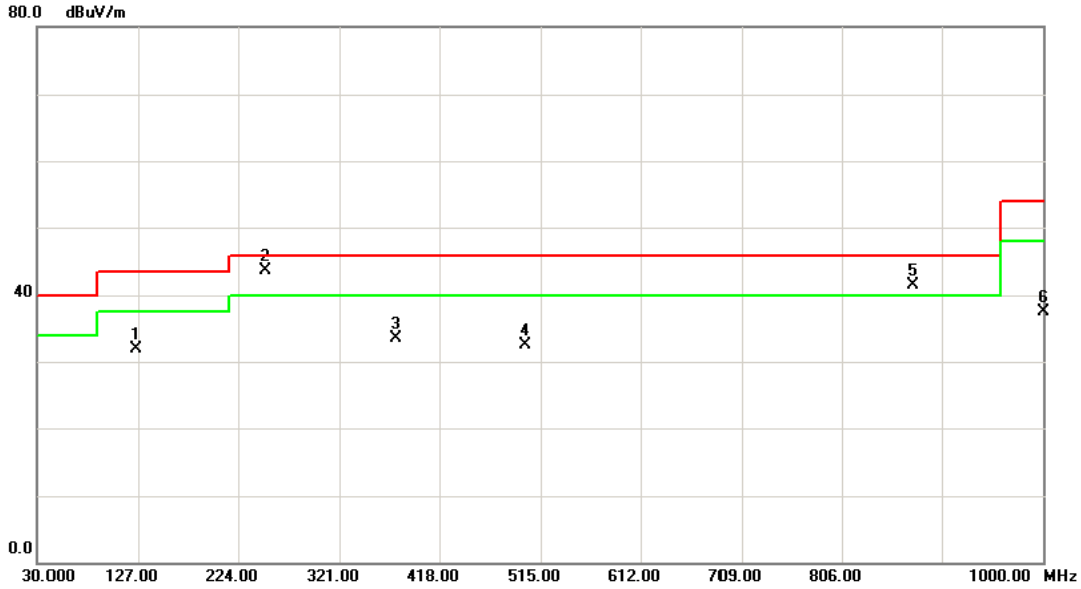
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		99.8400	53.16	-16.25	36.91	43.50	-6.59	peak	
2	*	109.5400	51.88	-14.80	37.08	43.50	-6.42	peak	
3		250.1900	54.19	-14.97	39.22	46.00	-6.78	peak	
4		500.4500	44.26	-10.31	33.95	46.00	-12.05	peak	
5		624.6100	43.61	-6.86	36.75	46.00	-9.25	peak	
6		874.8700	35.54	-2.48	33.06	46.00	-12.94	peak	

Test Mode :	Band 1/TX A Mode 5180MHz

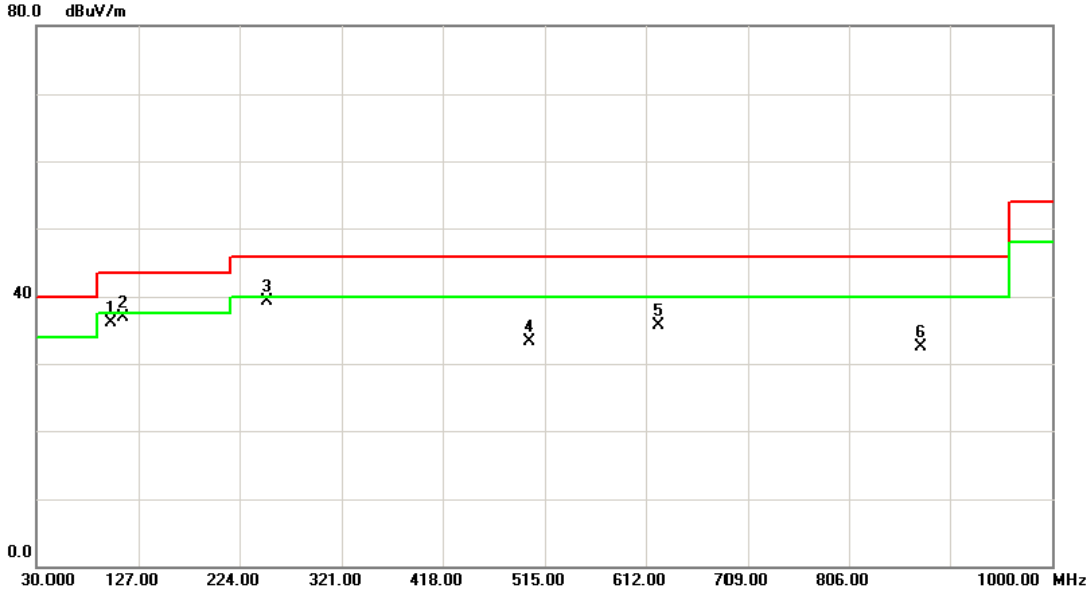
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		125.0600	45.60	-13.61	31.99	43.50	-11.51	peak	
2	*	250.1900	58.63	-14.97	43.66	46.00	-2.34	peak	
3		375.3200	44.11	-10.66	33.45	46.00	-12.55	peak	
4		500.4500	42.76	-10.31	32.45	46.00	-13.55	peak	
5	!	874.8700	43.95	-2.48	41.47	46.00	-4.53	peak	
6		1000.000	37.33	0.26	37.59	54.00	-16.41	peak	

Test Mode :	Band 1/TX A Mode 5200MHz

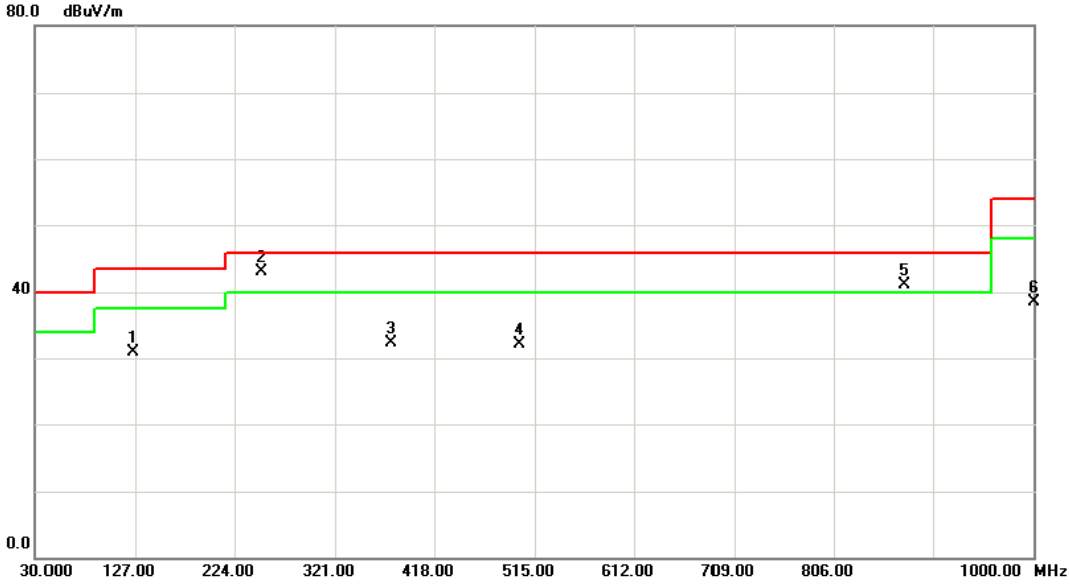
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		99.8400	52.31	-16.25	36.06	43.50	-7.44	peak	
2	*	112.4500	51.48	-14.52	36.96	43.50	-6.54	peak	
3		250.1900	54.29	-14.97	39.32	46.00	-6.68	peak	
4		500.4500	43.67	-10.31	33.36	46.00	-12.64	peak	
5		624.6100	42.63	-6.86	35.77	46.00	-10.23	peak	
6		874.8700	34.98	-2.48	32.50	46.00	-13.50	peak	

Test Mode :	Band 1/TX A Mode 5200MHz

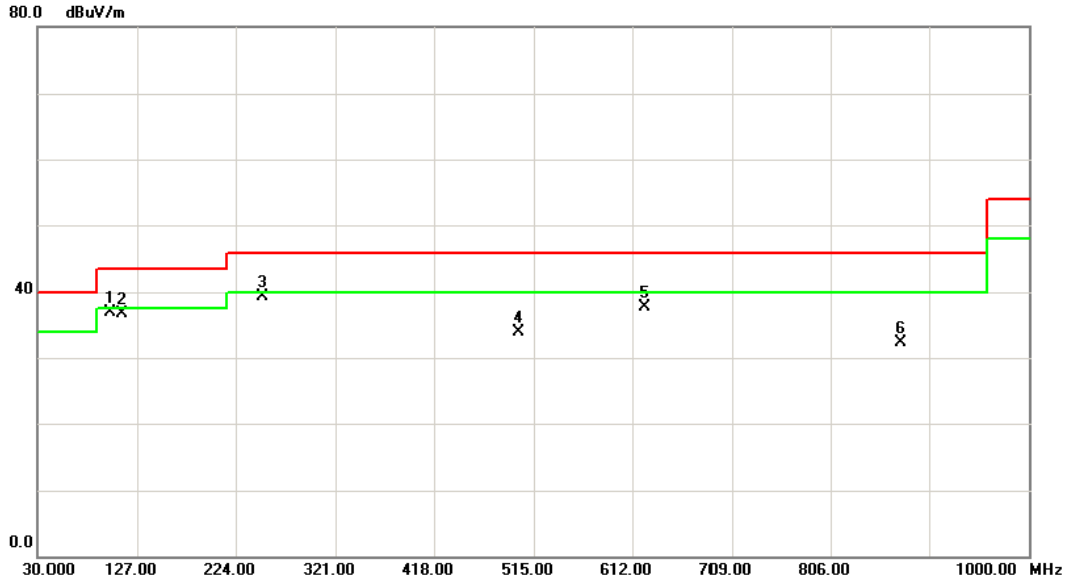
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		125.0600	44.45	-13.61	30.84	43.50	-12.66	peak	
2	*	250.1900	58.07	-14.97	43.10	46.00	-2.90	peak	
3		375.3200	43.05	-10.66	32.39	46.00	-13.61	peak	
4		500.4500	42.47	-10.31	32.16	46.00	-13.84	peak	
5	!	874.8700	43.60	-2.48	41.12	46.00	-4.88	peak	
6		1000.000	38.24	0.26	38.50	54.00	-15.50	peak	

Test Mode :	Band 1/TX A Mode 5240MHz

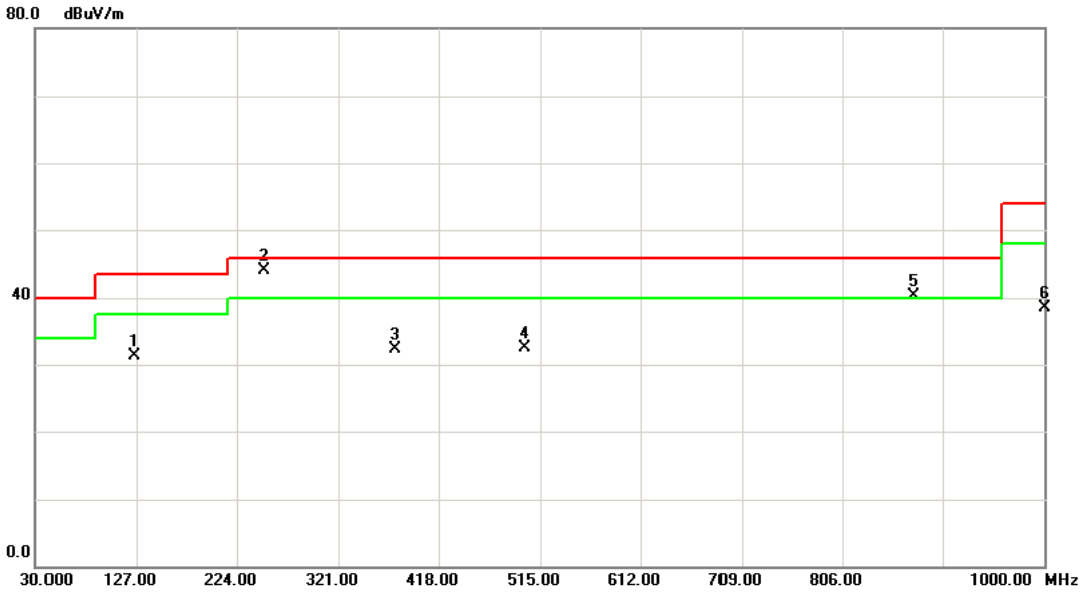
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	99.8400	53.15	-16.25	36.90	43.50	-6.60	peak	
2		112.4500	51.19	-14.52	36.67	43.50	-6.83	peak	
3		250.1900	54.19	-14.97	39.22	46.00	-6.78	peak	
4		500.4500	44.28	-10.31	33.97	46.00	-12.03	peak	
5		624.6100	44.62	-6.86	37.76	46.00	-8.24	peak	
6		874.8700	34.75	-2.48	32.27	46.00	-13.73	peak	

Test Mode :	Band 1/TX A Mode 5240MHz

Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		125.0600	44.85	-13.61	31.24	43.50	-12.26	peak	
2	*	250.1900	59.04	-14.97	44.07	46.00	-1.93	peak	
3		375.3200	43.00	-10.66	32.34	46.00	-13.66	peak	
4		500.4500	42.87	-10.31	32.56	46.00	-13.44	peak	
5	!	874.8700	42.86	-2.48	40.38	46.00	-5.62	peak	
6		1000.000	38.16	0.26	38.42	54.00	-15.58	peak	

4.2.9 TEST RESULTS - ABOVE 1000MHZ

Remark:

(1) Spectrum Setting : 30MHz – 1000MHz , RBW= 100KHz, VBW=100KHz, Sweep time = 200 ms. 1GHz- 40GHz, RBW= 1MHz, VBW= 1MHz, Sweep time = Auto

(2) All readings are Peak unless otherwise stated AV in column of『Note』. Peak denotes that the Peak reading compliance with the AV Limits and then AV Mode measurement didn't perform.

(3) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency。"F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)

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

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

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

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

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

Test Mode :	Band 1/ TX A Mode 5180MHz

Freq.	Ant.Pol.	Reading		Ant./CF	Act.(dBuV/m)		Act.(dBm)		Limit(dBuV/m)		Limit(dBm)		Note
		Peak	AV		Peak	AV	Peak	AV	Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)									
5150.00	V	17.56	10.01	42.72	60.28	52.73	-44.49	-52.04	68.30	54.00	-27.00	-41.30	X/E
5180.70	V	63.82	55.71	42.79	106.61	98.50	1.84	-6.27					X/F
10364.00	V	38.98	28.66	16.02	55.00	44.68	-49.77	-60.09	68.30	54.00	-27.00	-41.30	X/H

Freq.	Ant.Pol.	Reading		Ant./CF	Act.(dBuV/m)		Act.(dBm)		Limit(dBuV/m)		Limit(dBm)		Note
		Peak	AV		Peak	AV	Peak	AV	Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)									
5150.00	H	8.12	-0.19	42.72	50.84	42.53	-53.93	-62.24	68.30	54.00	-27.00	-41.30	X/E
5178.80	H	48.89	41.79	42.79	91.68	84.58	-13.09	-20.19					X/F
10354.75	H	38.52	27.27	16.04	54.56	43.31	-50.21	-61.46	68.30	54.00	-27.00	-41.30	X/H

Test Mode :	Band 1/ TX A Mode 5200MHz

Freq.	Ant.Pol.	Reading		Ant./CF	Act.(dBuV/m)		Act.(dBm)		Limit(dBuV/m)		Limit(dBm)		Note
		Peak	AV		Peak	AV	Peak	AV	Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)									
5206.00	V	63.73	55.45	42.86	106.59	98.31	1.82	-6.46					X/F
10403.00	V	39.83	29.51	15.96	55.79	45.47	-48.98	-59.30	68.30	54.00	-27.00	-41.30	X/H

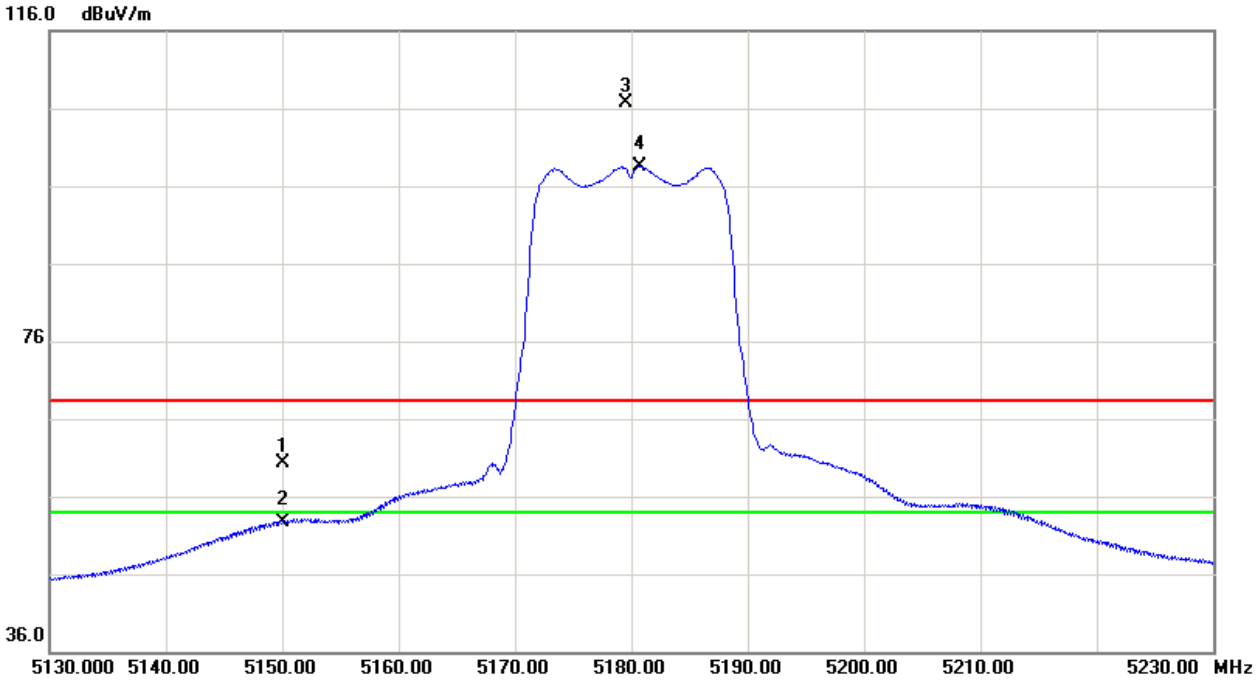
Freq.	Ant.Pol.	Reading		Ant./CF	Act.(dBuV/m)		Act.(dBm)		Limit(dBuV/m)		Limit(dBm)		Note
		Peak	AV		Peak	AV	Peak	AV	Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)									
5199.20	H	53.82	46.39	42.84	96.66	89.23	-8.11	-15.54					X/F
10403.00	H	39.25	28.71	15.96	55.21	44.67	-49.56	-60.10	68.30	54.00	-27.00	-41.30	X/H

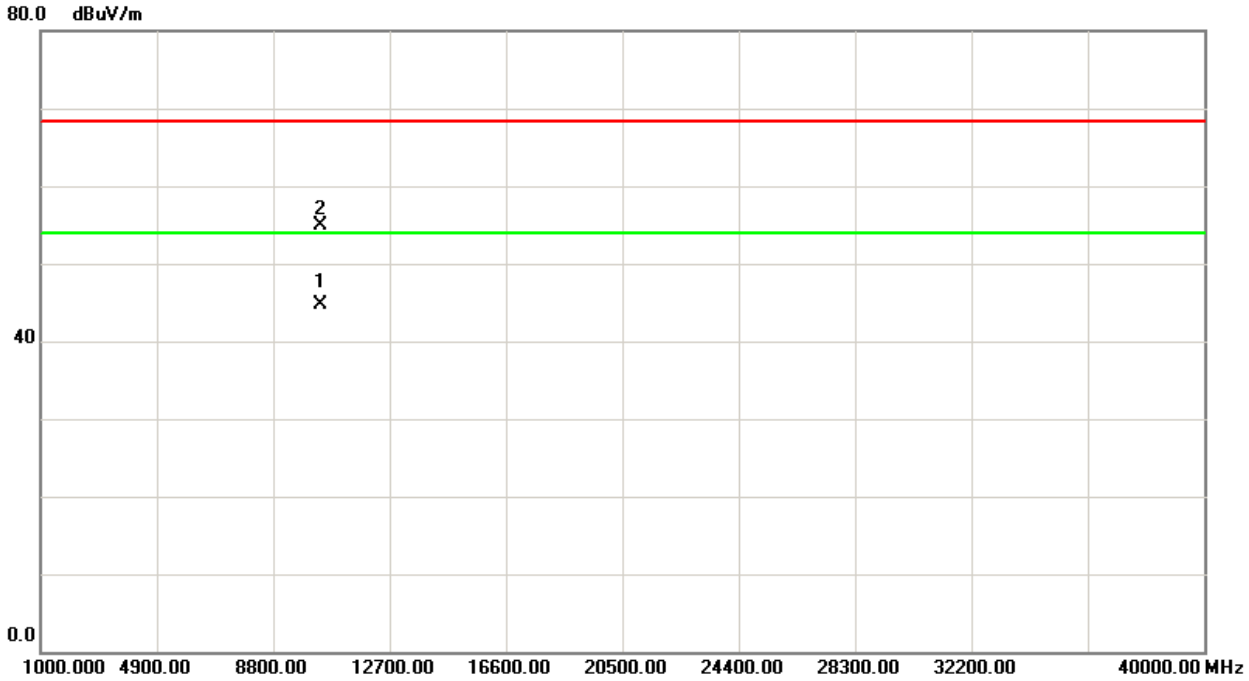
Test Mode :	Band 1/ TX A Mode 5240MHz

Freq.	Ant.Pol.	Reading		Ant./CF	Act.(dBuV/m)		Act.(dBm)		Limit(dBuV/m)		Limit(dBm)		Note
		Peak	AV		Peak	AV	Peak	AV	Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)									
5246.30	V	64.03	56.06	42.95	106.98	99.01	2.21	-5.76					X/F
10482.00	V	39.06	28.73	15.83	54.89	44.56	-49.88	-60.21	68.30	54.00	-27.00	-41.30	X/H

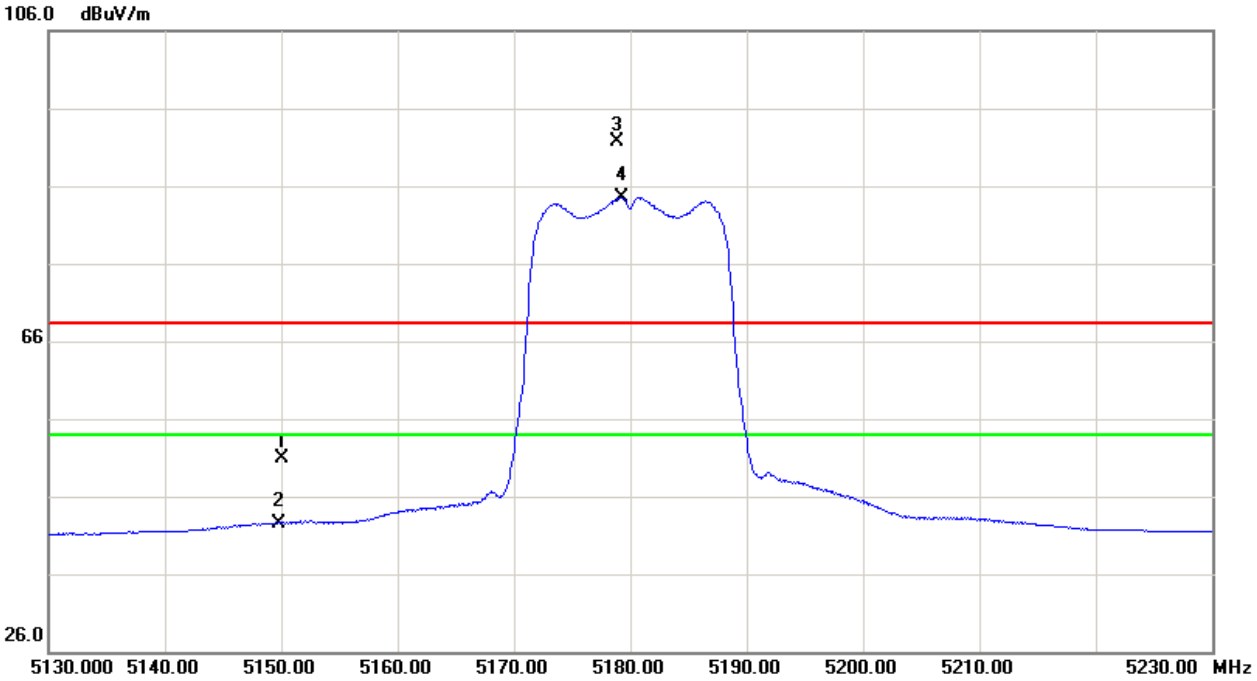
Freq.	Ant.Pol.	Reading		Ant./CF	Act.(dBuV/m)		Act.(dBm)		Limit(dBuV/m)		Limit(dBm)		Note
		Peak	AV		Peak	AV	Peak	AV	Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)									
5238.20	H	52.20	44.79	42.93	95.13	87.72	-9.64	-17.05					X/F
10482.00	H	38.52	27.91	15.84	54.36	43.75	-50.41	-61.02	68.30	54.00	-27.00	-41.30	X/H

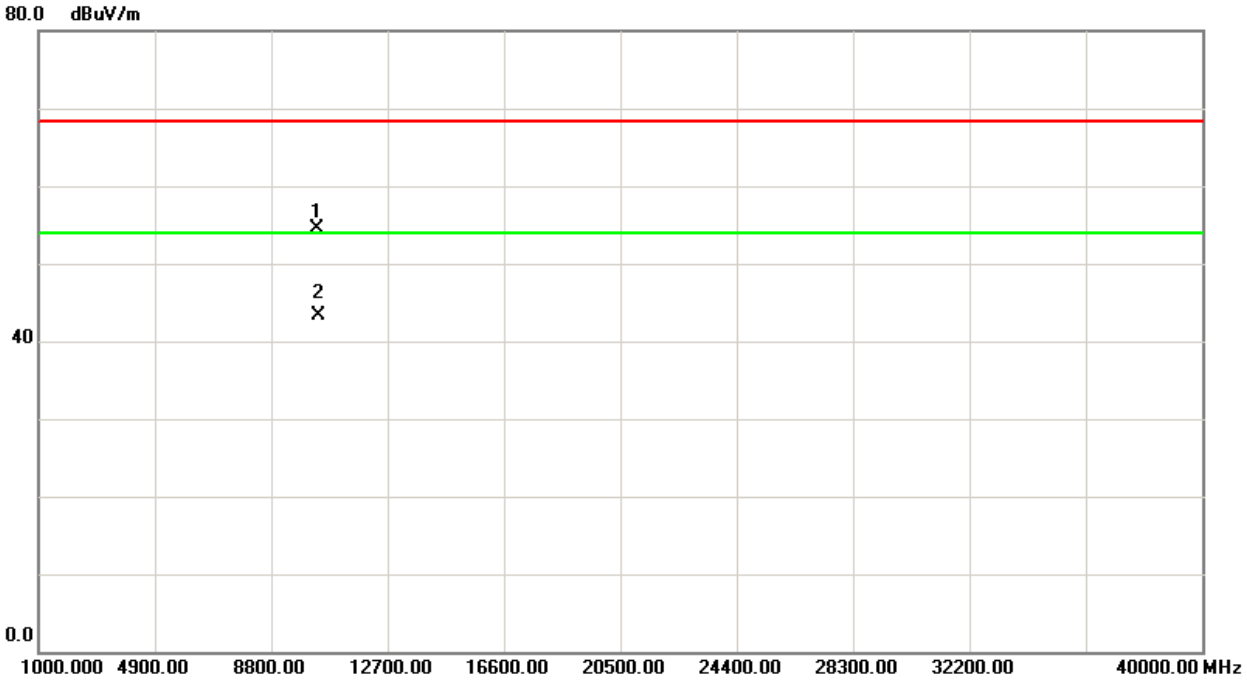
Orthogonal Axis:X
Band 1/CH36(Above 1000 MHz, Vertical)



