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FCC TEST REPORT (WLAN 15.247)

REPORT NO.: RF120328C07E

MODEL NO.: RNX-N600UB

FCC ID: W6RRNX-N600UB

RECEIVED: Apr. 2, 2014

TESTED: Apr. 17 ~ 23, 2014

ISSUED: Jun. 19, 2014

APPLICANT: Rosewill Inc.

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

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF120328C07E	Original release	Jun. 19, 2014



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1. CERTIFICATION

PRODUCT: Wireless Dual Band USB Adapter
BRAND NAME: Newegg
MODEL NO.: RNX-N600UB
APPLICANT: Rosewill Inc.
TESTED: Apr. 17 ~ 23, 2014
TEST SAMPLE: PROTOTYPE
STANDARDS: **FCC Part 15, Subpart C (Section 15.247)**
ANSI C63.10-2009

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

PREPARED BY : Annie Chang , **DATE:** Jun. 19, 2014
(Annie Chang / Supervisor)

APPROVED BY : Rex Lai , **DATE:** Jun. 19, 2014
(Rex Lai / Assistant 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 -10.43dB at 0.50548MHz.
15.205 & 15.209	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -0.2dB at 4924.00MHz.
15.247(d)	Band Edge Measurement	PASS	Meet the requirement of limit. Minimum passing margin is -0.4dB 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	No antenna connector is used.

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	3.43 dB
Radiated emissions	30MHz ~ 1GHz	4.00 dB
	Above 1GHz	3.36 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	Wireless Dual Band USB Adapter
MODEL NO.	RNX-N600UB
POWER SUPPLY	5Vdc from host equipment
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11b: 11/ 5.5/ 2/ 1Mbps 802.11g: 54/ 48/ 36/ 24/ 18/ 12/ 9/ 6Mbps 802.11a: 54/ 48/ 36/ 24/ 18/ 12/ 9/ 6Mbps 802.11n: up to 300Mbps
OPERATING FREQUENCY	2.4GHz: 2412 ~ 2462MHz 5.0GHz: 5745 ~ 5825MHz
NUMBER OF CHANNEL	2.4GHz: 11 for 802.11b, 802.11g, 802.11n (20MHz) 7 for 802.11n (40MHz) 5.0GHz: 5 for 802.11a, 802.11n (20MHz) 2 for 802.11n (40MHz)
OUTPUT POWER	457.0mW for 2412 ~ 2462MHz 698.8mW for 5745 ~ 5825MHz
ANTENNA TYPE	Printed antenna with 0dBi gain
ANTENNA CONNECTOR	N/A
DATA CABLE	N/A
I/O PORTS	Refer to user's manual
ACCESSORY DEVICES	N/A

NOTE:

- The frequency bands used in this EUT are listed as follows:

Frequency Band (MHz)	2412~2462	5180~5240	5745~5825
802.11b	√		
802.11g	√		
802.11a		√	√
802.11n (20MHz)	√	√	√
802.11n (40MHz)	√	√	√

2. 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
802.11a	2TX
802.11n (20MHz)	2TX
802.11n (40MHz)	2TX

3. The EUT had been pre-tested with Horizontal & Vertical condition. The worst case was found when tested under Horizontal condition, therefore only its test data was recorded in this report.
4. 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

FOR 2.4GHz:

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		

FOR 5.0GHz (5745 ~ 5825MHz):

5 channels are provided for 802.11a, 802.11n (20MHz):

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

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
151	5755MHz	159	5795MHz

3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE \geq 1G	RE<1G	PLC	APCM	
-	√	√	√	√	-

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

NOTE: The EUT had been pre-tested on the positioned of x & y axis. The worst case was found when positioned on **X-plane**.

RADIATED EMISSION TEST (ABOVE 1GHz):

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

MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	2412-2462	1 to 11	1, 6, 11	DSSS	DBPSK	1
802.11g		1 to 11	1, 6, 11	OFDM	BPSK	6
802.11n (20MHz)		1 to 11	1, 6, 11	OFDM	BPSK	13
802.11n (40MHz)		3 to 9	3, 6, 9	OFDM	BPSK	27
802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	BPSK	1
802.11n (20MHz)		149 to 165	149, 157, 165	OFDM	BPSK	6
802.11n (40MHz)		151 to 159	151, 159	OFDM	BPSK	13

RADIATED EMISSION TEST (BELOW 1GHz):

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

MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11g	2412-2462	1 to 11	1	OFDM	BPSK	6
802.11n (20MHz)	5745-5825	149 to 165	149	OFDM	BPSK	6

POWER LINE CONDUCTED EMISSION TEST:

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

MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11g	2412-2462	1 to 11	1	OFDM	BPSK	6
802.11n (20MHz)	5745-5825	149 to 165	149	OFDM	BPSK	6

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.

MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	2412-2462	1 to 11	1, 11	DSSS	DBPSK	1
802.11g		1 to 11	1, 11	OFDM	BPSK	6
802.11n (20MHz)		1 to 11	1, 11	OFDM	BPSK	13
802.11n (40MHz)		3 to 9	3, 9	OFDM	BPSK	27
802.11a	5745-5825	149 to 165	149, 165	OFDM	BPSK	1
802.11n (20MHz)		149 to 165	149, 165	OFDM	BPSK	6
802.11n (40MHz)		151 to 159	151, 159	OFDM	BPSK	13

ANTENNA PORT CONDUCTED MEASUREMENT:

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

MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	2412-2462	1 to 11	1, 6, 11	DSSS	DBPSK	1
802.11g		1 to 11	1, 6, 11	OFDM	BPSK	6
802.11n (20MHz)		1 to 11	1, 6, 11	OFDM	BPSK	13
802.11n (40MHz)		3 to 9	3, 6, 9	OFDM	BPSK	27
802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	BPSK	1
802.11n (20MHz)		149 to 165	149, 157, 165	OFDM	BPSK	6
802.11n (40MHz)		151 to 159	151, 159	OFDM	BPSK	13



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TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER (SYSTEM)	TESTED BY
RE \geq 1G	21deg. C, 71% RH	120Vac, 60Hz	Joey Liu
RE<1G	21deg. C, 71% RH	120Vac, 60Hz	Joey Liu
PLC	20deg. C, 73% RH	120Vac, 60Hz	Aaron You
APCM	25deg. C, 60%RH	120Vac, 60Hz	Saxon Lee

3.3 DUTY CYCLE OF TEST SIGNAL

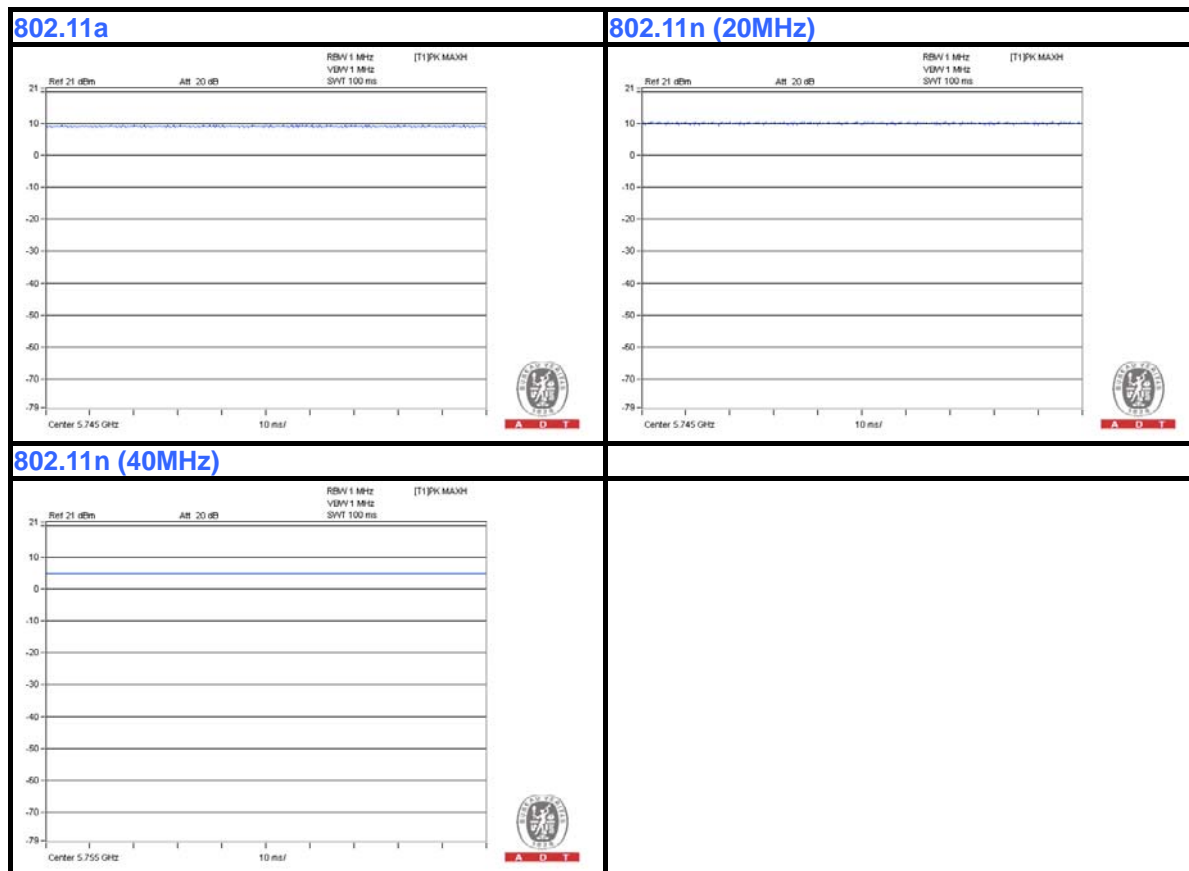
Duty cycle of test signal is 100 %





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Duty cycle of test signal is 100 %



3.4 DESCRIPTION OF SUPPORT UNITS

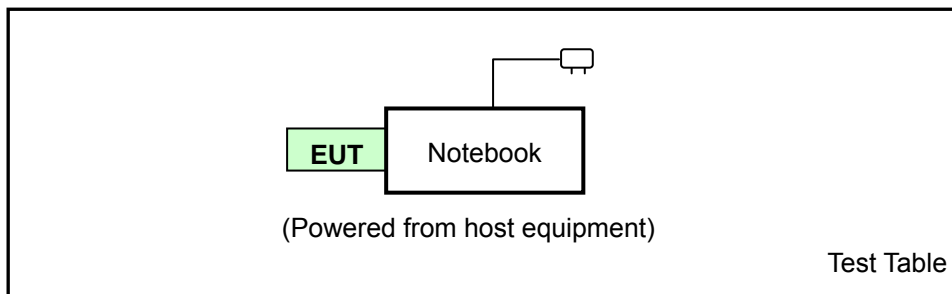
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	Notebook	DELL	E5410	BW33YM1	FCC DoC Approved

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	N/A

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

3.4.1 CONFIGURATION OF SYSTEM UNDER TEST





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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 product 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.	CALIBRATED DATE	CALIBRATED UNTIL
HP Preamplifier	8447D	2432A03504	Feb. 26, 2014	Feb. 25, 2015
HP Preamplifier	8449B	3008A01201	Feb. 26, 2014	Feb. 25, 2015
Agilent TEST RECEIVER	N9038A	MY51210129	Jan. 18, 2014	Jan. 17, 2015
Schwarzbeck Antenna	VULB 9168	139	Feb. 24, 2014	Feb. 23, 2015
Schwarzbeck Antenna	VHBA 9123	480	May 29, 2013	May 28, 2015
ADT. Turn Table	TT100	0306	NA	NA
ADT. Tower	AT100	0306	NA	NA
Software	ADT_Radiated_V 7.6.15.9.4	NA	NA	NA
SUHNER RF cable	SF102	CABLE-CH6	Aug. 16, 2013	Aug. 15, 2014
Schwarzbeck Horn Antenna	BBHA 9120-D1	D130	May 13, 2013	May 12, 2014
Highpass filter Wainwright Instruments	WHK 3.1/18G-10SS	SN 8	NA	NA
ROHDE & SCHWARZ Spectrum Analyzer	FSP 40	100036	May 17, 2013	May 16, 2014
Anritsu Power Sensor	MA2411B	0738404	Apr. 24, 2013	Apr. 23, 2014
Anritsu Power Meter	ML2495A	0842014	Apr. 25, 2013	Apr. 24, 2014

- NOTE:** 1. The calibration interval of the above test instruments is 12/24 months. And the calibrations are traceable to NML/ROC and NIST/USA.
2. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in Chamber No. 6.
4. The Industry Canada Reference No. IC 7450E-6.
5. The FCC Site Registration No. is 447212.

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. The antenna is a broadband antenna, and its height 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:

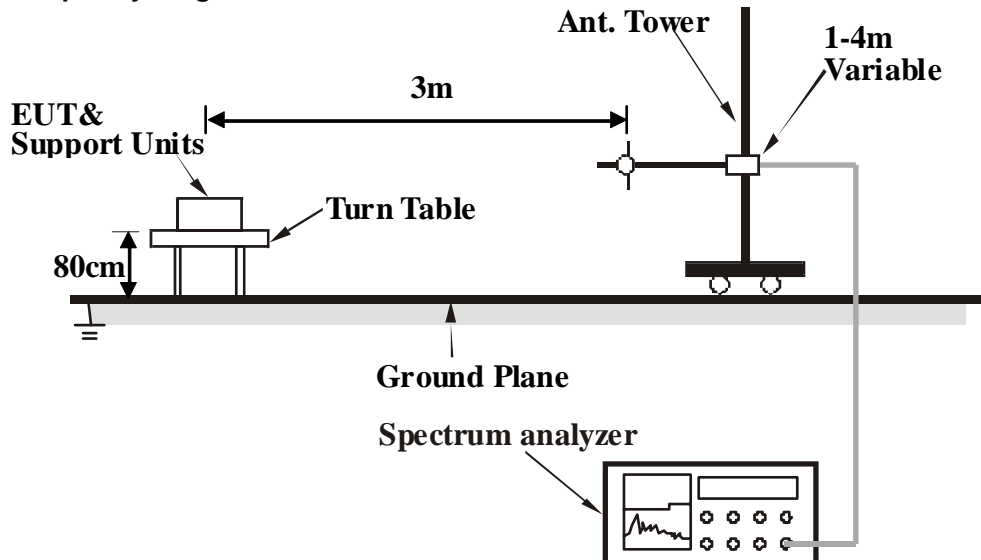
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution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

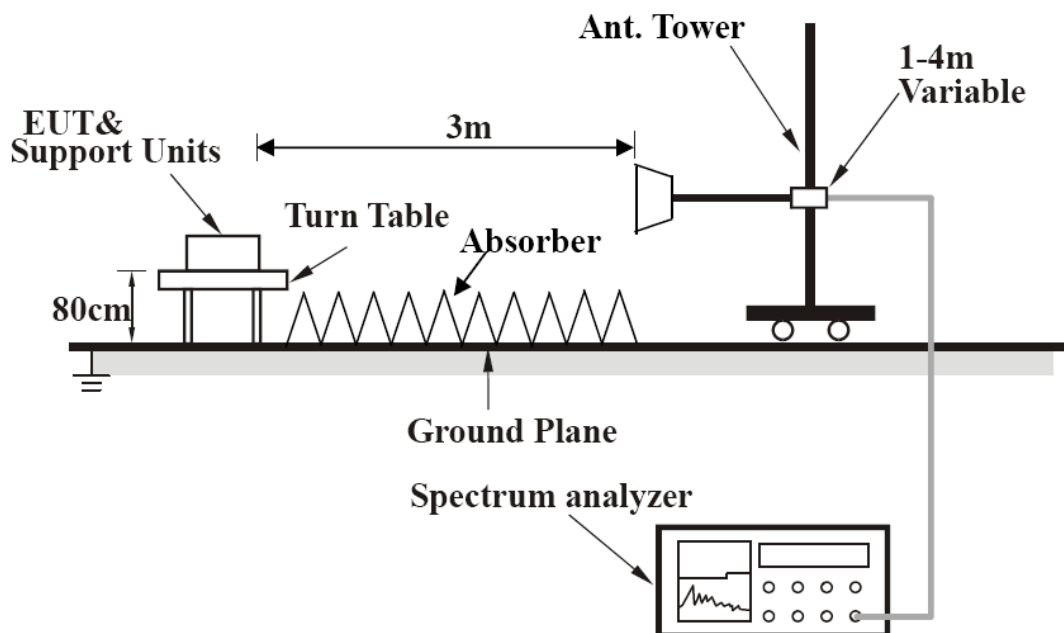
No deviation.

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. Turn on the power of all equipment.
- b. Notebook PC ran a test program (provided by manufacture) to enable EUT under transmitting condition at specific channel continuously.

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	60.9 PK	74.0	-13.1	1.33 H	52	30.69	30.24
2	2390.00	50.2 AV	54.0	-3.8	1.33 H	52	20.00	30.24
3	*2412.00	113.9 PK			1.33 H	52	83.61	30.33
4	*2412.00	110.4 AV			1.33 H	52	80.03	30.33
5	4824.00	56.7 PK	74.0	-17.3	1.00 H	44	20.09	36.64
6	4824.00	52.7 AV	54.0	-1.3	1.00 H	44	16.06	36.64
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	56.0 PK	74.0	-18.0	1.21 V	55	25.78	30.24
2	2390.00	45.2 AV	54.0	-8.8	1.21 V	55	14.97	30.24
3	*2412.00	105.9 PK			1.21 V	55	75.53	30.33
4	*2412.00	102.6 AV			1.21 V	55	72.24	30.33
5	4824.00	51.9 PK	74.0	-22.1	1.46 V	337	15.29	36.64
6	4824.00	47.6 AV	54.0	-6.5	1.46 V	337	10.91	36.64

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.



