FCC TEST REPORT (15.247)

REPORT NO.:	RF130930E04
MODEL NO.:	WRT1900AC
FCC ID:	Q87-WRT1900AC
RECEIVED:	Sep. 30, 2013
TESTED:	Oct. 08, 2013 to Jan. 22, 2014
ISSUED:	Feb. 27, 2014

APPLICANT:	Linksys LLC
ADDRESS:	131 Theory Drive Irvine California 92617 United States

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.

This report should not be used by the client to claim product certification, approval, or endorsement by TAF or any government agencies.

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF130930E04	Original release	Feb. 27, 2014

1. CERTIFICATION

PRODUCT:	Linksys Smart Wi-Fi Router
BRAND NAME:	Linksys
MODEL NO.:	WRT1900AC
TEST SAMPLE:	ENGINEERING SAMPLE
APPLICANT:	Linksys LLC
TESTED:	Oct. 08, 2013 to Jan. 22, 2014
STANDARDS:	FCC Part 15, Subpart C (Section 15.247) ANSI C63.10-2009

The above equipment (Model: WRT1900AC) 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:** *Feb. 27, 2014*
(Lori Chung, Specialist)

APPROVED BY : _____ , **DATE:** *Feb. 27, 2014*
(May Chen, Manager)

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

For 2.4GHz, 2400~2483.5MHz Band

APPLIED STANDARD: FCC PART 15, SUBPART C (SECTION 15.247)			
STANDARD SECTION	**TEST TYPE**	**RESULT**	**REMARK**
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is - 13.35 dB at 0.18125 MHz
15.247(d) 15.209	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -0.6 dB at 2390.00MHz
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 R-SMA not a standard connector.

For 5GHz, 5725~5850MHz Band

APPLIED STANDARD: FCC PART 15, SUBPART C (SECTION 15.247)			
STANDARD SECTION	**TEST TYPE**	**RESULT**	**REMARK**
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -13.39 dB at 0.18516 MHz
15.247(d) 15.209	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -1.9 dB at 5458.080 MHz.
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 R-SMA not a standard connector.

NOTE:

The EUT was operating in 2.400 ~ 2.4835GHz, 5.15~5.25GHz and 5.725~5.850GHz frequencies band. This report was recorded the RF parameters including 2.400 ~ 2.4835GHz and 5.725~5.850GHz. For the 5.15~5.25GHz 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:

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Measurement	Value
Conducted emissions	2.98 dB
Radiated emissions (30MHz-1GHz)	5.43 dB
Radiated emissions (1GHz -6GHz)	3.65 dB
Radiated emissions (6GHz -18GHz)	3.88 dB
Radiated emissions (18GHz -40GHz)	4.11 dB

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Linksys Smart Wi-Fi Router
MODEL NO.	WRT1900AC
POWER SUPPLY	DC 12V from power adapter
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 11ac mode and VHT20 and VHT40 mode of 2.4GHz Band.
MODULATION TECHNOLOGY	DSSS,OFDM
TRANSFER RATE	**2.4GHz:** 802.11b: up to 11Mbps 802.11g: up to 54Mbps 802.11n: up to 600Mbps 802.11ac: up to 800Mbps **5GHz:** 802.11a: up to 54Mbps 802.11n: up to 600Mbps 802.11ac: up to 3466.7Mbps
OPERATING FREQUENCY	**For 15.407** **5GHz:**5.18 ~ 5.24GHz
	For 15.247 **2.4GHz:** 2.412 ~ 2.462GHz **5GHz:** 5.745 ~ 5.825GHz
NUMBER OF CHANNEL	**For 15.407** 4 for 802.11a, 802.11n (HT20), 802.11ac (VHT20) 2 for 802.11n (HT40), 802.11ac (VHT40) 1 for 802.11ac (VHT80)
	For 15.247 (2.4GHz) 11 for 802.11b, 802.11g, 802.11n (HT20), 802.11ac (VHT20) 7 for 802.11n (HT40), 802.11ac (VHT40) **For 15.247 (5GHz)** 5 for 802.11a, 802.11n (HT20), 802.11ac (VHT20) 2 for 802.11n (HT40), 802.11ac (VHT40) 1 for 802.11ac (VHT80)

MAXIMUM OUTPUT POWER	**For 15.407** 802.11a: 38.122mW 802.11ac (VHT20): 39.293mW 802.11ac (VHT40): 46.905mW 802.11ac (VHT80): 45.611mW **For 15.247(2.4GHz)** 802.11b: 838.786mW 802.11g: 664.545mW 802.11n (HT20): 622.703mW 802.11n (HT40): 162.982mW **For 15.247(5GHz)** 802.11a: 487.878mW 802.11ac (VHT20): 608.021mW 802.11ac (VHT40): 416.829mW 802.11ac (VHT80): 460.019mW
ANTENNA TYPE	Please see NOTE
DATA CABLE	NA
I/O PORTS	Refer to user's manual
ASSOCIATED DEVICES	Adapter x1

NOTE:

1. 2.4GHz and 5GHz technology can transmit at same time.
2. The EUT must be supplied with a power adapter and following two different models could be chosen as following table:

No	Brand	Model No.	Spec.
1	Linksys	KSAH1200400T1M2	Input: 100-240V, 1.2A, 50-60Hz AC input cable: 0.5m, unshielded Output: 12V, 4A DC output cable: 1.5m, unshielded with 1 core
2	CWT	KPL-050F	Input: 100-240V, 1.7A, 50-60Hz AC input cable: 0.5m, unshielded Output: 12V, 4.17A DC output cable: 1.5m, unshielded with 1 core
Note: For radiated emissions test, the EUT was pre-tested with above adapters 1 & 2, the worst case was found in adapter 1. Therefore only the test data of the adapter was recorded in this report.			

3. The antennas provided to the EUT, please refer to the following table:

Transmitter Circuit	Brand	Gain (dBi)	Cable Loss (dB)	Net Gain (dBi)	Frequency Range (GHz to GHz)	Antenna Type	Connecter Type
Chain (0)	LINKSYS	2.5	1	1.5	2.4 ~ 2.4835	DIPOLE	R-SMA
		2.6	1.6	1	5.15 ~ 5.25		
		3.8	1.9	1.9	5.725 ~ 5.85		
Chain (1)	LINKSYS	2.5	1	1.5	2.4 ~ 2.4835	DIPOLE	R-SMA
		2.6	1.5	1.1	5.15 ~ 5.25		
		3.8	2.1	1.7	5.725 ~ 5.85		
Chain (2)	LINKSYS	2.5	1	1.5	2.4 ~ 2.4835	DIPOLE	R-SMA
		2.6	1.5	1.1	5.15 ~ 5.25		
		3.8	2.1	1.7	5.725 ~ 5.85		
Chain (3)	LINKSYS	2.5	0.5	2	2.4 ~ 2.4835	DIPOLE	R-SMA
		2.6	0.9	1.7	5.15 ~ 5.25		
		3.8	1.6	2.2	5.725 ~ 5.85		

4. The EUT has two different Transformer types could be chosen and please refer the below table:

Type 1 (Vendor: MINGTEK)		
Vendor P/N	**Vendor**	**Location**
HN1878CG	MINGTEK	T1
HN3678CG	MINGTEK	T2, T3
Type 2 (Vendor: MYJWD)		
Vendor P/N	**Vendor**	**Location**
DG18107-1G	MYJWD	T1
DG36005-1G	MYJWD	T2, T3

From the above types, the worst case was found in **Type 2 (Vendor: MYJWD)**. Therefore only the test data of the type were recorded in this report.

5. The EUT incorporates a MIMO function with beam forming except 802.11b.

MODULATION MODE	Tx/Rx FUNCTION
802.11a	3TX / 4TX / 4RX
802.11b	4TX / 4RX
802.11g	4TX / 4RX
802.11n (HT20) <2.4GHz>	4TX / 4RX
802.11n (HT40) <2.4GHz>	4TX / 4RX
802.11n (HT20) <5GHz>	3TX / 4TX / 4RX
802.11n (HT40) <5GHz>	3TX / 4TX / 4RX
802.11ac (VHT20)	3TX / 4TX / 4RX
802.11ac (VHT40)	3TX / 4TX / 4RX
802.11ac (VHT80)	3TX / 4TX / 4RX

Note: 1. 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 3.2.1)

6. When the EUT operating in 802.11n, the software operation, which is defined by manufacturer, MCS (Modulation and Coding Schemes) from 0 to 31.

7. When the EUT operating in 802.11ac and support 256QAM of VHT20 and VHT40 for 2.4GHz band, the software operation, which is defined by manufacturer, MCS (Modulation and Coding Schemes) from 0 to 9.

8. The emission of the simultaneous operation (2.4GHz & 5GHz) has been evaluated and no non-compliance was found.

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

3.2 DESCRIPTION OF TEST MODES

Operated in 2400 ~ 2483.5MHz band:

11 channels are provided for 802.11b, 802.11g, 802.11n (HT20), 802.11ac (VHT20):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
1	2412MHz	7	2442MHz
2	2417MHz	8	2447MHz
3	2422MHz	9	2452MHz
4	2427MHz	10	2457MHz
5	2432MHz	11	2462MHz
6	2437MHz		

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
3	2422MHz	7	2442MHz
4	2427MHz	8	2447MHz
5	2432MHz	9	2452MHz
6	2437MHz		

Operated in 5725 ~ 5850MHz band:

5 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
149	5745 MHz	161	5805 MHz
153	5765 MHz	165	5825 MHz
157	5785 MHz		

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

CHANNEL	FREQUENCY
151	5755 MHz
159	5795 MHz

1 channel is provided for 802.11ac (VHT80):

CHANNEL	FREQUENCY
155	5775 MHz

3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO					DESCRIPTION
	PLC	RE < 1G	RE ³ 1G	APCM	OB	
1	√	√	√	√	√	Adapter 1
2	√	-	-	-	-	Adapter 2

Where **PLC:** Power Line Conducted Emission **RE < 1G:** Radiated Emission below 1GHz

RE ³ 1G: Radiated Emission above 1GHz **APCM:** Antenna Port Conducted Measurement

OB: Conducted Out-Band Emission Measurement

Note: The EUT had been pre-tested on the positioned of each 2 axis. The worst case was found when positioned on **Y-plane** (for below 1GHz) and **X-plane** (for above 1GHz)**.**

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	MODULATION TYPE	DATA RATE (Mbps)
802.11g	1 to 11	6	OFDM	BPSK	6
For 5 GHz 802.11ac (VHT20)	149 to 165	165	OFDM	BPSK	6.5

RADIATED EMISSION TEST (BELOW 1 GHz):

☒ 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	MODULATION TYPE	DATA RATE (Mbps)
802.11g	1 to 11	6	OFDM	BPSK	6
For 5 GHz 802.11ac (VHT20)	149 to 165	165	OFDM	BPSK	6.5

RADIATED EMISSION TEST (ABOVE 1 GHz):

☒ 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	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
For 2.4 GHz 802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
For 2.4 GHz 802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	13.5
802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6
For 5 GHz 802.11ac (VHT20)	149 to 165	149, 157, 165	OFDM	BPSK	6.5
For 5 GHz 802.11ac (VHT40)	151 to 159	151, 159	OFDM	BPSK	13.5
For 5 GHz 802.11ac (VHT80)	155	155	OFDM	BPSK	29.3

ANTENNA PORT CONDUCTED MEASUREMENT:

☒ 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	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
For 2.4 GHz 802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
For 2.4 GHz 802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	13.5
802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6
For 5 GHz 802.11ac (VHT20)	149 to 165	149, 157, 165	OFDM	BPSK	6.5
For 5 GHz 802.11ac (VHT40)	151 to 159	151, 159	OFDM	BPSK	13.5
For 5 GHz 802.11ac (VHT80)	155	155	OFDM	BPSK	29.3

CONDUCTED OUT-BAND EMISSION MEASUREMENT:

☒ 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	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
For 2.4 GHz 802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
For 2.4 GHz 802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	13.5
802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6
For 5 GHz 802.11ac (VHT20)	149 to 165	149, 157, 165	OFDM	BPSK	6.5
For 5 GHz 802.11ac (VHT40)	151 to 159	151, 159	OFDM	BPSK	13.5
For 5 GHz 802.11ac (VHT80)	155	155	OFDM	BPSK	29.3

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
PLC	26deg. C,67%RH	120Vac, 60Hz	Sean Huang
RE<1G	21deg. C, 63%RH	120Vac, 60Hz	Andy Ho
RE≥1G	24deg. C, 65%RH	120Vac, 60Hz	Nelson Teng
APCM	25deg. C, 60%RH	120Vac, 60Hz	Chilin Lee
OB	25deg. C, 60%RH	120Vac, 60Hz	Chilin Lee

3.3 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:

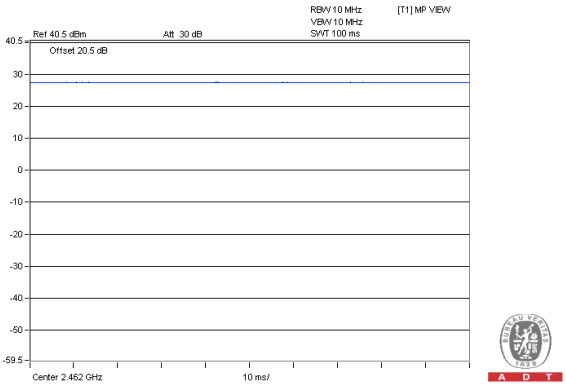
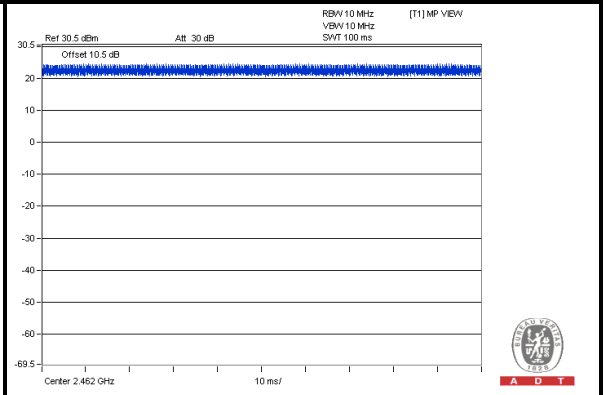
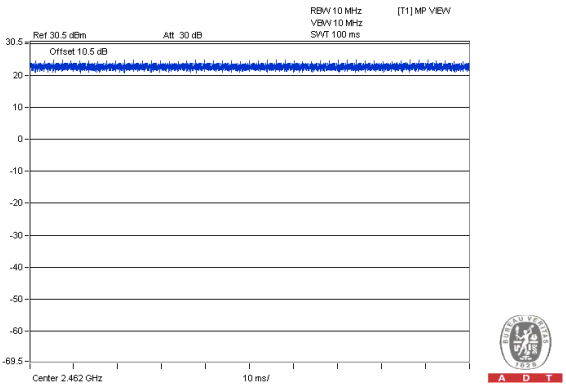
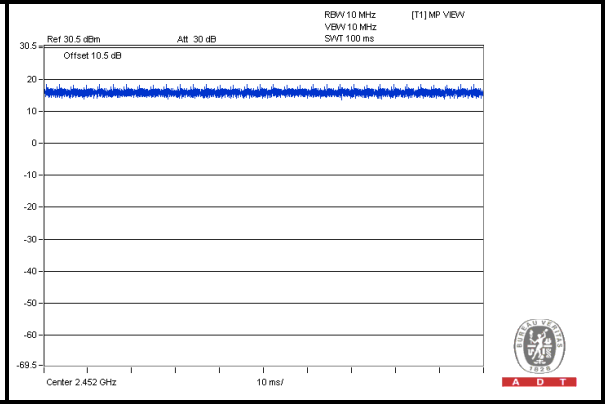
FCC Part 15, Subpart C. (15.247)
558074 D01 DTS Meas Guidance v03r01
662911 D01 Multiple Transmitter Output v02
ANSI C63.10-2009

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

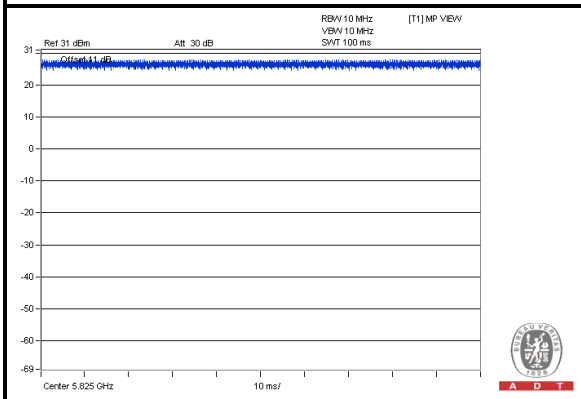
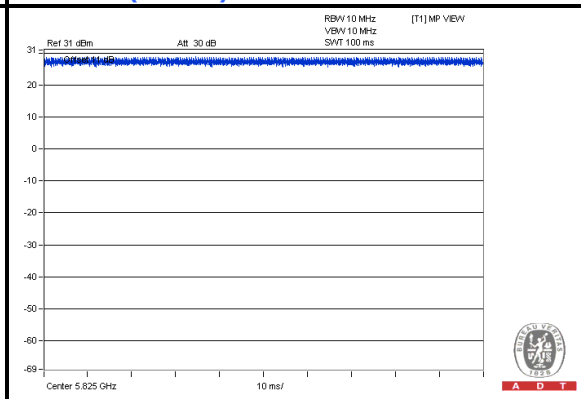
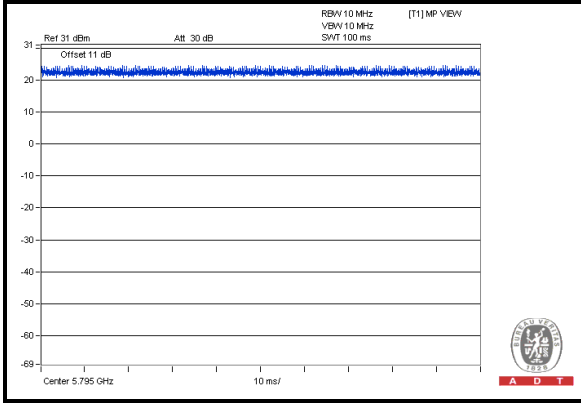
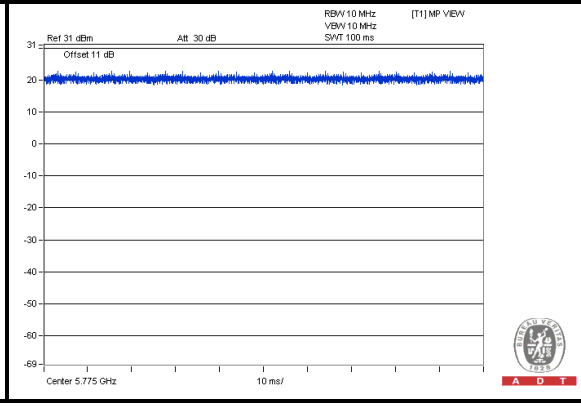
Note: The EUT has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.

3.4 DUTY CYCLE OF TEST SIGNAL

Duty cycle of test signal is 100 %, duty factor is not required.

802.11b	802.11g
	
802.11n (HT20)	**802.11n (HT40)**
	

Duty cycle of test signal is 100 %, duty factor is not required.

802.11a	802.11ac (VHT20)
	
802.11ac (VHT40)	**802.11ac (VHT80)**
	

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.

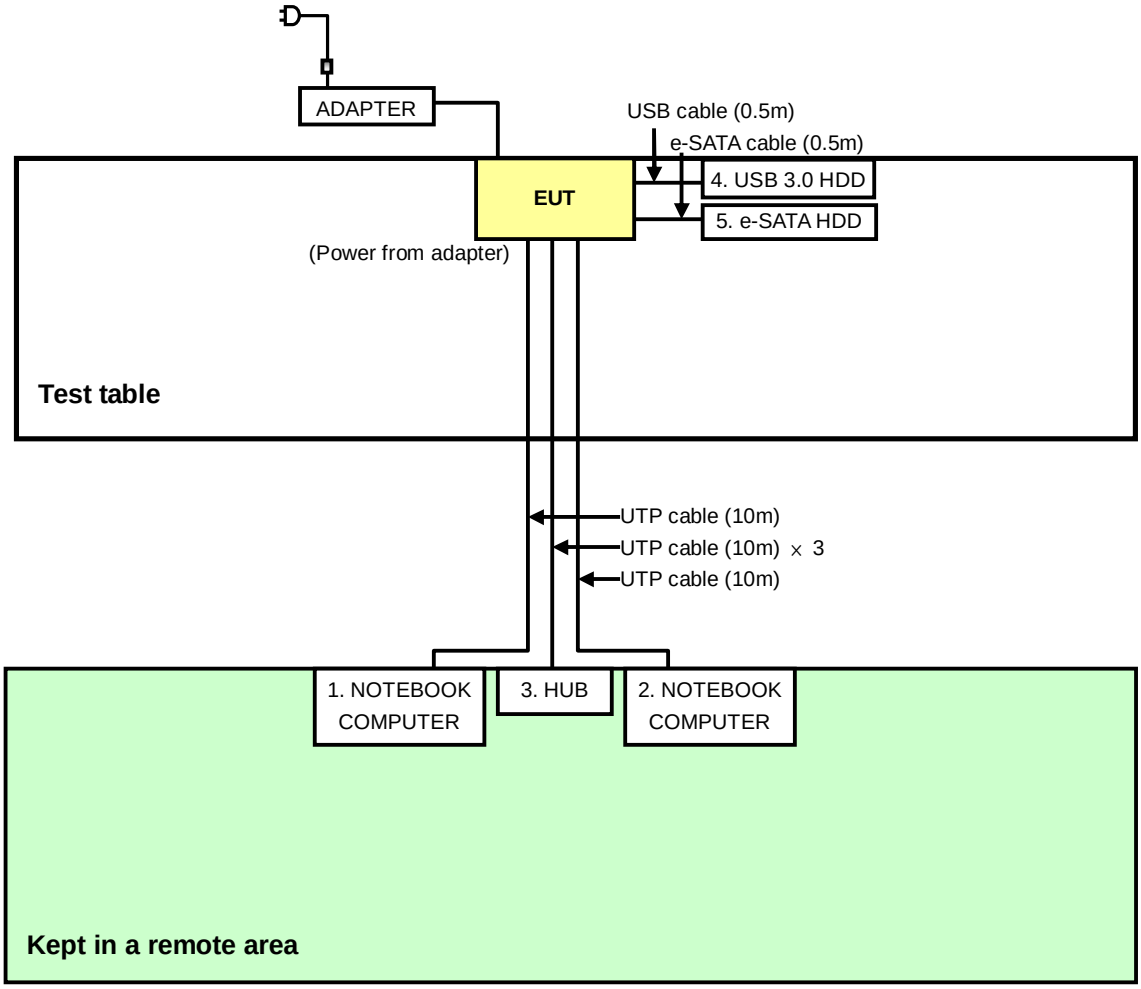
NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP32LA	FSLB32S	FCC DoC
2	NOTEBOOK COMPUTER	DELL	PP32LA	GSLB32S	FCC DoC
3	HUB	ZyXEL	ES-116P	S060H02000215	FCC DoC
4	USB 3.0 HDD	WD	WDBACW0010HBK-SESN	WCAZAL625787	NA
5	e-SATA HDD	HITACHI	HTS541680J9SA00	SGCZ35SE	NA

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	UTP cable (10m)
2	UTP cable (10m)
3	UTP cable (10m)
4	USB cable (0.5m)
5	e-SATA cable (0.5m)

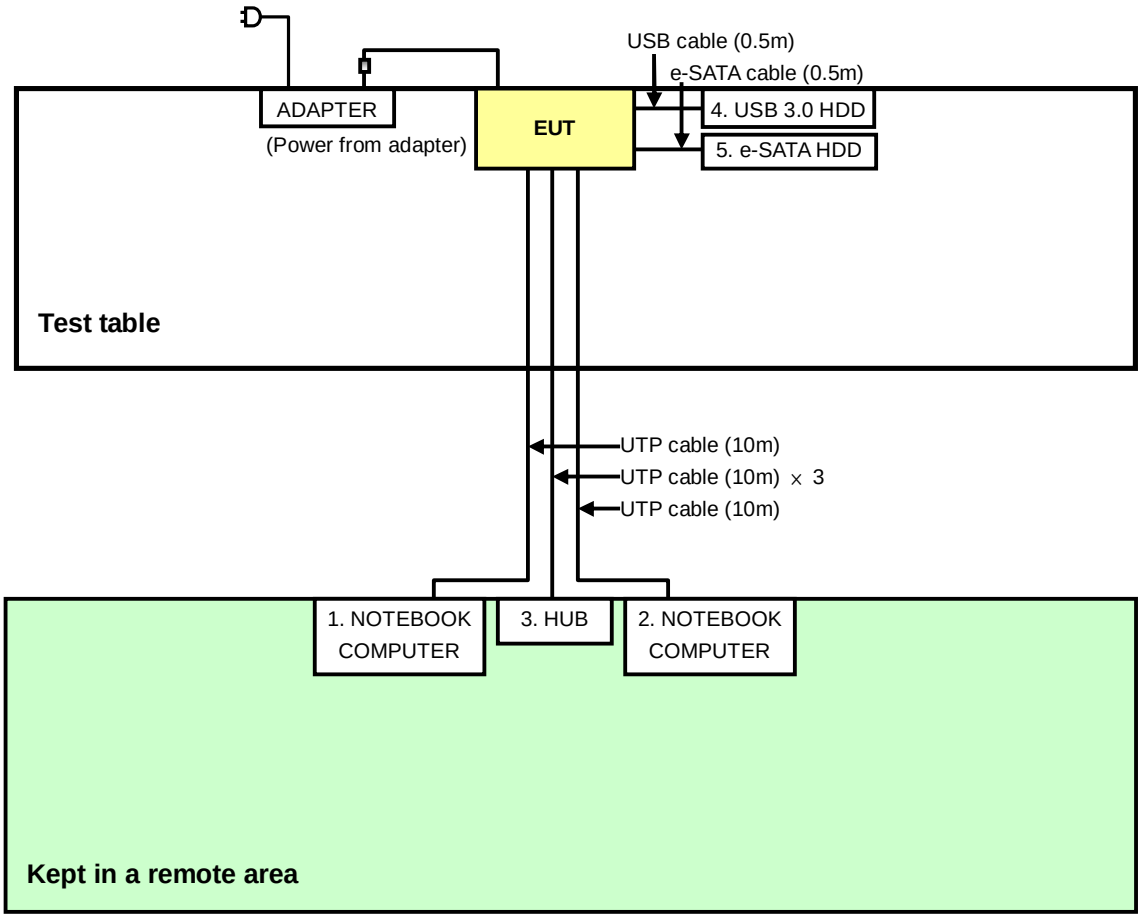
NOTE: All power cords of the above support units are non shielded (1.8m).

3.6 CONFIGURATION OF SYSTEM UNDER TEST

For conducted emission MODE 1 test:



For other test items:



4. TEST TYPES AND RESULTS (FOR 2.4GHz, 2.400 ~ 2.4835GHz Band)

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	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 0.50 MHz.

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver ROHDE & SCHWARZ	ESCS 30	100375	Mar. 08, 2013	Mar. 07, 2014
Line-Impedance Stabilization Network (for EUT) SCHWARZBECK	NSLK8127	8127-522	Sep. 05, 2013	Sep. 04, 2014
Line-Impedance Stabilization Network (for Peripheral)	ENV216	100072	June 06, 2013	June 05, 2014
RF Cable (JYEBAO)	5DFB	COCCAB-001	Mar. 11, 2013	Mar. 10, 2014
50 ohms Terminator	50	EMC-03	Sep. 24, 2013	Sep. 23, 2014
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: Oct. 08, 2013

4.1.3 TEST PROCEDURES

a. 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.
b. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
c. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
d. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) were not recorded.

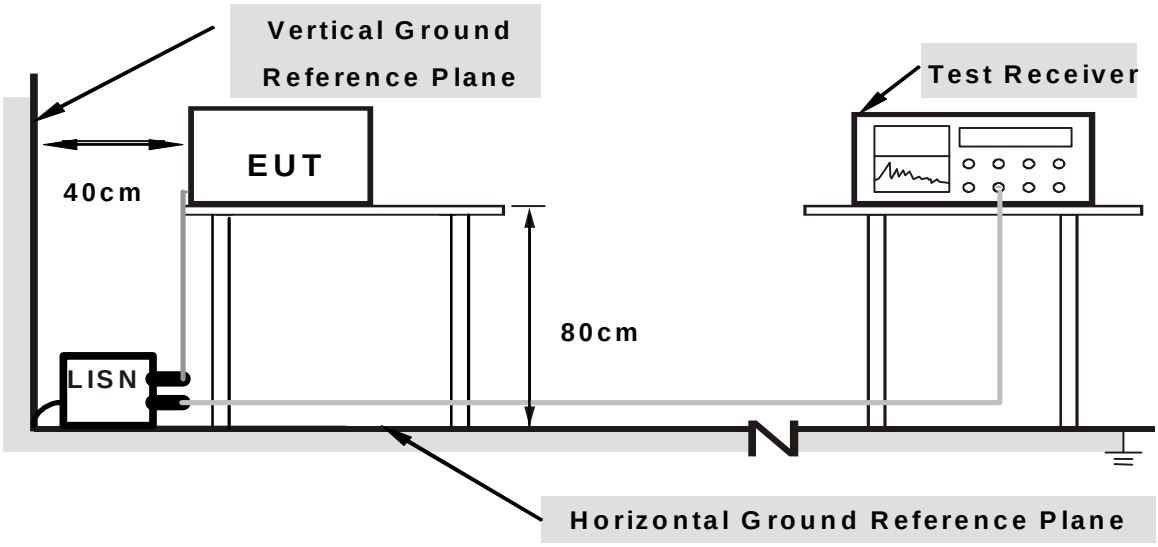
NOTE:

1. The resolution bandwidth of test receiver is 9kHz for Quasi-peak detection (QP) & Average detection (AV).

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 TEST SETUP



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

For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

4.1.6 EUT OPERATING CONDITIONS

1. Place the EUT on testing table.
2. Prepare computer system (support unit 1) to act as communication partner.
3. The communication partner runs test program “DupApiMimoApApp.exex [ver.2.0.0.22]” to enable EUT under transmission/receiving condition continuously at specific channel frequency.

