FCC Test Report (WLAN)

Report No.:	RF150226E05
FCC ID:	PPD-QCA9008-TBD1
Test Model:	QCA9008-TBD1
Received Date:	Feb. 26, 2015
Test Date:	Mar. 21 to July 02, 2015
Issued Date:	July 15, 2015
Applicant:	Qualcomm Atheros, Inc.
Address:	1700 Technology Drive, San Jose, CA 95110
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory
Lab Address:	No. 81-1, Lu Liao Keng, 9th Ling,Wu Lung Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan R.O.C.
Test Location (1):	No. 81-1, Lu Liao Keng, 9th Ling,Wu Lung Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan R.O.C.
Test Location (2):	No. 49, Ln. 206, Wende Rd., Shangshan Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan R.O.C.

Table of Contents

Release Control Record

Issue No.	Description	Date Issued
RF150226E05	Original release.	July 15, 2015

1 Certificate of Conformity

Product:	802.11abgn/ac/ad+BT module
Brand:	Qualcomm Atheros
Test Model:	QCA9008-TBD1
Sample Status:	ENGINEERING SAMPLE
Applicant:	Qualcomm Atheros, Inc.
Test Date:	Mar. 21 to July 02, 2015
Standards:	47 CFR FCC Part 15, Subpart C (Section 15.247) ANSI C63.10: 2013

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

Prepared by : _____ , **Date:** July 15, 2015
Lori Chung / Specialist

Approved by : _____ , **Date:** July 15, 2015
May Chen / Manager

2 Summary of Test Results

47 CFR FCC Part 15, Subpart C (SECTION 15.247)			
FCC Clause	Test Item	Result	Remarks
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -9.08dB at 0.19297MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	PASS	Meet the requirement of limit. Minimum passing margin is -3.0dB at 2390.00MHz.
15.247(d)	Antenna Port Emission	PASS	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	PASS	Meet the requirement of limit.
15.247(b)	Conducted power	PASS	Meet the requirement of limit.
15.247(e)	Power Spectral Density	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	Antenna connector is IPEX not a standard connector.

2.1 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:

Measurement	Frequency	Expended Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150kHz ~ 30MHz	2.86 dB
Radiated Emissions up to 1 GHz	30MHz ~ 1GHz	5.43 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	3.72 dB
	6GHz ~ 18GHz	4.00 dB
	18GHz ~ 40GHz	4.11 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT (WLAN)

Product	802.11abgn/ac/ad+BT module
Brand	Qualcomm Atheros
Test Model	QCA9008-TBD1
Status of EUT	ENGINEERING SAMPLE
Power Supply Rating	3.3Vdc from host equipment
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 11ac mode and VHT (20/40) mode in 2.4GHz
Modulation Technology	DSSS,OFDM
Transfer Rate	802.11b: up to 11Mbps 802.11a/g: up to 54Mbps 802.11n : up to 300Mbps 802.11ac: up to 866.7Mbps
Operating Frequency	For 15.407 5.18 ~ 5.24GHz, 5.26 ~ 5.32GHz, 5.50 ~ 5.72GHz, 5.745 ~ 5.825GHz For 15.247 2.412 ~ 2.472GHz
Number of Channel	For 15.407 25 for 802.11a, 802.11n (HT20), 802.11ac (VHT20) 12 for 802.11n (HT40), 802.11ac (VHT40) 6 for 802.11ac (VHT80) For 15.247 13 for 802.11b/g, 802.11n (HT20), VHT20 9 for 802.11n (HT40), VHT40
Output Power	For 15.407 802.11a: 71.132mW 802.11ac (VHT20): 75.315mW 802.11ac (VHT40): 57.081mW 802.11ac (VHT80): 36.807mW For 15.247 802.11b: 294.47mW 802.11g: 430.629mW VHT20: 439.601mW VHT40: 416.898mW
Antenna Type	See item 3.2
Antenna Connector	See item 3.2
Accessory Device	NA
Data Cable Supplied	NA

Note:

1. There are Bluetooth technology and WLAN (2.4GHz, 5GHz & 60GHz) technology used for the EUT.
2. The EUT incorporates a 2T2R function.

2.4GHz Band			
MODULATION MODE	**DATA RATE (MCS)**	**TX & RX CONFIGURATION**	
802.11b	1 ~ 11Mbps	2TX	2RX
802.11g	6 ~ 54Mbps	2TX	2RX
802.11n (HT20)	MCS 0~7	2TX	2RX
	MCS 8~15	2TX	2RX
802.11n (HT40)	MCS 0~7	2TX	2RX
	MCS 8~15	2TX	2RX
VHT20	MCS 0~8, Nss=1	2TX	2RX
	MCS 0~8, Nss=2	2TX	2RX
VHT40	MCS 0~9, Nss=1	2TX	2RX
	MCS 0~9, Nss=2	2TX	2RX
5GHz Band			
MODULATION MODE	**DATA RATE (MCS)**	**TX & RX CONFIGURATION**	
802.11a	6 ~ 54Mbps	2TX	2RX
802.11n (HT20)	MCS 0~7	2TX	2RX
	MCS 8~15	2TX	2RX
802.11n (HT40)	MCS 0~7	2TX	2RX
	MCS 8~15	2TX	2RX
802.11ac (VHT20)	MCS 0~8, Nss=1	2TX	2RX
	MCS 0~8, Nss=2	2TX	2RX
802.11ac (VHT40)	MCS 0~9, Nss=1	2TX	2RX
	MCS 0~9, Nss=2	2TX	2RX
802.11ac (VHT80)	MCS 0~9, Nss=1	2TX	2RX
	MCS 0~9, Nss=2	2TX	2RX

Note: The modulation and bandwidth are similar for 802.11n mode for 20MHz (40MHz) and 802.11ac mode for 20MHz (40MHz), therefore investigated worst case to representative mode in test report. (Final test mode refer section 3.3.1)

3. The EUT was pre-tested under the following modes:

Test Mode	**Data rate**
Mode A	400ns GI
Mode B	**800ns GI**

From the above modes, the worst case was found in **Mode B**. Therefore only the test data of the mode was recorded in this report.

4. WLAN/BT coexistence mode:

- 2x2 WLAN + BT:
  - 5GHz 802.11a/an (or 11ac) transmit concurrent with BT.
  - 2.4GHz: timely shared coexistence. (2.4GHz & BT technology can't transmit at same time.)
  - 2.4GHz & 5GHz technology can't transmit at same time.

5. The emission (conducted & radiated emission) of the simultaneous operation (WiFi <5GHz> & Bluetooth) have been evaluated and no non-compliance found. The detail combinations of transmitters / frequencies / modes as below table

Mode	Available Channel	Tested Channel	Modulation Technology
5 GHz (802.11a) + Bluetooth (GFSK)	36 to 165	157	OFDM
	0 to 78	0	FHSS

6. The above EUT information was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

3.2 Description of Antenna

The antenna gain was declared by client; please refer to the following table:

Transmitter Circuit	Brand	Model	Ant. Type	2.4GHz Gain with cable loss (dBi)	5GHz Gain with cable loss (dBi)	2.4GHz Cable Loss (dBi)	5GHz Cable Loss (dBi)	Connector Type	Cable Length (mm)
Chain (0)	WNC	81-EBJ15.005	PIFA	3.00	5.15~5.35GHz: 2.56	1.15	5.15~5.35GHz: 1.70	IPEX	300
					5.47~5.725GHz: 4.76		5.47~5.725GHz: 1.74		
					5.725~5.85GHz: 4.76		5.725~5.85GHz: 1.79		
Chain (1)	WNC	81-EBJ15.005	PIFA	3.62	5.15~5.35GHz: 3.08	1.15	5.15~5.35GHz: 1.70	IPEX	300
					5.47~5.725GHz: 3.31		5.47~5.725GHz: 1.74		
					5.725~5.85GHz: 2.42		5.725~5.85GHz: 1.79		

Note: 1. Above antenna gains of antenna are Total (H+V).

For Testing, we select the highest gain on each frequency band for calculation and testing
The detail information as below:

Transmitter Circuit	Brand	Model	Ant. Type	2.4GHz Gain with cable loss (dBi)	5GHz Gain with cable loss (dBi)	2.4GHz Cable Loss (dBi)	5GHz Cable Loss (dBi)	Connector Type	Cable Length (mm)
Chain (0)+(1)	WNC	81-EBJ15.005	PIFA	3.62	5.15~5.35GHz: 3.08	1.15	5.15~5.35GHz: 1.70	IPEX	300
					5.47~5.725GHz: 4.76		5.47~5.725GHz: 1.74		
					5.725~5.85GHz: 4.76		5.725~5.85GHz: 1.79		

3.3 Description of Test Modes

13 channels are provided for 802.11b, 802.11g and 802.11n (HT20), VHT20:

Channel	Frequency	Channel	Frequency
1	2412MHz	8	2447MHz
2	2417MHz	9	2452MHz
3	2422MHz	10	2457MHz
4	2427MHz	11	2462MHz
5	2432MHz	12	2467MHz
6	2437MHz	13	2472MHz
7	2442MHz		

9 channels are provided for 802.11n (HT40), VHT40:

Channel	Frequency	Channel	Frequency
3	2422MHz	8	2447MHz
4	2427MHz	9	2452MHz
5	2432MHz	10	2457MHz
6	2437MHz	11	2462MHz
7	2442MHz		

3.3.1 Test Mode Applicability and Tested Channel Detail

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	UE≥1G	UE<1G	PLC	APCM	
-	√	√	√	√	-

Where **UE ≥ 1G:** Unwanted Emission above 1GHz **UE < 1G:** Unwanted Emission below 1GHz
PLC: Power Line Conducted Emission **APCM:** Antenna Port Conducted Measurement

Unwabted Emission Test (Above 1GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	DATA RATE (Mbps)
802.11b	1 to 13	1, 6, 11, 12, 13	DSSS	1
802.11g	1 to 13	1, 6, 11, 12, 13	OFDM	6
VHT20	1 to 13	1, 6, 11, 12, 13	OFDM	6.5
VHT40	3 to 11	3, 6, 9, 10, 11	OFDM	13.5

Unwabted Emission Test (Below 1GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	DATA RATE (Mbps)
802.11g	1 to 13	6	OFDM	6

Power Line Conducted Emission Test:

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	DATA RATE (Mbps)
802.11g	1 to 13	6	OFDM	6

Antenna Port Conducted Measurement:

☒ This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	DATA RATE (Mbps)
802.11b	1 to 13	1, 6, 11, 12, 13	DSSS	1
802.11g	1 to 13	1, 6, 11, 12, 13	OFDM	6
VHT20	1 to 13	1, 6, 11, 12, 13	OFDM	6.5
VHT40	3 to 11	3, 6, 9, 10, 11	OFDM	13.5

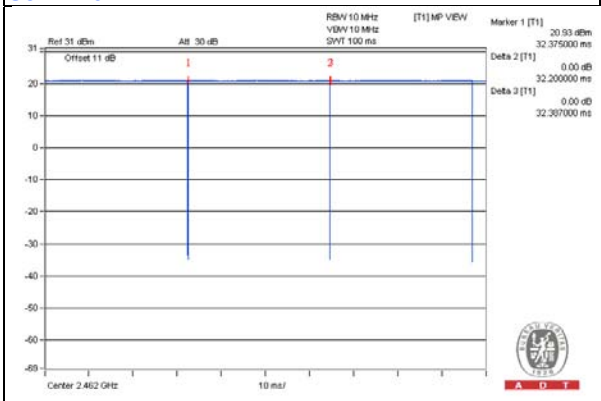
Test Condition:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER (SYSTEM)	TESTED BY
UE≥1G	23deg. C, 70%RH	120Vac, 60Hz	Gary Cheng
UE<1G	24deg. C, 66%RH	120Vac, 60Hz	Robert Cheng
PLC	23deg. C, 65%RH	120Vac, 60Hz	Wythe Lin
APCM	25deg. C, 60%RH	120Vac, 60Hz	Robert Cheng

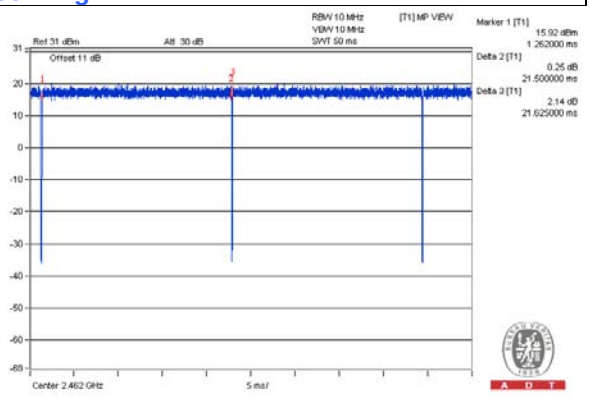
3.4 Duty Cycle of Test Signal

Duty cycle of test signal is ≥ 98 %, duty factor is not required.
802.11b: Duty cycle = 32.2 ms/32.387 ms = 0.994
802.11g: Duty cycle = 21.5 ms/21.625 ms = 0.994
VHT20: Duty cycle = 19.875 ms/20.038 ms = 0.992
VHT40: Duty cycle = 9.533 ms/9.643 ms = 0.989

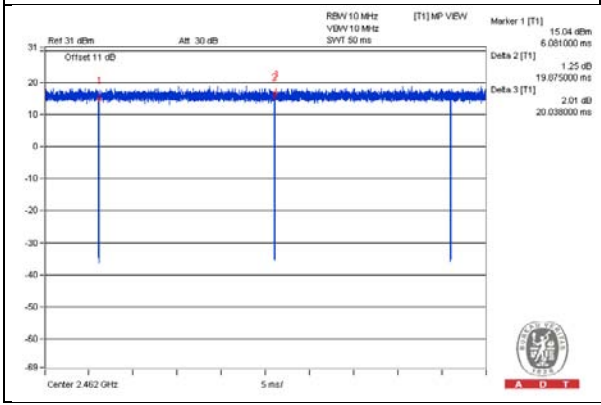
802.11b



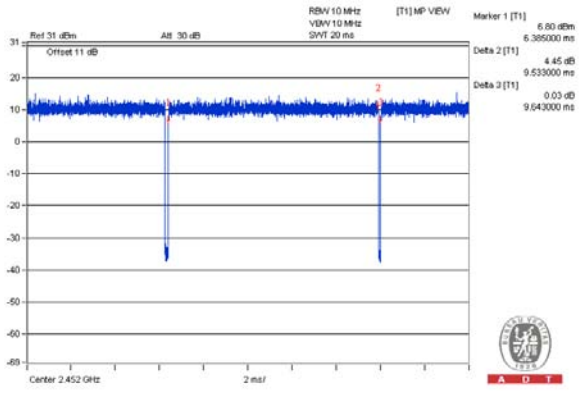
802.11g



VHT20



VHT40



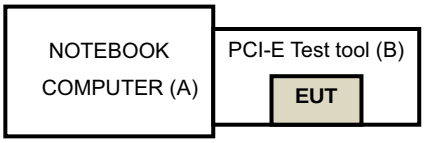
3.5 Description of Support Units

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.

No.	Product	Brand	Model No.	Serial No.	FCC ID	Remark
A	NOTEBOOK COMPUTER	Lenovo	0769	NA	NA	Supplied by Client
B	PCI-E Test tool	Qualcomm Atheros	NA	NA	NA	Supplied by Client

NOTE: All power cords of the above support units are non-shielded (1.8 m).

3.5.1 Configuration of System under Test



3.6 General Description of Applied Standards

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC Part 15, Subpart C (15.247)
558074 D01 DTS Meas Guidance v03r02
662911 D01 Multiple Transmitter Output v02r01
ANSI C63.10- 2013

All test items have been performed and recorded as per the above standards.

4 Test Types and Results

4.1 Conducted Output Power Measurement

4.1.1 Limits of Conducted Output Power Measurement

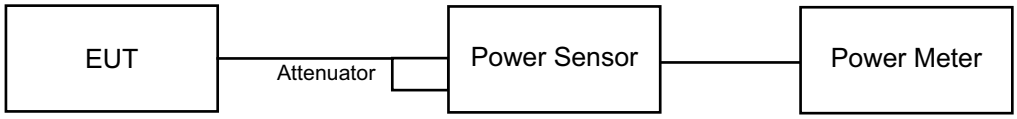
For systems using digital modulation in the 2400–2483.5 MHz bands: 1 Watt (30dBm)

Per KDB 662911 D01 Multiple Transmitter Output Method of conducted output power measurement on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for NANT ≤ 4;
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any NANT;
Array Gain = 5 log(NANT/NSS) dB or 3 dB, whichever is less for 20-MHz channel widths with NANT ≥ 5.

For power measurements on all other devices: Array Gain = 10 log(NANT/NSS) dB.

4.1.2 Test Setup



4.1.3 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Power Meter Anritsu	ML2495A	1014008	Apr. 28, 2015	Apr. 27, 2016
Power Sensor Anritsu	MA2411B	0917122	Apr. 28, 2015	Apr. 27, 2016

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Tested date : June 18, 2015

4.1.4 Test Procedures

A peak / average power sensor was used on the output port of the EUT. A power meter was used to read the response of the peak / average power sensor. Record the power level.

4.1.5 Deviation from Test Standard

No deviation.

4.1.6 EUT Operating Conditions

The software (QCRT-CONN30033.exe) provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.1.7 Test Results

FOR PEAK POWER

802.11b

Chan.	Chan. Freq. (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	21.13	21.00	255.611	24.08	29.37	Pass
6	2437	21.65	21.71	294.47	24.69	29.37	Pass
11	2462	21.28	21.52	276.182	24.41	29.37	Pass
12	2467	17.97	17.20	115.142	20.61	29.37	Pass
13	2472	13.52	12.62	40.772	16.10	29.37	Pass

NOTE: Directional gain = 3.62dBi + 10log(2) = 6.63dBi > 6dBi , so the power limit shall be reduced to 30-(6.63-6) = 29.37dBm.

802.11g

Chan.	Chan. Freq. (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	21.07	20.21	232.892	23.67	29.37	Pass
6	2437	23.41	23.25	430.629	26.34	29.37	Pass
11	2462	20.04	20.08	202.784	23.07	29.37	Pass
12	2467	17.15	16.37	95.231	19.79	29.37	Pass
13	2472	8.25	7.67	12.531	10.98	29.37	Pass

NOTE: Directional gain = 3.62dBi + 10log(2) = 6.63dBi > 6dBi , so the power limit shall be reduced to 30-(6.63-6) = 29.37dBm.

VHT20

Chan.	Chan. Freq. (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	20.39	19.32	194.903	22.90	29.37	Pass
6	2437	23.37	23.47	439.601	26.43	29.37	Pass
11	2462	19.22	19.03	163.543	22.14	29.37	Pass
12	2467	16.90	16.53	93.956	19.73	29.37	Pass
13	2472	6.61	6.32	8.866	9.48	29.37	Pass

NOTE: Directional gain = 3.62dBi + 10log(2) = 6.63dBi > 6dBi , so the power limit shall be reduced to 30-(6.63-6) = 29.37dBm.

VHT40

Chan.	Chan. Freq. (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	18.56	18.12	136.642	21.36	29.37	Pass
6	2437	23.19	23.19	416.898	26.20	29.37	Pass
9	2452	17.29	17.46	109.299	20.39	29.37	Pass
10	2457	15.45	15.19	68.112	18.33	29.37	Pass
11	2462	7.89	7.43	11.686	10.68	29.37	Pass

NOTE: Directional gain = 3.62dBi + 10log(2) = 6.63dBi > 6dBi , so the power limit shall be reduced to 30-(6.63-6) = 29.37dBm.

FOR AVERAGE POWER

802.11b

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
1	2412	18.80	18.41	145.201	21.62
6	2437	19.66	19.88	189.745	22.78
11	2462	19.27	19.56	174.893	22.43
12	2467	15.60	14.88	67.069	18.27
13	2472	10.98	10.20	23.002	13.62

802.11g

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
1	2412	15.45	14.82	65.414	18.16
6	2437	18.63	18.71	147.248	21.68
11	2462	14.33	14.13	52.984	17.24
12	2467	11.33	10.67	25.251	14.02
13	2472	1.92	1.01	2.818	4.50

VHT20

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
1	2412	14.34	13.70	50.606	17.04
6	2437	18.21	19.12	147.880	21.70
11	2462	13.25	13.21	42.076	16.24
12	2467	11.11	10.50	24.132	13.83
13	2472	0.53	0.10	2.153	3.33

VHT40

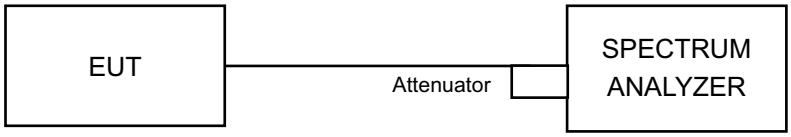
Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
3	2422	12.57	12.05	34.104	15.33
6	2437	16.31	16.66	89.101	19.50
9	2452	11.32	11.28	26.980	14.31
10	2457	9.43	8.56	15.948	12.03
11	2462	1.51	0.67	2.583	4.12

4.2 Power Spectral Density Measurement

4.2.1 Limits of Power Spectral Density Measurement

The Maximum of Power Spectral Density Measurement is 8dBm.

4.2.2 Test Setup



4.2.3 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
SPECTRUM ANALYZER R&S	FSP 40	100060	May 08, 2015	May 07, 2016

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Tested date : June 18, 2015

4.2.4 Test Procedures

a. Set analyzer center frequency to DTS channel center frequency.
b. Set the span to 1.5 times the DTS bandwidth.
c. Set the RBW to: 3 kHz ≤ RBW ≤ 100 kHz.
d. Set the VBW ≥ 3 × RBW.
e. Detector = peak.
f. Sweep time = auto couple.
g. Trace mode = max hold.
h. Allow trace to fully stabilize.
i. Use the peak marker function to determine the maximum amplitude level within the RBW.

4.2.5 Deviation from Test Standard

No deviation.

4.2.6 EUT Operating Conditions

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

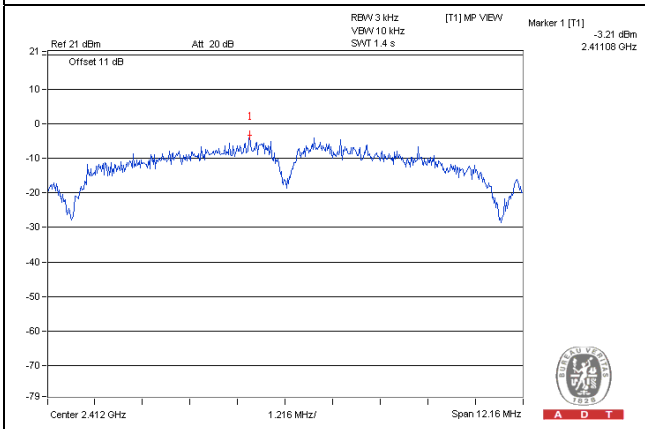
4.2.7 Test Results

802.11b

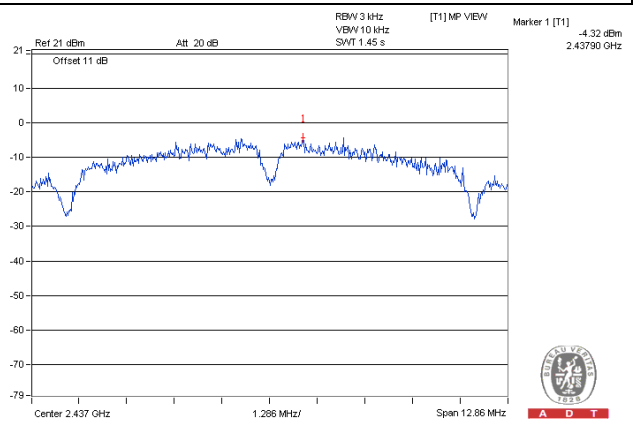
TX chain	Channel	Freq. (MHz)	PSD (dBm)	10 log (N=2) dB	Total PSD (dBm)	Limit (dBm)	Pass /Fail
0	1	2412	-3.21	3.01	-0.20	7.37	Pass
	6	2437	-4.32	3.01	-1.31	7.37	Pass
	11	2462	-4.50	3.01	-1.49	7.37	Pass
	12	2467	-7.80	3.01	-4.79	7.37	Pass
	13	2472	-12.27	3.01	-9.26	7.37	Pass
1	1	2412	-3.72	3.01	-0.71	7.37	Pass
	6	2437	-3.02	3.01	-0.01	7.37	Pass
	11	2462	-3.60	3.01	-0.59	7.37	Pass
	12	2467	-8.70	3.01	-5.69	7.37	Pass
	13	2472	-11.31	3.01	-8.30	7.37	Pass

NOTE: Directional gain = 3.62dBi + 10log(2) = 6.63dBi > 6dBi , so the power density limit shall be reduced to 8-(6.63-6) = 7.37dBm.

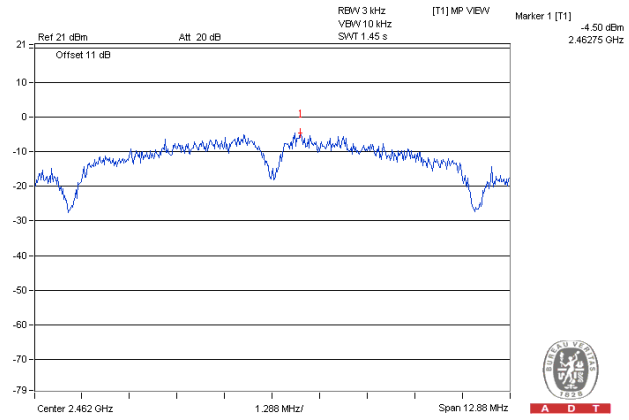
Chain 0 / CH1



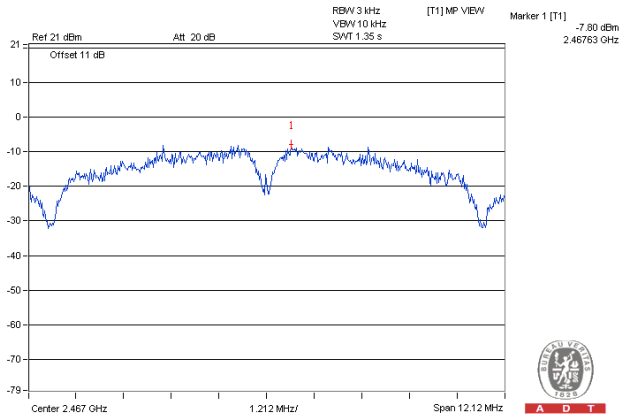
Chain 0 / CH6



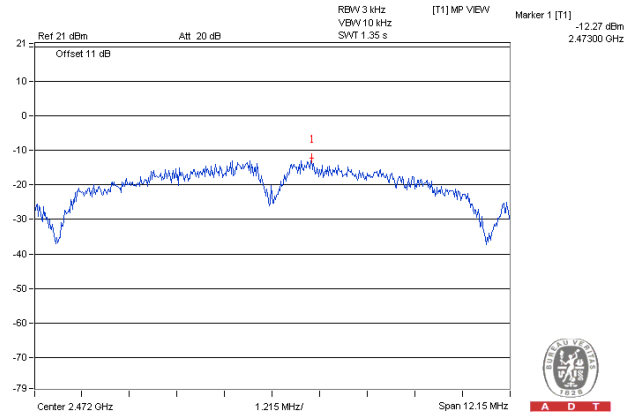
Chain 0 / CH11



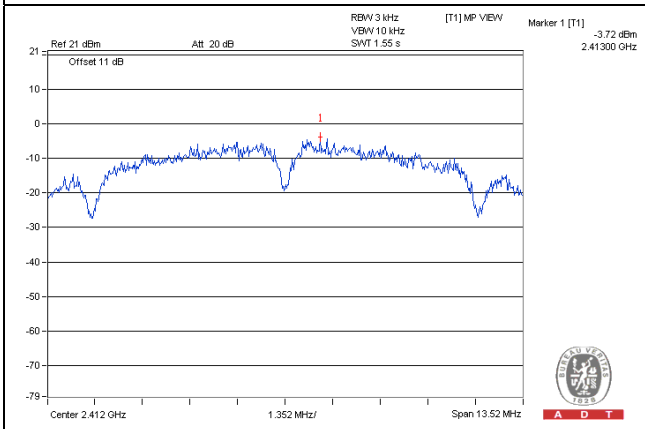
Chain 0 / CH12



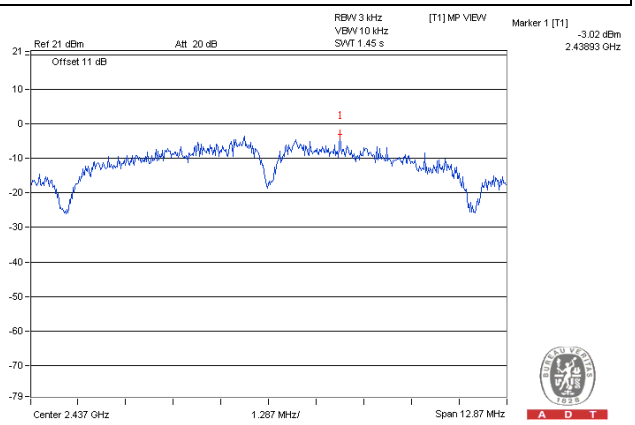
Chain 0 / CH13



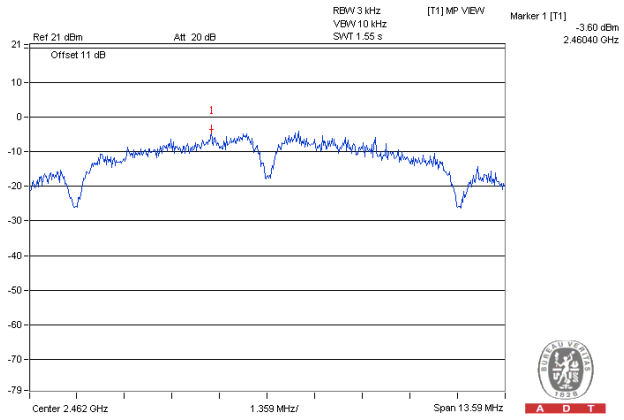
Chain 1 / CH1



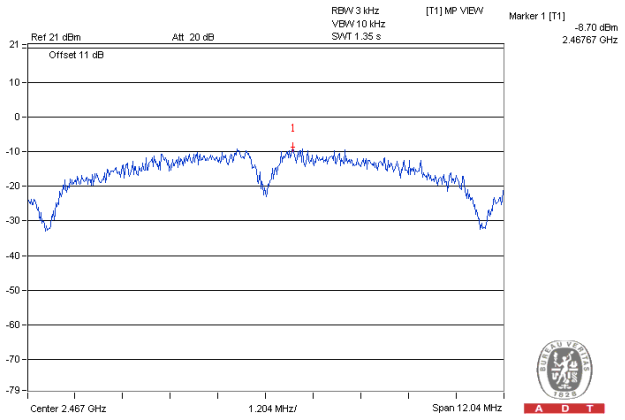
Chain 1 / CH6



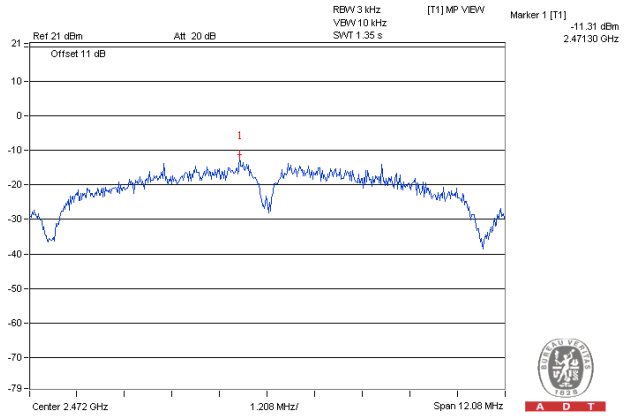
Chain 1 / CH11



Chain 1 / CH12



Chain 1 / CH13

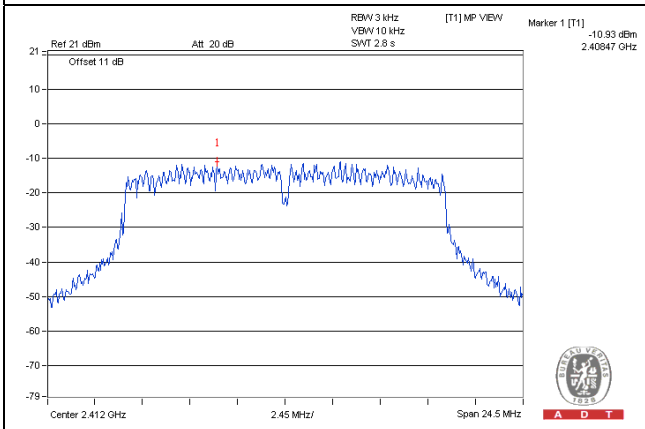


802.11g

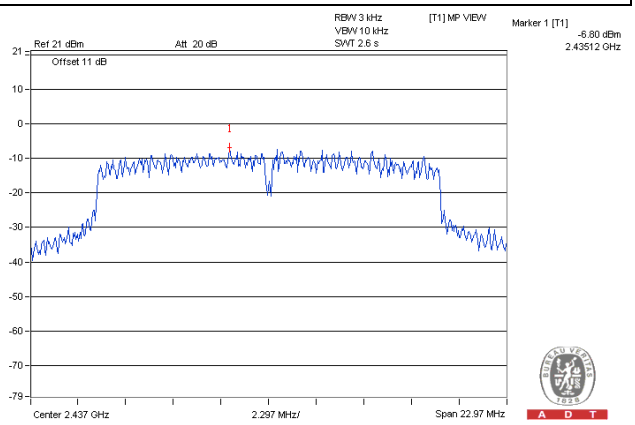
TX chain	Channel	Freq. (MHz)	PSD (dBm)	10 log (N=2) dB	Total PSD (dBm)	Limit (dBm)	Pass /Fail
0	1	2412	-10.93	3.01	-7.92	7.37	Pass
	6	2437	-6.80	3.01	-3.79	7.37	Pass
	11	2462	-11.23	3.01	-8.22	7.37	Pass
	12	2467	-14.67	3.01	-11.66	7.37	Pass
	13	2472	-23.58	3.01	-20.57	7.37	Pass
1	1	2412	-10.30	3.01	-7.29	7.37	Pass
	6	2437	-5.88	3.01	-2.87	7.37	Pass
	11	2462	-11.43	3.01	-8.42	7.37	Pass
	12	2467	-14.39	3.01	-11.38	7.37	Pass
	13	2472	-25.24	3.01	-22.23	7.37	Pass

NOTE: Directional gain = 3.62dBi + 10log(2) = 6.63dBi > 6dBi , so the power density limit shall be reduced to 8-(6.63-6) = 7.37dBm.

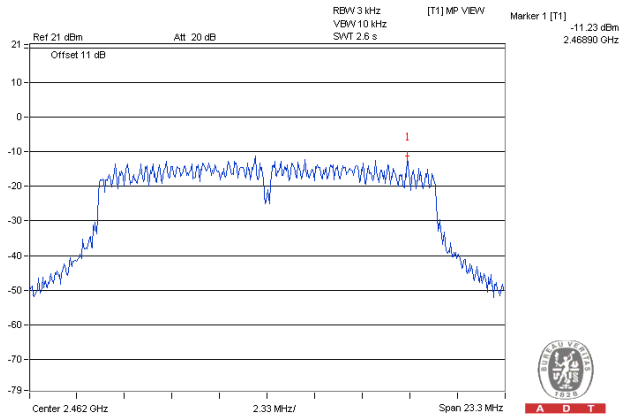
Chain 0 / CH1



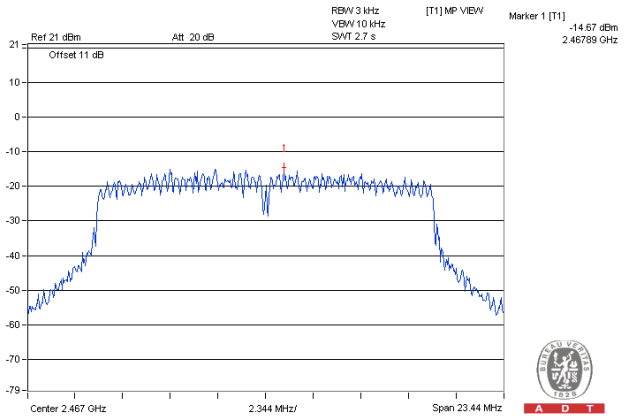
Chain 0 / CH6



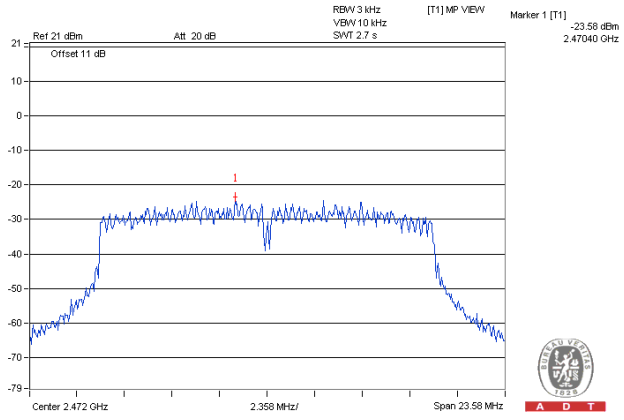
Chain 0 / CH11



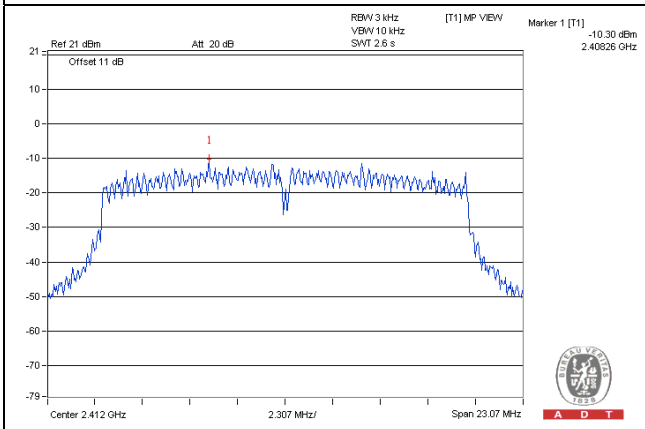
Chain 0 / CH12



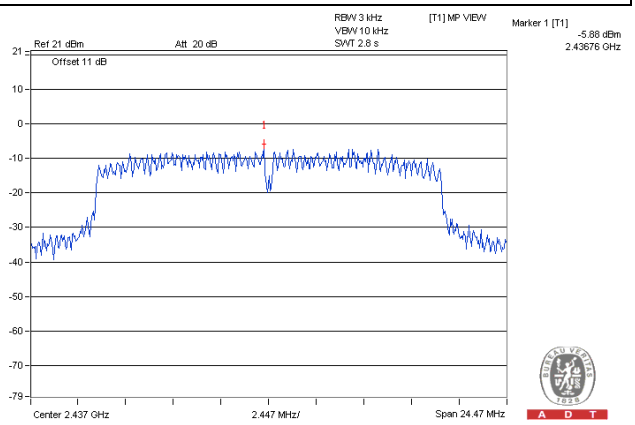
Chain 0 / CH13



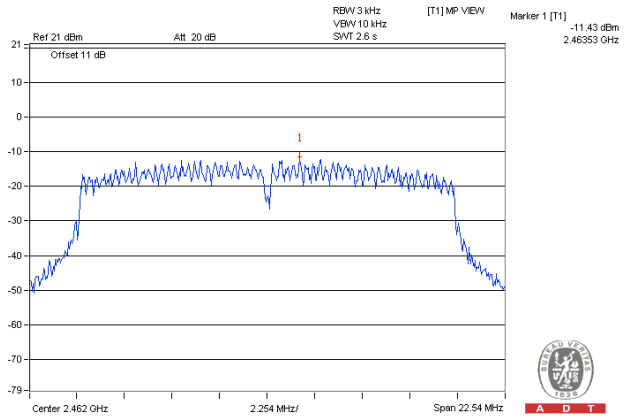
Chain 1 / CH1



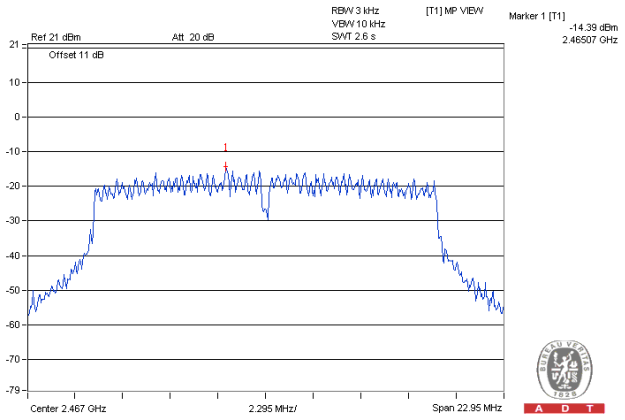
Chain 1 / CH6



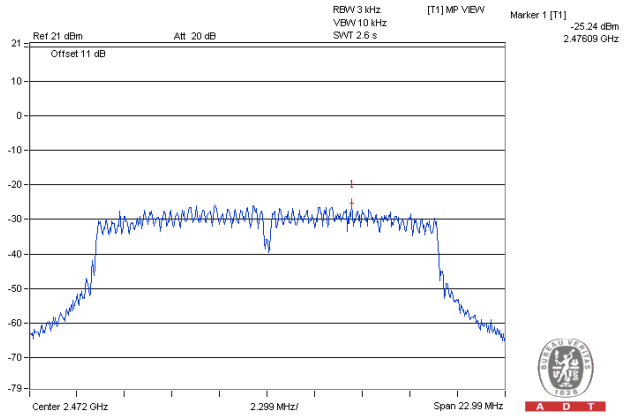
Chain 1 / CH11



Chain 1 / CH12



Chain 1 / CH13

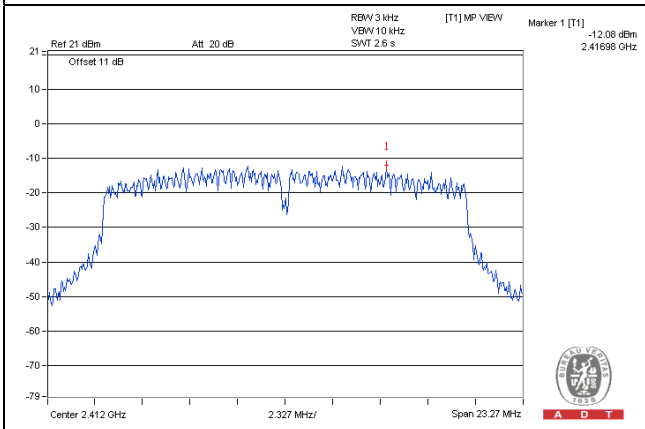


VHT20

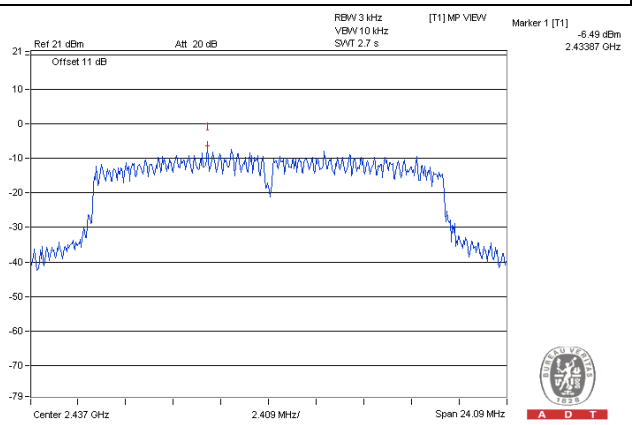
TX chain	Channel	Freq. (MHz)	PSD (dBm)	10 log (N=2) dB	Total PSD (dBm)	Limit (dBm)	Pass /Fail
0	1	2412	-12.08	3.01	-9.07	7.37	Pass
	6	2437	-6.49	3.01	-3.48	7.37	Pass
	11	2462	-12.37	3.01	-9.36	7.37	Pass
	12	2467	-15.62	3.01	-12.61	7.37	Pass
	13	2472	-26.11	3.01	-23.10	7.37	Pass
1	1	2412	-12.37	3.01	-9.36	7.37	Pass
	6	2437	-6.75	3.01	-3.74	7.37	Pass
	11	2462	-13.04	3.01	-10.03	7.37	Pass
	12	2467	-16.04	3.01	-13.03	7.37	Pass
	13	2472	-27.28	3.01	-24.27	7.37	Pass

NOTE: Directional gain = 3.62dBi + 10log(2) = 6.63dBi > 6dBi , so the power density limit shall be reduced to 8-(6.63-6) = 7.37dBm.

