

FCC Test Report (WLAN)

Report No.: RF140808E04S

FCC ID: RYK-261ACNBT

Test Model: WNSQ-261ACN(BT)

Series Model: WPEQ-261ACN(BT)

Received Date: Aug. 08, 2014

Test Date: Oct. 07, 2014 ; May 08 to 13, 2015

Issued Date: Sep. 18, 2017

Applicant: SparkLAN Communications, Inc.

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
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Release Control Record

Issue No.	Description	Date Issued
RF140808E04S	Original release.	Sep. 18, 2017

1 Certificate of Conformity

Product: 802.11ac/b/g/n Wi-Fi+BT Module

Brand: Sparklan

Test Model: WNSQ-261ACN(BT)

Series Model: WPEQ-261ACN(BT)

Sample Status: R&D SAMPLE

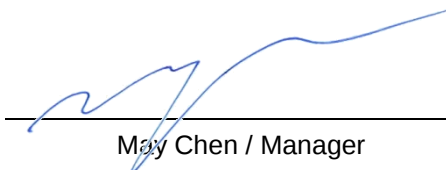
Applicant: SparkLAN Communications, Inc.

Test Date: Oct. 07, 2014 ; May 08 to 13, 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:** Sep. 18, 2017
Claire Kuan / Specialist

Approved by :  , **Date:** Sep. 18, 2017
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 -8.38dB at 0.19687MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	PASS	Meet the requirement of limit. Minimum passing margin is -0.7dB at 7386.00MHz
15.247(d)	Band Edge Measurement	PASS	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	PASS	Meet the requirement of limit.
15.247(b)	Conducted Output 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.

NOTE: 1. For WLAN: The EUT was operating in 2.4 ~ 2.4835GHz, 5.15~5.35GHz, 5.47~5.725GHz and 5.725~5.850GHz frequencies band. This report was recorded the RF parameters including 2.4 ~ 2.4835GHz. For the 5.15~5.35GHz, 5.47~5.725GHz and 5.725~5.850GHz RF parameters was recorded in another test report.

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	Expanded Uncertainty (k=2) ($\pm$)
Conducted Emissions at mains ports	150kHz ~ 30MHz	2.86 dB
Radiated Emissions up to 1 GHz	30MHz ~ 1GHz	5.37 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	802.11ac/b/g/n Wi-Fi+BT Module
Brand	Sparklan
Test Model	WNSQ-261ACN(BT)
Series Model	WPEQ-261ACN(BT)
Status of EUT	R&D SAMPLE
Power Supply Rating	3.3Vdc form 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, 5.5~5.72GHz, 5.745 ~ 5.825GHz For 15.247 2.412 ~ 2.472GHz
Number of Channel	For 15.407 25 for 802.11a, 802.11n (HT20), VHT20 12 for 802.11n (HT40), 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: 77.033mW 802.11ac (VHT20): 63.586mW 802.11ac (VHT40): 47.366mW 802.11ac (VHT80): 43.894mW For 15.247 802.11b: 241.545mW 802.11g: 460.432mW VHT20: 469.401mW VHT40: 204.747mW
Antenna Type	See item 3.2
Antenna Connector	See item 3.2
Accessory Device	NA
Data Cable Supplied	NA

Note:

1. All models are listed as below.

Brand	Model	Difference
Sparklan	WNSQ-261ACN(BT)	LGA module
	WPEQ-261ACN(BT)	Half Mini PCIe Module

From the above models, model: WNSQ-261ACN(BT) was selected as representative model for the test and its data was recorded in this report.

2. There are Bluetooth technology and WLAN technology used for the EUT.
3. WLAN <5GHz> and Bluetooth technology can transmit at same time.
4. WNSQ-261ACN(BT), WPEQ-261ACN(BT) supports two digital interfaces (USB and UART) for Bluetooth digital end data communication. The Bluetooth RF end is exactly same in both implementations.

Variant No.	Interface
SKU #1	USB interface for BT
SKU #2	UART interface for BT

From the above Variants, SKU #1 was selected as representative model for the test and its data was recorded in this report.

5. The EUT incorporates a 2T2R function with beamforming.

For 2.4G Band			
MODULATION MODE	DATA RATE (MCS)	TX & RX CONFIGURATION	
802.11b	1 ~ 11Mbps	2TX	2RX
802.11g	6 ~ 54Mbps	2TX	2RX
802.11n (HT20) & 802.11n (HT40)	MCS 0~7	2TX	2RX
	MCS 8~15	2TX	2RX
VHT20	MCS0~8 Nss=1	2TX	2RX
	MCS0~8 Nss=2	2TX	2RX
VHT40	MCS0~9 Nss=1	2TX	2RX
	MCS0~9 Nss=2	2TX	2RX
For 5G Band			
802.11a	6 ~ 54Mbps	2TX	2RX
802.11n (HT20) & 802.11n (HT40)	MCS 0~7	2TX	2RX
	MCS 8~15	2TX	2RX
802.11ac (VHT20)	MCS0~8 Nss=1	2TX	2RX
	MCS0~8 Nss=2	2TX	2RX
802.11ac (VHT40) & 802.11ac (VHT80)	MCS0~9 Nss=1	2TX	2RX
	MCS0~9 Nss=2	2TX	2RX

6. 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.

7. 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:

Antenna set 1									
Transmitter Circuit	Brand	Model	Antenna Type	2.4GHz Gain with cable loss (dBi)	5GHz Gain with cable loss (dBi)	2.4GHz Cable Loss (dBi)	5G Cable Loss (dBi)	Connector Type	Cable Length (mm)
Chain (0)	WNC	81-EBJ15.005	PIFA	3.62	Band 1&2: 3.08 Band 3: 4.76 Band 4: 4.76	1.15	Band 1&2:1.70 Band 3: 1.74 Band 4: 1.79	IPEX	300
Chain (1)	WNC	81-EBJ15.005	PIFA	3.62	Band 1&2: 3.08 Band 3: 4.76 Band 4: 4.76	1.15	Band 1&2:1.70 Band 3: 1.74 Band 4: 1.79	IPEX	300
Antenna set 2									
Transmitter Circuit	Brand	Model	Antenna Type	2.4GHz Gain with cable loss (dBi)	5GHz Gain with cable loss (dBi)	Cable Loss (dBi)	Connector Type	Cable Length (mm)	
Chain (0)	Tongda	T-543-8201044-A (Ant 1)	PIFA	3.572	Band 1&2: 3.002 Band 3: 4.546 Band 4: 4.416	NA	IPEX	77	
Chain (1)	Tongda	T-543-8201044-A (Ant 2)	PIFA	3.325	Band 1&2: 2.942 Band 3: 4.622 Band 4: 4.586	NA	IPEX	71	

- Note: 1. Above antenna gains of antenna are Total (H+V).
2. All of antenna can be application for WLAN and Bluetooth.

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
	RE $\geq$ 1G	RE<1G	PLC	APCM	
-	√	√	√	√	-

Where **RE $\geq$ 1G**: Radiated Emission above 1GHz & Bandedge Measurement

RE<1G: Radiated Emission below 1GHz

PLC: Power Line Conducted Emission

APCM: Antenna Port Conducted Measurement

Note: The EUT's antenna had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on Z-plane.

Radiated 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	DSSS	1
802.11g	1 to 13	1, 6, 11	OFDM	6
VHT20	1 to 13	1, 6, 11	OFDM	6.5
VHT40	3 to 11	3, 6, 9	OFDM	13.5

Radiated 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	DSSS	1
802.11g	1 to 13	1, 6, 11	OFDM	6
VHT20	1 to 13	1, 6, 11	OFDM	6.5
VHT40	3 to 11	3, 6, 9	OFDM	13.5

Test Condition:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER (SYSTEM)	TESTED BY
RE≥1G	24deg. C, 71%RH	120Vac, 60Hz	Gary Cheng
RE<1G	23deg. C, 68%RH	120Vac, 60Hz	Robert Cheng
PLC	25deg. C, 70%RH	120Vac, 60Hz	Mike Hsieh
APCM	25deg. C, 60%RH	120Vac, 60Hz	Andy Ho
	25deg. C, 60%RH	120Vac, 60Hz	James Chan

3.4 Duty Cycle of Test Signal

Duty cycle of test signal is < 98%, duty factor shall be considered.

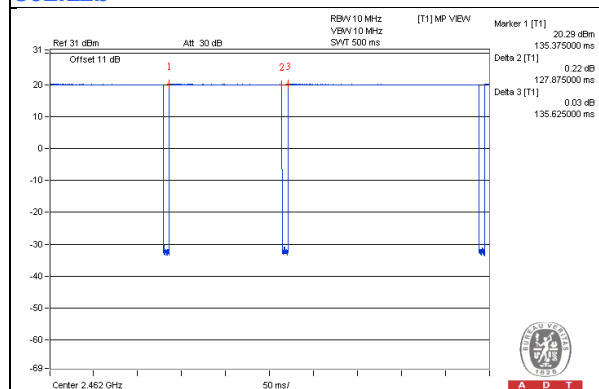
802.11b: Duty cycle = 127.875 ms/135.625 ms = 0.943, Duty factor = $10 * \log(1/0.943) = 0.25$

802.11g: Duty cycle = 21.4 ms/28.4 ms = 0.754, Duty factor = $10 * \log(1/0.754) = 1.2$

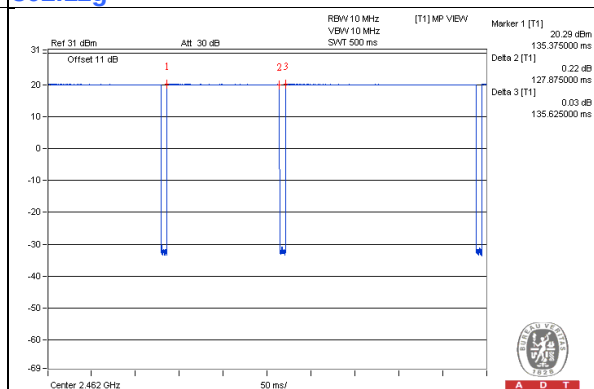
VHT20: Duty cycle = 19.7 ms/26.7 ms = 0.738, Duty factor = $10 * \log(1/0.738) = 1.3$

VHT40: Duty cycle = 9.512 ms/16.512 ms = 0.576, Duty factor = $10 * \log(1/0.576) = 2.4$

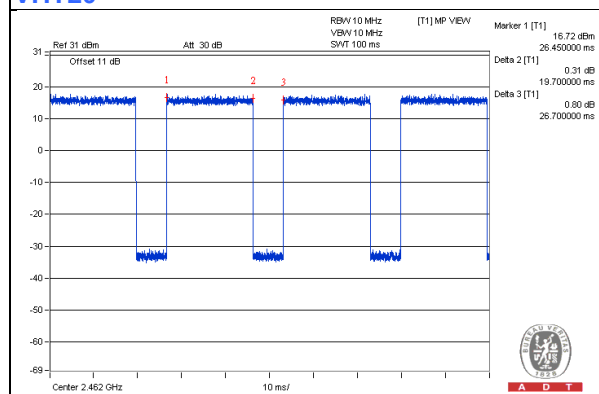
802.11b



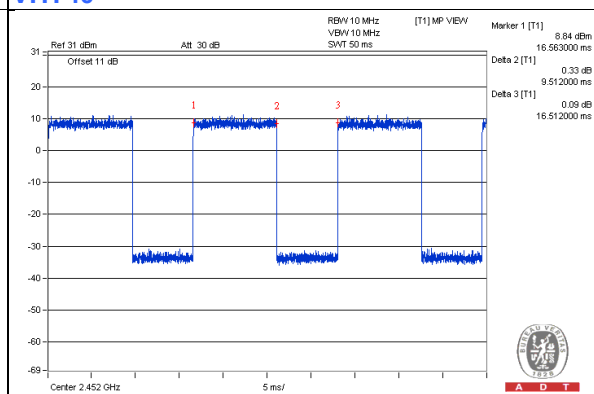
802.11g



VHT20



VHT40



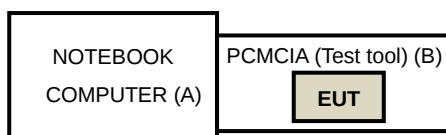
3.5 Description of Support Units

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	DELL	E6420	H62T3R1	FCC DoC	Provided by Lab
B	PCMCIA (Test tool)	Sparklan	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 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge 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.

4.1.2 Test Instruments

For Above 1GHz:

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. 06, 2015	Feb. 05, 2016
RF Cable	NA	CHHCAB_001	Oct. 05, 2014	Oct. 04, 2015
Horn_Antenna AISI	AIH.8018	0000220091110	Feb. 06, 2015	Feb. 05, 2016
Pre-Amplifier Agilent	8449B	300801923	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 horn antenna, preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
- 3 The test was performed in 966 Chamber No. H.
4. The FCC Site Registration No. is 797305.
- 5 The CANADA Site Registration No. is IC 7450H-3.
- 6 Tested Date: May 08, 2015

For Below 1GHz:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Agilent	N9038A	MY51210105	July 21, 2014	July 20, 2015
Pre-Amplifier Mini-Circuits	ZFL-1000VH2 B	AMP-ZFL-03	Nov. 12, 2014	Nov. 11, 2015
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-360	Feb. 09, 2015	Feb. 08, 2016
RF Cable	NA	CHGCAB_001	Oct. 04, 2014	Oct. 03, 2015
Horn_Antenna AISI	AIH.8018	0000320091110	Feb. 09, 2015	Feb. 08, 2016
Pre-Amplifier Agilent	8449B	3008A02578	June 24, 2014	June 23, 2015
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
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 horn antenna, preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
- 3 The test was performed in 966 Chamber No. G.
4. The FCC Site Registration No. is 966073.
- 5 The VCCI Site Registration No. is G-137.
- 6 The CANADA Site Registration No. is IC 7450H-2.
- 7 Tested Date: May 08, 2015

4.1.3 Test Procedures

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. 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.
- d. 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. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- f. The test-receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

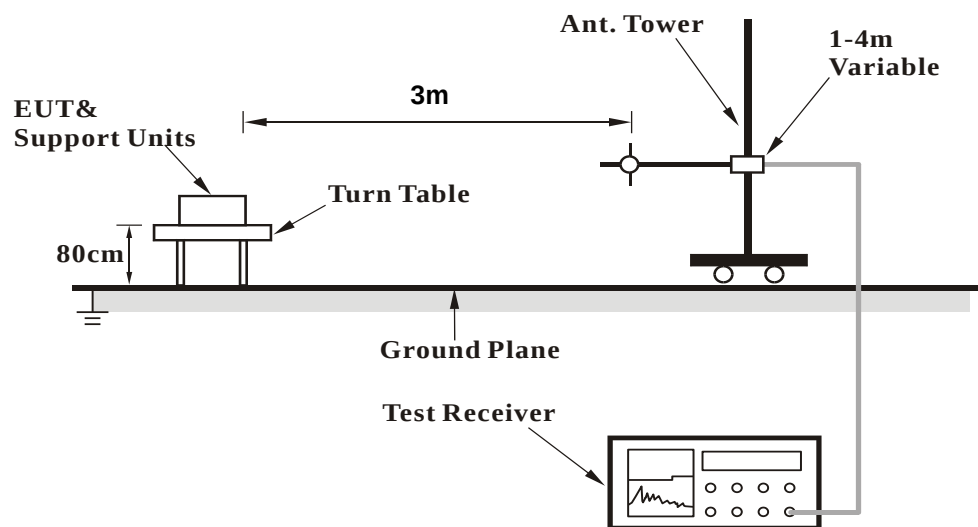
1. For emission measurements above 1 GHz, the EUT shall be placed at a height of 1.5 m above the ground at 3 meter chamber room for test.
2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
4. 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 ($10 \log(1/\text{duty cycle})$).
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1GHz.
6. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

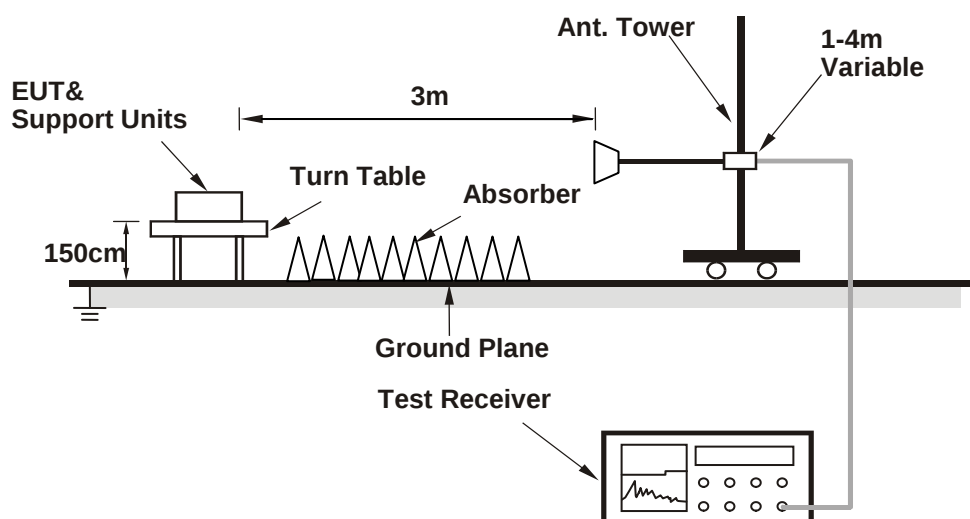
No deviation.