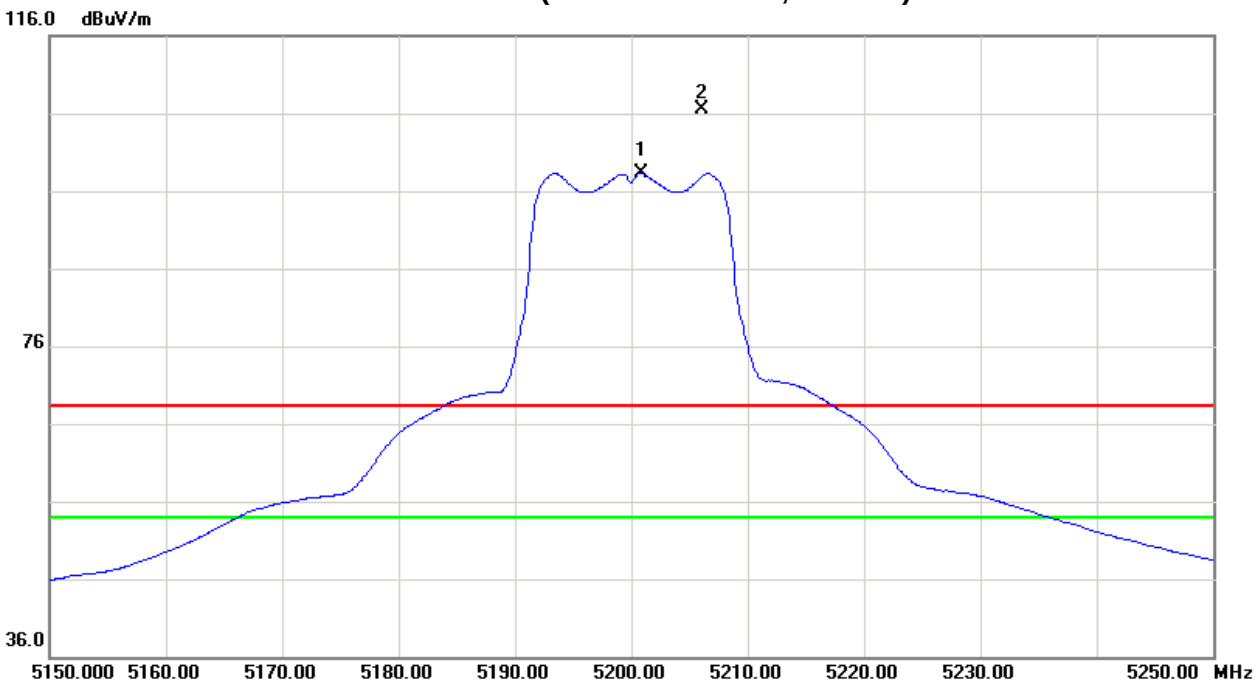


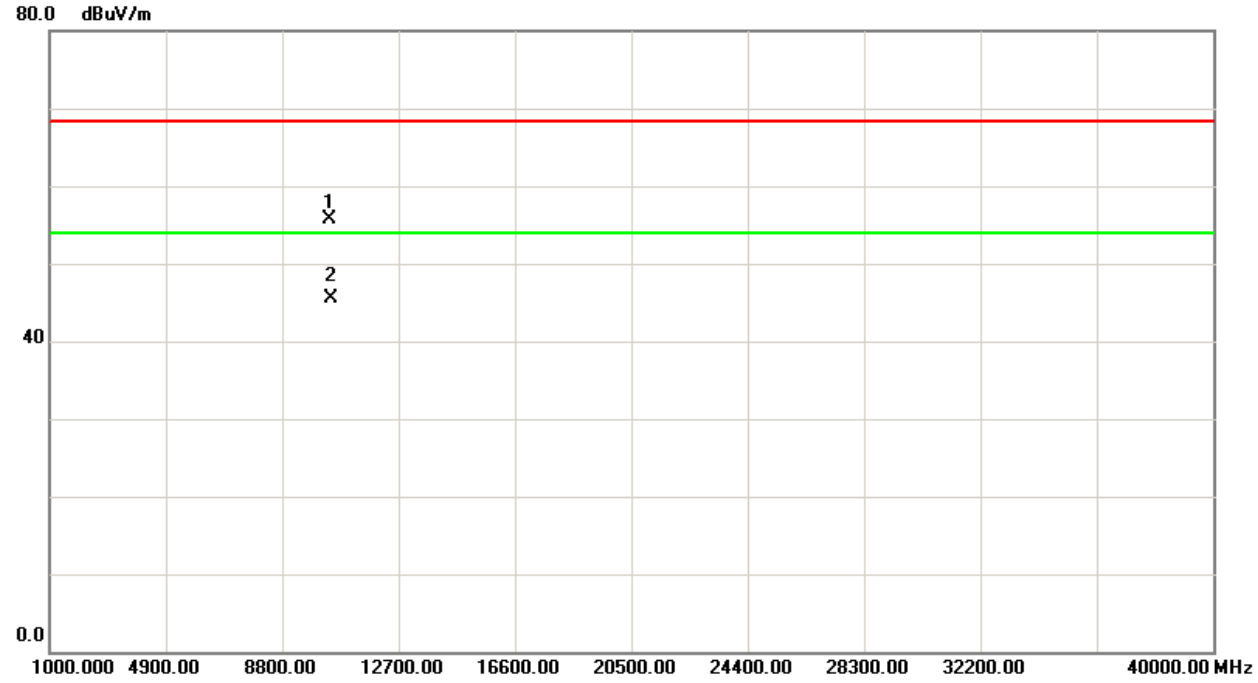
Orthogonal Axis:X
Band 1/CH36(Above 1000 MHz, Horizontal)



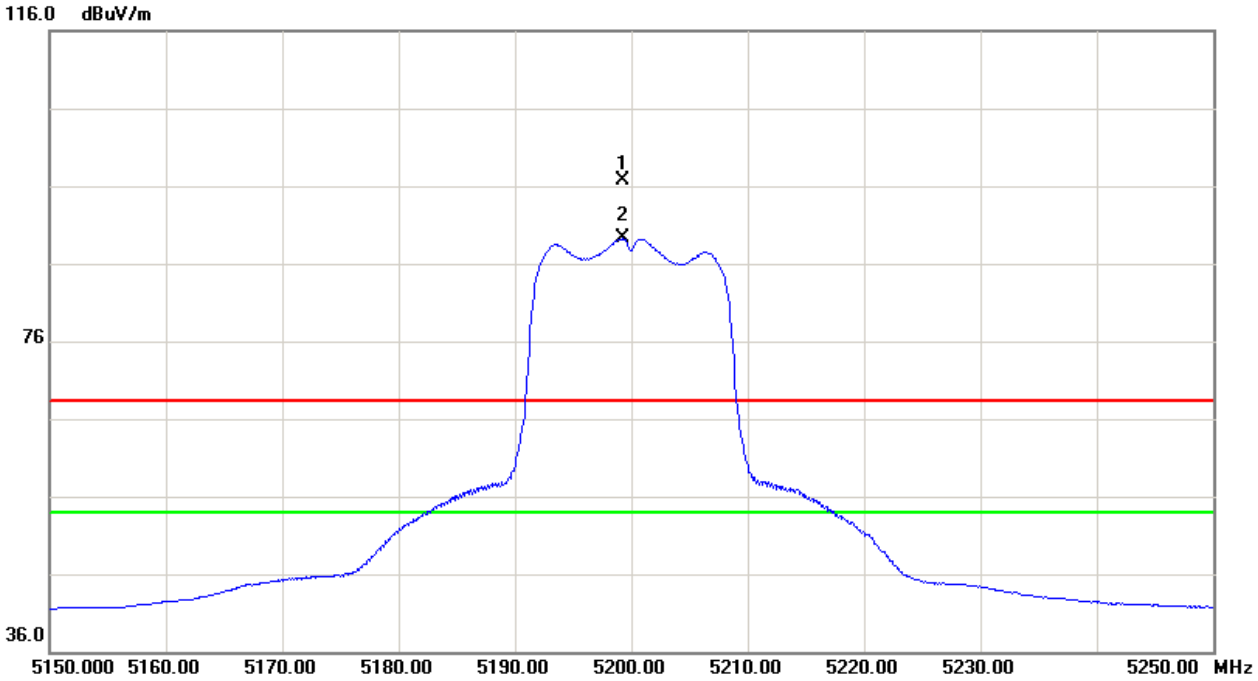


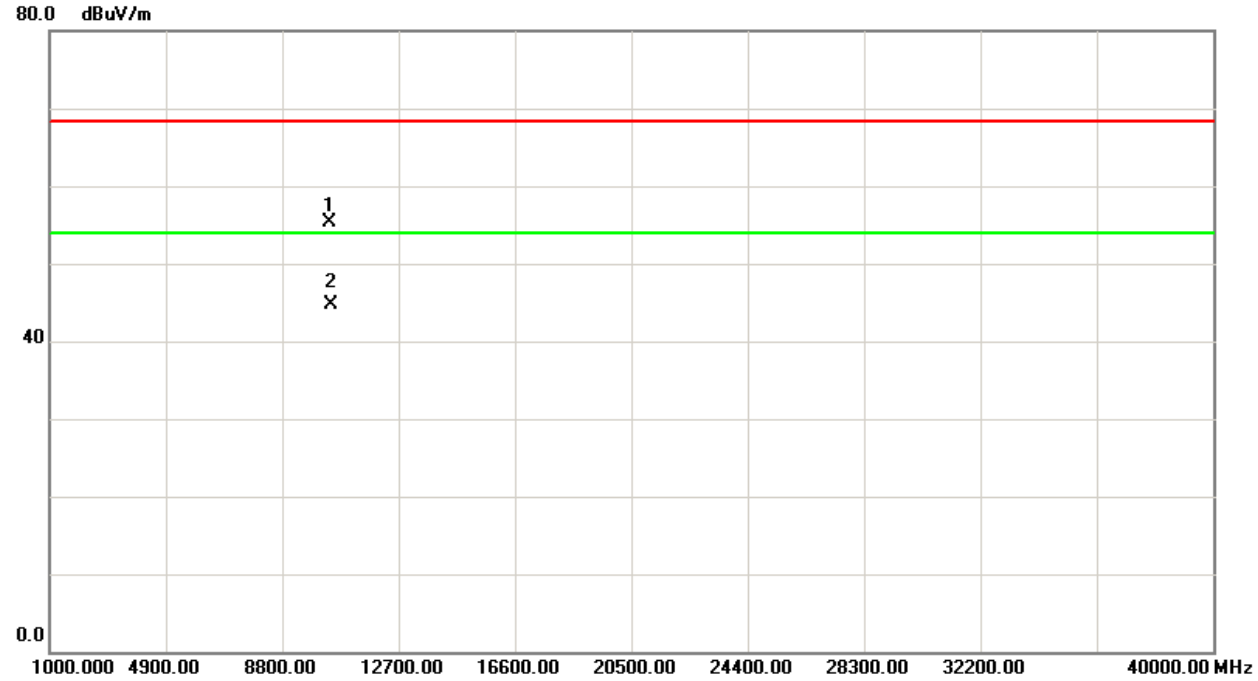
Orthogonal Axis:X
Band 1/CH40(Above 1000 MHz, Vertical)



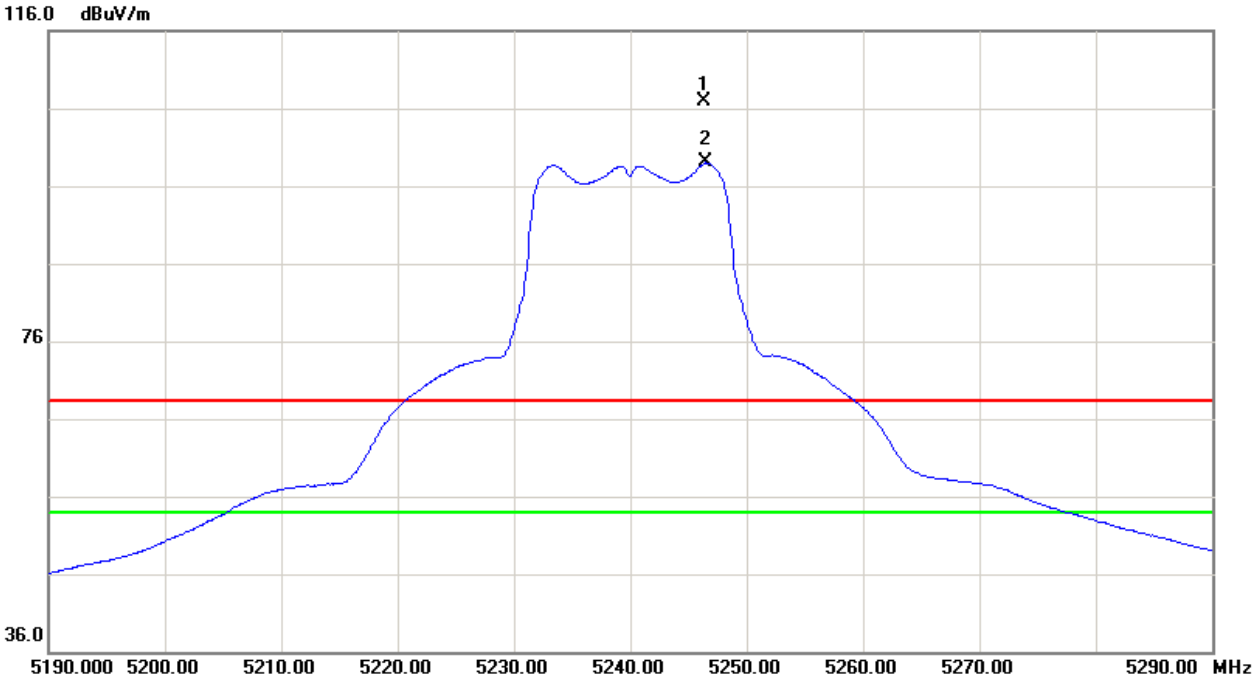


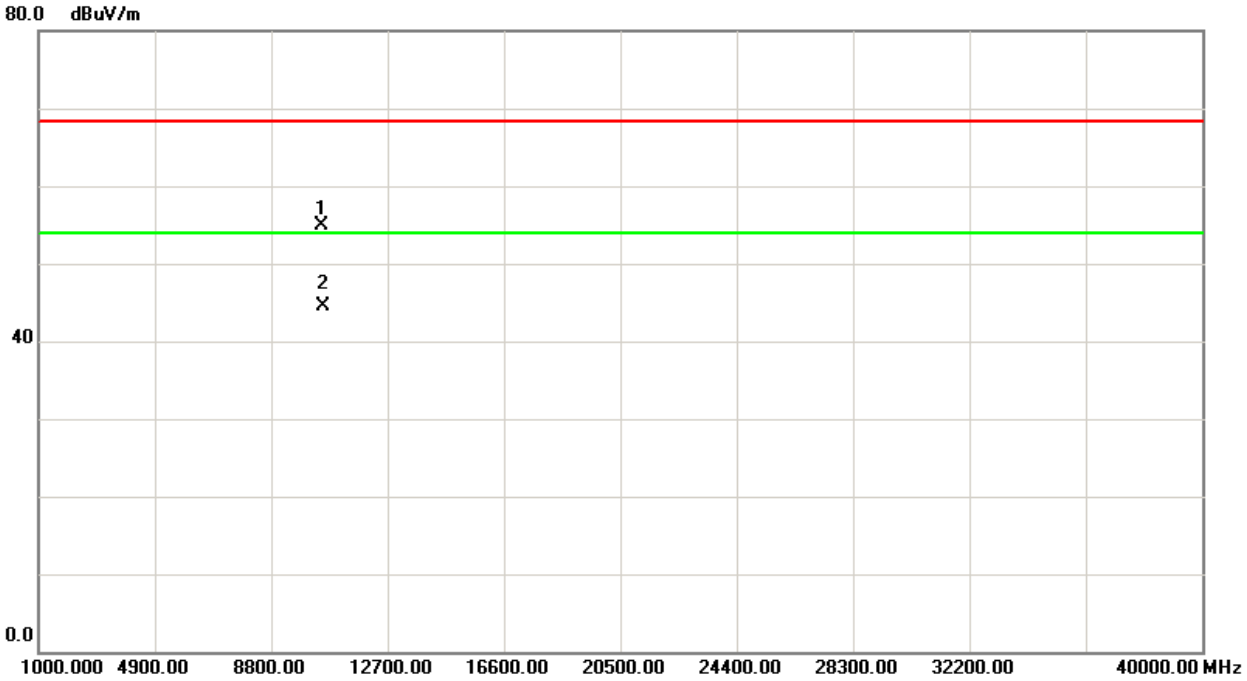
Orthogonal Axis:X
Band 1/CH40(Above 1000 MHz, Horizontal)



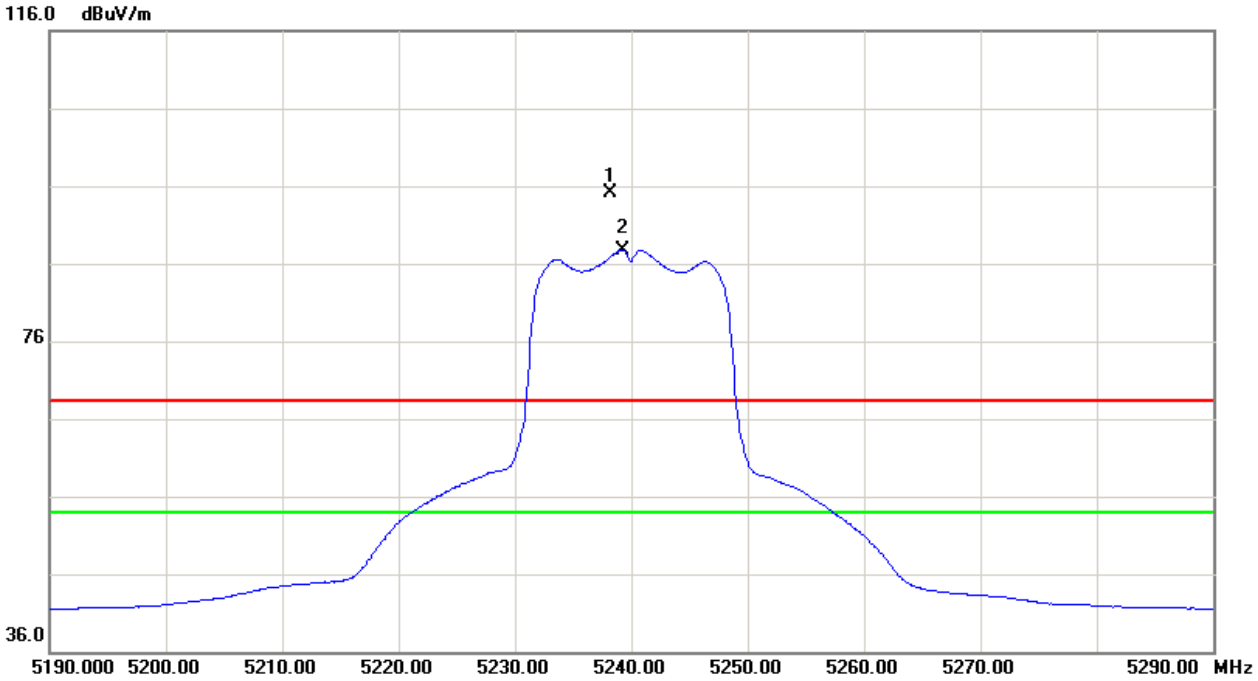


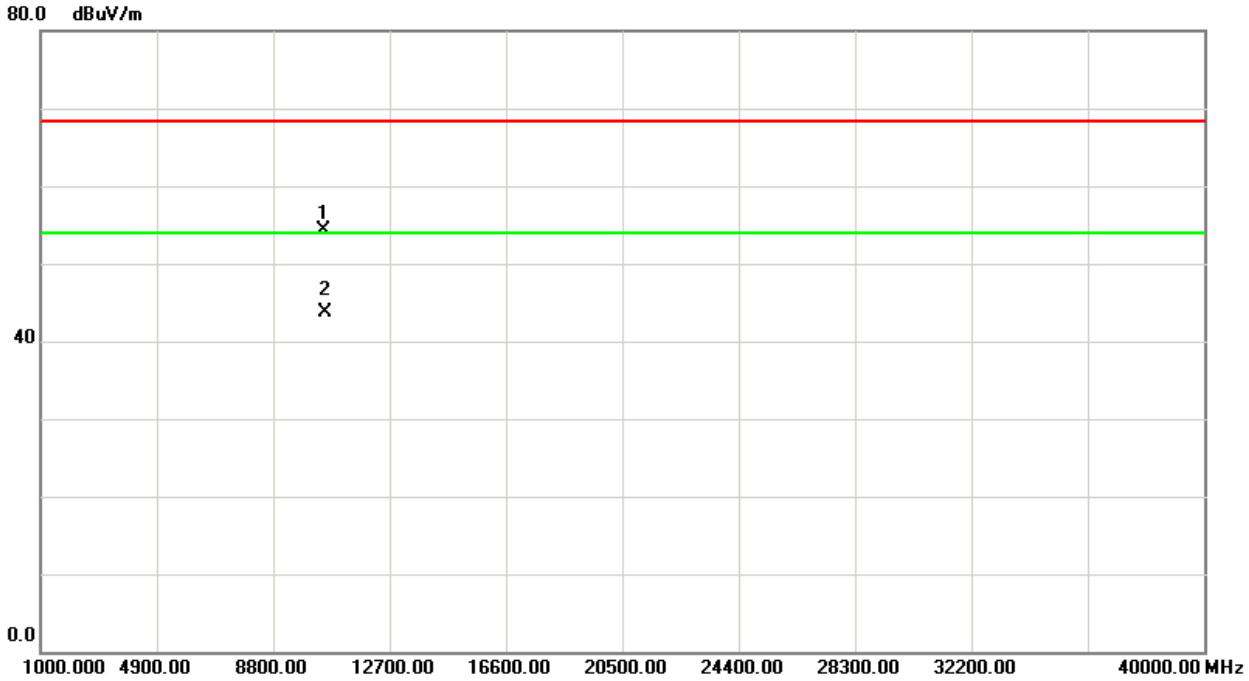
Orthogonal Axis:X
Band 1/CH48(Above 1000 MHz, Vertical)





Orthogonal Axis:X
Band 1/CH48(Above 1000 MHz, Horizontal)





Test Mode :	Band 1/ TX N20 Mode 5180MHz

Freq.	Ant.Pol.	Reading		Ant./CF	Act.(dBuV/m)		Act.(dBm)		Limit(dBuV/m)		Limit(dBm)		Note
		Peak	AV		Peak	AV	Peak	AV	Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)									
5150.00	V	18.51	8.77	42.72	61.23	51.49	-43.54	-53.28	68.30	54.00	-27.00	-41.30	X/E
5179.20	V	63.71	53.89	42.79	106.50	96.68	1.73	-8.09					X/F
10364.00	V	35.94	26.57	16.02	51.96	42.59	-52.81	-62.18	68.30	54.00	-27.00	-41.30	X/H

Freq.	Ant.Pol.	Reading		Ant./CF	Act.(dBuV/m)		Act.(dBm)		Limit(dBuV/m)		Limit(dBm)		Note
		Peak	AV		Peak	AV	Peak	AV	Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)									
5150.00	H	8.08	-0.67	42.72	50.80	42.05	-53.97	-62.72	68.30	54.00	-27.00	-41.30	X/E
5179.30	H	48.65	38.87	42.79	91.44	81.66	-13.33	-23.11					X/F
10365.00	H	36.46	26.59	16.02	52.48	42.61	-52.29	-62.16	68.30	54.00	-27.00	-41.30	X/H

Test Mode :	Band 1/ TX N20 Mode 5200MHz

Freq.	Ant.Pol.	Reading		Ant./CF	Act.(dBuV/m)		Act.(dBm)		Limit(dBuV/m)		Limit(dBm)		Note
		Peak	AV		Peak	AV	Peak	AV	Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)									
5193.20	V	63.37	53.87	42.83	106.20	96.70	1.43	-8.07					X/F
10409.00	V	37.49	27.54	15.95	53.44	43.49	-51.33	-61.28	68.30	54.00	-27.00	-41.30	X/H

