



FCC TEST REPORT

REPORT NO.: RF141126C22

MODEL NO.: TL-WR802N

FCC ID: TE7WR802N

RECEIVED: Nov. 26, 2014

TESTED: Dec. 02 ~ Dec. 19, 2014

ISSUED: Dec. 22, 2014

APPLICANT: TP-LINK TECHNOLOGIES CO., LTD.

ADDRESS: Building 24 (floors 1,3,4,5) and 28 (floors1-4)
Central Science and Technology Park, Shennan
Rd, Nanshan, Shenzhen, China

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

LAB ADDRESS: No. 47-2, 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.



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.....	11
3.4 DESCRIPTION OF SUPPORT UNITS	12
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	34
4.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT.....	34
4.2.2 TEST INSTRUMENTS.....	34
4.2.3 TEST PROCEDURES	35
4.2.4 DEVIATION FROM TEST STANDARD	35
4.2.5 TEST SETUP.....	35
4.2.6 EUT OPERATING CONDITIONS	35
4.2.7 TEST RESULTS	36
4.3 6dB BANDWIDTH MEASUREMENT.....	40
4.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT	40
4.3.2 TEST SETUP.....	40
4.3.3 TEST INSTRUMENTS.....	40
4.3.4 TEST PROCEDURE.....	40
4.3.5 DEVIATION FROM TEST STANDARD	40
4.3.6 EUT OPERATING CONDITIONS	40
4.3.7 TEST RESULTS	41
4.4 CONDUCTED OUTPUT POWER	43
4.4.1 LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT	43
4.4.2 TEST SETUP.....	43
4.4.3 TEST INSTRUMENTS.....	43
4.4.4 TEST PROCEDURES	43
4.4.5 DEVIATION FROM TEST STANDARD	44
4.4.6 EUT OPERATING CONDITIONS	44
4.4.7 TEST RESULTS	45
4.5 POWER SPECTRAL DENSITY MEASUREMENT.....	46
4.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT	46
4.5.2 TEST SETUP.....	46
4.5.3 TEST INSTRUMENTS.....	46



A D T

4.5.4	TEST PROCEDURE.....	46
4.5.5	DEVIATION FROM TEST STANDARD	46
4.5.6	EUT OPERATING CONDITION	46
4.5.7	TEST RESULTS	47
4.6	CONDUCTED OUT OF BAND EMISSION MEASUREMENT.....	50
4.6.1	LIMITS OF CONDUCTED OUT OF BAND EMISSION MEASUREMENT	50
4.6.2	TEST SETUP.....	50
4.6.3	TEST INSTRUMENTS.....	50
4.6.4	TEST PROCEDURE.....	51
4.6.5	DEVIATION FROM TEST STANDARD	51
4.6.6	EUT OPERATING CONDITION	51
4.6.7	TEST RESULTS	52
5.	PHOTOGRAPHS OF THE TEST CONFIGURATION.....	61
6.	INFORMATION ON THE TESTING LABORATORIES	62
7.	APPENDIX A – MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB.....	63



A D T

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF141126C22	Original release	Dec. 22, 2014

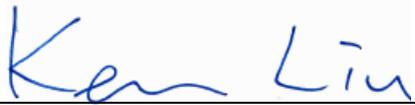


1. CERTIFICATION

PRODUCT: 300Mbps Wireless N Nano Router
MODEL NO.: TL-WR802N
BRAND: TP-LINK
APPLICANT: TP-LINK TECHNOLOGIES CO., LTD.
TESTED: Dec. 02 ~ Dec. 19, 2014
TEST SAMPLE: ENGINEERING SAMPLE
STANDARDS: FCC Part 15, Subpart C (Section 15.247)

The above equipment (model: TL-WR941ND) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

PREPARED BY :  , **DATE** : Dec. 22, 2014
Pettie Chen / Senior Specialist

APPROVED BY :  , **DATE** : Dec. 22, 2014
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 -14.76dB at 0.18180MHz.
15.205 & 209	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -0.2dB at 2390.00, 2483.50, 4874.00MHz.
15.247(d)	Band Edge Measurement	PASS	Meet the requirement of limit. Minimum passing margin is -0.2dB at 2483.50MHz.
15.247(d)	Antenna Port Emission	PASS	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	PASS	Meet the requirement of limit.
15.247(b)	Conducted power	PASS	Meet the requirement of limit.
15.247(e)	Power Spectral Density	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	Antenna connector is Weld 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	3.59 dB
	200MHz ~1000MHz	3.60 dB
	1GHz ~ 18GHz	2.29 dB
	18GHz ~ 40GHz	2.29 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	300Mbps Wireless N Nano Router
MODEL NO.	TL-WR802N
POWER SUPPLY	5Vdc (adapter)
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 300.0Mbps
OPERATING FREQUENCY	2412 ~ 2462MHz
NUMBER OF CHANNEL	11 for 802.11b, 802.11g, 802.11n (20MHz) 7 for 802.11n (40MHz)
OUTPUT POWER	127.801mW
ANTENNA TYPE	Inverted-F antenna with 2.7dBi gain
ANTENNA CONNECTOR	Weld
DATA CABLE	0.75m shielded USB cable without core
I/O PORTS	Refer to user's manual
ACCESSORY DEVICES	Adapter

NOTE:

- The EUT incorporates a MIMO function. Physically, the EUT provides two completed transmitters and two receivers.

MODULATION MODE	TX FUNCTION
802.11b	2TX
802.11g	2TX
802.11n (20MHz)	2TX
802.11n (40MHz)	2TX

- The EUT consumes power from the following adapters.

ADAPTER 1	
BRAND:	HuntKey
MODEL:	HKA00605010-2B
INPUT:	100-240Vac ~ 50/60Hz, 0.2A
OUTPUT:	5.0Vdc, 1.0A

ADAPTER 2	
BRAND:	TP-LINK TECHNOLOGIES CO., LTD.
MODEL:	T050100-2B3
INPUT:	100-240Vac ~ 50/60Hz, 0.3A
OUTPUT:	5.0Vdc, 1.0A

- 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		

7 channels are provided for 802.11n (40MHz):

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



3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE≥1G	RE<1G	PLC	APCM	
A	√	√	√	√	Power from adapter 1
B	-	√	√	-	Power from adapter 2

Where **RE≥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 **X-plane**.
2. "-": 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	7.2
A	802.11n (40MHz)	3 to 9	3, 6, 9	OFDM	BPSK	15.0

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, B	802.11g	1 to 11	6	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, B	802.11g	1 to 11	6	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	7.2
A	802.11n (40MHz)	3 to 9	3, 9	OFDM	BPSK	15.0

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	7.2
A	802.11n (40MHz)	3 to 9	3, 6, 9	OFDM	BPSK	15.0

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G	23deg. C, 66%RH	120Vac, 60Hz	Alan Wu
RE<1G	23deg. C, 66%RH	120Vac, 60Hz	Chris Lin
PLC	25deg. C, 60%RH, 25deg. C, 65%RH	120Vac, 60Hz	Tank Wu, Chris Lin
APCM	24deg. C, 64%RH	120Vac, 60Hz	Match Tsui

3.3 DUTY CYCLE OF TEST SIGNAL

802.11b: Duty cycle of test signal is > 98 %, duty factor is not required.

802.11g, 802.11n (20MHz), 802.11n (40MHz):

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

802.11g: Duty cycle = $2.021/2.081 = 0.971$, Duty factor = $10 * \log(1/0.971) = 0.13$

802.11n (20MHz): Duty cycle = $1.886/1.946 = 0.969$, Duty factor = $10 * \log(1/0.969) = 0.14$

802.11n (40MHz): Duty cycle = $0.925/0.967 = 0.957$, Duty factor = $10 * \log(1/0.957) = 0.19$





A D T

3.4 DESCRIPTION OF SUPPORT UNITS

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

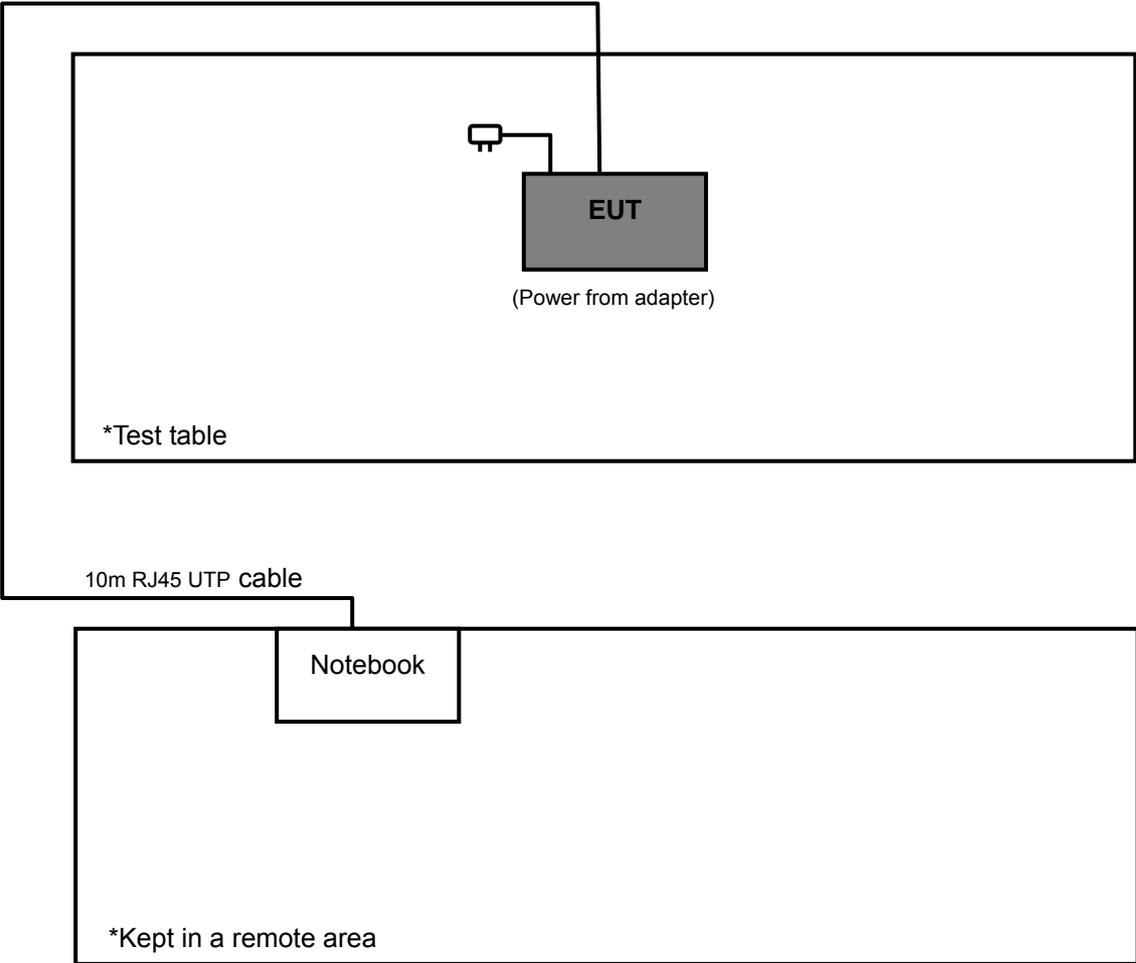
NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK	DELL	E5420	BPQ8MQ1	FCC DoC Approved

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	10m RJ45 UTP cable

NOTE:

1. All power cords of the above support units are non shielded (1.8m).
2. Items 1 acted as communication partner to transfer data.

3.4.1 CONFIGURATION OF SYSTEM UNDER TEST



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

662911 D01 Multiple Transmitter Output v02r01

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 30dB below the highest level of the desired power:

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

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 30dB under any condition of modulation.



