

FCC TEST REPORT

(WLAN 15.247)

REPORT NO.: RF141008E03 R1

MODEL NO.: QCNFA435

FCC ID: PPD-QCNFA435

RECEIVED: Oct. 08, 2014

TESTED: Oct. 22 to Dec. 09, 2014

ISSUED: Jan. 06, 2015

APPLICANT: Qualcomm Atheros, Inc.

ADDRESS: 1700 Technology Drive, San Jose, CA 95110

ISSUED BY: Bureau Veritas Consumer Products Services (H.K.)
Ltd., Taoyuan Branch Hsin Chu Laboratory

LAB ADDRESS : No. 81-1, Lu Liao Keng, 9th Ling, Wu Lung Tsuen,
Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan,
R.O.C.

TEST LOCATION (1): No. 81-1, Lu Liao Keng, 9th Ling, Wu Lung Tsuen,
Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan,
R.O.C.

TEST LOCATION (2): No. 49, Ln. 206, Wende Rd., Shangshan Tsuen, Chiung
Lin Hsiang, Hsin Chu Hsien 307, Taiwan, R.O.C.

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



This report is for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence, provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents. Unless specific mention, the uncertainty of measurement has been explicitly taken into account to declare the compliance or non-compliance to the specification

Table of Contents

RELEASE CONTROL RECORD	6
1. CERTIFICATION	7
2. SUMMARY OF TEST RESULTS	8
2.1 MEASUREMENT UNCERTAINTY	9
3. GENERAL INFORMATION.....	10
3.1 GENERAL DESCRIPTION OF EUT (WLAN)	10
3.2 DESCRIPTION OF ANTENNA	14
3.3 DESCRIPTION OF TEST MODES	15
3.3.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL	16
3.4 DUTY CYCLE OF TEST SIGNAL.....	20
3.5 GENERAL DESCRIPTION OF APPLIED STANDARDS	22
3.6 DESCRIPTION OF SUPPORT UNITS	23
3.7 CONFIGURATION OF SYSTEM UNDER TEST	23
4. TEST TYPES AND RESULTS (FOR 2.4GHz, 2400 ~ 2483.5MHz BAND).....	24
4.1 CONDUCTED OUTPUT POWER MEASUREMENT.....	24
4.1.1 LIMITS OF MAXIMUM OUTPUT POWER MEASUREMENT	24
4.1.2 INSTRUMENTS	24
4.1.3 TEST PROCEDURES.....	24
4.1.4 DEVIATION FROM TEST STANDARD	24
4.1.5 TEST SETUP	24
4.1.6 EUT OPERATING CONDITIONS.....	25
4.1.7 TEST RESULTS.....	26
4.2 POWER SPECTRAL DENSITY MEASUREMENT	28
4.2.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT	28
4.2.2 TEST INSTRUMENTS	28
4.2.3 TEST PROCEDURE	28
4.2.4 DEVIATION FROM TEST STANDARD	28
4.2.5 TEST SETUP	28
4.2.6 EUT OPERATING CONDITION	28
4.2.7 TEST RESULTS.....	29
4.3 6dB BANDWIDTH MEASUREMENT	33
4.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT	33
4.3.2 TEST INSTRUMENTS	33
4.3.3 TEST PROCEDURE	33
4.3.4 DEVIATION FROM TEST STANDARD	33
4.3.5 TEST SETUP	33



A D T

4.3.6 EUT OPERATING CONDITIONS.....	34
4.3.7 TEST RESULTS.....	35
4.4 CONDUCTED OUT-BAND EMISSION MEASUREMENT.....	39
4.4.1 LIMITS OF CONDUCTED OUT-BAND EMISSION MEASUREMENT	39
4.4.2 TEST INSTRUMENTS	39
4.4.3 TEST PROCEDURE	39
4.4.4 DEVIATION FROM TEST STANDARD	40
4.4.5 EUT OPERATING CONDITION	40
4.4.6 TEST RESULTS.....	40
4.5 UNWANTED EMISSION MEASUREMENT(RADIATED)	45
4.5.1 LIMITS OF UNWANTED EMISSION MEASUREMENT	45
4.5.2 TEST INSTRUMENTS	46
4.5.3 TEST PROCEDURES.....	48
4.5.4 DEVIATION FROM TEST STANDARD	48
4.5.5 TEST SETUP	49
4.5.6 EUT OPERATING CONDITIONS.....	50
4.5.7 TEST RESULTS.....	51
4.6 AC POWER LINE CONDUCTED EMISSION MEASUREMENT	64
4.6.1 LIMITS OF AC POWER LINE CONDUCTED EMISSION MEASUREMENT	64
4.6.2 TEST INSTRUMENTS	64
4.6.3 TEST PROCEDURES.....	65
4.6.4 DEVIATION FROM TEST STANDARD	65
4.6.5 TEST SETUP	66
4.6.6 EUT OPERATING CONDITIONS.....	66
4.6.7 TEST RESULTS.....	67
5. TEST TYPES AND RESULTS (FOR 5GHz, 5725~5850MHz BAND).....	69
5.1 CONDUCTED OUTPUT POWER MEASUREMENT.....	69
5.1.1 LIMITS OF MAXIMUM OUTPUT POWER MEASUREMENT	69
5.1.2 INSTRUMENTS	69
5.1.3 TEST PROCEDURES.....	69
5.1.4 DEVIATION FROM TEST STANDARD	69
5.1.5 TEST SETUP	70
5.1.6 EUT OPERATING CONDITIONS.....	70
5.1.7 TEST RESULTS.....	71
5.2 POWER SPECTRAL DENSITY MEASUREMENT	73
5.2.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT	73
5.2.2 TEST INSTRUMENTS	73
5.2.3 TEST PROCEDURE	73



A D T

5.2.4 DEVIATION FROM TEST STANDARD	73
5.2.5 TEST SETUP	73
5.2.6 EUT OPERATING CONDITION	73
5.2.7 TEST RESULTS	74
5.3 6DB BANDWIDTH MEASUREMENT	78
5.3.1 LIMITS OF 6DB BANDWIDTH MEASUREMENT	78
5.3.2 TEST INSTRUMENTS	78
5.3.3 TEST PROCEDURE	78
5.3.4 DEVIATION FROM TEST STANDARD	78
5.3.5 TEST SETUP	78
5.3.6 EUT OPERATING CONDITIONS	78
5.3.7 TEST RESULTS	79
5.4 CONDUCTED OUT-BAND EMISSION MEASUREMENT	83
5.4.1 LIMITS OF CONDUCTED OUT-BAND EMISSION MEASUREMENT	83
5.4.2 TEST INSTRUMENTS	83
5.4.3 TEST PROCEDURE	83
5.4.4 DEVIATION FROM TEST STANDARD	84
5.4.5 EUT OPERATING CONDITION	84
5.4.6 TEST RESULTS	84
5.5 UNWANTED EMISSION MEASUREMENT (RADIATED)	89
5.5.1 LIMITS OF RADIATED EMISSION MEASUREMENT	89
5.5.2 TEST INSTRUMENTS	90
5.5.3 TEST PROCEDURES	92
5.5.4 DEVIATION FROM TEST STANDARD	92
5.5.5 TEST SETUP	93
5.5.6 EUT OPERATING CONDITIONS	93
5.5.7 TEST RESULTS	94
5.6 AC POWER LINE AC POWER LINE CONDUCTED EMISSION MEASUREMENT	104
5.6.1 LIMITS OF AC POWER LINE CONDUCTED EMISSION MEASUREMENT	104
5.6.2 TEST INSTRUMENTS	104
5.6.3 TEST PROCEDURES	105
5.6.4 DEVIATION FROM TEST STANDARD	105
5.6.5 TEST SETUP	106
5.6.6 EUT OPERATING CONDITIONS	106
5.6.7 TEST RESULTS	107
6. PHOTOGRAPHS OF THE TEST CONFIGURATION	109
7. INFORMATION ON THE TESTING LABORATORIES	110
8. APPENDIX A - UNWANTED EMISSION MEASUREMENT (CONDUCTED)	111



A D T

8.1 LIMITS OF UNWANTED EMISSION MEASUREMENT	111
8.2 TEST INSTRUMENTS	112
8.3 TEST PROCEDURES	114
8.4 DEVIATION FROM TEST STANDARD	114
8.5 TEST SETUP	115
8.6 EUT OPERATING CONDITIONS	115
8.7 TEST RESULTS (FOR 2.4GHz, 2400 ~ 2483.5MHz BAND).....	115
8.8 TEST RESULTS (FOR 5GHz, 5725~5850MHz BAND).....	140
9. APPENDIX B - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB	159



A D T

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF141008E03	Original release	Dec. 18, 2014
RF141008E03 R1	Revised the product name.	Jan. 06, 2015



A D T

1. CERTIFICATION

PRODUCT: Single Stream 802.11a/b/g/n/ac + BT 4.1 M.2 Type Card

BRAND NAME: Qualcomm Atheros

MODEL NO.: QCNFA435

TEST SAMPLE: R&D SAMPLE

APPLICANT: Qualcomm Atheros, Inc.

TESTED: Oct. 22 to Dec. 09, 2014

STANDARDS: **FCC Part 15, Subpart C (Section 15.247)**
ANSI C63.10-2009

The above equipment (Model: QCNFA435) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and was in 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 : Lori Chung , **Date:** Jan. 06, 2015
(Lori Chung, Specialist)

Approved by : May Chen , **Date:** Jan. 06, 2015
(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 -12.16dB at 0.19359MHz
15.247(d) 15.209	Radiated Emissions & Band Edge Measurement	PASS	Meet the requirement of limit. Minimum passing margin is -3.2dB at 2483.5MHz
15.247(a)(2)	6dB bandwidth	PASS	Meet the requirement of limit.
15.247(b)	Conducted Output power	PASS	Meet the requirement of limit.
15.247(e)	Power Spectral Density	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	Antenna connector is IPEX not a standard connector.

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 -15.22dB at 0.49375MHz
15.247(d) 15.209	Radiated Emissions & Band Edge Measurement	PASS	Meet the requirement of limit. Minimum passing margin is -5.1dB at 99.34MHz
15.247(a)(2)	6dB bandwidth	PASS	Meet the requirement of limit.
15.247(b)	Conducted Output Power	PASS	Meet the requirement of limit.
15.247(e)	Power Spectral Density	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	Antenna connector is IPEX not a standard connector.

NOTE: The EUT was operating in 2.400 ~ 2.4835GHz, 5.15~5.35GHz, 5.47~5.725 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 5.15~5.35GHz, 5.47~5.725 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	2.86 dB
Radiated emissions (30MHz-1GHz)	5.37 dB
Radiated emissions (1GHz -6GHz)	3.72 dB
Radiated emissions (6GHz -18GHz)	4.00 dB
Radiated emissions (18GHz -40GHz)	4.11 dB

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT (WLAN)

PRODUCT	Single Stream 802.11a/b/g/n/ac + BT 4.1 M.2 Type Card
MODEL NO.	QCNFA435
POWER SUPPLY	DC 3.3V from host equipment
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 11ac mode and VHT (20/40) mode in 2.4GHz
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11b: up to 11Mbps 802.11a/g: up to 54Mbps 802.11n : up to 150Mbps 802.11ac: up to 433.3Mbps
OPERATING FREQUENCY	For 15.407 5GHz: 5.18 ~ 5.24GHz, 5.26 ~ 5.32GHz, 5.50 ~ 5.58GHz & 5.66GHz ~ 5.70GHz
	For 15.247 2.4GHz: 2.412 ~ 2.462GHz 5GHz: 5.745 ~ 5.825GHz
	For 15.407 20 for 802.11a, 802.11n (HT20), 802.11ac (VHT20) 10 for 802.11n (HT40), 802.11ac (VHT40) 5 for 802.11ac (VHT80)
NUMBER OF CHANNEL	For 15.247 (2.4GHz) 11 for 802.11b/g, 802.11n (HT20), VHT20 7 for 802.11n (HT40), 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: 55.719 mW 802.11ac (VHT20): 54.075mW 802.11ac (VHT40): 45.186mW 802.11ac (VHT80): 25.351mW For 15.247 (2.4GHz) 802.11b: 234.963mW 802.11g: 303.389mW VHT20: 299.916mW VHT40: 244.906mW For 15.247 (5GHz) 802.11a: 106.66mW 802.11ac (VHT20): 111.429mW 802.11ac (VHT40): 109.901mW 802.11ac (VHT80): 295.801mW
ANTENNA TYPE	See item 3.2
ANTENNA CONNECTOR	See item 3.2
DATA CABLE	NA
I/O PORTS	NA
ASSOCIATED DEVICES	NA

NOTE:

1. There are Bluetooth technology and WLAN technology used for the EUT.

2. The EUT incorporates a 1T1R function.

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

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

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

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

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

4. WLAN/BT coexistence mode:

◆ 1x1 WLAN + BT:

- 5GHz 802.11a/an (or 11ac) transmit concurrent with BT.
- 2.4GHz: timely shared coexistence.

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

Mode	Available Channel	Tested Channel	Modulation Technology
5 GHz (802.11ac (VHT80))	155	155	OFDM
+ Bluetooth (GFSK)	0 to 78	39	FHSS

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

3.2 DESCRIPTION OF ANTENNA

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

Ant. No.	Transmitter Circuit	Brand	Model	Ant. Type	2.4GHz Gain with cable loss (dBi)	5GHz Gain with cable loss (dBi)	2.4GHz Cable Loss (dBi)	5G Cable Loss (dBi)	Connector Type	Cable Length (mm)
1	Main	WNC	81-EBJ15.005	PIFA	3.00	Band 1&2: 2.56	1.15	Band 1&2: 1.70	IPEX	300
						Band 3: 4.76		Band 3: 1.74		
						Band 4: 4.76		Band 4: 1.79		
	Aux	WNC	81-EBJ15.005	PIFA	3.62	Band 1&2: 3.08	1.15	Band 1&2: 1.70	IPEX	300
						Band 3: 3.31		Band 3: 1.74		
						Band 4: 2.42		Band 4: 1.79		
2	Main	WNC	81.ED415.001	PIFA	0.22	Band 1&2: 5.56	0.96	Band 1&2: 1.29	IPEX	300
						Band 3: 5.03		Band 3: 1.36		
						Band 4: 3.14		Band 4: 1.38		
	Aux	WNC	81.ED415.001	PIFA	1.48	Band 1&2: 5.17	0.96	Band 1&2: 1.29	IPEX	300
						Band 3: 5.34		Band 3: 1.36		
						Band 4: 2.93		Band 4: 1.38		

- Note: 1. Above antenna gains of antenna are Total (H+V).
2. All of antenna can be application for WLAN and Bluetooth.
3. For 2.4GHz: From the above antennas, Ant. No. 1 (Aux) was selected as representative antennas for the test.
4. For 5GHz U-NII-1 & U-NII-2A band: From the above antennas, Ant. No. 2 (Main) was selected as representative antennas for the test.
5. For 5GHz U-NII-2C band: From the above antennas, Ant. No. 2 (Aux) was selected as representative antennas for the test.
6. For 5GHz U-NII-3 band: From the above antennas, Ant. No. 1 (Main) was selected as representative antennas for the test.

3.3 DESCRIPTION OF TEST MODES

Operated in 2400 ~ 2483.5MHz band:

11 channels are provided for 802.11b, 802.11g, 802.11n (HT20), 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 (HT 40), 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

3.3.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

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

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

Note 1. "-" means no effect.
2. The EUT's antenna had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **X-plane**.

AC POWER LINE CONDUCTED EMISSION TEST:

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	DATA RATE (Mbps)
802.11g	1 to 11	6	OFDM	6
For 5 GHz 802.11ac (VHT80)	155	155	OFDM	29.3

UNWANTED EMISSION TEST (BELOW 1 GHz):

- ☒ Radiated versus Conducted Measurements
- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	DATA RATE (Mbps)
802.11g	1 to 11	6	OFDM	6
For 5 GHz 802.11ac (VHT80)	155	155	OFDM	29.3

UNWANTED EMISSION TEST (ABOVE 1 GHz):

- ☒ Radiated versus Conducted Measurements
- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	1
802.11g	1 to 11	1, 6, 11	OFDM	6
For 2.4 GHz VHT20	1 to 11	1, 6, 11	OFDM	6.5
For 2.4 GHz VHT40	3 to 9	3, 6, 9	OFDM	13.5
802.11a	149 to 165	149, 157, 165	OFDM	6
For 5 GHz 802.11ac (VHT20)	149 to 165	149, 157, 165	OFDM	6.5
For 5 GHz 802.11ac (VHT40)	151 to 159	151, 159	OFDM	13.5
For 5 GHz 802.11ac (VHT80)	155	155	OFDM	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	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	1
802.11g	1 to 11	1, 6, 11	OFDM	6
For 2.4 GHz VHT20	1 to 11	1, 6, 11	OFDM	6.5
For 2.4 GHz VHT40	3 to 9	3, 6, 9	OFDM	13.5
802.11a	149 to 165	149, 157, 165	OFDM	6
For 5 GHz 802.11ac (VHT20)	149 to 165	149, 157, 165	OFDM	6.5
For 5 GHz 802.11ac (VHT40)	151 to 159	151, 159	OFDM	13.5
For 5 GHz 802.11ac (VHT80)	155	155	OFDM	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	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	1
802.11g	1 to 11	1, 6, 11	OFDM	6
For 2.4 GHz VHT20	1 to 11	1, 6, 11	OFDM	6.5
For 2.4 GHz VHT40	3 to 9	3, 6, 9	OFDM	13.5
802.11a	149 to 165	149, 157, 165	OFDM	6
For 5 GHz 802.11ac (VHT20)	149 to 165	149, 157, 165	OFDM	6.5
For 5 GHz 802.11ac (VHT40)	151 to 159	151, 159	OFDM	13.5
For 5 GHz 802.11ac (VHT80)	155	155	OFDM	29.3

**A D T****TEST CONDITION:**

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER (SYSTEM)	TESTED BY
PLC	30deg. C, 70%RH	120Vac, 60Hz	Mike Hsieh
RE<1G	25deg. C, 69%RH	120Vac, 60Hz	Robert Cheng
RE≥1G	22deg. C, 66%RH	120Vac, 60Hz	Gary Cheng
APCM	25deg. C, 60%RH	120Vac, 60Hz	Robert Cheng
OB	25deg. C, 60%RH	120Vac, 60Hz	Robert Cheng

3.4 DUTY CYCLE OF TEST SIGNAL

For 2.4GHz

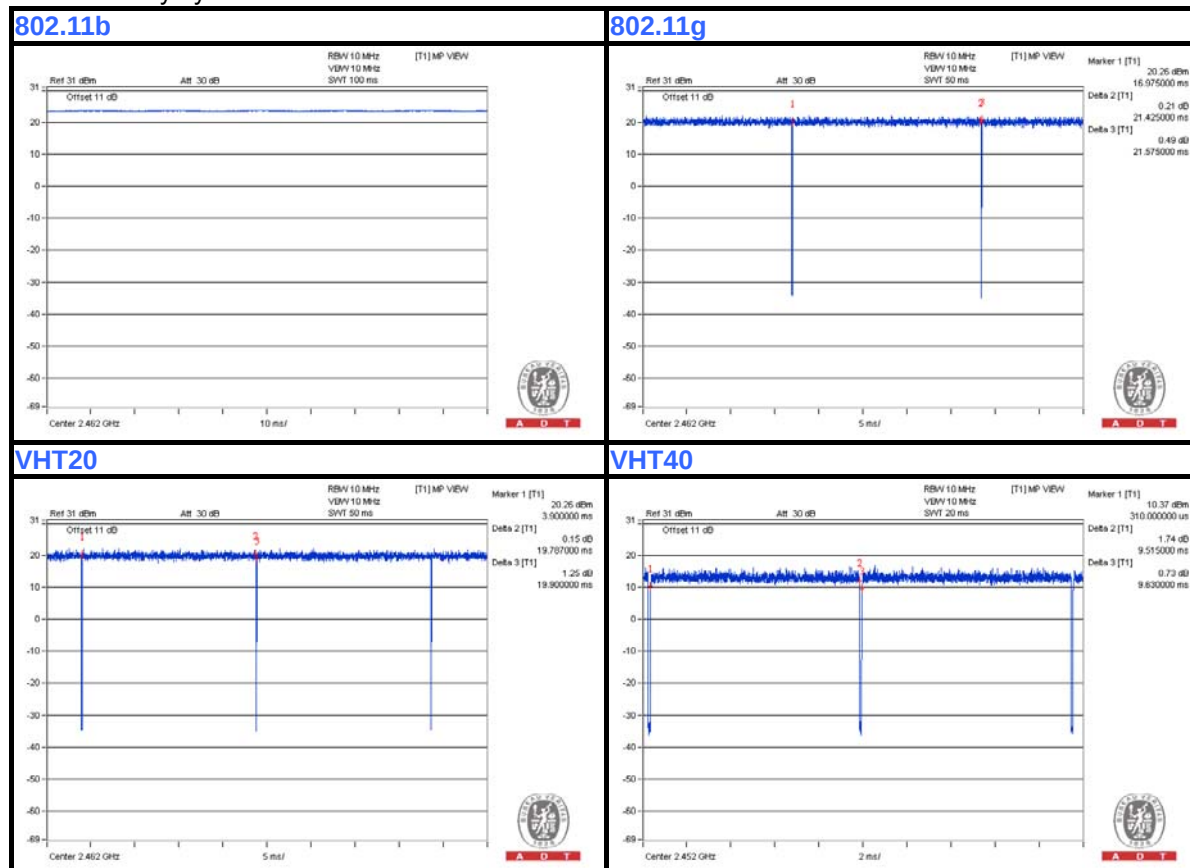
Duty cycle of test signal is $\geq 98\%$, duty factor is not required.

802.11b: Duty cycle of test signal is 100 %.

802.11g: Duty cycle = 21.425 ms/21.575 ms = 0.993

VHT20 : Duty cycle = 19.787 ms/19.9 ms = 0.994

VHT40 : Duty cycle = 9.515 ms/9.63 ms = 0.988



For 5GHz

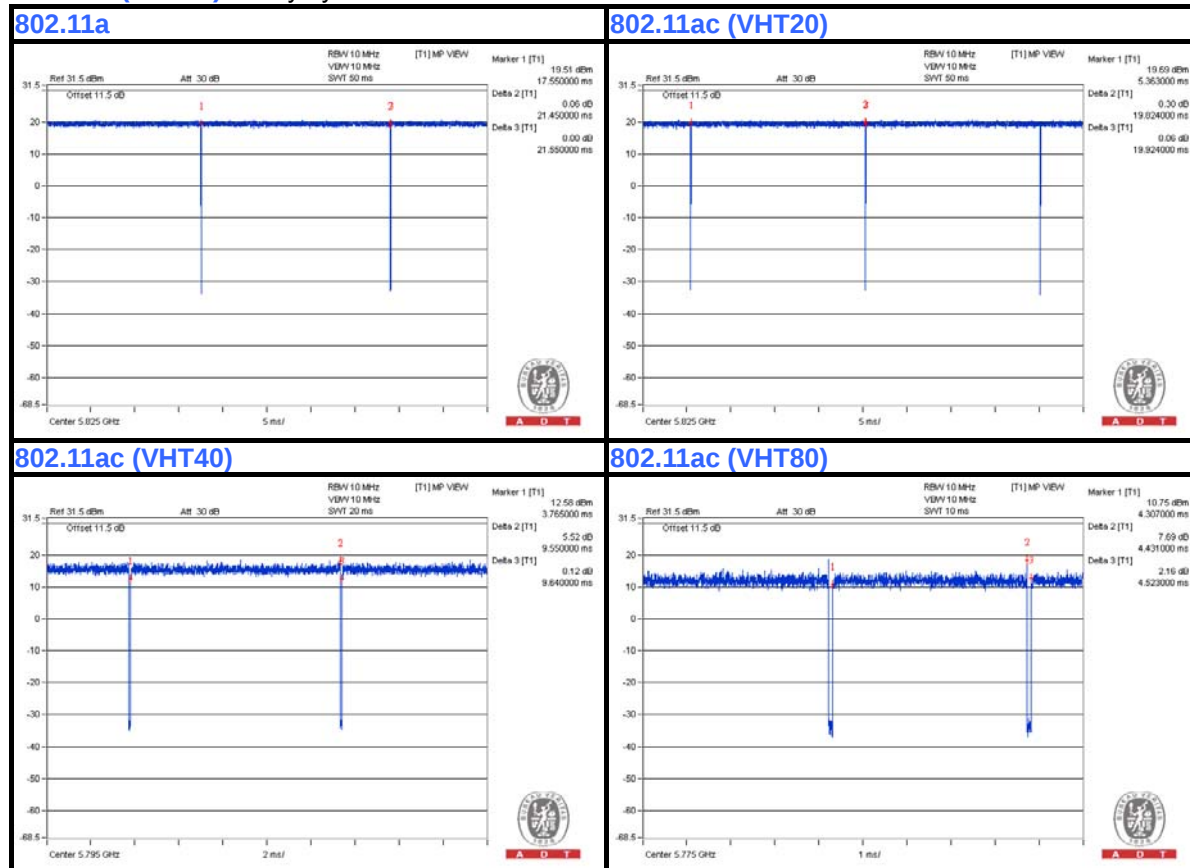
Duty cycle of test signal is $\geq 98\%$, duty factor is not required.

802.11a: Duty cycle = 21.45 ms/21.55 ms = 0.995

802.11ac(VHT20) : Duty cycle = 19.824 ms/19.924 ms = 0.995

802.11ac(VHT40) : Duty cycle = 9.55 ms/9.64 ms = 0.991

802.11ac(VHT80) : Duty cycle = 4.431 ms/4.523 ms = 0.98



3.5 GENERAL DESCRIPTION OF APPLIED STANDARDS

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

FCC Part 15, Subpart C (15.247)

558074 D01 DTS Meas Guidance v03r02

ANSI C63.10-2009

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

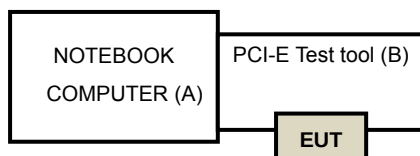
3.6 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

No.	Product	Brand	Model No.	Serial No.	FCC ID	Remark
A	NOTEBOOK COMPUTER	DELL	E6420	H62T3R1	FCC DoC	Provided by Lab
B	PCI-E Test tool	Qualcomm Atheros	NA	NA	NA	Supplied by Client

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

3.7 CONFIGURATION OF SYSTEM UNDER TEST



4. TEST TYPES AND RESULTS (FOR 2.4GHz, 2400 ~ 2483.5MHz Band)

4.1 CONDUCTED OUTPUT POWER MEASUREMENT

4.1.1 LIMITS OF MAXIMUM OUTPUT POWER MEASUREMENT

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

4.1.2 INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Power Meter Anritsu	ML2495A	1014008	Apr. 30, 2014	Apr. 29, 2015
Power Sensor Anritsu	MA2411B	0917122	Apr. 30, 2014	Apr. 29, 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 : Dec. 09, 2014

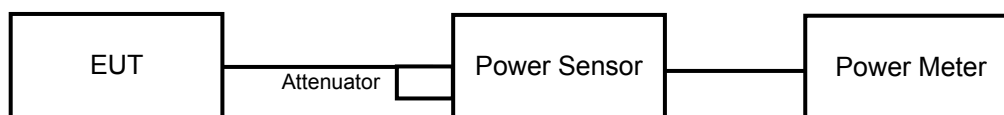
4.1.3 TEST PROCEDURES

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

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 TEST SETUP



4.1.6 EUT OPERATING CONDITIONS

The software (QCART Version: 3.0.33.0) provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.1.7 TEST RESULTS

FOR PEAK POWER

802.11b

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS/FAIL
1	2412	214.289	23.31	30	PASS
6	2437	234.963	23.71	30	PASS
11	2462	226.986	23.56	30	PASS

802.11g

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS/FAIL
1	2412	183.654	22.64	30	PASS
6	2437	303.389	24.82	30	PASS
11	2462	163.682	22.14	30	PASS

VHT20

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS/FAIL
1	2412	184.502	22.66	30	PASS
6	2437	299.916	24.77	30	PASS
11	2462	139.316	21.44	30	PASS

VHT40

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS/FAIL
3	2422	107.647	20.32	30	PASS
6	2437	244.906	23.89	30	PASS
9	2452	85.901	19.34	30	PASS

FOR AVERAGE POWER

802.11b

CHANNEL	FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)
1	2412	126.474	21.02
6	2437	142.233	21.53
11	2462	136.458	21.35

802.11g

CHANNEL	FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)
1	2412	59.704	17.76
6	2437	121.339	20.84
11	2462	45.290	16.56

VHT20

CHANNEL	FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)
1	2412	41.400	16.17
6	2437	113.501	20.55
11	2462	38.371	15.84

VHT40

CHANNEL	FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)
3	2422	33.963	15.31
6	2437	80.724	19.07
9	2452	23.014	13.62

