

FCC TEST REPORT

REPORT NO.: RF131015C07A

MODEL NO.: DVSD01

FCC ID: RD2DSD01001

RECEIVED: Nov. 01, 2013

TESTED: Dec. 03 ~ Dec. 05, 2013

ISSUED: Dec. 05, 2013

APPLICANT: DXG Technology Corp.

ADDRESS: 15Fl., No. 4, Sec. 3, Ming-Chuan East Road,
Taipei, Taiwan, R.O.C.

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

LAB ADDRESS: No. 47, 14th Ling, Chia Pau Vil., Lin Kou Dist.,
New Taipei City, Taiwan, R.O.C.

TEST LOCATION: No. 19, Hwa Ya 2nd Rd, Wen Hwa Tsuen, Kwei
Shan Hsiang, Taoyuan Hsien 333, 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.



A D T

TABLE OF CONTENTS

RELEASE CONTROL RECORD	4
1. CERTIFICATION	5
2. SUMMARY OF TEST RESULTS	6
2.1 MEASUREMENT UNCERTAINTY	6
3. GENERAL INFORMATION	7
3.1 GENERAL DESCRIPTION OF EUT	7
3.2 DESCRIPTION OF TEST MODES	8
3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL	9
3.3 DUTY CYCLE OF TEST SIGNAL	12
3.4 DESCRIPTION OF SUPPORT UNITS	13
3.4.1 CONFIGURATION OF SYSTEM UNDER TEST	13
3.5 GENERAL DESCRIPTION OF APPLIED STANDARDS	14
4. TEST TYPES AND RESULTS	15
4.1 RADIATED EMISSION AND BANDEDGE MEASUREMENT	15
4.1.1 LIMITS OF RADIATED EMISSION AND BANDEDGE MEASUREMENT	15
4.1.2 TEST INSTRUMENTS	16
4.1.3 TEST PROCEDURES	17
4.1.4 DEVIATION FROM TEST STANDARD	17
4.1.5 TEST SETUP	18
4.1.6 EUT OPERATING CONDITIONS	19
4.1.7 TEST RESULTS	20
4.2 CONDUCTED EMISSION MEASUREMENT	31
4.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT	31
4.2.2 TEST INSTRUMENTS	31
4.2.3 TEST PROCEDURES	32
4.2.4 DEVIATION FROM TEST STANDARD	32
4.2.5 TEST SETUP	32
4.2.6 EUT OPERATING CONDITIONS	32
4.2.7 TEST RESULTS	33
4.3 6dB BANDWIDTH MEASUREMENT	35
4.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT	35
4.3.2 TEST SETUP	35
4.3.3 TEST INSTRUMENTS	35
4.3.4 TEST PROCEDURE	35
4.3.5 DEVIATION FROM TEST STANDARD	35
4.3.6 EUT OPERATING CONDITIONS	35
4.3.7 TEST RESULTS	36
4.4 CONDUCTED OUTPUT POWER	38
4.4.1 LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT	38
4.4.2 TEST SETUP	38
4.4.3 TEST INSTRUMENTS	38
4.4.4 TEST PROCEDURES	38



A D T

4.4.5	DEVIATION FROM TEST STANDARD	38
4.4.6	EUT OPERATING CONDITIONS	38
4.4.7	TEST RESULTS	39
4.5	POWER SPECTRAL DENSITY MEASUREMENT.....	41
4.5.1	LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT	41
4.5.2	TEST SETUP.....	41
4.5.3	TEST INSTRUMENTS.....	41
4.5.4	TEST PROCEDURE.....	41
4.5.5	DEVIATION FROM TEST STANDARD	41
4.5.6	EUT OPERATING CONDITION	41
4.5.7	TEST RESULTS	42
4.6	CONDUCTED OUT OF BAND EMISSION MEASUREMENT	44
4.6.1	LIMITS OF CONDUCTED OUT OF BAND EMISSION MEASUREMENT.....	44
4.6.2	TEST SETUP.....	44
4.6.3	TEST INSTRUMENTS.....	44
4.6.4	TEST PROCEDURE.....	44
4.6.5	DEVIATION FROM TEST STANDARD	45
4.6.6	EUT OPERATING CONDITION	45
4.6.7	TEST RESULTS	45
5.	PHOTOGRAPHS OF THE TEST CONFIGURATION	49
6.	INFORMATION ON THE TESTING LABORATORIES.....	50
7.	APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB.....	51



A D T

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF131015C07A	Original release	Dec. 05, 2013

1. CERTIFICATION

PRODUCT: HD Action camera
MODEL NO.: DVSD01
BRAND: DXG
APPLICANT: DXG Technology Corp.
TESTED: Dec. 03 ~ Dec. 05, 2013
TEST SAMPLE: ENGINEERING SAMPLE
STANDARDS: **FCC Part 15, Subpart C (Section 15.247)**
ANSI C63.10-2009

The above equipment (model: DVSD01) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

PREPARED BY : Ivy Lin , **DATE :** Dec. 05, 2013
Ivy Lin / Specialist

APPROVED BY : Ken Liu , **DATE :** Dec. 05, 2013
Ken Liu / Senior Manager

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

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 -24.74dB at 0.18128MHz.
15.247(d) 15.209	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -4.2dB at 270.51MHz.
15.247(d)	Band Edge Measurement	PASS	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	PASS	Meet the requirement of limit.
15.247(b)	Conducted 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 NGFF not a standard connector.

2.1 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	150kHz~30MHz	2.44 dB
Radiated emissions	30MHz ~ 200MHz	3.19 dB
	200MHz ~1000MHz	3.21 dB
	1GHz ~ 18GHz	2.26 dB
	18GHz ~ 40GHz	1.94 dB

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

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

EUT	HD Action camera
MODEL NO.	DVSD01
POWER SUPPLY	5Vdc (adapter) 3.7Vdc (Battery)
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11b: 11.0/ 5.5/ 2.0/ 1.0Mbps 802.11g: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11n: up to 65.0Mbps
OPERATING FREQUENCY	2412 ~ 2462MHz
NUMBER OF CHANNEL	11
OUTPUT POWER	125.893mW
ANTENNA TYPE	FPCBantenna with -8.66dBi gain
ANTENNA CONNECTOR	NGFF
DATA CABLE	0.8m USB shielded cable without core 1m HDMI shielded cable without core
I/O PORTS	Refer to user's manual
ACCESSORY DEVICES	Adapter, Battery

NOTE:

- The EUT provides one completed transmitter and one receiver.

MODULATION MODE	TX FUNCTION
802.11b	1TX
802.11g	1TX
802.11n (20MHz)	1TX

- The EUT consumes power from the following adapter and battery.

Adapter	
BRAND:	FORGETIVE
MODEL:	AMS47-0501000FU
INPUT:	100-240Vac, 50/60Hz, 0.2A
OUTPUT:	5Vdc, 1A

Battery	
BRAND:	FUJI ELECTRONICS (SHENZHEN) CO., LTD
MODEL:	FJ-SLB-10A
POWER RATING:	3.7Vdc, 1130mAh, 4.18Wh

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

3.2 DESCRIPTION OF TEST MODES

11 channels are provided for 802.11b, 802.11g and 802.11n (20MHz):

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		

3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE $\geq$ 1G	RE<1G	PLC	APCM	
A	√	√	NOTE 2	√	Stand alone mode
B	-	√	√	-	Charge mode

Where **RE $\geq$ 1G**: Radiated Emission above 1GHz **RE<1G**: Radiated Emission below 1GHz
PLC: Power Line Conducted Emission **APCM**: Antenna Port Conducted Measurement

NOTE: 1. The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **Y-plane**.
2. No need to concern of Conducted Emission due to the EUT is powered by battery.
3. "-" means no effect.

RADIATED EMISSION TEST (ABOVE 1GHz):

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
A	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
A	802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	6.5

RADIATED EMISSION TEST (BELOW 1GHz):

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11g	1 to 11	1	OFDM	BPSK	6.0
B	802.11g	1 to 11	1	OFDM	BPSK	6.0

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.

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11g	1 to 11	1	OFDM	BPSK	6.0
B	802.11g	1 to 11	1	OFDM	BPSK	6.0

BANDEDGE 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.