A D T

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCI	100424	Oct. 06, 2014	Oct. 05, 2015
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100039	Mar. 03, 2014	Mar. 02, 2015
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Feb. 26, 2014	Feb. 25, 2015
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-404	Jan. 05, 2014	Jan. 04, 2015
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Feb. 17, 2014	Feb. 16, 2015
Loop Antenna	HFH2-Z2	100070	Mar. 06, 2014	Mar. 05, 2016
Preamplifier Agilent	8449B	3008A01961	Oct. 18, 2014	Oct. 17, 2015
Preamplifier Agilent	8447D	2944A10738	Oct. 18, 2014	Oct. 17, 2015
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	309220/4	Aug. 09, 2014	Aug. 08, 2015
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	250724/4	Aug. 09, 2014	Aug. 08, 2015
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	295012/4	Aug. 09, 2014	Aug. 08, 2015
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	0824011	Jul. 26, 2014	Jul. 25, 2015
Power Sensor	MA2411B	0738171	Jul. 26, 2014	Jul. 25, 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. 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:

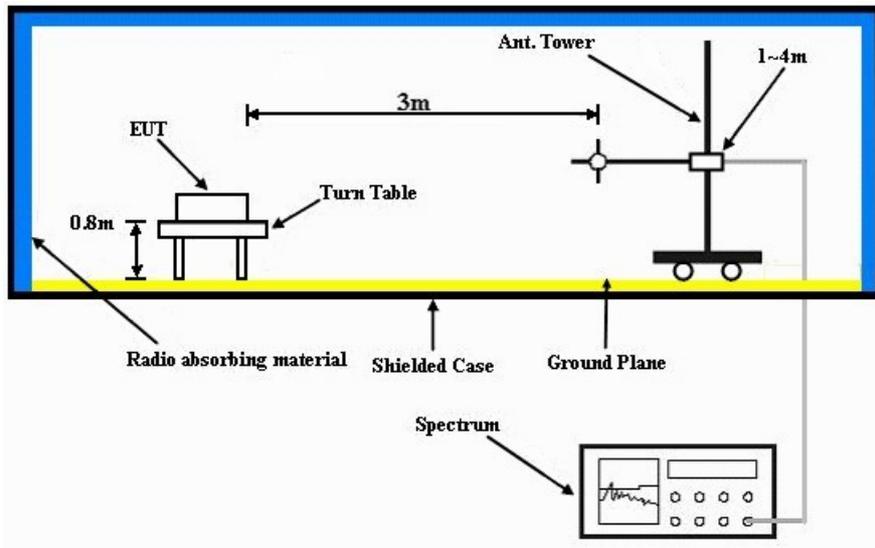
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution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

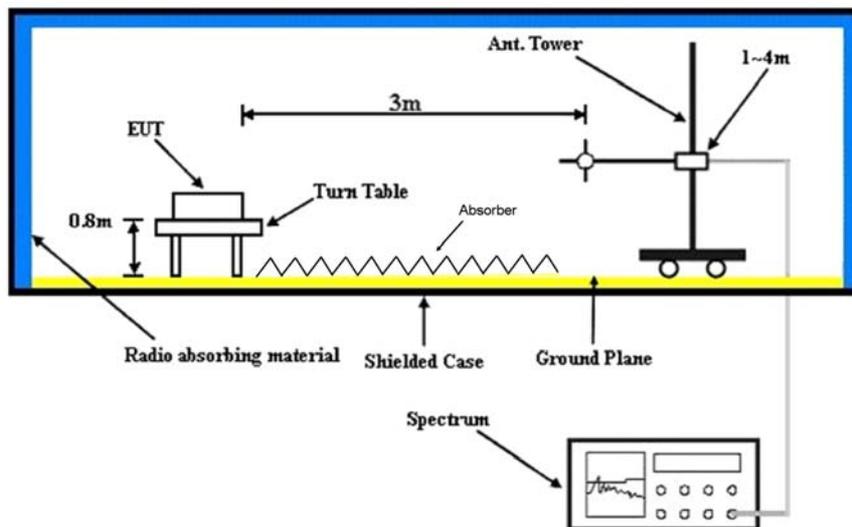
No deviation.

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).

4.1.6 EUT OPERATING CONDITIONS

- a. Placed the EUT on the testing table.
- b. Prepared a notebook to act as communication partner and placed it outside of testing area.
- c. The communication partner connected with EUT via a RJ45 cable and run a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.
- d. The communication partner sent data to EUT by command "PING".
- e. The necessary accessories enable the system in full functions.



A D T

4.1.7 TEST RESULTS

ABOVE 1GHz DATA :

802.11b

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	57.0 PK	74.0	-17.0	1.35 H	244	24.80	32.20
2	2390.00	45.4 AV	54.0	-8.6	1.35 H	244	13.20	32.20
3	*2412.00	110.5 PK			1.33 H	246	78.30	32.20
4	*2412.00	107.1 AV			1.33 H	246	74.90	32.20
5	4824.00	55.1 PK	74.0	-18.9	1.11 H	299	49.80	5.30
6	4824.00	52.0 AV	54.0	-2.0	1.11 H	299	46.70	5.30

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	2390.00	56.6 PK	74.0	-17.4	1.00 V	246	24.40	32.20
2	2390.00	44.8 AV	54.0	-9.2	1.00 V	246	12.60	32.20
3	*2412.00	109.5 PK			1.00 V	241	77.30	32.20
4	*2412.00	106.2 AV			1.00 V	241	74.00	32.20
5	4824.00	56.5 PK	74.0	-17.5	1.00 V	158	51.20	5.30
6	4824.00	53.7 AV	54.0	-0.3	1.00 V	158	48.40	5.30

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)
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	*2437.00	107.5 PK			1.03 H	205	75.30	32.20
2	*2437.00	104.0 AV			1.03 H	205	71.80	32.20
3	4874.00	55.0 PK	74.0	-19.0	1.14 H	292	49.70	5.30
4	4874.00	51.8 AV	54.0	-2.2	1.14 H	292	46.50	5.30

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	*2437.00	106.0 PK			1.00 V	239	73.80	32.20
2	*2437.00	102.3 AV			1.00 V	239	70.10	32.20
3	4874.00	56.4 PK	74.0	-17.6	1.00 V	170	51.10	5.30
4	4874.00	53.8 AV	54.0	-0.2	1.00 V	170	48.50	5.30

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)
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	107.0 PK			1.00 H	202	74.70	32.30
2	*2462.00	102.8 AV			1.00 H	202	70.50	32.30
3	2483.50	57.4 PK	74.0	-16.6	1.00 H	207	25.00	32.40
4	2483.50	44.2 AV	54.0	-9.8	1.00 H	207	11.80	32.40
5	4924.00	54.9 PK	74.0	-19.1	1.12 H	296	49.40	5.50
6	4924.00	51.7 AV	54.0	-2.3	1.12 H	296	46.20	5.50

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			1.00 V	219	71.40	32.30
2	*2462.00	100.4 AV			1.00 V	219	68.10	32.30
3	2483.50	56.7 PK	74.0	-17.3	1.00 V	215	24.30	32.40
4	2483.50	42.7 AV	54.0	-11.3	1.00 V	215	10.30	32.40
5	4924.00	57.2 PK	74.0	-16.8	1.07 V	161	51.70	5.50
6	4924.00	53.6 AV	54.0	-0.4	1.07 V	161	48.10	5.50

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)
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	65.5 PK	74.0	-8.5	1.01 H	208	33.30	32.20
2	2390.00	48.5 AV	54.0	-5.5	1.01 H	208	16.30	32.20
3	*2412.00	106.6 PK			1.03 H	206	74.40	32.20
4	*2412.00	97.2 AV			1.03 H	206	65.00	32.20
5	4824.00	56.4 PK	74.0	-17.6	1.47 H	298	51.10	5.30
6	4824.00	42.0 AV	54.0	-12.0	1.47 H	298	36.70	5.30

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	2390.00	71.7 PK	74.0	-2.3	1.00 V	244	39.50	32.20
2	2390.00	53.8 AV	54.0	-0.2	1.00 V	244	21.60	32.20
3	*2412.00	108.5 PK			1.00 V	240	76.30	32.20
4	*2412.00	99.0 AV			1.00 V	240	66.80	32.20
5	4824.00	57.1 PK	74.0	-16.9	1.00 V	173	51.80	5.30
6	4824.00	42.5 AV	54.0	-11.5	1.00 V	173	37.20	5.30

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)
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	*2437.00	109.6 PK			1.04 H	207	77.40	32.20
2	*2437.00	100.2 AV			1.04 H	207	68.00	32.20
3	4874.00	58.6 PK	74.0	-15.4	1.43 H	292	53.30	5.30
4	4874.00	44.4 AV	54.0	-9.6	1.43 H	292	39.10	5.30

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	*2437.00	110.5 PK			1.00 V	242	78.30	32.20
2	*2437.00	101.1 AV			1.00 V	242	68.90	32.20
3	4874.00	61.2 PK	74.0	-12.8	1.00 V	170	55.90	5.30
4	4874.00	46.4 AV	54.0	-7.6	1.00 V	170	41.10	5.30

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)
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	106.1 PK			1.00 H	203	73.80	32.30
2	*2462.00	96.3 AV			1.00 H	203	64.00	32.30
3	2483.50	67.6 PK	74.0	-6.4	1.00 H	208	35.20	32.40
4	2483.50	52.0 AV	54.0	-2.0	1.00 H	208	19.60	32.40
5	4924.00	56.0 PK	74.0	-18.0	1.41 H	295	50.50	5.50
6	4924.00	41.8 AV	54.0	-12.2	1.41 H	295	36.30	5.50

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	106.4 PK			1.00 V	238	74.10	32.30
2	*2462.00	97.0 AV			1.00 V	238	64.70	32.30
3	2483.50	67.8 PK	74.0	-6.2	1.00 V	238	35.40	32.40
4	2483.50	53.3 AV	54.0	-0.7	1.00 V	238	20.90	32.40
5	4924.00	56.7 PK	74.0	-17.3	1.00 V	176	51.20	5.50
6	4924.00	42.3 AV	54.0	-11.7	1.00 V	176	36.80	5.50

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)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. “ * “: Fundamental frequency.



A D T

802.11n (20MHz)

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	70.1 PK	74.0	-3.9	1.06 H	201	37.90	32.20
2	2390.00	53.5 AV	54.0	-0.5	1.06 H	201	21.30	32.20
3	*2412.00	105.7 PK			1.03 H	210	73.50	32.20
4	*2412.00	95.8 AV			1.03 H	210	63.60	32.20
5	4824.00	48.0 PK	74.0	-26.0	1.07 H	48	42.70	5.30
6	4824.00	35.4 AV	54.0	-18.6	1.07 H	48	30.10	5.30

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	2390.00	65.7 PK	74.0	-8.3	1.42 V	17	33.50	32.20
2	2390.00	48.9 AV	54.0	-5.1	1.42 V	17	16.70	32.20
3	*2412.00	106.1 PK			1.00 V	238	73.90	32.20
4	*2412.00	96.7 AV			1.00 V	238	64.50	32.20
5	4824.00	46.5 PK	74.0	-27.5	1.23 V	87	41.20	5.30
6	4824.00	35.2 AV	54.0	-18.8	1.23 V	87	29.90	5.30

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)
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	*2437.00	110.2 PK			1.01 H	205	78.00	32.20
2	*2437.00	100.0 AV			1.01 H	205	67.80	32.20
3	4874.00	48.2 PK	74.0	-25.8	1.23 H	80	42.90	5.30
4	4874.00	36.0 AV	54.0	-18.0	1.23 H	80	30.70	5.30

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	*2437.00	108.0 PK			1.00 V	217	75.80	32.20
2	*2437.00	99.1 AV			1.00 V	217	66.90	32.20
3	4874.00	47.3 PK	74.0	-26.7	1.17 V	48	42.00	5.30
4	4874.00	35.2 AV	54.0	-18.8	1.17 V	48	29.90	5.30

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)
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	106.1 PK			1.00 H	202	73.80	32.30
2	*2462.00	96.8 AV			1.00 H	202	64.50	32.30
3	2483.50	69.5 PK	74.0	-4.5	1.00 H	201	37.10	32.40
4	2483.50	53.5 AV	54.0	-0.5	1.00 H	201	21.10	32.40
5	4924.00	47.4 PK	74.0	-26.6	1.08 H	74	41.90	5.50
6	4924.00	35.6 AV	54.0	-18.4	1.08 H	74	30.10	5.50
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	104.0 PK			1.00 V	221	71.70	32.30
2	*2462.00	94.9 AV			1.00 V	221	62.60	32.30
3	2483.50	67.6 PK	74.0	-6.4	1.00 V	234	35.20	32.40
4	2483.50	51.6 AV	54.0	-2.4	1.00 V	234	19.20	32.40
5	4924.00	47.4 PK	74.0	-26.6	1.28 V	74	41.90	5.50
6	4924.00	35.6 AV	54.0	-18.4	1.28 V	74	30.10	5.50

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)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. “ * “: Fundamental frequency.