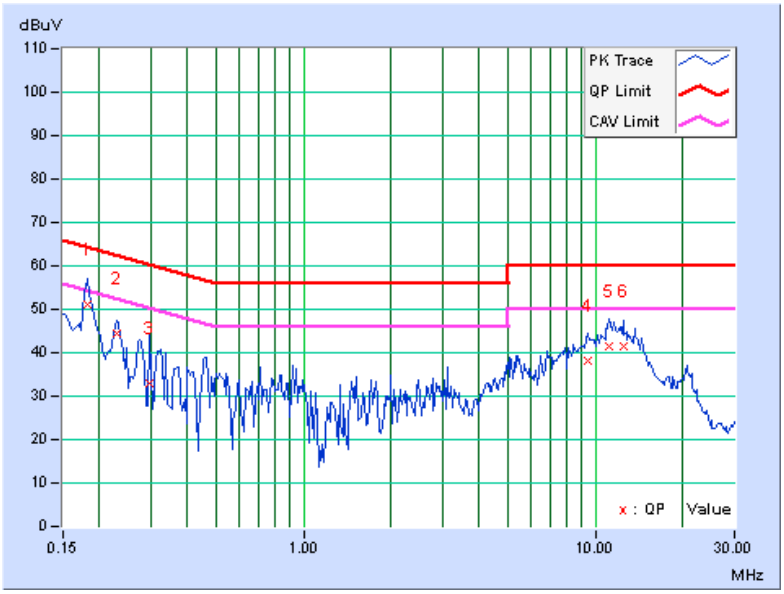
4.1.7 TEST RESULTS (MODE 1)

PHASE	Line (L)	DETECTOR FUNCTION	Quasi-Peak (QP) / Average (AV)

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	**0.18125**	**0.09**	**50.99**	**37.57**	**51.08**	**37.66**	**64.43**	**54.43**	**-13.35**	**-16.77**
2	0.22812	0.11	44.44	31.93	44.55	32.04	62.52	52.52	-17.97	-20.48
3	0.29844	0.12	32.78	10.46	32.90	10.58	60.29	50.29	-27.39	-39.71
4	9.39063	0.45	37.88	30.40	38.33	30.85	60.00	50.00	-21.67	-19.15
5	11.15625	0.50	41.04	33.90	41.54	34.40	60.00	50.00	-18.46	-15.60
6	12.44141	0.54	41.04	34.47	41.58	35.01	60.00	50.00	-18.42	-14.99

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

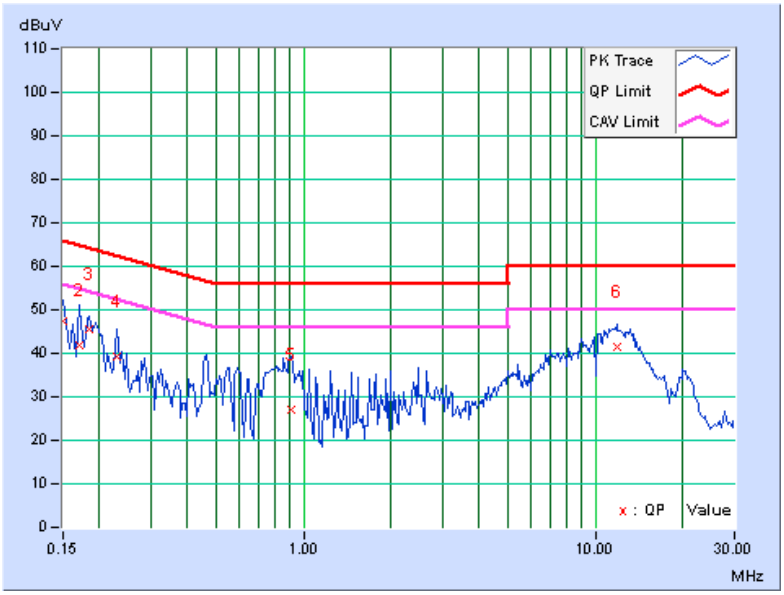


PHASE	Neutral (N)	DETECTOR FUNCTION	Quasi-Peak (QP) / Average (AV)

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	0.09	47.18	27.05	47.27	27.14	66.00	56.00	-18.73	-28.86
2	0.16953	0.09	41.64	19.48	41.73	19.57	64.98	54.98	-23.25	-35.41
3	0.18516	0.10	45.57	32.32	45.67	32.42	64.25	54.25	-18.58	-21.83
4	0.22812	0.11	39.17	26.43	39.28	26.54	62.52	52.52	-23.24	-25.98
5	0.90781	0.17	27.05	13.10	27.22	13.27	56.00	46.00	-28.78	-32.73
6	11.82031	0.52	40.82	34.04	41.34	34.56	60.00	50.00	-18.66	-15.44

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



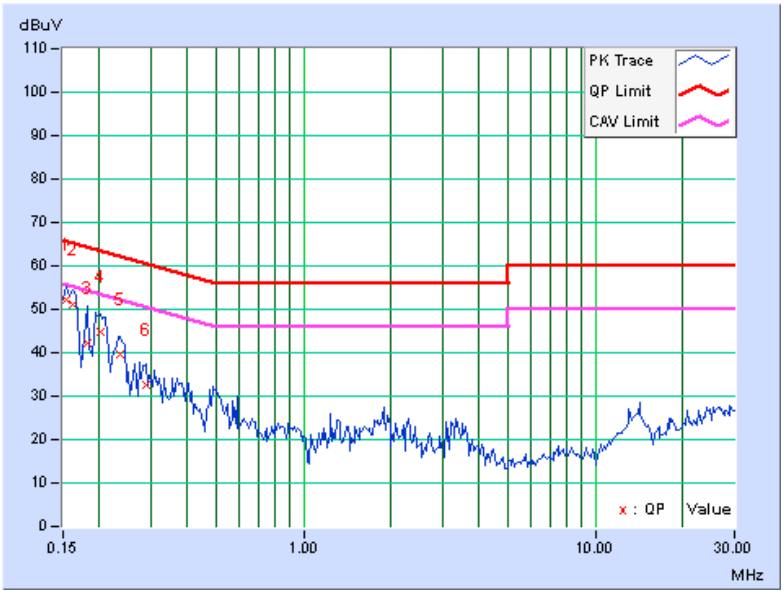
4.1.8 TEST RESULTS (MODE 2)

PHASE	Line (L)	DETECTOR FUNCTION	Quasi-Peak (QP) / Average (AV)

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15391	0.08	52.23	34.68	52.31	34.76	65.79	55.79	-13.47	-21.02
2	0.16172	0.08	51.12	34.28	51.20	34.36	65.38	55.38	-14.17	-21.01
3	0.18125	0.09	42.03	16.51	42.12	16.60	64.43	54.43	-22.31	-37.83
4	0.20078	0.10	44.66	27.79	44.76	27.89	63.58	53.58	-18.82	-25.69
5	0.23594	0.11	39.60	22.41	39.71	22.52	62.24	52.24	-22.53	-29.72
6	0.29063	0.12	32.65	14.06	32.77	14.18	60.51	50.51	-27.74	-36.33

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

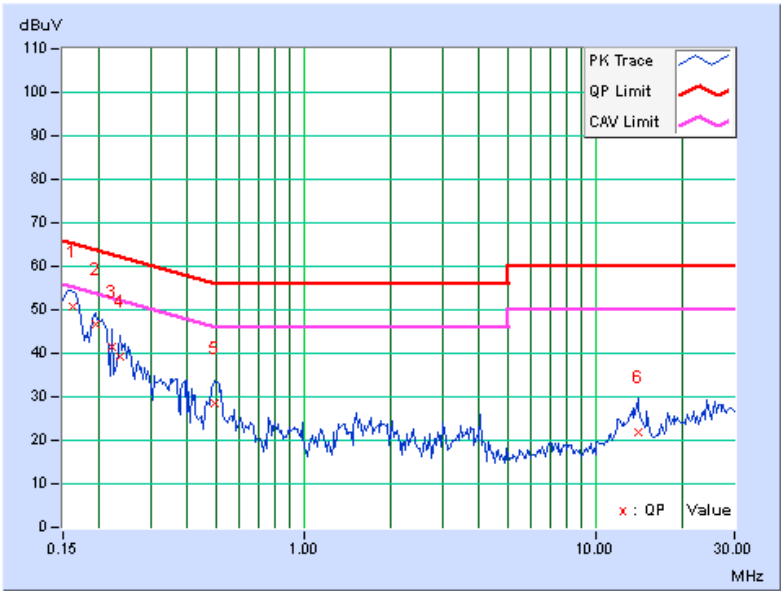


PHASE	Neutral (N)	DETECTOR FUNCTION	Quasi-Peak (QP) / Average (AV)

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16172	0.09	50.68	32.47	50.77	32.56	65.38	55.38	-14.60	-22.81
2	0.19297	0.10	46.50	30.23	46.60	30.33	63.91	53.91	-17.31	-23.58
3	0.22031	0.10	41.44	15.03	41.54	15.13	62.81	52.81	-21.26	-37.67
4	0.23594	0.11	38.99	21.17	39.10	21.28	62.24	52.24	-23.14	-30.96
5	0.49375	0.14	28.51	19.52	28.65	19.66	56.10	46.10	-27.45	-26.44
6	13.98438	0.59	21.40	16.58	21.99	17.17	60.00	50.00	-38.01	-32.83

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



4.2 RADIATED EMISSION AND BANDEDGE MEASUREMENT

4.2.1 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 30dB 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.

4.2.2 TEST INSTRUMENTS

For below 1GHz test

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
MXE EMI Receiver Agilent	N9038A	MY50010156	Jan. 16, 2013	Jan. 15, 2014
Pre-Amplifier Mini-Circuits	ZFL-1000VH2 B	AMP-ZFL-04	Nov. 13, 2013	Nov. 12, 2014
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-361	Mar. 25, 2013	Mar. 24, 2014
RF Cable	NA	CHHCAB_001	Oct. 06, 2013	Oct. 05, 2014
Spectrum Analyzer R&S	FSV40	100964	July 15, 2013	July 14, 2014
Horn_Antenna AISI	AIH.8018	0000220091110	Dec. 06, 2013	Dec. 05, 2014
Pre-Amplifier Agilent	8449B	3008A01923	Oct. 29, 2013	Oct. 28, 2014
RF Cable	NA	RF104-205 RF104-207 RF104-202	Dec. 12, 2013	Dec. 11, 2014
Spectrum Analyzer Agilent	E4446A	MY48250253	Aug. 28, 2013	Aug. 27, 2014
Pre-Amplifier SPACEK LABS	SLKKa-48-6	9K16	Nov. 13, 2013	Nov. 12, 2014
Horn_Antenna SCHWARZBECK	BBHA 9170	9170-424	Oct. 08, 2013	Oct. 07, 2014
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: Jan. 09, 2014

For above 1GHz test

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
MXE EMI Receiver Agilent	N9038A	MY51210105	Jan. 29, 2013	Jan. 28, 2014
Pre-Amplifier Mini-Circuits	ZFL-1000VH2 B	AMP-ZFL-03	Nov. 14, 2012	Nov. 13, 2013
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-360	Mar. 19, 2013	Mar. 18, 2014
RF Cable	NA	CHGCAB_001	Oct. 05, 2013	Oct. 04, 2014
Spectrum Analyzer R&S	FSV40	100964	July 15, 2013	July 14, 2014
Horn_Antenna AISI	AIH.8018	0000320091110	Nov. 19, 2012	Nov. 18, 2013
Pre-Amplifier Agilent	8449B	3008A02578	June 25, 2013	June 24, 2014
RF Cable	NA	RF104-201 RF104-203 RF104-204	Dec. 25, 2012	Dec. 24, 2013
Spectrum Analyzer Agilent	E4446A	MY48250253	Aug. 28, 2013	Aug. 27, 2014
Pre-Amplifier SPACEK LABS	SLKKa-48-6	9K16	Nov. 14, 2012	Nov. 13, 2013
Horn_Antenna SCHWARZBECK	BBHA 9170	9170-424	Oct. 08, 2013	Oct. 07, 2014
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. 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: Oct. 11, 2013

4.2.3 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:

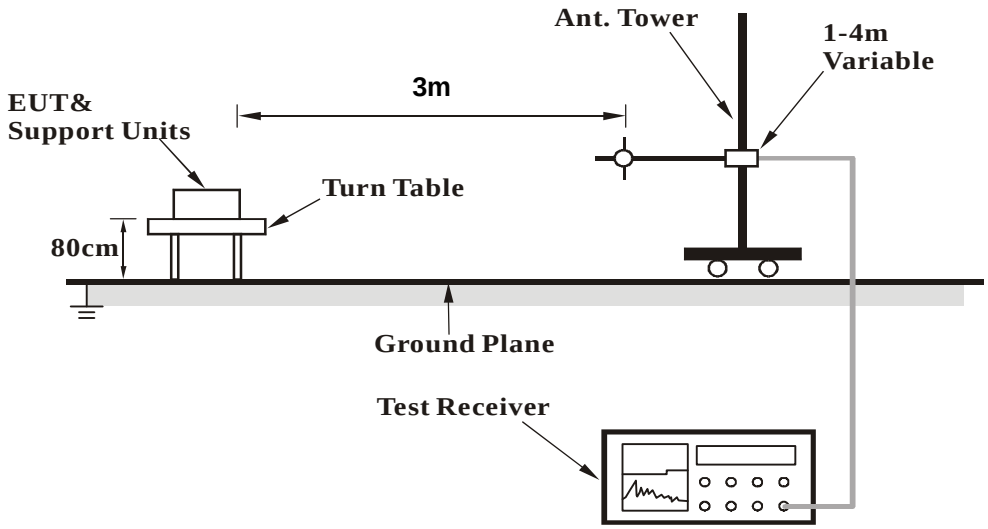
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
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.

4.2.4 DEVIATION FROM TEST STANDARD

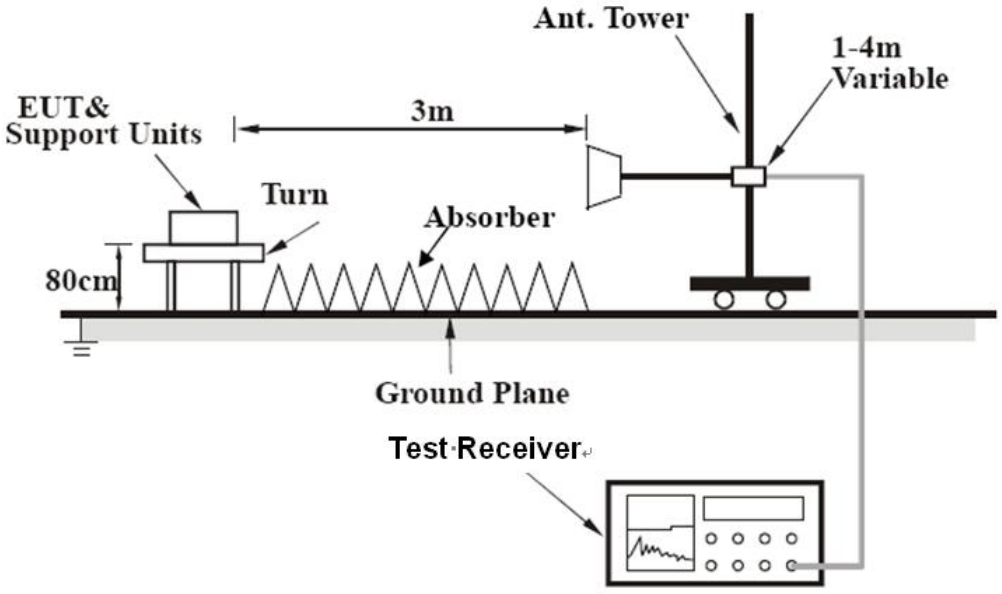
No deviation

4.2.5 TEST SETUP

<Frequency Range below 1GHz>



<Frequency Range above 1GHz>



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

4.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6

4.2.7 TEST RESULTS

BELOW 1GHz WORST-CASE 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	62.11	26.8 QP	40.0	-13.2	2.00 H	52	40.14	-13.31
2	194.76	35.0 QP	43.5	-8.5	1.50 H	225	50.70	-15.72
3	279.64	41.6 QP	46.0	-4.4	1.00 H	205	53.99	-12.35
4	555.69	36.6 QP	46.0	-9.5	1.50 H	292	42.50	-5.95
5	600.02	37.7 QP	46.0	-8.3	1.50 H	279	42.36	-4.63
6	625.00	38.3 QP	46.0	-7.8	1.50 H	268	42.31	-4.06
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	35.63	35.8 QP	40.0	-4.2	2.00 V	0	49.20	-13.43
2	60.02	34.4 QP	40.0	-5.6	1.00 V	82	47.82	-13.44
3	228.46	42.1 QP	46.0	-3.9	1.50 V	138	57.34	-15.23
4	281.52	36.2 QP	46.0	-9.8	1.00 V	277	48.39	-12.20
5	551.13	37.1 QP	46.0	-8.9	1.00 V	291	43.11	-6.05
6	599.97	34.2 QP	46.0	-11.8	1.00 V	305	38.80	-4.63

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

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	2386.24	50.9 PK	74.0	-23.1	1.06 H	333	52.11	-1.21
2	2386.24	38.9 AV	54.0	-15.1	1.06 H	333	40.11	-1.21
3	*2412.00	109.2 PK			1.06 H	333	110.29	-1.09
4	*2412.00	106.4 AV			1.06 H	333	107.49	-1.09
5	4824.00	49.3 PK	74.0	-24.7	1.00 H	221	41.71	7.59
6	4824.00	37.9 AV	54.0	-16.1	1.00 H	221	30.31	7.59
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	2386.24	59.8 PK	74.0	-14.2	1.07 V	258	61.01	-1.21
2	2386.24	49.7 AV	54.0	-4.3	1.07 V	258	50.91	-1.21
3	*2412.00	119.0 PK			1.07 V	255	120.09	-1.09
4	*2412.00	116.9 AV			1.07 V	255	117.99	-1.09
5	4824.00	50.3 PK	74.0	-23.7	1.00 V	257	42.71	7.59
6	4824.00	38.6 AV	54.0	-15.4	1.00 V	257	31.01	7.59

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	109.7 PK			1.06 H	333	110.69	-0.99
2	*2437.00	106.8 AV			1.06 H	333	107.79	-0.99
3	4874.00	49.4 PK	74.0	-24.6	1.00 H	218	41.63	7.77
4	4874.00	37.7 AV	54.0	-16.3	1.00 H	218	29.93	7.77
5	7311.00	55.0 PK	74.0	-19.0	1.00 H	203	39.51	15.49
6	7311.00	41.4 AV	54.0	-12.6	1.00 H	203	25.91	15.49
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	119.5 PK			1.09 V	187	120.49	-0.99
2	*2437.00	117.2 AV			1.09 V	187	118.19	-0.99
3	4874.00	50.0 PK	74.0	-24.0	1.00 V	255	42.23	7.77
4	4874.00	38.5 AV	54.0	-15.5	1.00 V	255	30.73	7.77
5	7311.00	54.0 PK	74.0	-20.0	1.00 V	206	38.51	15.49
6	7311.00	42.5 AV	54.0	-11.5	1.00 V	206	27.01	15.49

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	110.5 PK			1.03 H	333	111.39	-0.89
2	*2462.00	107.7 AV			1.03 H	333	108.59	-0.89
3	2485.93	51.0 PK	74.0	-23.0	1.03 H	333	51.79	-0.79
4	2485.93	38.5 AV	54.0	-15.5	1.03 H	333	39.29	-0.79
5	4924.00	49.2 PK	74.0	-24.8	1.02 H	227	41.26	7.94
6	4924.00	37.8 AV	54.0	-16.2	1.02 H	227	29.86	7.94
7	7386.00	54.9 PK	74.0	-19.1	1.04 H	218	39.39	15.51
8	7386.00	41.2 AV	54.0	-12.8	1.04 H	218	25.69	15.51
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	121.6 PK			1.35 V	186	122.49	-0.89
2	*2462.00	119.4 AV			1.35 V	186	120.29	-0.89
3	2485.93	61.9 PK	74.0	-12.1	1.35 V	186	62.69	-0.79
4	2485.93	51.9 AV	54.0	-2.1	1.35 V	186	52.69	-0.79
5	4924.00	51.5 PK	74.0	-22.5	1.18 V	193	43.56	7.94
6	4924.00	40.1 AV	54.0	-13.9	1.18 V	193	32.16	7.94
7	7386.00	58.7 PK	74.0	-15.3	1.08 V	184	43.19	15.51
8	7386.00	49.4 AV	54.0	-4.6	1.08 V	184	33.89	15.51

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
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	60.7 PK	74.0	-13.3	1.30 H	128	61.89	-1.19
2	2390.00	48.3 AV	54.0	-5.7	1.30 H	128	49.49	-1.19
3	*2412.00	106.8 PK			1.03 H	325	107.89	-1.09
4	*2412.00	98.9 AV			1.03 H	325	99.99	-1.09
5	4824.00	49.6 PK	74.0	-24.4	1.08 H	241	42.01	7.59
6	4824.00	38.0 AV	54.0	-16.0	1.08 H	241	30.41	7.59
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	66.7 PK	74.0	-7.3	1.11 V	207	67.89	-1.19
2	2390.00	51.7 AV	54.0	-2.3	1.11 V	207	52.89	-1.19
3	*2412.00	116.8 PK			1.11 V	207	117.89	-1.09
4	*2412.00	108.5 AV			1.11 V	207	109.59	-1.09
5	4824.00	49.5 PK	74.0	-24.5	1.00 V	263	41.91	7.59
6	4824.00	38.2 AV	54.0	-15.8	1.00 V	263	30.61	7.59

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	61.4 PK	74.0	-12.6	1.31 H	132	62.59	-1.19
2	2390.00	48.7 AV	54.0	-5.3	1.31 H	132	49.89	-1.19
3	*2437.00	108.2 PK			1.30 H	116	109.19	-0.99
4	*2437.00	99.3 AV			1.30 H	116	100.29	-0.99
5	2493.52	55.9 PK	74.0	-18.1	1.23 H	87	56.65	-0.75
6	2493.52	38.7 AV	54.0	-15.3	1.23 H	87	39.45	-0.75
7	4874.00	48.7 PK	74.0	-25.3	1.00 H	226	40.93	7.77
8	4874.00	37.5 AV	54.0	-16.5	1.00 H	226	29.73	7.77
9	7311.00	54.8 PK	74.0	-19.2	1.08 H	221	39.31	15.49
10	7311.00	41.1 AV	54.0	-12.9	1.08 H	221	25.61	15.49
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	65.1 PK	74.0	-8.9	1.11 V	209	66.29	-1.19
2	2390.00	48.2 AV	54.0	-5.8	1.11 V	209	49.39	-1.19
3	*2437.00	121.4 PK			1.11 V	209	122.39	-0.99
4	*2437.00	112.9 AV			1.11 V	209	113.89	-0.99
5	2493.52	63.6 PK	74.0	-10.4	1.11 V	209	64.35	-0.75
6	2493.52	45.8 AV	54.0	-8.2	1.11 V	209	46.55	-0.75
7	4874.00	51.7 PK	74.0	-22.3	1.00 V	167	43.93	7.77
8	4874.00	39.0 AV	54.0	-15.0	1.00 V	167	31.23	7.77
9	7311.00	56.2 PK	74.0	-17.8	1.00 V	145	40.71	15.49
10	7311.00	44.1 AV	54.0	-9.9	1.00 V	145	28.61	15.49

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	109.0 PK			1.27 H	77	109.89	-0.89
2	*2462.00	100.1 AV			1.27 H	77	100.99	-0.89
3	2483.50	56.2 PK	74.0	-17.8	1.27 H	77	57.00	-0.80
4	2483.50	39.0 AV	54.0	-15.0	1.27 H	77	39.80	-0.80
5	4924.00	49.2 PK	74.0	-24.8	1.01 H	232	41.26	7.94
6	4924.00	37.9 AV	54.0	-16.1	1.01 H	232	29.96	7.94
7	7386.00	54.8 PK	74.0	-19.2	1.04 H	227	39.29	15.51
8	7386.00	41.2 AV	54.0	-12.8	1.04 H	227	25.69	15.51
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	119.8 PK			1.08 V	225	120.69	-0.89
2	*2462.00	110.4 AV			1.08 V	225	111.29	-0.89
3	2483.50	72.4 PK	74.0	-1.6	1.08 V	225	73.20	-0.80
4	2483.50	50.9 AV	54.0	-3.1	1.08 V	225	51.70	-0.80
5	4924.00	52.1 PK	74.0	-21.9	1.00 V	161	44.16	7.94
6	4924.00	39.2 AV	54.0	-14.8	1.00 V	161	31.26	7.94
7	7386.00	56.0 PK	74.0	-18.0	1.00 V	148	40.49	15.51
8	7386.00	43.9 AV	54.0	-10.1	1.00 V	148	28.39	15.51

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
5. " * ": Fundamental frequency.

802.11n (HT20)

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	63.7 PK	74.0	-10.3	1.34 H	81	64.89	-1.19
2	2390.00	45.1 AV	54.0	-8.9	1.34 H	81	46.29	-1.19
3	*2412.00	106.6 PK			1.34 H	81	107.69	-1.09
4	*2412.00	97.3 AV			1.34 H	81	98.39	-1.09
5	4824.00	49.8 PK	74.0	-24.2	1.00 H	221	42.21	7.59
6	4824.00	38.3 AV	54.0	-15.7	1.00 H	221	30.71	7.59
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	69.3 PK	74.0	-4.7	1.06 V	262	70.49	-1.19
2	2390.00	53.0 AV	54.0	-1.0	1.06 V	262	54.19	-1.19
3	*2412.00	119.8 PK			1.06 V	262	120.89	-1.09
4	*2412.00	110.9 AV			1.06 V	262	111.99	-1.09
5	4824.00	49.3 PK	74.0	-24.7	1.00 V	263	41.71	7.59
6	4824.00	38.2 AV	54.0	-15.8	1.00 V	263	30.61	7.59

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	54.9 PK	74.0	-19.1	1.09 H	217	56.09	-1.19
2	2390.00	41.1 AV	54.0	-12.9	1.09 H	217	42.29	-1.19
3	*2437.00	106.6 PK			1.35 H	86	107.59	-0.99
4	*2437.00	97.3 AV			1.35 H	86	98.29	-0.99
5	2493.52	55.7 PK	74.0	-18.3	1.28 H	93	56.45	-0.75
6	2493.52	38.7 AV	54.0	-15.3	1.28 H	93	39.45	-0.75
7	4874.00	50.0 PK	74.0	-24.0	1.00 H	202	42.23	7.77
8	4874.00	38.2 AV	54.0	-15.8	1.00 H	202	30.43	7.77
9	7311.00	55.3 PK	74.0	-18.7	1.00 H	211	39.81	15.49
10	7311.00	42.5 AV	54.0	-11.5	1.00 H	211	27.01	15.49
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	64.8 PK	74.0	-9.2	1.09 V	207	65.99	-1.19
2	2390.00	47.8 AV	54.0	-6.2	1.09 V	207	48.99	-1.19
3	*2437.00	122.9 PK			1.09 V	207	123.89	-0.99
4	*2437.00	114.0 AV			1.09 V	207	114.99	-0.99
5	2493.52	63.7 PK	74.0	-10.3	1.09 V	207	64.45	-0.75
6	2493.52	46.0 AV	54.0	-8.0	1.09 V	207	46.75	-0.75
7	4874.00	51.7 PK	74.0	-22.3	1.00 V	160	43.93	7.77
8	4874.00	39.2 AV	54.0	-14.8	1.00 V	160	31.43	7.77
9	7311.00	55.9 PK	74.0	-18.1	1.00 V	156	40.41	15.49
10	7311.00	43.8 AV	54.0	-10.2	1.00 V	156	28.31	15.49

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	108.4 PK			1.40 H	82	109.29	-0.89
2	*2462.00	99.2 AV			1.40 H	82	100.09	-0.89
3	2483.50	60.2 PK	74.0	-13.8	1.40 H	82	61.00	-0.80
4	2483.50	47.8 AV	54.0	-6.2	1.40 H	82	48.60	-0.80
5	4924.00	50.1 PK	74.0	-23.9	1.00 H	198	42.16	7.94
6	4924.00	38.4 AV	54.0	-15.6	1.00 H	198	30.46	7.94
7	7386.00	55.5 PK	74.0	-18.5	1.00 H	214	39.99	15.51
8	7386.00	42.5 AV	54.0	-11.5	1.00 H	214	26.99	15.51
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	120.7 PK			1.09 V	226	121.59	-0.89
2	*2462.00	110.9 AV			1.09 V	226	111.79	-0.89
3	2483.50	72.1 PK	74.0	-1.9	1.09 V	226	72.90	-0.80
4	2483.50	51.2 AV	54.0	-2.8	1.09 V	226	52.00	-0.80
5	4924.00	52.0 PK	74.0	-22.0	1.00 V	160	44.06	7.94
6	4924.00	39.6 AV	54.0	-14.4	1.00 V	160	31.66	7.94
7	7386.00	56.5 PK	74.0	-17.5	1.05 V	141	40.99	15.51
8	7386.00	44.2 AV	54.0	-9.8	1.05 V	141	28.69	15.51

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
5. " * ": Fundamental frequency.

802.11n (HT40)

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	2388.92	61.8 PK	74.0	-12.2	1.41 H	316	62.99	-1.19
2	2388.92	46.5 AV	54.0	-7.5	1.41 H	316	47.69	-1.19
3	*2422.00	102.3 PK			1.41 H	80	103.35	-1.05
4	*2422.00	93.3 AV			1.41 H	80	94.35	-1.05
5	4844.00	49.6 PK	74.0	-24.4	1.00 H	208	41.94	7.66
6	4844.00	38.1 AV	54.0	-15.9	1.00 H	208	30.44	7.66
7	7266.00	55.9 PK	74.0	-18.1	1.00 H	215	40.39	15.51
8	7266.00	43.0 AV	54.0	-11.0	1.00 H	215	27.49	15.51
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	2388.92	68.8 PK	74.0	-5.2	1.05 V	297	69.99	-1.19
2	2388.92	53.1 AV	54.0	-0.9	1.05 V	297	54.29	-1.19
3	*2422.00	112.7 PK			1.05 V	297	113.75	-1.05
4	*2422.00	104.2 AV			1.05 V	297	105.25	-1.05
5	4844.00	49.0 PK	74.0	-25.0	1.00 V	248	41.34	7.66
6	4844.00	37.7 AV	54.0	-16.3	1.00 V	248	30.04	7.66
7	7266.00	55.4 PK	74.0	-18.6	1.00 V	228	39.89	15.51
8	7266.00	42.4 AV	54.0	-11.6	1.00 V	228	26.89	15.51

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
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	58.8 PK	74.0	-15.2	1.30 H	98	59.99	-1.19
2	2390.00	43.0 AV	54.0	-11.0	1.30 H	98	44.19	-1.19
3	*2437.00	104.3 PK			1.30 H	98	105.29	-0.99
4	*2437.00	94.8 AV			1.30 H	98	95.79	-0.99
5	2483.50	49.4 PK	74.0	-24.6	1.30 H	98	50.20	-0.80
6	2483.50	36.5 AV	54.0	-17.5	1.30 H	98	37.30	-0.80
7	4874.00	49.1 PK	74.0	-24.9	1.00 H	215	41.33	7.77
8	4874.00	37.5 AV	54.0	-16.5	1.00 H	215	29.73	7.77
9	7311.00	55.2 PK	74.0	-18.8	1.00 H	188	39.71	15.49
10	7311.00	42.5 AV	54.0	-11.5	1.00 H	188	27.01	15.49
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	69.4 PK	74.0	-4.6	1.05 V	297	70.59	-1.19
2	**2390.00**	**53.4 AV**	**54.0**	**-0.6**	**1.05 V**	**297**	**54.59**	**-1.19**
3	*2437.00	114.6 PK			1.05 V	297	115.59	-0.99
4	*2437.00	106.0 AV			1.05 V	297	106.99	-0.99
5	2483.50	57.3 PK	74.0	-16.7	1.05 V	297	58.10	-0.80
6	2483.50	42.0 AV	54.0	-12.0	1.05 V	297	42.80	-0.80
7	4874.00	49.3 PK	74.0	-24.7	1.00 V	255	41.53	7.77
8	4874.00	37.9 AV	54.0	-16.1	1.00 V	255	30.13	7.77
9	7311.00	55.7 PK	74.0	-18.3	1.00 V	243	40.21	15.49
10	7311.00	42.6 AV	54.0	-11.4	1.00 V	243	27.11	15.49

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	104.6 PK			1.22 H	98	105.52	-0.92
2	*2452.00	95.1 AV			1.22 H	98	96.02	-0.92
3	2484.58	52.3 PK	74.0	-21.7	1.22 H	98	53.09	-0.79
4	2484.58	40.1 AV	54.0	-13.9	1.22 H	98	40.89	-0.79
5	4904.00	48.4 PK	74.0	-25.6	1.00 H	212	40.52	7.88
6	4904.00	37.1 AV	54.0	-16.9	1.00 H	212	29.22	7.88
7	7356.00	54.9 PK	74.0	-19.1	1.00 H	195	39.41	15.49
8	7356.00	42.4 AV	54.0	-11.6	1.00 H	195	26.91	15.49
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	114.6 PK			1.05 V	299	115.52	-0.92
2	*2452.00	106.3 AV			1.05 V	299	107.22	-0.92
3	2484.58	69.5 PK	74.0	-4.5	1.05 V	299	70.29	-0.79
4	2484.58	52.9 AV	54.0	-1.1	1.05 V	299	53.69	-0.79
5	4904.00	49.2 PK	74.0	-24.8	1.00 V	260	41.32	7.88
6	4904.00	38.0 AV	54.0	-16.0	1.00 V	260	30.12	7.88
7	7356.00	55.1 PK	74.0	-18.9	1.00 V	246	39.61	15.49
8	7356.00	42.2 AV	54.0	-11.8	1.00 V	246	26.71	15.49

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.