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11b	1 to 11	1, 11	DSSS	DBPSK	1.0
A	802.11g	1 to 11	1, 11	OFDM	BPSK	6.0
A	802.11n (20MHz)	1 to 11	1, 11	OFDM	BPSK	6.5

ANTENNA PORT CONDUCTED MEASUREMENT:

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
A	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
A	802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	6.5



A D T

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	TEST MODE	INPUT POWER	TESTED BY
RE $\geq$ 1G	23deg. C, 67%RH	A	3.7Vdc	Brad Tung
RE<1G	23deg. C, 67%RH	A	3.7Vdc	Brad Tung
		B	120Vac, 60Hz	Brad Tung
PLC	24deg. C, 64%RH	B	120Vac, 60Hz	Match Tsui
APCM	25deg. C, 60%RH	A	3.7Vdc	Cedric Wu

3.3 DUTY CYCLE OF TEST SIGNAL

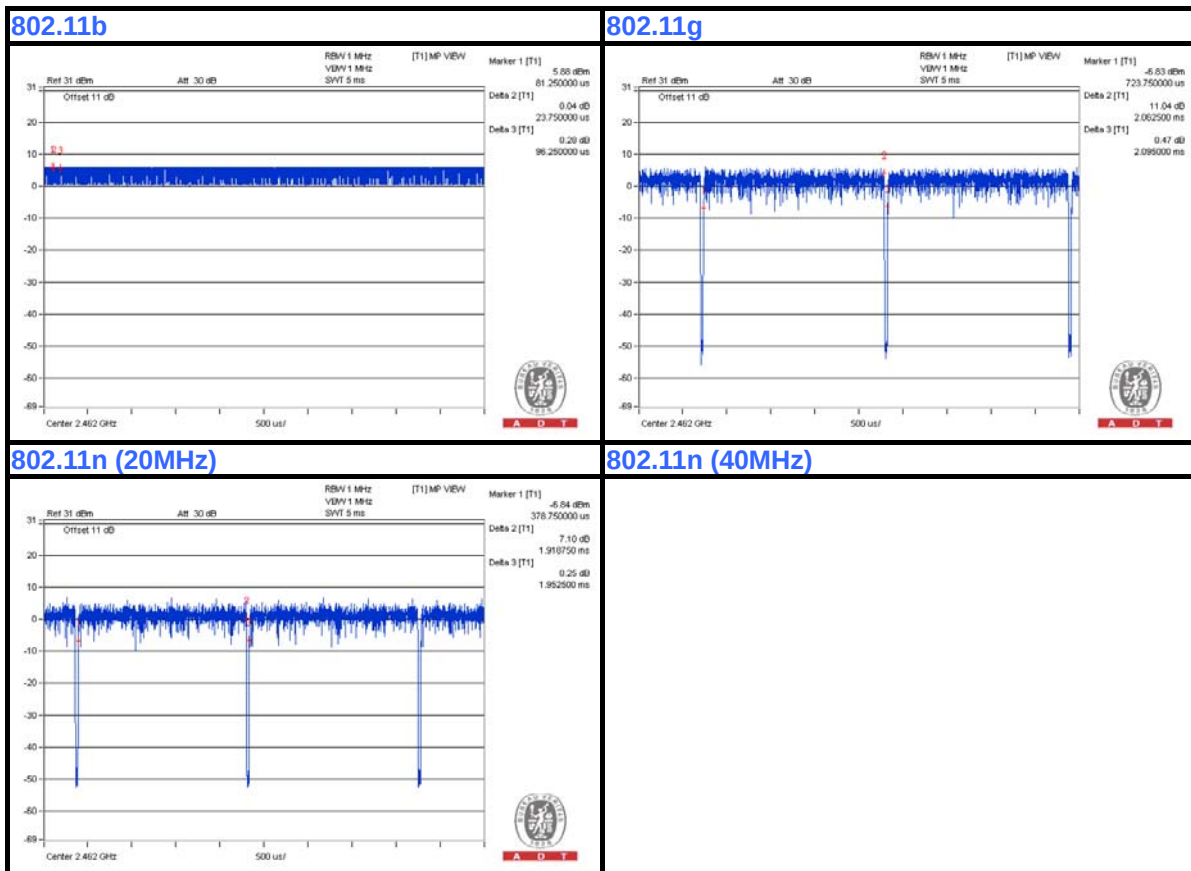
Duty cycle of test signal is 100 %

802.11b

Duty cycle of test signal is > 98 %

802.11g: Duty cycle = $2.0625/2.0950 = 0.984$

802.11n (20MHz): Duty cycle = $1.91875/1.9525 = 0.983$

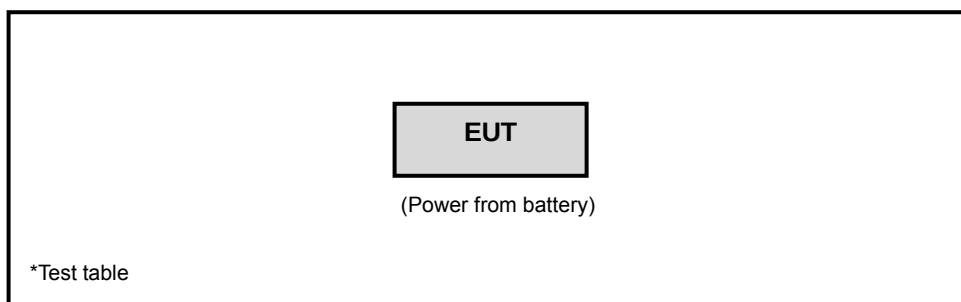


3.4 DESCRIPTION OF SUPPORT UNITS

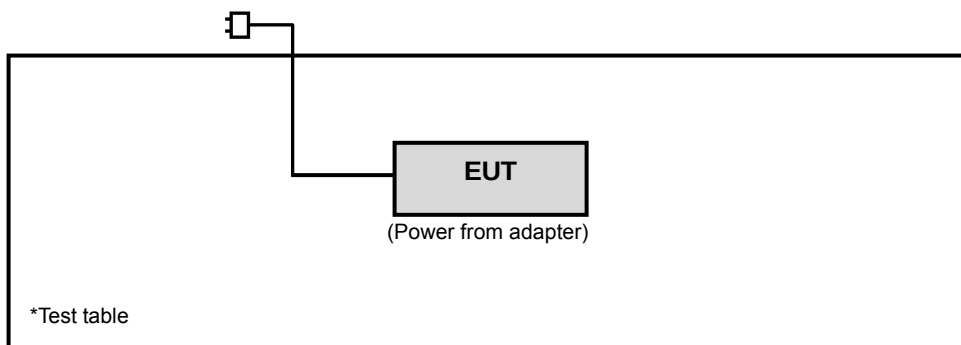
The EUT has been tested as an independent unit.

3.4.1 CONFIGURATION OF SYSTEM UNDER TEST

Test Mode A



Test Mode B



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 v03r01

ANSI C63.10-2009

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

NOTE: The EUT is also considered as a kind of computer peripheral, because the connection to computer is necessary for typical use. It has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.

4. TEST TYPES AND RESULTS

4.1 RADIATED EMISSION AND BANDEDGE MEASUREMENT

4.1.1 LIMITS OF RADIATED EMISSION AND BANDEDGE MEASUREMENT

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

FREQUENCIES (MHz)	FIELD STRENGTH (microvolts/meter)	MEASUREMENT DISTANCE (meters)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

NOTE:

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

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCI	100424	Sep. 09, 2013	Sep. 08, 2014
Spectrum Analyzer ROHDE & SCHWARZ	FSU 43	100115	Oct. 24, 2013	Oct. 23, 2014
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Mar. 25, 2013	Mar. 24, 2014
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-404	Dec. 22, 2012	Dec. 21, 2013
HORN Antenna SCHWARZBECK	BBHA 9170	148	Jul. 15, 2013	Jul. 14, 2014
Preamplifier Agilent	8449B	3008A01961	Oct. 28, 2013	Oct. 27, 2014
Preamplifier Agilent	8447D	2944A10738	Oct. 18, 2013	Oct. 17, 2014
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	309220/4	Aug. 26, 2013	Aug. 25, 2014
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	250724/4	Aug. 26, 2013	Aug. 25, 2014
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	295012/4	Aug. 26, 2013	Aug. 25, 2014
Software BV ADT	ADT_Radiated_ V7.6.15.9.4	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	010303	NA	NA
Antenna Tower Controller inn-co GmbH	CO2000	019303	NA	NA
Turn Table BV ADT	TT100.	TT93021704	NA	NA
Turn Table Controller BV ADT	SC100.	SC93021704	NA	NA
High Speed Peak Power Meter	ML2495A	0824012	Sep. 12, 2013	Sep. 11, 2014
Power Sensor	MA2411B	0738171	Jul. 30, 2013	Jul. 29, 2014

- NOTE:** 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Chamber 4.
3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
4. The FCC Site Registration No. is 460141.
5. The IC Site Registration No. is IC7450F-4.