A D T

802.11n (40MHz)

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	68.6 PK	74.0	-5.4	1.35 H	245	36.40	32.20
2	2390.00	53.5 AV	54.0	-0.5	1.35 H	245	21.30	32.20
3	*2422.00	98.9 PK			1.04 H	202	66.60	32.30
4	*2422.00	89.6 AV			1.04 H	202	57.30	32.30
5	4844.00	47.0 PK	74.0	-27.0	1.02 H	74	41.60	5.40
6	4844.00	36.0 AV	54.0	-18.0	1.02 H	74	30.60	5.40

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	69.7 PK	74.0	-4.3	1.00 V	240	37.50	32.20
2	2390.00	53.7 AV	54.0	-0.3	1.00 V	240	21.50	32.20
3	*2422.00	100.7 PK			1.00 V	240	68.40	32.30
4	*2422.00	91.5 AV			1.00 V	240	59.20	32.30
5	4844.00	46.9 PK	74.0	-27.1	1.23 V	57	41.50	5.40
6	4844.00	35.4 AV	54.0	-18.6	1.23 V	57	30.00	5.40

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)
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	69.8 PK	74.0	-4.2	1.35 H	244	37.60	32.20
2	2390.00	53.8 AV	54.0	-0.2	1.35 H	244	21.60	32.20
3	*2437.00	103.2 PK			1.00 H	207	71.00	32.20
4	*2437.00	94.5 AV			1.00 H	207	62.30	32.20
5	2483.50	68.8 PK	74.0	-5.2	1.02 H	241	36.40	32.40
6	2483.50	53.8 AV	54.0	-0.2	1.02 H	241	21.40	32.40
7	4874.00	46.9 PK	74.0	-27.1	1.23 H	74	41.60	5.30
8	4874.00	35.4 AV	54.0	-18.6	1.23 H	74	30.10	5.30
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	2390.00	70.3 PK	74.0	-3.7	1.00 V	243	38.10	32.20
2	2390.00	53.3 AV	54.0	-0.7	1.00 V	243	21.10	32.20
3	*2437.00	103.9 PK			1.00 V	240	71.70	32.20
4	*2437.00	95.1 AV			1.00 V	240	62.90	32.20
5	2483.50	67.7 PK	74.0	-6.3	1.01 V	154	35.30	32.40
6	2483.50	52.6 AV	54.0	-1.4	1.01 V	154	20.20	32.40
7	4874.00	47.2 PK	74.0	-26.8	1.33 V	69	41.90	5.30
8	4874.00	35.3 AV	54.0	-18.7	1.33 V	69	30.00	5.30

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)
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	100.4 PK			1.01 H	207	68.10	32.30
2	*2452.00	90.9 AV			1.01 H	207	58.60	32.30
3	2483.50	68.4 PK	74.0	-5.6	1.02 H	202	36.00	32.40
4	2483.50	53.5 AV	54.0	-0.5	1.02 H	202	21.10	32.40
5	4904.00	46.9 PK	74.0	-27.1	1.23 H	87	41.50	5.40
6	4904.00	36.0 AV	54.0	-18.0	1.23 H	87	30.60	5.40

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	100.4 PK			1.00 V	239	68.10	32.30
2	*2452.00	90.2 AV			1.00 V	239	57.90	32.30
3	2483.50	66.4 PK	74.0	-7.6	1.00 V	234	34.00	32.40
4	2483.50	51.8 AV	54.0	-2.2	1.00 V	234	19.40	32.40
5	4904.00	46.4 PK	74.0	-27.6	1.05 V	41	41.00	5.40
6	4904.00	35.6 AV	54.0	-18.4	1.05 V	41	30.20	5.40

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)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. “ * “: Fundamental frequency.



A D T

BELOW 1GHz WORST-CASE DATA

802.11g

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		
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	144.38	36.3 QP	43.5	-7.2	2.00 H	105	50.20	-13.90
2	198.71	34.6 QP	43.5	-8.9	2.00 H	112	51.20	-16.60
3	400.52	36.6 QP	46.0	-9.4	1.01 H	80	47.40	-10.80
4	625.60	31.5 QP	46.0	-14.5	1.26 H	166	37.70	-6.20
5	800.24	34.2 QP	46.0	-11.8	1.01 H	168	37.20	-3.00
6	938.01	34.5 QP	46.0	-11.5	1.26 H	249	35.30	-0.80

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	57.07	36.5 QP	40.0	-3.5	1.00 V	98	50.80	-14.30
2	105.58	32.2 QP	43.5	-11.3	1.24 V	219	49.80	-17.60
3	400.52	32.7 QP	46.0	-13.3	1.24 V	188	43.50	-10.80
4	600.38	35.7 QP	46.0	-10.3	1.99 V	196	42.40	-6.70
5	800.24	37.5 QP	46.0	-8.5	1.24 V	147	40.50	-3.00
6	936.07	35.9 QP	46.0	-10.1	1.00 V	215	36.70	-0.80

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)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value



A D T

802.11g

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		
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	97.81	27.9 QP	43.5	-15.6	2.00 H	184	46.80	-18.90
2	142.44	32.9 QP	43.5	-10.6	2.00 H	265	47.00	-14.10
3	249.17	32.8 QP	46.0	-13.2	1.00 H	106	47.20	-14.40
4	400.52	37.2 QP	46.0	-8.8	1.00 H	126	48.00	-10.80
5	600.38	35.8 QP	46.0	-10.2	1.51 H	100	42.50	-6.70
6	835.17	37.8 QP	46.0	-8.2	1.51 H	250	40.30	-2.50
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	31.84	37.5 QP	40.0	-2.5	1.49 V	50	53.00	-15.50
2	53.18	36.1 QP	40.0	-3.9	1.24 V	211	50.10	-14.00
3	198.71	35.1 QP	43.5	-8.4	1.24 V	177	51.70	-16.60
4	400.52	34.6 QP	46.0	-11.4	1.49 V	79	45.40	-10.80
5	499.48	33.0 QP	46.0	-13.0	1.00 V	175	41.90	-8.90
6	835.17	39.5 QP	46.0	-6.5	2.00 V	288	42.00	-2.50

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)
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	ESCI	100612	Sep. 30, 2014	Sep. 29, 2015
RF signal cable Woken	5D-FB	Cable-HYC01-01	Dec. 27, 2013	Dec. 26, 2014
LISN ROHDE & SCHWARZ (EUT)	ESH3-Z5	835239/001	Feb. 13, 2014	Feb. 12, 2015
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Jul. 21, 2014	Jul. 20, 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 HwaYa Shielded Room 1.
 3. The VCCI Site Registration No. is C-2040.

4.2.3 TEST PROCEDURES

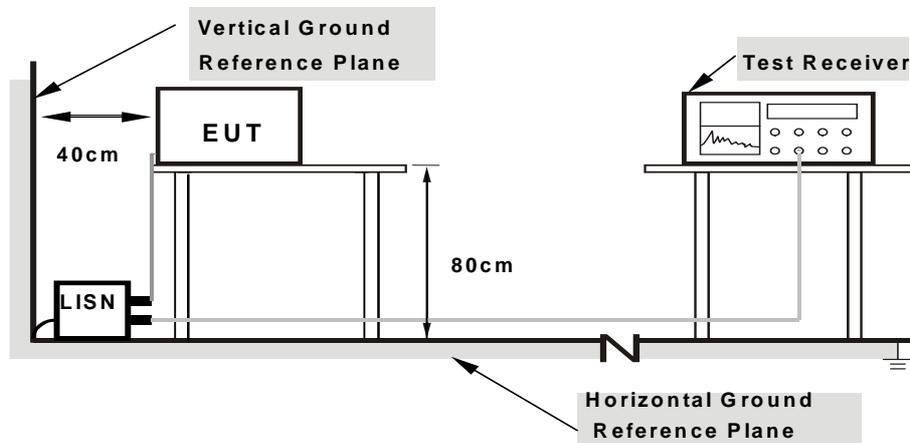
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling 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) 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 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

Same as 4.1.6.

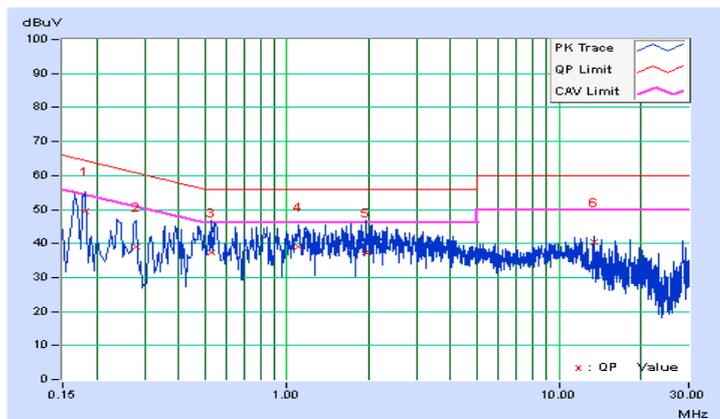
4.2.7 TEST RESULTS

CONDUCTED WORST-CASE DATA : 802.11g

PHASE	Line 1	6dB BANDWIDTH	9kHz
TEST MODE	A		

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	0.18180	0.07	49.57	30.55	49.64	30.62	64.40	54.40	-14.76	-23.78
2	0.27786	0.07	39.06	23.15	39.13	23.22	60.88	50.88	-21.75	-27.66
3	0.52984	0.09	37.35	23.33	37.44	23.42	56.00	46.00	-18.56	-22.58
4	1.09800	0.11	38.97	25.08	39.08	25.19	56.00	46.00	-16.92	-20.81
5	1.95800	0.15	37.39	27.08	37.54	27.23	56.00	46.00	-18.46	-18.77
6	13.41800	0.69	39.84	34.27	40.53	34.96	60.00	50.00	-19.47	-15.04

- 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.



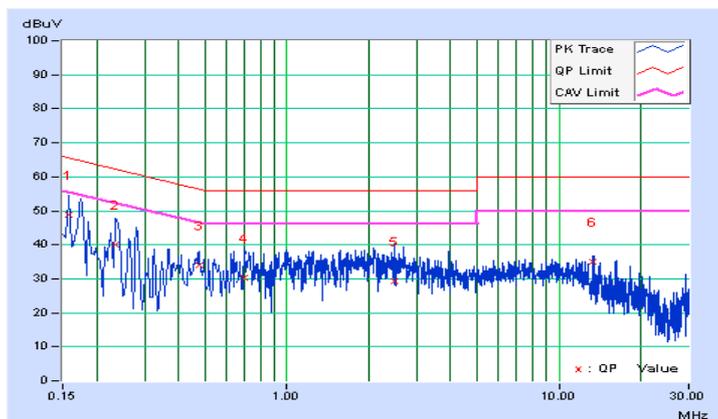


A D T

PHASE	Line 2	6dB BANDWIDTH	9kHz
TEST MODE	A		

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	0.15800	0.05	48.63	29.29	48.68	29.34	65.57	55.57	-16.89	-26.23
2	0.23412	0.05	39.89	22.36	39.94	22.41	62.30	52.30	-22.36	-29.89
3	0.47400	0.07	33.82	25.05	33.89	25.12	56.44	46.44	-22.55	-21.32
4	0.70200	0.08	30.20	17.42	30.28	17.50	56.00	46.00	-25.72	-28.50
5	2.49400	0.16	29.23	18.86	29.39	19.02	56.00	46.00	-26.61	-26.98
6	13.35800	0.60	34.37	30.42	34.97	31.02	60.00	50.00	-25.03	-18.98

- 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.



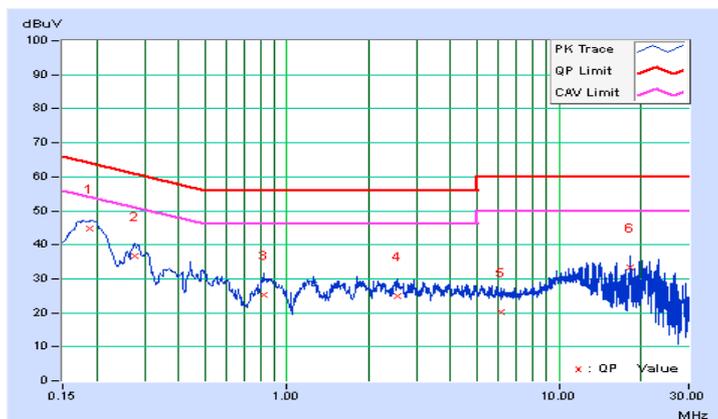


A D T

PHASE	Line 1	6dB BANDWIDTH	9kHz
TEST MODE	B		

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	0.18853	0.07	44.69	34.04	44.76	34.11	64.10	54.10	-19.34	-19.99
2	0.27480	0.07	36.48	25.36	36.55	25.43	60.97	50.97	-24.42	-25.54
3	0.81861	0.10	25.21	18.45	25.31	18.55	56.00	46.00	-30.69	-27.45
4	2.54292	0.17	24.66	17.57	24.83	17.74	56.00	46.00	-31.17	-28.26
5	6.15185	0.33	19.95	13.94	20.28	14.27	60.00	50.00	-39.72	-35.73
6	18.24548	0.95	32.29	26.89	33.24	27.84	60.00	50.00	-26.76	-22.16

- 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.