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 INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer R&S	FSP40	100036	Jan. 21, 2014	Jan. 20, 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 : Jan. 22, 2014

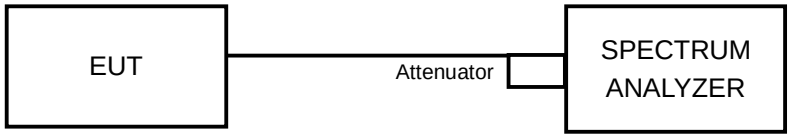
4.3.3 TEST PROCEDURE

1. Set resolution bandwidth (RBW) = 100kHz
2. Set the video bandwidth (VBW) ≥ 3 x RBW, Detector = Peak.
3. Trace mode = max hold.
4. Sweep = auto couple.
5. 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

4.3.4 DEVIATION FROM TEST STANDARD

No deviation

4.3.5 TEST SETUP



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	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)				MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 3		
1	2412	9.94	9.71	9.70	9.92	0.5	PASS
6	2437	9.71	9.72	9.71	9.69	0.5	PASS
11	2462	9.72	9.72	9.93	9.70	0.5	PASS

802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)				MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 3		
1	2412	16.62	16.63	16.62	16.57	0.5	PASS
6	2437	17.77	17.80	17.77	17.72	0.5	PASS
11	2462	16.60	16.62	16.61	16.56	0.5	PASS

802.11n (HT20)

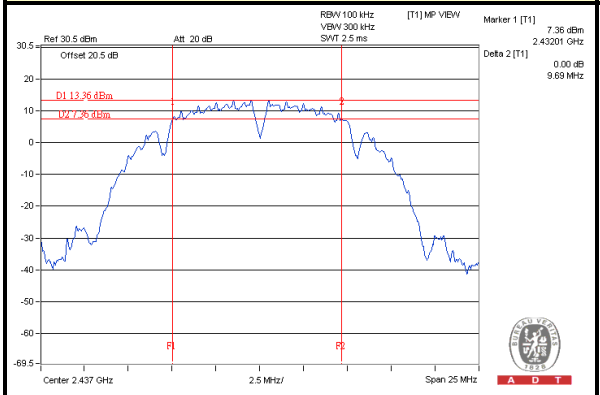
CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)				MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 3		
1	2412	17.70	17.78	17.80	17.71	0.5	PASS
6	2437	17.77	17.80	17.82	17.74	0.5	PASS
11	2462	17.79	17.81	17.81	17.77	0.5	PASS

802.11n (HT40)

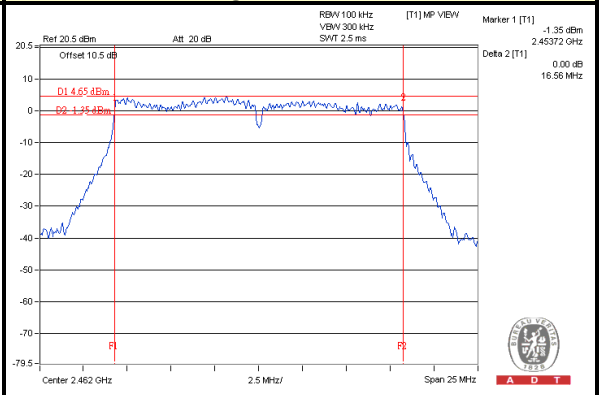
CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)				MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 3		
3	2422	36.53	36.51	36.52	36.63	0.5	PASS
6	2437	36.54	36.49	36.56	36.57	0.5	PASS
9	2452	36.56	36.54	36.56	36.54	0.5	PASS

SPECTRUM PLOT OF WORST VALUE

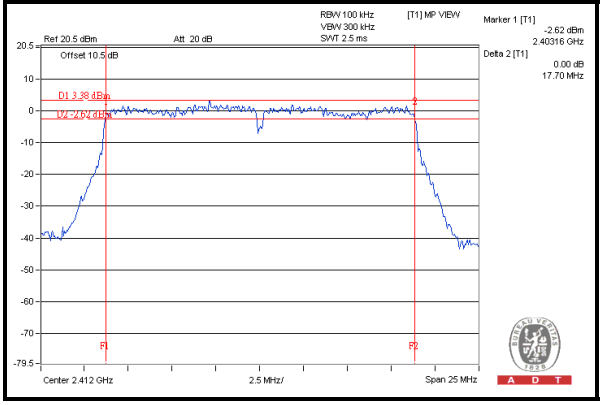
802.11b / Chain 3 / CH6



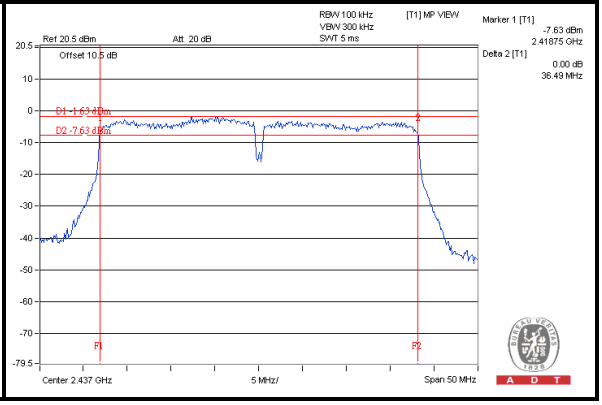
802.11g / Chain 3 / CH11



802.11n (HT20) / Chain 0 / CH1



802.11n (HT40) / Chain 1 / CH6



4.4 CONDUCTED OUTPUT POWER MEASUREMENT

4.4.1 LIMITS OF MAXIMUM 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.

4.4.2 INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Power meter Anritsu	ML2495A	0824006	May 20, 2013	May 19, 2014
Power sensor Anritsu	MA2411B	0738172	May 20, 2013	May 19, 2014

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 : Jan. 22, 2014

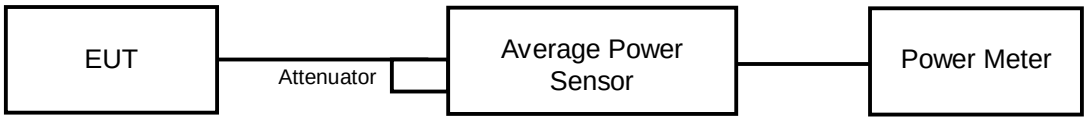
4.4.3 TEST PROCEDURES

Method PM is used to perform output power measurement, trigger and gating function of wide band power meter is enabled to measure max output power of TX on burst. Duty factor is not added to measured value.

4.4.4 DEVIATION FROM TEST STANDARD

No deviation.

4.4.5 TEST SETUP



4.4.6 EUT OPERATING CONDITIONS

Same as Item 4.3.6

4.4.7 TEST RESULTS

802.11b

CHANNEL	FREQUENCY (MHz)	AVERAGE POWER (dBm)				TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 3				
1	2412	23.71	23.27	23.76	21.87	838.786	29.24	30	PASS
6	2437	23.31	23.21	22.66	22.79	798.310	29.02	30	PASS
11	2462	23.19	22.95	23.23	22.74	804.001	29.05	30	PASS

802.11g

CHANNEL	FREQUENCY (MHz)	AVERAGE POWER (dBm)				TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 3				
1	2412	17.28	17.13	17.00	16.91	204.308	23.10	28.35	PASS
6	2437	22.45	22.33	22.08	21.94	664.545	28.23	28.35	PASS
11	2462	17.65	17.67	17.38	17.26	224.602	23.51	28.35	PASS

NOTE: 1. Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2$ / 4] = 7.65dBi > 6dBi , so the power limit shall be reduced to 30-(7.65-6) =28.35dBm.

802.11n (HT20)

CHANNEL	FREQUENCY (MHz)	AVERAGE POWER (dBm)				TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 3				
1	2412	16.68	16.21	15.73	16.31	168.509	22.27	28.35	PASS
6	2437	22.14	21.93	21.83	21.78	622.703	27.94	28.35	PASS
11	2462	17.24	16.81	16.87	16.33	192.534	22.85	28.35	PASS

NOTE: 1. Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2$ / 4] = 7.65dBi > 6dBi , so the power limit shall be reduced to 30-(7.65-6) =28.35dBm.

802.11n (HT40)

CHANNEL	FREQUENCY (MHz)	AVERAGE POWER (dBm)				TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 3				
3	2422	15.81	15.28	15.36	14.84	136.671	21.36	28.35	PASS
6	2437	16.33	16.29	15.79	15.97	162.982	22.12	28.35	PASS
9	2452	15.83	16.28	15.52	15.55	152.281	21.83	28.35	PASS

NOTE: 1. Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2$ / 4] = 7.65dBi > 6dBi , so the power limit shall be reduced to 30-(7.65-6) =28.35dBm.

4.5 POWER SPECTRAL DENSITY MEASUREMENT

4.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

4.5.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer R&S	FSP 40	100036	Jan. 21, 2014	Jan. 20, 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 : Jan. 22, 2014

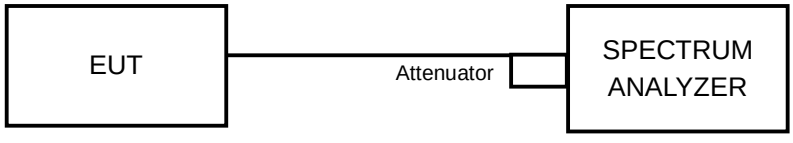
4.5.3 TEST PROCEDURE

1. Set the RBW = 30 kHz, VBW =100 kHz, Detector = power averaging (RMS).
2. Ensure that the number of measurement points in the sweep ≥ 2 x span/RBW
3. Sweep time = auto couple,
4. Employ trace averaging (RMS) mode over a minimum of 100 traces.
5. Use the peak marker function to determine the maximum amplitude level.

4.5.4 DEVIATION FROM TEST STANDARD

No deviation

4.5.5 TEST SETUP



4.5.6 EUT OPERATING CONDITION

Same as Item 4.3.6

4.5.7 TEST RESULTS

802.11b

TX CHAIN	CHANNEL	FREQUENCY (MHz)	PSD (dBm)	10 log (N=4) dB	TOTAL PSD (dBm)	LIMIT (dBm)	PASS /FAIL
0	1	2412	-3.73	6.02	2.29	6.35	PASS
	6	2437	-3.49	6.02	2.53	6.35	PASS
	11	2462	-3.19	6.02	2.83	6.35	PASS
1	1	2412	-3.30	6.02	2.72	6.35	PASS
	6	2437	-3.41	6.02	2.61	6.35	PASS
	11	2462	-3.58	6.02	2.44	6.35	PASS
2	1	2412	-3.49	6.02	2.53	6.35	PASS
	6	2437	-3.35	6.02	2.67	6.35	PASS
	11	2462	-3.45	6.02	2.57	6.35	PASS
3	1	2412	-3.52	6.02	2.50	6.35	PASS
	6	2437	-3.63	6.02	2.39	6.35	PASS
	11	2462	-3.83	6.02	2.19	6.35	PASS

NOTE: 1. Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2$ / 4] = 7.65dBi > 6dBi , so the power density limit shall be reduced to 8-(7.65-6) = 6.35dBm.

802.11g

TX CHAIN	CHANNEL	FREQUENCY (MHz)	PSD (dBm)	10 log (N=4) dB	TOTAL PSD (dBm)	LIMIT (dBm)	PASS /FAIL
0	1	2412	-6.48	6.02	-0.46	6.35	PASS
	6	2437	-4.70	6.02	1.32	6.35	PASS
	11	2462	-7.54	6.02	-1.52	6.35	PASS
1	1	2412	-8.47	6.02	-2.45	6.35	PASS
	6	2437	-4.49	6.02	1.53	6.35	PASS
	11	2462	-8.30	6.02	-2.28	6.35	PASS
2	1	2412	-8.00	6.02	-1.98	6.35	PASS
	6	2437	-4.82	6.02	1.20	6.35	PASS
	11	2462	-7.17	6.02	-1.15	6.35	PASS
3	1	2412	-7.62	6.02	-1.60	6.35	PASS
	6	2437	-5.00	6.02	1.02	6.35	PASS
	11	2462	-6.87	6.02	-0.85	6.35	PASS

NOTE: 1. Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2$ / 4] = 7.65dBi > 6dBi , so the power density limit shall be reduced to 8-(7.65-6) = 6.35dBm.

802.11n (HT20)

TX CHAIN	CHANNEL	FREQUENCY (MHz)	PSD (dBm)	10 log (N=4) dB	TOTAL PSD (dBm)	LIMIT (dBm)	PASS /FAIL
0	1	2412	-9.21	6.02	-3.19	6.35	PASS
	6	2437	-3.57	6.02	2.45	6.35	PASS
	11	2462	-8.11	6.02	-2.09	6.35	PASS
1	1	2412	-8.67	6.02	-2.65	6.35	PASS
	6	2437	-4.30	6.02	1.72	6.35	PASS
	11	2462	-9.05	6.02	-3.03	6.35	PASS
2	1	2412	-8.58	6.02	-2.56	6.35	PASS
	6	2437	-4.76	6.02	1.26	6.35	PASS
	11	2462	-9.84	6.02	-3.82	6.35	PASS
3	1	2412	-8.49	6.02	-2.47	6.35	PASS
	6	2437	-4.29	6.02	1.73	6.35	PASS
	11	2462	-8.10	6.02	-2.08	6.35	PASS

NOTE: 1. Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2$ / 4] = 7.65dBi > 6dBi , so the power density limit shall be reduced to 8-(7.65-6) = 6.35dBm.

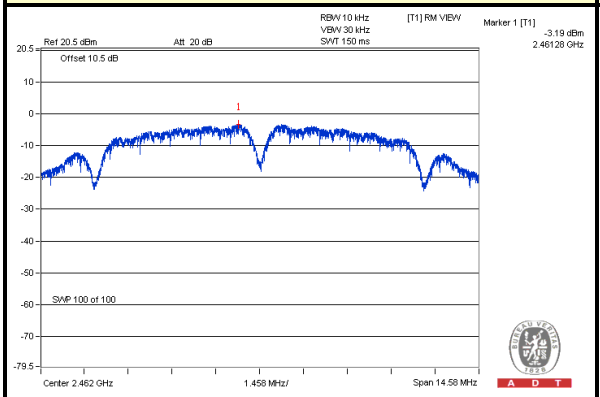
802.11n (HT40)

TX CHAIN	CHANNEL	FREQUENCY (MHz)	PSD (dBm)	10 log (N=4) dB	TOTAL PSD (dBm)	LIMIT (dBm)	PASS /FAIL
0	3	2422	-12.85	6.02	-6.83	6.35	PASS
	6	2437	-13.17	6.02	-7.15	6.35	PASS
	9	2452	-13.72	6.02	-7.70	6.35	PASS
1	3	2422	-13.18	6.02	-7.16	6.35	PASS
	6	2437	-13.61	6.02	-7.59	6.35	PASS
	9	2452	-14.05	6.02	-8.03	6.35	PASS
2	3	2422	-13.77	6.02	-7.75	6.35	PASS
	6	2437	-13.44	6.02	-7.42	6.35	PASS
	9	2452	-13.81	6.02	-7.79	6.35	PASS
3	3	2422	-13.63	6.02	-7.61	6.35	PASS
	6	2437	-13.36	6.02	-7.34	6.35	PASS
	9	2452	-13.40	6.02	-7.38	6.35	PASS

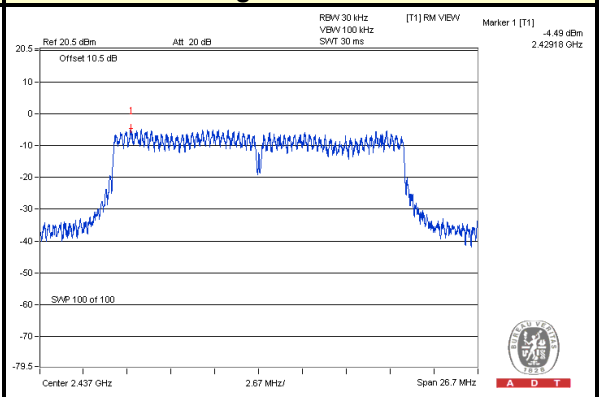
NOTE: 1. Directional gain = 10 log[(10$^{G1/20}$ + 10$^{G2/20}$ + 10$^{G3/20}$ + 10$^{G4/20}$)^2 / 4] = 7.65dBi > 6dBi , so the power density limit shall be reduced to 8-(7.65-6) = 6.35dBm.

SPECTRUM PLOT OF WORST VALUE

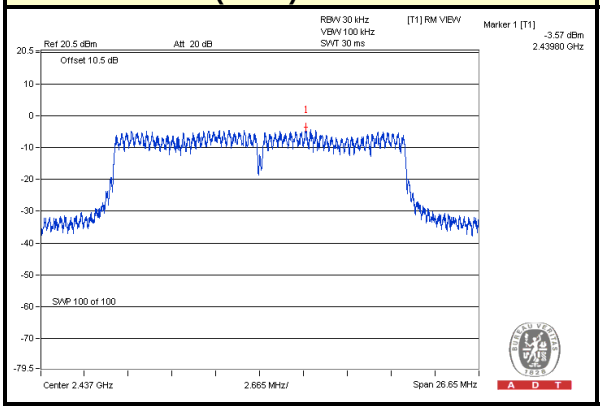
802.11b / Chain 0 / CH11



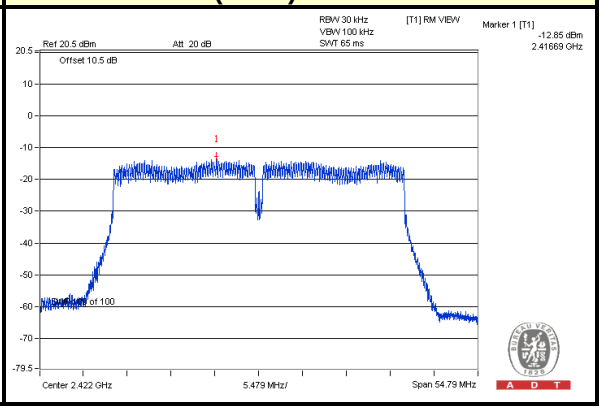
802.11g / Chain 1 / CH6



802.11n (HT20) / Chain 0 / CH6



802.11n (HT40) / Chain 0 / CH3



4.6 CONDUCTED OUT-BAND EMISSION MEASUREMENT

4.6.1 LIMITS OF CONDUCTED OUT-BAND EMISSION MEASUREMENT

Below 30dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

4.6.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer R&S	FSP 40	100036	Jan. 21, 2014	Jan. 20, 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 : Jan. 22, 2014

4.6.3 TEST PROCEDURE

Measurement Procedure - Reference Level

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.

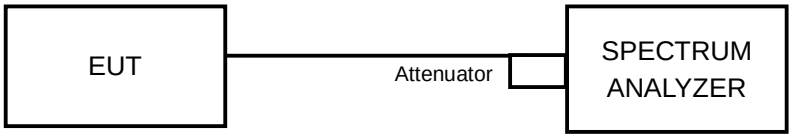
Measurement Procedure –Unwanted Emission Level

1. Set RBW = 100 kHz.
2. Set VBW ≥ 300 kHz.
3. Set span to encompass the spectrum to be examined
4. Detector = peak.
5. Trace Mode = max hold.
6. Sweep = auto couple.

4.6.4 DEVIATION FROM TEST STANDARD

No deviation

4.6.5 TEST SETUP



4.6.6 EUT OPERATING CONDITION

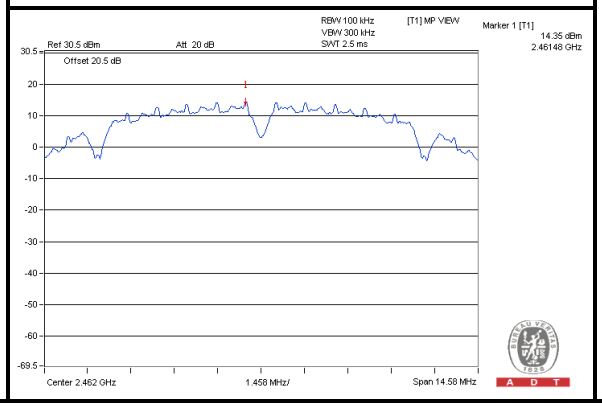
Same as Item 4.3.6

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 30dB offset below D1. It shows compliance with the requirement.

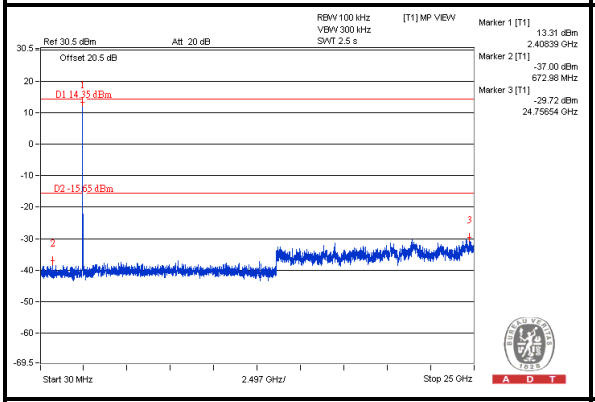
802.11b:

Maximum REF

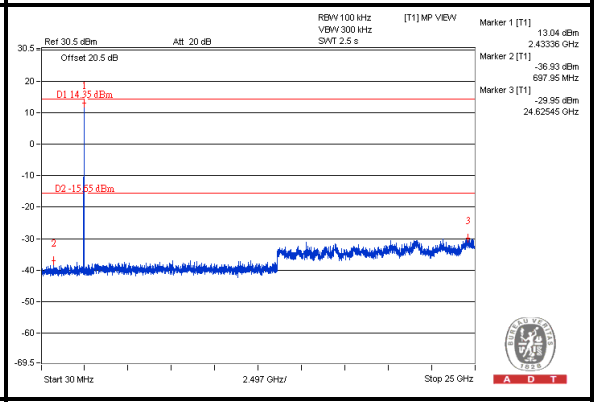


Chain (0)

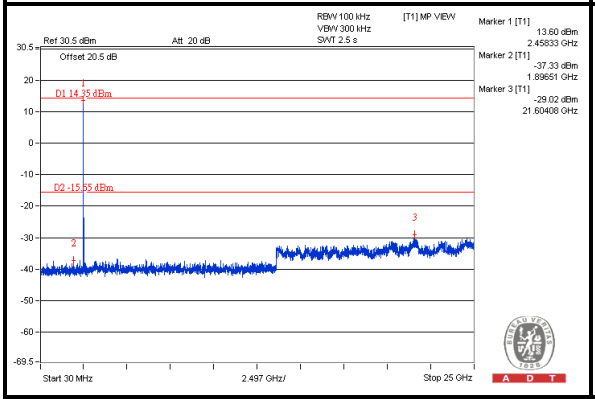
CH 1



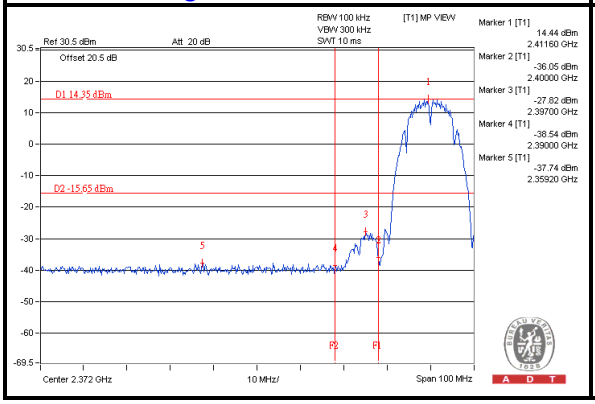
CH 6



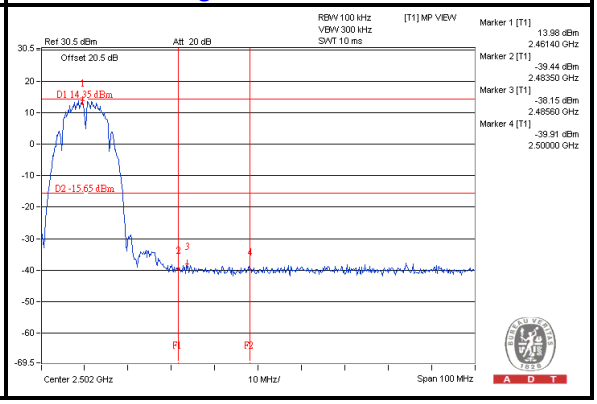
CH 11



CH 1 Band edge

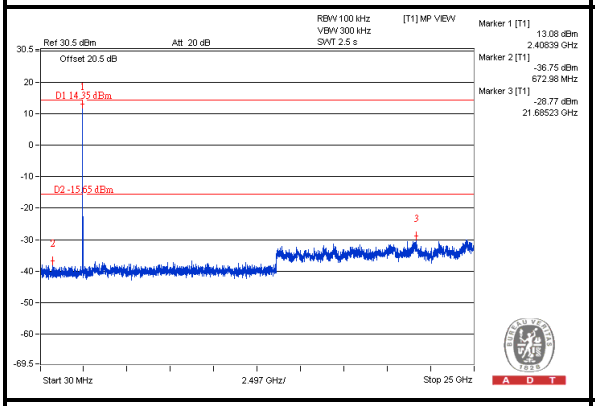


CH 11 Band edge

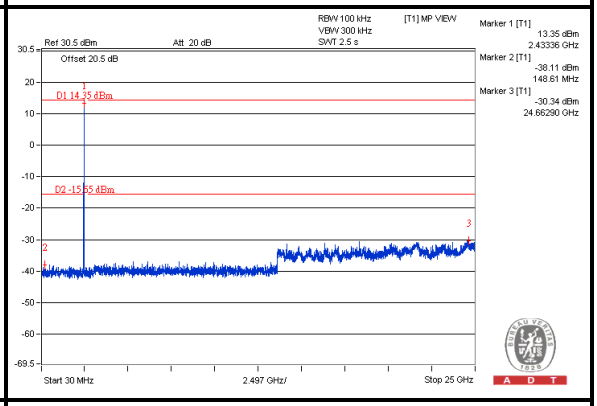


Chain (1)

CH 1



CH 6



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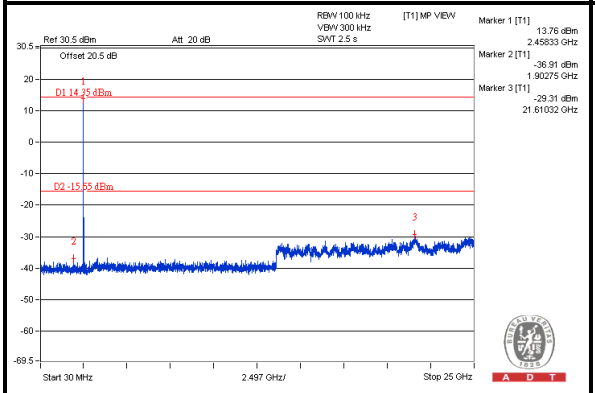

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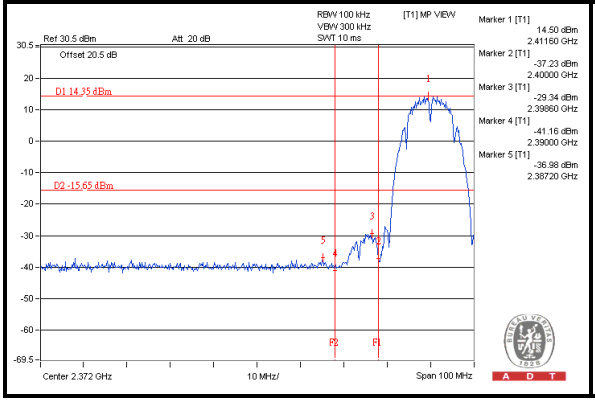
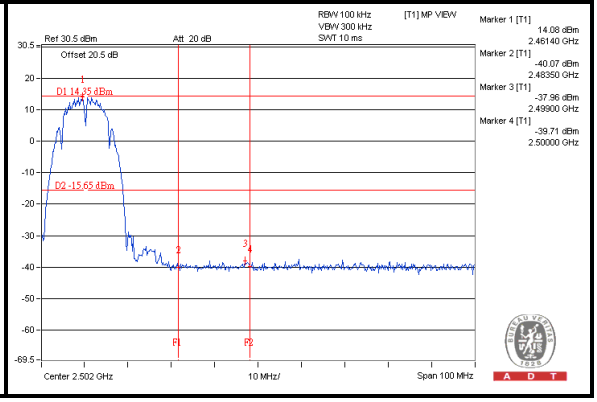
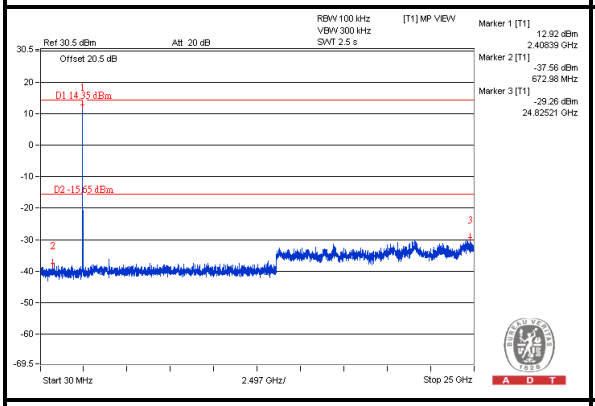


CH 11 Band edge

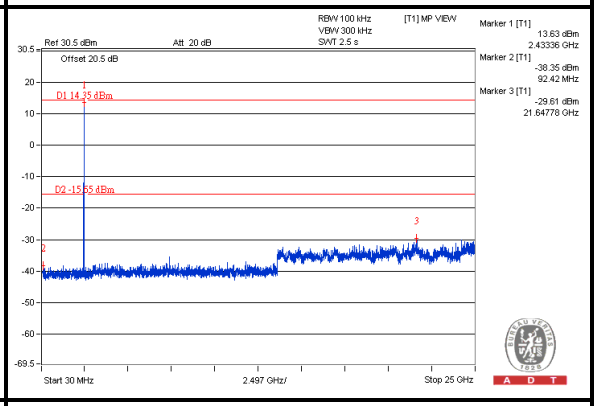


Chain (2)

CH 1



CH 6



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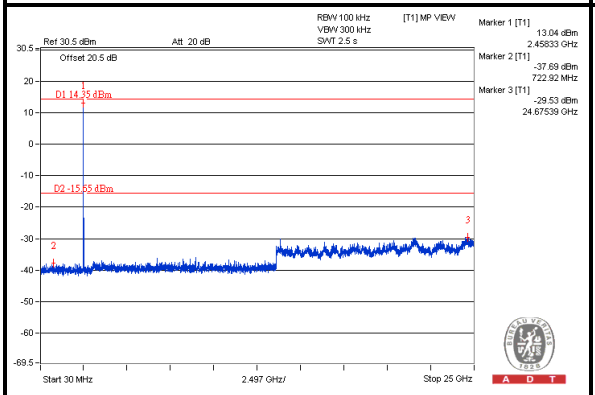

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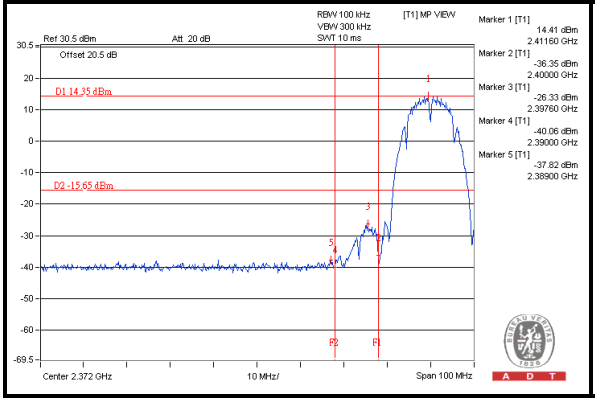
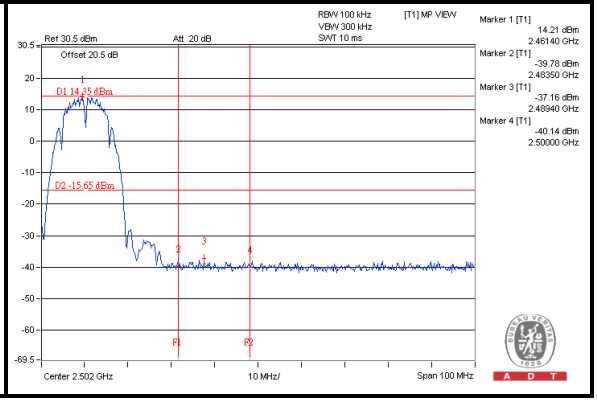
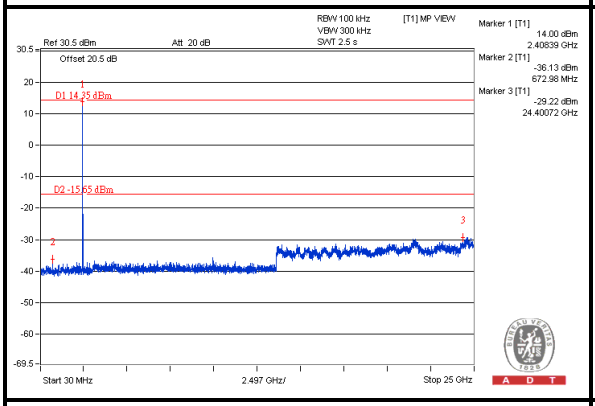