4.1.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meters semi-anechoic chamber. 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. Height of receiving 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 Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

NOTE:

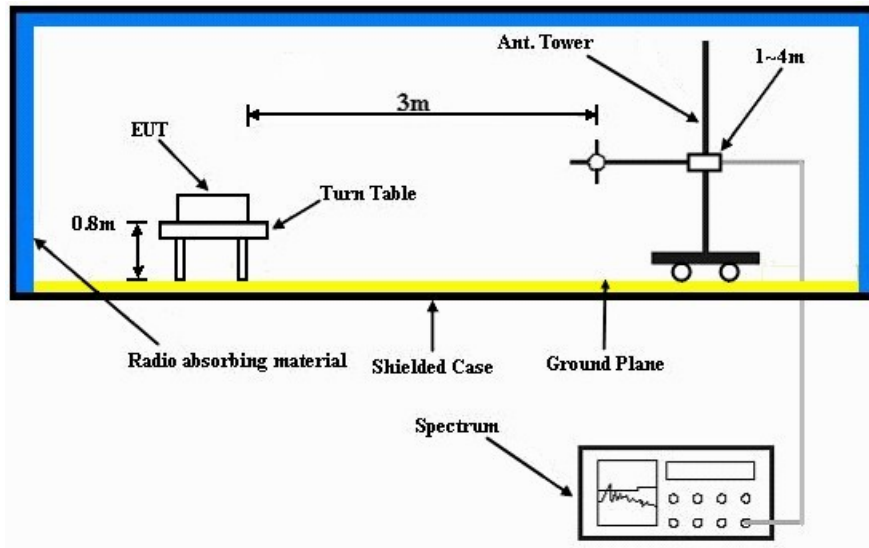
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution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

4.1.4 DEVIATION FROM TEST STANDARD

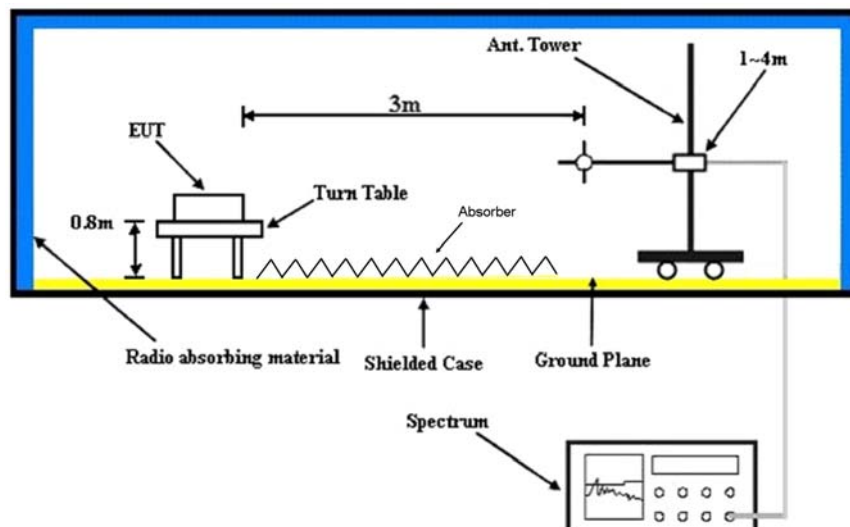
No deviation.

4.1.5 TEST SETUP

Frequency range 30MHz~1GHz



Frequency range above 1GHz



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



A D T

4.1.6 EUT OPERATING CONDITIONS

Test Mode A

Set the EUT under transmission condition continuously at specific channel frequency.

Test Mode B

Set the EUT under charging mode

4.1.7 TEST RESULTS

ABOVE 1GHz DATA :

802.11b

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	3.7Vdc	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 67%RH	TESTED BY	Brad Tung

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	55.6 PK	74.0	-18.4	1.87 H	58	23.70	31.90
2	2390.00	44.5 AV	54.0	-9.5	1.87 H	58	12.60	31.90
3	*2412.00	91.0 PK			1.87 H	58	59.00	32.00
4	*2412.00	87.1 AV			1.87 H	58	55.10	32.00
5	4824.00	57.2 PK	74.0	-16.8	1.00 H	13	52.40	4.80
6	4824.00	46.0 AV	54.0	-8.0	1.00 H	13	41.20	4.80
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	56.1 PK	74.0	-17.9	1.00 V	358	24.20	31.90
2	2390.00	44.4 AV	54.0	-9.6	1.00 V	358	12.50	31.90
3	*2412.00	97.2 PK			1.00 V	358	65.20	32.00
4	*2412.00	93.8 AV			1.00 V	358	61.80	32.00
5	4824.00	61.8 PK	74.0	-12.2	1.56 V	326	57.00	4.80
6	4824.00	49.2 AV	54.0	-4.8	1.56 V	326	44.40	4.80

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	3.7Vdc	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 67%RH	TESTED BY	Brad Tung

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	90.8 PK			1.88 H	60	58.80	32.00
2	*2437.00	87.0 AV			1.88 H	60	55.00	32.00
3	4874.00	58.7 PK	74.0	-15.3	1.43 H	300	53.70	5.00
4	4874.00	46.1 AV	54.0	-7.9	1.43 H	300	41.10	5.00
5	7311.00	61.2 PK	74.0	-12.8	1.64 H	47	50.20	11.00
6	7311.00	47.5 AV	54.0	-6.5	1.64 H	47	36.50	11.00
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	97.0 PK			1.00 V	355	65.00	32.00
2	*2437.00	93.6 AV			1.00 V	355	61.60	32.00
3	4874.00	61.8 PK	74.0	-12.2	1.56 V	300	56.80	5.00
4	4874.00	49.1 AV	54.0	-4.9	1.56 V	300	44.10	5.00

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	3.7Vdc	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 67%RH	TESTED BY	Brad Tung

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	90.9 PK			1.90 H	52	58.70	32.20
2	*2462.00	87.0 AV			1.90 H	52	54.80	32.20
3	2483.50	55.3 PK	74.0	-18.7	1.90 H	52	23.00	32.30
4	2483.50	45.3 AV	54.0	-8.7	1.90 H	52	13.00	32.30
5	4924.00	58.4 PK	74.0	-15.6	1.60 H	50	53.40	5.00
6	4924.00	46.0 AV	54.0	-8.0	1.60 H	50	41.00	5.00
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	97.3 PK			1.00 V	352	65.10	32.20
2	*2462.00	94.0 AV			1.00 V	352	61.80	32.20
3	2483.50	56.2 PK	74.0	-17.8	1.00 V	352	23.90	32.30
4	2483.50	46.5 AV	54.0	-7.5	1.00 V	352	14.20	32.30
5	4924.00	61.5 PK	74.0	-12.5	1.55 V	308	56.50	5.00
6	4924.00	49.0 AV	54.0	-5.0	1.55 V	308	44.00	5.00

REMARKS:

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

802.11g

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	3.7Vdc	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 67%RH	TESTED BY	Brad Tung

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	59.2 PK	74.0	-14.8	1.13 H	160	27.30	31.90
2	2390.00	45.9 AV	54.0	-8.1	1.13 H	160	14.00	31.90
3	*2412.00	98.7 PK			1.37 H	210	66.70	32.00
4	*2412.00	89.2 AV			1.37 H	210	57.20	32.00
5	4824.00	60.4 PK	74.0	-13.6	1.75 H	58	55.60	4.80
6	4824.00	40.4 AV	54.0	-13.6	1.75 H	58	35.60	4.80
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	58.0 PK	74.0	-16.0	1.00 V	3	26.10	31.90
2	2390.00	45.2 AV	54.0	-8.8	1.00 V	3	13.30	31.90
3	*2412.00	92.0 PK			1.00 V	3	60.00	32.00
4	*2412.00	83.0 AV			1.00 V	3	51.00	32.00
5	4824.00	59.5 PK	74.0	-14.5	1.00 V	352	54.70	4.80
6	4824.00	40.2 AV	54.0	-13.8	1.00 V	352	35.40	4.80

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	3.7Vdc	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 67%RH	TESTED BY	Brad Tung

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	98.4 PK			1.10 H	351	66.40	32.00
2	*2437.00	89.0 AV			1.10 H	351	57.00	32.00
3	4874.00	60.5 PK	74.0	-13.5	1.68 H	55	55.50	5.00
4	4874.00	40.5 AV	54.0	-13.5	1.68 H	55	35.50	5.00
5	7311.00	61.0 PK	74.0	-13.0	1.55 H	19	50.00	11.00
6	7311.00	43.0 AV	54.0	-11.0	1.55 H	19	32.00	11.00
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	91.8 PK			1.00 V	5	59.80	32.00
2	*2437.00	82.8 AV			1.00 V	5	50.80	32.00
3	4874.00	59.2 PK	74.0	-14.8	1.00 V	347	54.20	5.00
4	4874.00	39.8 AV	54.0	-14.2	1.00 V	347	34.80	5.00
5	7311.00	61.7 PK	74.0	-12.3	1.74 V	336	50.70	11.00
6	7311.00	43.4 AV	54.0	-10.6	1.74 V	336	32.40	11.00