4.1.5 Test Setup

<Frequency Range below 1GHz>



<Frequency Range above 1GHz>



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

4.1.6 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 Version: 3.0.29.0" to enable EUT under transmission/receiving condition continuously at specific channel frequency.

4.1.7 Test Results

Above 1GHz Data

802.11b

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

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	2390.00	53.0 PK	74.0	-21.0	1.00 H	360	56.19	-3.19
2	2390.00	40.4 AV	54.0	-13.6	1.00 H	360	43.59	-3.19
3	*2412.00	108.2 PK			1.00 H	360	111.33	-3.13
4	*2412.00	105.8 AV			1.00 H	360	108.93	-3.13
5	4824.00	56.3 PK	74.0	-17.7	2.02 H	328	50.33	5.97
6	4824.00	52.0 AV	54.0	-2.0	2.02 H	328	46.03	5.97
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	2390.00	57.3 PK	74.0	-16.7	1.59 V	266	60.49	-3.19
2	2390.00	44.7 AV	54.0	-9.3	1.59 V	266	47.89	-3.19
3	*2412.00	111.3 PK			1.59 V	266	114.43	-3.13
4	*2412.00	109.0 AV			1.59 V	266	112.13	-3.13
5	4824.00	56.9 PK	74.0	-17.1	1.29 V	265	50.93	5.97
6	4824.00	52.5 AV	54.0	-1.5	1.29 V	265	46.53	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
5. " * ": Fundamental frequency.

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

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	*2437.00	108.8 PK			1.02 H	360	111.84	-3.04
2	*2437.00	106.2 AV			1.02 H	360	109.24	-3.04
3	4874.00	56.1 PK	74.0	-17.9	1.98 H	326	50.05	6.05
4	4874.00	51.8 AV	54.0	-2.2	1.98 H	326	45.75	6.05
5	7311.00	60.3 PK	74.0	-13.7	2.09 H	324	49.36	10.94
6	7311.00	50.6 AV	54.0	-3.4	2.09 H	324	39.66	10.94
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	*2437.00	111.3 PK			1.61 V	264	114.34	-3.04
2	*2437.00	109.4 AV			1.61 V	264	112.44	-3.04
3	4874.00	56.7 PK	74.0	-17.3	1.30 V	252	50.65	6.05
4	4874.00	52.6 AV	54.0	-1.4	1.30 V	252	46.55	6.05
5	7311.00	61.3 PK	74.0	-12.7	1.12 V	309	50.36	10.94
6	7311.00	52.6 AV	54.0	-1.4	1.12 V	309	41.66	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
5. " * ": Fundamental frequency.

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

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	*2462.00	108.9 PK			1.02 H	360	111.84	-2.94
2	*2462.00	106.3 AV			1.02 H	360	109.24	-2.94
3	2483.50	53.3 PK	74.0	-20.7	1.02 H	360	56.17	-2.87
4	2483.50	43.6 AV	54.0	-10.4	1.02 H	360	46.47	-2.87
5	4924.00	55.5 PK	74.0	-18.5	2.04 H	324	49.43	6.07
6	4924.00	51.4 AV	54.0	-2.6	2.04 H	324	45.33	6.07
7	7386.00	60.6 PK	74.0	-13.4	2.14 H	335	49.18	11.42
8	7386.00	50.7 AV	54.0	-3.3	2.14 H	335	39.28	11.42
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	*2462.00	110.3 PK			1.56 V	263	113.24	-2.94
2	*2462.00	108.6 AV			1.56 V	263	111.54	-2.94
3	4924.00	56.2 PK	74.0	-17.8	1.32 V	276	50.13	6.07
4	4924.00	52.4 AV	54.0	-1.6	1.32 V	276	46.33	6.07
5	7386.00	60.8 PK	74.0	-13.2	1.09 V	310	49.38	11.42
6	7386.00	53.3 AV	54.0	-0.7	1.09 V	310	41.88	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
5. " * ": Fundamental frequency.

802.11g

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

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	2390.00	54.2 PK	74.0	-19.8	1.48 H	45	57.39	-3.19
2	2390.00	42.8 AV	54.0	-11.2	1.48 H	45	45.99	-3.19
3	*2412.00	106.7 PK			1.48 H	45	109.83	-3.13
4	*2412.00	96.4 AV			1.48 H	45	99.53	-3.13
5	4824.00	56.2 PK	74.0	-17.8	1.43 H	344	50.23	5.97
6	4824.00	43.5 AV	54.0	-10.5	1.43 H	344	37.53	5.97
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	2390.00	62.4 PK	74.0	-11.6	1.57 V	266	65.59	-3.19
2	2390.00	47.6 AV	54.0	-6.4	1.57 V	266	50.79	-3.19
3	*2412.00	110.3 PK			1.57 V	266	113.43	-3.13
4	*2412.00	99.2 AV			1.57 V	266	102.33	-3.13
5	4824.00	55.9 PK	74.0	-18.1	1.28 V	101	49.93	5.97
6	4824.00	43.2 AV	54.0	-10.8	1.28 V	101	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
5. " * ": Fundamental frequency.

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

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	*2437.00	110.2 PK			1.46 H	46	113.24	-3.04
2	*2437.00	99.7 AV			1.46 H	46	102.74	-3.04
3	4874.00	57.3 PK	74.0	-16.7	1.40 H	326	51.25	6.05
4	4874.00	45.3 AV	54.0	-8.7	1.40 H	326	39.25	6.05
5	7311.00	59.1 PK	74.0	-14.9	1.60 H	303	48.16	10.94
6	7311.00	47.4 AV	54.0	-6.6	1.60 H	303	36.46	10.94

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	*2437.00	113.5 PK			1.58 V	262	116.54	-3.04
2	*2437.00	102.9 AV			1.58 V	262	105.94	-3.04
3	4874.00	58.7 PK	74.0	-15.3	1.29 V	121	52.65	6.05
4	4874.00	46.0 AV	54.0	-8.0	1.29 V	121	39.95	6.05
5	7311.00	61.4 PK	74.0	-12.6	1.06 V	304	50.46	10.94
6	7311.00	48.4 AV	54.0	-5.6	1.06 V	304	37.46	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
5. " * ": Fundamental frequency.

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

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	*2462.00	107.2 PK			1.43 H	46	110.14	-2.94
2	*2462.00	96.6 AV			1.43 H	46	99.54	-2.94
3	2483.50	54.2 PK	74.0	-19.8	1.43 H	46	57.07	-2.87
4	2483.50	42.1 AV	54.0	-11.9	1.43 H	46	44.97	-2.87
5	4924.00	56.3 PK	74.0	-17.7	1.41 H	342	50.23	6.07
6	4924.00	43.4 AV	54.0	-10.6	1.41 H	342	37.33	6.07
7	7386.00	57.4 PK	74.0	-16.6	1.63 H	302	45.98	11.42
8	7386.00	45.6 AV	54.0	-8.4	1.63 H	302	34.18	11.42
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	*2462.00	108.8 PK			1.63 V	262	111.74	-2.94
2	*2462.00	98.2 AV			1.63 V	262	101.14	-2.94
3	2483.50	61.5 PK	74.0	-12.5	1.63 V	262	64.37	-2.87
4	2483.50	46.4 AV	54.0	-7.6	1.63 V	262	49.27	-2.87
5	4924.00	56.5 PK	74.0	-17.5	1.29 V	106	50.43	6.07
6	4924.00	43.6 AV	54.0	-10.4	1.29 V	106	37.53	6.07
7	7386.00	57.4 PK	74.0	-16.6	1.06 V	305	45.98	11.42
8	7386.00	45.4 AV	54.0	-8.6	1.06 V	305	33.98	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
5. " * ": Fundamental frequency.

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

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	2390.00	54.4 PK	74.0	-19.6	1.52 H	51	57.59	-3.19
2	2390.00	43.0 AV	54.0	-11.0	1.52 H	51	46.19	-3.19
3	*2412.00	106.5 PK			1.52 H	51	109.63	-3.13
4	*2412.00	96.3 AV			1.52 H	51	99.43	-3.13
5	4824.00	56.4 PK	74.0	-17.6	1.38 H	343	50.43	5.97
6	4824.00	43.9 AV	54.0	-10.1	1.38 H	343	37.93	5.97
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	2390.00	63.1 PK	74.0	-10.9	1.53 V	264	66.29	-3.19
2	2390.00	48.0 AV	54.0	-6.0	1.53 V	264	51.19	-3.19
3	*2412.00	110.8 PK			1.53 V	264	113.93	-3.13
4	*2412.00	99.5 AV			1.53 V	264	102.63	-3.13
5	4824.00	55.6 PK	74.0	-18.4	1.27 V	109	49.63	5.97
6	4824.00	43.0 AV	54.0	-11.0	1.27 V	109	37.03	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
5. " * ": Fundamental frequency.

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

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	*2437.00	110.2 PK			1.45 H	42	113.24	-3.04
2	*2437.00	99.5 AV			1.45 H	42	102.54	-3.04
3	4874.00	57.2 PK	74.0	-16.8	1.44 H	330	51.15	6.05
4	4874.00	45.5 AV	54.0	-8.5	1.44 H	330	39.45	6.05
5	7311.00	58.8 PK	74.0	-15.2	1.57 H	316	47.86	10.94
6	7311.00	47.2 AV	54.0	-6.8	1.57 H	316	36.26	10.94
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	*2437.00	113.5 PK			1.63 V	259	116.54	-3.04
2	*2437.00	102.7 AV			1.63 V	259	105.74	-3.04
3	4874.00	58.7 PK	74.0	-15.3	1.28 V	125	52.65	6.05
4	4874.00	45.8 AV	54.0	-8.2	1.28 V	125	39.75	6.05
5	7311.00	61.3 PK	74.0	-12.7	1.05 V	316	50.36	10.94
6	7311.00	48.4 AV	54.0	-5.6	1.05 V	316	37.46	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
5. " * ": Fundamental frequency.

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

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	*2462.00	104.3 PK			1.38 H	53	107.24	-2.94
2	*2462.00	94.3 AV			1.38 H	53	97.24	-2.94
3	2483.50	54.2 PK	74.0	-19.8	1.38 H	53	57.07	-2.87
4	2483.50	42.6 AV	54.0	-11.4	1.38 H	53	45.47	-2.87
5	4924.00	55.8 PK	74.0	-18.2	1.43 H	332	49.73	6.07
6	4924.00	42.9 AV	54.0	-11.1	1.43 H	332	36.83	6.07
7	7386.00	57.9 PK	74.0	-16.1	1.58 H	309	46.48	11.42
8	7386.00	46.0 AV	54.0	-8.0	1.58 H	309	34.58	11.42
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	*2462.00	106.2 PK			1.72 V	262	109.14	-2.94
2	*2462.00	96.3 AV			1.72 V	262	99.24	-2.94
3	2483.50	57.3 PK	74.0	-16.7	1.72 V	262	60.17	-2.87
4	2483.50	44.3 AV	54.0	-9.7	1.72 V	262	47.17	-2.87
5	4924.00	56.9 PK	74.0	-17.1	1.24 V	95	50.83	6.07
6	4924.00	44.0 AV	54.0	-10.0	1.24 V	95	37.93	6.07
7	7386.00	57.1 PK	74.0	-16.9	1.12 V	314	45.68	11.42
8	7386.00	45.2 AV	54.0	-8.8	1.12 V	314	33.78	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
5. " * ": Fundamental frequency.

VHT40

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

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	2390.00	56.5 PK	74.0	-17.5	1.38 H	50	59.69	-3.19
2	2390.00	45.4 AV	54.0	-8.6	1.38 H	50	48.59	-3.19
3	*2422.00	101.3 PK			1.38 H	50	104.39	-3.09
4	*2422.00	91.4 AV			1.38 H	50	94.49	-3.09
5	4844.00	56.2 PK	74.0	-17.8	1.46 H	324	50.21	5.99
6	4844.00	43.4 AV	54.0	-10.6	1.46 H	324	37.41	5.99
7	7266.00	58.5 PK	74.0	-15.5	1.59 H	307	47.61	10.89
8	7266.00	46.4 AV	54.0	-7.6	1.59 H	307	35.51	10.89
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	2390.00	61.8 PK	74.0	-12.2	1.57 V	263	64.99	-3.19
2	2390.00	48.4 AV	54.0	-5.6	1.57 V	263	51.59	-3.19
3	*2422.00	104.4 PK			1.57 V	263	107.49	-3.09
4	*2422.00	94.4 AV			1.57 V	263	97.49	-3.09
5	4844.00	56.6 PK	74.0	-17.4	1.24 V	97	50.61	5.99
6	4844.00	43.6 AV	54.0	-10.4	1.24 V	97	37.61	5.99
7	7266.00	57.3 PK	74.0	-16.7	1.14 V	303	46.41	10.89
8	7266.00	45.4 AV	54.0	-8.6	1.14 V	303	34.51	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
5. " * ": Fundamental frequency.

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

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	2390.00	57.6 PK	74.0	-16.4	1.30 H	52	60.79	-3.19
2	2390.00	43.3 AV	54.0	-10.7	1.30 H	52	46.49	-3.19
3	*2437.00	104.4 PK			1.30 H	52	107.44	-3.04
4	*2437.00	94.2 AV			1.30 H	52	97.24	-3.04
5	2483.50	56.8 PK	74.0	-17.2	1.30 H	52	59.67	-2.87
6	2483.50	42.4 AV	54.0	-11.6	1.30 H	52	45.27	-2.87
7	4874.00	56.3 PK	74.0	-17.7	1.45 H	330	50.25	6.05
8	4874.00	43.4 AV	54.0	-10.6	1.45 H	330	37.35	6.05
9	7311.00	58.4 PK	74.0	-15.6	1.62 H	301	47.46	10.94
10	7311.00	46.3 AV	54.0	-7.7	1.62 H	301	35.36	10.94

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	2390.00	60.5 PK	74.0	-13.5	1.61 V	264	63.69	-3.19
2	2390.00	47.3 AV	54.0	-6.7	1.61 V	264	50.49	-3.19
3	*2437.00	107.7 PK			1.61 V	264	110.74	-3.04
4	*2437.00	97.1 AV			1.61 V	264	100.14	-3.04
5	2483.50	60.6 PK	74.0	-13.4	1.61 V	264	63.47	-2.87
6	2483.50	46.3 AV	54.0	-7.7	1.61 V	264	49.17	-2.87
7	4874.00	57.0 PK	74.0	-17.0	1.22 V	105	50.95	6.05
8	4874.00	44.2 AV	54.0	-9.8	1.22 V	105	38.15	6.05
9	7311.00	57.2 PK	74.0	-16.8	1.15 V	322	46.26	10.94
10	7311.00	45.1 AV	54.0	-8.9	1.15 V	322	34.16	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
5. " * ": Fundamental frequency.

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

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	*2452.00	98.2 PK			1.42 H	56	101.18	-2.98
2	*2452.00	87.0 AV			1.42 H	56	89.98	-2.98
3	2483.50	59.6 PK	74.0	-14.4	1.42 H	56	62.47	-2.87
4	2483.50	41.3 AV	54.0	-12.7	1.42 H	56	44.17	-2.87
5	4904.00	55.6 PK	74.0	-18.4	1.48 H	336	49.52	6.08
6	4904.00	42.6 AV	54.0	-11.4	1.48 H	336	36.52	6.08
7	7356.00	57.5 PK	74.0	-16.5	1.56 H	301	46.28	11.22
8	7356.00	45.8 AV	54.0	-8.2	1.56 H	301	34.58	11.22
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	*2452.00	101.6 PK			1.53 V	262	104.58	-2.98
2	*2452.00	90.4 AV			1.53 V	262	93.38	-2.98
3	2483.50	62.6 PK	74.0	-11.4	1.53 V	262	65.47	-2.87
4	2483.50	44.6 AV	54.0	-9.4	1.53 V	262	47.47	-2.87
5	4904.00	56.7 PK	74.0	-17.3	1.18 V	105	50.62	6.08
6	4904.00	43.5 AV	54.0	-10.5	1.18 V	105	37.42	6.08
7	7356.00	57.1 PK	74.0	-16.9	1.17 V	307	45.88	11.22
8	7356.00	45.1 AV	54.0	-8.9	1.17 V	307	33.88	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
5. " * ": Fundamental frequency.

Below 1GHz Data

802.11g

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	215.17	39.2 QP	43.5	-4.3	1.50 H	106	55.03	-15.87
2	230.89	38.0 QP	46.0	-8.0	1.00 H	278	53.46	-15.45
3	287.92	38.5 QP	46.0	-7.5	1.00 H	89	50.96	-12.42
4	323.91	41.2 QP	46.0	-4.8	1.00 H	311	52.39	-11.22
5	431.87	36.4 QP	46.0	-9.6	2.00 H	252	44.59	-8.21
6	896.31	38.6 QP	46.0	-7.4	1.50 H	109	37.94	0.63
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	134.76	31.4 QP	43.5	-12.1	1.00 V	279	45.01	-13.64
2	215.90	38.7 QP	43.5	-4.8	1.50 V	213	54.50	-15.83
3	287.87	36.1 QP	46.0	-9.9	1.15 V	339	48.54	-12.42
4	322.72	41.5 QP	46.0	-4.5	1.00 V	332	52.72	-11.26
5	359.85	42.5 QP	46.0	-3.5	1.00 V	325	53.04	-10.55
6	430.32	39.3 QP	46.0	-6.7	1.00 V	345	47.57	-8.25

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

4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

Frequency (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15 - 0.5	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

Note: 1. The lower limit shall apply at the transition frequencies.