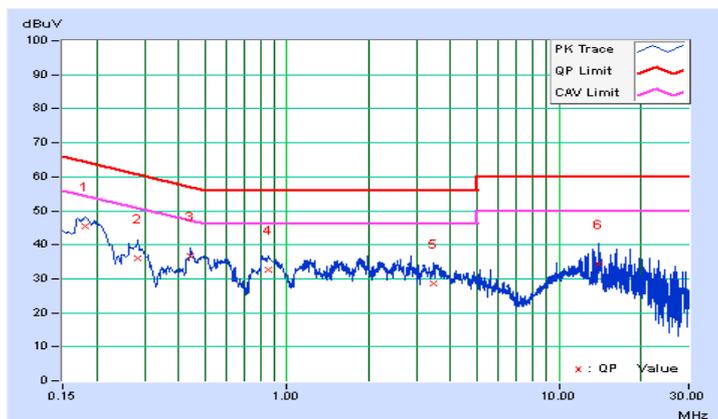


A D T

PHASE	Line 2	6dB BANDWIDTH	9kHz
TEST MODE	B		

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	0.18075	0.05	45.48	34.83	45.53	34.88	64.45	54.45	-18.92	-19.57
2	0.28288	0.06	35.96	27.13	36.02	27.19	60.73	50.73	-24.71	-23.54
3	0.44325	0.07	36.73	28.21	36.80	28.28	57.00	47.00	-20.20	-18.72
4	0.85380	0.09	32.73	23.19	32.82	23.28	56.00	46.00	-23.18	-22.72
5	3.47741	0.19	28.42	17.61	28.61	17.80	56.00	46.00	-27.39	-28.20
6	14.02659	0.63	33.66	27.49	34.29	28.12	60.00	50.00	-25.71	-21.88

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



4.3 6dB BANDWIDTH MEASUREMENT

4.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 TEST SETUP



4.3.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

4.3.4 TEST PROCEDURE

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

4.3.5 DEVIATION FROM TEST STANDARD

No deviation.

4.3.6 EUT OPERATING CONDITIONS

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



4.3.7 TEST RESULTS

802.11b

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
1	2412	5.56	5.58	0.5	PASS
6	2437	6.07	6.07	0.5	PASS
11	2462	6.05	6.04	0.5	PASS

802.11g

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
1	2412	16.33	16.07	0.5	PASS
6	2437	16.27	15.83	0.5	PASS
11	2462	15.93	15.97	0.5	PASS

802.11n (20MHz)

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
1	2412	15.41	16.68	0.5	PASS
6	2437	16.93	16.06	0.5	PASS
11	2462	15.91	16.69	0.5	PASS

802.11n (40MHz)

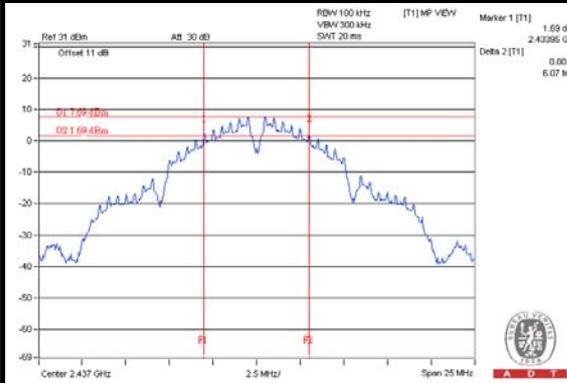
CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
3	2422	35.24	35.30	0.5	PASS
6	2437	35.11	35.21	0.5	PASS
9	2452	35.23	35.21	0.5	PASS



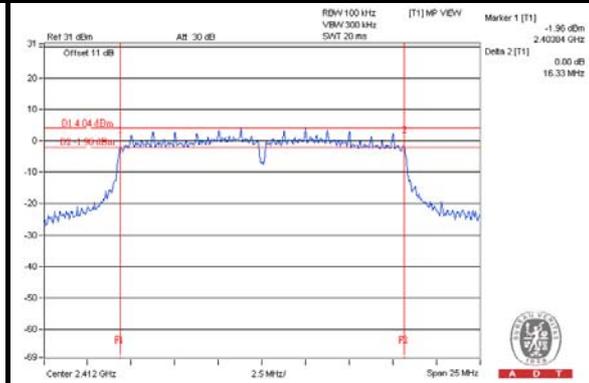
A D T

SPECTRUM PLOT OF WORST VALUE

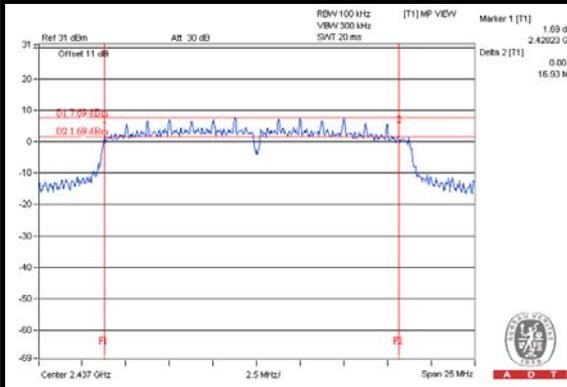
802.11b



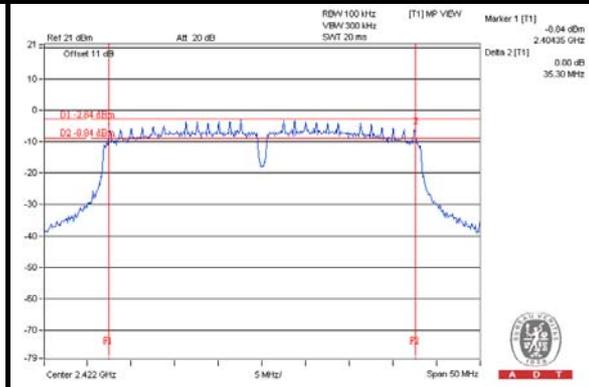
802.11g



802.11n (20MHz)



802.11n (40MHz)



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)

Per KDB 662911 D01 Multiple Transmitter Output v02r01 Method of conducted output power measurement on IEEE 802.11 devices,

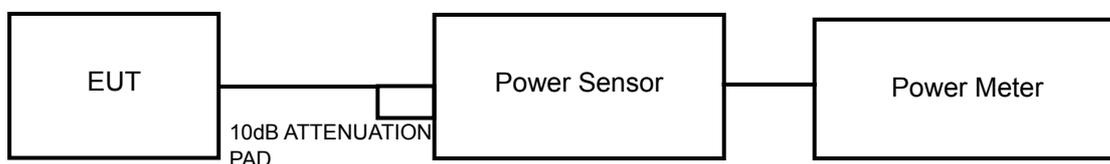
Array Gain = 0 dB (i.e., no array gain) for $NANT \leq 4$;

Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any NANT;

Array Gain = $5 \log(NANT/NSS)$ dB or 3 dB, whichever is less for 20-MHz channel widths with $NANT \geq 5$.

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

4.4.2 TEST SETUP



4.4.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

4.4.4 TEST PROCEDURES

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



A D T

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

802.11b

CHAN.	FREQ. (MHz)	AVG. POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
1	2412	17.02	17.14	102.111	20.09	30	PASS
6	2437	15.17	15.26	66.459	18.23	30	PASS
11	2462	15.42	15.38	69.348	18.41	30	PASS

802.11g

CHAN.	FREQ. (MHz)	AVG. POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
1	2412	15.20	15.63	69.672	18.43	30	PASS
6	2437	18.07	18.04	127.801	21.07	30	PASS
11	2462	15.18	15.03	64.803	18.12	30	PASS

802.11n (20MHz)

CHAN.	FREQ. (MHz)	AVG. POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
1	2412	15.01	14.72	61.344	17.88	30	PASS
6	2437	18.07	17.98	126.927	21.04	30	PASS
11	2462	14.64	14.27	55.837	17.47	30	PASS

802.11n (40MHz)

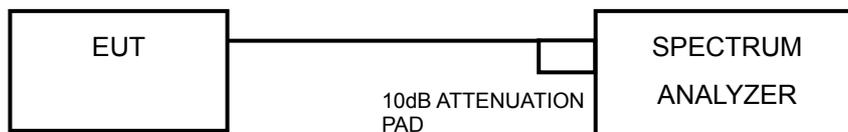
CHAN.	FREQ. (MHz)	AVG. POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
3	2422	11.61	11.24	27.793	14.44	30	PASS
6	2437	16.11	16.20	82.519	19.17	30	PASS
9	2452	11.89	11.84	30.729	14.88	30	PASS

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

- a) Set instrument center frequency to DTS channel center frequency.
- b) Set span to at least 1.5 times the OBW.
- c) Set RBW to: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
- d) Set VBW $\geq 3 \times \text{RBW}$.
- e) Detector = power averaging (RMS) or sample detector (when RMS not available).
- f) Ensure that the number of measurement points in the sweep $\geq 2 \times \text{span}/\text{RBW}$.
- g) Sweep time = auto couple.
- h) Employ trace averaging (RMS) mode over a minimum of 100 traces.
- i) Use the peak marker function to determine the maximum amplitude level.

4.5.5 DEVIATION FROM TEST STANDARD

No deviation.

4.5.6 EUT OPERATING CONDITION

Same as Item 4.3.6

4.5.7 TEST RESULTS

802.11b

TX chain	Channel	Freq. (MHz)	PSD (dBm/10kHz)	10 log (N=2) dB	Total PSD (dBm/10kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	1	2412	-8.80	3.01	-5.79	8.00	PASS
	6	2437	-11.00	3.01	-7.99	8.00	PASS
	11	2462	-11.21	3.01	-8.20	8.00	PASS
1	1	2412	-9.36	3.01	-6.35	8.00	PASS
	6	2437	-11.72	3.01	-8.71	8.00	PASS
	11	2462	-10.65	3.01	-7.64	8.00	PASS

NOTE: Directional gain = $2.7\text{dBi} + 10\log(2) = 5.71\text{dBi} < 6\text{dBi}$, so the limit no need to reduced.

802.11g

TX chain	Channel	Freq. (MHz)	PSD (dBm/10kHz)	10 log (N=2) dB	Duty Factor	Total PSD with Duty Factor (dBm/10kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	1	2412	-14.72	3.01	0.13	-11.58	8.00	PASS
	6	2437	-11.34	3.01	0.13	-8.20	8.00	PASS
	11	2462	-15.09	3.01	0.13	-11.95	8.00	PASS
1	1	2412	-14.92	3.01	0.13	-11.78	8.00	PASS
	6	2437	-12.10	3.01	0.13	-8.96	8.00	PASS
	11	2462	-15.38	3.01	0.13	-12.24	8.00	PASS

NOTE:

- Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- Directional gain = $2.7\text{dBi} + 10\log(2) = 5.71\text{dBi} < 6\text{dBi}$, so the limit no need to reduced.
- Refer to section 3.3 for duty cycle spectrum plot.



802.11n (20MHz)

TX chain	Channel	Freq. (MHz)	PSD (dBm/10kHz)	10 log (N=2) dB	Duty Factor	Total PSD with Duty Factor (dBm/10kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	1	2412	-15.36	3.01	0.14	-12.21	8.00	PASS
	6	2437	-11.87	3.01	0.14	-8.72	8.00	PASS
	11	2462	-15.76	3.01	0.14	-12.61	8.00	PASS
1	1	2412	-16.57	3.01	0.14	-13.42	8.00	PASS
	6	2437	-13.15	3.01	0.14	-10.00	8.00	PASS
	11	2462	-16.17	3.01	0.14	-13.02	8.00	PASS

NOTE:

1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 2.7dBi + 10log(2) = 5.71dBi < 6dBi, so the limit no need to reduced.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (40MHz)

TX chain	Channel	Freq. (MHz)	PSD (dBm/10kHz)	10 log (N=2) dB	Duty Factor	Total PSD with Duty Factor (dBm/10kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	3	2422	-21.26	3.01	0.19	-18.06	8.00	PASS
	6	2437	-16.07	3.01	0.19	-12.87	8.00	PASS
	9	2452	-20.87	3.01	0.19	-17.67	8.00	PASS
1	3	2422	-20.91	3.01	0.19	-17.71	8.00	PASS
	6	2437	-16.34	3.01	0.19	-13.14	8.00	PASS
	9	2452	-21.07	3.01	0.19	-17.87	8.00	PASS

NOTE:

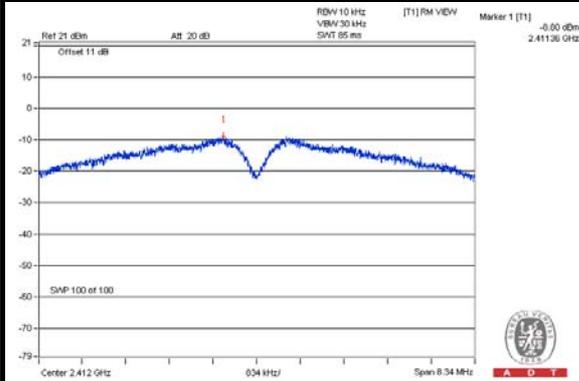
1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 2.7dBi + 10log(2) = 5.71dBi < 6dBi, so the limit no need to reduced.
3. Refer to section 3.3 for duty cycle spectrum plot.