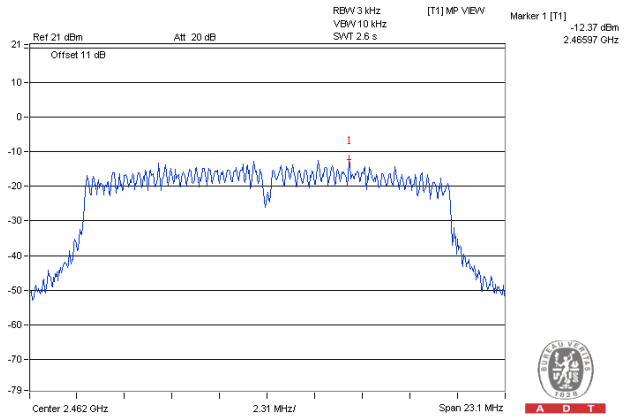
Chain 0 / CH1



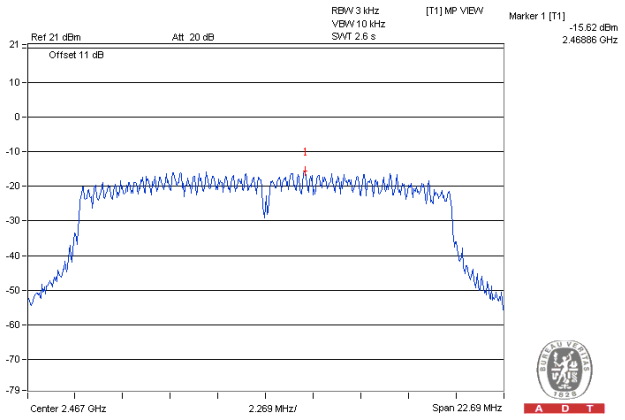
Chain 0 / CH6



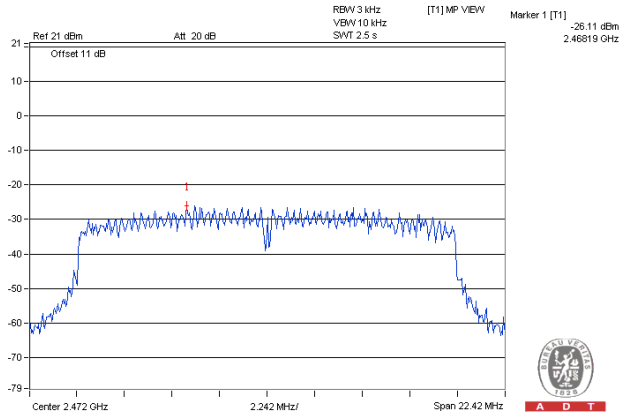
Chain 0 / CH11



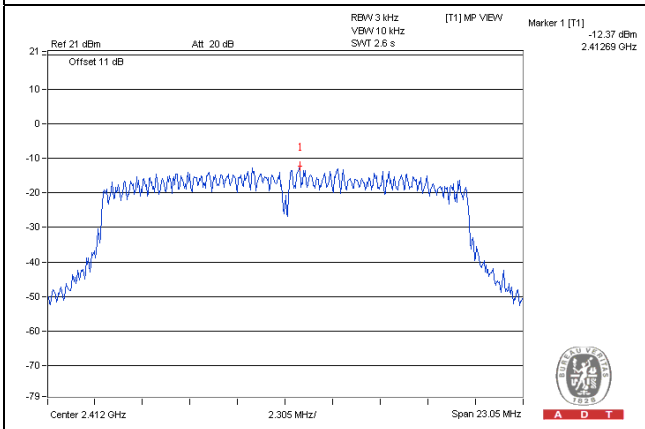
Chain 0 / CH12



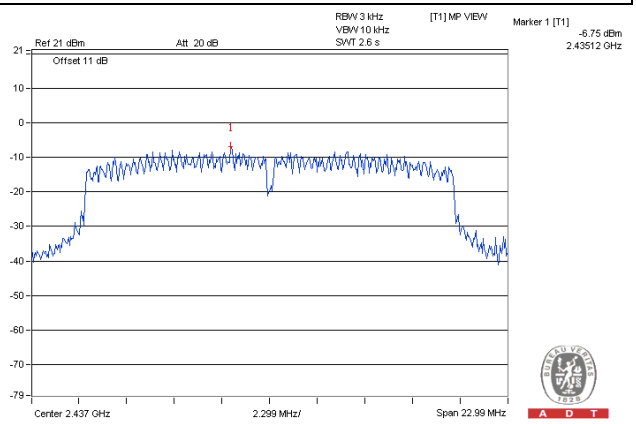
Chain 0 / CH13



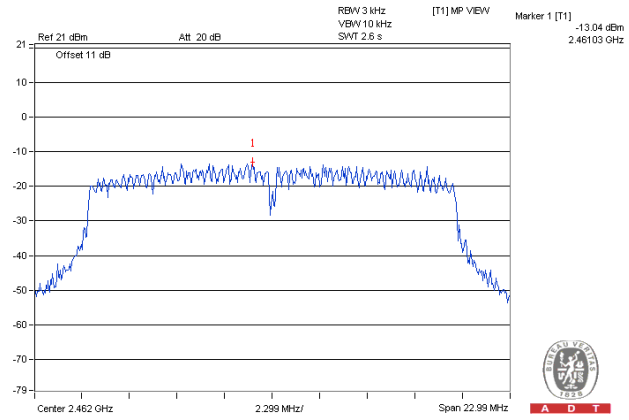
Chain 1 / CH1



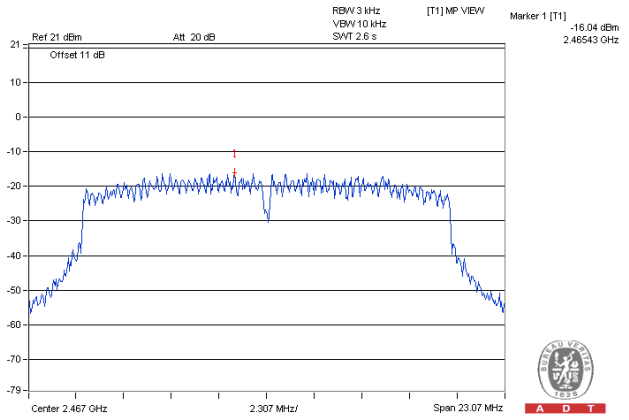
Chain 1 / CH6



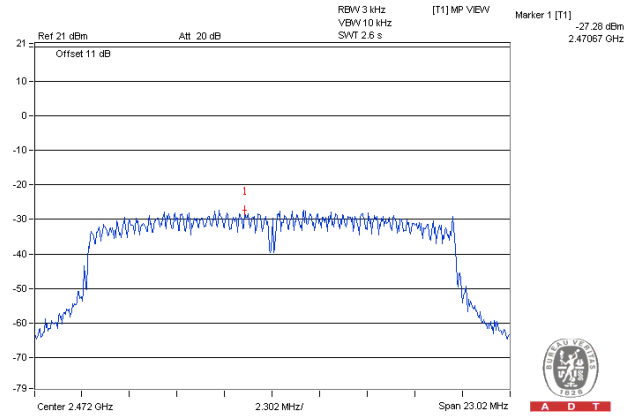
Chain 1 / CH11



Chain 1 / CH12



Chain 1 / CH13

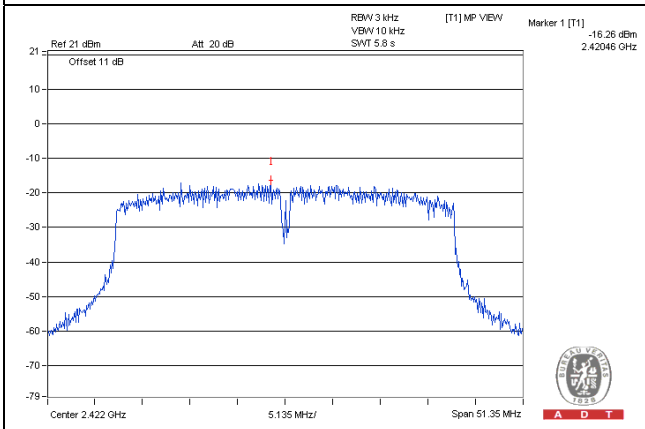


VHT40

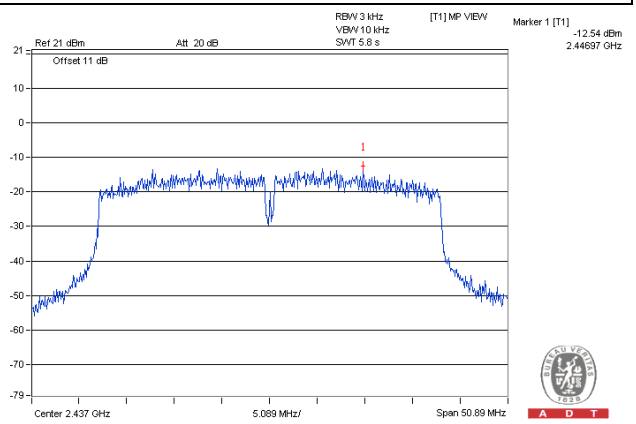
TX chain	Channel	Freq. (MHz)	PSD (dBm)	10 log (N=2) dB	Total PSD (dBm)	Limit (dBm)	Pass /Fail
0	3	2422	-16.26	3.01	-13.25	7.37	Pass
	6	2437	-12.54	3.01	-9.53	7.37	Pass
	9	2452	-16.66	3.01	-13.65	7.37	Pass
	10	2457	-19.82	3.01	-16.81	7.37	Pass
	11	2462	-26.12	3.01	-23.11	7.37	Pass
1	3	2422	-16.25	3.01	-13.24	7.37	Pass
	6	2437	-12.11	3.01	-9.10	7.37	Pass
	9	2452	-17.38	3.01	-14.37	7.37	Pass
	10	2457	-20.26	3.01	-17.25	7.37	Pass
	11	2462	-28.26	3.01	-25.25	7.37	Pass

NOTE: Directional gain = 3.62dBi + 10log(2) = 6.63dBi > 6dBi , so the power density limit shall be reduced to 8-(6.63-6) = 7.37dBm.

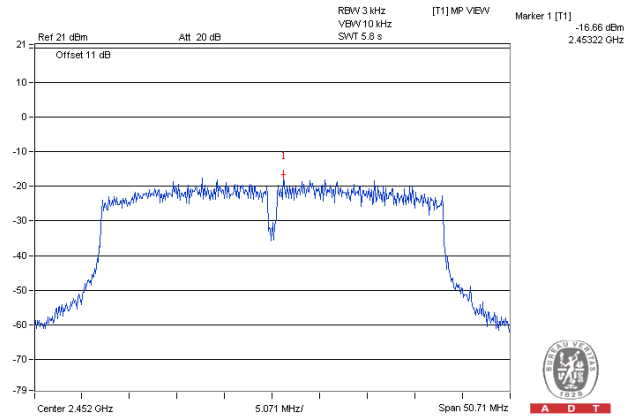
Chain 0 / CH3



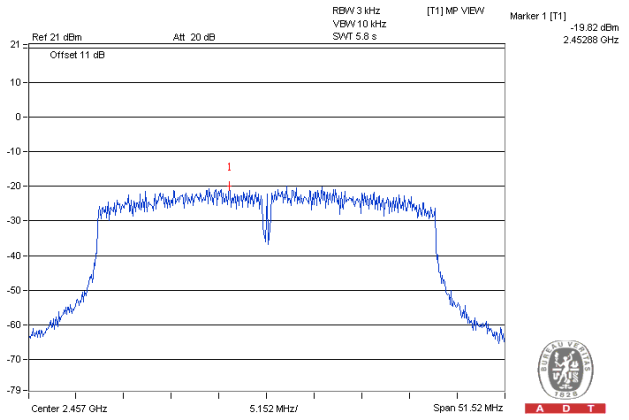
Chain 0 / CH6



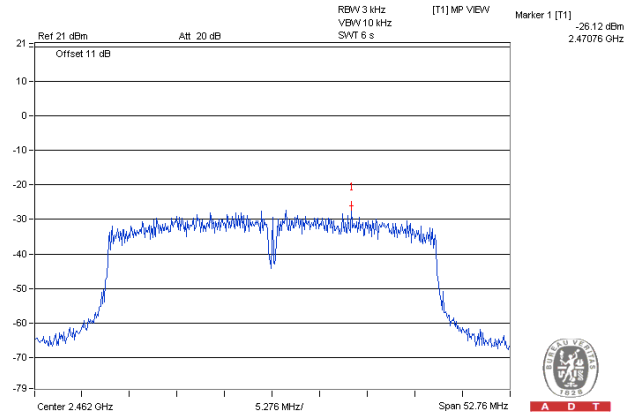
Chain 0 / CH9



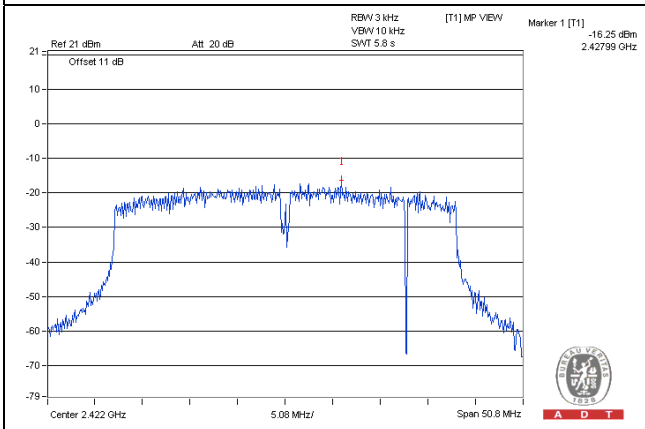
Chain 0 / CH10



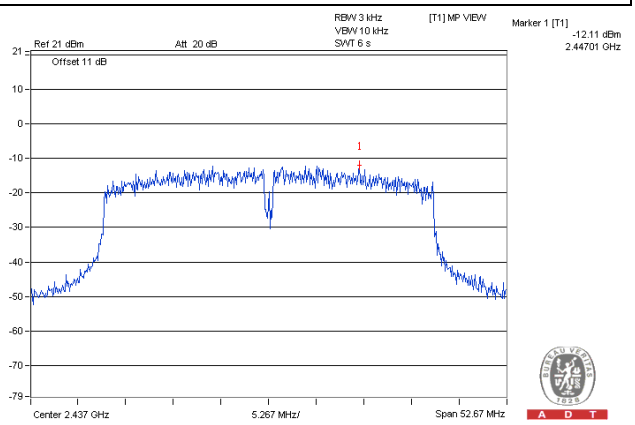
Chain 0 / CH11



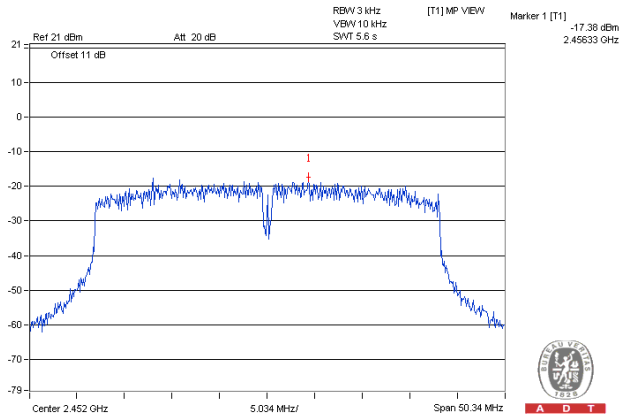
Chain 1 / CH3



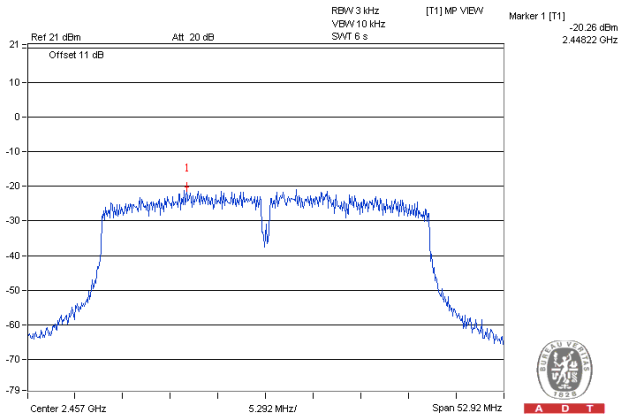
Chain 1 / CH6



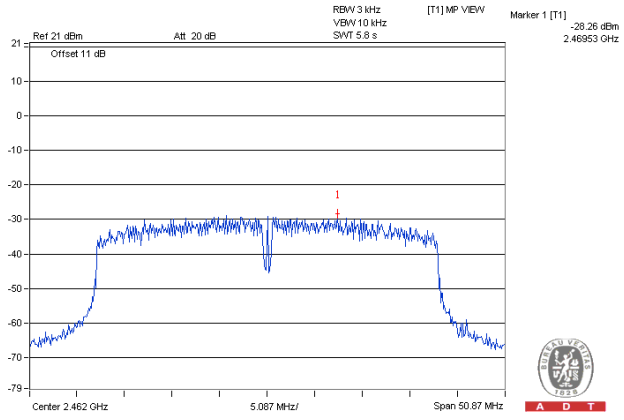
Chain 1 / CH9



Chain 1 / CH10



Chain 1 / CH11

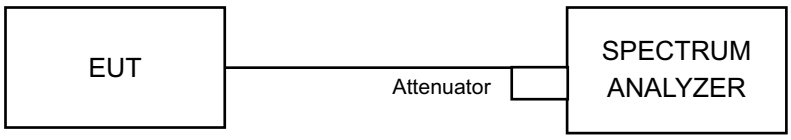


4.3 6dB Bandwidth Measurement

4.3.1 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 Test Setup



4.3.3 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
SPECTRUM ANALYZER R&S	FSP 40	100060	May 08, 2015	May 07, 2016

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Tested date : June 18, 2015

4.3.4 Test Procedures

a. Set resolution bandwidth (RBW) = 100kHz

b. Set the video bandwidth (VBW) ≥ 3 x RBW, Detector = Peak.

c. Trace mode = max hold.

d. Sweep = auto couple.

e. Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission

4.3.5 Deviation from Test Standard

No deviation.

4.3.6 EUT Operating Conditions

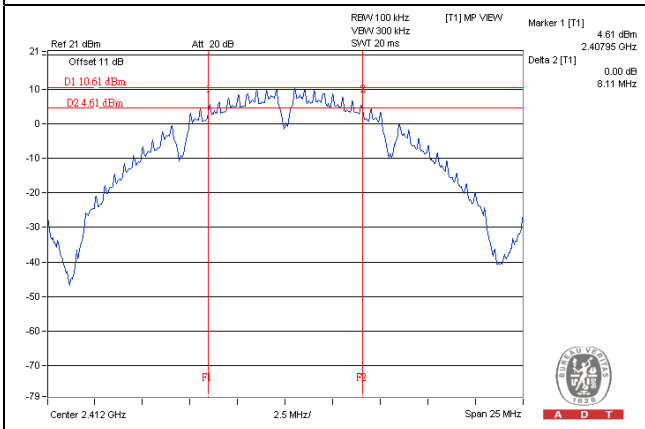
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.3.7 Test Results

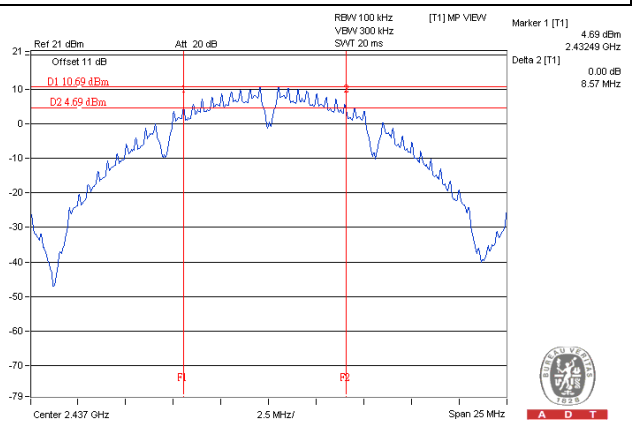
802.11b

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	8.11	9.02	0.5	Pass
6	2437	8.57	8.58	0.5	Pass
11	2462	8.59	9.06	0.5	Pass
12	2467	8.09	8.03	0.5	Pass
13	2472	8.10	8.06	0.5	Pass

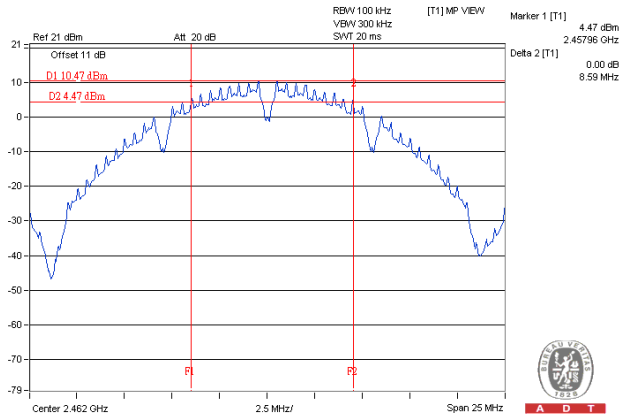
Chain 0 / CH1



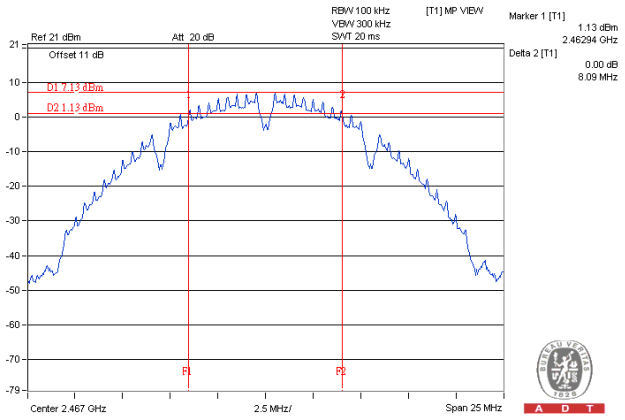
Chain 0 / CH6



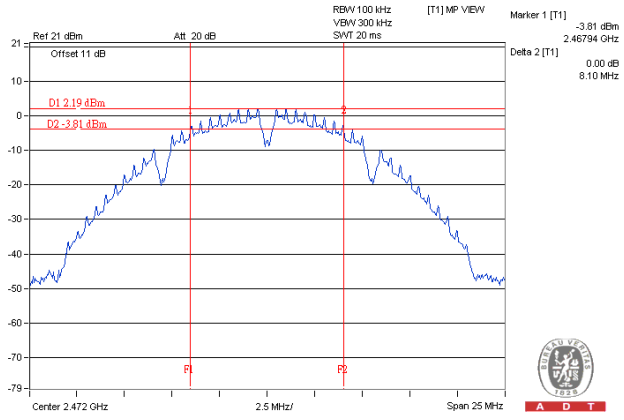
Chain 0 / CH11



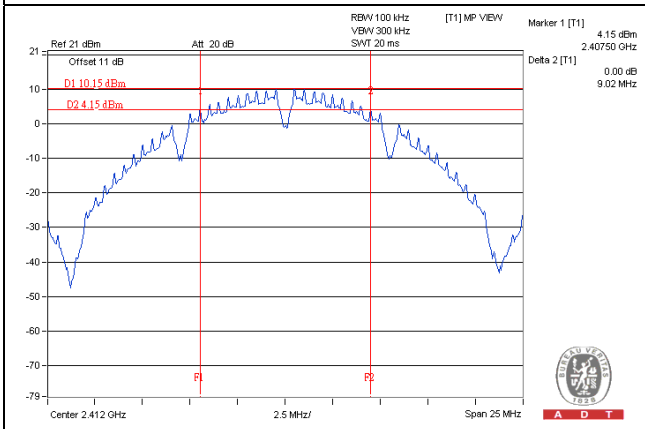
Chain 0 / CH12



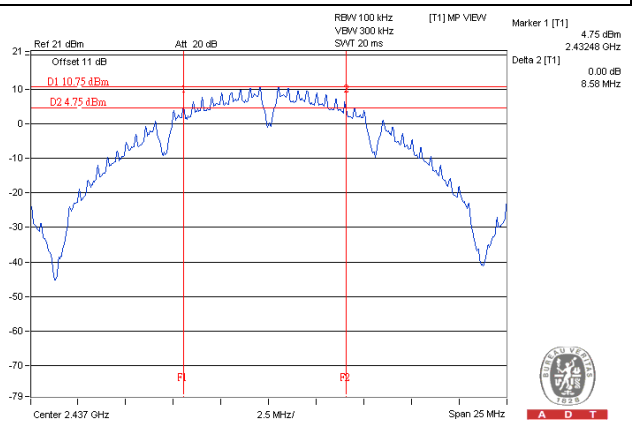
Chain 0 / CH13



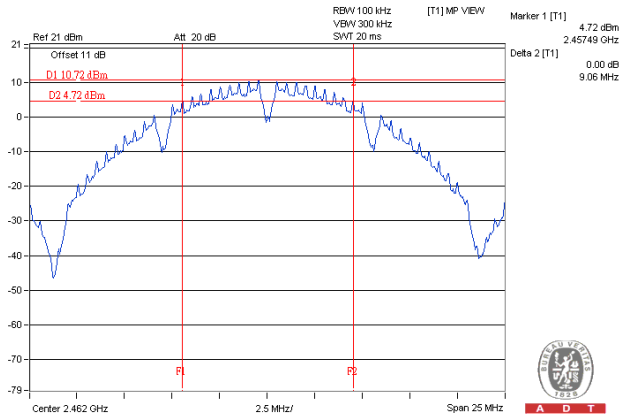
Chain 1 / CH1



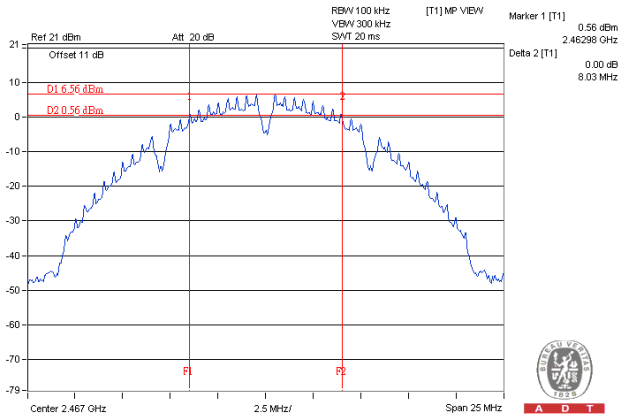
Chain 1 / CH6



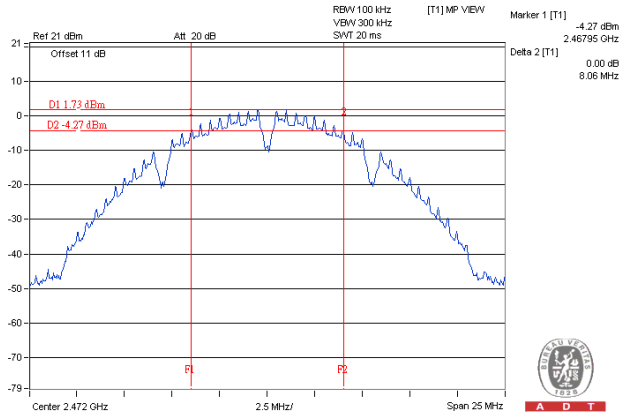
Chain 1 / CH11



Chain 1 / CH12



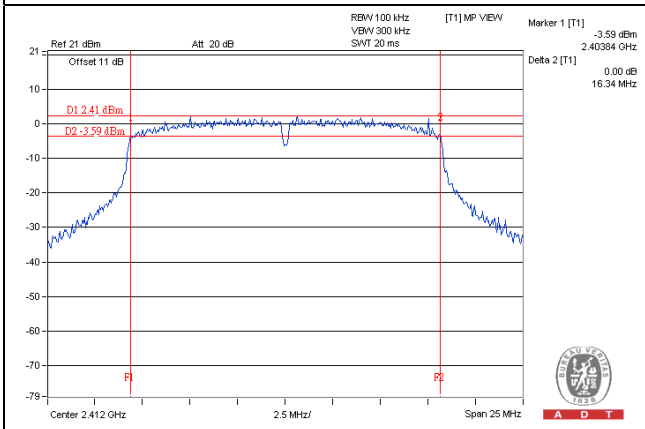
Chain 1 / CH13



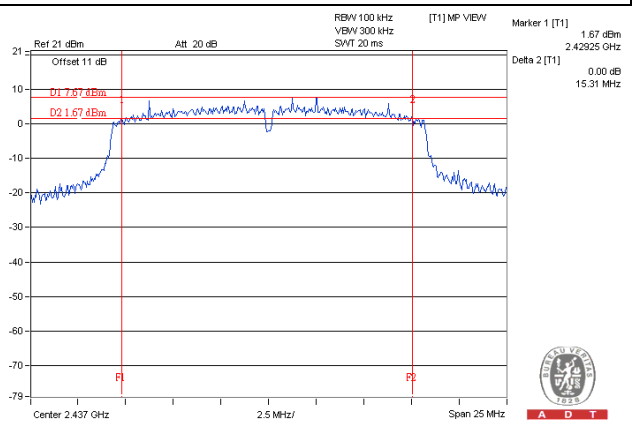
802.11g

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	16.34	15.38	0.5	Pass
6	2437	15.31	16.31	0.5	Pass
11	2462	15.54	15.03	0.5	Pass
12	2467	15.63	15.31	0.5	Pass
13	2472	15.73	15.33	0.5	Pass

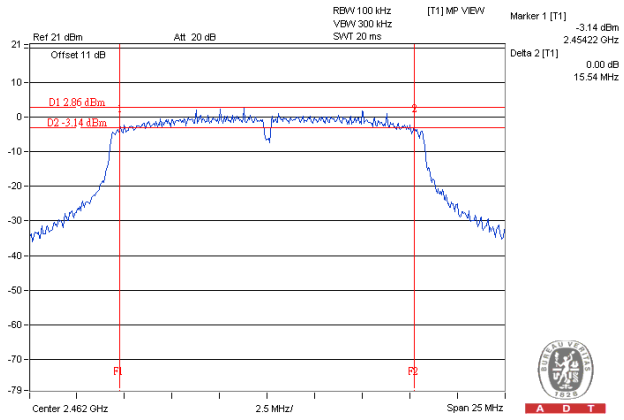
Chain 0 / CH1



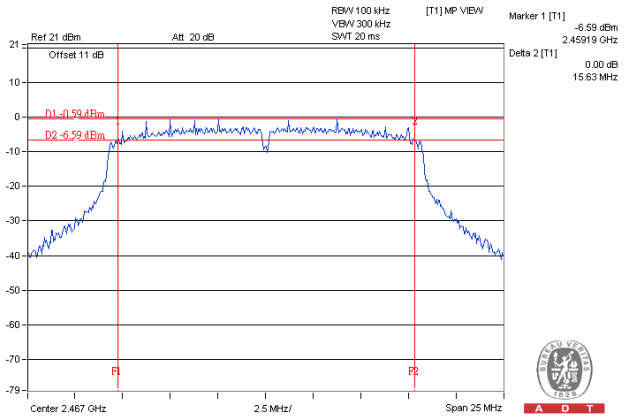
Chain 0 / CH6



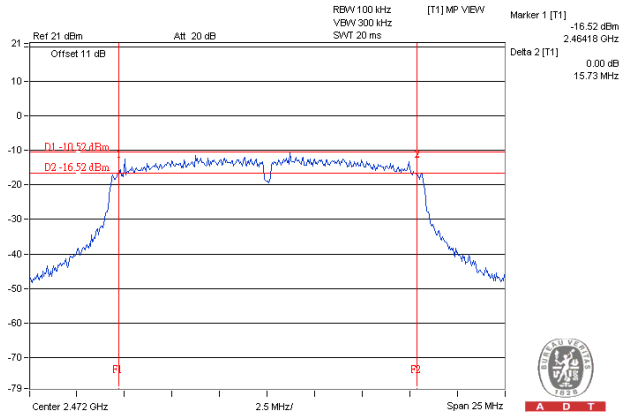
Chain 0 / CH11



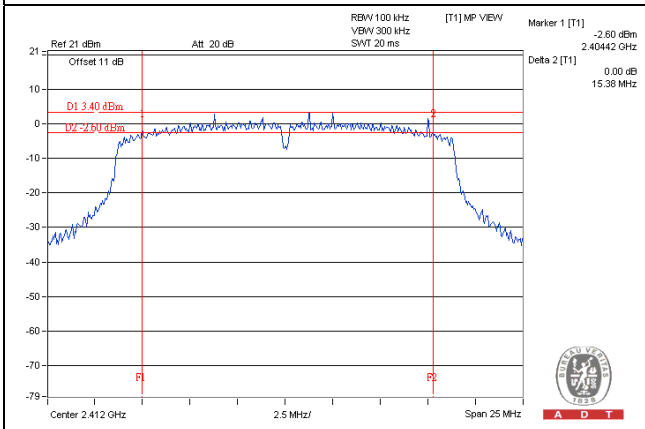
Chain 0 / CH12



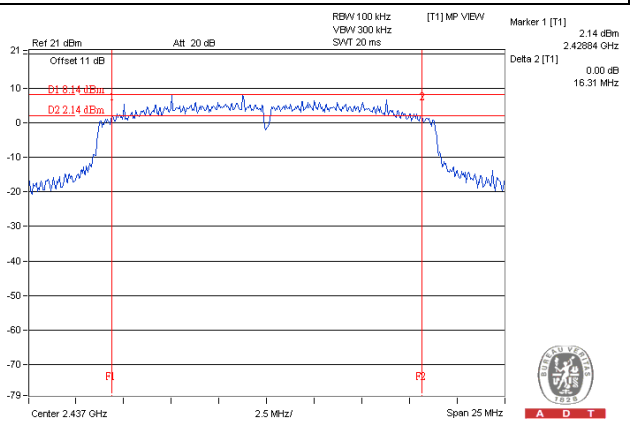
Chain 0 / CH13



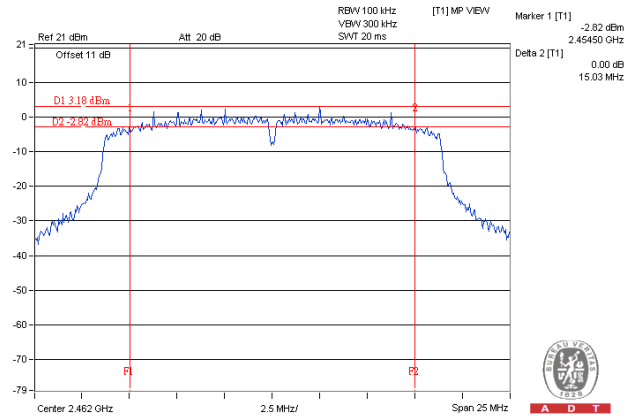
Chain 1 / CH1



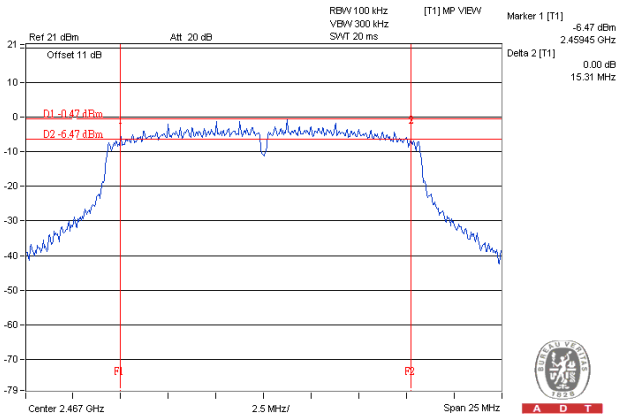
Chain 1 / CH6



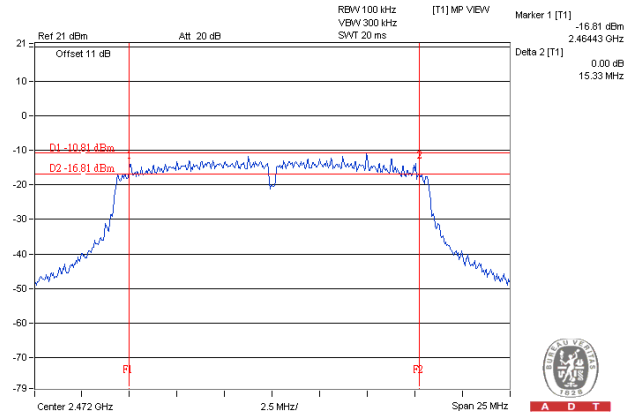
Chain 1 / CH11



Chain 1 / CH12



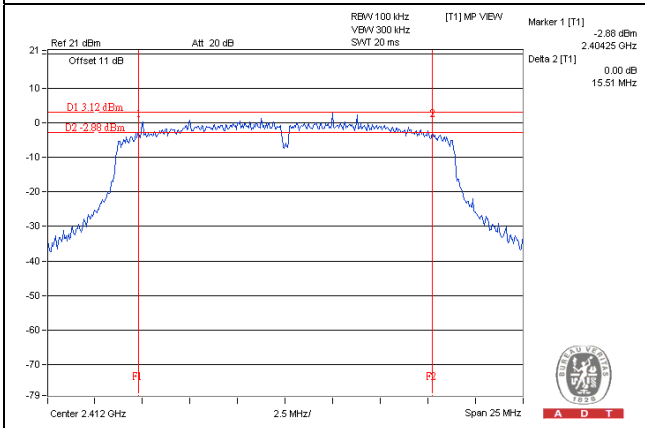
Chain 1 / CH13



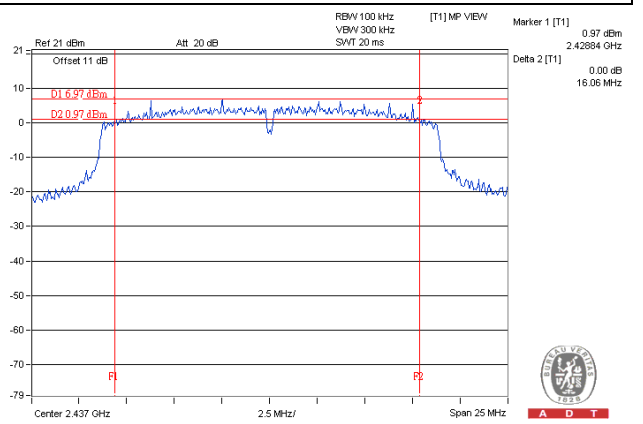
VHT20

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	15.51	15.37	0.5	Pass
6	2437	16.06	15.33	0.5	Pass
11	2462	15.40	15.33	0.5	Pass
12	2467	15.13	15.38	0.5	Pass
13	2472	14.95	15.35	0.5	Pass