2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

4.2.2 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver ROHDE & SCHWARZ	ESCS 30	847124/029	Oct. 22, 2014	Oct. 21, 2015
Line-Impedance Stabilization Network (for EUT) SCHWARZBECK	NSLK-8127	8127-522	Sep. 15, 2014	Sep. 14, 2015
Line-Impedance Stabilization Network (for Peripheral) ROHDE & SCHWARZ	ENV216	100071	Nov. 10, 2014	Nov. 09, 2015
RF Cable (JYEBAO)	5D-FB	COCCAB-001	Mar. 09, 2015	Mar. 08, 2016
50 ohms Terminator	N/A	EMC-03	Sep. 22, 2014	Sep. 21, 2015
50 ohms Terminator	N/A	EMC-02	Sep. 30, 2014	Sep. 29, 2015
Software ADT	BV ADT_Cond_V7.3.7.3	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 Shielded Room No. C.
3. The VCCI Con C Registration No. is C-3611.
4. Tested Date: May 08, 2015

4.2.3 Test Procedures

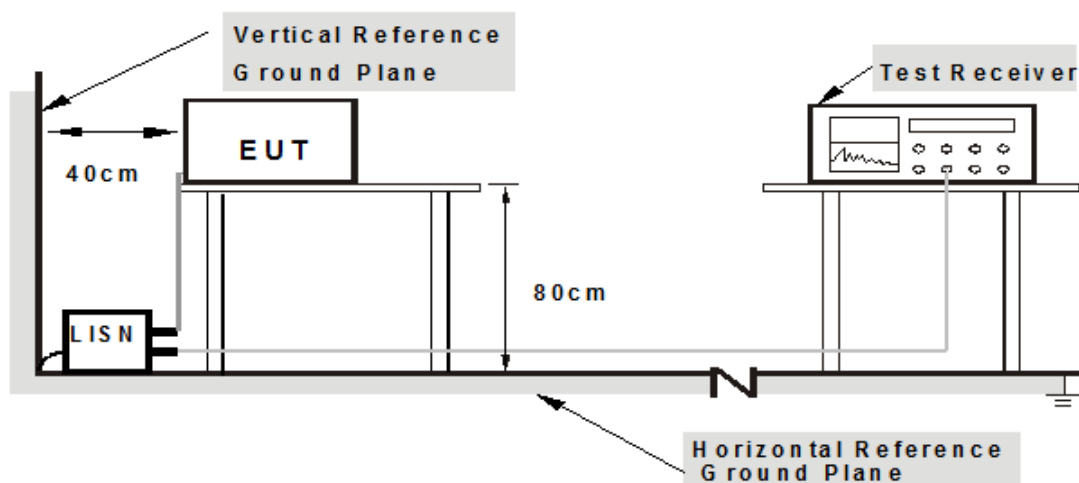
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

NOTE: The resolution bandwidth and video bandwidth of test receiver is 9kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15MHz-30MHz.

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



Note: 1.Support units were connected to second LISN.

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

4.2.6 EUT Operating Conditions

Same as 4.2.6.

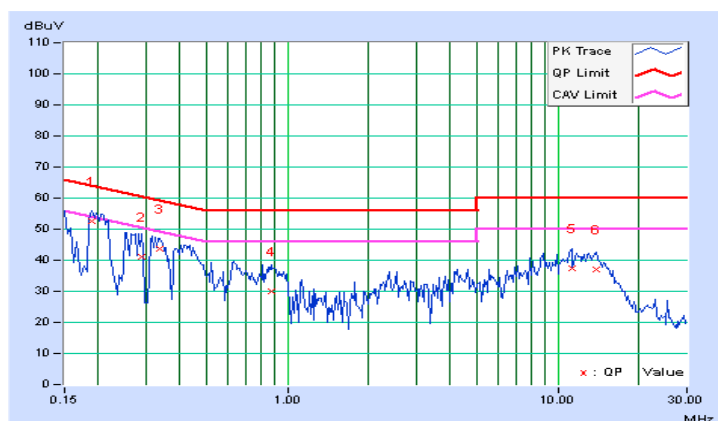
4.2.7 Test Results

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
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No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.18906	0.09	52.53	36.63	52.62	36.72	64.08	54.08	-11.46	-17.36
2	0.29063	0.09	41.11	21.78	41.20	21.87	60.51	50.51	-19.30	-28.63
3	0.33750	0.10	43.48	31.03	43.58	31.13	59.26	49.26	-15.69	-18.14
4	0.86875	0.12	29.88	17.56	30.00	17.68	56.00	46.00	-26.00	-28.32
5	11.22266	0.48	37.09	28.86	37.57	29.34	60.00	50.00	-22.43	-20.66
6	13.79297	0.54	36.60	28.44	37.14	28.98	60.00	50.00	-22.86	-21.02

REMARKS:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

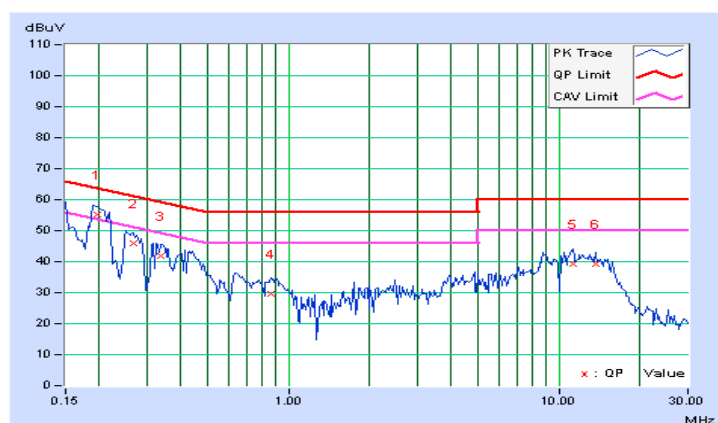


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
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No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.19687	0.08	55.28	41.44	55.36	41.52	63.74	53.74	-8.38	-12.22
2	0.26719	0.09	45.98	32.35	46.07	32.44	61.20	51.20	-15.14	-18.77
3	0.33750	0.09	41.66	27.99	41.75	28.08	59.26	49.26	-17.51	-21.18
4	0.85703	0.12	29.50	11.46	29.62	11.58	56.00	46.00	-26.38	-34.42
5	11.22656	0.49	38.63	28.12	39.12	28.61	60.00	50.00	-20.88	-21.39
6	13.61328	0.56	38.52	28.19	39.08	28.75	60.00	50.00	-20.92	-21.25

REMARKS:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

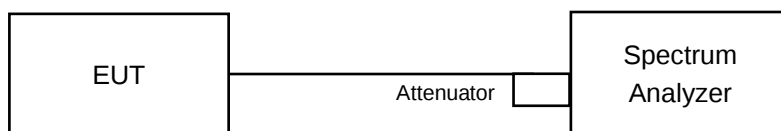


4.3 6dB Bandwidth Measurement

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, 2014	May 07, 2015

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 :Oct. 07, 2014

4.3.4 Test Procedure

- a. Set resolution bandwidth (RBW) = 100kHz
- b. Set the video bandwidth (VBW) $\geq 3 \times$ 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

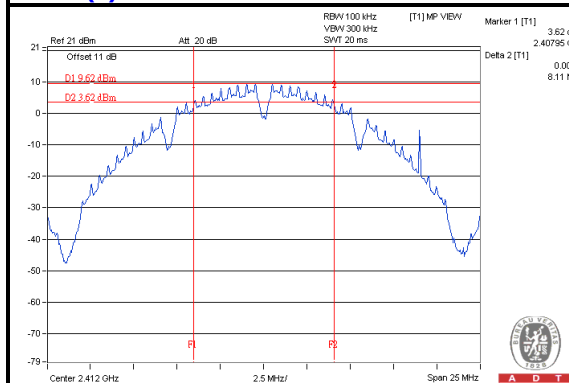
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.3.7 Test Result

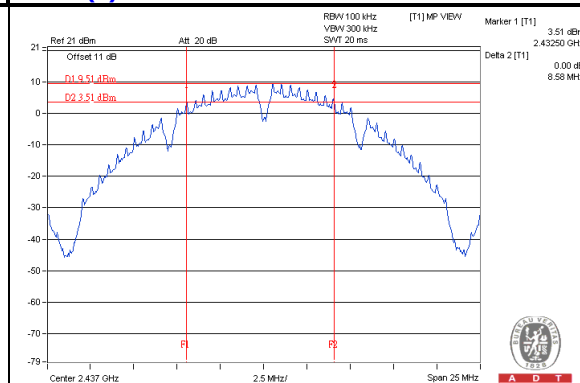
802.11b

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN(0)	CHAIN(1)		
1	2412	8.11	8.11	0.5	PASS
6	2437	8.58	8.06	0.5	PASS
11	2462	9.06	8.58	0.5	PASS

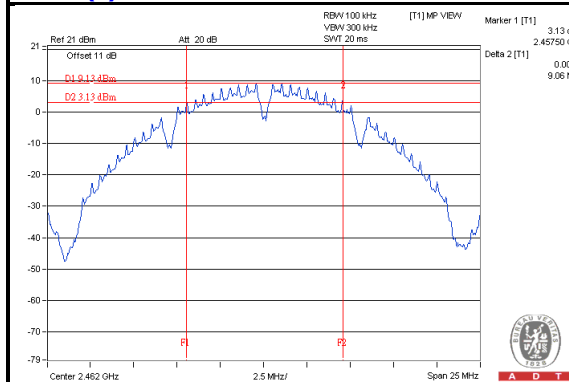
Chain(0) : CH1



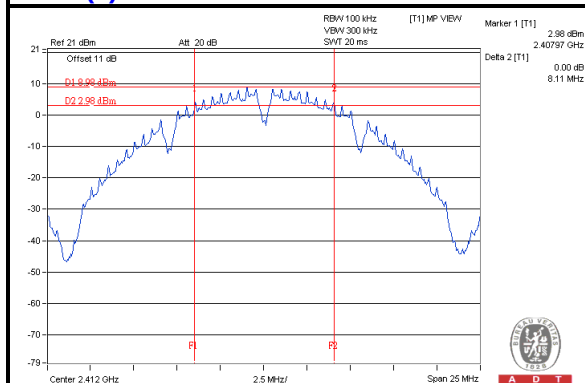
Chain(0) : CH6



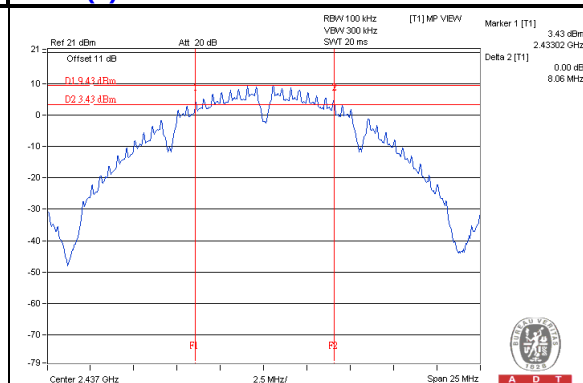
Chain(0) : CH11



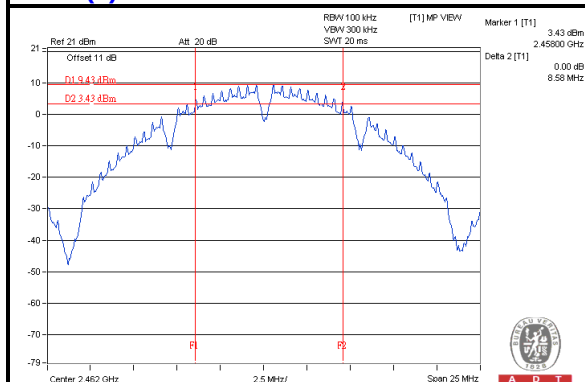
Chain(1) : CH1



Chain(1) : CH6



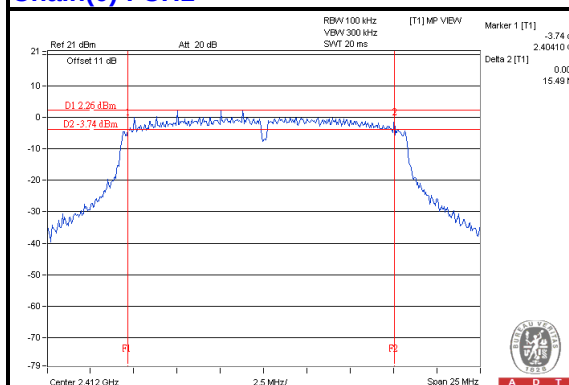
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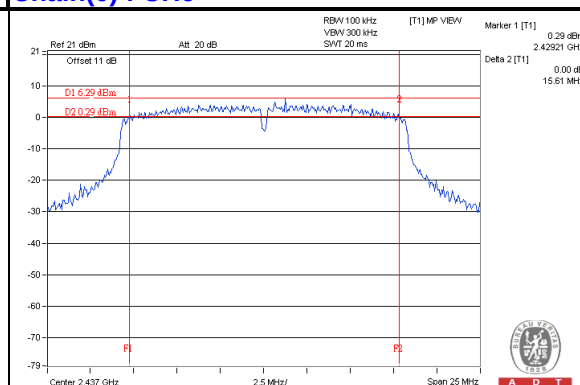
802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN(0)	CHAIN(1)		
1	2412	15.49	16.34	0.5	PASS
6	2437	15.61	15.12	0.5	PASS
11	2462	15.38	15.19	0.5	PASS

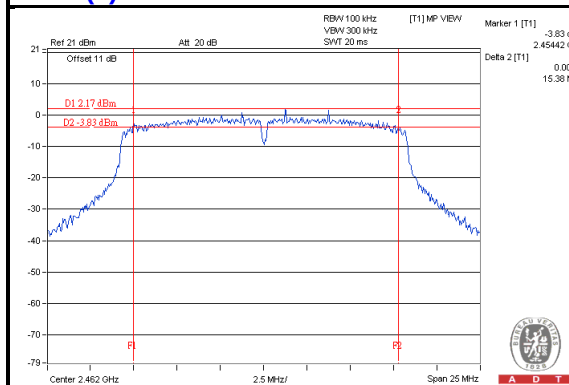
Chain(0) : CH1



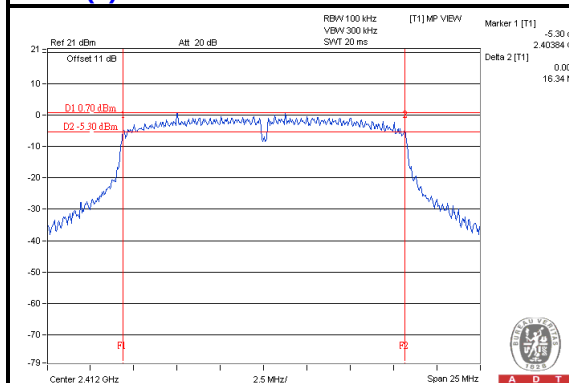
Chain(0) : CH6



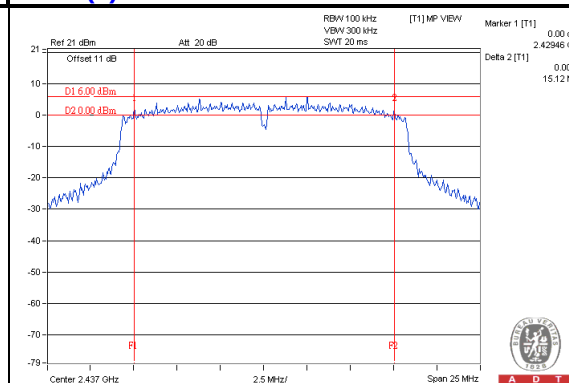
Chain(0) : CH11



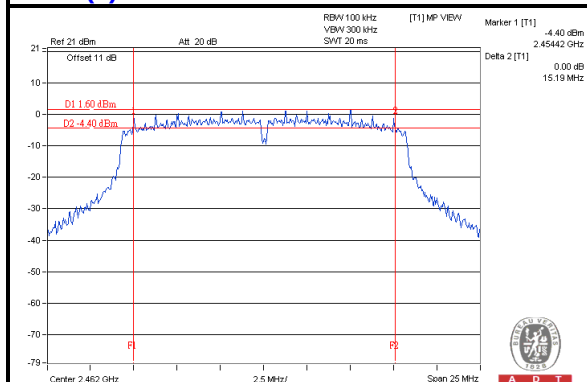
Chain(1) : CH1



Chain(1) : CH6



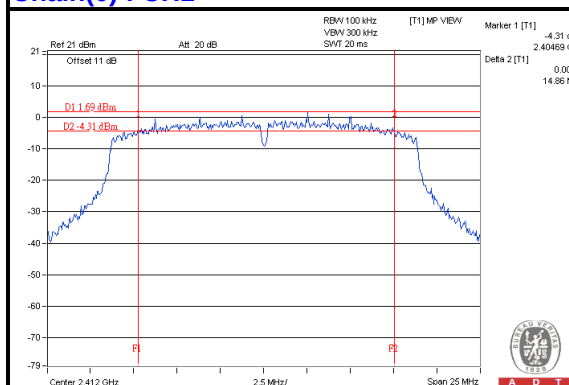
Chain(1) : CH11



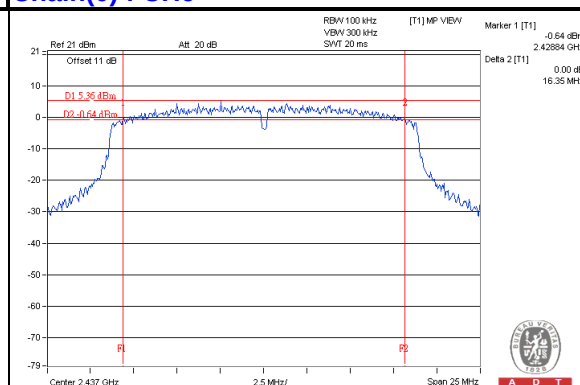
VHT20

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN(0)	CHAIN(1)		
1	2412	14.86	16.27	0.5	PASS
6	2437	16.35	15.42	0.5	PASS
11	2462	15.94	16.31	0.5	PASS