CH 11 Band edge

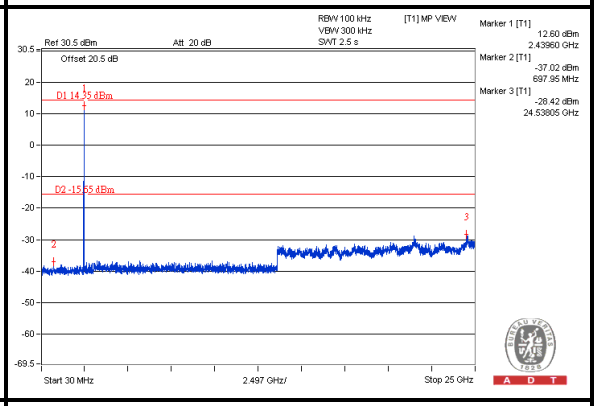


Chain (3)

CH 1



CH 6



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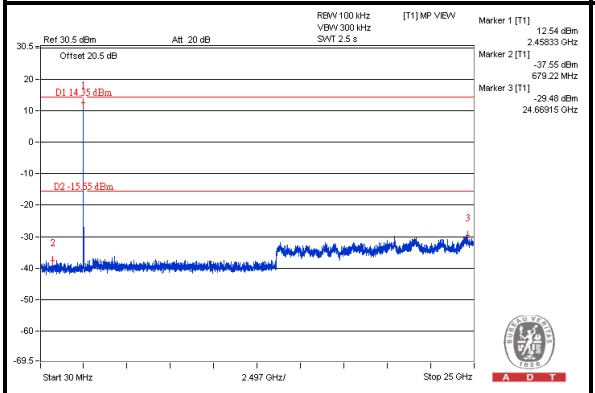

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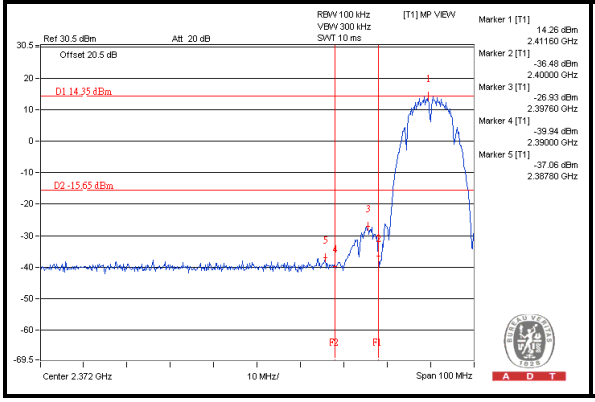
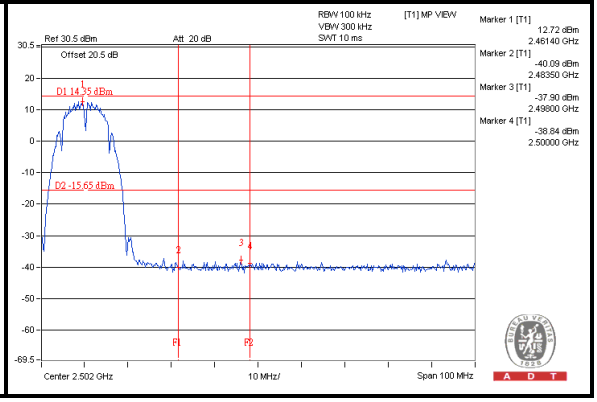
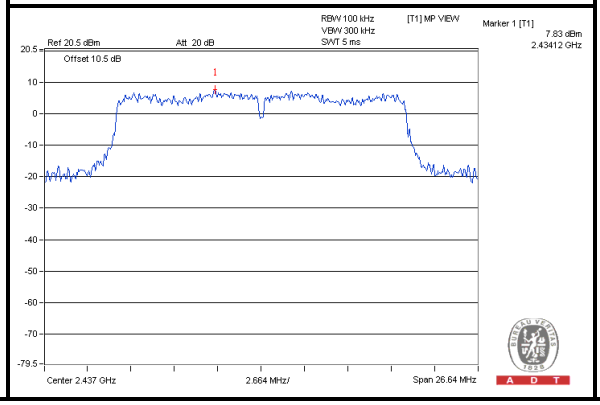


CH 11 Band edge



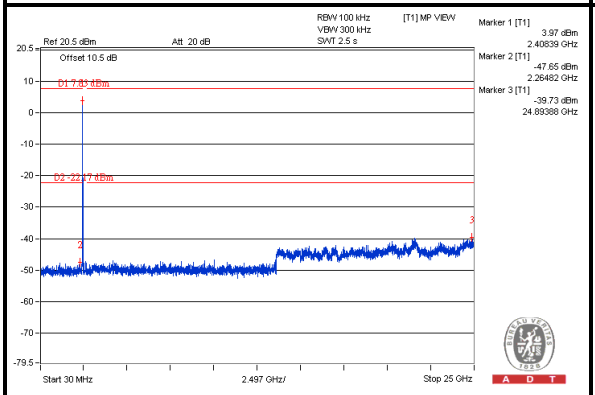
802.11g:

Maximum REF

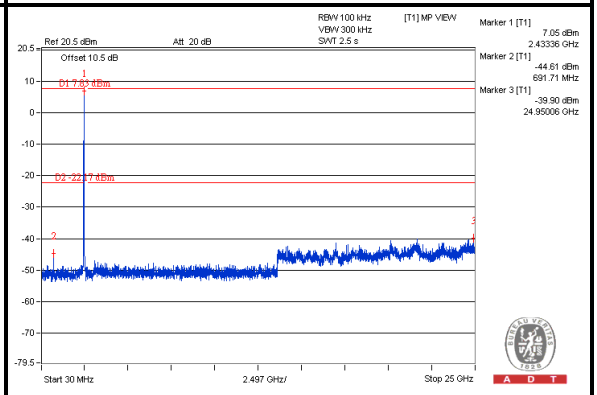


Chain (0)

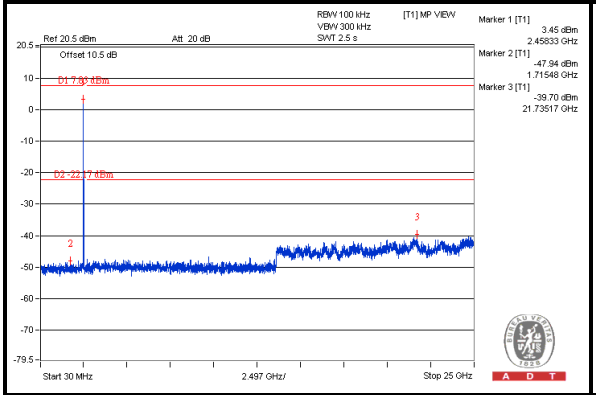
CH 1



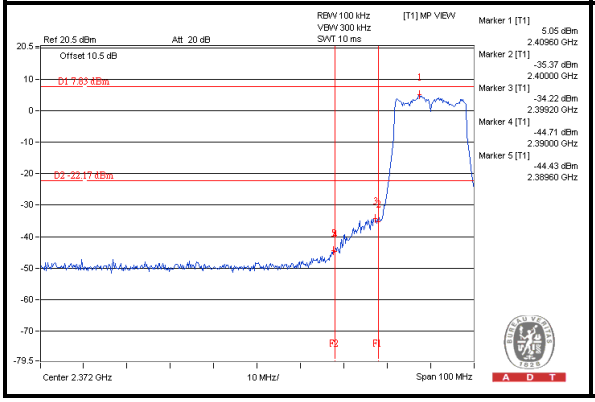
CH 6



CH 11



CH 1 Band edge



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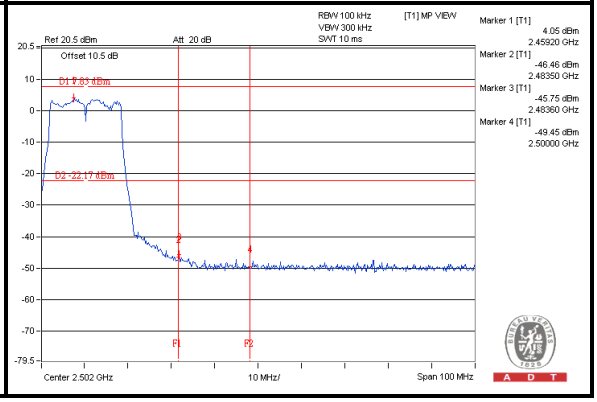
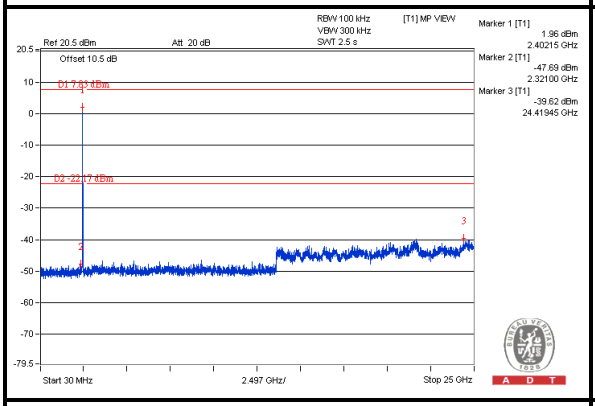
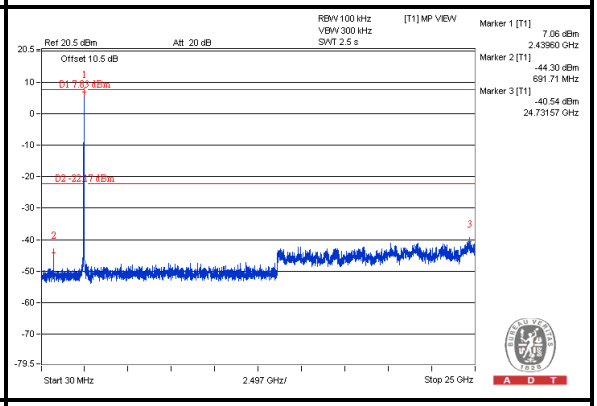


Chain (1)

CH 1



CH 6



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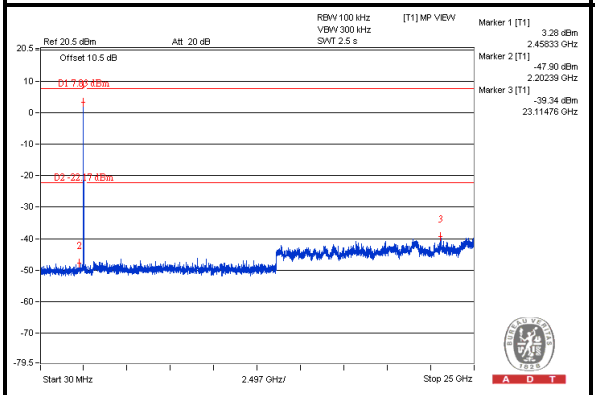

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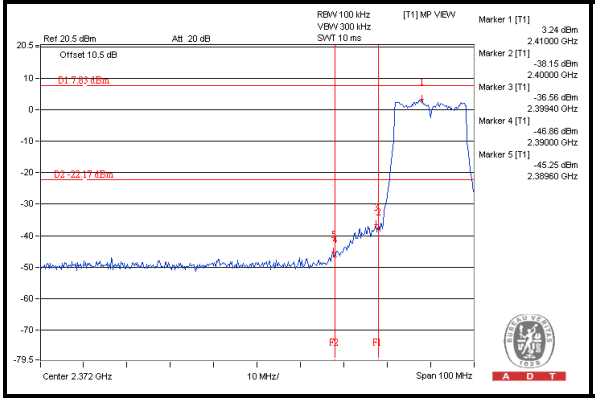
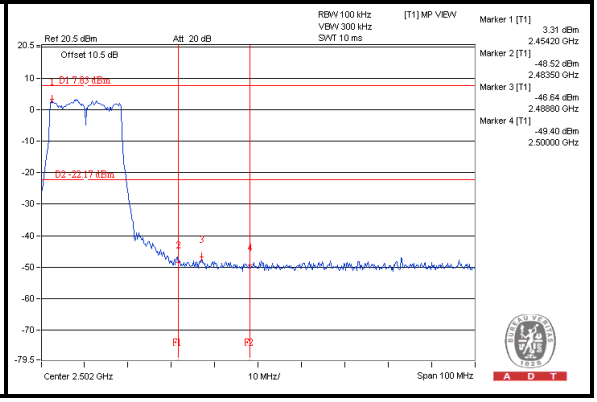
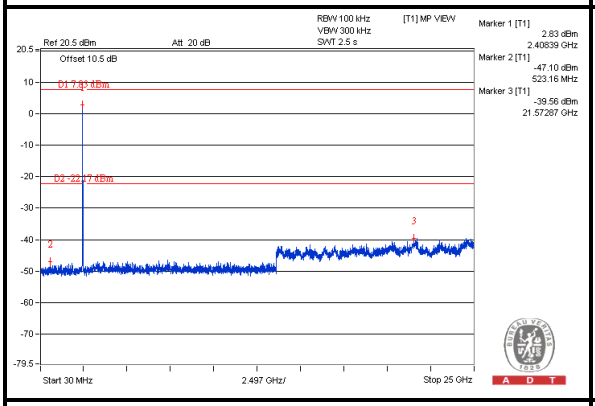


CH 11 Band edge

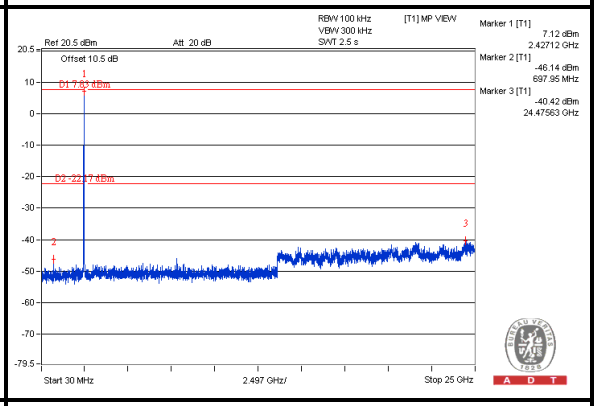


Chain (2)

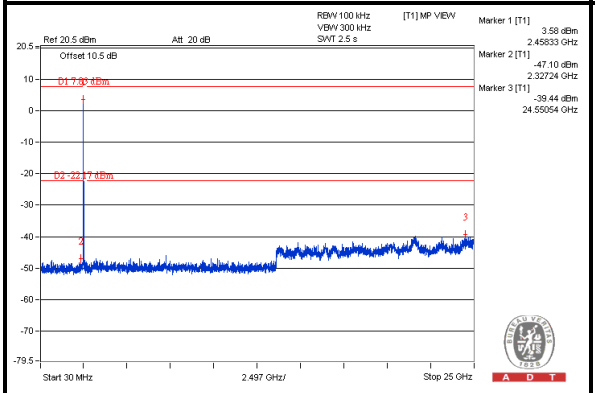
CH 1



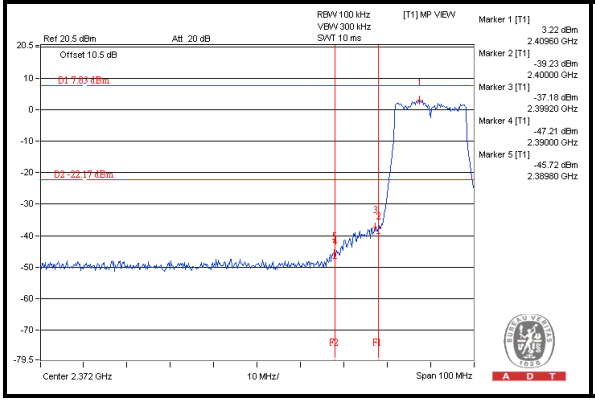
CH 6



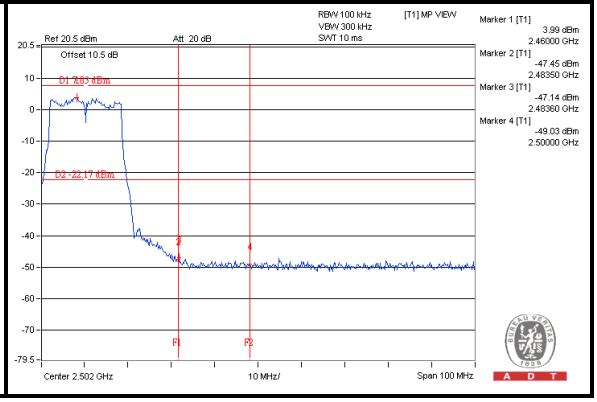
CH 11



CH 1 Band edge

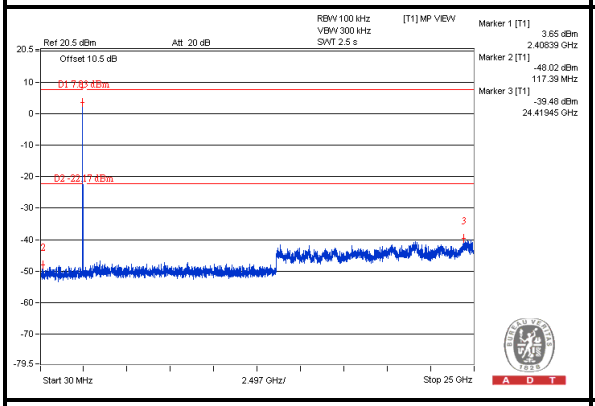


CH 11 Band edge

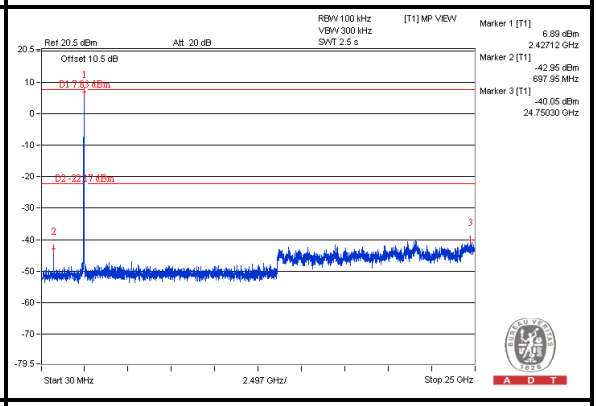


Chain (3)

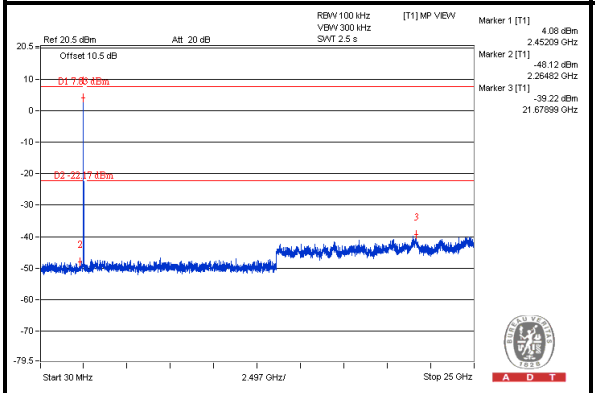
CH 1



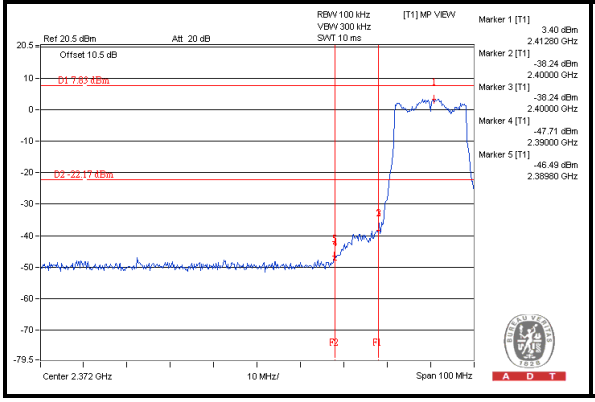
CH 6



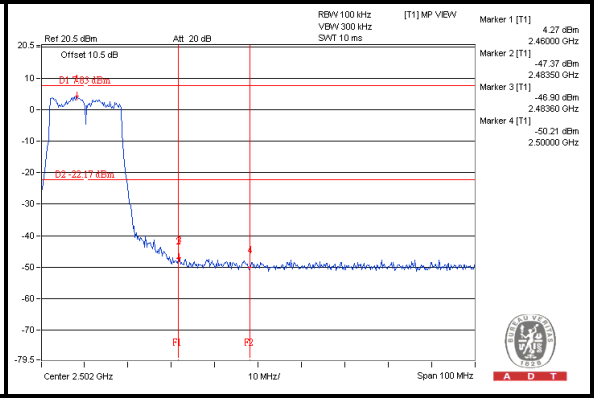
CH 11



CH 1 Band edge



CH 11 Band edge



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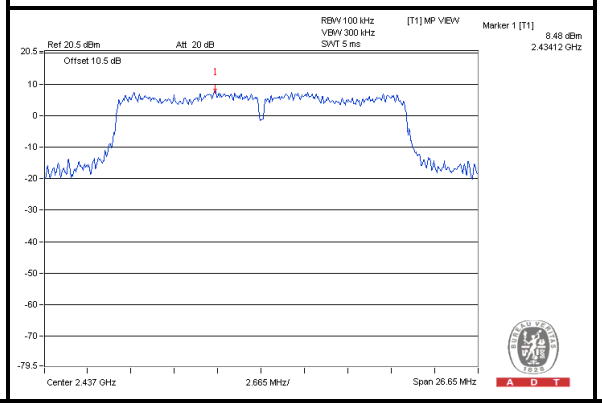
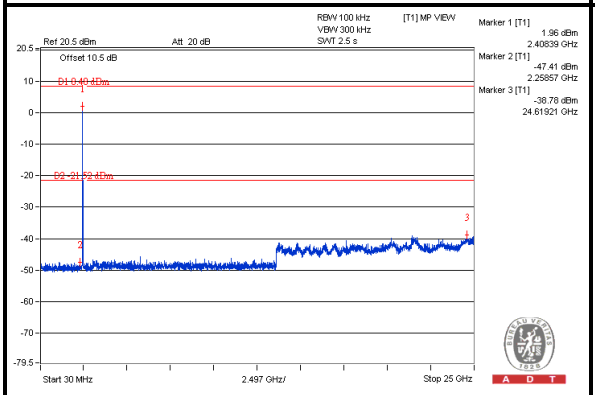
Maximum REF

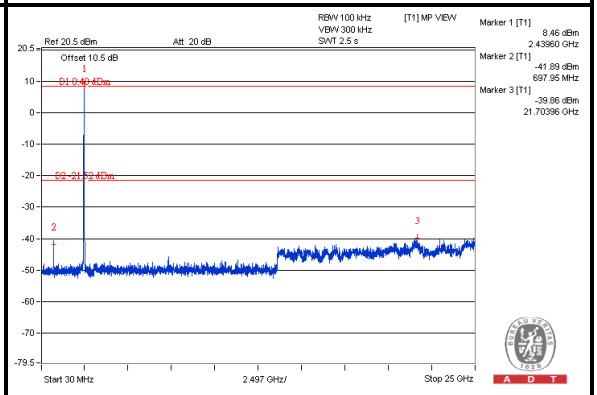


Chain (0)

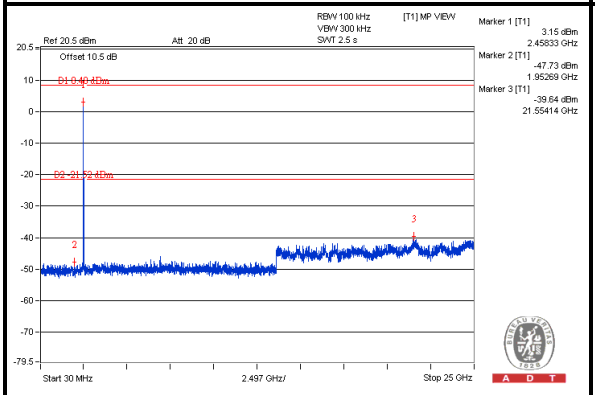
CH 1



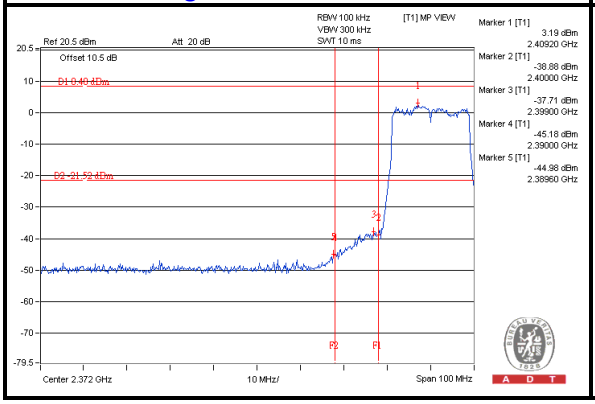
CH 6



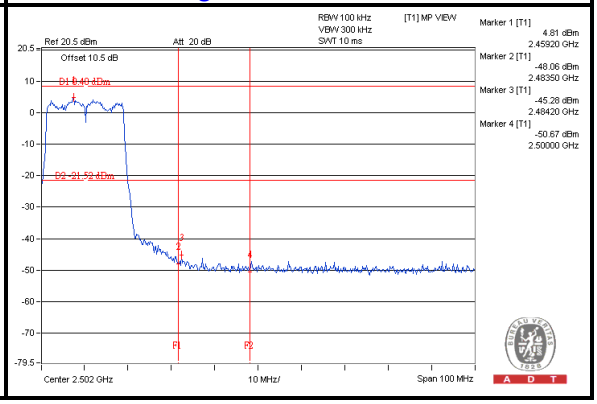
CH 11



CH 1 Band edge

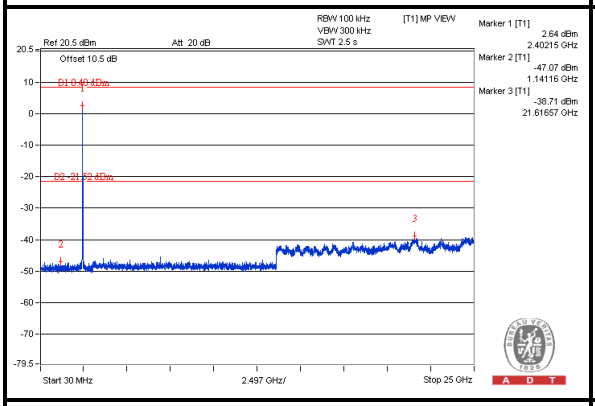


CH 11 Band edge

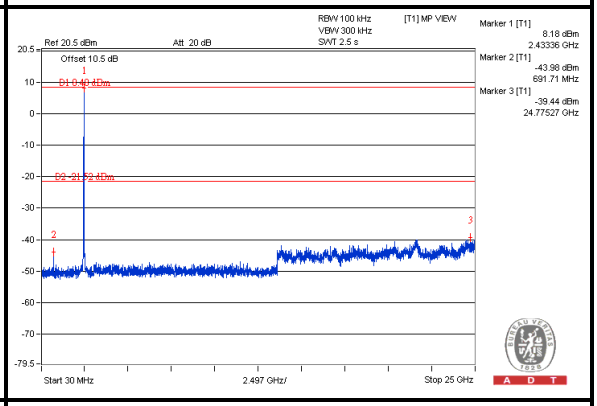


Chain (1)

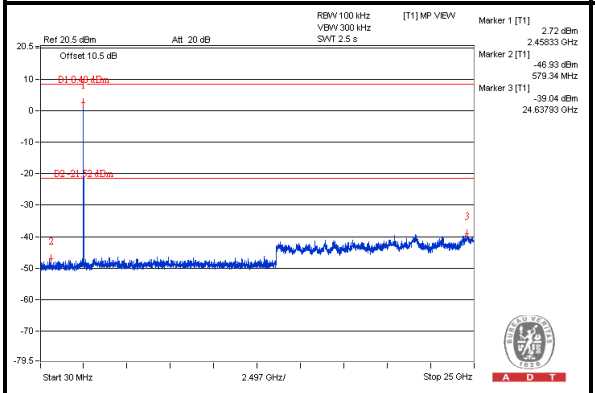
CH 1



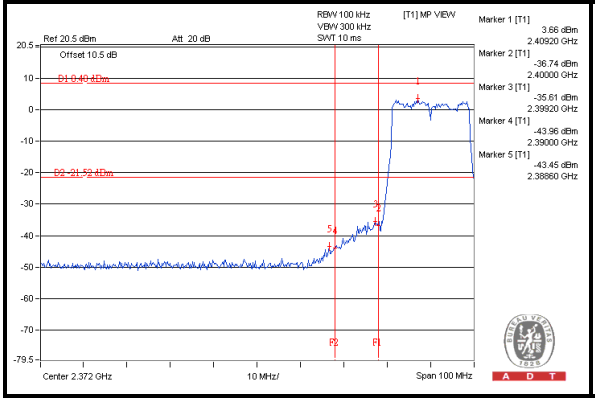
CH 6



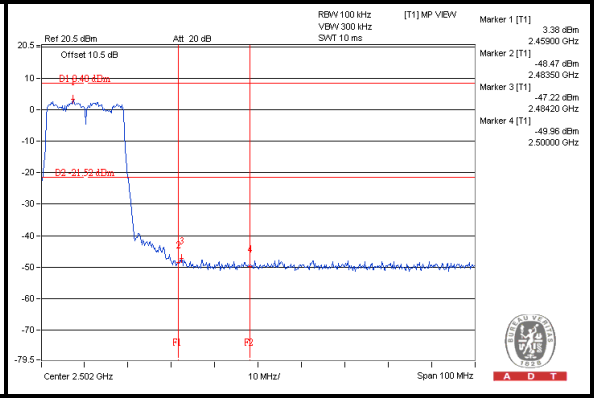
CH 11



CH 1 Band edge

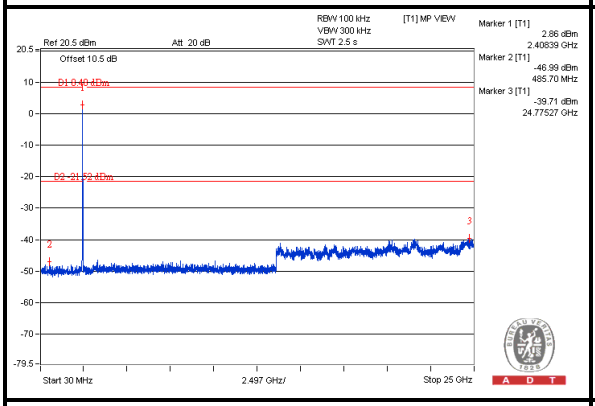


CH 11 Band edge

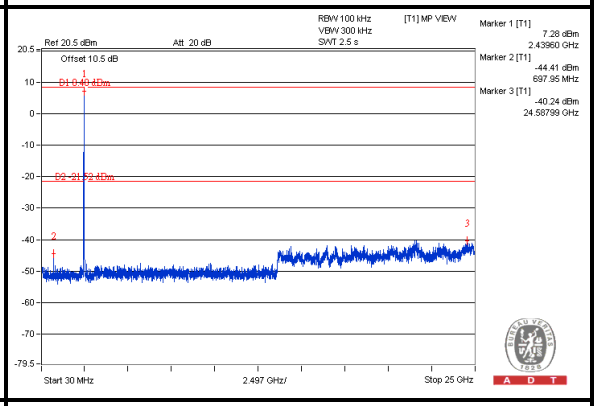


Chain (2)