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	3.7Vdc	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 67%RH	TESTED BY	Brad Tung

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	98.2 PK			1.09 H	354	66.00	32.20
2	*2462.00	89.2 AV			1.09 H	354	57.00	32.20
3	2483.50	63.4 PK	74.0	-10.6	1.09 H	354	31.10	32.30
4	2483.50	49.5 AV	54.0	-4.5	1.09 H	354	17.20	32.30
5	4924.00	60.2 PK	74.0	-13.8	1.52 H	60	55.20	5.00
6	4924.00	40.2 AV	54.0	-13.8	1.52 H	60	35.20	5.00
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	91.6 PK			1.00 V	6	59.40	32.20
2	*2462.00	82.7 AV			1.00 V	6	50.50	32.20
3	2483.50	60.2 PK	74.0	-13.8	1.00 V	6	27.90	32.30
4	2483.50	48.0 AV	54.0	-6.0	1.00 V	6	15.70	32.30
5	4924.00	59.5 PK	74.0	-14.5	1.00 V	338	54.50	5.00
6	4924.00	39.2 AV	54.0	-14.8	1.00 V	338	34.20	5.00

REMARKS:

- Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
- Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
– Pre-Amplifier Factor(dB)
- The other emission levels were very low against the limit.
- Margin value = Emission Level – Limit value
- " * ": Fundamental frequency.

802.11n (20MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	3.7Vdc	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 67%RH	TESTED BY	Brad Tung

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	60.7 PK	74.0	-13.3	1.10 H	352	28.80	31.90
2	2390.00	46.1 AV	54.0	-7.9	1.10 H	352	14.20	31.90
3	*2412.00	97.9 PK			1.10 H	352	65.90	32.00
4	*2412.00	88.9 AV			1.10 H	352	56.90	32.00
5	4824.00	56.8 PK	74.0	-17.2	1.81 H	28	52.00	4.80
6	4824.00	38.9 AV	54.0	-15.1	1.81 H	28	34.10	4.80
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	59.9 PK	74.0	-14.1	1.00 V	160	28.00	31.90
2	2390.00	45.1 AV	54.0	-8.9	1.00 V	160	13.20	31.90
3	*2412.00	96.2 PK			1.00 V	160	64.20	32.00
4	*2412.00	87.5 AV			1.00 V	160	55.50	32.00
5	4824.00	56.6 PK	74.0	-17.4	1.52 V	163	51.80	4.80
6	4824.00	38.8 AV	54.0	-15.2	1.52 V	163	34.00	4.80

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	3.7Vdc	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 67%RH	TESTED BY	Brad Tung

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	97.7 PK			1.10 H	353	65.70	32.00
2	*2437.00	88.0 AV			1.10 H	353	56.00	32.00
3	4874.00	57.0 PK	74.0	-17.0	1.75 H	15	52.00	5.00
4	4874.00	39.0 AV	54.0	-15.0	1.75 H	15	34.00	5.00
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	96.1 PK			1.00 V	165	64.10	32.00
2	*2437.00	87.3 AV			1.00 V	165	55.30	32.00
3	4874.00	56.8 PK	74.0	-17.2	1.50 V	158	51.80	5.00
4	4874.00	38.9 AV	54.0	-15.1	1.50 V	158	33.90	5.00

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	3.7Vdc	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 67%RH	TESTED BY	Brad Tung

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	97.8 PK			1.10 H	160	65.60	32.20
2	*2462.00	88.8 AV			1.10 H	160	56.60	32.20
3	2483.50	64.6 PK	74.0	-9.4	1.10 H	160	32.30	32.30
4	2483.50	47.8 AV	54.0	-6.2	1.10 H	160	15.50	32.30
5	4924.00	57.0 PK	74.0	-17.0	1.75 H	28	52.00	5.00
6	4924.00	39.0 AV	54.0	-15.0	1.75 H	28	34.00	5.00
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	96.2 PK			1.00 V	157	64.00	32.20
2	*2462.00	87.6 AV			1.00 V	157	55.40	32.20
3	2483.50	62.3 PK	74.0	-11.7	1.00 V	157	30.00	32.30
4	2483.50	47.1 AV	54.0	-6.9	1.00 V	157	14.80	32.30
5	4924.00	56.6 PK	74.0	-17.4	1.45 V	150	51.60	5.00
6	4924.00	38.8 AV	54.0	-15.2	1.45 V	150	33.80	5.00

REMARKS:

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

BELOW 1GHz WORST-CASE DATA : 802.11g

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	3.7Vdc	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	23deg. C, 67%RH	TESTED BY	Brad Tung
TEST MODE	A		

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	161.85	30.5 QP	43.5	-13.0	1.50 H	172	44.10	-13.60
2	216.05	26.5 QP	46.0	-19.5	2.00 H	185	43.10	-16.60
3	270.33	40.7 QP	46.0	-5.3	1.50 H	175	54.20	-13.50
4	322.90	37.0 QP	46.0	-9.0	1.00 H	192	48.90	-11.90
5	377.23	35.0 QP	46.0	-11.0	1.25 H	142	46.20	-11.20
6	792.48	32.8 QP	46.0	-13.2	1.00 H	268	36.10	-3.30
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	53.18	27.7 QP	40.0	-12.3	1.50 V	8	41.40	-13.70
2	107.52	26.8 QP	43.5	-16.7	1.00 V	303	44.40	-17.60
3	270.51	26.2 QP	46.0	-19.8	1.25 V	23	39.60	-13.40
4	377.23	23.4 QP	46.0	-22.6	1.25 V	290	34.60	-11.20
5	594.56	26.0 QP	46.0	-20.0	1.00 V	250	33.10	-7.10
6	792.48	29.0 QP	46.0	-17.0	2.00 V	247	32.30	-3.30

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	23deg. C, 67%RH	TESTED BY	Brad Tung
TEST MODE	B		

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	113.34	27.5 QP	43.5	-16.0	1.50 H	301	44.70	-17.20
2	161.85	32.1 QP	43.5	-11.4	1.50 H	189	45.70	-13.60
3	270.51	41.8 QP	46.0	-4.2	1.00 H	168	55.20	-13.40
4	322.90	34.9 QP	46.0	-11.1	1.25 H	224	46.80	-11.90
5	377.23	35.3 QP	46.0	-10.7	2.00 H	175	46.50	-11.20
6	872.03	34.4 QP	46.0	-11.6	1.50 H	291	36.70	-2.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	35.72	31.4 QP	40.0	-8.6	1.25 V	17	46.10	-14.70
2	53.18	27.9 QP	40.0	-12.1	1.00 V	13	41.60	-13.70
3	107.52	26.8 QP	43.5	-16.7	1.00 V	129	44.40	-17.60
4	270.51	30.5 QP	46.0	-15.5	1.50 V	221	43.90	-13.40
5	322.90	25.0 QP	46.0	-21.0	2.00 V	8	36.90	-11.90
6	792.48	31.3 QP	46.0	-14.7	1.25 V	8	34.60	-3.30

REMARKS:

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

4.2 CONDUCTED EMISSION MEASUREMENT

4.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY 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 0.50MHz.
3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCS30	100289	Nov. 29, 2013	Nov. 28, 2014
RF signal cable Woken	5D-FB	Cable-HYC01-01	Dec. 28, 2012	Dec. 27, 2013
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Jul. 17, 2013	Jul. 16, 2014
LISN ROHDE & SCHWARZ (EUT)	ESH3-Z5	835239/001	Feb. 04, 2013	Feb. 03, 2014
Software ADT	BV ADT_Conc_ 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 HwaYa Shielded Room 1.
3. The VCCI Site Registration No. is C-2040.