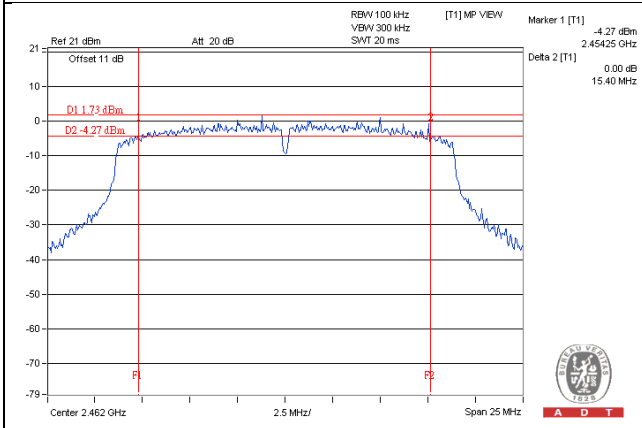
Chain 0 / CH1



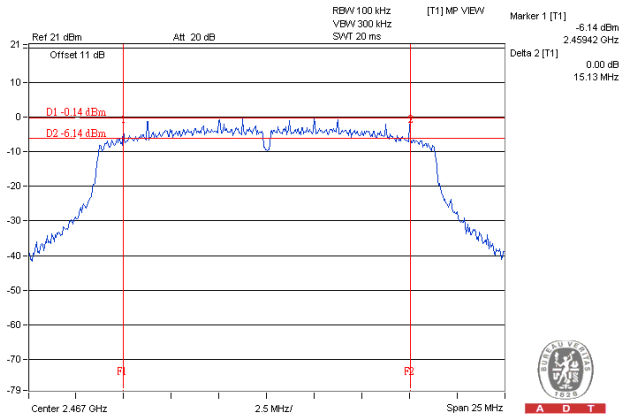
Chain 0 / CH6



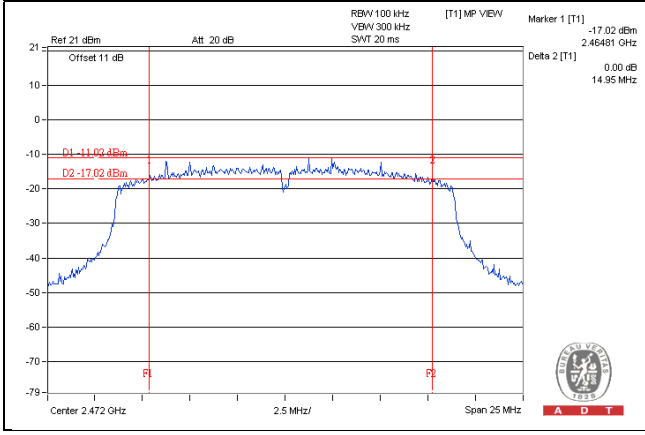
Chain 0 / CH11



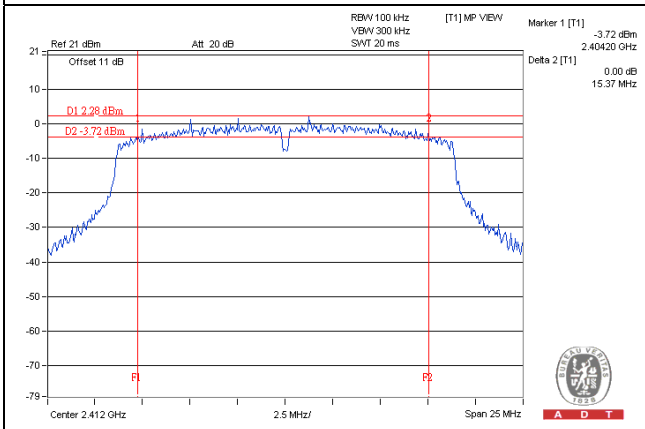
Chain 0 / CH12



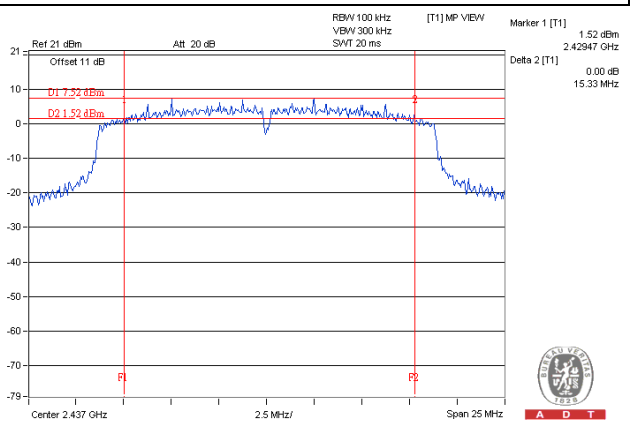
Chain 0 / CH13



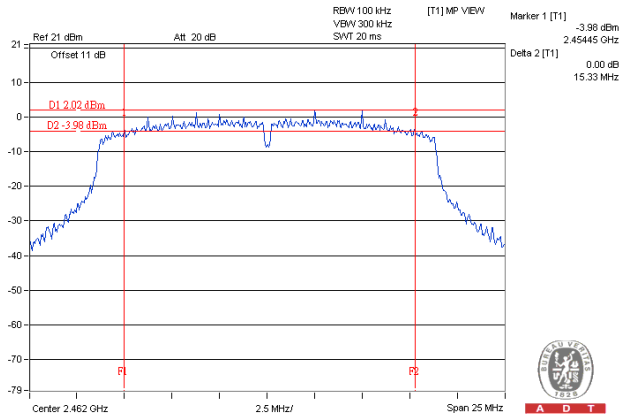
Chain 1 / CH1



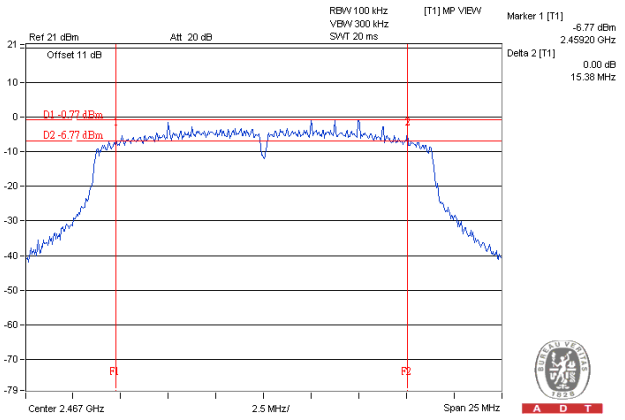
Chain 1 / CH6



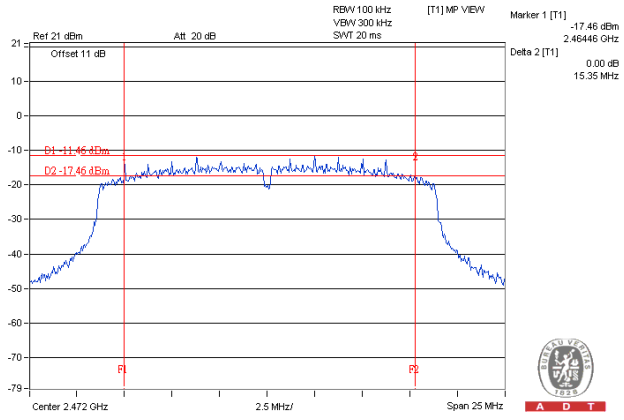
Chain 1 / CH11



Chain 1 / CH12



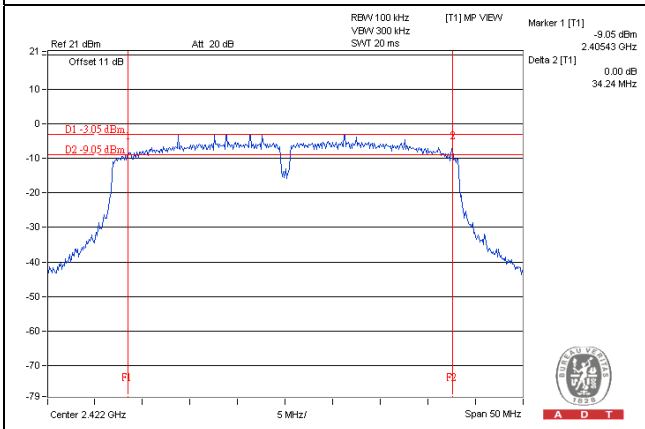
Chain 1 / CH13



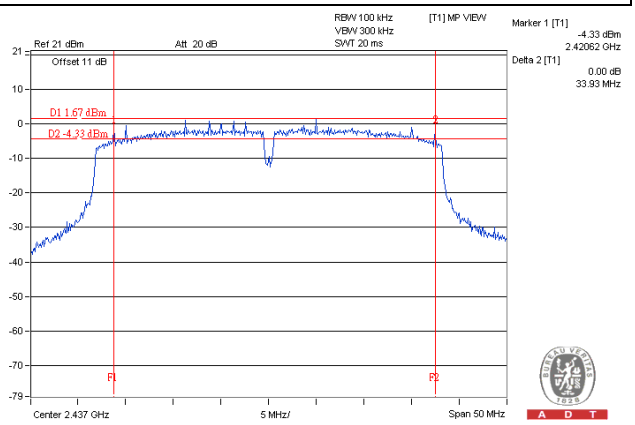
VHT40

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
3	2422	34.24	33.87	0.5	Pass
6	2437	33.93	35.12	0.5	Pass
9	2452	33.81	33.57	0.5	Pass
10	2457	34.35	35.29	0.5	Pass
11	2462	35.18	33.92	0.5	Pass

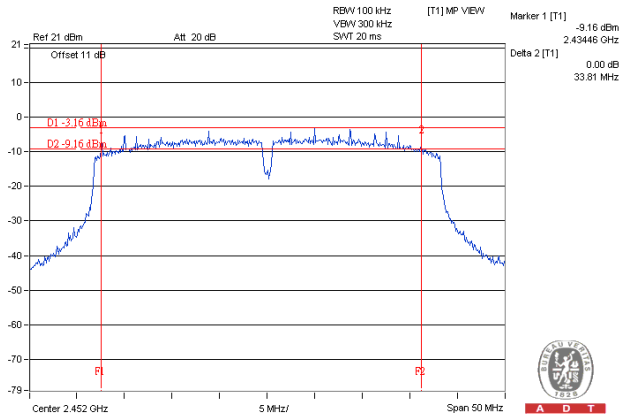
Chain 0 / CH3



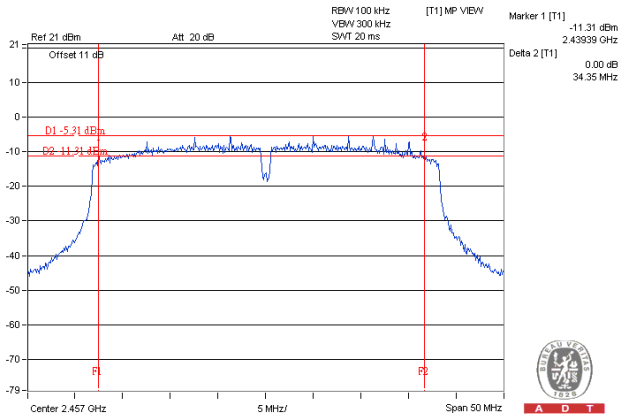
Chain 0 / CH6



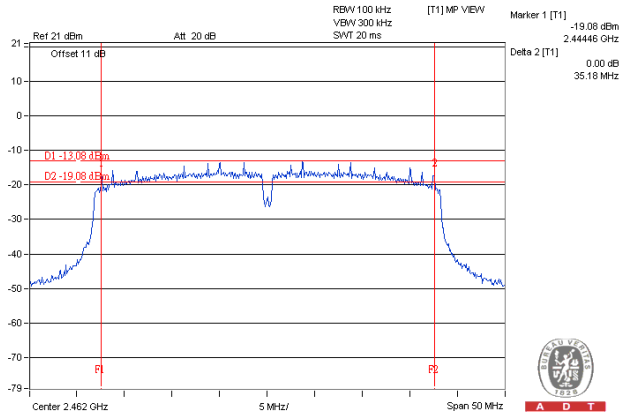
Chain 0 / CH9



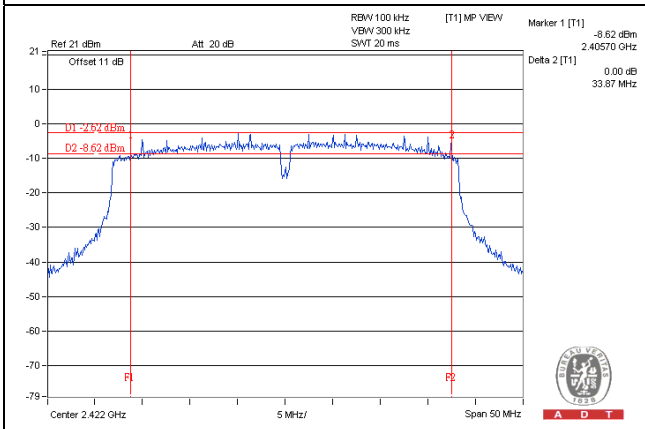
Chain 0 / CH10



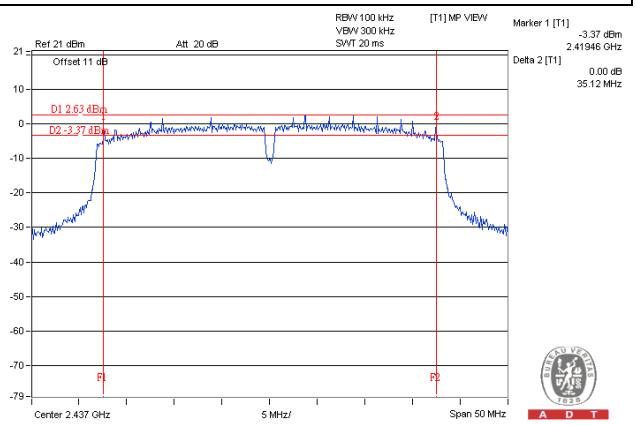
Chain 0 / CH11



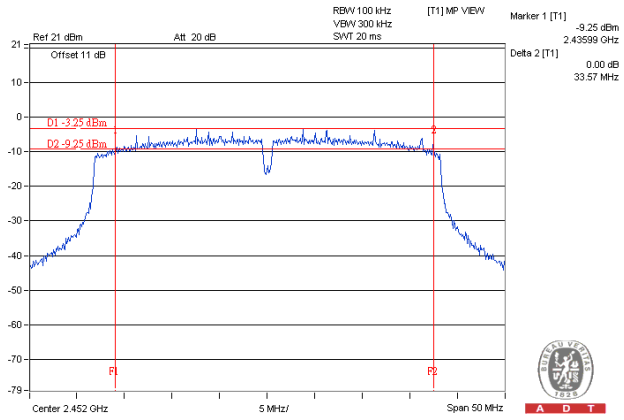
Chain 1 / CH3



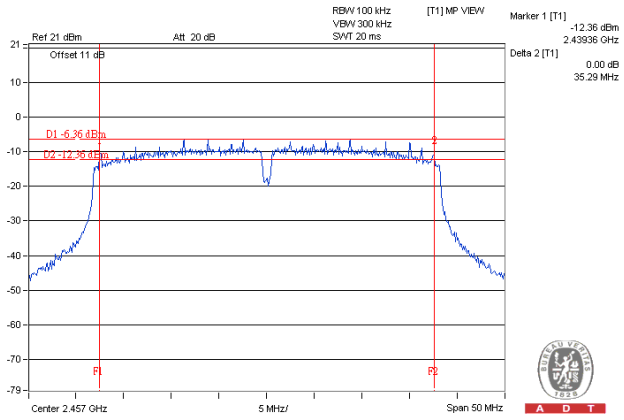
Chain 1 / CH6



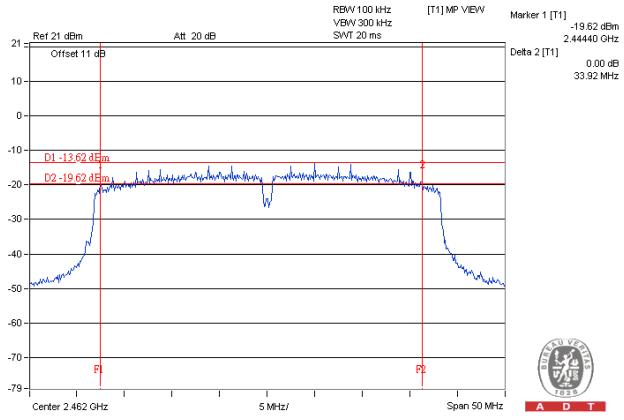
Chain 1 / CH9



Chain 1 / CH10



Chain 1 / CH11

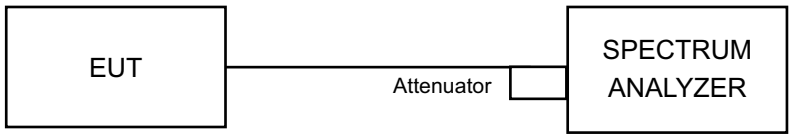


4.4 Conducted Out of Band Emission Measurement

4.4.1 Limits of Conducted Out of Band Emission Measurement

Below 20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

4.4.2 Test Setup



4.4.3 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
SPECTRUM ANALYZER R&S	FSP 40	100060	May 08, 2015	May 07, 2016

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Tested date : June 18, 2015

4.4.4 Test Procedures

MEASUREMENT PROCEDURE REF

1. Set the RBW = 100 kHz.
2. Set the VBW ≥ 300 kHz.
3. Detector = peak.
4. Sweep time = auto couple.
5. Trace mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.

MEASUREMENT PROCEDURE OOBE

1. Set RBW = 100 kHz.
2. Set VBW ≥ 300 kHz.
3. Detector = peak.
4. Sweep = auto couple.
5. Trace Mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum amplitude level.

4.4.5 Deviation from Test Standard

No deviation.

4.4.6 EUT Operating Conditions

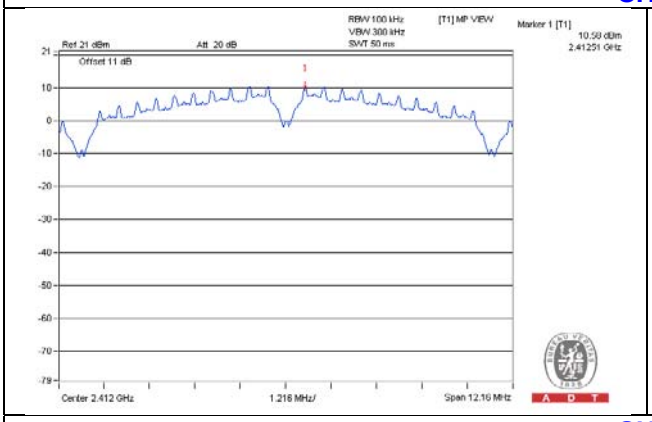
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

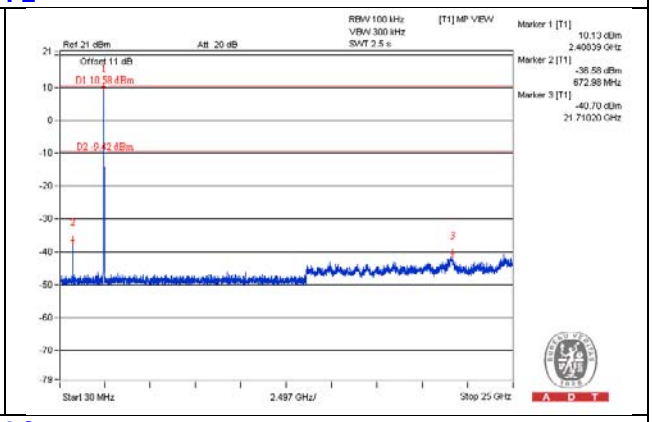
4.4.7 Test Results

The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement.

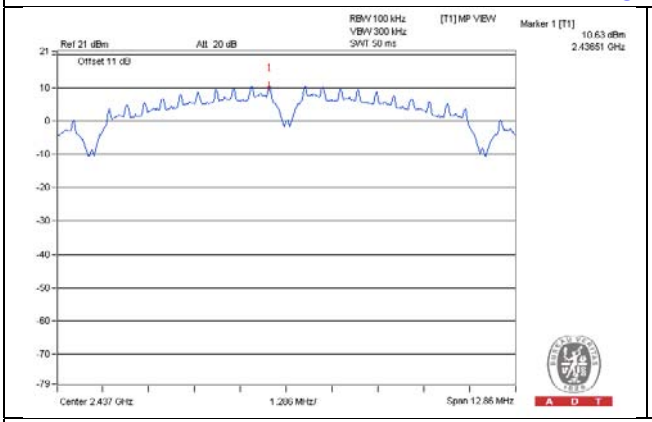
802.11b
Chain 0

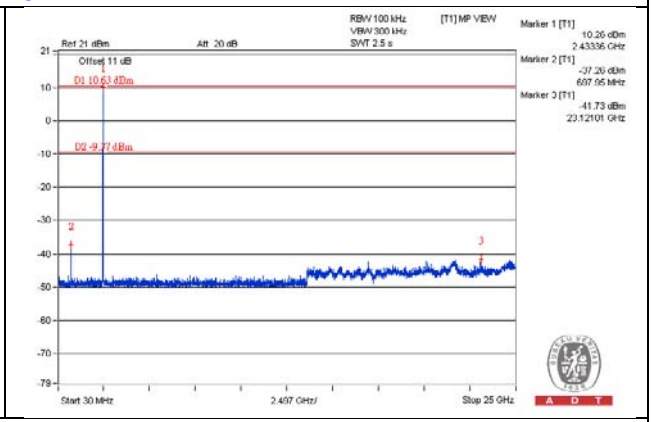
CH 1



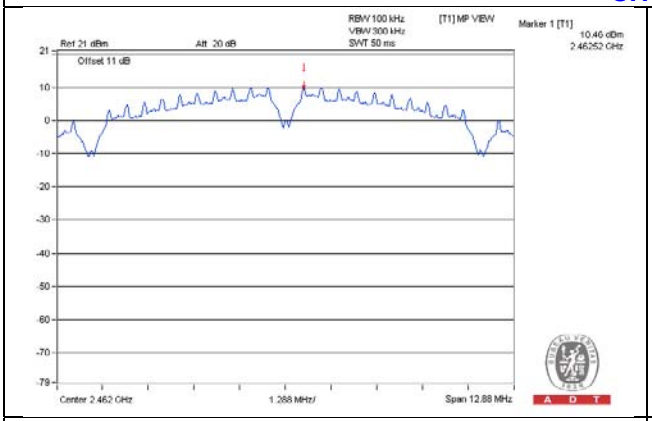


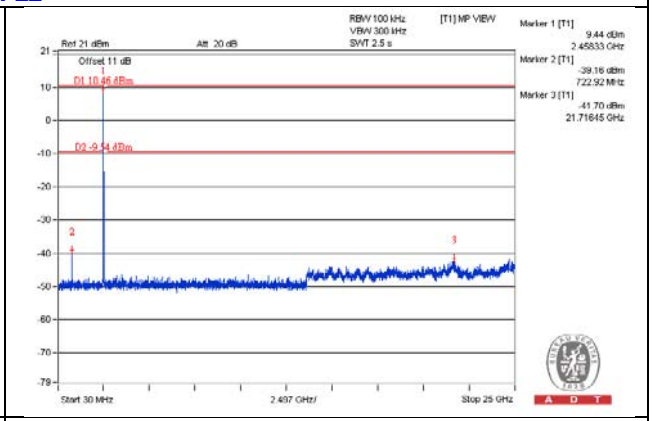
CH 6



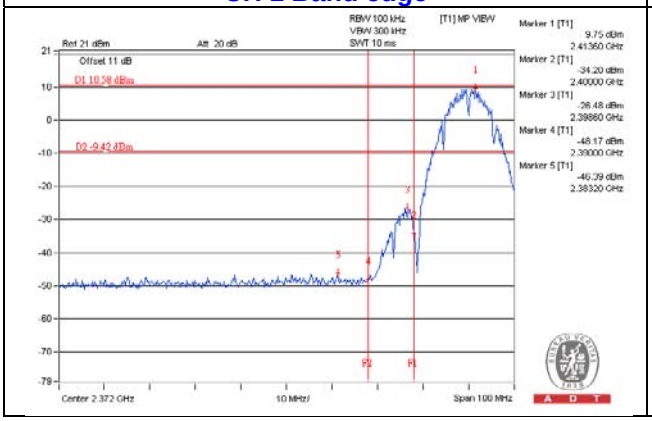


CH 11

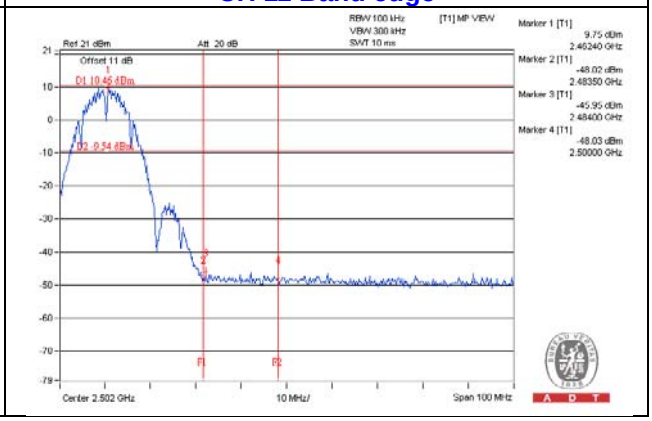




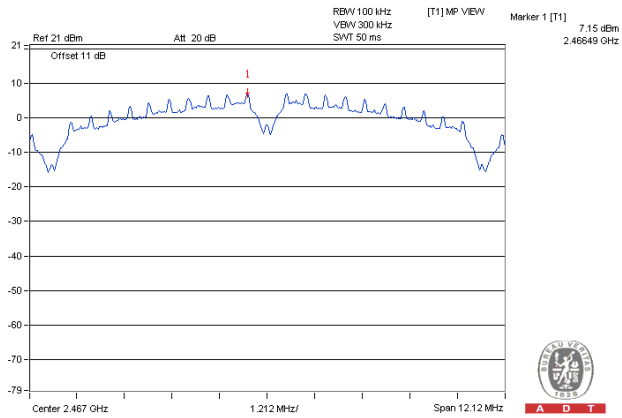
CH 1 Band edge

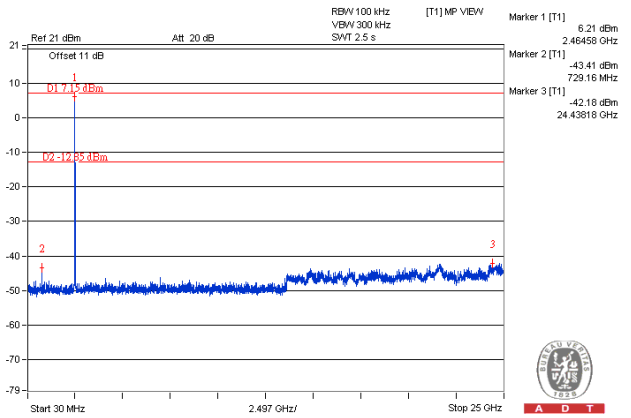


CH 11 Band edge

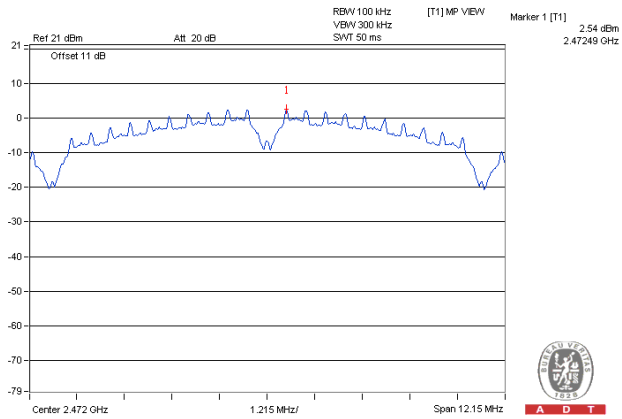


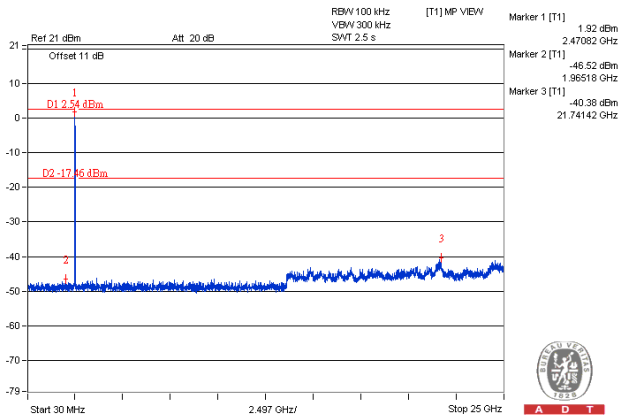
CH 12



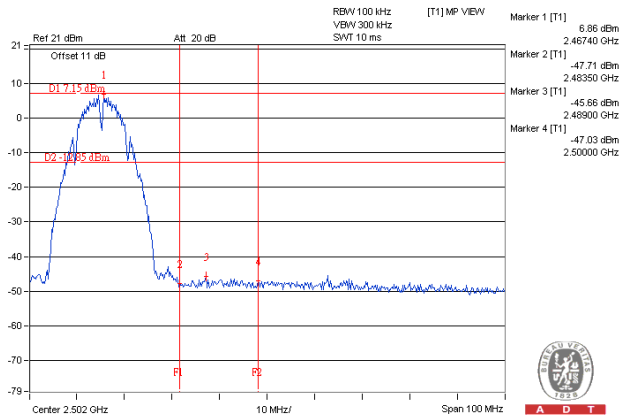


CH 13

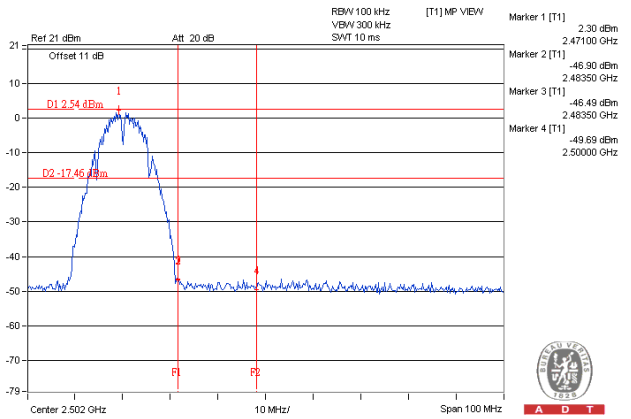




CH 12 Band edge

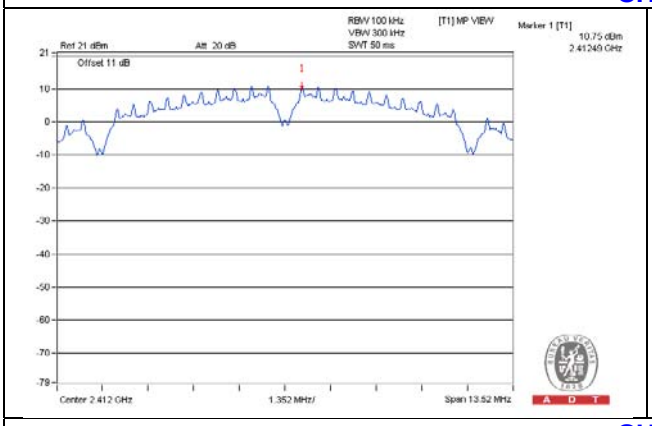


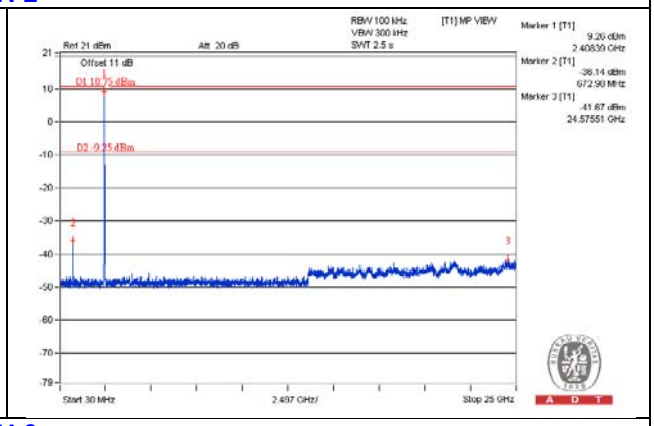
CH 13 Band edge



Chain 1

CH 1





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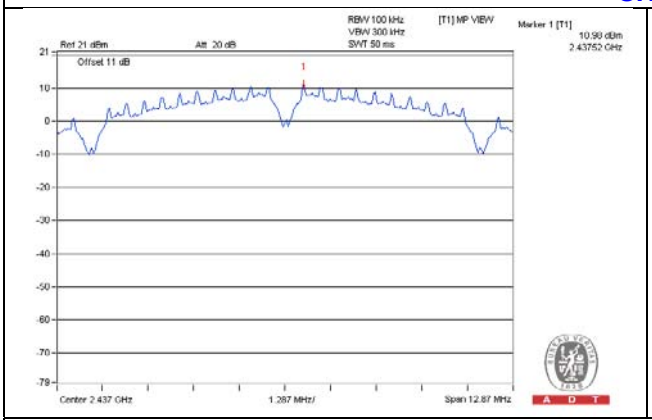
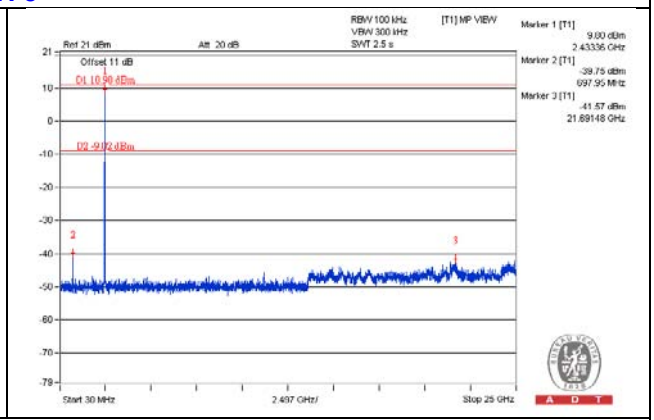
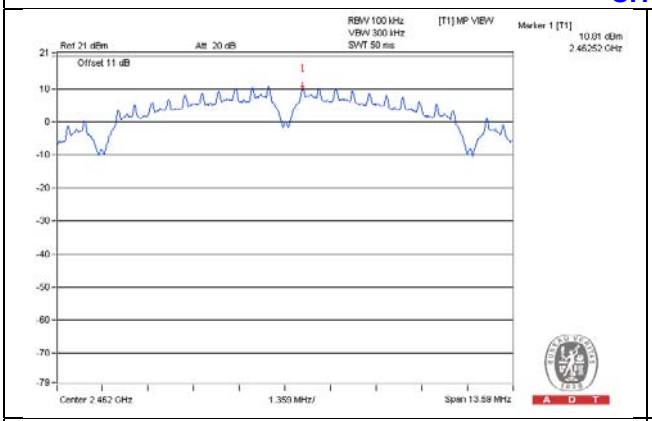
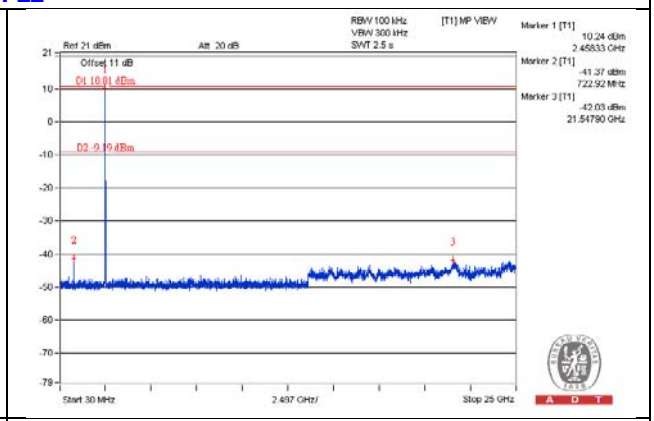