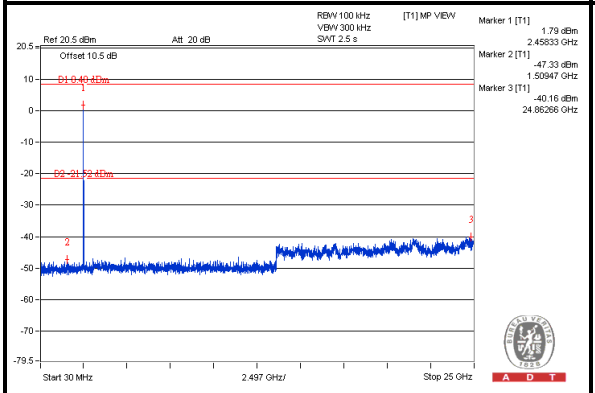
CH 1



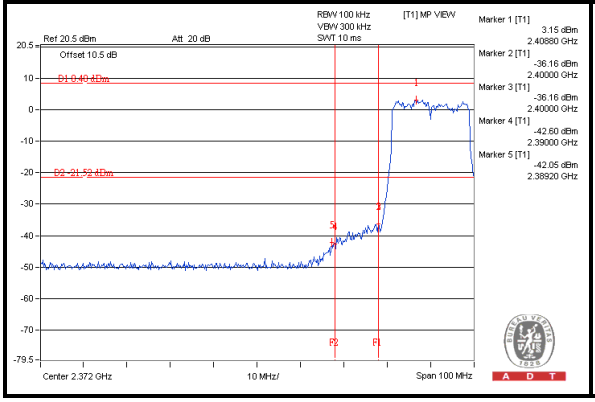
CH 6



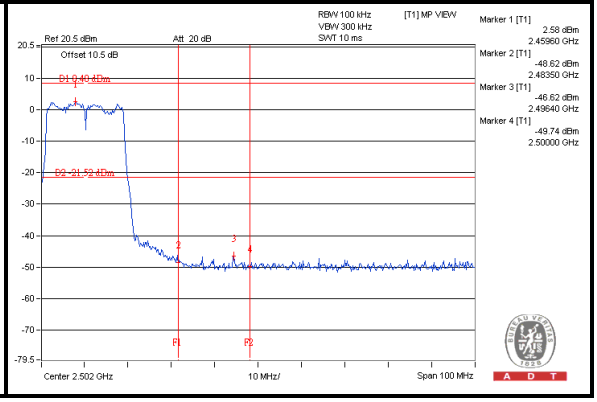
CH 11



CH 1 Band edge

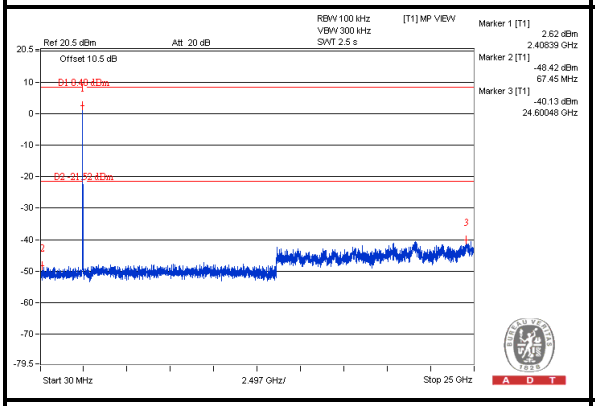


CH 11 Band edge

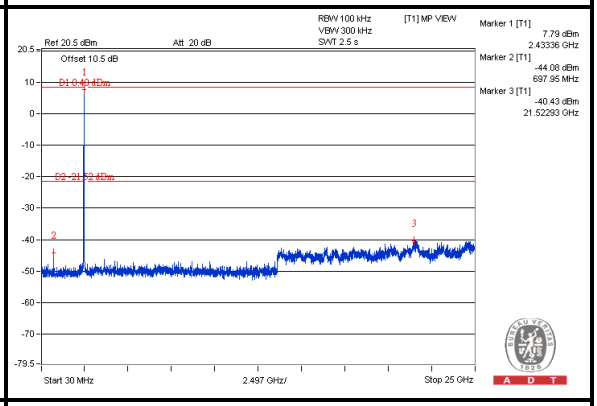


Chain (3)

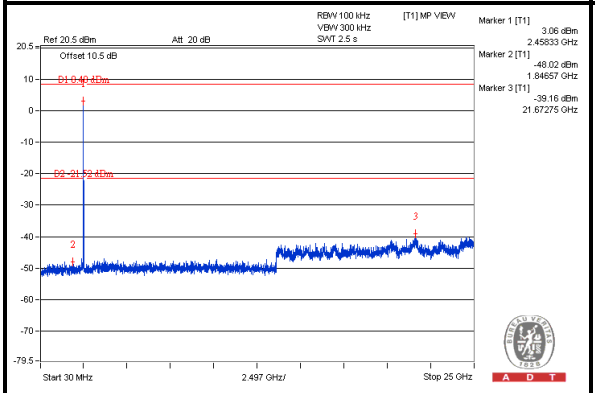
CH 1



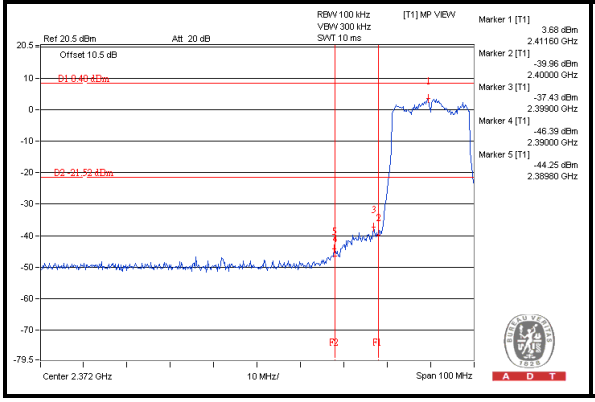
CH 6



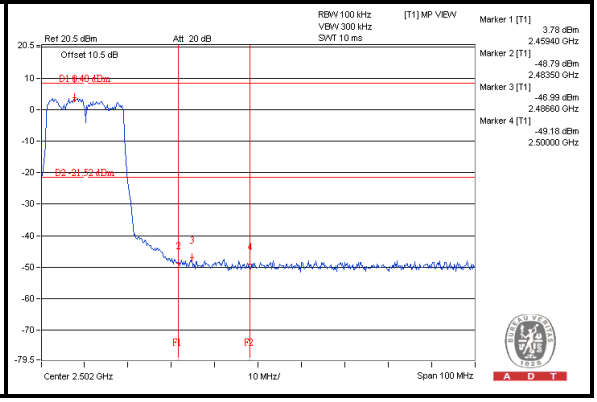
CH 11



CH 1 Band edge

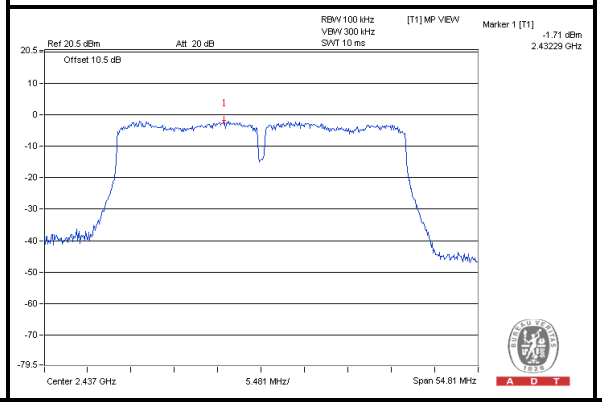


CH 11 Band edge



802.11n (HT40):

Maximum REF



Chain(0)

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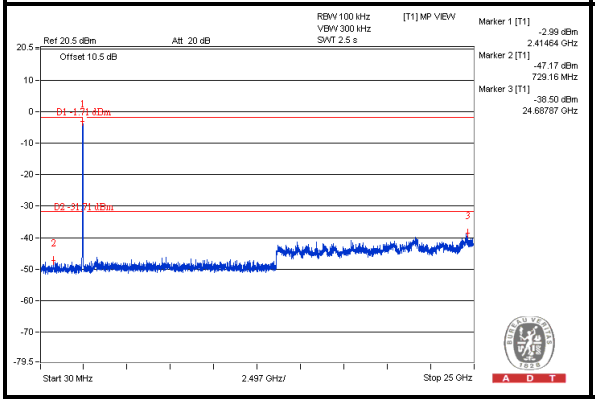

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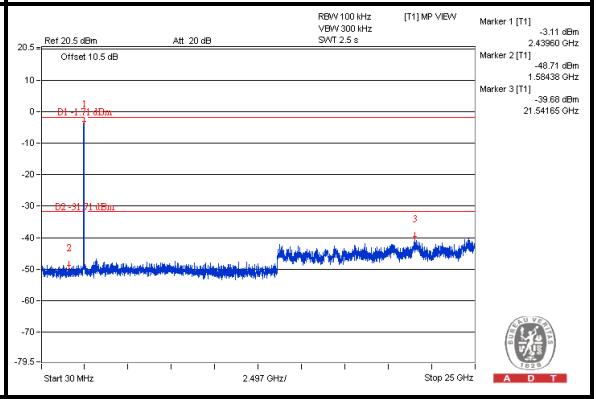
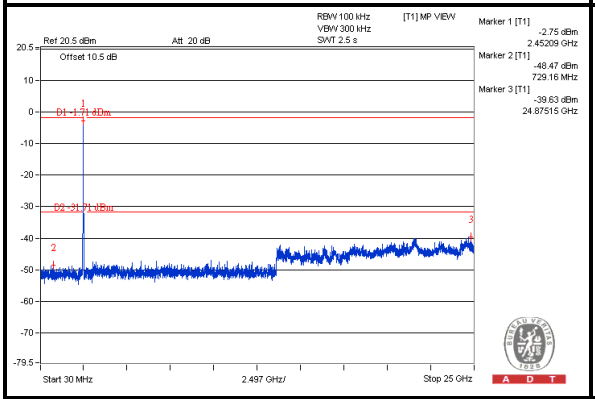


CH 9



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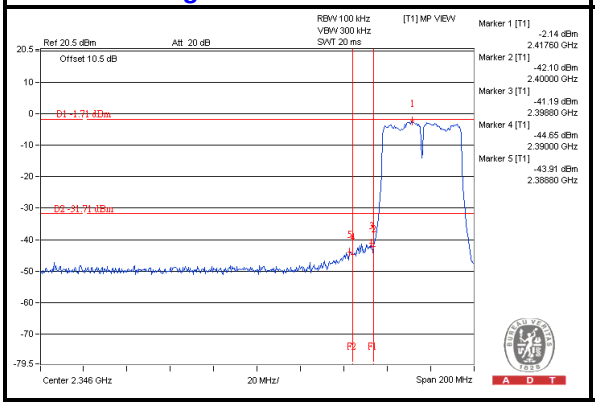

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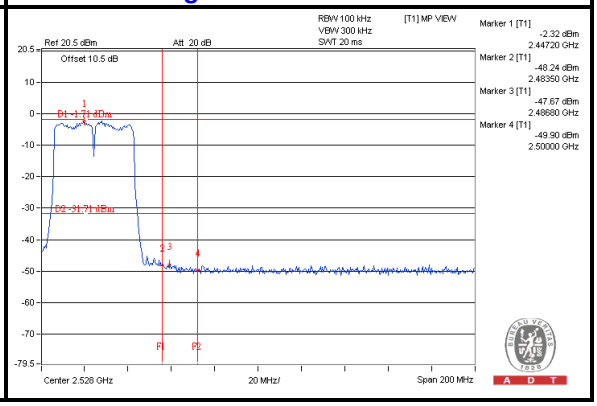

Chain(1)

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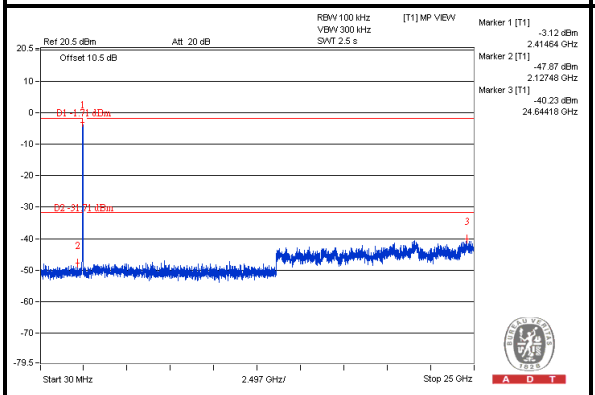

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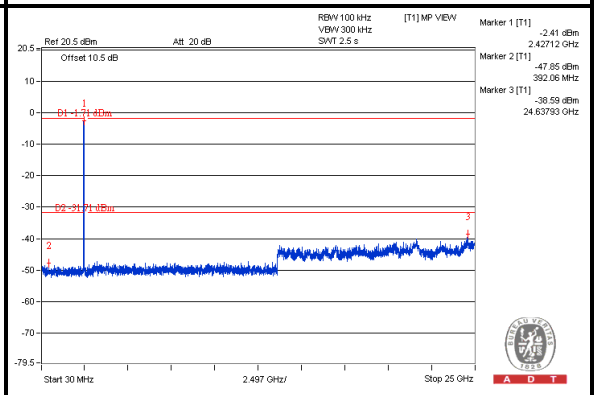

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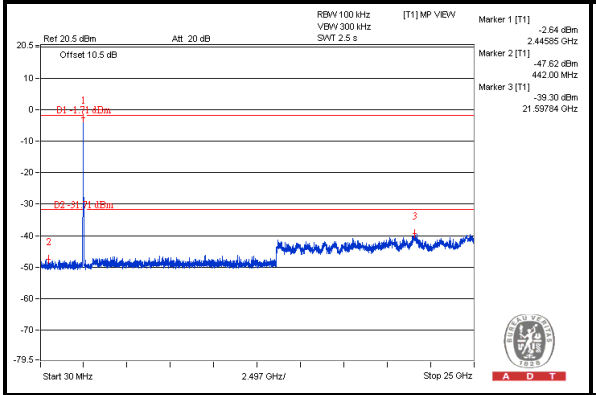

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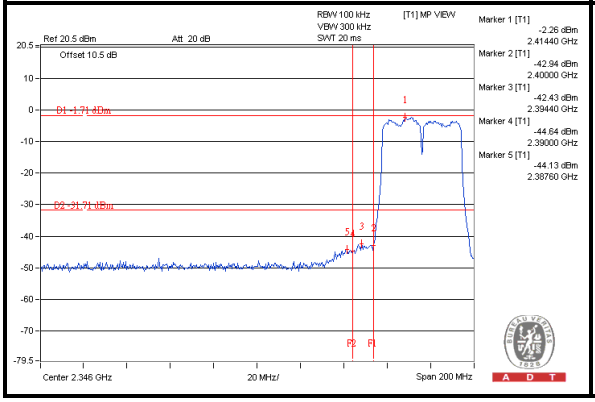

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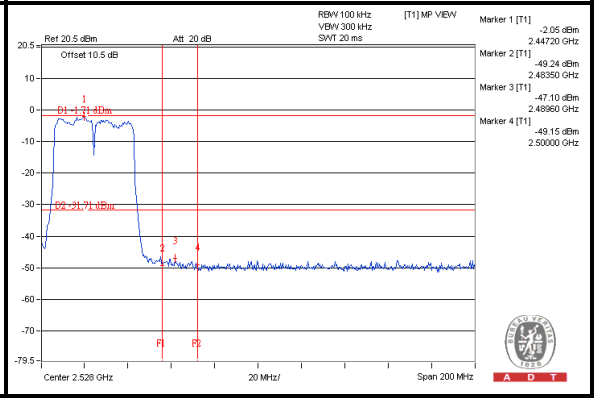
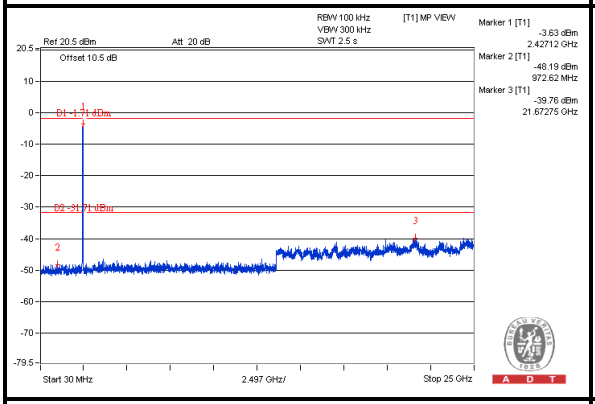


Chain(2)

CH 3



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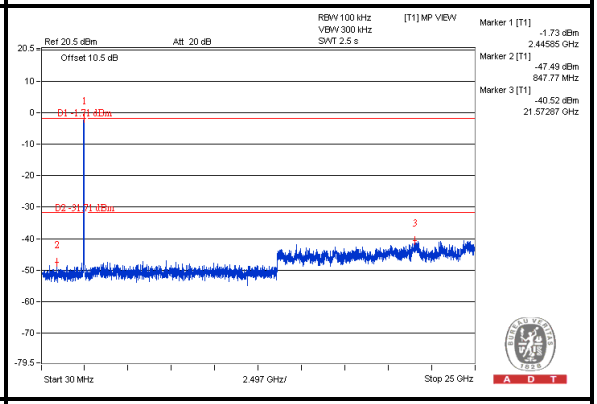

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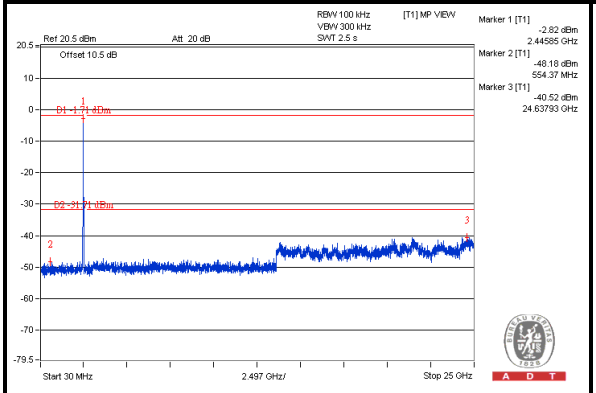

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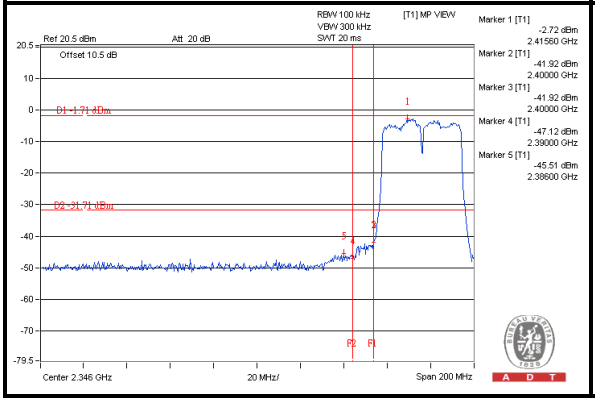

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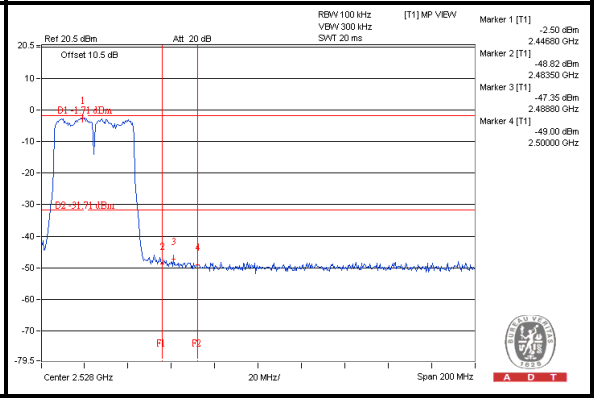

Chain(3)

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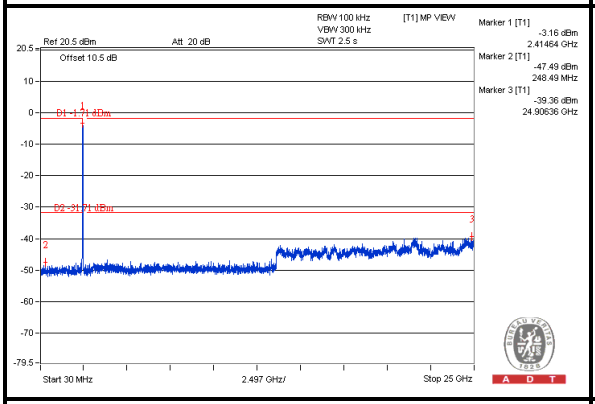

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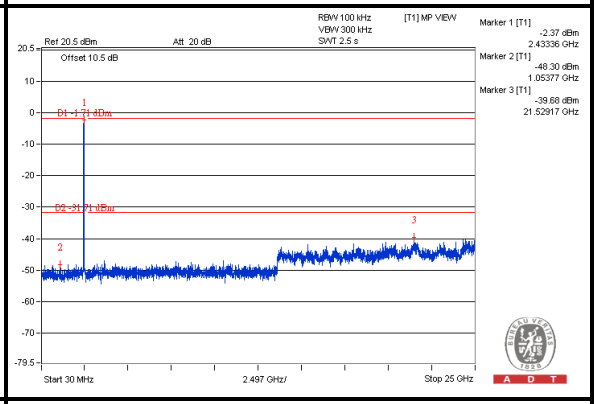

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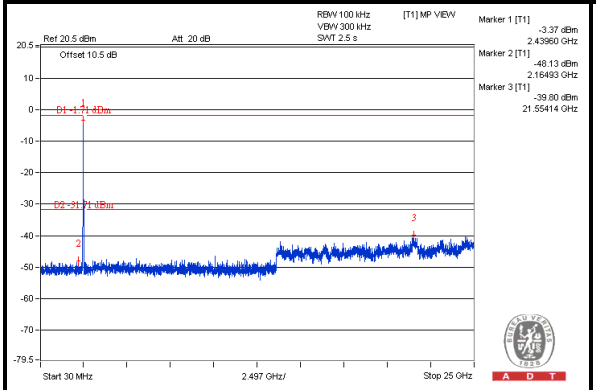

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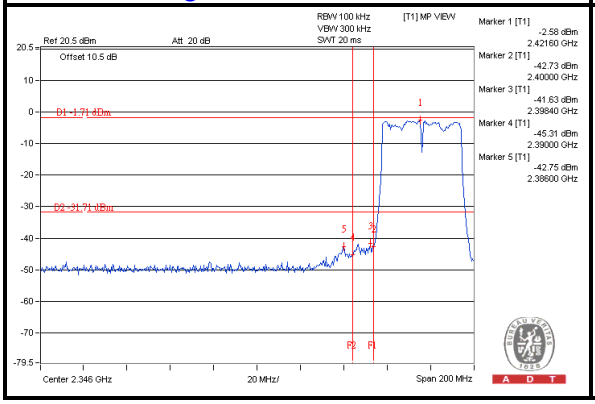

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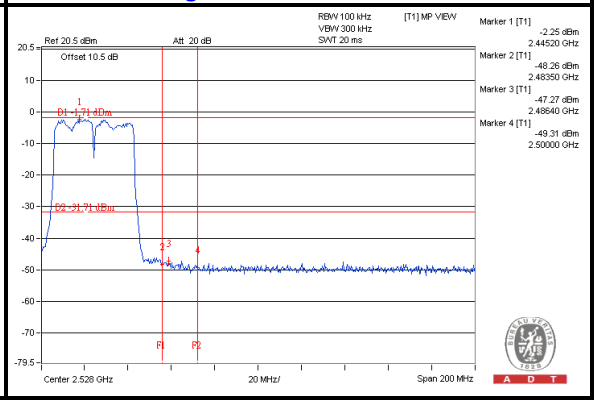


5. TEST TYPES AND RESULTS (FOR 5GHz, 5.725~5.850GHz Band)

5.1 CONDUCTED EMISSION MEASUREMENT

5.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	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 0.50 MHz.

5.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver ROHDE & SCHWARZ	ESCS 30	100375	Mar. 08, 2013	Mar. 07, 2014
Line-Impedance Stabilization Network (for EUT) SCHWARZBECK	NSLK8127	8127-522	Sep. 05, 2013	Sep. 04, 2014
Line-Impedance Stabilization Network (for Peripheral)	ENV216	100072	June 06, 2013	June 05, 2014
RF Cable (JYEBAO)	5DFB	COCCAB-001	Mar. 11, 2013	Mar. 10, 2014
50 ohms Terminator	50	EMC-03	Sep. 24, 2013	Sep. 23, 2014
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: Oct. 08, 2013

5.1.3 TEST PROCEDURES

a. 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.
b. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
c. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
d. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit – 20dB) were not recorded.

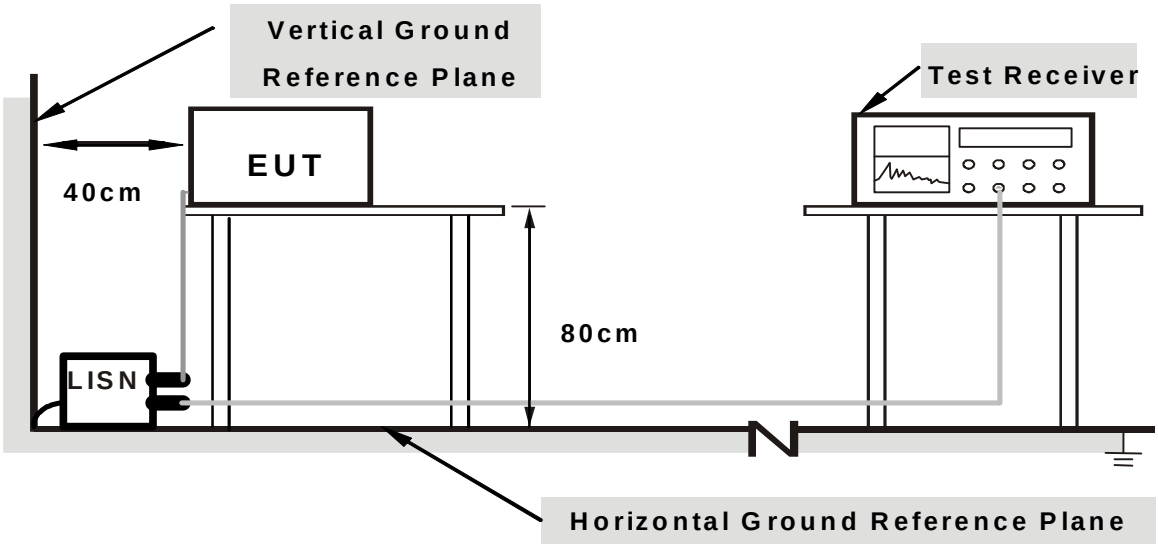
NOTE:

1. The resolution bandwidth of test receiver is 9kHz for Quasi-peak detection (QP) & Average detection (AV).

5.1.4 DEVIATION FROM TEST STANDARD

No deviation

5.1.5 TEST SETUP



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

For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

5.1.6 EUT OPERATING CONDITIONS

Same as the 4.1.6

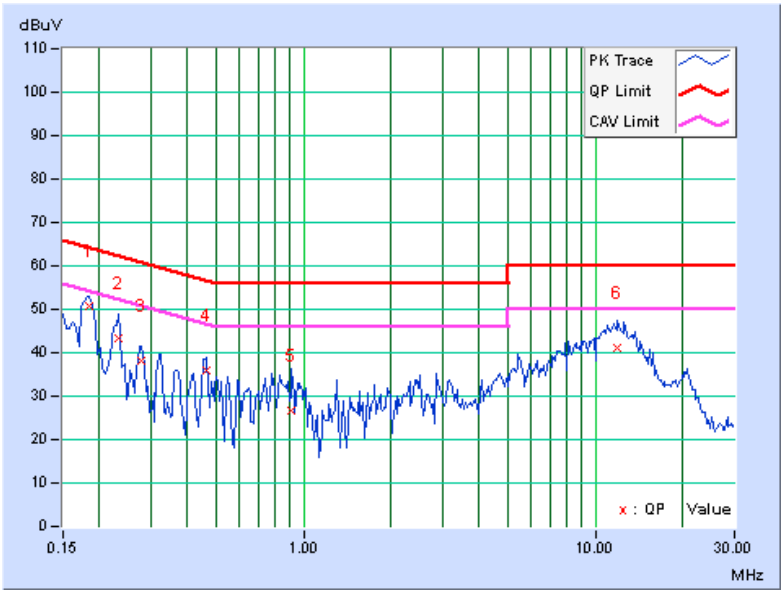
5.1.7 TEST RESULTS (MODE 1)

PHASE	Line (L)	DETECTOR FUNCTION	Quasi-Peak (QP) / Average (AV)

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	**0.18516**	**0.09**	**50.77**	**38.46**	**50.86**	**38.55**	**64.25**	**54.25**	**-13.39**	**-15.70**
2	0.23203	0.11	43.23	31.72	43.34	31.83	62.38	52.38	-19.04	-20.55
3	0.27891	0.12	37.97	27.08	38.09	27.20	60.85	50.85	-22.76	-23.65
4	0.46250	0.14	35.69	32.59	35.83	32.73	56.65	46.65	-20.81	-13.91
5	0.91172	0.17	26.40	12.32	26.57	12.49	56.00	46.00	-29.43	-33.51
6	11.92188	0.53	40.68	33.79	41.21	34.32	60.00	50.00	-18.79	-15.68

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

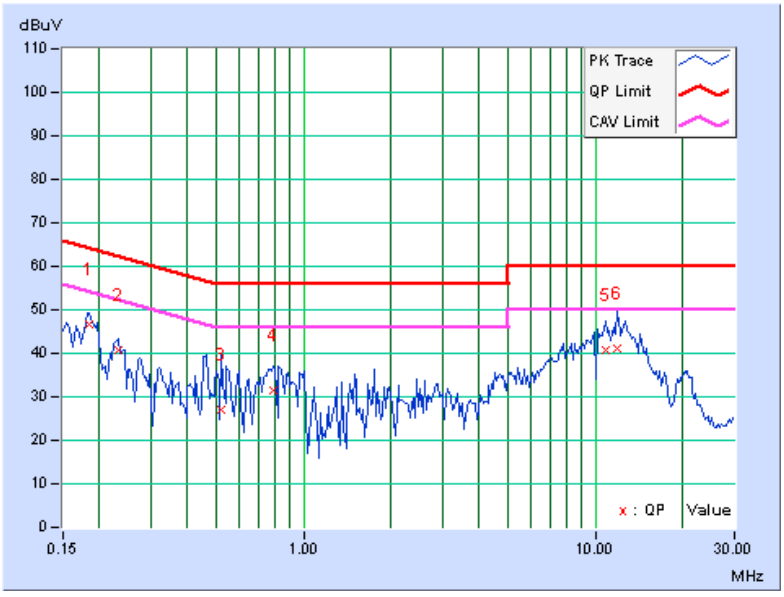


PHASE	Neutral (N)	DETECTOR FUNCTION	Quasi-Peak (QP) / Average (AV)

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.18516	0.10	46.74	34.65	46.84	34.75	64.25	54.25	-17.41	-19.50
2	0.23203	0.11	40.58	29.10	40.69	29.21	62.38	52.38	-21.69	-23.17
3	0.52109	0.15	26.91	9.33	27.06	9.48	56.00	46.00	-28.94	-36.52
4	0.78672	0.16	31.43	19.56	31.59	19.72	56.00	46.00	-24.41	-26.28
5	10.83984	0.49	40.17	33.09	40.66	33.58	60.00	50.00	-19.34	-16.42
6	11.94141	0.53	40.48	33.75	41.01	34.28	60.00	50.00	-18.99	-15.72

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



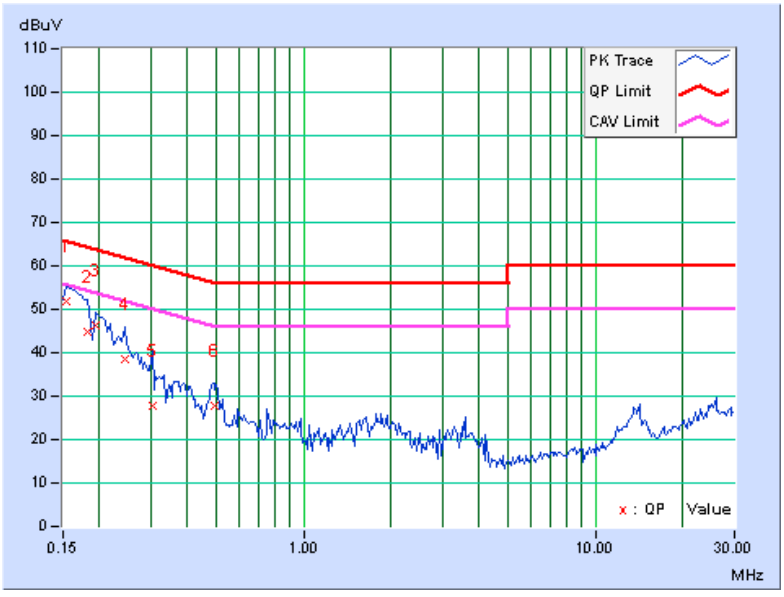
5.1.8 TEST RESULTS (MODE 2)

PHASE	Line (L)	DETECTOR FUNCTION	Quasi-Peak (QP) / Average (AV)

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15391	0.08	51.84	32.75	51.92	32.83	65.79	55.79	-13.86	-22.95
2	0.18125	0.09	44.91	18.14	45.00	18.23	64.43	54.43	-19.43	-36.20
3	0.19297	0.10	46.02	27.45	46.12	27.55	63.91	53.91	-17.79	-26.36
4	0.24375	0.11	38.50	23.55	38.61	23.66	61.97	51.97	-23.36	-28.31
5	0.30234	0.12	27.73	8.20	27.85	8.32	60.18	50.18	-32.33	-41.86
6	0.49375	0.14	27.72	14.90	27.86	15.04	56.10	46.10	-28.24	-31.06

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

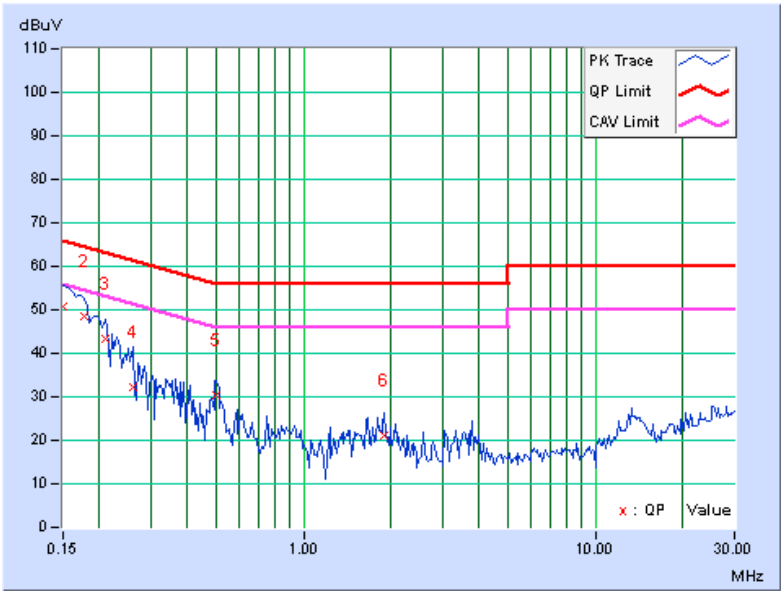


PHASE	Neutral (N)	DETECTOR FUNCTION	Quasi-Peak (QP) / Average (AV)

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	0.09	50.47	32.86	50.56	32.95	66.00	56.00	-15.44	-23.05
2	0.17734	0.10	48.58	29.73	48.68	29.83	64.61	54.61	-15.93	-24.78
3	0.20859	0.10	43.34	24.53	43.44	24.63	63.26	53.26	-19.82	-28.63
4	0.25938	0.11	32.06	11.92	32.17	12.03	61.45	51.45	-29.28	-39.42
5	0.50156	0.15	30.17	21.10	30.32	21.25	56.00	46.00	-25.68	-24.75
6	1.88672	0.21	21.05	14.50	21.26	14.71	56.00	46.00	-34.74	-31.29

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



5.2 RADIATED AND BANDEDGE EMISSION MEASUREMENT

5.2.1 LIMITS OF RADIATED AND BANDEDGE 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 30dB 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.