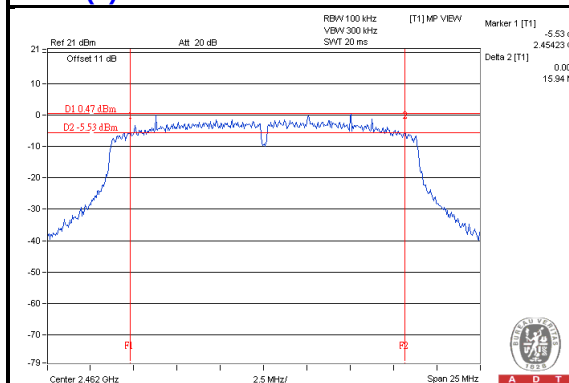
Chain(0) : CH1



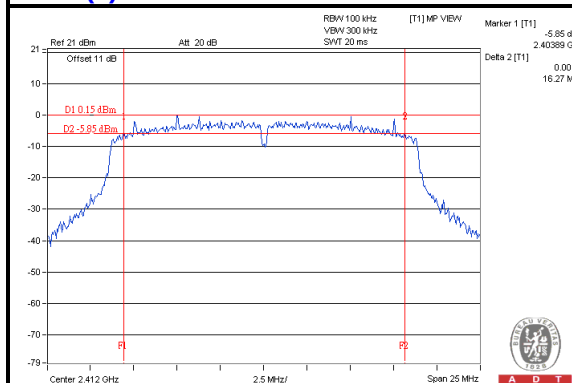
Chain(0) : CH6



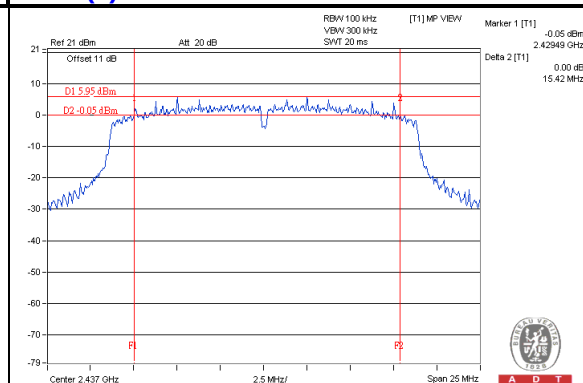
Chain(0) : CH11



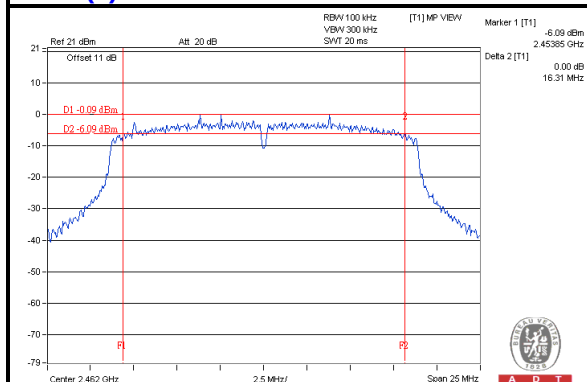
Chain(1) : CH1



Chain(1) : CH6



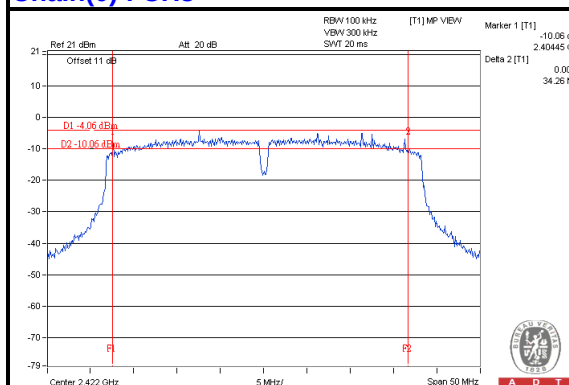
Chain(1) : CH11



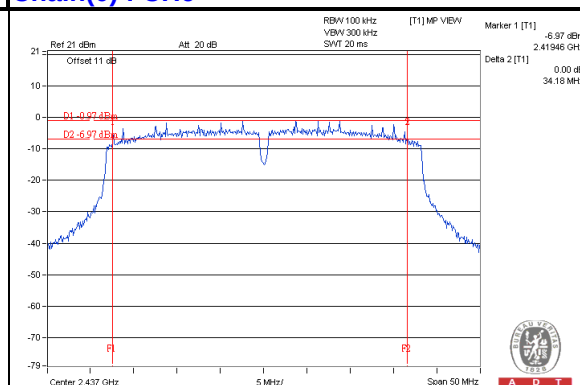
VHT40

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN(0)	CHAIN(1)		
3	2422	34.26	34.51	0.5	PASS
6	2437	34.18	31.55	0.5	PASS
9	2452	34.15	32.07	0.5	PASS

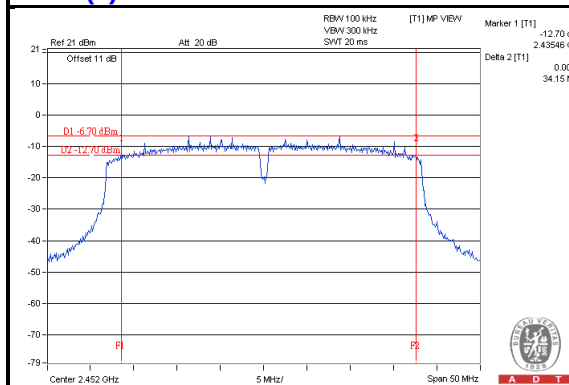
Chain(0) : CH3



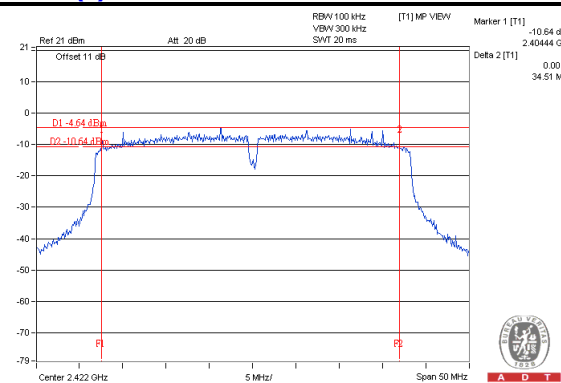
Chain(0) : CH6



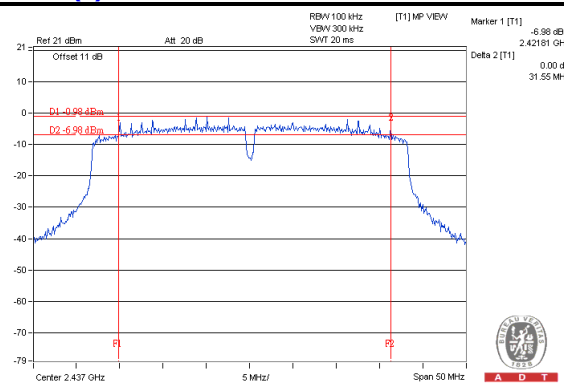
Chain(0) : CH9



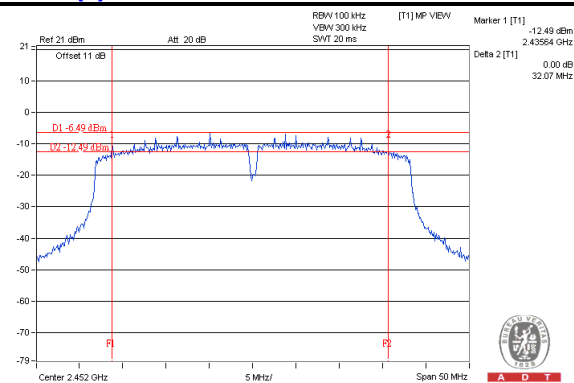
Chain(1) : CH3



Chain(1) : CH6



Chain(1) : CH9



4.4 Conducted Output Power Measurement

4.4.1 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,

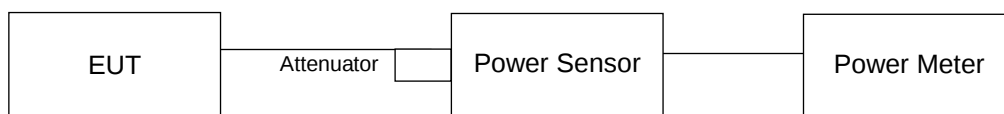
Array Gain = 0 dB (i.e., no array gain) for $NANT \leq 4$;

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 $NANT \geq 5$.

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

4.4.2 Test Setup



4.4.3 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Power meter Anritsu	ML2495A	0824006	May 22, 2014	May 21, 2015
Power sensor Anritsu	MA2411B	0738172	May 22, 2014	May 21, 2015

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 : May 13, 2015

4.4.4 Test Procedures

The 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.

4.4.5 Deviation from Test Standard

No deviation.

4.4.6 EUT Operating Conditions

The software (QCRT Version: 3.0.29.0) provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.4.7 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	19.85	20.16	200.358	23.02	29.37	Pass
6	2437	20.52	21.10	241.545	23.83	29.37	Pass
11	2462	20.36	21.15	238.96	23.78	29.37	Pass

NOTE: Directional gain = $3.62\text{dBi} + 10\log(2) = 6.63\text{dBi} > 6\text{dBi}$, therefore the limit needs to reduce, so the power limit shall be reduced to $30-(6.63-6) = 29.37\text{dBm}$.

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	19.62	19.28	176.345	22.46	29.37	Pass
6	2437	23.38	23.85	460.432	26.63	29.37	Pass
11	2462	19.46	19.72	182.064	22.60	29.37	Pass

NOTE: Directional gain = $3.62\text{dBi} + 10\log(2) = 6.63\text{dBi} > 6\text{dBi}$, therefore the limit needs to reduce, so the power limit shall be reduced to $30-(6.63-6) = 29.37\text{dBm}$.

VHT20

Chan.	Chan. Freq. (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	19.07	18.93	158.887	22.01	29.37	Pass
6	2437	23.67	23.74	469.401	26.72	29.37	Pass
11	2462	18.70	19.02	153.93	21.87	29.37	Pass

NOTE: Directional gain = $3.62\text{dBi} + 10\log(2) = 6.63\text{dBi} > 6\text{dBi}$, therefore the limit needs to reduce, so the power limit shall be reduced to $30-(6.63-6) = 29.37\text{dBm}$.

VHT40

Chan.	Chan. Freq. (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	17.23	17.12	104.368	20.19	29.37	Pass
6	2437	19.00	20.98	204.747	23.11	29.37	Pass
9	2452	14.96	14.88	62.094	17.93	29.37	Pass

NOTE: Directional gain = $3.62\text{dBi} + 10\log(2) = 6.63\text{dBi} > 6\text{dBi}$, therefore the limit needs to reduce, so the power limit shall be reduced to $30-(6.63-6) = 29.37\text{dBm}$.

FOR AVERAGE POWER

802.11b

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
1	2412	17.51	18.01	119.605	20.78
6	2437	18.36	18.82	144.757	21.61
11	2462	18.18	19.10	147.049	21.67

802.11g

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
1	2412	13.42	13.40	43.857	16.42
6	2437	18.03	18.10	128.098	21.08
11	2462	13.43	13.60	44.938	16.53

VHT20

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
1	2412	13.30	12.38	38.678	15.87
6	2437	18.00	18.04	126.776	21.03
11	2462	12.32	12.31	34.083	15.33

VHT40

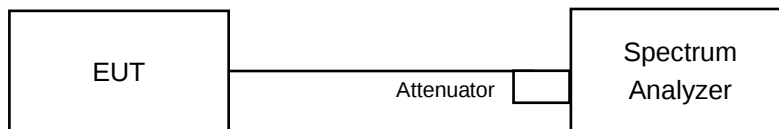
Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
3	2422	11.06	10.64	24.352	13.87
6	2437	14.25	14.76	56.53	17.52
9	2452	8.30	8.22	13.398	11.27

4.5 Power Spectral Density Measurement

4.5.1 Limits of Power Spectral Density Measurement

The Maximum of Power Spectral Density Measurement is 8dBm in any 3 kHz.

4.5.2 Test Setup



4.5.3 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
SPECTRUM ANALYZER R&S	FSP 40	100060	May 08, 2014	May 07, 2015

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 :Oct. 07, 2014

4.5.4 Test Procedure

1. Set the RBW = 3 kHz, VBW =10 kHz, Detector = peak.
2. Sweep time = auto couple, Trace mode = max hold, allow trace to fully stabilize.
3. Use the peak marker function to determine the maximum amplitude level.

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Condition

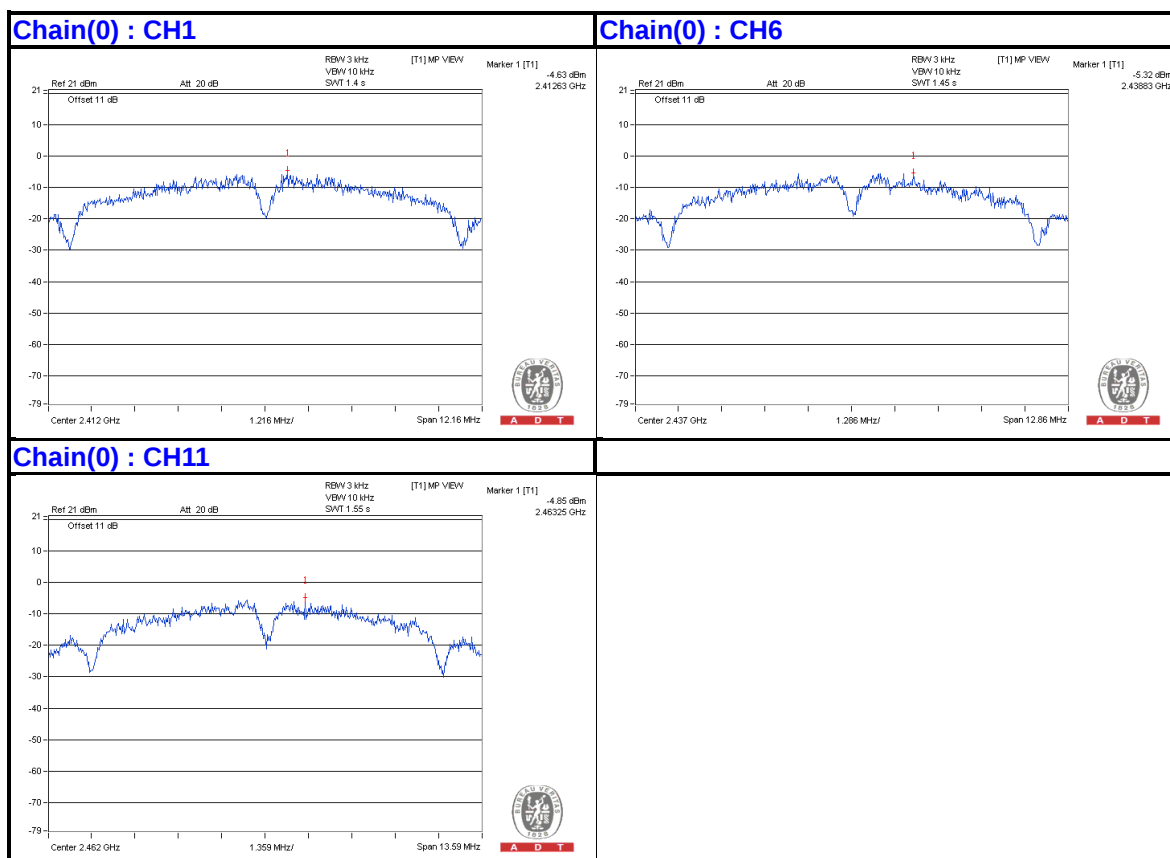
Same as Item 4.3.6

4.5.7 Test Results

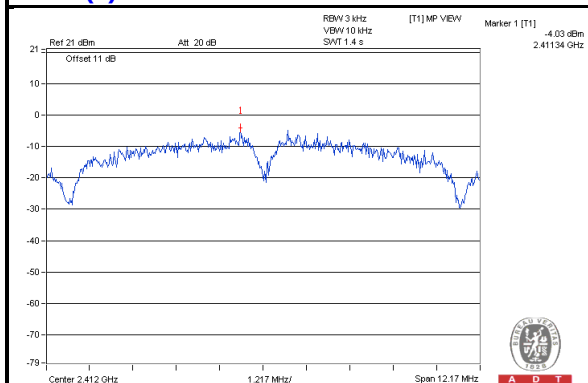
802.11b

TX chain	Channel	FREQ. (MHz)	PSD (dBm)	10 log (N=2) dB	Total PSD (dBm)	Limit (dBm)	PASS /FAIL
0	1	2412	-4.63	3.01	-1.62	7.37	PASS
	6	2437	-5.32	3.01	-2.31	7.37	PASS
	11	2462	-4.85	3.01	-1.84	7.37	PASS
1	1	2412	-4.03	3.01	-1.02	7.37	PASS
	6	2437	-5.41	3.01	-2.40	7.37	PASS
	11	2462	-3.87	3.01	-0.86	7.37	PASS

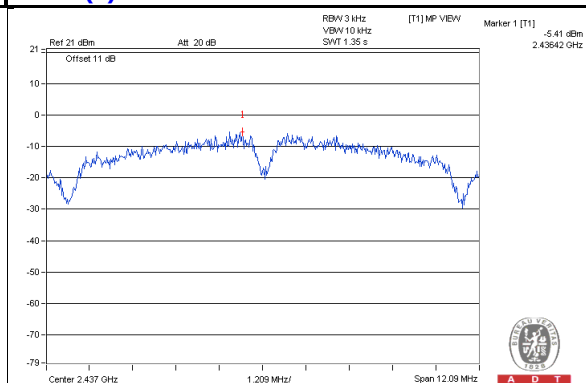
NOTE: Directional gain = $3.62\text{dBi} + 10\log(2) = 6.63\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $8 - (6.63 - 6) = 7.37\text{dBm}$.