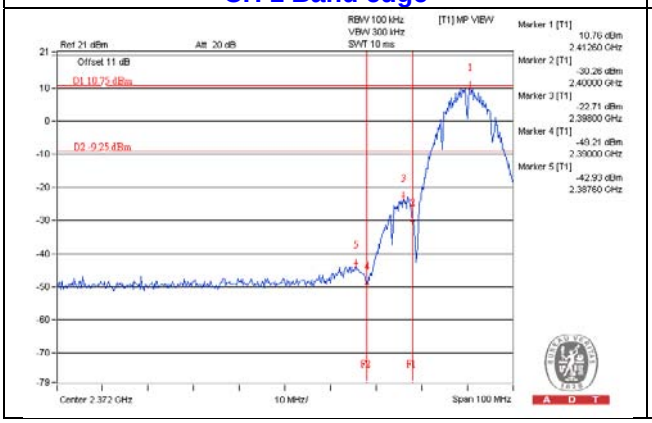


CH 11

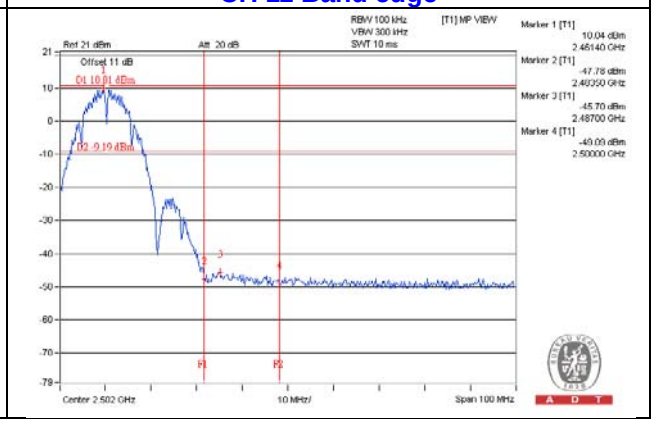




CH 1 Band edge



CH 11 Band edge



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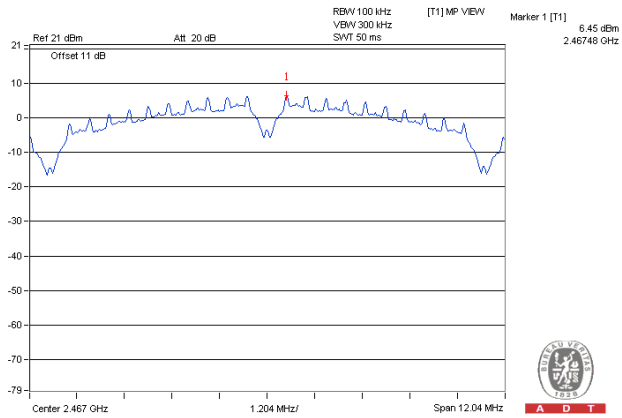

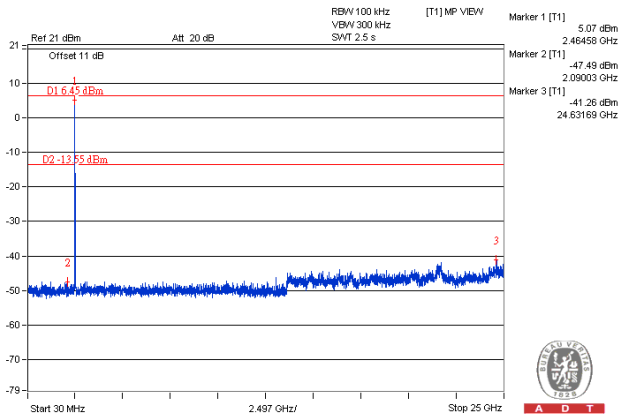

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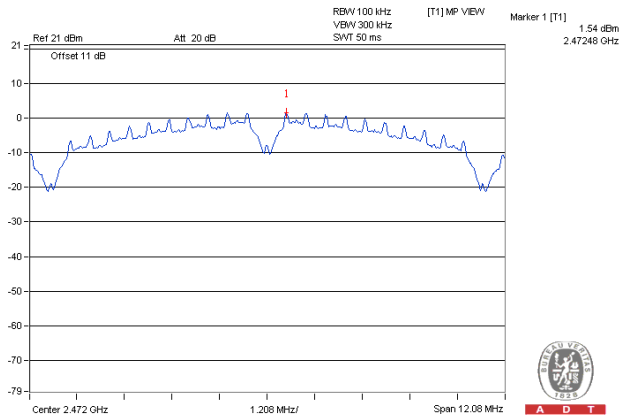

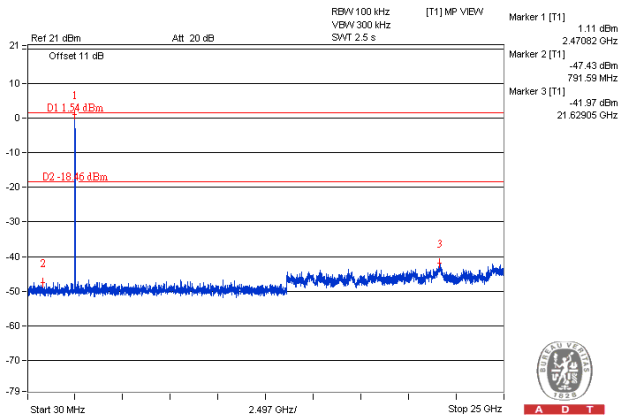

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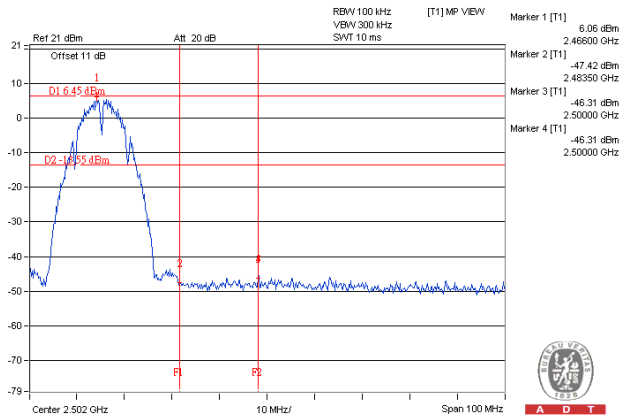

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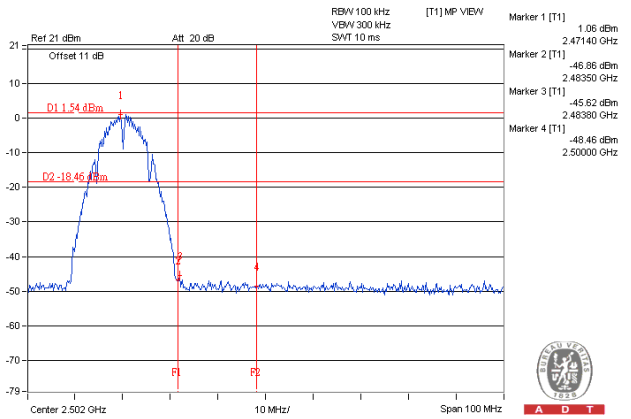
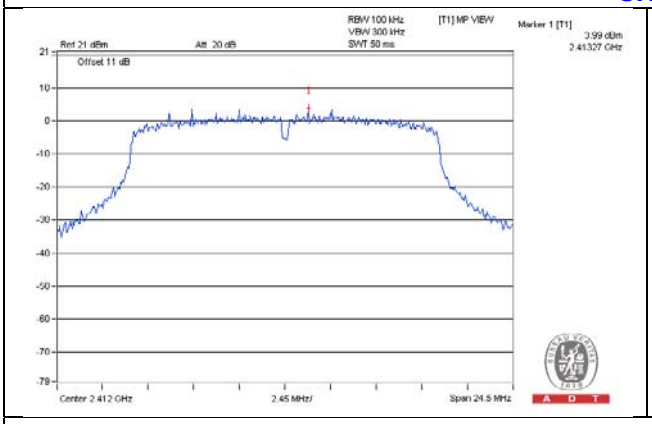
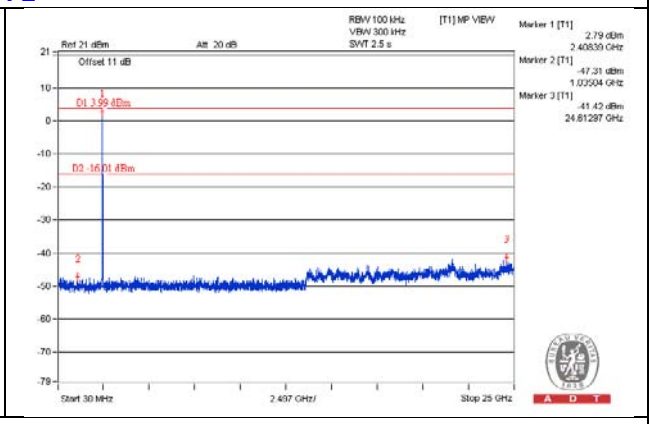


802.11g
Chain 0

CH 1





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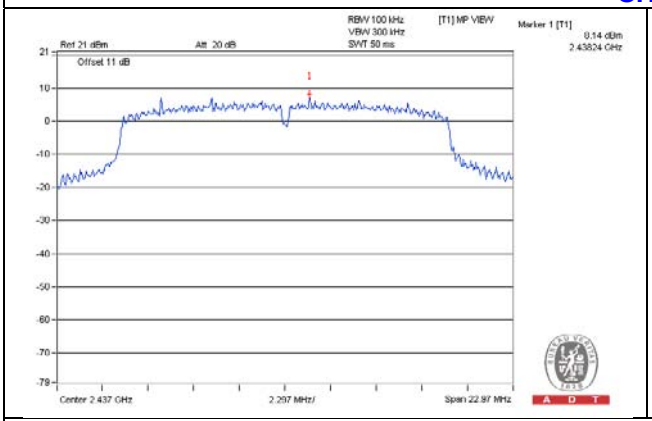

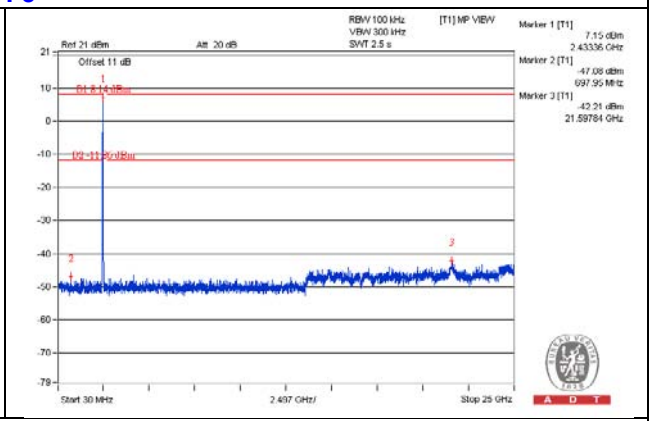

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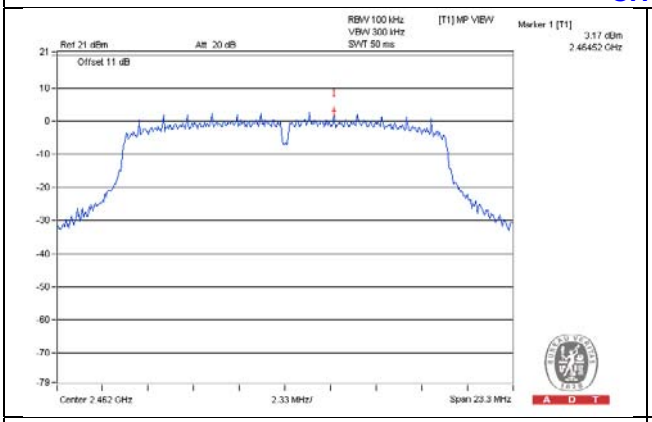

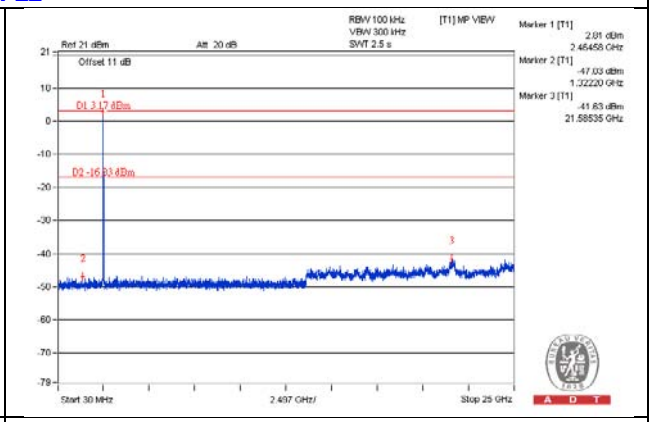

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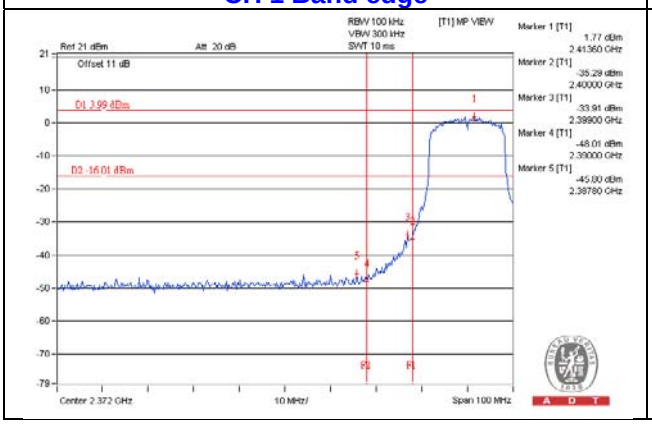

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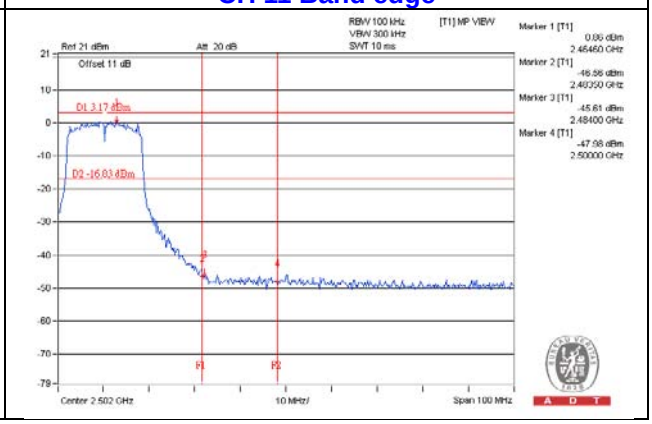

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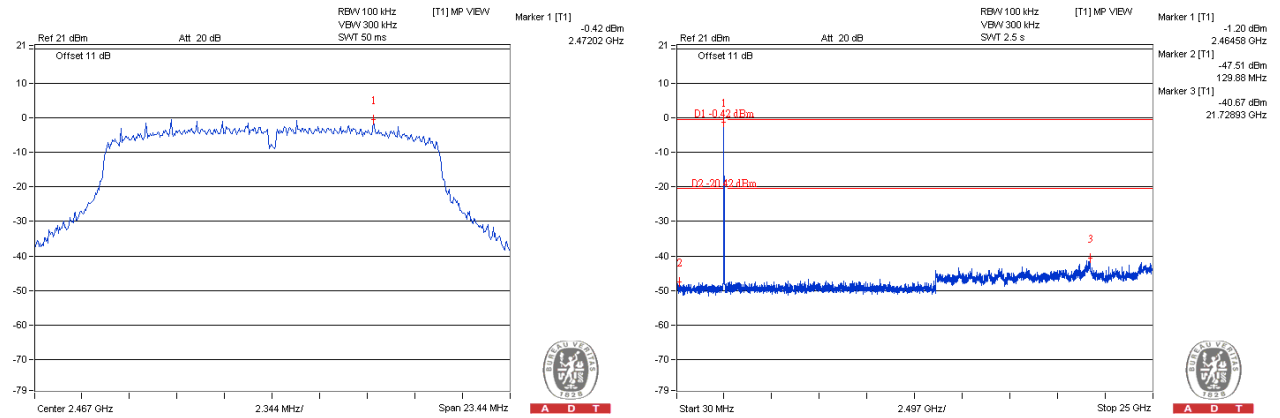

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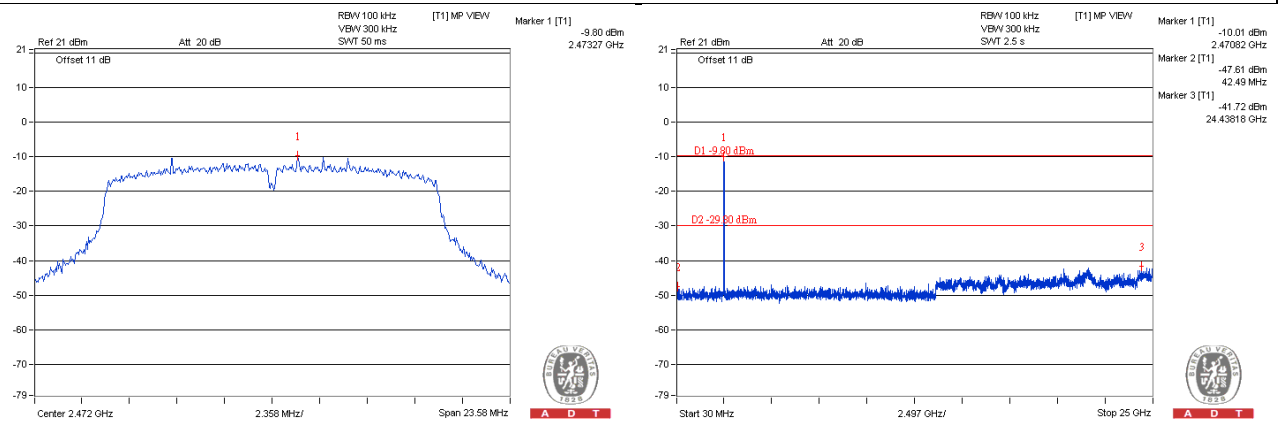

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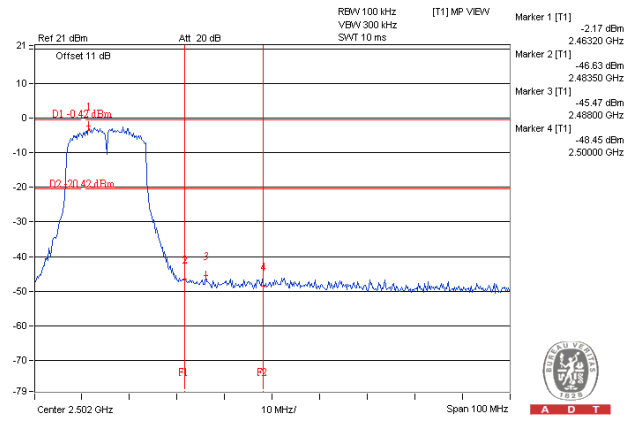

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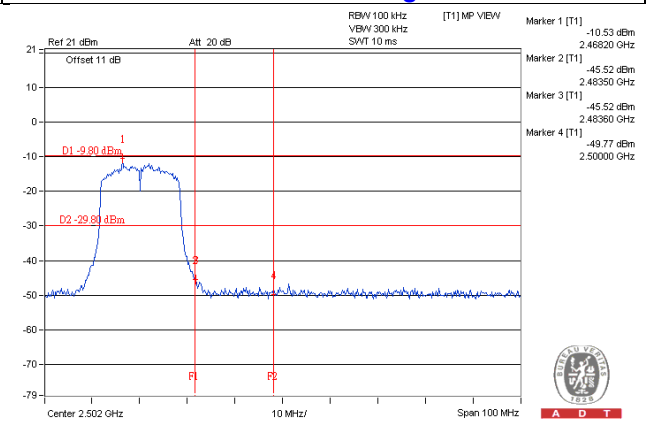
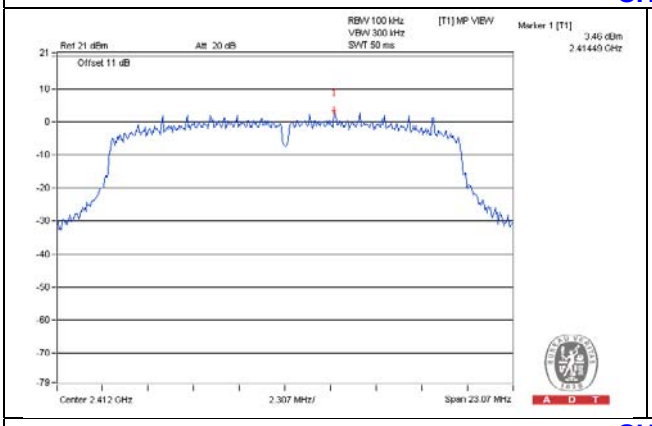
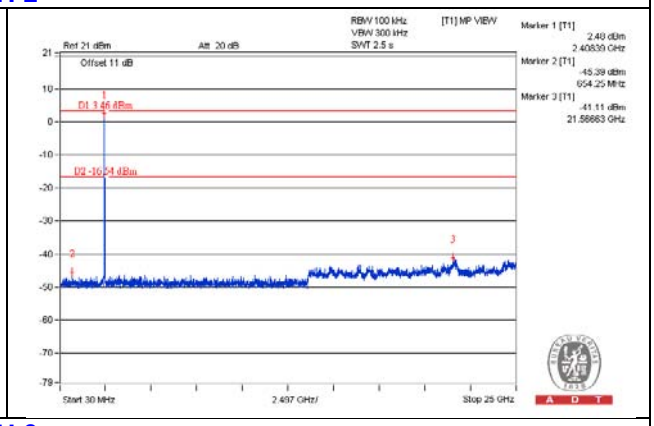


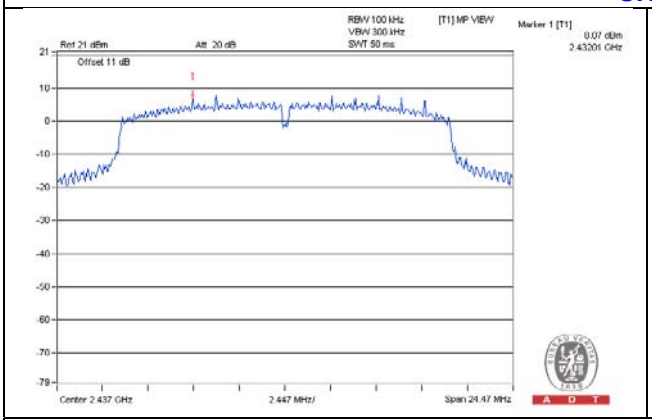
Chain 1

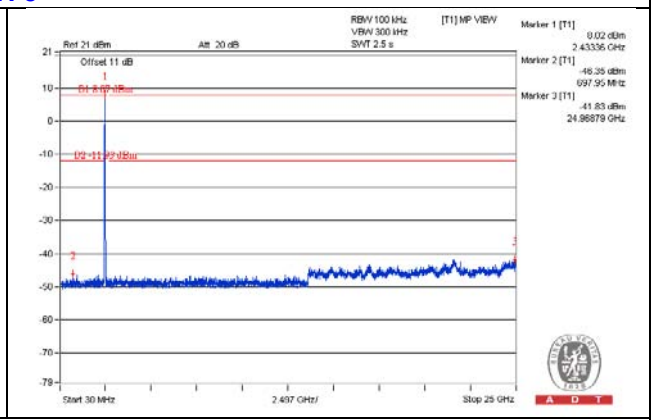
CH 1





CH 6





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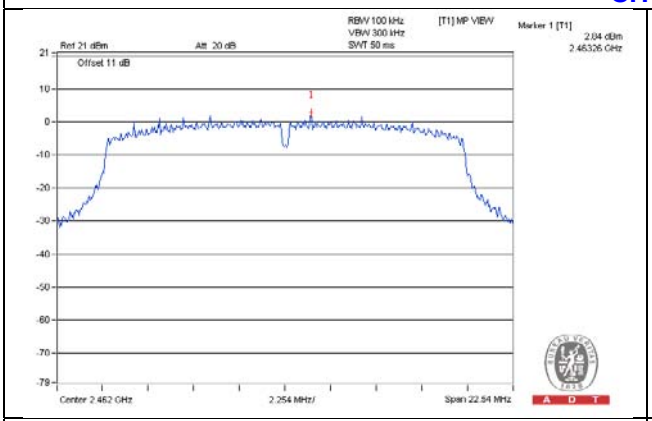
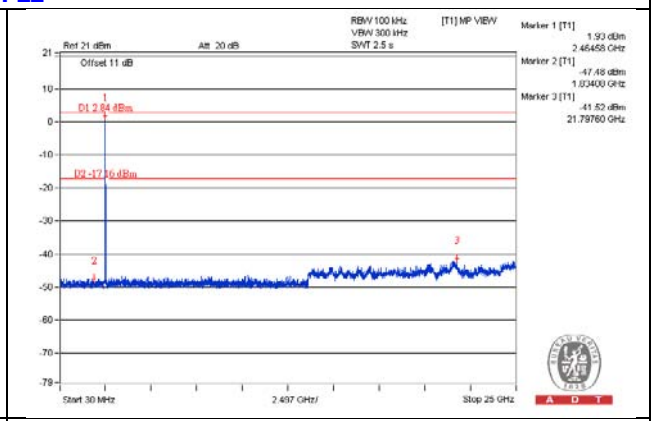
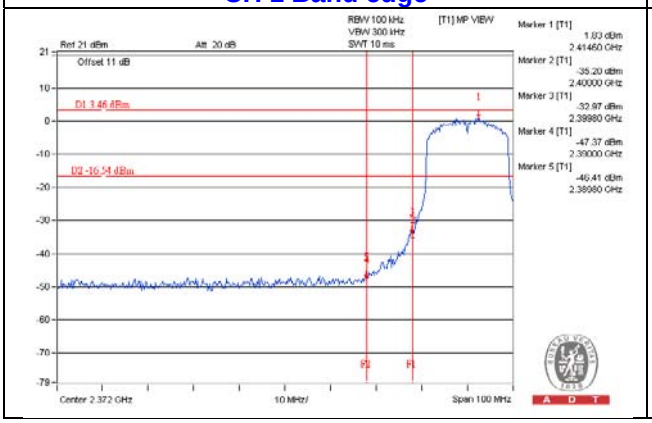




CH 1 Band edge



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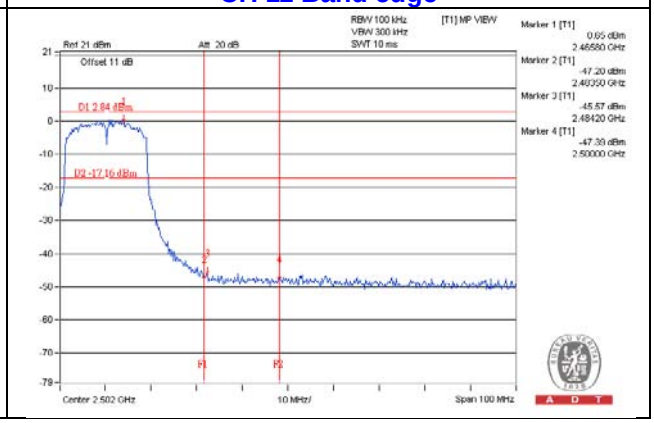
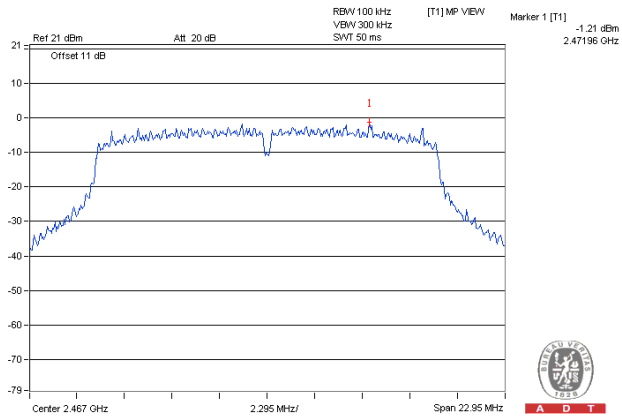
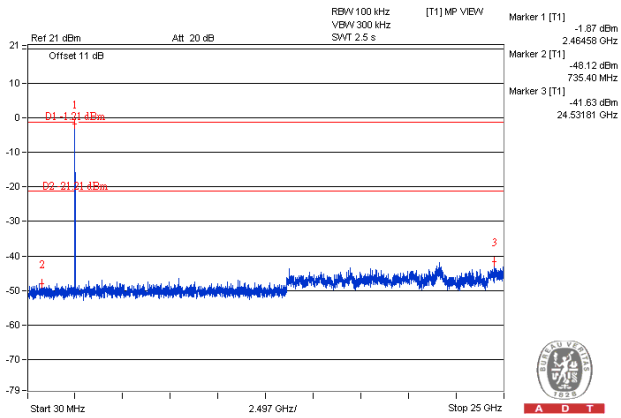
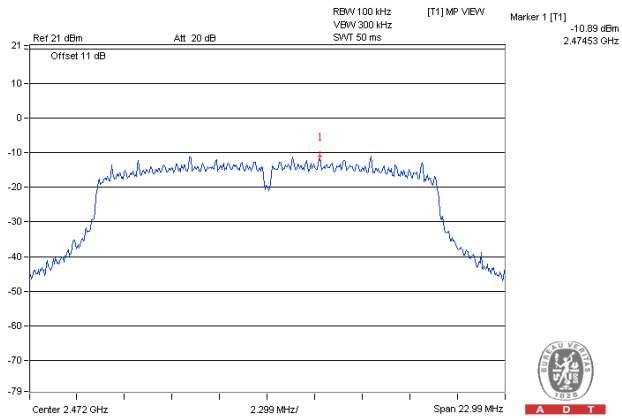


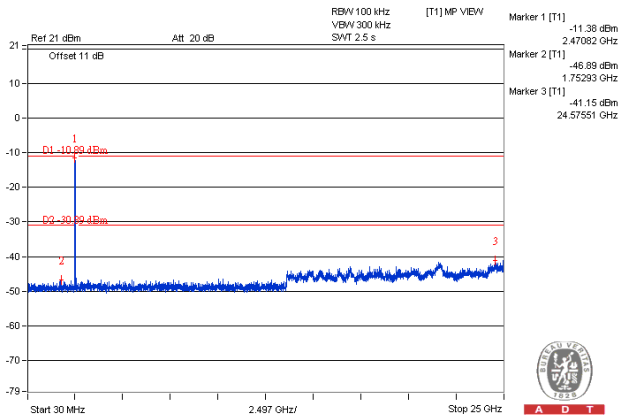
CH 12



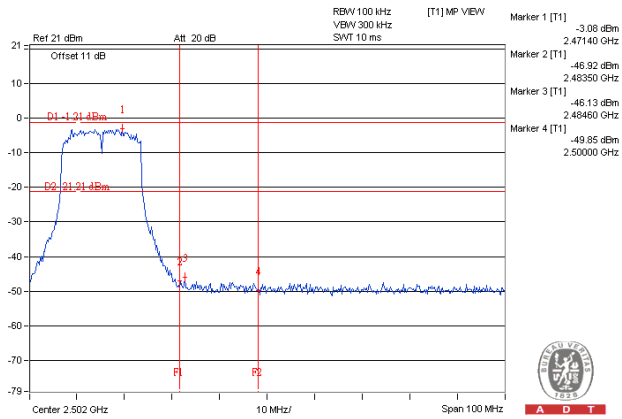


CH 13





CH 12 Band edge



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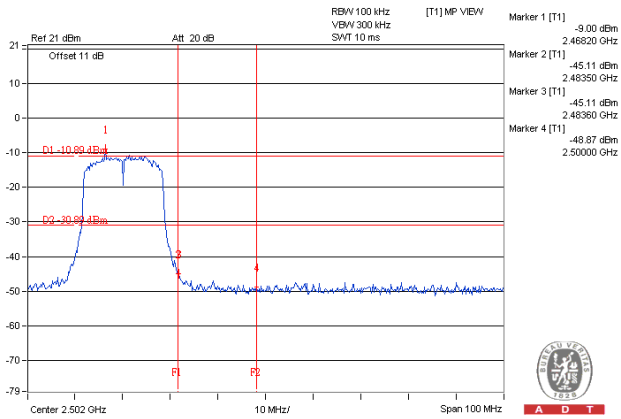
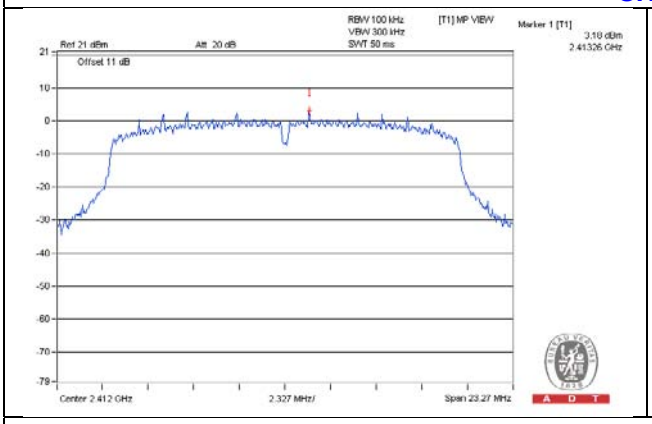
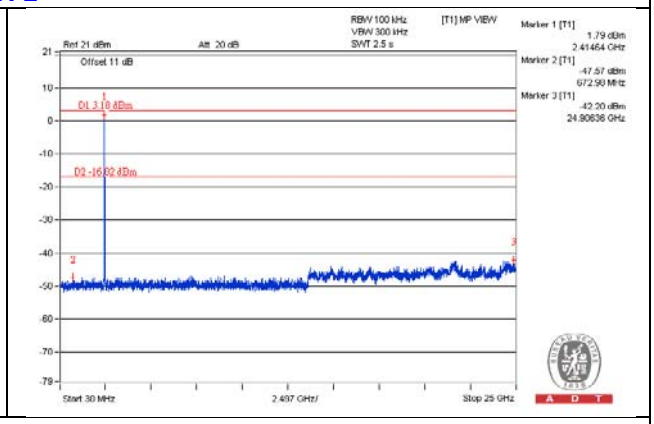