5.2.2 TEST INSTRUMENTS

For below 1GHz test

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
MXE EMI Receiver Agilent	N9038A	MY50010156	Jan. 16, 2013	Jan. 15, 2014
Pre-Amplifier Mini-Circuits	ZFL-1000VH2 B	AMP-ZFL-04	Nov. 13, 2013	Nov. 12, 2014
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-361	Mar. 25, 2013	Mar. 24, 2014
RF Cable	NA	CHHCAB_001	Oct. 06, 2013	Oct. 05, 2014
Spectrum Analyzer R&S	FSV40	100964	July 15, 2013	July 14, 2014
Horn_Antenna AISI	AIH.8018	0000220091110	Dec. 06, 2013	Dec. 05, 2014
Pre-Amplifier Agilent	8449B	3008A01923	Oct. 29, 2013	Oct. 28, 2014
RF Cable	NA	RF104-205 RF104-207 RF104-202	Dec. 12, 2013	Dec. 11, 2014
Spectrum Analyzer Agilent	E4446A	MY48250253	Aug. 28, 2013	Aug. 27, 2014
Pre-Amplifier SPACEK LABS	SLKKa-48-6	9K16	Nov. 13, 2013	Nov. 12, 2014
Horn_Antenna SCHWARZBECK	BBHA 9170	9170-424	Oct. 08, 2013	Oct. 07, 2014
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: Jan. 10, 2014

For above 1GHz test

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
MXE EMI Receiver Agilent	N9038A	MY51210105	Jan. 29, 2013	Jan. 28, 2014
Pre-Amplifier Mini-Circuits	ZFL-1000VH2 B	AMP-ZFL-03	Nov. 14, 2012	Nov. 13, 2013
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-360	Mar. 19, 2013	Mar. 18, 2014
RF Cable	NA	CHGCAB_001	Oct. 05, 2013	Oct. 04, 2014
Spectrum Analyzer R&S	FSV40	100964	July 15, 2013	July 14, 2014
Horn_Antenna AISI	AIH.8018	0000320091110	Nov. 19, 2012	Nov. 18, 2013
Pre-Amplifier Agilent	8449B	3008A02578	June 25, 2013	June 24, 2014
RF Cable	NA	RF104-201 RF104-203 RF104-204	Dec. 25, 2012	Dec. 24, 2013
Spectrum Analyzer Agilent	E4446A	MY48250253	Aug. 28, 2013	Aug. 27, 2014
Pre-Amplifier SPACEK LABS	SLKKa-48-6	9K16	Nov. 14, 2012	Nov. 13, 2013
Horn_Antenna SCHWARZBECK	BBHA 9170	9170-424	Oct. 08, 2013	Oct. 07, 2014
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. 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: Oct. 11, 2013

5.2.3 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:

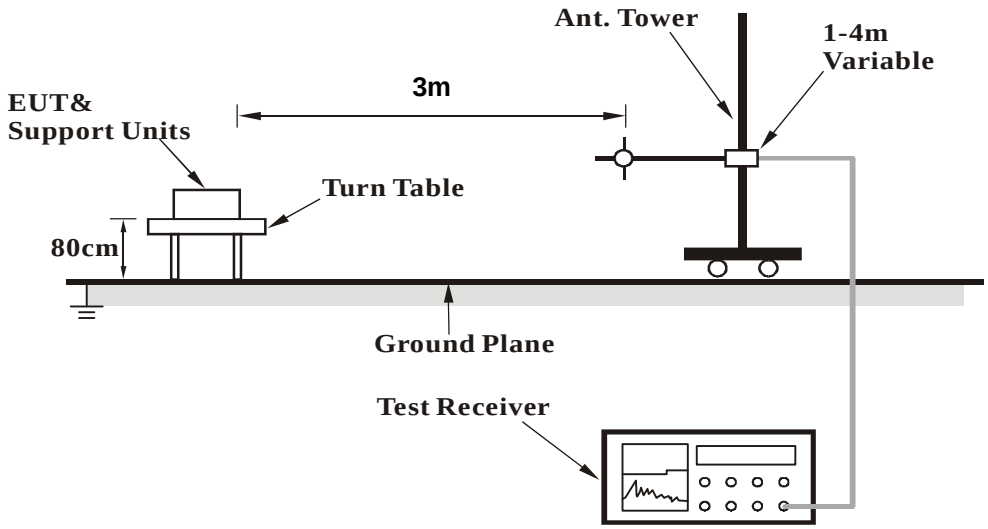
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
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.

5.2.4 DEVIATION FROM TEST STANDARD

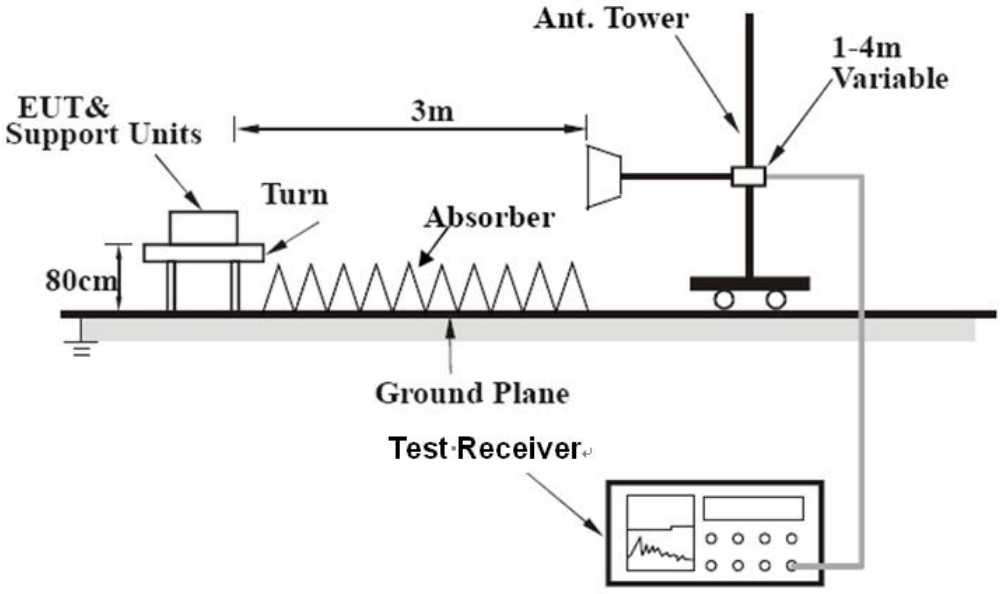
No deviation

5.2.5 TEST SETUP

<Frequency Range below 1GHz>



<Frequency Range above 1GHz>



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

5.2.6 EUT OPERATING CONDITIONS

Same as the 4.1.6

5.2.7 TEST RESULTS

BELOW 1GHz WORST-CASE DATA

802.11ac (VHT20)

CHANNEL	TX Channel 165	**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	62.11	26.8 QP	40.0	-13.2	1.24 H	221	40.15	-13.31
2	194.76	34.8 QP	43.5	-8.7	1.06 H	287	50.52	-15.72
3	279.64	41.6 QP	46.0	-4.4	1.00 H	243	53.99	-12.35
4	555.69	36.5 QP	46.0	-9.5	1.55 H	264	42.47	-5.95
5	600.02	37.7 QP	46.0	-8.3	1.55 H	236	42.35	-4.63
6	625.00	38.2 QP	46.0	-7.8	1.50 H	227	42.26	-4.06
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	35.63	35.7 QP	40.0	-4.4	1.42 V	203	49.08	-13.43
2	60.02	34.6 QP	40.0	-5.4	1.00 V	236	48.00	-13.44
3	228.46	42.2 QP	46.0	-3.9	1.32 V	249	57.38	-15.23
4	281.52	36.3 QP	46.0	-9.7	1.00 V	247	48.51	-12.20
5	551.13	37.2 QP	46.0	-8.8	1.00 V	231	43.27	-6.05
6	599.97	34.2 QP	46.0	-11.8	1.00 V	306	38.83	-4.63

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

ABOVE 1GHz DATA

802.11a

CHANNEL	TX Channel 149	**DETECTOR FUNCTION**	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	*5745.00	113.4 PK			1.37 H	341	102.98	10.42
2	*5745.00	104.4 AV			1.37 H	341	93.98	10.42
3	11490.00	59.7 PK	74.0	-14.3	1.08 H	213	42.44	17.26
4	11490.00	46.0 AV	54.0	-8.0	1.08 H	213	28.74	17.26
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	*5745.00	127.0 PK			1.13 V	48	116.58	10.42
2	*5745.00	118.3 AV			1.13 V	48	107.88	10.42
3	11490.00	59.2 PK	74.0	-14.8	1.53 V	178	41.94	17.26
4	11490.00	46.1 AV	54.0	-7.9	1.53 V	178	28.84	17.26

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.
6. The limit value is defined as per 15.247.

CHANNEL	TX Channel 157	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	*5785.00	113.3 PK			1.41 H	339	102.81	10.49
2	*5785.00	104.1 AV			1.41 H	339	93.61	10.49
3	11570.00	59.2 PK	74.0	-14.8	1.12 H	219	41.91	17.29
4	11570.00	45.6 AV	54.0	-8.4	1.12 H	219	28.31	17.29
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	*5785.00	127.1 PK			1.13 V	43	116.61	10.49
2	*5785.00	118.2 AV			1.13 V	43	107.71	10.49
3	11570.00	59.4 PK	74.0	-14.6	1.54 V	168	42.11	17.29
4	11570.00	46.4 AV	54.0	-7.6	1.54 V	168	29.11	17.29

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.
6. The limit value is defined as per 15.247.

CHANNEL	TX Channel 165	**DETECTOR FUNCTION**	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	*5825.00	114.1 PK			1.37 H	345	103.45	10.65
2	*5825.00	104.9 AV			1.37 H	345	94.25	10.65
3	11650.00	58.9 PK	74.0	-15.1	1.13 H	222	41.24	17.66
4	11650.00	45.6 AV	54.0	-8.4	1.13 H	222	27.94	17.66
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	*5825.00	127.2 PK			1.16 V	45	116.55	10.65
2	*5825.00	118.5 AV			1.16 V	45	107.85	10.65
3	11650.00	59.1 PK	74.0	-14.9	1.53 V	162	41.44	17.66
4	11650.00	46.2 AV	54.0	-7.8	1.53 V	162	28.54	17.66

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.
6. The limit value is defined as per 15.247.

802.11ac (VHT20)

CHANNEL	TX Channel 149	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

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	*5745.00	113.4 PK			1.36 H	339	102.98	10.42
2	*5745.00	104.4 AV			1.36 H	339	93.98	10.42
3	11490.00	58.6 PK	74.0	-15.4	1.10 H	219	41.34	17.26
4	11490.00	45.5 AV	54.0	-8.5	1.10 H	219	28.24	17.26
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	*5745.00	126.8 PK			1.13 V	50	116.38	10.42
2	*5745.00	117.6 AV			1.13 V	50	107.18	10.42
3	11490.00	58.7 PK	74.0	-15.3	1.58 V	151	41.44	17.26
4	11490.00	46.0 AV	54.0	-8.0	1.58 V	151	28.74	17.26

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.
6. The limit value is defined as per 15.247.

CHANNEL	TX Channel 157	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	*5785.00	113.2 PK			1.35 H	337	102.71	10.49
2	*5785.00	104.4 AV			1.35 H	337	93.91	10.49
3	11570.00	58.4 PK	74.0	-15.6	1.04 H	224	41.11	17.29
4	11570.00	45.2 AV	54.0	-8.8	1.04 H	224	27.91	17.29
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	*5785.00	126.7 PK			1.14 V	53	116.21	10.49
2	*5785.00	117.7 AV			1.14 V	53	107.21	10.49
3	11570.00	58.8 PK	74.0	-15.2	1.57 V	160	41.51	17.29
4	11570.00	45.8 AV	54.0	-8.2	1.57 V	160	28.51	17.29

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.
6. The limit value is defined as per 15.247.

CHANNEL	TX Channel 165	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	*5825.00	113.3 PK			1.35 H	333	102.65	10.65
2	*5825.00	104.2 AV			1.35 H	333	93.55	10.65
3	11650.00	58.5 PK	74.0	-15.5	1.01 H	236	40.84	17.66
4	11650.00	45.6 AV	54.0	-8.4	1.01 H	236	27.94	17.66
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	*5825.00	126.6 PK			1.11 V	55	115.95	10.65
2	*5825.00	117.3 AV			1.11 V	55	106.65	10.65
3	11650.00	58.6 PK	74.0	-15.4	1.62 V	173	40.94	17.66
4	11650.00	45.3 AV	54.0	-8.7	1.62 V	173	27.64	17.66

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.
6. The limit value is defined as per 15.247.

802.11ac (VHT40)

CHANNEL	TX Channel 151	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	*5755.00	110.8 PK			1.32 H	70	100.37	10.43
2	*5755.00	100.6 AV			1.32 H	70	90.17	10.43
3	11510.00	58.6 PK	74.0	-15.4	1.03 H	229	41.37	17.23
4	11510.00	45.6 AV	54.0	-8.4	1.03 H	229	28.37	17.23
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	*5755.00	123.6 PK			1.14 V	342	113.17	10.43
2	*5755.00	114.5 AV			1.14 V	342	104.07	10.43
3	11510.00	58.0 PK	74.0	-16.0	1.61 V	171	40.77	17.23
4	11510.00	45.0 AV	54.0	-9.0	1.61 V	171	27.77	17.23

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.
6. The limit value is defined as per 15.247.

CHANNEL	TX Channel 159	**DETECTOR FUNCTION**	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	*5795.00	111.0 PK			1.38 H	62	100.50	10.50
2	*5795.00	100.7 AV			1.38 H	62	90.20	10.50
3	11590.00	58.3 PK	74.0	-15.7	1.00 H	229	40.99	17.31
4	11590.00	45.1 AV	54.0	-8.9	1.00 H	229	27.79	17.31
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	*5795.00	123.7 PK			1.09 V	330	113.20	10.50
2	*5795.00	114.6 AV			1.09 V	330	104.10	10.50
3	11590.00	58.2 PK	74.0	-15.8	1.55 V	183	40.89	17.31
4	11590.00	45.2 AV	54.0	-8.8	1.55 V	183	27.89	17.31

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.
6. The limit value is defined as per 15.247.

802.11ac (VHT80)

CHANNEL	TX Channel 155	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	5458.08	58.3 PK	74.0	-15.7	1.00 H	37	48.66	9.64
2	5458.08	44.9 AV	54.0	-9.1	1.00 H	37	35.26	9.64
3	*5775.00	112.2 PK			1.06 H	29	101.73	10.47
4	*5775.00	101.9 AV			1.06 H	29	91.43	10.47
5	11550.00	58.2 PK	74.0	-15.8	1.01 H	225	40.93	17.27
6	11550.00	45.4 AV	54.0	-8.6	1.01 H	225	28.13	17.27
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	5458.08	66.8 PK	74.0	-7.2	1.00 V	358	57.16	9.64
2	**5458.08**	**52.1 AV**	**54.0**	**-1.9**	**1.00 V**	**358**	**42.46**	**9.64**
3	*5775.00	121.7 PK			1.04 V	27	111.23	10.47
4	*5775.00	111.8 AV			1.04 V	27	101.33	10.47
5	11550.00	58.1 PK	74.0	-15.9	1.55 V	175	40.83	17.27
6	11550.00	44.8 AV	54.0	-9.2	1.55 V	175	27.53	17.27

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.
6. The limit value is defined as per 15.247.

5.3 6dB BANDWIDTH MEASUREMENT

5.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

5.3.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer R&S	FSP40	100036	Jan. 21, 2013	Jan. 20, 2014

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. 09, 2013

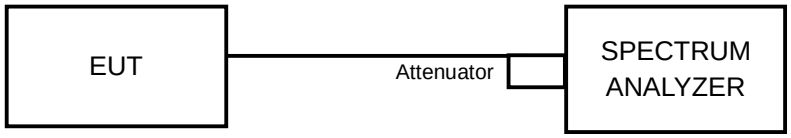
5.3.3 TEST PROCEDURE

1. Set resolution bandwidth (RBW) = 100kHz
2. Set the video bandwidth (VBW) ≥ 3 x RBW, Detector = Peak.
3. Trace mode = max hold.
4. Sweep = auto couple.
5. 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

5.3.4 DEVIATION FROM TEST STANDARD

No deviation

5.3.5 TEST SETUP



5.3.6 EUT OPERATING CONDITIONS

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

5.3.7 TEST RESULTS

802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)				MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 3		
149	5745	16.63	16.59	16.63	16.61	0.5	PASS
157	5785	16.62	16.59	16.62	16.61	0.5	PASS
165	5825	16.59	16.58	16.61	16.61	0.5	PASS

802.11ac (VHT20)

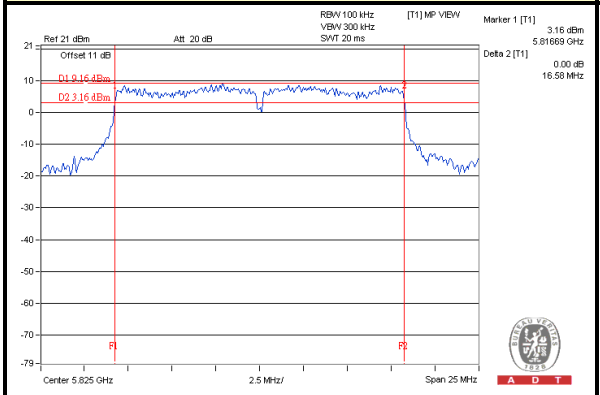
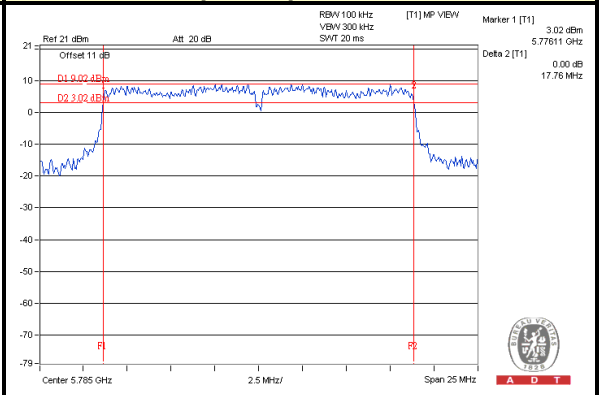
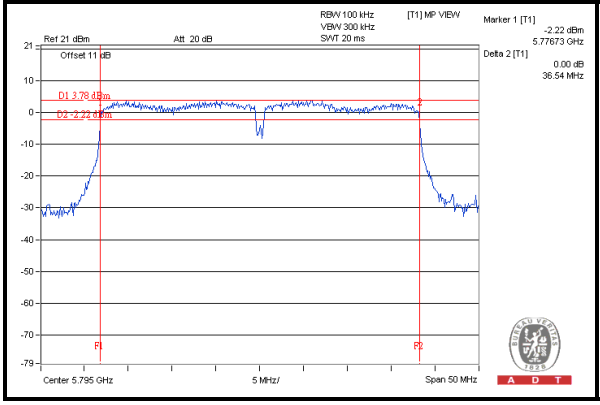
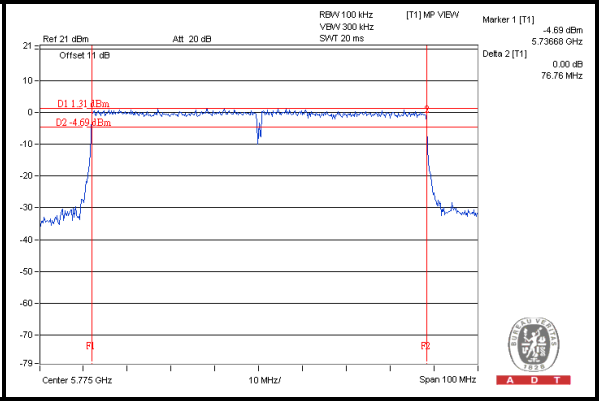
CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)				MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 3		
149	5745	17.77	17.84	17.85	17.77	0.5	PASS
157	5785	17.76	17.83	17.81	17.76	0.5	PASS
165	5825	17.79	17.83	17.79	17.78	0.5	PASS

802.11ac (VHT40)

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)				MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 3		
151	5755	36.58	36.58	36.57	36.56	0.5	PASS
159	5795	36.56	36.54	36.54	36.55	0.5	PASS

802.11ac (VHT80)

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)				MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 3		
155	5775	76.78	76.81	76.76	76.79	0.5	PASS

SPECTRUM PLOT OF WORST VALUE	
802.11a / Chain 1 / CH165	**802.11ac (VHT20) / Chain 3 / CH157**
	
802.11ac (VHT40) / Chain 2 / CH159	**802.11ac (VHT80) / Chain 2 / CH155**
	

5.4 CONDUCTED OUTPUT POWER MEASUREMENT

5.4.1 LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT

For systems using digital modulation in the 5725 –5850 MHz band: 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.

5.4.2 INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Power meter Anritsu	ML2495A	0824006	May 20, 2013	May 19, 2014
Power sensor Anritsu	MA2411B	0738172	May 20, 2013	May 19, 2014

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. 09, 2013

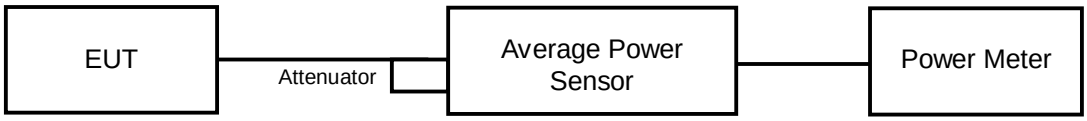
5.4.3 TEST PROCEDURES

Method PM is used to perform output power measurement, trigger and gating function of wide band power meter is enabled to measure max output power of TX on burst. Duty factor is not added to measured value.

5.4.4 DEVIATION FROM TEST STANDARD

No deviation.

5.4.5 TEST SETUP



5.4.6 EUT OPERATING CONDITIONS

Same as Item 5.3.6

5.4.7 TEST RESULTS

802.11a

CHANNEL	FREQUENCY (MHz)	AVERAGE POWER (dBm)				TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 3				
149	5745	21.13	20.47	20.78	21.04	487.878	26.88	28.10	PASS
157	5785	21.46	20.13	20.29	20.36	458.546	26.61	28.10	PASS
165	5825	21.65	20.25	20.33	20.43	470.446	26.73	28.10	PASS

NOTE: 1. Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2$ / 4] = 7.9dBi > 6dBi , so the power limit shall be reduced to 30-(7.9-6) =28.1dBm.

802.11ac (VHT20)

CHANNEL	FREQUENCY (MHz)	AVERAGE POWER (dBm)				TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 3				
149	5745	20.61	19.86	20.35	20.05	421.459	26.25	28.10	PASS
157	5785	21.86	20.46	20.43	20.36	483.686	26.85	28.10	PASS
165	5825	21.97	21.80	21.80	21.70	608.021	27.84	28.10	PASS

NOTE: 1. Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2$ / 4] = 7.9dBi > 6dBi , so the power limit shall be reduced to 30-(7.9-6) =28.1dBm.

802.11ac (VHT40)

CHANNEL	FREQUENCY (MHz)	AVERAGE POWER (dBm)				TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 3				
151	5755	20.05	20.09	20.33	20.24	416.829	26.20	28.10	PASS
159	5795	20.01	20.16	20.13	20.11	409.588	26.12	28.10	PASS

NOTE: 1. Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2$ / 4] = 7.9dBi > 6dBi , so the power limit shall be reduced to 30-(7.9-6) =28.1dBm.

802.11ac (VHT80)

CHANNEL	FREQUENCY (MHz)	AVERAGE POWER (dBm)				TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 3				
155	5775	20.46	20.82	20.62	20.52	460.019	26.63	28.10	PASS

NOTE: 1. Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2$ / 4] = 7.9dBi > 6dBi , so the power limit shall be reduced to 30-(7.9-6) =28.1dBm.

5.5 POWER SPECTRAL DENSITY MEASUREMENT

5.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

5.5.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer R&S	FSP 40	100036	Jan. 21, 2013	Jan. 20, 2014

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. 09, 2013

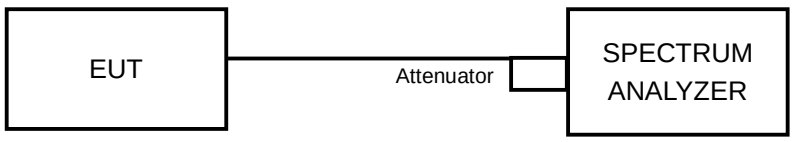
5.5.3 TEST PROCEDURE

1. Set the RBW = 30 kHz, VBW =100 kHz, Detector = power averaging (RMS).
2. Ensure that the number of measurement points in the sweep ≥ 2 x span/RBW
3. Sweep time = auto couple,
4. Employ trace averaging (RMS) mode over a minimum of 100 traces.
5. Use the peak marker function to determine the maximum amplitude level.

5.5.4 DEVIATION FROM TEST STANDARD

No deviation

5.5.5 TEST SETUP



5.5.6 EUT OPERATING CONDITION

Same as Item 4.3.6

5.5.7 TEST RESULTS

802.11a

TX CHAIN	CHANNEL	FREQUENCY (MHz)	PSD (dBm)	10 log (N=4) dB	TOTAL PSD (dBm)	LIMIT (dBm)	PASS /FAIL
0	149	5745	-4.03	6.02	1.99	6.10	PASS
	157	5785	-3.62	6.02	2.40	6.10	PASS
	165	5825	-2.81	6.02	3.21	6.10	PASS
1	149	5745	-3.44	6.02	2.58	6.10	PASS
	157	5785	-4.25	6.02	1.77	6.10	PASS
	165	5825	-2.81	6.02	3.21	6.10	PASS
2	149	5745	-2.75	6.02	3.27	6.10	PASS
	157	5785	-3.58	6.02	2.44	6.10	PASS
	165	5825	-3.15	6.02	2.87	6.10	PASS
3	149	5745	-2.62	6.02	3.40	6.10	PASS
	157	5785	-2.89	6.02	3.13	6.10	PASS
	165	5825	-3.25	6.02	2.77	6.10	PASS

NOTE: 1. Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2$ / 4] = 7.65dBi > 6dBi , so the power density limit shall be reduced to 8-(7.9-6) = 6.1dBm.

802.11ac (VHT20)

TX CHAIN	CHANNEL	FREQUENCY (MHz)	PSD (dBm)	10 log (N=4) dB	TOTAL PSD (dBm)	LIMIT (dBm)	PASS /FAIL
0	149	5745	-3.27	6.02	2.75	6.10	PASS
	157	5785	-2.70	6.02	3.32	6.10	PASS
	165	5825	-2.15	6.02	3.87	6.10	PASS
1	149	5745	-3.25	6.02	2.77	6.10	PASS
	157	5785	-3.58	6.02	2.44	6.10	PASS
	165	5825	-2.59	6.02	3.43	6.10	PASS
2	149	5745	-3.05	6.02	2.97	6.10	PASS
	157	5785	-3.05	6.02	2.97	6.10	PASS
	165	5825	-3.10	6.02	2.92	6.10	PASS
3	149	5745	-2.91	6.02	3.11	6.10	PASS
	157	5785	-2.83	6.02	3.19	6.10	PASS
	165	5825	-3.31	6.02	2.71	6.10	PASS

NOTE: 1. Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2 / 4] = 7.65\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to 8-(7.9-6) = 6.1dBm.

802.11ac (VHT40)

TX CHAIN	CHANNEL	FREQUENCY (MHz)	PSD (dBm)	10 log (N=4) dB	TOTAL PSD (dBm)	LIMIT (dBm)	PASS /FAIL
0	151	5755	-5.53	6.02	0.49	6.10	PASS
	159	5795	-5.60	6.02	0.42	6.10	PASS
1	151	5755	-7.85	6.02	-1.83	6.10	PASS
	159	5795	-6.99	6.02	-0.97	6.10	PASS
2	151	5755	-7.76	6.02	-1.74	6.10	PASS
	159	5795	-7.68	6.02	-1.66	6.10	PASS
3	151	5755	-5.39	6.02	0.63	6.10	PASS
	159	5795	-6.86	6.02	-0.84	6.10	PASS

NOTE: 1. Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2$ / 4] = 7.65dBi > 6dBi , so the power density limit shall be reduced to 8-(7.9-6) = 6.1dBm.