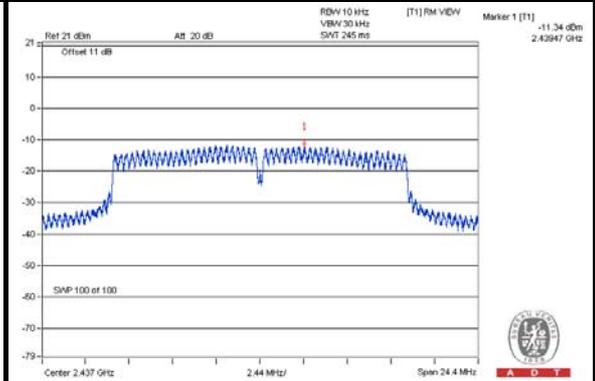
A D T

SPECTRUM PLOT OF WORST VALUE

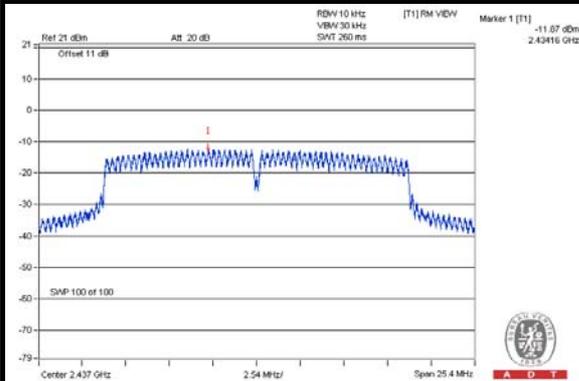
802.11b



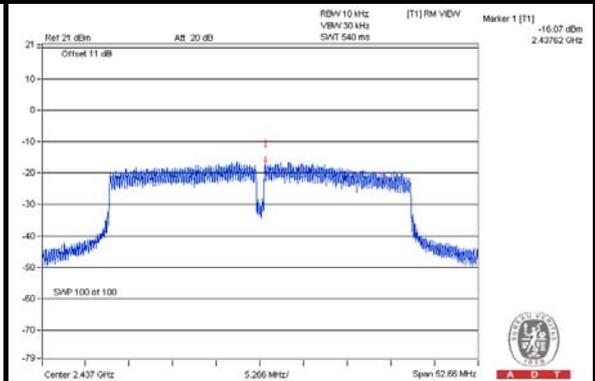
802.11g



802.11n (20MHz)



802.11n (40MHz)

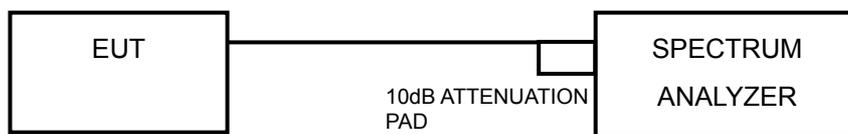


4.6 CONDUCTED OUT OF BAND EMISSION MEASUREMENT

4.6.1 LIMITS OF CONDUCTED OUT OF BAND EMISSION MEASUREMENT

Below -30dB 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.



A D T

4.6.4 TEST PROCEDURE

MEASUREMENT PROCEDURE REF

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

MEASUREMENT PROCEDURE OOB

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

4.6.5 DEVIATION FROM TEST STANDARD

No deviation.

4.6.6 EUT OPERATING CONDITION

Same as Item 4.3.6

4.6.7 TEST RESULTS

The conducted emission test is performed on each TX port of operating mode without summing or adding $10\log(N)$ since the limit is relative emission limit. Only worst data of each operating mode is presented.

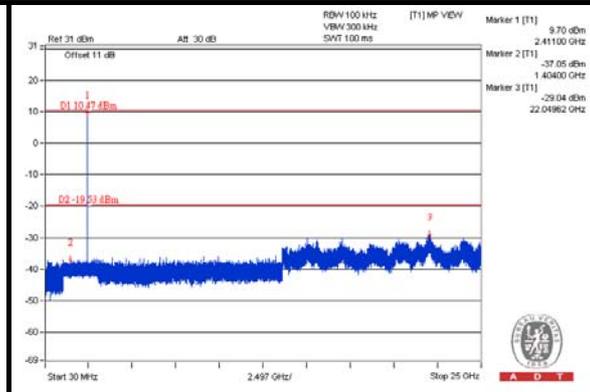
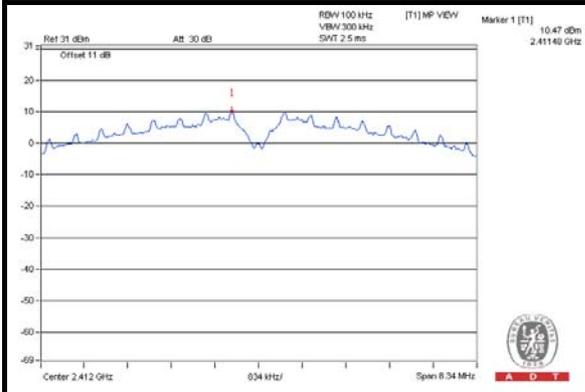
The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 30dB offset below D1. It shows compliance with the requirement.



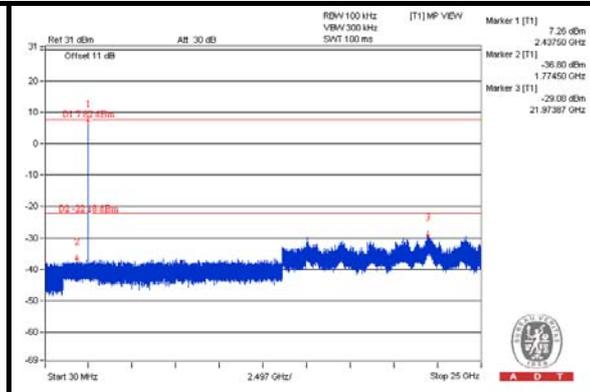
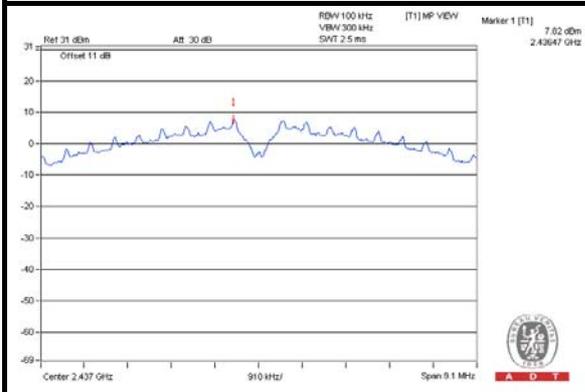
A D T

802.11b CHAIN 0

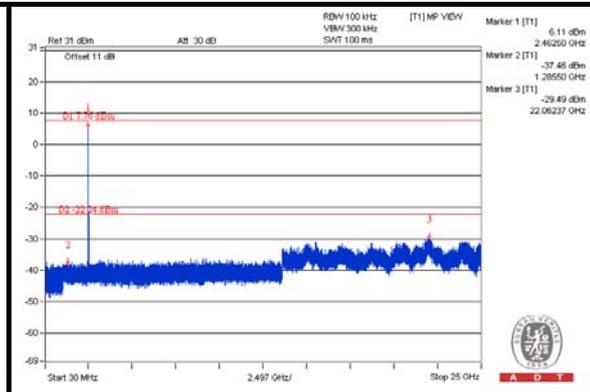
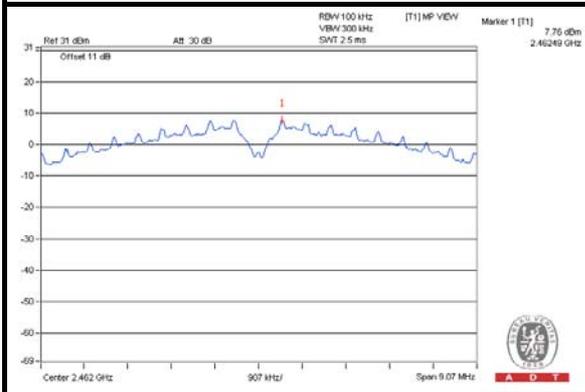
CH 1



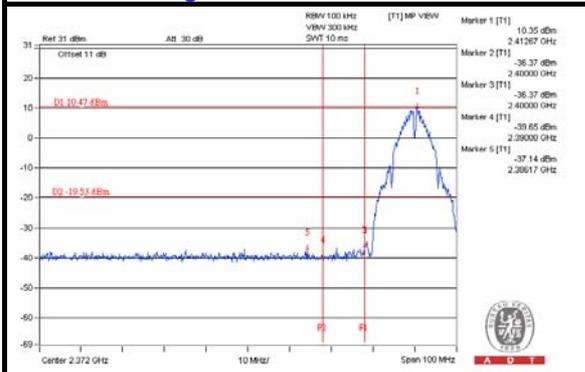
CH 6



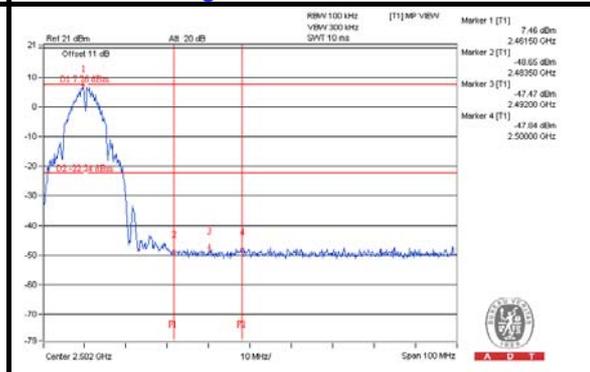
CH 11



CH 11 Band edge



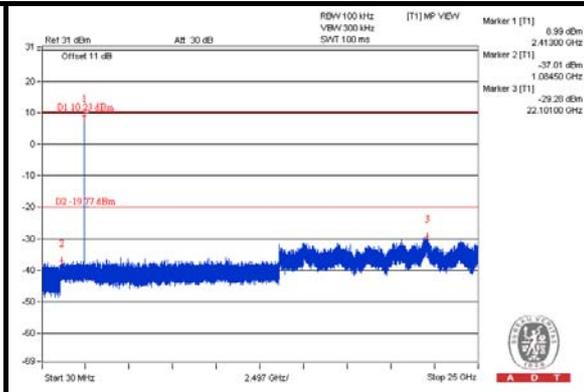
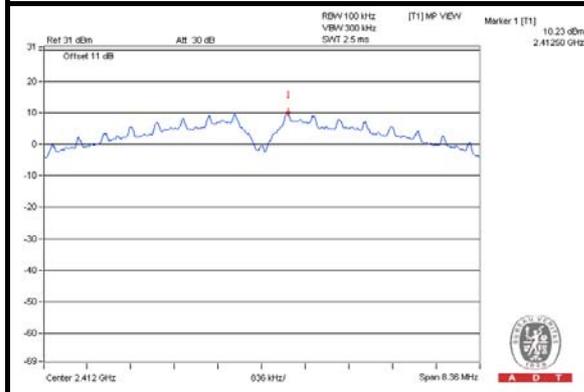
CH 11 Band edge



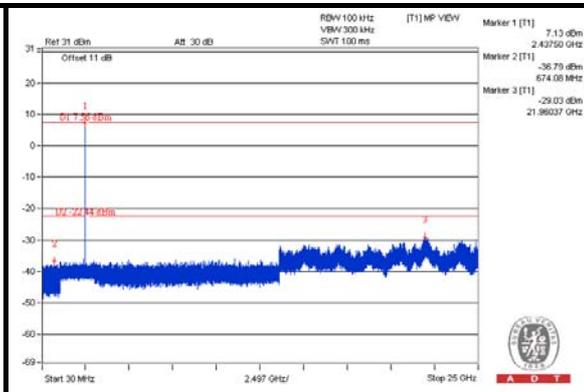
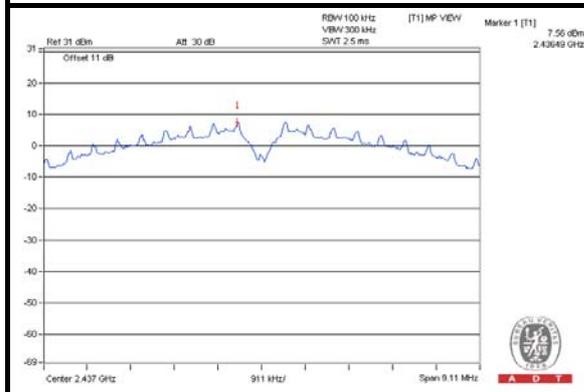