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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	113.4 PK			1.28 H	52	82.95	30.42
2	*2437.00	110.5 AV			1.28 H	52	80.09	30.42
3	4874.00	56.3 PK	74.0	-17.7	1.00 H	46	19.55	36.77
4	4874.00	51.1 AV	54.0	-2.9	1.00 H	46	14.29	36.77
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	105.9 PK			1.25 V	43	75.44	30.42
2	*2437.00	101.8 AV			1.25 V	43	71.41	30.42
3	4874.00	49.1 PK	74.0	-24.9	1.20 V	325	12.35	36.77
4	4874.00	44.1 AV	54.0	-9.9	1.20 V	325	7.29	36.77

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	112.0 PK			1.35 H	52	81.48	30.50
2	*2462.00	107.8 AV			1.35 H	52	77.25	30.50
3	2483.50	58.3 PK	74.0	-15.7	1.35 H	52	27.74	30.57
4	2483.50	47.9 AV	54.0	-6.1	1.35 H	52	17.33	30.57
5	4924.00	58.3 PK	74.0	-15.7	1.00 H	53	21.38	36.90
6	4924.00	53.8 AV	54.0	-0.2	1.00 H	53	16.93	36.90
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	108.3 PK			1.26 V	56	77.79	30.50
2	*2462.00	104.7 AV			1.26 V	56	74.21	30.50
3	2483.50	57.0 PK	74.0	-17.0	1.26 V	56	26.43	30.57
4	2483.50	45.3 AV	54.0	-8.7	1.26 V	56	14.73	30.57
5	4924.00	53.6 PK	74.0	-20.4	1.28 V	350	16.74	36.90
6	4924.00	50.2 AV	54.0	-3.8	1.28 V	350	13.27	36.90

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	72.0 PK	74.0	-2.0	1.33 H	39	41.72	30.24
2	2390.00	51.4 AV	54.0	-2.7	1.33 H	39	21.11	30.24
3	*2412.00	115.5 PK			1.33 H	39	85.13	30.33
4	*2412.00	105.7 AV			1.33 H	39	75.35	30.33
5	4824.00	53.6 PK	74.0	-20.4	1.03 H	38	17.00	36.64
6	4824.00	41.2 AV	54.0	-12.9	1.03 H	38	4.51	36.64
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	68.3 PK	74.0	-5.8	1.34 V	55	38.01	30.24
2	2390.00	48.3 AV	54.0	-5.7	1.34 V	55	18.07	30.24
3	*2412.00	108.7 PK			1.34 V	55	78.39	30.33
4	*2412.00	99.3 AV			1.34 V	55	69.00	30.33
5	4824.00	45.7 PK	74.0	-28.3	1.31 V	38	9.08	36.64
6	4824.00	34.9 AV	54.0	-19.2	1.31 V	38	-1.79	36.64

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	116.4 PK			1.29 H	40	86.01	30.42
2	*2437.00	105.9 AV			1.29 H	40	75.47	30.42
3	4874.00	55.8 PK	74.0	-18.2	1.04 H	73	19.04	36.77
4	4874.00	42.2 AV	54.0	-11.8	1.04 H	73	5.46	36.77
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	108.6 PK			1.35 V	55	78.21	30.42
2	*2437.00	98.8 AV			1.35 V	55	68.41	30.42
3	4874.00	47.2 PK	74.0	-26.8	1.27 V	52	10.47	36.77
4	4874.00	35.7 AV	54.0	-18.3	1.27 V	52	-1.06	36.77

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	114.8 PK			1.27 H	40	84.28	30.50
2	*2462.00	103.5 AV			1.27 H	40	73.04	30.50
3	2483.50	73.7 PK	74.0	-0.4	1.27 H	40	43.08	30.57
4	2483.50	51.3 AV	54.0	-2.8	1.27 H	40	20.68	30.57
5	4924.00	53.6 PK	74.0	-20.4	1.04 H	280	16.66	36.90
6	4924.00	39.6 AV	54.0	-14.4	1.04 H	280	2.74	36.90
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	107.7 PK			1.28 V	44	77.23	30.50
2	*2462.00	99.1 AV			1.28 V	44	68.55	30.50
3	2483.50	71.2 PK	74.0	-2.8	1.28 V	44	40.59	30.57
4	2483.50	48.6 AV	54.0	-5.4	1.28 V	44	18.02	30.57
5	4924.00	45.4 PK	74.0	-28.6	1.30 V	38	8.47	36.90
6	4924.00	34.9 AV	54.0	-19.1	1.30 V	38	-2.01	36.90

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	71.6 PK	74.0	-2.4	1.42 H	52	41.35	30.24
2	2390.00	49.7 AV	54.0	-4.3	1.42 H	52	19.45	30.24
3	*2412.00	112.7 PK			1.42 H	52	82.39	30.33
4	*2412.00	104.2 AV			1.42 H	52	73.88	30.33
5	4824.00	52.3 PK	74.0	-21.7	1.08 H	78	15.63	36.64
6	4824.00	39.1 AV	54.0	-14.9	1.08 H	78	2.48	36.64
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	66.1 PK	74.0	-7.9	1.37 V	88	35.83	30.24
2	2390.00	47.2 AV	54.0	-6.8	1.37 V	88	16.98	30.24
3	*2412.00	105.7 PK			1.37 V	88	75.32	30.33
4	*2412.00	97.2 AV			1.37 V	88	66.83	30.33
5	4824.00	45.3 PK	74.0	-28.7	1.39 V	32	8.64	36.64
6	4824.00	33.7 AV	54.0	-20.3	1.39 V	32	-2.92	36.64

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	113.2 PK			1.26 H	43	82.76	30.42
2	*2437.00	104.6 AV			1.26 H	43	74.16	30.42
3	4874.00	51.8 PK	74.0	-22.2	1.12 H	79	15.07	36.77
4	4874.00	39.7 AV	54.0	-14.4	1.12 H	79	2.88	36.77
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	105.9 PK			1.37 V	63	75.46	30.42
2	*2437.00	97.6 AV			1.37 V	63	67.19	30.42
3	4874.00	46.3 PK	74.0	-27.8	1.31 V	12	9.48	36.77
4	4874.00	34.6 AV	54.0	-19.5	1.31 V	12	-2.22	36.77

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	112.2 PK			1.31 H	43	81.70	30.50
2	*2462.00	102.8 AV			1.31 H	43	72.33	30.50
3	2483.50	73.2 PK	74.0	-0.8	1.31 H	43	42.65	30.57
4	2483.50	50.3 AV	54.0	-3.7	1.31 H	43	19.72	30.57
5	4924.00	51.3 PK	74.0	-22.7	1.05 H	68	14.38	36.90
6	4924.00	37.1 AV	54.0	-16.9	1.05 H	68	0.20	36.90
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	102.5 PK			1.00 V	21	71.96	30.50
2	*2462.00	93.1 AV			1.00 V	21	62.62	30.50
3	2483.50	64.6 PK	74.0	-9.4	1.00 V	21	34.02	30.57
4	2483.50	47.7 AV	54.0	-6.3	1.00 V	21	17.16	30.57
5	4924.00	44.2 PK	74.0	-29.8	1.34 V	28	7.28	36.90
6	4924.00	32.8 AV	54.0	-21.2	1.34 V	28	-4.10	36.90

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	73.7 PK	74.0	-0.3	1.31 H	41	43.50	30.24
2	2390.00	51.4 AV	54.0	-2.7	1.31 H	41	21.11	30.24
3	*2422.00	109.1 PK			1.31 H	41	78.77	30.36
4	*2422.00	99.1 AV			1.31 H	41	68.71	30.36
5	4844.00	45.4 PK	74.0	-28.6	1.00 H	60	8.70	36.69
6	4844.00	32.9 AV	54.0	-21.1	1.00 H	60	-3.83	36.69
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	65.7 PK	74.0	-8.3	1.00 V	29	35.49	30.24
2	2390.00	46.5 AV	54.0	-7.5	1.00 V	29	16.29	30.24
3	*2422.00	99.9 PK			1.00 V	29	69.49	30.36
4	*2422.00	90.2 AV			1.00 V	29	59.84	30.36
5	4844.00	43.2 PK	74.0	-30.8	1.21 V	51	6.51	36.69
6	4844.00	31.9 AV	54.0	-22.1	1.21 V	51	-4.76	36.69

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
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	111.6 PK			1.31 H	61	81.14	30.42
2	*2437.00	101.5 AV			1.31 H	61	71.05	30.42
3	4874.00	50.6 PK	74.0	-23.5	1.00 H	66	13.78	36.77
4	4874.00	37.1 AV	54.0	-16.9	1.00 H	66	0.33	36.77
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	102.5 PK			1.00 V	28	72.11	30.42
2	*2437.00	93.5 AV			1.00 V	28	63.05	30.42
3	4874.00	44.1 PK	74.0	-29.9	1.00 V	269	7.35	36.77
4	4874.00	33.7 AV	54.0	-20.3	1.00 V	269	-3.11	36.77

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	102.4 PK			1.06 H	50	71.92	30.47
2	*2452.00	91.8 AV			1.06 H	50	61.28	30.47
3	2483.50	73.3 PK	74.0	-0.7	1.06 H	50	42.74	30.57
4	2483.50	51.5 AV	54.0	-2.5	1.06 H	50	20.96	30.57
5	4904.00	44.5 PK	74.0	-29.5	1.02 H	55	7.62	36.85
6	4904.00	30.9 AV	54.0	-23.1	1.02 H	55	-5.99	36.85
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	96.3 PK			1.12 V	52	65.84	30.47
2	*2452.00	86.1 AV			1.12 V	52	55.67	30.47
3	2483.50	67.8 PK	74.0	-6.2	1.12 V	52	37.22	30.57
4	2483.50	48.8 AV	54.0	-5.2	1.12 V	52	18.24	30.57
5	4904.00	42.2 PK	74.0	-31.8	1.00 V	277	5.36	36.85
6	4904.00	28.5 AV	54.0	-25.5	1.00 V	277	-8.31	36.85

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

802.11a

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5725.00	74.0 PK	91.6	-17.6	1.00 H	314	35.71	38.31
2	#5725.00	58.1 AV	83.5	-25.4	1.00 H	314	19.80	38.31
3	*5745.00	111.6 PK			1.00 H	314	73.26	38.33
4	*5745.00	103.5 AV			1.00 H	314	65.21	38.33
5	11490.00	58.6 PK	74.0	-15.4	1.20 H	333	10.35	48.22
6	11490.00	48.3 AV	54.0	-5.7	1.20 H	333	0.10	48.22
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5725.00	75.1 PK	94.1	-19.1	1.00 V	317	36.74	38.31
2	#5725.00	59.3 AV	85.3	-26.0	1.00 V	317	21.00	38.31
3	*5745.00	114.1 PK			1.00 V	317	75.78	38.33
4	*5745.00	105.3 AV			1.00 V	317	66.99	38.33
5	11490.00	60.2 PK	74.0	-13.8	1.00 V	67	11.98	48.22
6	11490.00	49.2 AV	54.0	-4.8	1.00 V	67	1.01	48.22

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.
7. The limit value is defined as per 15.247.



A D T

CHANNEL	TX Channel 157	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5785.00	113.9 PK			1.00 H	314	75.55	38.39
2	*5785.00	104.7 AV			1.00 H	314	66.29	38.39
3	11570.00	60.4 PK	74.0	-13.6	1.09 H	310	12.16	48.21
4	11570.00	49.1 AV	54.0	-4.9	1.09 H	310	0.85	48.21
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5785.00	114.6 PK			1.00 V	316	76.22	38.39
2	*5785.00	105.0 AV			1.00 V	316	66.59	38.39
3	11570.00	59.8 PK	74.0	-14.2	1.09 V	60	11.61	48.21
4	11570.00	49.5 AV	54.0	-4.6	1.09 V	60	1.24	48.21

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



A D T

CHANNEL	TX Channel 165	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5825.00	113.7 PK			1.01 H	314	75.21	38.45
2	*5825.00	104.9 AV			1.01 H	314	66.42	38.45
3	#5850.00	69.8 PK	93.7	-23.8	1.01 H	314	31.34	38.48
4	#5850.00	47.2 AV	84.9	-37.7	1.01 H	314	8.71	38.48
5	11650.00	58.2 PK	74.0	-15.8	1.00 H	331	10.06	48.16
6	11650.00	47.9 AV	54.0	-6.1	1.00 H	331	-0.27	48.16
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5825.00	114.1 PK			1.00 V	306	75.68	38.45
2	*5825.00	105.3 AV			1.00 V	306	66.80	38.45
3	#5850.00	70.6 PK	94.1	-23.5	1.00 V	306	32.14	38.48
4	#5850.00	47.5 AV	85.3	-37.8	1.00 V	306	8.97	38.48
5	11650.00	60.3 PK	74.0	-13.7	1.00 V	65	12.17	48.16
6	11650.00	49.4 AV	54.0	-4.6	1.00 V	65	1.26	48.16

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.
6. " # ": The radiated frequency is out of the restricted band.
7. The limit value is defined as per 15.247.



A D T

802.11n (20MHz)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5725.00	78.6 PK	95.8	-17.2	1.00 H	315	40.30	38.31
2	#5725.00	62.5 AV	86.0	-23.5	1.00 H	315	24.21	38.31
3	*5745.00	115.8 PK			1.00 H	315	77.45	38.33
4	*5745.00	106.0 AV			1.00 H	315	67.70	38.33
5	11490.00	58.6 PK	74.0	-15.4	1.00 H	351	10.41	48.22
6	11490.00	49.2 AV	54.0	-4.8	1.00 H	351	0.96	48.22
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5725.00	79.0 PK	96.0	-17.0	1.00 V	310	40.68	38.31
2	#5725.00	63.2 AV	86.9	-23.7	1.00 V	310	24.84	38.31
3	*5745.00	116.0 PK			1.00 V	310	77.67	38.33
4	*5745.00	106.9 AV			1.00 V	310	68.56	38.33
5	11490.00	57.5 PK	74.0	-16.5	1.05 V	77	9.30	48.22
6	11490.00	47.8 AV	54.0	-6.2	1.05 V	77	-0.41	48.22

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.
7. The limit value is defined as per 15.247.



A D T

CHANNEL	TX Channel 157	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5785.00	117.5 PK			1.00 H	323	79.10	38.39
2	*5785.00	107.4 AV			1.00 H	323	68.98	38.39
3	11650.00	60.0 PK	74.0	-14.0	1.00 H	332	11.82	48.16
4	11650.00	48.6 AV	54.0	-5.4	1.00 H	332	0.42	48.16
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5785.00	118.0 PK			1.11 V	311	79.63	38.39
2	*5785.00	107.9 AV			1.11 V	311	69.52	38.39
3	11650.00	59.8 PK	74.0	-14.2	1.15 V	65	11.62	48.16
4	11650.00	47.9 AV	54.0	-6.1	1.15 V	65	-0.29	48.16

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



A D T

CHANNEL	TX Channel 165	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5825.00	117.7 PK			1.00 H	316	79.23	38.45
2	*5825.00	108.1 AV			1.00 H	316	69.62	38.45
3	#5850.00	63.2 PK	97.7	-34.5	1.00 H	316	24.70	38.48
4	#5850.00	48.6 AV	88.1	-39.5	1.00 H	316	10.10	38.48
5	11650.00	57.7 PK	74.0	-16.3	1.00 H	344	9.57	48.16
6	11650.00	48.1 AV	54.0	-5.9	1.00 H	344	-0.03	48.16
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5825.00	118.9 PK			1.36 V	314	80.45	38.45
2	*5825.00	109.4 AV			1.36 V	314	70.95	38.45
3	#5850.00	64.2 PK	98.9	-34.7	1.36 V	314	25.74	38.48
4	#5850.00	49.2 AV	89.4	-40.2	1.36 V	314	10.70	38.48
5	11650.00	57.3 PK	74.0	-16.7	1.00 V	65	9.10	48.16
6	11650.00	47.7 AV	54.0	-6.4	1.00 V	65	-0.51	48.16

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.
6. " # ": The radiated frequency is out of the restricted band.
7. The limit value is defined as per 15.247.



A D T

802.11n (40MHz)

CHANNEL	TX Channel 151	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5725.00	82.2 PK	92.0	-9.8	1.00 H	315	43.86	38.31
2	#5725.00	67.0 AV	82.7	-15.7	1.00 H	315	28.73	38.31
3	*5755.00	112.0 PK			1.00 H	315	73.66	38.35
4	*5755.00	102.7 AV			1.00 H	315	64.36	38.35
5	11510.00	56.4 PK	74.0	-17.6	1.00 H	313	8.15	48.21
6	11510.00	46.2 AV	54.0	-7.8	1.00 H	313	-1.97	48.21
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	#5725.00	82.8 PK	92.8	-10.0	1.00 V	320	44.53	38.31
2	#5725.00	67.8 AV	83.3	-15.5	1.00 V	320	29.52	38.31
3	*5755.00	112.8 PK			1.00 V	320	74.49	38.35
4	*5755.00	103.3 AV			1.00 V	320	64.96	38.35
5	11510.00	55.7 PK	74.0	-18.3	1.00 V	78	7.45	48.21
6	11510.00	45.5 AV	54.0	-8.5	1.00 V	78	-2.67	48.21

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.
6. " # ": The radiated frequency is out of the restricted band.
7. The limit value is defined as per 15.247.



A D T

CHANNEL	TX Channel 159	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5795.00	112.5 PK			1.00 H	314	74.12	38.40
2	*5795.00	102.7 AV			1.00 H	314	64.33	38.40
3	#5850.00	69.0 PK	92.5	-23.5	1.00 H	314	30.49	38.48
4	#5850.00	50.2 AV	82.7	-32.5	1.00 H	314	11.75	38.48
5	11590.00	56.6 PK	74.0	-17.4	1.00 H	312	8.38	48.21
6	11590.00	46.8 AV	54.0	-7.2	1.00 H	312	-1.44	48.21
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5795.00	112.9 PK			1.00 V	319	74.51	38.40
2	*5795.00	103.2 AV			1.00 V	319	64.84	38.40
3	#5850.00	69.4 PK	92.9	-23.5	1.00 V	319	30.90	38.48
4	#5850.00	50.8 AV	83.2	-32.4	1.00 V	319	12.36	38.48
5	11590.00	56.0 PK	74.0	-18.0	1.00 V	92	7.77	48.21
6	11590.00	45.7 AV	54.0	-8.3	1.00 V	92	-2.47	48.21

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.
6. " # ": The radiated frequency is out of the restricted band.
7. The limit value is defined as per 15.247.



A D T

BELOW 1GHz WORST-CASE DATA

802.11g

CHANNEL	TX Channel 1	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	99.79	22.0 QP	43.5	-21.5	1.34 H	109	40.24	-18.24
2	148.92	26.5 QP	43.5	-17.1	1.17 H	114	39.92	-13.47
3	213.57	27.9 QP	43.5	-15.7	1.25 H	97	43.75	-15.90
4	232.73	30.2 QP	46.0	-15.8	1.38 H	112	45.87	-15.66
5	257.56	29.4 QP	46.0	-16.6	1.49 H	35	43.17	-13.75
6	416.01	28.9 QP	46.0	-17.1	1.53 H	80	39.12	-10.18
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	33.15	31.4 QP	40.0	-8.7	1.47 V	108	46.46	-15.11
2	41.69	29.0 QP	40.0	-11.0	1.00 V	152	43.08	-14.07
3	141.70	32.3 QP	43.5	-11.2	1.17 V	147	46.26	-13.99
4	234.19	29.2 QP	46.0	-16.8	1.37 V	360	44.57	-15.36
5	416.06	29.1 QP	46.0	-16.9	1.10 V	79	39.24	-10.18
6	620.49	30.2 QP	46.0	-15.8	1.35 V	56	36.56	-6.36

REMARKS:

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



A D T

802.11n (20MHz)

CHANNEL	TX Channel 149	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	99.65	22.1 QP	43.5	-21.4	1.25 H	108	40.39	-18.25
2	147.03	25.1 QP	43.5	-18.4	1.29 H	86	38.70	-13.58
3	236.17	30.2 QP	46.0	-15.8	1.27 H	76	45.21	-15.00
4	257.85	30.5 QP	46.0	-15.5	1.35 H	25	44.28	-13.74
5	346.66	27.4 QP	46.0	-18.6	1.42 H	76	38.88	-11.48
6	417.61	29.0 QP	46.0	-17.0	1.10 H	104	39.08	-10.11
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	33.59	31.4 QP	40.0	-8.7	1.39 V	216	46.39	-15.04
2	41.64	31.9 QP	40.0	-8.1	1.43 V	188	45.98	-14.08
3	139.80	31.2 QP	43.5	-12.4	1.84 V	164	45.28	-14.13
4	232.20	28.3 QP	46.0	-17.7	1.35 V	328	44.05	-15.76
5	417.56	29.7 QP	46.0	-16.3	1.11 V	61	39.83	-10.11
6	618.69	34.7 QP	46.0	-11.3	1.03 V	66	41.10	-6.38

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.