4.2 POWER SPECTRAL DENSITY MEASUREMENT

4.2.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

4.2.2 TEST INSTRUMENTS

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

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Tested date : Dec. 09, 2014

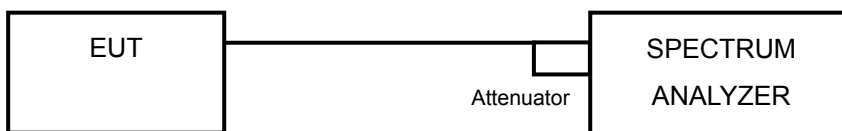
4.2.3 TEST PROCEDURE

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

4.2.4 DEVIATION FROM TEST STANDARD

No deviation

4.2.5 TEST SETUP



4.2.6 EUT OPERATING CONDITION

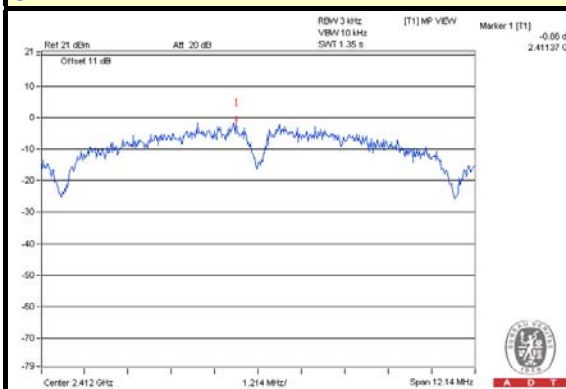
Same as Item 4.1.6

4.2.7 TEST RESULTS

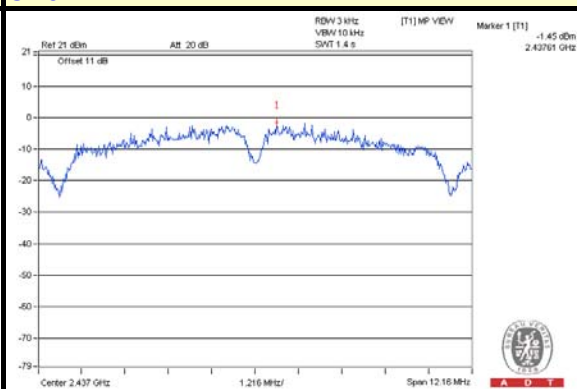
802.11b

CHANNEL	FREQUENCY (MHz)	PSD (dBm)	LIMIT (dBm)	PASS /FAIL
1	2412	-0.86	8	PASS
6	2437	-1.45	8	PASS
11	2462	-2.16	8	PASS

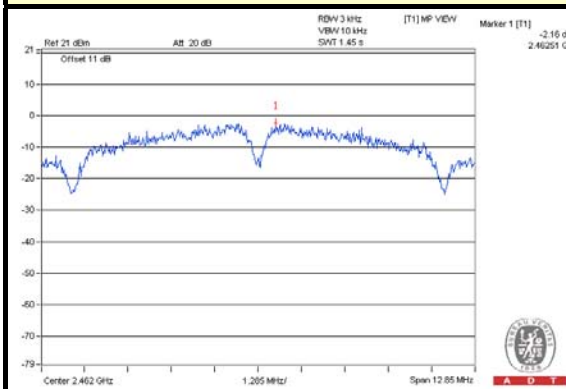
CH1



CH6



CH11



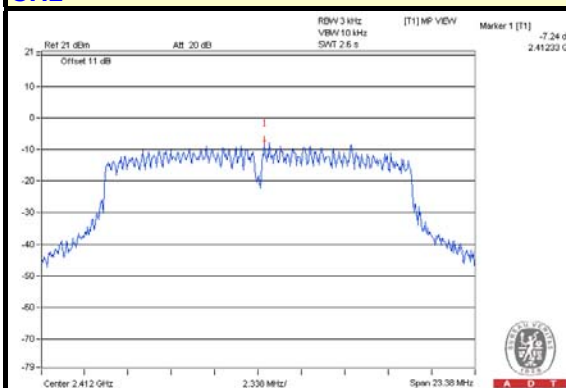


A D T

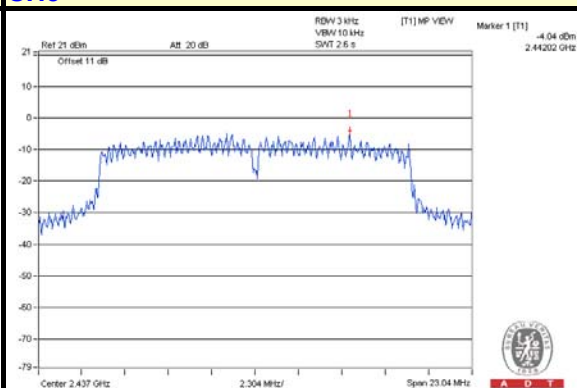
802.11g

CHANNEL	FREQUENCY (MHz)	PSD (dBm)	LIMIT (dBm)	PASS /FAIL
1	2412	-7.24	8	PASS
6	2437	-4.04	8	PASS
11	2462	-9.05	8	PASS

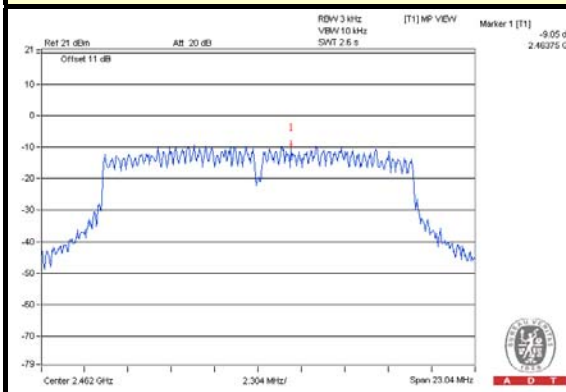
CH1



CH6



CH11



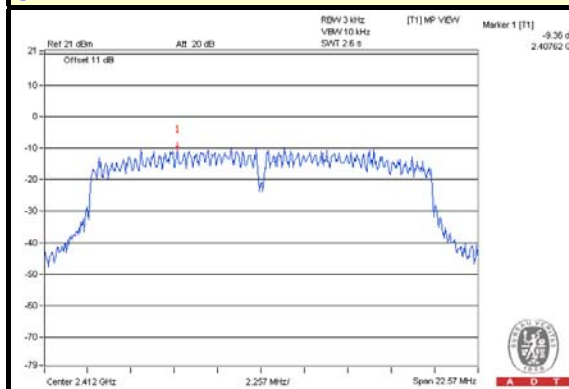


A D T

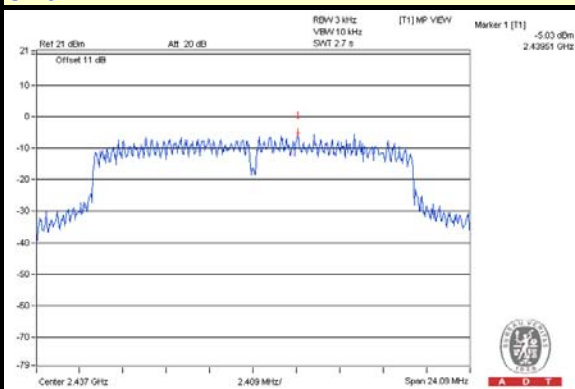
VHT20

CHANNEL	FREQUENCY (MHz)	PSD (dBm)	LIMIT (dBm)	PASS /FAIL
1	2412	-9.36	8	PASS
6	2437	-5.03	8	PASS
11	2462	-8.70	8	PASS

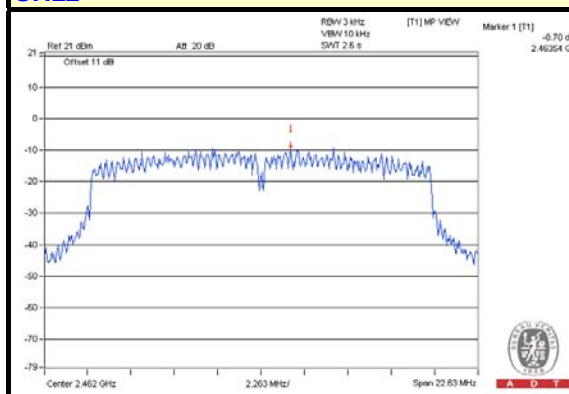
CH1



CH6



CH11



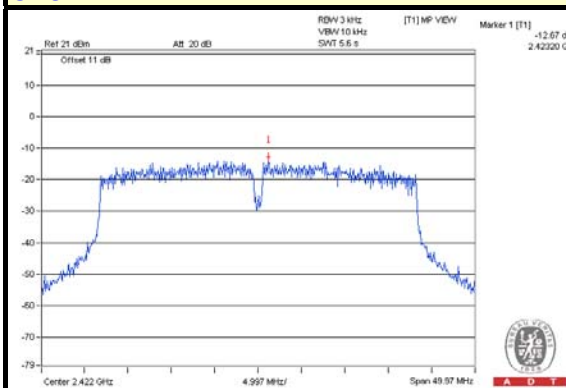


A D T

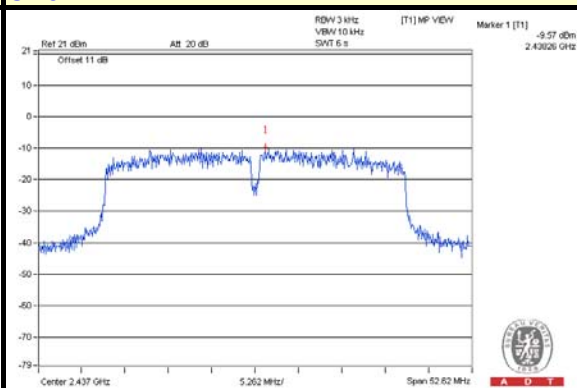
VHT40

CHANNEL	FREQUENCY (MHz)	PSD (dBm)	LIMIT (dBm)	PASS /FAIL
3	2422	-12.67	8	PASS
6	2437	-9.57	8	PASS
9	2452	-15.67	8	PASS

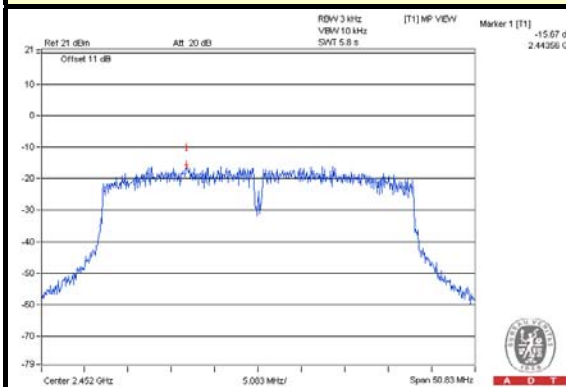
CH3



CH6



CH9



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	FSP 40	100060	May 08, 2014	May 07, 2015

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Tested date : Dec. 09, 2014

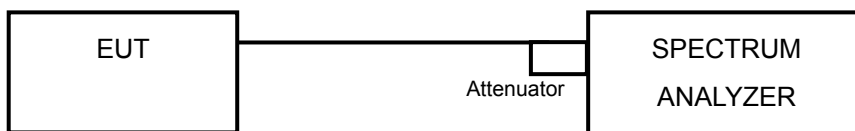
4.3.3 TEST PROCEDURE

1. Set resolution bandwidth (RBW) = 100kHz
2. Set the video bandwidth (VBW) $\geq 3 \times$ 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





A D T

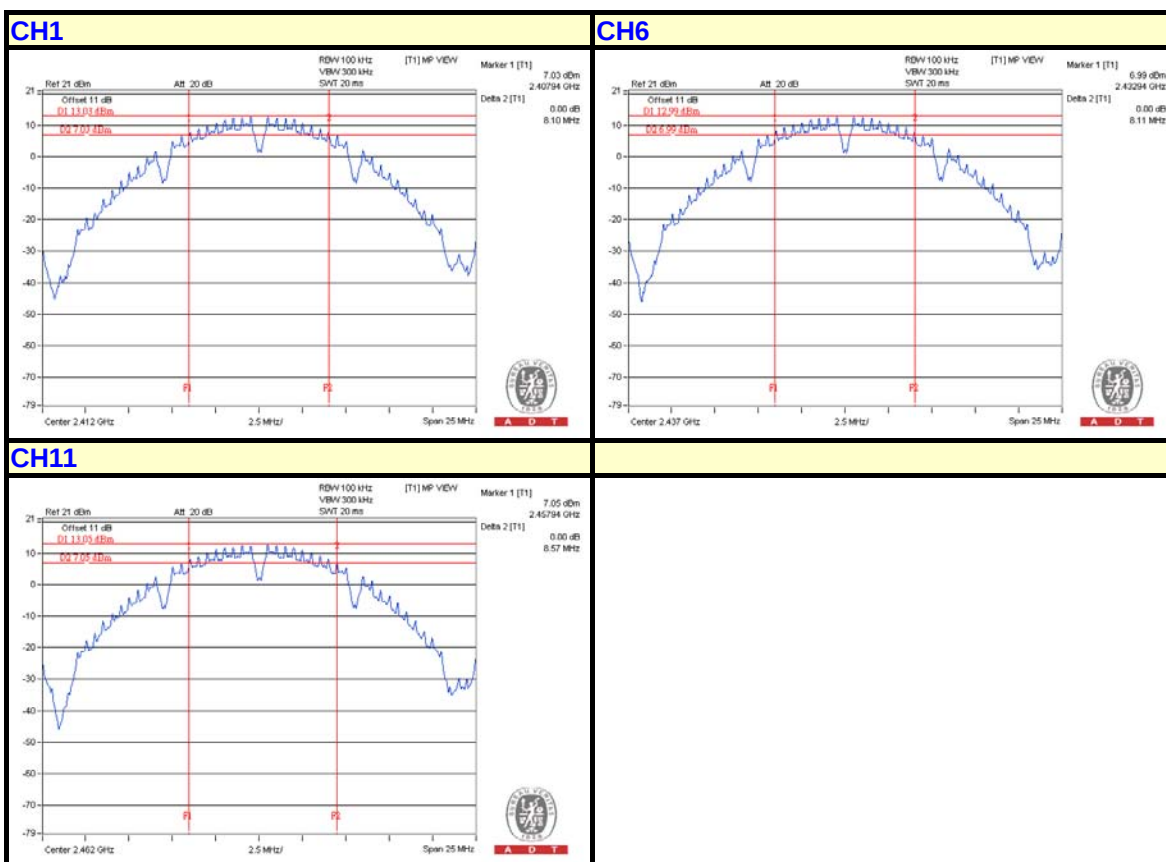
4.3.6 EUT OPERATING CONDITIONS

Same as Item 4.1.6

4.3.7 TEST RESULTS

802.11b

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	8.10	0.5	PASS
6	2437	8.11	0.5	PASS
11	2462	8.57	0.5	PASS

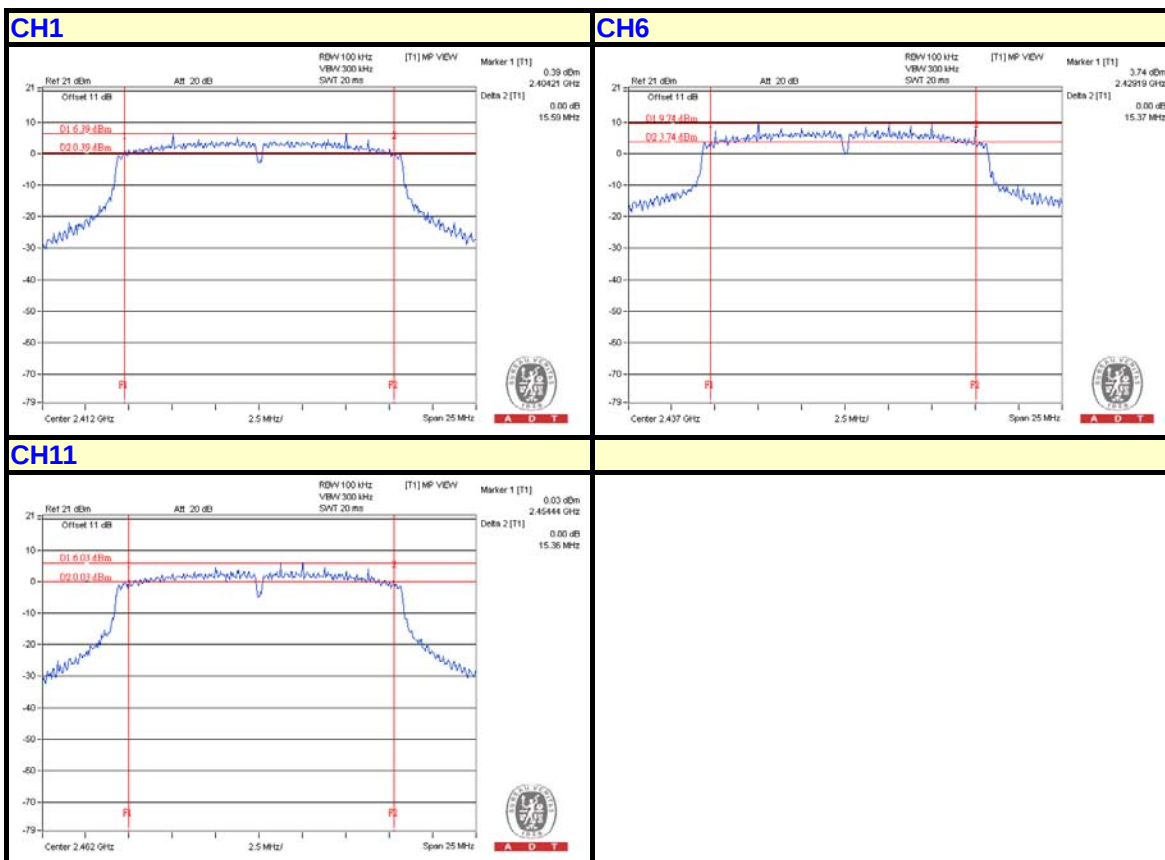




A D T

802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	15.59	0.5	PASS
6	2437	15.37	0.5	PASS
11	2462	15.36	0.5	PASS

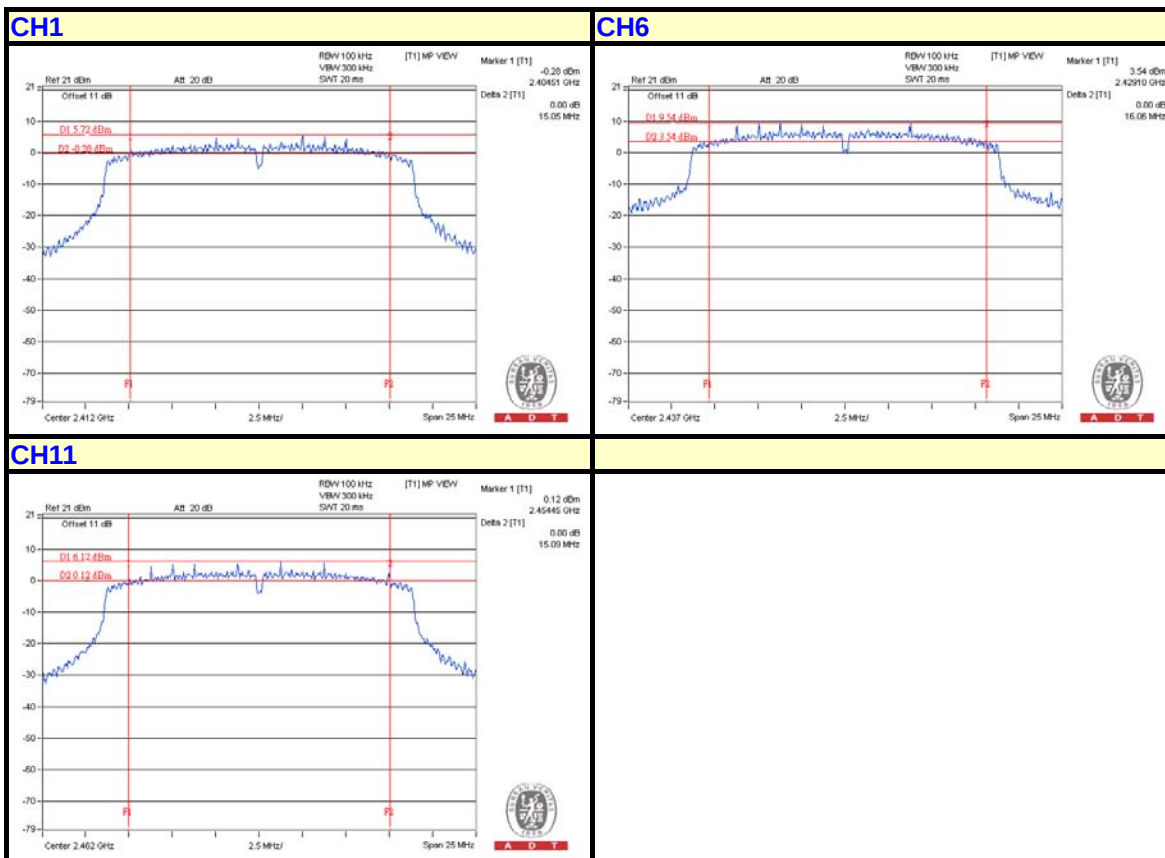




A D T

VHT20

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	15.05	0.5	PASS
6	2437	16.06	0.5	PASS
11	2462	15.09	0.5	PASS

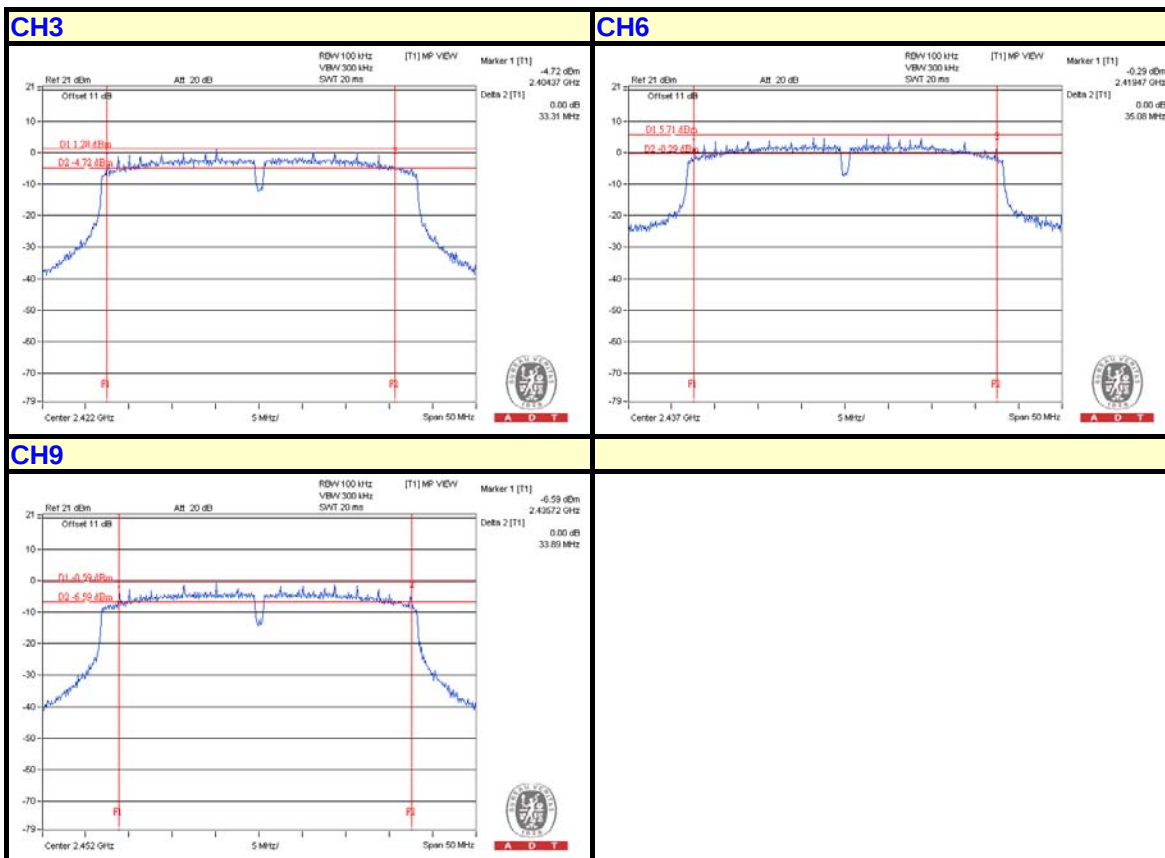




A D T

VHT40

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
3	2422	33.31	0.5	PASS
6	2437	35.08	0.5	PASS
9	2452	33.89	0.5	PASS





A D T

4.4 CONDUCTED OUT-BAND EMISSION MEASUREMENT

4.4.1 LIMITS OF CONDUCTED OUT-BAND EMISSION MEASUREMENT

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

4.4.2 TEST INSTRUMENTS

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

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Tested date : Dec. 09, 2014

4.4.3 TEST PROCEDURE

Measurement Procedure - Reference Level

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

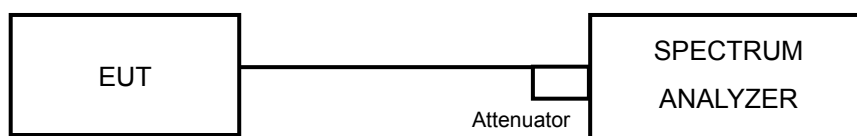
Measurement Procedure –Unwanted Emission Level

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

4.4.4 DEVIATION FROM TEST STANDARD

No deviation

4.4.5 EUT OPERATING CONDITION



4.4.6 TEST RESULTS

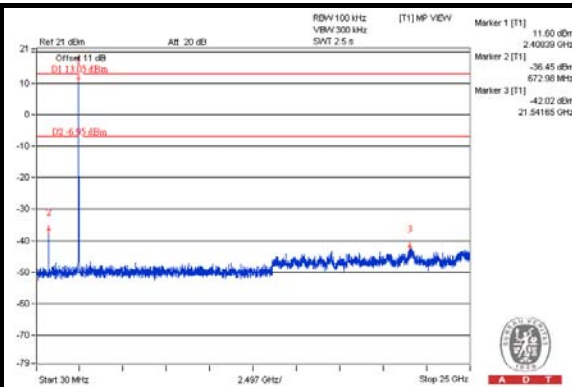
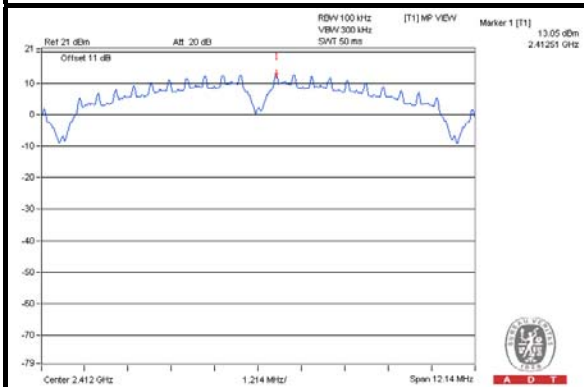
he spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement.



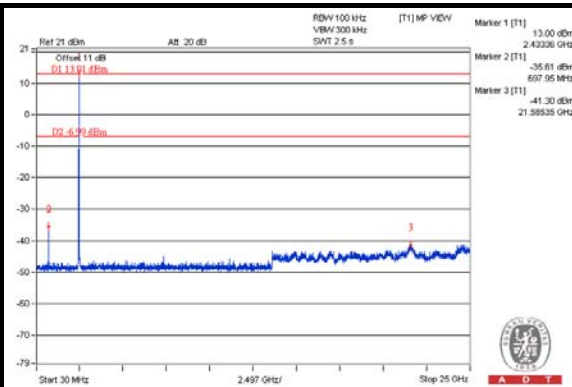
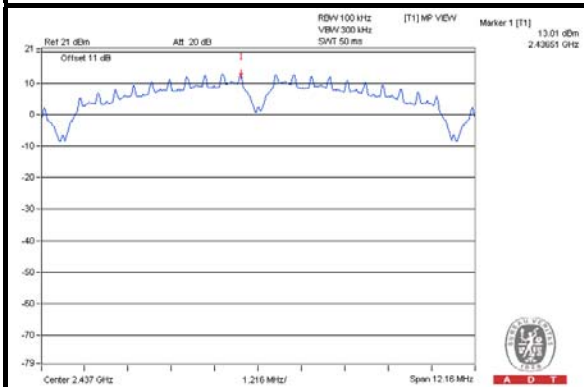
A D T

802.11b

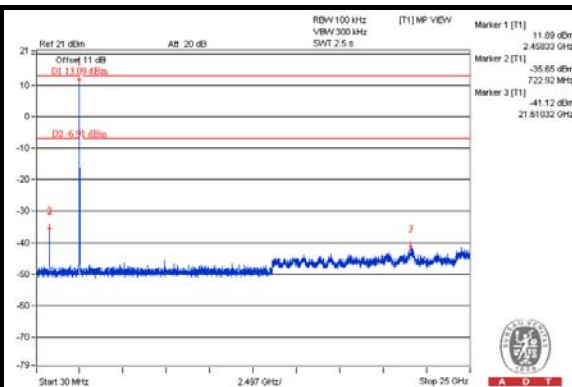
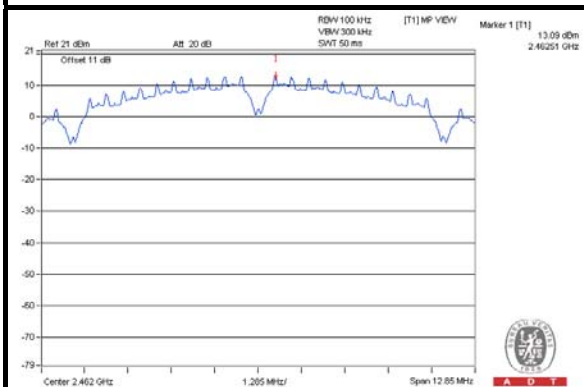
CH 1



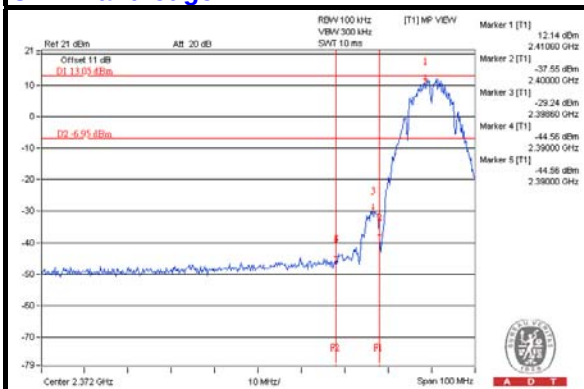
CH 6



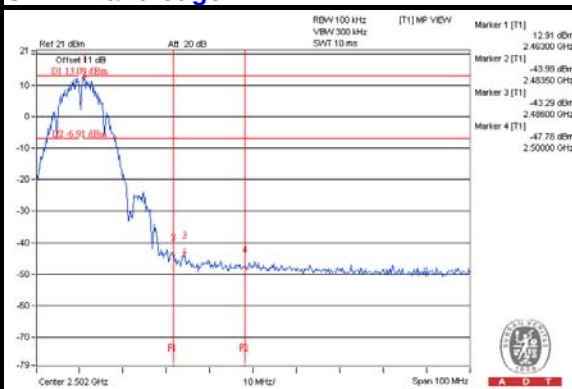
CH 11



CH 1 Band edge



CH 11 Band edge

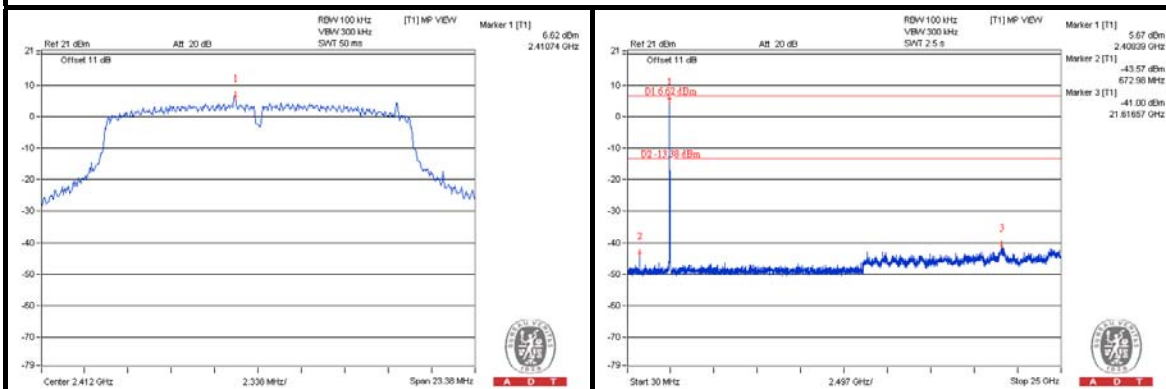




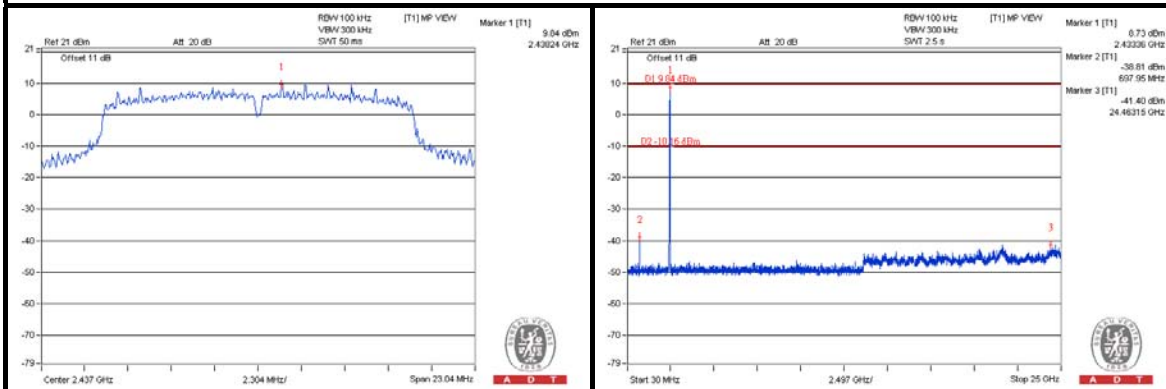
A D T

802.11g

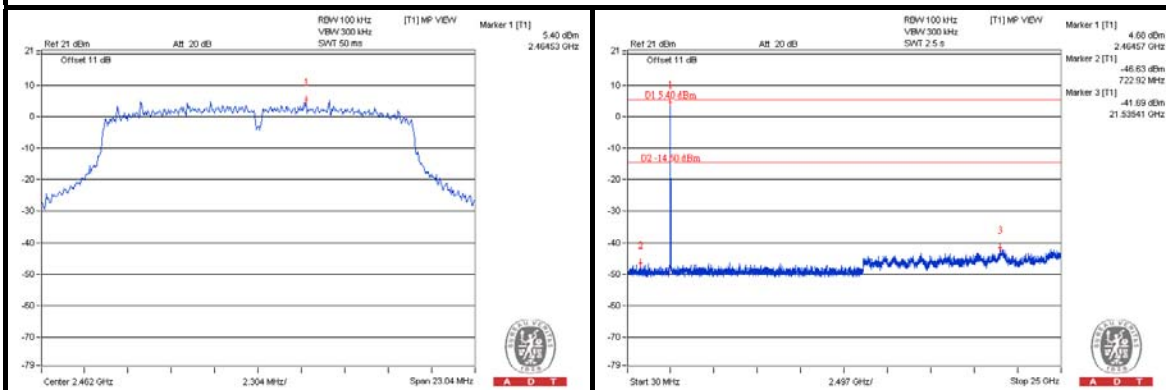
CH 1



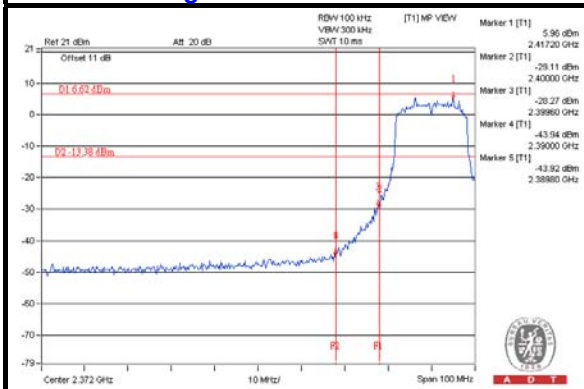
CH 6



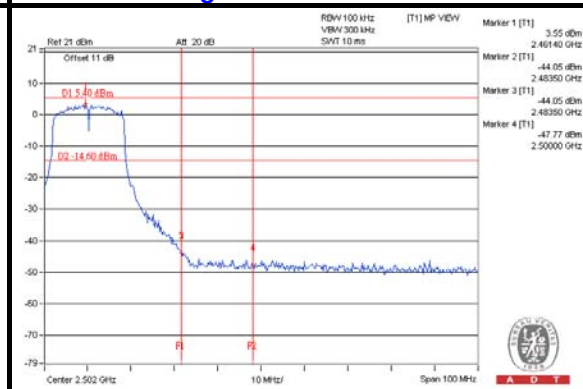
CH 11



CH 1 Band edge



CH 11 Band edge

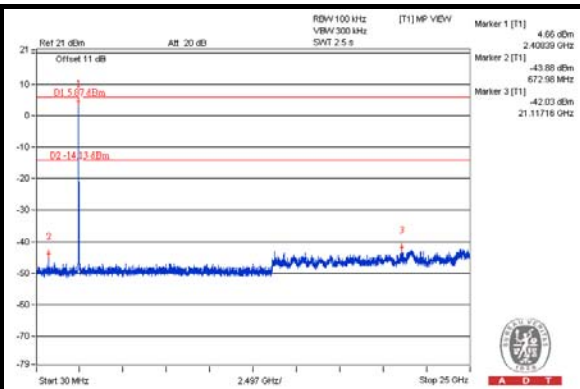
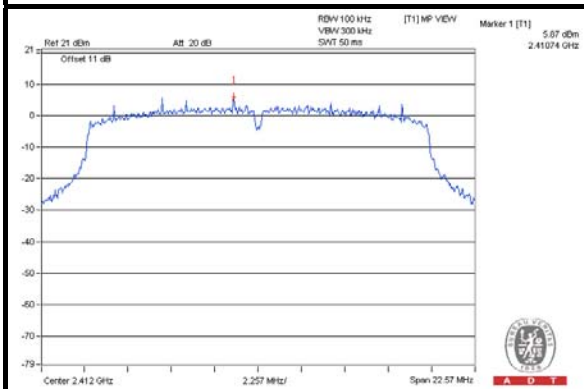