4.2.3 TEST PROCEDURES

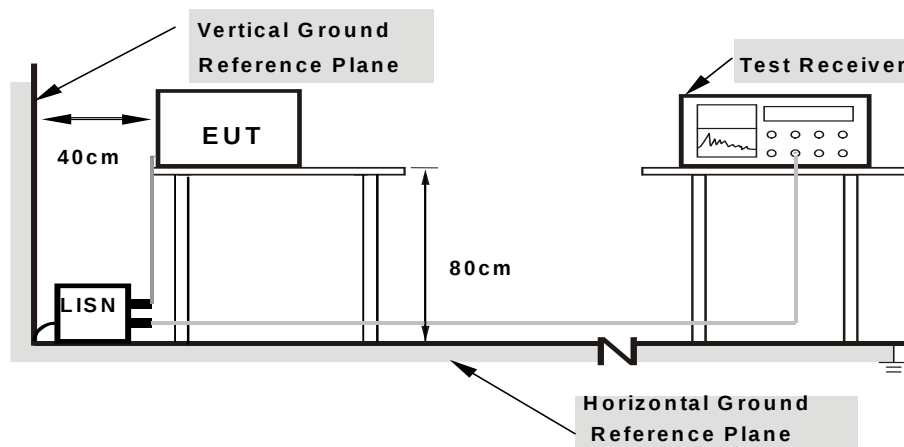
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance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

NOTE: All modes of operation were investigated and the worst-case emissions are reported.

4.2.4 DEVIATION FROM TEST STANDARD

No deviation.

4.2.5 TEST SETUP



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

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

4.2.6 EUT OPERATING CONDITIONS

Set the EUT under charging mode

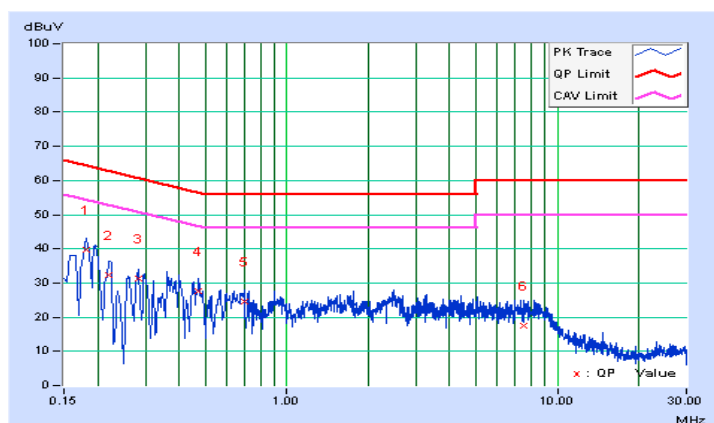
4.2.7 TEST RESULTS

CONDUCTED WORST-CASE DATA : 802.11g

PHASE	Line 1	6dB BANDWIDTH	9kHz
-------	--------	---------------	------

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.18128	0.16	39.53	23.52	39.69	23.68	64.43	54.43	-24.74	-30.75
2	0.22082	0.17	32.25	16.56	32.42	16.73	62.79	52.79	-30.37	-36.06
3	0.28288	0.19	31.23	15.25	31.42	15.44	60.73	50.73	-29.31	-35.29
4	0.47062	0.23	27.39	18.04	27.62	18.27	56.50	46.50	-28.88	-28.23
5	0.69740	0.24	24.39	14.57	24.63	14.81	56.00	46.00	-31.37	-31.19
6	7.48907	0.59	16.80	7.64	17.39	8.23	60.00	50.00	-42.61	-41.77

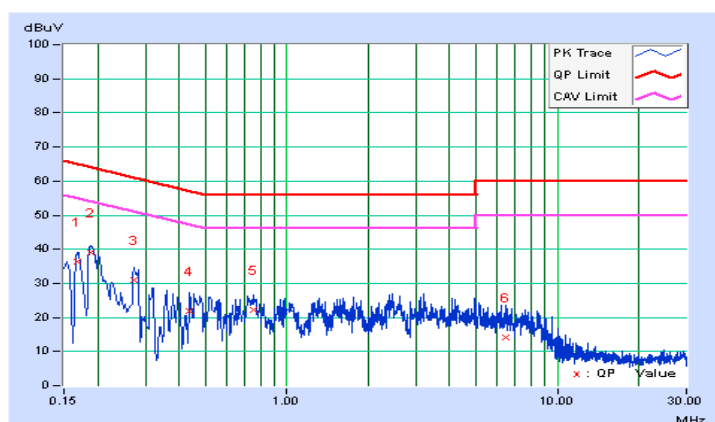
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



PHASE	Line 2	6dB BANDWIDTH	9kHz
-------	--------	---------------	------

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16922	0.17	36.23	23.06	36.40	23.23	65.00	55.00	-28.60	-31.77
2	0.18803	0.17	38.77	24.73	38.94	24.90	64.12	54.12	-25.18	-29.22
3	0.27120	0.19	30.81	13.11	31.00	13.30	61.08	51.08	-30.08	-37.78
4	0.43543	0.24	21.76	10.87	22.00	11.11	57.15	47.15	-35.15	-36.04
5	0.75605	0.25	21.91	11.19	22.16	11.44	56.00	46.00	-33.84	-34.56
6	6.42164	0.47	13.52	6.55	13.99	7.02	60.00	50.00	-46.01	-42.98

- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.

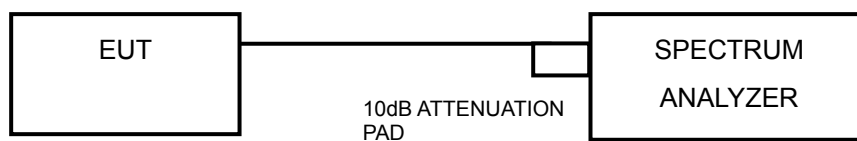


4.3 6dB BANDWIDTH MEASUREMENT

4.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 TEST SETUP



4.3.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

4.3.4 TEST PROCEDURE

- Set resolution bandwidth (RBW) = 100kHz
- Set the video bandwidth (VBW) $\geq 3 \times$ RBW, Detector = Peak.
- Trace mode = max hold.
- Sweep = auto couple.
- Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission

4.3.5 DEVIATION FROM TEST STANDARD

No deviation.

4.3.6 EUT OPERATING CONDITIONS

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

4.3.7 TEST RESULTS

802.11b

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	10.10	0.5	PASS
6	2437	10.10	0.5	PASS
11	2462	10.15	0.5	PASS

802.11g

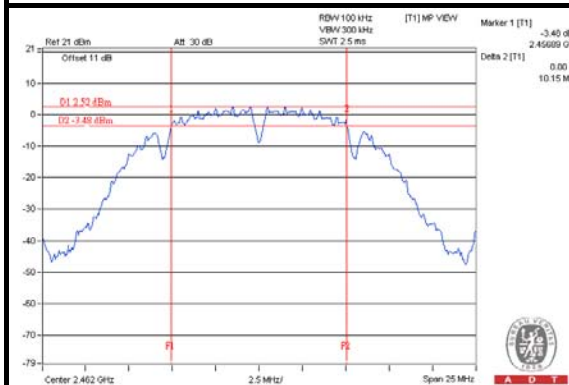
CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.38	0.5	PASS
6	2437	16.42	0.5	PASS
11	2462	16.38	0.5	PASS

802.11n (20MHz)

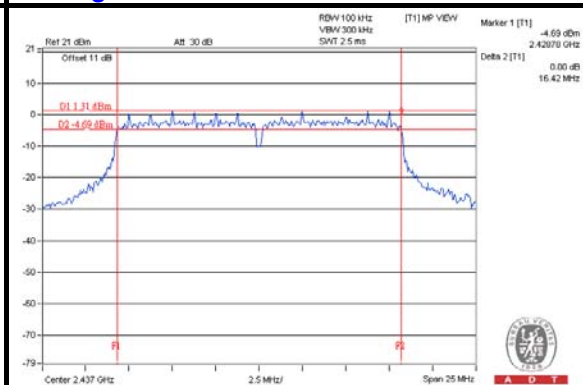
CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	17.65	0.5	PASS
6	2437	17.04	0.5	PASS
11	2462	17.62	0.5	PASS

SPECTRUM PLOT OF WORST VALUE

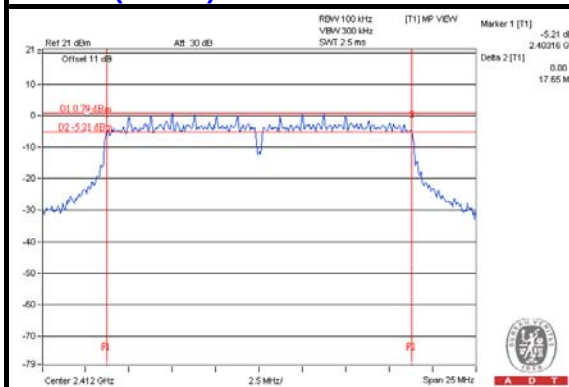
802.11b



802.11g



802.11n (20MHz)

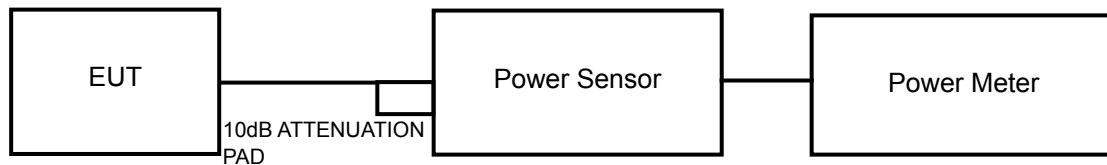


4.4 CONDUCTED OUTPUT POWER

4.4.1 LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT

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

4.4.2 TEST SETUP



4.4.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

4.4.4 TEST PROCEDURES

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

4.4.5 DEVIATION FROM TEST STANDARD

No deviation.