4.2.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
ROHDE & SCHWARZ TEST RECEIVER	ESCS 30	100276	Apr. 18, 2014	Apr. 17, 2015
ROHDE & SCHWARZ Artificial Mains Network (for EUT)	ESH3-Z5	100219	Nov. 17, 2013	Nov. 16, 2014
LISN With Adapter (for EUT)	AD10	C10Ada-001	Nov. 17, 2013	Nov. 16, 2014
ROHDE & SCHWARZ Artificial Mains Network (for peripherals)	ESH3-Z5	100218	Nov. 25, 2013	Nov. 24, 2014
SCHWARZBECK Artificial Mains Network (For EUT)	NNLK8129	8129229	May 15, 2013	May 14, 2014
Software	ADT_Conc_V7.3.7	NA	NA	NA
RF cable (JYEBAO)	5D-FB	Cable-C10.01	Feb. 18, 2014	Feb. 17, 2015
SUHNTER Terminator (For ROHDE & SCHWARZ LISN)	65BNC-5001	E1-011484	May 23, 2013	May 22, 2014
Isolation Transformer (Erika Fiedler)	D-65396	017	Jul. 29, 2013	Jul. 28, 2014

Notes: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. The test was performed in Shielded Room No. 10.
 3. The VCCI Site Registration No. C-1852.

4.2.3 TEST PROCEDURES

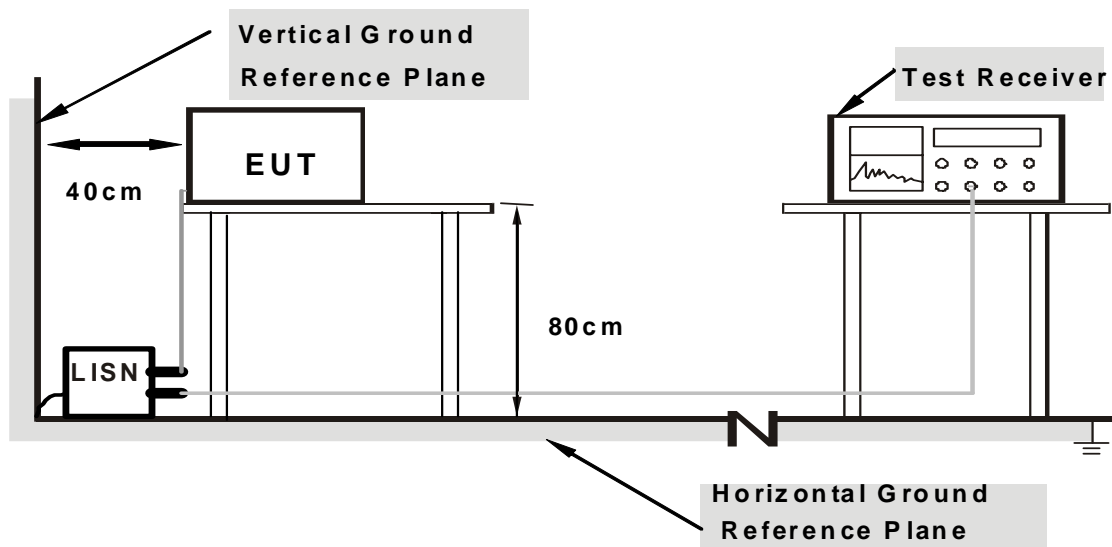
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance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

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

4.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6.

4.2.7 TEST RESULTS

CONDUCTED WORST-CASE DATA :

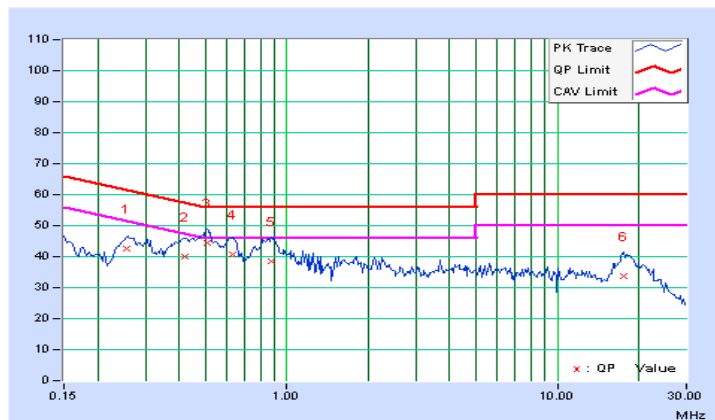
802.11g

Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Channel	TX Channel 1		

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.25677	0.16	42.28	33.83	42.44	33.99	61.54	51.54	-19.09	-17.54
2	0.41953	0.17	39.88	25.58	40.05	25.75	57.46	47.46	-17.41	-21.71
3	0.50548	0.17	44.31	34.63	44.48	34.80	56.00	46.00	-11.52	-11.20
4	0.63045	0.17	40.59	29.89	40.76	30.06	56.00	46.00	-15.24	-15.94
5	0.88053	0.17	38.32	25.36	38.49	25.53	56.00	46.00	-17.51	-20.47
6	17.55861	1.00	32.61	25.55	33.61	26.55	60.00	50.00	-26.39	-23.45

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

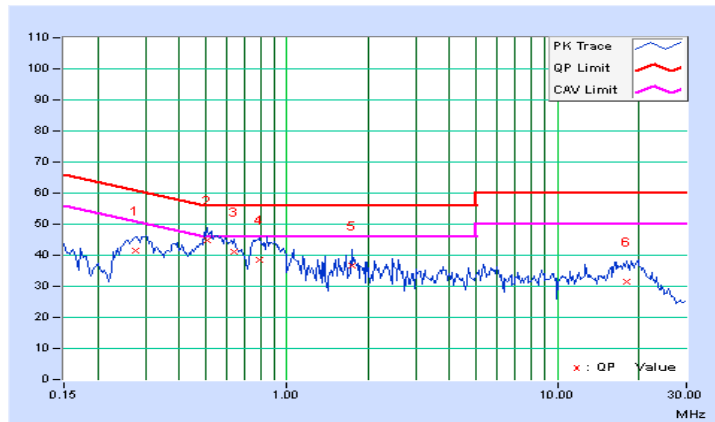


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Channel	TX Channel 1		

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.27500	0.54	41.10	26.60	41.64	27.14	60.97	50.97	-19.33	-23.83
2	0.50548	0.54	44.15	35.03	44.69	35.57	56.00	46.00	-11.31	-10.43
3	0.63828	0.54	40.41	28.95	40.95	29.49	56.00	46.00	-15.05	-16.51
4	0.79065	0.55	38.04	23.33	38.59	23.88	56.00	46.00	-17.41	-22.12
5	1.73438	0.57	36.10	23.33	36.67	23.90	56.00	46.00	-19.33	-22.10
6	18.13672	1.04	30.36	22.78	31.40	23.82	60.00	50.00	-28.60	-26.18

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



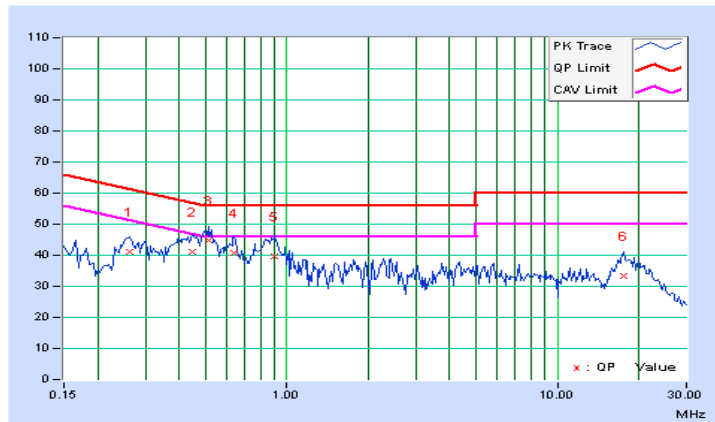
802.11n (20MHz)

Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Channel	TX Channel 149		

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.26328	0.16	40.85	29.88	41.01	30.04	61.33	51.33	-20.31	-21.28
2	0.44688	0.17	40.85	28.45	41.02	28.62	56.93	46.93	-15.91	-18.31
3	0.51328	0.17	44.66	33.77	44.83	33.94	56.00	46.00	-11.17	-12.06
4	0.63828	0.17	40.55	28.46	40.72	28.63	56.00	46.00	-15.28	-17.37
5	0.90000	0.17	39.40	26.29	39.57	26.46	56.00	46.00	-16.43	-19.54
6	17.62891	1.00	32.37	25.23	33.37	26.23	60.00	50.00	-26.63	-23.77

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

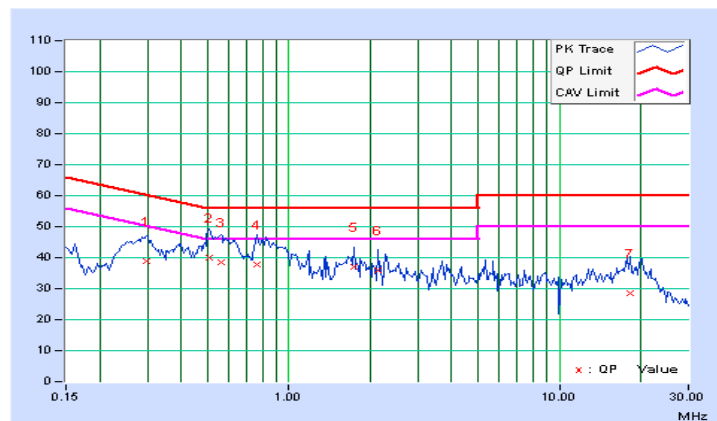


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Channel	TX Channel 149		

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.29844	0.54	38.29	25.68	38.83	26.22	60.29	50.29	-21.46	-24.07
2	0.50938	0.54	39.48	23.64	40.02	24.18	56.00	46.00	-15.98	-21.82
3	0.56406	0.54	38.02	24.76	38.56	25.30	56.00	46.00	-17.44	-20.70
4	0.76328	0.55	37.18	23.85	37.73	24.40	56.00	46.00	-18.27	-21.60
5	1.73438	0.57	36.63	18.07	37.20	18.64	56.00	46.00	-18.80	-27.36
6	2.12891	0.57	35.42	8.24	35.99	8.81	56.00	46.00	-20.01	-37.19
7	18.24219	1.04	27.66	21.13	28.70	22.17	60.00	50.00	-31.30	-27.83

Remarks:

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

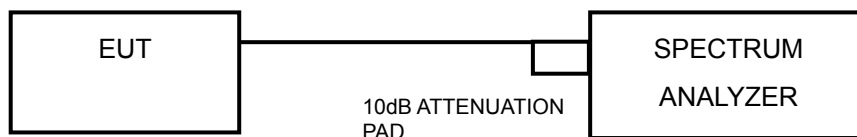


4.3 6dB BANDWIDTH MEASUREMENT

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

For 2.4GHz:

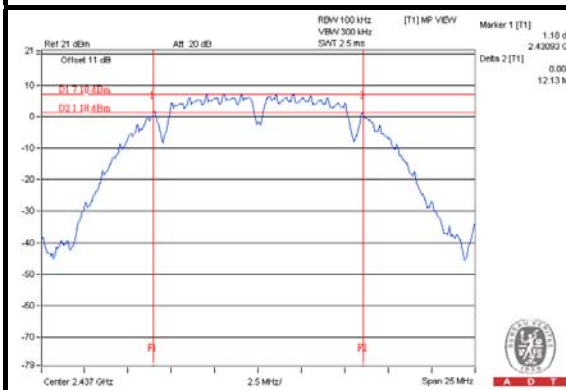
CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
802.11b					
1	2412	12.11	12.10	0.5	PASS
6	2437	12.09	12.13	0.5	PASS
11	2462	12.09	11.17	0.5	PASS
802.11g					
1	2412	16.51	16.59	0.5	PASS
6	2437	16.56	16.55	0.5	PASS
11	2462	16.51	16.55	0.5	PASS
802.11n (20MHz)					
1	2412	17.64	17.67	0.5	PASS
6	2437	17.69	17.67	0.5	PASS
11	2462	17.67	17.65	0.5	PASS
802.11n (40MHz)					
3	2422	36.52	36.53	0.5	PASS
6	2437	36.53	36.51	0.5	PASS
9	2452	36.52	36.46	0.5	PASS



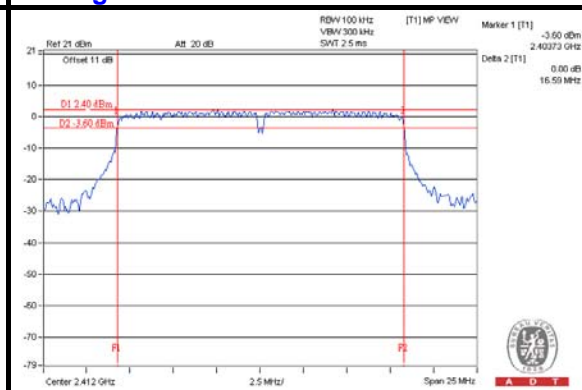
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SPECTRUM PLOT OF WORST VALUE

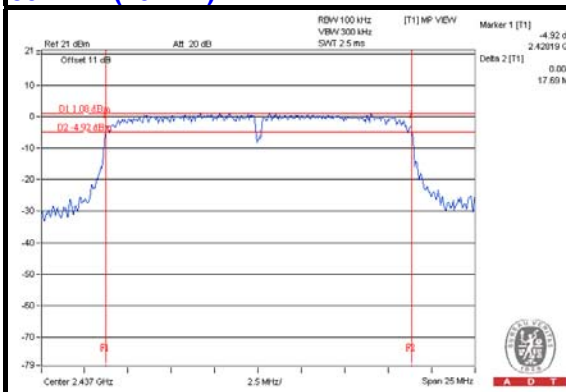
802.11b



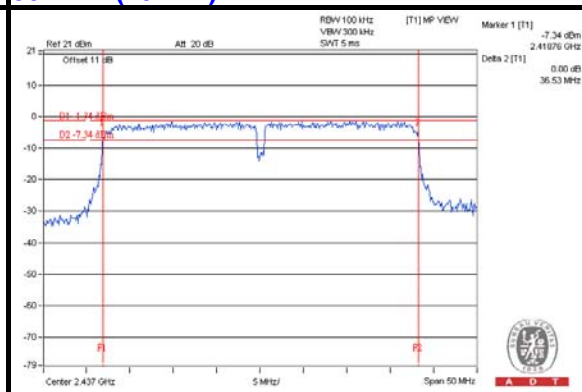
802.11g



802.11n (20MHz)



802.11n (40MHz)





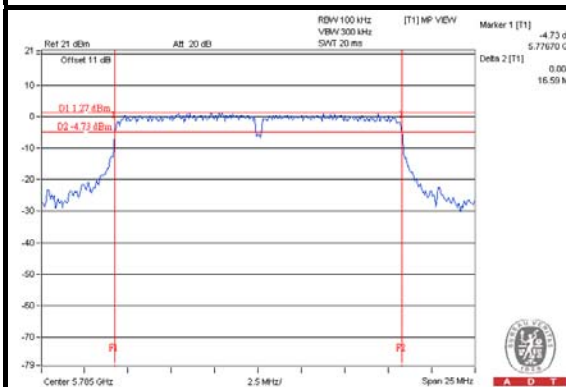
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For 5.0GHz:

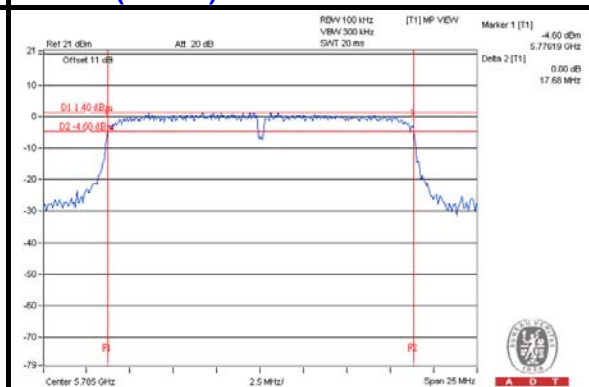
CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
802.11a					
149	5745	16.53	16.56	0.5	PASS
157	5785	16.57	16.59	0.5	PASS
165	5825	16.49	16.48	0.5	PASS
802.11n (20MHz)					
149	5745	17.67	17.58	0.5	PASS
157	5785	17.68	17.60	0.5	PASS
165	5825	17.66	17.62	0.5	PASS
802.11n (40MHz)					
151	5755	36.59	36.44	0.5	PASS
159	5795	36.60	36.54	0.5	PASS

SPECTRUM PLOT OF WORST VALUE

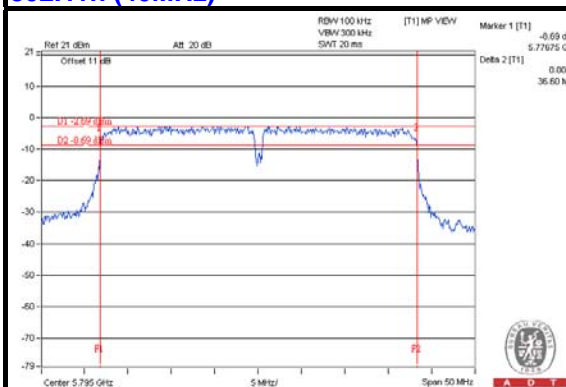
802.11a



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: 1 Watt (30dBm)

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

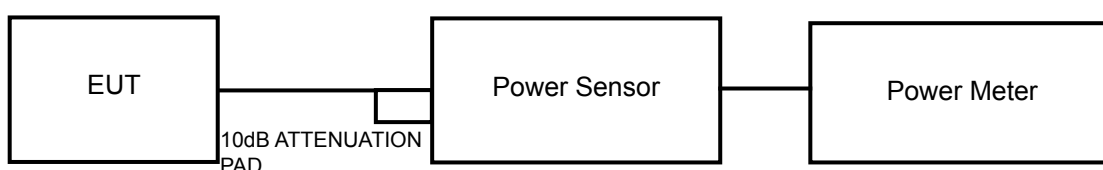
Array Gain = 0 dB (i.e., no array gain) for $NANT \leq 4$;