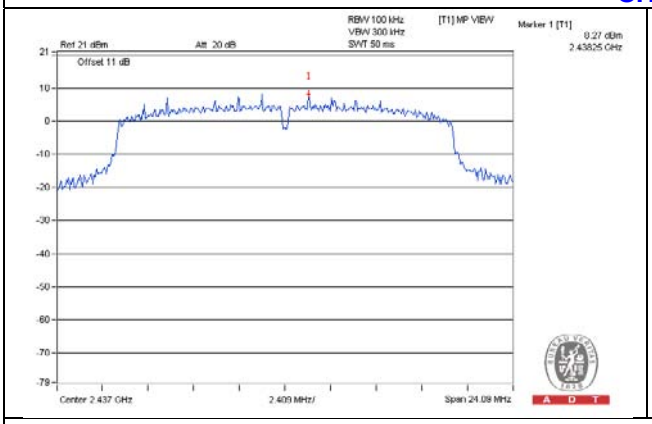
VHT20
Chain 0

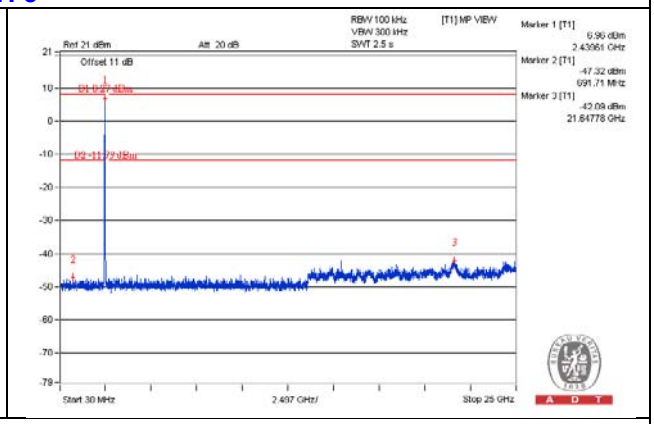
CH 1



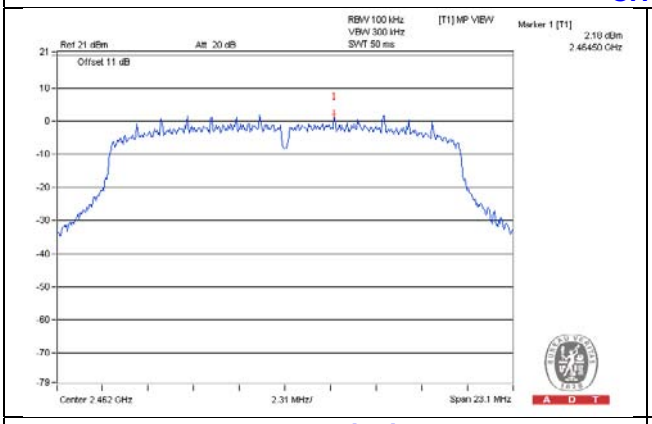


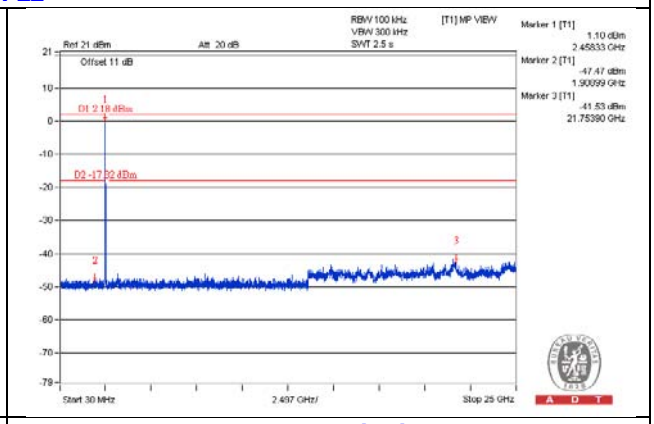
CH 6



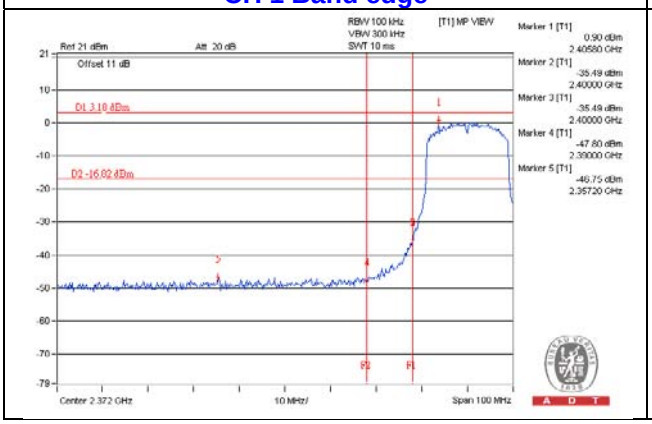


CH 11

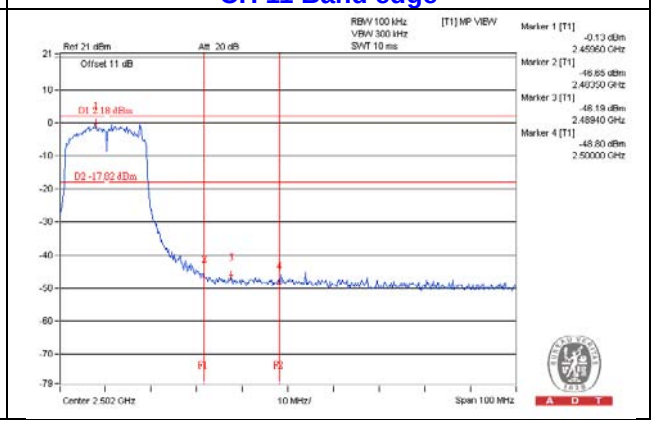




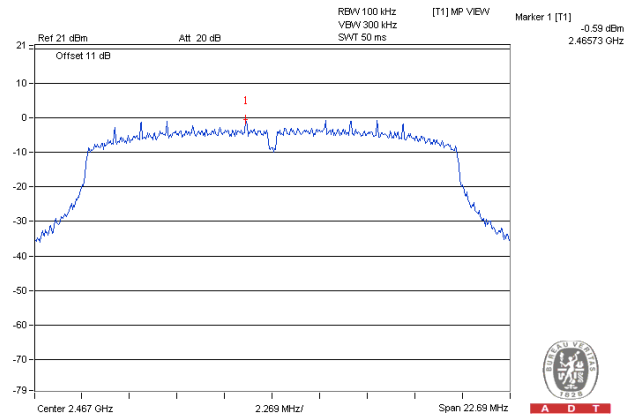
CH 1 Band edge

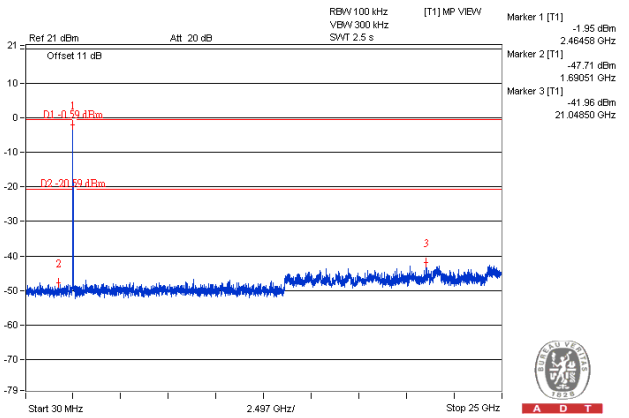


CH 11 Band edge

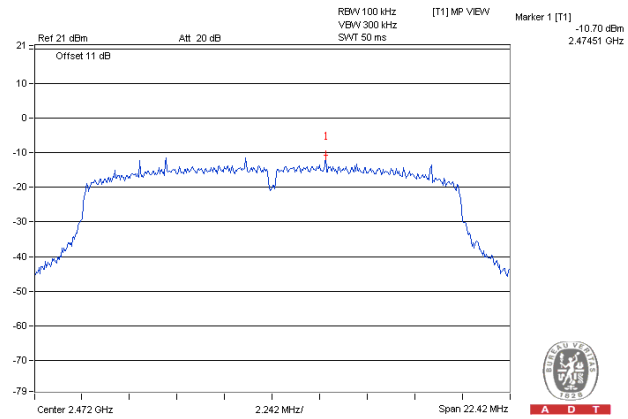


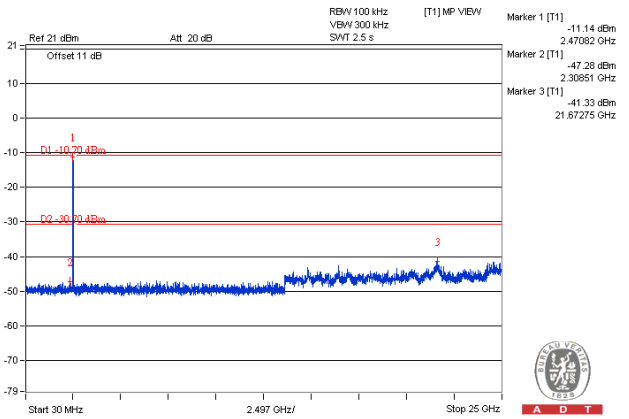
CH 12



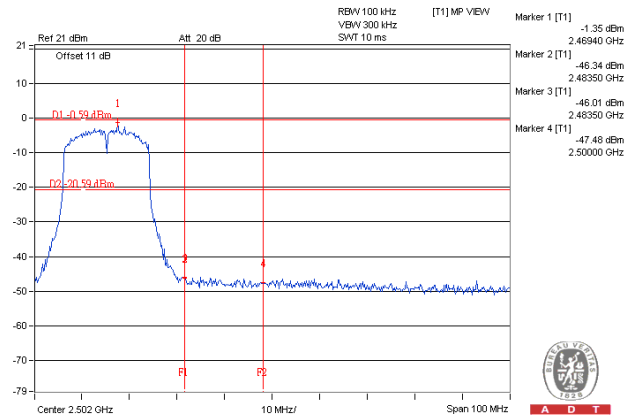


CH 13

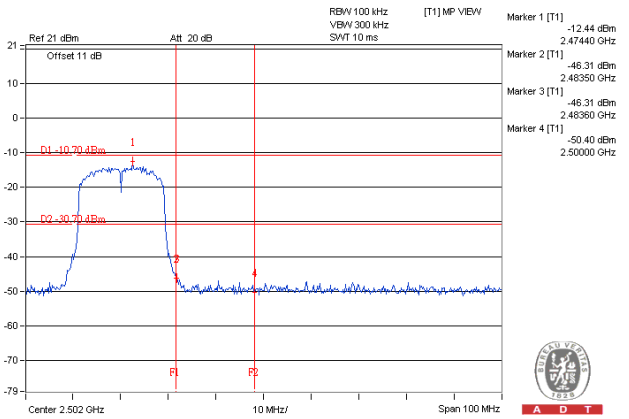




CH 12 Band edge

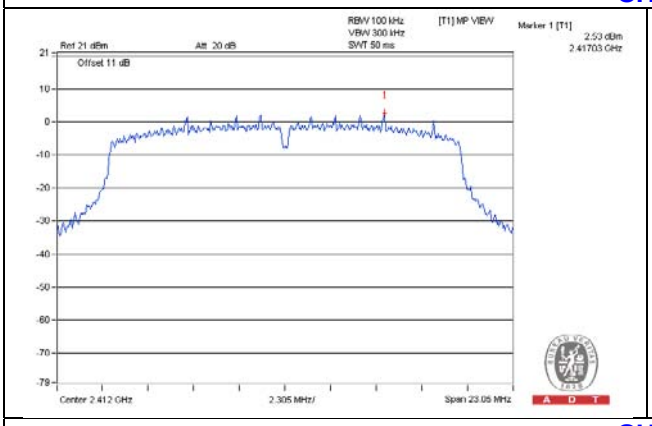


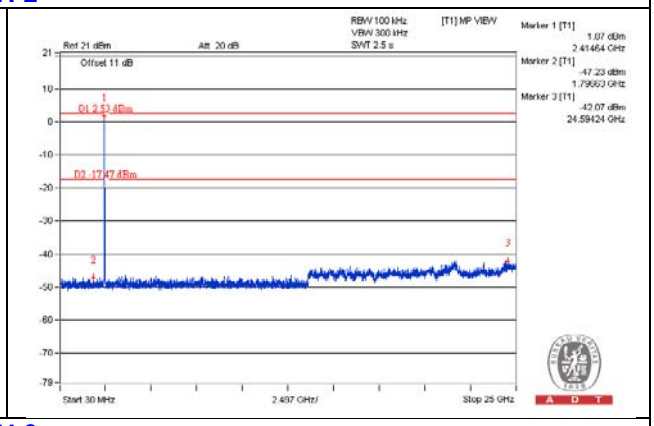
CH 13 Band edge



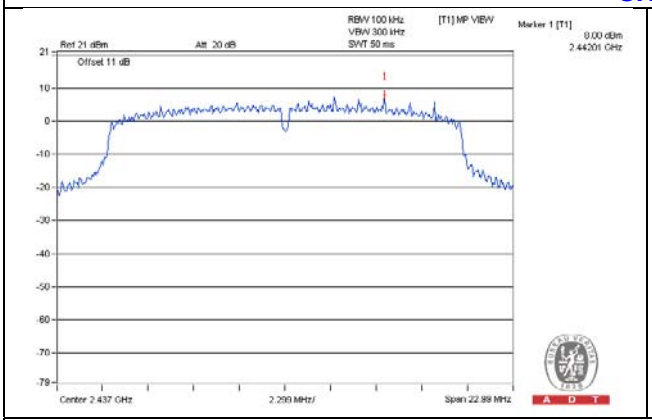
Chain 1

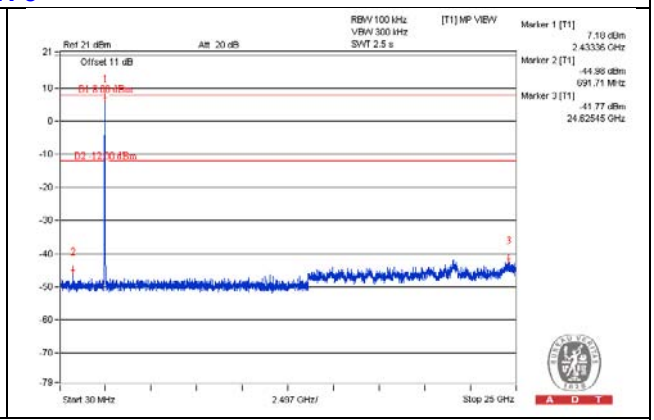
CH 1



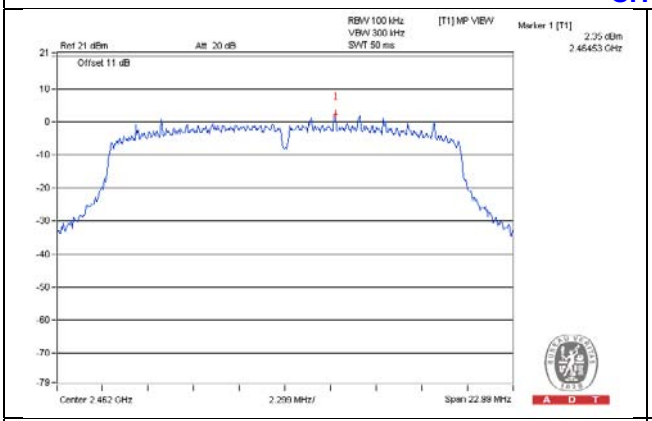


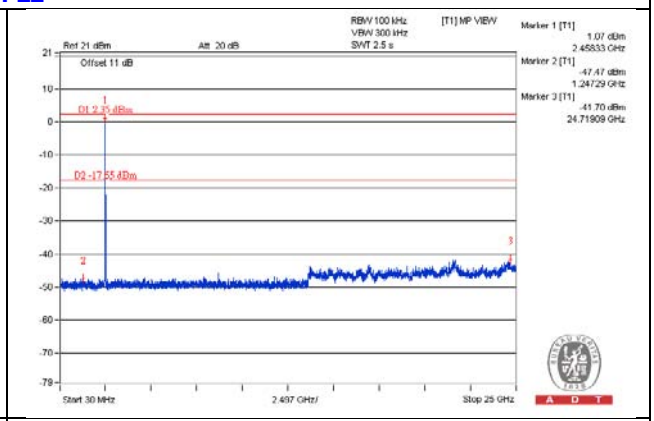
CH 6



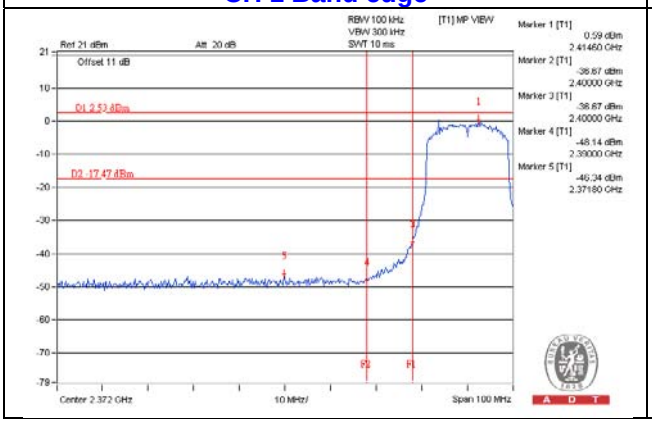


CH 11

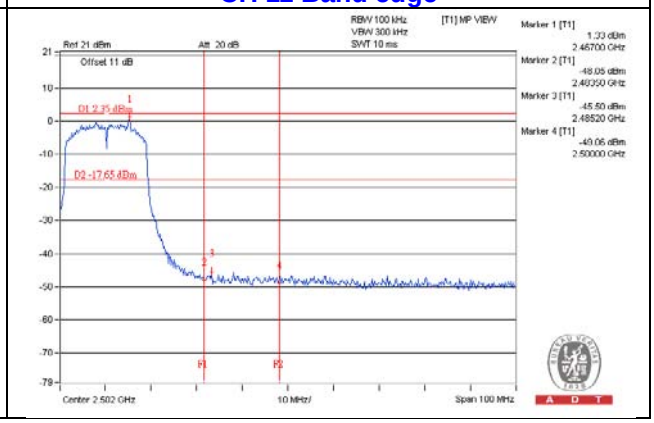




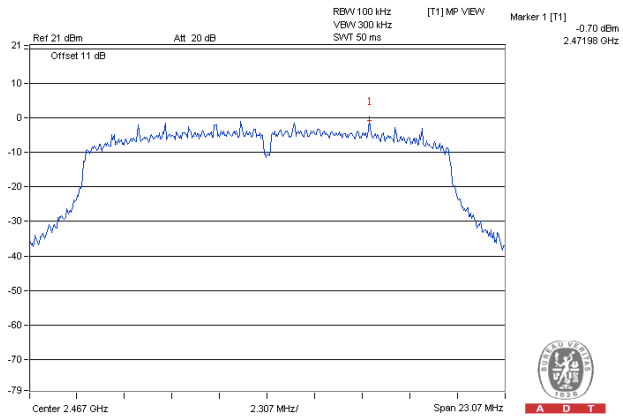
CH 1 Band edge

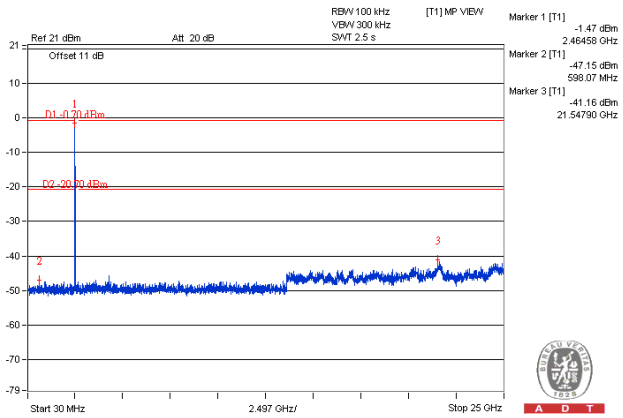


CH 11 Band edge

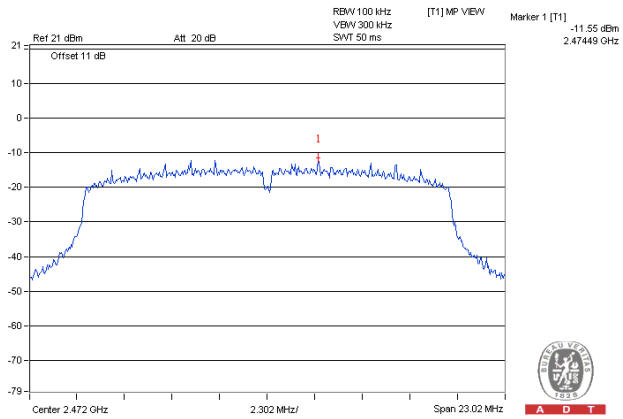


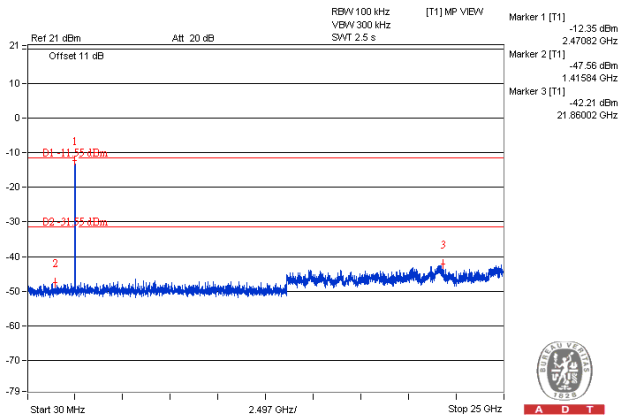
CH 12



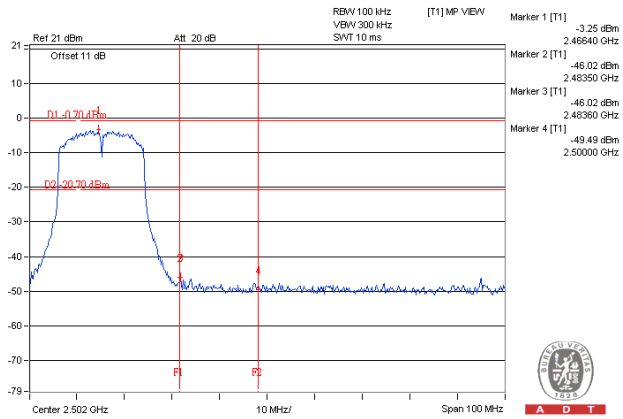


CH 13

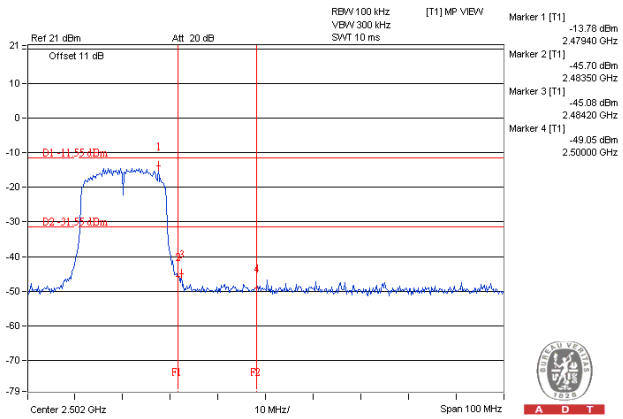




CH 12 Band edge

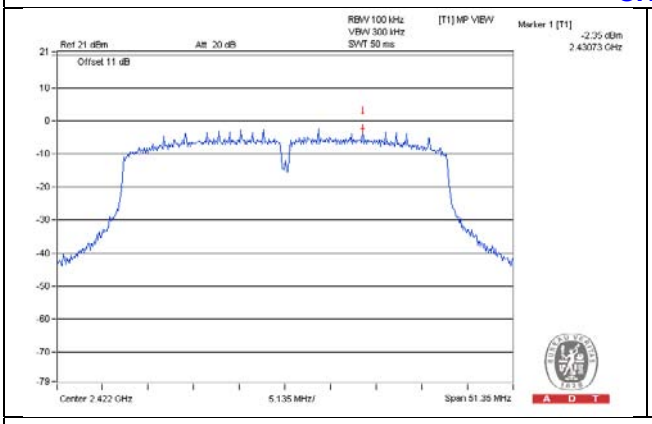


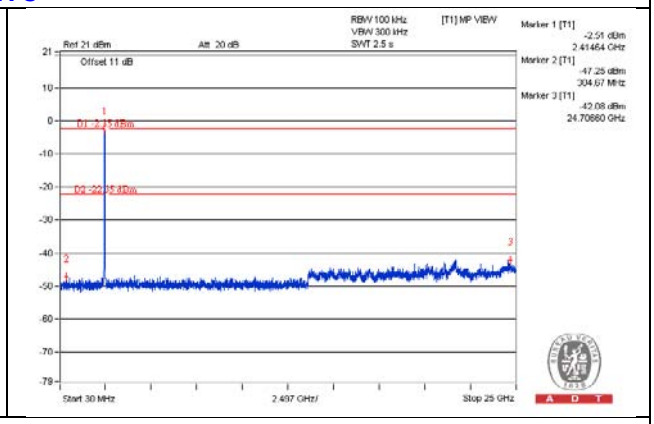
CH 13 Band edge



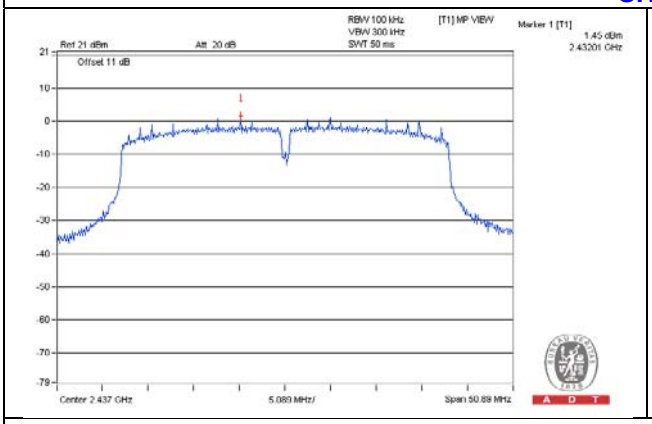
VHT40
Chain 0

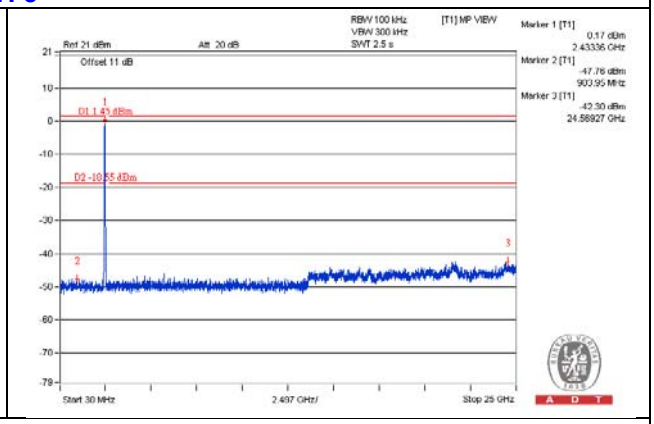
CH 3



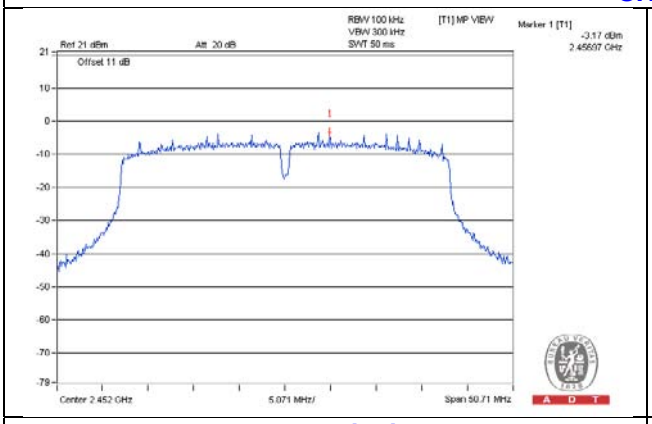


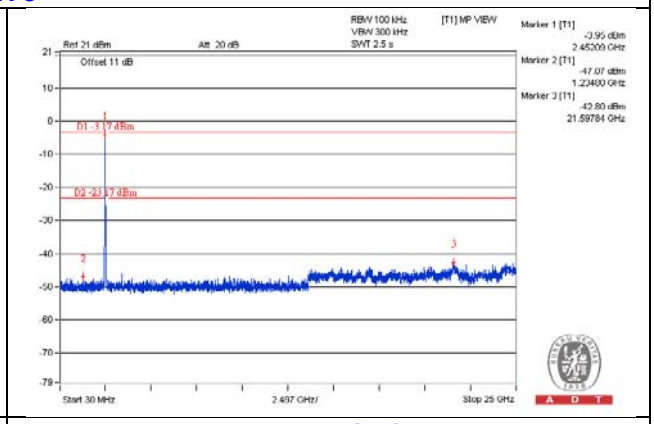
CH 6





CH 9





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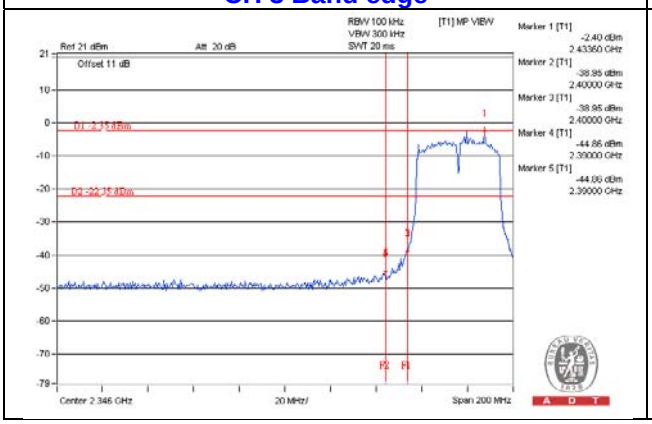
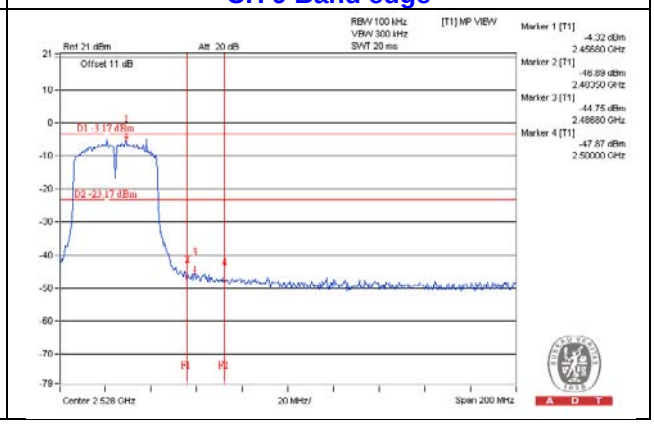
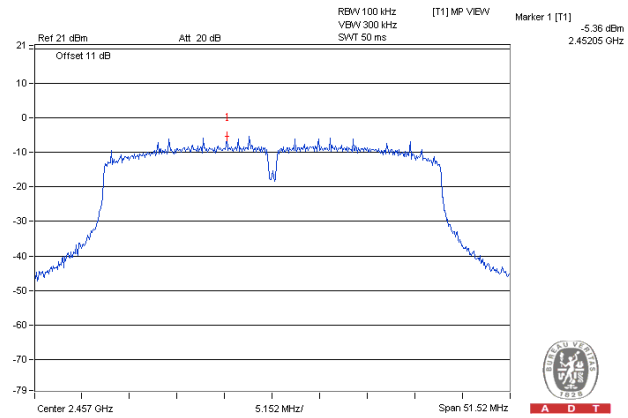
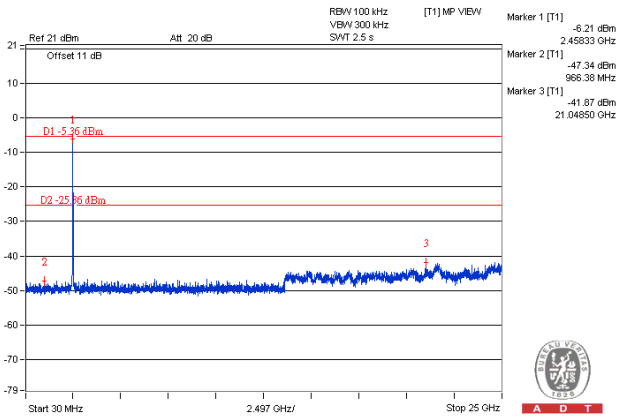


CH 9 Band edge

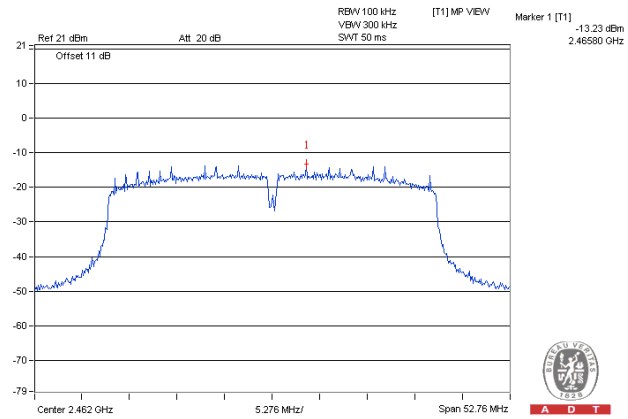


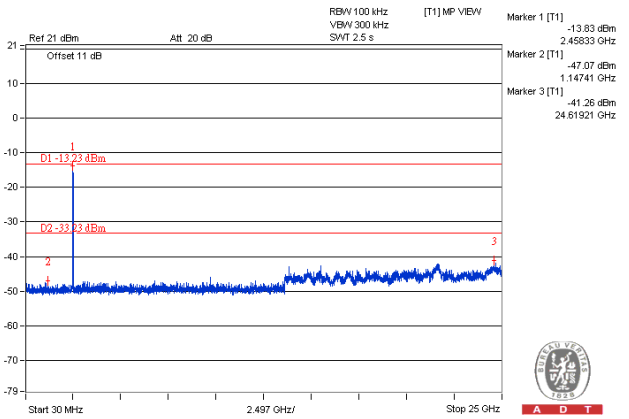
CH 10



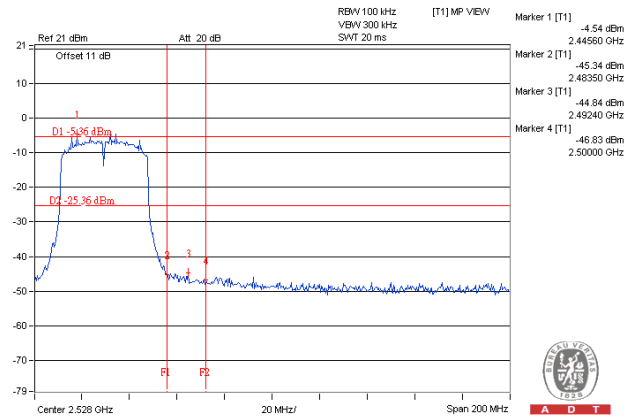


CH 11

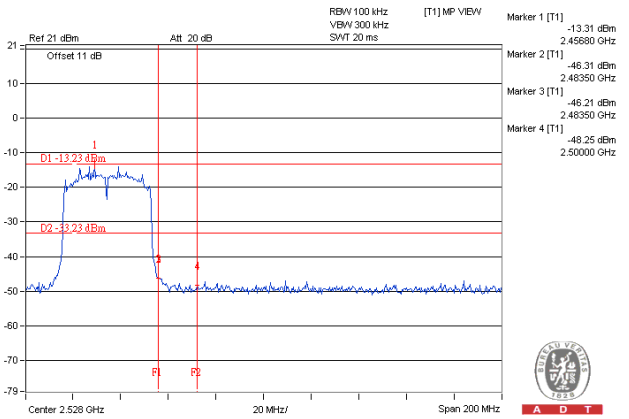




CH 10 Band edge

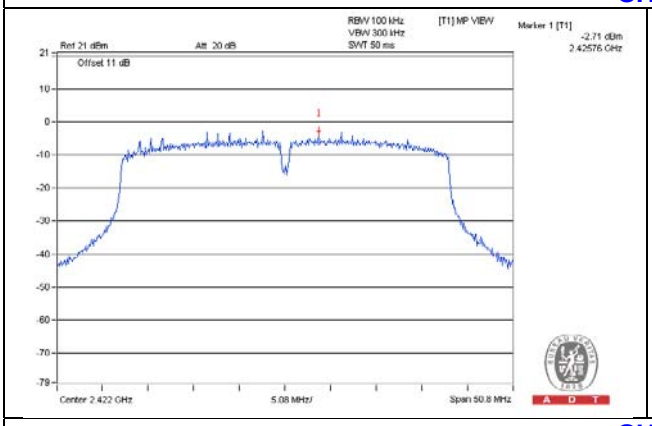


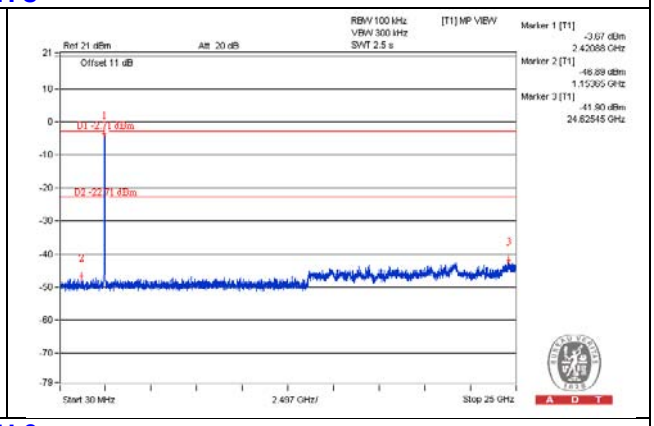
CH 11 Band edge



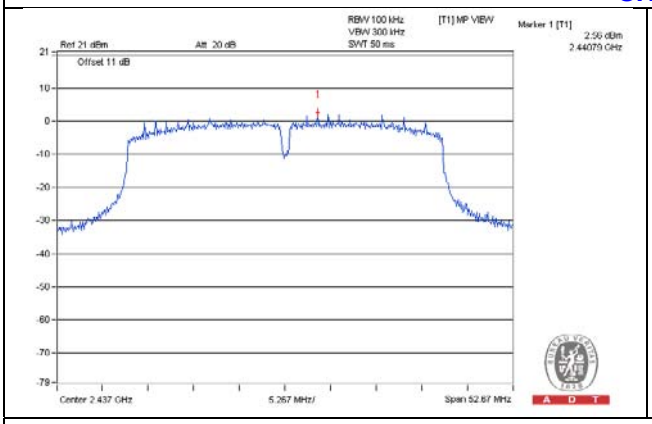
Chain 1

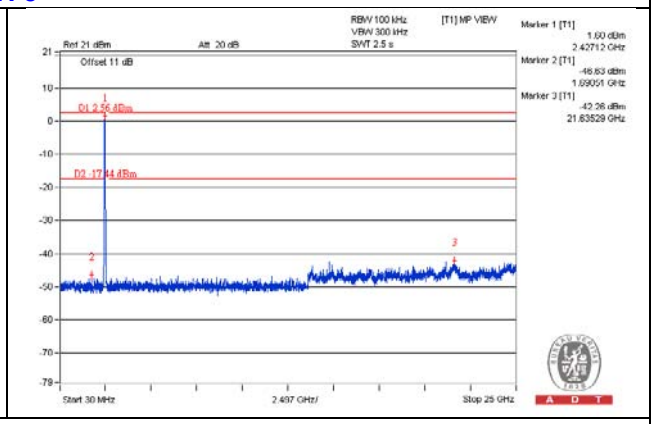
CH 3



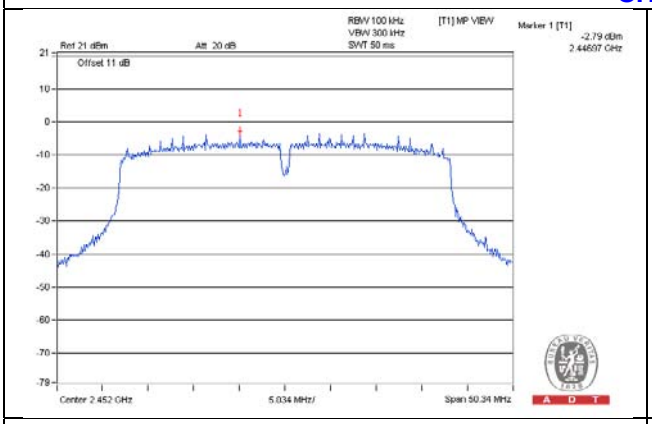


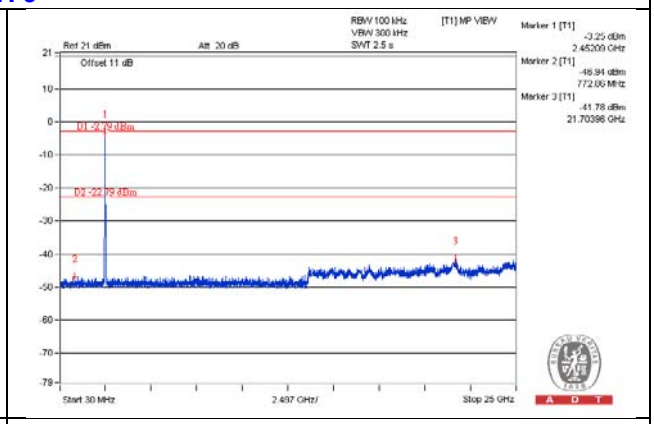
CH 6



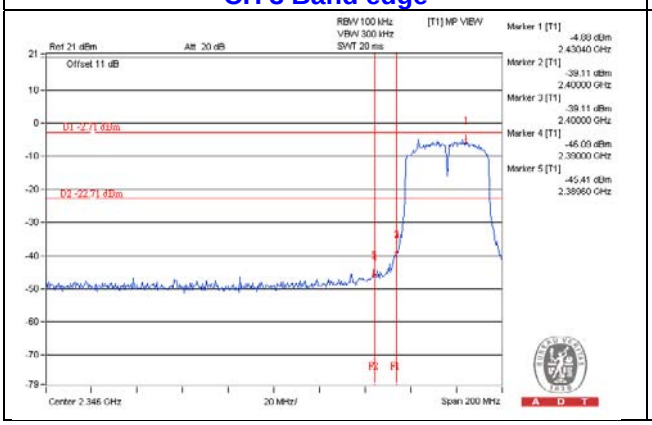


CH 9

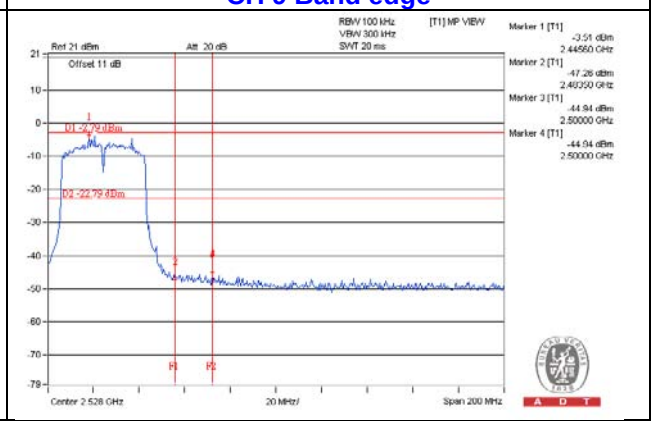




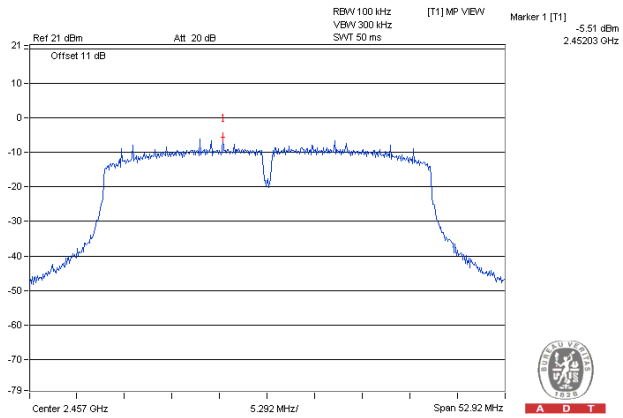
CH 3 Band edge

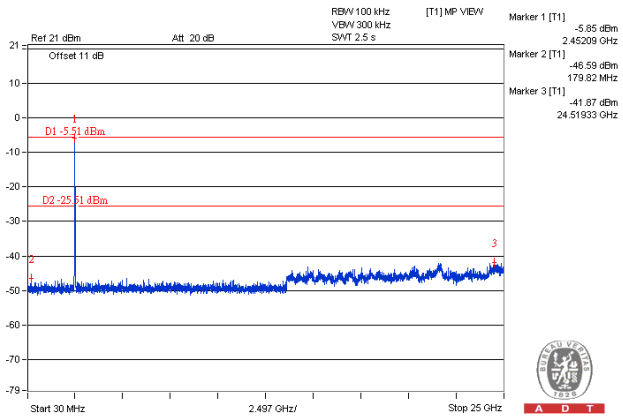


CH 9 Band edge

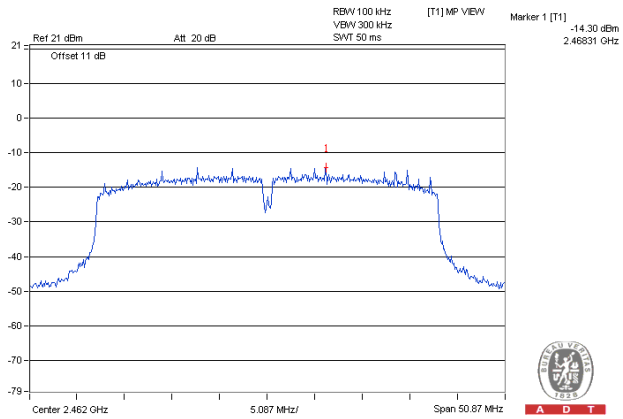


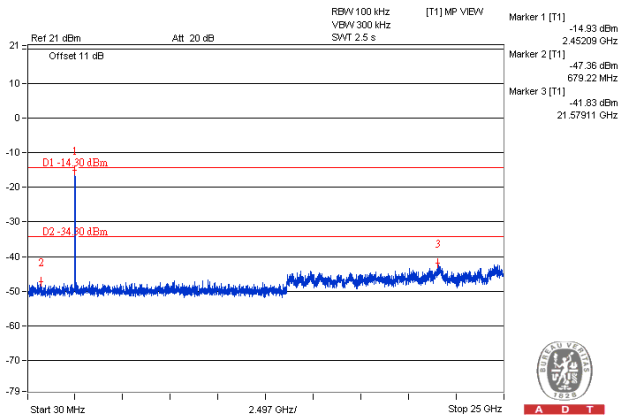
CH 10





CH 11





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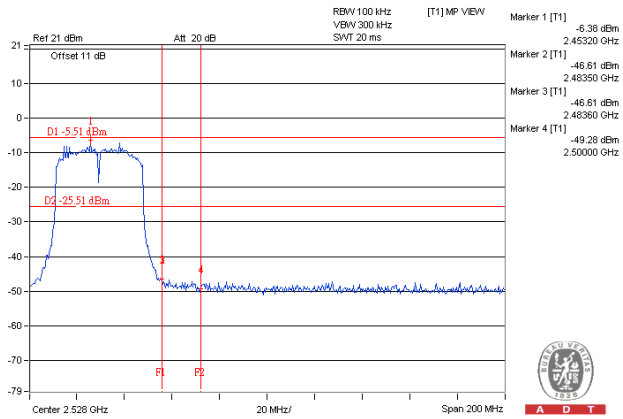
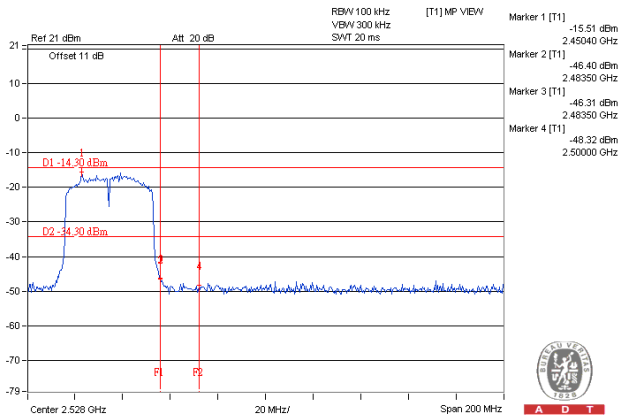