4.4.6 EUT OPERATING CONDITIONS

Same as Item 4.3.6.

4.4.7 TEST RESULTS

FOR PEAK POWER

802.11b

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS/FAIL
1	2412	43.451	16.38	30	PASS
6	2437	42.855	16.32	30	PASS
11	2462	44.157	16.45	30	PASS

802.11g

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS/FAIL
1	2412	125.893	21.00	30	PASS
6	2437	119.399	20.77	30	PASS
11	2462	121.619	20.85	30	PASS

802.11n (20MHz)

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS/FAIL
1	2412	100.231	20.01	30	PASS
6	2437	90.365	19.56	30	PASS
11	2462	87.498	19.42	30	PASS

**A D T****FOR AVERAGE POWER****802.11b**

CHANNEL	FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)
1	2412	24.889	13.96
6	2437	24.831	13.95
11	2462	24.660	13.92

802.11g

CHANNEL	FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)
1	2412	24.210	13.84
6	2437	24.831	13.95
11	2462	24.660	13.92

802.11n (20MHz)

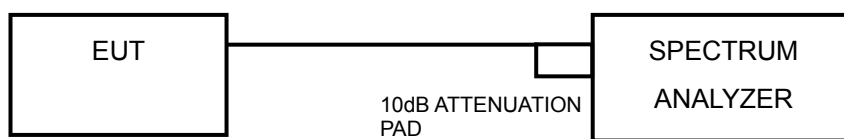
CHANNEL	FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)
1	2412	18.880	12.76
6	2437	19.770	12.96
11	2462	19.543	12.91

4.5 POWER SPECTRAL DENSITY MEASUREMENT

4.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

4.5.2 TEST SETUP



4.5.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

4.5.4 TEST PROCEDURE

- Set the RBW = 3 kHz, VBW = 10 kHz, Detector = peak.
- Sweep time = auto couple, Trace mode = max hold, allow trace to fully stabilize.
- Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.

4.5.5 DEVIATION FROM TEST STANDARD

No deviation.

4.5.6 EUT OPERATING CONDITION

Same as Item 4.3.6

4.5.7 TEST RESULTS

802.11b

Channel	Freq. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-13.80	8	PASS
6	2437	-12.13	8	PASS
11	2462	-14.04	8	PASS

802.11g

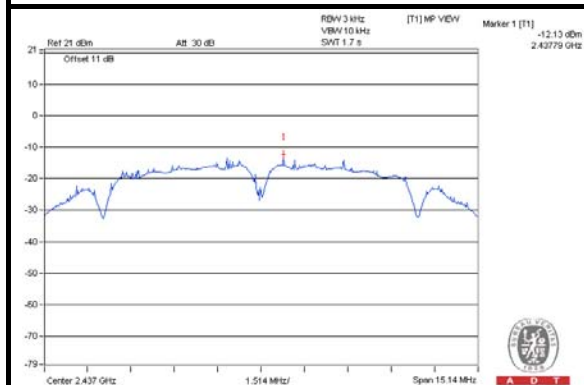
Channel	Freq. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-14.50	8	PASS
6	2437	-15.11	8	PASS
11	2462	-13.75	8	PASS

802.11n (20MHz)

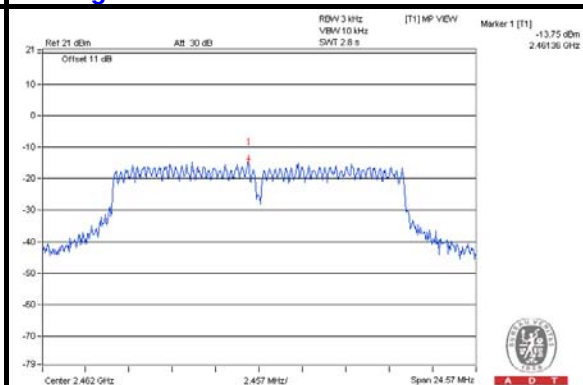
Channel	Freq. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-16.08	8	PASS
6	2437	-14.60	8	PASS
11	2462	-15.21	8	PASS

SPECTRUM PLOT OF WORST VALUE

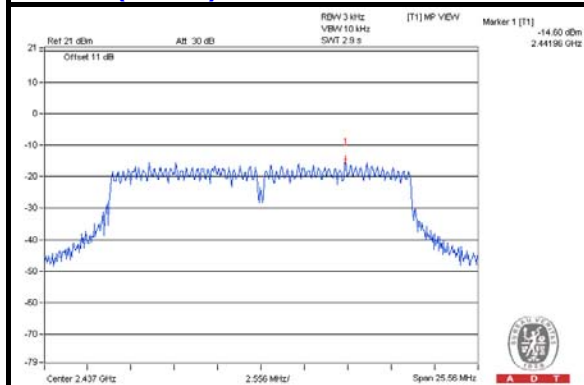
802.11b



802.11g



802.11n (20MHz)

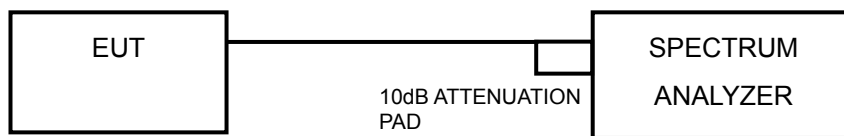


4.6 CONDUCTED OUT OF BAND EMISSION MEASUREMENT

4.6.1 LIMITS OF CONDUCTED OUT OF BAND EMISSION MEASUREMENT

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

4.6.2 TEST SETUP



4.6.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

4.6.4 TEST PROCEDURE

MEASUREMENT PROCEDURE REF

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

MEASUREMENT PROCEDURE OOB

1. Set RBW = 100 kHz.
2. Set VBW $\geq$ 300 kHz.
3. Ensure that the number of measurement points $\geq$ span/RBW
4. According to measurement points to set different measurement span.
5. Detector = peak.
6. Trace Mode = max hold.
7. Sweep = auto couple.

4.6.5 DEVIATION FROM TEST STANDARD

No deviation.

4.6.6 EUT OPERATING CONDITION

Same as Item 4.3.6

4.6.7 TEST RESULTS

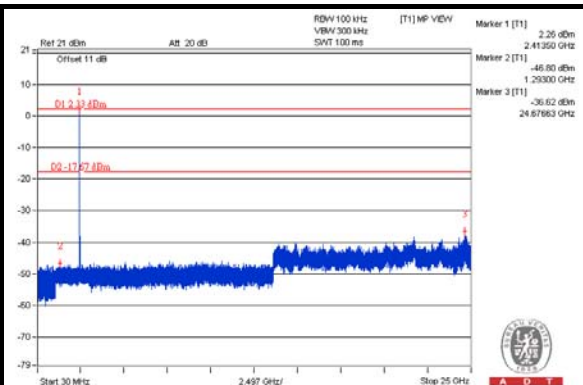
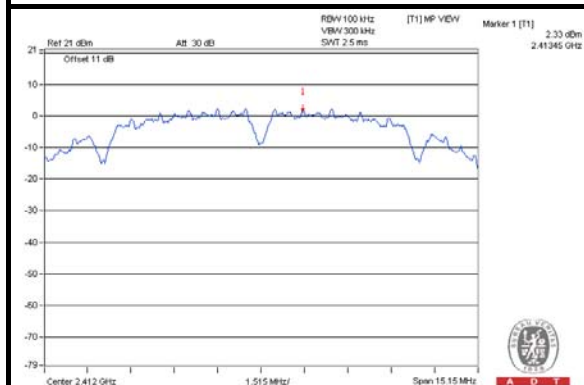
The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement.