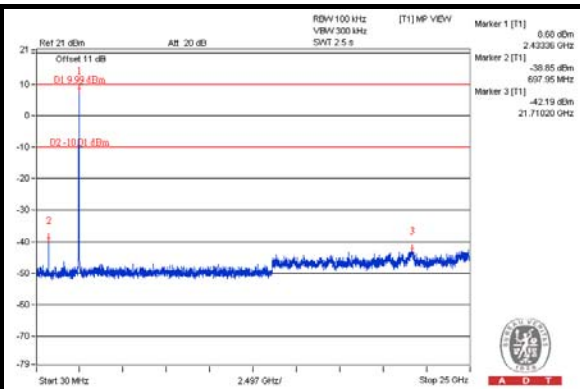
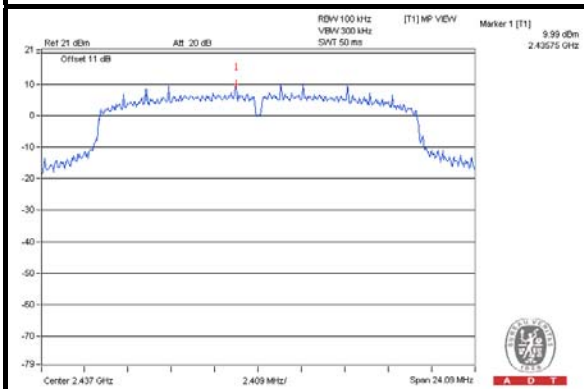
A D T

VHT20

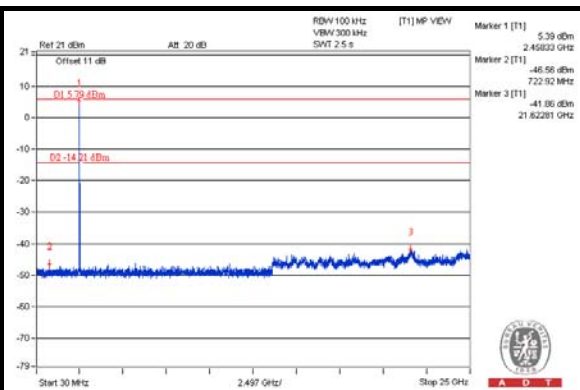
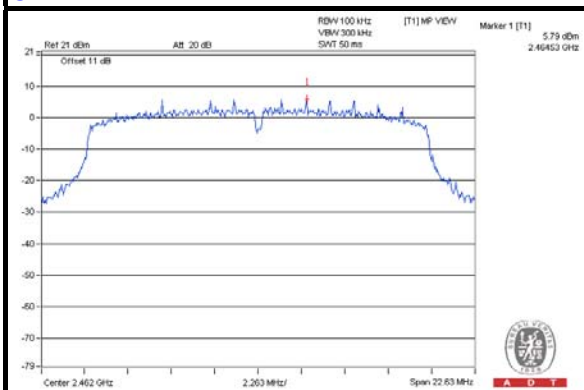
CH 1



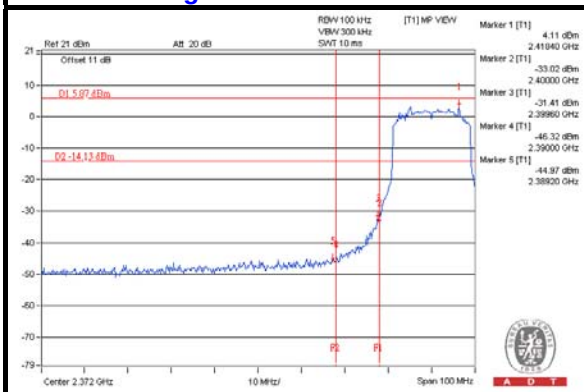
CH 6



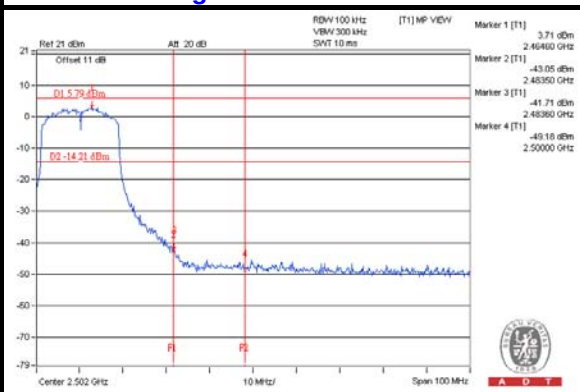
CH 11



CH 1 Band edge



CH 11 Band edge

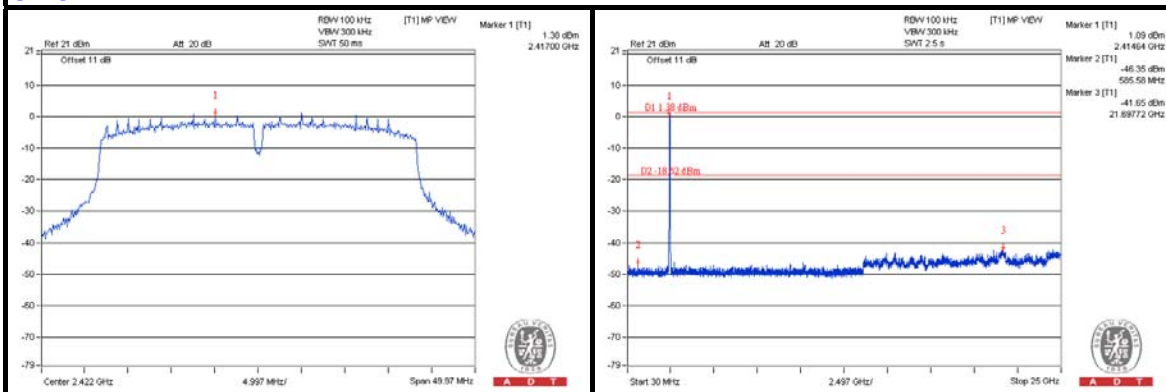




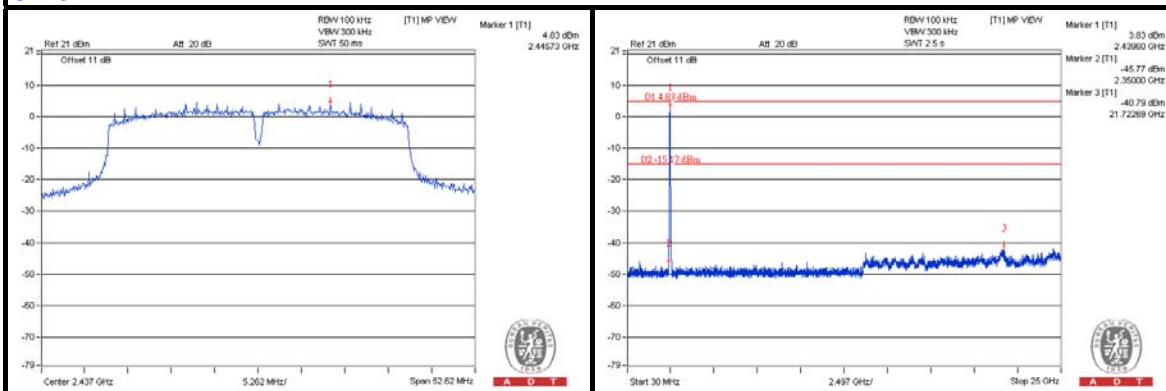
A D T

VHT40

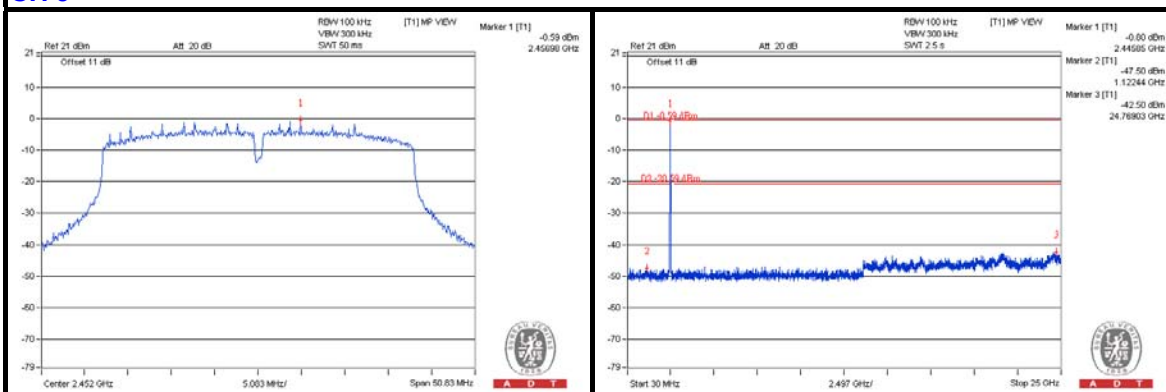
CH 3



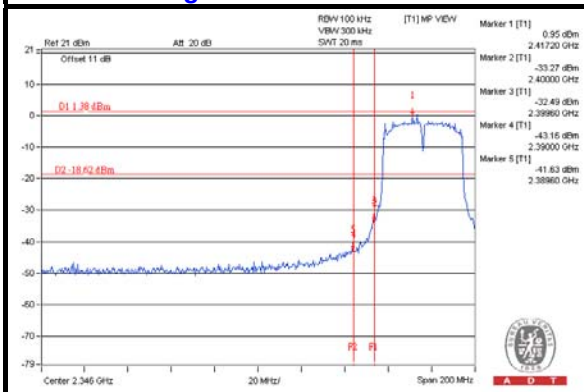
CH 6



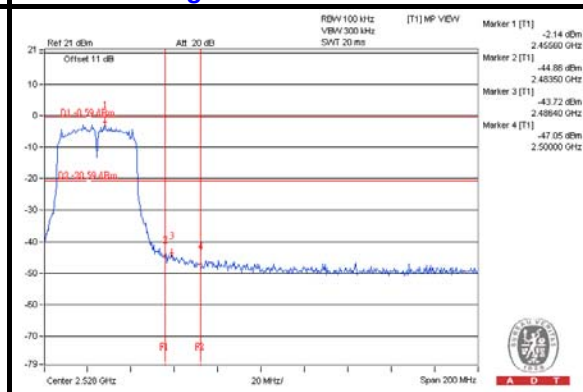
CH 9



CH 3 Band edge



CH 9 Band edge



4.5 UNWANTED EMISSION MEASUREMENT(RADIATED)

4.5.1 LIMITS OF UNWANTED EMISSION MEASUREMENT

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

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

NOTE:

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



A D T

4.5.2 TEST INSTRUMENTS

For below 1GHz test:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
MXE EMI Receiver Agilent	N9038A	MY51210105	July 21, 2014	July 20, 2015
Pre-Amplifier Mini-Circuits	ZFL-1000VH2 B	AMP-ZFL-03	Nov. 12, 2014	Nov. 11, 2015
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-360	Feb. 26, 2014	Feb. 25, 2015
RF Cable	NA	CHGCAB_001	Oct. 04, 2014	Oct. 03, 2015
Horn_Antenna AISI	AIH.8018	000032009111 0	Aug. 27, 2014	Aug. 26, 2015
Pre-Amplifier Agilent	8449B	3008A02578	June 24, 2014	June 23, 2015
RF Cable	NA	131205 131214 SNMY23684/4	Jan. 17, 2014	Jan. 16, 2015
Spectrum Analyzer R&S	FSV40	100964	July 05, 2014	July 04, 2015
Pre-Amplifier EMCI	EMC184045	980143	Jan. 17, 2014	Jan. 16, 2015
Horn_Antenna SCHWARZBECK	BBHA 9170	9170-424	Aug. 26, 2014	Aug. 25, 2015
RF Cable	NA	RF104-121 RF104-204	Dec. 12, 2013	Dec. 11, 2014
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: Nov. 18, 2014



A D T

For above 1GHz test:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
MXE EMI Receiver Agilent	N9038A	MY50010156	Aug. 11, 2014	Aug. 10, 2015
Pre-Amplifier Mini-Circuits	ZFL-1000VH2 B	AMP-ZFL-04	Nov. 12, 2014	Nov. 11, 2015
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-361	Feb. 27, 2014	Feb. 26, 2015
RF Cable	NA	CHHCAB_001	Oct. 05, 2014	Oct. 04, 2015
Horn_Antenna AISI	AIH.8018	000022009111 0	Aug. 26, 2014	Aug. 25, 2015
Pre-Amplifier Agilent	8449B	300801923	Oct. 28, 2014	Oct. 27, 2015
RF Cable	NA	131206 131215 SNMY23685/4	Jan. 17, 2014	Jan. 16, 2015
Spectrum Analyzer R&S	FSV40	100964	July 05, 2014	July 04, 2015
Pre-Amplifier EMCI	EMC184045	980143	Jan. 17, 2014	Jan. 16, 2015
Horn_Antenna SCHWARZBECK	BBHA 9170	9170-424	Aug. 26, 2014	Aug. 25, 2015
RF Cable	NA	RF104-121 RF104-204	Dec. 12, 2013	Dec. 11, 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: Dec. 09, 2014

4.5.3 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:

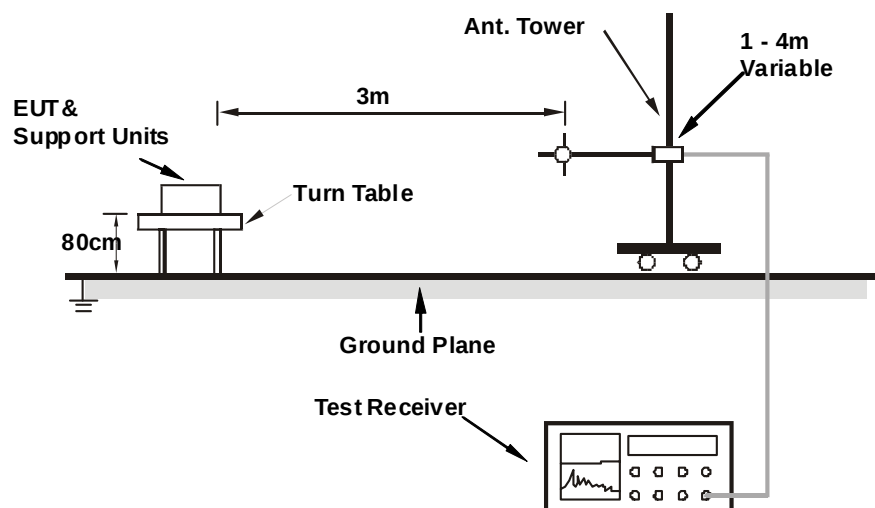
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
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 ($10 \log(1/\text{duty cycle})$).
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1GHz.
5. All modes of operation were investigated and the worst-case emissions are reported.

4.5.4 DEVIATION FROM TEST STANDARD

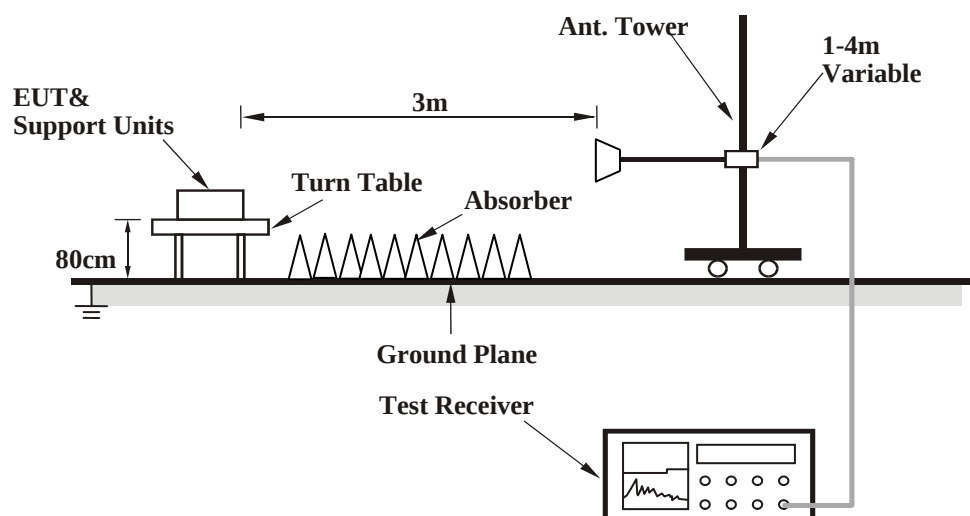
No deviation

4.5.5 TEST SETUP

<Frequency Range below 1GHz>



<Frequency Range above 1GHz>



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

4.5.6 EUT OPERATING CONDITIONS

1. Connect the EUT with the support unit A (Notebook Computer) which is placed on a testing table.
2. The communication partner run test program “QCART Version: 3.0.33.0” to enable EUT under transmission/receiving condition continuously at specific channel frequency.



A D T

4.5.7 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	113.98	36.9 QP	43.5	-6.6	1.50 H	340	52.54	-15.62
2	232.78	40.1 QP	46.0	-6.0	1.50 H	254	55.18	-15.13
3	299.32	39.5 QP	46.0	-6.5	1.00 H	13	51.45	-11.92
4	432.02	38.1 QP	46.0	-7.9	2.00 H	198	46.16	-8.08
5	528.05	40.6 QP	46.0	-5.4	1.50 H	231	46.76	-6.15
6	798.19	36.2 QP	46.0	-9.8	1.00 H	343	36.75	-0.59
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	38.24	33.9 QP	40.0	-6.1	1.00 V	11	47.51	-13.64
2	99.74	38.7 QP	43.5	-4.8	1.50 V	64	56.35	-17.65
3	118.66	33.4 QP	43.5	-10.1	2.00 V	261	48.40	-14.99
4	165.99	37.4 QP	43.5	-6.1	1.00 V	326	50.52	-13.13
5	432.02	36.9 QP	46.0	-9.1	1.00 V	289	44.96	-8.08
6	796.59	36.1 QP	46.0	-9.9	1.50 V	335	36.73	-0.60

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



A D T

ABOVE 1GHz DATA

802.11b

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	54.2 PK	74.0	-19.8	1.00 H	330	59.80	-5.60
2	2390.00	45.2 AV	54.0	-8.8	1.00 H	330	50.80	-5.60
3	*2412.00	100.2 PK			1.00 H	330	105.73	-5.53
4	*2412.00	97.4 AV			1.00 H	330	102.93	-5.53
5	4824.00	46.9 PK	74.0	-27.1	1.00 H	360	43.04	3.86
6	4824.00	36.3 AV	54.0	-17.7	1.00 H	360	32.44	3.86
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	56.3 PK	74.0	-17.7	1.37 V	345	61.90	-5.60
2	2390.00	48.2 AV	54.0	-5.8	1.37 V	345	53.80	-5.60
3	*2412.00	105.3 PK			1.37 V	345	110.83	-5.53
4	*2412.00	103.4 AV			1.37 V	345	108.93	-5.53
5	4824.00	54.3 PK	74.0	-19.7	1.09 V	357	50.44	3.86
6	4824.00	47.2 AV	54.0	-6.8	1.09 V	357	43.34	3.86

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.



A D T

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	48.3 PK	74.0	-25.7	1.00 H	309	53.90	-5.60
2	2390.00	37.4 AV	54.0	-16.6	1.00 H	309	43.00	-5.60
3	*2437.00	98.8 PK			1.00 H	309	104.22	-5.42
4	*2437.00	96.3 AV			1.00 H	309	101.72	-5.42
5	2483.50	47.2 PK	74.0	-26.8	1.00 H	309	52.40	-5.20
6	2483.50	35.4 AV	54.0	-18.6	1.00 H	309	40.60	-5.20
7	4874.00	46.6 PK	74.0	-27.4	1.03 H	360	42.79	3.81
8	4874.00	35.9 AV	54.0	-18.1	1.03 H	360	32.09	3.81
9	7311.00	56.8 PK	74.0	-17.2	1.02 H	359	48.57	8.23
10	7311.00	45.5 AV	54.0	-8.5	1.02 H	359	37.27	8.23

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	2390.00	51.3 PK	74.0	-22.7	1.42 V	220	56.90	-5.60
2	2390.00	40.2 AV	54.0	-13.8	1.42 V	220	45.80	-5.60
3	*2437.00	104.3 PK			1.42 V	220	109.72	-5.42
4	*2437.00	102.6 AV			1.42 V	220	108.02	-5.42
5	2483.50	50.2 PK	74.0	-23.8	1.42 V	220	55.40	-5.20
6	2483.50	37.4 AV	54.0	-16.6	1.42 V	220	42.60	-5.20
7	4874.00	54.5 PK	74.0	-19.5	1.05 V	351	50.69	3.81
8	4874.00	47.5 AV	54.0	-6.5	1.05 V	351	43.69	3.81
9	7311.00	57.6 PK	74.0	-16.4	1.03 V	360	49.37	8.23
10	7311.00	49.3 AV	54.0	-4.7	1.03 V	360	41.07	8.23

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.



A D T

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	99.6 PK			1.04 H	312	104.91	-5.31
2	*2462.00	96.8 AV			1.04 H	312	102.11	-5.31
3	2483.50	51.2 PK	74.0	-22.8	1.04 H	312	56.40	-5.20
4	2483.50	40.2 AV	54.0	-13.8	1.04 H	312	45.40	-5.20
5	4924.00	46.9 PK	74.0	-27.1	1.03 H	360	43.10	3.80
6	4924.00	36.2 AV	54.0	-17.8	1.03 H	360	32.40	3.80
7	7386.00	57.0 PK	74.0	-17.0	1.00 H	360	48.45	8.55
8	7386.00	46.0 AV	54.0	-8.0	1.00 H	360	37.45	8.55
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	105.4 PK			1.39 V	234	110.71	-5.31
2	*2462.00	103.1 AV			1.39 V	234	108.41	-5.31
3	4924.00	54.8 PK	74.0	-19.2	1.02 V	360	51.00	3.80
4	4924.00	47.6 AV	54.0	-6.4	1.02 V	360	43.80	3.80
5	7386.00	57.5 PK	74.0	-16.5	1.08 V	353	48.95	8.55
6	7386.00	49.1 AV	54.0	-4.9	1.08 V	353	40.55	8.55

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.



A D T

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	63.4 PK	74.0	-10.6	1.02 H	298	69.00	-5.60
2	2390.00	47.6 AV	54.0	-6.4	1.02 H	298	53.20	-5.60
3	*2412.00	98.2 PK			1.02 H	298	103.73	-5.53
4	*2412.00	88.1 AV			1.02 H	298	93.63	-5.53
5	4824.00	45.9 PK	74.0	-28.1	1.00 H	360	42.04	3.86
6	4824.00	35.0 AV	54.0	-19.0	1.00 H	360	31.14	3.86
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	65.3 PK	74.0	-8.7	1.45 V	346	70.90	-5.60
2	2390.00	50.4 AV	54.0	-3.6	1.45 V	346	56.00	-5.60
3	*2412.00	104.2 PK			1.48 V	341	109.73	-5.53
4	*2412.00	94.1 AV			1.48 V	341	99.63	-5.53
5	4824.00	52.1 PK	74.0	-21.9	1.13 V	358	48.24	3.86
6	4824.00	45.4 AV	54.0	-8.6	1.13 V	358	41.54	3.86

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.



A D T

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	51.4 PK	74.0	-22.6	1.00 H	297	57.00	-5.60
2	2390.00	37.3 AV	54.0	-16.7	1.00 H	297	42.90	-5.60
3	*2437.00	102.4 PK			1.00 H	297	107.82	-5.42
4	*2437.00	90.4 AV			1.00 H	297	95.82	-5.42
5	2483.50	52.3 PK	74.0	-21.7	1.00 H	297	57.50	-5.20
6	2483.50	36.5 AV	54.0	-17.5	1.00 H	297	41.70	-5.20
7	4874.00	45.9 PK	74.0	-28.1	1.04 H	360	42.09	3.81
8	4874.00	34.8 AV	54.0	-19.2	1.04 H	360	30.99	3.81
9	7311.00	55.5 PK	74.0	-18.5	1.02 H	356	47.27	8.23
10	7311.00	41.4 AV	54.0	-12.6	1.02 H	356	33.17	8.23

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	2390.00	53.4 PK	74.0	-20.6	1.42 V	329	59.00	-5.60
2	2390.00	39.4 AV	54.0	-14.6	1.42 V	329	45.00	-5.60
3	*2437.00	108.6 PK			1.33 V	347	114.02	-5.42
4	*2437.00	96.5 AV			1.33 V	347	101.92	-5.42
5	2483.50	53.0 PK	74.0	-21.0	1.38 V	351	58.20	-5.20
6	2483.50	37.9 AV	54.0	-16.1	1.38 V	351	43.10	-5.20
7	4874.00	52.3 PK	74.0	-21.7	1.08 V	360	48.49	3.81
8	4874.00	45.4 AV	54.0	-8.6	1.08 V	360	41.59	3.81
9	7311.00	55.2 PK	74.0	-18.8	1.07 V	360	46.97	8.23
10	7311.00	47.6 AV	54.0	-6.4	1.07 V	360	39.37	8.23

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.



A D T

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	98.4 PK			1.03 H	286	103.71	-5.31
2	*2462.00	88.6 AV			1.03 H	286	93.91	-5.31
3	2483.50	62.4 PK	74.0	-11.6	1.03 H	286	67.60	-5.20
4	2483.50	47.7 AV	54.0	-6.3	1.03 H	286	52.90	-5.20
5	4924.00	45.9 PK	74.0	-28.1	1.05 H	360	42.10	3.80
6	4924.00	34.9 AV	54.0	-19.1	1.05 H	360	31.10	3.80
7	7386.00	55.6 PK	74.0	-18.4	1.01 H	351	47.05	8.55
8	7386.00	41.5 AV	54.0	-12.5	1.01 H	351	32.95	8.55

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	104.4 PK			1.44 V	341	109.71	-5.31
2	*2462.00	94.6 AV			1.44 V	341	99.91	-5.31
3	2483.50	65.7 PK	74.0	-8.3	1.44 V	341	70.90	-5.20
4	2483.50	50.6 AV	54.0	-3.4	1.44 V	341	55.80	-5.20
5	4924.00	52.2 PK	74.0	-21.8	1.17 V	360	48.40	3.80
6	4924.00	45.5 AV	54.0	-8.5	1.17 V	360	41.70	3.80
7	7386.00	54.3 PK	74.0	-19.7	1.07 V	360	45.75	8.55
8	7386.00	46.6 AV	54.0	-7.4	1.07 V	360	38.05	8.55

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.



A D T

VHT20

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	63.6 PK	74.0	-10.4	1.04 H	304	69.20	-5.60
2	2390.00	48.3 AV	54.0	-5.7	1.04 H	304	53.90	-5.60
3	*2412.00	97.5 PK			1.04 H	304	103.03	-5.53
4	*2412.00	87.6 AV			1.04 H	304	93.13	-5.53
5	4824.00	45.6 PK	74.0	-28.4	1.00 H	360	41.74	3.86
6	4824.00	34.8 AV	54.0	-19.2	1.00 H	360	30.94	3.86
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	65.6 PK	74.0	-8.4	1.41 V	350	71.20	-5.60
2	2390.00	50.3 AV	54.0	-3.7	1.41 V	350	55.90	-5.60
3	*2412.00	103.5 PK			1.41 V	350	109.03	-5.53
4	*2412.00	93.2 AV			1.41 V	350	98.73	-5.53
5	4824.00	51.9 PK	74.0	-22.1	1.10 V	357	48.04	3.86
6	4824.00	45.3 AV	54.0	-8.7	1.10 V	357	41.44	3.86

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.



A D T

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	51.8 PK	74.0	-22.2	1.06 H	311	57.40	-5.60
2	2390.00	37.6 AV	54.0	-16.4	1.06 H	311	43.20	-5.60
3	*2437.00	102.4 PK			1.06 H	311	107.82	-5.42
4	*2437.00	90.3 AV			1.06 H	311	95.72	-5.42
5	2483.50	51.9 PK	74.0	-22.1	1.06 H	311	57.10	-5.20
6	2483.50	36.2 AV	54.0	-17.8	1.06 H	311	41.40	-5.20
7	4874.00	45.8 PK	74.0	-28.2	1.06 H	354	41.99	3.81
8	4874.00	34.5 AV	54.0	-19.5	1.06 H	354	30.69	3.81
9	7311.00	55.5 PK	74.0	-18.5	1.02 H	343	47.27	8.23
10	7311.00	41.2 AV	54.0	-12.8	1.02 H	343	32.97	8.23

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	2390.00	53.4 PK	74.0	-20.6	1.36 V	353	59.00	-5.60
2	2390.00	39.7 AV	54.0	-14.3	1.36 V	353	45.30	-5.60
3	*2437.00	109.1 PK			1.36 V	353	114.52	-5.42
4	*2437.00	96.8 AV			1.36 V	353	102.22	-5.42
5	2483.50	53.8 PK	74.0	-20.2	1.36 V	353	59.00	-5.20
6	2483.50	38.4 AV	54.0	-15.6	1.36 V	353	43.60	-5.20
7	4874.00	52.6 PK	74.0	-21.4	1.13 V	360	48.79	3.81
8	4874.00	45.4 AV	54.0	-8.6	1.13 V	360	41.59	3.81
9	7311.00	55.6 PK	74.0	-18.4	1.13 V	358	47.37	8.23
10	7311.00	47.8 AV	54.0	-6.2	1.13 V	358	39.57	8.23

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.