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

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 peak 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

For 2.4GHz:

CHAN.	CHAN. FREQ. (MHz)	POWER OUTPUT (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
802.11b							
1	2412	19.26	19.68	177.2	22.49	30	PASS
6	2437	19.52	19.29	174.5	22.42	30	PASS
11	2462	19.11	19.52	171.0	22.33	30	PASS
802.11g							
1	2412	23.30	23.86	457.0	26.60	30	PASS
6	2437	23.21	23.75	446.5	26.50	30	PASS
11	2462	23.22	23.58	437.9	26.41	30	PASS
802.11n (20MHz)							
1	2412	22.23	22.34	338.5	25.30	30	PASS
6	2437	22.32	22.94	367.4	25.65	30	PASS
11	2462	20.81	20.87	242.7	23.85	30	PASS
802.11n (40MHz)							
3	2422	19.20	19.92	181.4	22.59	30	PASS
6	2437	22.06	22.76	349.5	25.43	30	PASS
9	2452	17.00	17.88	111.5	20.47	30	PASS



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For 5.0GHz:

CHAN.	CHAN. FREQ. (MHz)	PEAK POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
802.11a							
149	5745	24.32	24.87	577.3	27.61	30	PASS
157	5785	24.88	24.28	575.5	27.60	30	PASS
165	5825	24.97	23.92	560.7	27.49	30	PASS
802.11n (20MHz)							
149	5745	25.27	24.28	604.4	27.81	30	PASS
157	5785	25.31	24.96	653.0	28.15	30	PASS
165	5825	24.38	24.63	564.6	27.52	30	PASS
802.11n (40MHz)							
151	5755	24.88	24.99	623.1	27.95	30	PASS
159	5795	25.76	25.08	698.8	28.44	30	PASS

4.4.8 TEST RESULTS - FOR AVERAGE POWER

For 2.4GHz:

CHAN.	FREQUENCY (MHz)	AVERAGE POWER (dBm)		TOTAL POWER (dBm)
		CHAIN 0	CHAIN 1	
802.11b				
1	2412	16.98	17.00	20.00
6	2437	17.27	17.02	20.16
11	2462	16.99	17.28	20.15
802.11g				
1	2412	15.05	15.00	18.04
6	2437	15.16	15.41	18.30
11	2462	15.00	15.03	18.03
802.11n (20MHz)				
1	2412	14.22	14.31	17.28
6	2437	14.18	14.19	17.20
11	2462	12.62	11.49	15.10
802.11n (40MHz)				
3	2422	10.63	11.54	14.12
6	2437	14.18	13.98	17.09
9	2452	8.93	9.02	11.99



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For 5.0GHz:

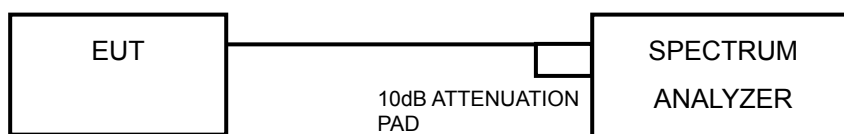
CHANNEL	FREQUENCY (MHz)	AVG. POWER (dBm)		TOTAL POWER (dBm)
		CHAIN 0	CHAIN 1	
802.11a				
149	5745	16.96	16.98	19.98
157	5785	16.23	15.69	18.98
165	5825	16.22	15.18	18.74
802.11n (20MHz)				
149	5745	16.79	16.58	19.70
157	5785	17.01	16.59	19.82
165	5825	17.20	16.15	19.72
802.11n (40MHz)				
151	5755	16.70	16.59	19.66
159	5795	16.92	16.58	19.76

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

For 2.4GHz:

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
802.11b							
0	1	2412	-12.35	3.01	-9.34	8	PASS
	6	2437	-11.62	3.01	-8.61	8	PASS
	11	2462	-11.87	3.01	-8.86	8	PASS
1	1	2412	-9.33	3.01	-6.32	8	PASS
	6	2437	-9.68	3.01	-6.67	8	PASS
	11	2462	-10.08	3.01	-7.07	8	PASS
802.11g							
0	1	2412	-12.54	3.01	-9.53	8	PASS
	6	2437	-13.23	3.01	-10.22	8	PASS
	11	2462	-12.33	3.01	-9.32	8	PASS
1	1	2412	-11.42	3.01	-8.41	8	PASS
	6	2437	-11.69	3.01	-8.68	8	PASS
	11	2462	-11.63	3.01	-8.62	8	PASS
802.11n (20MHz)							
0	1	2412	-12.09	3.01	-9.08	8	PASS
	6	2437	-12.13	3.01	-9.12	8	PASS
	11	2462	-14.11	3.01	-11.10	8	PASS
1	1	2412	-11.56	3.01	-8.55	8	PASS
	6	2437	-11.43	3.01	-8.42	8	PASS
	11	2462	-14.13	3.01	-11.12	8	PASS
802.11n (40MHz)							
0	3	2422	-16.94	3.01	-13.93	8	PASS
	6	2437	-14.62	3.01	-11.61	8	PASS
	9	2452	-19.66	3.01	-16.65	8	PASS
1	3	2422	-16.24	3.01	-13.23	8	PASS
	6	2437	-11.29	3.01	-8.28	8	PASS
	9	2452	-17.98	3.01	-14.97	8	PASS

NOTE:

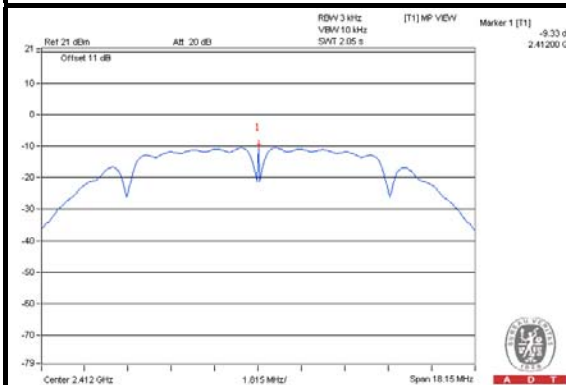
- Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- Directional gain =0dBi + 10log(2)=3.01dBi <6dBi, so the power spectral density limit is not reduced.



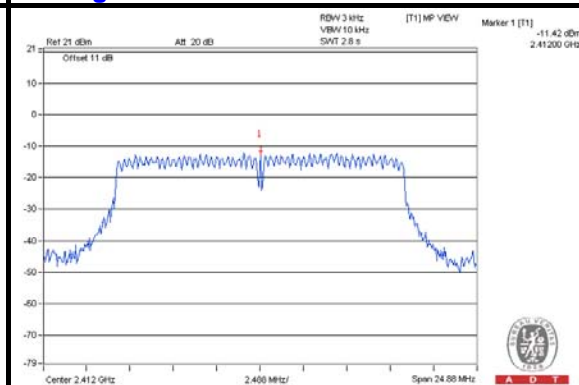
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SPECTRUM PLOT OF WORST VALUE

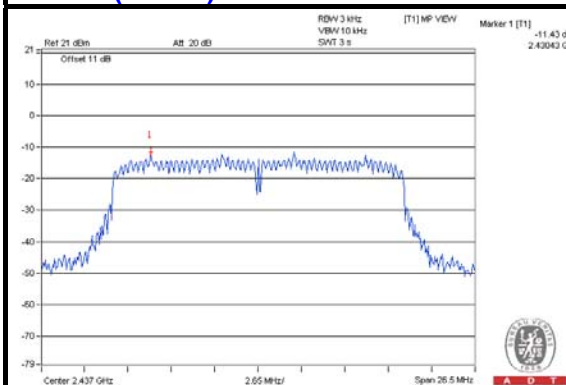
802.11b



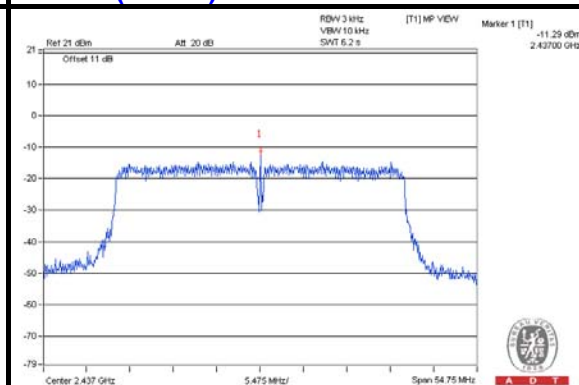
802.11g



802.11n (20MHz)



802.11n (40MHz)



For 5.0GHz:

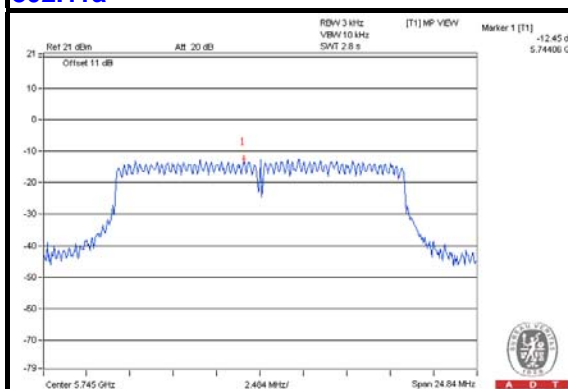
TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
802.11a							
0	149	5745	-13.62	3.01	-10.61	8	PASS
	157	5785	-14.12	3.01	-11.11	8	PASS
	165	5825	-14.32	3.01	-11.31	8	PASS
1	149	5745	-12.45	3.01	-9.44	8	PASS
	157	5785	-13.22	3.01	-10.21	8	PASS
	165	5825	-14.00	3.01	-10.99	8	PASS
802.11n (20MHz)							
0	149	5745	-11.52	3.01	-8.51	8	PASS
	157	5785	-11.82	3.01	-8.81	8	PASS
	165	5825	-12.03	3.01	-9.02	8	PASS
1	149	5745	-11.22	3.01	-8.21	8	PASS
	157	5785	-11.49	3.01	-8.48	8	PASS
	165	5825	-13.07	3.01	-10.06	8	PASS
802.11n (40MHz)							
0	151	5755	-14.72	3.01	-11.71	8	PASS
	159	5795	-14.86	3.01	-11.85	8	PASS
1	151	5755	-13.79	3.01	-10.78	8	PASS
	159	5795	-13.03	3.01	-10.02	8	PASS

NOTE:

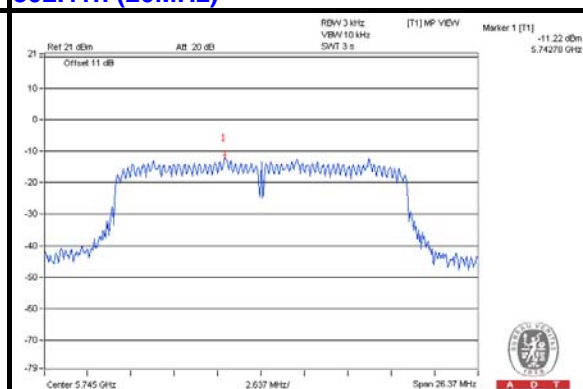
1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 0dBi + 10log(2)=3.01dBi <6dBi, so the power spectral density limit is not reduced.

SPECTRUM PLOT OF WORST VALUE

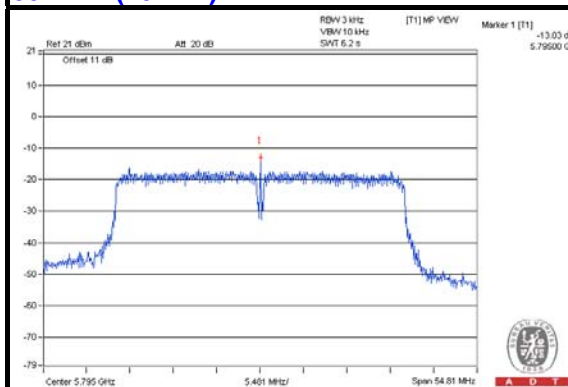
802.11a



802.11n (20MHz)



802.11n (40MHz)

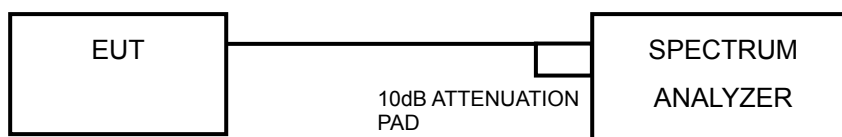


4.6 CONDUCTED OUT OF BAND EMISSION MEASUREMENT

4.6.1 LIMITS OF CONDUCTED OUT OF BAND EMISSION MEASUREMENT

Below -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 differ 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 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.

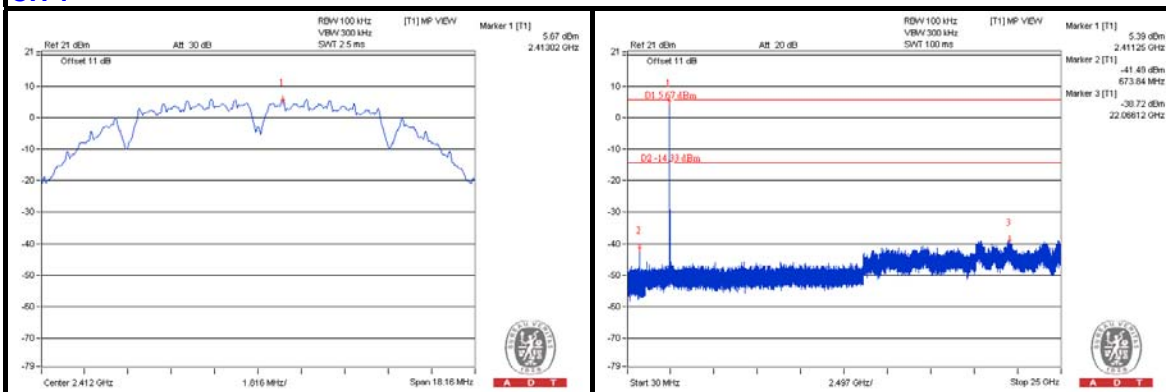
The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement.