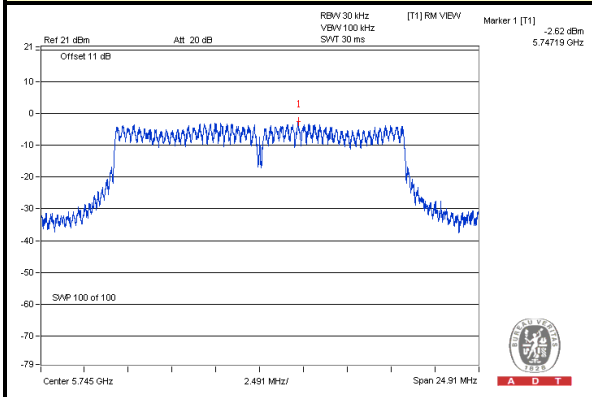
802.11ac (VHT80)

TX CHAIN	CHANNEL	FREQUENCY (MHz)	PSD (dBm)	10 log (N=4) dB	TOTAL PSD (dBm)	LIMIT (dBm)	PASS /FAIL
0	155	5775	-8.14	6.02	-2.12	6.10	PASS
1	155	5775	-10.43	6.02	-4.41	6.10	PASS
2	155	5775	-7.59	6.02	-1.57	6.10	PASS
3	155	5775	-8.97	6.02	-2.95	6.10	PASS

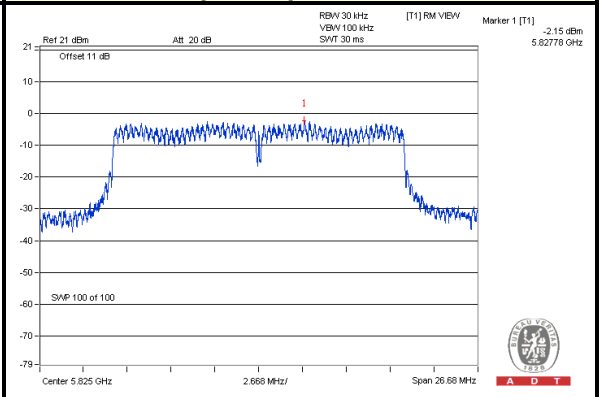
NOTE: 1. Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2$ / 4] = 7.65dBi > 6dBi , so the power density limit shall be reduced to 8-(7.9-6) = 6.1dBm.

SPECTRUM PLOT OF WORST VALUE

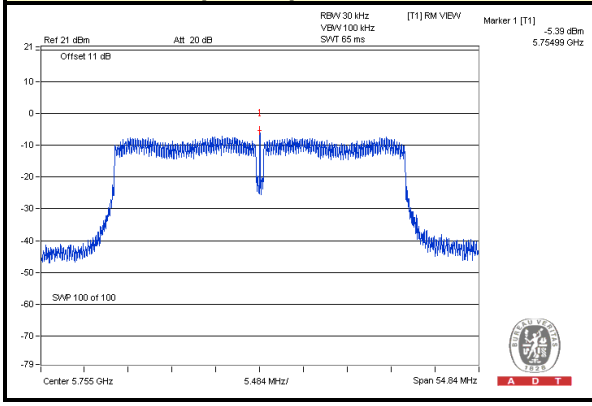
802.11a / Chain 3 / CH149



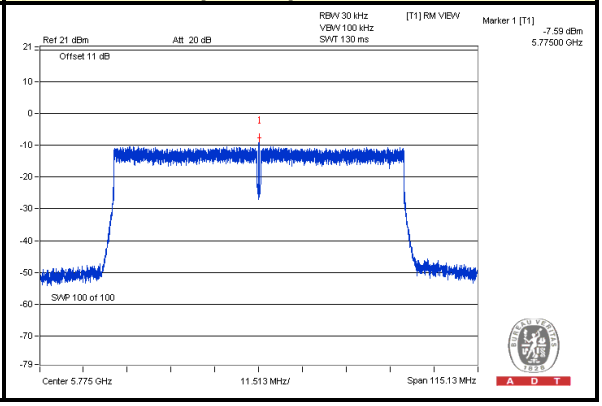
802.11ac (VHT20) / Chain 0 / CH165



802.11ac (VHT40) / Chain 3 / CH151



802.11ac (VHT80) / Chain 2 / CH155



5.6 CONDUCTED OUT-BAND EMISSION MEASUREMENT

5.6.1 LIMITS OF CONDUCTED OUT-BAND EMISSION MEASUREMENT

Below 30dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

5.6.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer R&S	FSP 40	100036	Jan. 21, 2013	Jan. 20, 2014

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. 09, 2013

5.6.3 TEST PROCEDURE

Measurement Procedure - Reference Level

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.

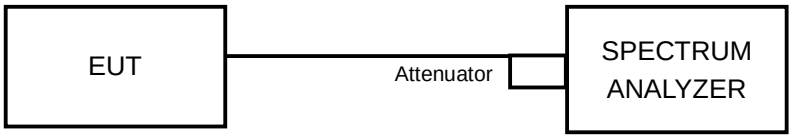
Measurement Procedure –Unwanted Emission Level

1. Set RBW = 100 kHz.
2. Set VBW ≥ 300 kHz.
3. Set span to encompass the spectrum to be examined
4. Detector = peak.
5. Trace Mode = max hold.
6. Sweep = auto couple.

5.6.4 DEVIATION FROM TEST STANDARD

No deviation

5.6.5 TEST SETUP



5.6.6 EUT OPERATING CONDITION

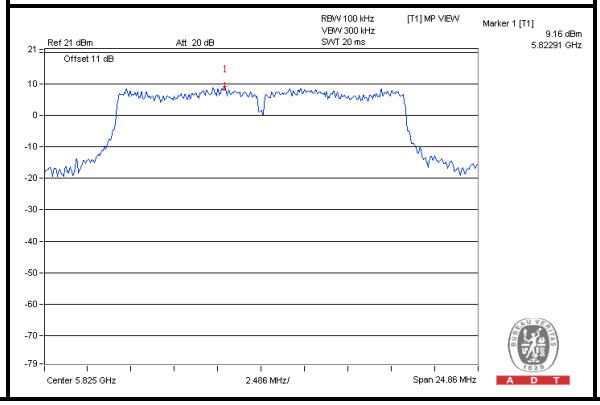
Same as Item 4.3.6

5.6.7 TEST RESULTS

The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 30dB offset below D1. It shows compliance with the requirement.

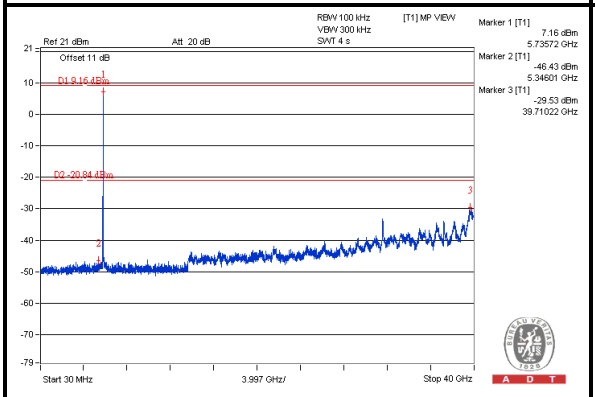
802.11a:

Maximum REF

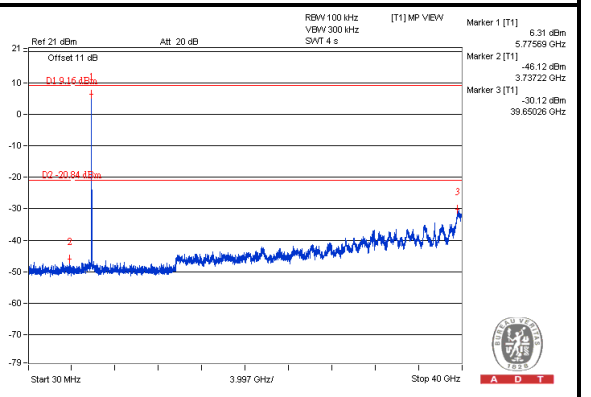


Chain (0)

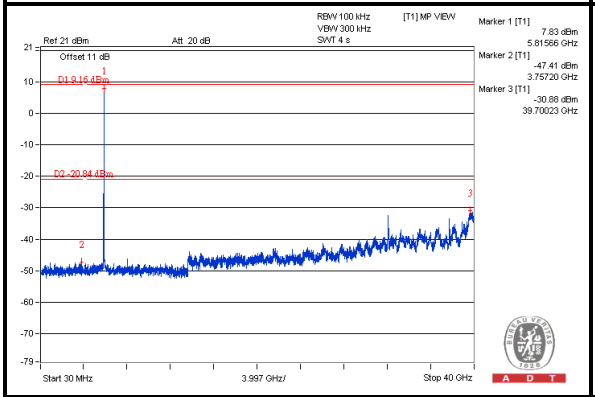
CH 149



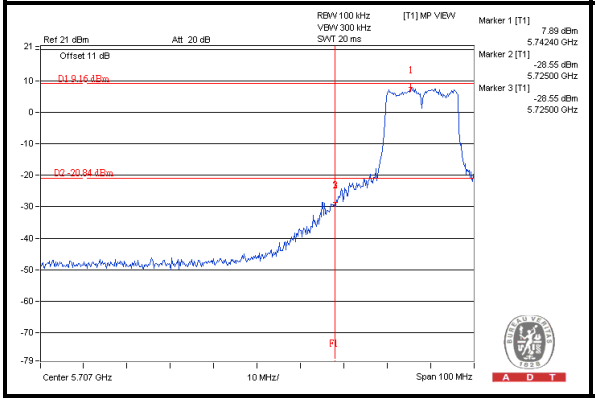
CH 157



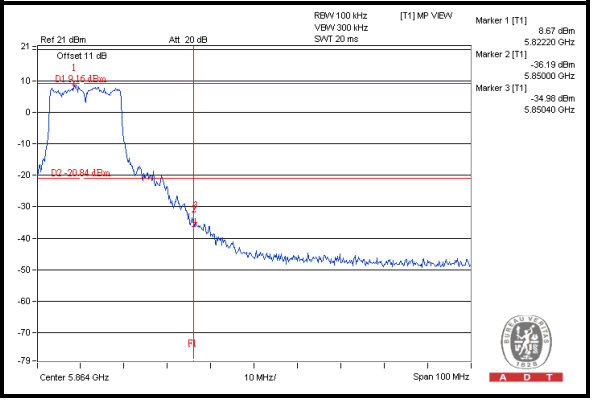
CH 165



CH 149 Band edge

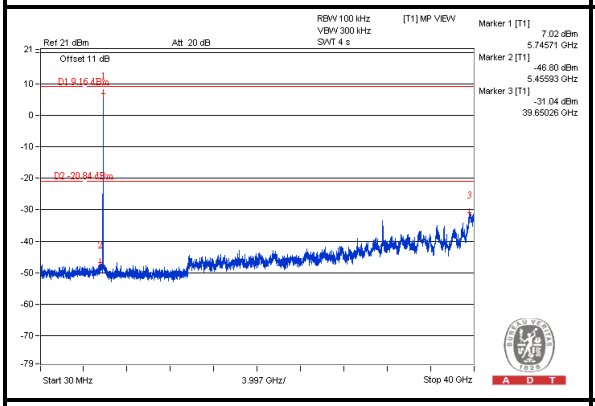


CH 165 Band edge

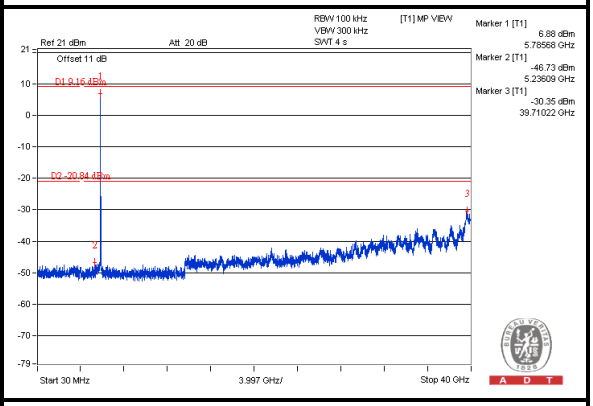


Chain (1)

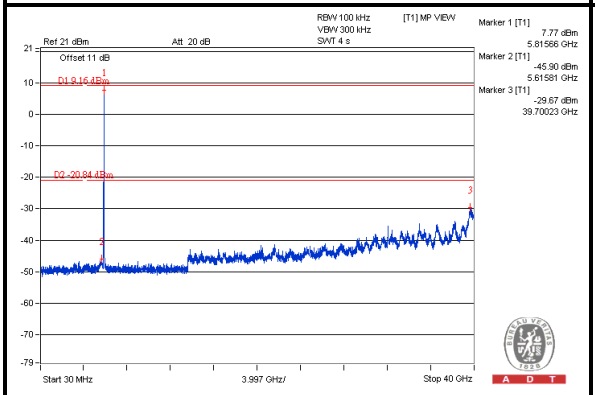
CH 149



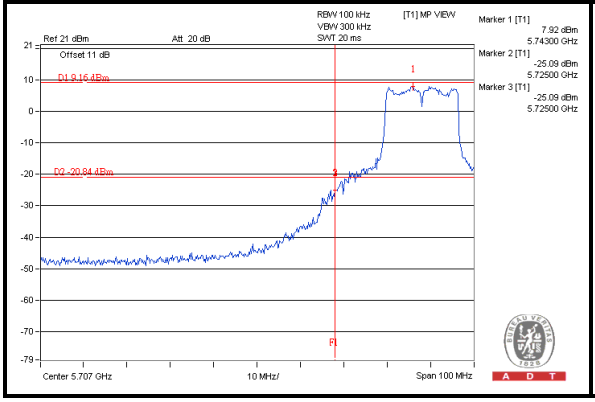
CH 157



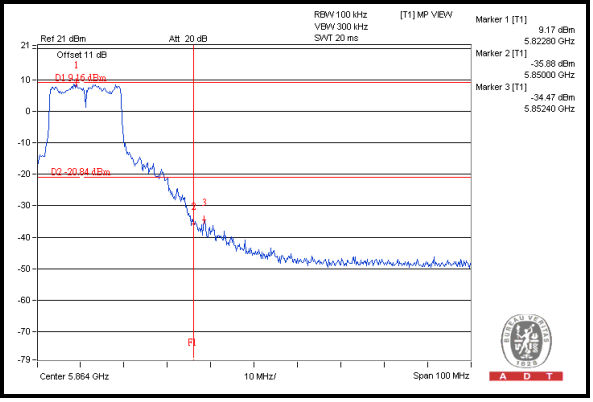
CH 165



CH 149 Band edge

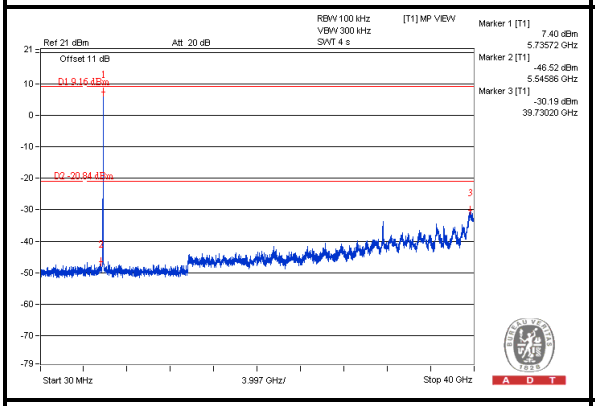


CH 165 Band edge

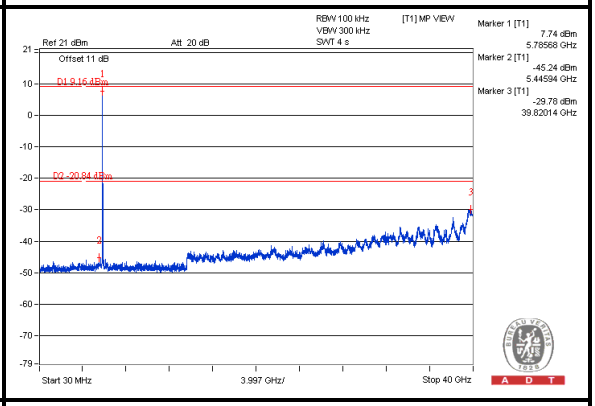


Chain (2)

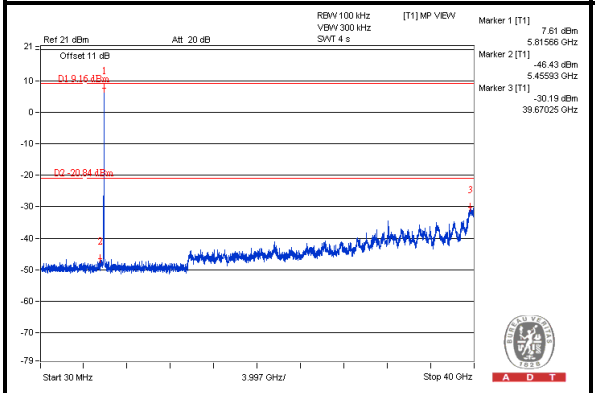
CH 149



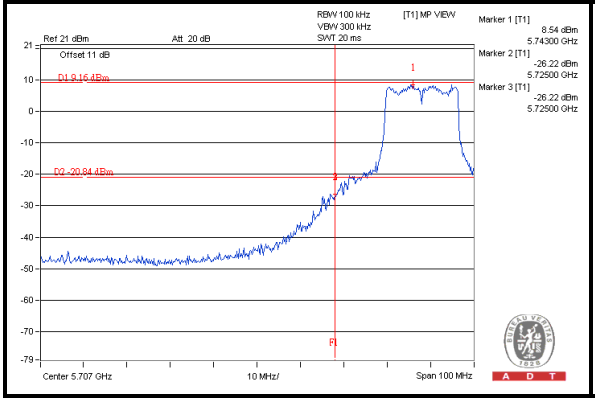
CH 157



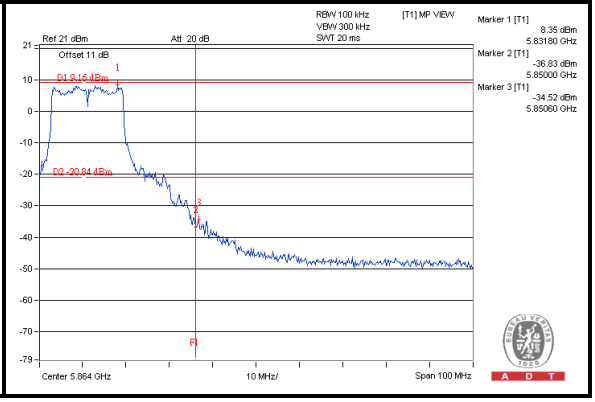
CH 165



CH 149 Band edge

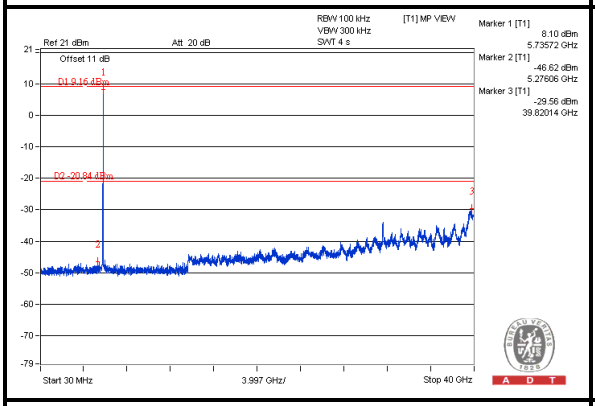


CH 165 Band edge

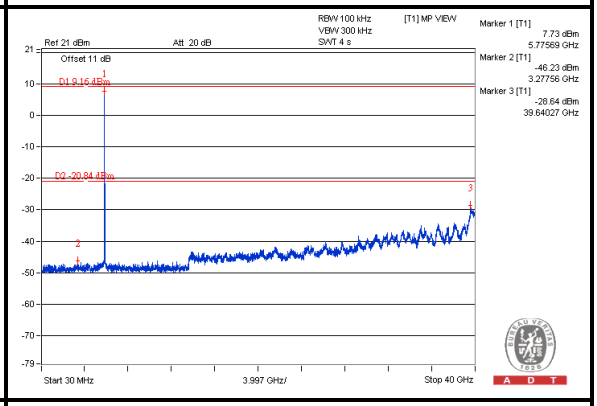


Chain (3)

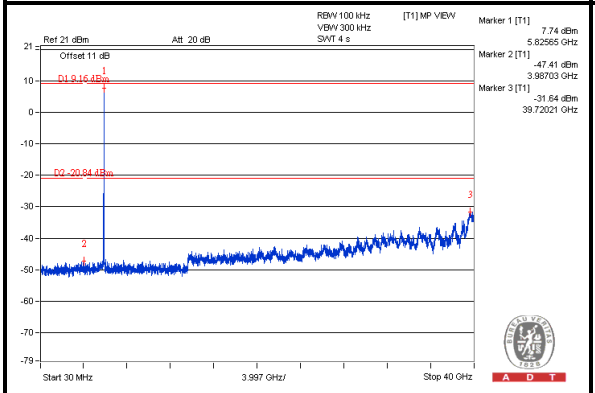
CH 149



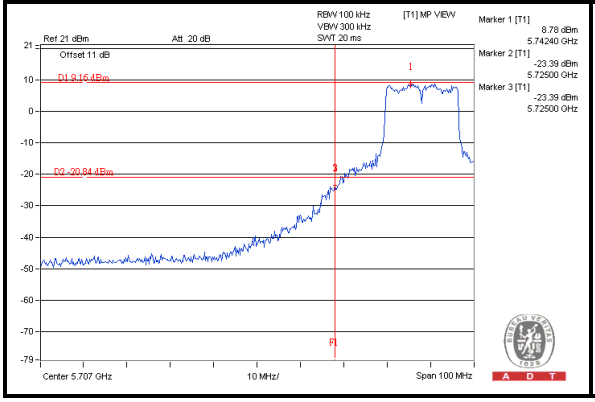
CH 157



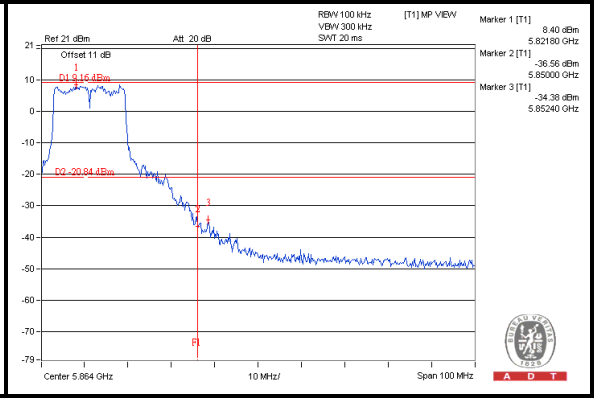
CH 165



CH 149 Band edge

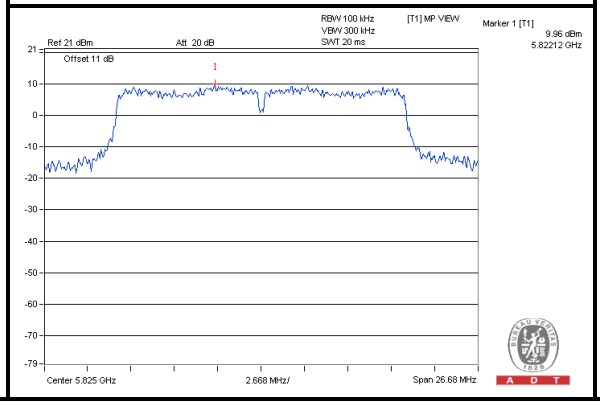


CH 165 Band edge



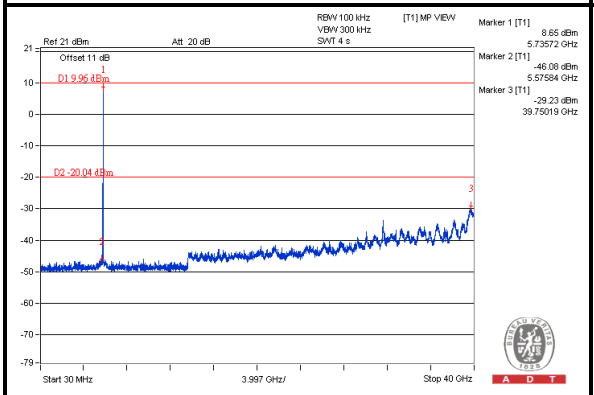
802.11ac (VHT20):

Maximum REF

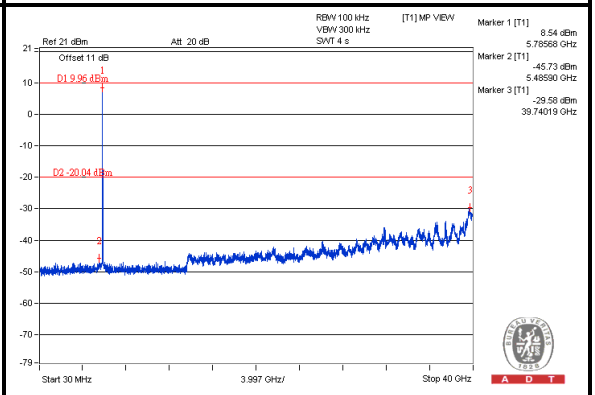


Chain (0)

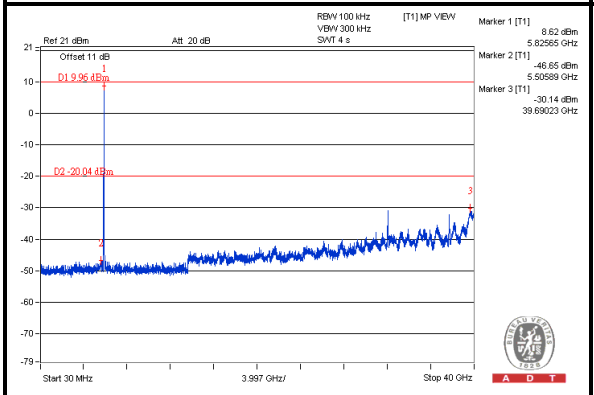
CH 149



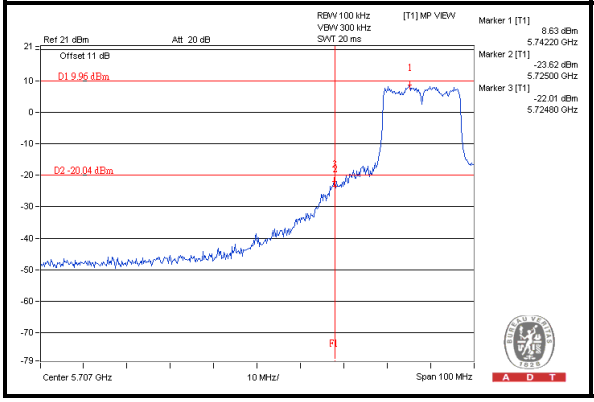
CH 157



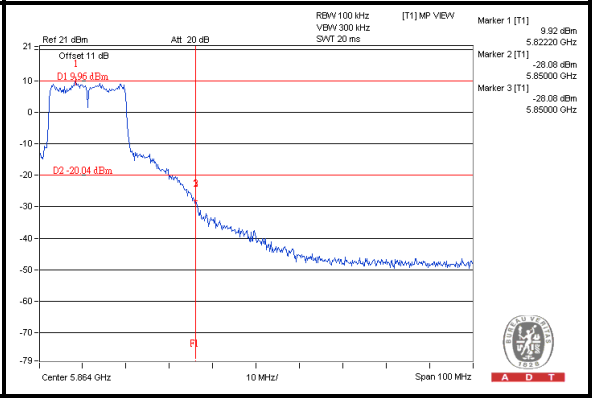
CH 165



CH 149 Band edge

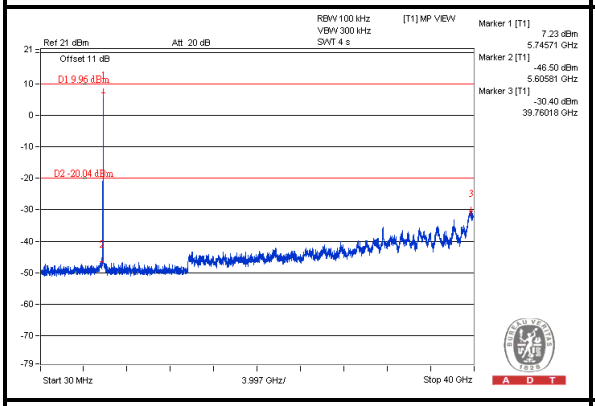


CH 165 Band edge

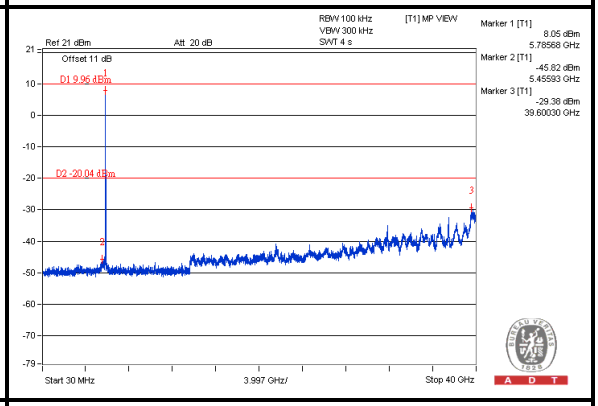


Chain (1)

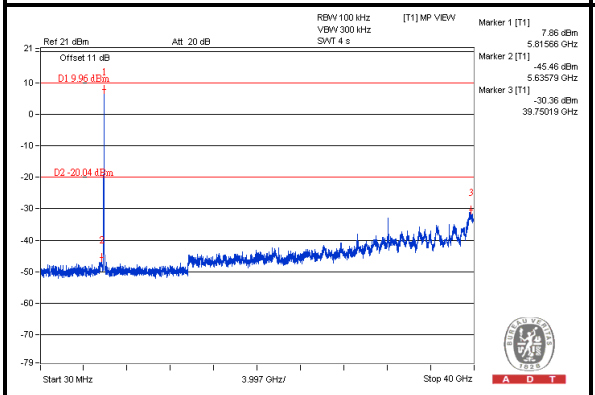
CH 149



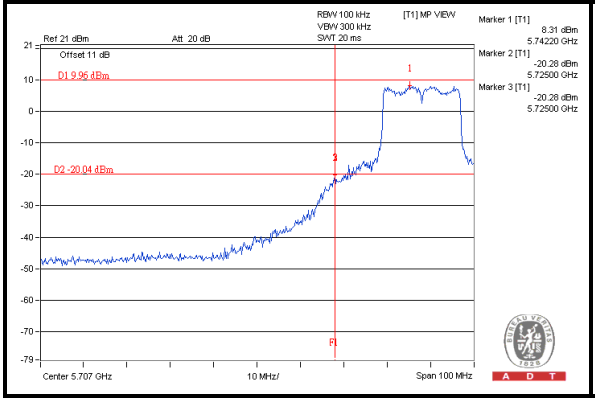
CH 157



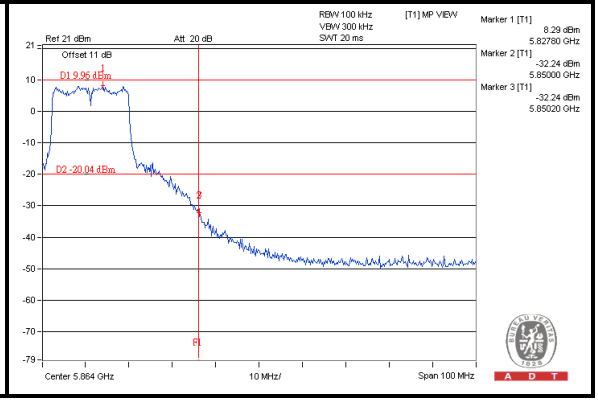
CH 165



CH 149 Band edge

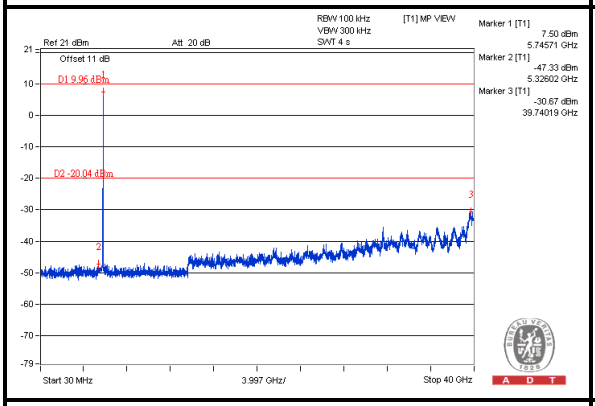


CH 165 Band edge

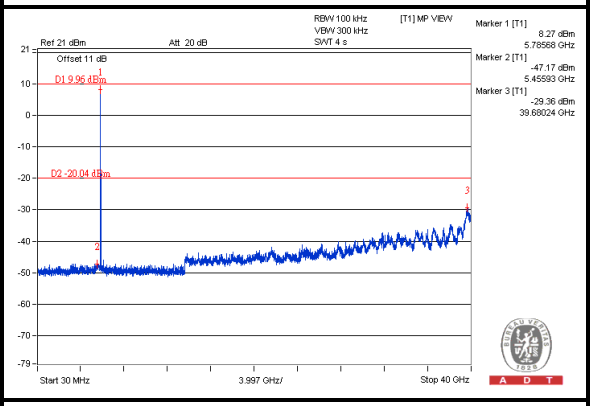


Chain (2)