A D T

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	97.4 PK			1.05 H	292	102.71	-5.31
2	*2462.00	87.6 AV			1.05 H	292	92.91	-5.31
3	2483.50	64.2 PK	74.0	-9.8	1.05 H	292	69.40	-5.20
4	2483.50	48.7 AV	54.0	-5.3	1.05 H	292	53.90	-5.20
5	4924.00	45.6 PK	74.0	-28.4	1.00 H	360	41.80	3.80
6	4924.00	34.8 AV	54.0	-19.2	1.00 H	360	31.00	3.80
7	7386.00	56.0 PK	74.0	-18.0	1.03 H	339	47.45	8.55
8	7386.00	41.5 AV	54.0	-12.5	1.03 H	339	32.95	8.55

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	103.7 PK			1.36 V	360	109.01	-5.31
2	*2462.00	93.6 AV			1.36 V	360	98.91	-5.31
3	2483.50	65.2 PK	74.0	-8.8	1.36 V	360	70.40	-5.20
4	2483.50	50.8 AV	54.0	-3.2	1.36 V	360	56.00	-5.20
5	4924.00	51.6 PK	74.0	-22.4	1.05 V	360	47.80	3.80
6	4924.00	44.8 AV	54.0	-9.2	1.05 V	360	41.00	3.80
7	7386.00	55.4 PK	74.0	-18.6	1.14 V	350	46.85	8.55
8	7386.00	47.7 AV	54.0	-6.3	1.14 V	350	39.15	8.55

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.



A D T

VHT40

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	63.6 PK	74.0	-10.4	1.03 H	288	69.20	-5.60
2	2390.00	48.4 AV	54.0	-5.6	1.03 H	288	54.00	-5.60
3	*2422.00	93.4 PK			1.03 H	288	98.89	-5.49
4	*2422.00	85.2 AV			1.03 H	288	90.69	-5.49
5	4844.00	44.9 PK	74.0	-29.1	1.05 H	360	41.06	3.84
6	4844.00	34.3 AV	54.0	-19.7	1.05 H	360	30.46	3.84
7	7266.00	55.2 PK	74.0	-18.8	1.01 H	326	47.14	8.06
8	7266.00	41.0 AV	54.0	-13.0	1.01 H	326	32.94	8.06
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	2390.00	65.4 PK	74.0	-8.6	1.37 V	219	71.00	-5.60
2	2390.00	50.2 AV	54.0	-3.8	1.37 V	219	55.80	-5.60
3	*2422.00	99.4 PK			1.37 V	219	104.89	-5.49
4	*2422.00	91.2 AV			1.37 V	219	96.69	-5.49
5	4844.00	51.3 PK	74.0	-22.7	1.15 V	353	47.46	3.84
6	4844.00	44.3 AV	54.0	-9.7	1.15 V	353	40.46	3.84
7	7266.00	54.2 PK	74.0	-19.8	1.14 V	358	46.14	8.06
8	7266.00	46.2 AV	54.0	-7.8	1.14 V	358	38.14	8.06

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.



A D T

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	58.0 PK	74.0	-16.0	1.00 H	297	63.60	-5.60
2	2390.00	41.2 AV	54.0	-12.8	1.00 H	297	46.80	-5.60
3	*2437.00	95.3 PK			1.00 H	297	100.72	-5.42
4	*2437.00	86.0 AV			1.00 H	297	91.42	-5.42
5	2483.50	56.6 PK	74.0	-17.4	1.00 H	297	61.80	-5.20
6	2483.50	41.6 AV	54.0	-12.4	1.00 H	297	46.80	-5.20
7	4874.00	45.8 PK	74.0	-28.2	1.05 H	360	41.99	3.81
8	4874.00	35.2 AV	54.0	-18.8	1.05 H	360	31.39	3.81
9	7311.00	56.2 PK	74.0	-17.8	1.01 H	346	47.97	8.23
10	7311.00	41.7 AV	54.0	-12.3	1.01 H	346	33.47	8.23

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	2390.00	60.4 PK	74.0	-13.6	1.35 V	222	66.00	-5.60
2	2390.00	43.3 AV	54.0	-10.7	1.35 V	222	48.90	-5.60
3	*2437.00	101.3 PK			1.35 V	222	106.72	-5.42
4	*2437.00	92.0 AV			1.35 V	222	97.42	-5.42
5	2483.50	59.2 PK	74.0	-14.8	1.35 V	222	64.40	-5.20
6	2483.50	43.6 AV	54.0	-10.4	1.35 V	222	48.80	-5.20
7	4874.00	51.4 PK	74.0	-22.6	1.13 V	349	47.59	3.81
8	4874.00	44.1 AV	54.0	-9.9	1.13 V	349	40.29	3.81
9	7311.00	53.6 PK	74.0	-20.4	1.10 V	353	45.37	8.23
10	7311.00	45.7 AV	54.0	-8.3	1.10 V	353	37.47	8.23

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.



A D T

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	92.2 PK			1.03 H	295	97.56	-5.36
2	*2452.00	84.0 AV			1.03 H	295	89.36	-5.36
3	2483.50	65.4 PK	74.0	-8.6	1.03 H	295	70.60	-5.20
4	2483.50	48.4 AV	54.0	-5.6	1.03 H	295	53.60	-5.20
5	4904.00	45.5 PK	74.0	-28.5	1.03 H	360	41.71	3.79
6	4904.00	34.8 AV	54.0	-19.2	1.03 H	360	31.01	3.79
7	7356.00	56.6 PK	74.0	-17.4	1.04 H	332	48.17	8.43
8	7356.00	42.2 AV	54.0	-11.8	1.04 H	332	33.77	8.43

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	97.6 PK			1.33 V	220	102.96	-5.36
2	*2452.00	89.4 AV			1.33 V	220	94.76	-5.36
3	2483.50	67.4 PK	74.0	-6.6	1.33 V	220	72.60	-5.20
4	2483.50	50.6 AV	54.0	-3.4	1.33 V	220	55.80	-5.20
5	4904.00	51.7 PK	74.0	-22.3	1.11 V	360	47.91	3.79
6	4904.00	44.6 AV	54.0	-9.4	1.11 V	360	40.81	3.79
7	7356.00	54.4 PK	74.0	-19.6	1.13 V	355	45.97	8.43
8	7356.00	46.6 AV	54.0	-7.4	1.13 V	355	38.17	8.43

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.

4.6 AC POWER LINE CONDUCTED EMISSION MEASUREMENT

4.6.1 LIMITS OF AC POWER LINE CONDUCTED EMISSION MEASUREMENT

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

4.6.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver ROHDE & SCHWARZ	ESCS 30	100375	Apr. 29, 2014	Apr. 28, 2015
Line-Impedance Stabilization Network (for EUT) SCHWARZBECK	NSLK-8127	8127-522	Sep. 15, 2014	Sep. 14, 2015
Line-Impedance Stabilization Network (for Peripheral) ROHDE & SCHWARZ	ENV216	100071	Nov. 13, 2013	Nov. 12, 2014
RF Cable (JYEBAO)	5DFB	COCCAB-001	Mar. 10, 2014	Mar. 09, 2015
50 ohms Terminator	N/A	EMC-03	Sep. 22, 2014	Sep. 21, 2015
50 ohms Terminator	N/A	EMC-02	Sep. 30, 2014	Sep. 29, 2015
Software ADT	BV ADT_Cond_V7.3.7. 3	NA	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Shielded Room No. C.
3. The VCCI Con C Registration No. is C-3611.
4. Tested Date: Oct. 22, 2014

4.6.3 TEST PROCEDURES

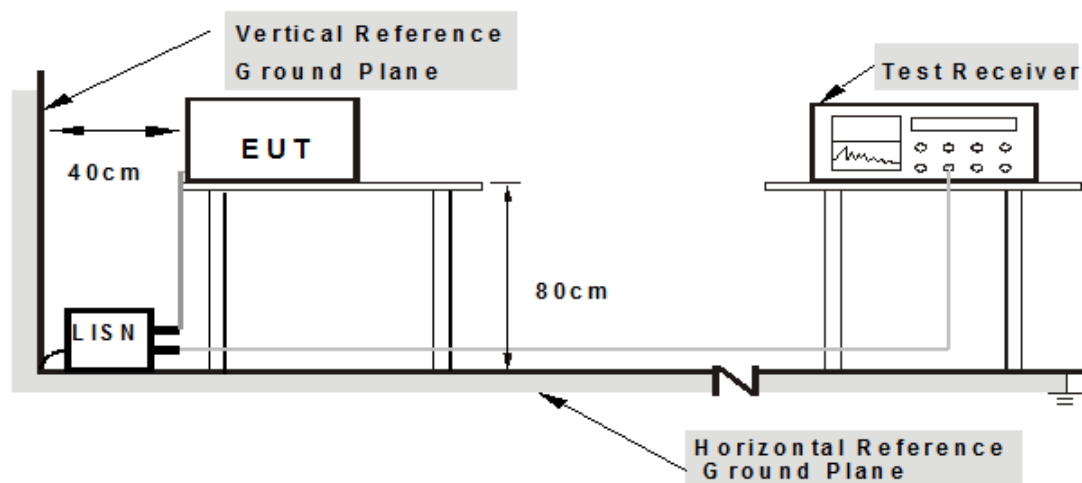
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling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

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

4.6.4 DEVIATION FROM TEST STANDARD

No deviation

4.6.5 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.

4.6.6 EUT OPERATING CONDITIONS

Same as Item 4.5.6

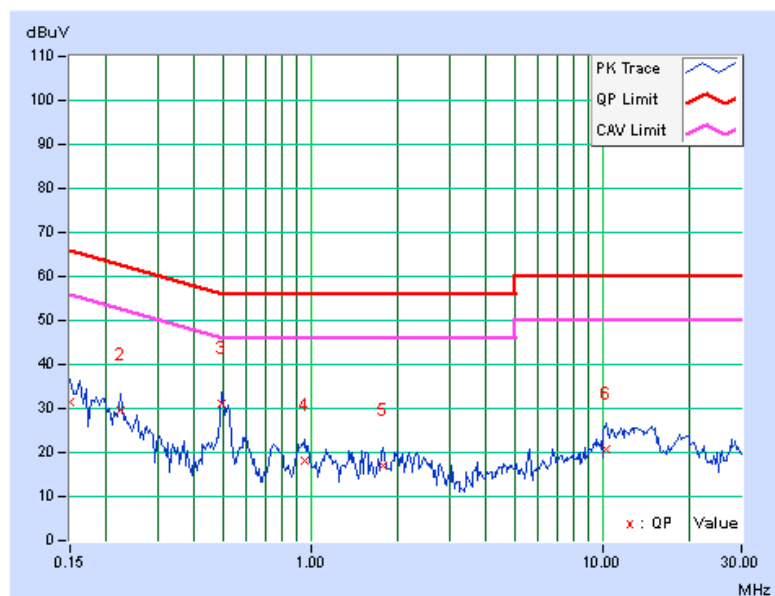
4.6.7 TEST RESULTS

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

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	0.07	31.56	11.33	31.63	11.40	66.00	56.00	-34.37	-44.60
2	0.22422	0.07	29.62	16.36	29.69	16.43	62.66	52.66	-32.97	-36.23
3	0.49766	0.10	30.98	27.64	31.08	27.74	56.04	46.04	-24.96	-18.30
4	0.95859	0.13	17.87	13.46	18.00	13.59	56.00	46.00	-38.00	-32.41
5	1.76953	0.17	17.05	12.57	17.22	12.74	56.00	46.00	-38.78	-33.26
6	10.35156	0.46	20.21	14.39	20.67	14.85	60.00	50.00	-39.33	-35.15

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

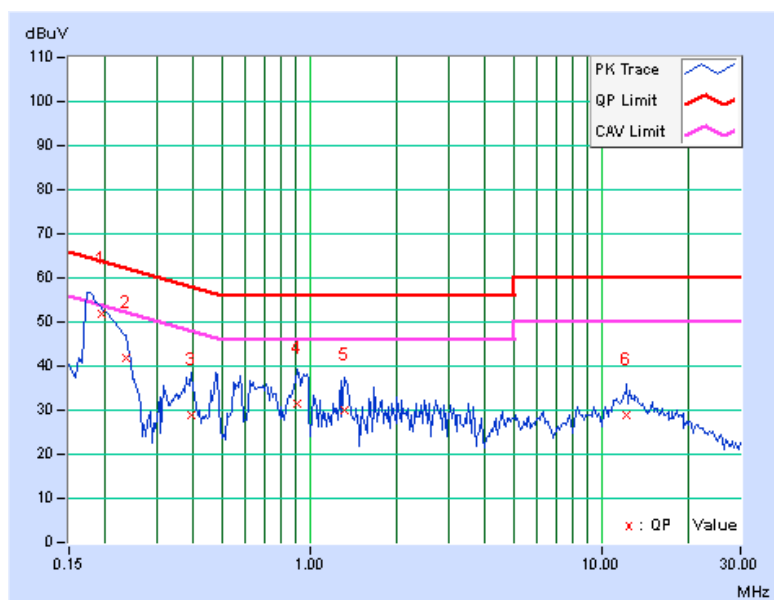


PHASE	Neutral (N)	DETECTOR FUNCTION	Quasi-Peak (QP) / Average (AV)
-------	-------------	----------------------	-----------------------------------

No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
	[MHz]	Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
		(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.19359	0.06	51.66	40.13	51.72	40.19	63.88	53.88	-12.16	-13.69
2	0.23594	0.07	41.92	24.23	41.99	24.30	62.24	52.24	-20.25	-27.94
3	0.39219	0.09	28.77	16.16	28.86	16.25	58.02	48.02	-29.16	-31.77
4	0.90781	0.12	31.46	28.18	31.58	28.30	56.00	46.00	-24.42	-17.70
5	1.32031	0.15	29.89	25.48	30.04	25.63	56.00	46.00	-25.96	-20.37
6	12.26953	0.53	28.44	23.13	28.97	23.66	60.00	50.00	-31.03	-26.34

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. TEST TYPES AND RESULTS (FOR 5GHz, 5725~5850MHz Band)

5.1 CONDUCTED OUTPUT POWER MEASUREMENT

5.1.1 LIMITS OF MAXIMUM OUTPUT POWER MEASUREMENT

For systems using digital modulation in the 5725 –5850 MHz band: 1 Watt (30dBm)

5.1.2 INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Power Meter Anritsu	ML2495A	1014008	Apr. 30, 2014	Apr. 29, 2015
Power Sensor Anritsu	MA2411B	0917122	Apr. 30, 2014	Apr. 29, 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 : Dec. 09, 2014

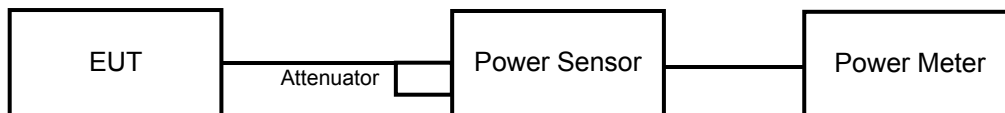
5.1.3 TEST PROCEDURES

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

5.1.4 DEVIATION FROM TEST STANDARD

No deviation

5.1.5 TEST SETUP



5.1.6 EUT OPERATING CONDITIONS

Same as Item 4.1.6

5.1.7 TEST RESULTS

FOR PEAK POWER

802.11a

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS/FAIL
149	5745	95.06	19.78	30	PASS
157	5785	106.66	20.28	30	PASS
165	5825	85.114	19.30	30	PASS

802.11ac (VHT20)

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS/FAIL
149	5745	99.541	19.98	30	PASS
157	5785	111.429	20.47	30	PASS
165	5825	102.565	20.11	30	PASS

802.11ac (VHT40)

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS/FAIL
151	5755	108.393	20.35	30	PASS
159	5795	109.901	20.41	30	PASS

802.11ac (VHT80)

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS/FAIL
155	5775	295.801	24.71	30	PASS

FOR AVERAGE POWER

802.11a :

CHANNEL	FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)
149	5745	51.404	17.11
157	5785	60.117	17.79
165	5825	50.350	17.02

802.11ac (VHT20)

CHANNEL	FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)
149	5745	51.050	17.08
157	5785	56.105	17.49
165	5825	51.642	17.13

802.11ac (VHT40)

CHANNEL	FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)
151	5755	40.926	16.12
159	5795	41.879	16.22

802.11ac (VHT80)

CHANNEL	FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)
155	5775	44.875	16.52



A D T

5.2 POWER SPECTRAL DENSITY MEASUREMENT

5.2.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

5.2.2 TEST INSTRUMENTS

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

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Tested date :Dec. 09, 2014

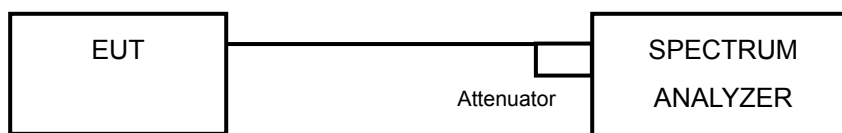
5.2.3 TEST PROCEDURE

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

5.2.4 DEVIATION FROM TEST STANDARD

No deviation

5.2.5 TEST SETUP



5.2.6 EUT OPERATING CONDITION

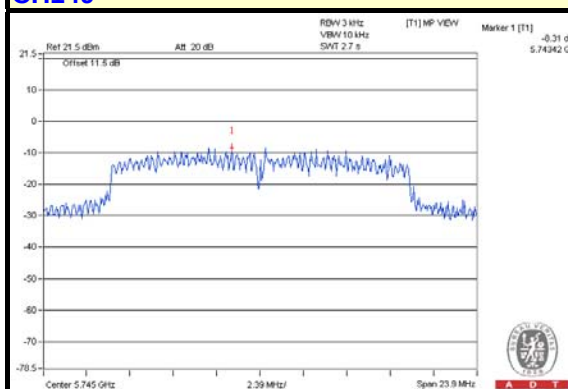
Same as Item 4.1.6

5.2.7 TEST RESULTS

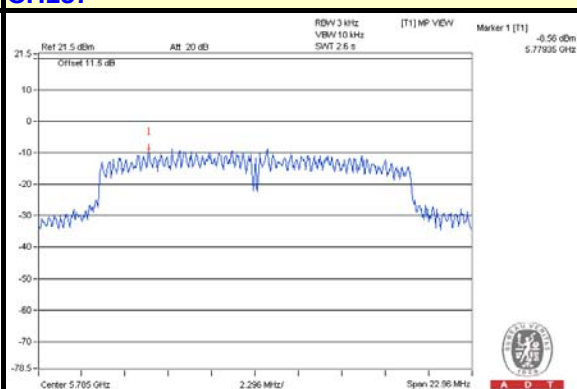
802.11a

CHANNEL	FREQUENCY (MHz)	PSD (dBm)	LIMIT (dBm)	PASS /FAIL
149	5745	-8.31	8	PASS
157	5785	-8.56	8	PASS
165	5825	-9.28	8	PASS

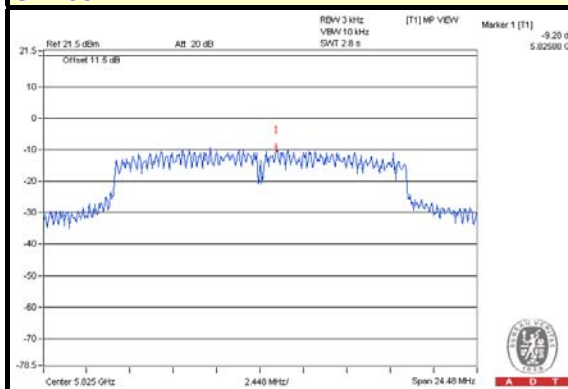
CH149



CH157



CH165

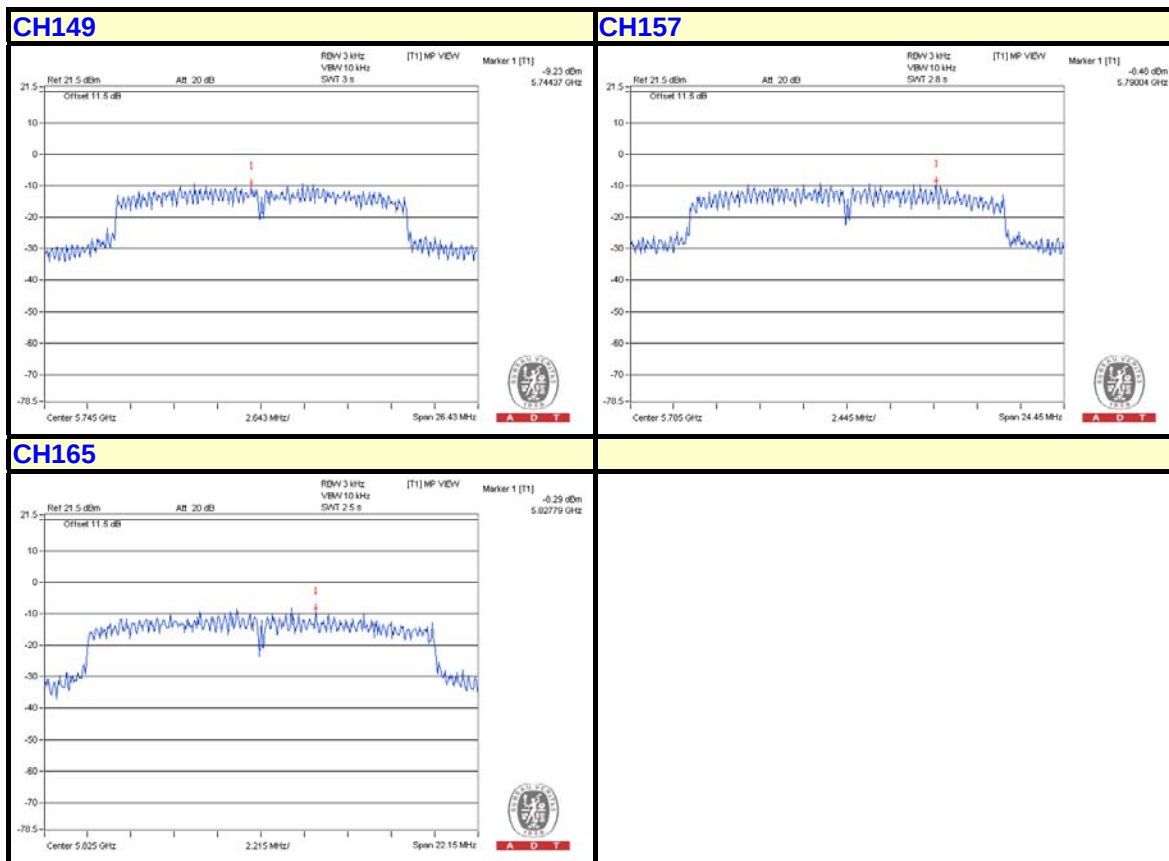




A D T

802.11ac (VHT20)

CHANNEL	FREQUENCY (MHz)	PSD (dBm)	LIMIT (dBm)	PASS /FAIL
149	5745	-9.23	8	PASS
157	5785	-8.48	8	PASS
165	5825	-8.29	8	PASS

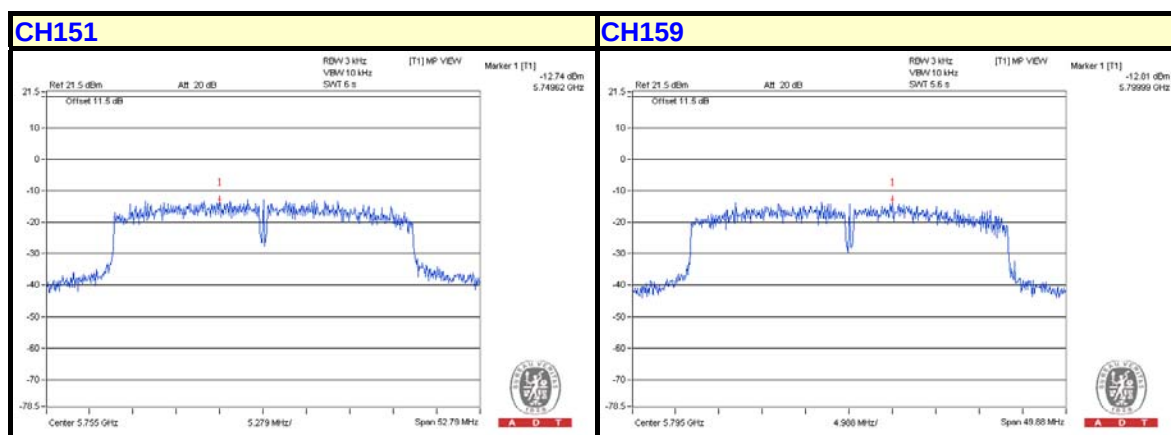




A D T

802.11ac (VHT40)

CHANNEL	FREQUENCY (MHz)	PSD (dBm)	LIMIT (dBm)	PASS /FAIL
151	5755	-12.74	8	PASS
159	5795	-12.81	8	PASS

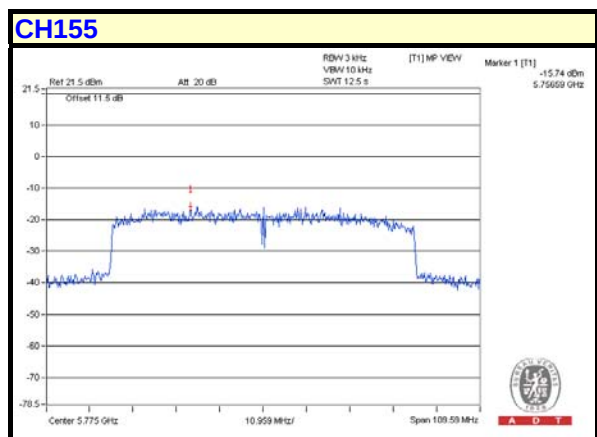




A D T

802.11ac (VHT80):

CHANNEL	FREQUENCY (MHz)	PSD (dBm)	LIMIT (dBm)	PASS /FAIL
155	5775	-15.74	8	PASS



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	FSP 40	100060	May 08, 2014	May 07, 2015

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Tested date : Dec. 09, 2014

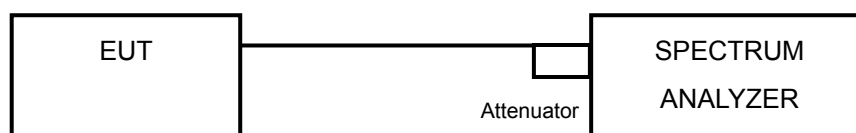
5.3.3 TEST PROCEDURE

1. Set resolution bandwidth (RBW) = 100kHz
2. Set the video bandwidth (VBW) $\geq 3 \times$ 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

Same as the 4.1.6



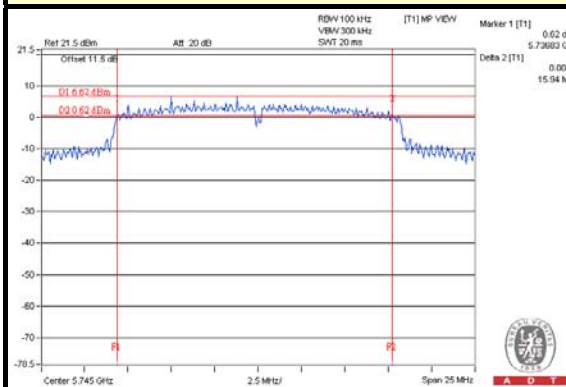
A D T

5.3.7 TEST RESULTS

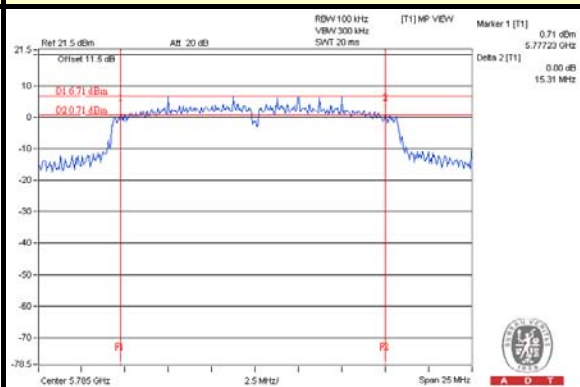
802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
149	5745	15.94	0.5	PASS
157	5785	15.31	0.5	PASS
165	5825	16.32	0.5	PASS

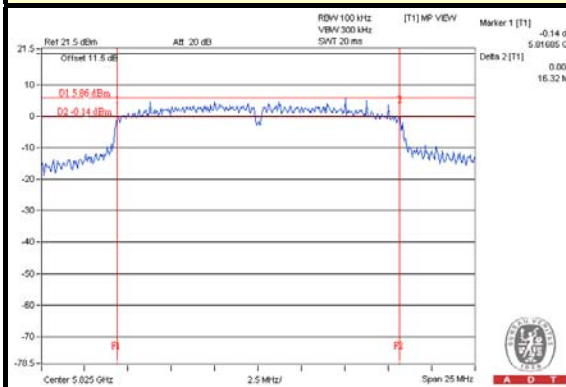
CH149



CH157



CH165



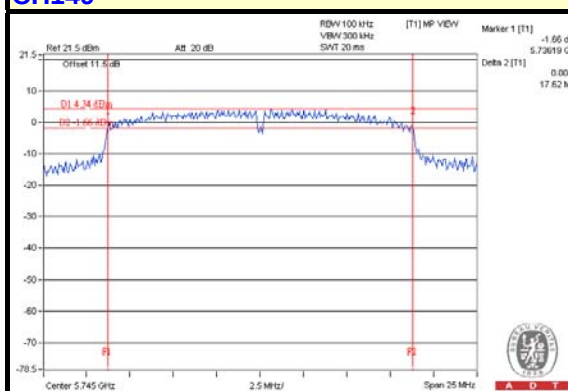


A D T

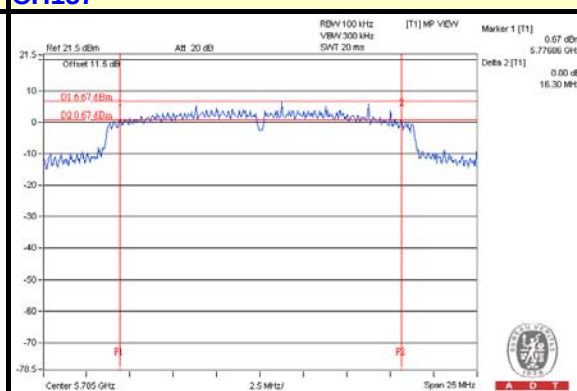
802.11ac (VHT20)

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
149	5745	17.62	0.5	PASS
157	5785	16.30	0.5	PASS
165	5825	14.77	0.5	PASS

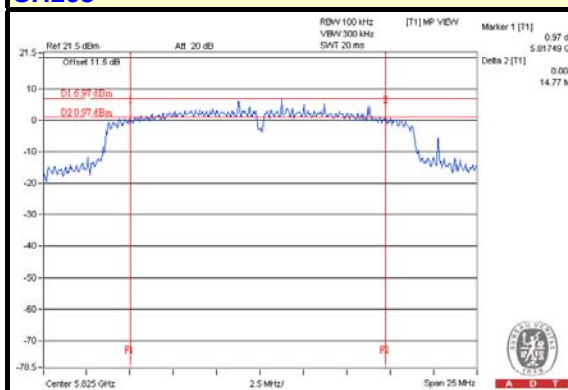
CH149



CH157



CH165



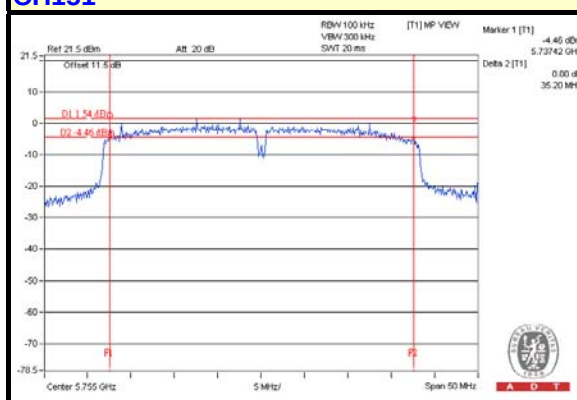


A D T

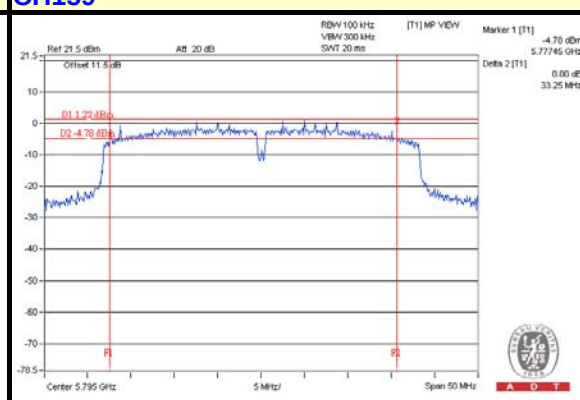
802.11ac (VHT40)

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
151	5755	35.20	0.5	PASS
159	5795	33.25	0.5	PASS

CH151



CH159

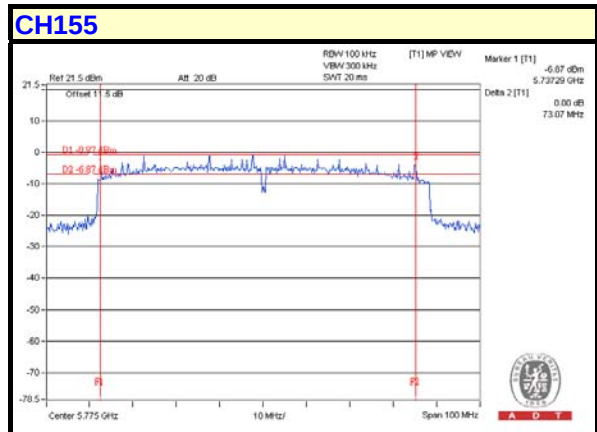




A D T

802.11ac (VHT80)

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
155	5775	73.07	0.5	PASS





A D T

5.4 CONDUCTED OUT-BAND EMISSION MEASUREMENT

5.4.1 LIMITS OF CONDUCTED OUT-BAND EMISSION MEASUREMENT

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

5.4.2 TEST INSTRUMENTS

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

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Tested date : Dec. 09, 2014

5.4.3 TEST PROCEDURE

Measurement Procedure - Reference Level

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

Measurement Procedure –Unwanted Emission Level

1. Set RBW = 100 kHz.
2. Set VBW $\geq$ 300 kHz.
3. Detector = peak.
4. Sweep = auto couple.
5. Trace Mode = max hold.
6. Allow trace to fully stabilize.