A D T

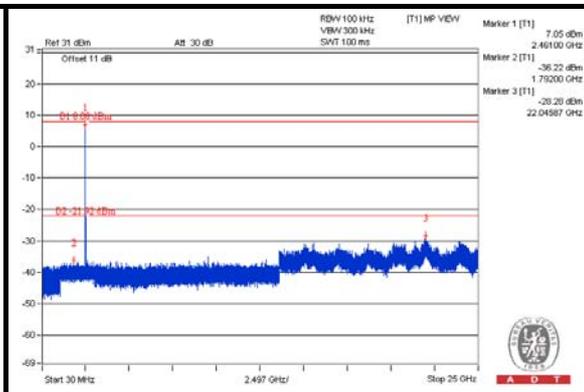
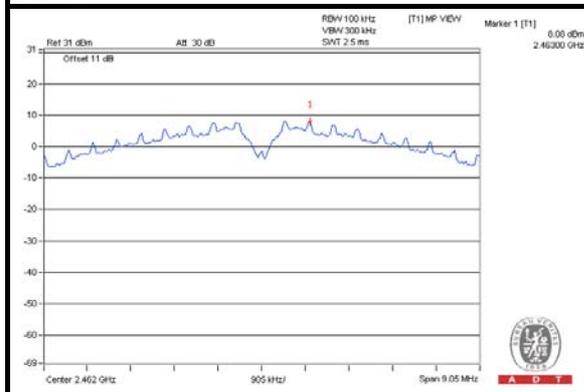
CHAIN 1 CH 1



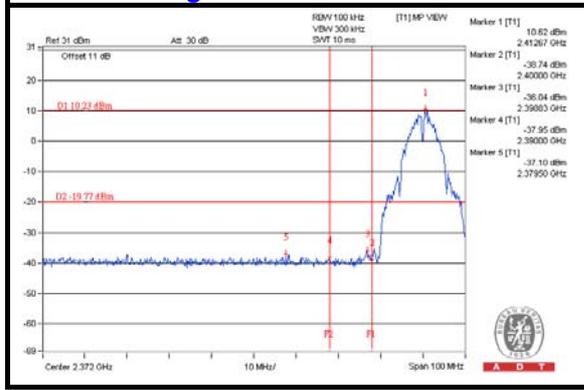
CH 6



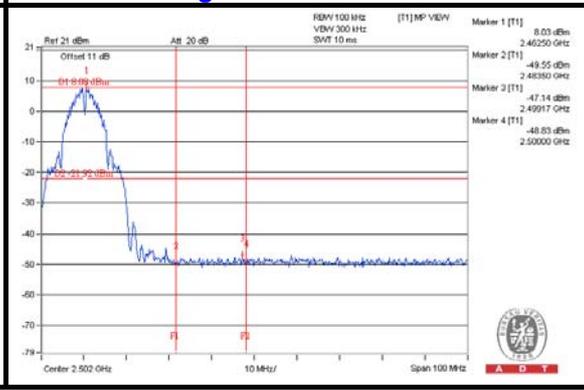
CH 11



CH 1 Band edge



CH 11 Band edge

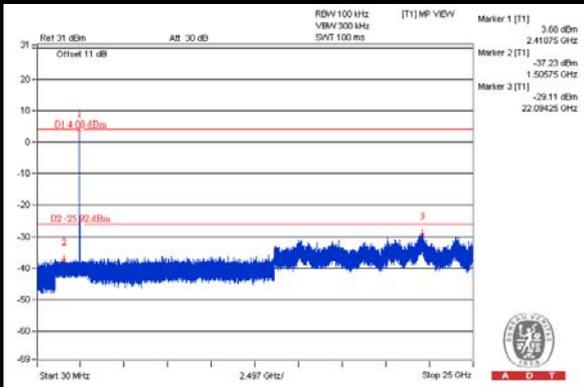
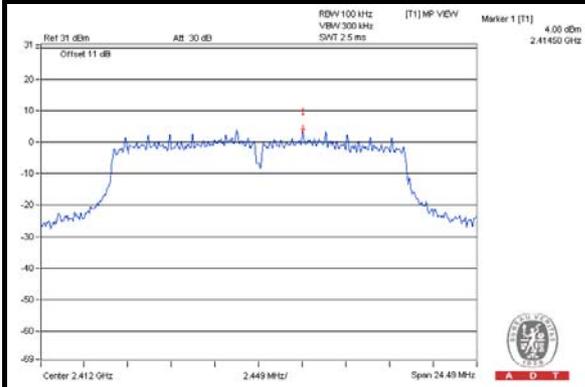




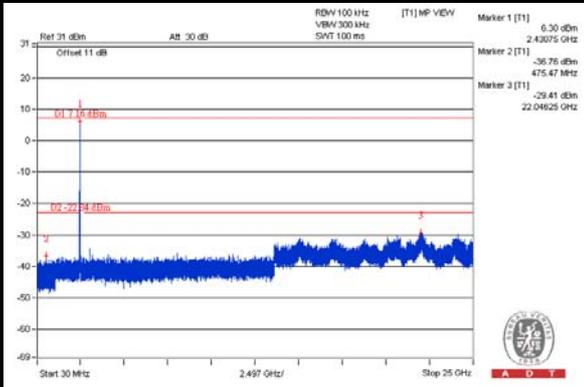
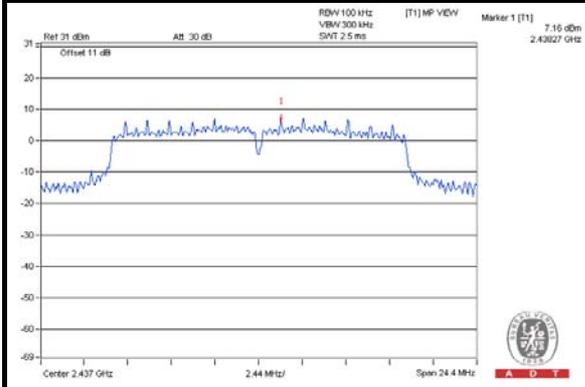
A D T

802.11g CHAIN 0

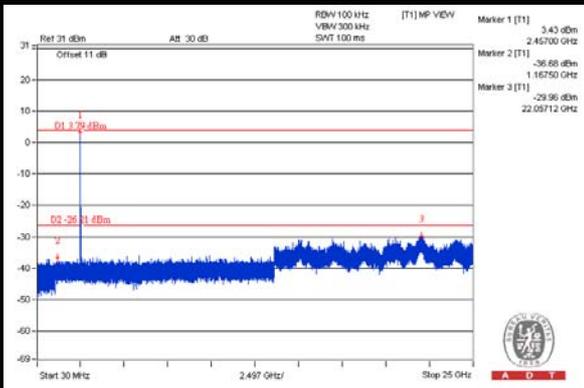
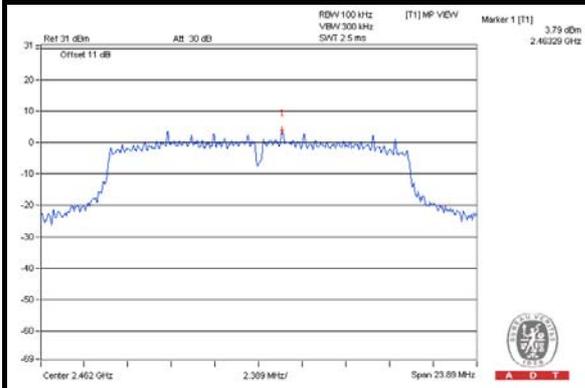
CH 1



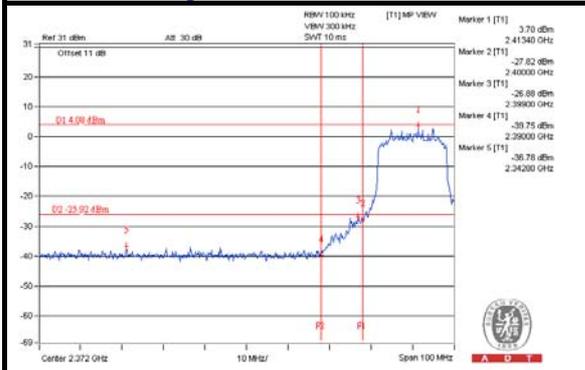
CH 6



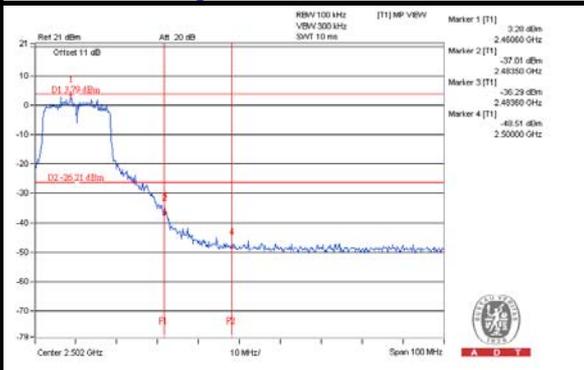
CH 11



CH 1 Band edge



CH 11 Band edge

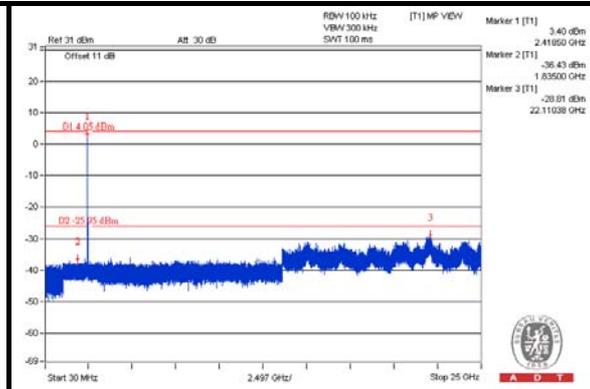
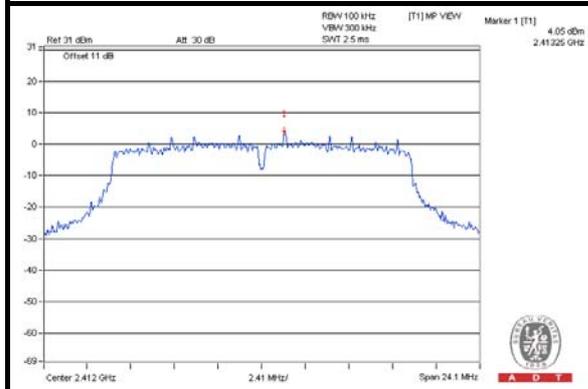




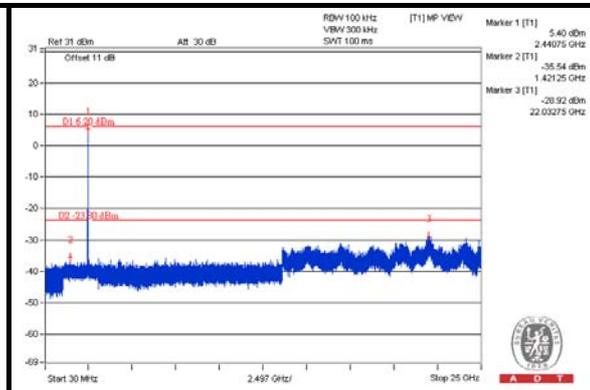
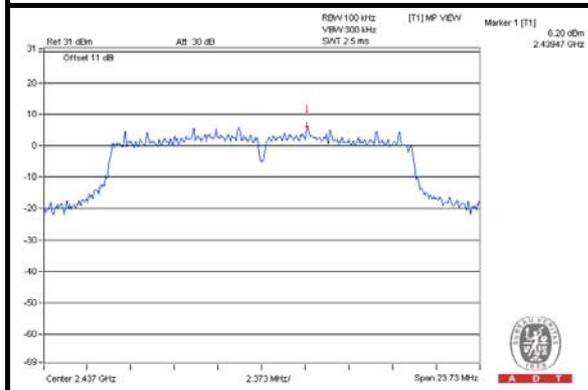
A D T

CHAIN 1

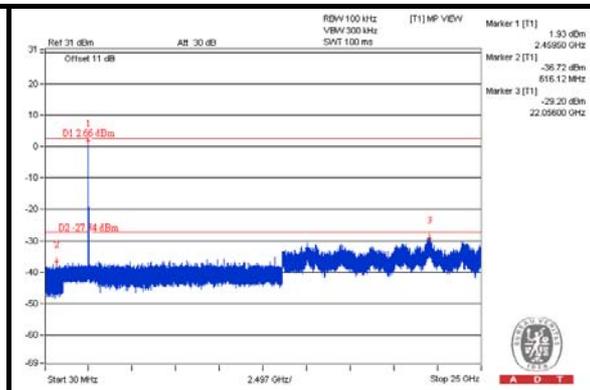
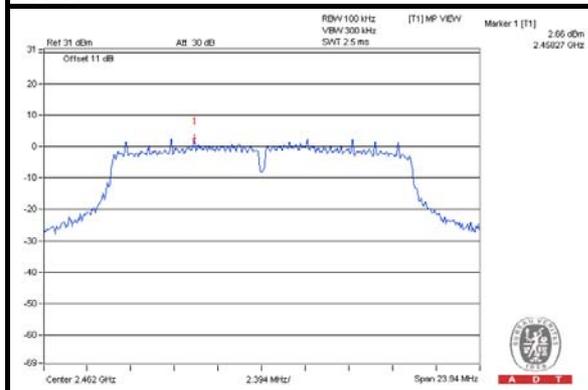
CH 1