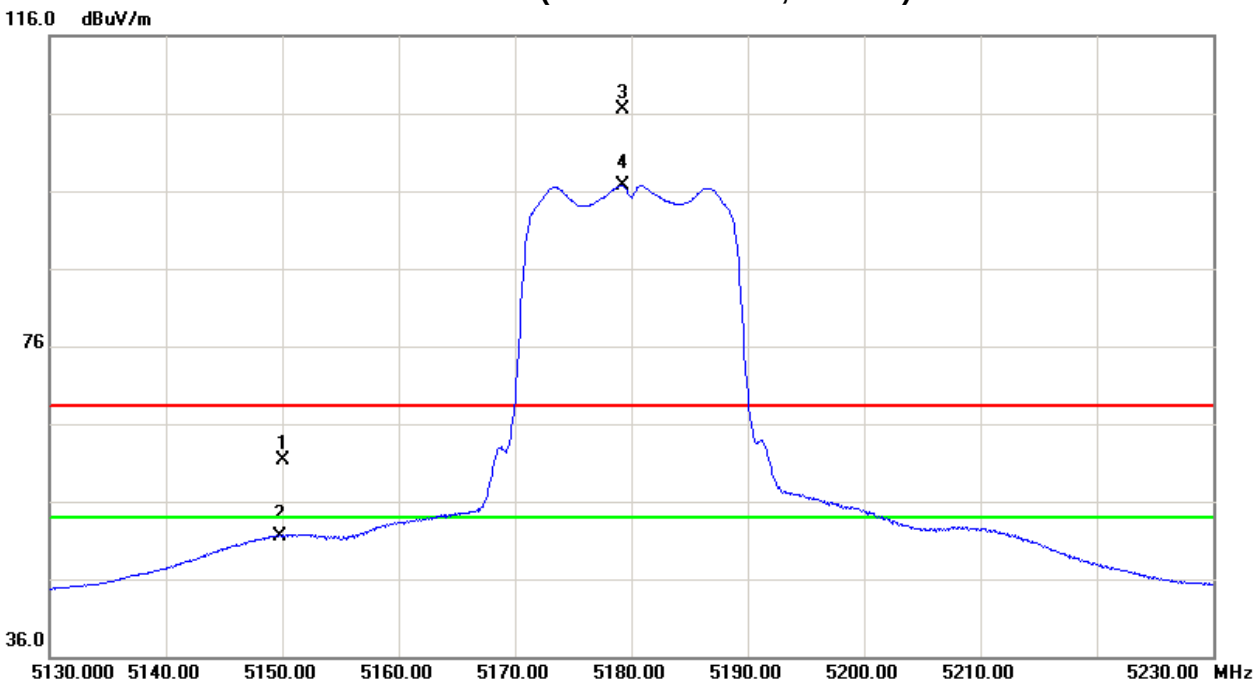
Freq.	Ant.Pol.	Reading		Ant./CF	Act.(dBuV/m)		Act.(dBm)		Limit(dBuV/m)		Limit(dBm)		Note
		Peak	AV		Peak	AV	Peak	AV	Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)									
5200.60	H	48.52	39.16	42.84	91.36	82.00	-13.41	-22.77					X/F
10402.00	H	37.51	27.44	15.96	53.47	43.40	-51.30	-61.37	68.30	54.00	-27.00	-41.30	X/H

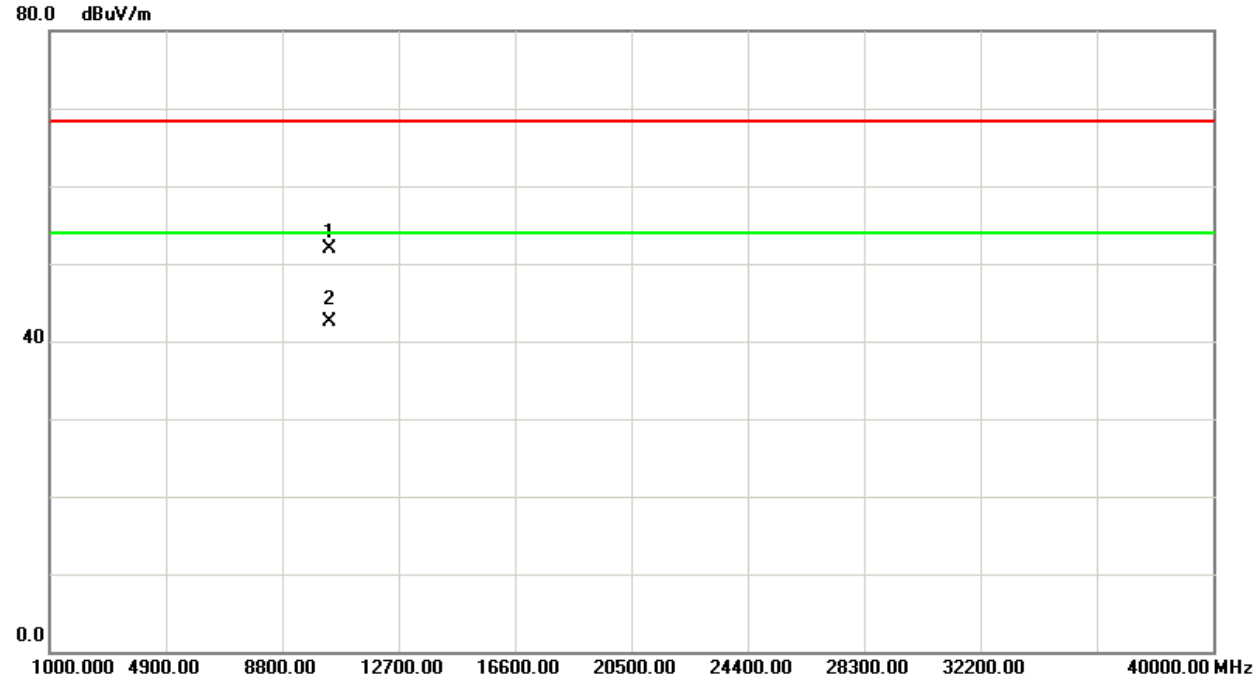
Test Mode :	Band 1/ TX N20 Mode 5240MHz

Freq.	Ant.Pol.	Reading		Ant./CF	Act.(dBuV/m)		Act.(dBm)		Limit(dBuV/m)		Limit(dBm)		Note
		Peak	AV		Peak	AV	Peak	AV	Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)									
5240.50	V	63.84	54.03	42.94	106.78	96.97	2.01	-7.80					X/F
10485.00	V	37.12	27.76	15.84	52.96	43.60	-51.81	-61.17	68.30	54.00	-27.00	-41.30	X/H

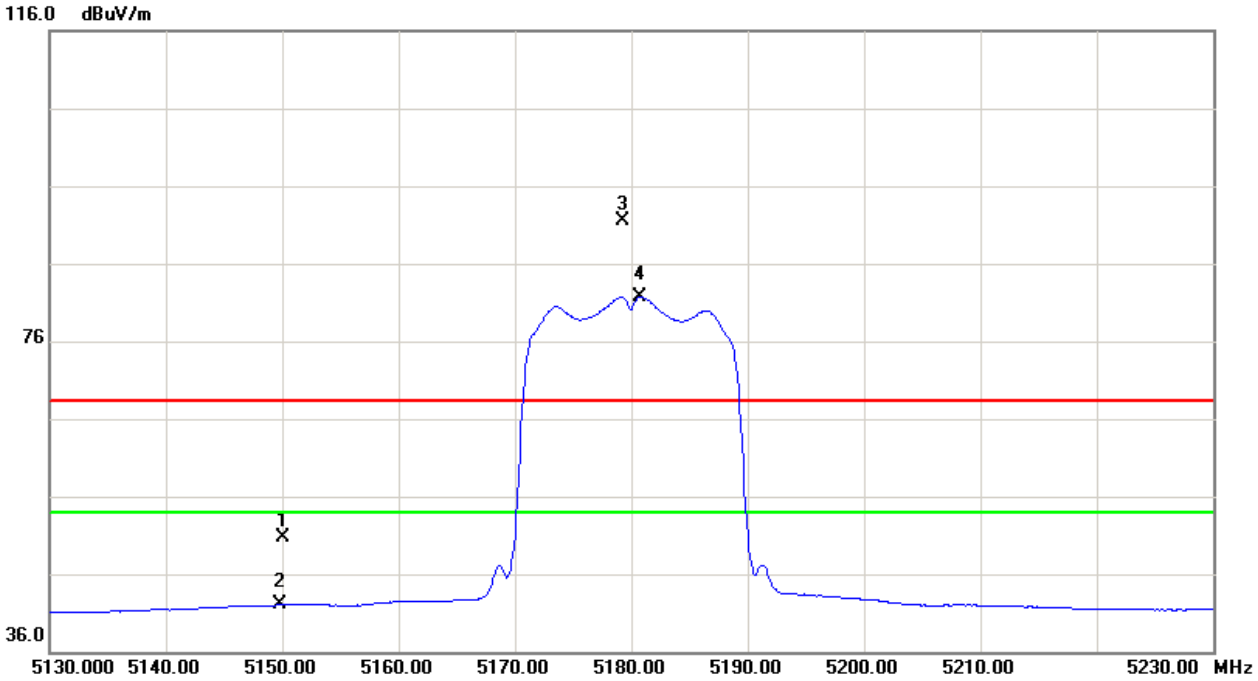
Freq.	Ant.Pol.	Reading		Ant./CF	Act.(dBuV/m)		Act.(dBm)		Limit(dBuV/m)		Limit(dBm)		Note
		Peak	AV		Peak	AV	Peak	AV	Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)									
5238.90	H	48.73	38.87	42.94	91.67	81.81	-13.10	-22.96					X/F
10485.00	H	36.46	25.63	15.84	52.30	41.47	-52.47	-63.30	68.30	54.00	-27.00	-41.30	X/H

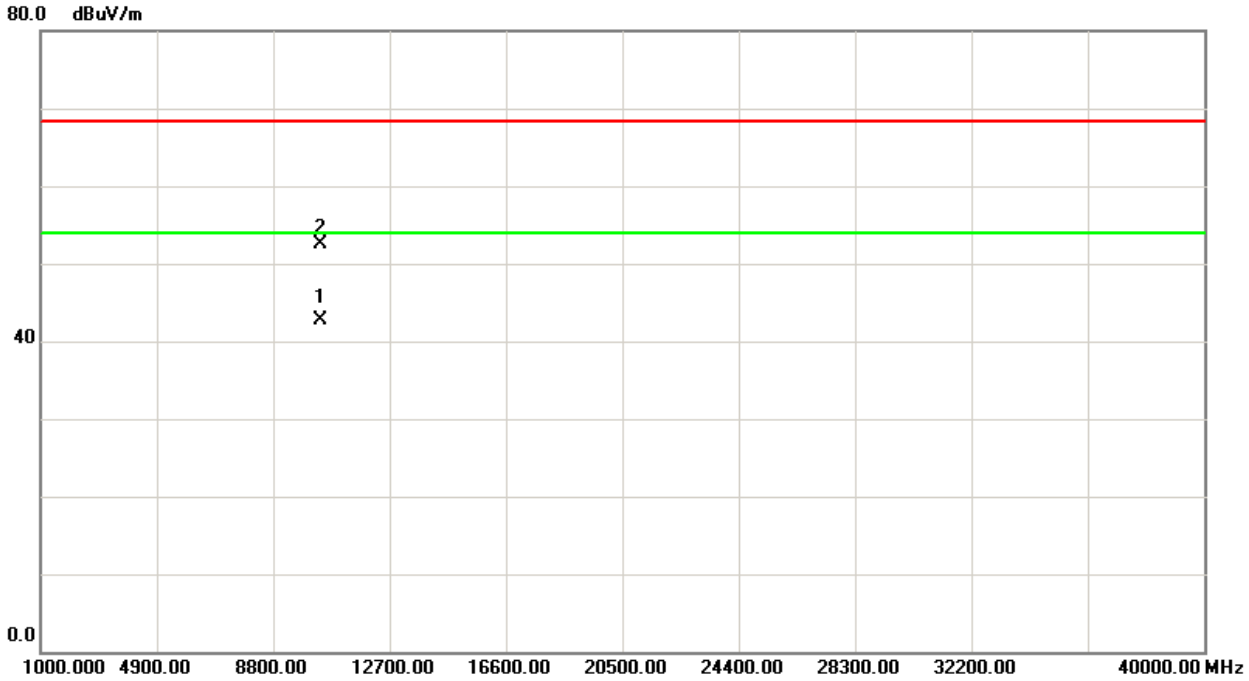
Orthogonal Axis:X
Band 1/CH36(Above 1000 MHz, Vertical)



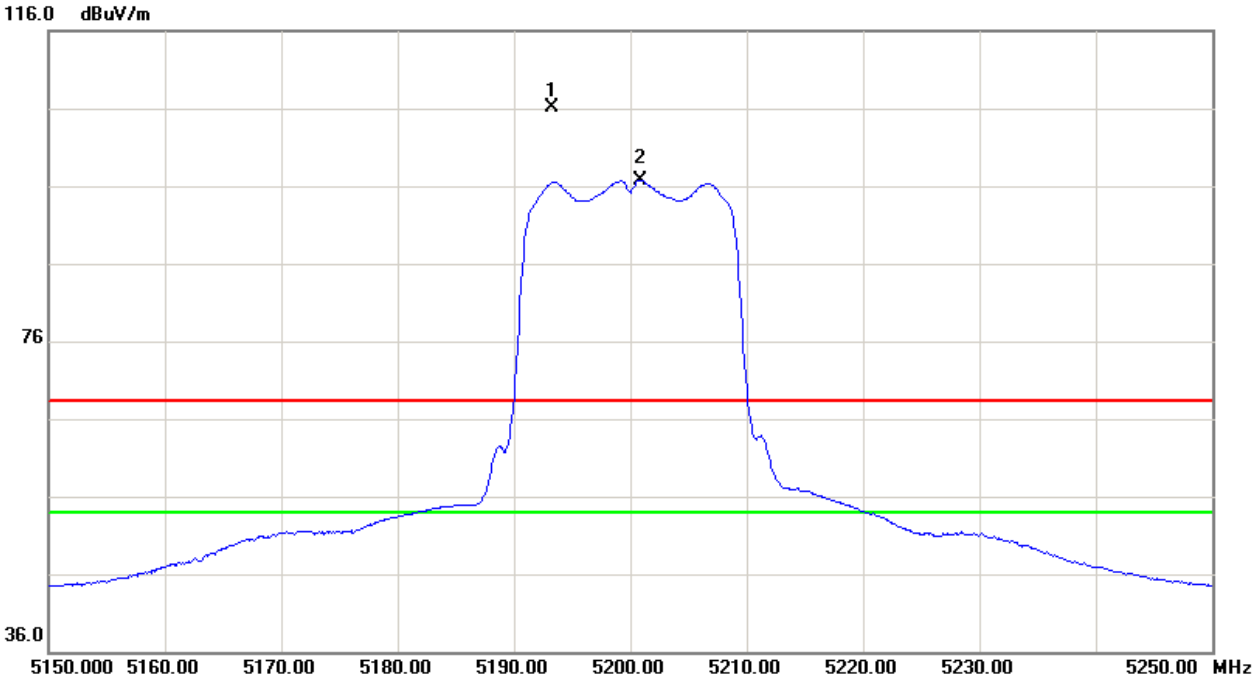


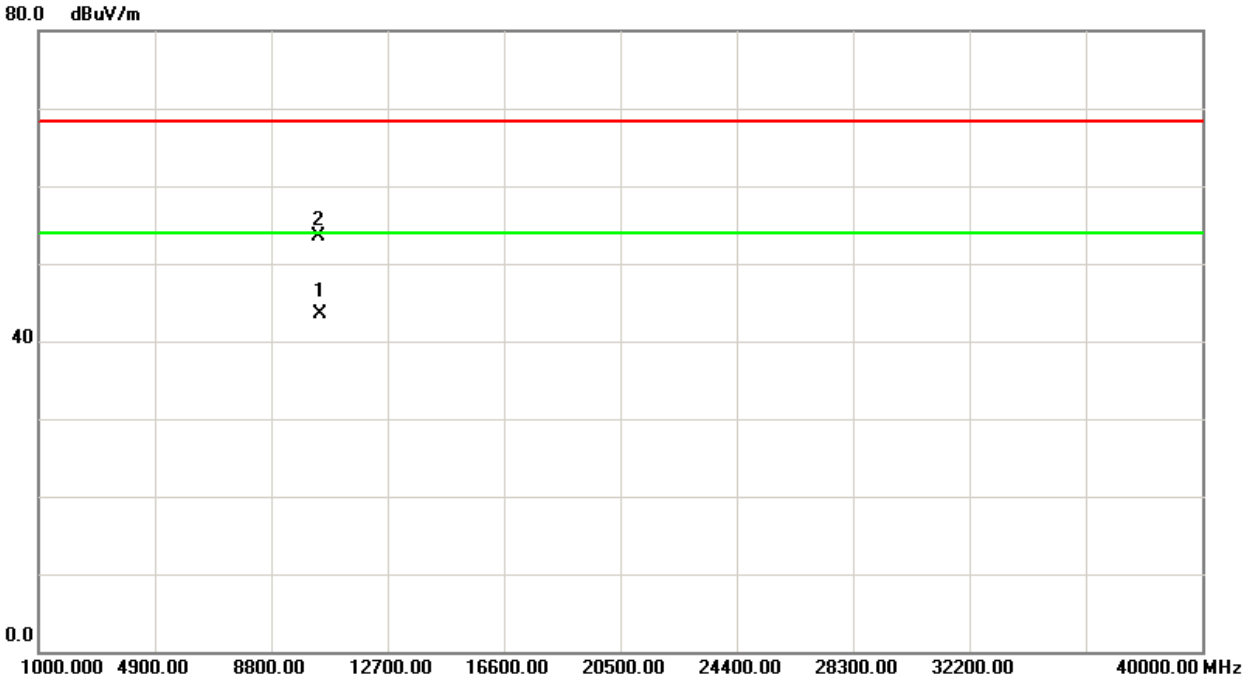
Orthogonal Axis:X
Band 1/CH36(Above 1000 MHz, Horizontal)



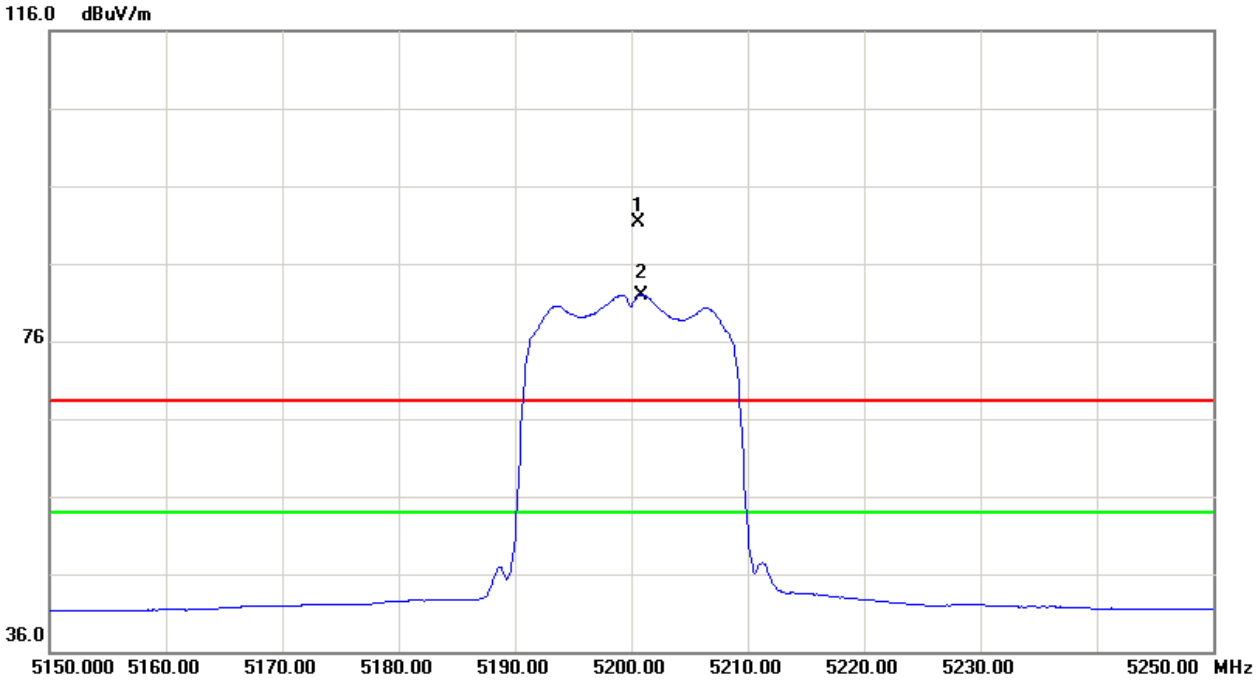


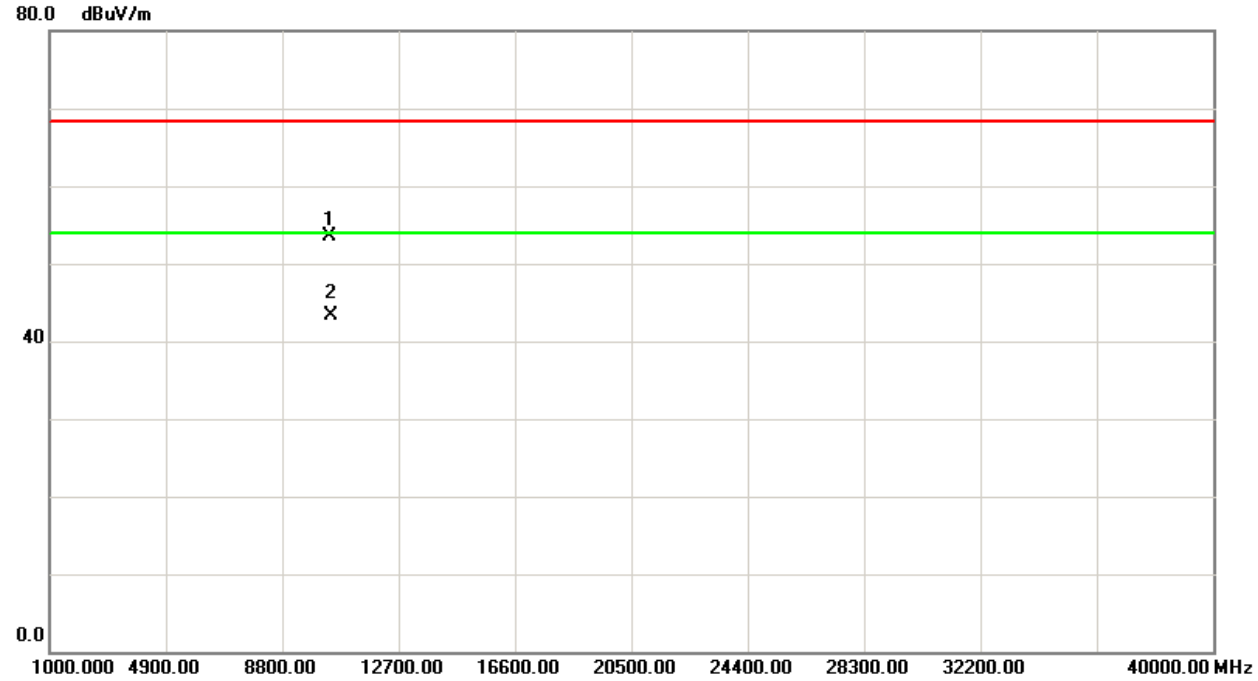
Orthogonal Axis:X
Band 1/CH40(Above 1000 MHz, Vertical)



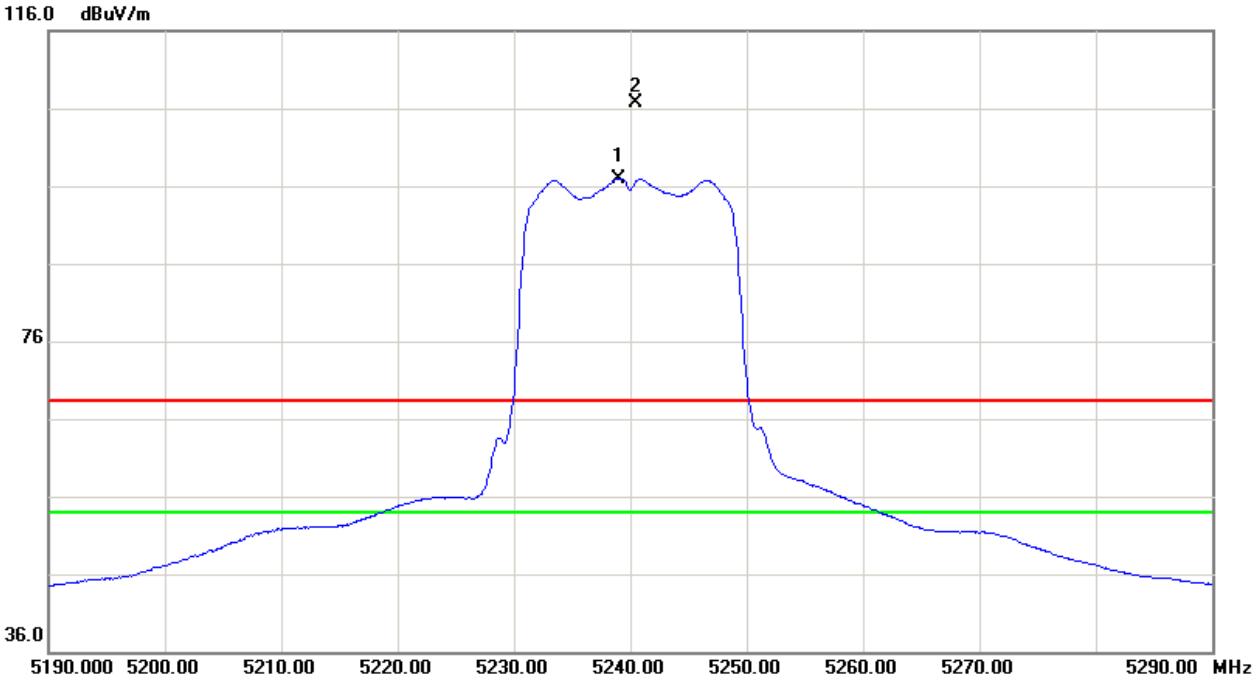


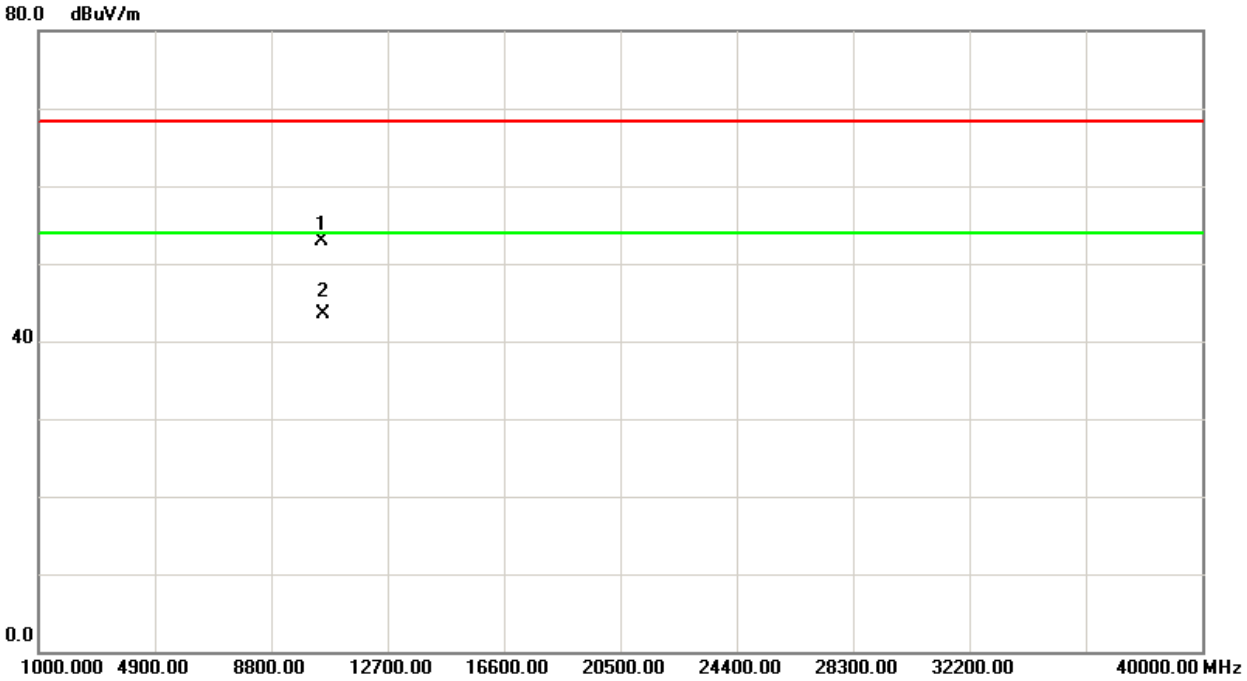
Orthogonal Axis:X
Band 1/CH40(Above 1000 MHz, Horizontal)