7. Use the peak marker function to determine the maximum amplitude level.

5.4.4 DEVIATION FROM TEST STANDARD

No deviation

5.4.5 EUT OPERATING CONDITION



5.4.6 TEST RESULTS

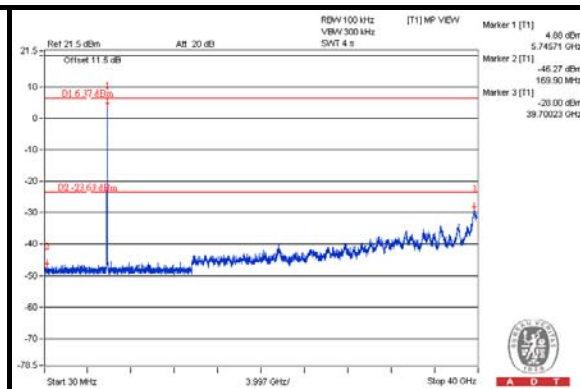
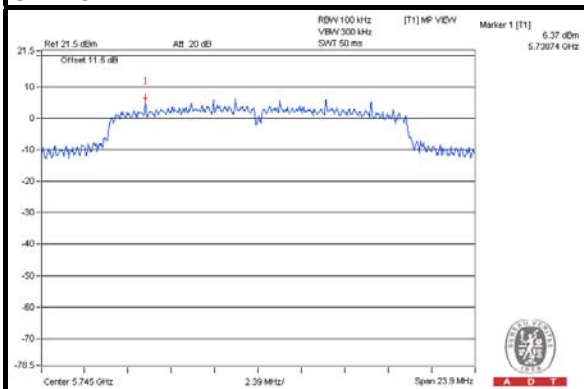
The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement.



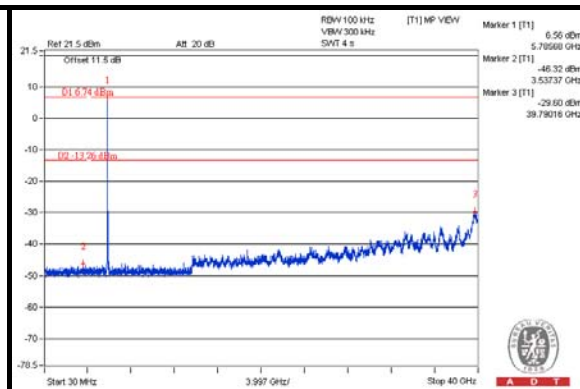
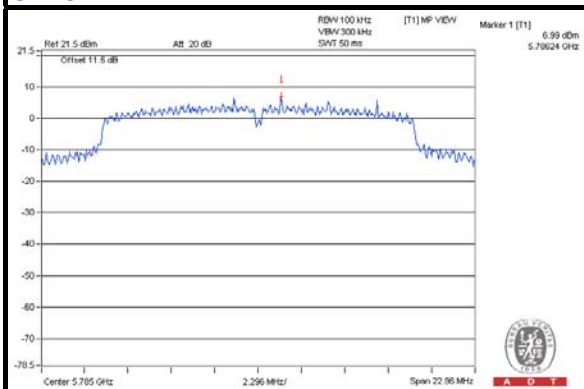
A D T

802.11a

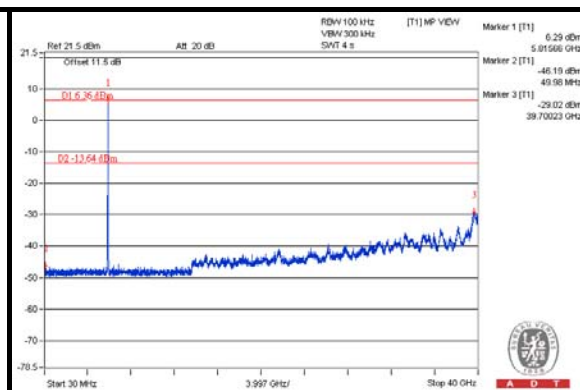
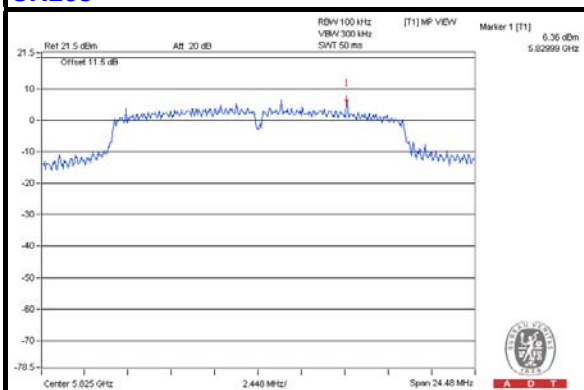
CH149



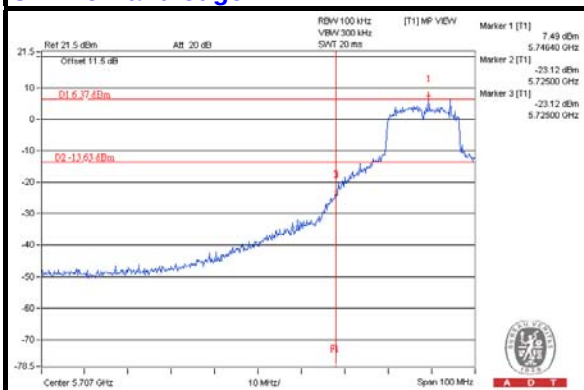
CH157



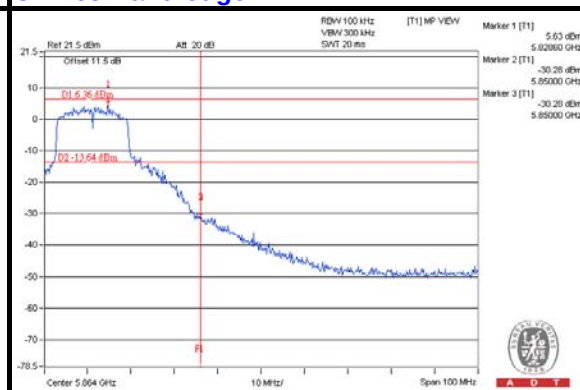
CH165



CH 149 Band edge



CH 165 Band edge

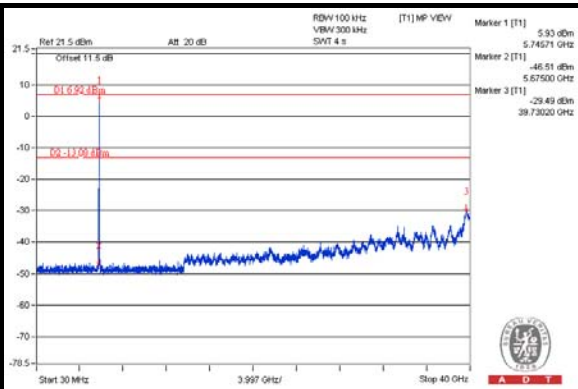
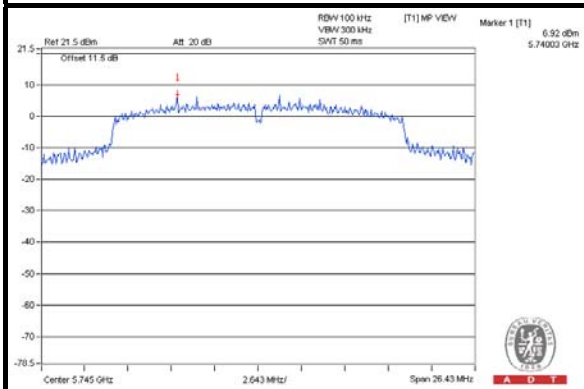




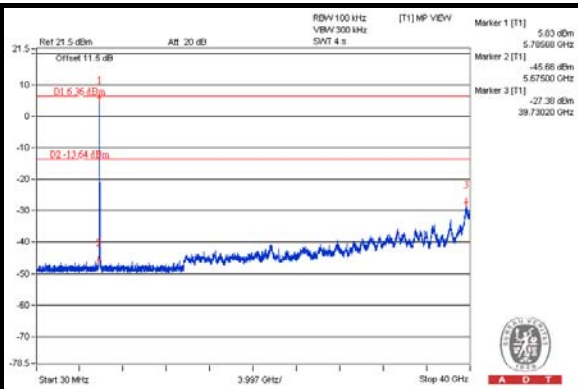
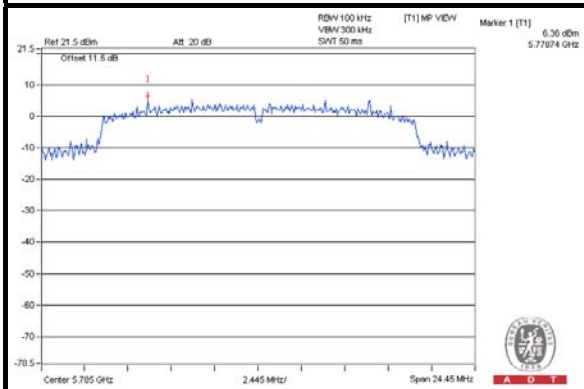
A D T

802.11ac(VHT20)

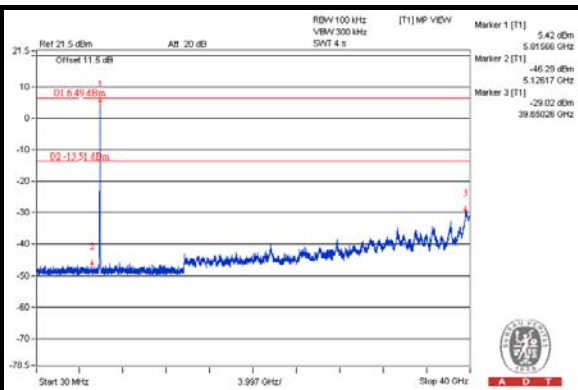
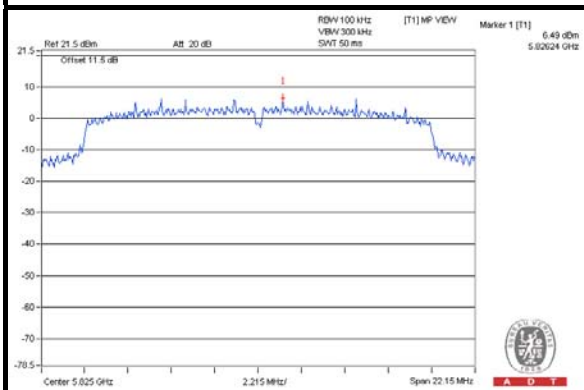
CH149



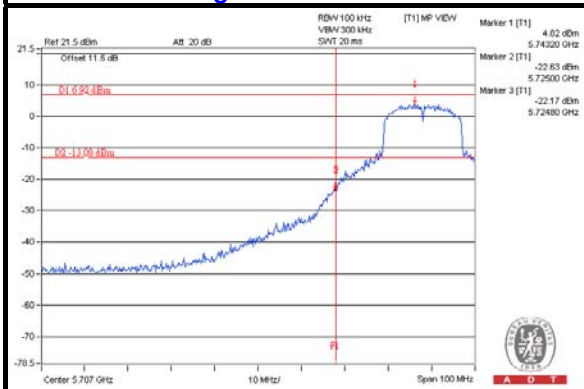
CH157



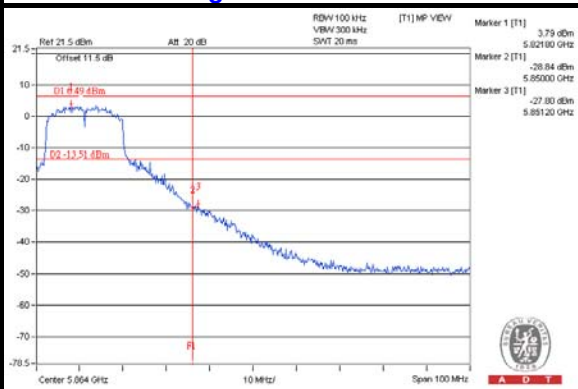
CH165



CH 149 Band edge



CH 165 Band edge

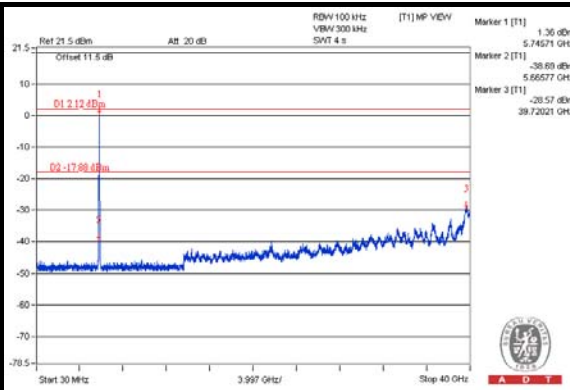
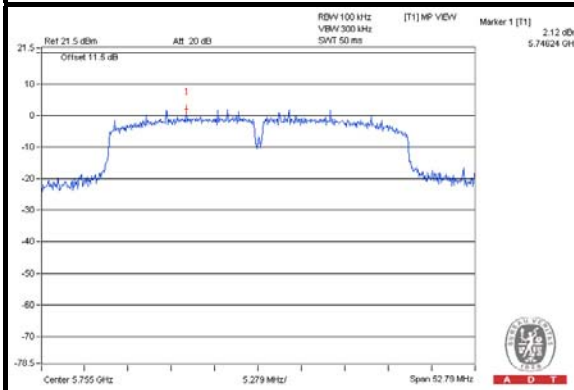




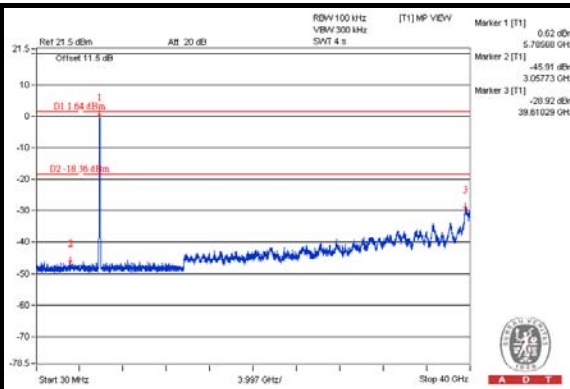
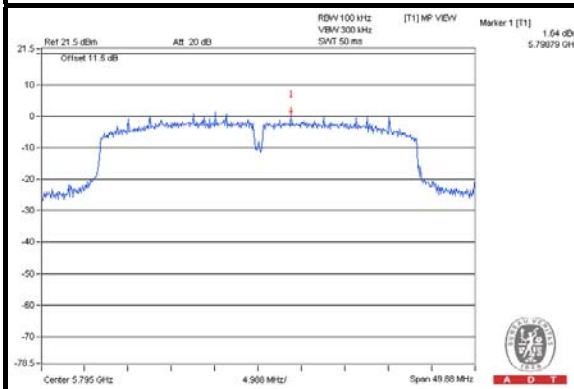
A D T

802.11ac (VHT40)

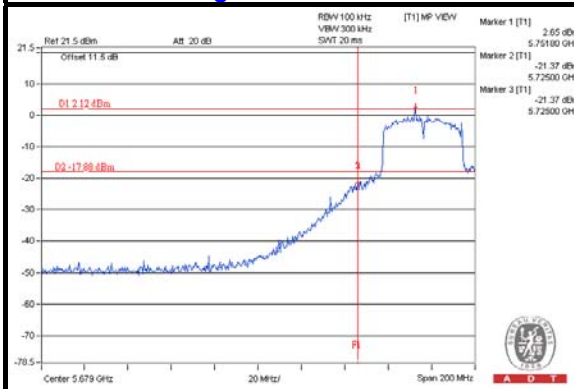
CH 151



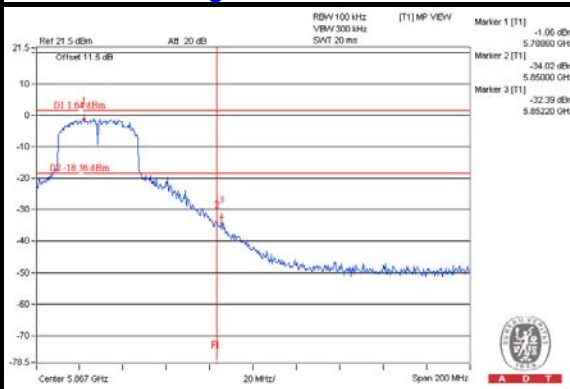
CH 159



CH 151 Band edge



CH 159 Band edge

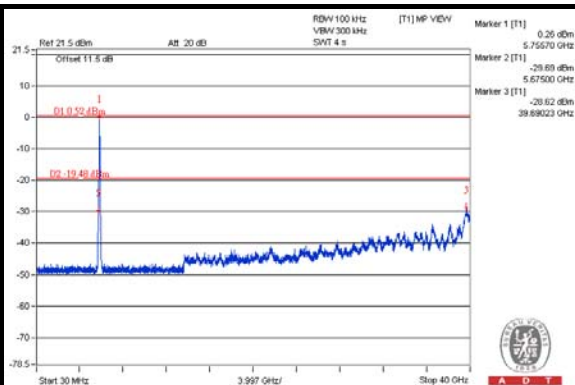
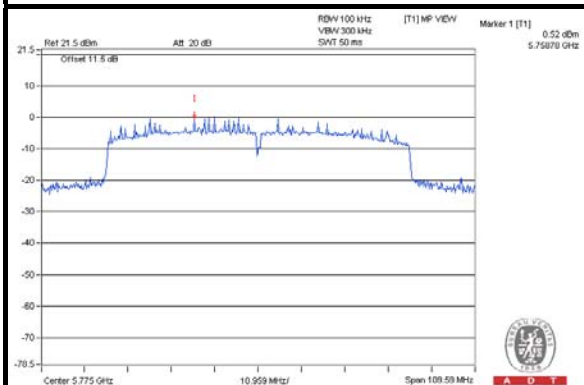




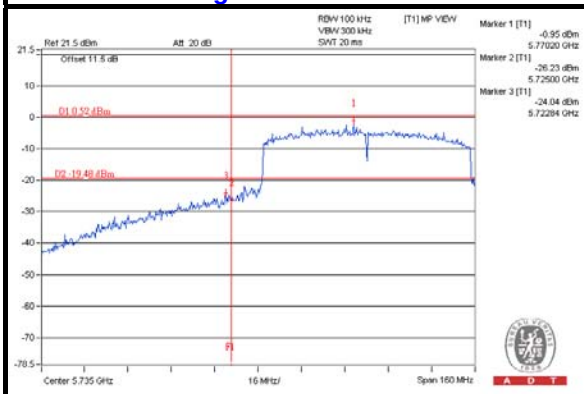
A D T

802.11ac (VHT80)

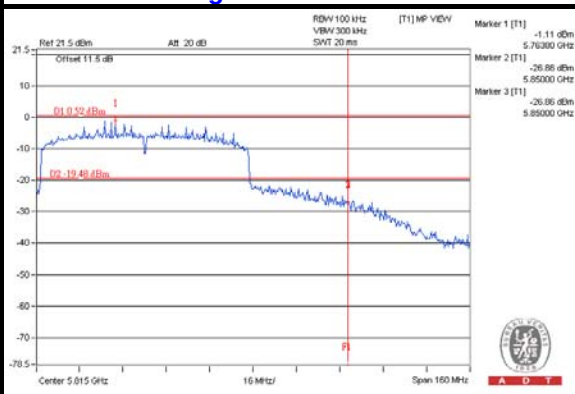
CH 155



CH 155 Band edge



CH 155 Band edge



5.5 UNWANTED EMISSION MEASUREMENT (RADIATED)

5.5.1 LIMITS OF RADIATED EMISSION MEASUREMENT

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

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

NOTE:

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



A D T

5.5.2 TEST INSTRUMENTS

For below 1GHz test:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
MXE EMI Receiver Agilent	N9038A	MY51210105	July 21, 2014	July 20, 2015
Pre-Amplifier Mini-Circuits	ZFL-1000VH2 B	AMP-ZFL-03	Nov. 12, 2014	Nov. 11, 2015
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-360	Feb. 26, 2014	Feb. 25, 2015
RF Cable	NA	CHGCAB_001	Oct. 04, 2014	Oct. 03, 2015
Horn_Antenna AISI	AIH.8018	000032009111 0	Aug. 27, 2014	Aug. 26, 2015
Pre-Amplifier Agilent	8449B	3008A02578	June 24, 2014	June 23, 2015
RF Cable	NA	131205 131214 SNMY23684/4	Jan. 17, 2014	Jan. 16, 2015
Spectrum Analyzer R&S	FSV40	100964	July 05, 2014	July 04, 2015
Pre-Amplifier EMCI	EMC184045	980143	Jan. 17, 2014	Jan. 16, 2015
Horn_Antenna SCHWARZBECK	BBHA 9170	9170-424	Aug. 26, 2014	Aug. 25, 2015
RF Cable	NA	RF104-121 RF104-204	Dec. 12, 2013	Dec. 11, 2014
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: Nov. 18, 2014



A D T

For above 1GHz test:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
MXE EMI Receiver Agilent	N9038A	MY50010156	Aug. 11, 2014	Aug. 10, 2015
Pre-Amplifier Mini-Circuits	ZFL-1000VH2 B	AMP-ZFL-04	Nov. 12, 2014	Nov. 11, 2015
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-361	Feb. 27, 2014	Feb. 26, 2015
RF Cable	NA	CHHCAB_001	Oct. 05, 2014	Oct. 04, 2015
Horn_Antenna AISI	AIH.8018	000022009111 0	Aug. 26, 2014	Aug. 25, 2015
Pre-Amplifier Agilent	8449B	300801923	Oct. 28, 2014	Oct. 27, 2015
RF Cable	NA	131206 131215 SNMY23685/4	Jan. 17, 2014	Jan. 16, 2015
Spectrum Analyzer R&S	FSV40	100964	July 05, 2014	July 04, 2015
Pre-Amplifier EMCI	EMC184045	980143	Jan. 17, 2014	Jan. 16, 2015
Horn_Antenna SCHWARZBECK	BBHA 9170	9170-424	Aug. 26, 2014	Aug. 25, 2015
RF Cable	NA	RF104-121 RF104-204	Dec. 12, 2013	Dec. 11, 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: Dec. 09, 2014

5.5.3 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:

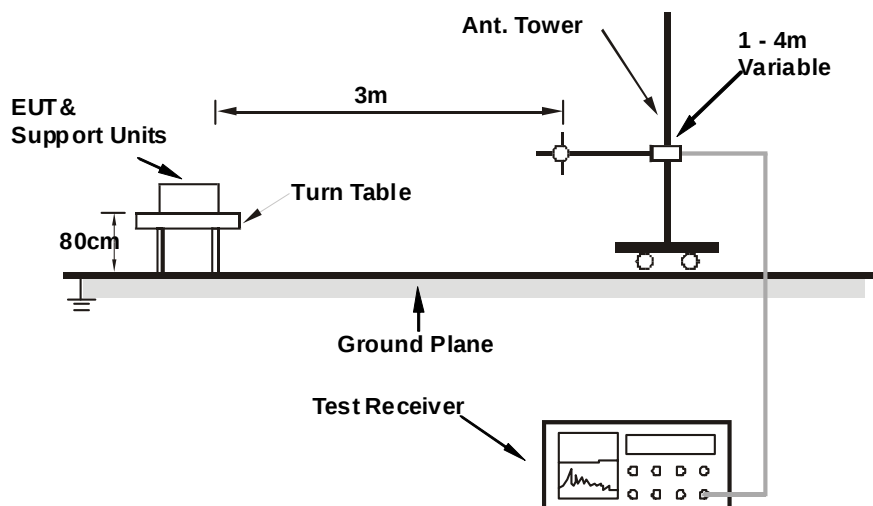
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
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 ($10 \log(1/\text{duty cycle})$).
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1GHz.
5. All modes of operation were investigated and the worst-case emissions are reported.

5.5.4 DEVIATION FROM TEST STANDARD

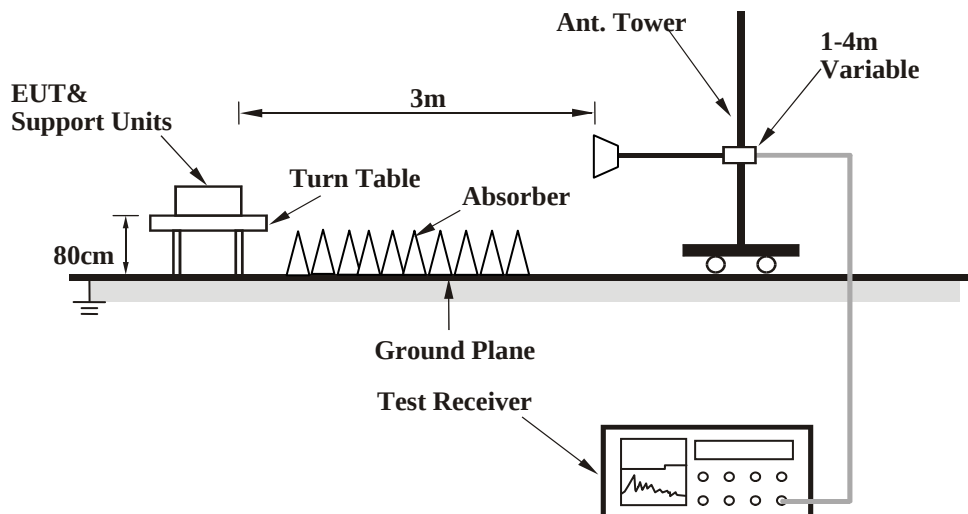
No deviation

5.5.5 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.

5.5.6 EUT OPERATING CONDITIONS

Same as the 4.5.6

5.5.7 TEST RESULTS

BELOW 1GHz WORST-CASE DATA

802.11ac(VHT80)

CHANNEL	TX Channel 155	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	113.90	36.9 QP	43.5	-6.6	1.24 H	304	52.52	-15.63
2	232.66	39.9 QP	46.0	-6.1	1.24 H	301	55.01	-15.14
3	299.36	39.5 QP	46.0	-6.6	1.34 H	49	51.37	-11.92
4	432.05	38.3 QP	46.0	-7.7	1.64 H	245	46.42	-8.08
5	528.41	40.3 QP	46.0	-5.7	1.34 H	301	46.46	-6.15
6	798.21	36.4 QP	46.0	-9.6	1.24 H	287	37.01	-0.59
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	38.12	34.0 QP	40.0	-6.0	1.34 V	45	47.63	-13.65
2	99.34	38.5 QP	43.5	-5.1	1.45 V	98	56.16	-17.71
3	118.42	33.4 QP	43.5	-10.1	1.64 V	304	48.42	-15.00
4	165.75	37.3 QP	43.5	-6.2	1.32 V	278	50.45	-13.11
5	432.24	36.5 QP	46.0	-9.5	1.34 V	304	44.60	-8.06
6	796.54	36.4 QP	46.0	-9.6	1.54 V	278	37.02	-0.60

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



A D T

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	105.7 PK			1.34 H	153	100.78	4.92
2	*5745.00	96.0 AV			1.34 H	153	91.08	4.92
3	11490.00	54.2 PK	74.0	-19.8	1.02 H	47	43.55	10.65
4	11490.00	42.6 AV	54.0	-11.4	1.02 H	47	31.95	10.65
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	107.8 PK			1.27 V	240	102.88	4.92
2	*5745.00	97.7 AV			1.27 V	240	92.78	4.92
3	11490.00	57.3 PK	74.0	-16.7	1.77 V	319	46.65	10.65
4	11490.00	45.7 AV	54.0	-8.3	1.77 V	319	35.05	10.65

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.



A D T

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	105.9 PK			1.29 H	152	100.95	4.95
2	*5785.00	96.2 AV			1.29 H	152	91.25	4.95
3	11570.00	53.8 PK	74.0	-20.2	1.01 H	54	43.12	10.68
4	11570.00	42.1 AV	54.0	-11.9	1.01 H	54	31.42	10.68

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	107.6 PK			1.23 V	254	102.65	4.95
2	*5785.00	97.3 AV			1.23 V	254	92.35	4.95
3	11570.00	57.5 PK	74.0	-16.5	1.78 V	318	46.82	10.68
4	11570.00	45.7 AV	54.0	-8.3	1.78 V	318	35.02	10.68

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.



A D T

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	105.3 PK			1.34 H	154	100.32	4.98
2	*5825.00	95.6 AV			1.34 H	154	90.62	4.98
3	11650.00	54.2 PK	74.0	-19.8	1.06 H	40	43.61	10.59
4	11650.00	42.4 AV	54.0	-11.6	1.06 H	40	31.81	10.59

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	*5825.00	108.1 PK			1.33 V	234	103.12	4.98
2	*5825.00	97.9 AV			1.33 V	234	92.92	4.98
3	11650.00	56.7 PK	74.0	-17.3	1.81 V	324	46.11	10.59
4	11650.00	45.3 AV	54.0	-8.7	1.81 V	324	34.71	10.59

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



A D T

802.11ac(VHT20)

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	107.2 PK			1.30 H	131	102.28	4.92
2	*5745.00	97.2 AV			1.30 H	131	92.28	4.92
3	11490.00	54.2 PK	74.0	-19.8	1.00 H	65	43.55	10.65
4	11490.00	42.9 AV	54.0	-11.1	1.00 H	65	32.25	10.65
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	106.4 PK			1.14 V	264	101.48	4.92
2	*5745.00	97.2 AV			1.14 V	264	92.28	4.92
3	11490.00	57.3 PK	74.0	-16.7	1.85 V	318	46.65	10.65
4	11490.00	45.3 AV	54.0	-8.7	1.85 V	318	34.65	10.65

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.



A D T

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	105.7 PK			1.38 H	150	100.75	4.95
2	*5785.00	95.8 AV			1.38 H	150	90.85	4.95
3	11570.00	54.1 PK	74.0	-19.9	1.02 H	48	43.42	10.68
4	11570.00	42.7 AV	54.0	-11.3	1.02 H	48	32.02	10.68

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	107.3 PK			1.22 V	236	102.35	4.95
2	*5785.00	97.4 AV			1.22 V	236	92.45	4.95
3	11570.00	56.7 PK	74.0	-17.3	1.78 V	325	46.02	10.68
4	11570.00	45.4 AV	54.0	-8.6	1.78 V	325	34.72	10.68

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.