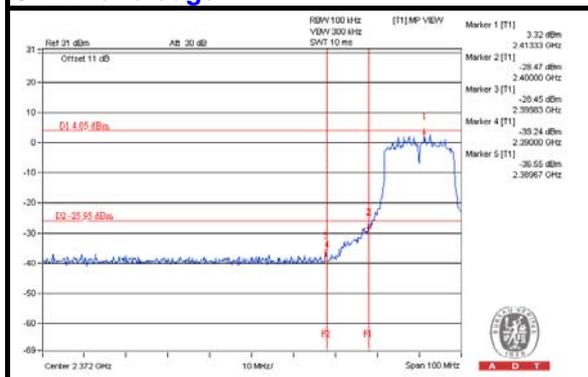
CH 6



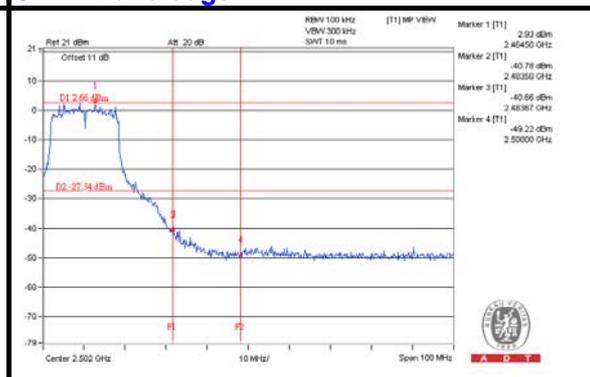
CH 11



CH 1 Band edge



CH 11 Band edge

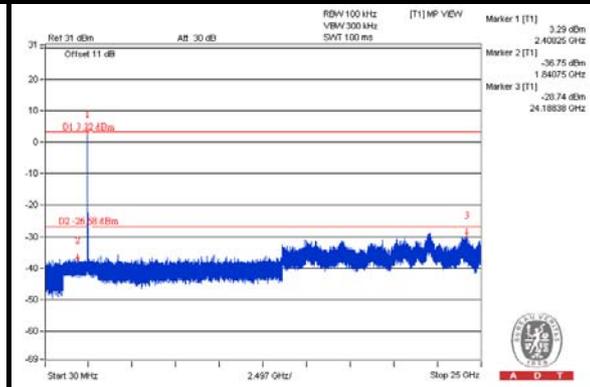
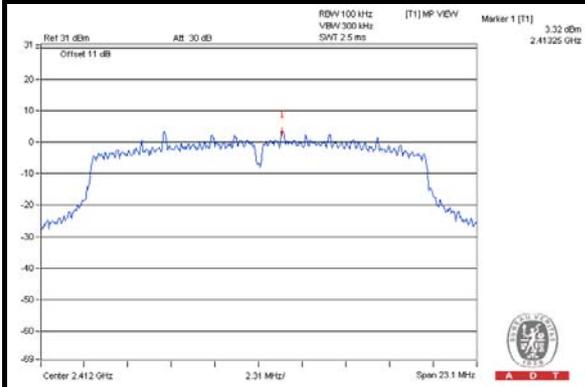




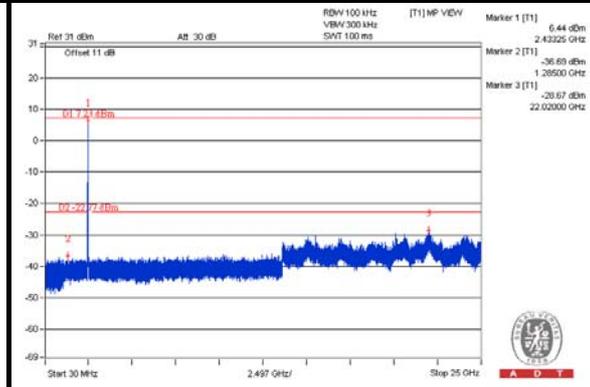
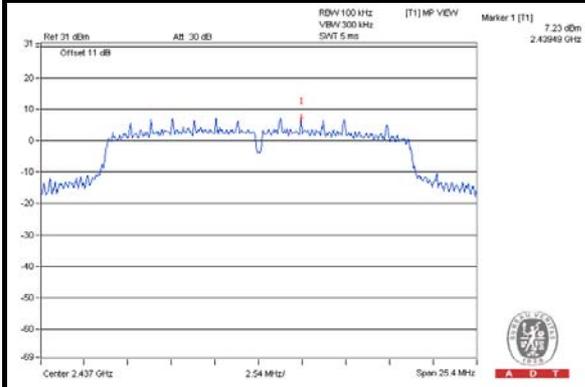
A D T

802.11n (20MHz) CHAIN 0

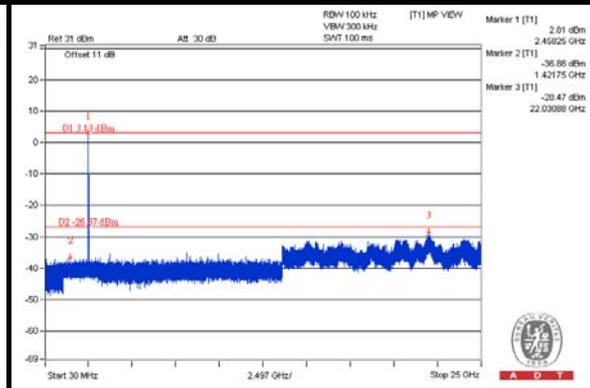
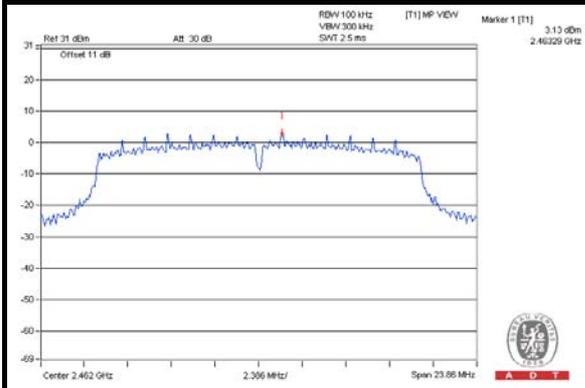
CH 1



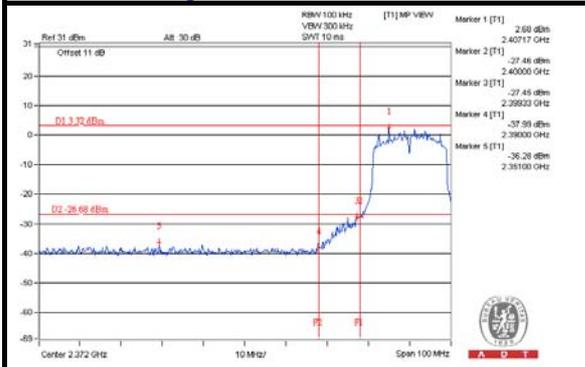
CH 6



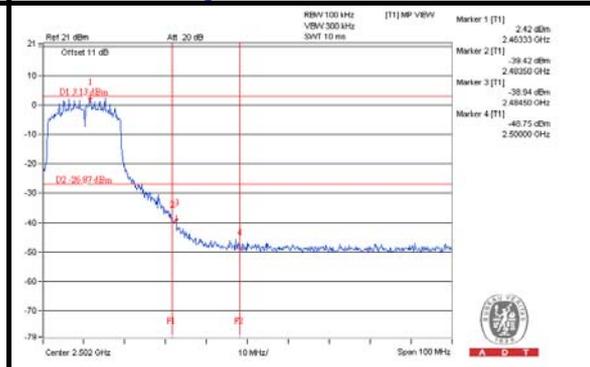
CH 11



CH 1 Band edge



CH 11 Band edge

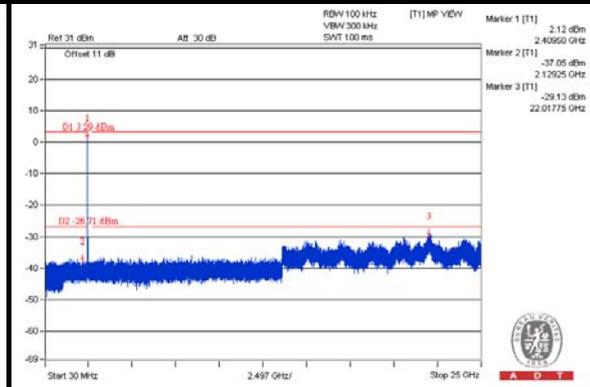
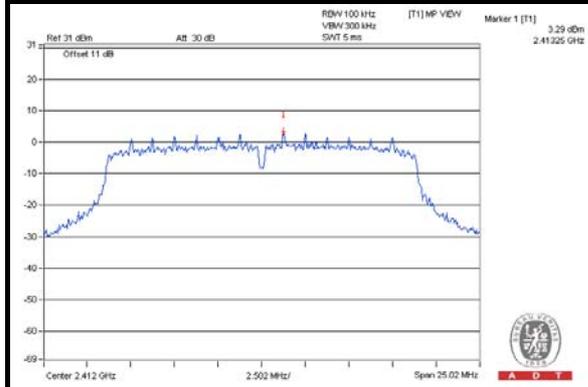




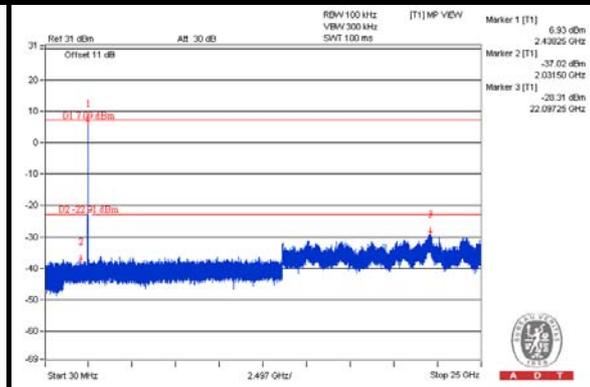
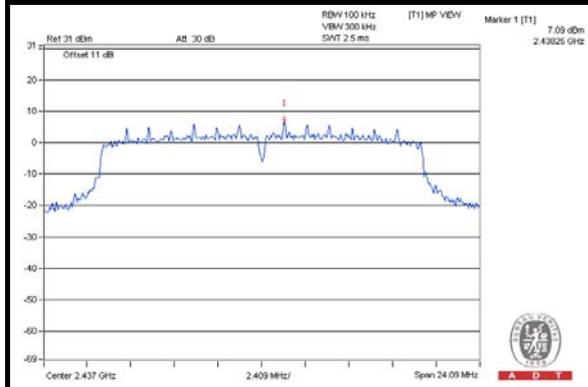
A D T

CHAIN 1

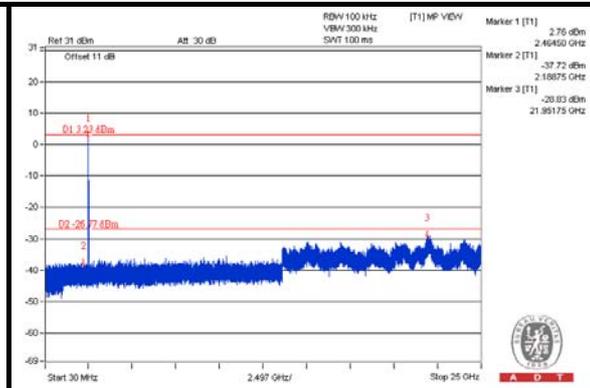
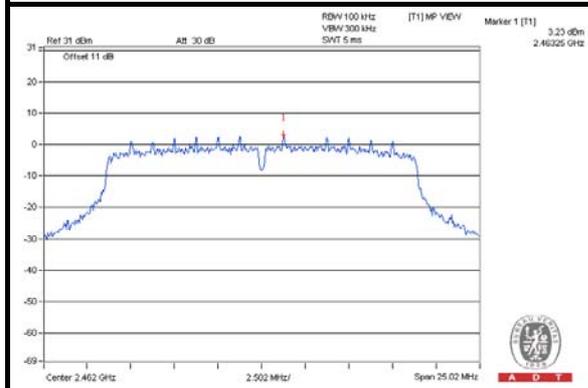
CH 1