CH 11 Band edge



4.5 Unwanted Emission Measurement (Radiated Versus Conducted)

4.5.1 Limits of Unwanted Emission Measurement

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20dB below the highest level of the desired power:

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

4.5.2 Test Instruments

For 802.11b/g/VHT20 Channel 1 ~ 11 & VHT40 Channel 3 ~ 9 above 1GHz test:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Agilent	N9038A	MY50010156	Aug. 11, 2014	Aug. 10, 2015
Horn_Antenna AISI	AIH.8018	0000220091110	Feb. 06, 2015	Feb. 05, 2016
Pre-Amplifier Agilent	8449B	3008A01923	Oct. 28, 2014	Oct. 27, 2015
RF Cable	NA	131206 131213 131215 SNMY23685/4	Jan. 16, 2015	Jan. 15, 2016
Spectrum Analyzer R&S	FSV40	100964	July 05, 2014	July 04, 2015
Pre-Amplifier SPACEK LABS	SLKKa-48-6	9K16	Dec. 12, 2014	Dec. 11, 2015
Horn_Antenna SCHWARZBECK	BBHA 9170	9170-424	Feb. 05, 2015	Feb. 04, 2016
RF Cable	NA	329751/4 RF104-204	Dec. 11, 2014	Dec. 10, 2015
Software	ADT_Radiated _V8.7.07	NA	NA	NA
Antenna Tower & Turn Table CT	NA	NA	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in 966 Chamber No. H.
3. The FCC Site Registration No. is 797305.
4. The CANADA Site Registration No. is IC 7450H-3.
5. Tested Date: June 18, 2015

For 802.11b/g/VHT20 Channel 12 ~ 13 & VHT40 Channel 10 ~ 11 above 1GHz test:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Agilent	N9038A	MY51210105	July 21, 2014	July 20, 2015
Horn_Antenna AISI	AIH.8018	0000320091110	Feb. 09, 2015	Feb. 08, 2016
Pre-Amplifier Agilent	8449B	3008A02578	June 23, 2015	June 22, 2016
RF Cable	NA	131205 131216 131217 SNMY23684/4	Jan. 16, 2015	Jan. 15, 2016
Spectrum Analyzer R&S	FSV40	100964	July 05, 2014	July 04, 2015
Pre-Amplifier SPACEK LABS	SLKKa-48-6	9K16	Dec. 12, 2014	Dec. 11, 2015
Horn_Antenna SCHWARZBECK	BBHA 9170	9170-424	Feb. 05, 2015	Feb. 04, 2016
RF Cable	NA	329751/4 RF104-204	Dec. 11, 2014	Dec. 10, 2015
Software	ADT_Radiated_V8.7.07	NA	NA	NA
Antenna Tower & Turn Table CT	NA	NA	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in 966 Chamber No. G.
3. The FCC Site Registration No. is 966073.
4. The VCCI Site Registration No. is G-137.
5. The CANADA Site Registration No. is IC 7450H-2.
6. Tested Date: June 29, 2015

For below 1GHz test:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Agilent	N9038A	MY50010156	Aug. 11, 2014	Aug. 10, 2015
Pre-Amplifier Mini-Circuits	ZFL-1000VH2 B	AMP-ZFL-04	Nov. 12, 2014	Nov. 11, 2015
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-361	Feb. 09, 2015	Feb. 08, 2016
RF Cable	8D-FB	CHHCAB-001-1 CHHCAB-001-2	Oct. 05, 2014	Oct. 04, 2015
	RF-141	CHHCAB-004	Oct. 05, 2014	Oct. 04, 2015
Software	ADT_Radiated _V8.7.07	NA	NA	NA
Antenna Tower & Turn Table CT	NA	NA	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in 966 Chamber No. H.
3. The FCC Site Registration No. is 797305.
4. The CANADA Site Registration No. is IC 7450H-3.
5. Tested Date: Mar. 21, 2015

4.5.3 Test Procedures

Following FCC KDB 558074 D01 DTS Meas. Guidance :
Radiated versus Conducted Measurements.
The unwanted emission limits in both the restricted and non-restricted bands are based on antenna-port conducted measurements in conjunction with cabinet emissions tests are permitted to demonstrate compliance.
The following steps was performed:

a. Cabinet emissions measurements. Radiated measurement was performed to ensure that cabinet emissions are below the emission limits. For the cabinet-emission measurements the antenna was replaced by a termination matching the nominal impedance of the antenna.

b. Conducted tests was performed using equipment that matches the nominal impedance of the antenna assembly used with the EUT

c. EIRP calculation. A value representative of an upper bound on out-of-band antenna gain (in dBi) shall be added to the measured antenna-port conducted emission power to compute EIRP within the specified measurement bandwidth. (For emissions in the restricted bands, additional calculations are required to convert EIRP to field strength at the specified distance.) The upper bound on antenna gain for a device with a single RF output shall be selected as the maximum in-band gain of the antenna across all operating bands or 2 dBi, whichever is greater

d. EIRP adjustments for multiple outputs. (Follow the procedures specified in FCC KDB Publication 662911)

e. For all of Radiation emission test

e-1. The EUT was placed on the top of a rotating table 0.8 meters (for below 1GHz) / 1.5 meters (for above 1GHz) above the ground at a 3 meters chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.

e-2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

e-3. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

e-4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e-5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

e-6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 3MHz for RMS Average (Duty cycle < 98%) for Average detection (AV) at frequency above 1GHz, then the measurement results was added to a correction factor (10 log(1/duty cycle)).
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz (Duty cycle ≥ 98%) for Average detection (AV) at frequency above 1GHz.
5. All modes of operation were investigated and the worst-case emissions are reported.

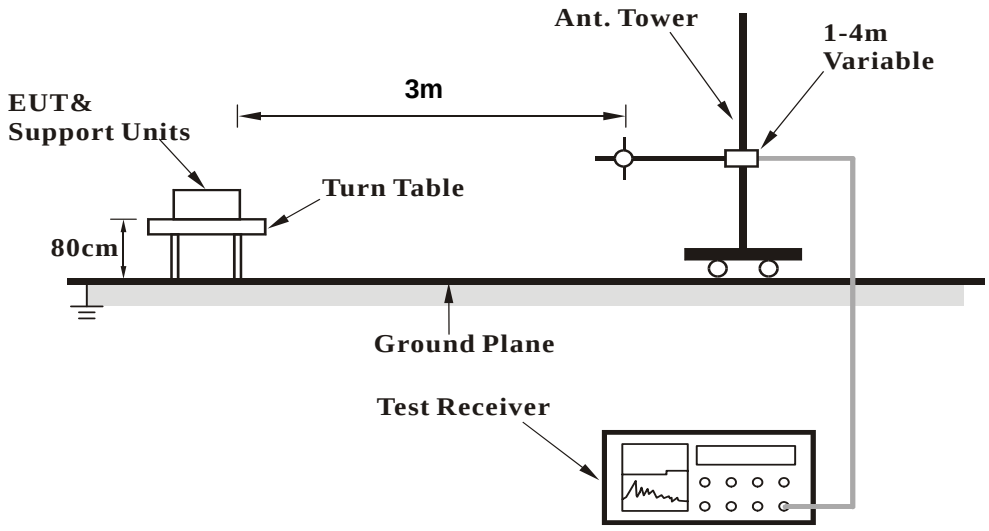
4.5.4 Deviation from Test Standard

No deviation.

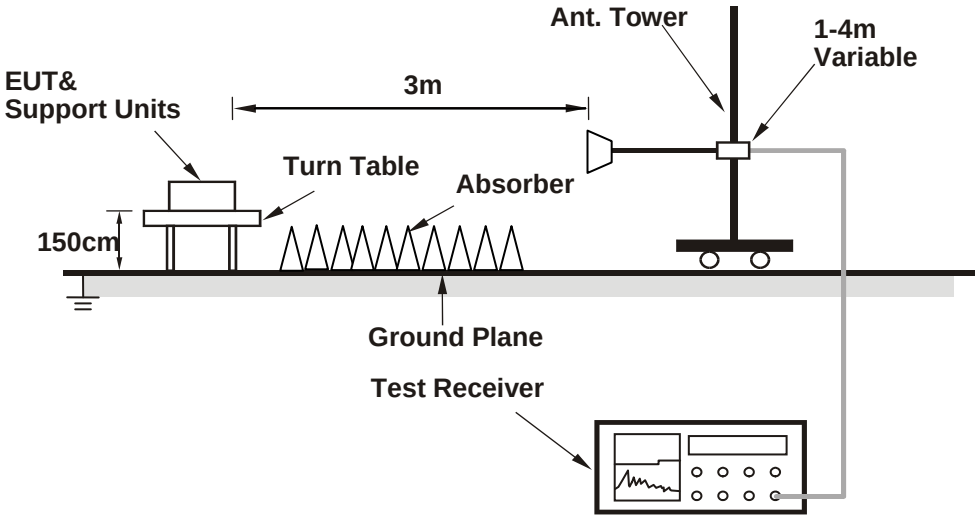
4.5.5 Test Setup

For radiated configuration:

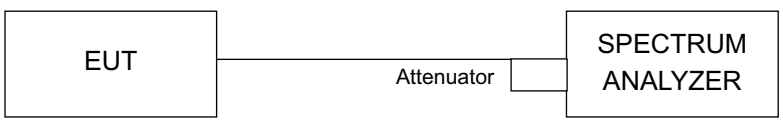
<Frequency Range below 1GHz>



<Frequency Range above 1GHz>



For conducted configuration:



For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.5.6 EUT Operating Conditions

1. Connect the EUT with the support unit A (Notebook Computer) which is placed on a testing table.
2. The communication partner run test program “QCRT-CONN30033.exe” to enable EUT under transmission/receiving condition continuously at specific channel frequency.

4.5.7 Test Results (Radiated Measurement)

Radiated versus Conducted Measurement	
☐ Conducted measurement	☒ Radiated measurement
For Radiated measurement: The level of unwanted emissions was measured when radiated by the cabinet or structure of the equipment with the antenna connector(s) terminated by a specified load (cabinet radiation) For Conducted measurement: The level of unwanted emissions was measured as their power in a specified load (conducted spurious emissions).	

Radiated test was done with 50ohm terminator on antenna port

Above 1GHz Data

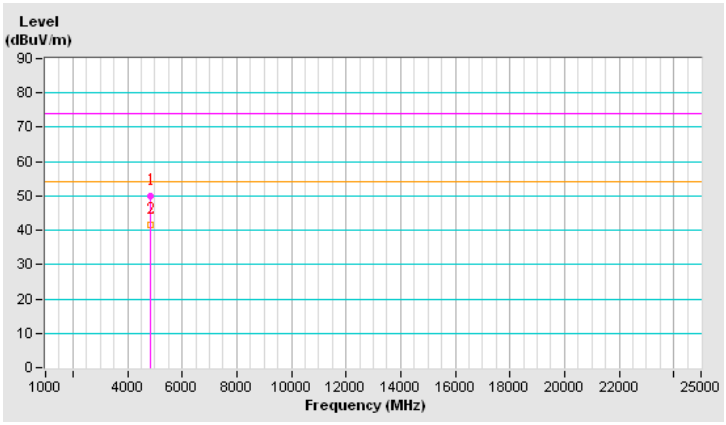
802.11b

CHANNEL	TX Channel 1	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	4824.00	49.8 PK	74.0	-24.2	1.17 H	193	43.83	5.97
2	4824.00	41.6 AV	54.0	-12.4	1.17 H	193	35.63	5.97

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

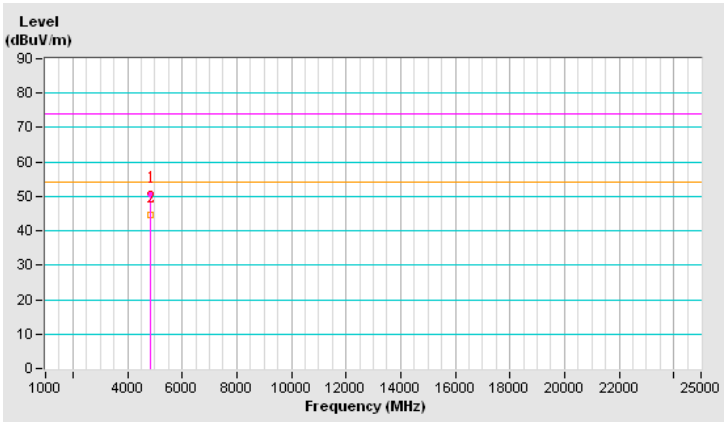


CHANNEL	TX Channel 1	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4824.00	50.6 PK	74.0	-23.4	2.56 V	360	44.63	5.97
2	4824.00	44.8 AV	54.0	-9.2	2.56 V	360	38.83	5.97

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

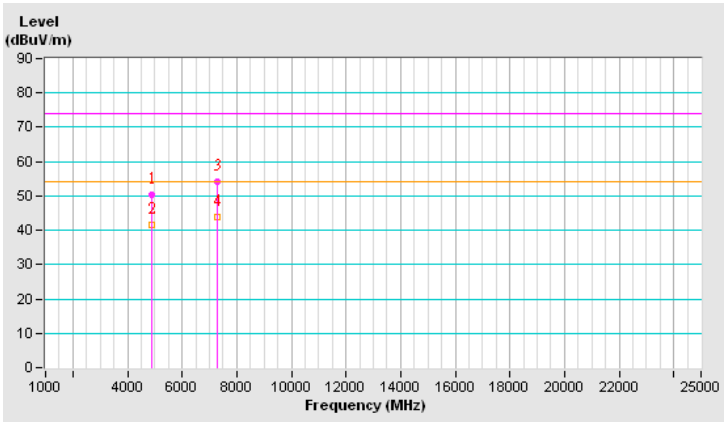


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4874.00	50.2 PK	74.0	-23.8	1.23 H	190	44.15	6.05
2	4874.00	41.7 AV	54.0	-12.3	1.23 H	190	35.65	6.05
3	7311.00	54.3 PK	74.0	-19.7	1.25 H	134	43.36	10.94
4	7311.00	43.9 AV	54.0	-10.1	1.25 H	134	32.96	10.94

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

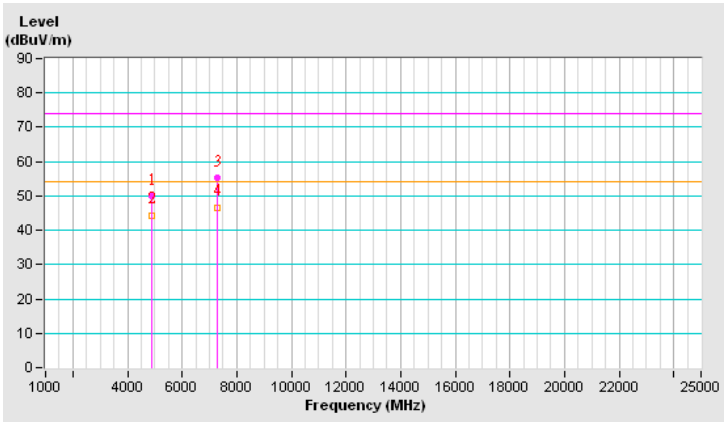


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4874.00	49.9 PK	74.0	-24.1	2.52 V	360	43.85	6.05
2	4874.00	44.4 AV	54.0	-9.6	2.52 V	360	38.35	6.05
3	7311.00	55.4 PK	74.0	-18.6	1.27 V	75	44.46	10.94
4	7311.00	46.7 AV	54.0	-7.3	1.27 V	75	35.76	10.94

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

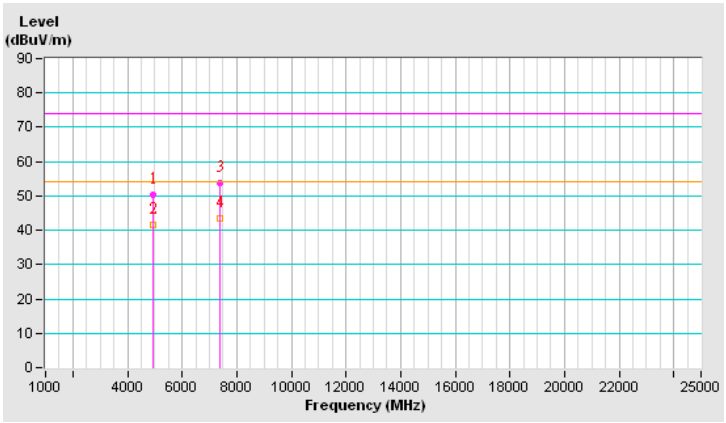


CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4924.00	50.2 PK	74.0	-23.8	1.19 H	202	44.13	6.07
2	4924.00	41.6 AV	54.0	-12.4	1.19 H	202	35.53	6.07
3	7386.00	53.9 PK	74.0	-20.1	1.27 H	132	42.48	11.42
4	7386.00	43.4 AV	54.0	-10.6	1.27 H	132	31.98	11.42

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

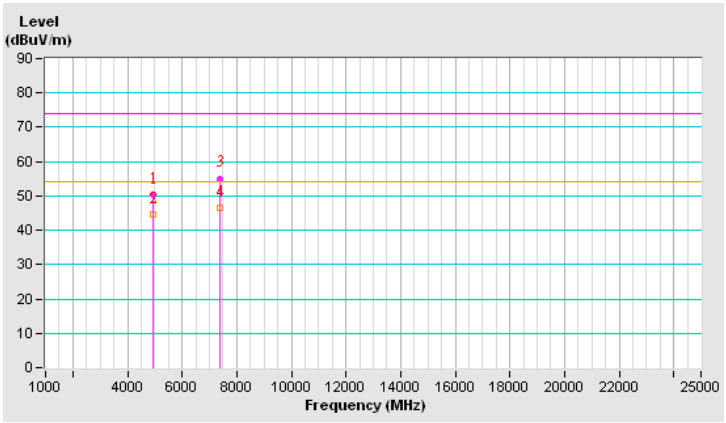


CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4924.00	50.4 PK	74.0	-23.6	2.59 V	360	44.33	6.07
2	4924.00	44.7 AV	54.0	-9.3	2.59 V	360	38.63	6.07
3	7386.00	55.1 PK	74.0	-18.9	1.31 V	67	43.68	11.42
4	7386.00	46.6 AV	54.0	-7.4	1.31 V	67	35.18	11.42

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

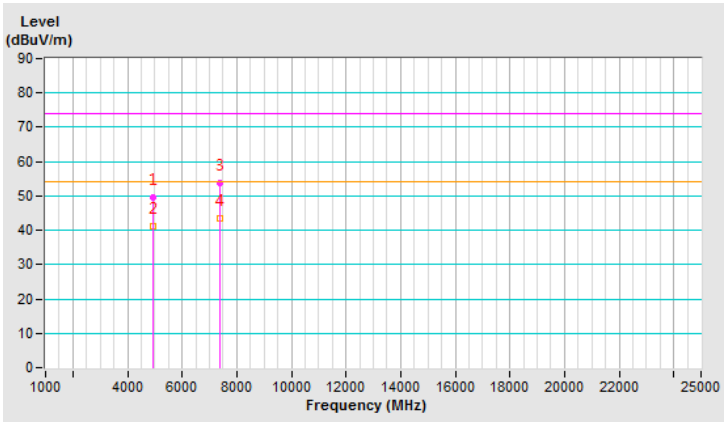


CHANNEL	TX Channel 12	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4934.00	49.6 PK	74.0	-24.4	1.24 H	217	42.09	7.51
2	4934.00	41.3 AV	54.0	-12.7	1.24 H	217	33.79	7.51
3	7401.00	53.8 PK	74.0	-20.2	1.33 H	125	39.27	14.53
4	7401.00	43.4 AV	54.0	-10.6	1.33 H	125	28.87	14.53

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

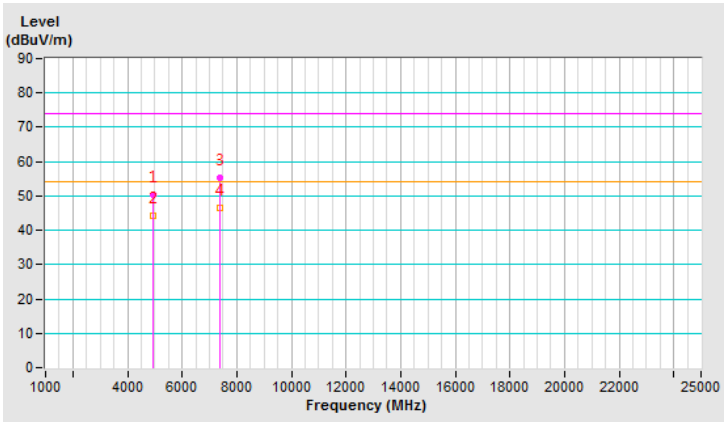


CHANNEL	TX Channel 12	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4934.00	50.2 PK	74.0	-23.8	2.55 V	360	42.69	7.51
2	4934.00	44.2 AV	54.0	-9.8	2.55 V	360	36.69	7.51
3	7401.00	55.2 PK	74.0	-18.8	1.35 V	82	40.67	14.53
4	7401.00	46.5 AV	54.0	-7.5	1.35 V	82	31.97	14.53

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

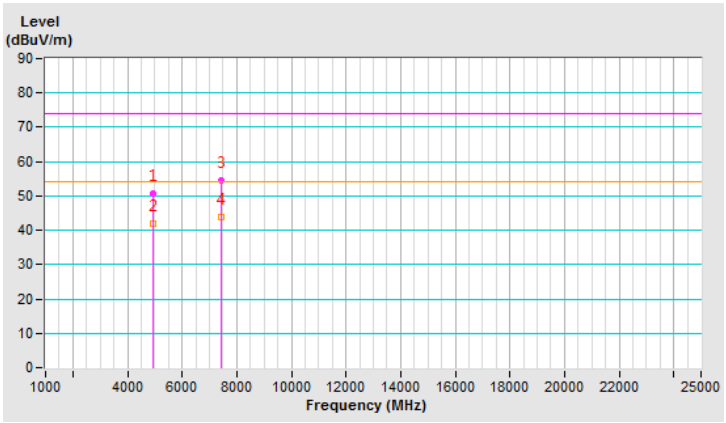


CHANNEL	TX Channel 13	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4944.00	50.8 PK	74.0	-23.2	1.22 H	217	43.24	7.56
2	4944.00	42.0 AV	54.0	-12.0	1.22 H	217	34.44	7.56
3	7416.00	54.4 PK	74.0	-19.6	1.30 H	144	39.88	14.52
4	7416.00	43.8 AV	54.0	-10.2	1.30 H	144	29.28	14.52

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

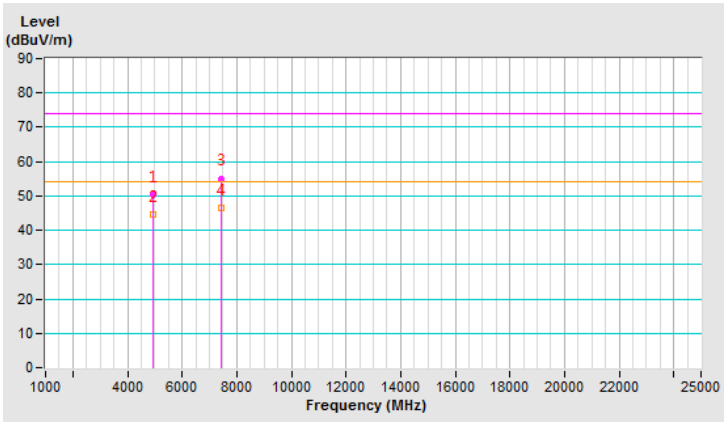


CHANNEL	TX Channel 13	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4944.00	50.4 PK	74.0	-23.6	2.59 V	360	42.84	7.56
2	4944.00	44.7 AV	54.0	-9.3	2.59 V	360	37.14	7.56
3	7416.00	55.1 PK	74.0	-18.9	1.31 V	67	40.58	14.52
4	7416.00	46.6 AV	54.0	-7.4	1.31 V	67	32.08	14.52

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value



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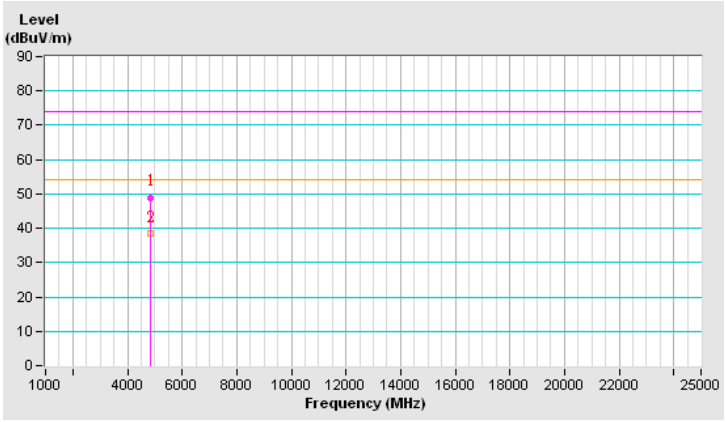
CHANNEL	TX Channel 1	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	4824.00	49.0 PK	74.0	-25.0	1.87 H	134	43.03	5.97
2	4824.00	38.5 AV	54.0	-15.5	1.87 H	134	32.53	5.97

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

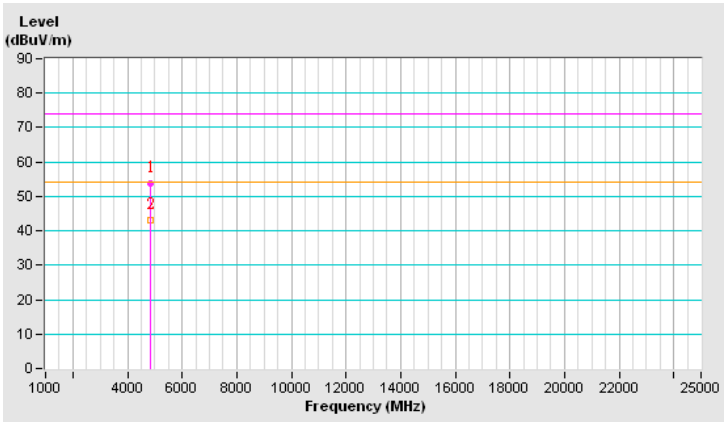


CHANNEL	TX Channel 1	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4824.00	53.7 PK	74.0	-20.3	1.83 V	84	47.73	5.97
2	4824.00	43.2 AV	54.0	-10.8	1.83 V	84	37.23	5.97

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

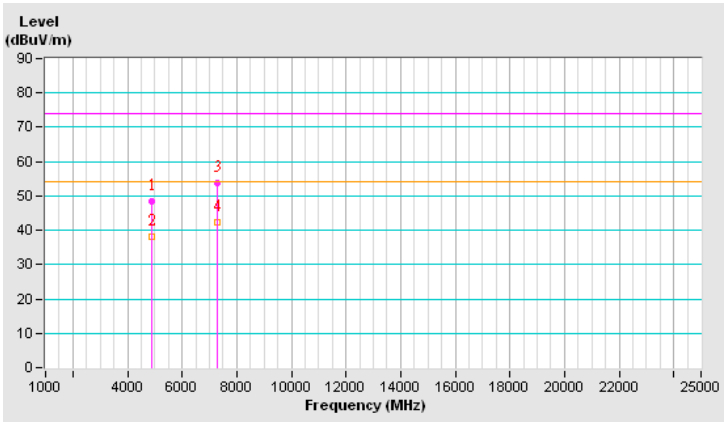


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4874.00	48.5 PK	74.0	-25.5	1.90 H	127	42.45	6.05
2	4874.00	38.0 AV	54.0	-16.0	1.90 H	127	31.95	6.05
3	7311.00	53.6 PK	74.0	-20.4	1.54 H	130	42.66	10.94
4	7311.00	42.4 AV	54.0	-11.6	1.54 H	130	31.46	10.94

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

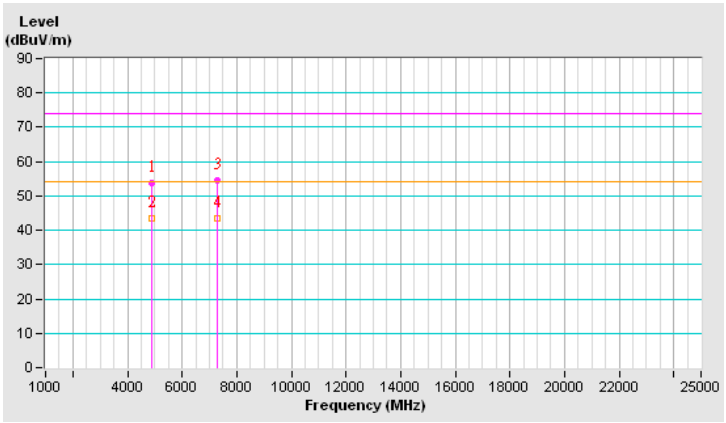


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4874.00	53.6 PK	74.0	-20.4	1.81 V	74	47.55	6.05
2	4874.00	43.3 AV	54.0	-10.7	1.81 V	74	37.25	6.05
3	7311.00	54.4 PK	74.0	-19.6	1.21 V	68	43.46	10.94
4	7311.00	43.6 AV	54.0	-10.4	1.21 V	68	32.66	10.94

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

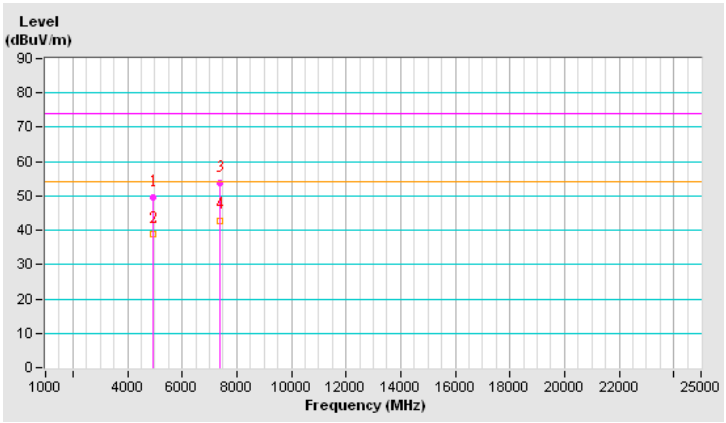


CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4924.00	49.4 PK	74.0	-24.6	1.92 H	143	43.33	6.07
2	4924.00	38.8 AV	54.0	-15.2	1.92 H	143	32.73	6.07
3	7386.00	53.8 PK	74.0	-20.2	1.59 H	140	42.38	11.42
4	7386.00	42.9 AV	54.0	-11.1	1.59 H	140	31.48	11.42

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

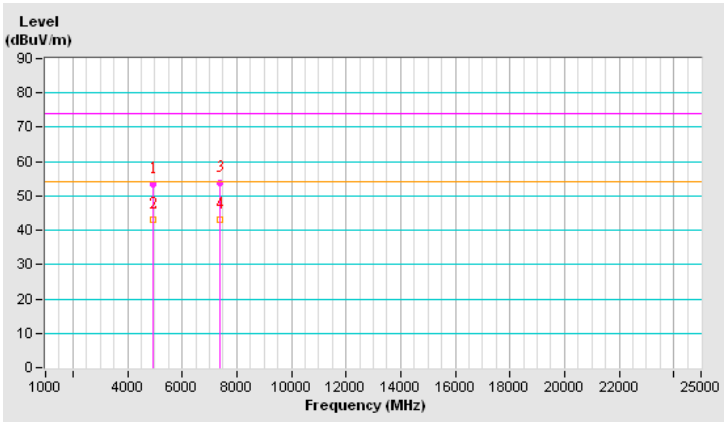


CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4924.00	53.4 PK	74.0	-20.6	1.84 V	80	47.33	6.07
2	4924.00	43.2 AV	54.0	-10.8	1.84 V	80	37.13	6.07
3	7386.00	53.6 PK	74.0	-20.4	1.20 V	75	42.18	11.42
4	7386.00	43.1 AV	54.0	-10.9	1.20 V	75	31.68	11.42

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

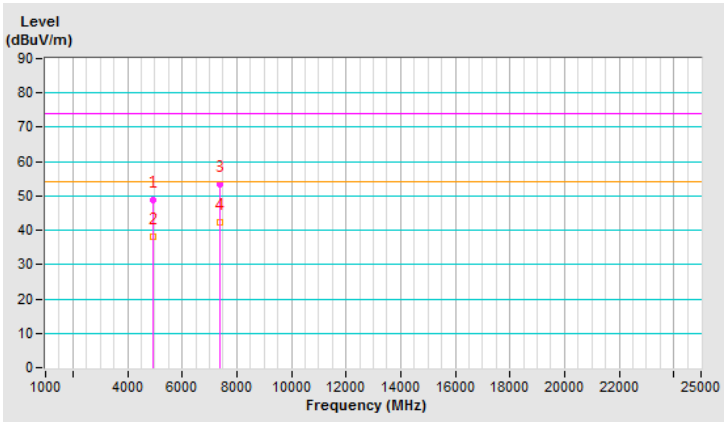


CHANNEL	TX Channel 12	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4934.00	48.9 PK	74.0	-25.1	1.86 H	133	41.39	7.51
2	4934.00	38.2 AV	54.0	-15.8	1.86 H	133	30.69	7.51
3	7401.00	53.4 PK	74.0	-20.6	1.58 H	126	38.87	14.53
4	7401.00	42.3 AV	54.0	-11.7	1.58 H	126	27.77	14.53

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

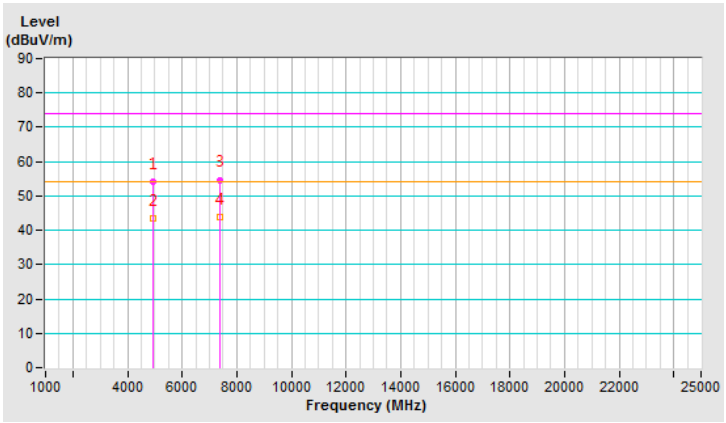


CHANNEL	TX Channel 12	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4934.00	54.0 PK	74.0	-20.0	1.85 V	80	46.49	7.51
2	4934.00	43.5 AV	54.0	-10.5	1.85 V	80	35.99	7.51
3	7401.00	54.7 PK	74.0	-19.3	1.15 V	68	40.17	14.53
4	7401.00	43.8 AV	54.0	-10.2	1.15 V	68	29.27	14.53

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

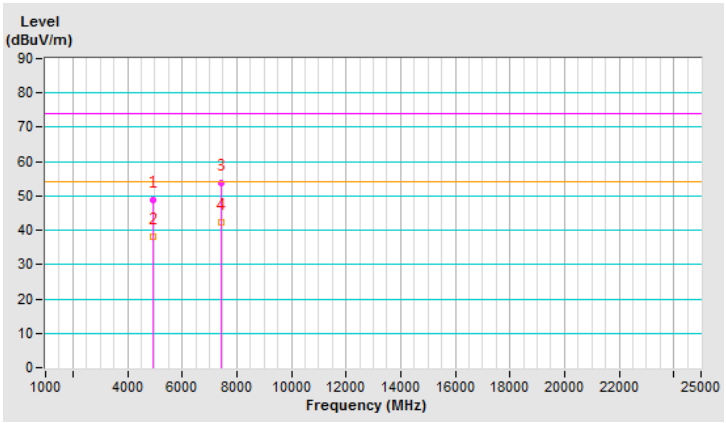


CHANNEL	TX Channel 13	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4944.00	48.8 PK	74.0	-25.2	1.95 H	117	41.24	7.56
2	4944.00	38.2 AV	54.0	-15.8	1.95 H	117	30.64	7.56
3	7416.00	53.9 PK	74.0	-20.1	1.53 H	122	39.38	14.52
4	7416.00	42.4 AV	54.0	-11.6	1.53 H	122	27.88	14.52