A D T

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	105.5 PK			1.30 H	160	100.52	4.98
2	*5825.00	95.7 AV			1.30 H	160	90.72	4.98
3	11650.00	54.1 PK	74.0	-19.9	1.00 H	31	43.51	10.59
4	11650.00	42.7 AV	54.0	-11.3	1.00 H	31	32.11	10.59
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	*5825.00	107.9 PK			1.31 V	246	102.92	4.98
2	*5825.00	98.1 AV			1.31 V	246	93.12	4.98
3	11650.00	57.3 PK	74.0	-16.7	1.77 V	331	46.71	10.59
4	11650.00	45.6 AV	54.0	-8.4	1.77 V	331	35.01	10.59

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



A D T

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	104.3 PK			1.18 H	33	99.37	4.93
2	*5755.00	94.2 AV			1.18 H	33	89.27	4.93
3	11510.00	53.6 PK	74.0	-20.4	1.05 H	99	42.94	10.66
4	11510.00	41.0 AV	54.0	-13.0	1.05 H	99	30.34	10.66
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	*5755.00	98.6 PK			1.15 V	95	93.67	4.93
2	*5755.00	88.8 AV			1.15 V	95	83.87	4.93
3	11510.00	55.7 PK	74.0	-18.3	1.97 V	325	45.04	10.66
4	11510.00	43.9 AV	54.0	-10.1	1.97 V	325	33.24	10.66

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.



A D T

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	104.3 PK			1.25 H	27	99.34	4.96
2	*5795.00	94.4 AV			1.25 H	27	89.44	4.96
3	11590.00	53.1 PK	74.0	-20.9	1.00 H	90	42.41	10.69
4	11590.00	40.9 AV	54.0	-13.1	1.00 H	90	30.21	10.69
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	99.2 PK			1.15 V	110	94.24	4.96
2	*5795.00	89.3 AV			1.15 V	110	84.34	4.96
3	11590.00	56.4 PK	74.0	-17.6	1.99 V	327	45.71	10.69
4	11590.00	44.2 AV	54.0	-9.8	1.99 V	327	33.51	10.69

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.



A D T

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	*5775.00	101.3 PK			1.24 H	53	96.37	4.93
2	*5775.00	91.1 AV			1.24 H	53	86.17	4.93
3	11550.00	53.3 PK	74.0	-20.7	1.00 H	100	42.63	10.67
4	11550.00	40.5 AV	54.0	-13.5	1.00 H	100	29.83	10.67
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	*5775.00	96.2 PK			1.07 V	349	91.27	4.93
2	*5775.00	86.0 AV			1.07 V	349	81.07	4.93
3	11550.00	56.2 PK	74.0	-17.8	1.89 V	280	45.53	10.67
4	11550.00	43.6 AV	54.0	-10.4	1.89 V	280	32.93	10.67

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.

5.6 AC POWER LINE AC POWER LINE CONDUCTED EMISSION MEASUREMENT

5.6.1 LIMITS OF AC POWER LINE CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dB μ V)	
	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.

5.6.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver ROHDE & SCHWARZ	ESCS 30	100375	Apr. 29, 2014	Apr. 28, 2015
Line-Impedance Stabilization Network (for EUT) SCHWARZBECK	NSLK-8127	8127-522	Sep. 15, 2014	Sep. 14, 2015
Line-Impedance Stabilization Network (for Peripheral) ROHDE & SCHWARZ	ENV216	100071	Nov. 13, 2013	Nov. 12, 2014
RF Cable (JYEBAO)	5DFB	COCCAB-001	Mar. 10, 2014	Mar. 09, 2015
50 ohms Terminator	N/A	EMC-03	Sep. 22, 2014	Sep. 21, 2015
50 ohms Terminator	N/A	EMC-02	Sep. 30, 2014	Sep. 29, 2015
Software ADT	BV ADT_Cond_V7.3.7. 3	NA	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Shielded Room No. C.
3. The VCCI Con C Registration No. is C-3611.
4. Tested Date: Oct. 22, 2014

5.6.3 TEST PROCEDURES

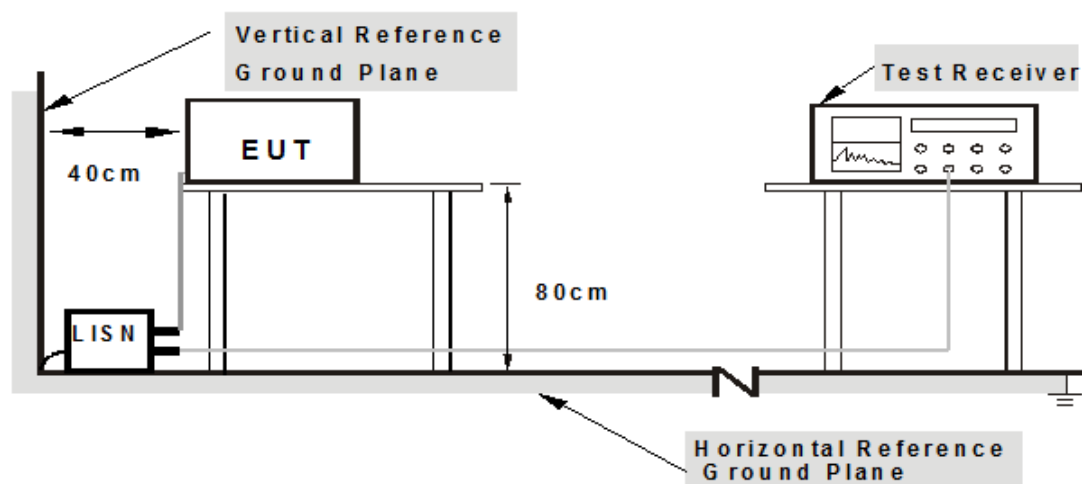
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling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

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

5.6.4 DEVIATION FROM TEST STANDARD

No deviation

5.6.5 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.

5.6.6 EUT OPERATING CONDITIONS

Same as the 4.5.6

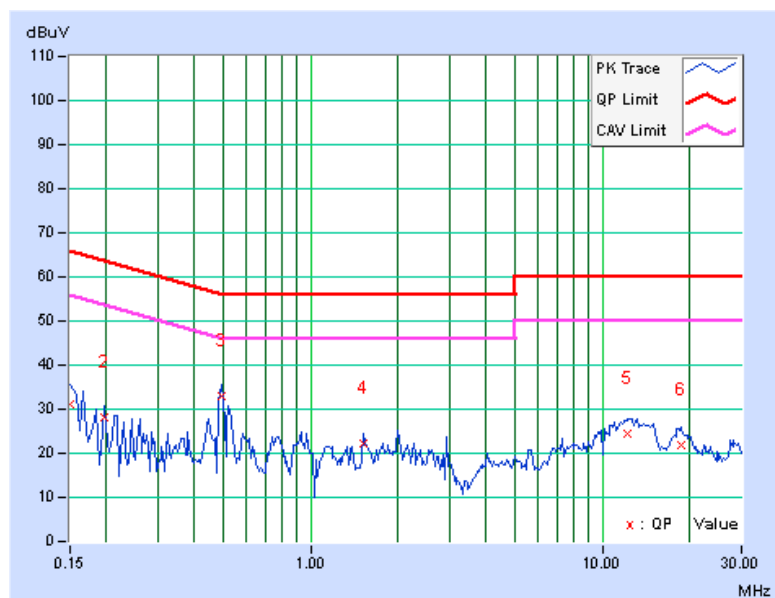
5.6.7 TEST RESULTS

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

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	0.07	30.87	12.38	30.94	12.45	66.00	56.00	-35.06	-43.55
2	0.19687	0.07	28.25	15.82	28.32	15.89	63.74	53.74	-35.42	-37.85
3	0.49375	0.10	32.97	30.79	33.07	30.89	56.10	46.10	-23.04	-15.22
4	1.51659	0.16	22.07	17.64	22.23	17.80	56.00	46.00	-33.77	-28.20
5	12.20703	0.51	23.80	16.38	24.31	16.89	60.00	50.00	-35.69	-33.11
6	18.72266	0.67	21.23	15.39	21.90	16.06	60.00	50.00	-38.10	-33.94

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

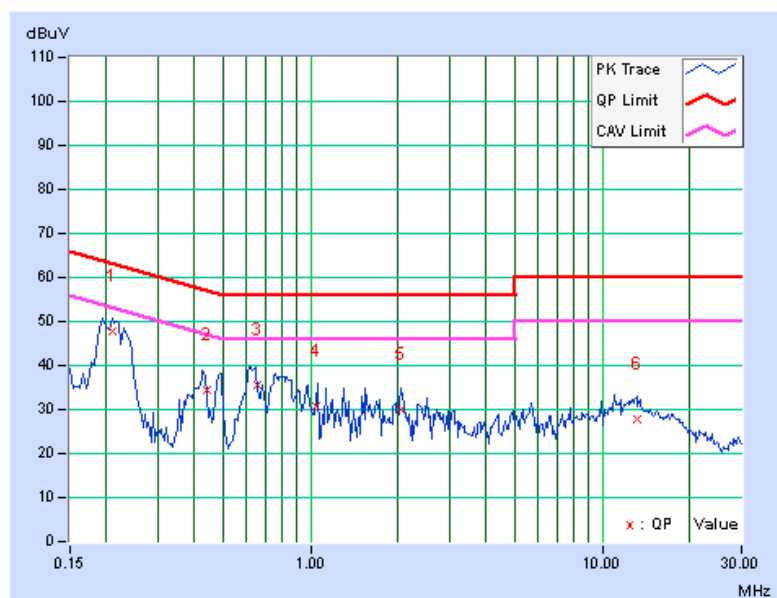


PHASE	Neutral (N)	DETECTOR FUNCTION	Quasi-Peak (QP) / Average (AV)
-------	-------------	-------------------	--------------------------------

	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	0.20859	0.06	47.84	35.27	47.90	35.33	63.26	53.26	-15.36	-17.93
2	0.44122	0.09	34.50	23.28	34.59	23.37	57.04	47.04	-22.45	-23.67
3	0.65922	0.11	35.28	22.03	35.39	22.14	56.00	46.00	-20.61	-23.86
4	1.04631	0.13	30.47	27.00	30.60	27.13	56.00	46.00	-25.40	-18.87
5	2.03125	0.18	29.90	25.58	30.08	25.76	56.00	46.00	-25.92	-20.24
6	13.12500	0.55	27.07	22.45	27.62	23.00	60.00	50.00	-32.38	-27.00

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





A D T

6. PHOTOGRAPHS OF THE TEST CONFIGURATION

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



A D T

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/Telecom Lab:

Tel: 886-3-5935343

Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety 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 - UNWANTED EMISSION MEASUREMENT (CONDUCTED)

8.1 LIMITS OF UNWANTED EMISSION MEASUREMENT

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

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

NOTE:

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



A D T

8.2 TEST INSTRUMENTS

For below 1GHz test:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
MXE EMI Receiver Agilent	N9038A	MY51210105	July 21, 2014	July 20, 2015
Pre-Amplifier Mini-Circuits	ZFL-1000VH2 B	AMP-ZFL-03	Nov. 12, 2014	Nov. 11, 2015
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-360	Feb. 26, 2014	Feb. 25, 2015
RF Cable	NA	CHGCAB_001	Oct. 04, 2014	Oct. 03, 2015
Horn_Antenna AISI	AIH.8018	000032009111 0	Aug. 27, 2014	Aug. 26, 2015
Pre-Amplifier Agilent	8449B	3008A02578	June 24, 2014	June 23, 2015
RF Cable	NA	131205 131214 SNMY23684/4	Jan. 17, 2014	Jan. 16, 2015
Spectrum Analyzer R&S	FSV40	100964	July 05, 2014	July 04, 2015
Pre-Amplifier EMCI	EMC184045	980143	Jan. 17, 2014	Jan. 16, 2015
Horn_Antenna SCHWARZBECK	BBHA 9170	9170-424	Aug. 26, 2014	Aug. 25, 2015
RF Cable	NA	RF104-121 RF104-204	Dec. 12, 2013	Dec. 11, 2014
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: Nov. 18, 2014



A D T

For above 1GHz test:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
MXE EMI Receiver Agilent	N9038A	MY50010156	Aug. 11, 2014	Aug. 10, 2015
Pre-Amplifier Mini-Circuits	ZFL-1000VH2 B	AMP-ZFL-04	Nov. 12, 2014	Nov. 11, 2015
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-361	Feb. 27, 2014	Feb. 26, 2015
RF Cable	NA	CHHCAB_001	Oct. 05, 2014	Oct. 04, 2015
Horn_Antenna AISI	AIH.8018	000022009111 0	Aug. 26, 2014	Aug. 25, 2015
Pre-Amplifier Agilent	8449B	300801923	Oct. 28, 2014	Oct. 27, 2015
RF Cable	NA	131206 131215 SNMY23685/4	Jan. 17, 2014	Jan. 16, 2015
Spectrum Analyzer R&S	FSV40	100964	July 05, 2014	July 04, 2015
Pre-Amplifier EMCI	EMC184045	980143	Jan. 17, 2014	Jan. 16, 2015
Horn_Antenna SCHWARZBECK	BBHA 9170	9170-424	Aug. 26, 2014	Aug. 25, 2015
RF Cable	NA	RF104-121 RF104-204	Dec. 12, 2013	Dec. 11, 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: Dec. 09, 2014

8.3 TEST PROCEDURES

Following FCC KDB 558074 D01 DTS Meas. Guidance :
Conducted Measurements.

The unwanted emission limits in both the restricted and non-restricted bands are based on antenna-port conducted measurements in conjunction with cabinet emissions tests are permitted to demonstrate compliance.

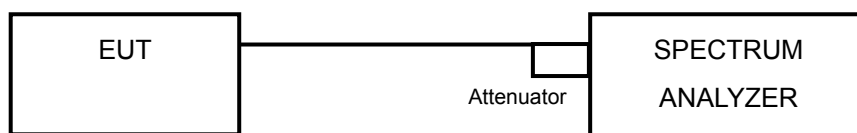
The following steps was performed:

- a. Cabinet emissions measurements. Radiated measurement was performed to ensure that cabinet emissions are below the emission limits. For the cabinet-emission measurements the antenna was replaced by a termination matching the nominal impedance of the antenna.
- b. Conducted tests was performed using equipment that matches the nominal impedance of the antenna assembly used with the EUT
- c. EIRP calculation. A value representative of an upper bound on out-of-band antenna gain (in dBi) shall be added to the measured antenna-port conducted emission power to compute EIRP within the specified measurement bandwidth. (For emissions in the restricted bands, additional calculations are required to convert EIRP to field strength at the specified distance.) The upper bound on antenna gain for a device with a single RF output shall be selected as the maximum in-band gain of the antenna across all operating bands or 2 dBi, whichever is greater

8.4 DEVIATION FROM TEST STANDARD

No deviation

8.5 TEST SETUP



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

8.6 EUT OPERATING CONDITIONS

1. Connect the EUT with the support unit A (Notebook Computer) which is placed on a testing table.
2. The communication partner run test program “QCART Version: 3.0.33.0” to enable EUT under transmission/receiving condition continuously at specific channel frequency.

8.7 TEST RESULTS (For 2.4GHz, 2400 ~ 2483.5MHz Band)

Conducted Measurement Factor	
a.	The composite gain will be used when signal support the correlated signal. (antenna gain = 3.62dBi)
b.	For the out of band spurious the gain for the specific band may have been used rather than the highest gain across all bands.
c.	For the band edge the gain for the specific band may have been used.
d.	In restricted bands below 1000 MHz, add upper bound on ground plane reflection: For $f = 30 - 1000$ MHz, add 4.7 dB.
Note: The conducted emission test was considered some factor to compute test result.	

ABOVE 1GHz DATA

802.11b - Channel 1

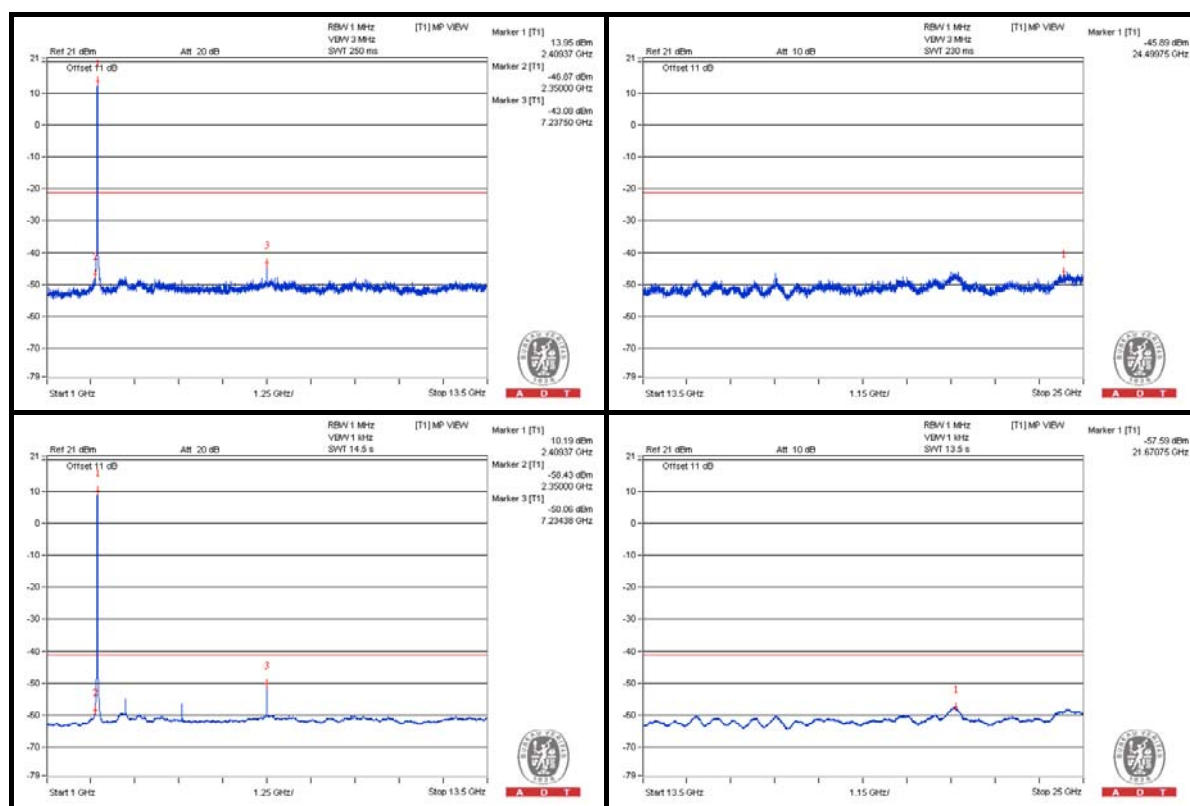
Conducted spurious emission table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	1606.25 PK	46.31	74	-27.69	-52.57	3.62	-48.95
2	1606.25 AV	36.33	54	-17.67	-62.55	3.62	-58.93
3	4825 PK	49.72	74	-24.28	-49.16	3.62	-45.54
4	4825 AV	42.49	54	-11.51	-56.39	3.62	-52.77

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



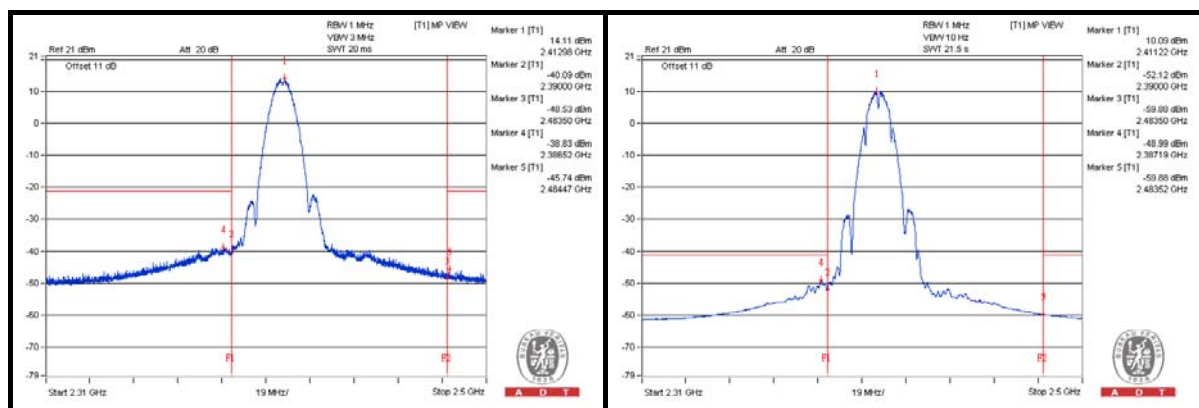
Bandedge table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	2386.5225 PK	60.05	74	-13.95	-38.83	3.62	-35.21
2	2387.1875 AV	49.89	54	-4.11	-48.99	3.62	-45.37
3	2484.4675 PK	53.14	74	-20.86	-45.74	3.62	-42.12
4	2483.5175 AV	39	54	-15	-59.88	3.62	-56.26

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



802.11b - Channel 6

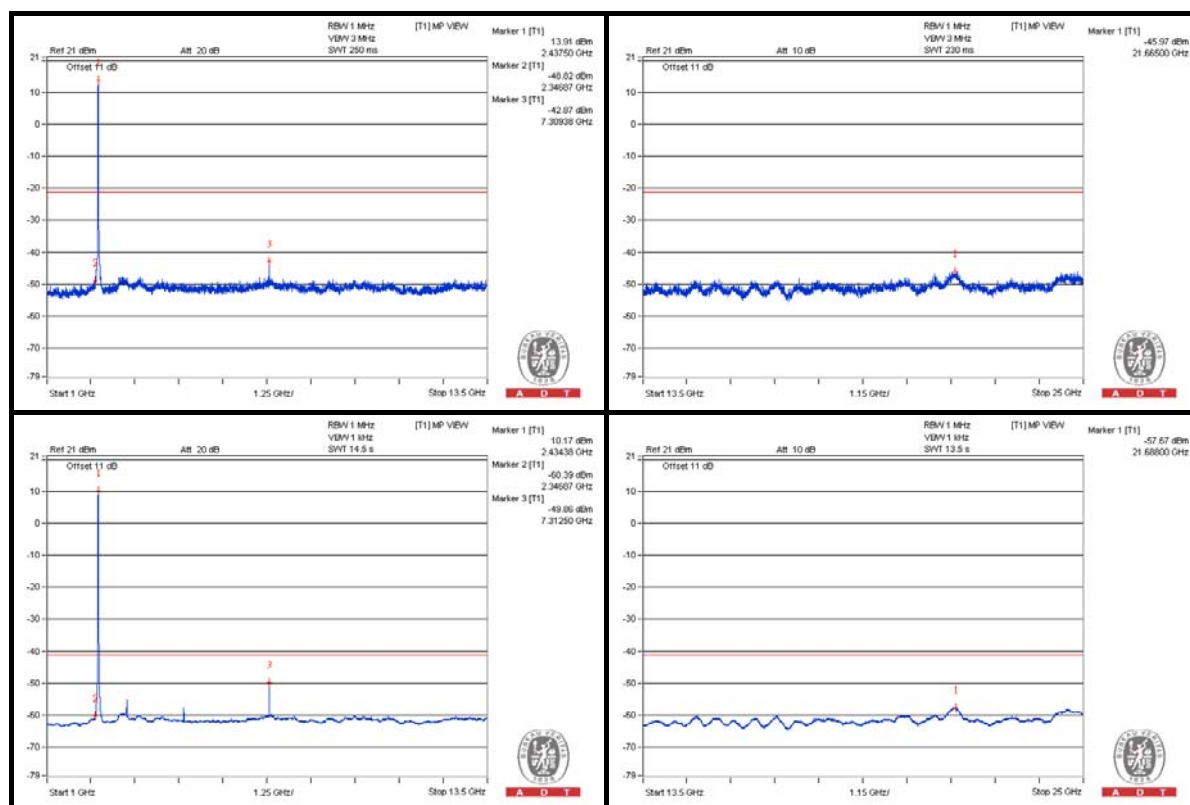
Conducted spurious emission table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	1625 PK	45.44	74	-28.56	-53.44	3.62	-49.82
2	1625 AV	36.18	54	-17.82	-62.7	3.62	-59.08
3	4875 PK	48.93	74	-25.07	-49.95	3.62	-46.33
4	4875 AV	41.18	54	-12.82	-57.7	3.62	-54.08
5	7309.375 PK	56.01	74	-17.99	-42.87	3.62	-39.25
6	7312.5 AV	49.02	54	-4.98	-49.86	3.62	-46.24

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



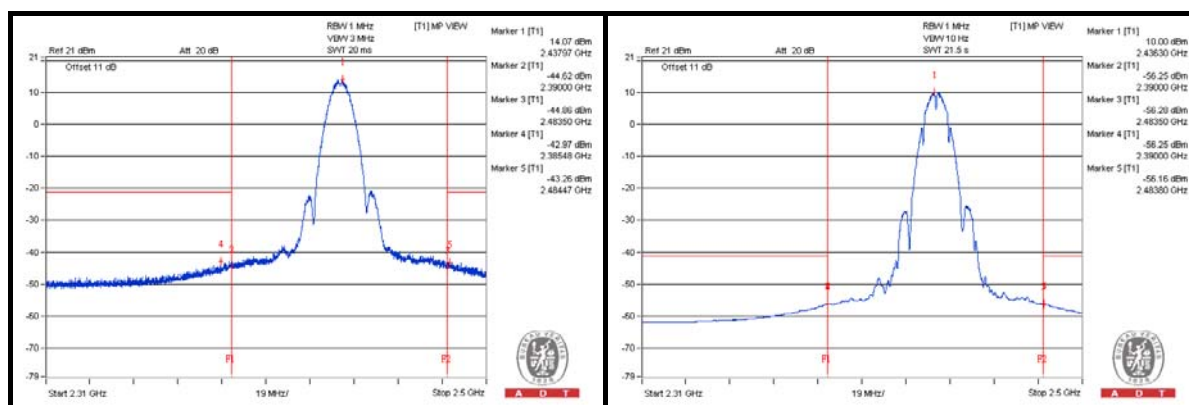
Bandedge table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	2385.4775 PK	55.91	74	-18.09	-42.97	3.62	-39.35
2	2389.99 AV	42.63	54	-11.37	-56.25	3.62	-52.63
3	2484.4675 PK	55.62	74	-18.38	-43.26	3.62	-39.64
4	2483.8025 AV	42.72	54	-11.28	-56.16	3.62	-52.54
5	2491.355 PK	54.58	74	-19.42	-44.3	3.62	-40.68
6	2490.025 AV	41.28	54	-12.72	-57.6	3.62	-53.98

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



802.11b - Channel 11

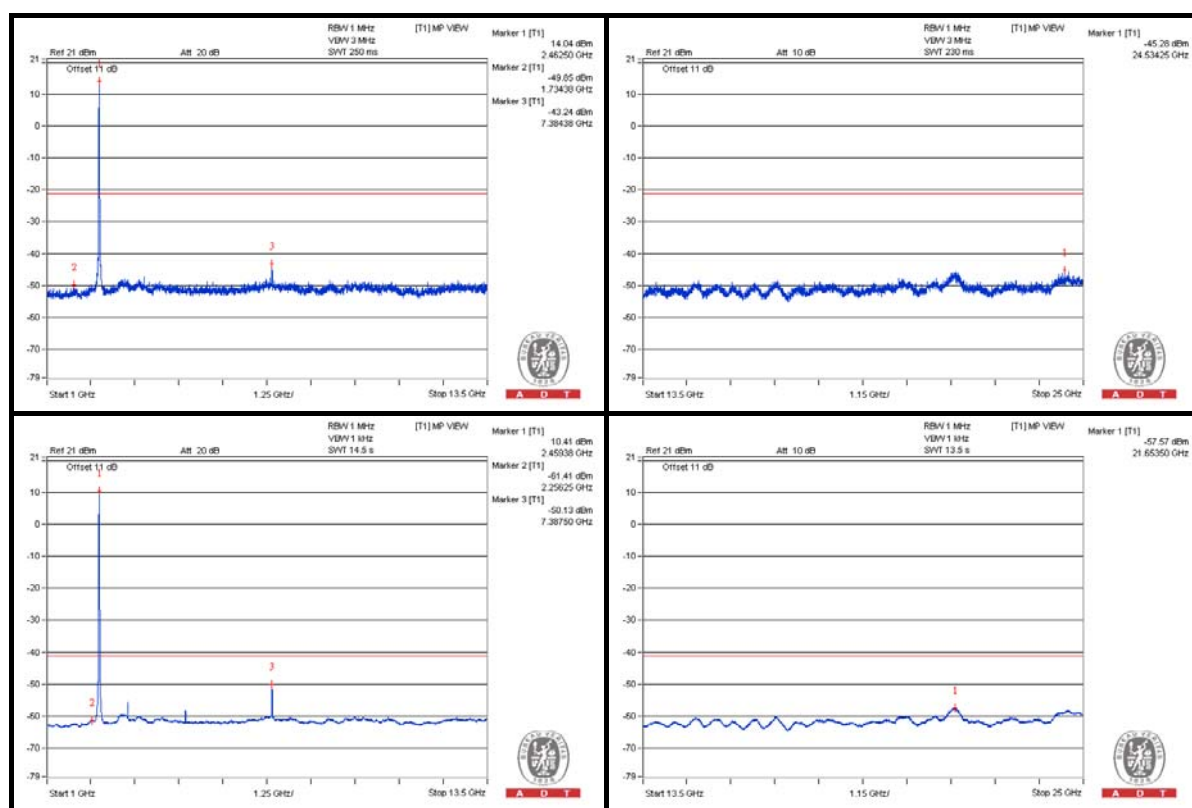
Conducted spurious emission table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	4925 PK	47.93	74	-26.07	-50.95	3.62	-47.33
2	4925 AV	40.4	54	-13.6	-58.48	3.62	-54.86
3	7384.375 PK	55.64	74	-18.36	-43.24	3.62	-39.62
4	7384.375 AV	48.75	54	-5.25	-50.13	3.62	-46.51

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



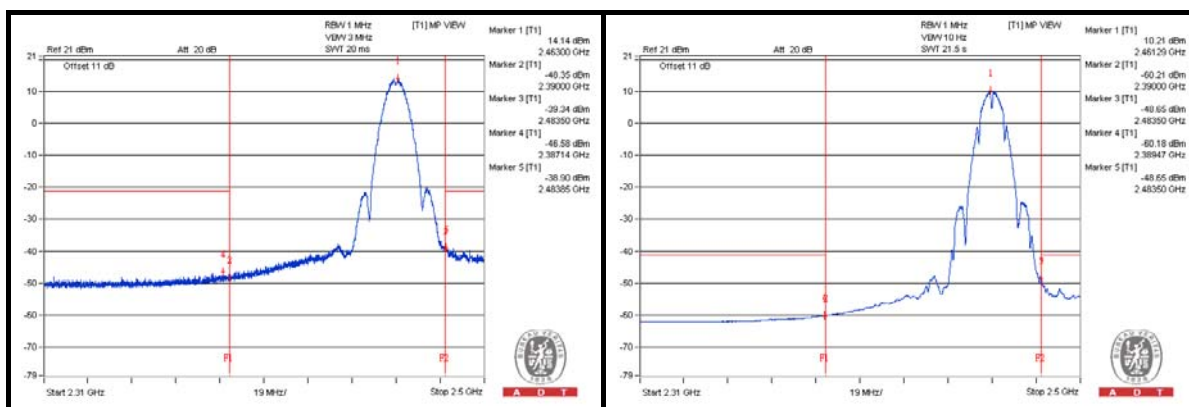
Bandedge table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	2387.14 PK	52.3	74	-21.7	-46.58	3.62	-42.96
2	2389.4675 AV	38.7	54	-15.3	-60.18	3.62	-56.56
3	2483.85 PK	59.98	74	-14.02	-38.9	3.62	-35.28
4	2483.5175 AV	50.13	54	-3.87	-48.75	3.62	-45.13
5	2494.0625 PK	59.12	74	-14.88	-39.76	3.62	-36.14
6	2491.355 AV	46.99	54	-7.01	-51.89	3.62	-48.27