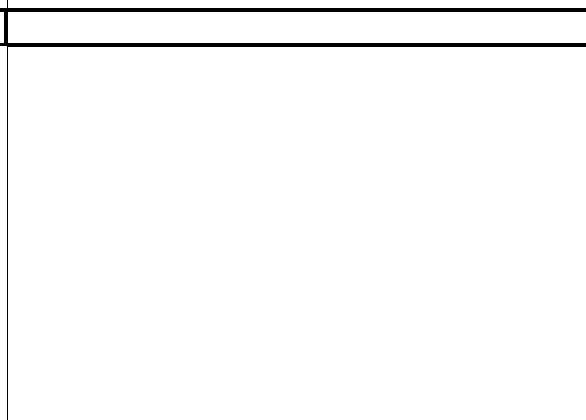
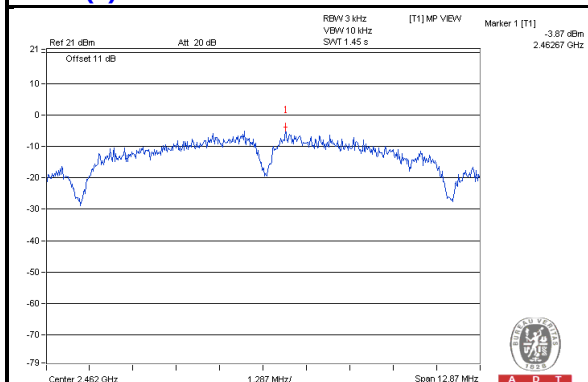
Chain(1) : CH1



Chain(1) : CH6



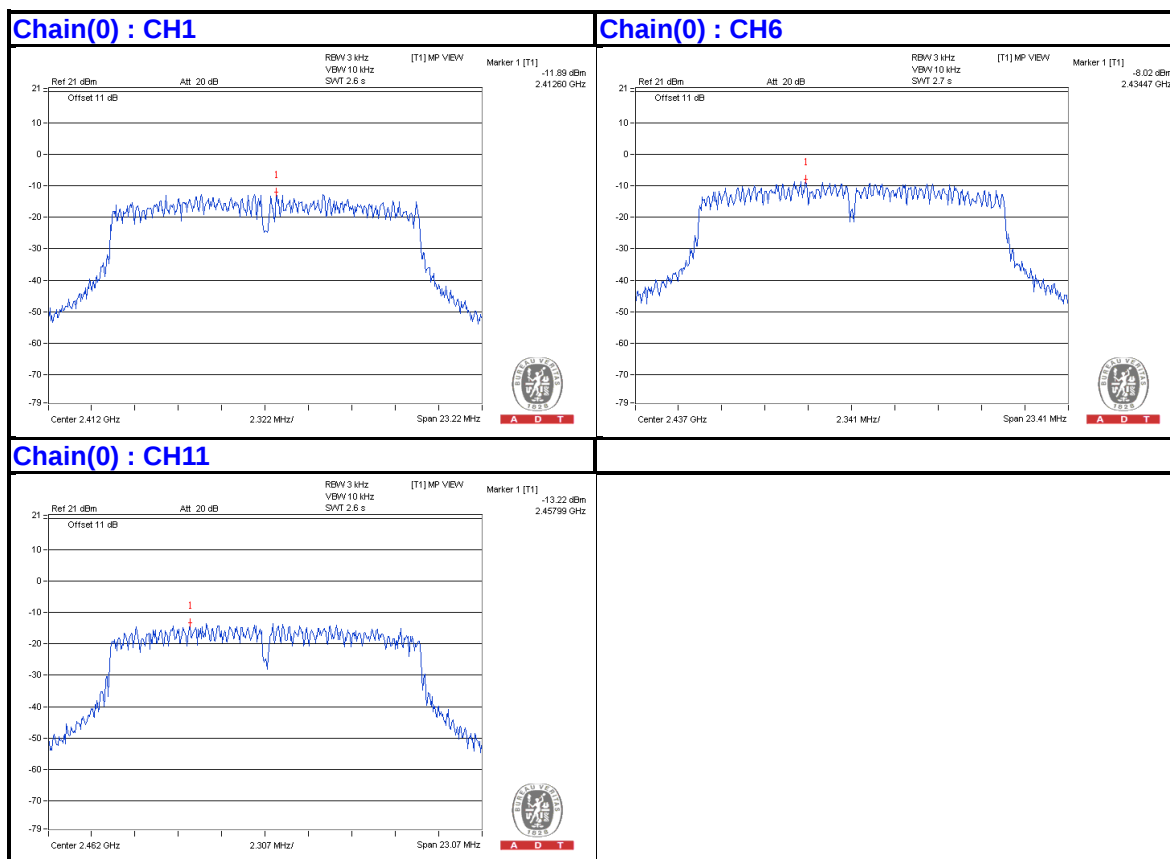
Chain(1) : CH11



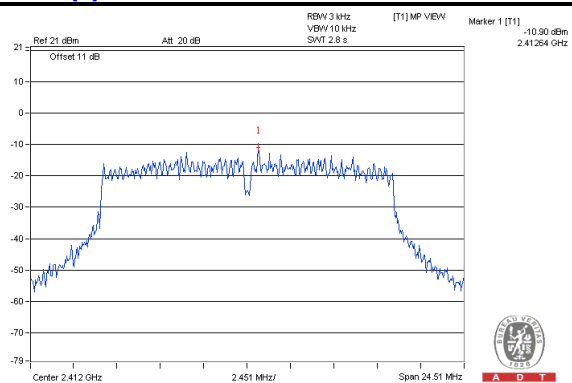
802.11g

TX chain	Channel	FREQ. (MHz)	PSD (dBm)	10 log (N=2) dB	Total PSD (dBm)	Limit (dBm)	PASS /FAIL
0	1	2412	-11.89	3.01	-8.88	7.37	PASS
	6	2437	-8.02	3.01	-5.01	7.37	PASS
	11	2462	-13.22	3.01	-10.21	7.37	PASS
1	1	2412	-10.90	3.01	-7.89	7.37	PASS
	6	2437	-8.72	3.01	-5.71	7.37	PASS
	11	2462	-13.54	3.01	-10.53	7.37	PASS

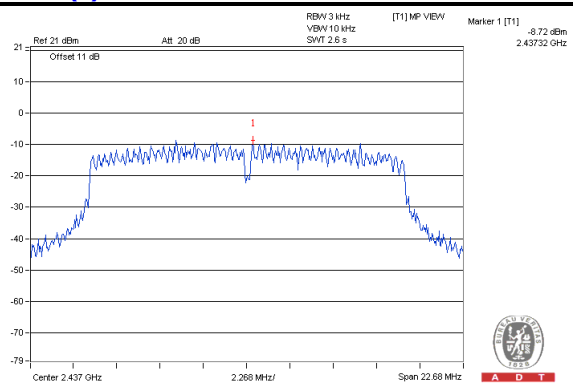
NOTE: Directional gain = $3.62\text{dBi} + 10\log(2) = 6.63\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $8 - (6.63 - 6) = 7.37\text{dBm}$.



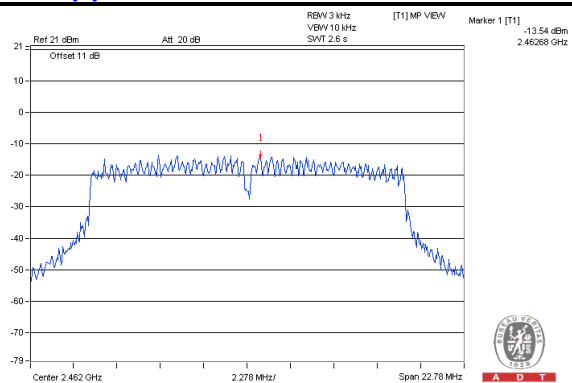
Chain(1) : CH1



Chain(1) : CH6



Chain(1) : CH11

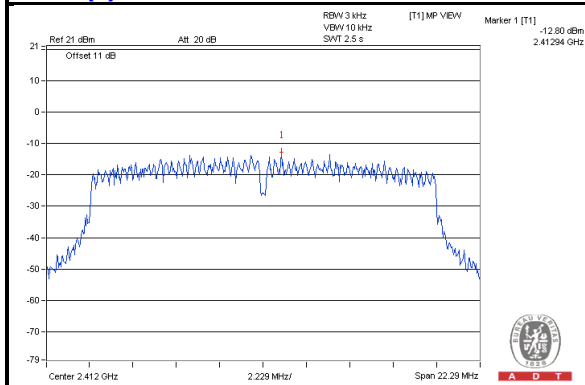


VHT20

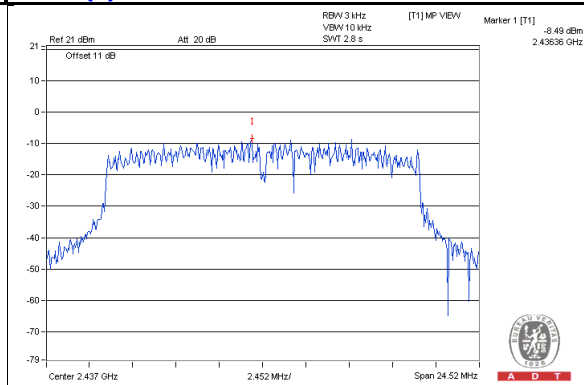
TX chain	Channel	FREQ. (MHz)	PSD (dBm)	10 log (N=2) dB	Total PSD (dBm)	Limit (dBm)	PASS /FAIL
0	1	2412	-12.80	3.01	-9.79	7.37	PASS
	6	2437	-8.49	3.01	-5.48	7.37	PASS
	11	2462	-14.60	3.01	-11.59	7.37	PASS
1	1	2412	-14.42	3.01	-11.41	7.37	PASS
	6	2437	-8.99	3.01	-5.98	7.37	PASS
	11	2462	-14.80	3.01	-11.79	7.37	PASS

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

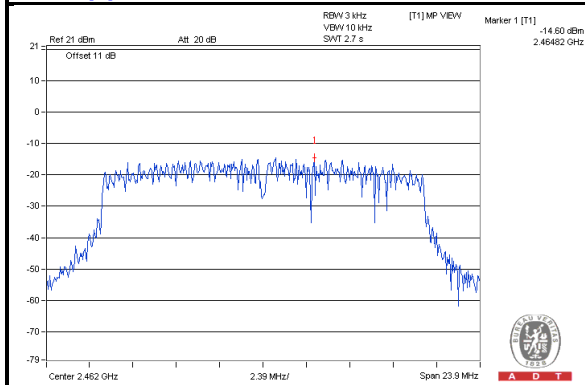
Chain(0) : CH1



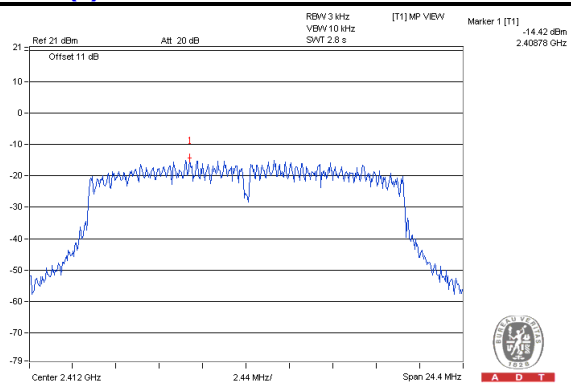
Chain(0) : CH6



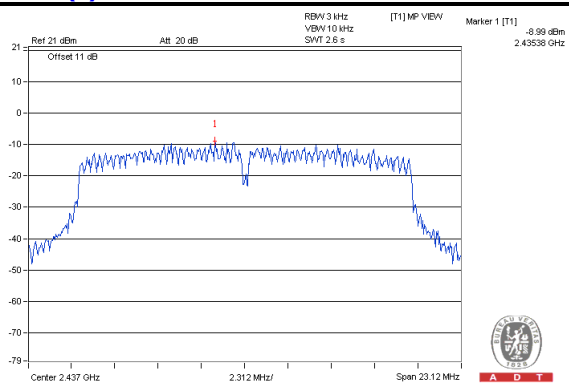
Chain(0) : CH11



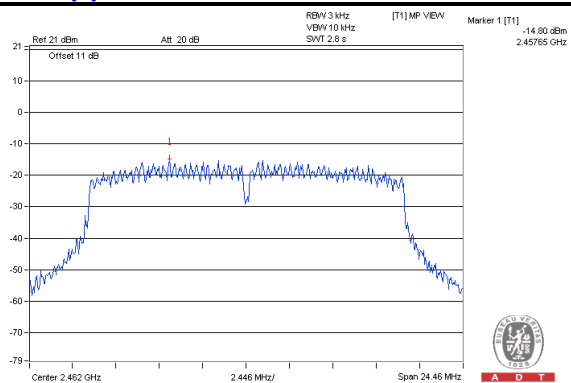
Chain(1) : CH1



Chain(1) : CH6



Chain(1) : CH11

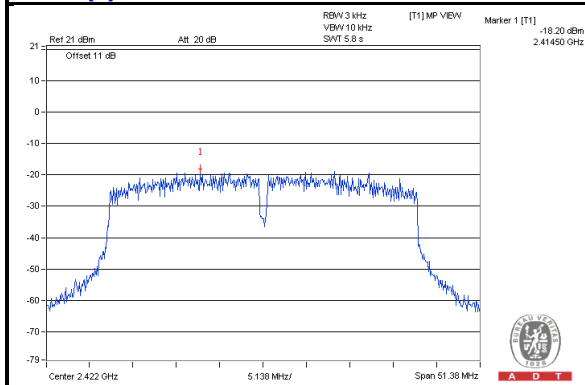


VHT40

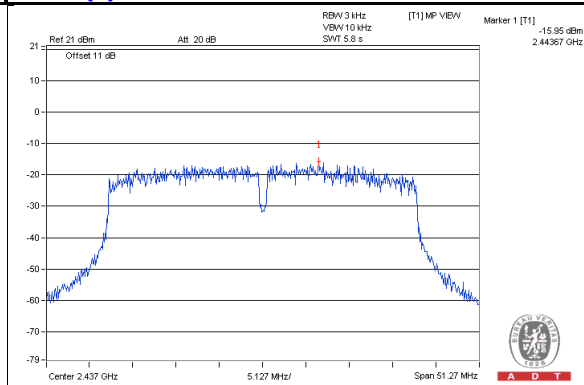
TX chain	Channel	FREQ. (MHz)	PSD (dBm)	10 log (N=2) dB	Total PSD (dBm)	Limit (dBm)	PASS /FAIL
0	3	2422	-18.20	3.01	-15.19	7.37	PASS
	6	2437	-15.95	3.01	-12.94	7.37	PASS
	9	2452	-20.75	3.01	-17.74	7.37	PASS
1	3	2422	-18.18	3.01	-15.17	7.37	PASS
	6	2437	-15.77	3.01	-12.76	7.37	PASS
	9	2452	-21.89	3.01	-18.88	7.37	PASS