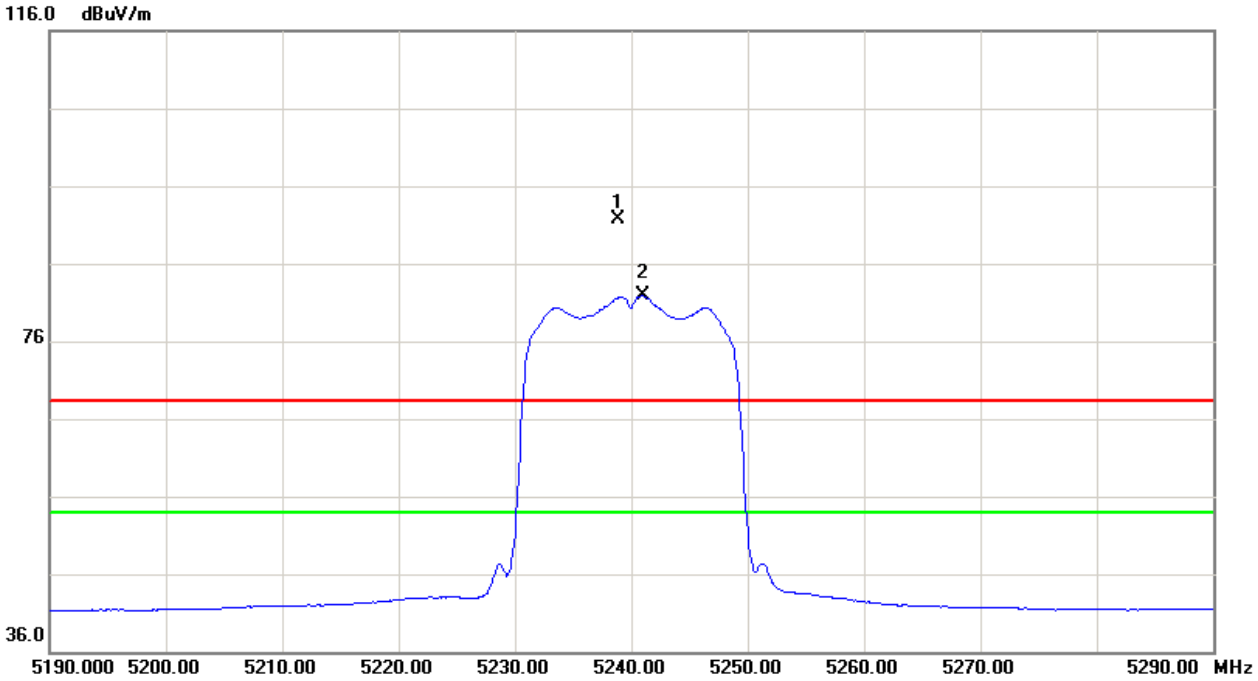


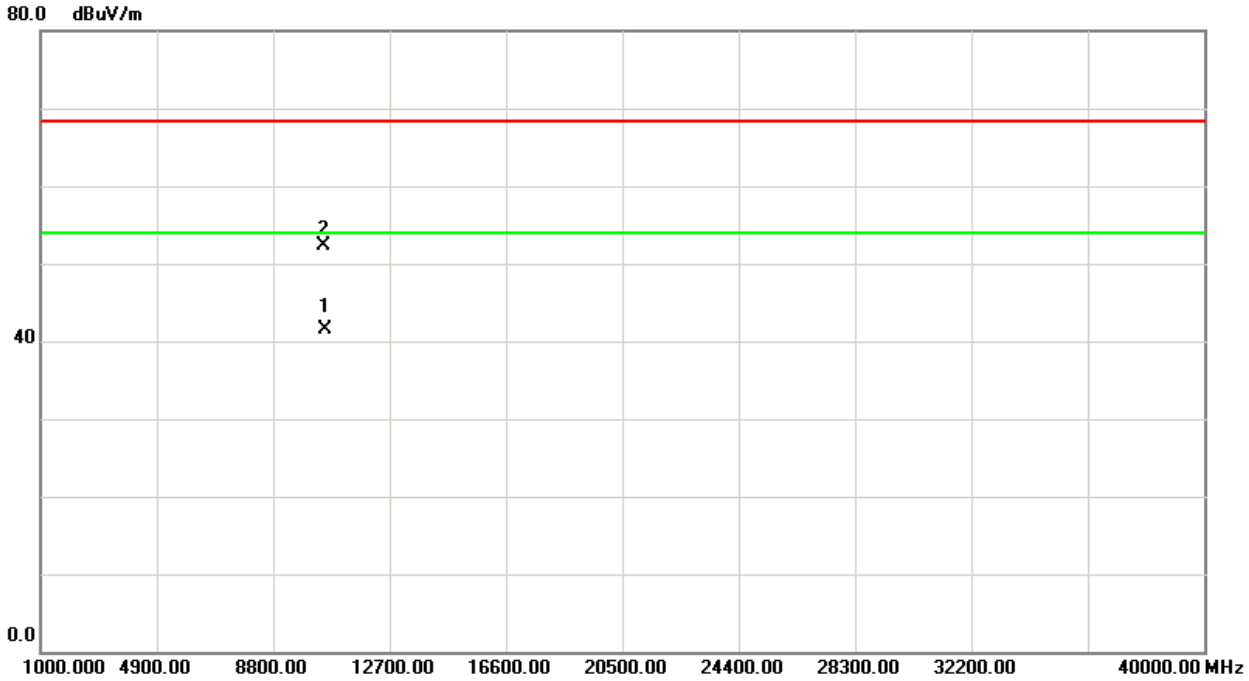
Orthogonal Axis:X
Band 1/CH48(Above 1000 MHz, Vertical)





Orthogonal Axis:X
Band 1/CH48(Above 1000 MHz, Horizontal)





Test Mode :	Band 1/ TX N40 Mode 5190MHz

Freq.	Ant.Pol.	Reading		Ant./CF	Act.(dBuV/m)		Act.(dBm)		Limit(dBuV/m)		Limit(dBm)		Note
		Peak	AV		Peak	AV	Peak	AV	Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)									
5150.00	V	23.23	10.15	42.72	65.95	52.87	-38.82	-51.90	68.30	54.00	-27.00	-41.30	X/E
5188.40	V	62.43	51.27	42.81	105.24	94.08	0.47	-10.69					X/F
10382.00	V	30.58	21.67	15.99	46.57	37.66	-58.20	-67.11	68.30	54.00	-27.00	-41.30	X/H

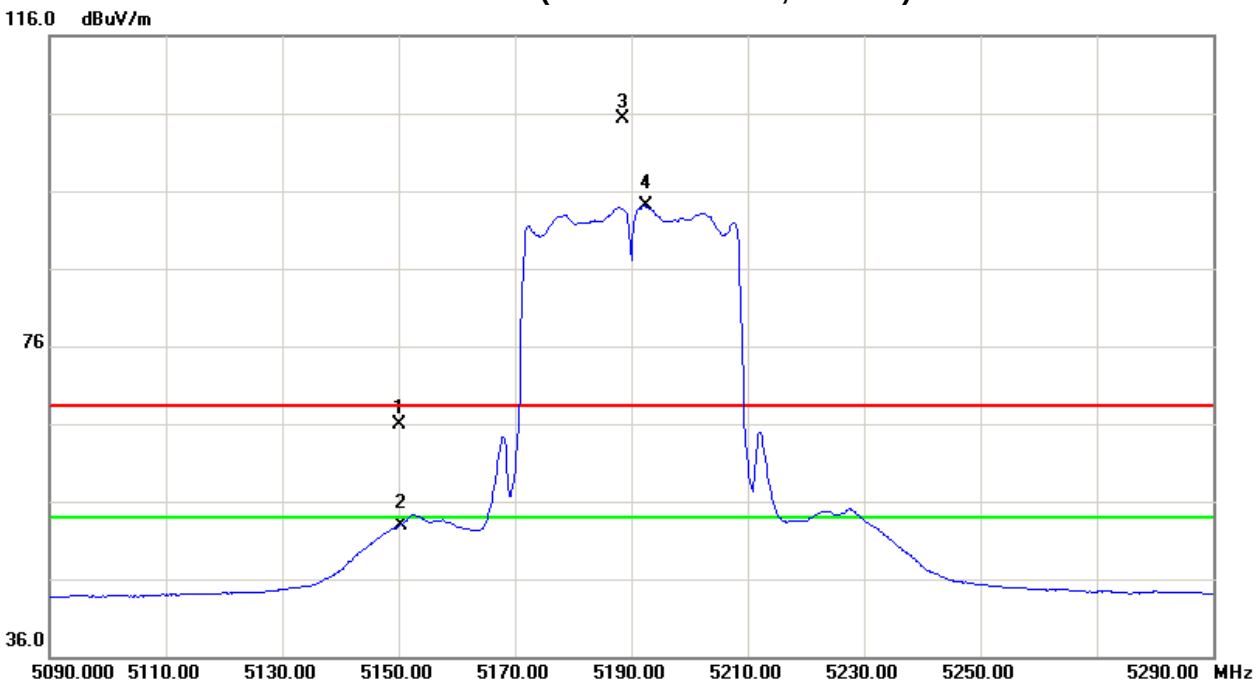
Freq.	Ant.Pol.	Reading		Ant./CF	Act.(dBuV/m)		Act.(dBm)		Limit(dBuV/m)		Limit(dBm)		Note
		Peak	AV		Peak	AV	Peak	AV	Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)									
5150.00	H	8.77	-0.65	42.72	51.49	42.07	-53.28	-62.70	68.30	54.00	-27.00	-41.30	X/E
5192.80	H	44.21	33.20	42.83	87.04	76.03	-17.73	-28.74					X/F
10389.00	H	32.79	22.65	15.99	48.78	38.64	-55.99	-66.13	68.30	54.00	-27.00	-41.30	X/H

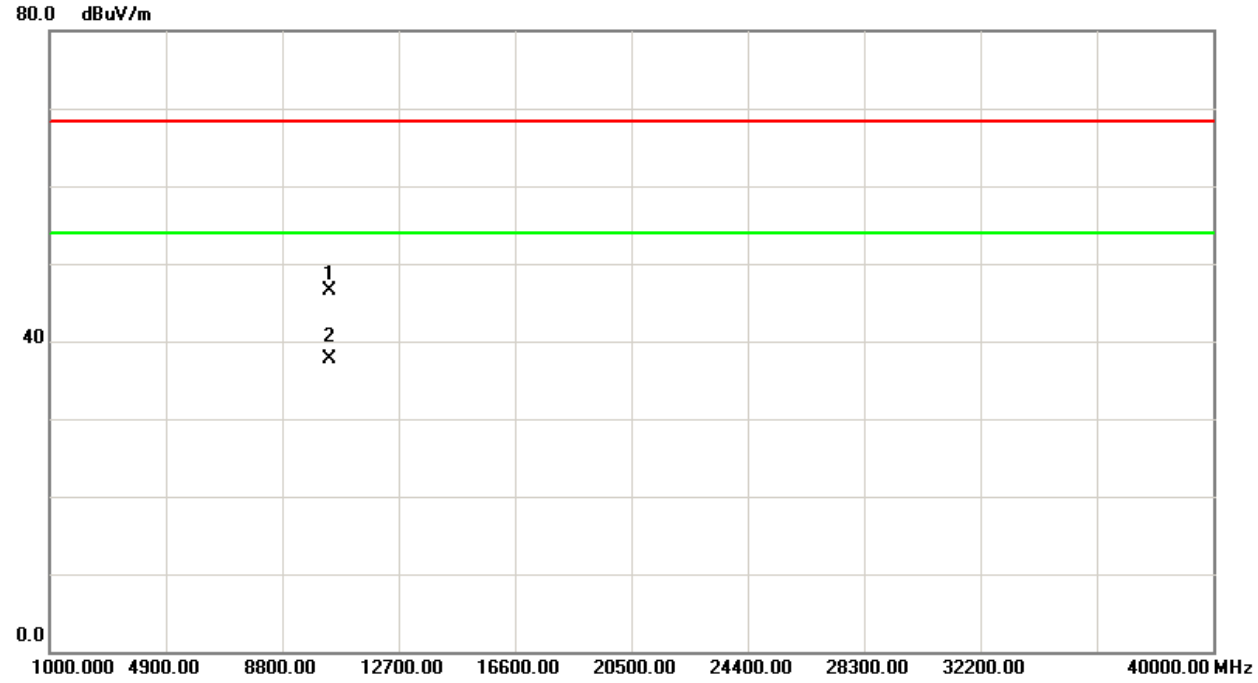
Test Mode :	Band 1/ TX N40 Mode 5230MHz

Freq.	Ant.Pol.	Reading		Ant./CF	Act.(dBuV/m)		Act.(dBm)		Limit(dBuV/m)		Limit(dBm)		Note
		Peak	AV		Peak	AV	Peak	AV	Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)									
5231.00	V	61.44	51.22	42.92	104.36	94.14	-0.41	-10.63					X/F
10469.00	V	32.61	22.95	15.86	48.47	38.81	-56.30	-65.96	68.30	54.00	-27.00	-41.30	X/H

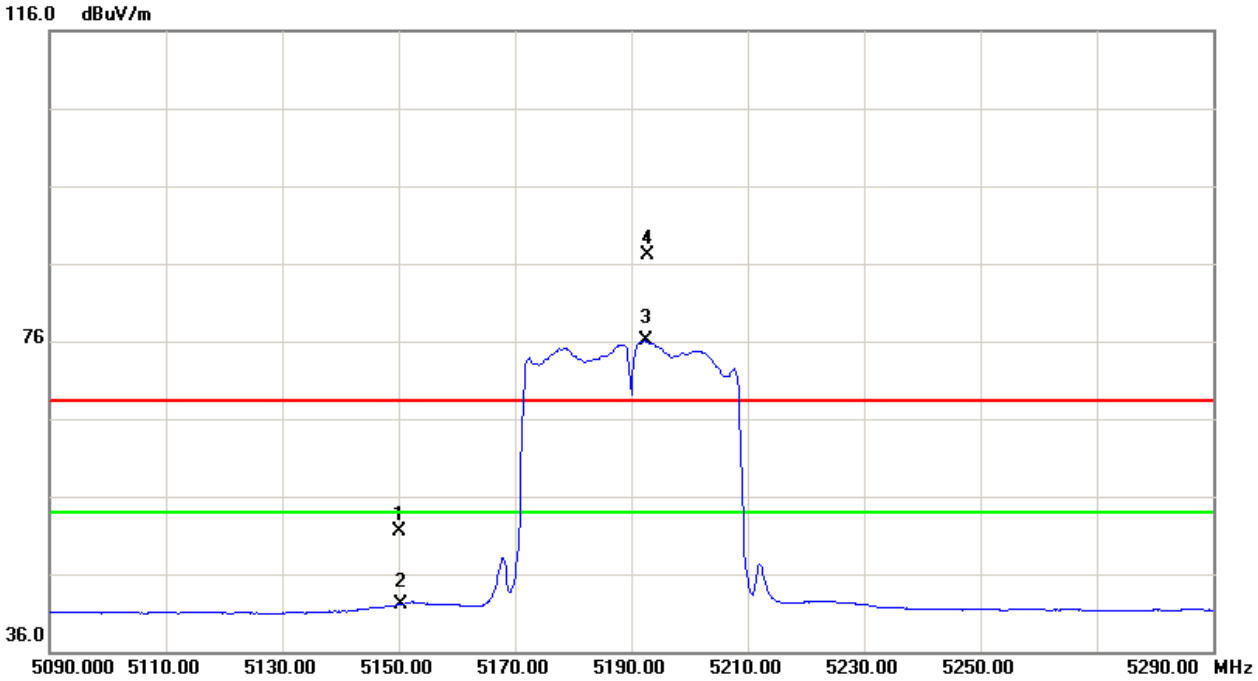
Freq.	Ant.Pol.	Reading		Ant./CF	Act.(dBuV/m)		Act.(dBm)		Limit(dBuV/m)		Limit(dBm)		Note
		Peak	AV		Peak	AV	Peak	AV	Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)									
5217.40	H	43.73	34.32	42.89	86.62	77.21	-18.15	-27.56					X/F
10468.00	H	33.65	23.65	15.87	49.52	39.52	-55.25	-65.25	68.30	54.00	-27.00	-41.30	X/H

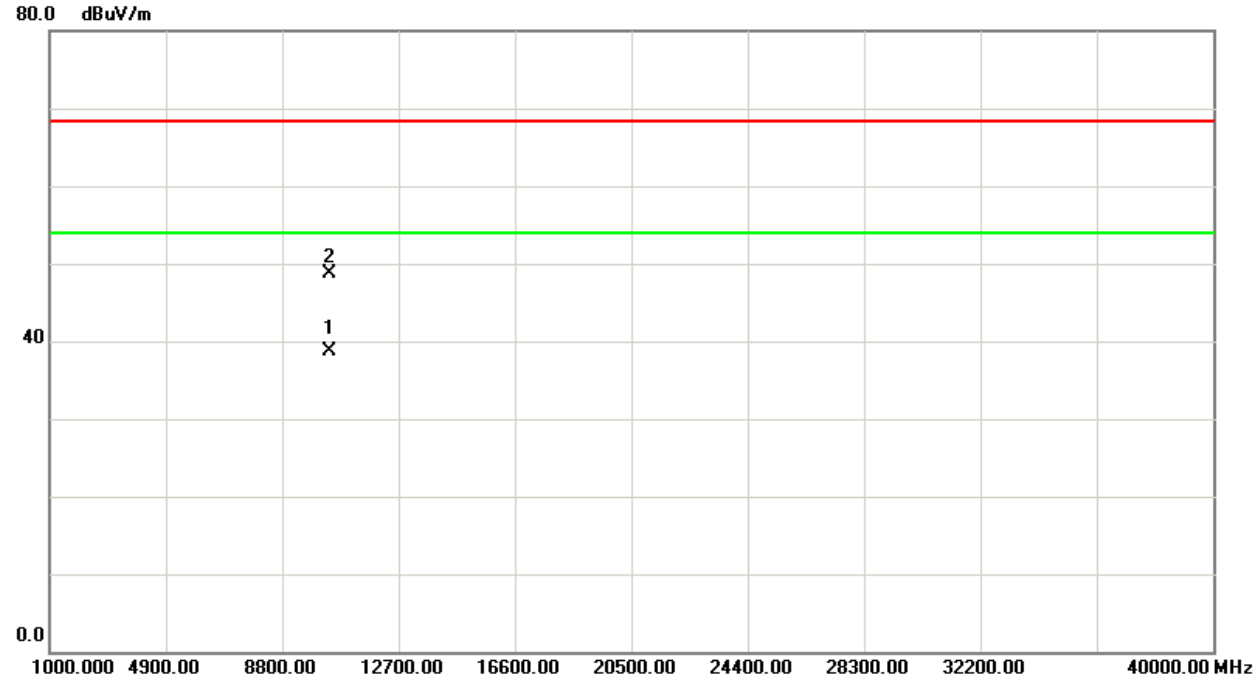
Orthogonal Axis:X
Band 1/CH38(Above 1000 MHz, Vertical)



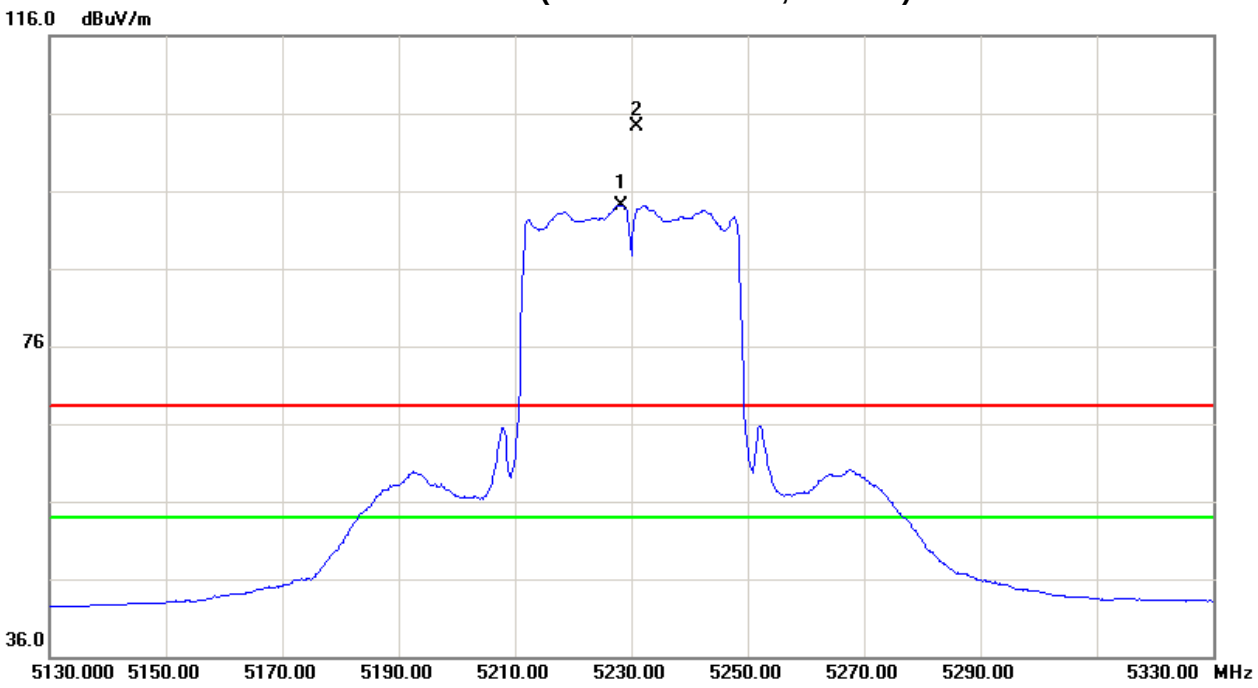


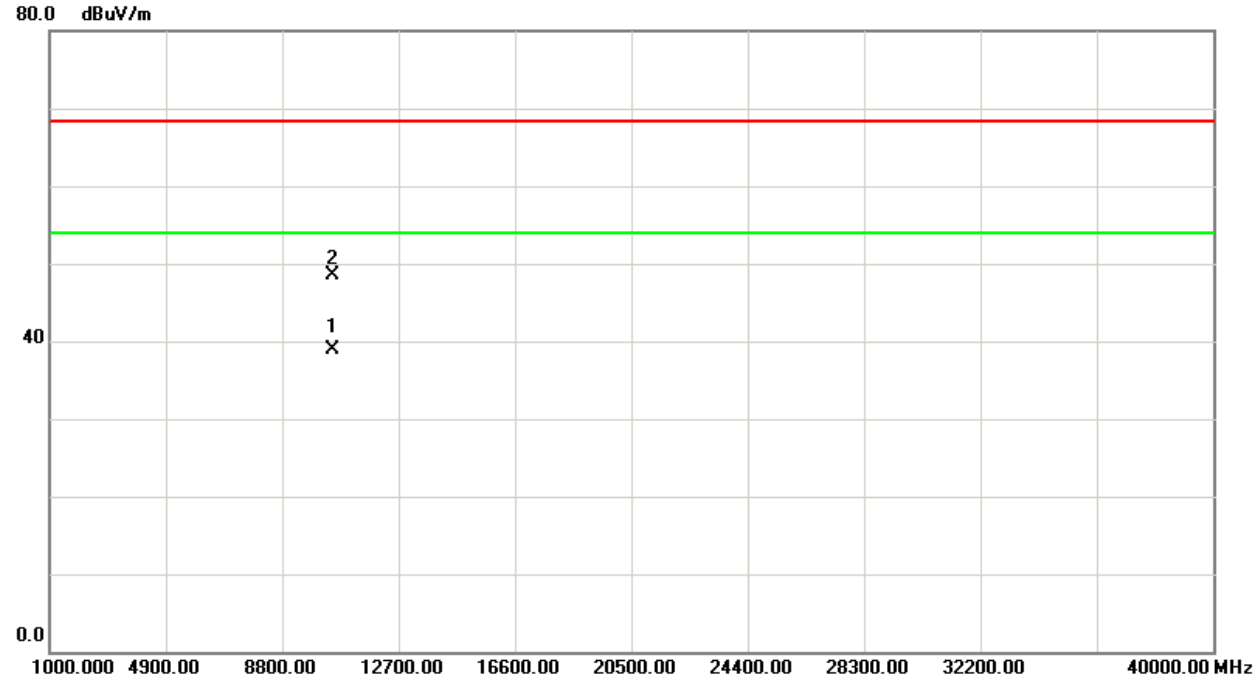
Orthogonal Axis:X
Band 1/CH38(Above 1000 MHz, Horizontal)