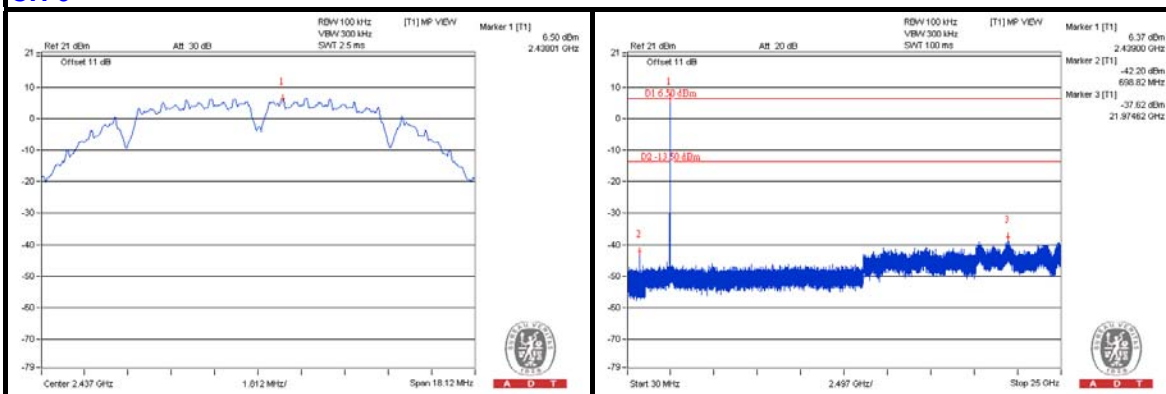
A D T

802.11b: CHAIN 0

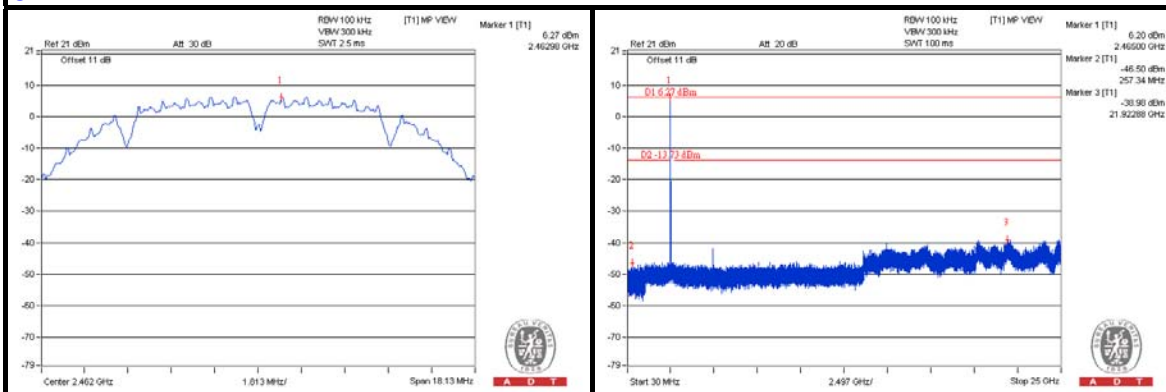
CH 1



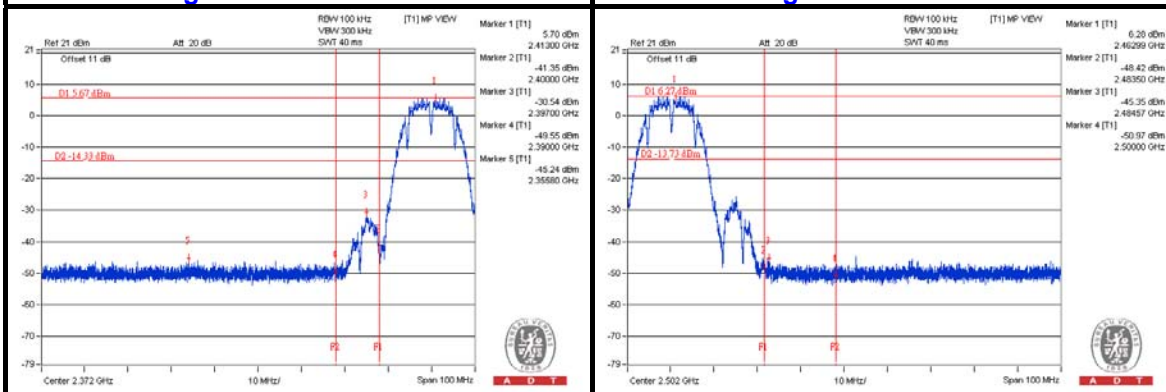
CH 6



CH 11



CH 1 Band edge

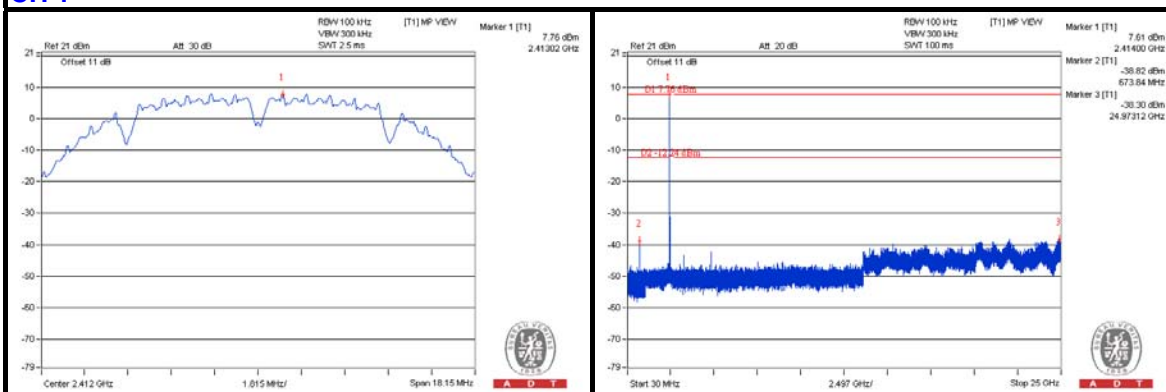




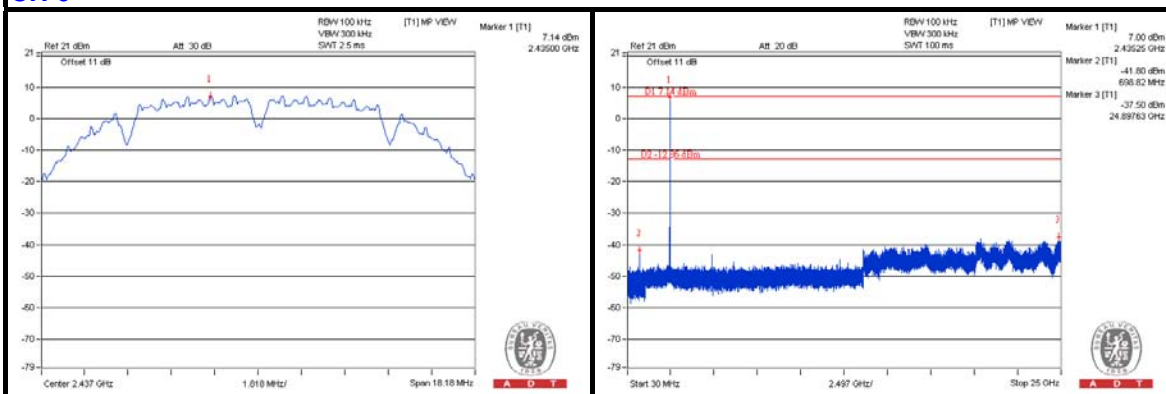
A D T

802.11b: CHAIN 1

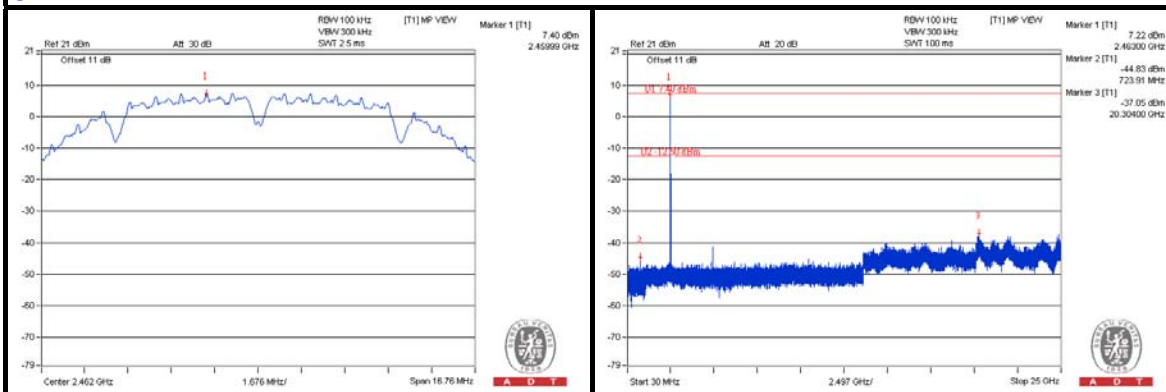
CH 1



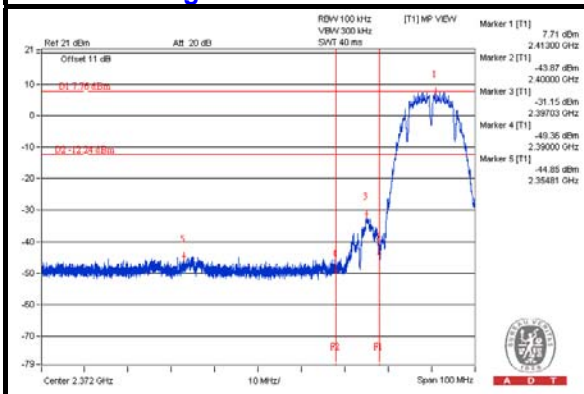
CH 6



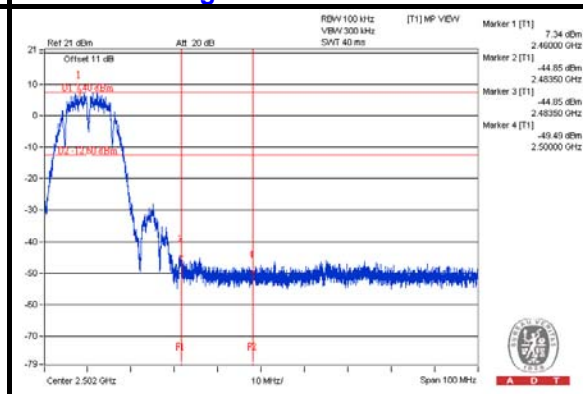
CH 11



CH 1 Band edge



CH 11 Band edge

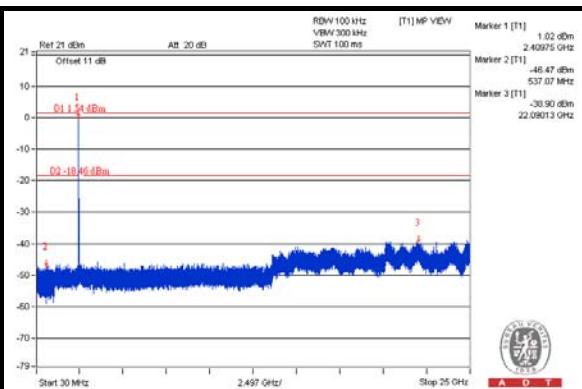
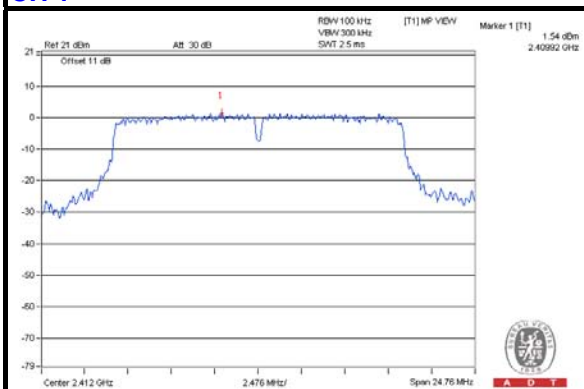




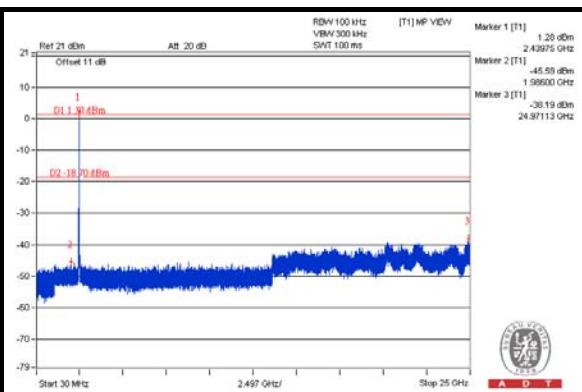
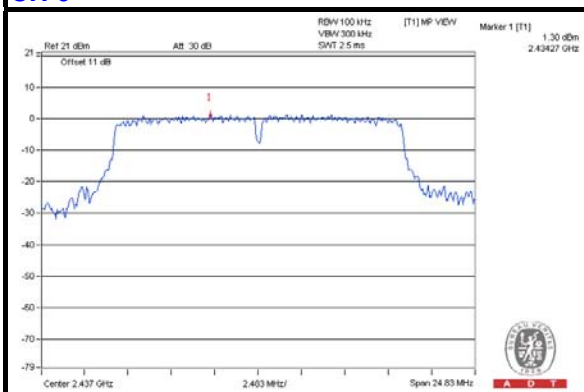
A D T

802.11g: CHAIN 0

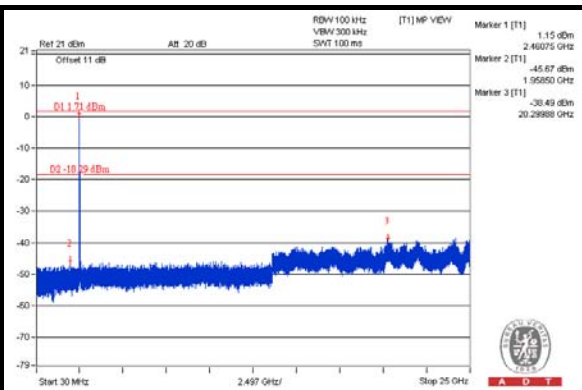
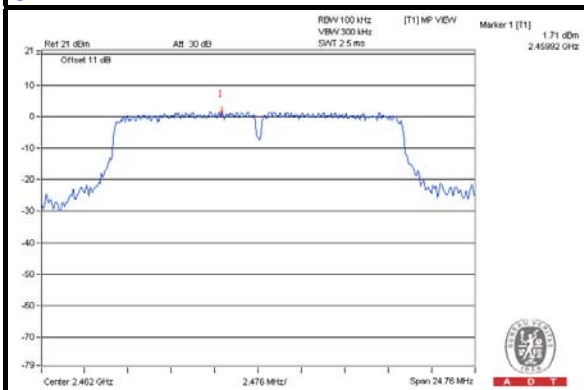
CH 1