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

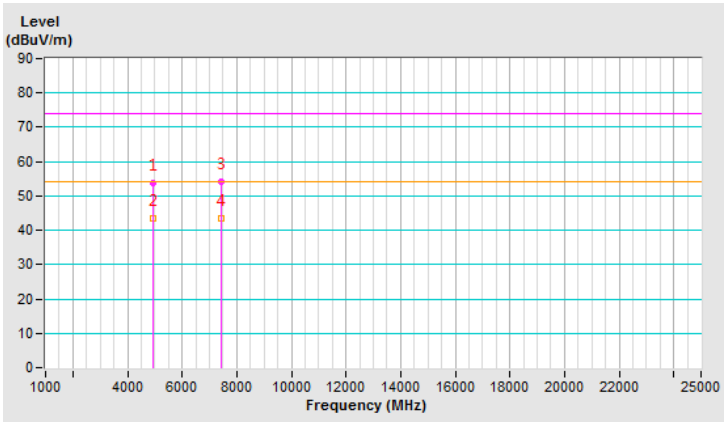


CHANNEL	TX Channel 13	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4944.00	53.7 PK	74.0	-20.3	1.75 V	79	46.14	7.56
2	4944.00	43.4 AV	54.0	-10.6	1.75 V	79	35.84	7.56
3	7416.00	54.3 PK	74.0	-19.7	1.24 V	76	39.78	14.52
4	7416.00	43.6 AV	54.0	-10.4	1.24 V	76	29.08	14.52

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value



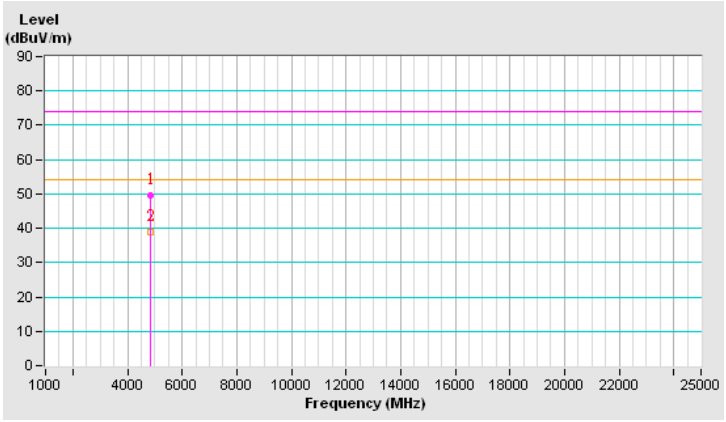
VHT20

CHANNEL	TX Channel 1	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	4824.00	49.4 PK	74.0	-24.6	1.89 H	141	43.43	5.97
2	4824.00	38.9 AV	54.0	-15.1	1.89 H	141	32.93	5.97

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

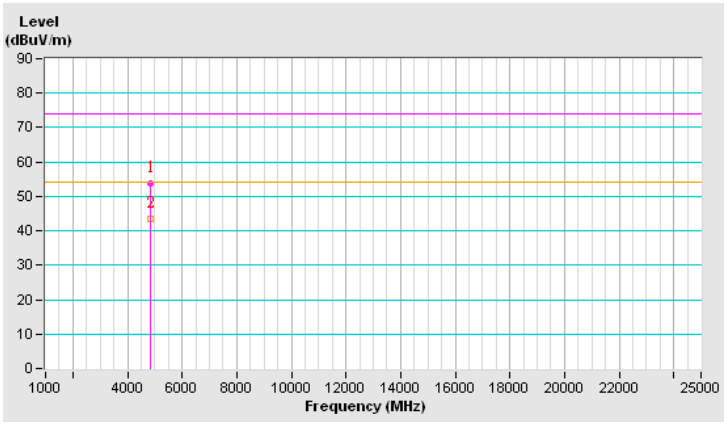


CHANNEL	TX Channel 1	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4824.00	53.7 PK	74.0	-20.3	1.76 V	58	47.73	5.97
2	4824.00	43.6 AV	54.0	-10.4	1.76 V	58	37.63	5.97

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

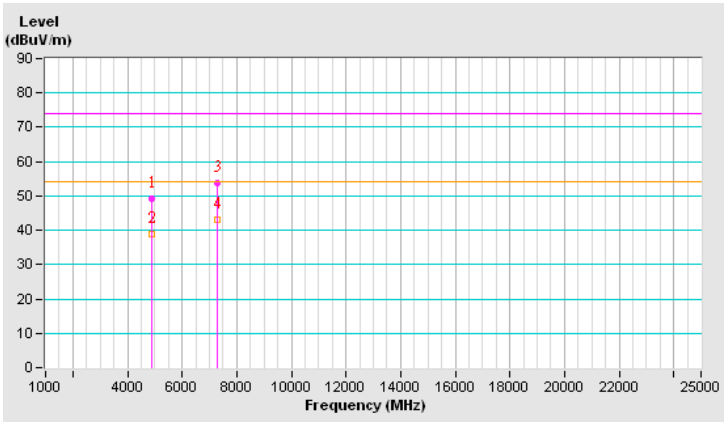


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4874.00	49.1 PK	74.0	-24.9	1.91 H	151	43.05	6.05
2	4874.00	38.8 AV	54.0	-15.2	1.91 H	151	32.75	6.05
3	7311.00	53.8 PK	74.0	-20.2	1.58 H	138	42.86	10.94
4	7311.00	43.1 AV	54.0	-10.9	1.58 H	138	32.16	10.94

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

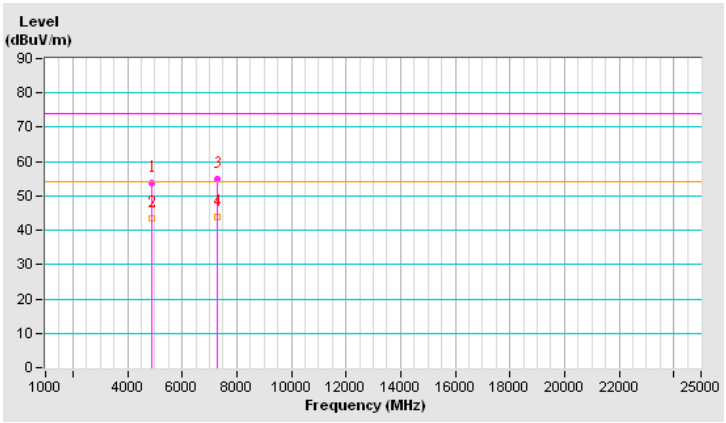


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4874.00	53.6 PK	74.0	-20.4	1.78 V	71	47.55	6.05
2	4874.00	43.3 AV	54.0	-10.7	1.78 V	71	37.25	6.05
3	7311.00	54.9 PK	74.0	-19.1	1.15 V	65	43.96	10.94
4	7311.00	44.0 AV	54.0	-10.0	1.15 V	65	33.06	10.94

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

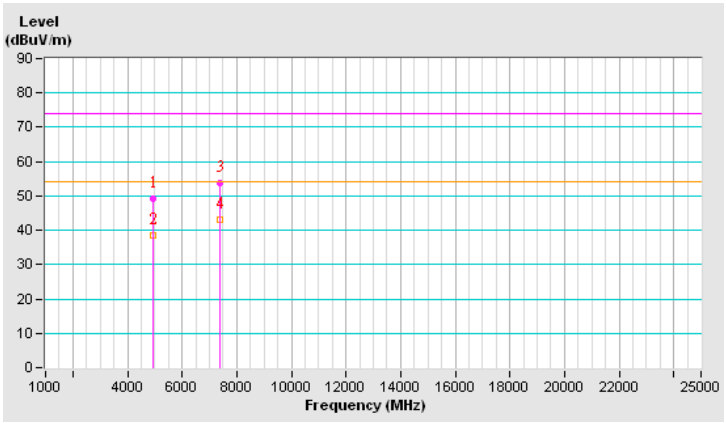


CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4924.00	49.2 PK	74.0	-24.8	1.96 H	147	43.13	6.07
2	4924.00	38.6 AV	54.0	-15.4	1.96 H	147	32.53	6.07
3	7386.00	53.9 PK	74.0	-20.1	1.55 H	149	42.48	11.42
4	7386.00	43.2 AV	54.0	-10.8	1.55 H	149	31.78	11.42

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

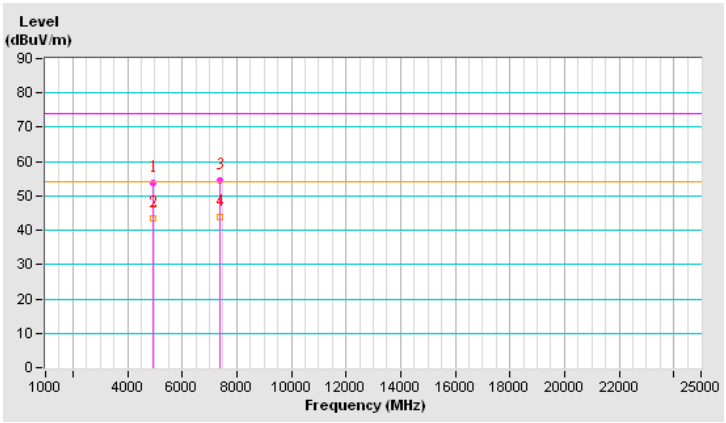


CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4924.00	53.9 PK	74.0	-20.1	1.77 V	64	47.83	6.07
2	4924.00	43.5 AV	54.0	-10.5	1.77 V	64	37.43	6.07
3	7386.00	54.4 PK	74.0	-19.6	1.23 V	84	42.98	11.42
4	7386.00	43.7 AV	54.0	-10.3	1.23 V	84	32.28	11.42

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

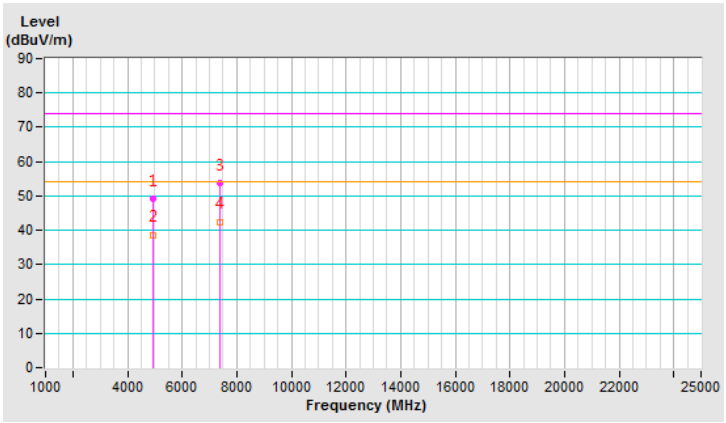


CHANNEL	TX Channel 12	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4934.00	49.1 PK	74.0	-24.9	1.81 H	147	41.59	7.51
2	4934.00	38.7 AV	54.0	-15.3	1.81 H	147	31.19	7.51
3	7401.00	53.9 PK	74.0	-20.1	1.52 H	113	39.37	14.53
4	7401.00	42.5 AV	54.0	-11.5	1.52 H	113	27.97	14.53

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

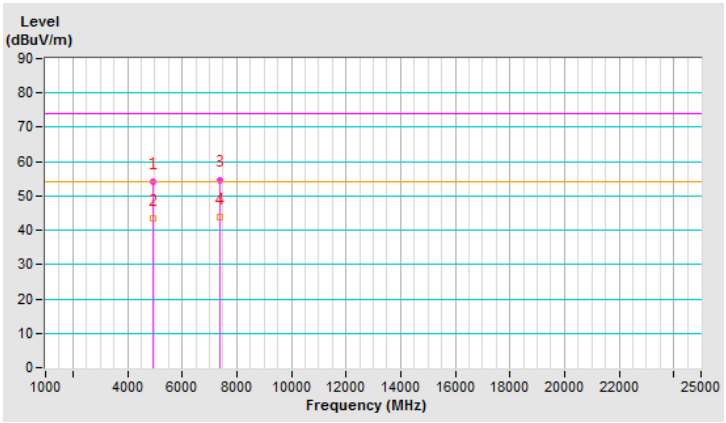


CHANNEL	TX Channel 12	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4934.00	54.1 PK	74.0	-19.9	1.90 V	92	46.59	7.51
2	4934.00	43.6 AV	54.0	-10.4	1.90 V	92	36.09	7.51
3	7401.00	54.7 PK	74.0	-19.3	1.11 V	56	40.17	14.53
4	7401.00	43.8 AV	54.0	-10.2	1.11 V	56	29.27	14.53

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

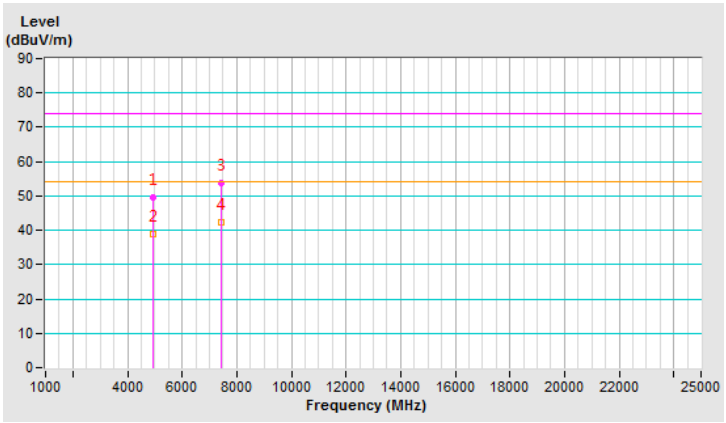


CHANNEL	TX Channel 13	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4944.00	49.5 PK	74.0	-24.5	1.86 H	141	41.94	7.56
2	4944.00	39.0 AV	54.0	-15.0	1.86 H	141	31.44	7.56
3	7416.00	53.7 PK	74.0	-20.3	1.55 H	107	39.18	14.52
4	7416.00	42.2 AV	54.0	-11.8	1.55 H	107	27.68	14.52

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

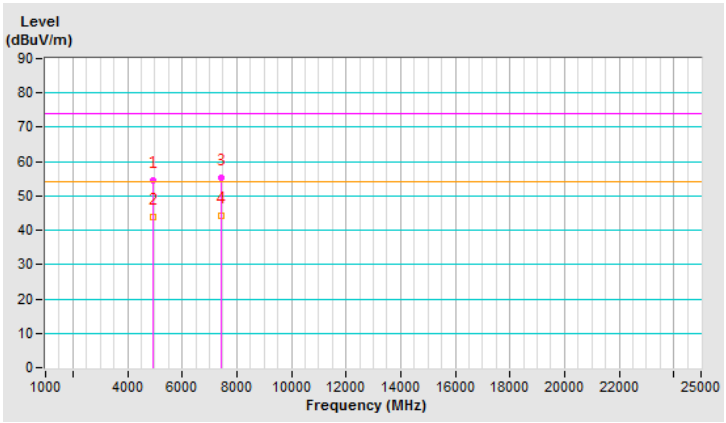


CHANNEL	TX Channel 13	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4944.00	54.6 PK	74.0	-19.4	1.84 V	88	47.04	7.56
2	4944.00	43.9 AV	54.0	-10.1	1.84 V	88	36.34	7.56
3	7416.00	55.2 PK	74.0	-18.8	1.05 V	52	40.68	14.52
4	7416.00	44.3 AV	54.0	-9.7	1.05 V	52	29.78	14.52

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value



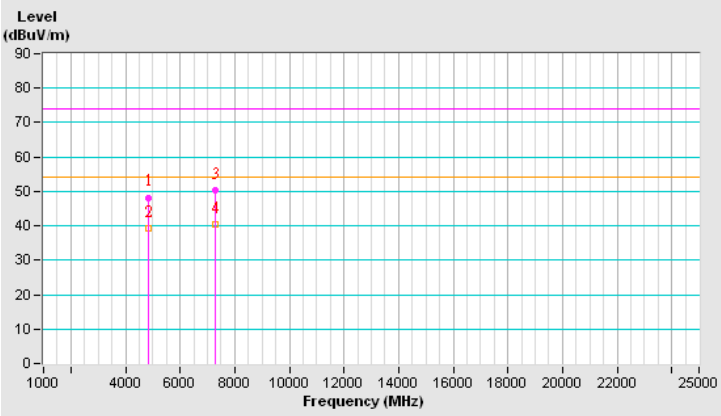
VHT40

CHANNEL	TX Channel 3	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4844.00	48.2 PK	74.0	-25.8	1.97 H	159	42.21	5.99
2	4844.00	39.4 AV	54.0	-14.6	1.97 H	159	33.41	5.99
3	7266.00	50.4 PK	74.0	-23.6	1.55 H	141	39.51	10.89
4	7266.00	40.3 AV	54.0	-13.7	1.55 H	141	29.41	10.89

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

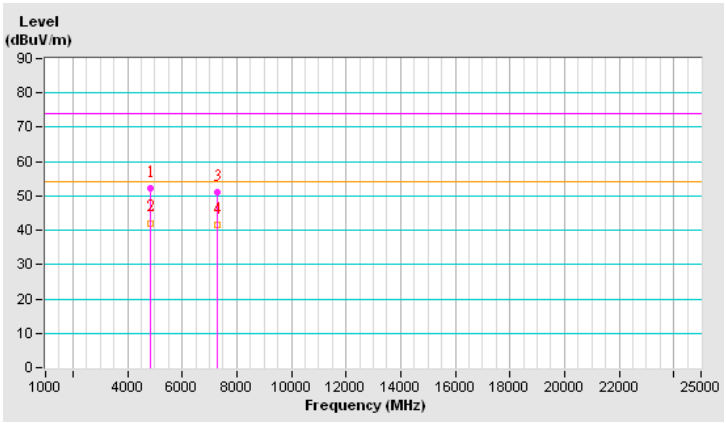


CHANNEL	TX Channel 3	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4844.00	52.2 PK	74.0	-21.8	1.78 V	51	46.21	5.99
2	4844.00	42.1 AV	54.0	-11.9	1.78 V	51	36.11	5.99
3	7266.00	51.1 PK	74.0	-22.9	1.21 V	89	40.21	10.89
4	7266.00	41.4 AV	54.0	-12.6	1.21 V	89	30.51	10.89

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

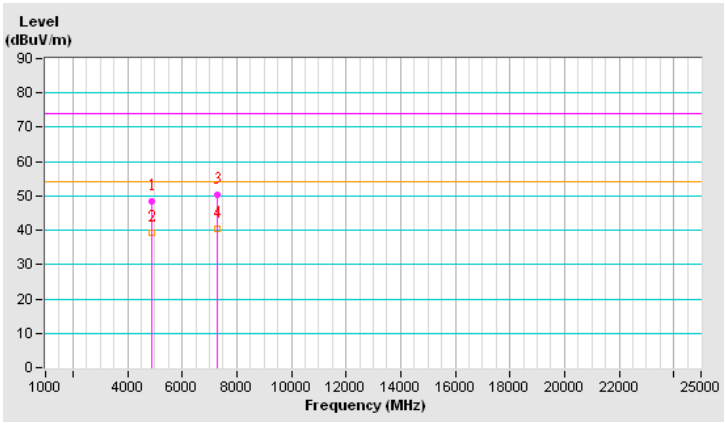


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4874.00	48.5 PK	74.0	-25.5	2.01 H	156	42.45	6.05
2	4874.00	39.4 AV	54.0	-14.6	2.01 H	156	33.35	6.05
3	7311.00	50.3 PK	74.0	-23.7	1.60 H	125	39.36	10.94
4	7311.00	40.4 AV	54.0	-13.6	1.60 H	125	29.46	10.94

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

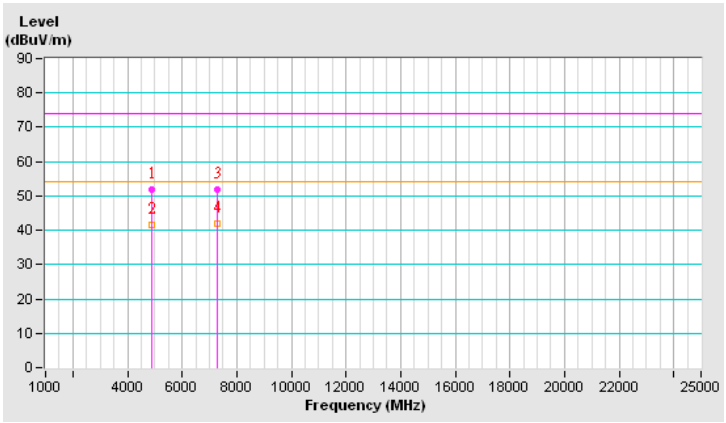


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4874.00	51.9 PK	74.0	-22.1	1.83 V	40	45.85	6.05
2	4874.00	41.6 AV	54.0	-12.4	1.83 V	40	35.55	6.05
3	7311.00	51.8 PK	74.0	-22.2	1.19 V	77	40.86	10.94
4	7311.00	41.9 AV	54.0	-12.1	1.19 V	77	30.96	10.94

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

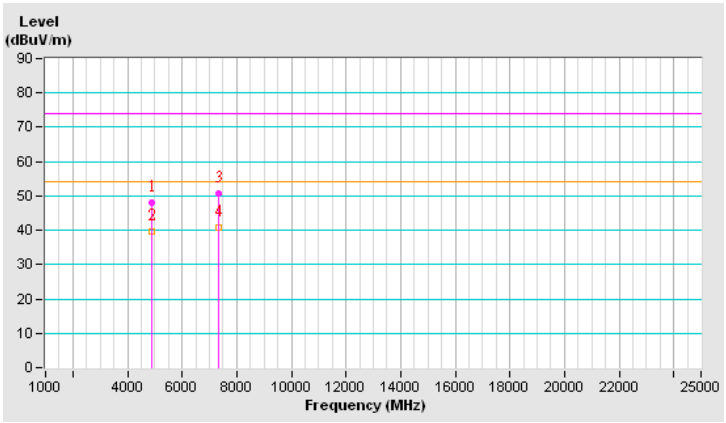


CHANNEL	TX Channel 9	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4904.00	48.1 PK	74.0	-25.9	1.96 H	152	42.02	6.08
2	4904.00	39.5 AV	54.0	-14.5	1.96 H	152	33.42	6.08
3	7356.00	50.8 PK	74.0	-23.2	1.54 H	151	39.58	11.22
4	7356.00	40.8 AV	54.0	-13.2	1.54 H	151	29.58	11.22

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

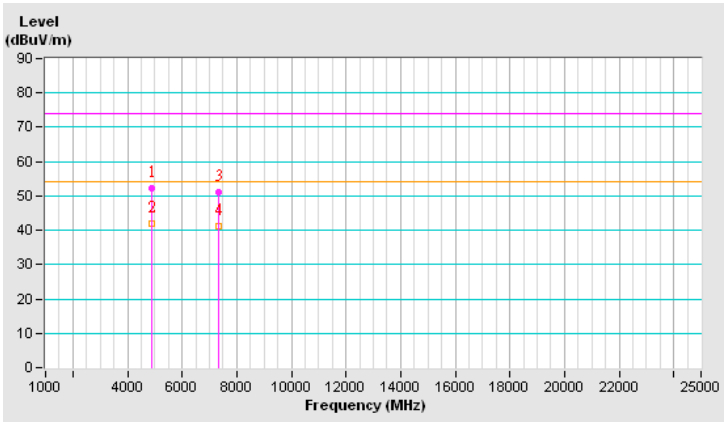


CHANNEL	TX Channel 9	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4904.00	52.1 PK	74.0	-21.9	1.73 V	48	46.02	6.08
2	4904.00	41.9 AV	54.0	-12.1	1.73 V	48	35.82	6.08
3	7356.00	51.0 PK	74.0	-23.0	1.20 V	95	39.78	11.22
4	7356.00	41.2 AV	54.0	-12.8	1.20 V	95	29.98	11.22

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

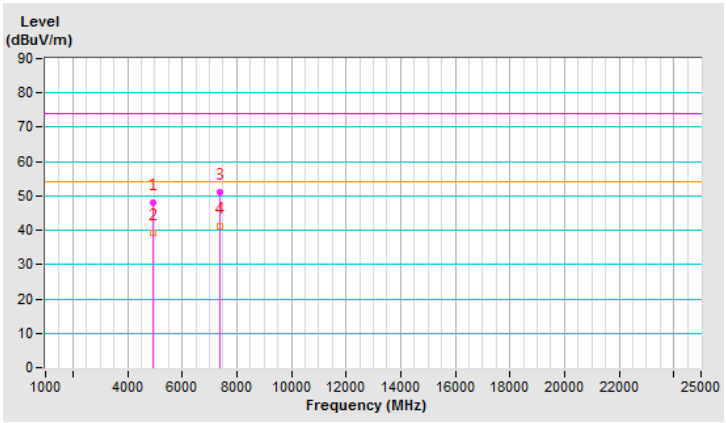


CHANNEL	TX Channel 10	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4914.00	47.9 PK	74.0	-26.1	1.98 H	148	40.49	7.41
2	4914.00	39.3 AV	54.0	-14.7	1.98 H	148	31.89	7.41
3	7371.00	51.1 PK	74.0	-22.9	1.50 H	135	36.59	14.51
4	7371.00	41.3 AV	54.0	-12.7	1.50 H	135	26.79	14.51

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

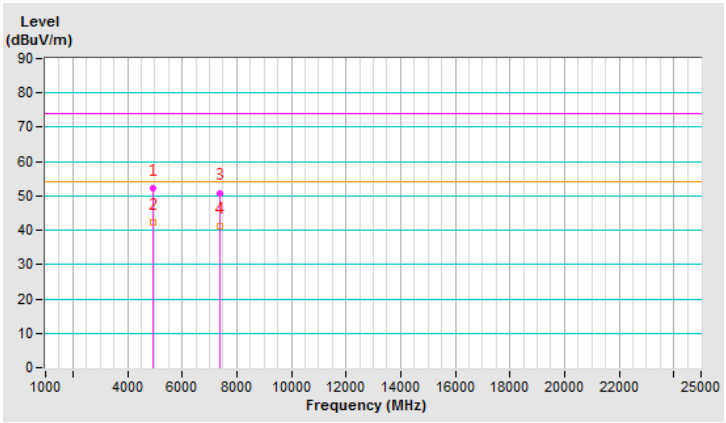


CHANNEL	TX Channel 10	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4914.00	52.3 PK	74.0	-21.7	1.74 V	45	44.89	7.41
2	4914.00	42.4 AV	54.0	-11.6	1.74 V	45	34.99	7.41
3	7371.00	50.9 PK	74.0	-23.1	1.21 V	81	36.39	14.51
4	7371.00	41.2 AV	54.0	-12.8	1.21 V	81	26.69	14.51

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

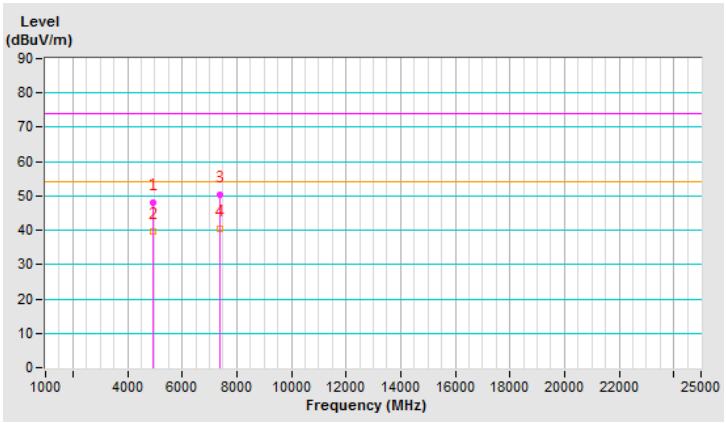


CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4924.00	47.9 PK	74.0	-26.1	1.94 H	150	40.45	7.45
2	4924.00	39.5 AV	54.0	-14.5	1.94 H	150	32.05	7.45
3	7386.00	50.4 PK	74.0	-23.6	1.48 H	142	35.88	14.52
4	7386.00	40.4 AV	54.0	-13.6	1.48 H	142	25.88	14.52

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

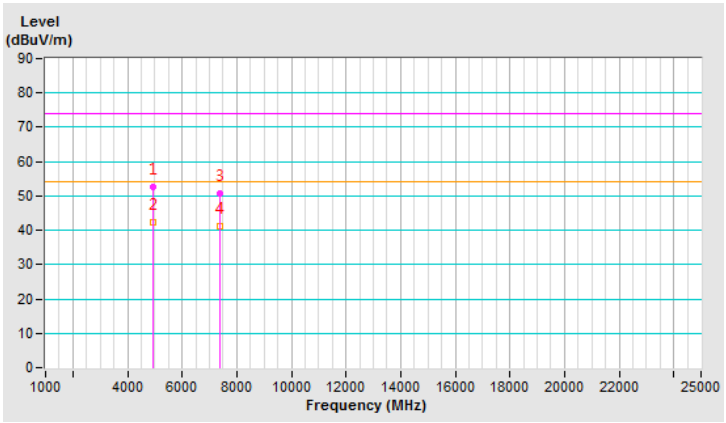


CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4924.00	52.7 PK	74.0	-21.3	1.76 V	45	45.25	7.45
2	4924.00	42.2 AV	54.0	-11.8	1.76 V	45	34.75	7.45
3	7386.00	50.7 PK	74.0	-23.3	1.21 V	87	36.18	14.52
4	7386.00	41.1 AV	54.0	-12.9	1.21 V	87	26.58	14.52

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value



Below 1GHz Data:

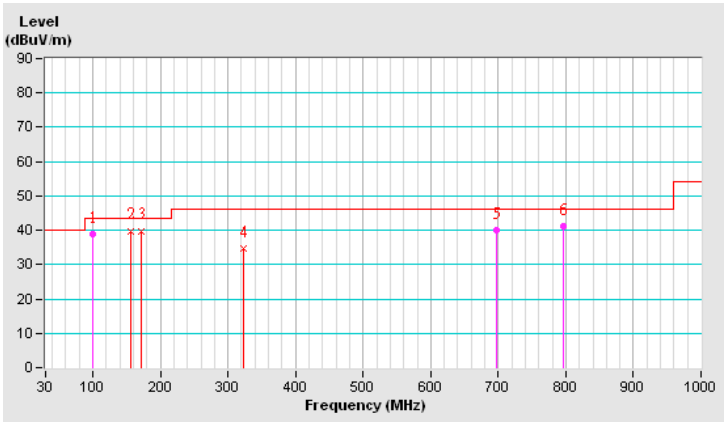
VHT20

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	Below 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	99.94	38.8 QP	43.5	-4.7	2.00 H	0	56.06	-17.25
2	156.67	39.8 QP	43.5	-3.7	1.52 H	307	52.79	-12.95
3	171.02	39.8 QP	43.5	-3.7	2.00 H	47	53.36	-13.54
4	323.23	34.7 QP	46.0	-11.3	1.00 H	237	45.66	-10.97
5	697.07	40.0 QP	46.0	-6.0	1.50 H	360	43.41	-3.39
6	796.59	41.2 QP	46.0	-4.9	1.00 H	163	42.66	-1.51

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

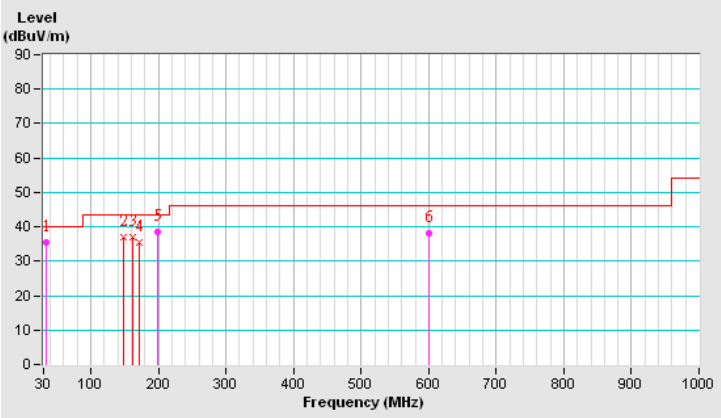


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	Below 1GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	34.27	35.5 QP	40.0	-4.5	1.00 V	281	49.88	-14.35
2	149.11	36.9 QP	43.5	-6.6	1.51 V	160	49.75	-12.81
3	162.51	36.8 QP	43.5	-6.7	1.74 V	131	49.83	-12.99
4	171.43	35.4 QP	43.5	-8.1	2.01 V	169	48.96	-13.58
5	199.17	38.3 QP	43.5	-5.2	2.00 V	308	54.33	-16.00
6	599.44	38.3 QP	46.0	-7.8	1.50 V	260	42.96	-4.71

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value



4.5.8 Test Results (Conducted Measurement)

Radiated versus Conducted Measurement	
☒ Conducted measurement	☐ Radiated measurement

For Radiated measurement:

The level of unwanted emissions was measured when radiated by the cabinet or structure of the equipment with the antenna connector(s) terminated by a specified load (cabinet radiation)

For Conducted measurement:

The level of unwanted emissions was measured as their power in a specified load (conducted spurious emissions).

Conducted Measurement Factor

a. The composite gain will be used when signal support the correlated signal.
(Composite gain = 3.62dBi + 10log(2) = 6.63dBi)
b. For the out of band spurious the gain for the specific band may have been used rather than the highest gain across all bands.
c. For the band edge the gain for the specific band may have been used.
d. In restricted bands below 1000 MHz, add upper bound on ground plane reflection:

For f = 30 – 1000 MHz, add 4.7 dB.

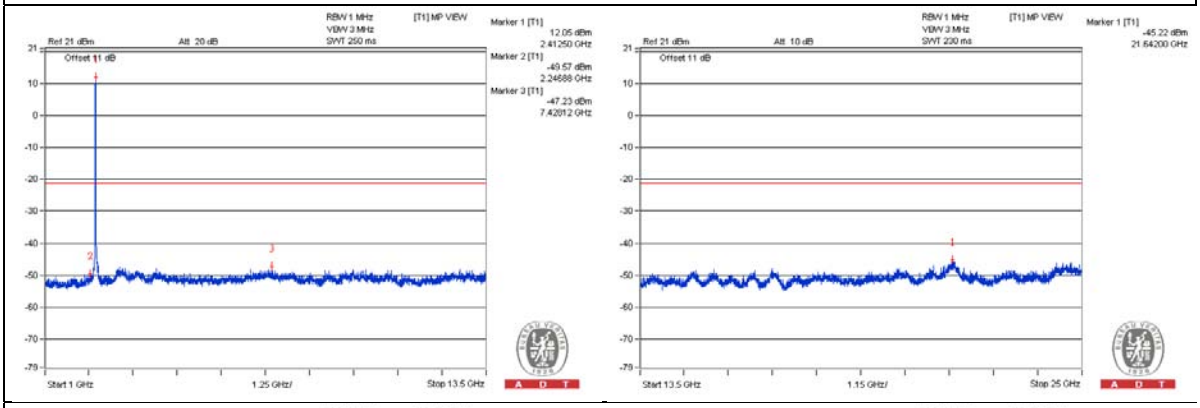
Note: The conducted emission test was considered some factor to compute test result.

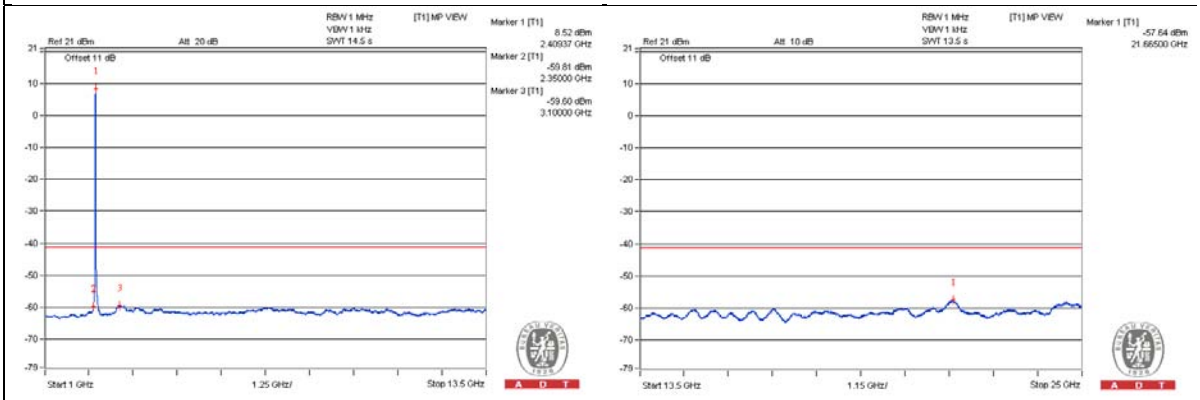
Above 1GHz Data
802.11b - Channel 1
Conducted spurious emission table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)		Correction Factor (dB)	EIRP Level (dBm)
					Chain0	Chain1		
1	1606.25 PK	52.58	74	-21.42	-53.43	-51.43	6.63	-42.68
2	1609.375 AV	41.78	54	-12.22	-63.2	-63.05	6.63	-53.48
3	4828.125 PK	53.94	74	-20.06	-50.68	-51.25	6.63	-41.32
4	4825 AV	43.38	54	-10.62	-61.66	-61.39	6.63	-51.88

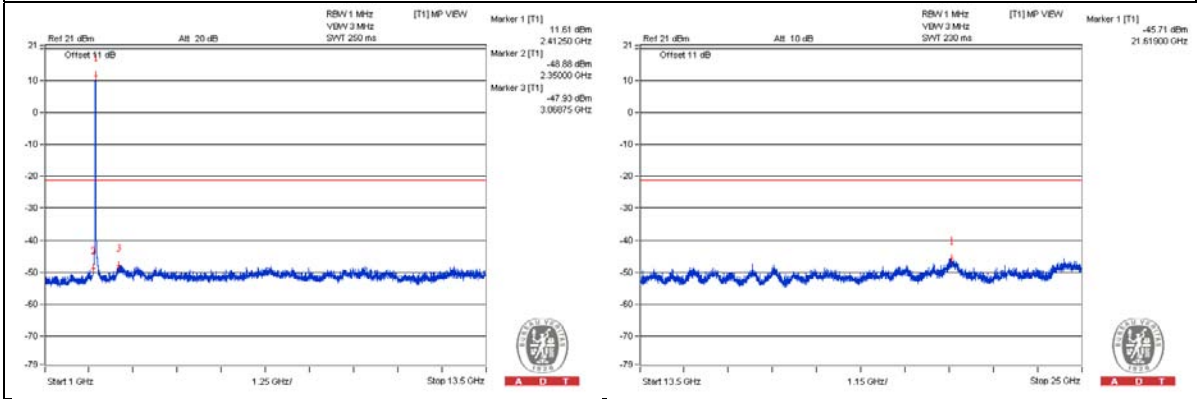
Note :
Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8
d = measurement distance in 3 meters.