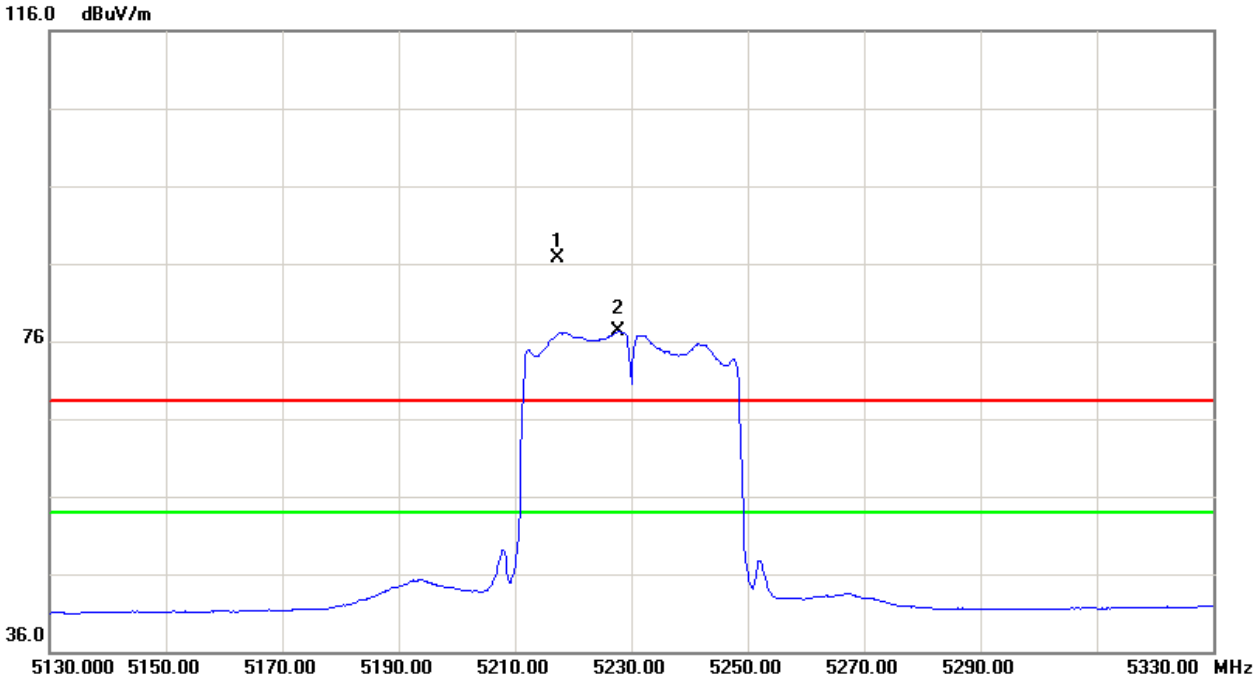


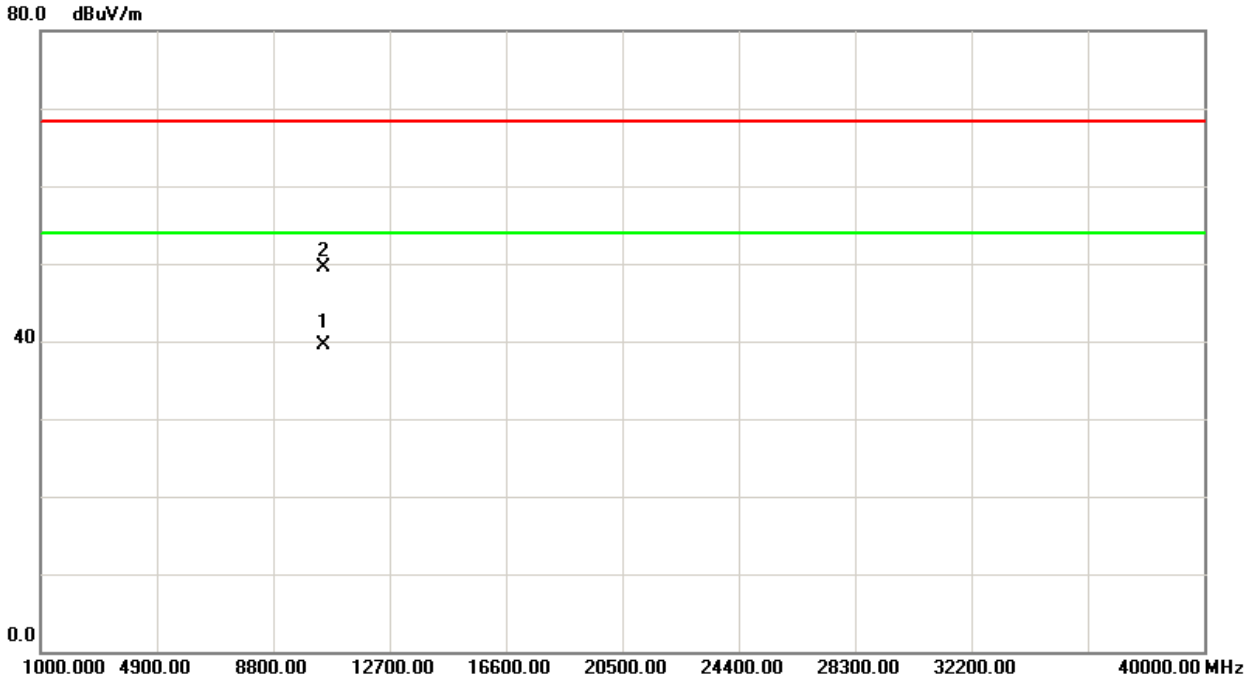
Orthogonal Axis:X
Band 1/CH46(Above 1000 MHz, Vertical)





Orthogonal Axis:X
Band 1/CH46(Above 1000 MHz, Horizontal)





5. 26dB SPECTRUM BANDWIDTH

5.1 APPLIED PROCEDURES / LIMIT

FCC Part15, Subpart E			
Test Item	Limit	Frequency Range (MHz)	Result
26 dB Bandwidth	------	5150MHz~5250	PASS

5.1.1 TEST PROCEDURE

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

b.

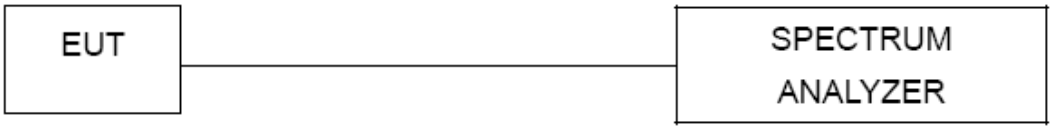
Spectrum Parameters	Setting
Attenuation	Auto
Span Frequency	> 26dB Bandwidth
RB	300 kHz
VB	1000 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

c. Measured the spectrum width with power higher than 26dB below carrier

5.1.2 DEVIATION FROM STANDARD

No deviation.

5.1.3 TEST SETUP



5.1.4 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.

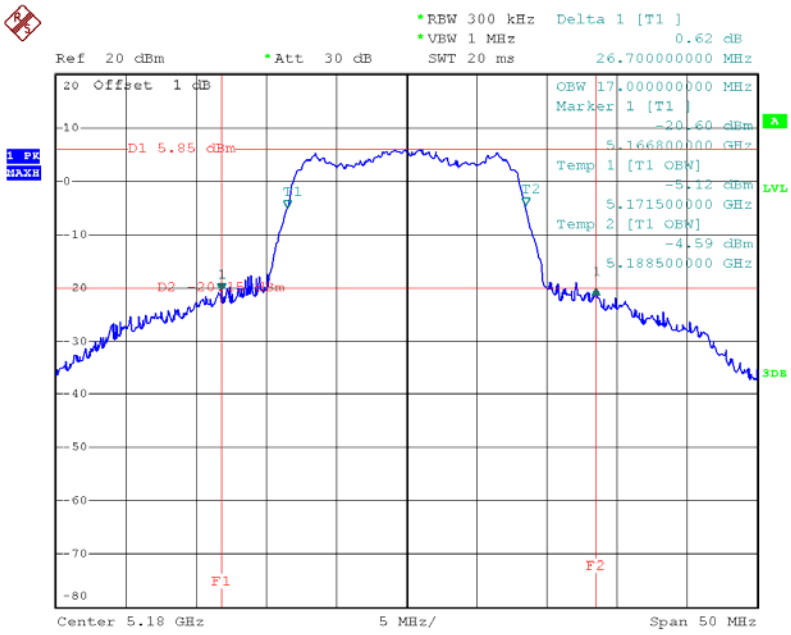
5.1.5 EUT TEST CONDITIONS

Temperature: 25°C
Relative Humidity: 55%
Test Voltage: 120V/60Hz

5.1.6 TEST RESULTS

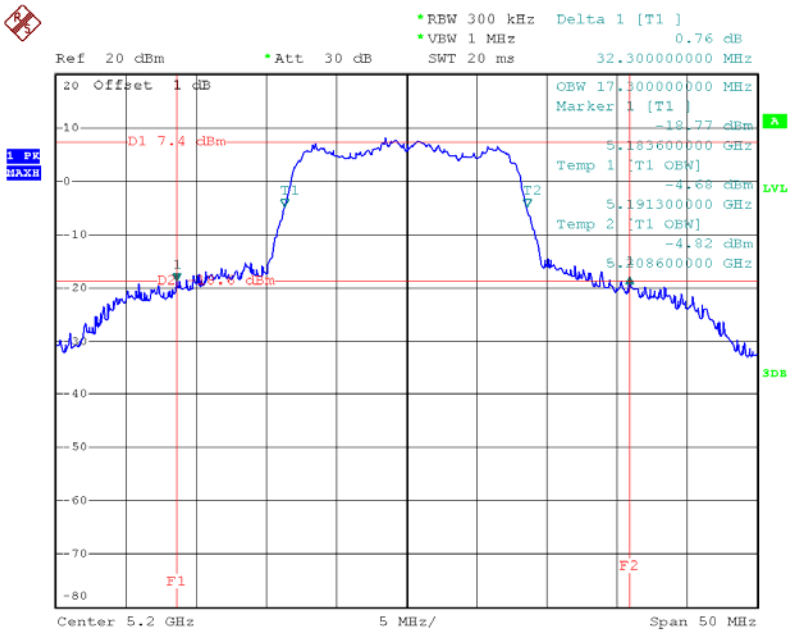
Test Mode : Band 1/TX A Mode_CH36/40/48

CH36



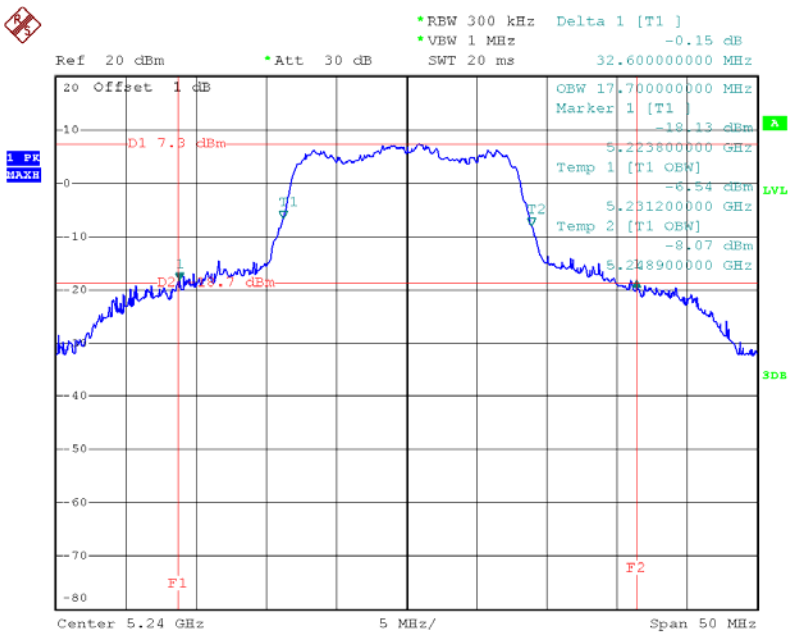
Date: 22.JAN.2014 16:41:14

CH40



Date: 22.JAN.2014 16:45:38

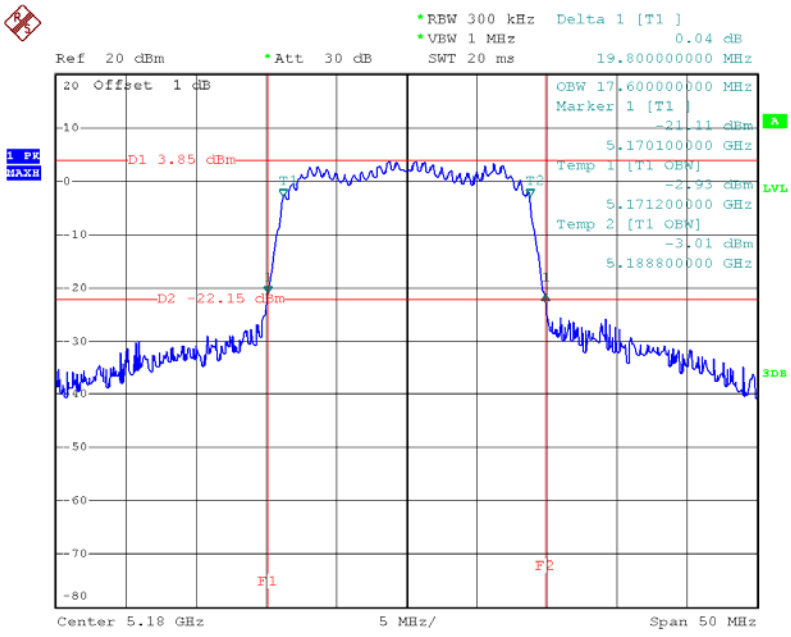
CH48



Date: 22.JAN.2014 16:46:34

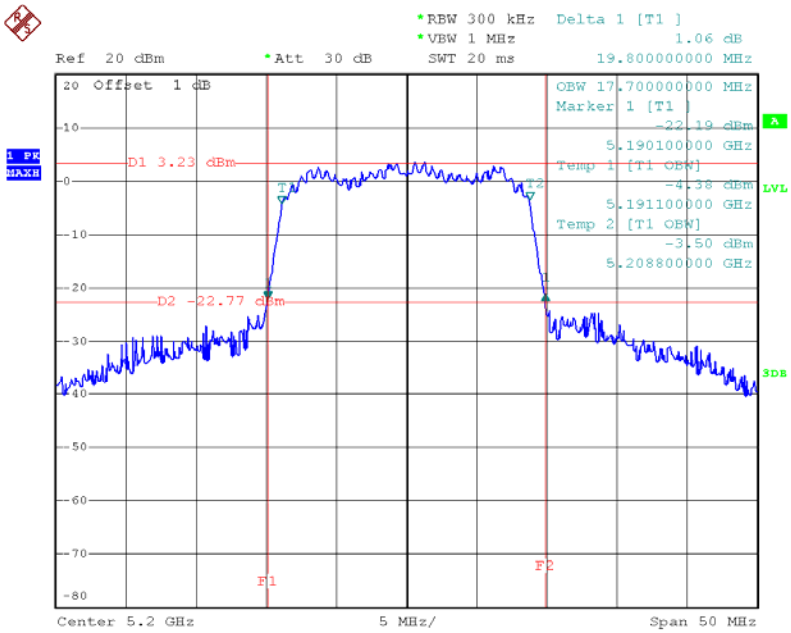
Test Mode : Band 1/TXN20 Mode_CH36/40/48-ANT 1

CH36



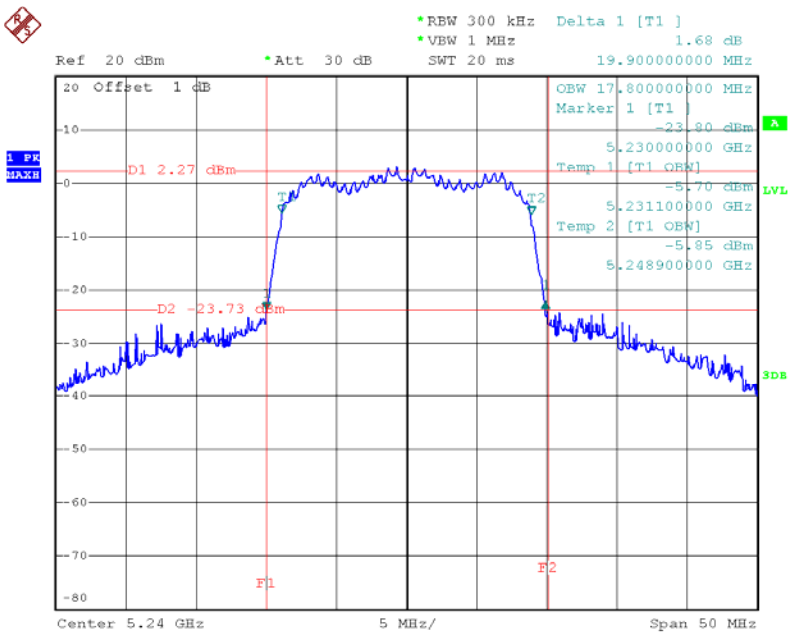
Date: 22.JAN.2014 16:53:58

CH40



Date: 22.JAN.2014 16:52:39

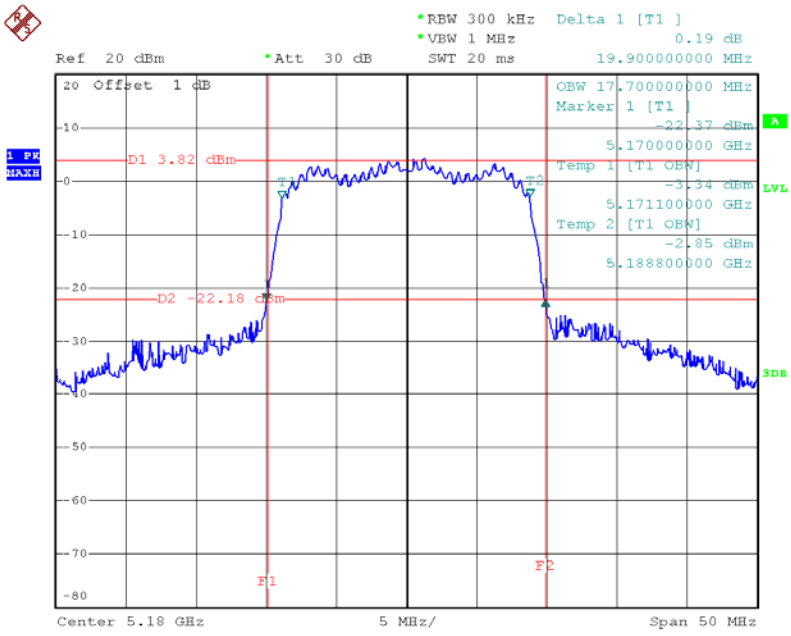
CH48



Date: 22.JAN.2014 16:49:12

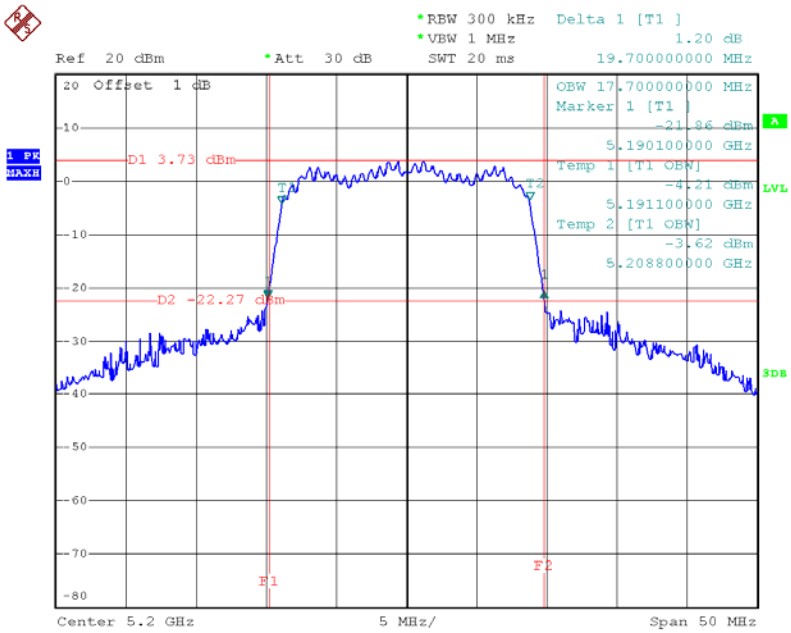
Test Mode : Band 1/TXN20 Mode_CH36/40/48-ANT 2

CH36



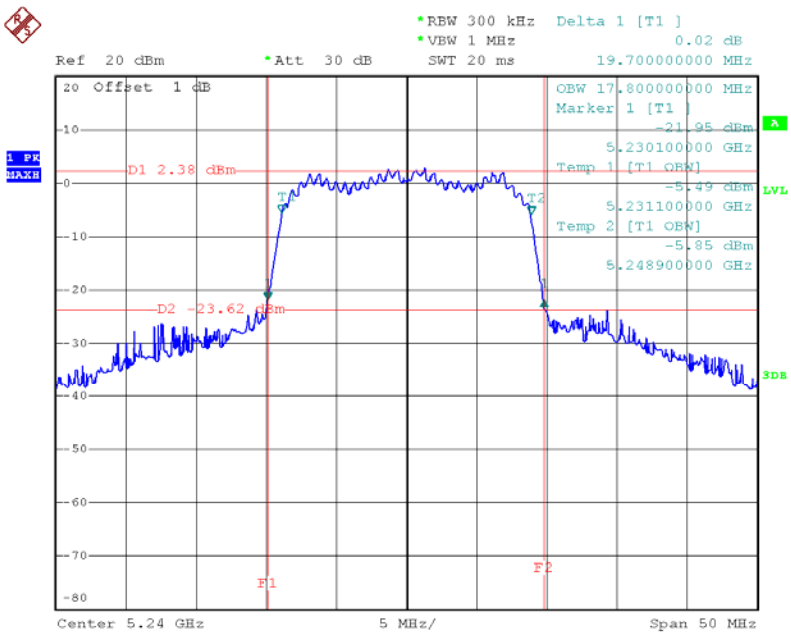
Date: 22.JAN.2014 16:53:30

CH40



Date: 22.JAN.2014 16:51:57

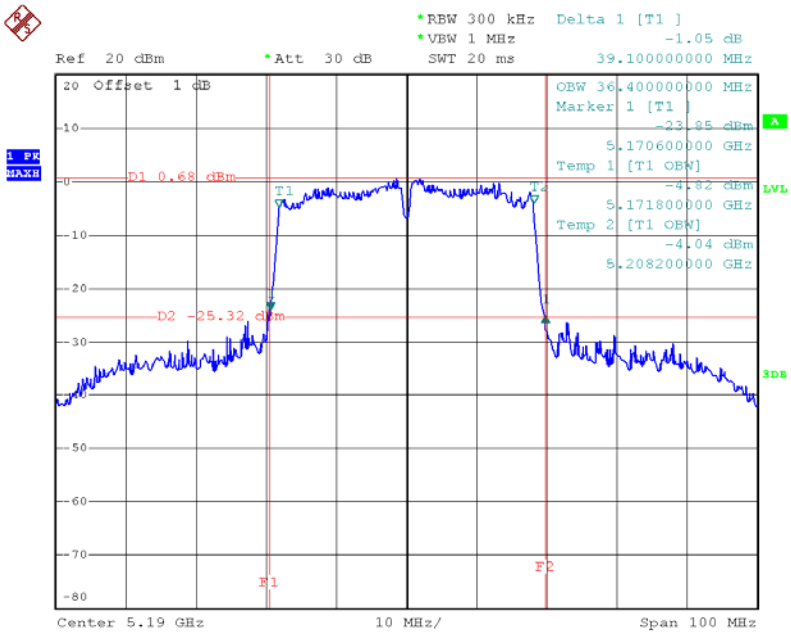
CH48



Date: 22.JAN.2014 16:49:41

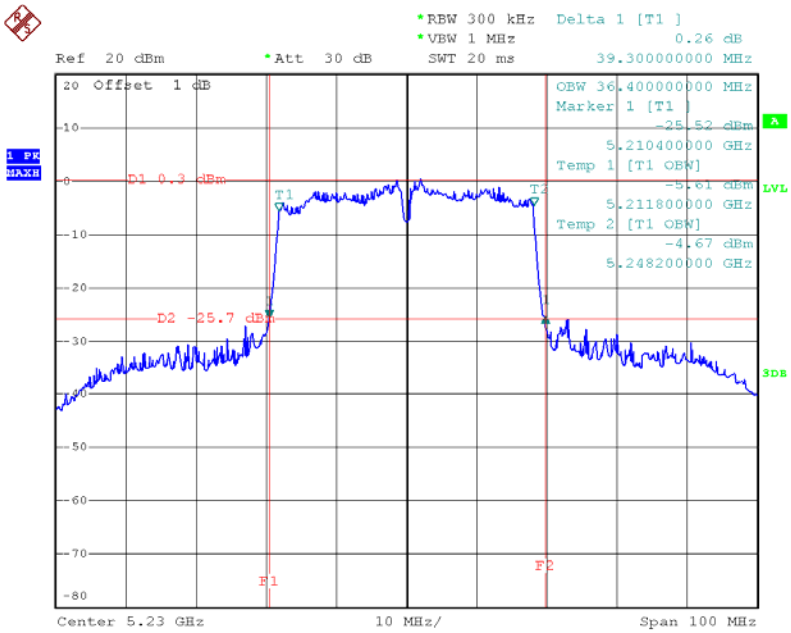
Test Mode : Band 1/TX N40 Mode_CH38/46-ANT 1

CH38



Date: 22.JAN.2014 16:56:25

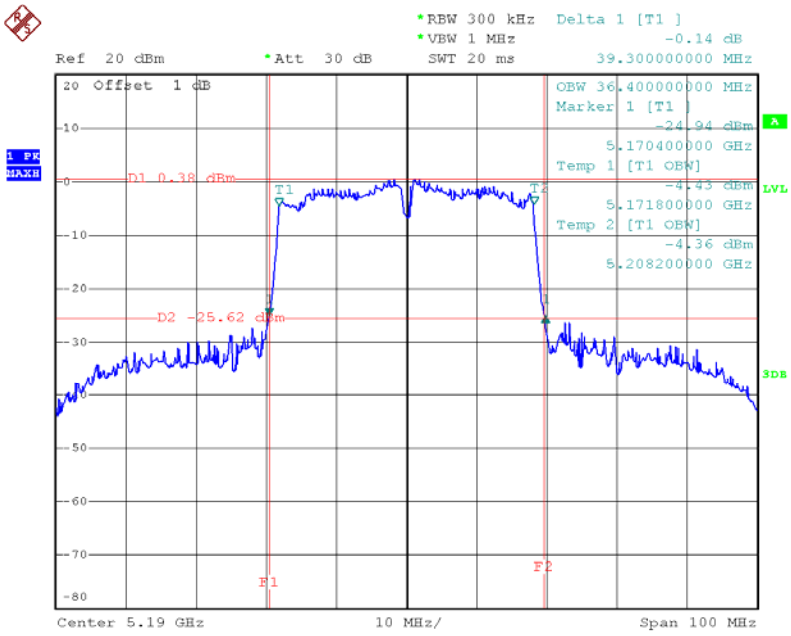
CH46



Date: 22.JAN.2014 16:59:00

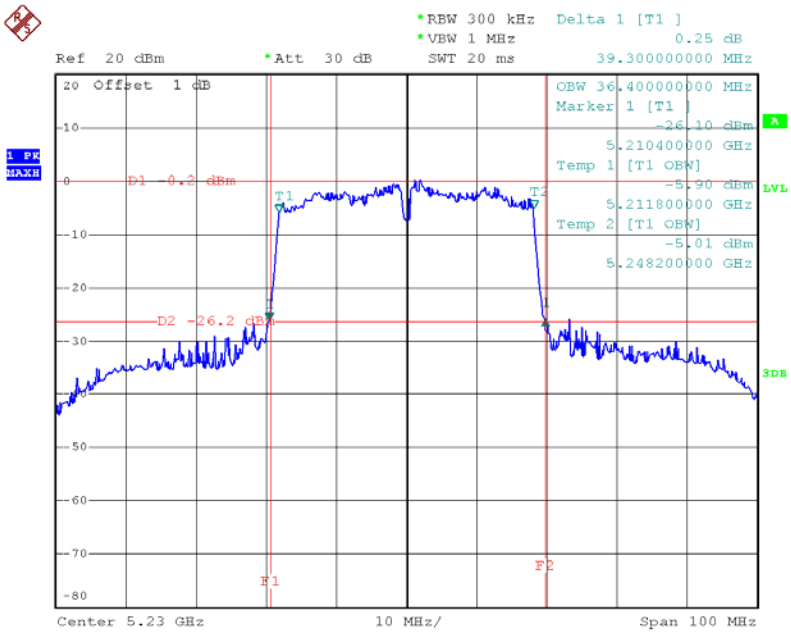
Test Mode : Band 1/TX N40 Mode_CH38/46-ANT 2

CH38



Date: 22.JAN.2014 16:56:55

CH46



Date: 22.JAN.2014 16:59:40

6. MAXIMUM CONDUCTED OUTPUT POWER

6.1 APPLIED PROCEDURES / LIMIT

FCC Part15, Subpart E			
Test Item	Frequency Range (MHz)	Limit	Result
Conducted Output Power	5150 - 5250	not exceed the lesser of 50 mW (17dBm) or 4 dBm + 10log B,	PASS

Note: where "B" is the 26 dB emissions bandwidth in MHz.