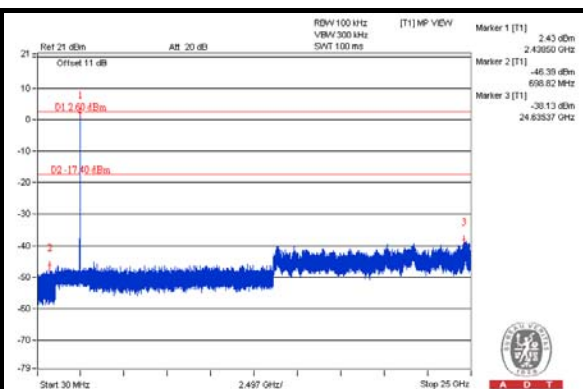
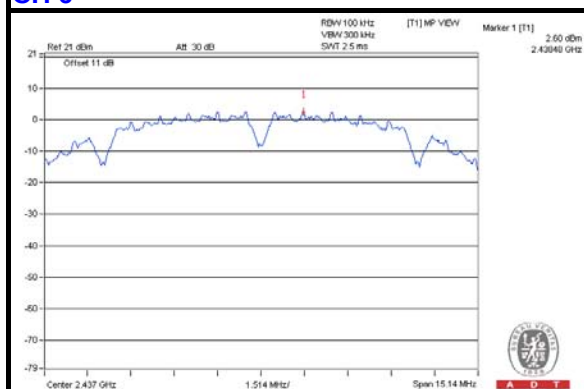
A D T

802.11b

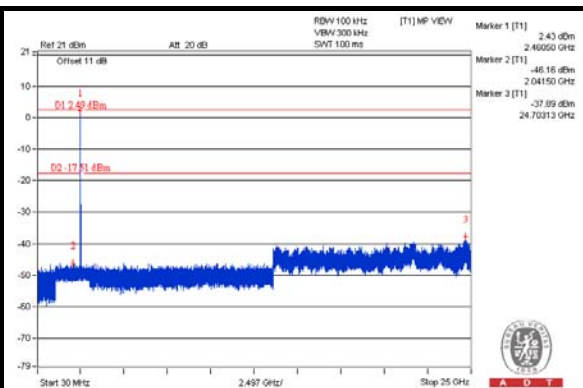
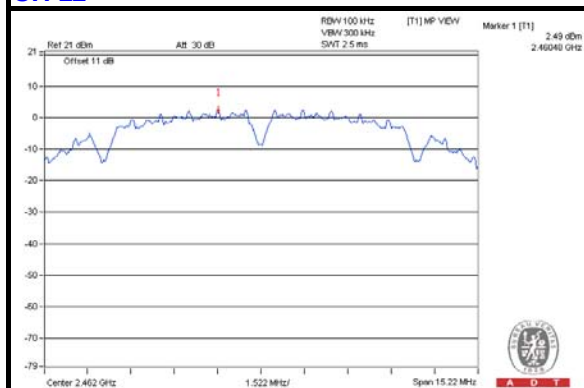
CH 1



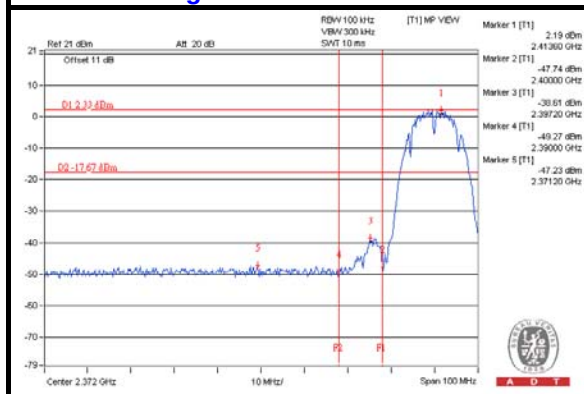
CH 6



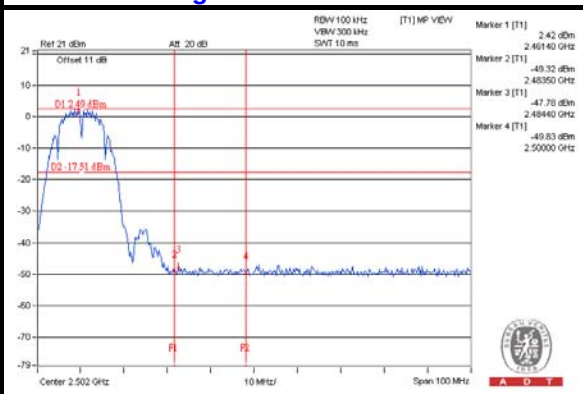
CH 11



CH 1 Band edge



CH 11 Band edge

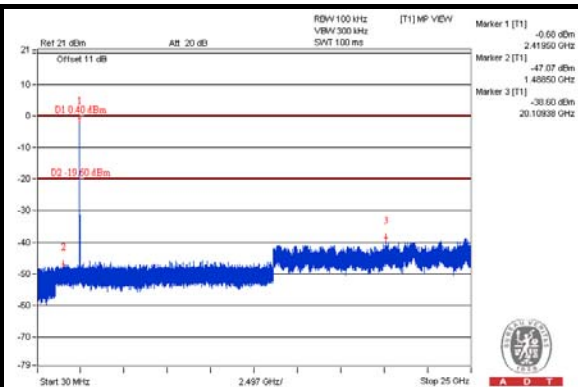
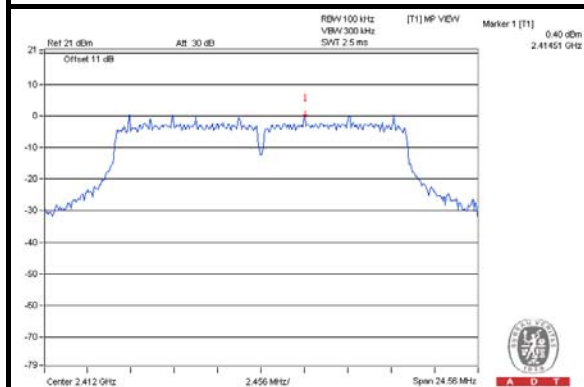




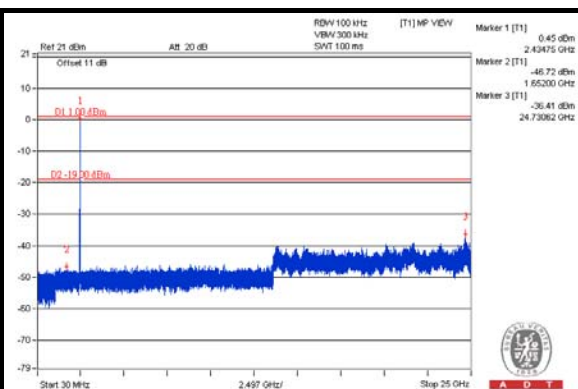
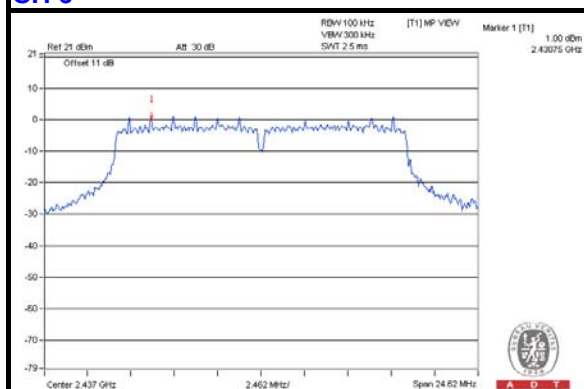
A D T

802.11g

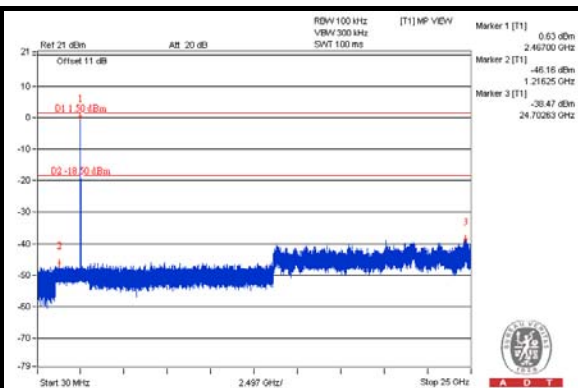
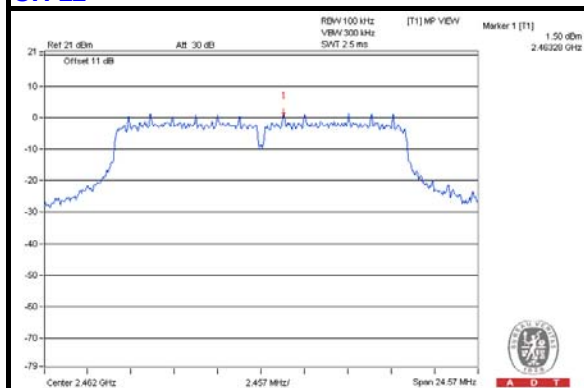
CH 1