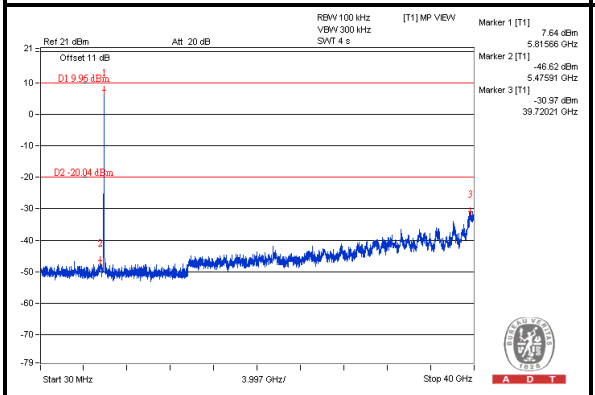
CH 149



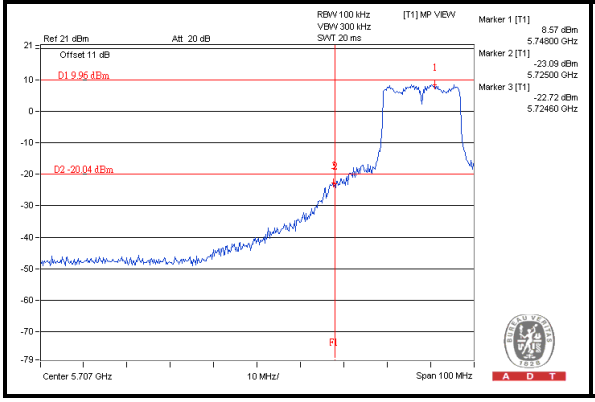
CH 157



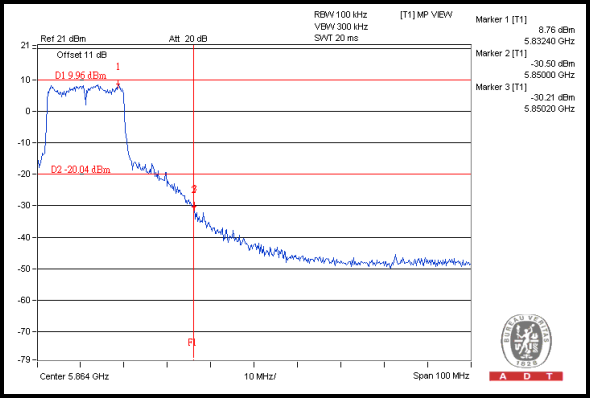
CH 165



CH 149 Band edge

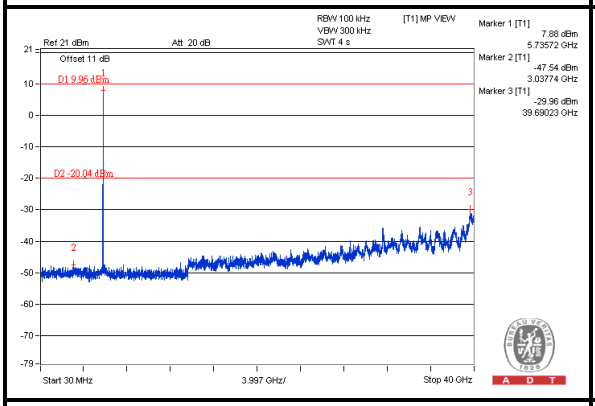


CH 165 Band edge

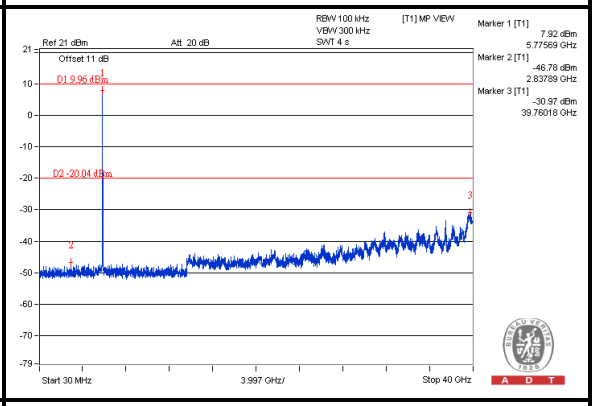


Chain (3)

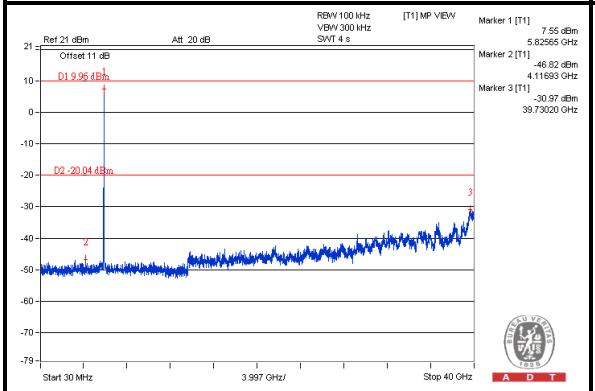
CH 149



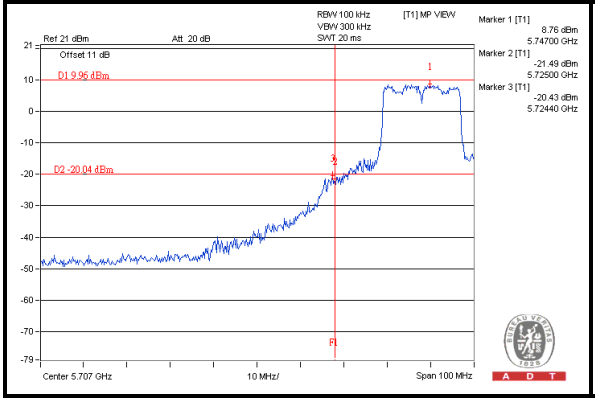
CH 157



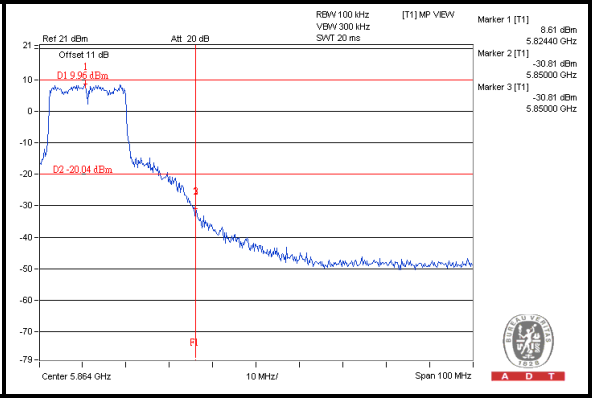
CH 165



CH 149 Band edge

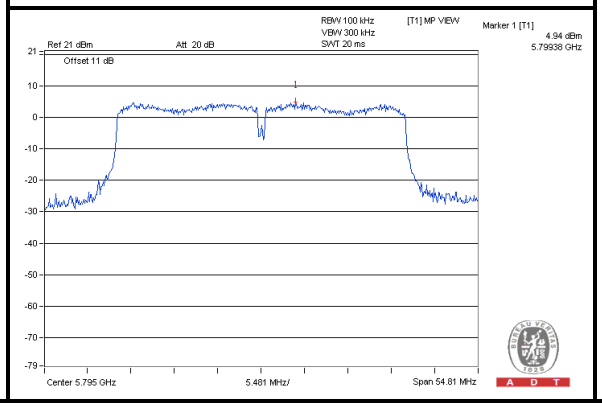


CH 165 Band edge



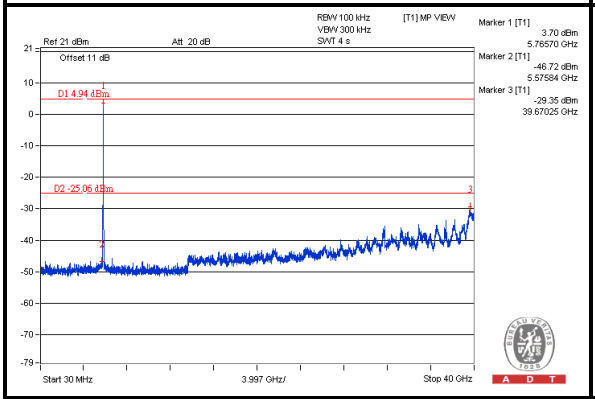
802.11ac (VHT40):

Maximum REF

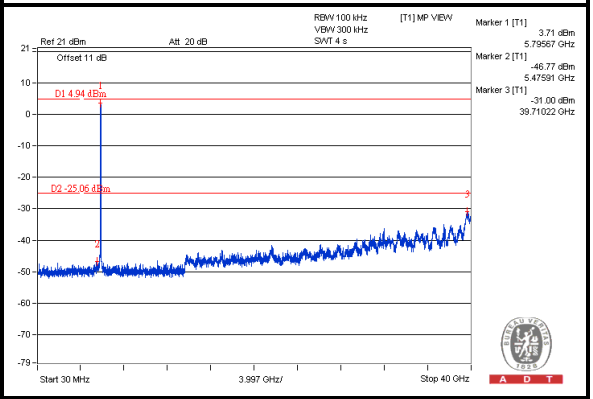


Chain (0)

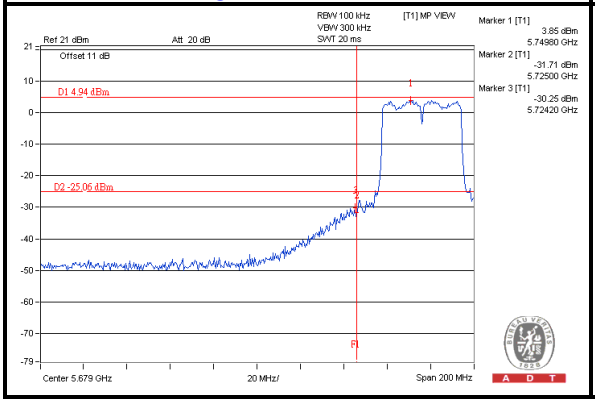
CH 151



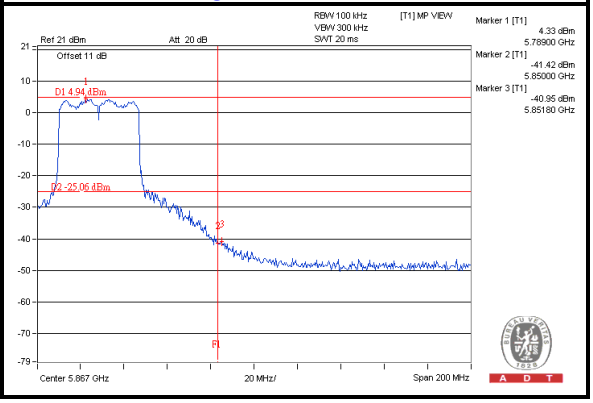
CH 159



CH 151 Band edge

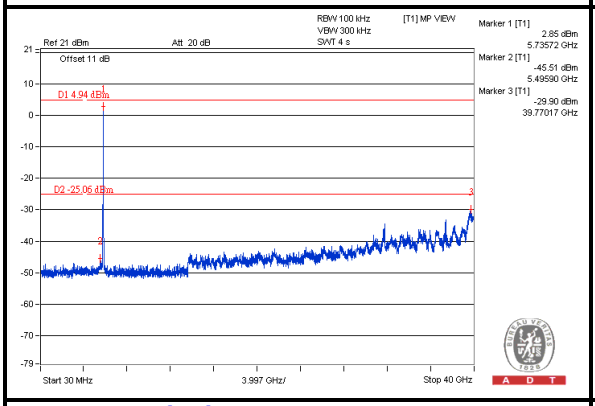


CH 159 Band edge

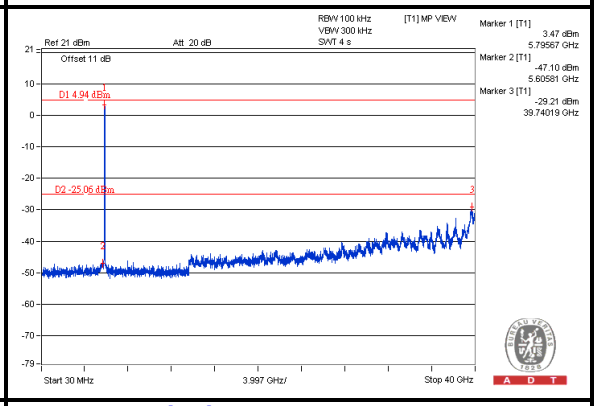


Chain (1)

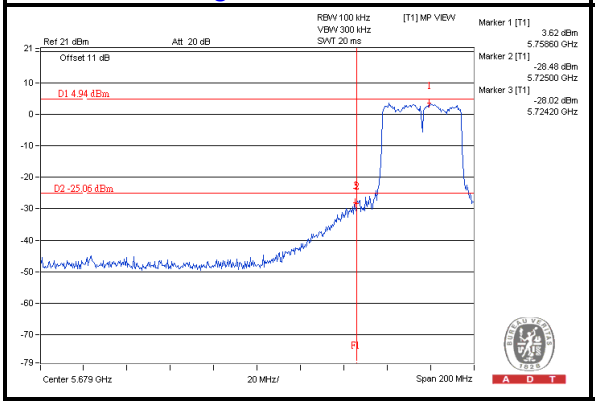
CH 151



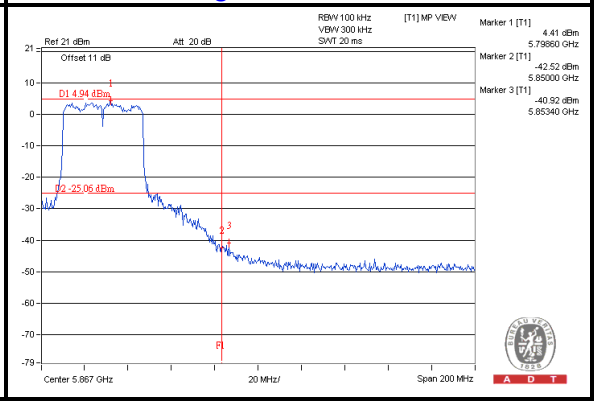
CH 159



CH 151 Band edge

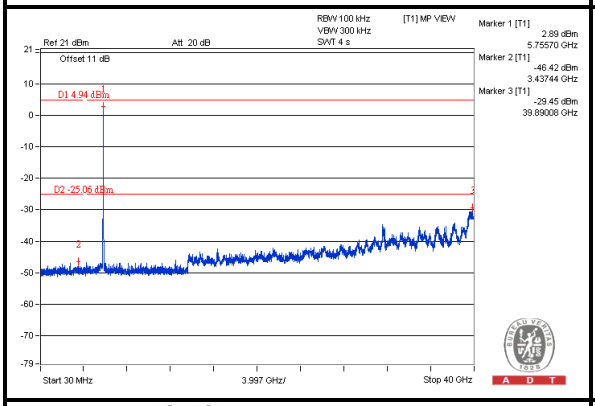


CH 159 Band edge

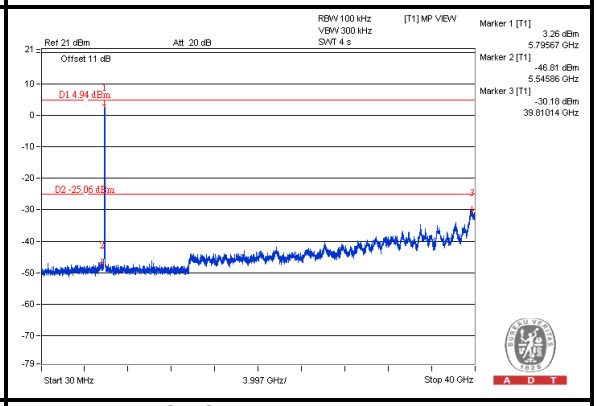


Chain (2)

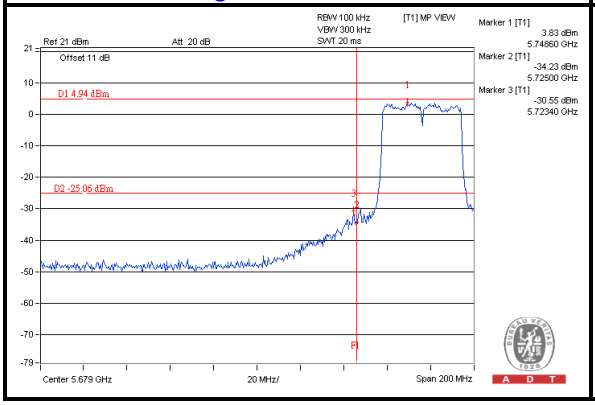
CH 151



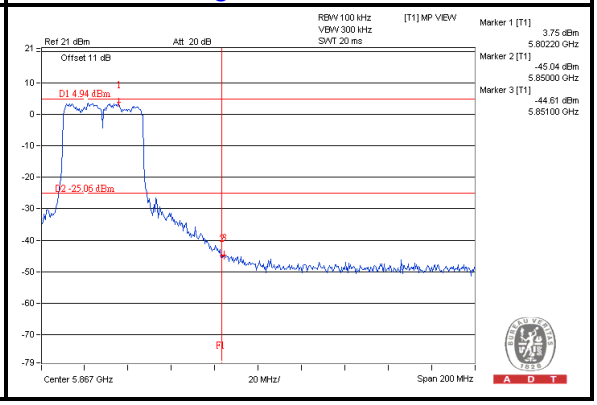
CH 159



CH 151 Band edge

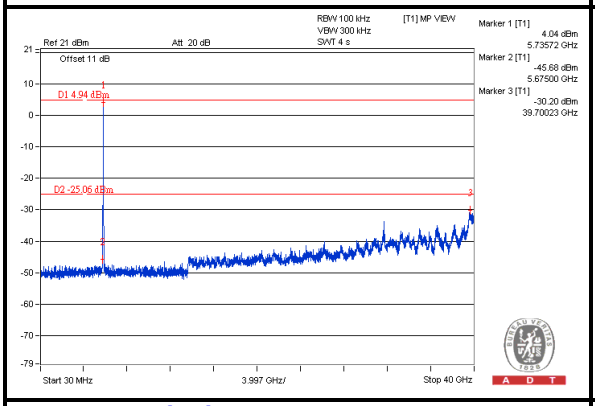


CH 159 Band edge

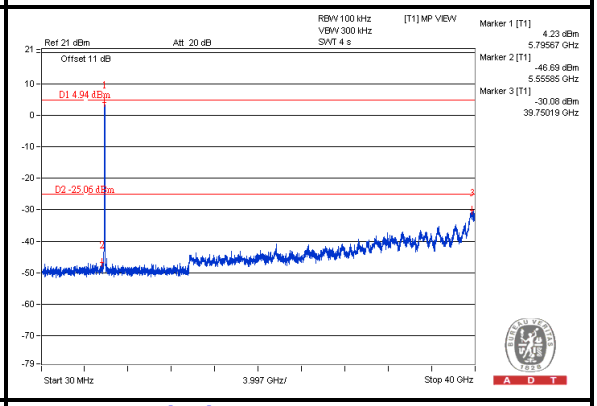


Chain (3)

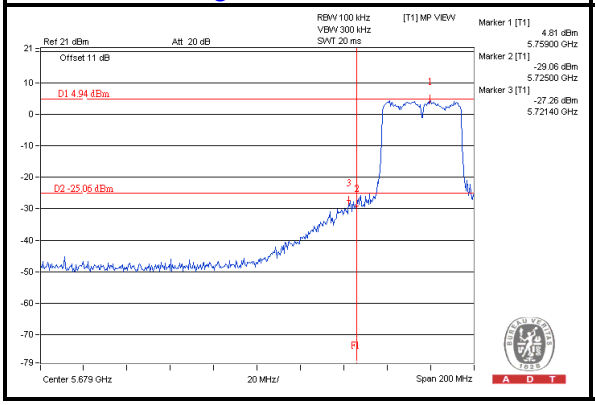
CH 151



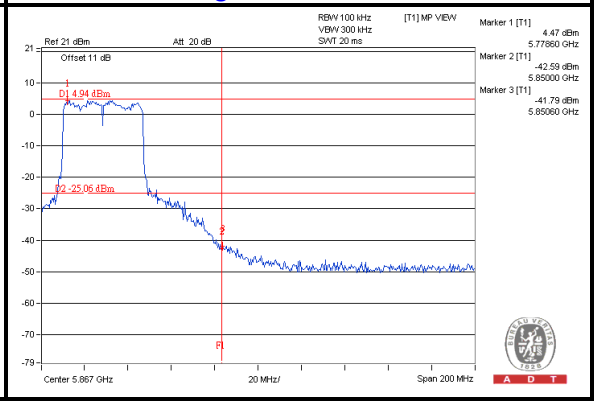
CH 159



CH 151 Band edge

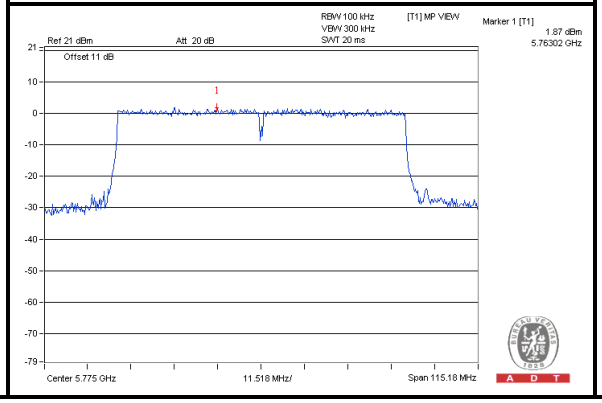


CH 159 Band edge



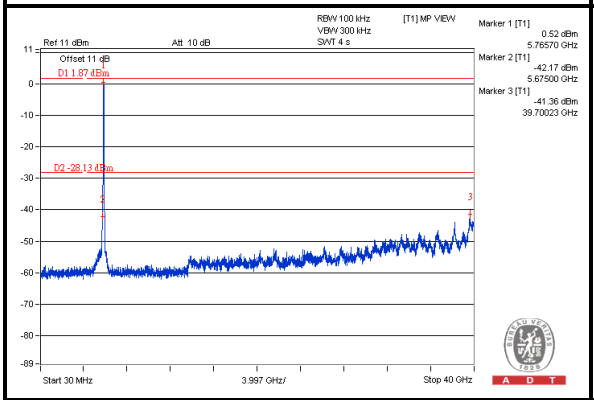
802.11ac (VHT80):

Maximum REF

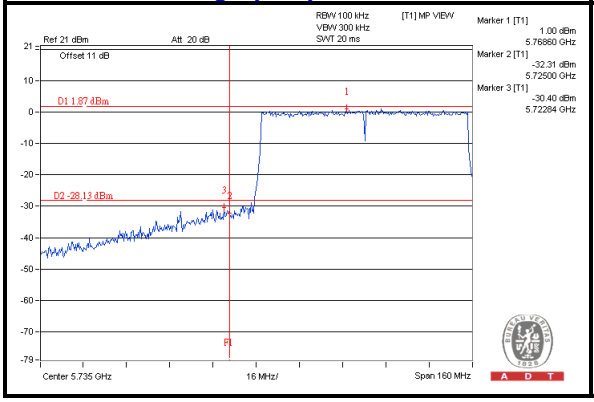


Chain (0)

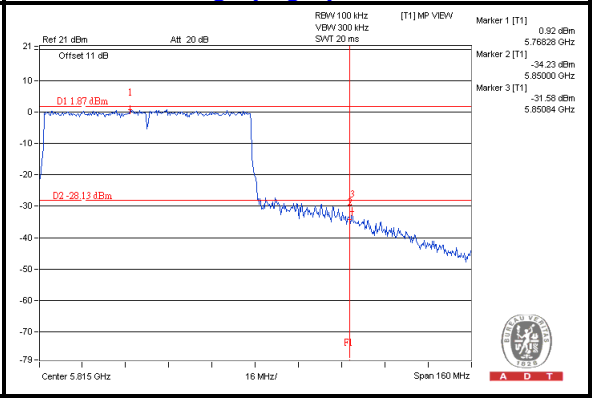
CH 155



CH 155 Band edge (Left)

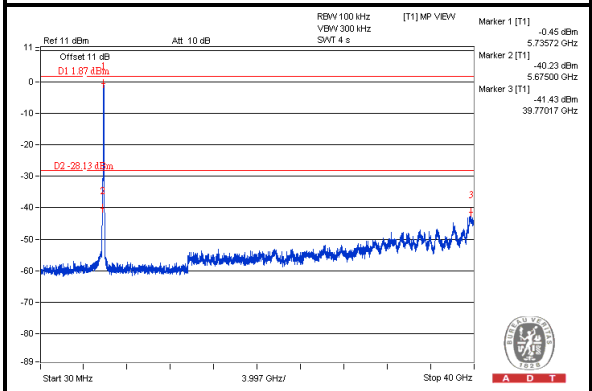


CH 155 Band edge (Right)

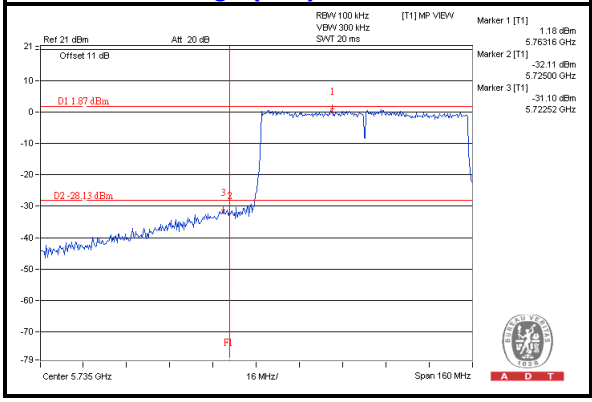


Chain (1)

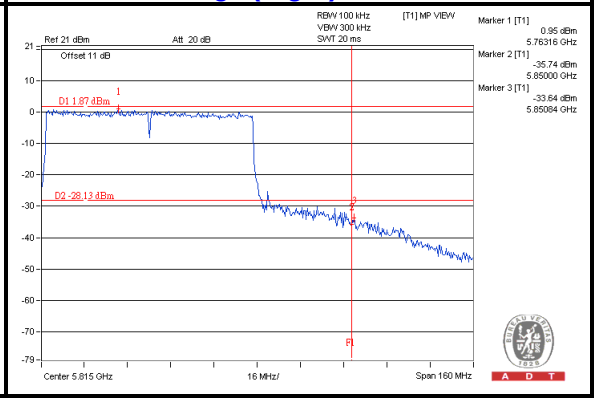
CH 155



CH 155 Band edge (Left)

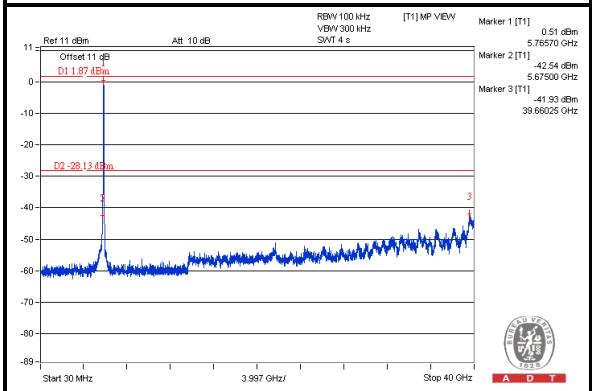


CH 155 Band edge (Right)

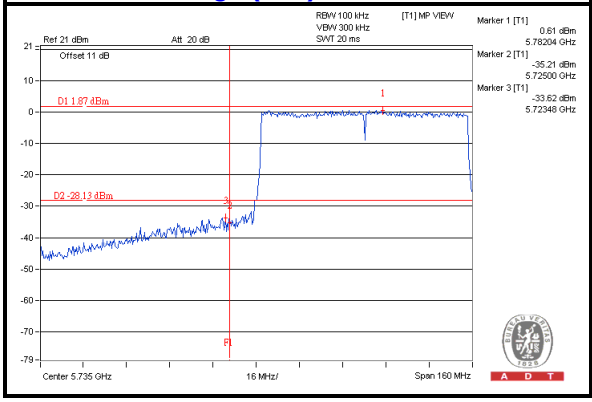


Chain (2)

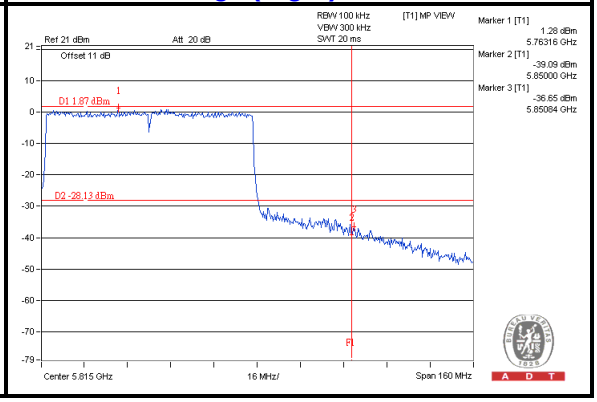
CH 155



CH 155 Band edge (Left)

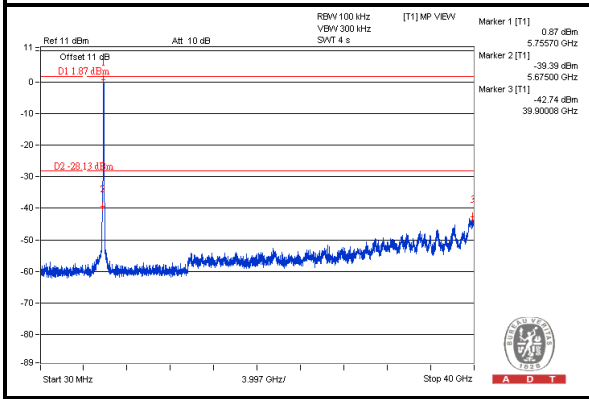


CH 155 Band edge (Right)

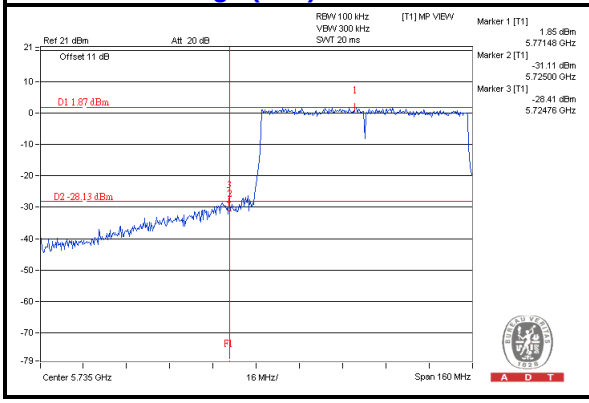


Chain (3)

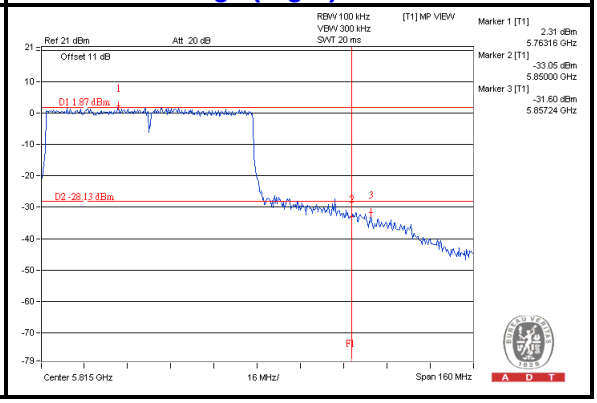
CH 155



CH 155 Band edge (Left)



CH 155 Band edge (Right)



6. PHOTOGRAPHS OF THE TEST CONFIGURATION

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

7. 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:

Linko EMC/RF Lab:
Tel: 886-2-26052180
Fax: 886-2-26052943

Hsin Chu EMC/RF Lab:
Tel: 886-3-5935343
Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety/Telecom Lab:
Tel: 886-3-3183232
Fax: 886-3-3270892

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.

8. APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No modifications were made to the EUT by the lab during the test.

--- END ---