6.1.1 TEST PROCEDURE

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

b.

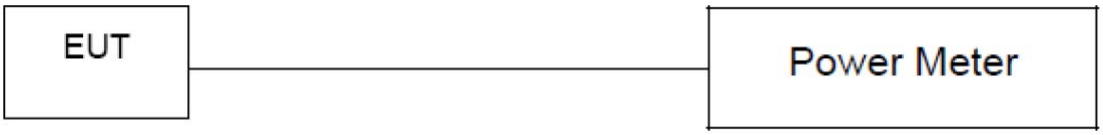
Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Encompass the entire emissions bandwidth (EBW) of the signal
RBW	= 1 MHz.
VBW	≥ 3 MHz.
Detector	RMS
Trace	Max Hold
Sweep Time	auto

b. Test was performed in accordance with method of KDB 789033 D01.

6.1.2 DEVIATION FROM STANDARD

No deviation.

6.1.3 TEST SETUP



6.1.4 EUT OPERATION CONDITIONS

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

6.1.5 EUT TEST CONDITIONS

Temperature: 25°C
Relative Humidity: 55%
Test Voltage: 120V/60Hz

6.1.6 TEST RESULTS

Test Mode :Band 1/TX A Mode				
Test Channel	Frequency (MHz)	Conducted Output Power (dBm)	LIMIT (dBm)	LIMIT (W)
CH36	5180	15.48	17.00	0.0501
CH40	5200	15.56	17.00	0.0501
CH48	5240	15.58	17.00	0.0501

Test Mode :Band 1/TX N20 Mode-ANT 1				
Test Channel	Frequency (MHz)	Conducted Output Power (dBm)	LIMIT (dBm)	LIMIT (W)
CH36	5180	11.46	17.00	0.0501
CH40	5200	11.43	17.00	0.0501
CH48	5240	11.47	17.00	0.0501

Test Mode :Band 1/TX N20 Mode-ANT 2				
Test Channel	Frequency (MHz)	Conducted Output Power (dBm)	LIMIT (dBm)	LIMIT (W)
CH36	5180	11.52	17.00	0.0501
CH40	5200	11.48	17.00	0.0501
CH48	5240	11.49	17.00	0.0501

Test Mode :Band 1/TX N20 Mode-Total				
Test Channel	Frequency (MHz)	Conducted Output Power (dBm)	LIMIT (dBm)	LIMIT (W)
CH36	5180	14.50	17.00	0.0501
CH40	5200	14.47	17.00	0.0501
CH48	5240	14.49	17.00	0.0501

Test Mode : Band 1/TX N40 Mode-ANT 1				
Test Channel	Frequency (MHz)	Conducted Output Power (dBm)	LIMIT (dBm)	LIMIT (W)
CH38	5190	11.45	17.00	0.0501
CH46	5230	11.42	17.00	0.0501

Test Mode : Band 1/TX N40 Mode-ANT 2				
Test Channel	Frequency (MHz)	Conducted Output Power (dBm)	LIMIT (dBm)	LIMIT (W)
CH38	5190	11.43	17.00	0.0501
CH46	5230	11.48	17.00	0.0501

Test Mode : Band 1/TX N40 Mode-Total				
Test Channel	Frequency (MHz)	Conducted Output Power (dBm)	LIMIT (dBm)	LIMIT (W)
CH38	5190	13.59	17.00	0.0501
CH46	5230	14.46	17.00	0.0501

7. ANTENNA CONDUCTED SPURIOUS EMISSION

7.1 APPLIED PROCEDURES / LIMIT

FCC Part15, Subpart E			
Test Item	Limit	Frequency Range (MHz)	Result
Antenna conducted Spurious Emission	-27 dBm/1MHz	5150 – 5250	PASS

7.1.1 TEST PROCEDURE

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

b.

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

7.1.2 DEVIATION FROM STANDARD

No deviation.

7.1.3 TEST SETUP

7.1.4 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.

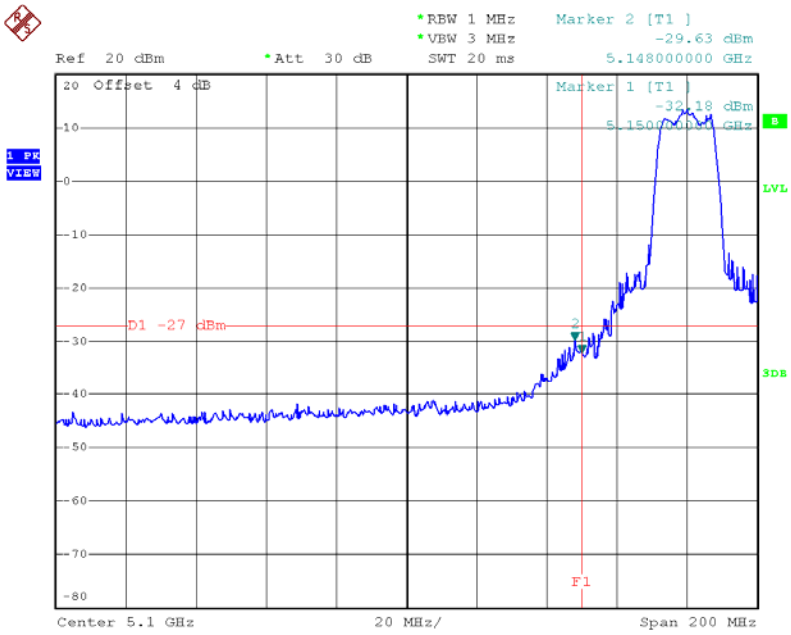
7.1.5 EUT TEST CONDITIONS

Temperature: 25°C
Relative Humidity: 55%
Test Voltage: 120V/60Hz

7.1.6 TEST RESULTS

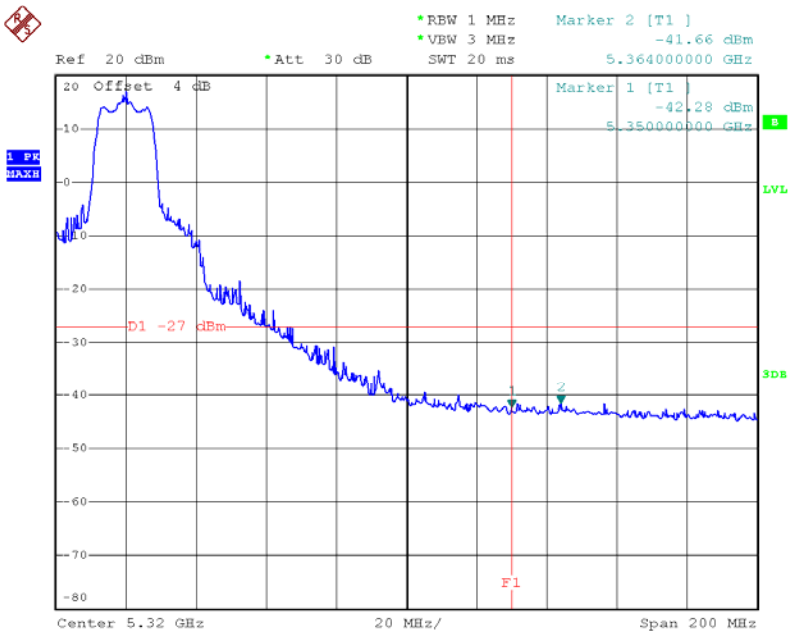
Test Mode :	Band 1/TX A Mode

TX mode CH36



Date: 22.JAN.2014 16:42:50

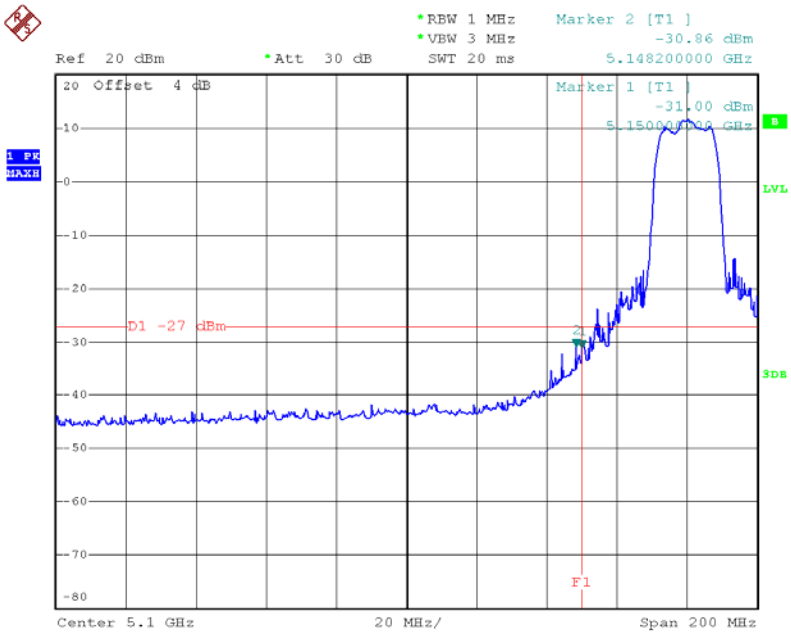
TX mode CH48



Date: 22.JAN.2014 16:47:41

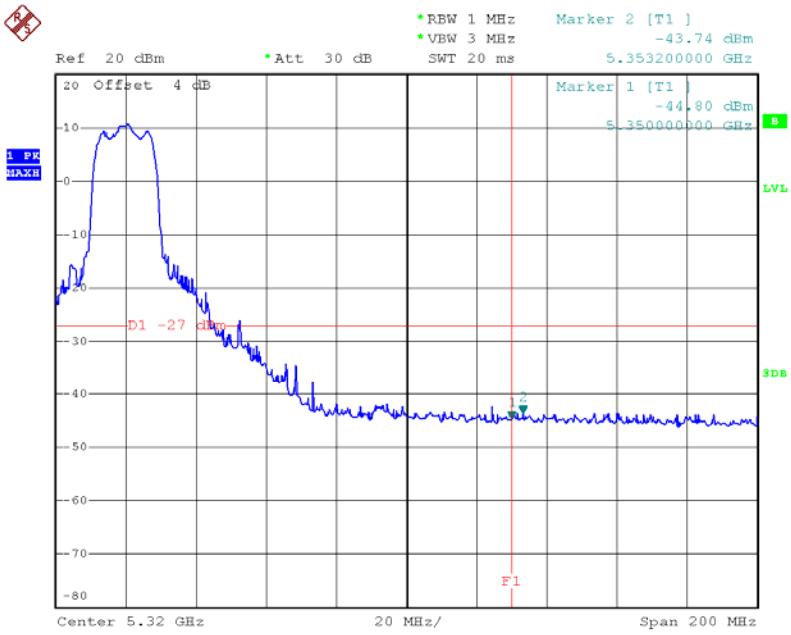
Test Mode :	Band 1/TX N20 Mode-ANT 1

TX mode CH36



Date: 22.JAN.2014 16:54:23

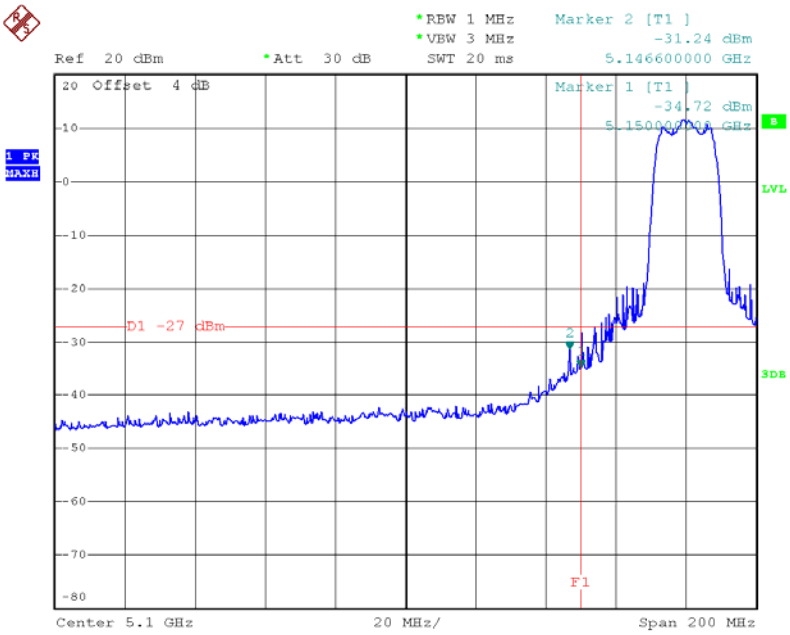
TX mode CH48



Date: 22.JAN.2014 16:49:58

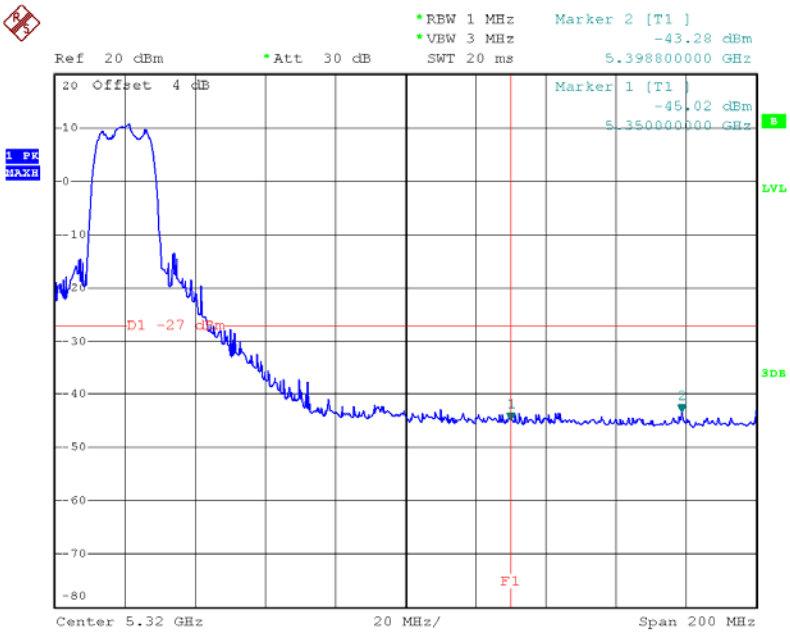
Test Mode :	Band 1/TX N20 Mode-ANT 2

TX mode CH36



Date: 22.JAN.2014 16:54:34

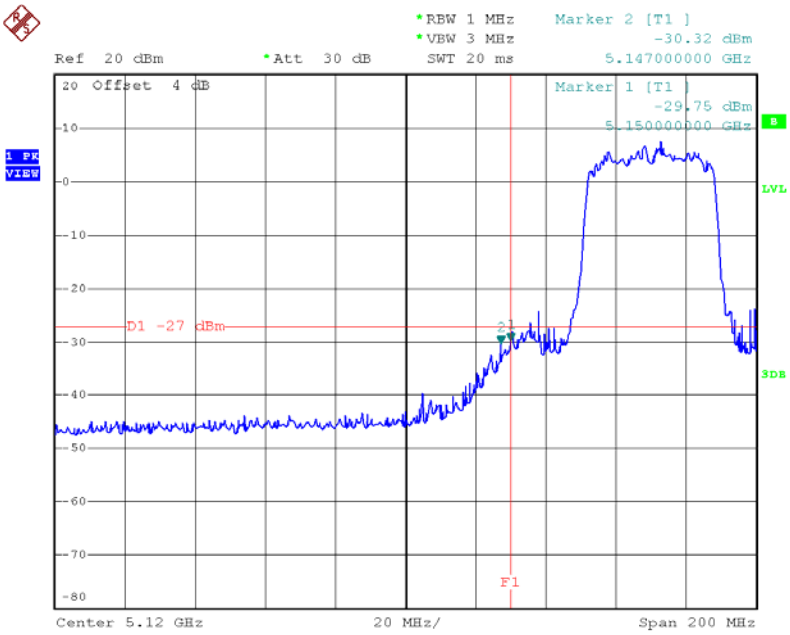
TX mode CH48



Date: 22.JAN.2014 16:50:10

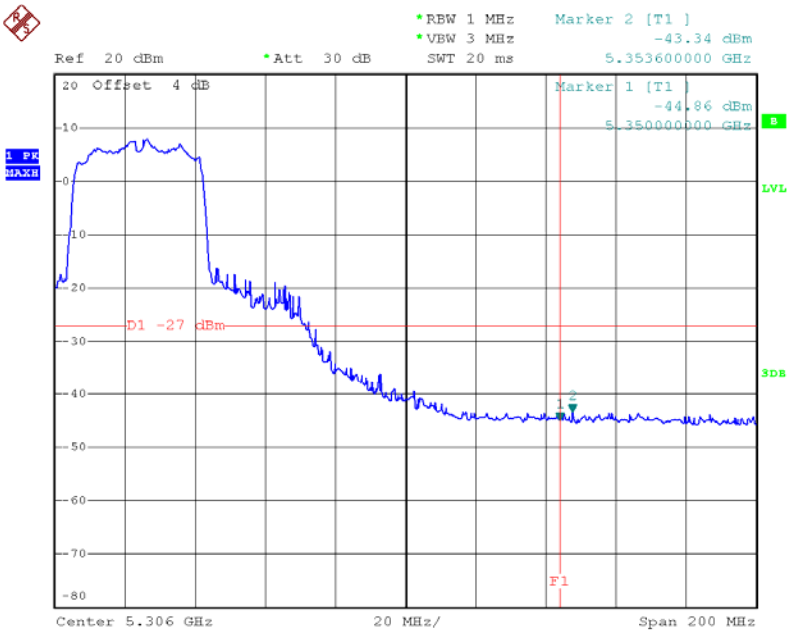
Test Mode :	Band 1/TX N40 Mode-ANT 1

TX mode CH38



Date: 22.JAN.2014 16:57:56

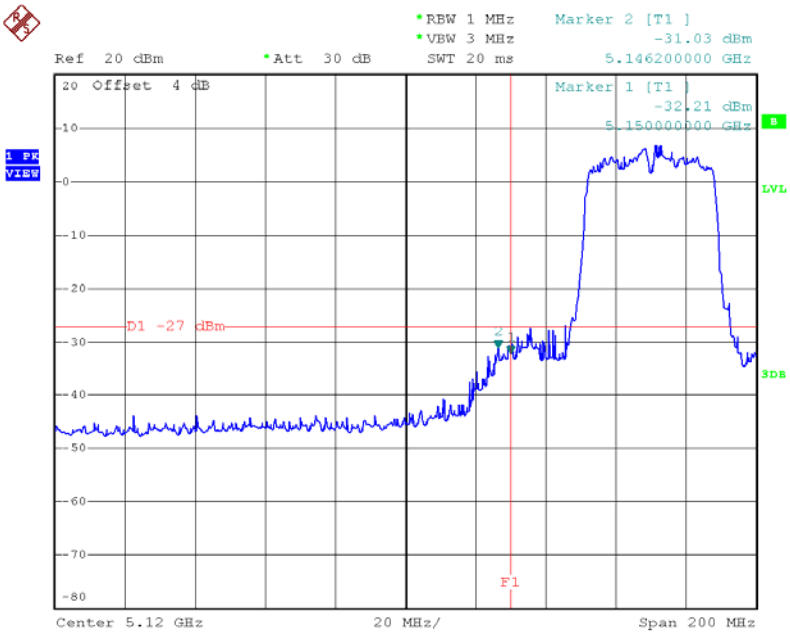
TX mode CH46



Date: 22.JAN.2014 17:00:16

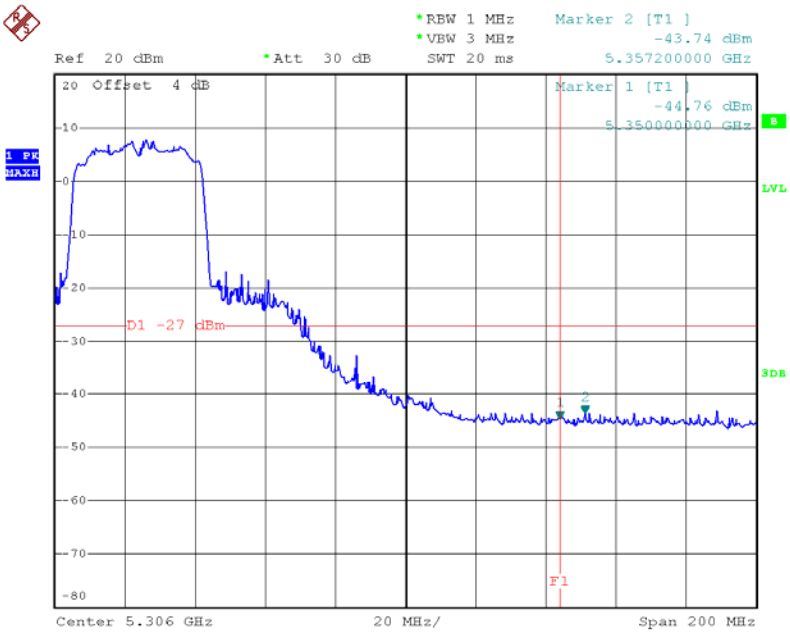
Test Mode :	Band 1/TX N40 Mode-ANT 2

TX mode CH38



Date: 22.JAN.2014 16:58:14

TX mode CH46



Date: 22.JAN.2014 17:00:28

8. POWER SPECTRAL DENSITY TEST

8.1 APPLIED PROCEDURES / LIMIT

FCC Part15, Subpart E			
Test Item	Limit	Frequency Range (MHz)	Result
Power Spectral Density	4 dBm	5150 - 5250	PASS

8.1.1 TEST PROCEDURE

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

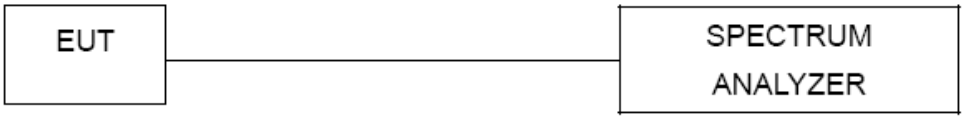
b.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Encompass the entire emissions bandwidth (EBW) of the signal
RB	= 1 MHz.
VB	≥ 3 MHz.
Detector	RMS
Trace	Max Hold
Sweep Time	Auto

8.1.2 DEVIATION FROM STANDARD

No deviation.

8.1.3 TEST SETUP



8.1.4 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.