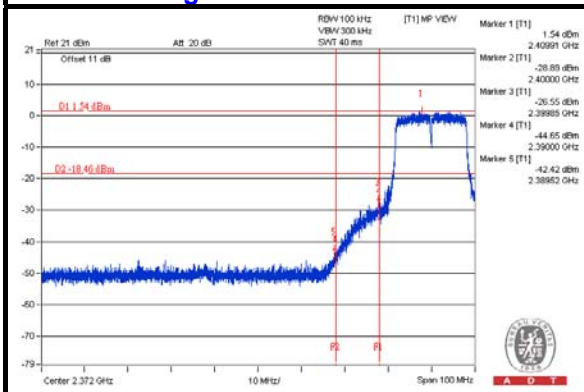
CH 6



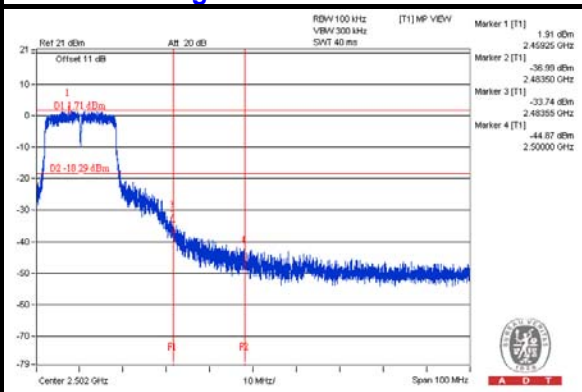
CH 11



CH 1 Band edge



CH 11 Band edge

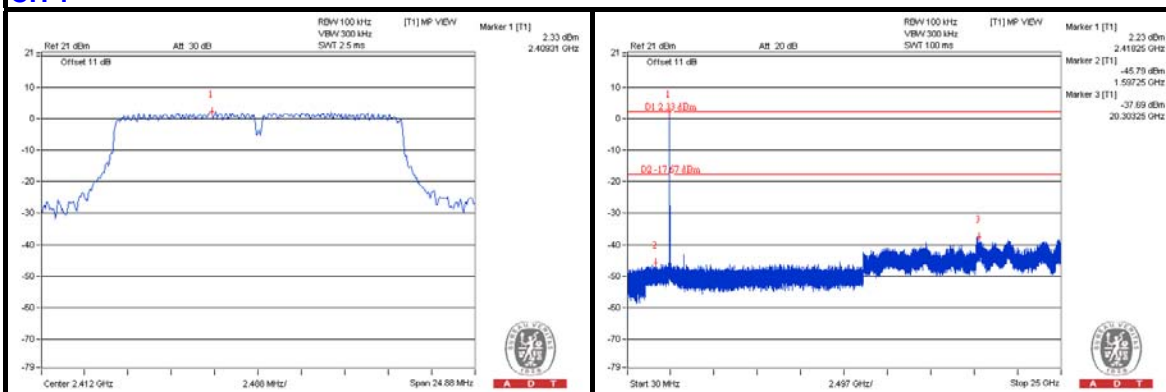




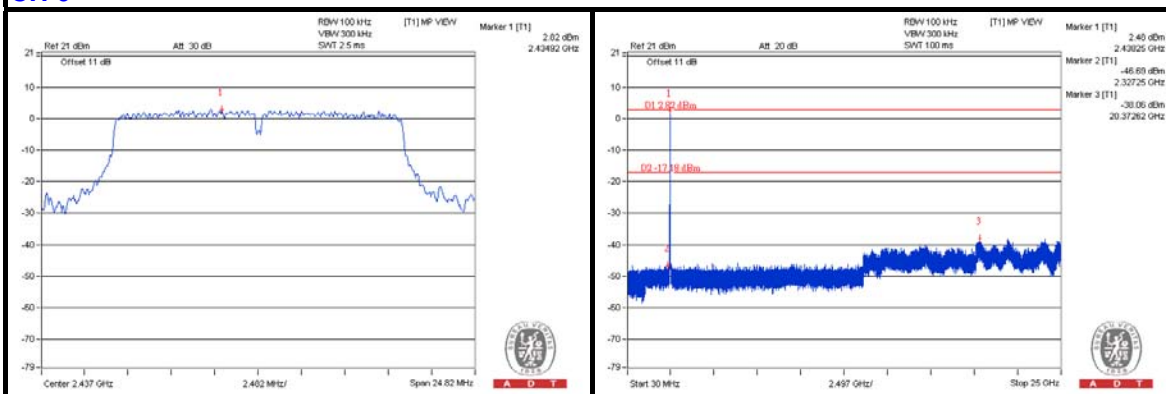
A D T

802.11g: CHAIN 1

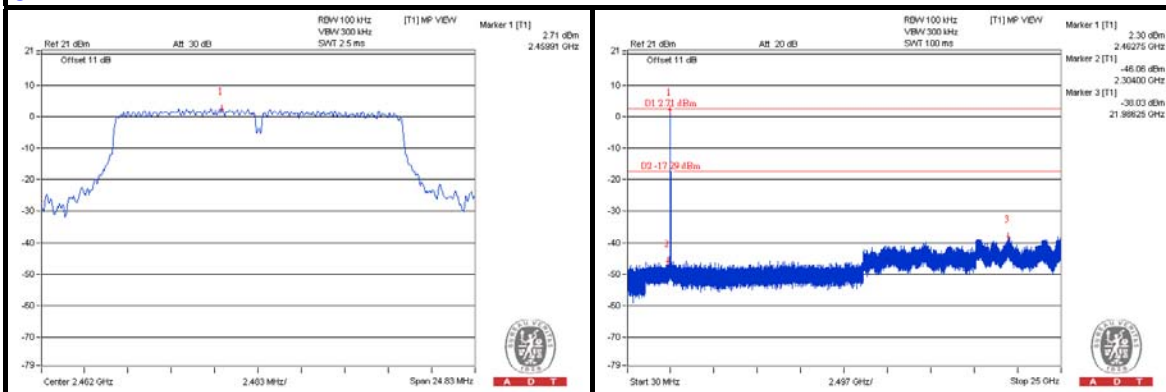
CH 1



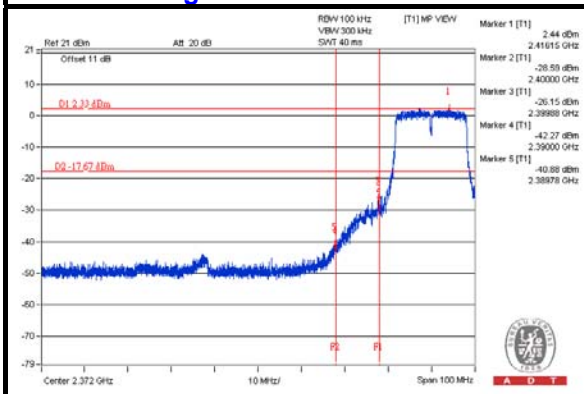
CH 6



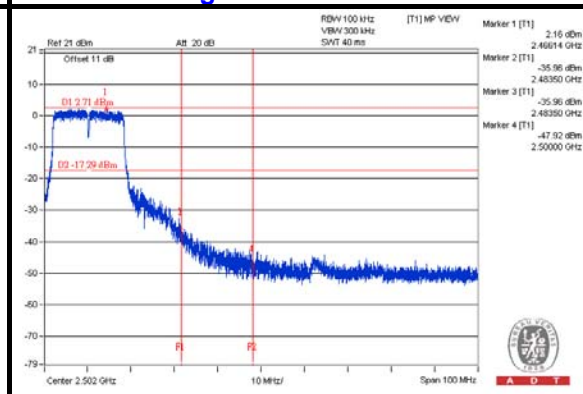
CH 11



CH 1 Band edge



CH 11 Band edge

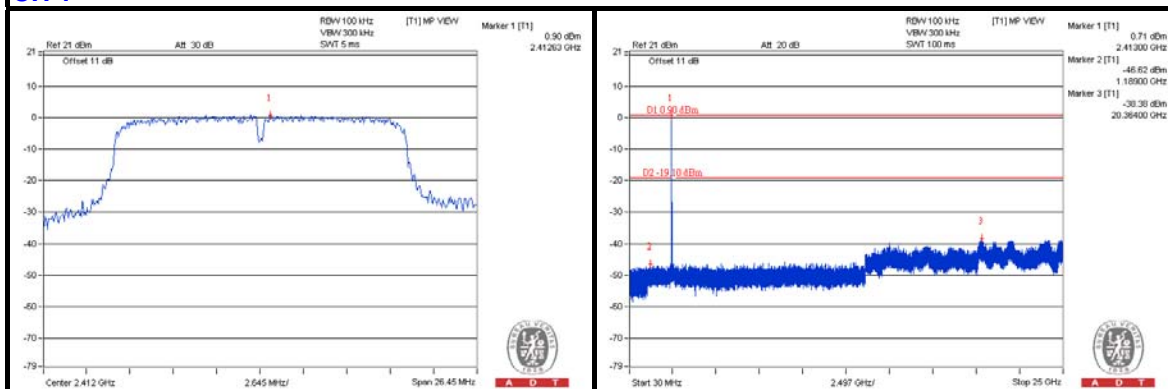




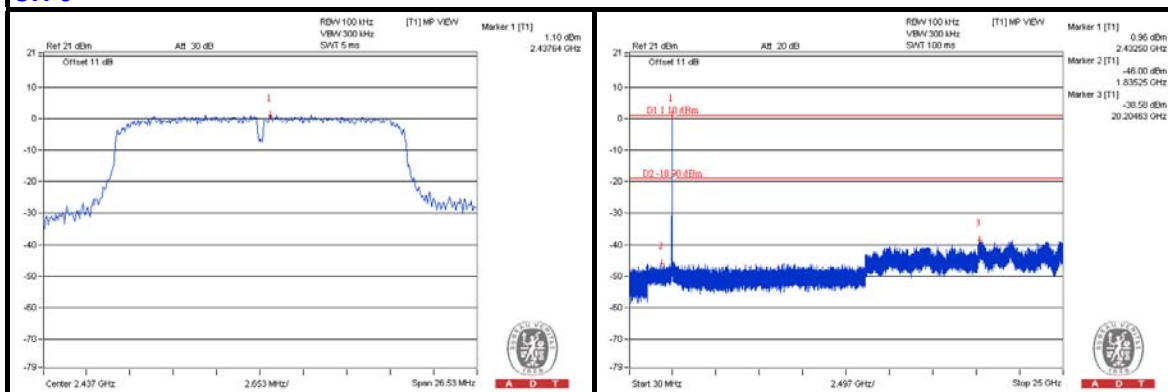
A D T

802.11n (20MHz): CHAIN 0

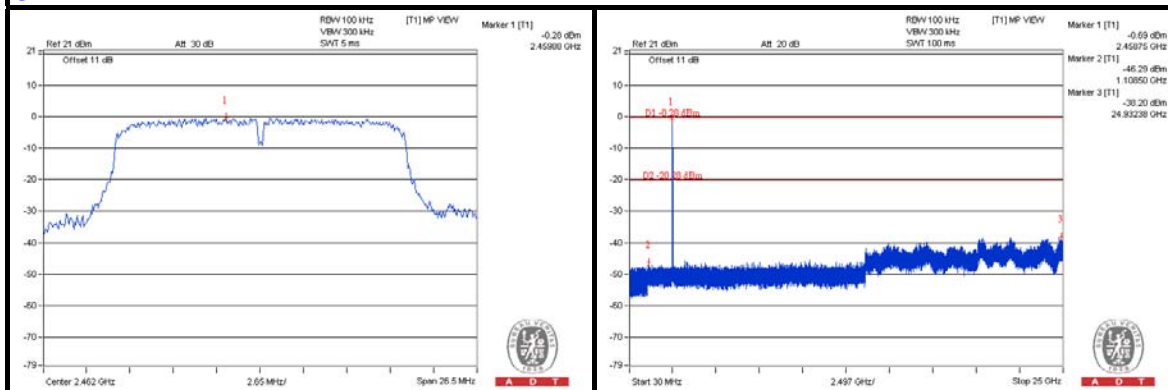
CH 1



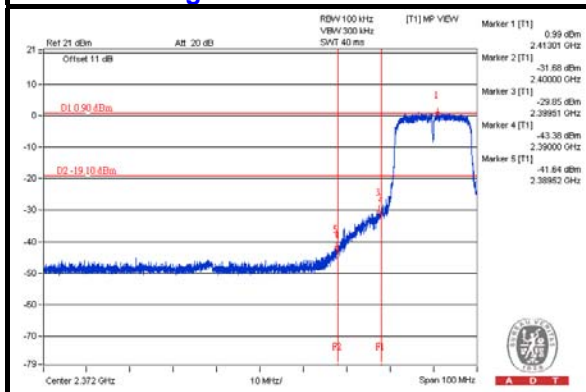
CH 6



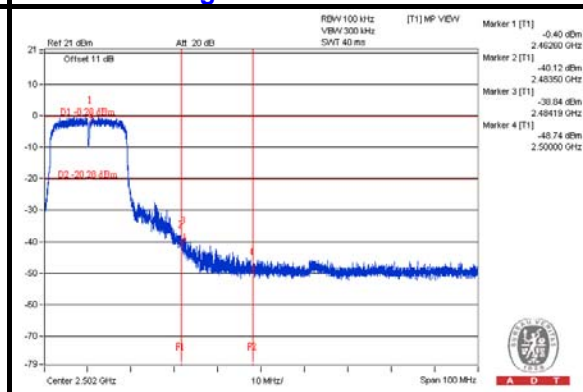
CH 11



CH 1 Band edge



CH 11 Band edge

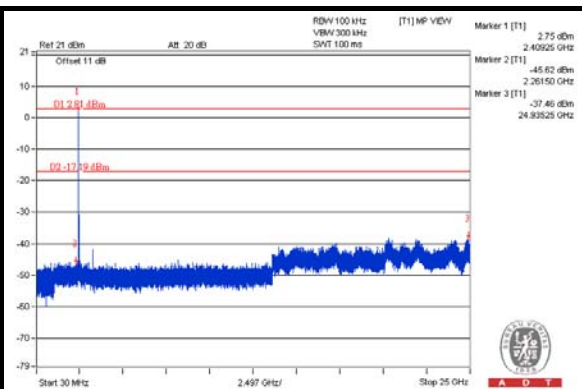
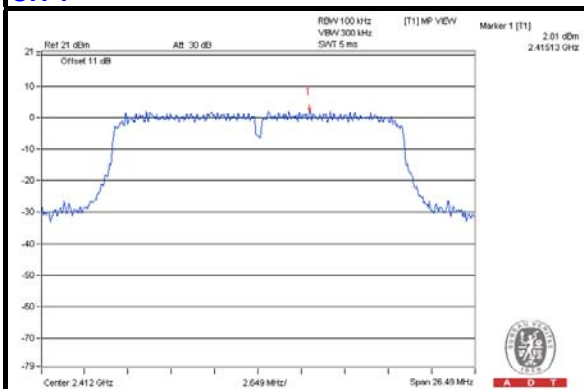




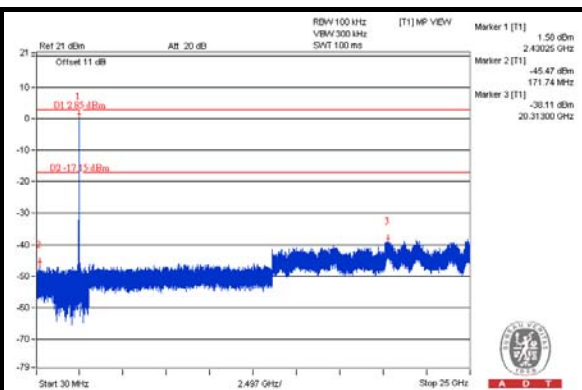
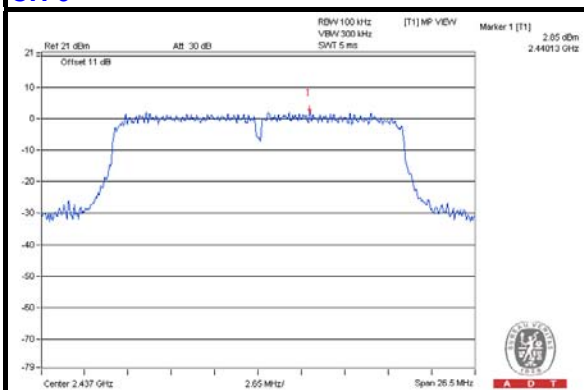
A D T

802.11n (20MHz): CHAIN 1

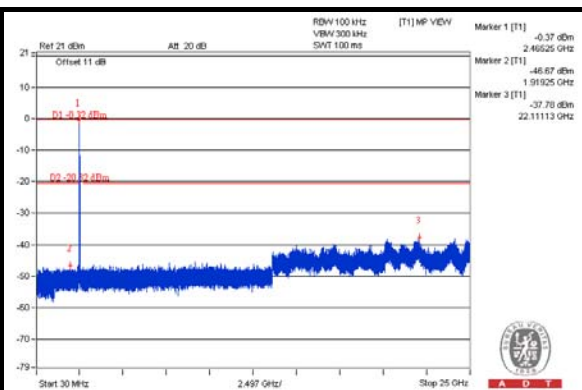
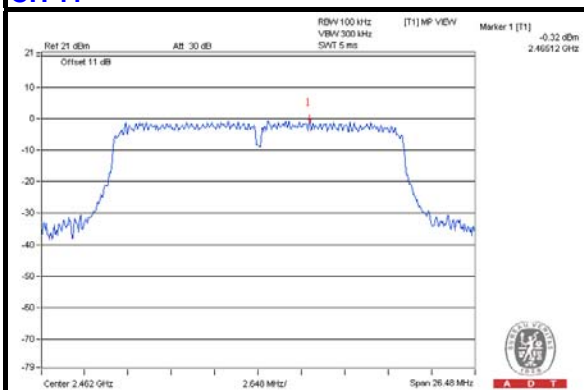
CH 1



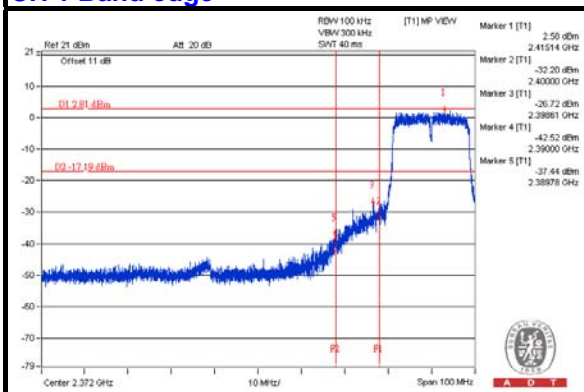
CH 6



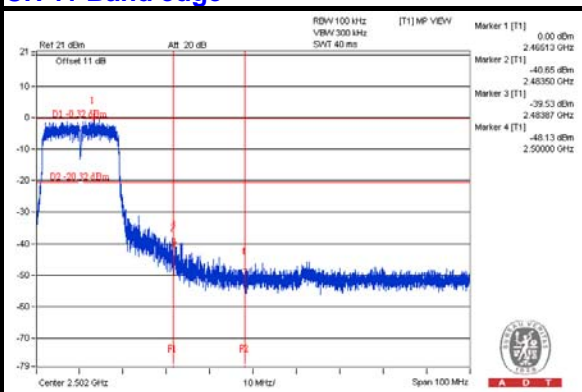
CH 11



CH 1 Band edge



CH 11 Band edge

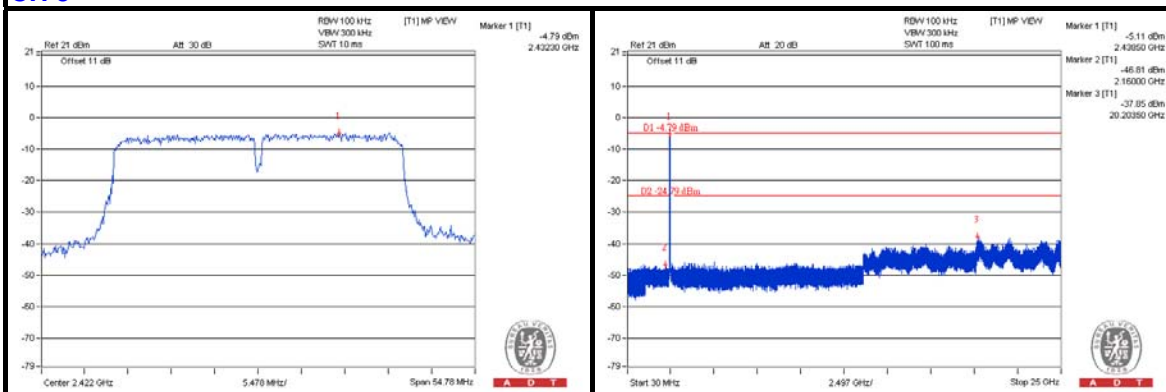




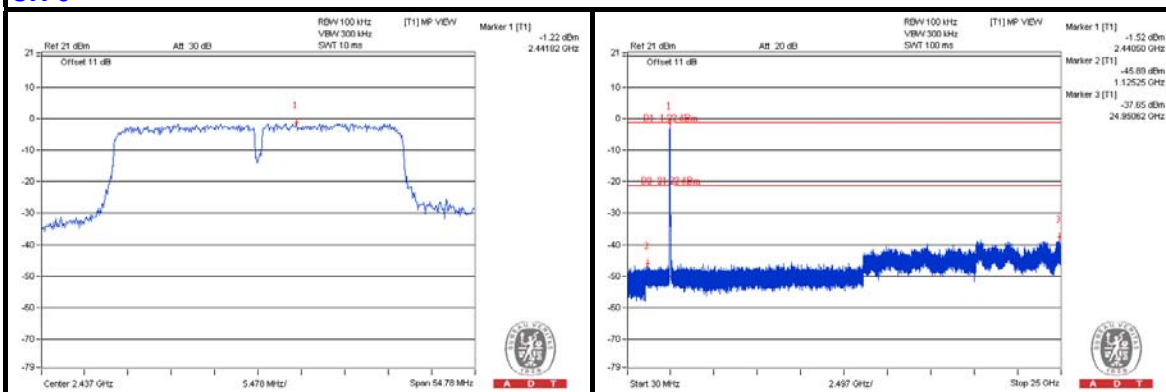
A D T

802.11n (40MHz): CHAIN 0

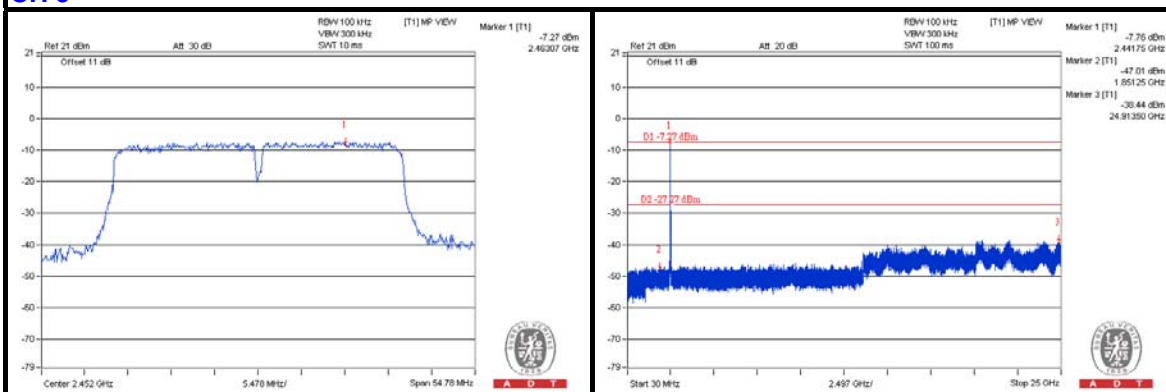
CH 3



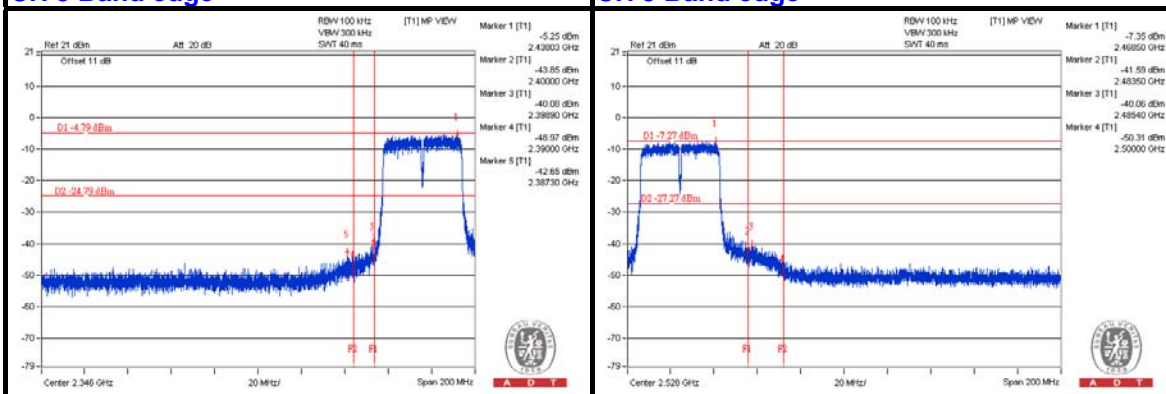
CH 6



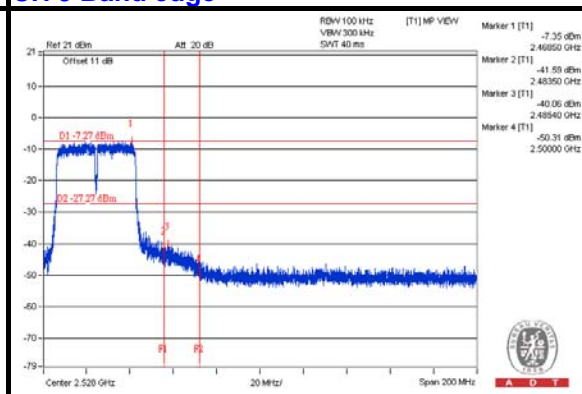
CH 9



CH 3 Band edge



CH 9 Band edge

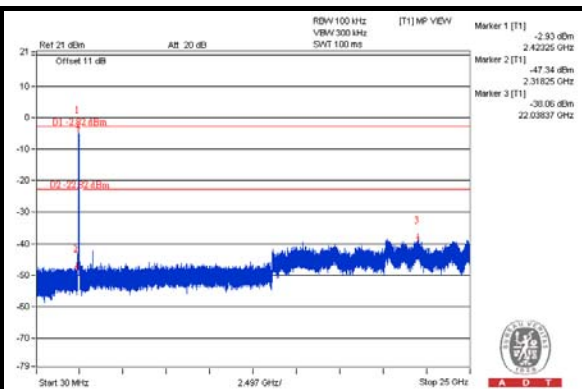
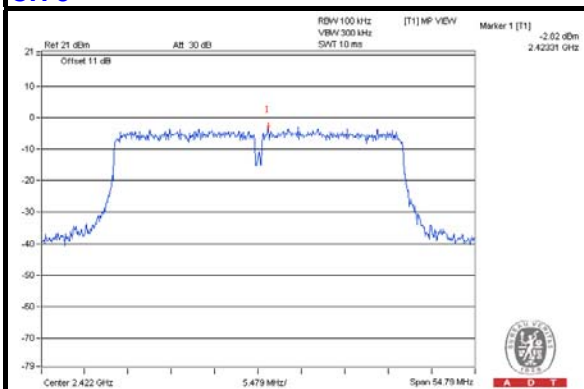