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

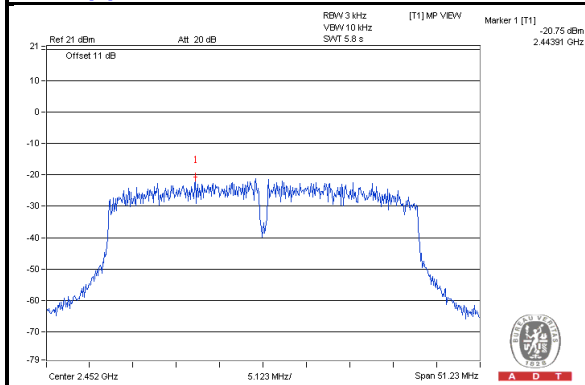
Chain(0) : CH3



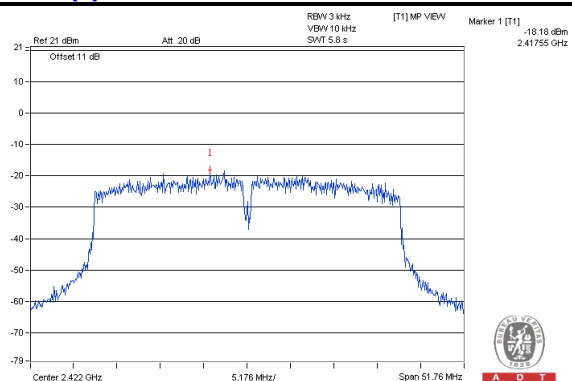
Chain(0) : CH6



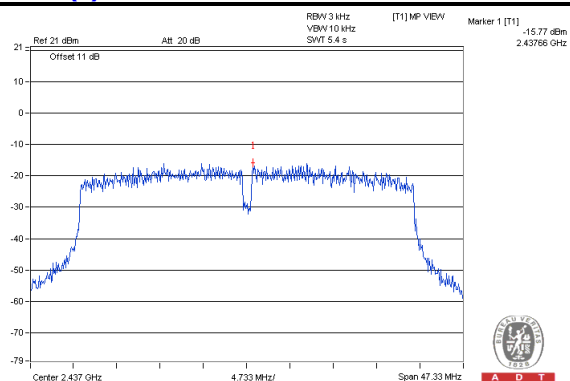
Chain(0) : CH9



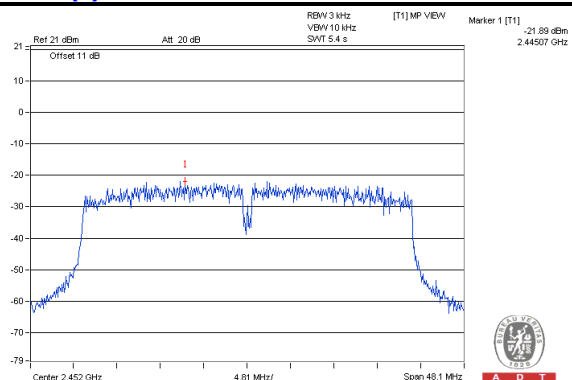
Chain(1) : CH3



Chain(1) : CH6



Chain(1) : CH9

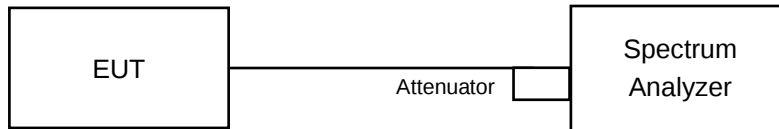


4.6 Conducted Out of Band Emission Measurement

4.6.1 Limits of Conducted Out of Band Emission Measurement

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

4.6.2 Test Setup



4.6.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.6.4 Test Procedure

MEASUREMENT PROCEDURE REF

1. Set the RBW = 100 kHz.
2. Set the VBW $\geq$ 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 OOB

1. Set RBW = 100 kHz.
2. Set VBW $\geq$ 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.

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

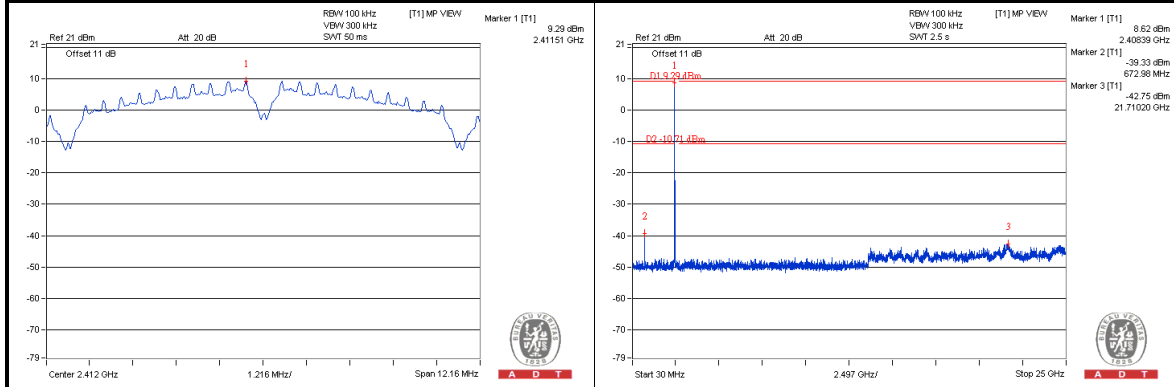
Same as Item 4.3.6

4.6.7 Test Results

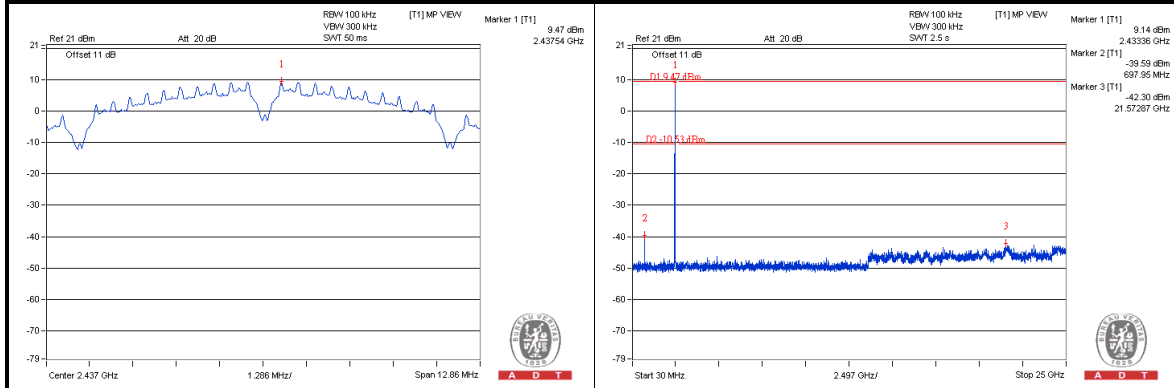
The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement.