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



802.11g - Channel 1

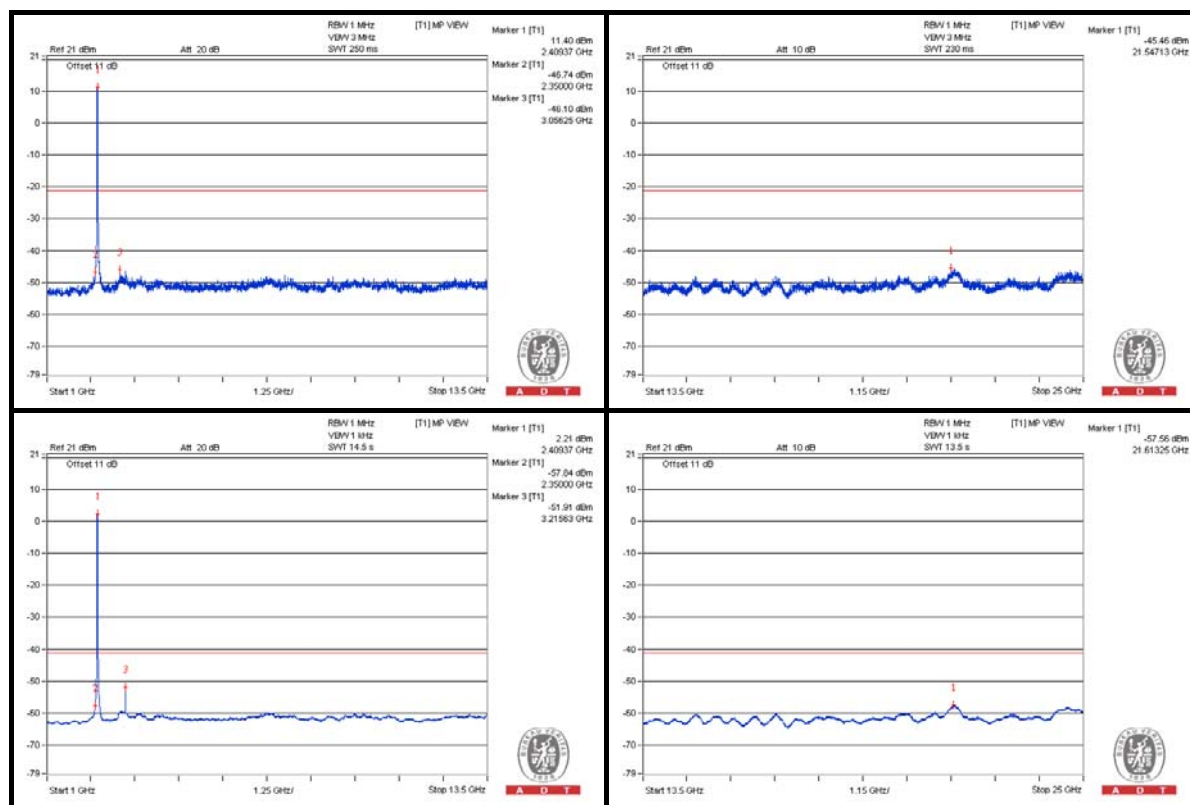
Conducted spurious emission table

No.	Frequency (MHz)	Emission Level (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	1609.375 PK	45.74	74	-28.26	-53.14	3.62	-49.52
2	1606.25 AV	35.76	54	-18.24	-63.12	3.62	-59.5
3	4825 PK	47.31	74	-26.69	-51.57	3.62	-47.95
4	4825 AV	37.37	54	-16.63	-61.51	3.62	-57.89

Note :

Emission Level (dBUV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



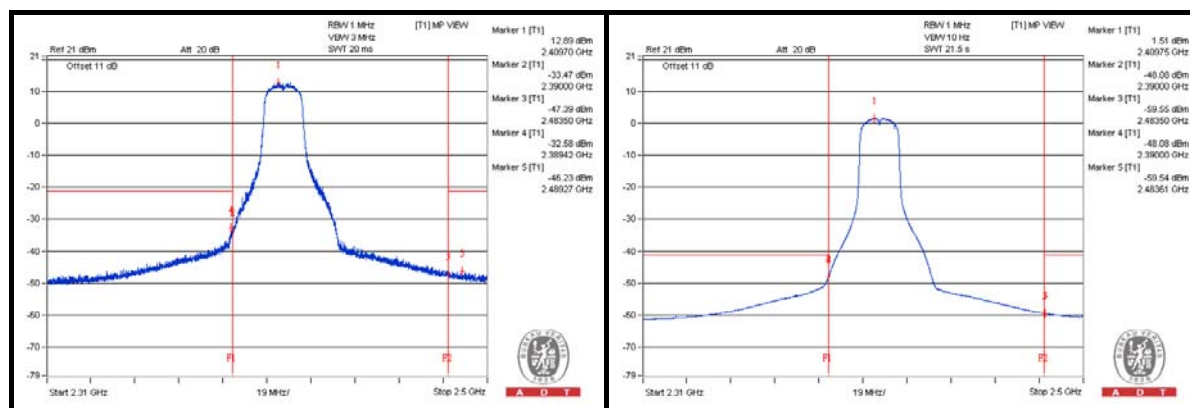
Bandedge table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	2389.42 PK	66.3	74	-7.7	-32.58	3.62	-28.96
2	2389.99 AV	50.78	54	-3.22	-48.1	3.62	-44.48
3	2489.265 PK	52.65	74	-21.35	-46.23	3.62	-42.61
4	2483.6125 AV	39.34	54	-14.66	-59.54	3.62	-55.92

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



802.11g - Channel 6

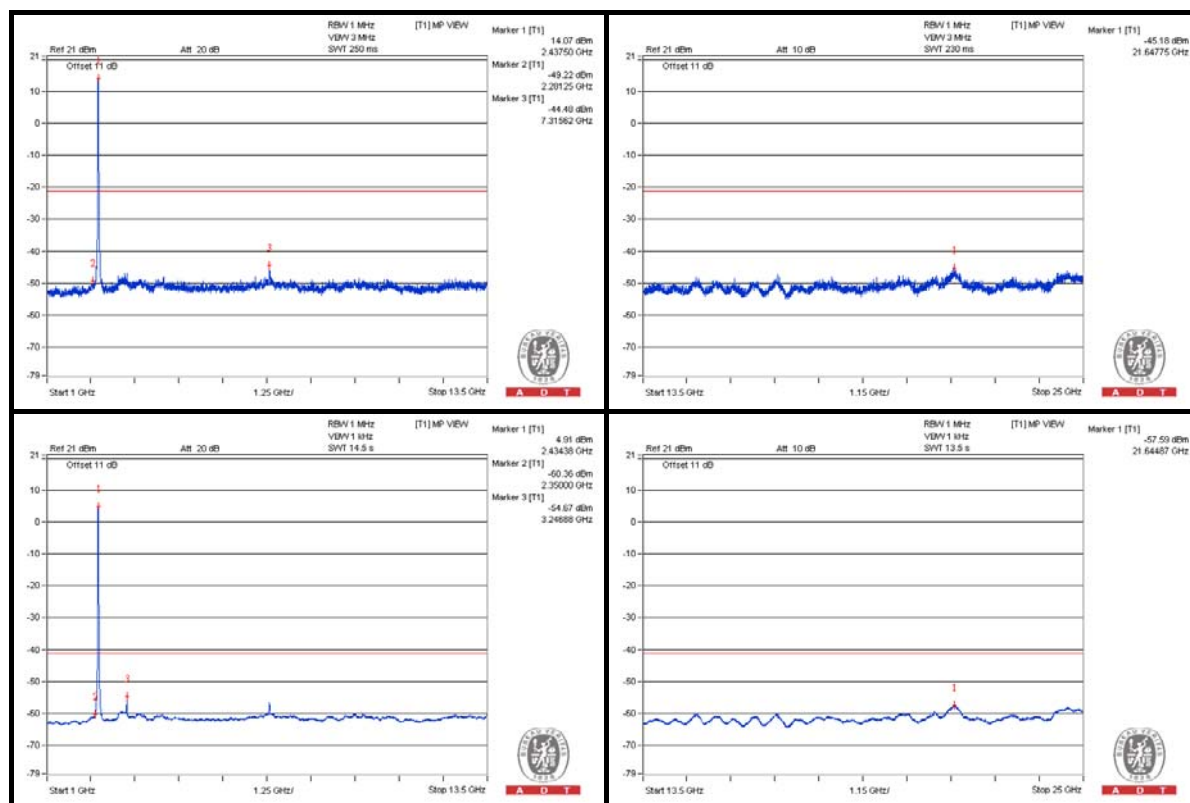
Conducted spurious emission table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	1625 PK	46.23	74	-27.77	-52.65	3.62	-49.03
2	1625 AV	35.78	54	-18.22	-63.1	3.62	-59.48
3	4875 PK	48.42	74	-25.58	-50.46	3.62	-46.84
4	4875 AV	37.41	54	-16.59	-61.47	3.62	-57.85
5	7312.5 PK	52.94	74	-21.06	-45.94	3.62	-42.32
6	7312.5 AV	42.13	54	-11.87	-56.75	3.62	-53.13

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



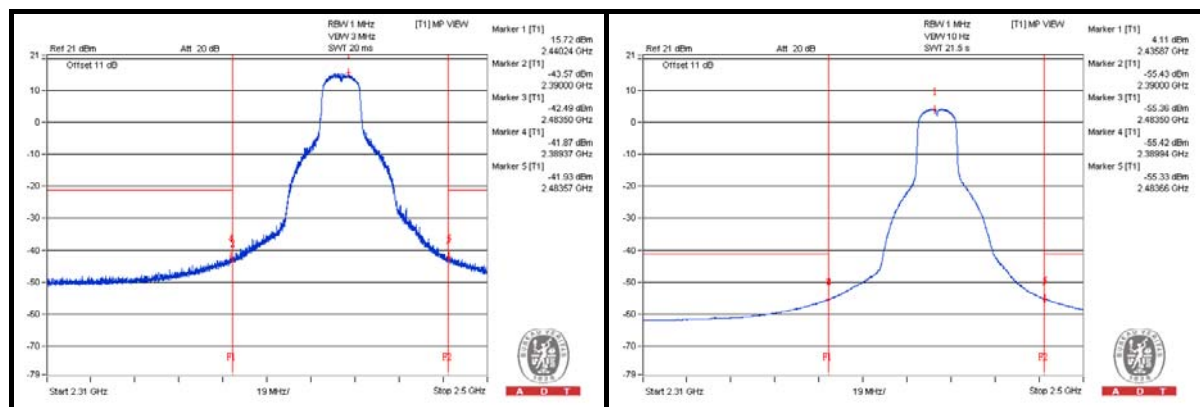
Bandedge table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	2389.3725 PK	57.01	74	-16.99	-41.87	3.62	-38.25
2	2389.895 AV	43.46	54	-10.54	-55.42	3.62	-51.8
3	2483.565 PK	56.95	74	-17.05	-41.93	3.62	-38.31
4	2483.66 AV	43.55	54	-10.45	-55.33	3.62	-51.71

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



802.11g - Channel 11

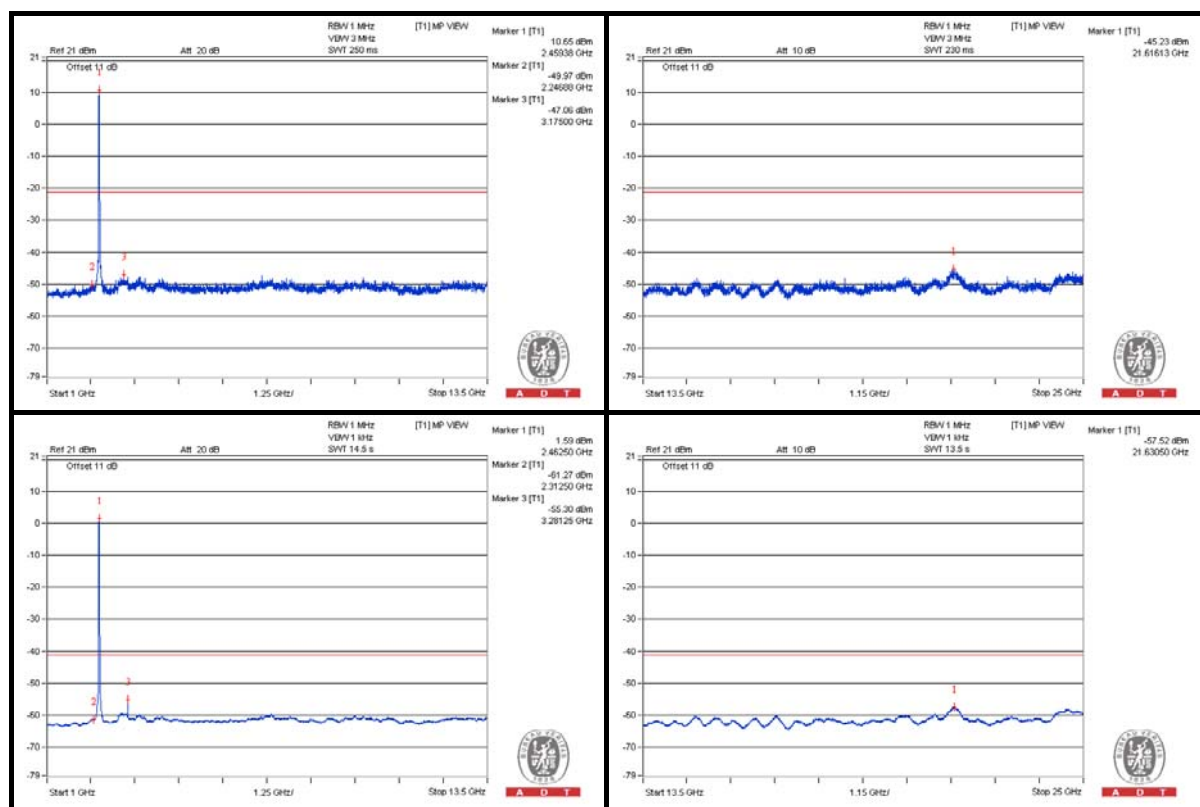
Conducted spurious emission table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	4925 PK	47.77	74	-26.23	-51.11	3.62	-47.49
2	4925 AV	36.68	54	-17.32	-62.2	3.62	-58.58
3	7384.375 PK	49.62	74	-24.38	-49.26	3.62	-45.64
4	7387.5 AV	38.82	54	-15.18	-60.06	3.62	-56.44

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



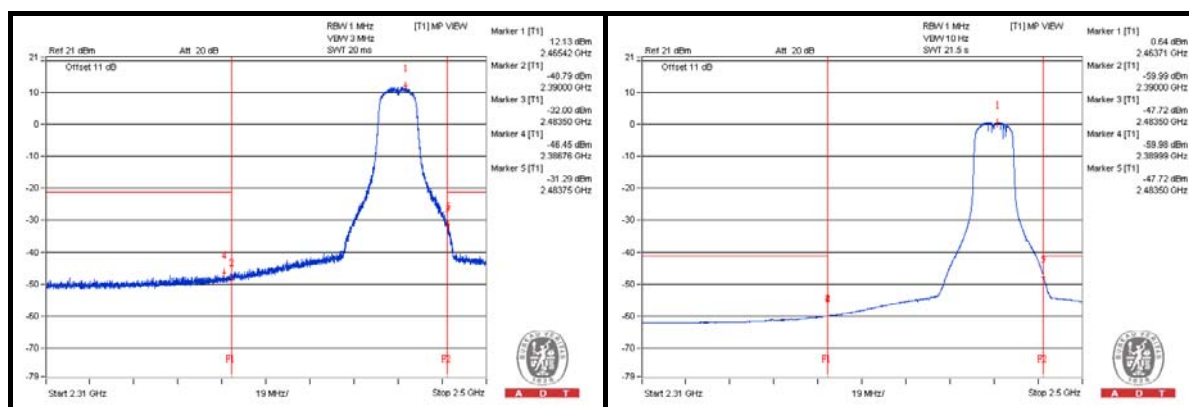
Bandedge table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	2386.76 PK	52.43	74	-21.57	-46.45	3.62	-42.83
2	2389.99 AV	38.9	54	-15.1	-59.98	3.62	-56.36
3	2483.755 PK	67.59	74	-6.41	-31.29	3.62	-27.67
4	2483.5175 AV	51.15	54	-2.85	-47.73	3.62	-44.11

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



VHT20 - Channel 1

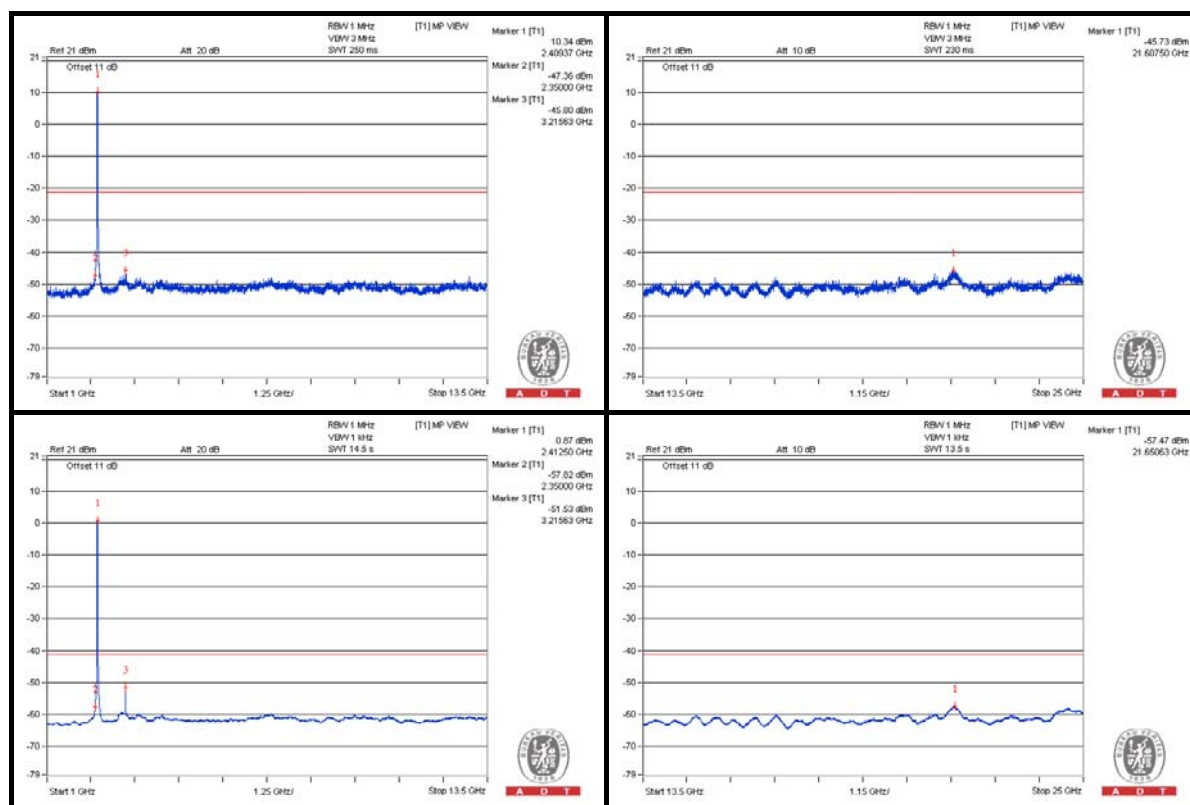
Conducted spurious emission table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	1609.375 PK	45.61	74	-28.39	-53.27	3.62	-49.65
2	1606.25 AV	35.64	54	-18.36	-63.24	3.62	-59.62
3	4825 PK	49.04	74	-24.96	-49.84	3.62	-46.22
4	4825 AV	37.08	54	-16.92	-61.8	3.62	-58.18

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



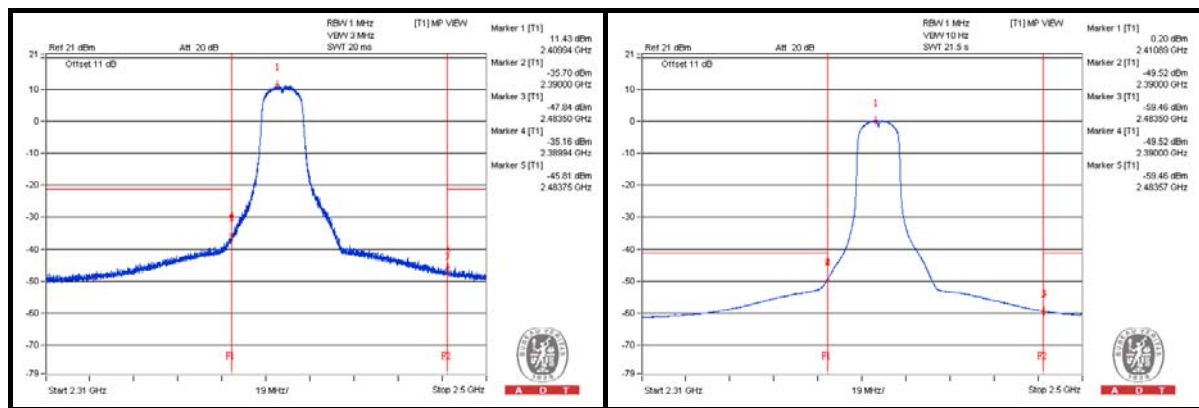
Bandedge table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	2389.9425 PK	63.72	74	-10.28	-35.16	3.62	-31.54
2	2389.99 AV	49.34	54	-4.66	-49.54	3.62	-45.92
3	2483.755 PK	53.07	74	-20.93	-45.81	3.62	-42.19
4	2483.565 AV	39.42	54	-14.58	-59.46	3.62	-55.84

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



VHT20 - Channel 6

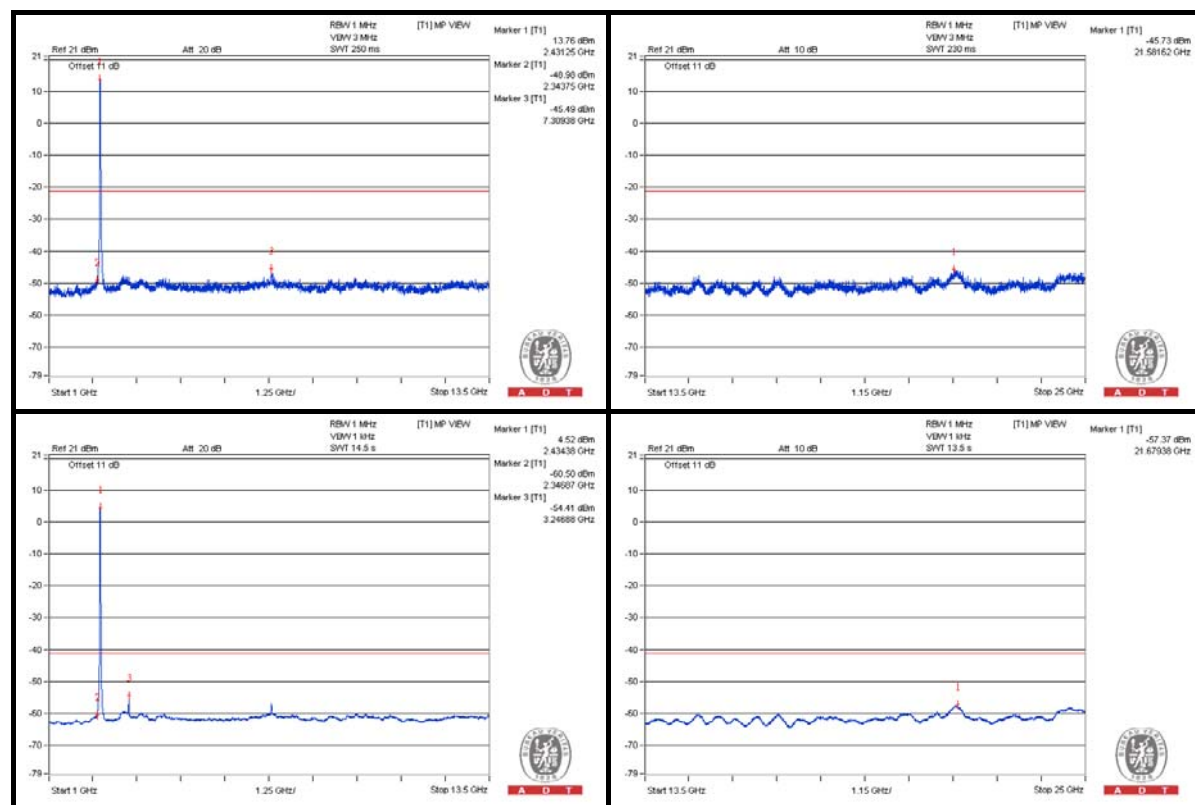
Conducted spurious emission table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	1625 PK	45.48	74	-28.52	-53.4	3.62	-49.78
2	1625 AV	35.85	54	-18.15	-63.03	3.62	-59.41
3	4875 PK	47.77	74	-26.23	-51.11	3.62	-47.49
4	4875 AV	37.24	54	-16.76	-61.64	3.62	-58.02
5	7309.375 PK	53.39	74	-20.61	-45.49	3.62	-41.87
6	7312.5 AV	41.72	54	-12.28	-57.16	3.62	-53.54

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



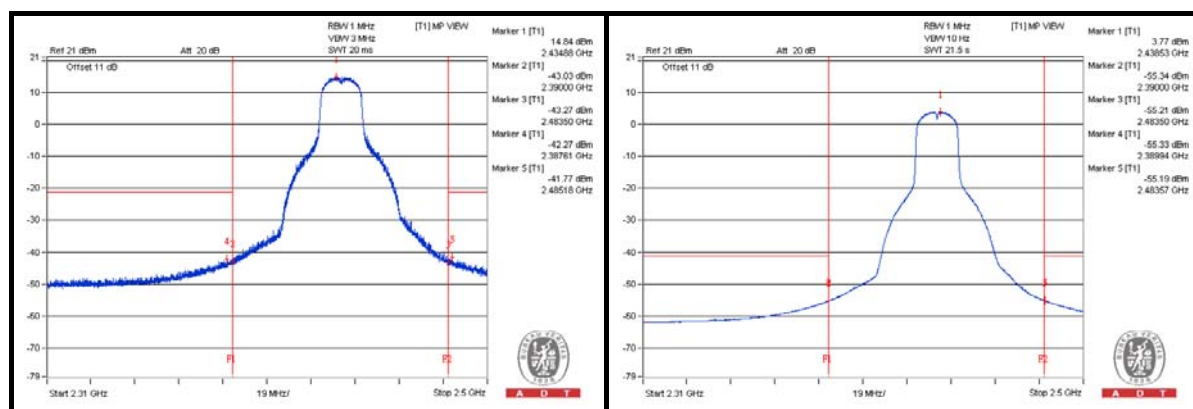
Bandedge table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	2387.615 PK	56.61	74	-17.39	-42.27	3.62	-38.65
2	2389.9425 AV	43.55	54	-10.45	-55.33	3.62	-51.71
3	2485.18 PK	57.11	74	-16.89	-41.77	3.62	-38.15
4	2483.565 AV	43.69	54	-10.31	-55.19	3.62	-51.57

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



VHT20 - Channel 11

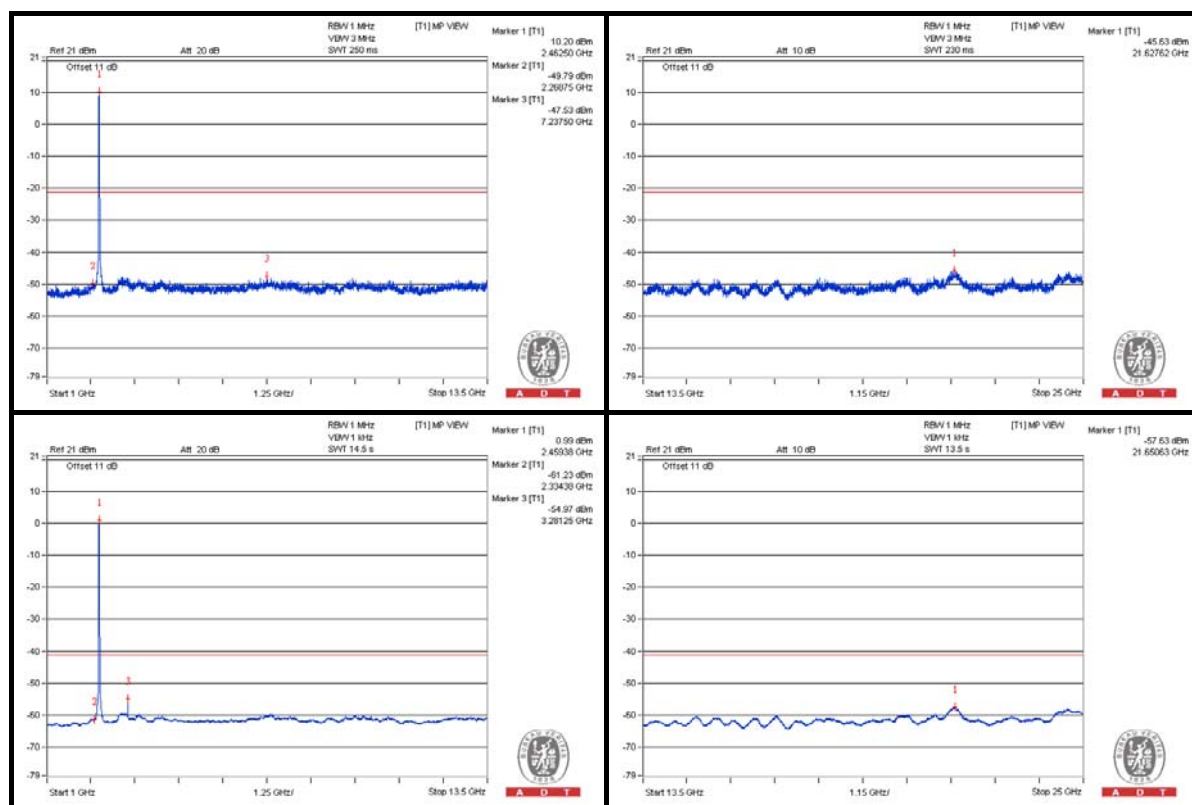
Conducted spurious emission table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	4925 PK	47.19	74	-26.81	-51.69	3.62	-48.07
2	4925 AV	36.87	54	-17.13	-62.01	3.62	-58.39
3	7387.5 PK	49.18	74	-24.82	-49.7	3.62	-46.08
4	7384.375 AV	38.85	54	-15.15	-60.03	3.62	-56.41

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



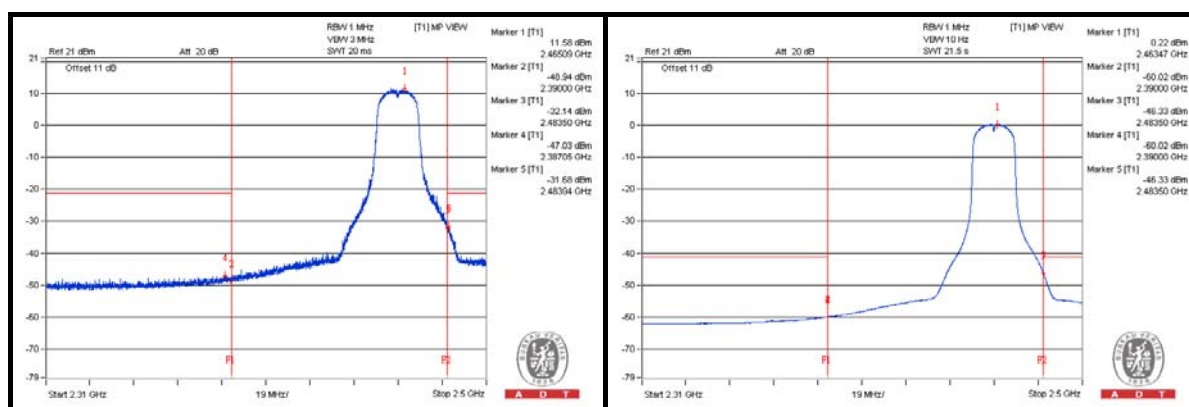
Bandedge table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	2387.045 PK	51.85	74	-22.15	-47.03	3.62	-43.41
2	2389.99 AV	38.85	54	-15.15	-60.03	3.62	-56.41
3	2483.945 PK	67.2	74	-6.8	-31.68	3.62	-28.06
4	2483.5175 AV	52.5	54	-1.5	-46.38	3.62	-42.76