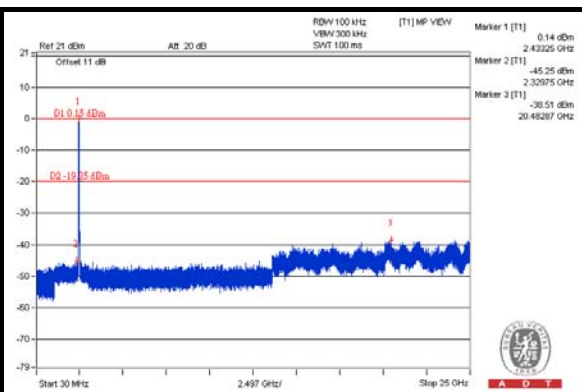
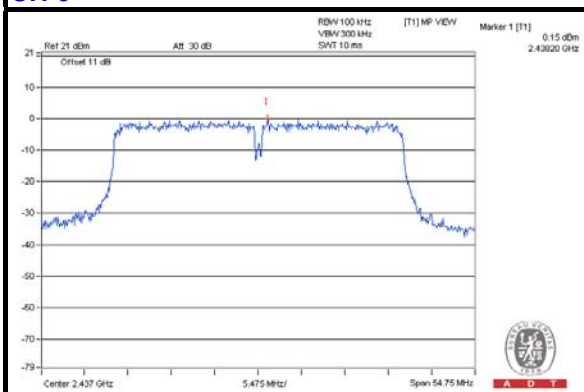
A D T

802.11n (40MHz): CHAIN 1

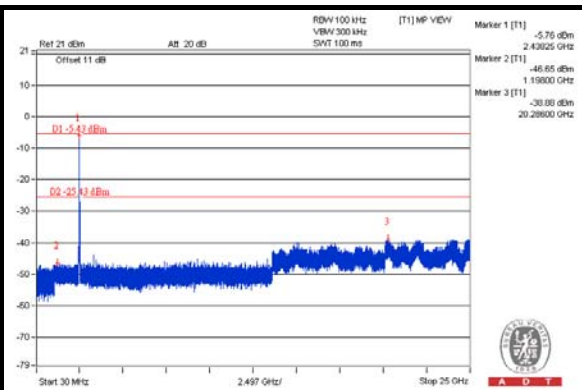
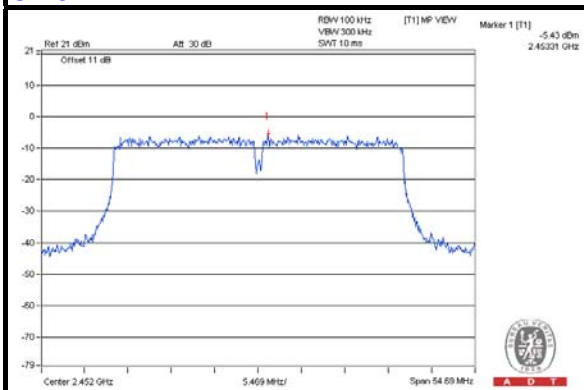
CH 3



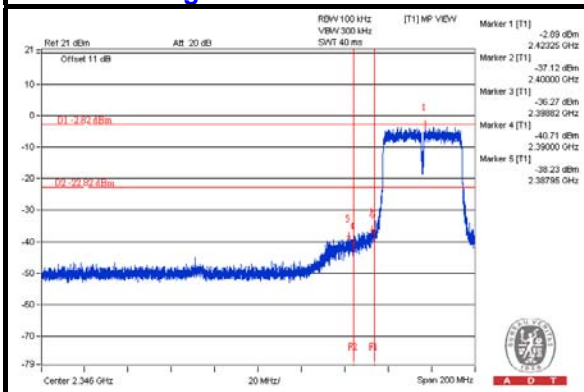
CH 6



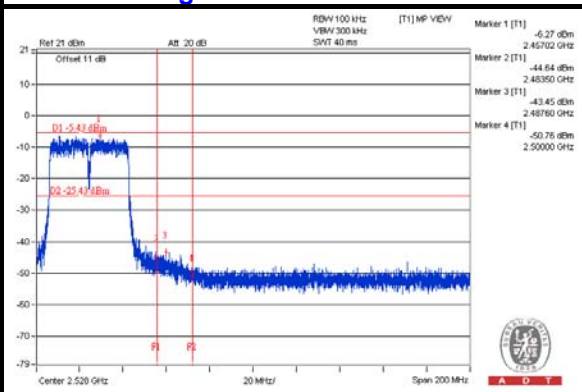
CH 9



CH 3 Band edge



CH 9 Band edge

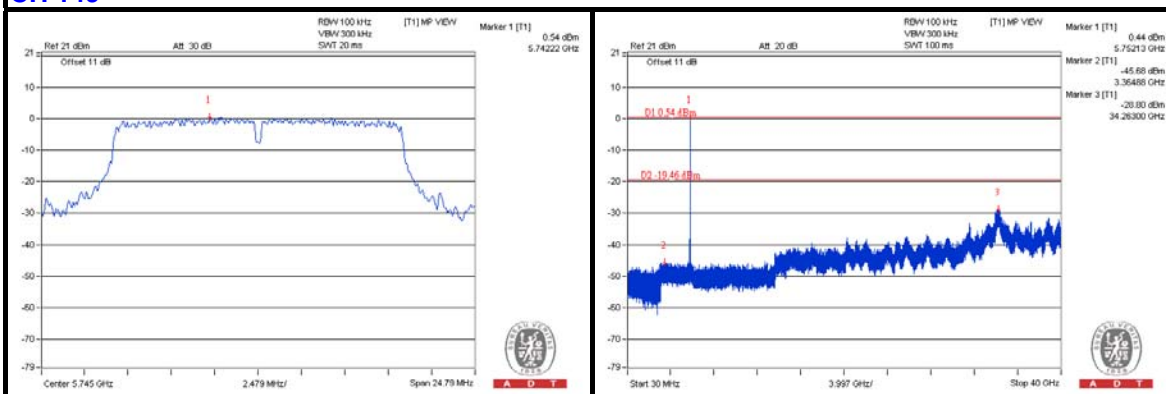




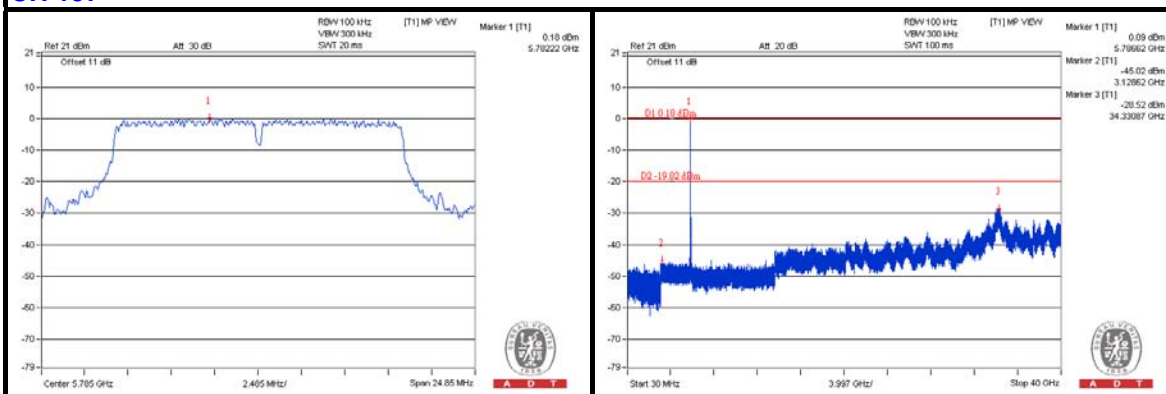
A D T

802.11a: CHAIN 0

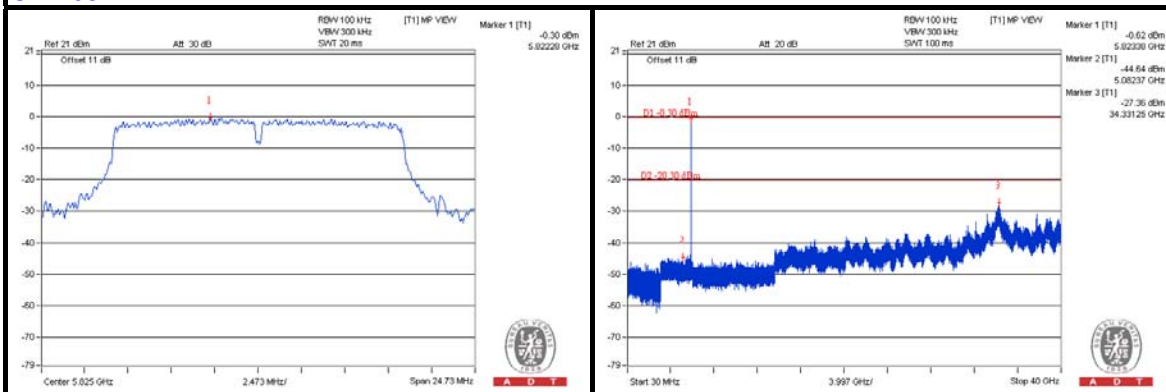
CH 149



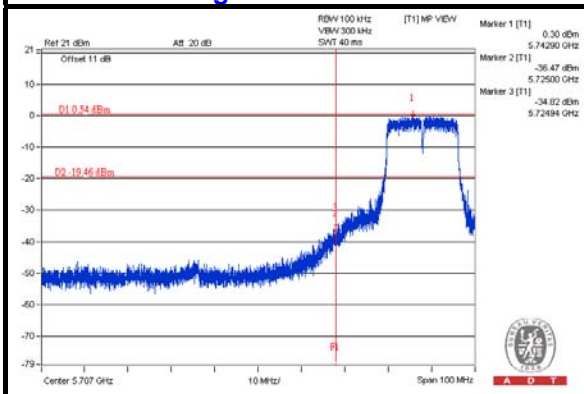
CH 157



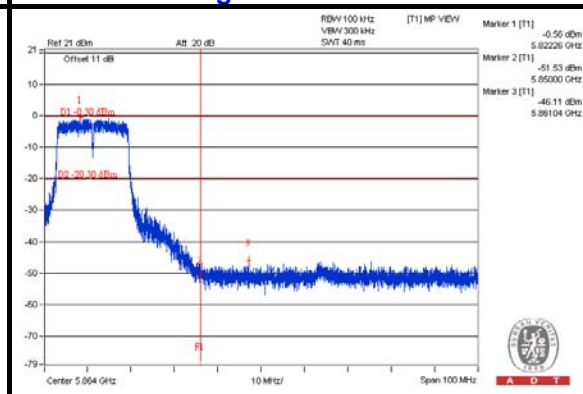
CH 165



CH 149 Band edge



CH 165 Band edge

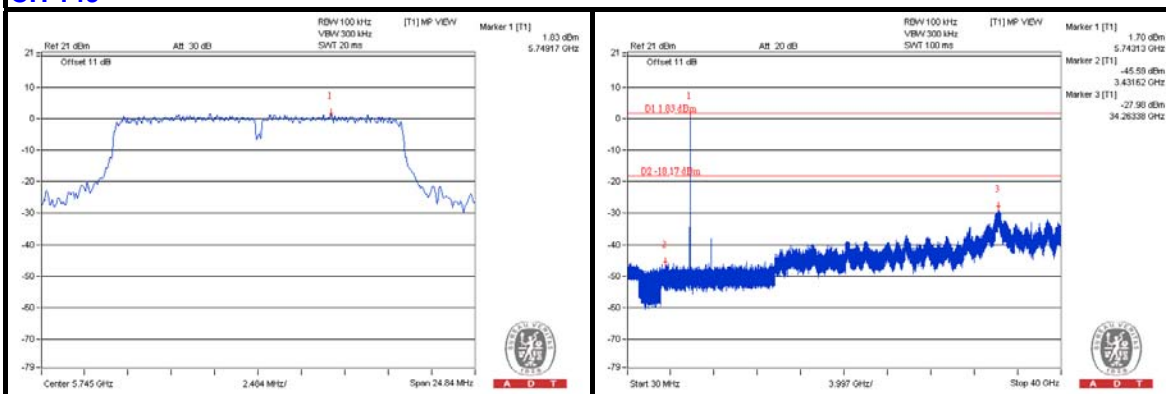




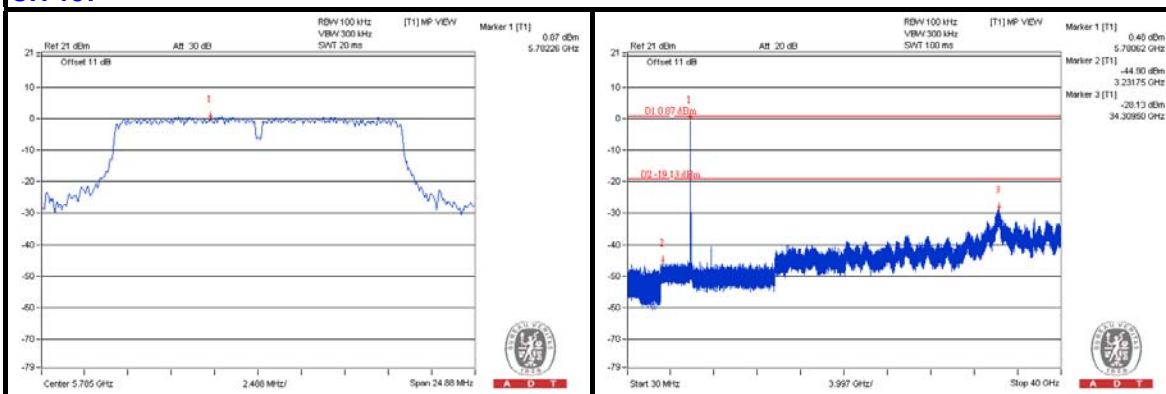
A D T

802.11a: CHAIN 1

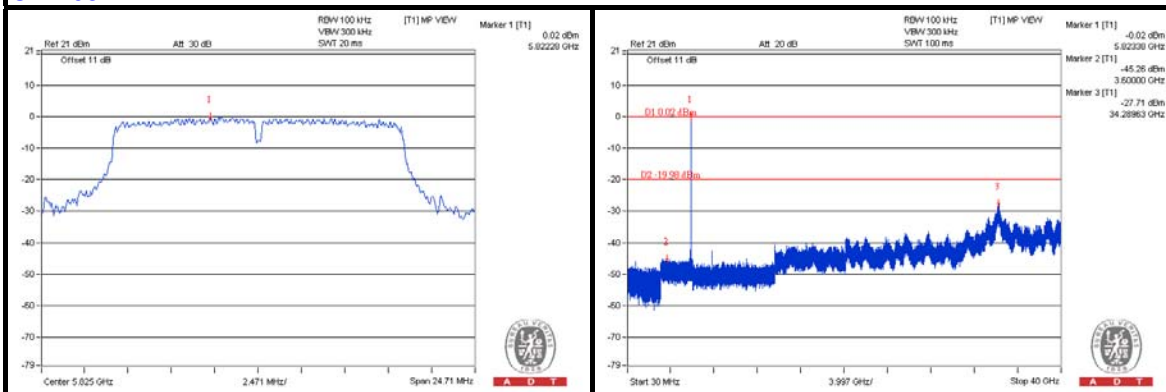
CH 149



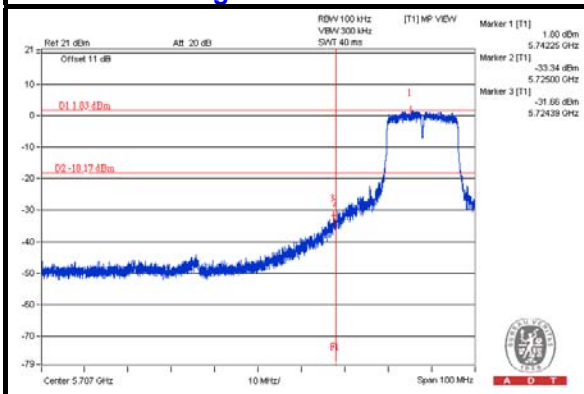
CH 157



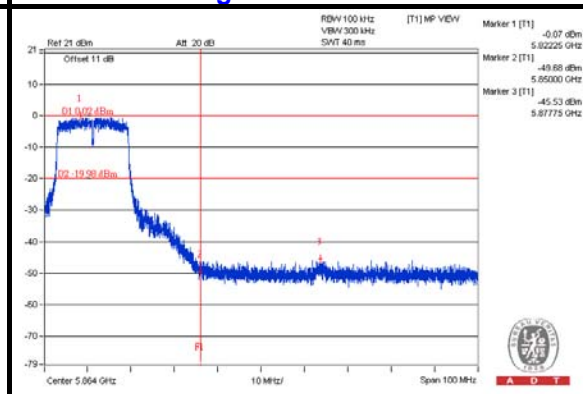
CH 165



CH 149 Band edge



CH 165 Band edge

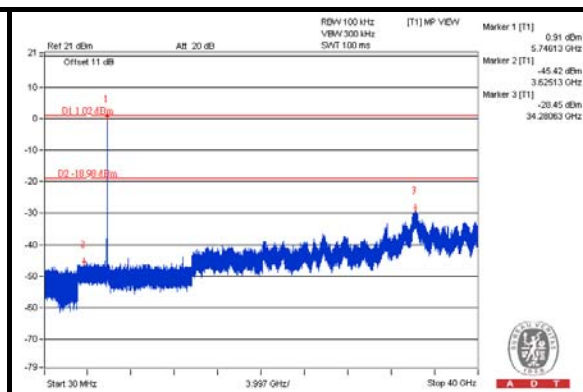
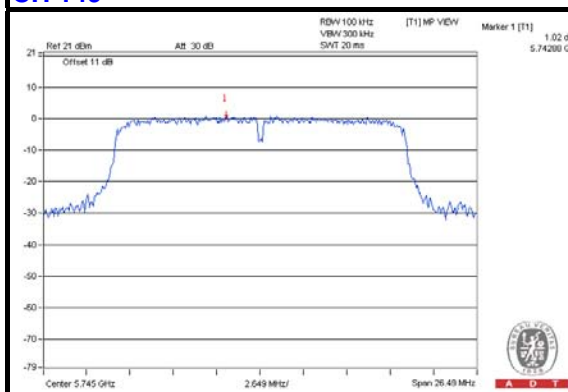