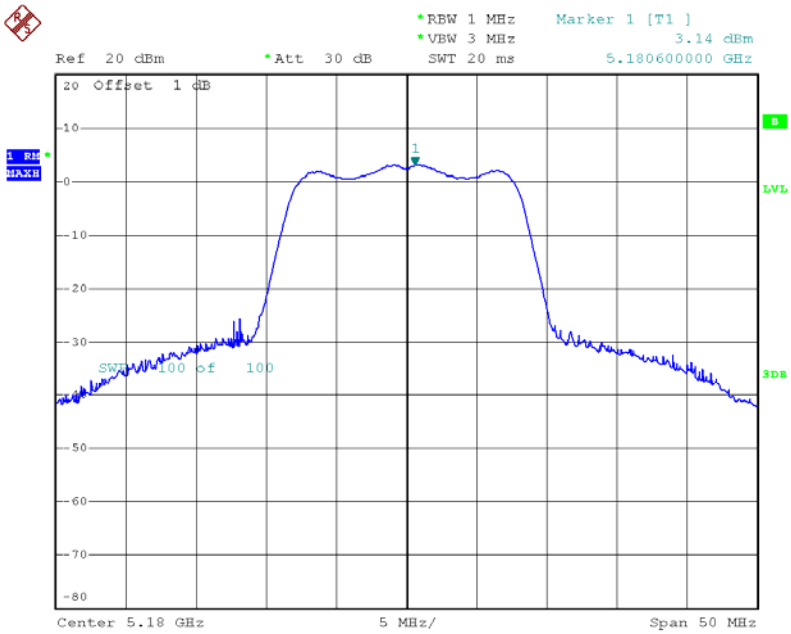
8.1.5 EUT TEST CONDITIONS

Temperature: 25°C
Relative Humidity: 55%
Test Voltage: 120V/60Hz

8.1.6 TEST RESULTS

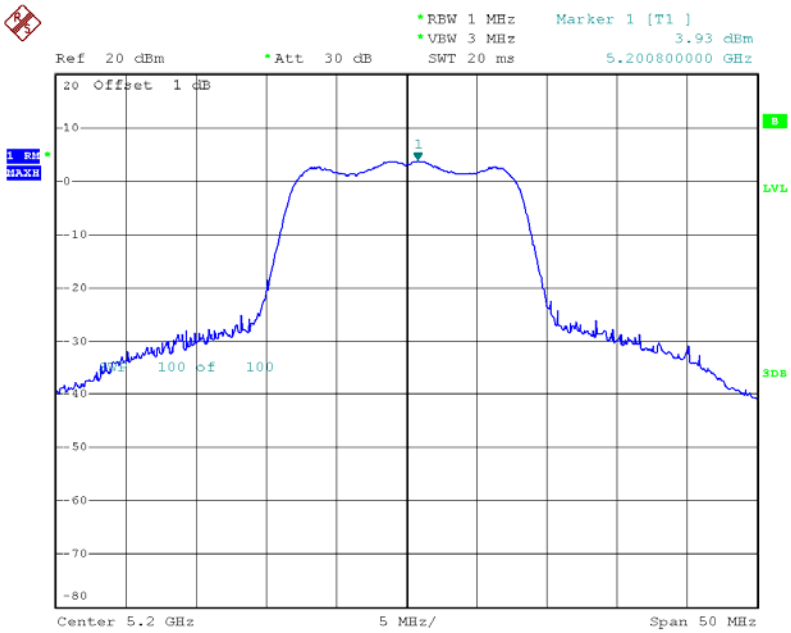
Test Mode : Band 1/TX A Mode_CH36/40/48

CH36



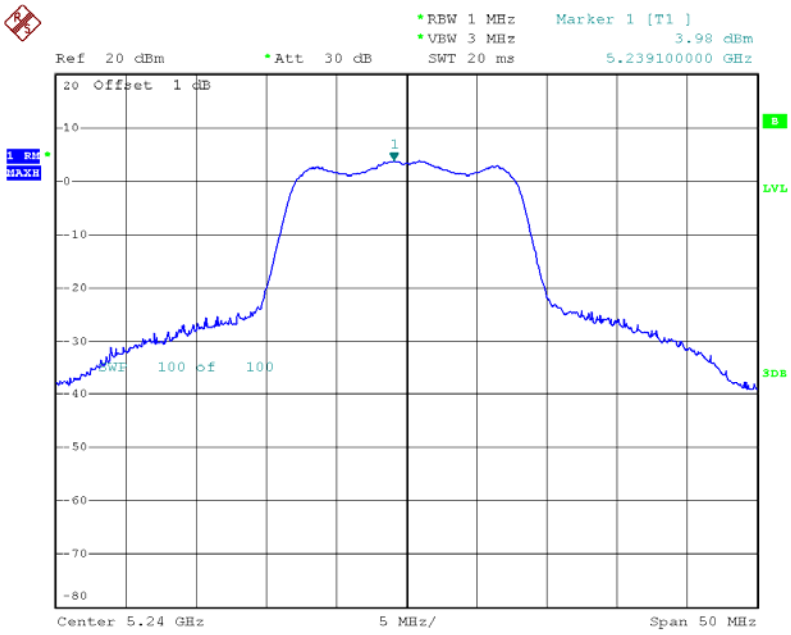
Date: 22.JAN.2014 16:17:44

CH40



Date: 22.JAN.2014 16:19:51

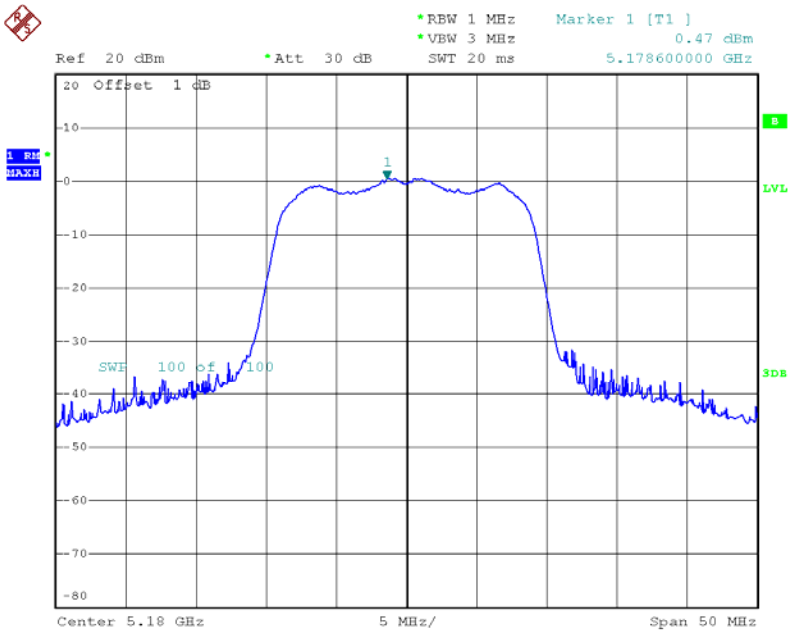
CH48



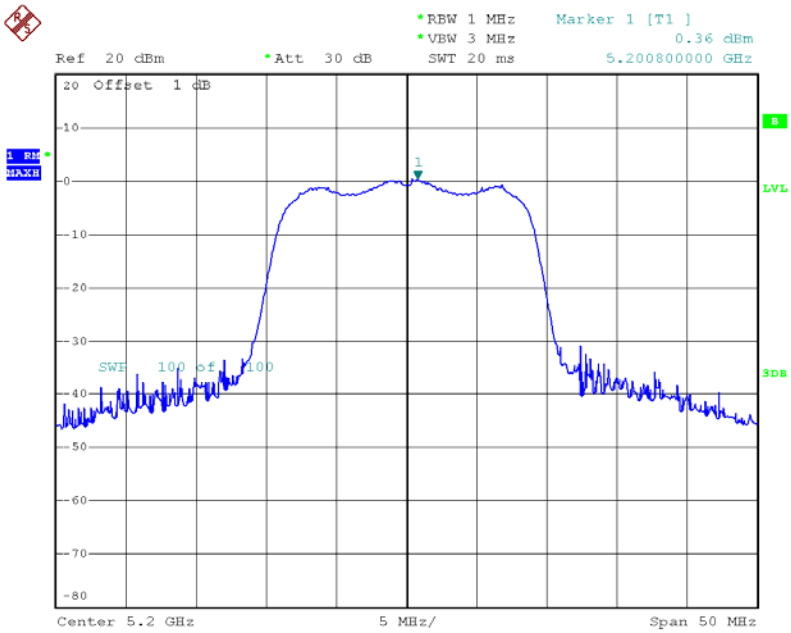
Date: 22.JAN.2014 16:20:38

Test Mode : Band 1/TX N20 Mode_CH13/40/48-ANT 1

CH36

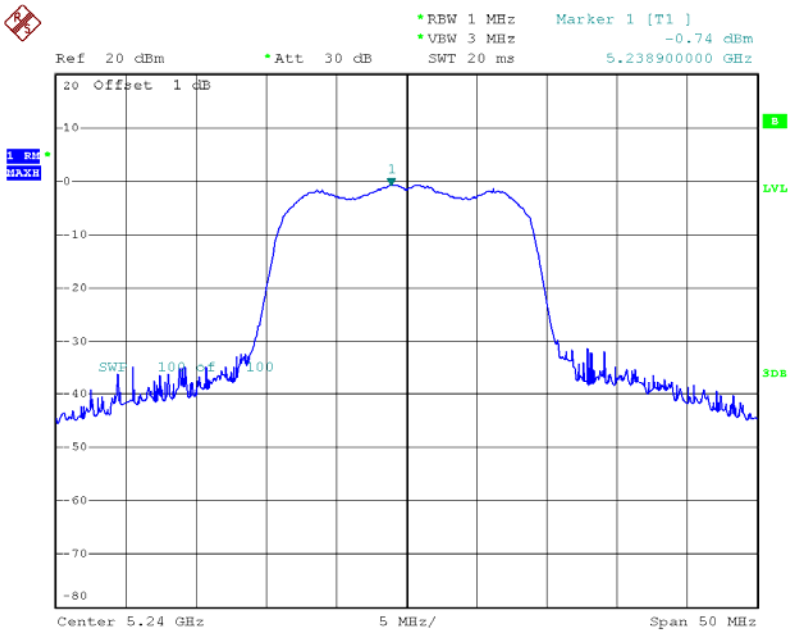


CH40



Date: 22.JAN.2014 16:22:51

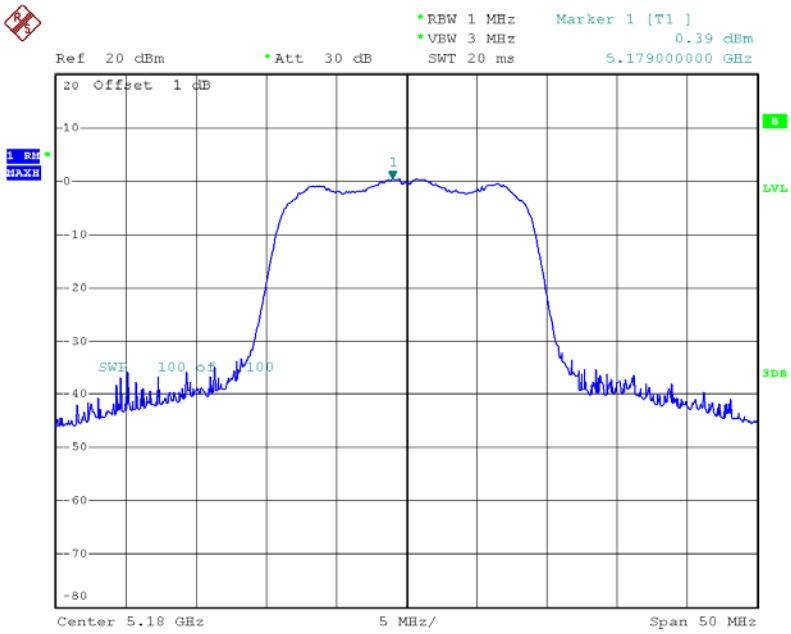
CH48



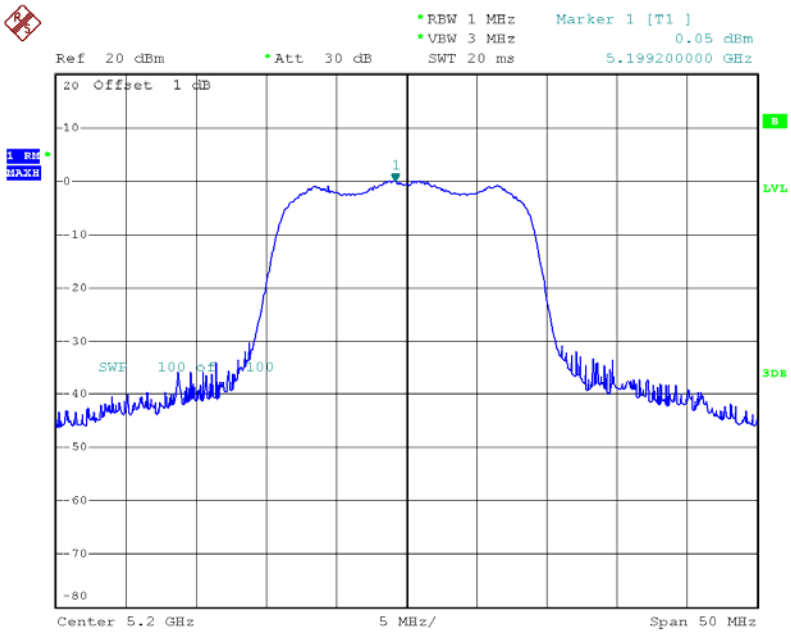
Date: 22.JAN.2014 16:22:07

Test Mode : Band 1/TX N20 Mode_CH13/40/48-ANT 2

CH36

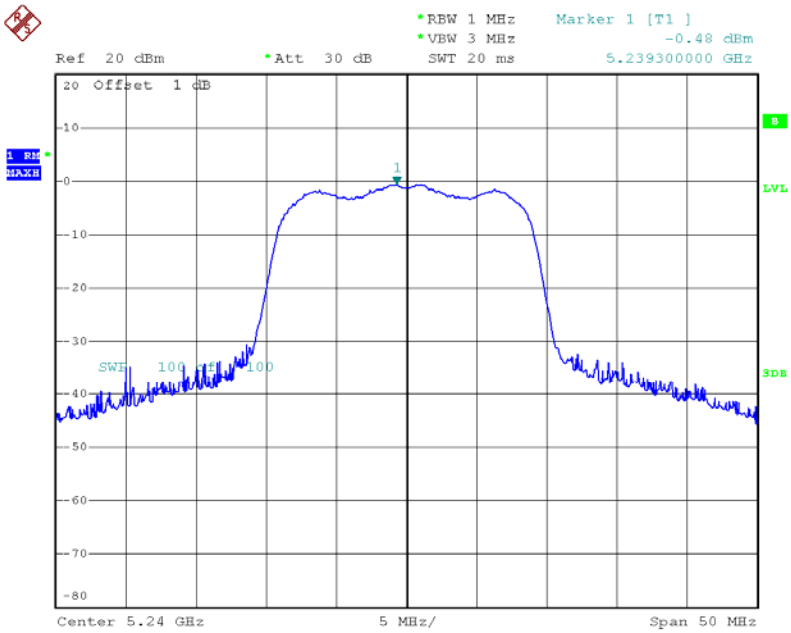


CH40



Date: 22.JAN.2014 16:22:58

CH48

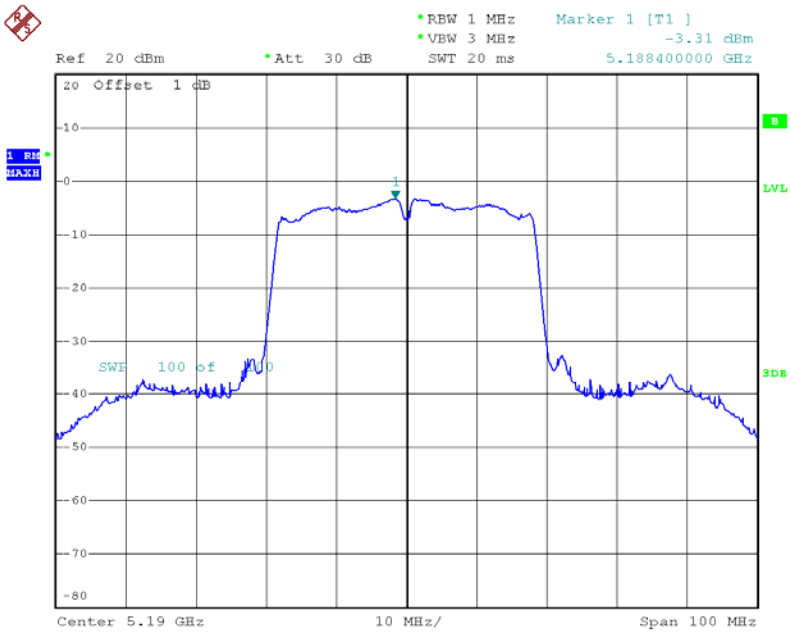


Date: 22.JAN.2014 16:22:15

Test Mode : Band 1/TX N20 Mode-Total			
Test Channel	Frequency (MHz)	Power Density (dBm)	LIMIT (dBm)
CH36	5180	3.44	4.00
CH40	5200	3.22	4.00
CH48	5240	2.40	4.00

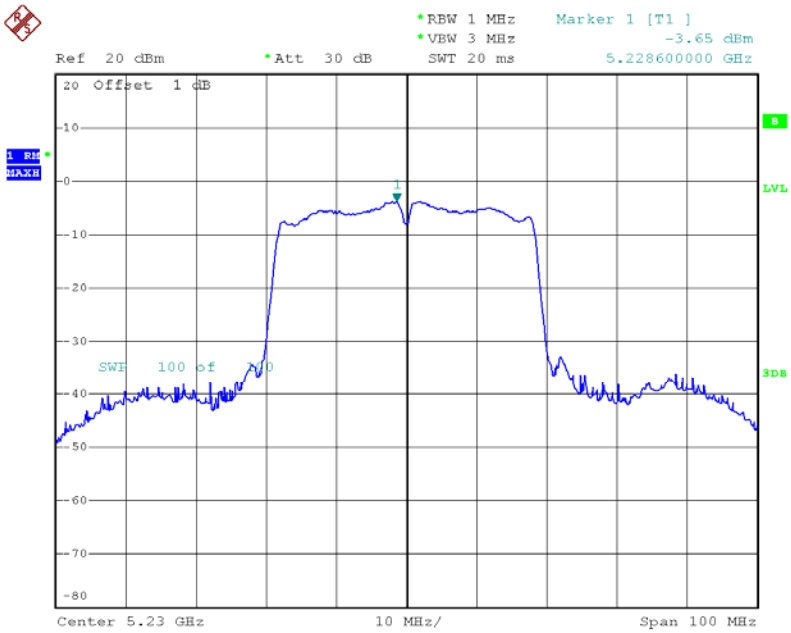
Test Mode : Band 1/TX N40 Mode_CH38/46-ANT 1

CH38



Date: 22.JAN.2014 16:25:12

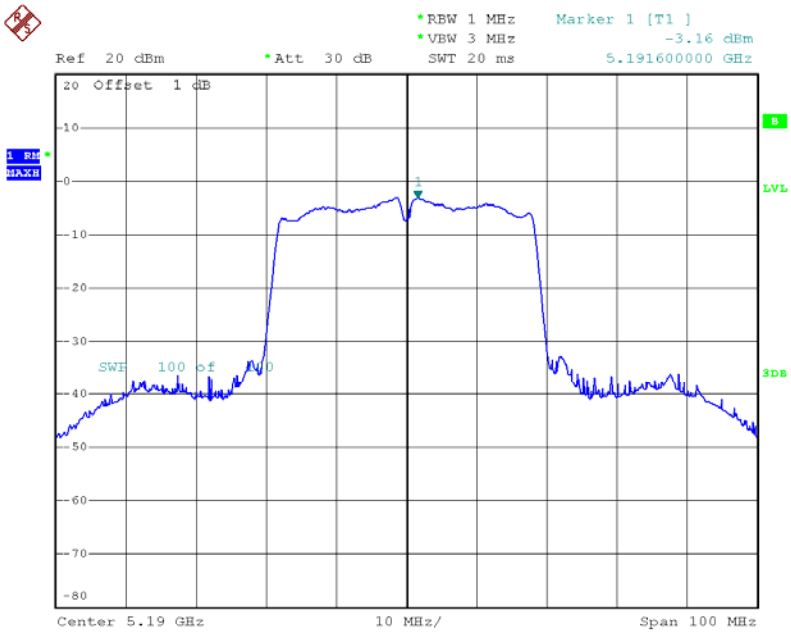
CH46



Date: 22.JAN.2014 16:25:55

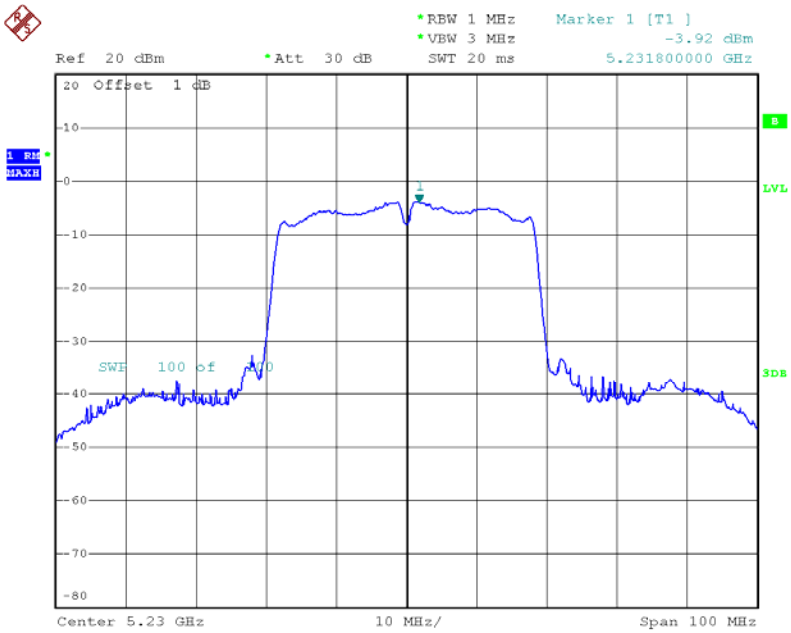
Test Mode : Band 1/TX N40 Mode_CH38/46-ANT 2

CH38



Date: 22.JAN.2014 16:25:21

CH46



Date: 22.JAN.2014 16:26:02

Test Mode : Band 1/TX N40 Mode-Total			
Test Channel	Frequency (MHz)	Power Density (dBm)	LIMIT (dBm)
CH38	5190	-0.22	4.00
CH46	5230	-0.77	4.00

9. PEAK EXCURSION MEASUREMENT

9.1 APPLIED PROCEDURES / LIMIT

FCC Part15, Subpart E			
Test Item	Limit	Frequency Range (MHz)	Result
Peak Excursion Measurement	13 dB	5150 - 5250	PASS

9.1.1 TEST PROCEDURE

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

b.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Encompass the entire emissions bandwidth (EBW) of the signal
RB	1000 kHz (Peak Trace) / 1000 kHz (Average Trace)
VB	3000 kHz (Peak Trace) / 3000 kHz (Average Trace)
Detector	Peak (Peak Trace) / RMS (Average Trace)
Trace	Max Hold
Sweep Time	60s

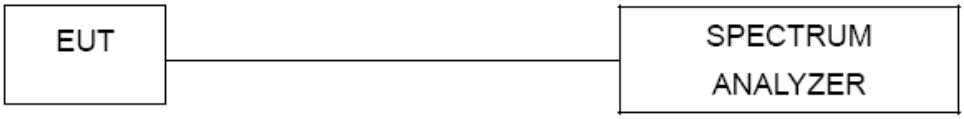
c. Peak Trace: Set RBW = 1 MHz, VBW ≥ 3 MHz with peak detector and maxhold settings.

d. Average Trace: set RBW = 1 MHz, VBW = 3 MHz with RMS detector and trace average across 100 traces in power averaging mode.

9.1.2 DEVIATION FROM STANDARD

No deviation.

9.1.3 TEST SETUP



9.1.4 EUT OPERATION CONDITIONS

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

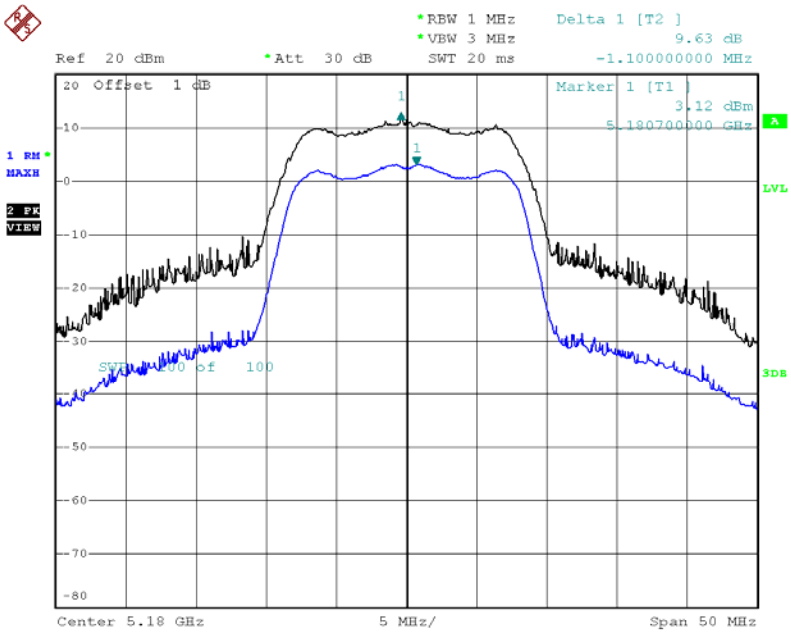
9.1.5 EUT TEST CONDITIONS

Temperature: 25°C
Relative Humidity: 55%
Test Voltage: 120V/60Hz

9.1.6 TEST RESULTS

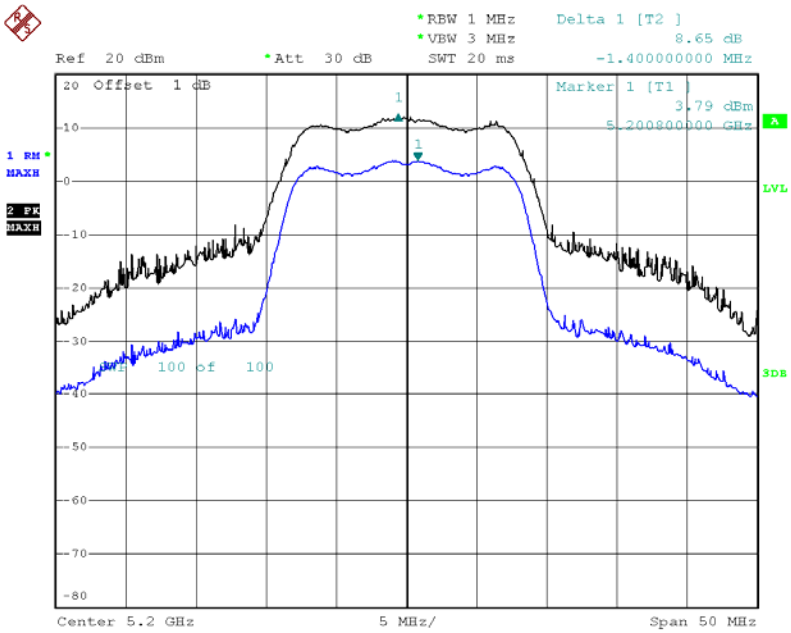
Test Mode :Band 1/TX A Mode_CH36/40/48

CH36



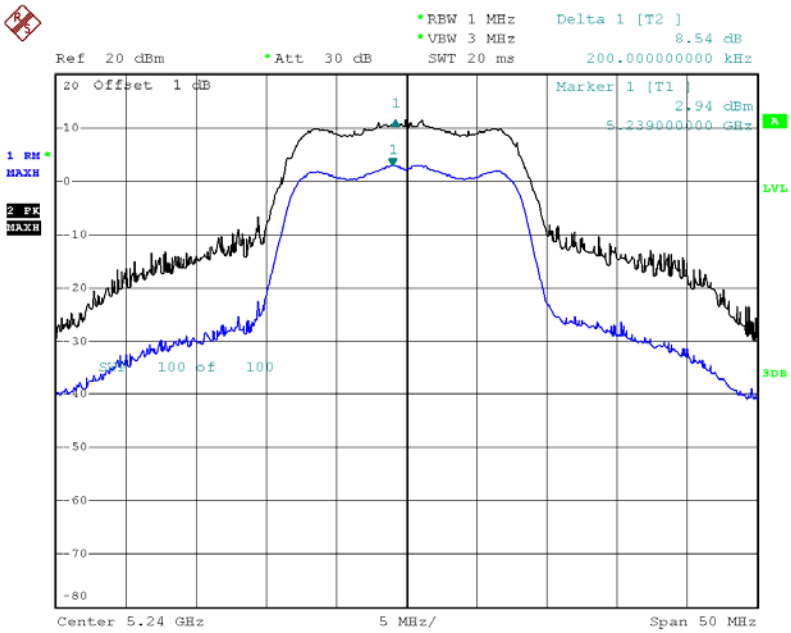
Date: 22.JAN.2014 16:17:59

CH40



Date: 22.JAN.2014 16:19:43

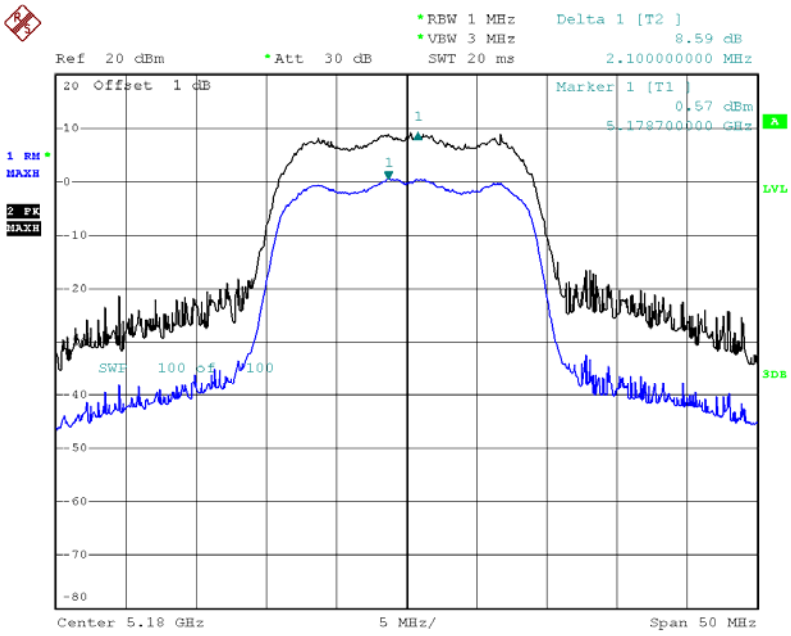
CH48



Date: 22.JAN.2014 16:20:10

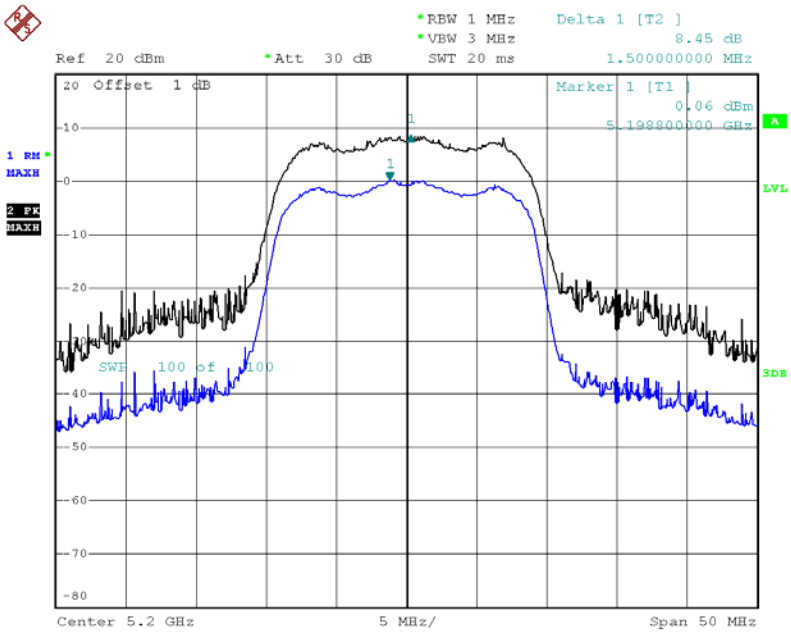
Test Mode :Band 1/TX N20 Mode_CH36/40/48-ANT 1