802.11b

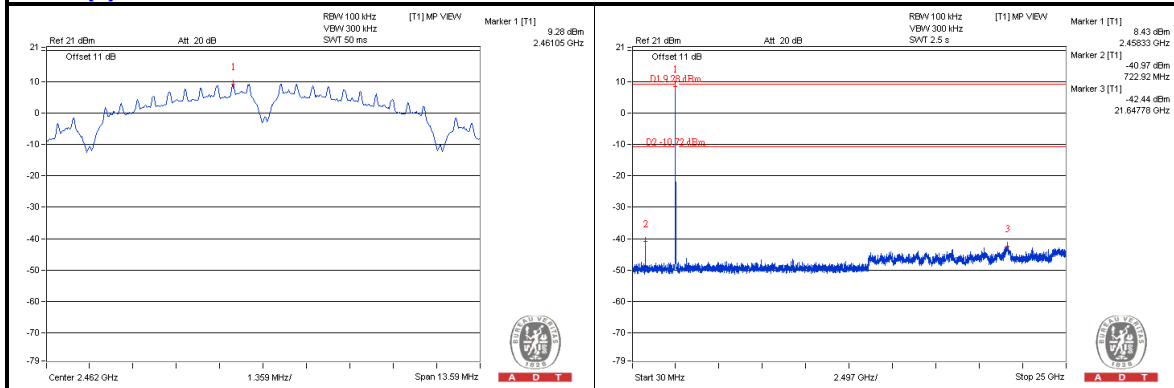
Chain(0) : CH 1



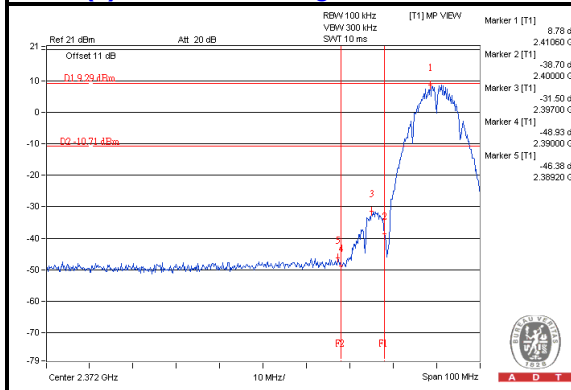
Chain(0) : CH 6



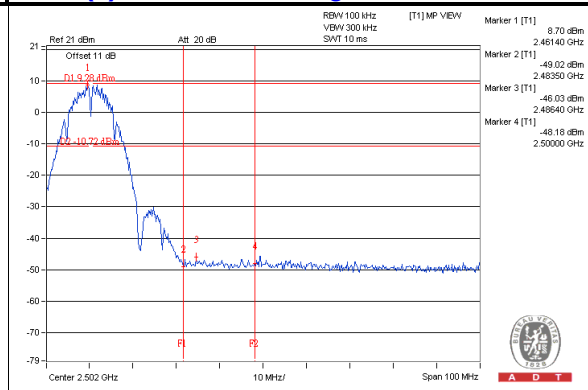
Chain(0) : CH 11



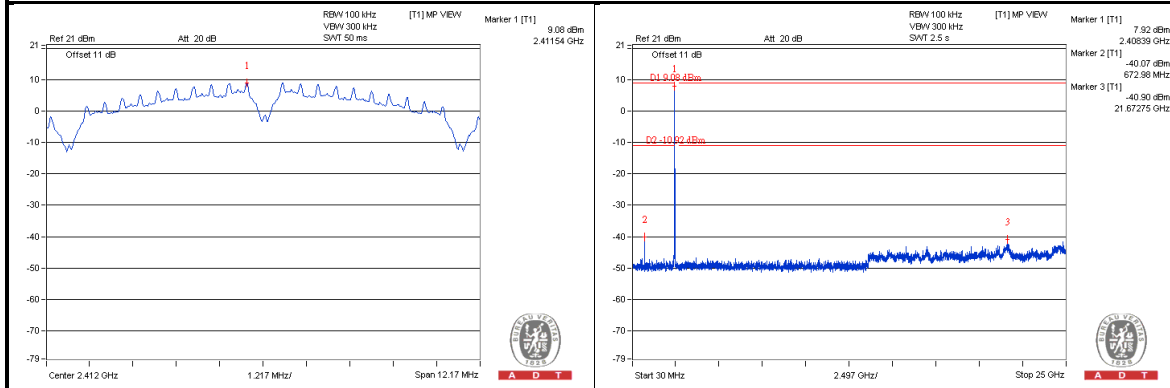
Chain(0) : CH 1 Band edge



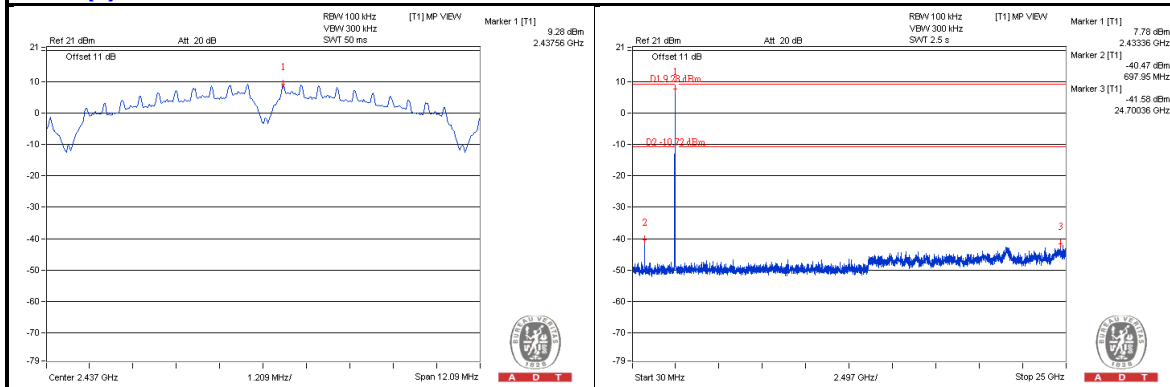
Chain(0) : CH 11 Band edge



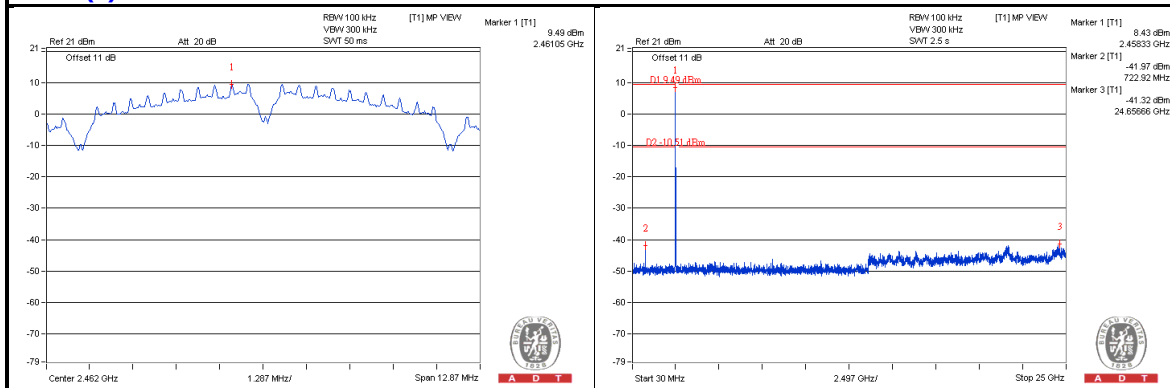
Chain(1) : CH 1



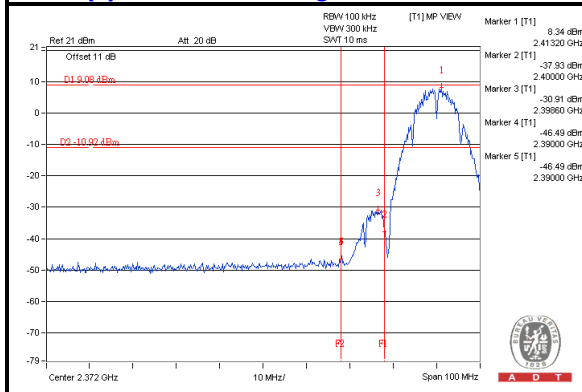
Chain(1) : CH 6



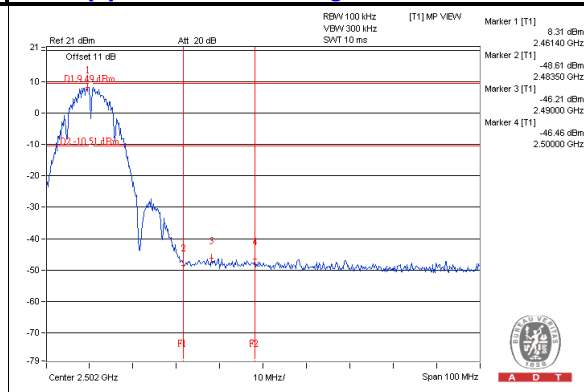
Chain(1) : CH 11



Chain(1) : CH 1 Band edge

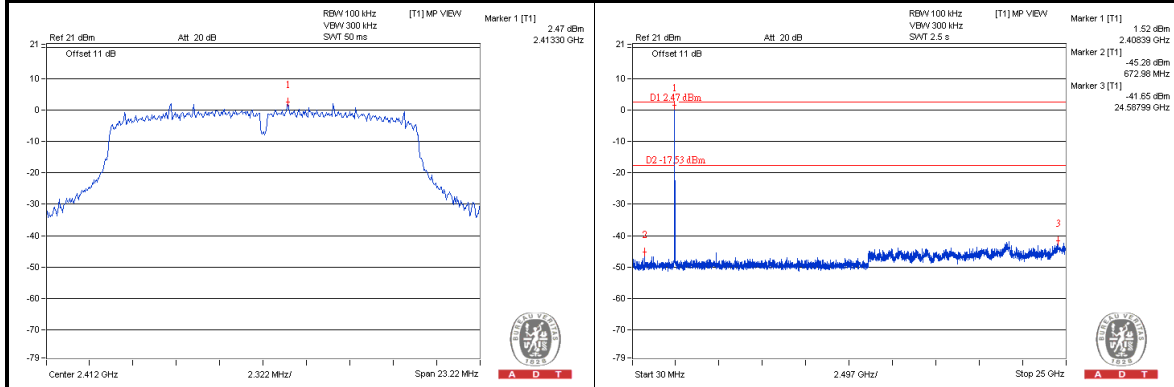


Chain(1) : CH 11 Band edge

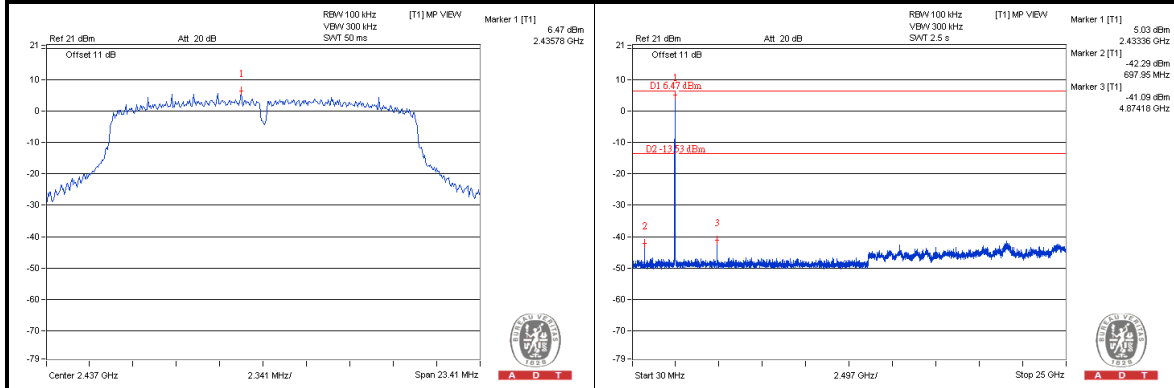


802.11g

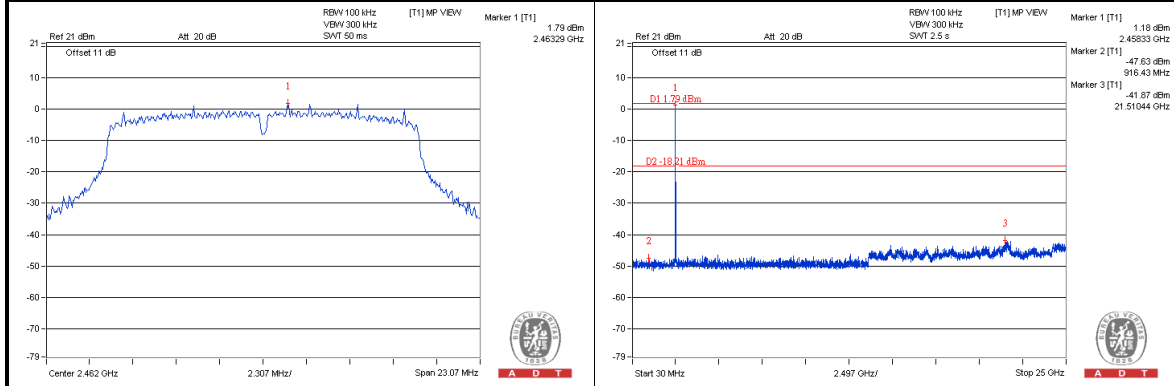
Chain(0) : CH 1



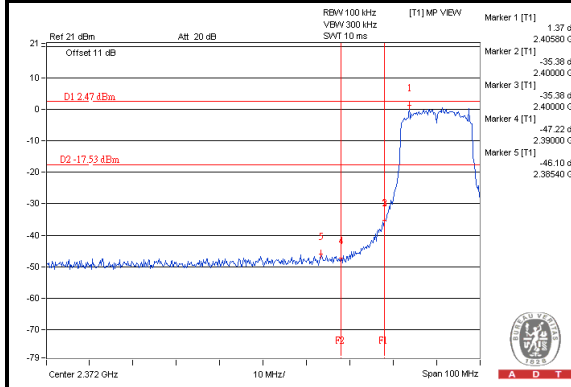
Chain(0) : CH 6



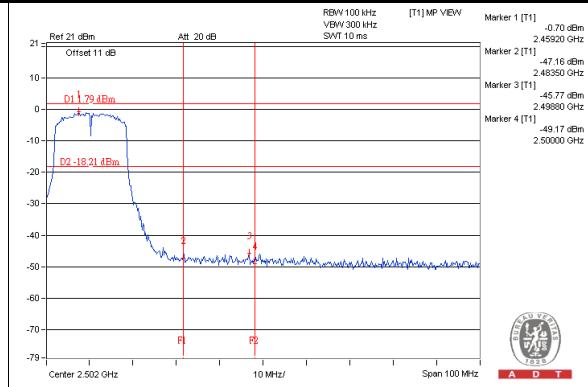
Chain(0) : CH 11



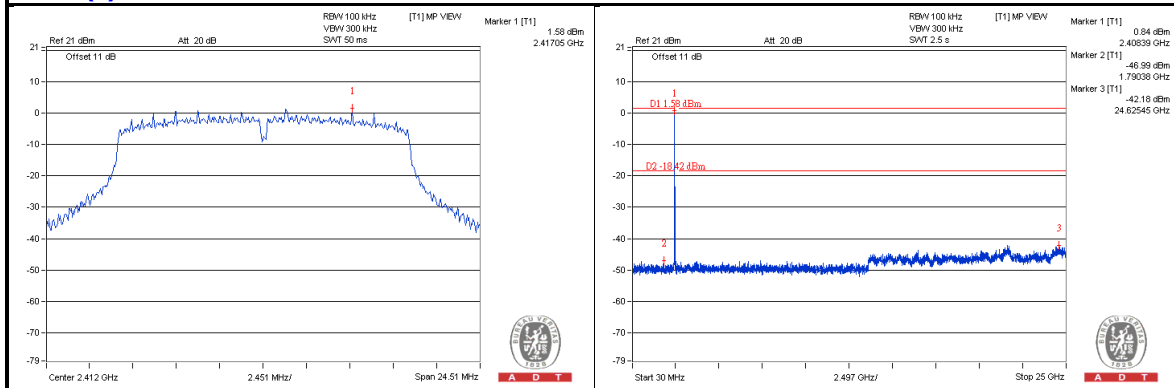
Chain(0) : CH 1 Band edge



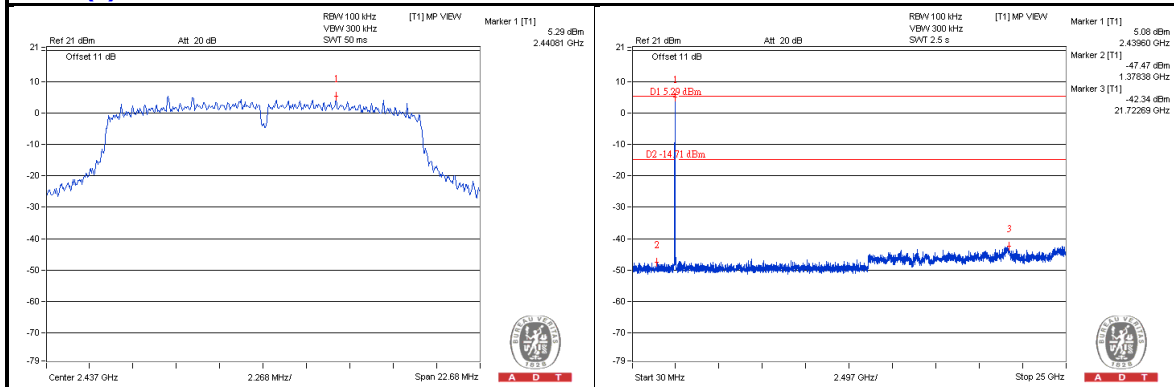
Chain(0) : CH 11 Band edge



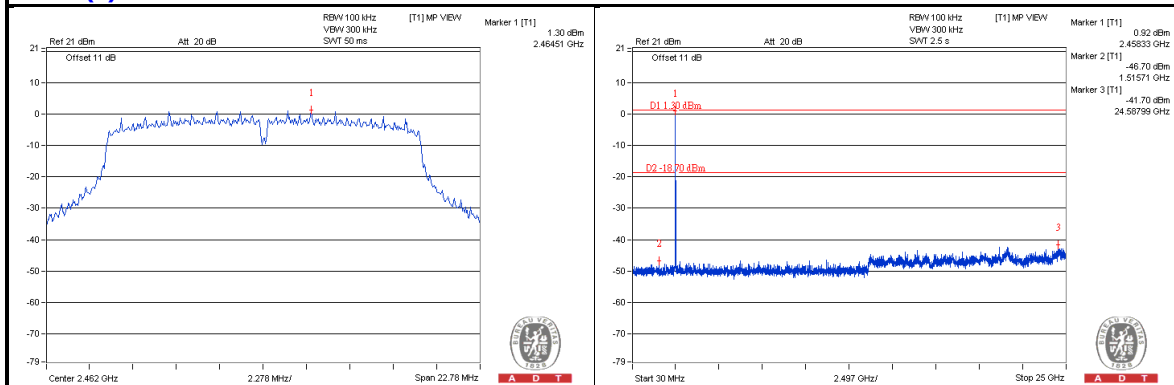
Chain(1) : CH 1



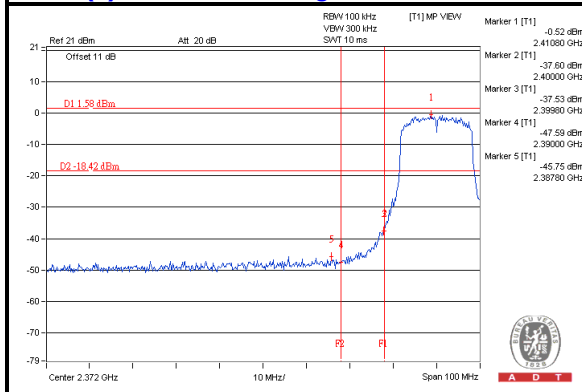
Chain(1) : CH 6



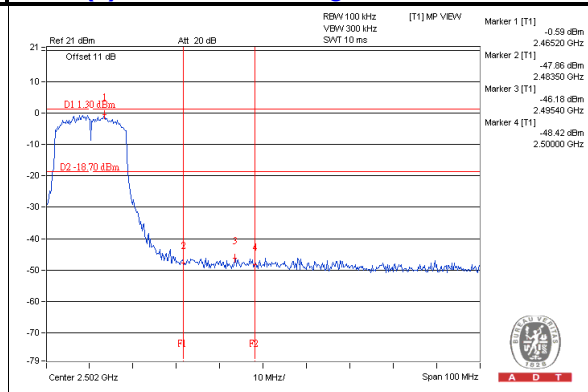
Chain(1) : CH 11



Chain(1) : CH 1 Band edge

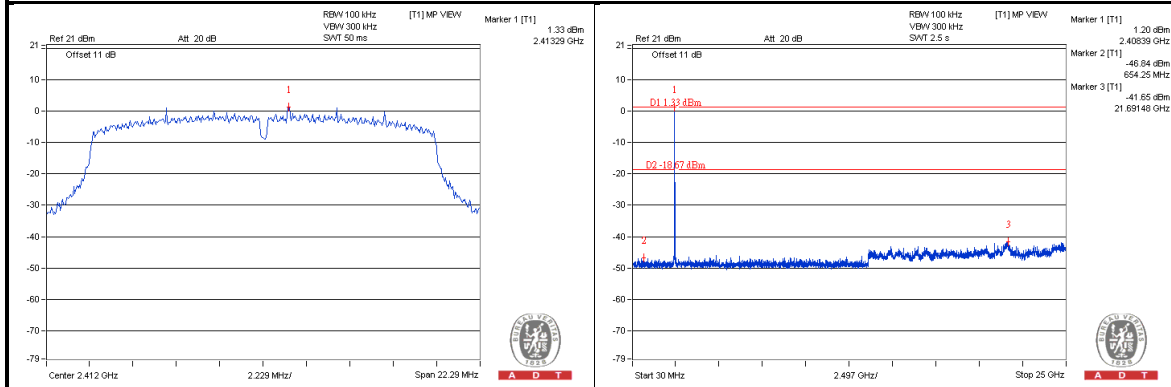


Chain(1) : CH 11 Band edge

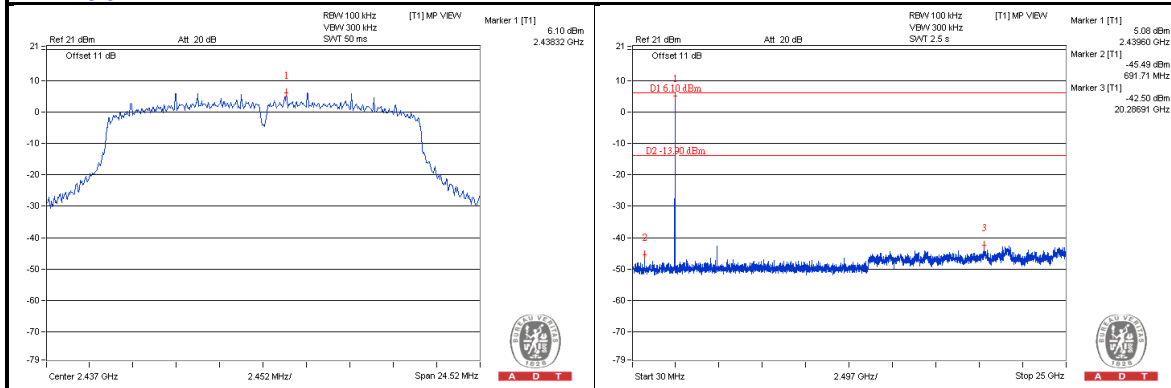


VHT20

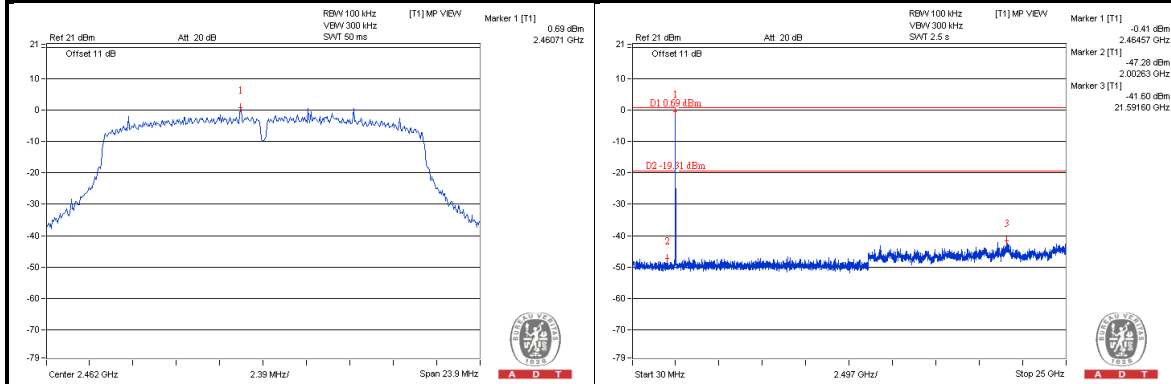
Chain(0) : CH 1



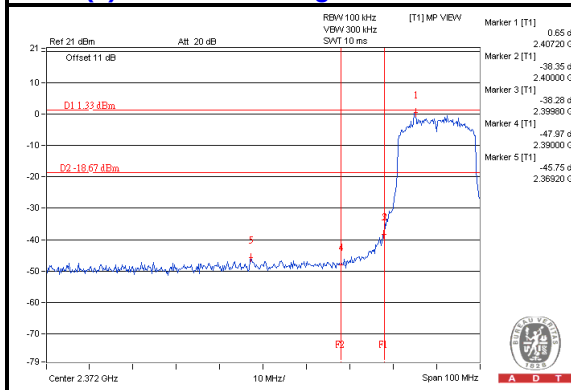
Chain(0) : CH 6



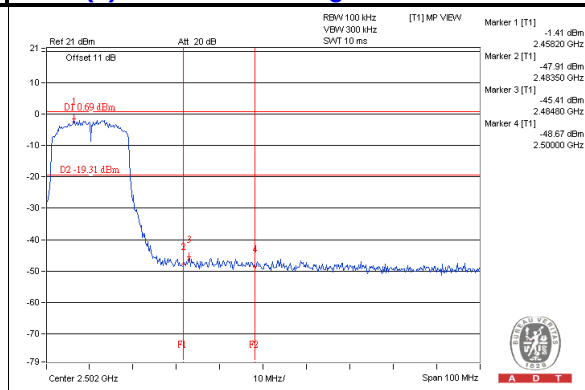