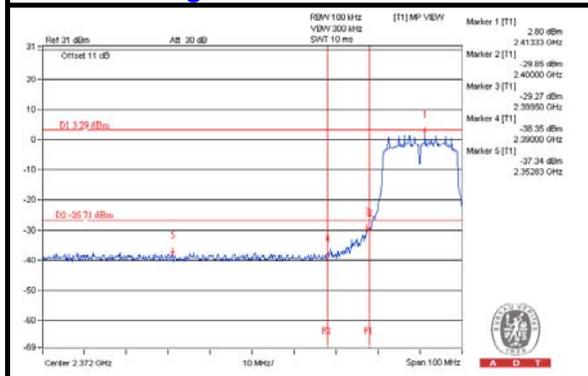
CH 6



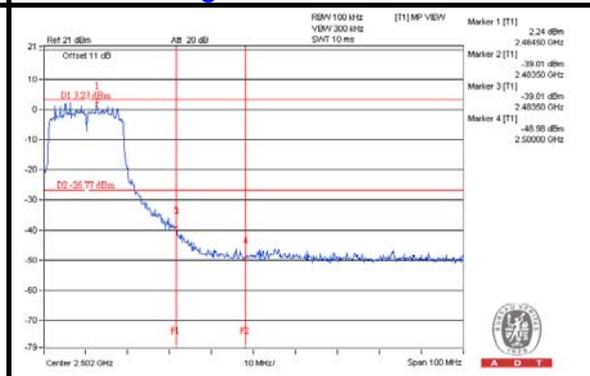
CH 11



CH 1 Band edge



CH 11 Band edge

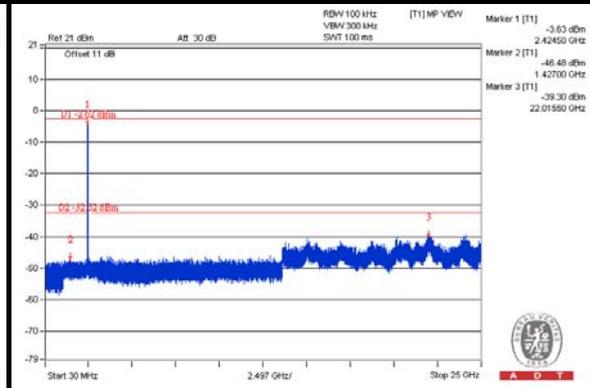
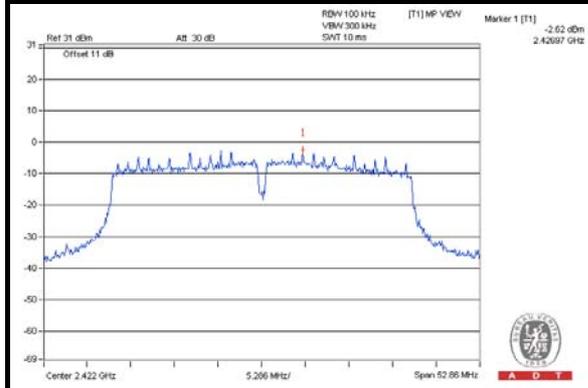




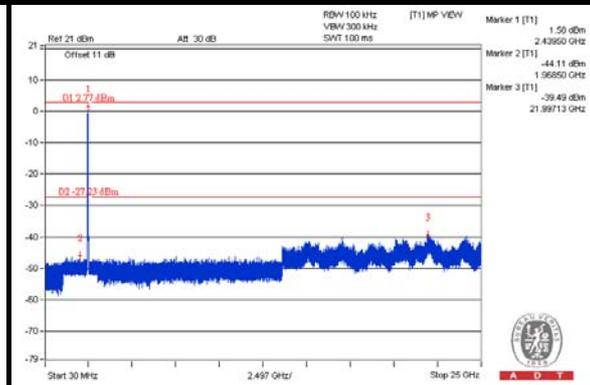
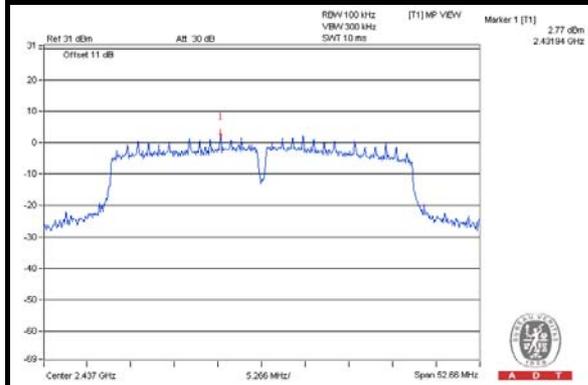
A D T

802.11n (40MHz) CHAIN 0

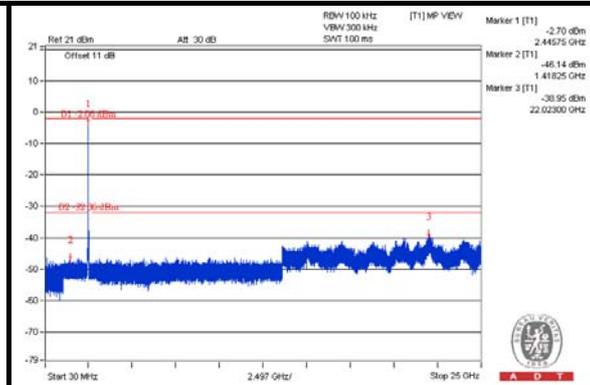
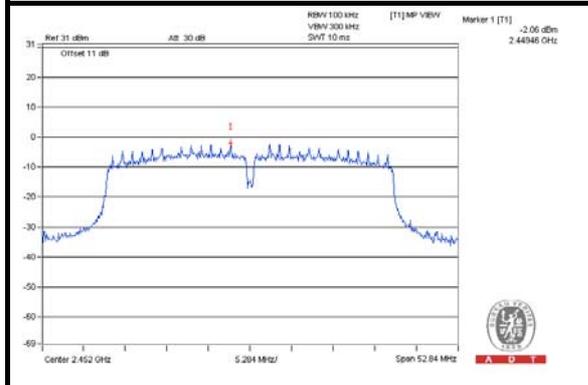
CH 3



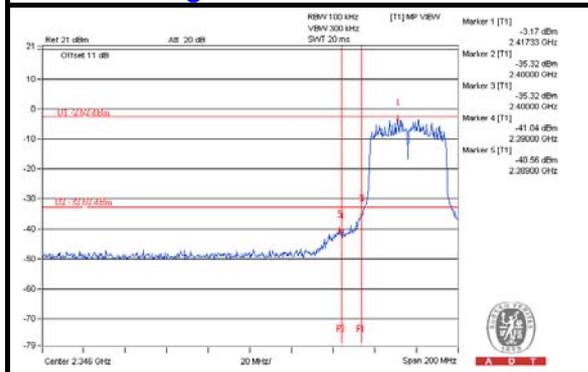
CH 6



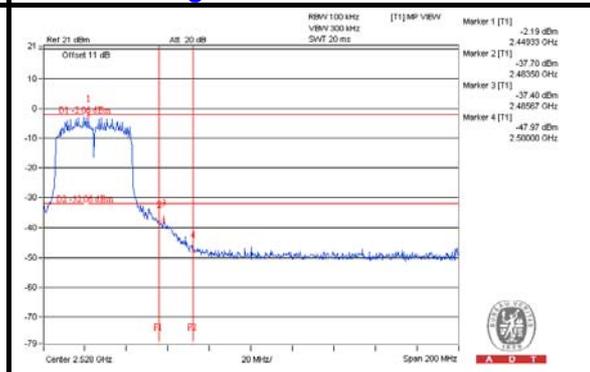
CH 9



CH 3 Band edge



CH 9 Band edge

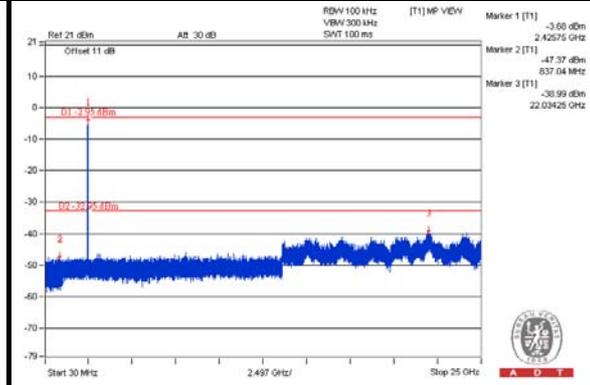
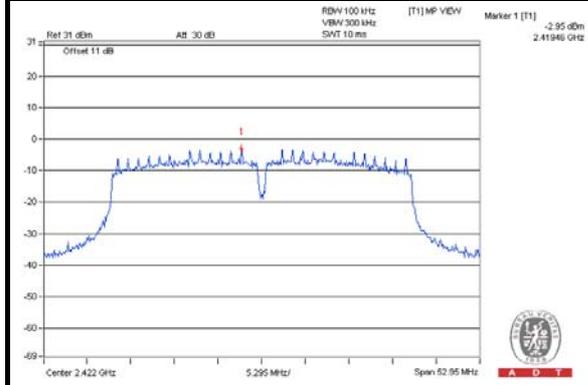




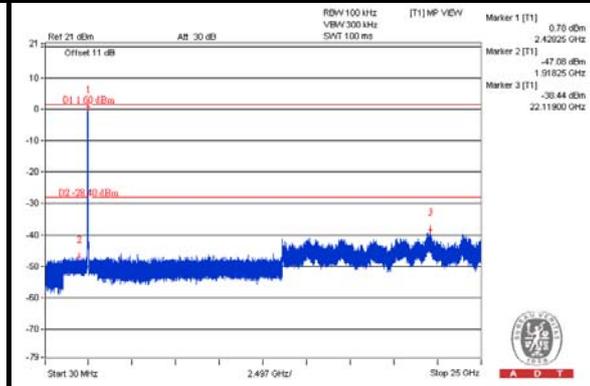
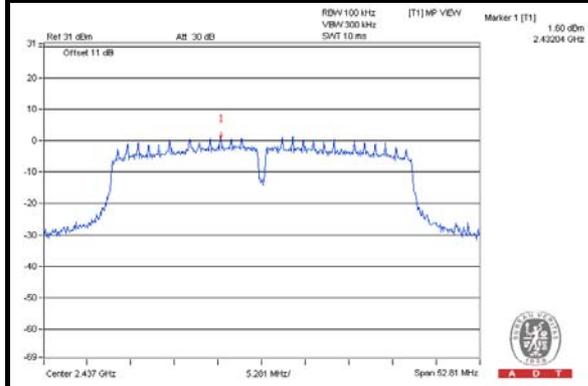
A D T

CHAIN 1

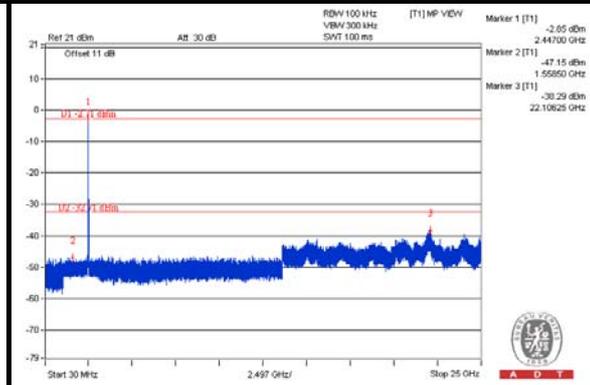
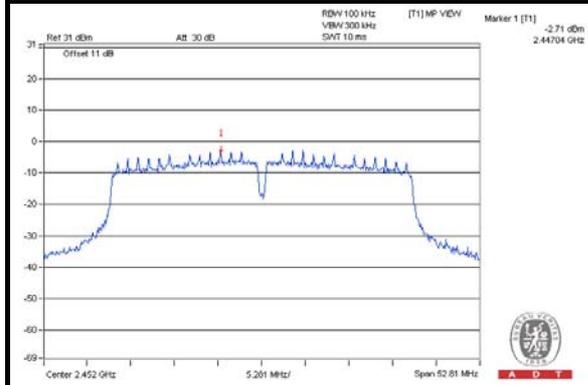
CH 3



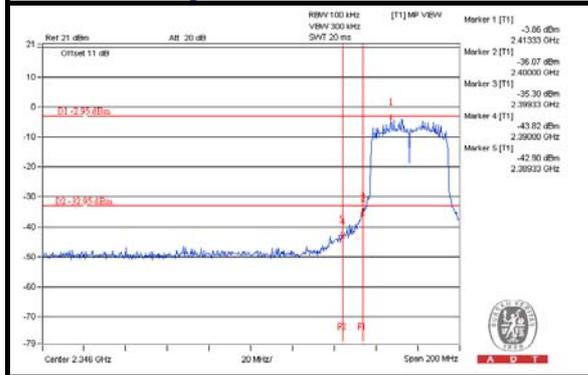
CH 6



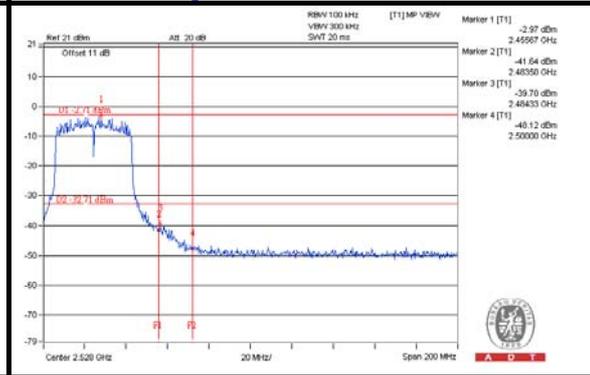
CH 9



CH 3 Band edge



CH 9 Band edge



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/ 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.



A D T

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

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

---END---