CH36



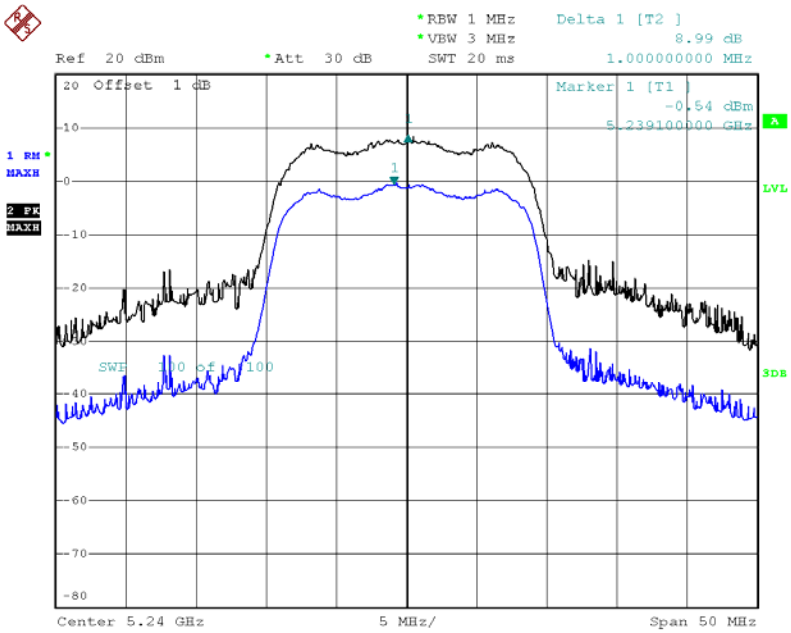
Date: 22.JAN.2014 16:23:16

CH40



Date: 22.JAN.2014 16:22:32

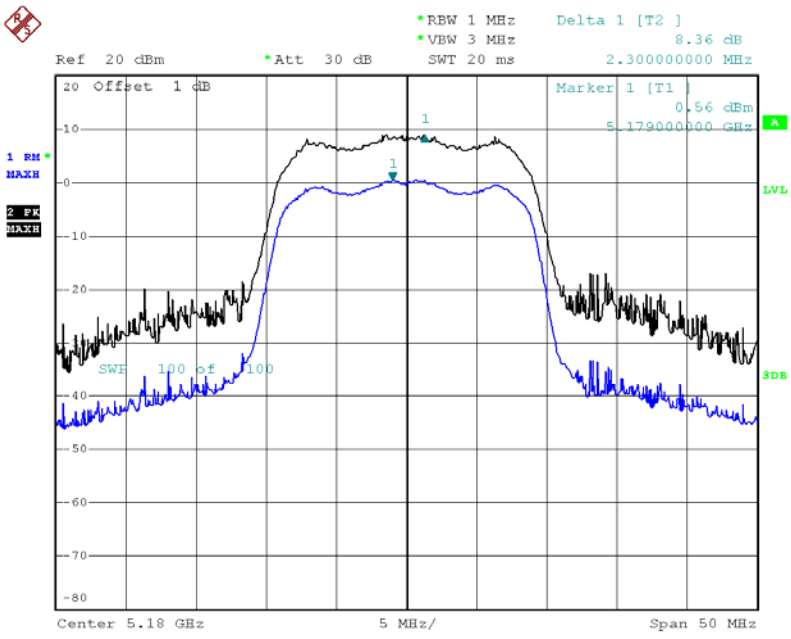
CH48



Date: 22.JAN.2014 16:21:42

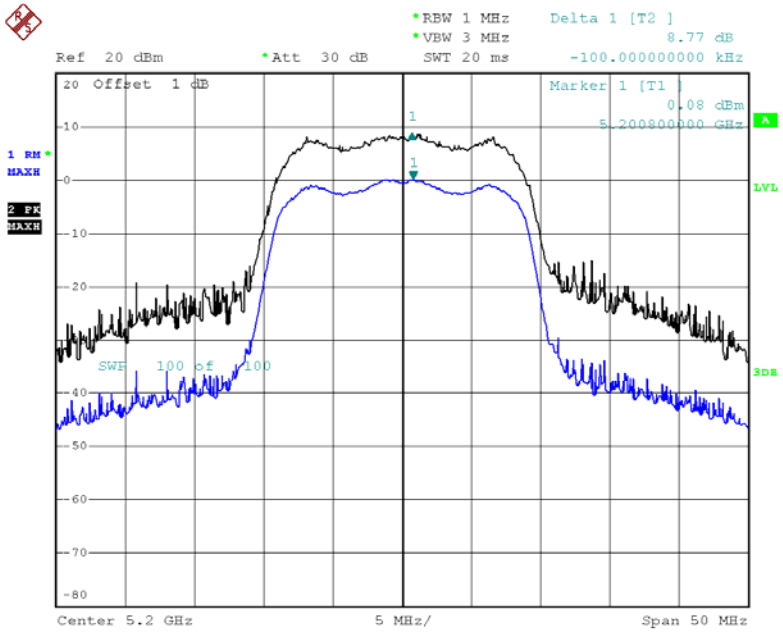
Test Mode :Band 1/TX N20 Mode_CH36/40/48-ANT 2

CH36



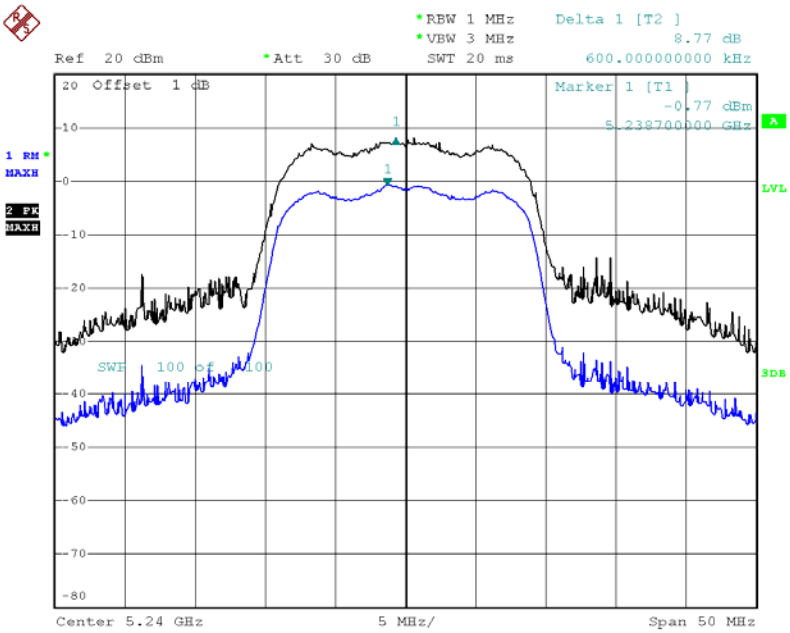
Date: 22.JAN.2014 16:23:24

CH40



Date: 22.JAN.2014 16:22:41

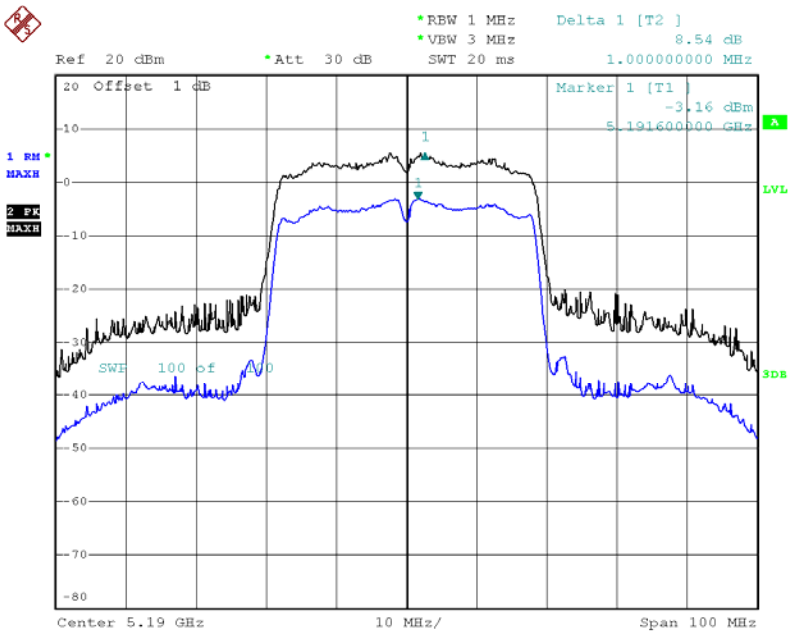
CH48



Date: 22.JAN.2014 16:21:58

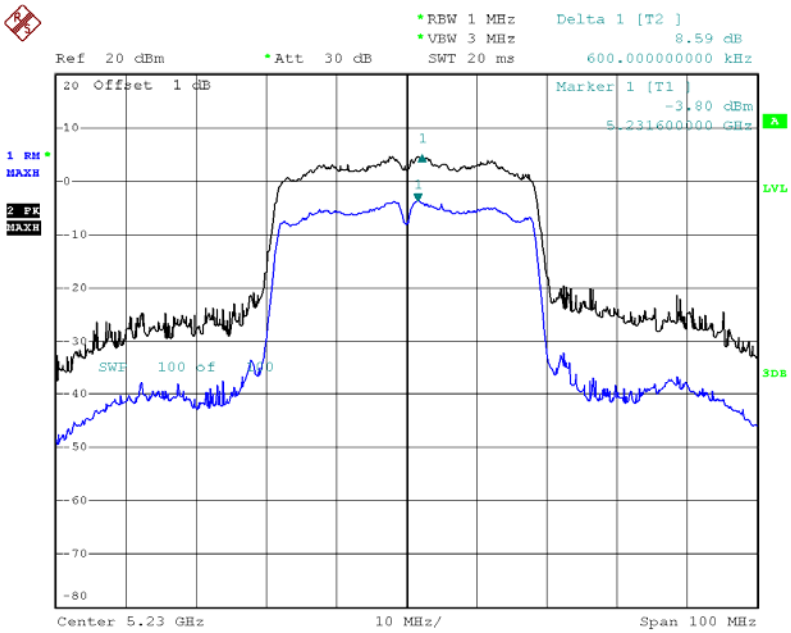
Test Mode :Band 1/TX N40 Mode_CH38/46-ANT 1

CH38



Date: 22.JAN.2014 16:24:50

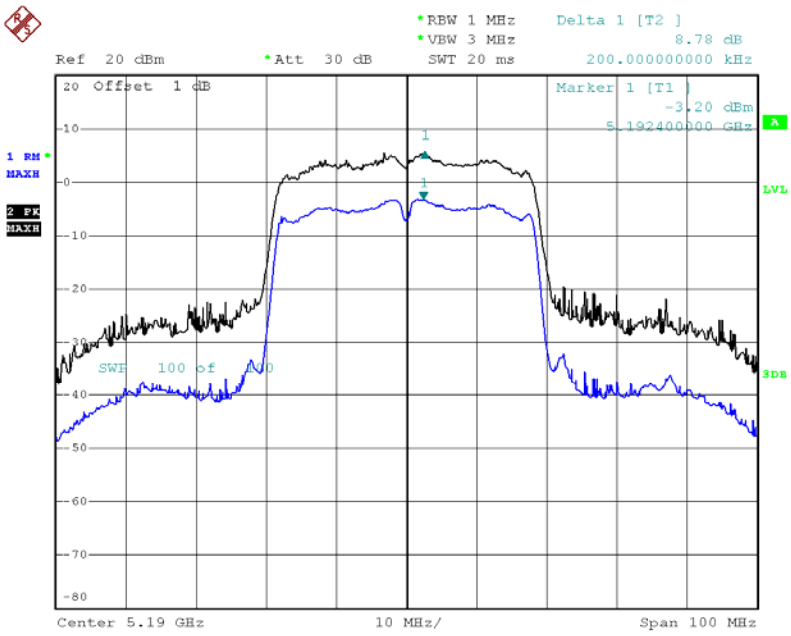
CH46



Date: 22.JAN.2014 16:25:36

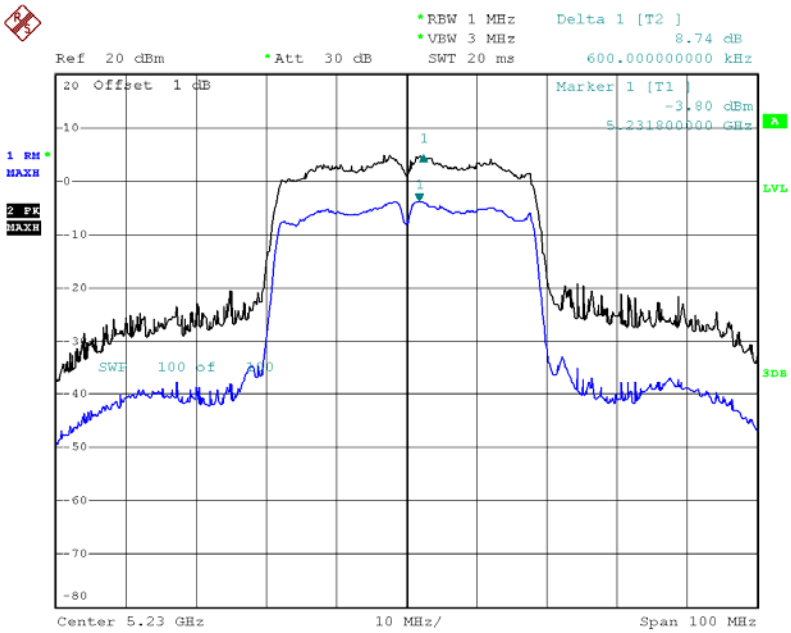
Test Mode :Band 1/TX N40 Mode_CH38/46-ANT 2

CH38



Date: 22.JAN.2014 16:24:59

CH46



Date: 22.JAN.2014 16:25:45

10. FREQUENCY STABILITY MEASUREMENT

10.1 APPLIED PROCEDURES / LIMIT

FCC Part15, Subpart E 15.407(g)			
Test Item	Limit	Frequency Range (MHz)	Result
Frequency Stability	specified in the user's manual	5150 – 5250	PASS

10.1.1 TEST PROCEDURE

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

b.

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

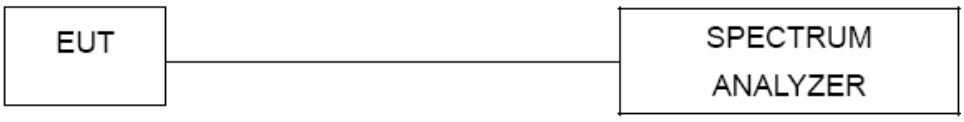
c. The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value.

d. user manual temperature is -30°C~50°C.

10.1.2 DEVIATION FROM STANDARD

No deviation.

10.1.3 TEST SETUP



10.1.4 EUT OPERATION CONDITIONS

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

10.1.5 EUT TEST CONDITIONS

Temperature: 25°C
Relative Humidity: 55%
Test Voltage: 120V/60Hz

10.1.6 TEST RESULTS

Test Mode :	Band 1

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)
(V)	5180
132	5180.00583
120	5180.006850
118	5180.007650
Max. Deviation (MHz)	0.007650
Max. Deviation (ppm)	1.48

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)
(℃)	5180
0	5180.0076
10	5180.0069
20	5180.0056
30	5180.0045
40	5180.0066
Max. Deviation (MHz)	0.007600
Max. Deviation (ppm)	1.47

11. MEASUREMENT INSTRUMENTS LIST

Conducted Emission Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	LISN	EMCO	3816/2	00052765	Apr. 25, 2014
2	LISN	R&S	ENV216	100087	Nov.15, 2014
3	Test Cable	N/A	C_17	N/A	Mar.15, 2014
4	EMI TEST RECEIVER	R&S	ESCS30	826547/022	Apr. 25, 2014
5	50Ω Terminator	SHX	TF2-3G-A	08122902	Apr. 25, 2014

Radiated Emission Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Antenna	Schwarbeck	VULB9160	9160-3232	Apr. 25, 2014
2	Amplifier	HP	8447D	2944A09673	Apr. 25, 2014
3	Test Receiver	R&S	ESCI	100382	Apr. 25, 2014
4	Test Cable	N/A	C-01_CB03	N/A	Jul. 02, 2014
5	Antenna	ETS	3115	00075789	Apr. 25, 2014
6	Amplifier	Agilent	8449B	3008A02274	Apr. 25, 2014
7	Spectrum	Agilent	E4408B	US39240143	Nov.15, 2014
8	Test Cable	HUBER+SUHNER	C-45	N/A	Apr. 30, 2014
9	Controller	CT	SC100	N/A	N/A
10	Horn Antenna	EMCO	3115	9605-4803	Apr. 25, 2014
11	Active Loop Antenna	R&S	HFH2-Z2	830749/020	Apr. 25, 2014
12	Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170319	Oct. 22, 2014

26dB Spectrum Bandwidth Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP 40	100185	Nov.15, 2014

Maximum Conducted Output Power Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP 40	100185	Nov.15, 2014

Antenna Conducted Spurious Emission Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP 40	100185	Nov.15, 2014

Power Spectral Density Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP 40	100185	Nov.15, 2014

Peak Excursion Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP 40	100185	Nov.15, 2014

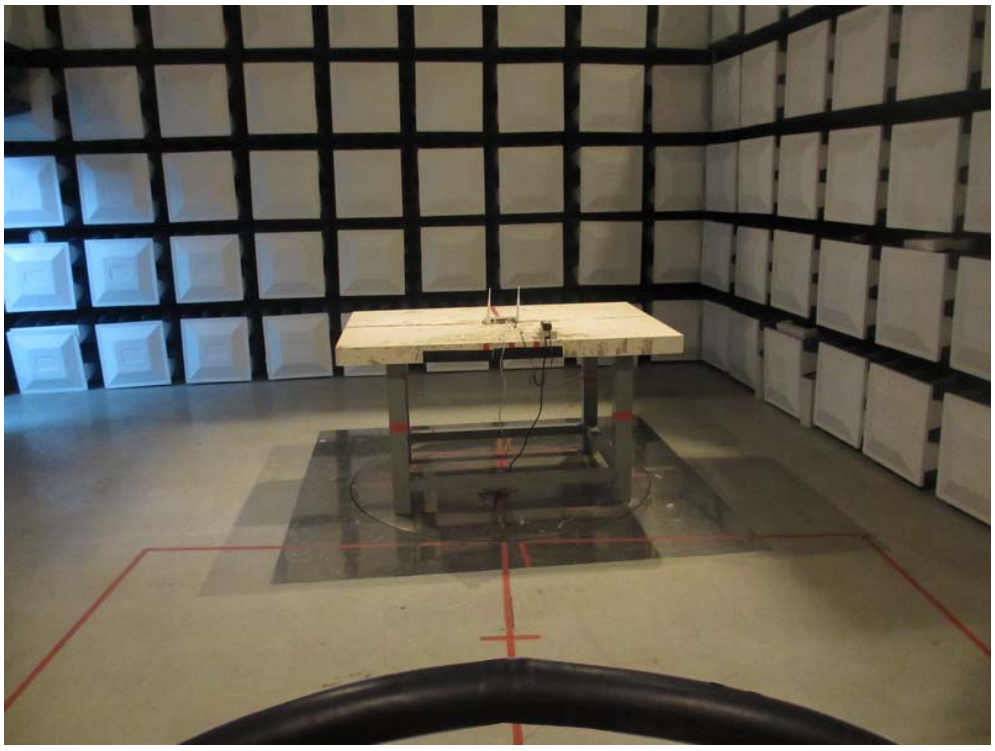
Frequency Stability Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP 40	100185	Nov.15, 2014
2	Precision Oven Tester	HOLINK	H-T-1F-D	BA03101701	May.25.2014

Remark: ”N/A” denotes no model name, serial no. or calibration specified.
All calibration period of equipment list is one year.

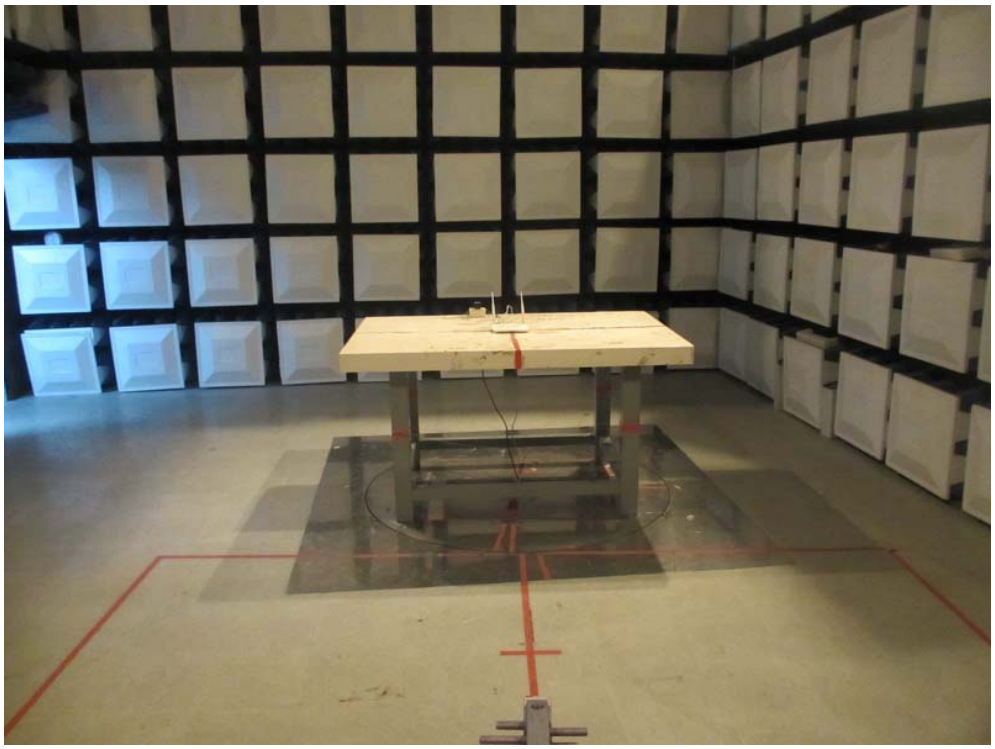
12. EUT TEST PHOTO

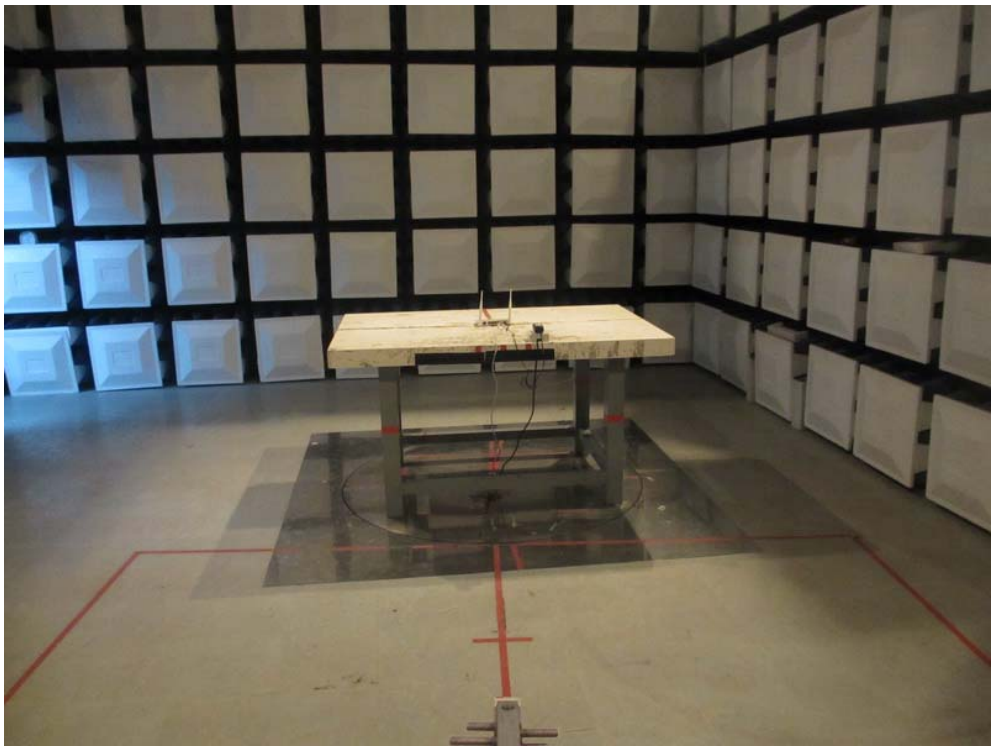
Conducted Measurement Photos

Radiated Measurement Photos
9K~30MHz



Radiated Measurement Photos
30~1000MHz





Radiated Measurement Photos
Above 1000MHz