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



VHT40 - Channel 3

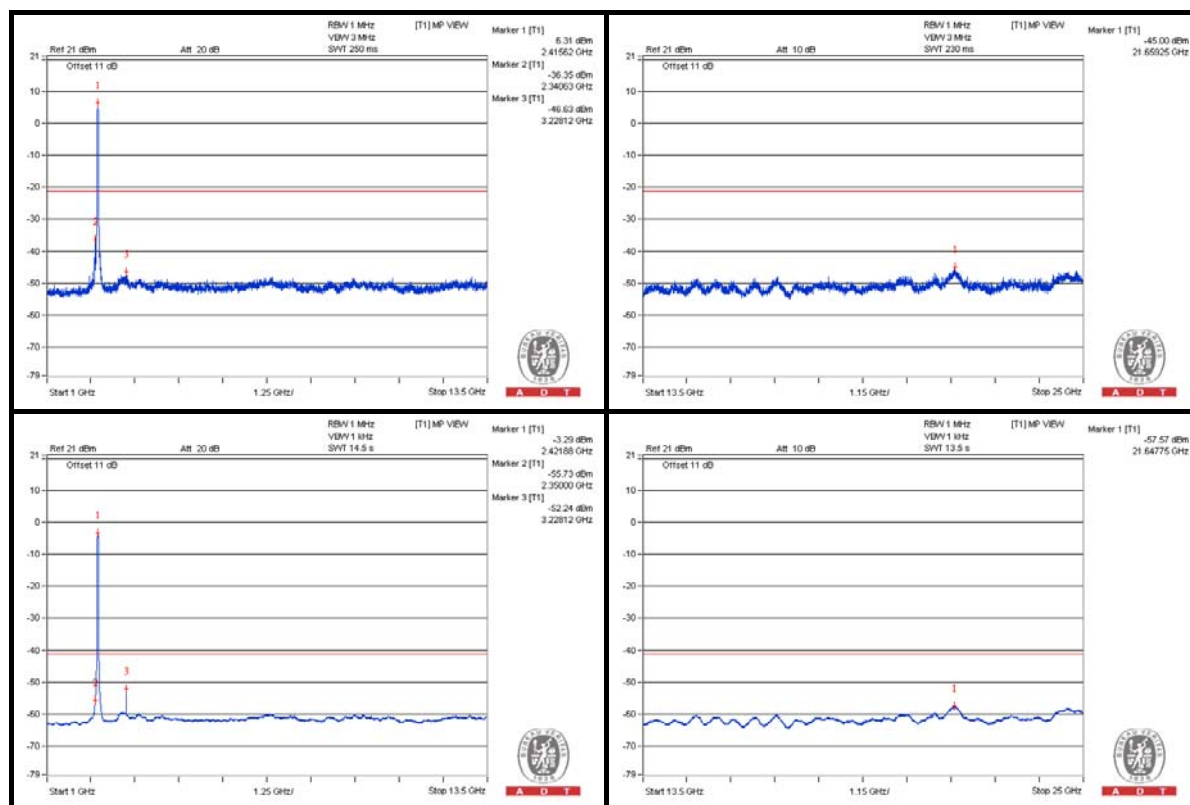
Conducted spurious emission table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	1615.625 PK	45.42	74	-28.58	-53.46	3.62	-49.84
2	1615.625 AV	35.85	54	-18.15	-63.03	3.62	-59.41
3	4843.75 PK	46.36	74	-27.64	-52.52	3.62	-48.9
4	4843.75 AV	36.96	54	-17.04	-61.92	3.62	-58.3
5	7265.625 PK	48.01	74	-25.99	-50.87	3.62	-47.25
6	7265.625 AV	38.62	54	-15.38	-60.26	3.62	-56.64

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



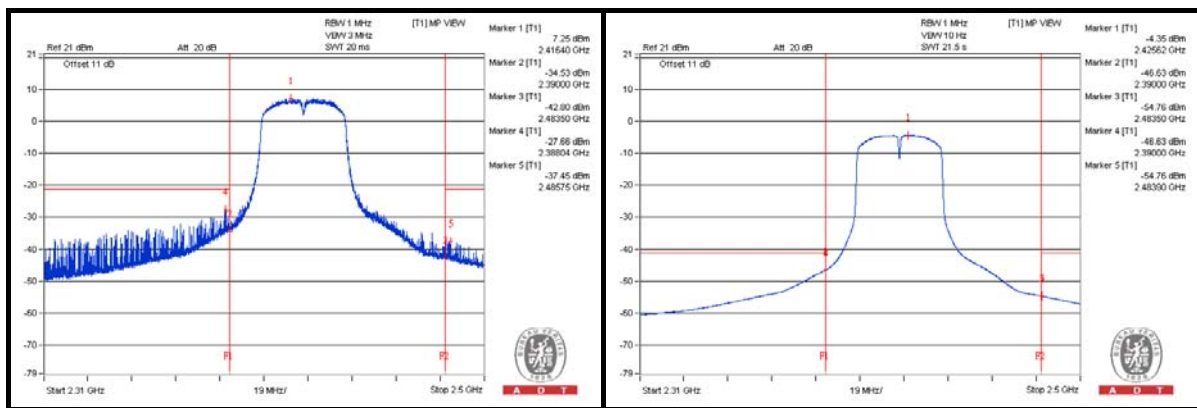
Bandedge table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	2388.0425 PK	71.22	74	-2.78	-27.66	3.62	-24.04
2	2389.99 AV	52.25	54	-1.75	-46.63	3.62	-43.01
3	2485.75 PK	61.43	74	-12.57	-37.45	3.62	-33.83
4	2483.8975 AV	44.12	54	-9.88	-54.76	3.62	-51.14

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



VHT40 - Channel 6

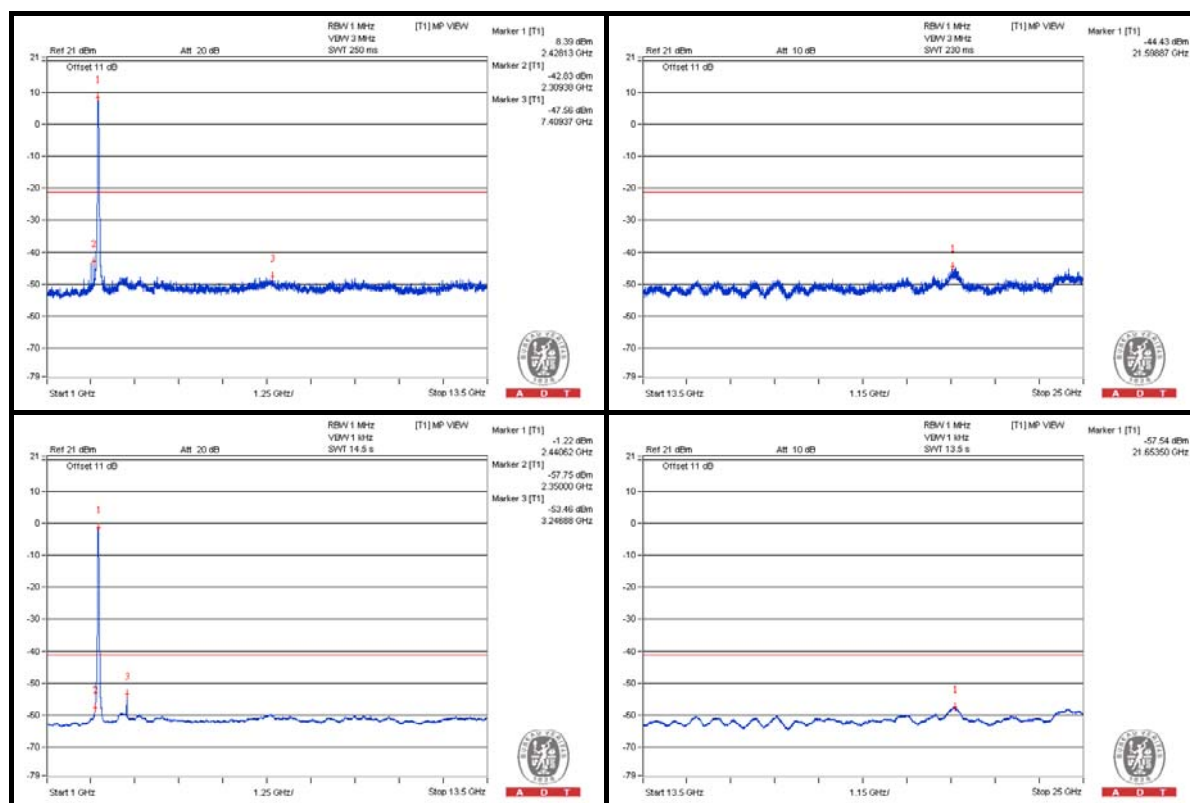
Conducted spurious emission table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	1625 PK	45.61	74	-28.39	-53.27	3.62	-49.65
2	1625 AV	35.66	54	-18.34	-63.22	3.62	-59.6
3	4875 PK	47.86	74	-26.14	-51.02	3.62	-47.4
4	4875 AV	37.14	54	-16.86	-61.74	3.62	-58.12
5	7312.5 PK	49.29	74	-24.71	-49.59	3.62	-45.97
6	7309.375 AV	38.62	54	-15.38	-60.26	3.62	-56.64

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



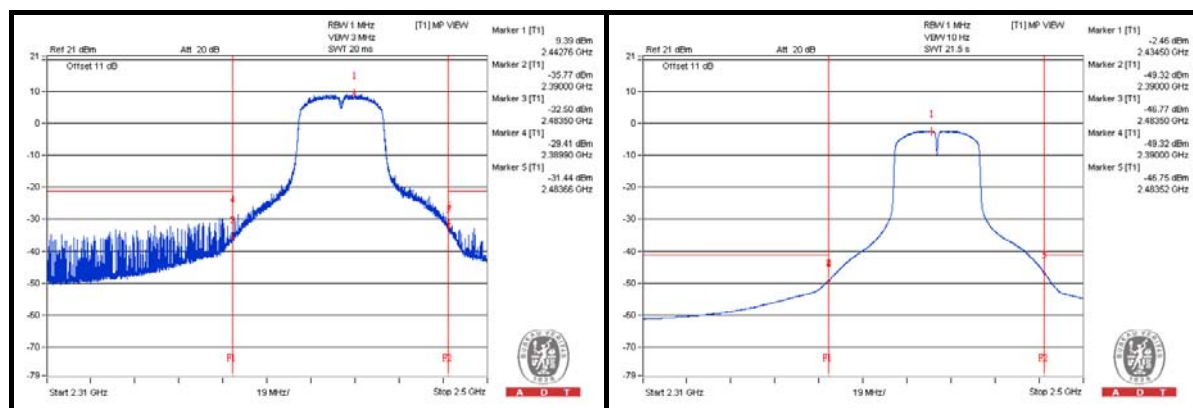
Bandedge table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	2389.895 PK	69.47	74	-4.53	-29.41	3.62	-25.79
2	2389.9425 AV	49.56	54	-4.44	-49.32	3.62	-45.7
3	2483.66 PK	67.44	74	-6.56	-31.44	3.62	-27.82
4	2483.5175 AV	52.13	54	-1.87	-46.75	3.62	-43.13

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



VHT40 - Channel 9

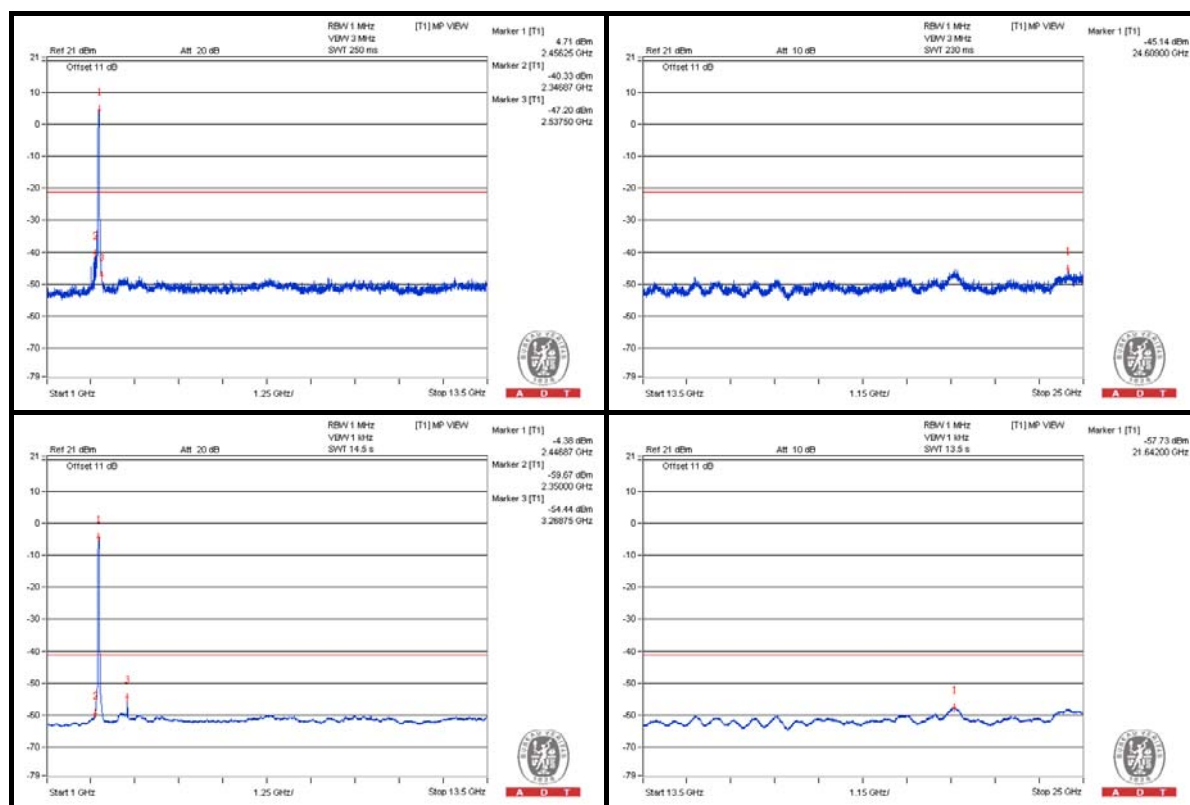
Conducted spurious emission table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	4903.125 PK	47.32	74	-26.68	-51.56	3.62	-47.94
2	4903.125 AV	36.87	54	-17.13	-62.01	3.62	-58.39
3	7356.25 PK	49.69	74	-24.31	-49.19	3.62	-45.57
4	7356.25 AV	38.92	54	-15.08	-59.96	3.62	-56.34

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



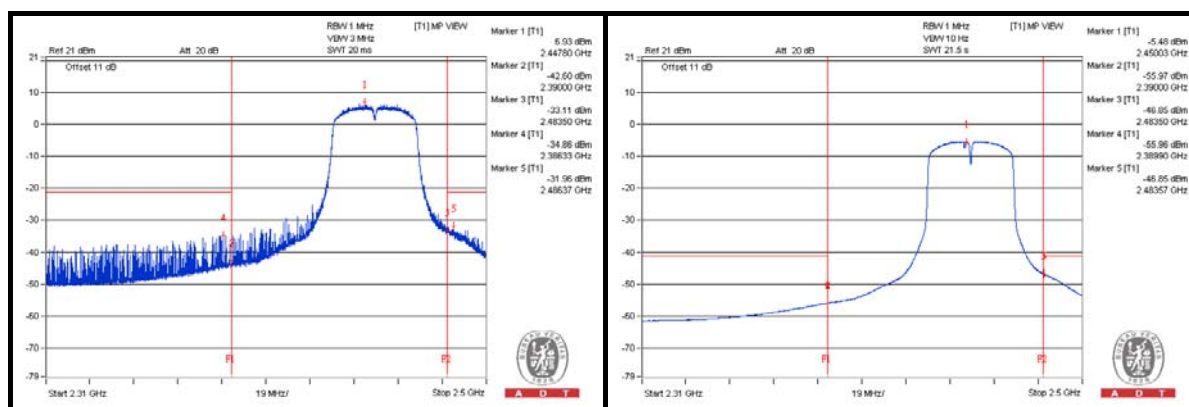
Bandedge table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	2386.3325 PK	64.02	74	-9.98	-34.86	3.62	-31.24
2	2389.895 AV	42.92	54	-11.08	-55.96	3.62	-52.34
3	2486.3675 PK	66.92	74	-7.08	-31.96	3.62	-28.34
4	2483.565 AV	52.03	54	-1.97	-46.85	3.62	-43.23

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



8.8 TEST RESULTS (For 5GHz, 5725~5850MHz Band)

Conducted Measurement Factor

- a. The composite gain will be used when signal support the correlated signal.
(Antenna gain = 4.76dBi)
- b. For the out of band spurious the gain for the specific band may have been used rather than the highest gain across all bands.
- c. For the band edge the gain for the specific band may have been used.
- d. In restricted bands below 1000 MHz, add upper bound on ground plane reflection:

For $f = 30 - 1000$ MHz, add 4.7 dB.

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



A D T

ABOVE 1GHz DATA

802.11a - Channel 149

Conducted spurious emission table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	3828.125 PK	49.23	74	-24.77	-50.79	4.76	-46.03
2	3828.125 AV	36.21	54	-17.79	-63.81	4.76	-59.05
3	7656.25 PK	51.28	74	-22.72	-48.74	4.76	-43.98
4	7659.375 AV	36.89	54	-17.11	-63.13	4.76	-58.37
5	11487.5 PK	51.04	74	-22.96	-48.98	4.76	-44.22
6	11490.625 AV	33.39	54	-20.61	-66.63	4.76	-61.87

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



802.11a- Channel 157

Conducted spurious emission table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	3850 PK	50.03	74	-23.97	-49.99	4.76	-45.23
2	3856.25 AV	31.63	54	-22.37	-68.39	4.76	-63.63
3	7715.625 PK	52.32	74	-21.68	-47.7	4.76	-42.94
4	7712.5 AV	36.3	54	-17.7	-63.72	4.76	-58.96
5	11571.875 PK	50.75	74	-23.25	-49.27	4.76	-44.51
6	11571.875 AV	36.87	54	-17.13	-63.15	4.76	-58.39

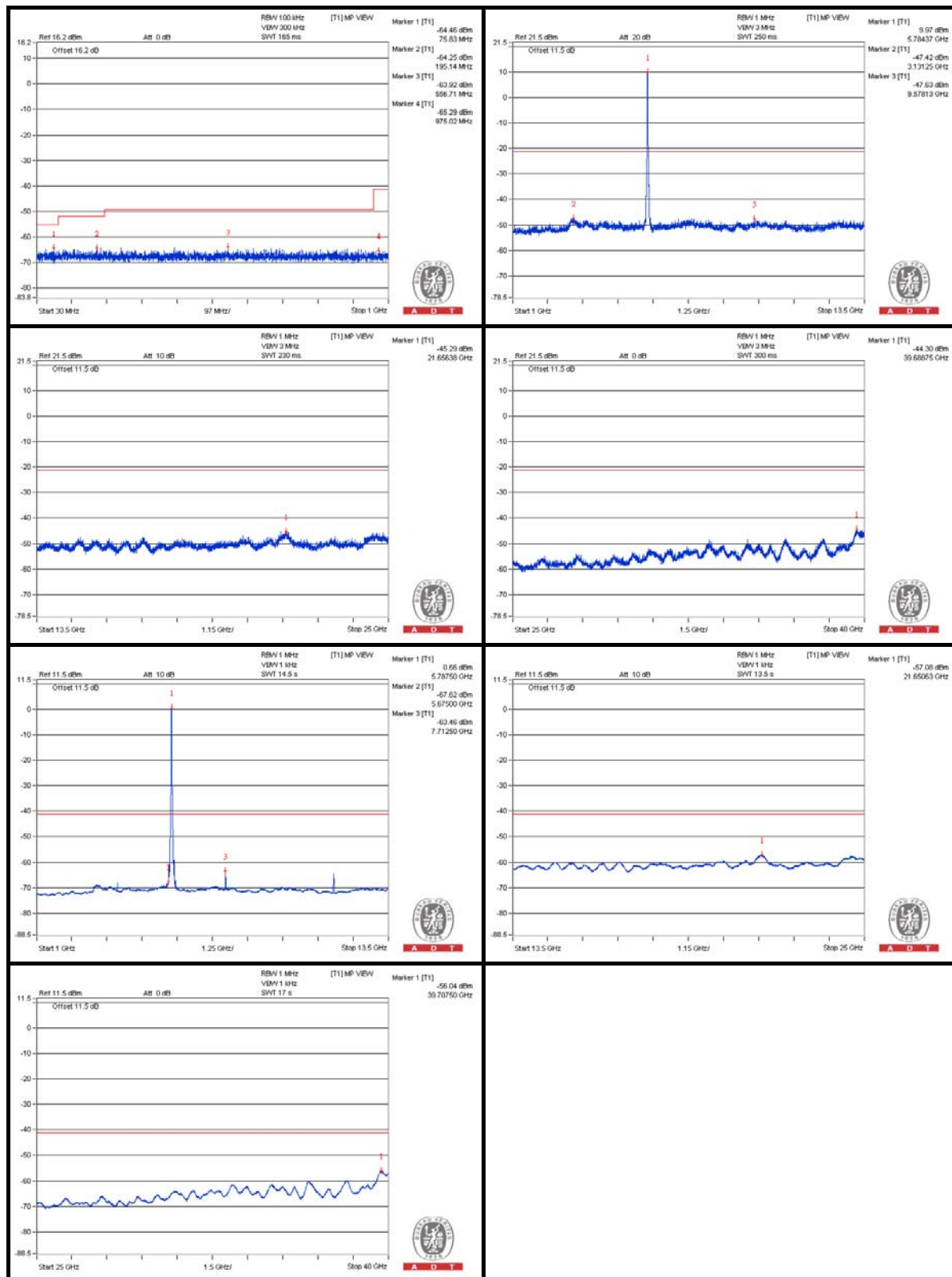
Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



A D T





A D T

802.11a- Channel 165

Conducted spurious emission table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	3887.5 PK	49.94	74	-24.06	-50.08	4.76	-45.32
2	3881.25 AV	35.98	54	-18.02	-64.04	4.76	-59.28
3	11646.875 PK	49.62	74	-24.38	-50.4	4.76	-45.64
4	11650 AV	34.32	54	-19.68	-65.7	4.76	-60.94

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



**A D T****802.11ac (VHT20) - Channel 149****Conducted spurious emission table**

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	3837.5 PK	49.72	74	-24.28	-50.3	4.76	-45.54
2	3828.125 AV	35.55	54	-18.45	-64.47	4.76	-59.71
3	7656.25 PK	51.01	74	-22.99	-49.01	4.76	-44.25
4	7659.375 AV	37.05	54	-16.95	-62.97	4.76	-58.21
5	11481.25 PK	49.11	74	-24.89	-50.91	4.76	-46.15
6	11490.625 AV	31.89	54	-22.11	-68.13	4.76	-63.37

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



A D T



802.11ac (VHT20)- Channel 157

Conducted spurious emission table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	3859.375 PK	49.84	74	-24.16	-50.18	4.76	-45.42
2	3856.25 AV	32.06	54	-21.94	-67.96	4.76	-63.2
3	7718.75 PK	50.75	74	-23.25	-49.27	4.76	-44.51
4	7712.5 AV	36.12	54	-17.88	-63.9	4.76	-59.14
5	11568.75 PK	49.96	74	-24.04	-50.06	4.76	-45.3
6	11571.875 AV	37.07	54	-16.93	-62.95	4.76	-58.19

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.





A D T

802.11ac (VHT20)- Channel 165

Conducted spurious emission table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	3875 PK	49.87	74	-24.13	-50.15	4.76	-45.39
2	3881.25 AV	34.93	54	-19.07	-65.09	4.76	-60.33
3	11650 PK	50.1	74	-23.9	-49.92	4.76	-45.16
4	11650 AV	35.41	54	-18.59	-64.61	4.76	-59.85

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



802.11ac (VHT40) - Channel 151

Conducted spurious emission table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	3828.125 PK	49.5	74	-24.5	-50.52	4.76	-45.76
2	3834.375 AV	36.36	54	-17.64	-63.66	4.76	-58.9
3	7671.875 PK	51.16	74	-22.84	-48.86	4.76	-44.1
4	7675 AV	36.21	54	-17.79	-63.81	4.76	-59.05
5	11500 PK	49.58	74	-24.42	-50.44	4.76	-45.68
6	11512.5 AV	30.86	54	-23.14	-69.16	4.76	-64.4

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



802.11ac (VHT40)- Channel 159

Conducted spurious emission table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	3865.625 PK	51.31	74	-22.69	-48.71	4.76	-43.95
2	3862.5 AV	36.68	54	-17.32	-63.34	4.76	-58.58
3	7718.75 PK	50.86	74	-23.14	-49.16	4.76	-44.4
4	7728.125 AV	33.96	54	-20.04	-66.06	4.76	-61.3
5	11581.25 PK	49.75	74	-24.25	-50.27	4.76	-45.51
6	11590.625 AV	32.02	54	-21.98	-68	4.76	-63.24

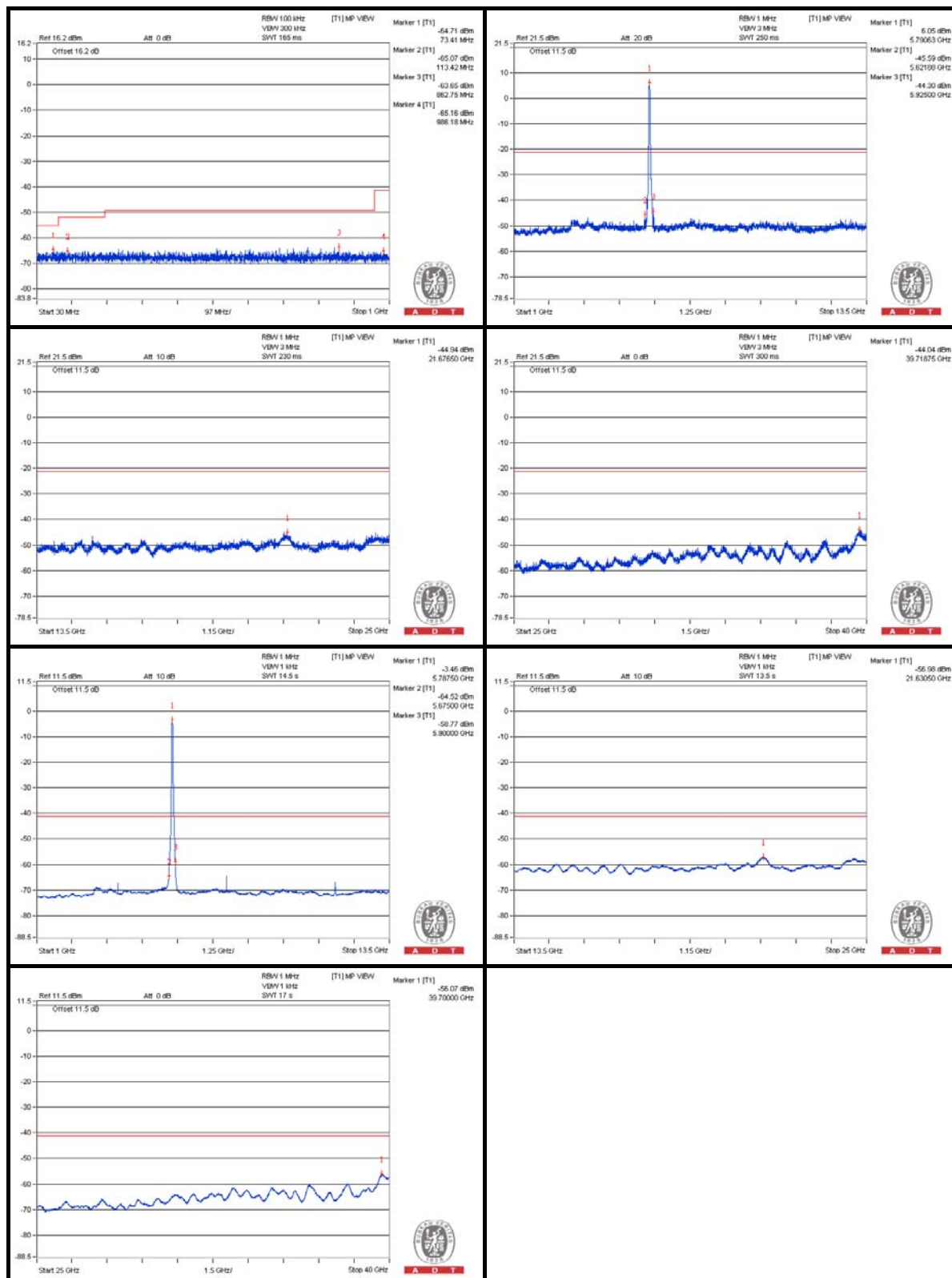
Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



A D T





A D T

802.11ac (VHT80)- Channel 155

Conducted spurious emission table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	3853.125 PK	50.41	74	-23.59	-49.61	4.76	-44.85
2	3850 AV	36.69	54	-17.31	-63.33	4.76	-58.57
3	7706.25 PK	51.32	74	-22.68	-48.7	4.76	-43.94
4	7700 AV	35.11	54	-18.89	-64.91	4.76	-60.15
5	11550 PK	49.48	74	-24.52	-50.54	4.76	-45.78
6	11550 AV	30.16	54	-23.84	-69.86	4.76	-65.1

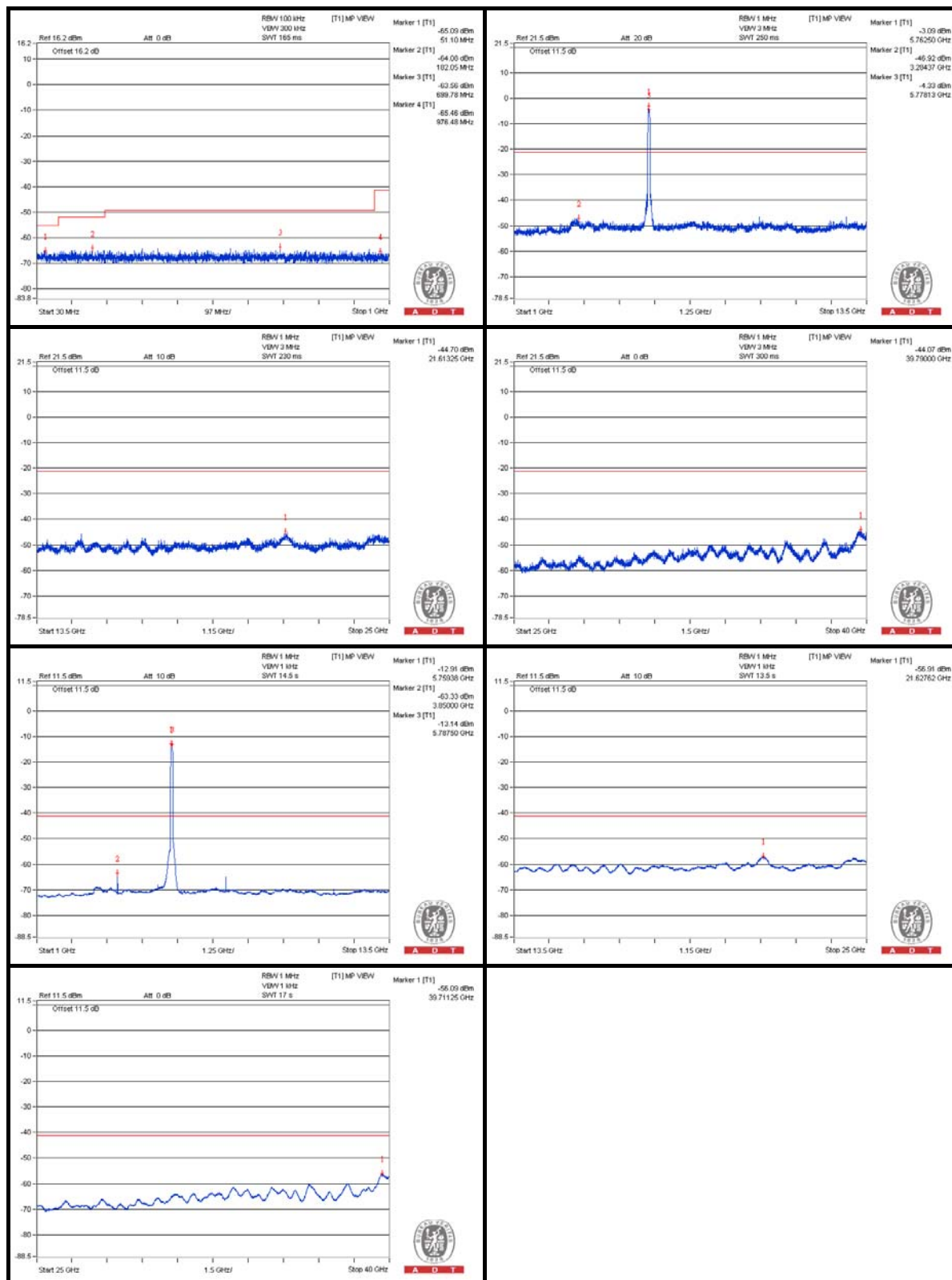
Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



A D T





A D T

9.APPENDIX B - 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 ---