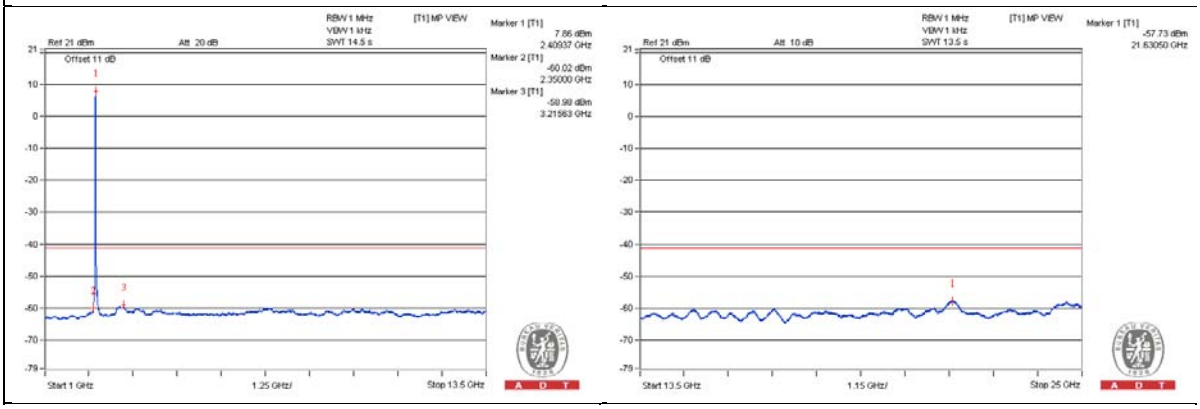
Chain 0





Chain 1



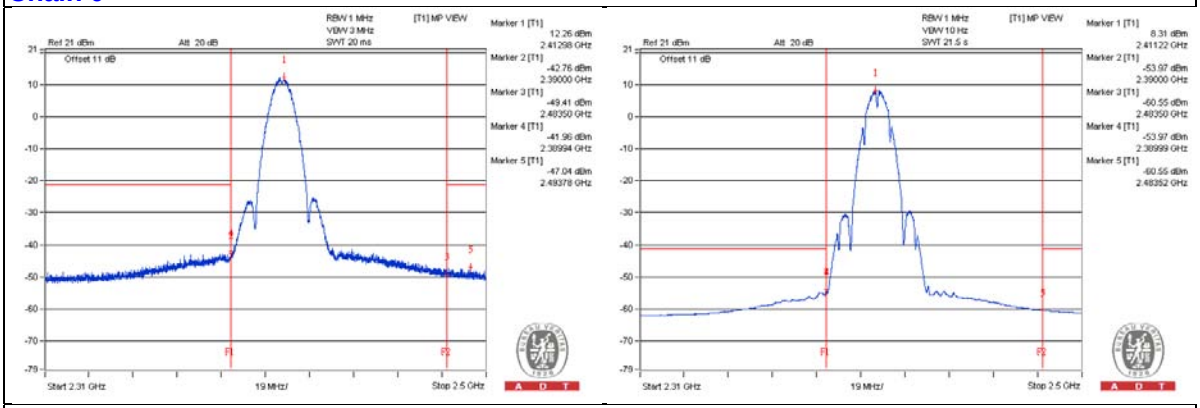


Bandedge table

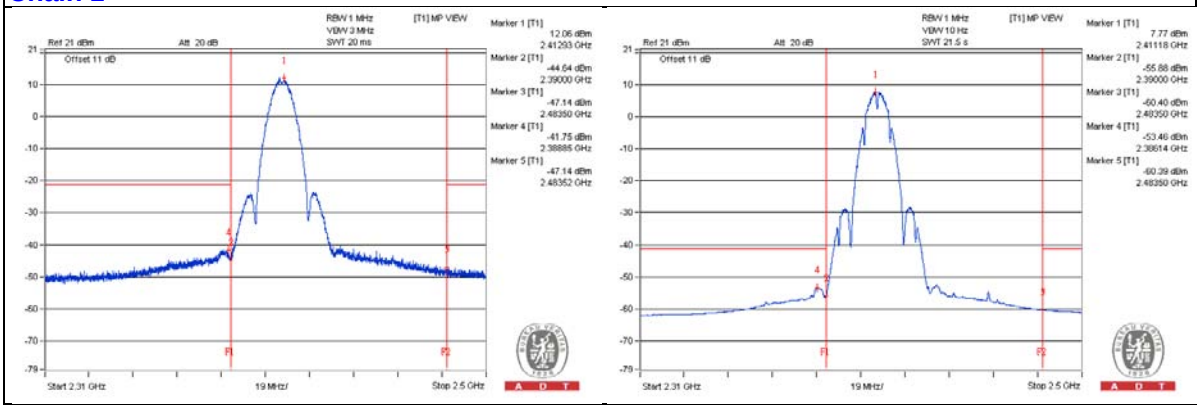
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)		Correction Factor (dB)	EIRP Level (dBm)
					Chain0	Chain1		
1	2385.43 PK	62.37	74	-11.63	-42.82	-42.26	6.63	-32.89
2	2387.14 AV	50.68	54	-3.32	-54.94	-53.61	6.63	-44.58
3	2489.6925 PK	56.88	74	-17.12	-47.91	-48.14	6.63	-38.38
4	2483.5175 AV	44.43	54	-9.57	-60.55	-60.4	6.63	-50.83

Note :
Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8
d = measurement distance in 3 meters.

Chain 0



Chain 1



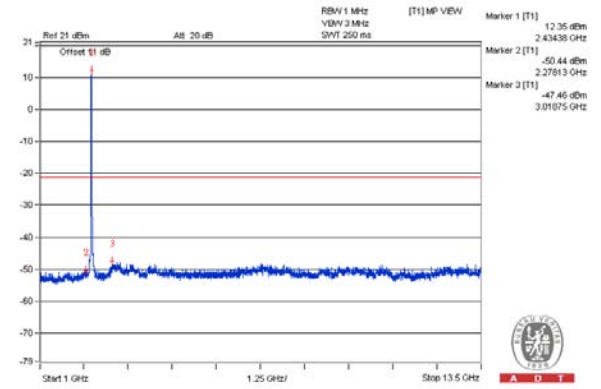
802.11b - Channel 6

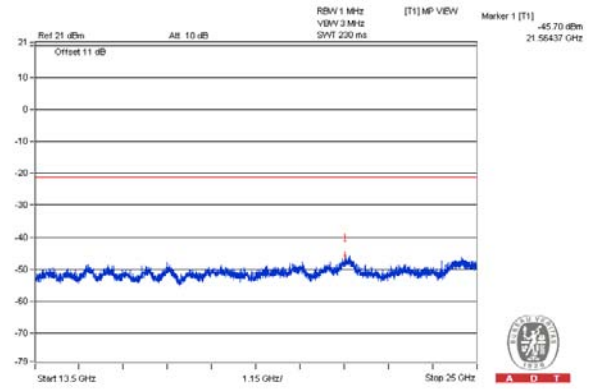
Conducted spurious emission table

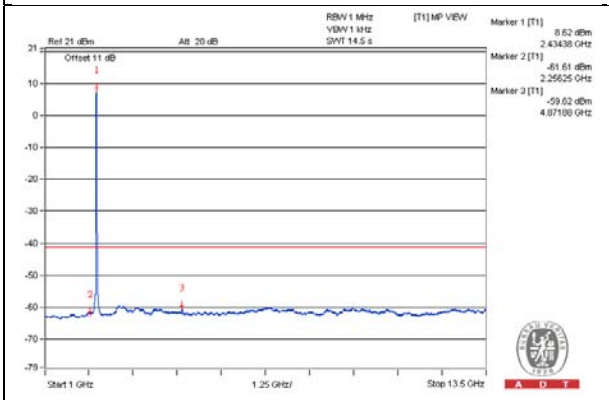
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)		Correction Factor (dB)	EIRP Level (dBm)
					Chain0	Chain1		
1	1625 PK	52.04	74	-21.96	-53.79	-52.09	6.63	-43.22
2	1625 AV	41.65	54	-12.35	-63.25	-63.26	6.63	-53.61
3	4875 PK	53.51	74	-20.49	-51.19	-51.59	6.63	-41.75
4	4875 AV	44.27	54	-9.73	-59.67	-61.86	6.63	-50.99
5	7312.5 PK	55.84	74	-18.16	-48.78	-49.35	6.63	-39.42
6	7312.5 AV	44.57	54	-9.43	-60.19	-60.48	6.63	-50.69

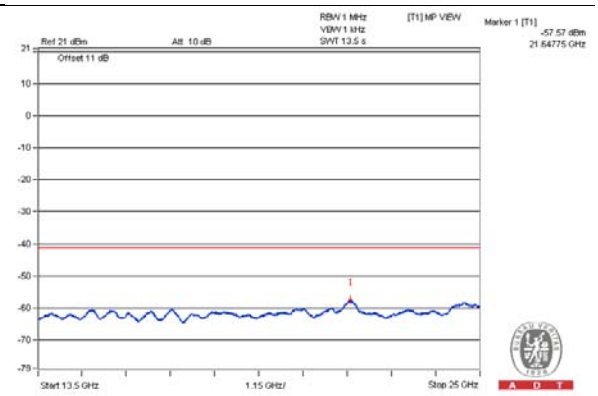
Note :
Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8
d = measurement distance in 3 meters.

Chain 0

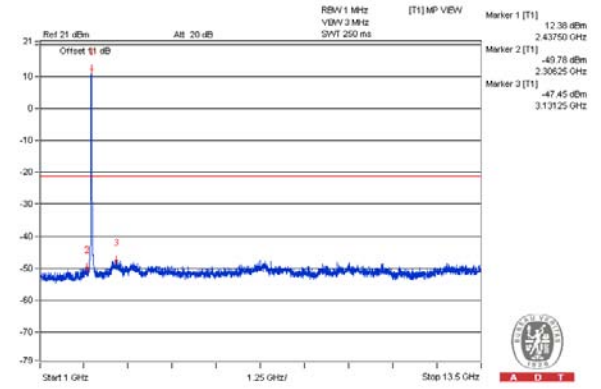


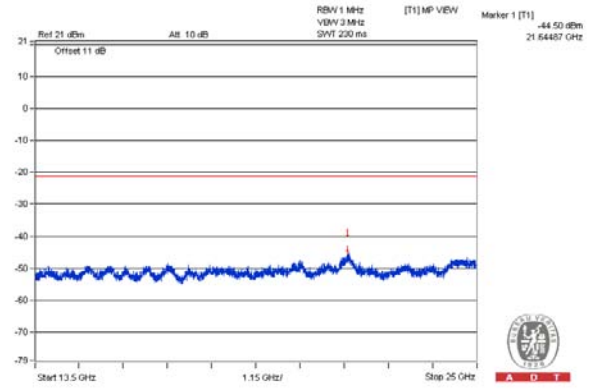


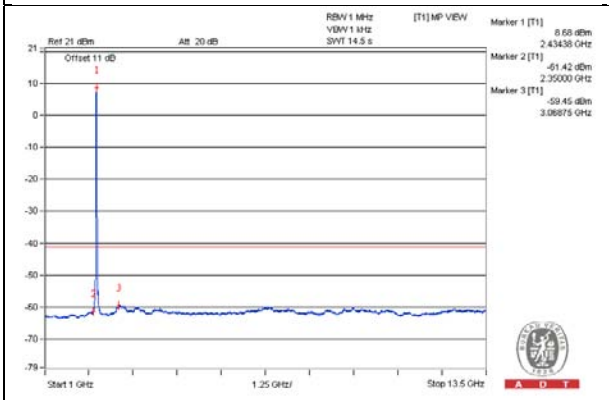


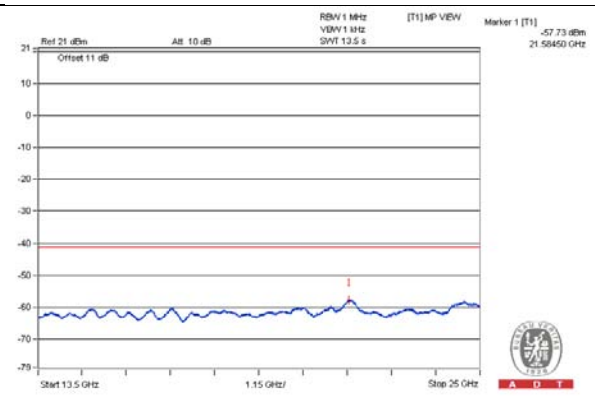


Chain 1







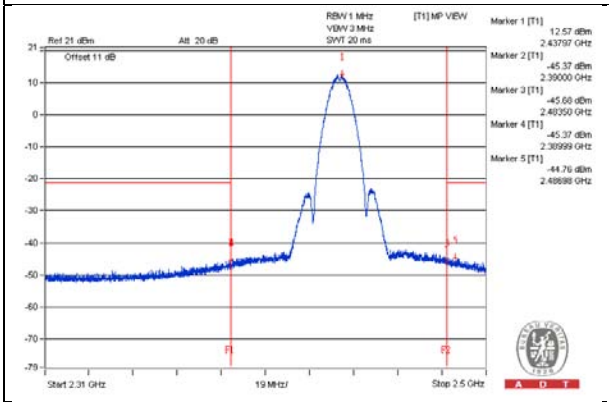


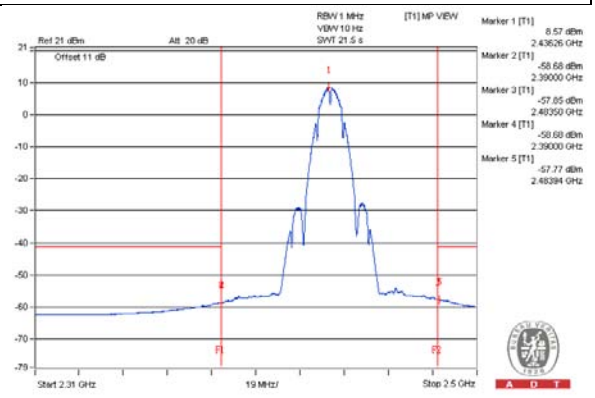
Bandedge table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)		Correction Factor (dB)	EIRP Level (dBm)
					Chain0	Chain1		
1	2389.895 PK	59.44	74	-14.56	-47	-44.33	6.63	-35.82
2	2388.9925 AV	46.46	54	-7.54	-58.85	-58.07	6.63	-48.8
3	2485.085 PK	60.28	74	-13.72	-45.93	-43.62	6.63	-34.98
4	2485.0375 AV	48.55	54	-5.45	-58.03	-55.14	6.63	-46.71

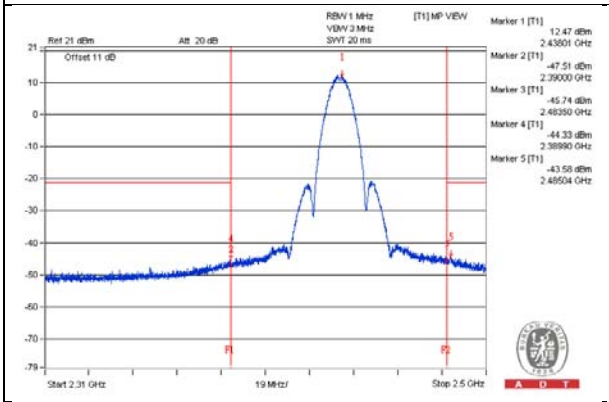
Note :
Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8
d = measurement distance in 3 meters.

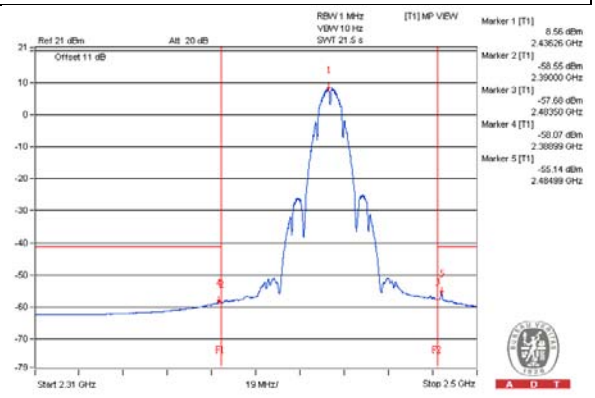
Chain 0





Chain 1





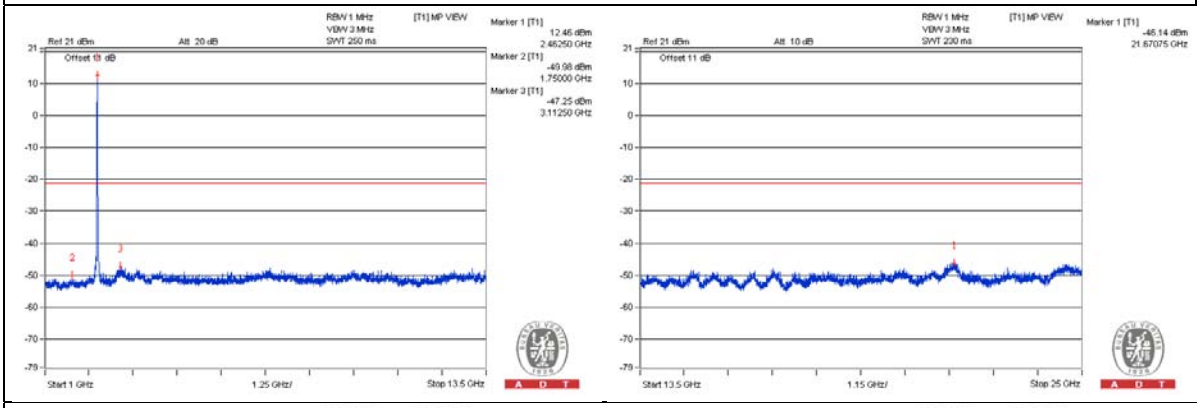
802.11b - Channel 11

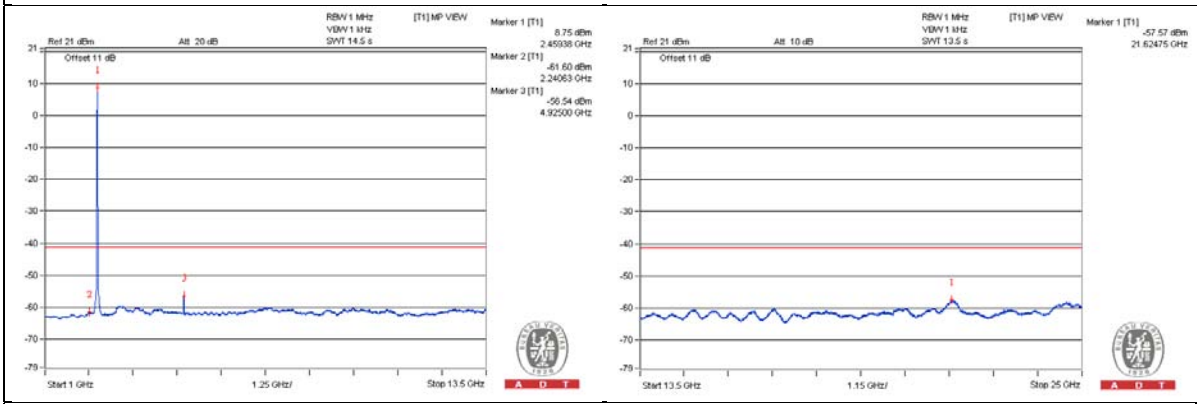
Conducted spurious emission table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)		Correction Factor (dB)	EIRP Level (dBm)
					Chain0	Chain1		
1	4925 PK	54.75	74	-19.25	-49.19	-51.38	6.63	-40.51
2	4921.875 AV	46.44	54	-7.56	-56.56	-61.94	6.63	-48.82
3	7384.375 PK	55.18	74	-18.82	-49.84	-49.61	6.63	-40.08
4	7387.5 AV	44.73	54	-9.27	-59.98	-60.37	6.63	-50.53

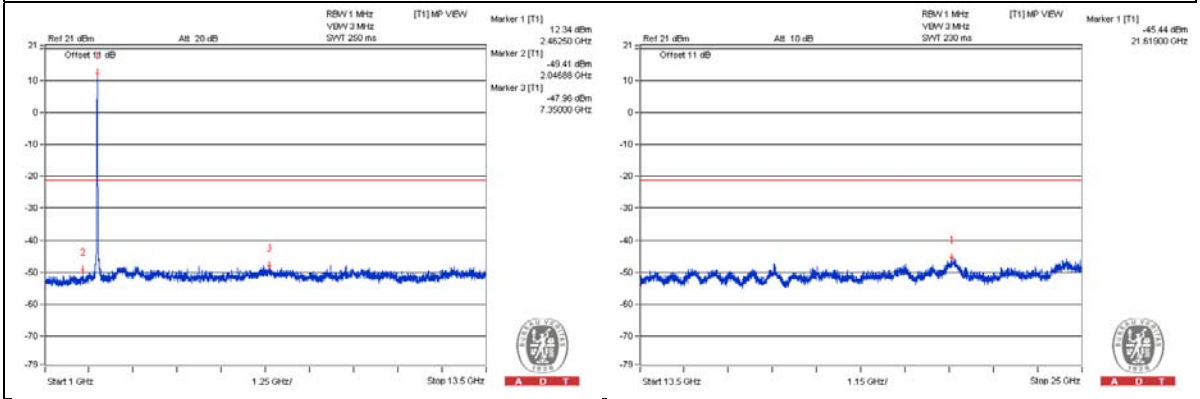
Note :
Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8
d = measurement distance in 3 meters.

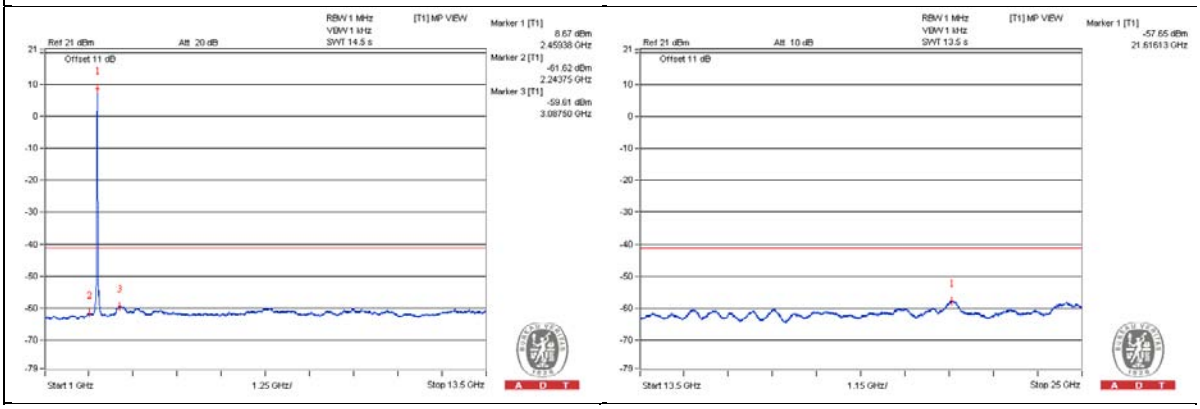
Chain 0





Chain 1



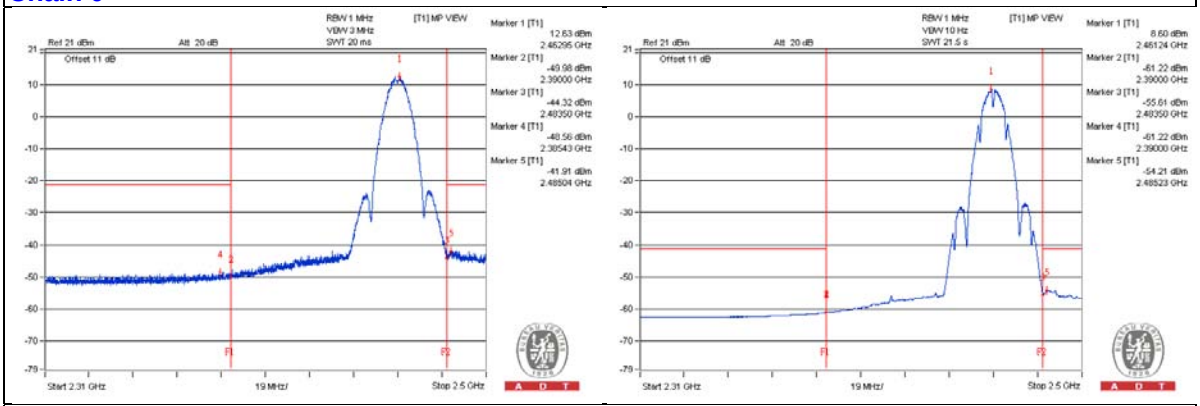


Bandedge table

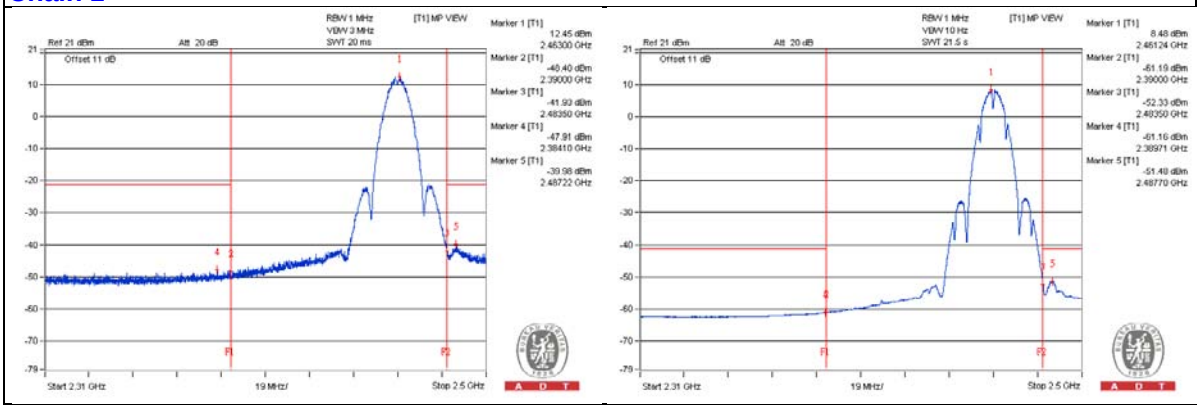
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)		Correction Factor (dB)	EIRP Level (dBm)
					Chain0	Chain1		
1	2388.945 PK	56.16	74	-17.84	-49.4	-48.16	6.63	-39.1
2	2389.705 AV	43.71	54	-10.29	-61.22	-61.16	6.63	-51.55
3	2487.5075 PK	63.99	74	-10.01	-41.91	-40.1	6.63	-31.27
4	2487.6975 AV	52.05	54	-1.95	-54.86	-51.48	6.63	-43.21

Note :
Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8
d = measurement distance in 3 meters.

Chain 0



Chain 1



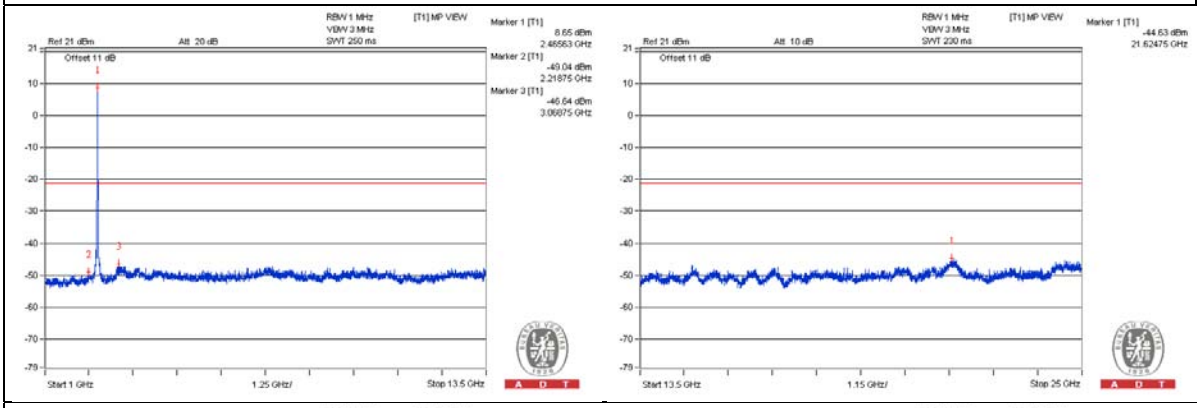
802.11b - Channel 12

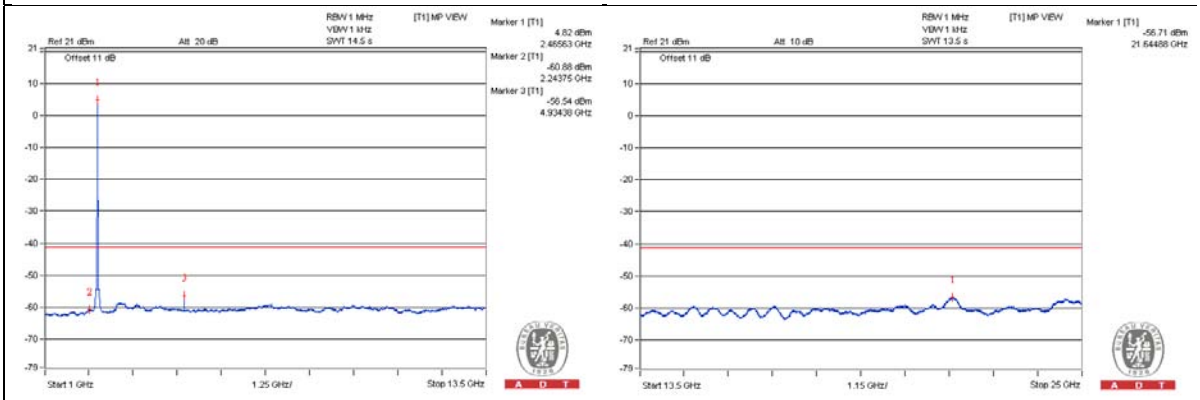
Conducted spurious emission table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)		Correction Factor (dB)	EIRP Level (dBm)
					Chain0	Chain1		
1	4934.375 PK	54.58	74	-19.42	-49.37	-51.53	6.63	-40.68
2	4934.375 AV	46.64	54	-7.36	-56.54	-61.15	6.63	-48.62
3	7396.875 PK	56.76	74	-17.24	-48.57	-47.75	6.63	-38.5
4	7403.125 AV	45.19	54	-8.81	-59.92	-59.51	6.63	-50.07

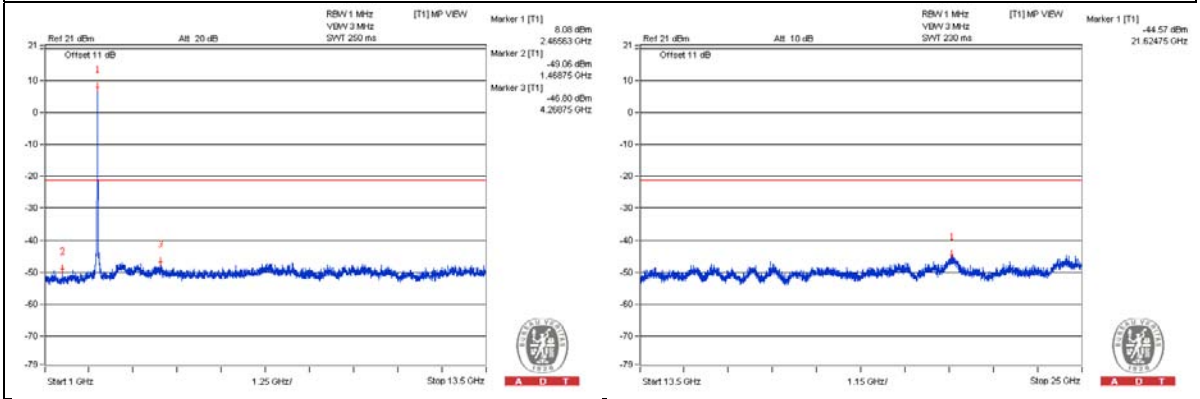
Note :
Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8
d = measurement distance in 3 meters.

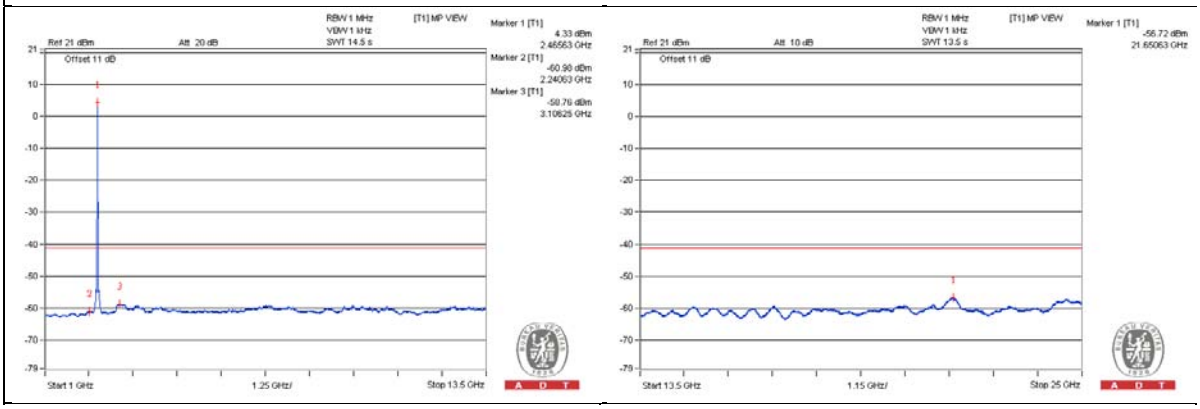
Chain 0





Chain 1



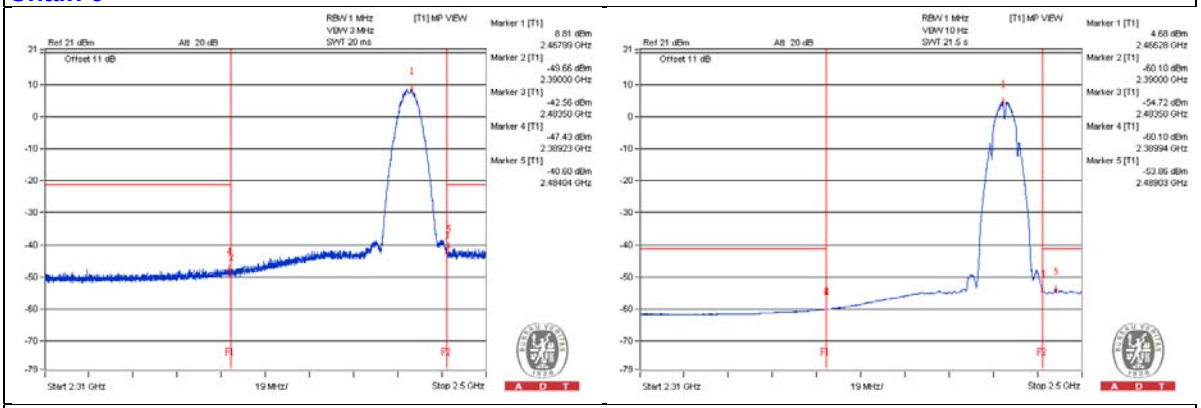


Bandedge table

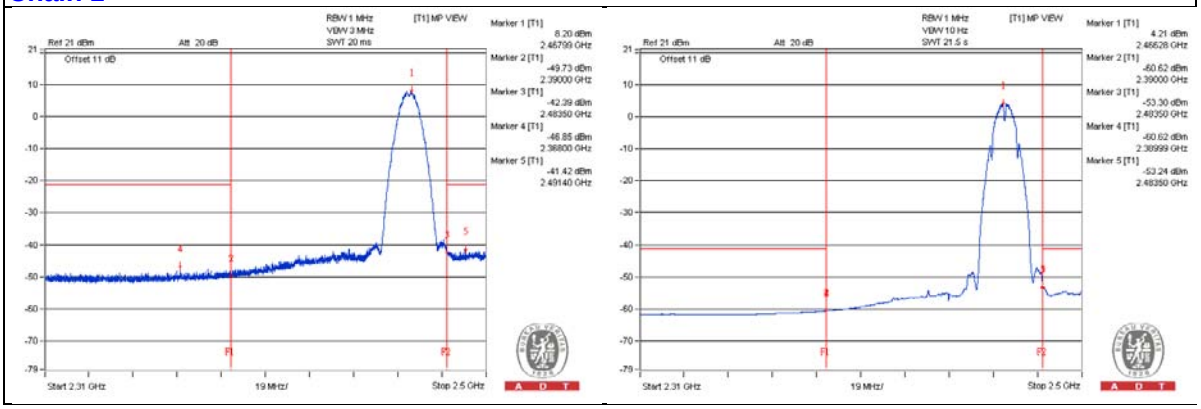
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)		Correction Factor (dB)	EIRP Level (dBm)
					Chain0	Chain1		
1	2389.515 PK	56.81	74	-17.19	-47.96	-48.23	6.63	-38.45
2	2389.99 AV	44.55	54	-9.45	-60.1	-60.62	6.63	-50.71
3	2497.245 PK	63.31	74	-10.69	-41.29	-41.91	6.63	-31.95
4	2483.5175 AV	50.95	54	-3.05	-54.72	-53.3	6.63	-44.31

Note :
Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8
d = measurement distance in 3 meters.

Chain 0



Chain 1



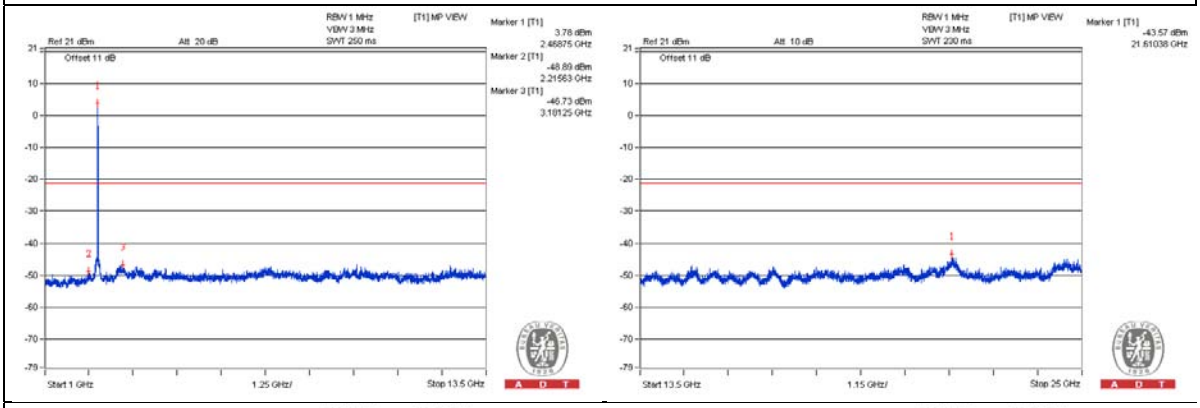
802.11b - Channel 13

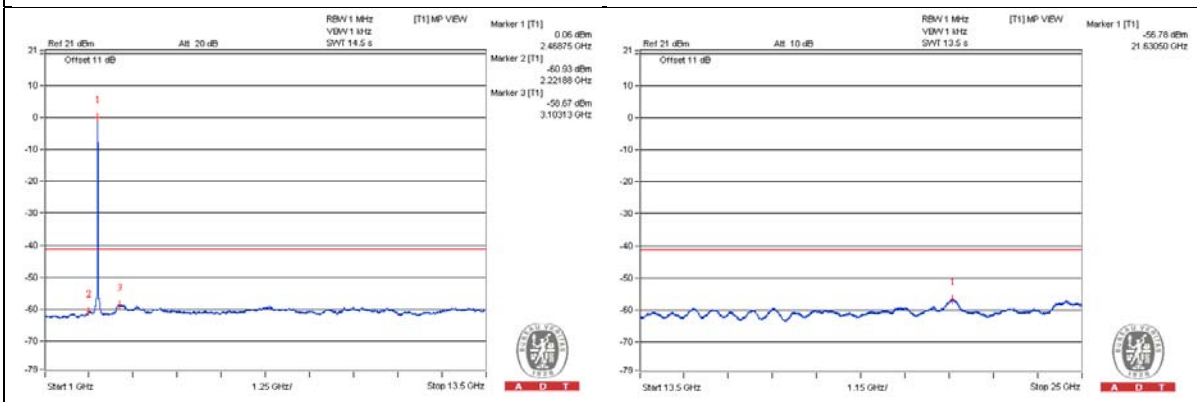
Conducted spurious emission table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)		Correction Factor (dB)	EIRP Level (dBm)
					Chain0	Chain1		
1	4940.625 PK	54.48	74	-19.52	-49.92	-50.98	6.63	-40.78
2	4943.75 AV	43.77	54	-10.23	-60.92	-61.35	6.63	-51.49
3	7415.625 PK	56.42	74	-17.58	-49.21	-47.85	6.63	-38.84
4	7418.75 AV	45.57	54	-8.43	-59.34	-59.32	6.63	-49.69

Note :
Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8
d = measurement distance in 3 meters.

Chain 0





Chain 1