Chain(0) : CH 11



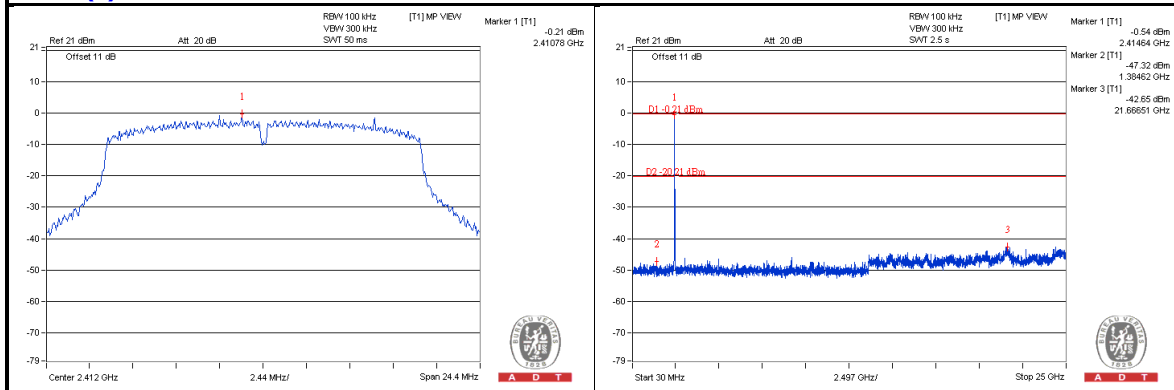
Chain(0) : CH 1 Band edge



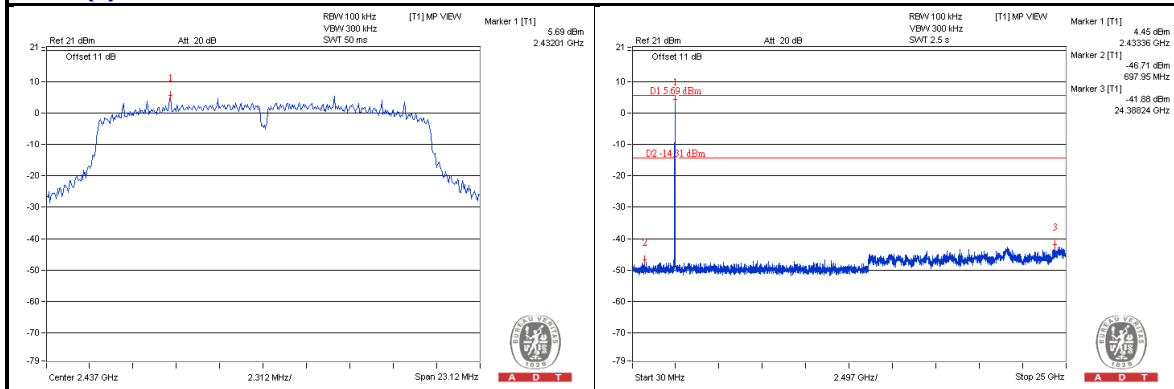
Chain(0) : CH 11 Band edge



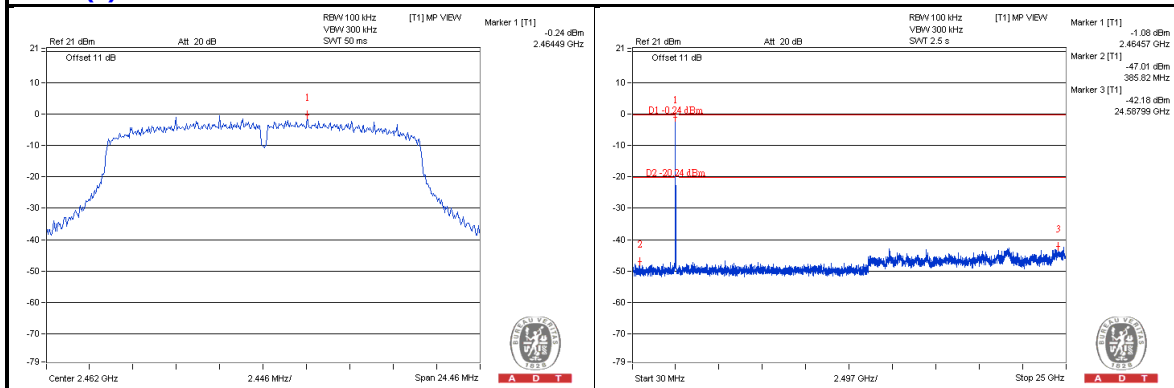
Chain(1) : CH 1



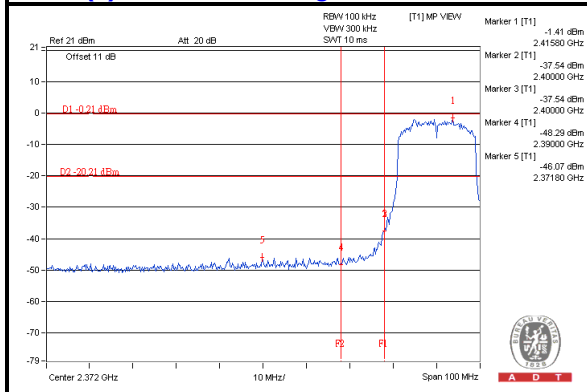
Chain(1) : CH 6



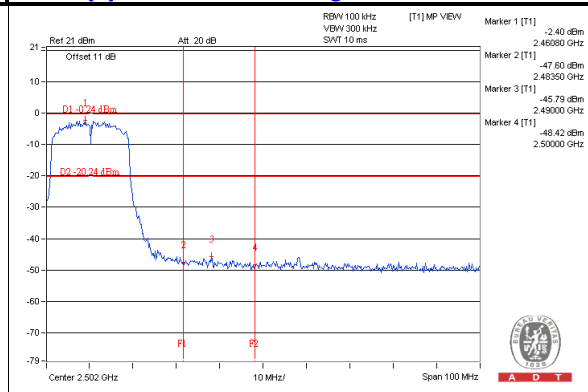
Chain(1) : CH 11



Chain(1) : CH 1 Band edge

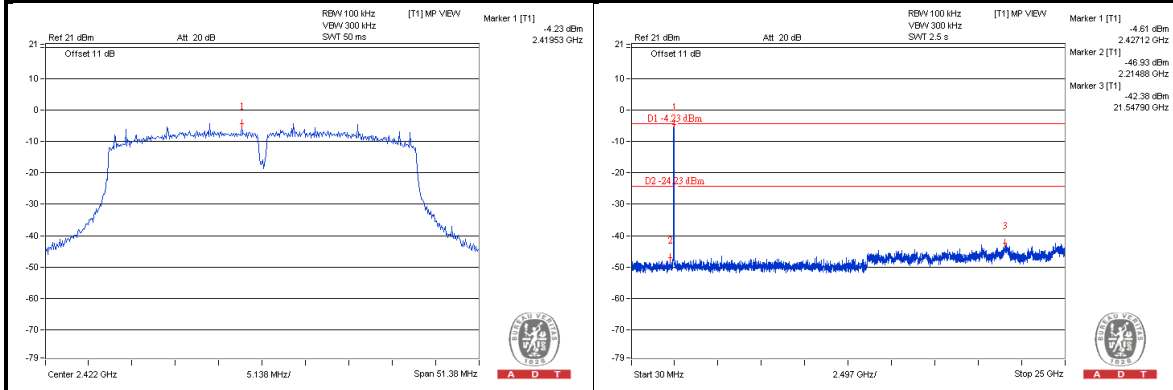


Chain(1) : CH 11 Band edge

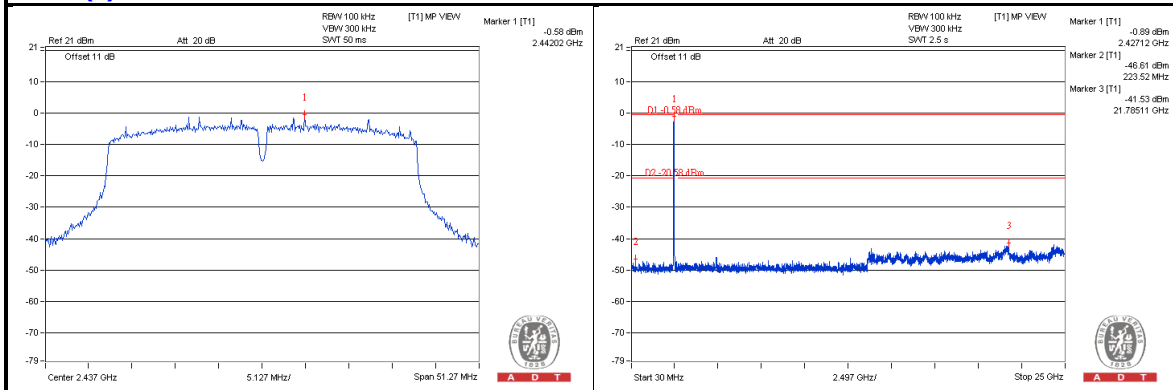


VHT40

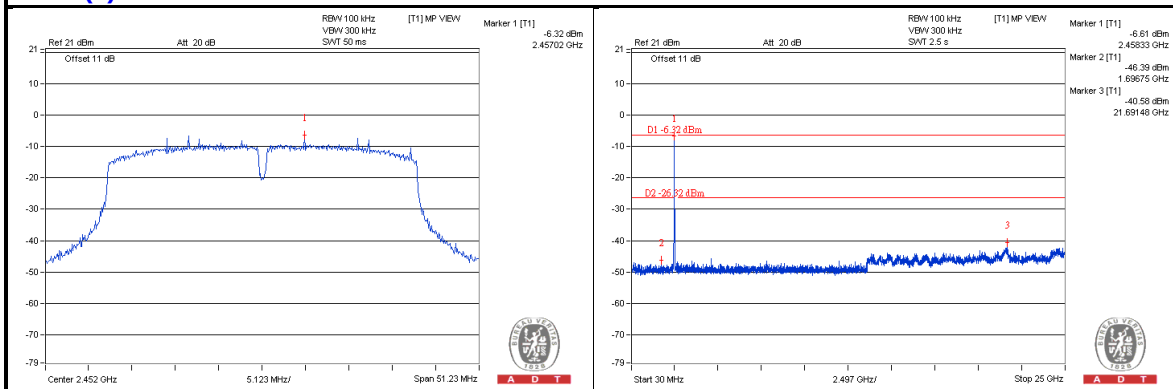
Chain(0) : CH 3



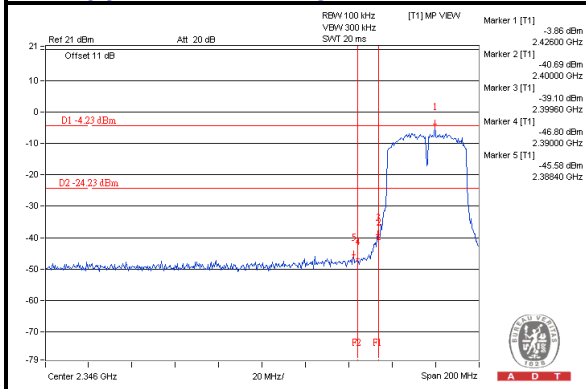
Chain(0) : CH 6



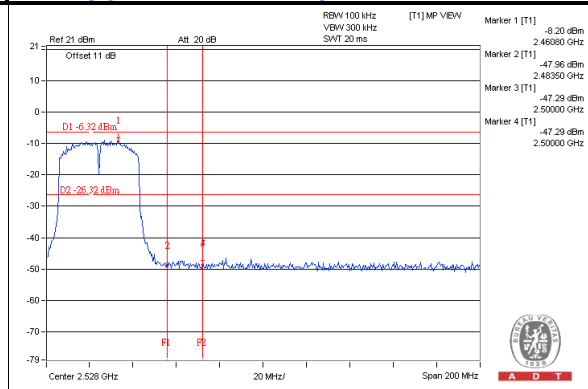
Chain(0) : CH 9



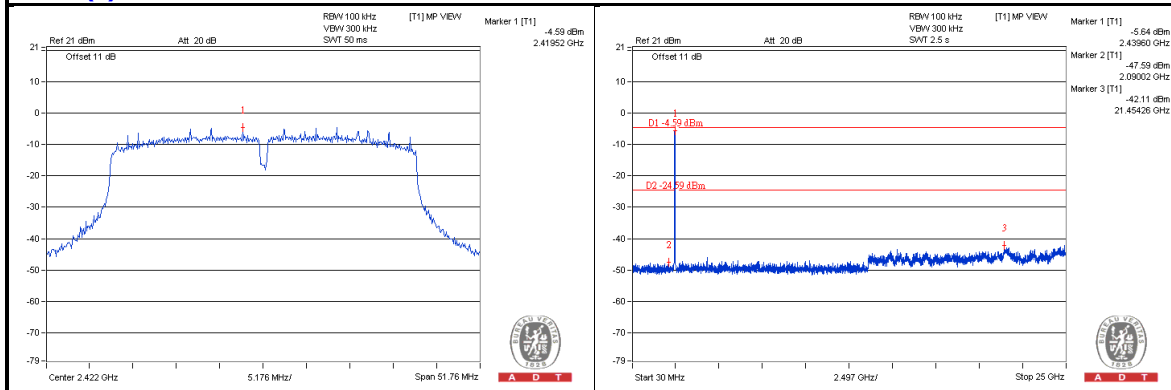
Chain(0) : CH 3 Band edge



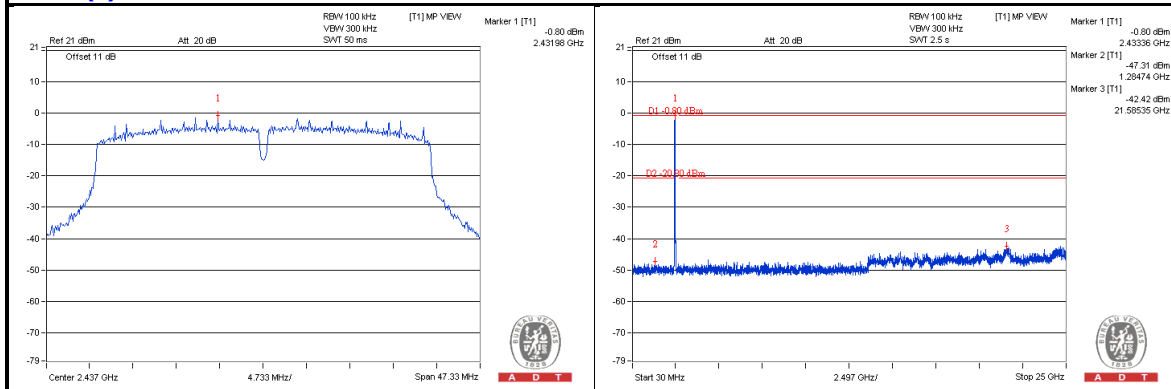
Chain(0) : CH 9 Band edge



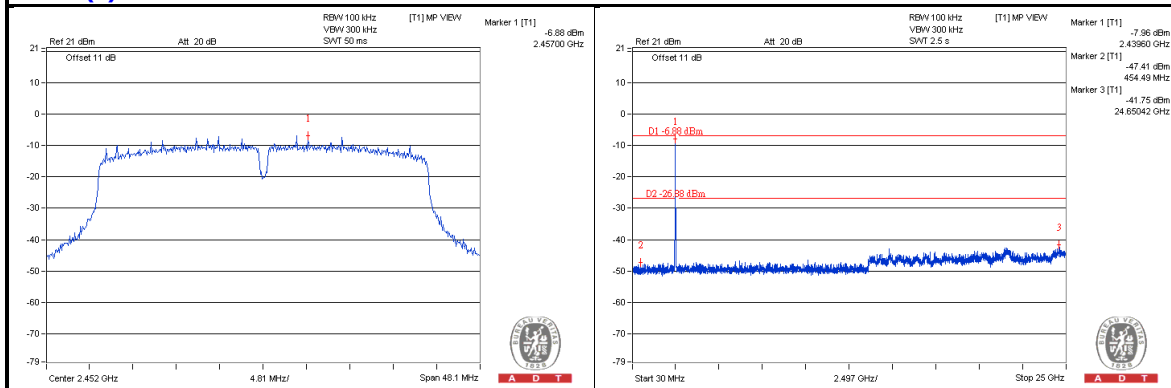
Chain(1) : CH 3



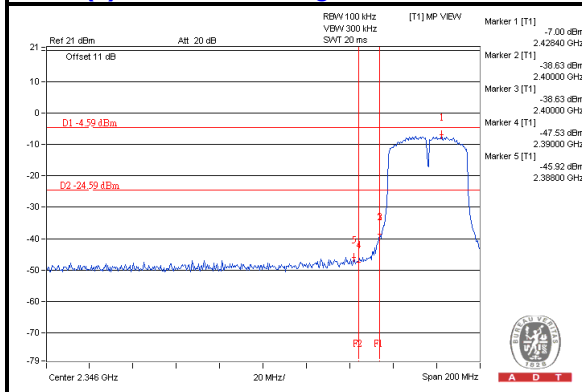
Chain(1) : CH 6



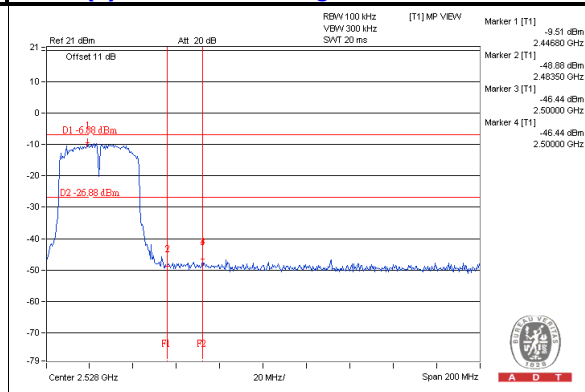
Chain(1) : CH 9



Chain(1) : CH 3 Band edge



Chain(1) : CH 9 Band edge



5 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo).

6 Appendix – Information on the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

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Email: service.adt@tw.bureauveritas.com

Web Site: www.bureauveritas-adt.com

The address and road map of all our labs can be found in our web site also.

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