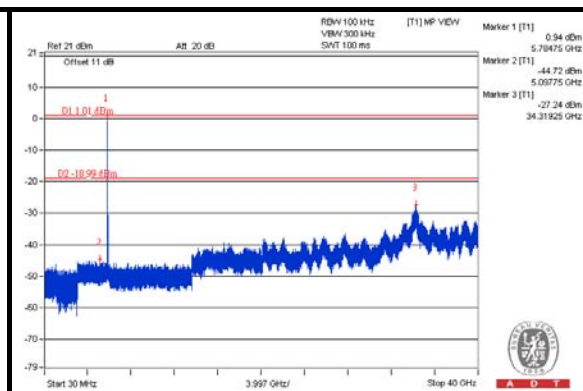
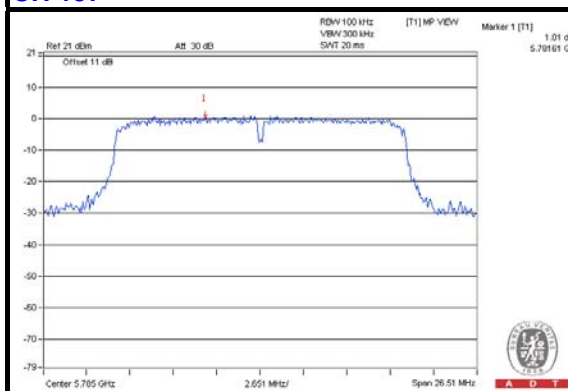
A D T

802.11n (20MHz): CHAIN 0

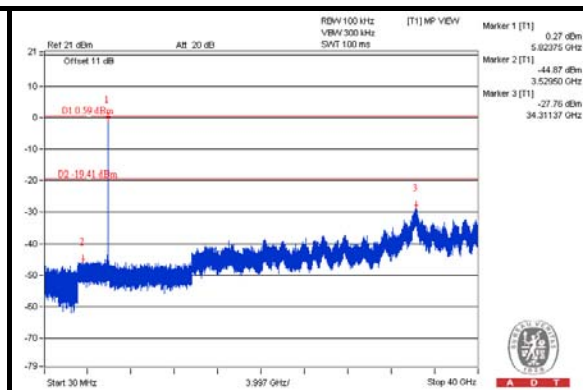
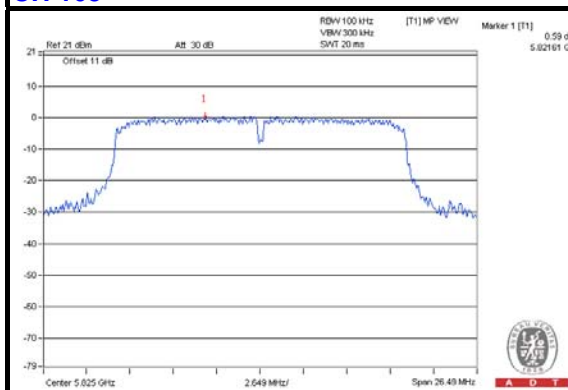
CH 149



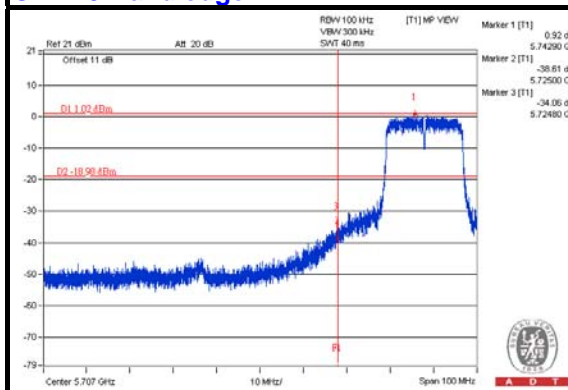
CH 157



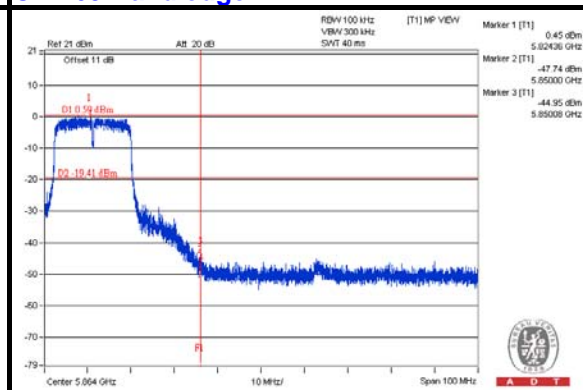
CH 165



CH 149 Band edge



CH 165 Band edge

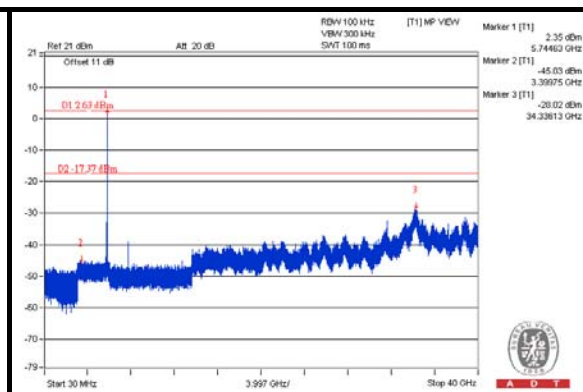
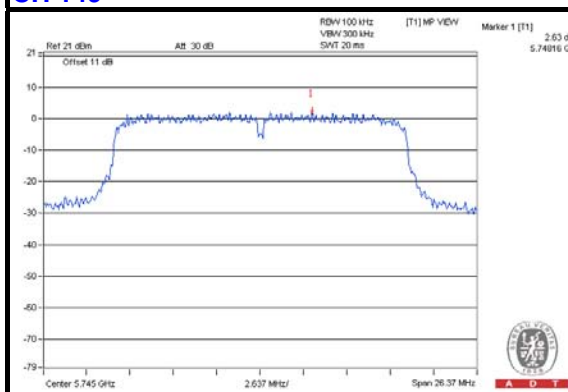




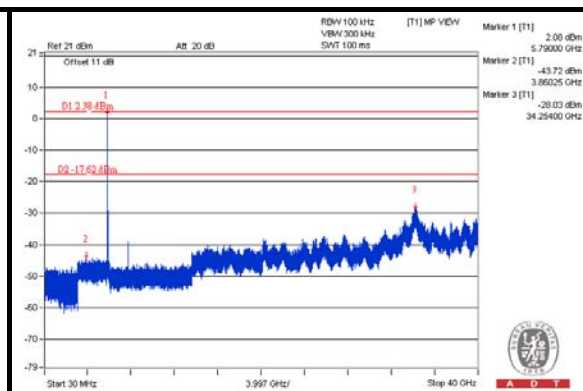
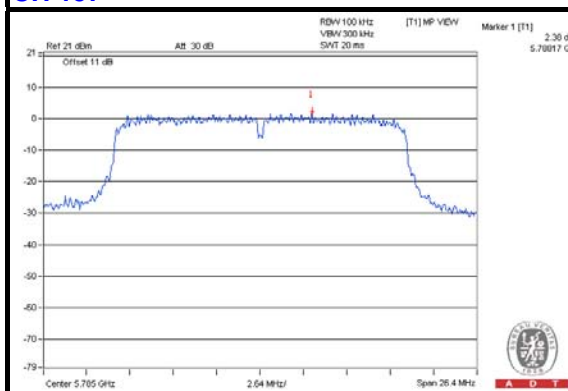
A D T

802.11n (20MHz): CHAIN 1

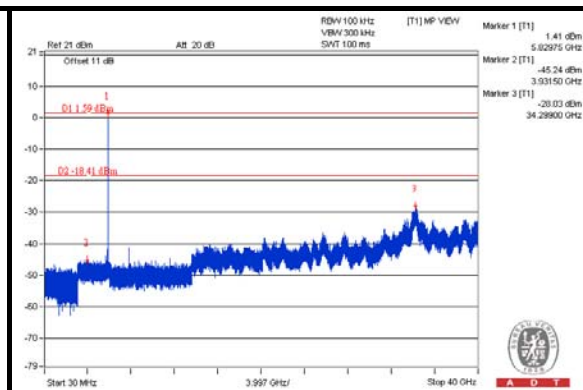
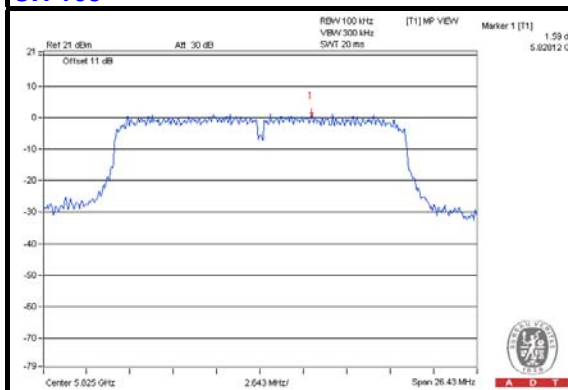
CH 149



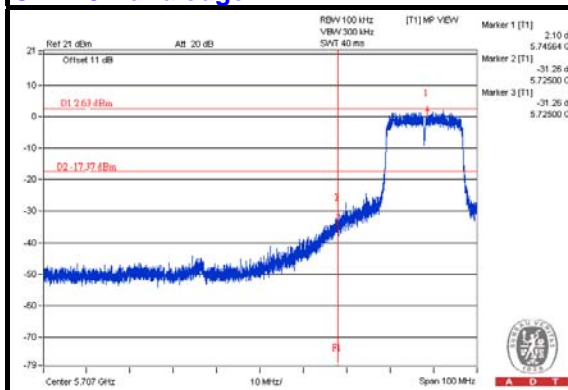
CH 157



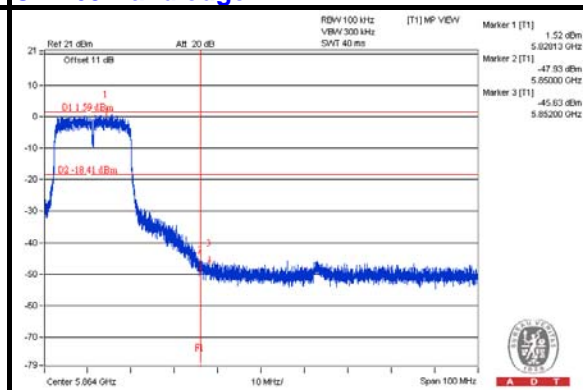
CH 165



CH 149 Band edge



CH 165 Band edge

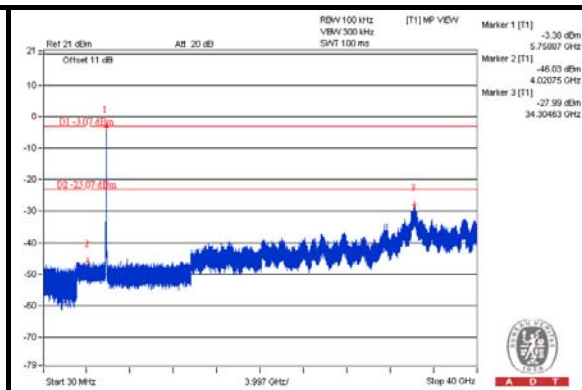
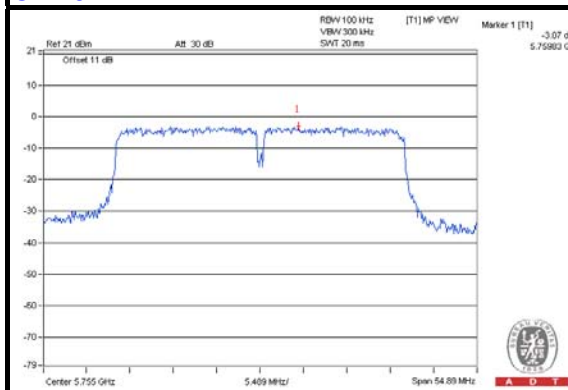




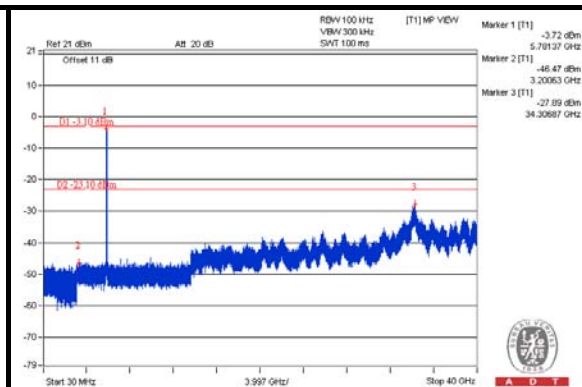
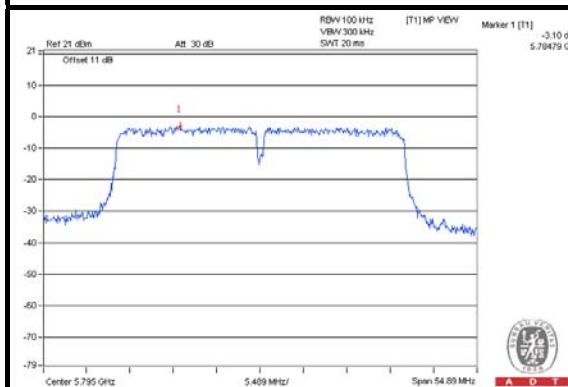
A D T

802.11n (40MHz): CHIAN 0

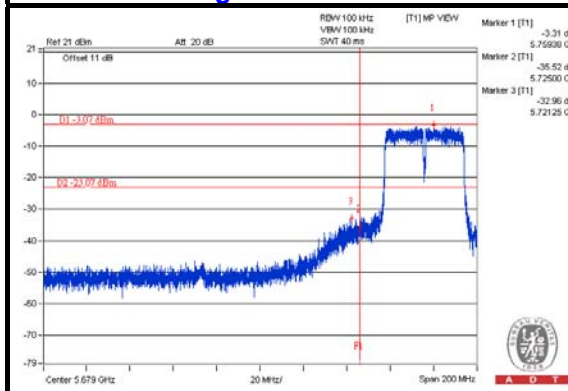
CH 151



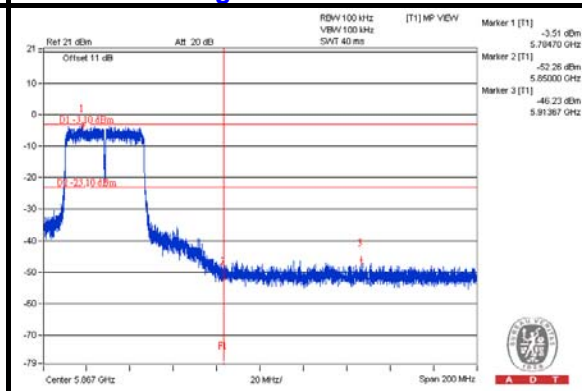
CH 159



CH 151 Band edge



CH 159 Band edge

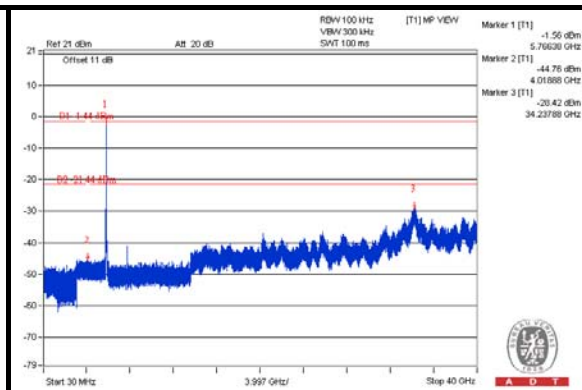
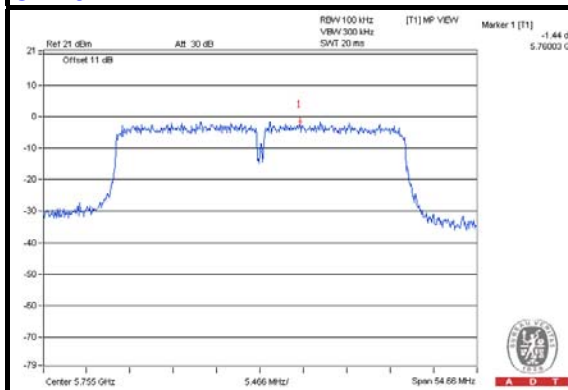




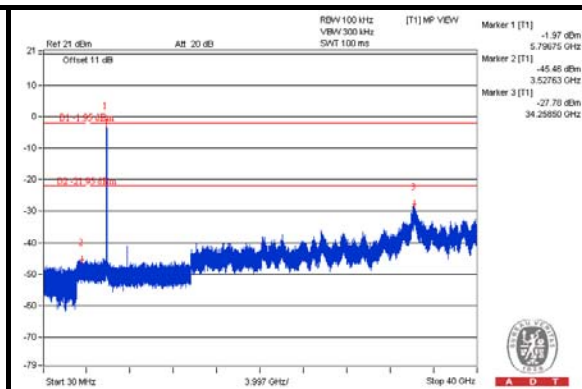
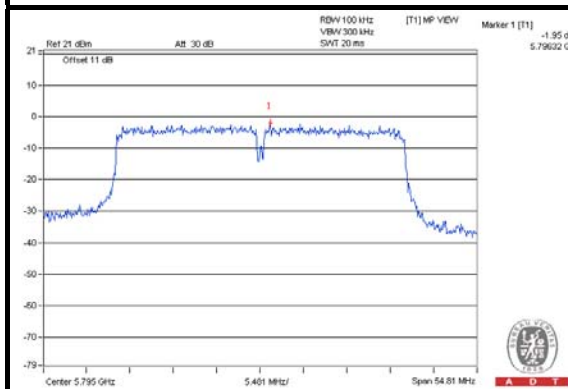
A D T

802.11n (40MHz): CHIAN 1

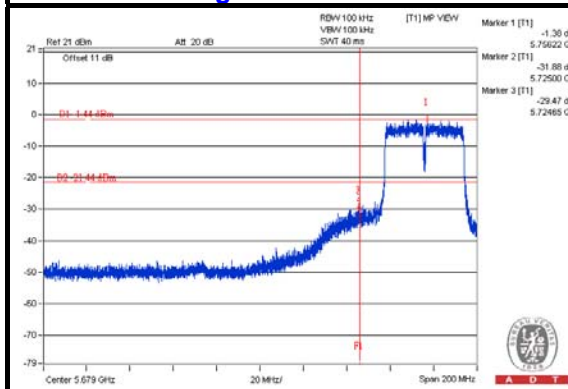
CH 151



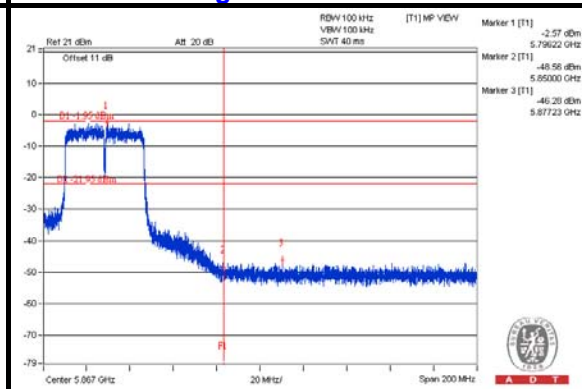
CH 159



CH 151 Band edge



CH 159 Band edge



5. PHOTOGRAPHS OF THE TEST CONFIGURATION

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



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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:

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



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

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

---END---