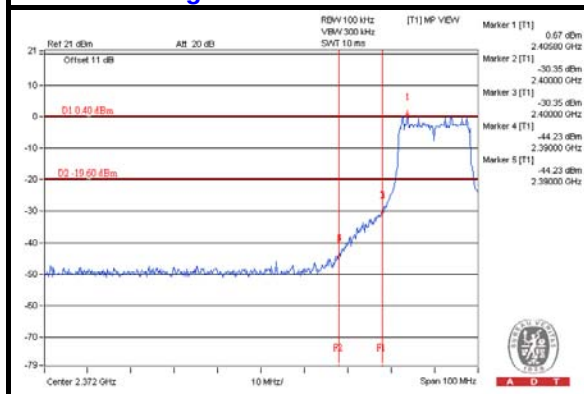
CH 6



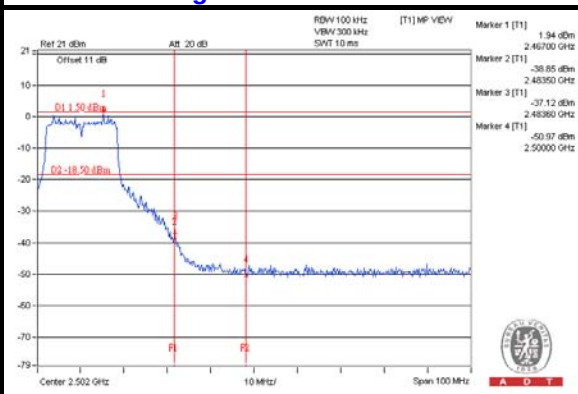
CH 11



CH 1 Band edge



CH 11 Band edge

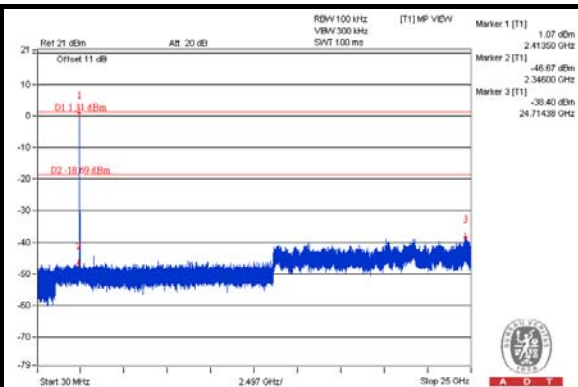
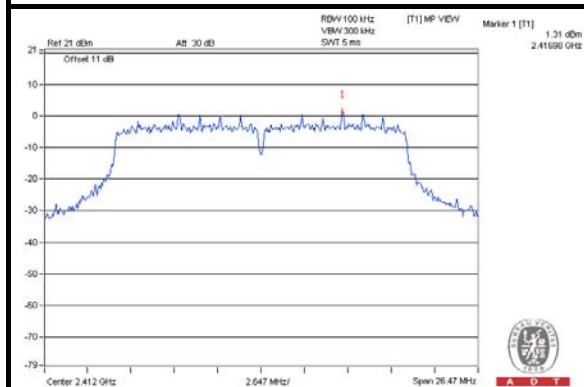




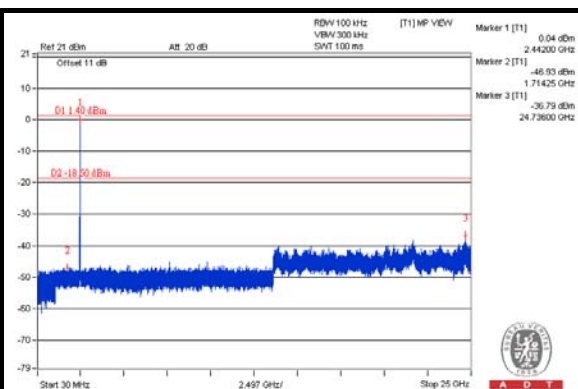
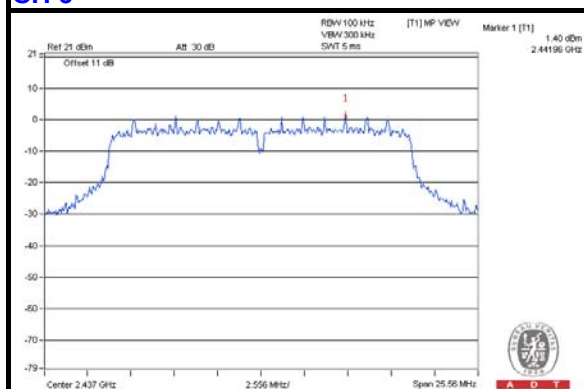
A D T

802.11n (20MHz)

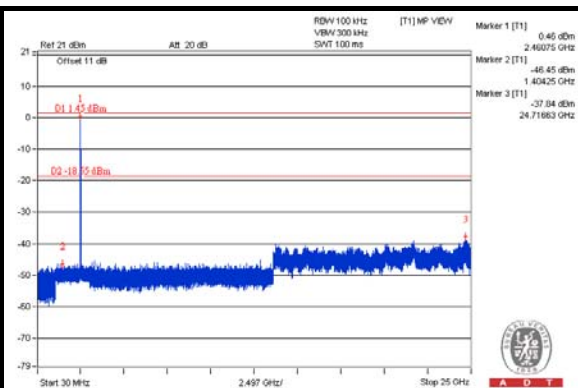
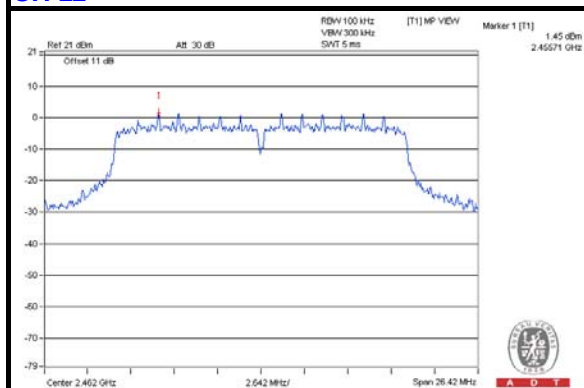
CH 1



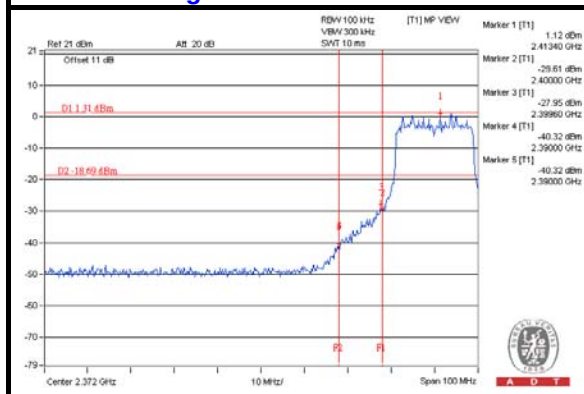
CH 6



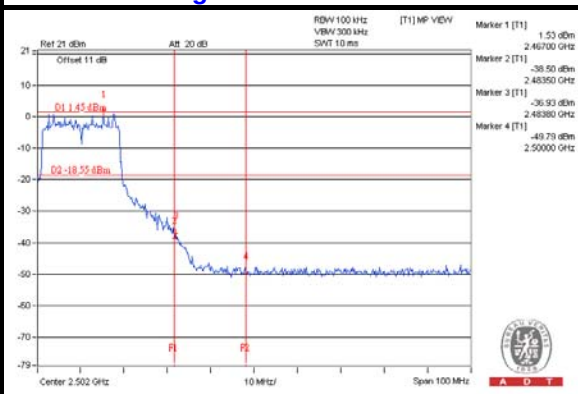
CH 11



CH 1 Band edge



CH 11 Band edge





A D T

5. PHOTOGRAPHS OF THE TEST CONFIGURATION

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

6. 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: 886-2-26051924

Hsin Chu EMC/RF Lab:

Tel: 886-3-5935343

Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety Telecom Lab:

Tel: 886-3-3183232

Fax: 886-3-3270892

Email: service.adt@tw.bureauveritas.com

Web Site: www.bureauveritas-adt.com

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



A D T

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

No any modifications are made to the EUT by the lab during the test.

---END---